

VOL III. NO. 14.

DECEMBER, 1887.

\$2.00 per Year. Single Copies, 25 Cts.

STREET RAILWAY JOURNAL.

E. P. HARRIS, Editor & Manager. GEO. L. FOWLER, Mechanical Editor.

American Railway Publishing Co. 113 Liberty St., New York, and Lakeside Building, Chicago.

E. P. Harris, President.
J. H. McGraw, Vice President.
S. J. Clark, Secretary.
H. M. Swetland, Treasurer.
E. L. Powers, N. W. Manager.

Branch Offices:

Boston, Mass., 185 Summer Street, H. M. Swetland, Manager.
London, Eng., 59 Shoe Lane, Charterhouse Street, E. C., Purdy & Huntington Co., Ltd., Managers.

Subscriptions \$2 per year post paid in the United States and Canada; \$2.50 post paid to any part of the world. Subscriptions are payable in advance. May begin at any time in the year. Bound volumes since 1884 may be had by addressing the publishers. Remittances should be sent by drafts, money orders or registered letter to the New York office.

The Directory of Street Railways. Readers will confer a favor by sending us promptly changes in their own road, no matter how slight, and also those in other roads that come under their observation. We shall also be much obliged for having our attention called to any errors that may be noticed in the directory.

THE STREET RAILWAY JOURNAL, 113 Liberty St., New York.

NEW ADVERTISEMENTS.

JAMES RAYMOND changes his address. HAINES BROS. have a new advertise-

W. L. EVERIT calls attention to new specialties. THE RELIABLE SAND BOX Co. give a

new testimonial.

WATSON & STILLMAN increase size of their advertisement.

POOLE & HUNT give a view of their ex-

tensive works at Baltimore, Md.

L. K. STROUSE advertises The Railway and Corporation Law Journal,
J. M. Wade & Co. call attention to Mo-

saic Inlay for car ceiling decoration, etc. J. B. GREENSFELDER & Co. make change

in their advertisement and increase size. E. T. BARNUM cails attention to his manufacture of weather vanes, ornamen-

tal wire work, etc. THE BROOKLYN RAILWAY SUPPLY CO. make a change in the testimonials in their advertisement.

THE THOMSON-HOUSTON ELECTRIC CO. show a cut of their factory at Lynn, Mass., in their advertisement.

THE UNION INDURATED FIBRE Co. insert an advertisement calling attention to their fiber ware, such as stable pails.

CONTENTS.

Illustrated Articles

New Stable Pail. The Ries Electric Weiding and Tempering System	1049
Editorial.	
Local Street Railway Clubs	1027
Smoking on Street Cars	1037
A Rail Without Joints	
"Knocking Down" ls Stealing	
Conductors' Recommendations. A Catechism	1038
Saloons and Dishonest Conductors	
Street Railway Advertising	1038
Advantages of Mutual Insurance	1038
Editorial Notes.	
Prest. Kerper and Knights of Labor	1037
Labor organizations' demands	1037
The year's growth in street railway interests	1037
The use of cable or electric power	1037
The Ohio State Tramway Associatiou	1037
The horse rallroad vs. cable or electricity	
Stopping of street cars at stations	1037
Correspondence.	
A Remedy for Overcrowding	1040
The Series Electric Railway System	1040
The Angle of Sheaves to Conduit	1040
The Reckenzaun Motor	1040
Divided Axles and Track Obstructions	1041
Cable Traction for Heavy Grades	1041
The Cincinnati Cable Accident	1041
Street Railway Mutual Insurance	1041
Steam vs. Horse, Cable or Electricity	1041
Miscellaneous.	
Forty Horses Unwinding a Wire Rope	1040
Four Hundred Nickels in Change	1043
Ohio State Tramway Association	1043
Horses-Purchase, Disposition and Relative Value with Mules. By	
John Harris	1043
Detection and Punishment of Dishonest Employees. By J. B. Hanna	1045
Discipline, Uniform, etc	1046
The Growth of City Traffic	1047
Views of C. A. Richards, of Boston	1048
How a Man Came to Pay Double Fare	1060
Politeness is its Own Rew rd	1060
His Pian Worked Well	1060
A Pleturesque System of Collecting Fares	1040
The American Institute Fair	1058
Stocks and Bonds.	****
Boston	1062
New Haven, Conn	100
New York	1002
Philadelphia	1061
ProvidenceSt Louis	1061
Business Notes	1060
Directory of Street Railways	1084

Facts and Opinions......1039

New Publications......1036

Personal Mention......1039

Street Railway Supply Directory.......1034-1035



AMERICAN STREET RAILWAY ASSOCIATION.

ORGANIZED, 1882.

OFFICERS:

CHARLES B. HOLMES, PRESIDENT, Chicago, Ill.

JULIUS E. RUGG, FIRST VICE PRESIDENT, Boston, Mass.

R. DUDLEY FRAYSER, SECOND VICE PRESIDENT, Memphis, Tenn.

CMARLES B. CLEGG, THIRD VICE PRESI-DENT, Dayton, O.

WILLIAM J. RICHARDSON, SECRETARY AND TREASURER, Brooklyn, N. Y.

EXECUTIVE COMMITTEE-THE PRESIDENT. VICE PRESIDENTS, and THOMAS W. ACK-LEY, Philadelphia, Pa.; WINFIELD SMITH, Milwaukee, Wis.; Daniel F. Lewis, Brooklyn, N. Y.; Charles Green, St. Louis, Mo.; E. J. Mosher, Augusta, Me.

CONSTITUTION OF THE ASSOCIATION.

NAME.

1. The name of the Association shall be The American Street Railway Asso-ciation, and its office shall be at the place where the Secretary resides.

OBJECT.

OBJECT.

II. The object of this Association shall be the acquisition of experimental, statistical and scientific knowledge, relating to the construction, equipment and operation of street rallways, and the diffusion of this knowledge among the members of this Association, with the view of increasing the accommodation of passengers, improving the service and reducing its cost; the establishment and maintenance of a spirit of fraternity among the members of the Association by social intercourse, and the encouragement of cordial and friendly relations between the roads and the public.

MEMBERS.

MEMBERS.

III. The members of this Association shall consist of American Street railway companies, or lessees, or individual owners of street railways; and each member shall be entitled to one vote by a delegation presenting proper credentials.

NEXT ANNUAL MEETING.

The next regular meeting of the Association will be held in Washington, D. C. the third Wednesday in October, (the 17th), 1889.

Communications concerning Membership, Reports, etc., should be addressed to the Secretary.

DIRECTORY

OF

MANUFACTURERS AND DEALERS IN STREET RAILWAY SUPPLIES.

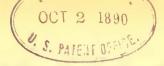
AUTOMATIC SWITCHES.	CABLE CONCRETE MIXERS.	Lewis & Fowler, Brooklyn, N. Y1100-1101
Andrews, Frank H., 545 W. 23d st., N. Y 1098-1099	Caldwell, H. W., 131-133 W. Washington st., Chi-	Street Railway Supply Co., Herald st. & Dell
Ayres, A., 502 to 518 W. 45th st., New York1091	cago, Ill1062	ave., Cleveland, O
Lewis & Fowler Mfg. Co., Brooklyn, N. Y1100-1101 White, M. M., & Co., 531 W. 23d st., N. Y1097	CALKS, TOE.	CURVED RAILS.
AXLES.	Burke, P. F., 860 Dorchester ave., So. Boston. 1089	Andrews, Frank H., 545 W. 33d st., N. Y1098-1099
Andrews, Frank H., 545 W. 38d st., N. Y1093-1099	CAR CEILINGS.	Ayres, A., 502 to 518 W. 45th st., New York1091
Bowler & Co., Cleveland, O 1104	Brill, J. G. Co., Philadelphia, Pa1122-1123 Frost & Peterson, 161 & 163 W. 18th st., New	Craig, Wm. P., 95 Liberty st., N. Y
Brill, J. G. Co., Philadelphia, Pa1122-1123 Fulton Foundry, Cleveland, O	York1111	Johnson Steel Street Rail Co., Johnstown, Pa.1096
Jesup, F. W., & Co., 67 Liberty st., N. Y 1092	Lewis & Fowler, Brooklyn, N. Y1100-1101	Lewis & Fowler, Brooklyn, N. Y 1100-1101 Pugh & Russell, Stewart Building, New York1095
Lewis & Fowler Mfg. Co., Brouklyn, N. Y1100-1101 Street Railway Supply Co., Herald st. & Dell	Wade, J. M., & Co., 123 Cedar st., New York1063	
ave., Cleveland; O1116	CAR HÉATERS. Brill, J. G. Co., Philadelphia, Pa1122-1123	CURVED RAILS—Pat. Steel Grooves. Ayres, A., 502 to 518 W. 45th st., New York1091
Whitney, A., & Sons, Philadelphia, Pa1104	Cline Mrg. Co., 42 & 44 W. Monroe st., Chlcago.1107	crossings.
BEARINGS.	Lewis & Fowler Mfg. Co., Brooklyn, N. Y1103-1101	Andrews, Frank H., 545 W. 33d st., N. Y1093-1099
Andrews, Frank H., 545 W 33d st., N. Y1098-1099 Bemis Car Box Co., Springfield, Mass1103	National Stove Co., 243 Water st., New York 1107 Toledo Car Heater Co., Toledo. O	Bowler & Co., 10 to 24 Winter st., Cleveland, 0.1104
Brill, J. G. Co., Philadelphia, Pa1122-1123	CAR LAMPS.	Fulton Foundry, Cleveland, O
Chaplin Mfg. Co., Bridgeport, Conn., and 69 Wall st., New York1108	Brill, J. G. Co., Philadelphia, Pa1122-1123	Pennsylvania Steel Co., 2 Wall st., New York 1097
Lewis & Fowler Mfg. Co., Brooklyn, N. Y1109-1101	Clute, Geo. M., W. Troy, N. Y	CHANNEL PLATES.
Pugh & Russell, Stewart Building, New York .1095 Stephenson, John, Co., New York1124	Lewis & Fowler, Brooklyn, N. Y100-1101 Pugh & Russell, Stewart Building, New York1095	Andrews, Frank H., 545 W. 33d st., N. Y1098-1099
BENDING MACHINES.	Smith, Josephine D., 850 & 352 Pearl st., N. Y1114	Ayres, A., 502 to 518 W. 48th st., New York1091 Craig, Wm. P., 95 Liberty st., N. Y1094
Ayres, A., 502 to 518 W. 45th st., New York1091	CARS, NEW.	DUST GUARDS.
BOOKS.	Brill, J. G., Co., Philadelphia, Pa1122-1123 Brownell & Wight Car Co., St. Louis, Mo1118	Vulcanized Fibre Co., Wilmington, Del1105
Strouse, L. K., & Co., 94 Nassau st., New York. 1063	Evans & Patriquin, Newburyport, Mass1117	DOOR HANGERS.
BOXES, JOURNAL.	Felgel Car Co., 108 Wall st., N.Y	Prescott Mfg. Co., 61-63 Ollver st., Boston1106
Andrews, Frank H., 545 W. 33d st., N. Y. 1098-1099 Bemis Car Box Co., Springfield, Mass1103	Jones', J. M., Sons, West Troy, N. Y1118 Kuhlmann Car Co., Cleveland, O1117	DOOR STOPS. Haycox Door Fastener Co., 1158 Euclid ave.,
Brill, J. G. Co., Philadelphia, Pa1122-1123	Laclede Car Co., St. Louis, Mo1120	Cleveland, O
Chaplin Mfg. Co., Bridgeport, Conn., and 69 Wall st., New York1103	Pullman's Palace Car Co., Chicago, Ill1119 Robinson & Hitt, Waterloo, Ia1118	ELECTRIC RAILWAYS.
Fulton Foundry, Cleveland, O1104	Stephenson, John, Co., New York 1124	Bentley-Knight Electric Ry. Co., 115 Broadway,
Lewis & Fowler, Brooklyn, N.Y	St. Louis Car Co., St. Louis, Mo1117	New York
Concord, N. H1102	CARS, SECOND HAND.	Daft Electric Light Co., 115 Broadway, N. Y 1073
Street Rallway Supply Co., Herald st. & Dell ave., Cleveland, O	Brooklyn Railway Supply Co., 37 Walworth st., Brooklyn	Euphrat Electric Rallway Cable ('o. of the U.S.,
Whitney, A., & Sons, Philadelphia, Pa1104	Humphreys & Sayce, 1 Broadway, New York1062	137 Broadway, New York
BRAKES.	CAR SEATS.	Overhead Conductor Electric Ry. Co., Pitts-
Lewls, W. N., Manager Messler Car Brake, 8 State st., Albany, N. Y	Brill, J. G. Co., Philadelphia, Pa1122-1123 Frost & Peterson, 161 & 163 W. 18th st., New	burg, Pa
Martin, Rufus, & Co., 13 Park row, New York1110	York1111	New York1077
BRAKES, TRACK.	Hale & Kilburn Mfg. Co., 48 & 50 N. 6th st., Philadelphia, Pa	Sprague Electric Ry. & Motor Co., 16 & 18 Broad st., New York
Brill, J. G. Co., Philadeiphia Pa1122-1123		U. S. Electric Co., Denver, Col
BRAKE RODS. Brill, J. G. Co., Philadelphia, Pa	CAR SPRINGS. Andrews, Frank H., 545 W. 33d st., N. Y1093-1099	Van Depoele Electric Manufg. Co., 203 Van Buren st., Chicago, 11L; New York office, 41-45
Lewis & Fowler, Brooklyn, N. Y1100-1101	Brill, J. G. Co., Philadelphia, Pa1122-1123	Broadway and 17-21 Trinity place1069
BRAKE SHOES.	Lewis & Fowler, Brooklyn, N. Y1100-1101 Pugh & Russell, Stewart Building, New York1095	FROGS.
Andrews, Frank H., 545 W. 33d st., N. Y 1098-1099	Street Railway Supply Co., Herald st. & Dell	Andrews, Frank H., 545 W. 33d st., N. Y1698-1699 Ayres, A., 502 to 513 W. 45th st., New York1091
Ayres, A., 502 to 518 W. 45th st., New York1091 Brill, J. G. Co., Philadelphia, Pa1122-1123	ave., Cleveland, O1116	Bowler & Co., 10 to 24 Winter st., Cleveland, O.1104
Fulton Foundry, Cleveland, O1104	Vose, Richard, 13 Barclay st., N. Y; Wm. P. Williams, Chicago representative, 117 Adams	Fulton Foundry, Cleveland, O1104
Lewis & Fowler, Brooklyn, N. Y	Express Bldg.: A. W. Slee, St. Louis represen-	Lewis & Fowler, Brooklyn, N. Y1100-1101 Pennsylvania Steel Co., 2 Wall st., New York. 1097
Stephenson, John, Co., New York1124	tative, 104 N. 3d st1115	Pugh & Russell, Stewart Building, New York. 195
CABLE ROADS.	CAR WHEEL PRESSES. Watson & Stillman, 204-210 E. 43d st., N.Y 1063	FARE BOXES.
Andrews, Frank H., 515 W. 33d st., N. Y1098-1099 Euphrat Electric Rallway Cable Co. of the U.S.,	CAR WHEELS.	Beaman, T. L., Knoxville, Tenn
137 Broadway, New York	Andrews, Frank H., 545 W. 33d st., N.Y1098-1099	Johnson, Tom L. Indianapolis, Ind1113
Neftel & Oothout, 41 Liberty st., New York1094 Poole & Hunt, Baltimore1091	Bowler & Co., Cleveland, O1104	Keefer, Horace A., & Co., Kansas City, Mo1111
CABLE ROPES.	Brill, J. G. Co., Philadelphia, Pa1122-1123 Fulton Foundry, Cleveland, O1104	Lewis & Fowler Mfg. Co., Brooklyn, N.Y.1100-1101 Martin, Rufus, & Co., 13 Park row, New York110
Broderick & Bascom Rope Co., 704-706 N. Main	Lewis & Fowler, Brooklyn, N.Y1100-1101	Slawson, J. B., 365 Ave. A, New York
st., St. Louis, Mo	Pugh & Russell, Stewart Building, New York1095 Street Rallway Supply Co., Heraid st. & Dell	Stephenson, John, Co., New York
Roebling's, John A., Sons Co., 117 & 119 Liberty	ave., Cleveland, O1116	Syracuse, N. Y1112
st., N. Y1092	Whitney, A., & Sons, Philadelphia, Pa1104	FARE REGISTERS, STATIONARY.
Washburn & Moen Mfg. Co., Worcester, Mass.; 16 Cliff st., New York; 107 & 109 Lake at.,	CASTINGS.	Brill, J. G. Co., Philadelphia, Pa1122-1123 Lewis & Fowler Mfg. Co., Brooklyn, N.Y1100-1101
Chicago1093	Andrews, Frank II., 545 W. 33d st., N. Y1098-1099 Ayres, A., 502 to 518 W. 48th st., New York1091	Martin Rufus, & Co., 13 Park row, New York, .1110
CABLE ROAD CEMENTS.	Bowler & Co., Cleveland, O1104	Railway Register Mfg. Co., 1193 Bdy., N. Y1108 Standard Index & Register Co., 138 Fulton st.,
Empire Warehouse Co., 198-210 Market st., Chi- cago, Ill	Fulton Foundry, Cleveland, O	New York

DIRECTORY OF MANUFACTURERS AND DEALERS IN STREET RAILWAY SUPPLIES.—Continued.

FARE COLLECTORS.	Van Depoele Electric Mfg. Co., 203 Van Buren	Beadle, Edward, 1193 Broadway, N. Y. City1105
Lewis & Fowler Mfg. Co., Brooklyn, N. Y 1100-1101	st., Chlcago, Ill.; New York Office, 41-45 Broadway and 17-21 Trinity place1069	Brill, J. G. Co., Philadelphia, Pa1122-1123 Brooklyn Railway Supply Co., 37 Walworth st.,
GUTTERS.	PANELS.	Brooklyn1090
Bowler & Co., Cleveland, O1104	Brill, J. G. Co., Philadelphia, Pa1122-1123	Cambria Iron & Steel Works, 218 So. Fourth st., Philadelphia, Pa
Androwed Events II Ear IV 22d of N. V. 1000 1000	PEDESTALS.	Conway, M. W., 487 Monroe st. Brooklyn, N.Y1094
Andrews, Frank H., 545 W. 33d st., N. Y1098-1099 Ayres, A., 502 to 518 W. 45th st, New York1091	Andrews, Frank H., 545 W. 33d st., N. Y1098-1099	Cralg, Wm. P., 95 Liberty st., N. Y
Craig, Wm. P., 95 Liberty st., N. Y	Ayres, A., 502 to 518 W. 45th st., New York1091	Harris, Wm. T., & Co., 2 Nassau st., N. Y1094
Fulton Foundry, Cleveland, O	Brlll, J. G. Co., Phlladelphla, Pa1122-1123 Lewls & Fowler Mfg. Co., Brooklyn, N. Y1100-1101	Hathaway & Robison, 14 Case Block, Cleveland, 1094 Humphreys & Sayce, 1 Broadway, N. Y1062
Johnson Steel Rail Co., Johnstown, Pa1096	Stephenson, John, Co., New York1124	Jesup, F. W., & Co., 67 Liberty st., N. Y 1092
Lewls & Fowler Mfg. Co., Brooklyn, N. Y1100-1101 Pugh & Russell, Stewart Bullding, New York1095	RAILS.	Keefer, Horace A., & Co., Kansas City, Mo1111 Klmbark, S. D., Mich. ave. & Lake st., Chicago,
HARNESS.	Andrews, Frank H., 545 W. 33d st., N. Y1098-1093 Ayres, A., 502 to 518 W. 45th st., New York1091	Ill1094
Everlt, W L., New Haven, Conn	Cambria Iron & Steel Works, 218 So. Fourth st.,	Lewis & Fowler, Brooklyn, N. Y
Martin, Rufus, & Co., 13 Park row, New York1110 HOOF (LASPS.	Phlladelphla, Pa	Metallic St. Railway Supply Co., Albany, N. Y.1097
Cruice, Dan'l, & Co., 25 Spring st., N. Y1088	Fulton Foundry, Cleveland, O1104	N. Y. Rallway Supply Co., Lim., 40-42 Wall st., New York
HORSESHOES.	Hathaway & Robison, 14 Case Block, Cleveland, 1094 Humphreys & Sayce, 1 Broadway, N. Y1062	Pugh & Russell, Stewart Bldg., N. Y1095
Bryden Forged Horseshoe Co., Catasauqua, Pa.1087	Jesup, F. W., & Co., 67 Liberty st., N. Y1092	Saxton, J. C., 52 Broadway, New York1092
Burke, P. F., 860 Dorchester ave., South Bostonic89 Greenwood Horse Shoe Co., American & York	Johnson Steel Rall Co., Johnstown, Pa1096 Pennsylvania Steel Co., 2 Wall St., New York1097	Stephenson, John, Co., New York
sts., Phlladelphla, Pa1086	Pugh & Russell, Stewart Building, N. Y1095	ave., Cleveland, O1116
HORSE NAILS.	Ries Electric Railway and Traction Increasing System, A. H. Henderson, Business Manager,	SNOW PLOWS.
Champlon Horse Nall Co., Appleton, Wis1089 Kimbark, S. D., Mich. ave. & Lake st., Chicago,	27 Chamber of Commerce, Baltimore, Md1067	Andrews, Frank H., 545 W. 33rd st., N. Y1098-1099 Brill, J. G. Co., Philadelphia, Pa1122-1123
Ill	SAND BOXES.	Brooklyn Railway Supply Co., 37 Walworth st.,
Putnam Nall Co., Neponset P. O., Boston, Mass 1089	Brlll, J. G. Co., Phlladelphla, Pa1122-1123	Brooklyn1090
HYDRAULIC JACKS.	Car Track Friction Appliance Co., 19 Tremont row, Boston, Mass	SWITCHES.
Watson & Stillman, 204-210 E. 43d st., N. Y1063	Jordan-Mills Mfg. Co., 32 Nassau st., N.Y1107	Andrews, Frank H., 545 W. 33rd st., N. Y.1098-1099 Ayres, A., 502 to 518 W. 48th st., New York1091
KNEES.	SEATS & SEAT SPRINGS.	Bowler & Co.; 10 to 24 Winter st., Cleveland, O.1104
Andrews, Frank H., 545 West 33d st., N. Y.1098-1099 Ayres, A., 502 to 518 W. 45th st., New York1091	Hale & Kliburn Manuf'g Co., Philadelphia, Pa.1111	Fulton Foundry, Cleveland, O
Cralg, Wm. P., 95 Liberty st., New York1094	SIGNAL LIGHTS.	Humphreys & Sayce, 1 Broadway, N. Y 1062
Fulton Foundry, Cleveland, O1104 Lewis & Fowler, Brooklyn, N. Y1109-1101	Brill, J. G. Co., Philadelphia, Pa 1122-1123 Martin, Rufus, & Co., 13 Park row, New York110	Johnson Steel Rall Co., Johnstown, Pa1096 Lewis & Fowler, Brooklyn, N. Y1100-1001
Pugh & Russell, Stewart Building, New York1095	SPIKES AND FASTENINGS.	Pennsylvania Steel Co., 2 Wall st., New York 1097
LOCOMOTIVES.	Humphreys & Sayce, 1 Broadway, New York1062	White, M. M., & Co., 531 West 33rd st, N. Y1697
Baldwin Locomotive Works, Philadelphia, Pa.1116	Klmbark, S. D., Mich. ave. & Lake st., Chlcago,	TURNOUTS. Andrews, Frank H., 545 W. 33rd st., N. Y1098-1099
Lelb Lubricating Co., 196 Chicago st., Buffalo,	III	Bowler & Co., 14 Winterst., Cleveland, O1104
N. Y	Greensfelder, J. B., & Co., 103 South 4th st., St.	Fulton Foundry, Cleveland, O
Martin, Rufus, & Co., 13 Park row, New York1110	Louis, Mo	TURN TABLES.
METALLIC RAILWAY.	STABLE FIXTURES.	Andrews, Frank H., 545 W. 33rd st., N. Y.,1098-1099
Humphreys & Sayce, 1 Broadway, N. Y1062 Longstreet, D. F., Providence, R. I1097	Barnum, E. T., Detrolt, Mlch1062	Ayres, A., 502 to 518 W. 45th st., New York1091
Metallic Street Rallway Supply Co., Albany N. Y1097	STABLE PAILS.	Brill, J. G. Co., Philadelphia, Pa1122-1123 Bowler & Co., 14 Winter st., Cleveland, O1104
MATTING.	Union Indurated Fibre Co., 110 Chambers st., New York; 39 Wabash ave., Chicago, Ill1092	Fulton Foundry, Cleveland, O1104
Barnum, E. T., Detroit, Mich	STEEL RAILS.	Hathaway & Roblson, 14 Case Block, Cleveland, 1094
Brill, J. G. Co., Philadelphia, Pa1122-1123	Ayres, A., 502 to 518 W. 45th st., New York1091	TRACK CASTINGS. Andrews, Frank H., 545 W. 33rd st., N. Y.,1098-1099
Everlt, W. L., New Haven, Conn	Cambria Iron & Steel Works, 218 So. Fourth st.,	Bowler & Co., 14 Winter st., Cleveland, O1104
Warneck & Toffler, 211 E. 22d st., N. Y1105	Philadelphia, Pa	Fulton Foundry, Cleveland, O
MOTORS.	Humphreys & Sayce, 1 Broadway, N. Y1062	Lewis & Fowler, Brooklyn, N. Y1100-1101
Baldwin Locomotive Works, Philadelphia, Pa.1116 Connelly Motor Co., 177 Broadway, New York 1083	Jesup, F. W., & Co., 67 Liberty st., N. Y1097 Johnson Steel Rall Co., Johnstown, Pa1096	Street Railway Supply Co., Herald st. & Dell ave., Cleveland, O1116
Pole St. Car Motor System, 310 Chestnut st.,	N. Y. Rallway Supply Co., Lim., 40-42 Wall st., New York	TRACTION INCREASERS.
Phlladelphia, Pa1081	Pennsylvania Steel Co., 2 Wall st., New York 1097	Ries Electric Rallway and Traction Increasing
MOTORS—Electric.	Worcester Steel Works, Worcester, Mass1097	System, A. H. Henderson Business Manager,
Bentley-Knight Electric Ry. Co., 115 Broadway, New York1075	STATIONERY, STREET RAILWAY. Martin, Rufus, & Co., 13 Park row, New York1110	27 Chamber of Commerce, Baltimore, Md1067
Chadbourne & Hastings, Philadelphia, Pa1067 Daft Electric Light Co., 115 Broadway, N. Y1073	STREET RAILWAY BUILDERS.	TRACK SCRAPERS.
Euphrat Electric Railway Cabic Co. of the U.S.	Andrews, Frank H., 545 W. 33rd st., N. Y1098-1099	Andrews, Frank H., 545 W. 33d st., N. Y 1098-1099 Brill, J. G. Co., Philadelphia, Pa
137 Broadway, N. Y	Ayres, A., 502 to 518 W. 45th St., New York1091	Brooklyn Railway Supply Co., 37 Walworth st.,
N. Y. Rallway Supply Co., Lim., 40 42 Wall st.,	Conway, M. W., 487 Monroe st., Brooklyn, N.Y.1094 Craig, Wm. P., 95 Liberty st., N. Y1094	Brooklyn
New York	Halnes Bros., 45 Broadway. New York1063	TRANSFER TABLES.
burg, Pa 1077	Hathaway & Roblson, 14 Case Block, Cleveland, 1094 Harris Wm. T., & Co., 2 Nassau st., New York 1094	Brill, J. G. Co., Philadelphia, Pa 1122-1123
Sprague Electric Ry. & Motor Co., 16 & 18 Broad st., New York	Hewitt, Wm. H., Muscatine, Iowa1094	VARNISHES.
Safety Electric Ry. & Power Co., 41-43 Wall st.,	Hutchinson, A. J., 120 Broadway, N. Y1094 Lewls & Fowler Mfg. Co., Brooklyn, N. Y1100-1101	Babcock, John, & Co., 2 Liberty sq., Boston, Mass, 1091
New York	Metallic St. Rallway Supply Co., Albany, N. Y.1097	Brill, J. G. Co., Philadelphia, Pa1122-1123 Parrott Varnish Co., Bridgeport, Conn1091
st. and 83 Federal st., Boston, Mass.; Chlcago	Neftel & Oothout, 41 Liberty st. N. Y. City1094 Raymond, James, 64 & 66 Broadway, N. Y1094	VETERINARY REMEDIES.
office, Pullman Building. H. A. Pevear, Pres.; C. A. Coffin, V. Pres. & Treas.; E. G. Garfield,	Sea Shore Construction Co., 13 Park row, N. Y.1094	Somerville, Wm., & Sons, 127 Erie st., Buffalo 1089
Sec.; E. Thomson, Electrician; S. A. Barton,	STREET RAILWAY SUPPLIES.	WHEEL PRESSES.
Gen. Manager	Andrews, Frank H., 545 W. 33rd st., N. Y1098-1099 Ayres, A., 502 to 518 W. 45th st., New York1091	Watson & Stillman, 204-210 E. 48d st., N. Y1063

Personal Directory of Street Railway Supply Men.

Ackley, J. Ed., Sea Shore Construction Co1094 Allyn, Chas. B., Pres. Bkn. Railway Supply Co1094 Allyn, Jno., Sec. and Treas. Brooklyn Railway Supply Co	Hale and Kilburn Mfg. Co., Cheney Kilburn, Pres., 48 and 50 N. Sixthst., Philadelphia1111 Harding, H. McL., Gen. Agent Sprague Electric Railway and Motor Co., 16 & 18 Broad st., New York	Rice, George M., Pres. Worcester Steel Works1097 Ries Electric Raliway and Traculon Increasing System. A. H. Henderson, Business Mana- ger, Elias E. Ries, Electrician and Engineer, 27 Chamber of Commerce, Baltimore, Md1087 Ries, Elias E., Electrician and Engineer, the Ries
Ayres, A., 502-518 W. 45th st., New York	Harris, T. Win. & Co., 2 Nassau st., New York 1094 Hastlings, Edw. H., Chadbourne & Hastlings 1067 Hathaway & Robison, 14 Case Block, Cleveland1094 Haycox Door Fastener Co. W. E. Haycox, Manager. 1158 Euclid avo., Cleveland, O 1106 Hazard Mfg. Co., Wilkesbarre, Pa 1093 Hcnderson, A. H., Business Manager The Ries Electric Rallway and Traction Increasing	Electric Rallway and Traction Increasing System, 27 Chamber of Commerce, Bait., Md.1067 Robert, L. E., Lewis and Fowier Mfg. Co1103-1101 Robinson & Hitt, Waterloo, Iowa
and Register Co	System, 27 Chamber of Commerce, Balt., Md.1067 Hewitt, Wm. H., Muscatine, Iowa	H. L. Shlppy, Man. N. Y. Warehouse; Geo. C. Balley, Chicago branch; S. V. Mooney, San Francisco branch, Trenton, N. J., 119 Liberty st., N. Y. 1692 Rogers, A. L., Pres. Felgel Car Co. 1121 Russell, F. D., Pugh and Russell. 1095
Bascom, Jos. D., Sec. Broderick & Bascom Rope Co	Jesup, F. W. and Co., 65 Liberty st., N.Y 1092 Johnson, E. H., Pres. Sprague Electric Rallway and Motor Co., 16 & 18 Broad st., New York1071 Johnson Steel St. Rall Co., Wm. Wharton, Jr., and Co., Incorporated, Pugh and Russell Ag- ents, A. J. Moxham, Pres., Johnstown, Pa1095 Johnson, Tom L., Indianapolis, Ind	Safety Elec. Ry. & Power Co., 41-43 Wall st., N.Y.Jo77 Saxton, J. C., 52 Broadway, New York
Sec. and Treas., New York; Geo. M. Hoadley, Suptc., Springfield; Horace G. Bird, Gen. Agent, 426 Insurance Exchange; Adams & La Salle sts., Chicago, Ill	Jones, R. H., Pres, B. C. Pole Motor Co	Silver, John S. Richard Vose
Blins, D. W., VPres. Brooklyn Ry. Supply Co. 1090 Bird, Horace G., Gen. Agent Bemis Car Box Co., 426 Insurance Exchange, Chicago, Ill	Kerr, Thos. B., Sec. Overhead Conductor Elec. Ry. Co	A, New York. 1112 Sieeper, Joseph A., Pres. Van Depoele Electite Manufacturing Co. 1069 Slee, A. W., Richard Vose. 1115 Smith, Charles G., Josephine D. Smith. 1114 Smith, Josephine D., New York. 1114 Smith, R. A. C., Treas. Chaplin Mfg. Co. 1103 Somerville, Wm., and Sons, Buffalo, N. Y. 1089 Sprague F. J., V. Pres. & Gen. Man. Sprague
Sec. John A, Brill, Gen. Agt. 1122-1123 Brill, Edw., J. G. Brill Co. 1122-1123 Broderick & Bascom Rope Co. John J. Broder- lek, Pres.; Jos. D. Bascom, Sec. 704-706 N. Main st., St. Louis, Mo. 1092 Brooklyn Railway Supply Co 1090 Brownell and Wight Car Co. B. F. Brownell, Pres. 1118	Langoon, C. J. Sec. Fulton Foundry 1104 Leavenworth, Woodward, Sec. & Treas. Hazard Mfg. Co. 1093 Leffman, Julius, Sec. St. Louis Car Co. 1117 Leib Lubricating Co., Buffalo, N. Y. 1 05 Lerned, F. T. Gen. Agt. Frank H. Andrews. 1093-1099 Lewis and Fowler Mfg. Co., J. W. Fowler, Pres., Dan'l F. Lewis, Treas., H. C. Simpson, Sec.	Sprague F. J., V. Pres, & Gen. Man. Sprague Electric Rallway and Motor Co., 16 & 1s Bload st., New ork
Bryden Forged Horse Shoe Works, Ld. Cata- sauqua, Pa	Lewis, W. N., Man. Messier Car Brake, 8 State st., Albany, N. Y. 1085 Littell, H. H., Louisville, Ky. 1285 Longstreet, D. F., Providence, R. I. 1097	Stephenson, John, Pres. John Stephenson (o. l.lm. 124 Stephenson, John, Co., Lim., John Stephenson, Pres., 47 E. 27th st., N. Y. (Pugh and Russell General Representatives, which see.)1124 Stiles, A. K., Manager Van Depoele Electric Manufacturing Co
Caldwell, H. W., 131-133 W. Washington st., Chlcago, Ill	Macdonald, Nell, Pres. N. Y. Rallway Supply Co.1094 Martln, Rufus. Rufus Martin & Co. and Sea Shore Construction Co	Street Rolling Stock Co., Concord, N. H
Chadbourne & Hastings, A. H. Chadbourne, Edw. 11. Hastings. 1667 Champion Horse Nail Co., Appleton, Wis. 1089 Chauncey, Michael, Pres. Chaplin Mfg. Co	McCialesler, Daniel, Pres. St. Louis Car Co	N. W. Manager
Cline Mfg Co., Chicago, III. 1107 Clute, Geo. M. West Troy, N. Y. 1104 Coffin, C. A., V. Pres. & Treas. Thomson-Houston	Mooney, S. V John A. Roebling's Sons Co1092 Moxham, A. J., Pres. Johnson Steel St. Rail Co1096 National Rallway and Street Rolling Stock Co. Concord. N. H	Thomson-Houston Electric Co., 178 Devonshire st., and 33 Federal st., Boston, Mass.; Chicago office, Puliman Bullding, H. A. Pevear, Pres.; C. A. Coffin, V. Pres. & Treas.; E. G. Garfield, Sec.; E. Thomson, Electrician; S. A. Barton, Gen. Man. 1079 Toledo Car Heater Co., Toledo, O. 1106
Colles, W. E., Gen. Supt. Worcester Steel Works1097 Connelly Motor Co. New York. 1083 Conway, M. W. 487 Monroe st., Brooklyn. N. Y.1094 Corwin, F. L., Sec. & Treas. Fel. el Car Co. 1121 Courtney, John F., 423 Walnut st., Philadelphia. 1108 Craig, Wim. P. 95 Liberty st., N. Y. 1084 Cruice, Dan'i & Co., 25 Spring st., N. Y. 1088 Datt Electric Light Co., New York. 1073 DeLamater, L. M. Sec. John Stephenson Co. Lim. 1024	Oothout. 41 Liberty St., N. Y	Union Indurated Fibre Co., 110 Chambers st., New York: 29 Wabash ave., Chlcago, Ill1092 U. S. Electric Co., Denver, Col
Egerton, Alfred, Metallic St. Ry. Supply Co1097 Empire Warehouse Co., 198 to 210 Market st., Chi- cago, Ill	Packer, E., Lewis and Fowler Mfg.Co	Van Depoele, Chas. J., Electrician, Van Depoele Electric Mfg. Co
Mass	Pevear, H. A., Prest. Thomson-Houston Electric Co., 178 Devonshire st., Boston, Mass	Cinicago, III. A. W. Siee, 104 N. 3u 5t., St. Louis, Mo
Frederick, T. F. Supt. Bryden Forged Horse Shoe Works. 1087 Frost & Peterson, W. P. Seguine Manager R.R. Department, 161 & 163 W. 18th st., New York1111 Fulton Foundry, Cleveland, O. 1104 Garfield, E. G., Sec. Thomson-Houston Electric Co., 178 Devonshire st., Boston, Mass. 1079 Gibbon, T. H. Metallic St. Ry. Supply Co. 1097	Poole and Hunt, Baltimore, Md	Wales Mfg. Co., W. S. Wales, Trcas., Syracuse1112 Wales, W. S., Treas. Wales Mfg. Co
Garfield, E. G., Sec. Thomson-Houston Electric Co., 178 Devonshire st., Boston, Mass. 1079 Gibbon, T. H. Metallic st. Ry. Supply Co. 1097 Gleason, Edwin, Treas, Worcester Steel Works. 1097 Goddard, Calvin, Sea Shore Construction Co. 1094 Greenwood Horse Shoe Co., American & York sts., Philadelphia. P. F. Greenwood, Man. 1046 Greenwood, P. F., Greenwood Horse Shoe Co. 1089 Greensfelder, J. B. & Co., 108 South 4th st., St. Louis, Mo. 1062 Guibert, J. C. N., Richard Vose. 1115	St. Car Dept. Chicago, Ill., Pullman, Ill., and Detroit, Mich. 1119 Putnam Nall Co., Neponset P. O., Boston. 1089 Raliway Register Manufacturing Co., James McCredle, Pres., Edw. Beadle, 1193 Broadway, New York, General Agent; Buffalo, N. Y.1'08 Pawle, James J. G. Brill Co.	White, M. M. and Co. 531 West 33d st
Halnes Bros., David S., Chas. D., Elmer T., Andrew G., 45 Bro dway, New York	Rawle, James, J. G. Brill Co	Edwin Gleason, Treas; Samuel D. Nye, Manager; W. E. Coiles, Gen. Supt





Vol. III.

NEW YORK & CHICAGO, DECEMBER, 1887.

No. 14.

Compared with horses, better power has ... Iready been found. Street railway managers are now looking for the best power.

President Kerper, of Cincinnati, who declines to allow the Knights of Labor to run his road, now requires each man engaged to sign a contract, putting up a forfeit, agreeing to give ten days' notice of intention to leave his employ.

When a labor organization demands that none but its own members be employed and also that it limit the number of apprentices, as did the Typographical Union of New York, it shows itself to be animated by a stronger spirit of monopoly than it seeks to destroy. The utter failure of a strike to enforce such a demand should be hailed with gladness by every true friend of labor.

As shown by a recently printed table prepared at this office, the past year has been one of extraordinary growth in street railway interests, but there is no reason to believe that the same activity will not prevailin 1888. The introduction of improved power, by which cars can be run both more rapidly and more cheaply, will render the construction of city tracks practicable and profitable where heretofore they have not been thought of.

One of the results of using cable or electric power is to create a demand for higher speed than horses have given. Mechanical motors will therefore be adopted by a large number of companies to meet competition, without waiting to answer all the questions that are naturally raised in connection with so radical a change. For this reason, as well as the superior merits of mechanical power, we look for great changes in the propelling power of street cars during the next twelve months.

At the meeting of the Ohio State Tramway Association, held in Springfield, Nov. 16, more than ordinary interest was manifested in the papers read and the discussions upon the subjects therein treated and suggested. The paper upon dishonest employees, by J. B. Hanna, that upon horses, by John Harris, and the one upon rules, discipline, etc., by A. D. Rogers, were all thoughtful productions, doing credit to their writers. The discussions

were quite as good accordingly as the papers.

The horse railroad that tries to compete with the cable or electricity is soon forced to look for a new motor in order to retain or regain passengers who are attracted by faster time insured by mechanical power. This mobility of street railway traffic is illustrated in a number of cities where improved power is in use. Chicago and St. Louis are examples. Few expect that when a cable is laid in Third avenue, New York, it will be long without a competitor using a mechanical motor of some kind.

If very few or no street cars stopped except at street intersections and at stations in the middle of long blocks, the public would understand the rule, and the greatest obstacle to its enforcement would be overcome. It is not enough that the roads of one city adopt the rule. For people expect of all companies what they are in the habit of getting in their own city, and in this, as in most matters, the street railway finds it expedient to grant what its patrons expect. That the general adoption of such a rule would be of great advantage on most roads and meet with the approval of the average passenger, is pretty certain. The saving in time and horse flesh would go far toward the solution on some roads of the motive power question.

Local Street Railway Clubs.

Local street railway clubs would be of great service in the larger cities. At its meetings, held say monthly, such a club could not only discuss the questions of general interest to all street railway people, which questions are growing in number and importance, but could consider and adopt uniform rules and take concerted action regarding matters of a more strictly local character. An evening spent in the free exchange of ideas and experiences in those matters upon a knowledge of which success in street railway business so largely depends, could hardly fail to be profitable. Andagain the friendly sociability thus promoted would render misunderstandings less frequent, and harmonious action in local matters much more easy and sure.

Another advantage in localities where it would be practicable to extend the membership to foremen, starters, etc., would

be to give them more pride and interest in their work. No doubt a feasible plan could be devised to hold under the supervision of such clubs meetings of instruction and discussion for the benefit of conductors. At all events, the local union for the promotion of favorable and the resistance to unfavorable ordinances, would be a great improvement upon the present condition of affairs in most cities.

Smoking on Street Cars.

To one sensitive to the disagreeable odors of tobacco there seems no more reason why he should encounter its fumes upon the street car than in any public place or conveyance.

The extent to which the attractiveness of a car adds to its patronage is greater than managers seem to realize. Especially is this true in these days, when they afford to such an extent conveyance for the pleasure seeker. That the smoker might see in his smoke and walk more pleasure and rest than in his restricted rides might be true to an extent, but that all reasonable rules made for the many come at last to be accepted by the few, is also true. And, too, many a man whose ride costs him a nickel and a smoke, if the latter were abandoned, would come to realize that he could better afford the former.

The case of the street railway is not very unlike that of steam railways, managers of which by long experience have found it advisable to prohibit the use of the cigar and pipe in the depots and cars occupied by both sexes. It is, however, a question of policy, and in some localities at least the prevention of smoking on cars would be found decidedly unprofitable. While the question must be settled largely from local considerations, the tendency is probably toward the prohibition on closed cars.

A Rail Without Joints.

We illustrate in this issue the new method of electric welding and tempering, briefly referred to in our October number, by means of which it is proposed to unite rail sections so as to form a practically continuous track without joints, fish plates, etc., except such as are provided to permit of expansion and contraction. Mr. Ries' invention possesses several very novel and interesting features. The ends of the

rails are welded by means of a transformed electric current of large volume or heating capacity, and afterward tempered so as to bring the joint to correspond in hardness to the remaining portion of the rails. The entire welding apparatus is contained on the pilot or construction car, and the time occupied in forming a joint is estimated to be less than half a minute. The expansion joints are placed at intervals of one-fourth of a mile, the rails being securely fastened at their center and expanding in both directions; so that the variations produced in a length of one-eighth of a mile only require to be compensated for. On a double track street or steam railway having 30 ft. rails, there are 704 joints to the mile, each of which gives quite a perceptible shock every time it is traversed by a wheel. With the expansion joints these shocks are said to be obviated, and counting 4 to the mile of single rail, 688 joints out of the 704 are dispensed with. The importance of this invention in the matter of welding rails alone can be readily understood, if practice bears out the results that are promised by it.

"Knocking Down" is Stealing.

The low moral tone among street railway employees and their friends regarding dishonesty in their work, is due largely to the infrequency of arrests and convictions for the crime of stealing fares. In fact, it would seem that the street railway officers themselves come to look at "knocking down" as a much milder offense than stealing under any other circumstances. With the average man his idea of crime is governed largely by the legal penalty by which its commission is followed.

The crime of stealing is placed upon a par, morally and legally, with the infraction of any rule of the company when each is followed by the same penalty, namely, discharge. Some superintendents even give a letter of recommendation to a man discharged for stealing. That a more wholesome moral sentiment could be brought about by a rigid enforcement of such laws as are on the statute books of the various States, there is no reasonable doubt. The thing to be sought is real honesty in the conductor and not abstinence from theft from fear of detection and discharge. While the fare register is deservedly popular and a boon to the company, the device that will entirely prevent stealing by the shrewd and dishonest conductor is not yet invented, and probably never will be. When promotion of moral principle is not the aim and the matter remains a game in which the conductor seeks to steal undetected on the one hand and the company seeks to detect and discharge on the other, and the one who is most successful is the best fellow, stealing will continue. When the thief is in every case made an example of by visiting upon his head the same penalty incurred by larceny committed under other conditions, and is made odious in the sight of his fellows, the moral air about the station will be clearer and the traffic revenue greater.

Conductors' Recommendations.

A CATECHISM.

- Q. What is a letter of recommendation?
- A. It is a certificate of the writer to certain good qualities of the bearer, definitely expressed, and by implication a general endorsement and recommendation of the character of the subject.
- Q. To whom ought such letters to be given?
- A. To such men only as the writer would like his neighbor to recommend to him.
- Q. Are recommendations ever given to employees known to be dishonest?
 - A. They are.
 - Q. With what motive?
- A. Indifference to crime and mistaken generosity.
- Q. With what results?
- A. Another company is robbed of its cash and its superintendent of his confidence in letters of recommendation.
- Q. What disposition should be made of a letter on which such a man obtains a position?
- A. The victimized superintendent should withhold and destroy it.
 - Q. Why?
- A. Because its surrender to the discharged employee is equivalent to re-recommending him.
- Q. If such letter is addressed, "To Whom it May Concern," can it consistently be withheld when the man is discharged?
- A. It can by making this rule known when hiring.
- Q. When a man deserves discharge for dishonesty, should a letter be given?

A. No

Saloons and Dishonest Conductors.

In his paper upon Dishonest Employees, printed elsewhere, Mr. J. B. Hanna recommends keeping an eye on men when off duty in order to know what sort of company they keep and what kind of resorts they frequent, the idea being that the conductor who has in his pocket stolen money is very apt to spend it more freely than he would his honest wages.

The free and easy handling of money in such places without doubt affords a clue to dishonesty, but there is also another side to the saloon question, of equal or more importance to the railroad company. Buying drinks is a cause for stealing as well as a result. In fact it is doubtfulif the cases be not rare where a conductor would be found stealing for the support of his family or by a desire to accumulate, compared to the number who see in the nickel an extra glass of beer. Add to the appetite that makes many taste of drink the demoralizing influence of those who at the bar stand ready to share in the drink bought with the ill-gotten coin, and it becomes apparent that the saloon is a great enemy to the railroad. No less extravagant in its demands, the dice box may be found there, with its promise of gain and fatal

Moreover, the saloon, with its exciting

influences, as is well known, becomes a place where the denunciation of the company as an oppressor and enemy, to plunder whom is fair play, and where the spirit of strikes and riots, may be found. The question arises, Would it not be good business policy for the company to do something towards abating these local nuisances, into which so many of their dollars go?

Street Railway Advertising.

The question of how to thoroughly advertise the routes of different lines of cars inlarge cities is not an easy one. Those unfamiliar with the route of a certain line now rely mainly upon such information as can be had by inquiry of policemen and others. There are doubtless cases in which maps and schedules of routes could be used to good advantage. These might not only be left at suitable places for distribution, but posted at corners of streets, depots, etc. A schedule should be at once clear and complete, and brief enough to be easy of ref-Names of principal streets traverence. ersed might be printed at the margin in heavy faced type, thus:-

Fourteenth Street. Blue car goes through Fourteenth street from Seventh avenue to Broadway. Broadway. Blue car goes through Broadway from Fourteenth street to Twenty-third.

Harrison Avenue. Brown car goes through Harrison avenue to Dover, Etc, etc.

In other cases it would be better to give the route of each car, though this would not usually be as well for a stranger. Where companies do not come into close competition they can advantageously print combined maps and combined schedules showing all routes.

The question of lettering cars is a more important one than some managers seem to realize. Of course the available space should be used to the best advantage, which is not always done. There seems to be for instance no good reason why the most conspicuous space on the car should be occupied by the name of the company when such name gives no idea of the route of the car. Where much lettering is used on cars, as is the case in Boston, it would be well to have the name of the line, not the company, occupy a uniform place on all cars, and be made more prominent than the names of less important streets and localities.

There are many points, such as depots and important corners, where it is found profitable to have a man stationed for the answering of questions and giving of information. This would be found advantageous in more places if two or more roads could combine to pay the employees kept for that purpose.

Advantages of Mutual Insurance.

According to the figures given by Mr. John Maguire in his paper on mutual insurance for street railways, printed in our last issue, the insurance companies pay back on fire losses but fifty-two per cent of the amount received by them for premiums, forty per cent being consumed for expenses. These figures are, we take it,

based upon the experience of a few representative companies. The report of the National Board of Fire Underwriters gives as the proportion of losses to premiums for five years for all companies 58.36 per cent and expenses 34.25 per cent. Assuming that the rating of street railway property is fair, which is much doubted by competent judges, there remains, according to the safest calculation, an expenditure of \$1.67 for each \$1 actually received for fire losses. And of this \$1 losses, one-fourth is admitted to be caused by incendiary fires, which, owing to the nature of the property, are very rare with street railways.

In other words the streetrailways, granting a fair rating, are paying at least \$1 for each 43.77 cents received by the insured for accidental losses. If to the 43.77 per cent received for accidental fires we add for expenses a proportion equal to that paid by the six largest mutual companies of Massachusetts, namely, eight per cent, we shall find that the necessary cost of insurance against accidental losses is a trifle less than one-half what is now paid.

But the above calculations are based upon the supposition that the only pecuniary objects of a mutual organization are to
secure fair rating and to reduce the expenses of the machinery for doing the insurance business. The principal object of a
mutual company, however, is not to reduce the excessive difference between the
amount of premiums paid and the amount
received for losses, but to reduce the number of destructive fires.

In another column will be found a valuable communication upon this subject from the eminent economist, Edward Atkinson, of Boston. Mr. Atkinson is at the head of a number of the most successful mutual fire companies ever organized, and is probably the best authority on this subject in this country. In a letter to the editor, he says: "I can see no reason why the street railway companies should not combine for mutual insurance, and on the contrary every reason why they should."

Mutual insurance is in the broadest sense self-insurance, with the most immediate co-operation obtainable. Its function is to insure against fire as well as to indemnify in case of loss. To this end the most important matter is to secure the supervision of an expert who by long study and availing himself of wide observation has a thorough knowledge of the causes of fire, that a remedy may be provided."

It Has been proposed to heat street cars by raising the temperature of wires by an electric current. Baron Gostkowski, General Manager of Austrian railways, has calculated the power necessary to heat a railway car in this way, and his results for an ordinary German car holding 42 persons show that 20 H. P. are necessary to heat it, while it requires only 8 H. P. to haul it at the rate of 22 miles per hour. With an ordinary street railway car, he finds that to keep the temperature of the interior 30 degrees above the exterior requires an expenditure of about 3 H. P.

FACTS AND OPINIONS,

- ** If I had a million dollars I wouldn't think of building an underground road in Brooklyn.—William Richardson.
- ** I have noticed that there is a gradual tendency all over the country for employers and employees to get closer together.—
 T. V. Powderly.
- ** I believe we can form a good opinion of how our men perform their work on the cars by what company they keep and the places they frequent off duty.—J. B. Hanna.
- ***I can see no reason why the street railway companies should not combine for mutual insurance, and on the contrary every reason why they should.—Edward Atkinson.
- *** In the settlement of labor difficulties the fact should not be lost sight of that wise precedents and permanent adjustment are far more valuable than immediate but temporary place.
- *** To the United States belongs the honor of the paternity of the streetrailway, which now forms so important a factor in the life of all the cities of the modern world.—Railway Age.
- *..* I see in electric motors possibilities for the future of the street car business of the country that must revolutionize the entire system of conducting it by means of horses.—C. A. Richards,
- ** It would be better for street railway employees to spend more time discussing and learning how to earn more money for the companies, and less in scheming to get more which they do not earn.
- *** France has 437 miles of street railway, capital, \$27,000,000, of which 45 per cent is represented by permanent way and 55 per cent by equipment. Receipts in 1886, \$7,075,000; working expenses, \$5,840,000; leaving net earnings \$1,255,000, or about 4.65 per cent.
- *** The prejudices against the application of secondary batteries are being rapidly dispelled, and there are indications everywhere that this method of propulsion will soon take a recognized place among the great transit facilities in the United States.—A. Reckenzaun.
- *** The accumulator method, which at first was regarded with little favor, at least by electricians, is giving surprisingly good results in Philadelphia and Boston, and its future is apparently full of promise. The direct-supply method has already more than fulfilled the expectations of its friends. An electric street car "boom" is certainly upon us.—The Electrician.
- *** The methods used to bring about a successful termination of strikes, the abuse of property and even of persons, has brought the very name into disrepute, while sympathy for the laboring men is dying out. A wise arbitration looks to a long result rather than to immediate satisfaction, and accomplishes more than intimidation ever can hope to do.—Chief Engineer P. M. Arthur.

PERSONAL MENTION.

EDWARD H. Tucke has been chosen President of the Lowell Horse Railroad Co.

- S. M. CARPENTER and C. J. LANGDON, of the Fulton Foundry, Cleveland, were at the Springfield convention.
- G. B. Prescott, Jr., has charge of the experiments now being made with the Sprague storage car in Boston for the West End road.
- C. A. RICHARDS and Moody Merrill, late Presidents respectively of the Metropolitan and Highland street railway companies, will both be connected with the new West End Street Railway, of Boston.
- G. M. Gest, electrician of the new White Line Van Depoele electric road of Dayton, was at the Ohio convention. He will be Superintendent of the road when completed.
- E. PRITCHARD, Engineer of the New Birmingham (Eng.) Central Cable Tramways, of which we recently gave a description, failed in 1864, and paid his creditors twelve per cent. He is now paying them the balance in full.

JOHN STEPHENSON, the veteran car builder, is the writer of an illustrated article onthe "Evolution of the Street Car," printed in a recent issue of the Railway Age. Street railway managers have been made familiar with most of the illustrations and facts through the columns of the Journal.

John Stephenson, of New York, who built the first street railway car, and who has since built an immense business in this direction, sends out his improved and perfected vehicles to almost all countries of the earth. In this age, when history is made so rapidly and the pioneers of great improvements are so soon forgotten, it is especially interesting to hear from a pioneer in this line, and also to know that he is an exception to the ordinary rule in such cases, and that his labors have been attended with success to himself as well as with benefit to the world.

HARRY C. SIMPSON, the Secretary of the Lewis & Fowler Manufacturing Co., so well and favorably known for his efficiency in railway business and for his genial goodfellowship with nearly all the street railroad men in this country, has been suffering for more than a year with eczema, and is now laid up with a painful attack in the city of Boston, where he had just completed the equipment of 240 cars with his fare registers on the South Boston Railway. Mr. Simpson was the pioneer in successfully introducing permanent registers in the horse cars of this country. It is thought that his disease has now reached the climax, and that he is on the road of convalescence. He will have the sympathy of a host of friends in all sections, who will wish him a speedy recovery, and hope soon again to find him registering his fare in railway circles, from which he has been sadly missed of late. Correspondence will reach him for the present at 96 Hammond street, Boston.

Forty Horses Unwinding a Wire Rope.

Forty whips were raised in mid-air; forty drivers uttered oaths of colossal proportions; forty horses felt the lash, and the North Side cable began to be threaded. In the engine room of the North Side Cable Co., at the corner of Elmand Clark streets, was an immense reel, upon which was wound about 9,000 feet of one and onequarter inch wire cable. The mass weighed twelve and one-half tons, and the wood work of the reel almost broke beneath the weight as it turned slowly around to allow the cable to spin. A cable road is more or less a mystery to the ordinary observer. He sees a small slit between two iron rods in the middle of the street, knows there is a cable beneath, feels the jerky motion of the car, and there his knowledge ends.

At 12.40 o'clock this morning twenty-five men seized the end of the cable, which was coiled upon the reel in the engine house, and marched into a subterranean passage underneath the pavement which wears out the iron shoes that protect the hoofs of the horses which amble along North Clark. There was also under the pavement a jaw -stronger than the combined jaws of all the men with the iron jaws who ever lived. Above the jaw ran a piece of iron, the end of which ran through the slit in the street and projected several inches into the moon-The jaw got a grip on the end of the cable-a grip so strong that it would have bitten a hole right through "Loosh" Fairchild's cheek. To the upper end of the iron bar was fastened a chain, and attached to each side of the chain were twenty horses. Forty whips were raised in the

air. "Ready," said the engineer.

The forty whips came down with a loud crack upon the backs of the forty horses and the huge reel began to spin around like an intoxicated top. The twelve tons were like a feather in a gale of wind and the end of the cable started south at a jog trot. The iron bar moved through the slit in the street with a force so great that it seemed irresistible. The strain was tremendous, but a mile had to be accomplished in a very short time. At Oak street the trot subsided to a walk. The horses did not pull evenly, and the iron car wabbled from side to side like a drunken Indian. The chain creaked and beat the stones of the street with an energy which should be emulated by the men who are employed by the city at election time for that purpose. At Chicago avenue there was a halt. The cable began to grow heavy and the horses tired. At Illinois street a second connection was made, and the forty horses started back at a funeral pace. Each block made their work harder, as they had to drag so much more weight of cable. While the trip from Elm south to Illinois street occupied less than au hour, the return journey lasted till daylight.

This was the first section of the North Side cable to be laid. The other two sections will be threaded as soon as possible, and the road is expected to be in operation by Dec. 1.—Chicago Herald.

CORRESPONDENCE.

A Remedy for Overcrowding.

EDITORS STREET RAILWAY JOURNAL:-

Regarding the overcrowding of street cars, as an unsolved problem, you ask me to suggest an economical remedy. The only one I know of, is to charge 10 cents, or double fare, for a seat, and for standing room, 5 cents, or half price.

E. Lusher, Manager Montreal St. Ry. Co.

The Series Electric Railway System.

Editors Street Railway Journal:-

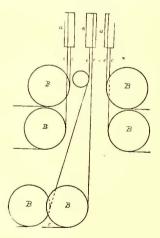
I beg leave to correct an error which appeared in your issue of November. In your description of the new Overhead Series electrical railway at Columbus, O., you spoke of it as the joint invention of Short and Nesmith and the property of the U. S. Electric Co., of Denver, Col. The improved Series System is entirely different from and independent of the Short and Nesmith patents. It is wholly my own invention, and owned and controlled entirely by myself.

S. H. SHORT.

Columbus, O., Nov. 14.

The Angle of Sheave to Conduit.

Editors Street Railway Journal:—
"C. H." asks why engineers do not run



the cable out of the power house at a less angle than a right angle, so as to lessen the strain on the turning sheave. The accompanying sketch will show, when compared with his, why it would be impracticable. This is the way the sheaves are arranged on the Citizens' Railway for three ropes, and is on the same plan as they are arranged in California. In this cut, a, a a are driving drums; B, B, B, B, B, B are turning sheaves; c, c, c are ropes. If arranged as "C. H." thinks they should be, it would require three separate engines and about three times as much space for machinery.

H. M. KEBBY, Mech. Eng. St. Louis, Nov. 3.

Editors Street Railway Journal:—
In response to your request for my views

in regard to "C. H.'s" suggestion on page 946 of the November number of the Street Railway Journal, wherein he proposes to locate the winding sheaves at a less angle than a right angle with the direction of the cable in the conduit.

As the diagram only shows a changed position of the winding sheaves, I am at a loss to know whether it is proposed to place those sheaves at a less than right angle with the position of the engine and wheel shafts, or whether all of the machinery is to be located at less than a right angle with the power house, or whether the power house is to be placed at less than a right angle with the street in front. The change of position of the winding sheaves as shown involves one or more of these other changes, either of which would seldom be possible and probably never practicable.

W. H. PAINE.

EDITORS STREET RAILWAY JOURNAL:

Referring to the communication of "C. H.,""A Conundrum for Cable Engineers," page 946, the idea is not in my estimation a practical one. In the first place, to set the whole driving machinery, tension wheel, etc., diagonally on a piece of real estate would require so much room that the interest on the investment would amount to more than the saving on the ropes.

Furthermore, there would be no saving, as in nearly all cases the cables are operated in both directions, and if the machinery was so placed to make a slighter bend for cable running in one direction, it would increase the bend of rope running in the opposite direction. The difference in making a quarter or half bend on a wheel which is more than one hundred times the diameter of the cable, would be of no consequence.

R. J. C.

Philadelphia, Nov. 19.

The Reckenzaun Motor.

EDITORS STREET RAILWAY JOURNAL:-

Our eight-wheel car has been running for some time now with great success, in fact it ran all right within an hour after the members of the Association left our works, on Oct. 19. Some days ago it ran forty-five miles without recharging, of which twelve miles were accomplished in This distance was run on the one hour. track around our yard, and considering that at least one-half of the whole distance consisted of sharp curves and grades, it was a remarkable performance, and goes far ahead of the record of any other storage battery in the world. The efficiency of the Reckenzaun motors over other motors is very marked. This not only gives us greater speed and power, but reduces the cost of electricity in running expenses.

WILLIAM WHARTON, JR. Philadelphia, Pa., Nov. 14.

Divided Axles and Track Obstructions.

EDITORS STREET RAILWAY JOURNAL:—
Under date of Chicago, Oct. 15, in the

November number of the Journal, C. J. L. writes:—"Will some of your readers inform me, preferably from experience, whether a wheel on a divided axle will run over a stone any easier than if it were on a rigid axle?" This was asked after stating that he had seen a circular wherein it was claimed that a car with divided axles would start easier than one with rigid axles.

I have given this subject considerable thought, and I venture to affirm the proposition. Some years ago I was interested in a lumbering establishment where a tram road was used. We had two cars, one with wheels rigid on the axles and the other with loose wheels, and I found that the first could be blocked on an incline by putting a small stone in front of one wheel, while with the latter it required both wheels to be blocked. No doubt C. J. L. has frequently noticed that teamsters invariably start a heavy load by turning the horses to the right or left. So with cars, if one wheel will move, however slight, a momentum is gained which carries the car over the obstruction. Drivers aver, where the divided axle has been used, that the car certainly starts easier than with a rigid axle.

D. W. C. JAMES.

Warren, Pa.

Cable Traction for Heavy Grades.

EDITORS STREET RAILWAY JOURNAL:-

In the article in the Master Mechanic. where it is stated that "cable cars cannot stop on such hills" (referring to the route of the proposed cable road in Providence) "and then start again without danger of injury to the cable," the assertion is alto-gether too broad. Heavy loads can be started on ten to fifteen per cent grades, with the cable moving at the rate of eight or ten miles per hour, without any serious damage to the rope. The cables are filled with tar until the filling in the space between the strands is flush with the surface of the outer wires, the rope presenting a perfectly smooth exterior. A cheap oil is then applied to save the cable, carrying and guiding sheaves from wear. A rope running eight miles per hour will travel eleven and one-halffeet per second. greatest wear is on the grip jaws, as they are brought in contact with the moving cable, while the wear on the latter is distributed and the heavy coating of tar prevents abrasion. The rope passes through the grip in less than one-seventh of a second, and in starting a heavy train will have only the oil and tar burned from its surface. The grip can be closed tightly at once, as is often done, starting almost instantly up to full speed, without any bad This is not so severe on the car and passengers as might be supposed, owing to the slack and elasticity of the rope.

By a careful examination of worn-out cables it will be found that the grip has worn the in lividual wires but very little, nearly every wire being broken by bending the rope on small wheels. The heaviest grade on the Tenth avenue cable road

is 7½ ft. to the hundred. Cars are 29 ft. long, weigh 7,200 lbs. each, and stop and start on this grade with sixty or more passengers without any difficulty. In starting on heavy grades it is necessary that the grip man be particular to close the grip on the cable and release the brake on the car simultaneously.

We have yet to learn of a motor that will take the place of the cable on steep grades.

D. J. MILLER.

New York, Nov. 15.

The Cincinnati Cable Accident.

Mt. Adams & Eden Park Inclined Railway.

(f. B. Kerper, Pres. Cincinnati, Nov. 14. Editors Street Railway Journal:—

Your article on page 946, regarding our cable accident, is exaggerated and will do much harm for this reason. You state that all the cars on the line were derailed. Now any one knowing the working of a cable would know this to be impossible. Not a single car was derailed except the two that run into a ditch, which was unfortunately opened at the street crossing. Three persons were slightly injured, and you state thirty or forty and one fatally. A paper edited in the interests of street railways should know the truth of what they write before they write an article which is injurious to a system of railways that has a thousand beneficial features to one of an injurious nature.

Yours Very Truly, G. B. KERPER.

[The article in question, taken from a Cincinnati daily, was reprinted through a misunderstanding on the part of one of our staff to whom it was handed to be corrected to conform to the facts which were set forth by President Kerper in a letter in response to our inquiry for particulars. Those who have been familiar with the Journal for the past three years are aware of the care that has been exercised to do justice alike to individual roads, street railways in general, and to all systems designed to promote street railway interests. We thank Mr. Kerper for his correction. Eds.]

Street Railway Mutual Insurance.

EDITORS STREET RAILWAY JOURNAL:-

The very destructive fire which occurred yesterday in the horse railway stables in Brooklyn, brings to my mind your letter of inquiry as to the feasibility of establishing a system of mutual insurance upon the property of the horse railway lines of the United States, including stables. There could be no more potent argument for this undertaking than the late fire in Brooklyn, except other destructive fires which have occurred in Boston and elsewhere.

The true ground for the establishment of a mutual insurance system is, the more hazardous the property the greater the need; because the word insurance is construed by the mutual companies according to its true meaning, which is, that the

company entering into contracts of insurance shall not only agree to pay a money indemnity in case a loss occurs, but that the company shall take suitable measures to instruct the owners of such property how to prevent such loss, i. c., how to insure themselves against loss. The rule is that the owners of the property shall not be admitted to the privilege of being indemnified in money under the supervision of the company unless they themselves make suitable provision to prevent fire or to extinguish fire when it occurs.

I have examined one or two horse railway stables of large capacity, which happened to be near risks which we were asked to insure in the companies under my supervision. One very large risk I have utterly refused to take on account of the proximity of the horse railway stables. This risk I would otherwise have been very glad to take. Yet there is no greater inherent hazard in the risk which I have refused than there is in the stable which caused me to refuse it; the only difference being that in one case complete and adequate preparation to stop a fire has been made; in the other, little or no consideration has been given to danger, either in the construction or the use of the building, or in the appliances for preventing fire. Therefore the owner of the well protected property has suffered for the negligence of his neighbor.

Works of a very much more hazardous kind than horse railway stables have been combined in special organizations for the mutual prevention of fire and for the payment of indemnity for loss in case a fire occurs, with such complete success that in one instance their record of immunity from loss is the best record yet made; and yet in these works naphtha is used with almost the freedom of water.

There is but one rule of safety in such a combination for mutual insurance, to wit, that every man or manager proposing to join shall utterly discard from his mind every notion of doing anything in order to save paying out premiums of insurance. Until he becomes convinced that insurance companies can do absolutely nothing of their own motion to insure his property in a true sense, and that he himself is the only man who can insure it by making due provision for safety; and until he comes to the profound conviction that ninety fires out of every one hundred which occur on his premises or on the premises of his neighbors are the fault of himself and his neighbors, and in most cases are due to their ignorance or incapacity, he will not be capable of entering into a combination under the name of a mutual insurance company for the prevention of loss by fire.

EDWARD ATKINSON.

Boston, Nov. 15.

Steam vs. Horse, Cableor Electricity.

EDITORS STREET RAILWAY JOURNAL:-

In looking over the STREET RAILWAY JOURNAL, where so much is said and advertised regarding the cable and electric

systems, one canuot help wondering that we see so little of steam.

Is this because steam has been tried and found wanting, or is it simply because the shouting for steam has not been loud enough to compel popular attention? With a view to answering this question, in part at least, I will reproduce here some figures relating to the relative virtues of the horse, electricity and the cable as the motive power of street railways. These estimates are in the main from an article by G. W. Mausfield in the Street Railway Journal. To his figures I will add some regarding steam.

To make his comparisons entirely clear, Mr. Mansfield supposes a sample road six miles long, with twenty-four cars, a speed of six miles au hour, and runuing twenty hours out of twenty-four. This would call for forty-eight horses on the track, 192 in the stable, a total of 240, which, counting harness, he estimates at \$160 each, a total of \$38,400. This is the motor plant for a horse road, corresponding to engines, dynamos, cables and the like for electric and cable roads, as in all three cases the car has no motive power in itself—the power for moving the car must come from the plant.

To work twenty-four cars with electricity on the same road, allowing for all usual obstacles and an inevitable waste of thirty-five per ceut in transmitting, he calculates that a 150 H. P. engine—steam engine, mark you—will do the work of the road. Therefore cost of electric plant for motive power will be

One 150 H. P. steam engine\$7,00	0
Necessary dynamos	Ю
Copper conductor, 6 miles16,00	0

Total for plant.....\$26,500

In the cable system but thirty-five per cent of power developed in the engine is available in hauling cars, so its motor plant would be

One 250 II. P. steam engine	\$12,000
Cable	15,000
Gears	8,000
Total	\$35,000

Now look backward over this statement.

A motor	plant	of horses costs	38,400
64	4.6	electricity costs	26,500
44	4.6	cable apparatus costs	35,000
64	66	steam	0

Look at it, \$38,400 in one case, \$26,500 in another, and \$35,000 in still another, for which a steam equipment has no possible use, not a cent of it.

COST OF TRAMWAY

COOL OF THEM WITE
Horse road, single track per mile\$9,000
Electric road, with surface conductor10,000
" overhead double conductor 15,696
" underground conductor23,500
These Mr. Mansfield averages at\$16,000
Cable roads, varying in cost from \$30,000 to \$110,000
per mile, are averaged at\$35,000.
Steam, as any horse track is suitable,\$9,000.

We have therefore the following totals:

6 miles of	steam or	horse road	at	\$9,000\$54.000
46	electric	64		16,00096,000
6.6	cable	"		35,000\$210,000

\$54,000 builds the steam tramway, therefore in the case of electricity there are \$12,000, and in the case of the cable \$156,.

000, expended, for which steam has no possible use, in addition to the cost of motor plant.

OPERATING EXPENSES.

A quite extensive experience with steam cars provesthat they burn a mean of 6 lbs. of coal to the mile of travel, but engines are not using coal to any considerable extent when off duty, while the cable and electric systems must keep the big stationary engine buzzing, whether it is moving one car or a hundred; so, when it is considered that on the majority of roads cars are not run at uniform intervals, the mean of coal consumption will come nearer uniformity in the different systems than would at first appear; yet the advantage in this matter undoubtedly rests with the electric and cable plans. Where they consumed 100 lbs. of hard coal, in the most favorable circumstances, steam would require 150 lbs. ou any track excepting one covered with a But this is not sufficient to deep snow. balance the difference in interest on plant by two-thirds in electricity and more than four-fifths in the cable. This is taking uo account of wages of engineers for the big engines, nor electricians nor cable superintendent and helpers, sources of expense not even dreamed of in a steam system. The wages of these men alone would pay for all the coal used on twenty steam cars twice over. I say twenty steamers as they would easily do the work of twenty-four horse or cable cars. Not very long ago I had occasion to calculate the expense of operating an eight mile road with steam or cables, and the fact was developed that the interest on cost of cable tramway and wear and tear of cables-these two items alone-would purchase, every two years, twenty new steamers and pay every expense of coal, oil and repairs for that number. The steamers are good forthirty

It is objected to the cable system, and justly, too, that it is a unit. It has to go or stand as a single, inseparable apparatus. If engines, gears, cables give out, or the slot is pinched together by frost, the whole line is at once arrested. The same is true of the electric system where the cable is below the surface, and true in every feature but the slot when it is overhead or operated by storage batteries. They are inflexible systeme, as all plans must inevitably be which depend for the operating force on a stationary power. Steam asks nothing of the depot but fuel and water; even these can be picked up along the way in case of need.

Another aspect of this matter needs to be considered. The estimates given in Mr. Musfield's paper are for new roads, which from the outset would be planned and built with reference to a given system. Now it is very probable that the great majority of cable, electric and steam equipments will be furnished to roads already built and operated by horses. In this case the track is down, buildings constructed, and everything in working order. We are only to consider the cost of making the change. Omitting details, for this paper

is getting too long, the figures would be about as follows:—

Adapting the 6 mile road to cable.....\$265,200
" " " electricity.... 70,500
" " steam.... 40,000

This estimate supposes machinery applied to the old horse cars; and here we have again, in the cable plan, \$225,200 and in electricity \$30,500, which steam can find no use for.

About here the question will naturally and logically be asked, If steam is so much better and cheaper, why is it not used more extensively? The answer is neither far to seek nor hard to find. It is because steam motors have been foisted upon railroad managers which were utterly unfit for the service required of them-nothing in the world but little, outside connected locomotives, warranted to shake all patience out of their passengers at once, and all life out of themselves in about four months; bearings, the whole mechanism, exposed to dust and mud and cutting out in consequence, with a destruction so rapid that horse power seemed and was cheap beside it, and, on account of this same exposure, using oil at the rate of six quarts a day. A little, wretched, misapplied thing, no more fit for the place than an old-fashioned plate electric machine would be to op. erate an electric light plant of 200,000 candle power. The very result of shoving the great master steam into the background, was predicted ten years ago, as a consequence of urging those compilednever invented-motors on the track.

To be successful a street steamer must first of all have its machinery protected from dust and mud. Second, it must be steady as a horse car. Third, it must be quiet; no noise from safety valves and little from exhaust, none if required. Fourth, it must be very durable while consuming a minimum of supplies. Fifth, it must be perfectly and quickly controllable. Sixth, it must be strong and low on the track. You may ask if a steamer fulfilling these conditions was ever designed? Yes and used, but nine years ago the enterprise was crushed by a financial avalanche, and the inventor is just beginning the work of fighting it back into use. He asks, as every sensible mechanic must ask, So long as steam is the motive power for every mechanical system, why not use it directly, instead of by the costly, bungling, indirect systems now the craze? Is that word "craze" wrongly employed, and will some wise man answer the question?

I observe the claim presented frequently, for both the cable and electric systems, that "skilled labor is required." This is preposterous nonsense, and misleading to boot. It is impossible to operate any mechanical motor, or horses, without skilled men somewhere. Why, gentlemen, who is, who are, taking care of your big 150 or 250 H. P. engine? Who looks after your winding machinery and cables? Who keeps up and keeps going your dynamos, electric engines and the small world of electrical traps inseparable from your system? You have intended to fool somebody,

and I think you have succeeded. Now steam needs men drilled to the work of maintaining steam machinery only; you need and must have not only men skilled in the care and maintenance of steam machinery, but you need also skilled electricians or cable engineers. "No skilled labor!" That's too thin. You do not need them to operate your cars, neither does the steam system. Any bright car driver can learn, as they have learned, to handle one in a week. The skilled man is at the repair shop-a master mechanic.

It is plain as day that in original cost, expense of operating, cost of maintenance, outlay in applying to old roads, steam distances every other mechanical system; while in the absence of a rigid unity-in the possession of a quality which may firly be termed flexibility, a quality by which it adapts itself to every contingency of street railroading, it stands supreme and nearly alone among mechanical motors, while it is not surpassed by the horse car itself. It is not possible to name a thing which in the operations of street railroading can be achieved with horses, electricity or the cable which steam will not do better, cheaper and more reliably. It is not used to any extent at present for the reasons given, and the system carefully adapted to the street by more than twenty years of trial and thought has not been sufficiently holloed—there is no conundrum about it.

LOUIS RANSOM,

Four Hundred Nickels in Change.

Superintendent Morton, of the Union Rulway Co., tells the following story: "When I first took charge of the road the drivers complained to me of a certain lady who rode down town and back again every day without paying fare. She would get aboard the car and hand the driver a twenty dollar bill to change. Of course, he could not change it, and could not ask the lady to get off, so she rode free every trip. I decided that she was deliberately beating the company and determined to get even with her. One morning I gave one of the drivers, on the line which passed the lady's house, \$20 in nickels and instructed him to change the lady's bill. She fell into the trap, and about 10 o'clock boarded the right car on her way down town. She handed the driver the twenty-dollar bill and he promptly returned her 400 nickels. She put her fare in the box, but she was so angry she left the car and did not ride again for a month. After that she always had change when she boarded a car. would surprise you," continued Mr. Morton, "to know how many people, especially ladies, beat the company out of their fare in this way. They tender a ten or twenty dollar bill, knowing very well that the driver cannot change it, and in that way secure a free ride."-Birmingham (Ala.) Age.

IF You desire to change your position, use our Special Notice column.

OHIO STATE TRAMWAY ASSOCIATION

Proceedings of Annual Meeting.

The Ohio State Tramway Association met for its sixth annual convention at the Arcade Hotel, Springfield, Wednesday, Nov. 16, at 11 o'clock A. M.

The President and Vice President both being absent, Capt. Asa S. Bushnell, of Springfield, was elected President pro tem.

The following delegates were among those present:—

CINCINNATI. John Harris, Superintendent Cincinnati Street Railway; C. H. Kılgour, President Columbus & Cincinnati Street Railway; G. B. Kerper, President Mt. Adams & Eden Park Railway.

CLEVELAND. Dr. A. Everett, President, H. A. Everett, Secretary and Treasurer, East Cleveland Co.; J. J. Stanley, Superintendent Broadway & Newburg.

COLUMBUS. A. D. Rogers, President Columbus Consolidated and Glenwood & Greenlawn.

DAYTON. C. J. Ferneding, President, and A. W. Anderson, Superintendent, Dayton Street Railway; Charles B. Clegg, President Oakwood Street Railway; A. A. Thomas, President Fifth Street Railway; William Davis.

Springfield. Asa S. Bushnell, Citizens' Street Railway; Mr. Hansford.

Toledo. J. E. Bailey, President, John Gilmartin, Superintendent, Toledo Consolidated.

The Treasurer's report showed

On hand from last year	
Total	

interest to the reading of a paper on

Horses—Purchase, Disposition and Relative Value with Mules.

BY JOHN HARRIS, OF CINCINNATI, O.

The subject of this article, viz., "The Purchase and Disposition of Horses and Mules Used in Street Rulway Service," is one which has occupied my attention for the past twenty years, and is even at this late day a subject that I approach with a great amount of timidity, as one which has received the profoundest thought and the most serious consideration of the best street railway superintendents, without the production of definite rules or principles by which we may be governed in the selection of our motive power. I shall, however, in this article, which I hope to keep within due bounds of brevity, attempt to give you a few of the most essential features, or at least those that my experience has singled out as deserving the closest attention.

A horse, to render the most satisfactory service, is an animal perfectly sound in all his limbs and faculties, free from balky traits, and kind and gentle in his disposition; but the street car service of animals is of so severe a nature that it seems hardly humane or just to wear out the best

grade of this noble beast by subjecting him to such treatment as he must of necessity receive in a business where he must be handled by some very inexperienced drivers and others that are absolutely cruel and vicious in their treatment of the stock when the "boss" is not around.

In the purchase of horses I generally select those weighing from 1,000 to 1,150 lbs., as being the best for the usual street car service. Of course I vary this weight as occasion requires, going a little heavier, not much, for a heavier-traffic line, and perhaps a shade lighter for a short, lighttraffic line. I want a good, sound, healthy foot, and a leg without blemishes. Unless the foot is perfectly sound and healthy the wear and tear upon boulders, asphalt and granite pavements soon develop the defects, which increase in a greater ratio than in any other class of work to which horses are subjected. This is also true of an unsound or diseased leg. A short coupled horse will also perform a better and easier day's work in a street car than one with a long back; though a short coupled horse should be rejected unless he has an easy gate. Some of the best appearing horses standing still, develop a wonderfully strained and rough gait when tested. Let such go to the next buyer, as he will last only a short time in our service.

Select horses varying in age from five to eight years old, and be sure that he is already a good work horse. You cannot afford to turn your stables into training stables, with all the risks attendant thereon. I have never been a stickler in the matter of a horse's coat, and have bought all colors, ranging from pure white to the darkest brown, and all other features being satisfactory I raise no objection on the point of color. I know on this point that I am not upheld by all authorities, but I have had good honest work from horses of all colors. There is, however, an objection to using in cars a peculiarly marked horse, as should he show a little lameness or any other defect, passengers will observe it, and note it, and remember it, and see that particular horse a greater number of times than you would think it possible. I would therefore recommend that no piebald or calico horses be used in our service. Off color horses can frequently be bought, however, for a much less figure, by reason of that same defect, and will do your work just as well and as satisfactorily.

While good eyes are as a rule desirable, yet I have frequently purchased horses having but one good eye, and been well satisfied with their work, at a much less expenditure of the company's money. So I can say of horses having slight touch of "heaves," as a rule pass them by, but if good horses are scarce and you feed them on soft feed, without giving them extra heavy work, you will find them to render you good service, and the defect can be used as a leverage to pass the price "away down."

In Cincinnati, and I presume at almost all other horse markets, the best time to make your purchases is during the season from Dec. 1 to April 1; first, because farmers are disposing of their stock as winter comes on that they may not be required to feed them through the hard season, hence prices are less, and second, because horses bought at this season of the year can be hardened and toughened for the more depressing summer work, and with less danger to the health and strength of the animal. Winter prices fluctuate from ten to twenty per cent lower than spring, summer or fall prices, a very considerable item should your demands be great.

Mares are considered by me as the best purchase, for two reasons; first, they will perform just as good service as a horse and last just as long, and second, they will sell for from ten to twenty dollars more each than horses when they have ceased to be useful in cars, farmers buying them for light work and breeding purposes. I give the preference to mares even at a little higher price.

As to mules, I have bought, used and worn out a great number of them in this business, and find them to perform good service under favorable conditions, but they are not comparable to horses. A mule will not make as many miles per day satisfactorily as will a horse, especially if the travel is heavy; but if your route is a short one, with a comparatively level roadway and light traffic, good reliable service may be had from mules. For such work I would recommend a mule of from 800 to 950 lbs. weight, sound in all respects, the same as for horses, and I have no preference whatever for sex. Such animals can usually be bought for prices ranging from ten to twenty per cent lower than for horses. Mules of a size and weight to produce as good work as horses would costfully twenty to thirty per cent more than horses. I find, however, in the mule's favor that he costs less to feed, requires less grooming, and is less liable to attacks of sickness; but when he is "no good" for street car service, he is a badly used up animal, and will bring but a paltry sum if disposed of by And in conclusion of the mule subject, I must say that I am convinced of the truth of the old teamster's statement, that "a mule will work kindly and gently for ten years just to get one good chance to kick you, and when he kicks he certainly shows that it is an earnest of his intention."

Gentlemen, I thank you for your attention upon the reading of this paper, and close it with the wish that some may profit from my suggestions.

DISCUSSION ON HORSES.

Mr. Hansford, being called upon by the President, stated that in his experience of five years in Springfield he had found mules preferable to horses. Used mules weighing from 750 to 900 lbs. Said they cost much less to buy and keep. Mules were ready for work every day, while horses were laid up after a month or six weeks' steady service. His mileage was $17\frac{1}{2}$ to 20 miles per day.

Mr. Rogers asked as to the best way to dispose of stock.

Mr. John Harris said he sold to farmers or to shippers. That they were usually used for farm work. He sold thirteen head yesterday at an average price of \$33 per head. His mileage was eighteen miles. Drove some of his horses twenty-two miles. Spoke of one mare which had been in service twelve years an 1 was apparently as good as ever, but the average use of his horses was three years.

Mr. Hansford spoke of one horse that had made 125,000 miles. Said mules worked better on short trips, but could not stand long trips as well as horses. He said the feed of five horses weighing 1,100 each would keep eight mules. He used mules about five or six years, speed six miles per hour; stable average eighteen miles, working average twenty-two and one-half miles, per day.

Mr. EVERETT, being called for, said he coincided so fully with Mr. Harr's paper that he had nothing to add.

Mr. GILMARTIN, being asked as to what he paid for horses, said from \$80 to \$140, that \$100 would buy a good horse weighing 1,150 to 1,200 lbs. He considered from now to April the best time to buy, and the spring the best time to sell. Gave stable average seventeen and onehalf miles. Spoke of thirteen horses being in service eleven years each. service, four to five years. Sold very few horses under \$50; got from \$40 to \$70, but did not believe in wearing all out. kept close watch of horses, and sold on the slightest indication of unfitness for the service. Only use 270 horses, and had bought 200 in a year. If he bought a horse to-day for \$100 and some one wanted it to-morrow for \$125, he let it go. thought Toledo a very cheap market.

Mr. Bailey spoke of the close watch Mr. Gilmartin kept of horses.

The President thought a horse showing signs of weakening could be rested up.

Mr. Bailey preferred some one else would fix them up. Said they frequently bought horses for \$100 and sold for \$150. Said that at the end of last year their horse account was ahead.

Mr. Rogers said he paidabout \$115 for a good horse, sometimes less. Thought the disposition made of horses an important matter. Thought it always better to sell than to trade. Said the purchase of 200 horses with a stock of only 270 a very large average. He thought the temper had much to do with the value of a horse. Some horses were always nervous, never got over it by use, and that this characteristic could not always be detected when buying.

Mr. Harris stated that he paid about \$125 for a good horse, but \$275 or \$280 for a team of the same kind. Said the market was now dull; a good horse could be bought for the first figure.

Mr. Hansford said his mules cost an average of about \$80, ranging from \$65 to \$95. Had only sold five headin five years.

Mr. GILMARTIN bought horses weighing from 1,100 to 1,200. Thought it might be impracticable to watch 1,000 or 1,500 horses

as closely as he did, as competent men to do it might cost too much.

Mr. Davis, of Dayton, used nothing but horses weighing 1,100 to 1,150 lbs.; run one-horse cars. Horses cost this season \$141. With 60 head of horses averaged about one off his feet. Sold for from \$50 to \$150. Broken down horses, about \$70, or half what they cost new. Tried to sell as soon as showed any signs of giving out.

Mr. Stanley spoke of buying 160 horses recently, paying \$140 to \$150. Weighed 1,050 to 1,200. Carried about 280 horses. Had an average of 30 on the sick list. Sell for from \$20 to \$100. Got \$10, \$15 or \$20 more for mares than for horses. Had lost 30 head by death since January.

The President would try mules if he had had that experience with horses. Thought the lake winds had something to do withit.

Mr. STANLEY spoke of lung fever and slipping on rail as among the causes.

H. A. EVERETT asked whether old or new horses.

Mr. STANLEY said that old horses stood it better than new ones.

The President. What do you feed?

Mr. STANLEY. Chopped feed and oats.
Mr. Davis, speaking of buying, thought
the best time December and January, and
best time to sell in the spring.

Mr. Harris said this was a good time to buy. Said he bought now, keeping partly worn out horses to help while breaking in fresh stock. Said most of his horses was brought in by rail, that they were green and very liable to give out in the course of ten days. Spoke of last spring being the worst time on horses he had seen outside an epidemic.

Being asked as to feed, Mr. Harris said he fed four times a day corn meal and hay only. Buy corn and do own grinding.

Mr. FERMEDING (Dayton) said his horses weakened on chopped feed.

Mr. Anderson had used best corn meal and hay, 14 lbs. meal and 14 to 16 of hay, but horses scoured, were weak and interfered. He then tried oats with corn, half and half. Feeds four times a day, and has better results from part oats. Feed cost last year $17\frac{1}{2}$ cents per day, and shoeing $2\frac{1}{2}$ cents per day per head.

Mr. Hansford (Springfield) used chopped feed and prepared clear corn meal to part oats. He used 8 to 9 lbs. of meal to 13 to 15 lbs. hay. Feed cost 17 cents per day per head. Had only lost four mules in five years. Hay now cost from \$10.50 to \$12 per ton; corn, 45 cents. They paid 7 cents per bushel for grinding.

Mr. Harris, replying to a question as to the relative merits of loose and baled hay, preferred loose, as he knew better what he was buying and it did not get mouldy. So far as he could, bought loose hay and had it delivered about as wanted for use, keeping, however, a quantity of baled to fill in with when loose could not be had.

Mr. Thomas spoke of the varying leads as an element of uncertainty, also number of stops, etc.

Mr. Kerper mentioned also varying grades in this connection.

Mr. HARRIS had had no trouble using cut feed; though interfering and weakness due more to too long drives and too heavy work.

Mr. Davis asked about shoeing.

Mr. Harris said they had used nothing but the Goodenough shoe for the past ten years, and thought it the cheapest shoe a railroad company could use. Used a calked shoe in winter and smooth in summer. When the calks on winter shoes were worn down, the shoe was taken off and laid by for summer use, for which it would wear longer than the regular summer shoe.

Mr. Davis spoke of the varying conditions of streets and the effects upon shoe calks. Said he had known cases where a shoe was doing well to keep sharp two days.

The PRESIDENT then announced the programme of entertainment prepared by the Springfield railway manager for the visiting delegates.

- 1. At 2 P. M. A ride over the street car lines of Springfield.
 - 2. In the evening a light opera.
 - 3. At 10 P. M., banquet.

The invitations were accepted.

Secretary Everett then read a paper on Detection and Punishment of Dishonest Employees.

BY J. B. HANNA.

When your committee assigned to the writer the work of preparing a paper on the Detection and Punishment of Dishonest Employees, he felt that a difficult, far reaching and divided subject had been assigned to a very incompetent party.

I take it, gentlemen, that the modes by which we detect dishonesty among our employees must necessarially vary widely, depending in a measure upon the length of our lines, the class of patrons and the character of our men. I think we sometimes employ those who have never occupied any position where they could exercise any authority, and who have never been called upon to use the judgment, and are, whenever an opportunity presents itself, too ready to abuse their brief authority confided to them in regard to their car.

I believe in the first place our success in the end will depend upon our selection of men who have sufficient good timber in their composition to give us something to work upon. Our conductors especially are about the only employees that have much to do with our patrons; and the estimation and popularity that our roads should occupy with the public depends more on the treatment they receive at the hands of our conductors than on their intercourse with all the rest of the employees.

We think an important factor in keeping our men straight is the character of the various institutions in the district through which our lines pass. Especially is this the case where those business houses are

convenient whose whole aim seems to be to get all the ready money in the possession of our men and give them in return on the following morning a large head and an empty pocket. I am told that in the southern portion of our State, where the article only crosses one body of water in coming from Kentucky, and where the cooling lake breezes do not penetrate over the Rhine, the heads grow larger in size, but when our patient resumes work on the following day the size of the hole in his pocket seems to be little with the locality.

I will recall an old saying, gentlemen, and I don't think it originated in Ohio nor yet in our work; but I am of opinion that, wherever its origin may be traced to, that we can credit very properly its adaptability to our business that "opportunity makes the thief." In what occupation do we have to depend in such a broad sense upon the honesty of our men? Every well regulated mercantile house has within its walls, so to speak, its own system of detection of mistakes among its clerks, while in contrast to these our cars are moving in all directions and at all hours over all parts of the territory, carrying all shades and classes of hum inity and unfortunately often freighted with those individuals who carry in their breasts the feeling born of ignorance, that in our men taking some nickels for their own use they are committing no crime, but simply taking what is their due from a rich corporation.

We are inclined to believe that our chance to keep our conductors straight in these cases is better with a good sized stationary register in the car, founded partly on the principle that there are generally some among our passengers who will compare the number in the car to the number registered on the dial. But if we have no such, the fear of the conductor that there may be would have a good effect upon his conscience. He can generally count upon the indifference of the public in not reporting dishonest acts which they see on our cars. Some are deterred from doing so. no doubt, thinking they will become known to our employees as informers. And as a rule if some have courage to report a case they often fail to give us information that will enable us to locate our man.

Where it is practicable, I believe we can form a good opinion of how our men perform their work on the cars by what company they keep and the places they frequent when off duty. I think that some of our best results in detective work are obtained off the car. The habits formed by our men during their first six months' experience, when off duty, are often an important key to their future usefulness to our companies.

We are especially apt to be encumbered with undesirable men when our applicant is put forward from a political source. It is one of the unfortunate features of our business that we are linked in so closely with local legislation. Politicians usually have men who want street car work. It has been our experience that this class of our employees take more liberties and rely

more on the party recommending them than those coming from any other source. We have tried to impress upon each man that his letter of recommendation was simply a form of introduction, and in his future work he would have to depend upon his own record.

The writer began his experience with conductors by not employing any man who had been discharged by other roads in the city. This rule has been in force in Cleveland three years, and has been attended, I believe, with good results. practice of picking up men simply because they are familiar with street car work has been a great boon to that class of men, who are parts of a floating population, who after they have become notorious for crooked work in one city move on to fresh fields. In the punishment of dishonest employees we have to contend with so many prejudices of the public, and defective laws bearing on the subject, that our men are seldom punished.

It seems to me then, in the way of prevention to a certain extent of these occurrences, that each company throughout the State might notify our Secretary monthly, he to distribute the notice, giving the name and description of those conductors they discharge for dishonesty or other good reasons, and prevent by this means their making victims of others. When an officer of a road appoints one of these men knowingly, has he any right to object if the conductor turns out bad? The practice of giving letters of recommendation has become so universal that we can place but little stress upon them without following up our inquiries.

With the modern improvements in our machines for registering fares, which are constantly being improved upon, the modern conductor who is crookedly inclined has managed to keep pace with all these inventions, and generally finds a way to beat them. The artifices to which they resort are so many that on long lines, especially cross-town lines that are constantly picking up and letting off passengers, it becomes very difficult to get a satisfactory report of our conductors' work from the ordinary 'passenger, and should we attempt to use this rider more than his ordinary number of trips in his business he is suspected at once. We have had good results from those whose business as traveling city agents kept them constantly moving over the city.

But my most satisfactory results have been from those who make inspecting a profession, and can work themselves into the confidence of the conductors and be with them when off duty, which I regard as a better time to work them for disclosures about their work while on the car. The professional inspector, if he deserves that name, ought to be able to work a road for a number of times, providing that the official who discharges the men will at the time the dismissal is made cover up the tracks and not disclose where any of his information comes from, and the temptation to do this is strong sometimes when

we run down our man after considerable work.

But after all that may be said of the dishonest conductor, I believe that the class of men which are now to be found on our cars are as much of an improvement over what they formerly were as the car of today is over its predecessor; and in this improvement in our conductors I believe that uniforming them has had the effect of making them take more pride in keeping themselves neat in appearance while on the car, and has had a tendency to elevate their position in their own estimation, and that their general bearing in their intercourse with our patrons has been greatly improved.

DISCUSSION ON DISHONEST EMPLOYEES.

Mr. KERPER liked particularly the portion of Mr. Harris's paper referring to the inspection of men while off duty. Said if time was spent in bad companymen should be watched.

One speaker said that in Knights of Labor resorts it had been noticed that the conductors who handle the money do all the treating.

Mr. KERPER said there were no Knights of Labor in his employ to-day; thought the sooner they were given to understand that they could not dictate as to discharging and reinstating men the better it would be. Said that interferences in this line in Cincinnati were due to what the Knights of Labor called peculiar conditions, which conditions were made peculiar, he thought by the fact that the first demands of the Knights had been granted. He thought the time would come when by Cincinnati street railways these demands would all be rejected.

Mr. CLEGG, speaking of the habits of employees, said he employed no conductors, but had young men and girls to strip fare boxes, but that the same principle referred to by Mr. Kerper applied in a measure, especially to his young men.

Mr. Anderson asked if Mr. Kerper made non-membership in the Knights of Labor a condition of membership.

Mr. KERPER said his men were now all required to sign a contract and put up a forfeit to give ten days' notice of intention to quit work; this a Knight of Labor could not do.

Mr. Davis asked what the practice was as to re.hiring men once discharged. Said that when he had discharged a man he was done with him.

Mr. Kerper sometimes hired a man back if the cause of his discharge was a slight infraction of rules and not against the character of the applicant. He had, however, warned all of his late strikers when they went out that he would not again employ them. While some were first-class gripmen, he did not think it best on principle to take them back. He thought it a very bad policy to let men go who step in ata time of strike to help, and he would not do it. He thought none of the Cincinnati roads had taken any of the strikers into their employ.

had read in the morning paper that his discharge was asked for. He felt fairly safe, however, till next Monday, as the directors did not meet till that time. spoke of the weakening Mr. Kerper's blow to the Knights had caused, and supposed they felt obliged to try to make a point somewhere to recover lost ground. Harris showed no signs of weakness or boy play in the matter; thought if an issue must be forced now was a good time. Spoke of sending some men to Mr. Kerper at the time of the latter's strike, and supposed it was laid up against him.

Next came the reading of a paper on Rules, Discipline, Uniform, etc., by A, D. Rogers.

DISCUSSION ON DISCIPLINE, UNIFORM, ETC.

Mr. FERNEDING wanted to ask some of those present as to their experience as to the wisdom of forbidding smoking, and stopping elsewhere than at street intersections. He thought an arbitrary rule forbidding smoking would result in some loss of business; said that men would not throw away a good cigar for a short ride in preference to walking and smoking. It was a matter of doubt in his mind whether smoking was really offensive to the generality of people, except in case of a bad cigar or pipe; that some people would find fault any way. As to frequent stopping, his drivers had been called upon to stop seven times in one square.

Mr. HARRIS said that his company had recently made a rule prohibiting smoking anywhere on the car. Said they had been very much annoyed by smokers standing upon the rear platform, thus obstructing the entrance, and also loading down the car on the back end, making it run hard. Had experienced no trouble in enforcing the rule, and noticed no loss of receipts.

Mr. Kerper forbade smoking on some cars, but on open cars found no objection to smoking on rear seats. On cable line run a smoking car on every other train morning and evening and in the day time on every fourth train. As to frequency of stops, he only stopped cable cars at street crossings unless the block was more than 500 ft. long, in which case he had stations. Did not stop on steep grades. Had no ordinance requiring cars only to stop at street corners, but thought one would be a great benefit. Said one has passed the Council, but had gone no further. He also spoke of accidents, and thought the STREET RAILWAY JOURNAL had done wrong in publishing a sensational and exaggerated account of their recent accident, taken from a Cincinnati daily.

E. P. HARRIS, editor of the STREET RAIL-WAY JOURNAL, being present, explained how the report got into the paper, through a misunderstanding on the part of one of his staff.

Mr. Rogers thought the question of frequency of stopping one difficult to manage. Had tried the rule of only stopping at corners, but the difficulty was in getting people to understand the rule. Women would hail the car at a distance from the Mr. HARRIS, being called upon, said he | corner. It would stop at the crossing, but | in this issue.

be obliged to wait for her, thus losing more time than would be gained, and traveling men, not understanding the rule, would come out in the center of a block with packages of samples and become very wrathy because the car would not stop. He thought though that the regulation must come sooner or later.

Mr. Kerper handed in a communication from Mr. Swain regarding a new automatic switch.

Mr. KERPER moved that a committee of three be appointed to nominate officers for the coming year, and select a place for the next meeting. Committee-Messrs. Mitchell, of Springfield; Bailey, Toledo; and Kerper, of Cincinnati.

The meeting then adjourned, the delegates to meet at two to go out on the lines, and to convene for executive session at four P. M.

At the afternoon session nothing but the election of officers and the appointing of the place for the next annual meeting was done. The following officers were elected for the ensuing year: President, J. E. Bailey, Toledo; Vice President, Asa S. Bushnell, Springfield; Treasurer, J. B. Hanna, Cleveland; Secretary, H. A. Everett, Cleveland, re-elected, and of the Executive Committee John Kilgour. place of the next meeting will be Cincinnati, on the third Wednesday of November,

After the opera at Black's opera house, which all of the members of the Association attended, as guests of Gen. Bushnell, a fine banquet was given at the Arcade Hotel. Plates were laid for twenty-eight.

Gen. Bushnell acted as toast master, for the evening, and quite a number of toasts and speeches were had from those present of the Association, and Mayor Kelly, E. T. Thomas, President of the City Council, John Foos and Judge Charles R. White.

George P. Kerper, of Cincinnati, presented his paper on "Eccentricities of the Members of the Association." In his paper he made fun of every member, and during the evening he made no less than fifteen speeches, relating stories and keeping the company in a general uproar.

At about three o'clock in the morning the banquet broke up. Before leaving a resolution was passed thanking the members of the Citizens' Street Railway Co, for their hospitality, and also the press for their notices.

This wound up the sixth annual and one of the most successful meetings in the history of the Association.

The present number of the STREET RAIL-WAY JOURNAL closes its third volume. If you do not subscribe for a sufficient number of copies to supply your officers, foremen, etc., now would be a good time to order additional copies, to begin with the January number. If you have not read the paper closely enough during the past year to judge of the amount and value of the matter it furnishes, you might glance at the index of Volume III., to be found

The Growth of City Traffic.

A late number of the Engineering News, of New York, has a carefully prepared article on the internal passenger movement of New York, Brooklyn and London for the past twenty-five years, with comparisons showing the increase in the transportation respectively by street railways, elevated railways, ferries, omnibuses and underground railways. These statistics, as the News says, tell a story for which we must almost go to the Arabian Nights for a parallel. We are accustomed to think of 1860 as a tolerably civilized and advanced period. That there has been growth since that date is well understood, but that there has been a growth so vast that 1860 may be looked on as the beginning of civilization as respects internal city traffic, and all before that almost as a period of barbarism, is hardly realized. Even in the case of Brooklyn, whose population has grown much more rapidly than either of the other two cities, the change in population has not been of a very radical nature. but the change in the amount of internal passenger traffic has been phenomenal.

The London omnibus traffic and the New York-Brooklyn ferry traffic appear to be on something like a settled basis. They have continued so uniform in the past that there is little probability of any great and decided change in the future. The London omnibus traffic has lately grown noticeably, and the Brooklyn ferry traffic has fallen off still more noticeably since the opening of the Brooklyn bridge; but the decrease in the latter has now stopped, so that by comparison with past years we can see that it is not likely to go much farther unless the conditions change again; while the recent growth in London omnibus traffic is still more readily comprehensible. It is clearly but the reflex effect of the enormous growth in other facilities for traffic. A great increase in the average number of trips per city inhabitant will naturally mean a considerable falling of crumbs to even the older methods of transit.

In 1860, when Brooklyn had a population of 266,661, the total horse car traffic of that city was 12,375,000, of which the Brooklyn City Railroad Co. carried 10,478,000. In 1865 the population was 296,378; total traffic, 21,688,000, of which the Brooklyn City carried 16,000,000. In 1870, the population was 365,099; traffic, 36,975,000. In 1880, population. 566,689; traffic, 69,209,000. In 1885, population, 631,383; traffic, 111,919,000. The Brooklyn elevated railroad traffic was 10,159,000 in 1886.

The New York figures are, for 1860: Population, 813,669; horse car traffic, 36,455,000. For 1870: Population, 942,292; horse car traffic, 115,139,000. For 1880: Population, 1,206,299; horse car traffic, 150,390,000; elevated railroad traffic, 60,832,000. For 1886: Population, estimated. 1,480,000; horse car traffic, 210,510,000; elevated railroad traffic, 126,778,000.

The traffic on the New York-Brooklyn ferries was 18,000,000 in 1860; 38,700,000

in 1870; 46,400,000 in 1880; and 36,253,-000 in 1886. The bridge traffic was 24,478,-000 in 1886.

In both cities the combined movement by horse cars, elevated railroad and ferries was 66,830,000 in 1860;190,814,000 in 1870; 326,831,000 in 1880; 518,163,000 in 1886. Of these totals the per cent of New York-Brooklyn traffic was 26.8 in 1860; 20.3 in 1870; 14.5 in 1880; and 9.8 in 1886.

The yearly trips per inhabitant were: New York, internal, 1860, 45; 1870, 122; 1880, 174; 1886, 228. Brooklyn, internal, 1860, 46; 1870, 93; 1880, 122; 1886, 177. Bothtogether, 1860, 45; 1870, 114; 1880, 158; 1886, 212. Brooklyn bridge and ferries, 1860, 67; 1870, 97; 1882, 82; 1886, 89. London, internal, 1862, 16; 1870, 26½; 1880, 58; 1884, 76.

One of the most curious features of these statistics is the very light internal traffic per inhabitant of London as compared with either Brooklyn or New York. London, in fact, shows a surprisingly small aggregate as compared with any of our American cities, which at the present date are almost all above 120 trips per inhabitant, and range from that to upwards of 200. Whether this contrast is one which will be permanent, as a result of the more rapid pace of this country, or whether it is merely that London has been slow in developing its facilities, it would be hard to guess, but the London figures show very strikingly one curious fact which does not appear at all in the statistics for other cities, that the addition of new facilities has created entirely new traffic and not drawn in the least from that before existing; and this fact would seem to agree with inherent probabilities in indicating that London has so low a traffic because it has not yet as great facilities, and hence that the construction of new lines ought to be an exceedingly promising field for investment. London people may not be as restless as New York, but London is still the metropolis of the world, and there seems no reason why its internal movement should be so conspicuously smaller then in this country, except lack of facilities.

In both the New York and Brooklyn statistics the influence of the war and of the dull times of 1873 and 1878 in checking growth is quite notable, although all that was temporarily lost seems to have been more than regained later. The effect of the elevated lines upon horse car traffic is very curious indeed. For the first few years it checked it greatly, but recently the street car traffic has been fully holding its own, in spite of phenomenal growth on the elevated.

The Brooklyn elevated traffic has as yet but begun. That it will ever grow to anything like the New York traffic is hardly probable, but that it will increase fast and greatly is quite certain. In a few months there will be four lines running instead of one. It may be a mere coincidence that the opening of the bridge was followed by such a marked increase in the Brooklyn horse car traffic, but that the bridge has not as yet added greatly to the New York-

Brooklyn traffic is equally clear. Nearly all the bridge traffic so far has been taken solely from the ferries, and chiefly one ferry, Fulton. The other four have fallen off but little, and the two farthest from the bridge (Atlantic and Hamilton) not at all, indicating that but a portion of Brooklyn has as yet been greatly benefited by the bridge.

The very slow rate at which the New York-Brooklyn traffic has increased, in comparison with the vast internal growth of each, is conspicuously brought out by the above figures. That it is unnaturally slow, and means simply that the cities have been growing apart for lack of better facilities to grow together, is undeniable. Whether these better facilities can be had is another question, but that Brooklyn is suffering greatly in a business way by its comparative isolation from New York does not admit of doubt.

Before the Metropolitan (underground) line was opened, the London General Omnibus Co. carried about 40,000,000 passengers annually. The average fare was 7 cents and the cost to the company 61 cents per passenger. There was no marked increase in the business of the company until 1872, when, owing to the competition of railways and tramways, a reduction in prices was made; whilst a still greater expansion has taken place in the last few years, when the severity of the competition has necessitated further reductions in rates and improved vehicles. The average fares by omnibus are now practically the same as by the railway, viz., about 4 cents. The London General Omnibus Co. now carries very nearly as many passengers as the Metropolitan Railway, viz., about 75,000,000 each. In regard to cost, however, there is a great difference, the expense per passenger by omnibus being about 31 cents, whilst by the railway the average is only 11 cents, although the latter spends \$120,000 a year upon its road, and contributes \$160,000 to the local rates. whilst the omnibus is free from both these charges. In spite of the higher cost per passenger, the omnibus is, however, able to pay 121 per cent to its shareholders, whilst, owing to the enormous cost of the road, the railway company barely obtains a 5 per cent rate. On the District Railway the growth of traffic has, of late years, been at practically the same rate as on the Metropolitan system, viz., 251 per cent in the five years ending with 1884; but on the tramway system—where there has, of course, been a much greater increase of mileage-started at about the same time, the expansion of business is equal to about 100 per cent. On the tramways, the average fare is about 3 cents and the cost about 21 cents per passenger.

Taking the total traffic of all the London systems—railway, omnibus and tramway—the increase in the number of passengers carried has been about fifty per cent in the last five years; and this seems to have been about the normal growth during the last twenty years. In the twenty years, from

1864 to 1884, the passenger traffic of London has increased 470 per cent, while in the same period the population rose only 36 per cent. The additions to the transit facilities north of the Thames, can, however, hardly be on the same extensive scale in the future, as the facilities on the main routes have now practically reached their paying maximum; but much yet remains to be done in developing the subsidiary and main tramway routes south of the Thames, and the question to be decided is what is the best method of securing that result. Ordinary underground railways are obviously out of the question, the cost of acquiring the necessary property being so enormous that only the densest traffic can possibly give any return on the outlay. Most of the main thoroughfares are already so crowded that any large addition to the omnibus service is undesirable, and it is asserted tramways will never be allowed to come into the city or over the bridges. Some system securing the advantages of a tramway and underground railway, seems, under these circumstances, the best adapted for meeting the difficulties of the case. By running such an underground line beneath the public thoroughfares, and at a sufficient depth to avoid interfering with pipes and sewers, the enormous cost involved in acquiring property is avoided and the streets are relieved to a corresponding extent.

Views of C. A. Richards, of Boston.

Horses will have to go. There is no doubt about that. I wouldn't want to say that it will be done in a year or in any definite period, but that electricity will move street cars within a short time is certain. Every street railroad man in the country believes it. I expect to see it in use on the Boston railway system by this time next year. There are a good many reasons why the street car companies should want to do away with horses. In the first place, they are costly. The Metropolitan road has 4,000 of them, and they cost us nearly half a million a year for maintenance and depreciation in value by death, not to speak of the cost of stables and interest on the investment. Shoeing alone costs \$50,000, and we put aside \$75,-000 annually for new stock. Other companies have proportionately large expen-

I have experimented with every appliance for moving street cars, and my opinion is that electricity, stored as it was in the recent trials in Philadelphia, is the best motor. The Philadelphia syndicate are losing money every day on their cables. They have put about \$10,000,000 under ground, and it is not worth one tenth of that to them. There are half a dozen different schemes for propulsion by electricity. One is by having a center rail, raised above the outside ones; another is by storing it in an accumulator under the car, and a third is by means of a pole and wire placed along the truck like telegraph wires. The accumulator idea has been tried in

Philadelphia, and the car has run all the way from half a mile an hour to fifteen miles. It is not known, though, how it will act over snow and ice. That has yet to be demonstrated. But a trial trip is to be made in your city the first time that a heavy snow storm comes along. We tried an electric storage system in Boston last winter, but it was a failure.

New Stable Pail.

The advantages claimed for this pail* are that it is light, durable and non-absorbent. It is one of the many articles manufactured from pacrusta, or paper crust, that have come into very general use within a few years; the list including all kinds of pails, tubs, pans, dishes, umbrella stands, etc. Not one of these articles has a seam or joint about it. The pulp of which the ware is made can be obtained from any soft fibrous wood. The wood is first cleared of its bark and is then placed against a



The fine powder powerful grindstone. obtained from the wood is washed from the grindstone by running water, and is carried into a receptacle where it is cleared of all slivers. After being repeatedly strained, the product is a milky-white liquid. When the water has been sufficiently extracted, there remains the wood pulp, from which indurated fiber ware is manufactured, by the use of high pressure and intense heat. After the vessel has been shaped, it is subjected to various treatments, which are the secrets of the company. These treatments bring the material into an absolutely non-absorbent condition. It is this element of non-absorption that makes the ware so valuable. Heretofore it has been almost impossible to so construct pails, for example, that when they are used for holding anything else than pure water, they will not become foul and ill smelling.

*Union Indurated Fibre Co., 110 Chambers street, New York city.

IF You have street railway property of any description for sale, or if you wish to buy any such, or if you wish to secure a Superintendent or Foreman, use our Special Notice column. Good results have been secured by those using it.

A Picturesque System of Collecting Fares.

A Christopher street bobtail car was trundling across town the other afternoon. At Fourteenth street and Broadway a middle-aged woman got on with a basket of clothes. Between her teeth was a silver quarter, which she dropped into the fare box. As the driver turned to ring up her fare he saw first the quarter lying among the nickels in the box and next the outstretched palm of the woman through the hole in the door. "Confound her stupidity," he muttered as he pushed the hand in and slid open the door. "Say, lady, I can't give you no change. You ought to have got it before you put in your fare. You'll have to collect it of the passengers what gets in now."

It took a little time for the driver to explain the system of change envelopes. The door was then slammed, and the old woman dropped into her seat with an air of determination. At Sixth avenue the car stopped. A gentleman with white chin whiskers and apair of eminent respectability entered the car. He was slightly lame. Taking a seat near the rear door, he handed his fare to the person next him to be passed up. When it reached the old woman she put it in her pocket. An expression of indignant surprise came into the old gentleman's face. "Well," he exclaimed, "if that isn't the most barefaced piece of robbery I ever saw."

The driver apparently seemed to think everything was all right, for he rang up the fare as usual. This was too much for the old gentleman. Rising from his seat he hobbled to the front door. Pulling it open he yelled into the driver's ear: "Hi, there, driver! There's a thief in this car. That fat old woman there put my fare into her pocket instead of into the box."

"And it's me you're calling a thafe, is it?" shouted the old woman as she jumped from her seat and made a dive for the gentleman, who backed out into the driver's cage: "It's me that's a thafe: me, a respectable hard-working woman with five small children. I'll have you to know, sor, that I'm no thafe. It's more likely you're a pickpocket yourself, ye ould rascal."

By this time the car had stopped and the old gentleman was shouting for a police officer. Before one came, however, matters had been explained and peace restored.

A Third Avenue horse car was bowling down the Bowery recently as if it was a fire engine out on a third alarm. It stopped for no one. Once in a while a supple man caught the hand bars and leaped aboard, but usually those who hailed the car were left on the crosswalks. The conductor was beside himself with anger, for the driver was the cause of the car's ceaseless flight. As for the driver's feelings, this is how he expressed them: "That conductor will give me my beer every trip and a paper of tobacco every day or, bet yer life, he'll get no fares when I drive the car."

The Ries Electric Welding and Tempering System.

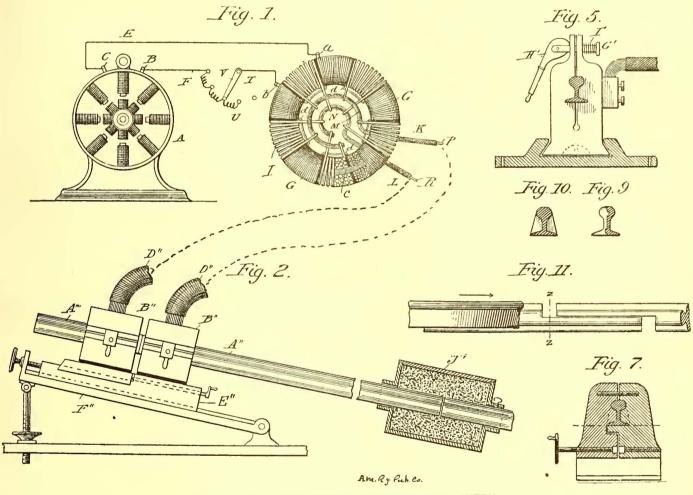
A NEW METHOD OF PRODUCING AND LAYING CONTINUOUS RAILS.

The rapid progress that electricity is now making in the industrial and mechanical arts, and the many and varied purposes to which it is or shortly will be applied in the steam and street railway service, would seem to warrant us in expecting almost any result from this most wonderful power, and new departures that formerly excited our incredulity and astonishment are now looked upon in an altogether different and matter-of-fact manner, regardless of

the chief source of expense for repairs and maintenance of way and rolling stock. The welding of two rails is effected by means of an electric current of large volume or heating capacity, which in the space of a few seconds brings the ends of the rails to a fusing heat. The joint thus formed is then compressed and tempered to its original degree of hardness, so that the wear on all portions of the rail surface is uniform.

In the accompanying cuts we have reproduced the main features of the invention. In Fig. 1, A is a diagram of an alternating-current dynamo, the wires from which lead to the binding posts a and b of

In order to effect a wold between the extremities of two rails, the ends to be joined are secured respectively between the jaws of each clamp, as shown in Fig. 2, leaving a small part of each rail projecting into the space between the two clamps. Pressure is then brought to bear upon the upper clamp, which is movable and insulated from the lower clamp, so that the ends of the rails bear firmly against each other, and the current from the transformer is then gradually admitted to the welding clamps through the copper cables D" D". As the electrical resistance of the secondary circuit is greatest at the point of contact between the two rails, an



THE RIES ELECTRIC WELDING AND TEMPERING SYSTEM.

how surprising and unlooked for the result may be.

We are led to these remarks after inspecting a patent recently granted to Mr. Elias E. Ries, the young Baltimore electrician, whose work on the application of electricity to railways is more or less familiar to our readers. If the claims made for the invention are verified, its practical and commercial importance will be great.

This invention is intended to provide a new method of welding and laying railway tracks, whereby rail lengths of any cross section may be permanently joined and laid end to end in situ, thus forming practically continuous 1 ails and furnishing an almost perfect roadbed, free from rail joints and their attendant evils—chairs, fish plates, nut locks, etc.,—that have always been the fruitful cause of accidents and

an inductional transformer or converter of special construction. The purpose of this transformer is to convert the high-tension primary current generated by the dynamo A into a low-tension secondary current having the required volume to produce the necessary heating effect. The amount of current converted by the transformer is under perfect control, and is varied to suit the requirements of the work by means of a suitable switch. The transformed current is collected from the secondary coils of the transformer by the conductors M, N, whose terminals P, R, are connected, as shown in dotted lines, with the welding clamps B'', B'', shown in Fig. 2. These welding clamps are mounted upon an adjustable inclined platform F", which, with the dynamo and transformer, forms part of the equipment of the construction car.

intense heat is developed at that point which almost instantly fuses and unites them. The current is so graduated as to do this without affecting the re-tempering properties of the metal, and as soon as one joint is formed the clamps are moved forward, the tempering box \mathcal{F} slipped over the joint, and the operation repeated at the next joint. The welding platform or car is moved forward progressively as the successive rail sections are united, the same engine that runs the welding dynamo being used for propelling and transferring the pilot car.

Figs. 5 and 7 represent various forms of clamps for holding the rails in alignment during the process of welding, and these clamps are so constructed as to permit of quick and rapid work. The clamp shown in Fig. 7 produces a ribbed joint, as illus-

trated in Fig. 10, which is found to give an extremely strong and tenacious juncture. Means are also provided for compressing the metal while under the influence of the current, thereby producing a smooth and finished joint that has a much greater tensile strength than any other part of the rail.

It will be evident that some means must be provided to permit of expansion and contraction of the continuous rails thus formed. Mr. Ries proposes to divide each rail into sections one-quarter of a mile in length, fasten these sections at their center and allow them to expand in both directions. A divided expansion joint, Figs. 9 and 11, is formed on the ends of each section, this joint being so arranged as to give a solid support to the wheels while passing, so that practically the entire track is one smooth, continuous way.

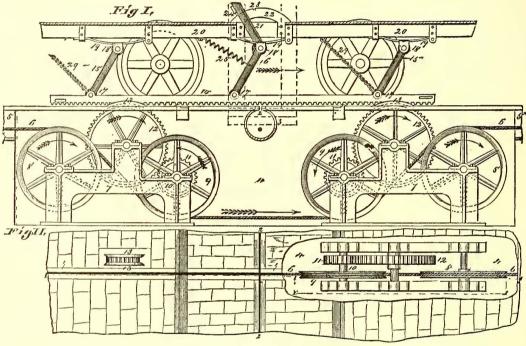
We have given only a small abstract of

line is directly due to the rail joints, and a great deal of ingenuity has been expended in endeavors to produce a perfect rail joint, as the records of the Patent Office will attest. Mr. Ries has attacked the problem in a different manner, by dispensing with the joints altogether, thereby not only practically removing what has always been one of the most expensive and objectionable features in railway construction and maintenance, but contributing very materially to the comfort and ease of traveling and to the various advantages incident to and pertaining to a perfectly smooth and level road.

Women as Street Car Conductors.

A writer in a recent number of Harper's Monthly, in describing the city of Valparaiso, Chili, says:—"The oddest thing to be seen is the female street car conductors.

amusement with the young men about town. Fellows who make a business of flirting with the conductors are called "mosquitos" in local parlance, because they swarm so thickly about the cars and are so great a nuisance. The conductors, or conductresses, are usually young, and sometimes quite pretty, being commonly of the mixed race—of Spanish and Indian blood. They wear a neat uniform of blue flannel, with a jaunty Panama hat, and a many-pocketed white pinafore, reaching from the breast to the ankles, and trimmed with dainty frills. In these pockets they carry small change and tickets, while hanging over the shoulders is a little shopping bag, in which is a lunch, a pocket-handkerchief, and surplus money and tickets. Each passenger when paying his fare receives a yellow paper ticket, numbered, which he is expected to destroy. The girls



CROSSING FOR CABLE ROADS.

this patent, which is applicable, according to the specification, to numerous other purposes in addition to the one described, and the claims cover broadly the method of welding and tempering metals of hardened structure, with special reference to the continuous welding, tempering and laying of rails. It is stated that the operation of welding and tempering by this process takes place much faster, and can be effected at less expense, than the laying of the ordinary joints, the time occupied in making a perfect weld being less than half a minute. The joints thus formed are said to be considerably stronger than the rest of the rail, and to withstand any amount of pounding or strain.

The advantages of Mr. Ries' latest invention appear to be of considerable importance and value from a practical standpoint, especially in view of the success already attained in the new art of electric welding. It is well known that a very large proportion of the expense for maintenance of way and repairs to rolling stock on every railway

The street car managers of Chili have added another occupation to the list of those in which women may engage. The experiment was first tried during the war with Peru, when all the able-bodied men were sent to the army, and proved so successful that their employment has become permanent, to the advantage, it is said, of both the companies, the women and the public. The first impression of a woman with a bell-punch taking up fares is not favorable, but the stranger soon becomes accustomed to this as to all other novelties, and concludes that it is not such a bad idea after all.

"The female conductors are seldom disturbed in the discharge of their duties, and, when they are, the rule is to call upon the policemen, who stand at every corner, to eject the obstreperous passenger. The street cars are double-deckers, with seats upon the roof as well as within, and the conductor occupies a perch on the rear platform, taking the fare as the passenger enters. Street car riding is a popular

are charged with so many tickets, and when they report at headquarters are expected to return the money for all that are missing, any deficit being deducted from their wages, which are \$25 per month."

Crossing for Cable Roads.

The system here illustrated* is intended for use on steep grades where cable lines cross each other, and also in switching from the main line to a branch line, and in crossing streams where draw-bridges are used. When it is used at a crossing, one of the cables is depressed, as usual, so as to pass under the conduit of the other. This is effected by means of sheaves 8 and 9, in Fig. II. To sheave No. 9 is keyed a pinion which gears with a wheel, 12, that extends through a hooded slot alongside the grip slot, as shown at 13, in Fig. II., and in Fig. VI. Wheel No. 12 meshes with a rack on the bottom of the car. This rack may be raised and lowered by means of

*Chas. J. P. Heim, 2,834 Dickson st., St. Louis.

arms, 15 and 16, and a lever, 21. To this lever a cord, 27, is attached, which passes over a pulley, 28, and terminates in a stirrup, 26, in which the gripman places his foot when making a crossing, while his hands are releasing the grip from the cable. The rack, upon being lowered, engages in the first gear wheel, and is pushed forward. The second gear wheel engages it before it runs off the first one, so that the crossing is effected without any stop. When the grade is not very steep a friction wheel, like that shown in Fig. VIII., is considered preferable to the gear wheel. In this case the rack is replaced by a wedge-shaped piece of timber.

When crossing draw-bridges (Fig. IX.) the cable is dropped down by sheaves to below the level of the bed of the stream. It crosses the stream through a pipe, and

LEGAL INTELLIGENCE.

Winnegar's Admr. v. Central Passenger Railway Co. Court of Appeals of Kentucky, May 7, 1887. Foyor, C. J.

STREET RAILWAY COMPANY—PASSENGER CARRIERS—ACTIONS WHICH SURVIVE.

First—No action can be maintained, either at common law or under the statute, by the personal representative for the destruction of his intestate's life where the injury from which death resulted was wilfully and intentionally inflicted. An internal injury cannot be said to have been the result of negligence.

Second—An action for an assault and battery does not survive to the personal representative.

Third—An action against a passenger carrier in the nature of an action on the

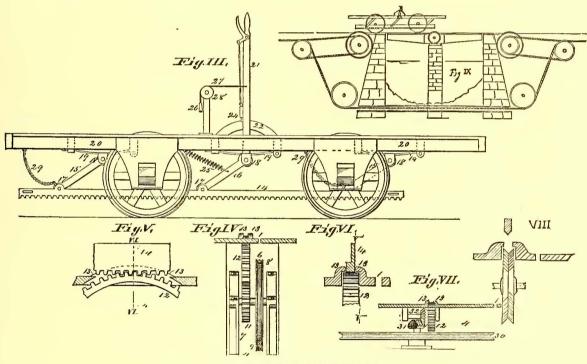
ing a street railway company, the ordinary fare for carrying passengers, when the driver refused to take it, assaulting and striking plaintiff's intestate, knocking him off the car, and that he was then run over by the car, receiving injuries from which he died, after suffering great bodily pain and mental anguish. For the injury, resulting in the physical and mental pain as alleged, the administrator seeks to recover.

Held, that the demurrer to the petition was improperly sustained.

Mullen v. Philadelphia Traction Co. Court of Common Pleas of Philadelphia, Oct. 1, 1887. Thayer, J.

STREET RAILWAY COMPANY—LIABILITY FOR ACCIDENTS OCCURRING THROUGH NON-RE-PAIR OF STREETS,

First—A passenger railway company which, by its act of incorporation, is



CROSSING FOR CABLE ROADS

is then raised again to the level of the street by means of sheaves.

Gear wheels are placed as indicated in the cut, those on the land being operated by the cable. Those on the draw may be operated by a separate coal-oil engine. The rack is extended the entire length of the train, when this is desirable.

Mr. C. A. RICHARDS, of Buston, in a published interview says he regards electric cars as superior to horses, cable and elevated steam roads. Heurges as an advantage that has not hitherto been dwelt upon sufficiently that they will prevent street blockades.

The Elieson Motors, propelled by storage batteries, have been running since Aug. 6 on the North Metropolitan Tramways, London, and have run 17,000 miles, carrying 172,000 passengers. The cost is stated to be not more than two-thirds that of horse traction. A successful trip of an electric launch has been made with the same type of motor.

case for the injuries resulting from a breach of the carrier's contract to transport the passenger safely, survives to the personal representative; and the fact that the death of the person injured resulted from the injuries received does not affect the right of recovery, the action being for the injuries and not for the death.

Fourth—The law implies a contract upon the part of a carrier of passengers for the protection of the party carried from the insults and wanton interference of strangers, fellow passengers, and the carrier and his servants; and for any violation of the implied contract by force or negligence the carrier is liable in an action of contract or tort.

Fifth—The law requires the carrier to transport with impartiality and safely those who offer.

Sixth—In the petition in this case to which a demurrer was sustained by the lower court, it is alleged that the plaintiff's intestate offered the driver of one of the defendant's street cars, the defendant be-

obliged to keep in repair the streets over which its road passes, is liable to a person who suffers special damage through the neglect of the company to fulfill its obligation to repair.

Second—A company which is the lessee of a company under an obligation of this character, by accepting the lease and taking possession of and operating the road, becomes subject to the same responsibility to a person injured as that to which the lessor company was liable.

Settling for Injuries to Pedestrians.

BY MYRON T. BLY.

"Shall we fight or settle?" That is the question a street railway manager asks himself very frequently. The query arises about every time a claim for damages is made by one who was not a passenger when the accident happened, because, in nine of such cases out of ten, the injured party ought not to be allowed damages. The great majority of such accidents happen

through the fault of the person injured, and therefore the company is not legally responsible. Managers and directors know full well that the claim should not stand in law, but there are questions of policy which they have to consider. They have to bear in mind the well-known tendency of juries to bring a verdict against corporations, simply because the verdict is to be against a corporation. It is a fact well known to attorneys, that a verdict may be secured against a railway corporation, when, upon precisely the same state of facts, a verdict could not be secured against a private individual, or, if secured, it would be only about half the amount.

In the next place the manager knows that if the company refuses to settle, the claimant can find plenty of lawyers willing and glad to take up the case contingently -no recovery, no pay. Eminent and pure jurists have advocated the morality of contingent fees, but the best sentiment of the bar condemns the practice. That is not for discussion here, however. Knowing this, the manager knows that a plaintiff can put the company to great expense and annoyance, by the expenditure of a little money. All these things dispose managers to settle without litigation. There are combative managers who believe in fighting every claim to the bitter end and paying only on an execution. This is not politic.

It is said that the Pennsylvania Railroad Co. long ago adopted the policy of avoiding litigation whenever possible, and that the plan has worked to eminent satisfaction. On the other hand a manifestly unjust claim should never be willingly paid. It is not fair to other roads, nor is it good morals.

An examination of a large number of street railway accident cases, has led the writer to certain conclusions regarding their settlement which may be summarized as follows:—

First. If the circumstances attending the accident are such that the claimant stands a good chance of getting to the jury, even though the claim is believed to be fraudulent, it is best to settle the claim. For, if there is a conflict of testimony as to how the accident happened and the facts are left to the jury, it is pretty sure to decide against the company, and, having so decided, it is pretty sure to bring in a verdict for a larger sum than would have been accepted in settlement.

Second. If the facts all go to show that the accident happened wholly or partly through the fault of the person injured, and therefore it appears that his chances of getting to a jury are slim, the case should be litigated. A plaintiff is not entitled to have the matters in dispute left to the jury, unless he shows affirmatively that he was without fault. If it appears that the accident actually happened wholly or partly through his own fault, the court is bound to non-suit him, and most judges, knowing the unfairness of juries towards the companies, will, as a rule, gladly grant a non suit in every proper case. There

are some exceptions to the rule regarding contributory negligence, as just stated, but, for our present purposes, it is substantially correct.

Third. If the amount demanded by the injured party is out of all proportion to the injury received, even though the equity of his claim is admitted, it should be contested.

Fourth. This is especially true when the claimant is suspected of shamming injuries. Employ a detective to shadow him and if evidence of shamming is procured make that the leading defense. The jury can often be convinced of the fraud, and will find a verdict for nominal damages accordingly.

Fifth. When it has been decided that a claim slall be contested, go into the contest with the expectation of carrying it to the court of last resort if necessary, in order to succeed. Of course, it may turn out at the trial, that, by reason of the defection of the company's witnesses, or by reason of the production of unknown and unexpected evidence on the other side, appeal to the higher courts would be of doubtful success. In such a case, the wise recourse is to settle with as good grace as a defeated suitor can command.

Right here mention should be made of the important part a munaging director or superintendent may take in settling for accidents. As soon as an accident happens, within the next hour if possible, he will go himself or send an assistant who is equally as good a dealer with human nature, and have a personal conference with the injured party. The latter has not yet had time to formulate a story of the accident, and, if cautiously approached, will tell the unvarnished truth about it. Men's feelings are about as frequently injured as their bodies, and soothing conversation is needed. A personal conference at such a time will in many cases let the company off entirely or by paying a small bill for medical attendance. If the injured party maintains a belligerant attitude, the truthful fact; obtained in the interview may be produced on a trial and win there.

After a conference has been had, immediate steps should be taken to procure the statements of all employees having any knowledge of the accident, and a special effort should be made to have a talk with outside spectators, while they are unbiased and before they have become favorable to the other side. Care should be taken not to let them express their private opinions as to how the accident happened. All that is wanted is a plain and truthful statement of what they saw and heard.

All such work as this is in the province of the superintendent or manager, and the same is true as to all negotiations before a suit has been actually commenced. Most lawyers, unless they desire to make unnecessary work for themselves, will admit that such affairs are better off in the hands of a shrewd business man than in those of an attorney. After a shrewd business man, representing the company, has failed to conclude a settlement satisfactorily, it will

be time enough to refer the matter to the company's attoracy, though of course the representative should take counsel as to the questions of law involved and should be under the advice of counsel.

If the matter is placed in the hands of the attorney, he drops notes to the injured party and the witnesses requesting them to call on him. The claimant bristles up immediately, and if he goes at all he talks guardedly and refuses to commit himself to any statement. The outsiders are afraid of a law office and frequently tell a different story entirely when they are called to the witness stand.

I do not advocate that the attorney should not talk with the parties and witnesses. The business man should do it first. He talks to them as a business man on their own footing, perhaps, and stands a better chance of getting full and unbiased statements. If the managing director or superintendent does this he acquires a grasp of the case which is of great value to the attorney, when the time comes for the attorney to take a hand. Some men should never have a lawsuit. They tell their lawyer they have been sued, and leave it for him to find out what for and how to defend. The clients who "work up" the case for their attorney are the ones who succeed, and attorneys, if it were only known, are more frequently led to adopt a successful line of defense from suggestions let fall by clients than from information they derive from their own investigation.

There are many cases "in the books" illustrating the statements of this article, and some excerpts from these may be given in the future. It should be borne in mind that the above thoughts relate to accidents to pedestrians and not to passengers.

The Brussels Electric Tramway.

An interesting paper on the electric tramway of Brussels has been contributed by Mr. A. Bandsept to the proceedings of the Société des Anciens Elèves des Ecoles Nationales d'Arts et Métiers. The cars on this line are propelled by a motor placed under the floor, and current is supplied by Julien accumulators, which are inserted under the seats from the sides, and not from the end of the car, as is Reckenzaun's arrangement.

The total weight of the car in working, and withits full complement of passengers, is 6 tons. The weight of the battery is 30 cwt., and the 120 cells composing it can be united, 30, 60, 90, or all in series, producing an electromotive force of respectively 60, 120, 180 and 240 volts. These different combinations are produced by a regulating switch, by which the speed of the car is controlled. The electromotor is fixed to the under side of the car floor near one of the axles, and works, by means of rope gear, an intermediate shaft suspended between the two axles of the car. From this countershaft motion is transmitted to one of the axles by a pitch chain. The motor is convenient but not powerful.

STREET RAILWAY NEWS.

Albany, N. Y.

ALBANY Ry., on account of a church fair that was being held, placed one of the largest Pearl street cars on the Clinton avenue line. One evening recently this car came down the street packed full of people. Reaching the heavy grade between Ten Broeck and Pearlstreets, it got beyond the control of the driver. Part of the distance there is but a single track. On this one of thrup curs had just turned from Pearl The brake did not work on the street. down car and the horses were powerless to hold it. The situation was exciting and those who witnessed it thought a loss of life inevitable. The platforms were soon emptied, the passengers jumping and fall ing off in wild confusion. The car left in its wake men and women lying about the The rapid emptying of the car alone saved the horses from death, and averted a collision with the up car. Nobody was seriously hurt.

Ansonin, Conn.

DERBY Horse Ry. Co. expect to open their new 4 mile Van Depoele electric road about Jan. 1. They will have 9 cars and 4 motors. The company has a capital stock of \$50,000.

Asbury Park, N. J.

SEASHORE ELECTRIC Ry. Co. The Asbury Park Commissioners have ordered that no more wooden poles shall be erected along the line of this road, and that those already in position shall be removed. The officers of the roal appealed in vain to have the resolution rescinded; and the wooden poles will have to go.

Atlanta, Ga.

ATLANTA CITY & SUBURBAN ST. R. R. Co. The bill to incorporate this company has become a law.

FULTON COUNTY ST. R. R. A bill incorporating this company has been passed by the Georgia Legislature.

Attleboro, Mass.

ATTLEBORO, No. ATTLEBORO & WRENTHAM Sr. Rv. Co. has been organized, with a capital stock of \$100,000, and the following directors: H. G. Bacon, Peter Nerney, C. L. Watson, J. E. Draper, H. M. Daggett, Jr., W. M. Fisher, F. L. Burden. The route will be from Park street railroad crossing in Attleboro, through Park, North Main, North avenue, High, Elm, Washington and South streets to Plainville, a distance of about six miles. It will not be many months before this mode of transit will be in use between Attleboro and Plainville. The Sprague system will be used.

Baltimore, Md.

A Company has been formed to build a street railroad from North avenue and Division street to the Highland Park Hotel.

Bessemer, Ala.

Bessemer Dummy Line Co. will build a branch to Powderly.

THE OTHER NEW COMPANY will not build for six or eight months.

Binghamton, N. Y.

Washington St. & State Asylum R. R.

Co. This line has now been running as an electric railway about five months, and has proved entirely satisfactory to the owners. The six motor cars run, on an average, over 60 miles a day each. Two hundred thousand passengers have been carried since the use of the electric motors was begun, more than twice as many as were carried by horses during a similar period. The electric outfit is from the Van Depoele company. The road has grades as high as seven per cent, which are got over without difficulty.

Bloomfield, Fla.

A TRAM LINE from the wharf on Lake Harris to Bloomfield, 4 mile, will be built by William D. Mendenhall.

Blonntsville, Ala.

BLOUNTSVILLE & BANGOR DUMMY LINE Co. will have a 12½ mile line, of broad gauge and medium rail, 2 or more cars, 2 or more steam motors. The capital of the company is \$100,000, and work will begin as soon as this amount is obtained.

Boston, Mass.

WEST END St. Ry. Co. took possession of all the street railways of the city Nov. 10, in accordance with the plans to which we have already referred. The company starts wi h 2111 miles of track, 1,717 cars and 8,446 horses. The number of employees is 3,711 and the total number of passengers carried by the companies that have amalgamated, during the twelve months ending Sept. 30, was 91,808 219, an increase of 5,531,439 over the previous year. It is reported that the new company's slate will be as follows: President. Henry M. Whitney; Vice President, Moody Merrill; Treasurer, J. B. Goodspeed, late General Auditor of t e Mexican Central Railroad. It is said that C. A. Richards will have the general management, with D. F. Longstreet, of Providence, as active manager.

Car Track Friction Appliance Co. report business good. They have just filled orders for their boxes for roads at Lincoln and Omaha, Neb.; Seattle, Wash. T.; Duluth, Minn.; Cincinnati and Lima, O.; Kansas City, Mo.; Waterbury, Conn.; Fitchburg, Mass.; and have a large number of orders to fill. Street railway managers seem to appreciate the value of these appliances as both a labor and time saver, and a pretty good method of insurance against loss to their roads against accidents, especially electric and cable people.

ELECTRIC EXPERIMENTS. The Sprague electric car was given another trial in Cambridge, Oct. 22. The car was in active operation about one hour and fifteen minutes, and during that time traversed about ten miles. A speed test was made on Kirkland street, and for about half a mile the car ran at a rate of between ten and twelve miles per hour. From Harvard square to Barry's Corner, Brighton, a distance of over a mile, the running time of which for a horse car is seven minutes, the electric car covered in five minutes and forty seconds. The trial was one of the most successful which has yet been made.

LYNN & Boston R. R. Co. Tests are be-

ing made with a new mechanical motor on one of the ordinary box cars of this company.

Bridgeport, Conn.

Bridgefort & W. Stratford R. R. Co. will put down \(\frac{1}{2} \) mile of track next year.

Brooklyn, N. Y.

GREENPOINT & LORIMER St. R. R. Co. has now 165 horses,

NEW WILLIAMSBURGH & FLATBUSH R. R. Co. reports 269 horses now.

Jamaica & Brooklyn R. R. Co. The work of changing this line to an electric road is going on satisfactorily, and it is thought that horses will be superseded by the end of the month. The Van Depoele double overhead system is used. The road is free from grades and has but few curves. A 100 H. P. generator has been installed at the station, midway on the line. The wires are in place, and they are now only waiting for the cars, which are on the way from Pullman, Ill.

The Long Island Electric Co., with principal office at Jamaica, has been organized. The capital stock is \$100,000, and the officers are: President, Jesse Browne, Jr., Jamaica; Vice President, William M. Scott; Treasurer, A. K. Stiles. This company will furnish the power for the Van Depoele electric road from Brooklyn to Jamaica, and will also furnish electric lights.

EMPLOYFES talk of a uniform ten hour rule when the present compact with the companies expires, in January; but it is thought that a satisfactory settlement will be reached.

BROOKLYN RAILWAY SUPPLY Co. are very busy building sweepers and plows, many orders being received from roads of medium size where their machines have been used previously, the good results obtained leading to further orders. Boss and Walkaway snow plows are selling in all directions, both in the largest and in smaller cities. Their small cost brings them easily within reach of the smallest company, and their great capacity for work, both as plows inside the track and as levelers outside, making them a necessity for the largest companies who wish to handle snow economically. Business in the general supply line is also good, and street railroads, as far as their observation goes, are all enjoying a boom.

ATLANTIC AVE. R. R. Co. This company's Vanderbilt avenue car stables, together with the depot of the Prospect Park & Coney Island R. R. Co., in Ninth avenue, between Nineteenth and Twentieth streets, were burned Nov. 14, with all their contents, including 150 horses. The stables were of brick, 200 by 125 ft., two stories high. The fire started in the feed cutting room, in which there was a gas engine. The engine had not been in operation for an hour before the fire was discovered, and, so far as could be learned, no one had been in the room for that length of time. The gas engine had ceased to operate, and there was no light or fire in the room. Twenty horses were saved. This is the

third time in two years that this company's stables have been destroyed by fire. It is conjectured that the fire may have been started by dropping a lighted match in the cellar through the street grating, or by some carelessness on the part of an employee. There is also a suspicion of incendiarism, but so far as could be learned there was nothing elicited to substantiate Mr. Richardson himself regards it as very strange that the burning down of his stables should follow each other in such rapid succession, but he states that he has nothing tangible on which to base a charge of incendiarism. In addition to the 150 horses, which were worth about \$160 each, there were burned up 1,017 bales of hay, 267 bales of straw, 23 cars, 90 bags of mash, and more than 200 sets of harness, in addition to considerable other material used in the stables. The building, which cost \$85,000 fifteen years ago, could probably be replaced now for \$65,000. with the other losses of Mr. Richardson's company, will foot up a total of about \$110,-000, on which there is an insurance of \$70,-000, so that the actual loss will be about \$40,000. The previous fires from which the company suffered were in the Butler street and in the Seventh avenue stables, and in each case, as in the last fire, a large number of horses perished.

BROOKLYN CROSS TOWN R. R. Co. The ramor that this company was to purchase the Atlantic Avenue Rullroad originated from the fact that the latter company has been making arrangements to decrease the service on the Vanderbilt avenue line. Secretary Richardson, of the Atlantic Avenue company, says that there have been no negotiations.

Buffalo, N. Y.

ELECTRIC MOTORS are to have a trial on the Main street line, and will be running there before the end of the year.

Canandalgua, N. Y.

CANANDAIGUA ST. R. R. Co. have their road, 2 miles long, in successful operation. Cape May, N. J.

ELECTRIC RAILWAY. The City Council has passed an ordinance granting the company a location. The new road will connect the Gentlemen's Driving Park with Ocean Pier.

Charlotte, N. C.

CHARLOTTE ST. Ry. Co. will extend their road next summer. They have 5 cars and 29 mules. E. K. P. Osborne is now President and J. H. Wilson Superintendent.

Chattanooga, Tenn.

CHATTANOOGA ELECTRIC ST. R. R. Co., whose incorporation we noted last month, will, it is reported, begin operations very soon.

CHATTANOOGA & SUBURBAN ST. Ry. Co., recently chartered, have asked for a permit to build an electric railroad.

Chicago, Ill.

Brookline Electric Motor & Lighting Co., of Chicago, has been incorporated by William A. Stiles, James McLaughlin and John R. Hollister. The object is stated to be to furnish electrical power, electric

light, etc.; and the capital stock is fixed at \$100,000.

CHICAGO WEST DIVISION RY. Co. At a meeting of the Board of Directors, Oct. 29. the terms of the Yerkes syndicate for the transfer of the road were accepted. The purchase was made on the basis of a valuation of \$8,125,000 for the entire property, the price being \$650 per share. The purchasing company is largely composed of Philadelphians, and it is stated that it has a capital stock of \$10,000,000, and after purchasing half of the old stock will have a margin of \$6,000,000 with which to improve the West Side railway system. This amount, it is understood, or as much of it as is necessary, will be spent as fast as possible. The first work will be the rebuilding of the Washington street tunnel, which will be done during the winter, and as soon as the spring opens the putting of a cable system on Madison street will be commenced and pushed to completion. Other streets will follow just as rapidly as the work can be done. The expectation is that Madison street will be completed during the year, which will be a long step toward helping the West Side out of its trouble, and inside of three years the calculation is to not only have all the important arteries of that division provided with rapid transit facilities, but many miles of new track will be laid.

Cleveland, O.

THE STREET RAILWAYS here have been making greater improvements of late than those of almost any other city in the country. They are laying heavy rails, paving with Medina stone, and building new stables and car houses. A marked improvement has also taken place in the cars. The Superior street and Payne avenue lines, the Broadway & Newburg, and the St. Clair Street Railway Co. have added a lot of Jones' best cars; and now the East Cleveland Co. has ordered 10 new Jones cars, of the very highest quality.

Columbia, S. C.

COLUMBIA ST. RY. Edward Benedict. Secretary, and W. de L. Benedict, Treasurer, of 32 Liberty street, New York, have resigned.

Columbus, O.

THE NEW ELECTRIC RAILWAY, under the Short system, will run two trains, at a speed of about ten miles an hour. The cars will have a carrying capacity of 120 passengers each.

Dallas, Tex.

Dallas & Oak Cliff Ry. Co. has 3 miles built out of its contemplated length of 32 miles, and is now running motor trains to Oak Cliff.

Danbury, Coun.

DANBURY & BETHEL ST. RY. Co. The drivers struck Nov. 5 for an increase in wages from \$1.75 to \$2 per day, twelve hours to constitute a day's work. The co npany offered them 25 cents a trip, the schedule to be eight trips a day; but the men would not accept this.

Dayton, O.

WHITE LINE ST. R. R. Co. This Van Depoele electric road will have part overhead and part underground conduit, and there will be 81 miles of track. The road will be opened about Dec. 15. The plant will comprise two 16 by 42 Corliss automatic cut-off engines and two 60 by 60 return tubular boilers, of Lane & Bodley make.

Denver, Col.

DENVER & WEST SIDE CABLE RY. Co., one of George Wirt Bowman's enterprises, and of which he is President, is just beginning work on its line, which will be about 12 miles long. Two miles will be finished by Feb. 1, it is thought. Thomas J. Bourke is Vice President and Treasurer, and John D. Woodruff Secretary. Their road will be laid to 3 ft. 6 in. gauge, with 16 and 20 lb. T rail, and they contemplate running 50 cars.

Detroit, Mich.

DEFROIT CITY RY. Co. increases since its last report from 35 to 39 miles of track, from 130 cars to 140, and from 1,150 horses to 1,200.

Duluth, Miun.

DULUTH St. Ry. Co. increases from 51 to 7 miles of track, and from 91 mules to 104. Easton, Pa.

EASTON, So. EASTON & WEST END PASS. Rv. Co. proposes to track Northampton street from Sixth to Seventeenth to Washington, affording ready access to a part of Palmer township that is building up. Twelve new cars will be needed, also more horses and stabling. The estimated cost is \$10,000, which will be raised by issuing stock.

LAFAYETTE TRACTION Co. have begun work on their electric railway, Daft system, and expect to open it about Dec. 1. The grades are rather steep, and the results of the operation of the road will be watched with interest.

Elgin. Ill.

ELGIN CITY RY. Residents of the north part of the city are anxious to have the line extended from Seneca to Summit street.

Entaw, Ala.

A DUMMY ROAD to Falkland is contemplated.

Fort Worth, Tex.

FORT WORTH ST. R. R. Co. increases from 89 mules to 103.

Galveston, Tex.

THE PRACTICAL CONSOLIDATION of the two street railway lines went into effect Oct. 26. As before stated, the two lines will be run uuder separate organizations, though the consolidation is practically a merging of the Gulf City line into the Galveston City company. As a result of this consolidation several cars will be discontinued on both lines. Work will be commenced at once in changing the gauge of the Gulf City lines to conform to the Galveston City lines, and several lines now running parallel will be changed to cir. cuit lines. It is probable that this consolidation will result in a connection next spring between the terminal resorts of the two lines, Woollam's lake and the Beach, by a line of road extended from the lake around the beach to the Beach Grand Rapids, Mich.

VALLEY CITY ST. & CABLE Ry. Co. are now building their road, which will be part horse and part cable. A portion of the line will be opened about Dec. 1. In addition to the list of officers reported previously, A. W. Eggleston is Vice President, and William Phenix Constructing Engineer. The company has a capital stock of \$200,000.

Greenville, Tex.

GREENVILLE ST. Ry. Co. C. W. Collier is President of this new company.

T. H. King is President of the other new street railway company.

Harrlsburg, Pa.

East Harrisburg Pass. Rv. Co. has decided to change from horses to electricity, and has awarded the contract to Chadbourne & Hastings, of Philadelphia, agents of the Sprague Electric Railway & Motor Co. The track will be 4½ miles in length, and they will start 6 cars with the overhead wire system. Work will be begun at once.

Hastings, Neb.

CITIZENS' ST. Rv. Co. has 6 miles of track, of standard gauge, 8 cars, 24 horses. They have a capital stock of \$100,000. Work on this new road was begun last spring, and they are now running.

Haverhill, Mass.

HAVERHILL & GROVELAND St. Ry. Co. Ira O. Sawyer is now President of this company.

Helena, Ark.

CITIZENS' ST. RY. Co. has filed the bond stipulating that a mile must be completed within a year, and a half mile additional each six months thereafter, until three miles are built. Memphis and St. Louis men are said to be back of the scheme. Work will be commenced at once.

Houston, Tex.

HOUSTON CITY ST. Ry. Co. has purchased materials to extend its lines.

Indianapolis, Ind.

CITIZENS' ST. Rv. Co. has just completed an extension of its lines to Hanghville, a suburb. Two miles of new track were laid, using the Johnson 38 lb. steel rail. Two new cars of the Stephenson make have been added. A driver on one of this company's lines was recently attacked and killed by ruffians. It is supposed to have been done out of pure deviltry, as the cash box was untouched. There is no clue to the murderers, but the company employ an officer to ride on the cars which run through that neighborhood.

Kansas City, Mo.

Kansas City & Olathe Investment & Rapid Transit Co. will begin work on their new road next spring, and expect to have it in operation in a year. Its contemplated length is 21 miles, broad gauge, 45 lb. rail, 12 cars, 4 dummy engines. The company has a capital stock of \$1,000,000, and the officers are: President, D. B. Dyer; Vice President, J. W. Strayer; Secretary, J. A. Stewart; Treasurer, Thomas H. Durham.

Kansas City & Rosedale Ry. Co., operated by Metropolitan Street Railway Co., are now running cars regularly to Rose-

dale. They have 4 miles of track, with 52 lb, rail, 20 cars and 140 horses.

FIFTEEN MILES of double tracked cable road are now in operation in Kansas City. The three lines now in rapid course of construction aggregate over twelve miles more. For the coming year nearly twenty miles more of cable road is projected. Of this last amount the franchises have already been granted for two lines, of about three and a half miles each. The projectors are working earnestly on the other lines. Deducting the requisite distance for the single case where rival lines are competing for franchises covering the same territory, there seems every reason to believe that there will be over fifty miles of double track cable road in operation in Kansas City by Jan. 1, 1889.

CITIZENS' CABLE RY. Co. are likely to get their franchise, and in that case work will begin on the road at once. It will be a little over four miles long. It will run south to the city limits. Robert Gillham is Chief Engineer.

PEOPLE'S CABLE Ry. Co. The iron for this new cable road is nearly all in from the power house westward, and work will soon begin on the other division. The route is from Main street east on Tenth street to Brooklyn avenue, thence south to the city limits. Robert Gillham is Chief Engineer of this line.

METROPOLITAN ST. Ry. Co. has obtained franchises for two new lines, upon which work will begin shortly. These are the Eighteenth street line and the Independence and St. John averue line. These will be nearly seven miles long. It is thought that the western division of the Twelfth street road, from Charlotte street to the stockyards, will be running in two or three weeks, and the eastern division by Jan. 1. The Metropolitan has projected a line up Broadway to Twenty-third street, with branches; but the Kansas City Cable Co. is seeking a franchise for a line through the same territory. The Wyandotte extension of the Fifth street line was opened Oct. 27. The cable is 23,500 ft. long. The line turns four corners by parabolic curves, and crosses four steam railroad tracks.

Kansas City Cable Ry. Co., if they can get suitable franchises, will build a line $2\frac{1}{2}$ miles long on Summit street south to the city limits; another $2\frac{1}{2}$ miles long on Woodland avenue south to the city limits; and the Independence avenue and Ninth street lines each a mile to the eastern city limits.

Grand Ave. Ry. Co. has no new roads under construction except the proposed Holmes street line, over which a contest exists with the Citizens' company. It is thought that the South Grand avenue line will be running by Dec. 1.

INDEPENDENCE & PARK Ry. has completed its track to Prospect avenue.

Union Ry. Co. will probably use the Henry or conduit system on their new cable road from Missouri avenue and Main street, via Sixth, Cherry and Fourth streets and Agnes avenue, to the Milwaukee & St. Paul

bridge, a total length of $6\frac{1}{2}$ miles. W. M. Broadwell is interested in this project.

LA GRANGE St. R. R. Co. The bill to incorporate this company has become a law.

LANSING CITY Ry. Co. increases to 6½ miles of track, from 5 cars to 11, and from 24 horses to 44. Harry M. Clark is now Vice President, Secretary and Treasurer. Lexington, Mo.

LEXINGTON & KANSAS CITY LAND & INVESTMENT Co. will extend their road 1½ miles and put on 2 additional cars. They have at present 2½ miles of track. The officers are: President, R. G. Estell, Kansas City; Vice President, William Hackman, Lexington; Secretary and Treasurer, James Wentworth; Superintendent, Geo. M. Mountjoy.

Little Rock, Ark.

LITTLE ROCK & CITIZENS' ST. Ry. Co. has now 15 miles of track, 35 cars, and 225 horses and mules.

Los Angeles, Cal.

An Extension on Main street to the Ballona crossing is projected.

Lowell, Mass.

Lowell & Dracut St. Ry. Co. J. A. Chase, Superintendent of the Lowell Horse R. R., has been chosen Superintendent of this company also. The two companies are now under one control, but maintain their separate organizations.

Lowell Horse R. R. Co. Edward H. Tucke has been chosen President, and Walter H. Sawyer Secretary and Treasurer.

Macon, Ga.

CENTRAL CITY ST. Rv. Co. The bill incorporating this company has become a law.

Macon City & Suburban Ry., Light & Power Co. has been incorporated.

Memphis, Tenn.

CITIZENS' ST. R. R. Co. built 5 miles of new track this year, and will extend 2½ miles next year. Since their last report to us they have increased from 140 to 160 cars. They have how 34 miles of track laid with 38 lb. girder rail, and 6 miles laid with 45 lb. tram rail.

A DUMMY RAILROAD to Raleigh is projected.

EAST END Rv. Co., in conjunction with the city, will build a bridge at Monroe street, to cost \$4,000.

Milford, Mass.

MILFORD & HOPEDALE ST. Rv. Co. has applied for a charter. Electricity will probably be used. The capital stock is \$50,000, mainly held by the gentlemen interested in the Milford Electric Light & Power Co. and the Milford Water Co.

Milwankee, Wis.

New Cable Combination. The projectors of the original Sanderson cable company and the Frisbysyndicate have pooled forces, and ask a franchise on the south, east and west sides over any route that the Aldermen may dictate, and they bind themselves to put in the "national grip system," such as now used in Chicago,

Kansas City and St. Paul, at a cost of \$85,-000 per mile of double track.

Mobile, Ala.

MOBILE & SPRING HILL R. R. Co. have purchased 800 tons of steel rails, and will use dummies.

Mount Carmel, Ill.

BLUFF CITY St. Ry. Co. has been incorporated by Willard F. Hoskinson and others, with a capital stock of \$6,000.

Mount Vernon, N. Y.

Mt. Vernon & East Chester R. R. Co. will extend their line to Bartow. They have now 3 miles of track, of 4 ft. 8 in. gauge, 7 cars and 26 horses. They have reorganized, with the following officers: President, B. Wertheimer; Secretary, James T. Byron; Treasurer, P. L. Wertheimer; Superintendent, F. R. Rakeman.

Nashville, Tenn.

McGavock & Mt. Vernon Horse R. R. Co. increases from 217 mules to 300.

Nevada City, Cal.

NEVADA COUNTY LAND & IMP'T Co. ask a franchise for an electric railway, 4 miles long, between Nevada City and Grass Valley.

Newark, N. J.

THE NEW CABLE ROAD. The work of construction is going forward rapidly. Two and a half miles of double track are being laid. The cable, built by John A. Roebling's Sons, will be driven by a 250 H. P. engine, built by the Iowa Iron Works, of Dubuque, Ia. It is hoped to put the cable in motion about Jan. I. D. Atwood is Superintendent of Construction.

Essex Pass. Ry. Co. increases from 133 cars to 141, and from 797 horses to 899.

New York, N. Y.

Central Park, North & East River R. R. Co. has now 165 cars and 1,152 horses. Gross earnings for the quarter ended Sept. 30 were \$127,395, against \$216,193; and net earnings were \$15,747, against \$81,758.

BROOKLYN BRIDGE & So. FERRY R. R. Co. has been incorporated, with a capital stock of \$100,000, to build a road from Park row, via Nassau, Broad and South streets, to Whitehall street. The Directors are John J. Kiernau, G. C. Tracy and T. C. B. Avery, Brooklyn; William J. Delaney, R. W. Clark, John Glass and Thomas H. Short, New York. It is stated that the projectors of the company have been trying to sell out to the Third Avenue R. R. Co.

South Ferry Ry. Co. A receiver has been asked for by the trustee for the bondholders, the payment of interest having been in default over six months. There are \$160,000 of bonds outstanding.

Third Ave. R. R. Co. The stockholders formally decided, Oct. 30, to substitute a cable for horses on Third avenue from the City Hall to Harlem Bridge. They authorized the issue or \$5,000,000 5 per cent bonds, of which \$3,500,000 will be used in funding the present indebtedness and the remainder in building the cable road. The same system will be used as on Tenth avenue. The company has applied to the Supreme Court for a mandamus to compel the Department of Public Works to give

their consent, and are confident of success. They will have slightly different cars from those on the uptown cable road. They recently gave the J. G. Brill Co. an order, carte blanche, to furnish them a model car. One of the changes they have decided on is a compartment on the car for It is thought that the work of smokers. construction will begin in the spring, and that cars will be running on the main line by next fall. The company will probably have about 200 cars built. During the busy parts of the day cars will run at intervals of one minute. This company's gross earnings for the quarter ended Sept. 30 were \$379,223, against \$354,975 for the same time last year; and the net earnings were \$103,728, against \$62,579. A verdict of \$17,022,64 has been given against the company in the Supreme Court, in favor of the Mayor, this sum representing license fees on which the company resisted payment.

A Washington Heights Cable. The Aldermen have referred to the Committee on Railroads the petition of Lawson N. Fuller and others asking for permission to build a cable road from McComb's Dam Bridge across One Hundred and Fifty-fifth street to the Hudson river; also for an elevated cable road along West street and Tenth avenue to Kingsbridge.

A STREET RAILWAY THROUGH THE PARK. The Grand Jury have requested the Corporation Counsel to draft a law authorizing a street railway to be built upon the transverse roadway running through Central Park at Eighty-fifth street. It is claimed that the park almost forms a barrier between people living on the east and west sides of it.

SECOND AVENUE R. R. Co. Gross earnings for the quarter ended Sept. 30 were \$870,448, against \$1,052,985 for the same time last year; and the net earnings were \$206,489, against \$327,771.

Sixth Ave. R. R. Co. Gross earnings for the quarter ended Sept. 30 were \$138,016, against \$172,648 for the same time last year; and the net earnings were \$29,182, against \$31,584.

NINTH AVE. R. R. Co. has declared a dividend of 2 per cent, the first since March, 1886. This company's gross earnings for the quarter were \$214,628, against \$222,954; and net earnings, \$44,468, against \$28,636.

Eighth Ave. R. R. Co. Gross earnings for the quarter were \$639,496, against \$692,663 last year; and net earnings were \$150,866, against \$171,889.

NORTH & EAST RIVERS RY. Co. In the event of the successful termination of the negotiations with the Bleecker street company for the use of the latter's line for four blocks, this new Bentley-Knight electric road will be running by Jan. 1.

DRY DOCK, EAST BROADWAY & BATTERY R. R. Co. Gross earnings for the quarter ended Sept. 30 were \$235,388, against \$232,259 for the same time last year; and the net earnings were \$81,788, against \$56,914.

WITH the completion of the Ithaca Street Railway, Nov. 23, and the Carbondale &

Jermyn Electric Railway, Dec. 10, the Haines Bros. have built seven roads during the year 1887. This does not include their most important road of the year, which is being rapidly pushed to completion, the Kinderhook, Valatia & Stuvvesant Railroad. This road is steam, built in a firstclass manner, and the equipment will be superior in many ways to that usually adopted on short line railways. Connecting with the Hudson river and the New York Central & Hudson River Railroad at Stuyvesant, it opens one of the finest sections of country in this State. It gives Stuyvesant Falls, Kinderhook and Valatia their first railway. The new road connects with the Boston & Albany at Niverville, and extends to the park at Kinderhook Lake. The extension of this road to Brainard, to connect with the Montreal roads, will be completed during the spring of 1888

Norfolk, Neb.

NORFOLK St. Rv. Co. have bought all their material, and the road will be opened by Jan. 1. They have 3½ miles of track, 4 ft. 6 in. gauge, 16 lb. rail, 2 cars, 6 horses.

SUBURBAN & CITY RY. & IMP'T Co. asks the City Council for a franchise for an electric railway. W. H. Stewart is the Managing Director of the new enterprise.

Onkland, Cal.

A Franchise is asked for by George D. Metcalf, W. G. Henshaw and others.

Owensboro, Ky.

Owensboro City R. R. Co., which has not hitherto been reported in full in our Directory, has 3\(\frac{3}{4}\) miles of 4 ft. 8\(\frac{1}{4}\) intrack, with 20 lb. T rail, 7 cars and 19 mules. The officers are as follows: President, J. M. Alsop; Secretary, J. D. Powers; Treasurer, John Wandling; Superintendent, W. T. Alsop. The road has been in operation about nine months.

Peoria, Ill.

East Bluff Peoria Horse Ry. Co.'s road is now in operation. They have 2 miles of track, 30 lb. tram rail, 8 cars, 48 mules. The list of officers has been changed, and is now as follows: President and General Manager, H. R. Woodward; Secretary, C. R. Wheeler; Treasurer, Eliot Callender; Superintendent, John Strong.

Philadelphia, Pa.

LOMBARD & SOUTH STS. PASS. RY. Co. will put an electric car on for a month, and if successful more will follow. The company has a contract with William Wharton, Jr., who will run the electric cars.

CITIZENS' PASS. Ry. Co. Charles E. Ellis is now President.

People's Pass. Ry. Co. has now 174 cars.

LEHIGH AVE. Ry. Ob. have 5 of their 6 miles finished, and will open the road in the spring. They have 47 lb. steel tram rails. They have not decided yet what method of propulsion to use.

THE NEW RECKENZAUN CAR is reported to be a great success. It is claimed that the weight of the motor per horse power is only from one-sixth to one-third that of other successful motors.

Pittsburgh, Pa.

OAKLAND & HOMESTEAD CABLE ROAD Co. It is stated that this new company will build to Squirrel Hill.

Pomona, Cal.

SECOND St. R. R. Co. has been incorporated by W. L. Johnson and others, with a capital stock of \$10,000.

Port Chester, N. Y.

PORT CHESTER & RYE BEACH ST. RY. Co. will have 6 electric cars. They will begin work March 1, and the road will be opened May 1.

Portland, Ore.

PORTLAND CABLE Ry. Co. began work on their new road about Oct. 1, and expect to open it about March 1. They will have $2\frac{1}{2}$ miles of double track, of 3 ft. 6 in. gauge, 38 lb. rail. Will have about 20 cars when the road is completed; have just ordered 10. The capital stock is \$150,000, and the officers are: President, J. Carroll McCaffrey; V ca President, Preston C. Smith; Secretary, Theophilus G. Murphy; Treasurer, L. L. Hawkins.

Portsmouth, Va.

PORTSMOUTH ST. Ry. Co. have let the contract for a two story stable, 85 by 125 ft.

Pratt. Kan.

CITY Rv. Co. will finish their road at once. They will have 4 miles, of 4 ft. gauge, 28 lb. rail, 4 cars, horses. They have a capital stock of \$20,000, and the officers are: President, George Kuhns; Secretary, E. M. Kuhns; Treasurer, George S. Chase. Topeka.

Quincy, Mass.

QUINCY Sr. R. R. The Selectmen insist upon flat rails and the company upon T rails.

Racine, Wis.

Belle City St. Ry. Co. Charles Hathaway is now Vice President and Treasurer.

Rock Island, Ill.

ELM St. Rv. Co. has been incorporated by W. R. Johnson and others, with a capital stock of \$15,000.

Sacramento, Cal.

HIGHLAND PARK RY. Work began Oct. 26 on this new line, on Twenty-fourth street, from O to Y, and into Highland Park.

Salt Lake City, Utah T.

SALT LAKE CITY R. R. Co. Francis Armstrong is the new President of this company.

San Francisco, Cal.

CENTRAL R. R. Co. has now 31 2-horse and 26 1-horse cars and 293 horses.

Potrero & Bay View R. R. Co. has 10 1-horse and 12-horse cars.

PARE STREET FRANCHISE. It is very doubtful whether Columbus Bartlett's fruchise to construct and maintain a street railroad on Park street, which he has assigned to J. A. Woodard, exists. It is stated that the conditions of the grant have not been complied with. The road, if constructed, would be a great benefit to Alamada. Theodore Meetz has obtained a franchise to build a street railway for a distance of five blocks over the same road, and he intends to have his line in operation in a short time.

San Jose, Cal.

ELECTRIC RAILWAY. The six months allowed the company in which to complete the work having expired, the franchise is forfeited.

Savannah, Ga.

SAVANNAH ST. & RURAL RESORT RY. Work on this new road will begin at once, and it is expected that the line will be opened by May 1. They have a capital of \$100,000, and the officers are: President, H. P. Smart; Secretary, C. H. Dorsett. They will have 6 miles of track, of 4 ft. 8½ in. gauge, 50 lb. rail, about 20 cars; will use either horses or electricity.

SCRANTON SUBURBAN RY. Co. have contracted with the Van Depoele Manufacturing Co. for the equipment of a number of cars, making a large increase of plant. They have now been running nearly one year, and are extending their lines.

NAYAUG CROSSTOWN R. R. have also contracted with the Van Depoele company for electrical equipment, and have commenced laying their track.

Searcy, Ark.

SEARCY & WEST POINT R. R. Co. James E. Skillem is now President.

SOUTHERN Rv. Co. increases since its last report from 49 cars to 52 and from 250 horses to 281. The officers are: President, W. L. Johnson; Secretary, Joe S. Minary; Superintendent, James F. Uhl.

Sheffield, Ala.

SHEFFIELD ST. Rv. Co. have completed 4 of their 10 miles of track. They have a capital stock of \$50,000, and the following officers: President, H. B. Tompkins; Secretary, E. B. Almon; Treasurer, C. D. Woodson; Superintendent, William White. They have standard gauge, 33 lb. rail, 8 cars, 3 steam dummies.

St. Catharlue's, Out.

St. Catharine's, Merritton & Thorold St. Ry. Co.'s line has many sharp curves and steep grades, and the first car put on propelled by electricity did not augur well for the success of the project. The car got stuck on the steep grades, occasionally flew the track, and generally behaved in an unsatisfactory manner. The track was then repaired, several new improvements in the running gear were made, and now the electric cars are far more reliable than the old horse cars. This is said to be the longest railway line operated by electricity in the world. It is run by the Van Depoele system.

Sterling, Ill.

ROCK RIVER St. Rx. Co. expect to build next spring. They will have $3\frac{\pi}{4}$ miles of track.

Steubenville, O.

STEUBENVILLE ELECTRIC RY. Co. T. William Harris, of New York, is Consulting Engineer for this road; and Wilbur F. Goodrich will have charge of the preliminary surveys and location. No pains will be spared to make this a model railway in every respect.

St. Joseph, Mo.

Union St. Ry. Co. are running their electric motors to New Ulm Park.

St. Louis, Mo.

St. Louis & Western Ry. Co. now have their cable line lighted with 50 lamps, for a distance of about three miles.

ELECTRIC EXPERIMENTS. A number of trial trips have been made of the Julien-Brush electric car. On a wet track going up grade, the ascent was made with the greatest ease. It is the intention, after several more trial trips have been made, to send the car back to the shops, where the Brush motor will be replaced by a Sprague, and more experiments made.

Northern Central line, of the Walsh system, it is understood, has in contemplation the extension of their route to Carrieavenue, near Buden, the dividing line between the two cemeteries of St. Louis—Bellefontaine and Calvary. The route, if put into operation, will be from the present terminus, near the Fair Grounds, down Newstead avenue, east to Florissant avenue, thence directly northward to Carrie avenue, and giving an all-rail rail route from Fourth and Locust streets, and the only all-rail route in the city.

CITIZENS' R. R. Co. The Franklin avenue cable line is completed, and the first experimental trip was made Nov. 8 and was very successful. H. W. Kebby is Chief Engineer. This road has just received the last of 40 handsome cable cars, built by the John Stephenson Co., Lim., of New York.

UNION AVE. R. R. Co. wants the right to build a dummy linealong Union avenue to Forest park.

A COMPANY called the Shaw's Garden. Tower Grove & Fair Grounds Railroad Co. will appear before the assembly early in the session to fight for franchises granting them the right to run over the new \$500,-000 bridge and along Grand avenue to the points named in the title of the first company. There is a disposition in the Assembly to refuse the right requested, as it is argued that a street car line across the bridge from the southern portion of the city could not make terms with the east and west lines that would prove satisfactory to the public. A proposition has been made to the applicants to take a franchise for one of the streets east or west of Grand avenue, but it has not been accepted by either of the companies. The property holders object to having more lines on Grand avenue.

PARK R. R. Co., which received its franchise some years ago, but has never been built, presents an application to alter its road, and to change its motive power. The original franchise is for a horse railroad running along by Lafayette park and into the territory now reached by the People's road.

WILLIAM Z. COLEMAN, Robert Bagnell, P. Camden Case and George S. Case are before the Assembly with an appeal for a franchise for a short horse railroad from North Broadway along Prairie avenue to the northwestern part of the city.

People's Ry. Co. requests some small

extensions, a loop and the right to change to cable or electricity.

RAPID TRANSIT Co., which seeks the right of way from the center of the city to Forest Park and points of interest north and south of that resort, otherwise regardless of route, is still before the Assembly.

UNION DEPOT R. R. Co. have put on 6 new Stephenson cars.

Union R. R. Co. asks for permission to change its motive power.

LINDELL Ry. Co. One reason for the refusal of this company to adopt the cable is that the tunnel beneath Washington avenue prevents the laying of a conduit, as the roof of the tunnel is within 3 ft. of the surface. Capt. Robert McCulloch, President and Superintendent of this company, has resigned.

Southern Ry. has received 5 new Ste phenson cars.

Stockton, Cal.

Several projects ELECTRIC RAILWAY. are being pushed, and a franchise has been granted for a road from Lodi to Woodbridge.

Stoneham, Mass.

EAST MIDDLESEX ST. RY. Co., formerly Stoneham Street Railroad Co., report 153 miles of track, of 4 ft. 81 in. gauge, 35 lb. rail, 57 cars, 158 horses. The officers are as we last gave them except that Nathan E. Morton is now Superintendent. This road is located in Woburn, Stoneham, Melrose, Malden, Saugus and Revere-all suburbs of Boston.

St. Paul, Minn.

THE CABLE ROAD. The New York Cable Railway Construction Co., which has been building this road, has assigned, giving a chattel mortgage to the Tradesmen's National Bank for \$40,000. Among the directors are ex-Gov. Cartin, of Pennsylvania, and ex-Commissioner Dudley.

Tannton, Mass.

SCADDING St. Ry. Co. hope to begin work on their road early in the spring. The capital stock of the company is \$10,-000. They will have 3 miles of track, of 4 ft. 81 in. gauge, and will have 8 cars if they decide upon electric traction, as seems probable.

Topeka, Kan.

TOPEKA RAPID TRANSIT Ry. Co. has 14 miles of its road completed, and expects to finish another mile the present season. Several miles will doubtless be a lded the coming year. They have 35 and 38 lb. rail, mostly the latter, and have at present 10 cars and 6 Baldwin motors, and will ultimately have 24 to 30 cars, seating from 48 to 84 passengers each. The road is a marked success already.

Tuskaloosa, Ala.

Tuskaloosa St. R. R. will probably be extended to Northport.

J. G. Brady writes that a street railway to West End, 7½ miles, will be built very soon.

Waco, Tex.

WACO ST. RY. Co. F. W. Fort is now Secretary and Treasurer. They increase from 15 cars to 16 and from 55 mules to 64, Washington, D. C.

BELT LINE ST. R. R. Co. intends to use electric motors as soon as it can obtain permission from Congress to do so. They have decided to adopt the storage batteries of the Electrical Accumulator Co., of Philadelphia.

PENNSYLVANIA AVE. LINE. Stephenson Co., Lim., are preparing for this line a number of the finest street cars ever built, combining all modern improvements and elegances.

Washington, Ga.

WASHINGTON ST. R. R. Co. The bill incorporating this company has become a law.

West Troy, N. Y.

J. M. Jones' Sons are very busy on orders for their cars. They are finishing 20 for the Belt Line, New York; 10 for the consolidated West End Co., of Boston; 14 for Fort Wayne, Ind.; and have under way cars for Buffalo, Cleveland, Milwaukee, Detroit, Pittsburgh, Worcester, Manchester and Montreal.

Wheeling, W. Va.

WHEELING ELECTRIC RY. Co. The contract for building this road has been awarded to John Robrecht.

Wilkesbarre, Pa.

WILKESBARRE & SUBURBAN ST. Ry. Co. has been incorporated by H. H. Derr. J. W. Hollenback, B. H. Carpenter, A. C. Robertson and others, with a capital stock of \$40,000. It is the purpose of the company to run a belt line from the center to the northern portion of the city, and it is stated that the road will be in operation by Dec. 1. The Sprague electric system will be used, with overhead conductors. The local firm of Carpenter, Robertson & Co. have received the contract for the cars and the electrical equipment. They have 3 of their 7 miles completed, of 5 ft. 2 in. gauge, 50 lb. rail. They have 2 cars at present, and will add 4 more. They have a cap tal stock of \$40,000 and the following officers: President, H. H. Derr; Vice President, J. W. Hollenbeck; Secretary, W. E. Shupp; Treasurer, Christian Wal-

Williamsport, Pa.

WILLIAMSPORT PASS, Ry. Co. J. M. Gamble is now Secretary, R. J. C. Walker, Treasurer, and W. Hain, Superintendent. This company increases to 10 cars and 30 horses since its last report.

Woodland, Cal.

THE NEW ROAD will probably adopt the telpherage electric system.

Woonsocket, R. I.

ELECTRIC RAILWAY. The Woonsocket Reporter expresses its appreciation of the new railroad in that town and of its new cars as follows:--"Two of the new closed cars being built for the Woonsocket Street Railway Co. arrived this morning from the works of Evans & Patriquin, Newburyport. They are Nos. 5 and 6, and are the handsomest cars ever built in New England. The exteriors are finished in bright yellow, with gold and silver ornamentation in striping. The windows on the ends are protected with burnished ries. I recently saw, while in their office,

brass rods, and the brake handles are also finished in burnished brass. The platforms on the ends are spacious and have all the latest improvements. The interiors are finished in bright and costly tapestry carpeting and bear the appearance of the Pullman palace or drawing room cars. They will accommodate about thirty passengers each. The railway company certainly deserve the thanks of the public for furnishing such excellent coaches for the accommodation of patrons." This road has the Bentley-Knight system, with overhead conductors, and uses Thomson-Houston motors, which are of the same general shape as that company's stationary motor, but are suspended upon one axle, as if lying upon their side. The road starts from the center of the town, and runs out for a little over a mile into the suburbs. Grades of 7 per cent are overcome with

OUR CHICAGO LETTER.

The much-talked-of deal between the syndicate of which Messrs, P. B. Widener and W. L. Elkins, of Philadelphia, are leaders, and the West Division Railway, has at last been brought to a close by the formal signing of the necessary papers and the payment of the required currency. This is one of the most important financial transactions in the history of our town, and will, it is hoped, be the means of giving our west-side citizens a much desired improvement in transit. Mr. J. B. Parsons, who is to assume the superintendency of the various lines, is from Philadelphia, and although a comparatively young man, being less than thirty five years of age, is well known to street railway people, especially in the East.

The Chicago Rapid Transit Co. was recently incorporated, with a capital stock of \$1,500,000, to operate elevated railways in Chicago. Several meetings of property owners have been called, and I am informed that there is a growing sentiment among the people of the west side in favor of an elevated road. Plans are being submitted, but what the outcome will be remains to be seen.

The Van Depoele people continue busy in the construction of their electric lines. At Dayton, O., they have commenced putting up the overhead wires and laying the underground conduit. The overhead wires are used only in the suburbs, the conduit being used in the crowded portion of the city. The change from one system to the other is done automatically, without in any way affecting the speed of the car. They have just made a contract with the Wheeling, W. Va., Electric Railway Co. to complete a road for them in sixty days. Three 80 H. P. generators will be used in connection with 12 H. P. motors. They have also contracted to build quite a large plant at Chattanooga, Tenn. In connection with this they will put in a large number of stationary motors to furnish power for smaller manufactoa short time since, a new and novel drawing for a double track electric railway, having the wires suspended from posts placed in the middle of the street between the tracks. The post was also designed to serve as an electric light pole for illuminating the street.

The Pullman people are busy turning out cars of varied and handsome design. They have just shipped two of their combination cars for the Citizens' Line, St. Louis. They also report recent orders for Sionx City, Ia.; 15 for the Jersey City & Bergen R. R. Co.; 15 for the Dayton electric road; 30 for the People's Line, Kansas City, Mo.; 12 for San Jose, Cal.

By invitation your correspondent visited the Pullman shops a few days since, and saw the combination cars, about which I have spoken before and attempted a slight description. The trucks used are of the Bemis patent, and have many excellences which indicate a great improvement over the old pattern, and must of necessity come into wide use among builders of fine cars.

The Cline Manufacturing Co. are very busy, in fact running over time to catch up on back orders. They report having already filled orders the present season for over forty different lines in the United States and Canada.

We recently had the pleasure of meeting Mr. William P. Boyden, the Western agent for the R. T. White Acme girder steel street railway roadbed, which apparently has many well-founded claims to being a superior system. One claim to the consideration of contractors is in the fact that it abridges the cost of construction by nearly 35 per cent. The rail is held in position by an improved key bolt, thus rendering the outlay in fish plates, splice bars and screw bolts nnnecessary, and eliminating a very important item of expense in the construction and maintenance of the road. P.

The American Institute Fair.

The exhibition at the American Institute this year is particularly strong in the electrical department, a special exhibition being given under the auspices of the New York Electrical Society. It consists mainly, however, of a display of electrical appliances for other than street railway purposes, most of the electric railways not being represented; while there is little or nothing from manufacturers of street railway appliances other than electrical.

The Sprague Electric Railway & Motor Co. show a great variety of the uses of electric motors in actual operation, driving sewing machines, a band saw, Campbell printing press, an elevator, a large blower for ventilating purposes, the attachments necessary for a street car; and in another part of the building a large motor driving some heavy wood-working machinery.

The Daft Electric Light Co. have taken special pains to show such apparatus only as is in actual daily operation. Poles are in use of the type used in this company's

system of overhead conduction for street railways. Two of these are of wood, and are identical, except in height, with those employed at Los Angeles, Cal, Mansfield, O., and elsewhere; and two are of iron, such as were erected at Orange, N. J. Wires are strung, and upon them are the actual trolleys, or travelers, that are used upon most of the Daft street railways. Current is supplied from a dynamo in a remote part of the building, and one trolley delivers it to a street railway car placed on the floor below. The other trolley delivers current to the various motors and a few lights ranged opposite to the car. These motors are used for various kinds of work. The car exhibited is one belonging to the Seashore Electric Railway Co., of Asbury Park, N. J. It is raised sufficiently to permit the motor to turn the wheels, to reverse at will, and to display the manner in which the driving current drives the car, rings the gong, etc.

A full-size model of the conduitin use on the Pittsburgh, Knoxville & St. Clair ElectricStreet Railway, at Pittsburgh, Pa., shows the method of subterranean conduction employed in such cases; and another, of the "central rail" system, employed for over two years on the Baltimore & Hampden line of Baltimore, Md, illustrates an easy and effective means of obtaining surface conduction. A table has attached to it a section of the conductor recently laid on the Ninth avenue line of the New York Elevated Railroad, and also displays trolleys both for an all-wire and for a wireand-rail circuit.

On the south side of the building the old electric locomotive Ampère draws a platform car up and down a track some 300 ft. in length. This motor possesses the historic interest of being the first, it is claimed, that ever ran upon an actual railroad track in this country, its first public appearance being upon the Saratoga, Lake George & Mount McGregor Narrow Gauge Railroad, in November, 1883. With the exception of making good the deterioration of four years' disuse and exposure, it is precisely the same machine that there demonstrated the practicability of electric propulsion, and is shown rather as a milestone in its progress than for any other reason.

Ries & Henderson exhibit the Ries electric traction increasing apparatus, in charge of Mr. Ries himself. Visitors view with wonder the novel spectacle of a model railway car ascending, without the slightest difficulty, a grade upon which an expert tobog sauist might fear to entrust himself. The outfit comprises two model railway tracks, each capable of being elevated at one end to various heights, with a motor car for each track, and a dial for registering the amount of pull or tractive force exerted by the cars under different conditions.

THE CARRIAGE BUILDERS, at their convention in Washington, recommended the adoption of a track of 4 ft. 8 in. as the standard, voting down the 5 ft. 2 in. gauge.

Straws.

WORK on the Arcade Railway, under Broadway, will begin in a few months, according to the officers of the company.

C. J. VAN DEPOELE will read a paper on "Modern Electric Street Railways" at the next meeting of the Chicago Electric Club.

In Briston, England, the street railway company has decided to go into the carriage and omnibus business in addition to its tramway service.

THE INTERNATIONAL TRAMWAY CONGRESS held its meeting in Vienna this year, being presided over by M. Michelet, President of the International Tramway Union. Papers were read on the proposed establishment of a universal statistical bureau of tramways, on fares, transfer tickets, the electric tramways at Brussels, and on the American Street Railway Association.

THE JULIEN CAR, with storage battery, that is being experimented with on Fourth and Madison avenues, made a run of 40 miles with one charge. It weighs 7 tons, yet develop daspeed of 12 miles per hour, and was stopped and started on grades of from 3 to $5\frac{1}{2}$ per cent. Each car mile run required an expenditure of electrical energy of only eight-tenths of an electrical H. P. hour.

THE JOHN STEPHENSON Co., Lim., of New York, are building cars for Montana, California, Nebraska, Massachusetts, Pennsylvania, New York, Ohio, Illinois, Indiana, New Jersey; also for Barcelona, Spain, and for Montevideo, S. A. The road at McKeesport, Pa., is starting with 4 new cars of this make; that at Keyport, N. J., has just put 6 new Stephenson cars in successful operation. The Lowell & Dracut Horse R. R., of Lowell, Mass., has several new Stephenson cars, beautifully decorated with Highland plaid.

A SKILLFUL VETERINARY SURGEON says, "In most instances when a horse has the staggers, bleeding him in the mouth is resorted to. That is the old method, but it has been supplanted by a better remedy. The horse may be cut in the wrong place and lose too much blood. All we do is to saturate a sponge with spirits of ammonia and apply it to the nose. The fumes ascend and the blood is scattered and sent back into the natural channels. This remedy will save the animal in ninety-nine cases out of a hundred when suffering from staggers."

Overshooting the Mark.

"I have here," said a particularly wide awake individual the other day, "a long list of signatures of property owners on Third avenue in favor of the cable road."

Mr. Lyon looked at the stranger calmly and awaited further developments.

"I'll take \$1,000 for them."

"I'll give \$100," said Mr. Lyon, seeing the list was long and genuine.

"No, \$1,000, or I tear it up."

"Tear it up," was the mild reply.

With a hand on each corner, he paused.

"Say, now, what will you give?

"Twenty-five," said Mr. Lyon, quietly, this is not a boodle affair."

"There's the list," replied the stranger, meekly, "it doesn't pay to linger with a falling market."

His Plan Worked Well.

"Unless a driver's got a good deal of kick in him," said a New York street car driver, "it'll cost him from 25 cents to 50 cents a week in tipping and boozing the stable boys, if he wants to drive good, sound horses."

"Don't you meet the stable boys' extortionate demands?"

"What, don't I chip in, do you mean? No. sir. I'll tell you how I got the best of 'em-I got arrested. You see they'd been leadin' out bone-yard material to me till I got tired of it. I knew I could get good horses if I would pay, but I wouldn't; so I thought I'd fix 'em. One day a stable man led out the worst pair of split-hoof cows you ever saw for me to make my trip with. They had no business to be out of the hospital and wouldn't be of much use if they had hospital treatment for a year. I told the fellow that he'd hear from that team, an' he did. I showed that pair of rack-a-bones up at their very worst on that trip and was collared by one of Bergh's officers. My defense was that I was made to drive them by the company. Well, if there wasn't a good deal of hustlin' when the President, the Superintendent and the boss stable man were summoned! I guess yes! And I haven't had to drive any limpin', lop-eared stock since."

How a Man Came to Pay Double Fare.

"There are times in the life of the most self-possessed man," said a rounder, "when he knows he is being imposed upon, and yet hasn't the nerve to utter a single word in his own behalf. An incident of this kind happened to me only yesterday. I boarded a bobtail horse car, and when I put my hand in my pocket for my fare I pulled out an old time half-dimethat was worn perfectly smooth with age. I thought this was a fine opportunity to get rid of the coin, and dropped it into the box. The driver's attention was attracted to a team just ahead of him, and hedid not notice me put in my fare. I don't know why I did it, but I looked in the box. The coin I had just deposited was nowhere to The whole thing was so strange be seen. that I was really startled for the time being. I was positive I had dropped the coin in the box, and felt I must be the victim of some unaccountable optical illusion. Upon closer inspection I found that the edges of the slide which the driver puts in motion when he shakes the money into the drawer were worn away from long use, and that my coin, which was almost as thin as a wafer, had slipped down through the crack. I am a man of the world, as you know, have been in some pretty ticklish positions during my lifetime, but I assure you I hadn't the nerve to

tell the driver I had already paid my fare. I knew perfectly well that if I had been in the man's place I wouldn't have believed him, so I put a nickel in the box, and it was a good fat one, too."

Politeness is Its Own Reward.

It was in a blue car, and the sun shone warmly. A young lady whose hat groaned under the weight of a dead bird of large proportions, sat fanning herself with a flat parcel of goods bearing the brand of a fashionable millinery firm. Presently she made a feeble effort to reach backward over her shoulder and open the window, without crushing her draperies.

A youth with a cane rushed to the aid of the languid lady.

"Allow me," he said, tipping his hat and letting his stick fall.

"You are very kind," she murmured, and leaned to one side, with an eye on her draperies.

"Do not mention it, lady," he said, with a surge on the window. It didn't budge, so he seized it with both hands, clenched his teeth, grew red in the face and grunted. The car stopped suddenly and he gyrated towards the door. The man with corns grew pale, and the woman with a baby folded the innocent thing in her arms and cast a wistful glance at the driver. Nothing daunted, the rash youth assailed the window again. This time he had his tongue between his teeth, and his hat had receded to the back of his head, which gave the veins on his temples a chance to swell. He tore his finger-nails, a suspender button rolled on the floor, beads of perspiration bedecked his brow, and his eyes protruded until they looked like door-knobs. The "Adam's apple" in his throat moved spasmodically as though he were speaking, but there was no audible sound. He was probably talking inwardly.

Just when he seemed to be on the point of fainting a market woman who sat opposite said, in a market-house voice:—

"Say, mister, that winder doesn't hist; it draps down."

"So it does. Thanks, awfully," replied the perspiring youth, seizing the top of the frame with both hands. He pulled till his fingers were ready to break off short, bowed his spine up, threw his head back and pulled, but not a centimetre did it move until the market woman caught hold of the pull strap and jerked the sash out of the notch in which it rested.

Down went the window, and out went the young man's head and into a passing load of hay. Recovering himself he raised his hand to tip his hat as he said: "Don't mention it," in response to Miss Languid's "It's too bad," but his hat was under the opposite seat, and the baby was chewing the buckhorn handle of his stick. Before he had time to resume his seat, Miss Languid asked him in boarding-school accents if he would be so kind as to ring the bell, as she was then a square beyond where she wished to get out.—Pittsburgh Dispatch

The Grit of a Nine-Year-Old Boy.

A press dispatch from Kansas City says: About 5 o'clock last evening as a Broadway car was crossing the cable railroad (racks on Ninthstreet, the nine-year-old son of John Tarsney, attorney for the system, who was riding on the front platform, lost his balance and fell from the car. His right leg went under the wheels and was frightfully mangled, but the little follow did not lose his nerve in the least, and when carried to his home cautioned the persons with him to break the news gently to his mother, as While the surgeons she was nervous. were amputating the mangled limb the litsle fellow did not even so much as groan. It is feared that the shock and loss of blood will prove fatal. The father is one of the most prominent attorneys in the section.

She Gave Up Her Seat.

It was 5 o'clock in the afternoon in a Broadway car. The few occupants of the yellow conveyance at Chambers street were men, but by the time it had reached Twenty-third street, all these men who still remained on the car were standing, their seats having been resigned to ladies who had entered. These seats had been taken as a matter of course, and without a "Thank you" or the faintest evidence of a favor bestowed.

At Twenty-third street a tired-looking working girl boarded the car, weak with the day's toil, and cast her eyes about for a seat. A fashionably attired lady rose to her feet, and the girl thankfully took the vacant seat. But the conductor knew the heroine better. He rang the bell over the driver's head, the car came to a full stop on the upper crossing at Twenty-fourth street, and the lady alighted. She had reached her destination.

NEW PUBLICATIONS.

THE STEAM ENGINE CATECHISM. Fifth edition.

A series of direct practical answers to direct practical questions. Mainly intended for young engineers and for examinaticn questions. By Robert Grimshaw, M. E. Published by John Wiley & Sons, 15 Astor place, New York. Price, \$1, post paid.

TEN ELECTRIC CARS have been running at Brussels since April, replacing 16 horse cars that required 160 horses. They are of the Julien type, and have run 40 miles with 96 cells. Each car takes two charges per day, and runs about 35 miles with each charge.

BUSINESS NOTES.

THE NATIONAL STOVE Co., of 243 Water street, New York, report that orders for their heaters for street cars are coming in satisfactorily. They have the order of the Belt line to put 125 of the heaters in their new cars. These heaters are brick lined, with rotating and dumping grate and safety door catch, and occupy the space of one passenger. They are in use on all the roads of Brooklyn and throughout the country.

SPECIAL NOTICES.

TO RAILWAY OFFICIALS.

SELLING ON COMMISSION.

In order to make known the value of the STREET In order to make known the value of the STREET RAILWAY JOURNAL as a medium of communication between the buyer and selier of street railway property or services, we will insert advertisements of property "Wanted" or "For Saie," "Position" or "Help Wanted" free of charge, unless sale or purchase is effected. In case sale or purchase is effected the price to be paid for the advertisement will be five per cent of the amount of the transaction brought about by the advertisement.

DESCRIPTION SHOULD BE SENT US

Of property advertised on commission. In case of Position Wanted, names of references, salary expected, experience and other particulars should be given.

FOR SALE.—Ten sets of Vose Springs, good as new. Will be sold cheap. H. M. & F. P. R. R. Co., 4,300 Lancaster ave., Philadelphia, Pa.

FOR SALE.—A Street Rallway fully equipped. In a live Western town; worth \$65,000. Address "BUILDER," CARE STREET RAILWAY JOURNAL, 113 Liberty St., New York.

WANTED.—Three or four good second hand street cars, 16 foot preferred. Also, good second-hand 25 ib. T rails. Address H, Journal Office.

FOR SALE.—12 second hand cars; good condition, cheap. In part or entire lot to suit customer. Address "X. Y. Z." care STREET RAILWAY JOURNAL, 113 Liberty St., New York.

OR SALE.—A full-sized Andrews Improved Snow Plow and Sweeper. Been used only slx times. Would exchange for open cars in good condition. WATERBURY liorse R.R. Co., Waterbury, Conn. 14

OR SALE .- Eight open cars, Brookiyn pattern, back to back seats for 40 passengers each, gauge 4 ft. 8% in., Higley gear, will be repainted and lettered to sult. Will be sold cheap for cash. Address 8, JOURNAL OFFICE, 113 Liberty st., New York.

ANTED.—A competent and practical Superintendent for horse power Street Rallway. No one unless perfectly familiar with all the details of the business, and who can furnish unquestionable references, need apply. Address SUPERINTENDENT, this office.

WANTED.-A man who thoroughly understands the putting up of wood work for street cars. Will give competent man steady employment and good wages or an interest in that branch of my business. 1 am from New York but this is a much finer and more healthy country. Address Southern Car Builder, care Street Railway JOURNAL, 113 Liberty st., New York,

Fold SALE.—The controlling interest in a house road now in operation in a city of ever 20,000 population, within a few hours of New York. This is an opportunity seldom offered to a practical party and will be sold at a price that will show a large profit in near future, as present owner contemplates going abroad. Address S., care STREET RAILWAY JOURNAL, 113 Liberty st., New York.

ANTED—A position as General Manager on a new or old established Street Railway by thoioughly practical man. Location no object; and willing to work for a small salary. Can give the best of New York City references. Parties wanting a man who is able to look sharp after the interest of the company, will please address J. L. D., care of STREET RAILWAY JOURNAL, 113 Liberty street, New York.

FOR SALE.—A first-class Street Railway line in a thriving city in Indiana. Four miles of track mostly paved with cobble, 9 cars, 46 animals, good barn and car house. Franchise very valuable, being In perpetuity over all streets in the city. Profitable extensions can be made. Road in good condit.on and doing good paying business. Address "OWNER," care STREET RAILWAY JOURNAL, 113 Liberty street, New York.

ANTED—By a party having held different responsible positions in the business for the past six years, a position as Superintendent of the construction or operation of a street railway. Can furnish best of references from former employers. Is soon to take a trip to California and would like to confer on the way with any directors needing such a man. Address for full particulars, "Eastern," care STREET RAILWAY JOURNAL, 113 Liberty St., New York.

FOR SALE at a bargain. Franchise for a street ratiroad in a rapidly growing city of 3,000 inhabitants on the Atchison, Topeka and Santa Fe City has a good system of water works, electric lights, etc. As to price, map of the city, copy of franchise, inquiry may be made at the STREET RAILWAY JOURNAL office, or letter may be addressed to Western Owner, care Street Railway Journal, 113 Liberty st., New York

ANTED.-Benton Portable Registers in exchange for Lewis and Fowler Stationary Registers. Our road is a single track line on which five cars are run, attended to by three conductors. Continual change of conductors makes it difficult to keep accounts strict with stationary registers. We would exchange the five stationary in first-class order for eight Benton portables, each delivering his register to the other. Address MEXICAN STREET RAIL-WAY, CARE OF STREET RAILWAY JOURNAL, 113 Liberty st., New York.

OR SALE.—Two 10 ft. closed 5-window cars, with two platforms; about four years old; monitor roo', perforated wood seats, floor racks, one fare box, lamp houses, bells, etc., etc. Two, same as above, with one enclosed platform and one step. Two 12 ft. closed 6-window cars, with two piatforms; Stephenson's make; monitor roof, wood seats, two fare boxes, floor racks, bells, etc., etc. Also a lot of six 10 ft. closed cars, with one piatform. All these cars are in good condition, and, as we have facilities for repairing, painting and lettering, we can make early deliveries. Rufus Martin & Co., 13 Park row, New York.

FOR SALE.—The Ottumwa, Ia., Street Railway is offered for sale. This line is two miles long, running through the solidly built portion of the city. Streets along line either paved or macadamized. The road is in good condition, and doing a good business. Death of the owner the only reason for selllng. Ottumwa is a manufacturing and jobbing city of 14,000 inhabitants. In connection with the sale of this road is offered the South Ottumwa and Cemetery line, which can be profitably consolidated with the former road, making a complete system, and covering all available streets in the city. Franchises for both roads run 25 years yet. These two roads will be sold at very reasonable figures. Correspond nce solicited. Address E. E. McElroy, Admr. of H. L. HEDRICK, Supt., Ottumwa, Ia.

STREET RAILWAY STOCK QUOTATIONS.

PROVIDENCE STOCKS .- Corrected by Chace & Butts, Bankers, Providence, R. I.

Company.	Par.	Capital.	Period.	Rate.	Date.	Bid.	Asked.
Union R. R. Co., Prov		\$1,500,000 270,000	Q.—J. New.	New.	October, 1887	197 100	200 105

NEW HAVEN STOCKS .- Corrected by H. C. Warren & Co., Bankers & Brokers, New Haven, Conn.

Company.	Par.	Capital.	Period.	Rate.	Date.	Bid.	Asked.
Fair Haven & restville R. R. Co State Street Hose R. R. Co "Bonds New Haven & Cest Haven R. R. Co. New Haven & enterville H. R. Co. Whitney Ave. Ry. Co Bridgeport Horse R. R. Co "Bonds	25 25 25 25 50 100 1,000	\$307,000 23,000 12,00 12,00 25,000 140,000 50,000	J. & J. J. & J. J. & J.		January, 1887 January, 1887	136 100 110 12 7	

PHILADELPHIA STOCKS .- Corrected by Robert Glendinning & Co., 303 Chestnut st., Philadelphia.

Company.	Par.	Capital.	Period.	Rate.	Date.	Bid.	Asked.
Citizens	50	\$500,000	QJ.			7	
Continental	50	1,000,000	J. & J.				
Frankford & Southwark	50	750,000	QJ.	i		1	
Germantown	50	1,500,000	о.—J.				941/
Green & Coates	50	500,000	Q.—J.				114%
Hestonville	50	2,050,000	Q0.			3 1	23
Lombard & South	25	500,000				4	100
People's	25	1,500,000				1	34
Philadelphia City	50	1,000,000	J. & J.			144	155
Philadelphia & Gray's Ferry	50	617,500	J. & J.			193	89
Philadelphia Traction	50	5,000,000				66%	67
	50	750,000	O T			00%	01
Ridge Avenue	50		QJ.			175	177
Second & Third		1,060,200	QJ.			110	177
Seventeenth & Nineteenth	50	500,000	J. & J.			1401/	***
Thirteenth & Fliteenth	50	1,000,000	J. & J.			146 1/2	150
Union	50	1,250,000	J. & J.				
West Phlladelphla	50	750,000	J. & J.	1			

ST. LOUIS STOCKS.—Corrected by James Campbell, Banker & Broker, 307 Pine st., St. Louis, Mo.

Company.	Par.	Capital.	Period.	Rate.	Date.	Bid.	Asked.
STOCKS.							
Benton-Bellefontaine	100 50	\$400,000 300,000	Jan.	1½		95 80	100
Citizens'	100	1,000,000	Apl. '76	11/4	* 1	65	70
Forest Park & Laclede	100	100,000				100	
Jefferson Avenue	100	112,000				100	110
Lindell	100	600,000	Oct.	2		105	175
Mlssouri.	100	600,000	Oct.	2		170	100
Mound City	100	125,000 200,100				103	107
Poonie's	100 50	300,000	June	2		40	42½
People's	100	900, 00	May	2		50	55
Tower Grove	50	300,000	Jan.	.50		00	9
Union	50	600,000	0.11			13	15
Union Depot	100	400,000				75	80
St. Louis Cable	100	1,000,000					1
BONDS.							
Benton-Bellefontalne	1,009	\$50,000	A. & O.	6	1880	102	
Cass Avenue	1,0 10	2 0,000	F. & A.	6	1886	102	103
Citizens'	1,000	200,000	J. & J.	6	1883	100	101
Citizens' Cable	1,000	1,500,000	J. & J.	6		103	106
Lindell	1,000	87,500	F. & A.	7	1579	102	105
Mound City	1,000	125,000	J. & J. M. & S.	6	18:4	102	103
Missouri Cable	1 000 1,000	500,000 125,000	J. & D.	6	1882	102 103	105 105
People's 1st mort	1,000	75,000	M.& N.	7	1886	104	105
Northern Central	1,000	200,000	J. & J.	6	1884	102	103
St. Louis Cable	1,000	600,000	M.& N.	6	1884	105	107
Union	1.000	150,000	M.& N.	6	1885	102	103
Union Depot	1,000	350,000	A. & O.	6	1886	102	1021/2

STREET RAILWAY STOCKS,—Continued.

BOSTON STOCKS.-Corrected by R. L. DAY & Co. 51 State st., Members of Boston Stock Exchange.

Company.	Par.	Capital.	Period.	Rate.	Date.	Bld.	Asked.
Metropolitan South Boston. Boston Consolidated. Cambridge. West End Pref.	50 100 100	\$2,000,000 750,000 1,700,000 1,950,000 6,650,000	J. & J. J. & J. J. & J. J. & J. J. & J.	8 5	July, 18 July, 18	100 100 100 140 115 888	105 105 145 117 81

NEW YORK STOCKS .- Corrected by H. L. GRANT, 145 Broadway, New York.

Company.	Par.	Capital.	Period.	Rate.	Date.		Bid.	Asked
Bleecker St. & Fulton Ferry	100	\$900,000	J. & J.	3/	January.	1887	26	29
1st mort	1,000	700,000	J. & J.	7	July,	1900	114	116
Broadway & Seventh Avenue	100	2,100,000	Q.—J.	2	January,	1886	117	170
1st mort	1,000	1,500,000	J. & D.	5	June,	1904	100	103
2d mort	1,000	500,000	J. & J.	5	July.	1914	103	105
Broadway Surface Guaranteed	1,000	1,500,000	J. & J.	5	July.	1924		91
Additional	1,000	1,000,000	J. & J.	5	July,	1905		91
Brooklyn City—Stock	10	2,000,000	QF.	2	November,	1887	120	130
1st mort	1,000	800,000	J. & J.	5	January,	1902	106	110
Brooklyn Crosstown	100	200,000	A. & O.	4	October.	1887	160	165
1st mort bonds	1,000	400,000	J. & J.	7	July.	1888	105	109
Central Park, North & East River	100	1,800,000	QJ.	2	January.	1887	75	81
Con, mort. bonds	1,000	1,200,000	J. & D.	7	December,	1902	119	120
Christopher & Tenth	100	650,000	F. & A.	11/4	November,	1857	125	130
Bonds	1,000	250,000	A. & O.	7	October,	1898	110	114
Central Crosstown	100	600,000	Q.—F.	13/4	November,	1887	150	160
1st mort	1,000	250,000	M. & N.	6	November,	1922	118	125
Dry Dock, East B'way & Battery	100	1,200,000	Q.—F.	2	November,	1887	145	157
1st mort. consol	500	1,900,000	J. & D.	7	June,	1893	108%	111
Scrip	100	1,200,000	F. & A.	6	August,	1914	104	106
42d & Grand St. Ferry	100	748,000	QF.	3	November,	1887	200	210
1st mort	1,000	236,000	A. & O.	7	April,	1893	110	112
42d St., Manhattan & St. Nich. Av.	100	2,500,000					38	42
1st mort	1,000	1,200,000	M & S.	5		1910	108	110
2d mort. In. bonds	1,000	1,200,000	J. & J.	6		1915	60	63
Eighth Avenue—Stock	100	1,600,000	Q.—J.	2	November,	1887	155	160
Scrip	100	1,000,000	F. & A.	6	August,	1914	105	110
Houston, West St. & Pavonia Ferry	100	1,000,000	Q-F.	2	August,	1885	160	
1st mort	500	250,000	J. & J.	7	July,	1894	110	111
Second Avenue—Stock	100	500,000	J. & J.	5	January,	1887	118	121
1st mort		1,862,000	M. & N.	5	November,	1909	104	106
Consol	1,000	550,000	M. & N.	7	November,	1887	101	103
Sixth Avenue	100	1,050,000	M. & S.	3	November,	1887	175	180
1st mort	1,000	500,000	J. & J.	7	July,	1890	110	112
Third Avenue—Stock	100	2,000,000	Q.—F.	3	November,	1887	220	228
1st mort	1,000	2,000,000	J. & J.	7	January,	1890	110	112
23d St.—Stock	100	600,000	F. & A.	5	November,	1887	210	220
1st mort	1,000	250,000	M. & N.	7	May,	1893	110	113
Ninth Avenue	100	800,000		3	September,	1885	107	112
Chlcago City Raiiway	100	L					299	325

FOR SALE CHEAP, on account of discontinuance of road, eight cars. Four nearly as good as new. One of them only run two months. Address for full particulars, Mad son Street Railway, care STREET RAILWAY JOURNAL, 113 Liberty St., New York.

XPERIENCED and thoroughly practical St. R. R. man, competent to fill any or all of the following positions: Superintendent, Secretary, Purchasing Agent, Auditor and Accountant, desires a change; location no object. Present position combines the duties of Superintendent, Secretary, Auditor and Accountant. Would prefer position as General Manager or Superintendent to take hold of large failure, entire charge of operating a medium sized road or to look after the Interests of a syndicate controlling several small roads.

Remuneration can be based on results obtained. This is a good opportunity to secure a first-class reliable man on easy terms, expectations small. Correspondendence or an interview is solicited. Address, "Expert," Box 17, No. 1,692 Broadway, New York City.

LOGGING, MINING, PLANTATION

STREET RAIL & TRAM ROADS.

Light sections Rails & Spikes in stock. Locomotives, Motors, Cars, etc., NEW & SECOND HAND.

-)0(--HUMPHREYS & SAYCE No. 1 Broadway, New York,

eensfelder i Co

The only exclusively Sponge and Chamois House in the West.



for Samples Sponges for Street Railway Service a Specialty.

Laying RAILROADS.

Field Practice of Laying out Curves for Railroads. Trautwine, Civil Engineer. 12th ed.tion. Revised by J. C. Trautwine, Jr. 12 mo., Limp Morocco. Price, \$2.50. Sent post paid by AMERICAN RAILWAY PUBLISHING COMPANY, 113 Liberty St., New York.



Monthly, \$1 per Year. Sample Copy Free. Power, 113 Liberty St. NEW YORK.

Power is a practical journal covering that branch of mechanics which includes all forms of development and transmission of power.



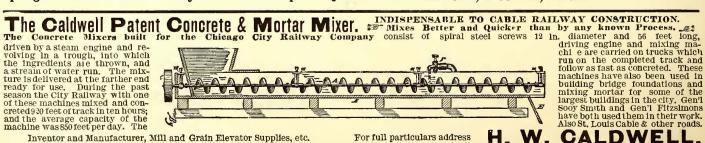
Weather Vanes, Hay Racks, Oat Mangers, Wrought Iron Stall Partitions, Wire Office Railing, Wire Window Guards, Coiled Wire Door

Mats for Buildings and Street Cars, and Builders' Wire and Iron Work. Manufactured by E. T. BARNUM, Detroit, Mich.

Send

Postal

Card



Inventor and Manufacturer, Mill and Grain Elevator Supplies, etc.

CALDWELL.

turer, Mill and Grain Elevator Supplies, etc. For full particulars address H. W. C. -131 & 133 W. WASHINGTON STREET, CHICAGO, ILL.

The Railway and Corporation Law Journal.

A Legal Paper of the First Class.

CONDUCTED BY CHARLES F. BEACH, JR.

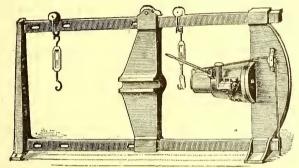
Contains a Weekly Digest of Decisions and Other Matters of Interest to Corporation Officials and Lawyers. Twenty-four pages of reading matter, 9x11 in.

L. K. STROUSE & O., Publishers,

95 Nassau Street, New York.

HAND POWER, LEVER AND HYDRAULIC

PRESSES.



See page 197, July, 1885.

Screw and Hydraulic Jacks.

WATSON & STILLMAN,

204 to 210 East 43d Street, New York.

CAR CEILINGS, ETC. MOSAIC INLAY

Is a new and PATENTED PROCESS of treating panels, etc., so as to FAITHFULLY REPRESENT INLAID WOODS of various colors and growths. The following advantages over the latter are claimed and allowed by the leading Car Builders of the United States:

It is capable of greater diversity in point o color and design, can be executed in much shorter time, is THOROUGHLY IMPERVIOUS TO MOIST-URE, can be washed with water, is unaffected by ordinary heat, can be executed to any design on natural wood panels, bent to any desired curve without fracture or blemish, and sold READY TO PLACE IN POSITION at very little advance over the cost of the ordinary painted work.

Estimates cheerfully furnished for INTERIOR DECORATIONS, from 1 to 1,000 Steam or Tramway cars. Address,

J. M. WADE & CO.,

123 Cedar Street, New York.

HAINES BROS., STEAM & STREET RAILWAYS,

45 Broadway, New York.

CAPITAL FURNISHED TO BUILD

Steam, Electric, Cable and Horse Railways.

CORRESPONDENCE SOLICITED.

STREET RAILWAYS

IN THE UNITED STATES & CANADA.

Compiled from data furnished the editors of "The Street Railway Journal," by the officers of the various roads.

ABBREVIATIONS—m, miles; g, gauge; lb r, pounds rall to the yard; c-b r, center-bearing rall; s-b r, side-bearing rall; c, cars; h, horses; mu, muies. Officers' addresses are the same postoffice as the company unless otherwise specified.

ABILENE, KAN.-Abliene St. Ry. Co., 3½ m, 3-6 g, 20 lb Tr, 4 1-h c, 8 mu. Pres. & Supt. M. M. Shlpe, Sec. A. C. Marconnier, Treas. J. M. Flsher. 8 AKRON, 6.—Akron St. Ry. & Herdic Co. 3½ m, 4-8½ g, 40 lb tram r, 9 c, 40 h. Pres, 1ra M. Miller, Sec. & Treas. Will. Christy, Supt. John E. Metlin. a ALAMEDA, CAL.—Alameda, Oakland & Pledmont R. R. Co. 5 m, 3 g, 16 & 29 lb r, 5 closed and 7 open c, 24 h. Pres & Pur. Agt. Theo, Meetz, V. Pres. Louis Fassking, Sec. Rudolph Mohr, Treas. Walter Biair. 1
ALBANY, N. Y.—Watervliet Turnpike & R. R.

Blair. 1
ALBANY, N. Y.—Watervliet Turnpike & R. R. Co. 15 m, 4-8½ g, 26 45 lb tram & T r, 4 1-h & 27 2-h c, 143 h. V. Pres. C. B. Tillinghast, Sec. & Treas. Cantine Tremper, Supt. Amos Free. Offices, 1165

Cantine Tremper, Supt. Amos Free. Offices, 1165
Broadway. b
Albany & E. Greenbush Horse Ry. Co. 1.7 m, 4-8 g, 61-h and 6 2-h c, 20 n. Pres. A. B. Banks, Sec. & Supt. J. W. Gıscolgne. Office, 473 Broadway. 8
Albany Ry. 15 m, 4-8 / g, 32 10 47 lb r, 59 c, 250 n. Pres., Treas. and Supt. John W. McNamara, V. Pres. Robt. C. Pruyn, Sec. Jas. H. Manning, Asst. Supt. Edgar S. Fassett. 1
ALLEGHENY, PA.—Federal St. & Pleasant Valley Pass. Ry. 4.8 m, 5-2 g, 50 lb r, 22 c, 160 h and mu. Pres. Wm. McCreery, Sec. R. F. Ramsey, Supt. Wm. J. Crozler. Office, 129 Taggart st. a
People's Park Pass. Ry. Co. 5-2 m, 5-2 g, 45 lb r, 0c, 70 mu. Pres. Wm. McCreery, Sec. R. F. Ramsey, Treas. Jas. Boyle, Supt. Wm. J. Crozler. Office, 129 Taggart st. a
ALLENTOWN, PA.—Allentown Pass. R.R. Co.

sey, Treas, Jas. Boyle, Supt. Wm. J. Crozler. Office, 123 Taggart st. a

ALLENTOWN, PA.—Allentown Pass. R.R. Co. 3½ m, 4-8½ g, 19 lb tram r, 6-2-hc, 23 h. Pres. Samuel Lewis, Sec. & Treas. Joseph E. Balliet. Supt. A. T. Brown. Office Hamilton st. Capital, \$45,260. k

ALTON, HL.—Alton & Up. Alton Horse Ry. Co. 2¼ m, 4-8½ g, 27 lb r, 4 c, 13 h, 2 mu. Pres. John Haley, Sec. & Treas. Il. J. Cranc, Pur. Agt. Theo. Scovel, Supt. Harriet S. Hathaway. Office, Upper Alton. 8

23' m, 4 8½ g, 27 lb r, 4 c, 13 h, 2 mu. Pres. John Haley, Sec. & Treas. II. J. Cranc, Pur. Agt. Theo. Scovel, Supt. Harriet S. Hathaway. Office, Upper Alton.

8

ALTOONA, PA.—City Pass. Ry. Co. of Altoona, Pa. 3½ m, 5-3 g, 43 & 45 lb tram r, 10 l-h, 8 2-h c, 33 h, 8 mu. Pres. John P. Levan, Sec. & Treas. L. B. Reitsneider, Supt. John J. Buch. Capital, \$68,000. a AMSTERDAN, N. Y.—Amsterdam St. R. R. Co. 1½ m, 4-8½ g, 25 lb T r, 4 c, 12 h. Pres. Henry Herrick, Treas. David Cady, Sec. M. L. Stover. Leased to Jas. R. Sneil. a ANNISTON, ALA.—Analston, Oxford & Oxanna Su. Ry. Co. 3¼ m, 4-8½ g, 20 lb T r, 4 2-h c, 5 h, 10 mu. P. ex. Dr. T. C. Hill, Sec. & Treas. W. S. Larned, Supt. & Pur. Agt. J. Baxter Allen. Office, Oxanna. 8. APPLETON, WIS.—Appleton Electric St. Ry. 4½ m, 4-8½ g, 33 lb tram r, 5 c, 5 motors, 60 H. P. Overhead conductor; Van Depoele system. Water power. Pres. J. E. Harriman, V. Pres. N. B. Clark, Sec. & Treas. Jos. Koffend. a ASBUKY PARK, N. J.—Seashore Elec. Ry. Co. 4 m, 4-8½ g, 47 lb s-b r, 15 c, 15 H. P. each. Daft System. Pres. Henry S. Iselln, Sec. & Treas. Dan'l G. Thompson, Supt. G. L. Joralemon. Office, 41 Wallst., New York.

ASHITABULA, O.—Ashtabula City Ry. Co. 4 m, 4-9½ g, 40 lb T r, 9 2-h c, 60 h. Owner & Prop. Jno. N. Stewart, Cleveland, O. 5

ATCHISON. KAN.—Atchlson St. Ry. Co. 9 m, 4-8½ g, 20-31 ib r, 20 c, 65 h, Pres. J. H. Beeson, V. Pres. A. W. Bartlett, Sec. h. M. Jackson, Treas. W. M. Hetherington, Supt. John McDonough St. Line 1.50 m. Pres. Richard Peters, Sec. & Treas. J. W. Culpepper, Supt. & Purch. Agt. E. C. Peters, Kngr. W. S. Larendon. Office, 49 Line St. Inc. 1.50 m. Pres. Richard Peters, Sec. & Treas. J. W. Culpepper, Supt. & Purch. Agt. E. C. Peters, Kngr. W. S. Larendon. Office, 49 Line G. Gate City St. R. R. Co. 2½ m, 4-8½ g, 16 lb T & 60 lb glyder r, 7 c, 28 mu. Pres. R. Peters, Sec. & Treas.

Sec. & Treas. J. W. Culpepper, Supt. & Purch. Agt. E. C. Peters, Kngr. W. S. Larendon. Office, 49 Line st. g Gate City St. R. R. Co. 2½ m, 4-8½ g, 16 lb T&6 lb glrder r, 7 c, 28 mu. Pres. R. Peters, Sec. & Treas. J. W. Culpepper, Supt. & Pur. Agt. E. C. Peters. Office, 49 Line st. Metropolitan St. R. R. Co. 8 m, 4 8½ g, 25 lb steel r, 17 2-ln c, 20 c, 100 h. Pres. J. W. Rankin. Sec. W. A. Haygood, Supt. & Pur. Agt. W. L. Abbott. Office, Park ave. & Falr st. g. West End & Atlanta St. R. Co. 5 m, 4-8½ g, 20 & 30 lb Tr, 8 2-ln c, 32 mu. Pres. T. G. Healey, V. Pres. T. L. Langston, Pur. Agt. T. J. Hightower, Supt. B. F. Curtis. e ATLANTIC CITY, N. J.—Atlantic City Ry. Co. Sec. Ezra Bartlett, Treas. W. G. Bartlett. AUBURN, N. Y.—Auburn City Ry. Co. 3½ m. 4-8½ g, 28-30 lb tram r, 12 2-ln c, 42 h. Pres. G. W. Allen, V. Pres. H. B. Hollins, New York, Sec. Bronson Peck, Jr., New York, Treas. E. L. Horton, New York, Asst. Treas. C. B. Kosters, Supt. J. L. Windsor. g AUGUSTA, GA.—Augusta & Summerville R. R. Co. 6 m. 5 g, 30 lb Tr, 9 1-ln c, 42-ln c, 50 h. Pres. Patk. Walsh, Sec., Supt. & Pur. Agt. Edw. G. Mosher. Audtor, Frank E. Petit. Office, 513 McKlinne st. a AURORA, ILL.—Aurora City Ry. Co. 5 1-6 m, 4-8½ g, 28 lb r, 10c, 3 h, 56 mu. Pres. H. H. Evans, V. Pres. & Man. S. W. Thatcher, Sec. T. H. Day, Treas. E. W. Trask. 1

AUSTIN, TEX.—Austin City R. R. Co. 7 m, 3-6 g, 25 & 30 lb Tr, 3 1-h, 11 2-h c, 12 h, 110 mu. Pres. & Treas. Wm. H. Tobin, Sec., Pur. Agt. & Supt. Geo. A. Proctor.

BABYLON, N. Y.—Babylon Street Ry. Co. 1.53 m, 4-9 g, 35 lb T r, 11-h, 12-h c, 3 h. Pres. W. F. Norton, Sec. Jos. F. Sammis, Treas. John R. Reld, Supt. David S. S. Sammis. d

Norton, Sec. Jos. F. Sammis, Treas, John R. Reld, Supt. David S. S. Sammis, Treas, John R. Reld, Supt. David S. S. Sammis, Treas, John R. Reld, Supt. David S. S. Sammis, Treas, John R. Reld, Supt. David S. S. Sammis, Teas, John R. Reld, Supt. David S. S. Sammis, Teas, John R. Reld, Supt. David S. S. Sammis, Teas, John R. Reld, Jas. McKitrick, Office 406 Laurens St. & Baltimore City Pass. Ry, Co. 44 m, 5-4½ g, 46 & 47 lb tram r, 155 c, 1, 64 h. Pres. & Supt. Oden Bowle, Supt. car shops J. M. Blundell, Supt. tracks, Boyer Parks, Treas, John Bolglano, Sec. S. L. Bridge. Office Cor. Calvert & Baltimore Sts. a

Baltimore & Hall Springs R. R. Co. 4½ m, 14 c, 63 h. Pres. H. J. Keyser, Supt. Jas. F. Heywood.

Baltimore Union Pass. Ry, Co. 16 m, 5-4½ g, 47 lb T, 62 c, 392 h. Partly elect, overhead conductor; Daft system. Pres. N. Perrin, Gen. Man. T. C. Robbins, Treas, E. P. D. Cross, Sec. Leon Fender, Ass't. to Gen. Man R. E. Robbins. Office cor. Huntington ave. & Oak St. k

Baltimore, Catonsville & Ellicott's Mills Pass. Ry. Co. 6 m, 5-4½ g, 35 lb Tr, 15 2-h c, 42 h. Pres. T. C. Robbins, Sec. W. W. Orendori, Treas. E. P. D. Cross. Office, Pratt St. & Frederick ave. a

Baltimore & Yorktown Turnpike Road Co. 11½ m, 5-4½ g, 25 & 45 lb r, 19 c, 130 h. Pres. Sam'l H. Tagart, Ireas. Jos. W. Jenkins, Agt. A. D. Sanks. Office, R. Holliday St. J

Central Ry. Co. 11½ m, 5-4½ g, 40 lb r, 22 2 h. c, 2 sweepers. 186 h. Pres. Peter Thompson, Sec. & Treas. Walter Blaklstone. Office cor Preston and Constitution sts. b. Cittzens' Ry. Co. 20 m, 5-4½ g, 47 lb T r, 55 2-h c, Cittzens' Ry. Co. 20 m, 5-4½ g, 47 lb T r, 55 2-h c, Cittzens' Ry. Co. 20 m, 5-4½ g, 47 lb T r, 55 2-h c, Cittzens' Ry. Co. 20 m, 5-4½ g, 47 lb T r, 55 2-h c, Cittzens' Ry. Co. 20 m, 5-4½ g, 47 lb T r, 55 2-h c, Cittzens' Ry. Co. 20 m, 5-4½ g, 47 lb T r, 55 2-h c, Cittzens' Ry. Co. 20 m, 5-4½ g, 47 lb T r, 55 2-h c, Cittzens' Ry. Co. 20 m, 5-4½ g, 47 lb T r, 55 2-h c, Cittzens' Ry. Co. 20 m, 5-4½ g, 47 lb T r, 55 2-h c, Cittzens' Ry. Co. 20 m, 5-4½ g, 47 lb T r, 55 2

Sweepers, 186 h. Pres. Peter Thompson, Sec. & Treas. Walter Blakistone. Office cor Preston and Constitution sts. b.
Citizens' Ry. Co. 20 m, 5-4% g. 47 lb T r, 552-hc, 425 h. Pres. Jas. S. Hagerty, Sec. Wm, N. Hamersley, Treas. Jos. Bolgi no, Supt. & Pur. Agt. C. C. Speed. Office, Retreat st. a.
Highlandtown & Point Breeze Ry. Co. 11 m, 5-4% g, 35 lb tram & T r, 25-2-hc, 1:0 h. Pres. Francis Hazlehurst, Treas. Wm. Selfridge, Asst. Treas. J. L. Wertzell, Supt. Jas. Smith. Office, Highlandtown. 7 North Baltimore Passenger Ry. Co. 21 m. 5-4% g, 45 lb s.b r, 72-2-hc, 400 h. Pres. Jas. L. McLane, Treas. Dan'l J. Foley. Sec. Thos. J. Wilson. Office, McMeckin st. & Mt. Royal ave. 1
People's Ry. Co. 13.2 m, 5-4% g, 42 45-47 lb r, 38c, 10 h. Pres. T. Edw. Hambieton. Treas. Gustavus Ober, Sec., Supt. & Pur. Agt. Wm. A. House, Jr. Office, Druld Illil ave. extension, Clifton. f. Plmileo & Pikesville Ry. Co. 7 m, 5-4 g 30 lb r, 4 c, 17 h. Pres. S. H. Caughy, Sec. Frank Caughy. T eas. Supt. Arthur Chenoweth. Office, Pikesville, Balto. co. g.
BATTILE CREEK, MICH.—BattleCreek St. Ry. 6 m, 3-6 g, 28 lb r, 10 c, 20 h. Pres. J. L. Beveridge, V. Pres. J. W. Fletcher, Sec. Luci's Clark, Treas. Il. II. C. Miller, Supt. P. P. Judson. c.
BAY CITY, MICH.—Bay City St. Ry. Co. 12 m, 4-8% g, 4235-15 tr, 16 c, 60 h. Pres. Jas. Clements, Treas. W. S. Clements, Sec. Edgar A. Cooley, Supt. Byron Alley. 11
BEATRICE. NEB.—Beatrice St. Ry. Co. 4 m, 4-8% g, 25 lb r, 4 c, 30 h. Pres. J. D. Kilpatrick, Purchasing Agt. J. E. Smith, Sec. A. L. Green, Treas. John Ellis. h.
BEAYER FALLS, PA.—Beaver Valley St. Ry. Co. 3% m, 5-2% g, 38 lb r, 8 c, 31 h. Pres. M. L. Knight, Pres. Col. J. Wayand Sac. & Treas. J. F. Merrl.

John Ellis. BEAVER FALLS, PA.—Beaver Valley St. Ry. Co. 3½ m, 5-2½ g, 38 lb r, 8 c, 31 h. Pres. M. L. Knight, V. Pres. Col. J. Weyand, Sec. & Treas. J. F. Merriman, Supt. L. Richardson. Office, 1207 7th av., Bea-

3½ m, 5-2½ g, 38 lb r, 8 c, 31 h. Pres. M. L. Knight, V. Pres. Col. J. Weyand, Sec. & Treas. J. F. Merriman, Supt. L. Richardson. Office, 1207 7th av., Beaver Falls. a

BELLAIRE, O.—Bellaire St. R. R. Co. 2½ m, 3-8 g, 20 lb r, 4 c, 10 h. Owner Geo. W. Stetson of New York, Man. Fred. Rodewig. 7

BELLEVILLE, ONT., CAN.—Belleville St. Ry. Co. 1½ m, 3-6 g, 23 lb, r. 5 c, 14 h Pres. D. Lockwood, 8 ce., Treas. & Man. S. A. Lockwood. l bELLEVILLE, IILL.—Citizens' St. Ry. Co. 4½ m, 4 8½ g, 16 lb r, 9 c, 26 h. Pres. D. P. Alexander, Man. & Treas. H. A. Alexander, Sec. J. E. Thomas. Office N. E. cor. Main and High sts. j

BELLEVIL, PA.—¼ m, elec., Fisher sys'em. BEREA, O.—Berea St. R. R. Co. 1½ m, 3-6 g, 25 lb r, 2c, 4h. Pres. C. W. D. Miller, V. Pres. T. Churchward, Treas. F. T. Pomeroy, Supt. A. W. Bishop. a

BINGHAMTON, N. Y.—Washington Street & State Asylum R.R. Co. 4½ m. 4g, 20-45 lb T & tram r, 61-h s2-h c, 20 h, 4 m. 1½ m cable, 50 H. P. engine. 6 elec. c, 3 of 15 H. P. each and 3 of 10 H. P. each; Van Depoele system; overhead conductor. Steam power. Press. R. H. Meagley, Sec. Ira J. Meagley, Treas. F. E. Ross, Gen. Supt. R. H. Meagley, Supt. Wm. Whitney, Le see S. M. Nash. Blinghamton Central R.R. Co. 3½ m (3 m. lald,) 3 g, 28 lb r, 6 c, 8 h. Pres. Geo. L. Crandal, V.-Pres. Alonzo Evarts, Sec. Chas. O. Root, Treas. H. J. Kneeland, Supt. Nelson Stow. Offices 65 Court st d. Binghamton & Port Dickinson R.R. Co. 5 m, 48½ g, 20-30 lb r, 10 c, 23 h. Pres. Harvey Westcott, Sec. & Treas. G. M. Harris, Supt. N. L. Osborn. (Leased to Mr. Osborn). Offices 112 State st. h. City Ry. Co. 1 m, 4 g, 25 lb r, 2 c, 5 h. Pres. & Man. R. H. Meagley, Supt. Wm. Whitney. Office 216 Fort st. 3 and Man. Court & Chenango St. R.R. 5 m, 4-8g, 40 lb r, 10 c, 25 h. Supt. & Lessee, N. L. Osborn. Offices 83 Washington st. Park Ave, R. R. Co. 1 m, 4 g, 25 lb r, 2 c, 5 h. Pres. E. Ross, Freas. F. E. Ross, Sec. E. A. Matthews. S. M. Nash. lessee. 5

BIRMINGHAM, ALA.—Birmingham Union Ry. Co. 22 m, 4-8½ g, 16 lb T r, 9 l-h c, 20 mu. Pres. & Supt. R.

Sts. 9
East Lake Land Co. 7m, 4-8½ g, 40 lbr, 6 c, 4 motors.
Pres. Robt. Jemison. V. Pres. A. A. Clisby, Sec. &
Treas. S. M. Hanby. Capital, \$200,000. Office, 2,009
First ave. h

Highland Ave. & Belt R. R. Co. 25 m, 4-9 g, 12 m 30 lb r, 13 m 56 lb r, 16 pass. c, 7 flats, 5 dummy en-gines, 2 freight engines. Pres. H. M. Caldwell, Man.

llam Farrell. Office cor. Smith & Huntington sts. 9
Grand St. & Newtown R. R. Co. 13½ m, 4.8½ g, 5060 lb r, 72 c, 254 h. Pres. Martin Joost, Sec. & Treas.
W. J. Milner, Supt. I. M. Levis, Engr. R. H. Adams.
Office, Morris ave. & 20th st. 9
Birmingham & Pratt Mines St. Ry. Co. 5 m, 4.8½
g, 16 lb r, 6 c, 30 h. Pres. and Gen. Man. J. A. Van
Hoose, Sec. & Treas. Wm. Berney. 6
BitcMINGHAM, CONN.—Birmingham & Ansonia Horse R. R. 3½ m, 4.8½ g, 30 lb side bearing
r, 6 c, 25 h. Pres. Wm. H. Williams, Sec. Edwin B.
Gager, Treas. Eugene M. Cole. 9
BICOMFIELD, N. J.—Newark & Bloomfield R.
R. (See Newark, N. J.)
BLOOMINGTON, HILL—Bloomington & Normal
Horse Ry. Co. 6 m, 4.8½ g, 37 & 46 lb r, 15 c, 90 mu.
Pres. J. J. Patterson, sec. J. F. Balley, Asst. Sec. &
Treas. W. W. Irvine, Supt. John W. Law. c
BOONE, IA.—Boone & Boonsboro St. Ry. Co.
1½ m, 3g, 20lb r, 3 c, 1 bus, 10 h. Pres. L. W. Reynolds,
Treas. Ira B. Hodges, Sec. and Supt. A. B. Hodges. f
Twln City & Des Molnes River Motor St. Ry. Co.
6 m, 20 lbs. r, 3-6 g, 2 motors, 3 c. President &
Supt. J. B. Hodges, Treas. A. B. Hodges, Sec.
S. K. Huntsinger. k
BOSTON, MASS.—Boston Consolidated St. Ry.
Co. 51½ m, 4.8½ g, 48-50 lb r, 37s c, 1,850 h. Pres.
Chas. E. Powers, Treas. Sam'l Little, Ass. Treas.
John H. Studley, Jr., Gen. Supt. Julius E. Rugg.
Supt. J. H. Studley, Jr., Gen. Supt. Julius E. Rugg.
Tremontrow. k
Albany St. Freight Ry. Co. 93 m, 4-8½ g, 90 lb r,
Roc. no. Pres. Chas L. Plerson Trass.

Supt. J. H. Studley, J. C., Gen. Supt. Julius E. Rugg., Supt. J. H. Studley, 19 City Square, Charlestown, Engr. Arthur Hodges. Capital, \$1,700,000. Office, 27 Tremont row. K

Albany St. Freight Ry. Co. 93 m, 4.8½ g, 90 lb r, no c, no h. Pres. Chas. L. Pierson, Treas. Geo. F. Child. Office, 439 Albany st. J

Boston & Chelsea R. R. Co. 4.154 m, 4.8½ g, 45-60 lb r. Pres. W. W. Wheildon, Treas and Clerk, John H. Studley, Jr. Leased to Lynn & Boston R. R. Co. Office, 27 Tremont row. I

Lynn & Boston R. R. Co. 42 1-6 m, 4-8½ g. 28-48 lb r, 175 c, 748 h. Pres. Amos F. Breed, Treas. & Clerk E. Francis Oliver, Supt. Elwin C. Foster. Office, 13 Tremont row. k

Metropolitan R. R. Co. 87 m, 4-8½ g, 30-54 lb T flat steel and Richards r, 721 2-h c, 3, (61 h. Pres. Ca. Richards, Sec. Wm. P. Harvey, Treas. Chas. Boardman, Supt. Car Reps. Isaac H. Randall. Office, 16 Kilby St. k

80. Boston Ry. Co. 16 m, 4-8½ g, 50 lb r, 199 c, 970 h. Pres. Chas. H. Hersey, V. Pres. Lata H. Baker, Clerk M. Anagnos, Treas. Chas. B. Cummings, Supt. Daniel Coolidge. Office, 715 Broadway, So. Boston. & Somerville Horse R. R. Co. (Operated by the Boston Consolidated Street Ry. Co.) 5 4 m, 4-8½ g, 48-60 lb r. Pres. Sam'l E. Sewall, Treas. & Clerk, J. H. Studley, Jr. Office, 27 Tremont row. a

Winnlsimmet R. R. Co. 1.95 m, 4-8½ g, 48-1b r, no c, no h. Pres. Wm. R. Pearmain, Chelsea, Mass. Treas. & Clerk, E. Francis Oliver, Boston. Co. 12 m, 4-8½ g, 33 lb r, 3 c, 5 h. Pres. James Broder, Sec. G. H. Moore, Treas. Enos Parsons. Capital, \$12,000. 7

BRANTFORD CAN.—Brantford St. Ry. Co. 4 m, 3-6; 25 lb r, 6 c, 20 h. Pres. D, A. Flack, V. Pres.

BRANTFORD CAN.—Brantford St. Ry. Co. 4
BRANTFORD CAN.—Brantford St. Ry. Co. 4
N. 3-6 g, 25 lb r, 6 c, 20 h. Pres. D. A. Flack, V. Pres.
R. A. Pringle, Sec., Treas. & Man. Chas, H. Flack. h
BRENHAM, TEX.—Brenham St. R. R. Co. 2 m,
4g, 20 lb r, 3 c, 18 mu. Pres. T. J. Pampell, V-Pres. F,
Krentzlin, Sec. John A. Randle, Treas. D. C. Giddings.
Man. E. B. Randle. Office, Gruber Blig., North st. l
BRIDGEPORT, CONN.—Bridgeport Horse R. R.
Co. 6½ m, 4-8½ g, 42 lb r, 20 c, 100 h. Pres. Albert
Eames, Sec. & Treas. F. Hurd, Supt. B. F. Lashar,
Engr. Chas. Miller j
Bridgeport & W. Straiford Horse R. R. Co. 3½ m,
4-8½ g, 45 lb r, 10 c, 50 h. Pres. David F. Hullister,
Sec. & Treas. Henry D. Drew, Man. Henry N.
Beardsley

Bridgeport & W. Straitord Horse R. R. Co. 3½ m, 4-8½ g, 45 lb r, 10 c, 50 h. Pres. David F. Hullister, Sec. & Treas. Henry D. Drew, Man. Henry N. Beardsley.

j BROCKTON, MASS.—Brockton St. Ry. Co. 11½ m, 4-8½ g, 35 lb r, 32 c, 138 h. Pres. W. W. Cross, Treas. C. R. Fillebrown. Supt. H. B. Rogers. Office, Campello.

j BROOKLYN, N. Y.—Atlantic Avenue R. R. Co. of Brooklyn. 32½ m, (leased and owned). 4-8½ g, 50-60 lb r, 255 2-h, 30 1-h c, 1,157 h. Pres. Wm. Richardson, Sec. W. J. Richardson, Treas. Newberry H. Frost. Office, cor. Atlantic & Third aves.

Broadway R.R. Co. 12 m, 4-8½ g, 60 lb r, 199 c, 750 h. Pres. Edwin Beers, Sec. & Treas. Robert Sealy, Supt. J. Crandall. Office 21 Broadway, E. D. e Brooklyn Cable R. R. Co. Leased its inne from Atlantic Ave. R. R. Co., for 14 per cent of gross receipts, but discontinued operations, July, 1887. 7 m, 4-8½ g, 59½ lb c-b girder r, cable 3 m, 350 H, P. Pres. Tom L. Johnson, Sec. & Treas. A. I. Du Pont, Supt. A. L. Johnson. Office, 355 Park ave.

Brooklyn Cross Town R.R. Co. 16 m, 4-8½ g, 50-60 lb r, 72 c, 430 h. Pres. Henry W. Slocum, V. Pres. Ezra B. Tuttle, Sec. M. Joost, Treas. John R. Conner, Supt. D. W. Sullivan. Offices 558 Manhattan ave. J. Bushwick R. R. Co. 23½ m, 4-8½ g, 35-45-50-60 lb r, 87 c, 650 h. Pres. Wm. H. Husted, V. Pres. Edwin Beers, Treas. & Sec. S. D. Hallowell, Supt. Wm. N. Morrison. Office 22 Broadway. k. Brooklyn, Bushwick & Queens County F. R. Co. 11 m. 4-8½ g, 42-47 lb r, 50 c, 214 h. Pres. Gew. Van Allen, S-c. Wm. B. Walt, Treas. C. B. Cottrell, Supt. Chas. E. Harrls. Office of Pres. & supt. cor. Nostrand & Park av. b. Brooklyn City R.R. Co. 88½ m, 4-8½ g, 45, 60 & 64 lb slope back & c-b r (all steel), 501 closse c, 335 oppn c, 18 steam dummy englnes, 3,300 h. Pres. Daniel F. Lewis, V. Pres. Wm. M. Thomas, Sec. H. M. Thompson, Asst. Sec. Francls E. Wrigley, Treas. Cromwell Hadden. Offices, 10 Fulton st. Capital, \$4,000,000. a. Brooklyn City & Newtown R.R. Co. 13½ m, 4-8½ g, 45, 60 & 64 lb slope back & c-b r (all steel), 501 closse c, 335 opp

The Julien Electric Company.

OFFICE, 120 BROADWAY, N. Y

FACTORY, CAMDEN, N. J.

Electric Street Cars on Secondary Battery Principle.

EDMOND JULIEN, Engineer, of Brussels, Belgium, is the inventor both of the Traction System and Secondary Battery System of this company. The present car is the result of six years of unceasing experiments, carried on at his works in Brussels and on the streets of that city, at great cost.

The leading principle of Mr. Julieu's System has been the application of an Electric Motor and Batteries to the present existing rolling stock of street railways, and to construct a car so simple in its management that the drivers and conductors at present in charge of horse cars may take to the new service as easily as to the old. Mr. Julien, after running an Electric Car on the Rue de la Loi in Brussels, during the years 1884 and 1885, and ascending a grade of 5 per cent on that street, put his car in service at the Autwerp International Exhibition of Mechanical Traction in May, 1885, and ran it daily a distance of 57 miles, sometimes drawing an ordinary street car, both cars filled with passeugers, and in competition with steam and compressed air motors; and the jury, consisting of emineut Engineers from Eugland, Germany, France and Belgium, awarded Mr. Julien the First Prize and Diploma of Honor for the best System of Mechanical Traction for street cars.

At the end of this Exhibition, Mr. Julien placed two cars ou the streets of Hamburg, and afterwards added a third. Those cars have now been running since February, 1886. They each make 69 miles a day and in one place over a 4 per cent grade, carrying passengers; and, although the municipal requirements of Hamburg were very exacting, yet the Electric car has so satisfactorily mct them, that it has been adopted iu that city. Readers are requested to write to Hamburg to satisfy themselves. The batteries used upon these cars were examined by the municipal officers two months ago, and were found it as perfect condition as when they were first put in the cars.

In April, 1886, Mr. Julieu closed a contract with all the Brussels street railways, whereby they have agreed to adopt his System and to put 107 cars in use in Brussels. They are now ready to put three lines of Mr. Julien's system in service, if they have uot already doue so. The street railways at Rio Janeiro have also adopted Mr. Julien's system.

Last June, Mr. Julien placed two of his cars in service on the Champs Elysees under the supervision of ten members of the International Society of Electricians of France, M. Foutaine at the head. They did service betweeu the Place de la Concorde aud the Palais de l'Iudustrie during the entire summer, and, at the end of the Exhibition, were awarded a first prize and Diploma of Honor. Mr. Julien's Batteries were also put in competition there with those of Faure and Plante under the supervision of Mr. Hospitalier, an eminent Electrician; and Mr. Julien was awarded the first prize and a Diploma of Honor. The Faure and Plante batteries received a third prize and silver medal. Mr. Julien's car, which is now exhibited on Eighth Avenue. New York City, is working its way into favor and has been so adapted to the new couditions arising from sharp curves and au irregular track, as to travel easily at a rate of eight and one-half (81) miles an hour and carrying a full load.

COST.

The cost of Installation of Mr. Julien's System is about the same as that of horse system. It is, iu all probability, less; and, once installed, the expense of maintaining it is, of course, much less. In Brussels, this expense has been found, after an examination, covering a period of nearly a year, by a committee of Street Car men, to be a little over Three Dollars (\$3.00) a day for each car. In this country, the expense will not exceed Four Dollars (\$4.00) per day. From our observations on the Eighth Avenue line, it will be less thau that on that line, owing to the favorable nature of the grades. The cost of horse traction is deemed to be at least Seven Dollars (\$7.00) a day. We speak, of course, of two-horse cars.

The manipulation of the System is far easier than that of the horse system. Each car will require about three horse power in the way of steam engine, so that a road maintaining, say, 40 cars, would require three 60 horse power engines, one engine being in reserve. The dynamic power required is the same. Each car will require about three tons of battery; this will enable the car to be run about 80 miles a day with but one change of battery. It requires

about eight hours to charge each battery The three tous will be divided into two batteries, one being charged while the other is being used on the car. The batteries are ranged on either side of the car on benches; when the car comes in from service and its batteries are exhausted, it is run up between empty benches, which are on a level with the panels of the car, the panels are let down and the batteries are easily drawn out on greased rods. Adjoining the empty benches are the benches with the charged batteries, which take the place of the discharged ones.

Mr. Julien's batteries being made on a new principle—that is, inoxidizable support plates-are found to have an unlimited life and to be capable of being run up to a very high intensity without any injurious effect. Iu heavy grades, and going around curves, the current may be run up to 70 amperes without any fear of injury to the battery. As all Electriciaus know. Mr. Julien's is the only battery that can pretend to stand so high an intensity. Yet it may be seeu every day ou the Eighth Avenue road. The motor required for a large car will vary, according to the grades of the road, from 7 to 10 horse power. We do not consider it economical to overcome long grades of more than 5 per cent, though of course the car may be made to overcome much higher grades than this, especially for short distances. Curves should be at least 40 feet radius, although, on the Eighth Avenue road, we are compelled to ruu around curves of only 29 feet radius; yet there is an element of danger to the gearing of the car in so short a curve.

Next to Mr. Julien's motor, which is especially adapted, by its simplicity, for use on a Street Car, the Electrical Regulator is worthy of admiration. It is placed at either end of the car aud controls so effectively and so methodically the application of power that an ordinary driver may learn the use of it with entire success in less thau a few hours. Of course, railroads using this Company's cars will be enabled to light their stables with the Secondary battery employed in the service; the cars are, of course, lighted from the same batteries. Oue company now adopting Mr. Julieu's System are uudertaking to light the streets along which the cars will run from their stables, thereby reducing the cost of their installation by getting a profit from the City.

Wm. E. Horwill, Supt. Walter G. Howey. Office 394

Wm. E. Horwill, Supt. Walter G. Howey. Office 394 Kent ave. 1
Grand Street, Prospect Park & Flatbush R.R. Co. 8½ m, 4-8½ g, 50 lb c-b r, 75 2-h c, 245 h. Pres. Thos. Clark, Jr., Sec. & Treas. Chas. Crelields, Supt., Pur. Agt. & Supt. Car Reps. John L. Heins. Leased to Brooklyn City & Newtown R.R. Co. Office, Franklin ave. & Prospect place. 8
Greenpoint & Lorimer St. R. R. Co. 5½ m, 4-8½ g, 50 lb r, 36 c, 183 h. Pres. Geo. W. Van Allen, Sec. Wm. B. Walt, Treas. C. B. Cottrell, Supt. Chas. E. Harris. Office, cor. Nostrand and Park aves. J. New Williamsburgh & Flatbush R. R. Co. 17½ m, 4-8½ g, 47-50 lb r, 78 c, 299 h. Pres. Geo. W. Van Allen, 54 Ann st., New York, Sec. W. B. Walt, 34th St. & 9th ave., New York, Treas. C. B. Cottrell, Spruce st., N. Y. Clty, Supt. Chas. E. Harris, Nostrand & Park aves., Brooklyn. J. Prospect Park & Flatbush R. R. Co. 3 m, 4-8½ g, 34-10 lb r, 4c, 16 h. Pres. John G. Jenkins, Sec. & Supt. W. G. Howey, Treas. Theo. F. Jackson. Offices 45 Broadway. 8
South Brooklyn Central R.R. Co. 8½ m, 4-8½ g, 60

W. G. Howey, Treas. Theo. F. Jackson. Offices 4b Broadway. 8
South Brooklyn Central R.R. Co. 8% m, 4 8½ g, 60 lb r, 42 c, 193 h. Pres. Wm. Richardson, Sec. Wm. J. Richardson, Treas. N, H. Frost, Asst. Treas. Jas. S. Suydam, Offices, Atlantic & 3d avcs. 1
Van Brunt St. & Erle Basin R.R. Co. 3 m, 4-8½ g, 45 lb r, 7 c, 26 h. Pres. & Supt. John Cunningham, Sec. & Treas. Edmund Terry. Offices, 264 Van Brunt St. b

g, 45 10 r, 7c, 26 h. Pres. & Supt. John Cunningnam, sec. & Treas. Edmund Terry. Offices, 264 Van Brunt st. b

BRUNSWICK, GA.—Brunswick St. R. R. Co. 4½ m, 4-8½ g, 38 lb steel r, 6 c, 25 h. Pres. C. P. Goodyear, Sec. & Gen. Man. U. Dart, Treas. W. E. Kay. Office, Newcastle st. 8

BUFFALO, HLL.—See Mechanicsburg, Ill.
BUFFALO, N. Y.—Buffalo St. R.R. Co. 15½ m, 4-8½ g, 50 lb r, 109 c, 615 h. Pres. Henry M. Watson, V. Pres. P. P. Pratt, Sec. S. S. Spaulding, Treas. W. H. Watson, Supt. Edward Edwards, Engr. Marsden Davey. Office, 346 Malu st. 6

Buffalo East Side St. Ry. Co. 32 m, 4-8½ g, 42 & 50 lb c-b r, 59 c, 301 h. Pres. S. S. Spaulding, V. Pres. Joseph Churchyard, Sec. Il. M. Watson, Treas. W. H. Watson, Supt. Edward Edwards, Engr. Marsden Davev. Office 346 Main st. 6

BURLINGTON, IA.—Burlington St. R.R. Co. 3½ m, 4-8½ g, 1-22 lb r, 9 c, 22 h, 10 mu. Pres. & owner, John Patterson, Sec., Treas. & Man. C. T. Patterson. Office, 1401 Summer st. a

Union St. Ry. Co. 8½ m, 4-8½ g, various r, 20 c, 80

Pres. Geo. A. Duncan, Sec., Treas. & Supt. F. G. Jones. a

Jones. a

BURLINGTON, VT.—Winooski & Burlington
St. Ry. Co. 3½ m. 4-8 g, 25 lb r, 8 c, 30 h. Pres.
U. A. Woodbury, V. Pres. F. C. Kennedy, Supt. K.
B. Walker, Treas. L. E. Woodhouse, Clerk, G. W.
Wales. Office, 167 Bank st. g
CAIRO, ILL.—Calro St. Ry. Co. 3 m, 3-6 g, 25 lb
r, 5 c, 12 h. Pres. J. A. Goldstine, V-Pres. C. V. Neff,
Supt. & Treas. Thos. Lewis, Sec. H. Schulze. K
CALLIOPE, IA.—Callope & Hawarden St. R. C.
CO. Gen. Mau. E. E. Carpenter.

CAMBRIDGE, MASS.—Cambridge R.R. Co. 55½ m, 4-8½ g, 48 lb T and tram r, 327 2-h c, 1,646 h. Pres. Prentiss Cummings, Treas. & Clerk Franklin Perrin, Exec. Com. I. M. Spelman, P. Cummings, O. S. Brown, Clerk of Directors, O. S. Brown Supt. Wm. A. Bancroft, Pur. Agt. & Supt. Car Reps. A. K. Sweet.

Perrin, Exec. Com. I. M. Spelman, P. Cummings, O. S. Brown, Clerk of Directors, O. S. Brown Supt. Wm. A. Bancroft, Pur. Agt. & Supt. Car Reps. A. K. Sweet.

A. Bancroft, Pur. Agt. & Supt. Car Reps. A. K. Sweet.

CAMDEN, N. J.—Camden & Atlantic St. Ry. 8½ m, 5-1 g, 35-47 lb tram r, 18 c, 100 mu. Pres. Wm. L. Elkins, V. Pres. Wm. G. Sewell, Sec. D. M. Zimmerman, Treas. W. Taylor, Supt. Wm. N. Bannard. 8

Camden Horse R. Co. 9 m, 5-1 g, 35-52 lb r, 26 c, 87 h. Pres. Thos. A. Wilson, Sec. Wilbur F. Rose, Treas. & Supt. John Hood.

CANTON, O.—Canton St. Ry. Co. 4½ m. 4 g, 28 lb r, 11 c, 59 h. Pres. & Treas. G. E. Cook, Sec. John F. Clark, Sunt. O. L. Stanton. Office, 4E. 7th st. a CAPE MAY, N. J.—Cape May & Schellenger's Landing R. R. Co. 3 m, 5-2 g, 45 lb r, 4 l-h 4 2-h c, 50 h. Pres. Wm. Wharton, Jr., Sec. & Treas. Wm. Selfridge, Supt. Jas. Leaming.

CARTHIAGE, MO.—Carthage Horse Rv. Co. 3½ m, 3-6 g, 20 lb Tr, 3 2-h c, 16 mu. Pres. & Pur. Agt. J. W. Ground, Office, 19 S. Main st. 9

CEDAR RAPIDS, IA.—Cedar Rapids & Marion Ry., 13½ m, 4-8½ g, 28-30-35 lb r, 20c, 44 h. Pres. W. Greene, V.-Pres. A. J. McKean. Sec. N. B. Consigny. Treas. G. Greene, Supt. Wm. Elsom. Office, 11 N. Second st. 4

CENTRIVILLE, IA.—People's St. Rv. Co. 1½ m, 3-6 g, 20 & 27 lb T r, 3 l-h c, 8 mu. Pres. Wm. Bradley, Sec. H. A. Russell. 9

CHAMPAIGN, ILL.—Champaign St. R. R. Co. Pres. J. L. Ray.

Urbana & Champaign St. R. R. Co. (See Urbana.) CHATHAM. CAN.

CHARLESTON. S. C.—Charleston City Ry. Co. 9 m, 4-8½ g, 38 lb r, 32 c, 110 h. 1 mu. Pres. Jno. S. Riggs, Sec. and Treas. Evan Edwards, Asst. Tress. Frank Whilden, Supt. Jno. Mohlenhoff. Office 2 Broad st. & Enterprise R. R. Co. 15 in, 5 g, 42 lb r. 29 pass. c, 10 freight c, 95 h. Pres. A. F. Ravenel, Sec. & Treas. We. Hayne, Supt. T. W. Pres. B. Callaghan. Sec. & Treas. Frank F. Whilden, Supt. B. Buckley. Office 2 Broad st. 4

Middle Street sullivan Island Ry. Co. 2½ m, 4-8½ g, 16 lb r, 4 c, 26 mu. Pres. W. J. Rushton, Sec. Treas. G. Green. Supt. B. Buckley. Office 2 Broad st. 4

CHARLOTTE,

g, 20 10 T Fr. C. 44 Milden, Supt, B. Buckley. Office & Treas, Frank F. Whilden, Supt, B. Buckley. Office & Broad St. d

CHARLOTTE, N. C.—Charlotte St. Ry. Co. 3½ Milden, 48½ g, 16 lb T, 4 c, 26 mu. Pres. W. J. Rushton, Sec.. Treas, and Gen. Man. E K. P. Osborne, Supt. F. W. Dixon.

CHARLOTTES VILLE, VA.—Charlottes ville & University St. Ry. Co. 1½ Milden, 48½ g, 16 lb Tr. 3 1-h c, 10 h. Pres. R. P. Valentine, Sec. C. P. Benson, Supt. H. D. Porter. e

CHATTANOOGA, TENN.—Chattanooga St. R. R. Co. 12 m, 4-8½ g, 25-45 lb r, 26 c, 124 mu. Pres. and Treas. J. H. Warner, Sec. C. R. Gaskill, Supt. Geo. J. Stubblefield.

CHESTER, PA.—Chester St. Ry. Co. 9½ m, 5-2½ g, 47 lb r, 18 c, 40 h, 40 mu. Pres. E. Mitchell Cornell, Sec. Wm. S. B'akeley, Treas. Sam'l H. Seeds. Office, 1,300 Edgmont ave.

CHETOPA, KAN.—Chetopa St. Car Co. 4 m, 3-6 g, girder r, 3 1-h 6 2 h c, 20 h, 10 mu, 1 res. V. S. Roy, Sec. D. Richards, Treas. K. II. Peters, Suppl. P. D. Jeffries, Pur. Agt. R. S. Anderson, Supt. Car Reps. W. H. Aliden. P. O. Box 75. 9
CHICAGO, H.L.—Chicago City Ry. Co. 102 m, of which 26½ m cable, 4-8½ g, 45, 65 & 75 lb r, 5-70 2-h c, 232 cable c, 1,700 h, 5-000 H. P. engines. Pres. Supt. & Pur. Agt. C. B. Homes, V. Pres. S. B. Cobo, Sec. Henry H. Windsor, Treas. T. C. Pennington, Master Car Bullder Jas. B. Wright, Track Master C. J. Luck. Office, 2,020 State st. a Chicago Pass. Ry. Co. 21 m, 62 lb r, 60 c, 500 h. Pres. Harvey T. Weeks, Supt. Austin J. Doyle. 5 Chicago West Division Ry. Co. 93 m, 4-8½ g, 43 lb r, 900 c, 4,300 h. Pres. J. R. Jones, V. Pres. B. H. Campbell, Sec. & Treas. Geo. L. Webb, Supt. De Witt C. Cregier. Office of Pres., 59 State st.; Supt., 51 Randolp st. a North Chicago City R.R. Co. 45 m, 4-8½ g, 45 lb r, 375 c, 1,800 h. Pres. Chas. T. Yerkes, Treas. Illiam Crawford, Supt. Fred L. Threedy, Purch. Agt. John M. Roach, Master Mechanic J. Millar. Car Bullder II. N. E. Cottier. Office, 444 N. Clark st. 5 CHILLICOTHE, O.—Chillicothe St. R.R. Co. 2m, 3g, 16 lb r, 7c, 20 mu. Pres. E. P. Safford, Sec. A. E. Wemls, Treas. William Poland, Supt. E. H. McMartth.

CINCINNATI, O.—Cincinnati Inclined Plane Ry. Co. 6½ m, 5-2½ g, 43 lb r, 25 c, 140 h. Pres. Geo. A. Smith, Sec. & Supt. James M. Doherty, Tr. J. S. Hill.

CINCINNATI, O.—Cincinnati Inclined Plane Ry. Co. 6½ m, 5-2½ g, 43 lb r, 25 c, 140 h. Pres. Geo. A. Smith, Sec. & Supt. James M. Doherty, Tr. J. S. Hill.

CINCINNATI, O.—Cincinnati Inclined Plane Ry. Co. 62 d. Mummy c. Pres. & Auditor C. H. Kliegour, V. Pres. John Kligour, Treas. R. A. Dunlap, Sec. & Auditor, Jas. A. Collins, Supt. Jno. Harris, Pur. Agt. B F. Haughton. Office second floor of Apollo Bullding.

K. Columbia & Cincinnati St. R.R. Co. 3½ m, 3g, 40 lb r, 6 c, 3 dummy c. Pres. & Auditor C. H. Kliegour, V. Pres. John Kligour, Treas. & Sec. A. H. Meler, Mt. Lookout, O. Office Stati

Pearl St. va. W. Newburg St. R.R. Co. 11.4 m, 4-8% g, 43 lb r, 36 c, 280 h. Pres. Joseph Stanley, V. Pres. H. E. Andrews, Sec. & Treas. E. Fowler, Supt. J. J. Stanley. Office 1873 Broadway.

East Cleveland R. R. Co. 20% m, 4-8% g, 45 lb Stecl r, 115 c, 550 h. Pres. A. Everett, V. Pres. Chas. Wason, Sec. & Treas. II. A. Everett, Supt. E. Duty. Offices, 1154 Euclid ave.

Superlor St. R.R. Co. 15 m, 4-8% g, 45 lb r, 46 c, 265 h. Pres. Frank De H. Robison, V. Pres. John Koch. Sec., J. II. Robison, Treas. & Supt. M. S. Robison, Jr.

Noch. Sec., J. II. Robisol, 11eas, & Supe. Ji. S. Robison, Jf.
South Side St. Ry. Co. 5 m, 3 g, 25 & 27 lb tram;
S 2-h c, 26 h, 45 mu. Pres. Tom L. Johnson, Sec. &
Treas. J. B. Hoergen, Supt. Jebson Holeman. Office,
1301 Pearl st. K
St. Clair Street Ry. Co. 9 m, 4.8% g, 40 lb steel r,
6 one-h. & 24 two-h. c, 105 h. Pres. Chas. Hathaway,
V. Pres. S. Lyon, Sec. A. G. Hathaway, Treas. &
Gen. Man. C. Hathaway, Jr. Office, S15 St. Clair st. a
woodland Avenue & West Side St. R.R. Co. 40 m,
4-S% g, 43-45 lb r, 140 c, 630 h. Pres. M. A. Hanna, V.
Pres. C. F. Emery, Sec. & Pur. Art. J. B. Hanna,
Gen. Supt. George G. Mulhern. Office, cor. Pearl
and Detroit sts. a
CLINTON, IA.—Lyons & Clinton Horse R.R. Co.
(See Lyons.)

CLINTON, IA.—Lyons & Clinton Horse R.R. Co. (See Lyons.)

COLUMBIA, S. C.—Columbia St. Ry. 4½ m,
4-5½ g, 30 lb r, 6 c, 24 h, 3 mu. Pres. E. M. Cole, Sec.
Edw. Benedict, Treas. W. de L. Benedict, all of 32
Liberty st., New York. Capital, \$50,000. 5

COLUMBUS, GA.—Columbus St. Ry. Co. 3 m,
4-8½ g, 16 lb Tr, 92-h c, 7 h, 27 mu. Pres. & Pur.
Agt. B. T. Haicher, Sec. & Treas. F. C. Weisiger,
Supt. J. B. Weisiger. 9

COLUMBUS, O.—Columbus Consolidated St. R.R.
Co. 25 in. 5-2 g, 35-52 lb r, 97 c, 383 h. Pres. A. D.
Rodgers, V. Pres. H. T. Chittenden, Sec. & Treas.
E. K. Stewart, Supt. J. H. Atcherson. a
Glenwood & Greenlawn St. R.R. Co. 4½ m, 3-6 g,
24 lb r, 8 c, 25 h. Pres. A. D. Rodgers, V. Pres. B. S.
Brown, Sec. R. R. Rickly, Treas. S. S. Rickly, Supt.
Jonas Willcox. Office 9 S. High st. d
CONCORD, N. II.—Concord Horse R. R. Co. 7½
Moses Humphrey, Treas. H. J. Crippin, Clerk E. C.
Hoag. k
CORNWALL, ONT.—Cornwall St. Ry. Co. 3 m,

Hoag. k
CORNWALL, ONT.—Cornwall St. Ry. Co. 3 m,
48% g, 10 lb T r, 4 c, 2 steam motors. Pres. Chas.
D. Haines, Sec. & Treas. A. G. Haines. 9
CORTLAND, N. Y.—Cortland & Homer Horse R. R.
Co. 4m, 48% g, 25-30lb r, 6c, 16h, Pres. Chas. H. Garrison, Troy, N. Y. V. Pres. E. A. Fish, Cortland, Sec. & Treas. S. E. Welch, Cortland. Office 33 N. Main st.

st. g
COTTONWOOD FALLS, KAN.—Consolidated
St. Ry. Co. 2 m, 3 6 g, 30 lb steel Tr. 2 1-h 2 2-h c, 5
mu. Pres. E. A. Heldebrand, Sec. & Pur. Agt. W. P.
Martin, Treas, J. M. Tuttle, Supt. W. H. Holsinger. 9
COUNCIL BLUFFS, IA.—Council Bluffs St. Ry.
Co. 5 m, 4-8% g, 27 lb r, 10 c, 32 h. Pres. S. R. Callaway,

Sec. & Treas. Geo. R. Hall, Supt. Wm. H. Burns. Office, 546 First ave. r. Lake Manawa Ry. Co. 4½ m, 4.8½ g, 25 lb steel r, 10 c, steam motors. Pres. & Treas. J. K. Graves, Sec., Gen. Man. & Pur. Agt. W. S. Couch. Capital, \$50,00).

COUNCIL GROVE, KAN .- Council Grove St.

Ry. Co 8
COVINGTON, KY.—So. Covington & Cincinnai St. Ry. Co. 25½ m, 5-2½ g, 45 lb r, 61 c, 370 h. Pres S. F. Abbott, Sec. J. C. Benton, Treas. G. M. Abbott. 9
DALLAS, TEX.—Dallas Con-olidated St. Ry. Co. 16 m, 4-8½ g, 30 lb r, 40 c, 130 mu. Pres. J. E. Henderson, Sec. W. C. Connor, Treas. Royal A. Ferris. a

CO. 16 m, 4-8½ g, 30 lb r, 40 c, 130 mu. Pres. J. E. Henderson, Sec. W. C. Connor, Treas. Royal A. Ferris. a

DANBURY, CONN.—Danbury St. R. R. CO. 4 m, 3-6 g, 25 lb Tr, 7-1-h c, 30 n. Pres. John D. Halnes, Sec. & Treas. Charles D. Halnes, Supt. & Pur. Agt. A. C. Haines. 9

Danbury & Bethel St. Ry. Co. 5 m, 4-8½ g, 25 lb Tr, 71-b, 2 c, 85 h. Pres. D, D. Wylie, V. Pres. S. C. Holey, Sec. & Tr. J. B. McGeorge, Supt. Wm. Foster. 11

DANVILLE, H.L.—Clitzens, St. Ry. Co. 5 m, 4 g, 20 lb r, 8 c, 42 mu. Pres. Wm. P. Cannon, V. Pres. A. C. Daniel, Sec. & Treas. Adam R. Samuel. Office, 146 Vermilion st. 1

DAVENPORT, IA.—Davenport Central St. Ry. Co. 2 m, 4-8½ g, 20 lb r, 14 c, 24 h, 15 mu. Pres. Whit. M. Grant, V. Pres. W. L. Allen, Treas. J. B. Fidlar, Sec. O. S. McNeil, Supt. J. W. Howard. k
Davenport City Ry. Co. 3½ m, 4-8½ g, 27 lb r, 14 c, 46 h. Pres. C. S. Watkins, Sec. and Treas. S. D. Bawden, Supt. & Pur. Agt. H. Schnitger. e

DAYTON, KY.—Newport & Dayton St. Ry. Co. 2 m, 5-2½ g, 44 lb r, 9 c, 36 h. Pres. & Supt. W. W. Bean. 9

DAYTON, O.—Dayton St. R.R. Co. 7½ m, 4-8½ g, 41 lb r, 25 c, 61 h, 40 mu. Pres. C. J. Ferneding, V. Pres. G. W. Rogers, Sec. C. A. Craighead, Supt. A. W. Anderson. Office, W. 3d st. a

Fitch St. R. R. Co. 7 m, 4-8½ g, 45 lb r, 14 c, 25 h, 33 mu. Pres. Charles B. Clegg, Sec. H. V. Perrine. a

Wayne & Fifth St. R. R. Co. 4½ m, 4-8½ g, 38 lb r, 10 c, 35 h. Pres. Geo. W. Shaw, Sec. & Treas. Rugene Walchet, Supt. N. Routzahn. Office, 29 Wayne st. k

DECATUR, 11.L.—Decatur & North Park St. Ry. Co. Atty, Geo. Brown. 4

Cittzens' Street R.R. Co. 2 m, 4-8½ g, 20 lb Tr, 9 c, 54 h. Pres. D. S. Shellabaiver. Sec. W. L.

Wayne st. Wayne st. Ry. Co. Atty. Geo. Brown. 4
Cittzens' Street R.R. Co. 2 m, 4-8½ g, 20 lb T f, 9 c, 45 h & mu. Pres. D. S. Shellabarger, Sec. W. L. Shellabarger, Treas. & Gen. Man. W. L. Ferguson. a DENISON, TEX.—Derison St. Ry. Co. 3½ m, 3-6 g, 16 lb f, 7 c, 25 mu. Pres. C. A. Walterhouse, supt. J. J. Campbell.

DENVER, COL.—Denver City Ry. Co. 30 m, 3-6 g, 21 lb r, 80 c, 450 h. Pres. Geo. II. Holt, 10Wall st., New York City, Sec. G. D.L'hullier, 11 Wall st., New York City, Treas. & Man. G. E. Randolph. Office, 10 Wall st., New York City, Treas. & Man. G. E. Randolph. Office, 10 Wall st., New York. h
Coltax Ave. Ry. Co. 3 m, 4-8½ g, 27 lb r, 2 l-h c, 6 h. Ples. T. S. Havden, Sec. & Pur. Agt. H. P. Chamberlain, Treas. D. Fietcher, Supt. J. Flannery, Office, 1,664 Lawrence st. 9
Denver Tramway Co. 4 m. 3-6 g, 16-18 lb r, 10 c. Run by electricity. Conduit; Short-Nesmith Series system. Pres. Rodney Curtis, V. Pres. John J. Rlechman. Sec. Win. G. Evans. 6

DES MOINES, IA.—Des Molnes St. R. C. Co. 12 m, 3 g, 25-30-38-52 lb r, 24 c, 140 h. Pres. W. McCain, V.-Pres. C. W. Rogg, Sec. F. A. Sherman, Treas. G. B. Ilippee. a

Capital City St. Ry. Co. 7 m, 48½ g, 45 lb r, 6c, 32 h. G. Van Ginkel, Sec. H. E. Teachout, Treas. Inc. Mall City St. Ry. Co. (See Sevastopol), Ia).

DETROIT, MICH.—Fort Wayne & Elmwood Ry. Co. 20 h. 48½ g, 45 lb r, 46 c, 270 h. Pres. H. R.

22 h. G. Van Ginkel, Sec. H. E. Teachout, Treas. J. Weber. Office, cor. E. sth & Locust sts. a Des Molnes & Sevastopol St. Ry. Co. (See Sevastopol, 1a).

DETROIT, MICH.—Fort Wayne & Elmwood Ry. Co. 9.1 m, 4-8½ g, 45 lb r, 41 c, 270 h. Pres. H. B. Brown, V. Pres. Edward Kanter, Sec. N. W. Goodwin, Treas. E. S. Helneman, Supt. Geo. S. Hazard. Office, 129 Griswold st. a.

Detroit Electric Ry. Co. 2 m, 30 lb r, 4 c, elec. motors, Van Depoele system; overhead conductor. Pres. H. M. Campbell, Sec. Bethune Duffield. Offices, 23 & 24 Campau Bidg. 7

Detroit City Ry. 35 m, 4-8½ g, 40-43½ lb r, 130 c, 1,150 h. Includes Jefferson Ave. line, Woodward ave. line, Michigan Ave. line, Gratict Ave. line, Brush St. line, Cass Ave. line, Congress & Baker line, Trumbuli ave. line. Pres. Sidney D. Miller, Treas. George Hendrie, Sec. James Heugh, M. M. John Willis, Office, 12 Larned st. W. 4

Grand River St. Ry. Co. 43 m, 4-8½ g, 45 lb r, 15 c, 160 h. Pres. & Treas. Jos. Dalley, Sec. J. W. Dailey, Supt. C. M. Dalley. e

Highland Park Ry. Co. 3 m, 4-8½ g, 42 lb r for ½ m in city limits, outside 35 lb Tr, 4 c, electric motors, Overhead conductors. Pres. and Treas. Frank E. Snow, Sec. F. Woodruff. Capital, \$50,000. Office, 92 Griswold St. a

DIGHTON, KAN.—Western Kansas St. Ry. & Transfer Co. 1 m, 4-8½ g, 1 l-h c, 1 h. Pres. V. H. Grinstead, Sec. H. A. Wishard, Treas. C. B. Frazer, 9

POVER, N. H.—Dover Horse R.R. Co. 5 m, 3 g, 30 lb r, 4 c, 14 h. Pres. Chas. H. Sawyer, Treas. B. E. Linehan, Supt. J. J. Linehan, Office, 23 g, 35-45 lb r, 12 c, 60 h. Pres. J. A. Rhomberg, Sec. & Treas. B. E. Linehan, Supt. J. J. Linehan, Office, 23 g, 35-45 lb r, 12 c, 61 h. Pres. W. T. Blackwell, Sec., Treas. & Supt. R. D. Blackwell. a

EAST SAGINAW, MICH.—East Saginaw St. Ry. 8 m, 4-8½ g, 30 and 40 lb r, 23 c, 70 h. Pres. Watler A. Jones, Acting Sec. C. A. Bartlett, Supt. A. Bartlett.

This Space Reserved for the

Ries Electric Ry. & Traction Increasing

For Particulars address A. H. HENDERSON, Business Manager, 27 Chamber of Commerce, Baltimore, Md.

CHADBOURNE AND HASTINGS,

ACENTS FOR

The Sprague Electric Railway & Motor Company,

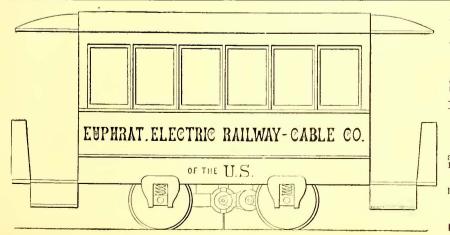
ARE PREPARED TO CONTRACT FOR THE

COMPLETE EQUIPMENT OF STREET RAILWAYS UNDER THE SPRAGUE PATENTS AND GUARANTEE THEIR SUCCESSFUL OPERATION IN EVERY PARTICULAR,

Exact estimates will be furnished for the cost of equipping any road, when complete details are supplied to us on blanks which we will furnish on application.

Write for circulars of Stationary Motors for running Elevators, Printing Presses, Ventilating Fans, Sewing Machines and all kinds of machinery. Correspondence solicited. Address,

CHADBOURNE & HASTINGS, Agents, Room 86, Forrest Bldg., 119 So. 4th St., PHILADELPHIA, PA.



Euphrat Electric Ry.-Cable,

A Sub-Surface System for

STREET RAILWAYS.

No Overhead Wires. No Storage Batteries. Adaptable to any Good Motor and to Ordinary Street Cars.

The only practicable way yet discovered for supplying to a traveling Motor a direct and unbroken current of electricity from an insulated underground conductor.

Circulars will be sent and information furnished on application to $% \left(1\right) =\left(1\right)$

A. L. EARLE OF F. EUPHRAT, 137 BROADWAY, Room 15, NEW YORK,

EASTON, PA.—Easton, So. Easton & West End Pass. Ry. Co. 4 m, 5-2½ g, 45 lb r, 11 1-h c, 43 h. Pres. h. A. Sage, Sec & Treas. H. W. Cooley, Supt. Murray Swain.

EAU CLAIRE, WIS.—Eau Claire St. Ry. Co. 5 m, 48½ g, 27 lb, 42 lb cenier bearing steel, and 60 lb grooved steel r, on all curves, 16 c, 80 h. Pres. A. G. Bradstrect, New York, V. Pres. Geo. B. Shaw, Eau Claire, Sec. & Treas. Weston Lewis, Gardiner, Mc. h.

grooved steel r, on all curves, 16 °C, 80 h. Pres. A. G. Bradstreet, New York, V. Pres. Geo. B. Shaw, Eau Clalre, Sec. & Treas. Weston Lewls, Gardiner, Mc. h. ElGin, ILL.—Elgin City Ry. 2½ m, 48½ g, 25 lb r, 4 c. 18 h. Pres., Sec., Treas. Supt. & Owner, B. C. Payne. 4

ELGIN, ILL.—Elgin City Ry. 2½ m, 48½ g, 25 lb r, 4 c. 18 h. Pres., Sec., Treas. Supt. & Owner, B. C. Payne. 4

ELIZABETH, N. J.—Elizabeth & Newark Horse R R. Co. 14 m, 5-2½, 4-10½ g, 30 lb r, 24 c, 74 h. Pres. & Treas. Jacob Davis, Sec. & Supt. Jonn f. Pritchard. 6

Elizaheth St. ky. Co. Pres. & Supt. Amos Clark, Sec. & Treas. Joln P. Earl. 4

ELKHART, IND.—Clitzens' Ry. Co. 6½ m, 4-8½ g, 20 & 30 lb r, 9 c, 25 h. Pres. F. W. Miller, V. Pres. J. W. Ellis, Sec. C. W. Flsh, Treas. J. A. Cook, Man. Director, Jas. Kavanagh. b

ELMHAR, N. V.—Elmira & Horseheads Ry. Co. 10 m, 4-8½ g, 25-30-40 lb r, 18 c, 34 h. Pres. & Treas. George M. Diven, V. Pres. Geo. W. Hoffman, Sec. Wm. S. Kershner, Acting Supt. B. F. Jennings. Office, 212 E. Water st. k

ELPASO, TEX.—El Paso St. Ry. Co. 6 m, 4-8½ g, 30-40 lb r, 18 c, 40 mu. Pres. J. F. Crosby, V. Pres. B. H. Davis, Treas. C. R. Morchead, Sec. & Supt. G. N. Marshall. Office, 175 Seventh st. a

EMPORIA, KAN.—Emporta City Ry. Co. 3½ m. (12, 20 lb r, 8 c, 24 h. Pres. Van R. Holmes, Treas. F. Crowe, Sec. & Man. J. D. Holden. 9

ENTERPRISE, MISS.—Enterprise St. Ry. Co. 1½ m, 3-6 g, 24 lb r, 2 c, 6 h. Pres. John Kampe, V. Pres. E. G. aston, Sec. & Treas. J. W. Gaston. g

ERIE, PA.—Erle City Passenger Ry. Co. 8½ m, 4-8½ g, 30, 40 & 45 lb r, 20 c, 55 h. Pres. W. W. Keed, Treas. Wm. Spencer, Sec. J. L. Sternberg, Supt. Jacob Borst. Office, cor 2d & State sts. a

EVANSVILLE, IND.—Evansville St. Ry. Co. 12 m, 4-8 g, 27 lb r, 32 c, 200 mu. Pres. John Gilbert, Sec. & Treas. M. S. Gilbert, Supt. T. J. Gist. Office, cor. First and Main sts. a

EVANSVILLE, IND.—Evansville St. Ry. Co. 16 m, 4-8 g, 30-35-47 lb r, 5 c, 200 mu. Pres. John Gilbert, Sec. & Treas. F. W. S. Gilbert, Supt. T. J. Gist. Office, cor. First and Main sts. a

F

sevens, Treas. F. W. Brightman, Sec. M. G. B. Switt, Supt, John II. Bowker, Jr. Office, 182 N. Mala St. J. Fark ROCKAWAY, N. Y.—Village Ry. Co. 1 m, 48½ g. 47 lb r, 5c, 10 h. Pres. C. A. Cheever, Treas. D. L. Iliaght, Sec. J. S. Auerbach, Supt, Rufus Martin. Office, 13 Park row, New York. 10

FITCHBURG, J. S. Auerbach, Supt, Rufus Martin. Office, 13 Park row, New York. 10

FITCHBURG, J. MASS.—Fitchburg St. Ry. Co. 3¼ m, 4-8½ g, 35 lb r, 9 c, 35 h. Pres. II. A. Willis, V. Pres. II. I. Wallace, freas. B. F. Wallis, Sec. II. C. Hartwell, Supt. & Fur. Agt. Wesley W. Sargent. Office of Pres. 131 Main St.; Supt., 41 River St. front J. A. Edwards, Sec. C. C. Wilson, Treas. J. G. Carter, Supt. G. Darbishire.

FORT MEADE, FLA.—Fort Meade St. Car Co. 2½ m, 3 g, 25 lb Tr, 2 l-h c, 2 mu. Pres. J. A. Edwards, Sec. C. C. Wilson, Treas. J. G. Carter, Supt. G. Darbishire.

FORT SOOTT, KAN.—Bourbon County St. R. R. Rm, 4g, 16 lh r, 5 c, 22 h. Pres. J. D. Hill, Sec. C. O. French, Treas. J. H. Richards, Supt. E Strong. 4 FORT SMITH, ARK.—Fort Smith St. Ry. Co. 4½ m, 3-6 g, 30 & 45 lb T steel and Gram r, 18 l-h c, 56 mu. Pres. Sam'l M. Loud, Sec. & Treas. Geo. T. Sparks. Supt. W. A. Evers. h. FORT WAYNE, IND.—Cittzens' St. R. R. Co. 710. 4 g. 23 & 30 lb fram r, 2 l-h, 11 2-h c, 41 h. Pres. J. H. Bass, Sec. Js. M. Barrett, Treas. C. F. W. Schemman, Receiver S. C. Lumband. 9 FORT WORTH, TEX.—Fort Worth St. Ry. Co. 7½ m, 5 g, 25-88 lh r, 16 c. 89 mo. Pres. K. M. Vanzande, Treas. W. A. Huffmar, Supt. J. T. Payne, 4 FRANKFORT, N. Y.—Frankfort & Illon Street Ry. Co. 24 m, 5 g, 5 c, 5 b. Pres. A. C. McGowan, Frankfort, Sec. & Treas. John A. Giblin, Illon, Supt. Freek, Gates, Frankfort. c

FREDONIA, N. Y.—Dunkirk & Fredonia R. R. Co. 3½ m, 4-10 g, 23 lb r, 5 c, 9 h. Pres. W. McKinstry, Sec. & Treas. M. M. Fenner, Supt. Z. Elmer Wbeelook. 8 Treas. Greas. W. A. Pres. Jacob Krohn, V.-Pres. F. C. Platt. Sec. W. G. Rapnes Treas. Lake, D. W. McKinstry, Sec. & Treas. M. Pres. Jacob Krohn, V.-Pres. F. C. Platt. Sec. W. G. Rapnes Treas. Lake, D.

FREBORA, N. Y.—Dumank & Fredman R.R.Co. 3½ m, 4-10 g, 25 lb r, 5 c, 9 h. Pres. W. McKlastry, Sec. & Treas. M. M. Fenner, Supt. Z. Elmer Wbeelock. 5

FREEPORT, H.L.—Freeport St. Ry. Co. 4½ m. 4-8½ g, 8 c, 48 h. Pres. Jacob Krohn, V.-Pres. F. C. Platt, Sec. W. G. Barnes, Treas. John B. Taylor, Supt. H. T. Warner. α

FULTON, N. Y.—Fulton & Oswego Falls St. Ry. Co. 6,006 tf, 48½ g, Gibbon's metallic stringer and f. 4c, 8 h. Pres. Joseph Walker, Jr. V. Pres. N. N. Stranahan. Sec. and Treas. Chas. Lyman. Capital, \$15,000. Office, 15 Broad st., New York.

GAINESVILLE, FLA.—Gainesville City & Suhurban Rv. Co. 1½ m, 4-8½ g, 20 lh T r, 5 c, 40 mu. Pres. Wm. II. Rohertson, Treas. Jas. D. Matheson, Supt. & Pur. Agt. R. L. Robb. 6

GAINESVILLE, TEX.—Gainesville St. Ry. Co. 3 m, 3-8g, 16-020 lbr, 4c, 2h, 2lmu. Pres. Sam. Lazarus, V. Pres. L. Divfoos, Sec. & Treas. Zac. Farmer. 9

GAINESVILLE, GA.—Gainesville & Hall Co. St. R. R. Co. 2½ m, 4-8½ g, 20 lh crescent r, 3 pass. 2 freight c, 8 mu. Pres. Jas. R. Barnes, Sec. C. W. Du Pre, Treas. & Pur. Agt. Robt. E. Grecn. 6

GALESBURG, III.—College City St. Ry. Co. 5½ m, 4-8½ g, 30 lb r, 79 c, 24 h. Pres. L. W. Sanhorn, V. Pres. A. S. Hoover, Sec. & Supt. Geo. W. Delanov, Treas. J. K. Mitchell. g

GAIVESTON, TEX.—Galveston City R. R. Co. 25 m, 4-8½ g 30 lb r, 79 c, 28 mu. Pres. Wm. H. Sinclar, Sec. & Treas F. J. DeMerttf, Supt. M. J. Keenan. Office, coi. Twenty-first & Ists. a
Gulf City St. Ry. & Real Estate Co. 13½ m, 4 g, 25-30 lh r, 32 c, 81 mu. Pres. J. H. Burnett, Sec. & Treas. T. C. Becker, Supt. C. Hamerhouse. Office, P. O. st. bet. 22d & 23d. 1

GARDEN CITY, KAN.—Garden St. Ry. Co. 4 GLENS FALLS. N. Y.—Glens Falls, Sandy Hill

G. Becker, Supp. C. Hambitatost. Christ., T. C. St., bet. 22d & 23d. 1
GARDEN CITY, KAN.—Garden St. Ry. Co. 4
GLENS FALLS, N. Y.—Glens Fails, Sandy Hill & Fort Edward St. R. R. Co. 73 m, 3-6 g, 25 lb r, 8 c, 25 h. Pres. Henry Crandall, Sec. & Treas. B. B. Fowler, Supt. M. J. Byrne. d
GLOUCESTER, MASS.—Gloucester City R. R. 4 m 4-6 g, 35 lh r, 10, c, 90 n. Pres. Morris C. Fletcher, V. Pres. Walter A. Jones, Sec. D. G. Pearson, Tres. F. W. Homans. Office, Railroad ave. k
Gloucester St. Ry. Co. 4 m, 4-8 g, 38 lb r, 13 c, 86 h. Pres. Morris C. Fitch, V. Pres. Walter A. Jones,

Sec. D. S. Presson. Treas. F. W. Homans, Supt. W. A. Strongman. Office, Railroad ave, k. GRAND ISLANO, NEB.—Grand Island St. Ry. Co. 4 m. 4-6 g., 2b lh steel Tr, 5 2 h 1 -h c, 3 h. Pres. A. H. Baker, V. Pres. II. A. Koenig, Sec., Pur. Agt. & Supt. O. B. Thompson, Treas. Wm. A. Hagge, GRAND RAPJOS, MICH.—Street Ry. Co. of Grand Rapids, Mich. 14½ m, 4-8½ g. 25, 37 & 49 lb r, 61 c, 240 h. Pres. W. J. Hayes, Cleveland, O., V. Pres. L. H. Withey, Grand Rapids, Treas. C. G. Swensberg, Grand Rapids, Sec. I. M. Weston, Grand Rapids, Supt. A. Bevler, Grand Rapids. Office, cor. Pearl & Canal Sts. 2 GRATIOT. MICH.—Gratiot Elec. Ry. Co. 14

A. Bevier, Grand Rapids. Office, cor. Pearl & Canar sts. 9

GRATIOT, MICH — Gratiot Elec. Ry. Co. 14

m. 16 lb steel r, 1 motor c, 1 summer c, Van Depoele overhead system. Pres. Wm. F. Botstord, V. Pres. Jobn F. Talhot, Sec. J. H. Talbot, Treas. Chas. A. Ward. Capital. \$25,00. 8

GREENBUSH, N. Y.—North & East Greenbush St. Ry. Co. 1½ m, 4-8½ g, 4 c, 12 h. Pres. & Treas. A. Bleekerhanks, Supt. J.Gascoigne. 1

GREEN CASTILE, IND.—Green Castle City St. Ry. Co. 2½ m, 4-8½ g, 23 lh. 7, 3 c, 14 h. Pres. & Supt. Dudley Rogers, Sec. James S. Nutt. Treas. Ralpb Rogers, Gen. Man. E. W. Rogers. Office, 16 S. Jackson St. 2

Rogers, Gen. Man. E. W. Rogers. Office, 16 S. Jackson St. a
GREENVILLE, S. C.—St. Ry. Co. of the City of Greenville. 2½ m, 5 g, 16 lb r, 7 c, 31 mu. Pres T. C. Gowen, Sec. G. G. Wells, Supt. P. H. Reilly. Props. & Owners, Gowen & Reilly. g
HALIFAX, N. S.—Hallfax St. Ry. Co. (Lim.) 7 m, 4-8½ g, 45-60 lb r, 15 c, 65 h. Pres. John R. Bothwell, V. Pres. & Treas. John F. Zobley, Sec. II. B. Zebley, Supt. J. C. McDonald. Offices, Room 39, Drexel Bullding, New York, and Halifax, N. S. 8
HAMILTON. G.—Hamilton St. Ry. Co. 4 m, 3 g, 25 lb r, 11 c, 15 h. Pres. James S. Giffin, Sec. D. V. Parrish, Treas. II. L. Morey. Office, Bechtel Block.

D. V. Parrish, Treas. II. L. Morey. Office, Bechtel Block.

II. A. M.O.—Hannibal St. Ry. Co. 2 m, 4-8½ g, 36 lb r, 6 c, 22 h. Pres. & Supt. M. Doyle, Sec. & Treas. James O'Hern. Office. 300 Marketst. g

II. A. Kelker, Sc. John T. Ensulinger, Treas. R. F. Kelker Capital, \$100 000. Office. 27 South 2d St. e
East Harrisburg Pass. Ry. Co. 1.2 m. 5 2½ g, 33 &
52 lb Steel glider r, 4 1-h. c, 14 h. Pres. W. J. Calder, Sc. F. R. Le b. Treas. T. D. Greenwaldt, S ipt. Jacob Shaffer.

II. ARTIFORD, CONN.—Hartford & Wethersfield Horse R. R. Co. 12 m, 4-8½ g, 45 lb r, 53 c, 259 h. Pres. E. S. Goodrich, Sec. Dan'l R. Howe. g
II. ARTILAND, KAN.—Hartland St. Rv. Co. 3-6 g, 20 lb Tr, 2 1-h 12-h c. Pres. & Pur. Agt. E. S. Snow, Sec. Geo, Stallard, Treas. J. T. Kirtland, Supt. W. S. Handy.

Handy. 9
IIA-TINGS, NEB.—Hastings Improvement Co. 15 m, 4-8½ g, 16 c. 60 h & mu. Pres. Jas B, Harwell, V. Pres. J. J. Wemple, Sec. Charles D. Hartwell, Treas. H. Bostwick, Supt. J. A. Kraft. 10
IIA-VERIHILL, MASS.—Haverhill & Groveland St. Ry. Co. 13.7 m, 4-4½ g, 30 35 lb r, 38 c. 110 b. Pres. Jackson B. Sweet, Clerk & Treas. John A. Colby. office 3 Water st. J. Hellena St. Ry. Co. 2½ m, 4-8½ g, 38 lb r, 52-h c, 17 h, Pres. C, W. Caanon, V. Pres. J. B. Wilson, Sec. & Treas. L. A. Walker, Supt. J. A. Strong. 6

office 3 Water St. J.

HELENA, M. T.—Helena St. Ry. Co. 2½ m, 4-8½ g, 38 lb r, 52-h c, 17 h. Pres. C. W. Caanon, V. Pres. J. B. Wilson, Sec. & Treas. L. A. Walker, Supt. J. A. Strong. 6

HERKIMER, N. Y.—Herkimer & Mohawk St. Ry. Co. 1½ m, 4-8½ g, 25 lh r, 3c, 6 h. Pres. J. M. Ausman, V. Pres. Aaron Harter, Sec. Heary McNeal, Treas. H. D. Alexander.

HOBOKEN, N. J.—North Hudson County Ry. Co. 25 m, 4-7 g, 50-60 lb r, 116 c, 635 h. Pres. John H. Bonn, Sec. F. J. Mallory, Treas. Fredk. Michel, Supt. Nicholas Goelz. 6

HOLYOKE, MASS.—Holyoke St. Ry. Co. 3½ m, 4-8½ g, 35 lb r, 15 c, 55 h. Pres. Wm. A. Chase, Treas. C. Fayette Smith, Supt. ll. M. Smith. a.

HOT SPRINGS, ARK.—Hot Springs R.R. Co. 3 m, 4 g, 25 lb r, 11 c, 30 h. Pres. S. W. Fordyce, Sec. C. E. Maurice, Supt. J. L. Butterfield.

HOLYTON, TEX.—Houston City St. Ry. Co. 14, 4-8½ g, 20-30-40 lb r, 40 c, 118 mu. Pres. Wm. II. Sinclair, Galveston, V. Pres. & Gen. Man. H. F. MaeGregor, Houston, Supt. Henry Freund, Houston, Sec. & Treas. E. H. Balley, Houston. Office, 90 Travis st. a.

HUTCHINSON, KAN.—Hutchinson St. Ry. Co. 8 m, 4-6 g, 20 lb r, 12 c, 43 h. Pres. A. L. Forsba, V. Pres. John Severance, Sec. & Treas. Fred. A. Forsha, Supt. A. G. Statts. Office, 5 North Main st. 1

H.HON, N. Y.—Frankfort & Hlon St. R. R. Co. 2½ m, 5 g, 25 lh r, 5 c, 5 h. Pres. A. C. McGowan, V. Pres. P. A. Skiff, Sec. & Treas. Fred. A. Forsha, Supt. A. G. Statts. Office, 5 North Main st. 1

H.HON, N. Y.—Frankfort & Hlon St. R. R. Co. 2½ m, 5 g, 25 lh r, 5 c, 5 h. Pres. A. C. McGowan, V. Pres. P. A. Skiff, Sec. & Treas. John A. Giblin, Supt. J. Hannahr. c.

INDEPENDENCE, MO.—Kansas City, Independence & Park Dummy Line. 10

INDIANAPOLIS, IND.—Citizens' St. Ry. Co. 25 m, 4-8½ g, 33-38-45-50 lh r, 70 c, 550 mu. Pres. Chas. D. Halnes, V. Pres. A. G. Halnes, Sec. & Treas. S. D. Lake. Office, 45 Bdy., New York. 9

JACKSON, MICH.—Jackson City Ry. Co. 4 m, 3 6 g, 28 hr, 11 c, 40 h. Pres. Hlram H. Smith, Treas. Samuel Hopewell. Gen. Supt. Henry II. Smith. 6

JACKSON, MILE, FLA.—Pine St. R.R.

JAMAICA, N. Y.—Jamaica & Brooklyn R.R. Co. 10 m, 4-8½ g, 56-60 lb r, 29 c, 56 h. Pres. Aaron A. Degrauw, Sec. Martin J. Durea, Treas. Morris Fosdick Supt. Wm. M. Scott.

JAMESTOWN, N. Y.—Jamestown St. Ry. Co. 4.34 m, 4-8½ g, 30-42 lb r, 13 c, 40 h. Pres. Jas. B. R. Ss, V. Pres. L. B. Warner, Sec. F. E. Giffold, Treas. A. N. Broadhead. Supt. G. E. Maltby.

JANE: VIII.E, WIS.—Janesville St. Ry. Co. Pres. Stephen G. Clarke, Chicago.

JERSEY CITY, N. J.—Jersey City & Bergen R. R. Co. 28 m, 4-10 g, 47-60 lb r, 80 c, 6:30 h. Pres. Chas. B. Thurston, V. Pres. Win. Keeney, Treas. C. B. Place, Scc. Warren E. Dennis, Supt. Thos. M. Sayre, Ea, r. E. F. Brooks.

E. F. Brooks.

Thuision, V. Pres. Win. Keeney, Treas. C. B. Place, Scc. Warren E. Dennis, Supt. Thos. M. Sayre, Eq. T. E. F. Brooks. 6
Pavonia Horse R. R. Co. 5 m, 4-10 g, 47 lb r, 24 c, 150 n. Man. J. H. Small. 10
JOHNSTOWN, N. Y.—Johnstown. Gloversville & Kingsboro Horse R. R. Co. 4 m, 4-8½ g, 26 lb r, 6 c, 18 h. Pres. James Younglove, V. Pres. R. Fancher, Sec. & Treas. J. McLaren, Supt. Henry Slotter. a JOHNSTOWN, PA.—Johnstown Pass. Ry. Co. 7½ m, 5-3 g, 41-43 lh r,15 c, 74 h. Pres. James McMilen. Sec. & Treas. J. H. L.—Johlet City Ry. Co. 3½ m, 4-8½ g, 38 lb r, 16 c, 30 h. & mu. Prop. J. A. Henry Supt. A. Bischman, Treas. J. Huisizer. 6
JOPLIN. MO.—Gin., 4 g, 15, 21 & 27 lb T and tram r, 42-h c, 26 mu. Pres. J. B. Sergeant, Sec., Treas., Supt. & Pur. Agt. Clark Crayeraft.

KAI.AMAZOO. MICH.—Kalamazoo St. Ry. Co. 81-6 in, 4-8 g, 35 lb r, 30 c, 50 h. Pres. E. M. 115sh, V. Pres. Dr. Chase, Man. J. W. Bounton, Sec. & Treas. Arthur Ellithorp, Auditor, Wm. Shakespeare. office. 128 Main st. 2
KANSAS CITY, MO.—Kansas City Cahle Ry. 128 Main st. 2
KANSAS CITY, MO.—Kansas City Cahle Ry. 128 Main st. 2

81-6 in, 4-8 g, 35 lb r, 30 c, 50 h. Pres. E. M. Infsly. V. Pres. Dr. Chase, Man. J. W. Bounton, Sec. & Trees. Arthur Ellithorp, Auditor, Wm. Shakespeare. Office, 128 Main St. a

KANSAS CITY, MO.—Kansas City Cahle Ry. Co. 12 m, 4-8½ g, 45-56 lb r, 26 grip c, 39 pass. c, Pres. Wm. J. Smith, V. Pres. Philip A. Chase, Sec. W. H. Lucas, Chf. Eng. Clift Wise, Supt. F. A. Tucker. Office, S. E. cor. Ninth & Washington Sts. e Corrigan Consolidated St. Ry. Co. 20 m, 4-1 g, 36 lb r, 80 c, 350 h. Pres. Bernard Corrigan, Geu. Man. Thos. Corrigan, Sec. Jas. T. Kelley. Operated by Mecropolitan St. Ry. Co. 4

Grand Avenue Ry. Co. 13½ m, cable. 4-8½ g, 58½ lh r, 50 c, 2 450 H. P. engines. Pres. W. II. Ilolues, V. Pres. V. B. Buck, Sec. D. B. Holmes, Tieas. O. P. Dickinson. Auditor T. J. Fry. Sunt. C. F. Holmes. and Lal. \$1,200,c00. Office, cor. 15th st. & Grand ave. 6

Kansas City Electric Ry. Co. 2 m, 4-8½ g, 70 lb girder r, 4 motor e (Henry system). Pres. W. W. Kendall, V. Fres. Hugh L. WcEiroy, Sec. & Treas. Warren Watson, Sunt. John C. Henry. Office, 1139 E. 5th st. Capital, \$1,000. d

Kansas City & Rosedale St. Ry. Co. Operated by the Metropolitan St. Ry. Co. 2½ m, 4-8½ g, 42 lb steel r, 82 h, c, 60 mu. Pres. C. T. Morse, Sec. R. J. McCarty, Supt. E. J. Lawless, Pur. Agt. T. M. Pitkin.

4 Metropolitan St. Ry. Co. 25 m, 4-8½ g, 56 lb r, 126 c, 475 h. Pres. C. F. Morse, V. Pres. Geo. II. Nettleton, Sec. & Auditor R. J, McCarty, Treas A. W. Armour, Supt. E. J. Lawless, Engineers Knight & Boutton.

4 Waldo Park Dummv Line. Mr. Hill Is lessee. 10 KEOKUK, IA.—Keokuk St. Ry. Co. 4 m, 4-8½ g, 25 lb r, 5 c, 33 h. Pres. John S. Can. J. Ry. Co. 45 h. Pres. Reckuk St. Ry. Co. 4 m, 4-8½ g. 10 stoel r, 12 c, 40h. Pres. Jas. H. Anderson, Sec. Win. E. Anderson. Not. CAN.—Kingston St. R. R. Co. ½ m, 3-6 g, 9 lb r, 10 c, 36 h. Pres. Robert Carson, Sec. & Treas. F. Sargent, Man. William Wilson. Knoxyville. E. T. R. Co. 3 m, 4-8½ g, 25 lb r, 5 c, 33 h. Pres. John S. Can. J. R. Co. 2 m, 4-8½ g, 25 lb r, 5 c, 33 h. Pres. John S. Can. J. R. Law

CO. M. M., 3e. g. 9 mt., 10c., 36 m. Pres., Abbert Carson, Sec. & Treas. F. Sargent, Man. William Wilson.

KNOXVILLE, TE.NN.—Knoxville St. R. R. (0. 3 m., 4-8½ g., 25 lb r, 5 c. 33 h. Pres. John S. Van Gilder, Treas. & Man. T. L. Beaman. Office, 336 Broad st. a Mabry Bell Ave. & Hardee St. Ry. Co. 4 m., 4-8½ g., 22 lb r, 4 c, 27 h. Pres. John S. Van Gilder, Man. & Treas. T. L. Beaman. Office, 333 Broad st. 5 Market Sq. St. Ry. Co. 2 m., 4-8½ g., 22 lb r. 4-c, 19 h. Pres. John S. Van Gilder, Sq. Wei, 1end-r-on, Treas. W. H. Simmonds, Supt. L. O. Rogers. Office, 148 Gay st. h. LACONIA, N. H.—Laconia & Lake Village Horse R. R. 2½ m., 3 g., 34 lb r, 5 c, 20 h. Pres. A. G. Polsom, Sec. J. P. Hutchinson, Treas. Edmund Little, Man. Bela S. Kenniston. a LA CROSSE, WIS.—La Crosse City Ry. Co. 5½ m.4-Sg., 40 lb r, 15 c, 70 h. Pres. B. E. Edwards, V. Pres. Geo. F. Gund, Treas. Fred Tillman, Sec. Jas. T. Daggett, Supt. (North Division). Peter Valler Supt. (South Division), Geo. F. Smith. Office 222 Man st. a Lake Y. 2½ m. 25 g. 45 lb. r. 5 c. 30 h. Pres. G. E. C. 10 hn.

T. Daggett, Supt. (North Division). Peter Valler Supt. (South Division), Geo. F. Smith. Office 222 Main st. a

I.AFAYETTE, IND.—Lafayette St. Ry. 2½ m, 48½ g, 35 & 46 lb r, 5 c, 30 h. Pres. G. E. C. Johnson, Sec. T. J. Levering. 10

I.AMPASAS SPRINGS, TEX.—Lampasas Springs St. R. R. Co. 3 m, 48½ g, 6 c, 13 h. Sec. & Treas. W. H. Little. Office, Elm st. 7

I.ANGASTER. PA.—Lancaster & Millersville St. Ry. Co.—m, 48½ g, 30 lh r, 4c, 14 h. Pres. J. C. Hager. V. Pres. H. S. Shift, Sec. & Treas. Chas. Dennes. b
I.ancaster City St. Ry. Co. 1.1 m, 5-2 g, 38 lh r, 6c, 4 h. Pres. W. D. Sprecher, Treas. J. H. Baumgardner, Sec. Thos. B. Cochran, Man. J. B. Long. Gen. Office, 129 North Queen st.

I.ANSING, MICH.—Lansing City Ry. Co. 3 m, 4-8½ g, 30 lb steel r, 5 c, 24 h. Pres. Srephen G. Clarke, Chicago, V. Pres. & Treas. Hairy M. Clarke, Lansing, Sec. John P. Altgeld, Supt. Byron E. Clarke, Lansing. 4

I.ARCHMONT, N. Y.—Larchmont Manor Co. 1½ m, 4-8 g, 25 lb r, 2 c, 10 h. Pres. C. ll. Murray, Treas. T. H. French, 38 East Fourteenth st. N. Y. City. a
I.ARNEO, KAN.—Larnel Sc. Ry. Co. 2½ m, 3 9 g, flat. r, 2 2-h c, 4 mu. Pres., Supt. & Pur. Agt. D. H. Scott, Sec. G. H. Miye, Treas. Wm. Scott. 9

I.ASAILE, IILL.—La Salle St. R. R. Co. 1½ m Sec. G. Weerts. 9

I.AWRENCE, MAN.—Lawrence Transportation Co. 5½ m, 4-1g. 38 lb r, 8 c, 38 h, 6 mu. Pres. II. Tisdale, Sec. W. N. Bangs. Supt. Geo. Fricker. 7

I.AWRENCE, MASS.—Merrimack Valley Horse R. R. Co. 6½ m, 4-1g. 38 lb r, 8 c, 38 h, 6 mu. Pres. II. Tisdale, Sec. W. N. Bangs. Supt. Geo. Fricker. 7

I.AWRENCE, MASS.—Merrimack Valley Horse R. R. Co. 6½ m, 4-1g. 38 lb r, 8 c, 38 h, 6 mu. Pres. II. Tisdale, Sec. W. N. Bangs. Supt. Geo. Fricker. 7

I.AWENCE, MASS.—Merrimack Valley Horse R. R. Co. 6½ m, 4-8½ g, 48 lb r, 22 c, 87 h. Pres. Wm. A. Russell, Clerk & Treas. James H. Eaton, Supt. A. N. Kimball. 1

Kimball. 1 LEAVENWORTH, KAN.—Leavenworth & Sub-

JOS. A. SLEEPER, Pres. W. A. STILES, Secy. and Treas. CHAS. J. VAN DEPOELE, Electrician.
AARON K. STILES, Marager.

Van Depoele Electric Manufg. Co.

SOLE OWNERS OF THE

VAN DEPOELE ELECTRIC RAILWAY SYSTEM.

CONTRACTORS AND BUILDERS OF

ELECTRICAL RAILWAYS.

MAKERS OF

Electric Railway and Stationary Motors, Electric Arc-Light Dynamos and Lamps, Etc.

ILLUSTRATED CATALOGUES FURNISHED ON APPLICATION.

We respectfully call the attention of those interested to our Electric Railway System now in practical operation at Scranton, Pa., Appleton, Wis., Montgomery, Ala., Detroit, Mich., Windsor, Ont., Port Huron, Mich., Lima, O., and Binghamton, N. Y., and will shortly be running in Ansonia, Conn., St. Catharine's, Ont., and Erooklyn, N. Y.

EVERY ROAD A GRAND SUCCESS.

We say nothing about what we are GOING to do. We call your attention to what we HAVE DONE. Investigate for yourselves. Write for estimates and further information.

Van Depoele Electric Manufacturing Company,

15, 17, 19 and 21 NORTH CLINTON STREET,

NEW YORK OFFICE:

Rooms 220, 221 and 222, No. 45 BROADWAY.

CHICAGO, ILL., U. S. A.

urban Ry. Co. 5 m, 4-8½ g, 22 lb r, 12 2-h c, 22h, 32 mu. Pres. W. F. Punam, Sec., Treas. & Supt. Geo. A. Baker. c
LEWISTON, ME.—Lewiston & Auburn llorse R.R. Co. 10 m, 4-8½ g, 32 lb r, 20 c, 60 h. Pres. Frank W. Dana, Clerk & Treas. C. C. Corbett, Supt. J. E. Fairbanks.

pana, Clerk & Tréas. C. C. Corbett, Supt. J. E. Falrbanks. k

I.EXINGTON, KY.—Lexington City Ry. Co. 8½
m, 4-10g, 16 & 20 lb r, 22 c, 111 h. Pres. & Treas.
R. B. Metcalfe, Sec. B. P. Carpenter, Supt. & Pur. Agt. W. W. Monroe.
a I.EXINGTON, MO.—Lexington & Kansas City Land & Investment Co. 2½ m, 4 4 g, 30 ib r, 2 c, 8 h. Pres. R. G. Estell, Kansas City, V. Pres. Wm Hackman, Lexington, Sec. & Treas. Jas. Wentworth, Supt. Geo. M. Mountjoy.

I.I.M.A, O.—Lima St. Ry., Motor & Power Co. Elec. ry., Van Depoele system; overhead conductor. 4 m completed, 10 in contemplated, 4-8½ g, 40 b Johnson Steel r, 7 c, 7 motors. Steam power Pres. B. C. Faurot. Sec. & Treas. F. L. Lingan. Capital, paid in, \$50,0 0. a

I.INCOLN, NEB.—Lincoln St. Ry. Co. 12 m, 4-8½

m completed, 10 m contemplated, 4-8½ g, 40 b Johnson steel r, 7c, 7 motors. Steam power Pres. B. C. Faurot. Sec. & Treas. F. L. Lingan. Capital, paid in, \$50.0 0.

a Lincoln, NrB.—Lincoln St. Ry. Co. 12 m, 4-8½ g, 20 lo steel r, 24 c, 150 h. and mu. Pres. J. W. Deweese, V. Pres' John R. Clark, Sec. & Treas. C. J. Ernst, Supt. Wm. R. Carter. b. Lin oln Rapid Transit Co. 7 m, 4-8½ g, 25 & 3 lo girder r, 82-h. c, steam motors. Pres. John Fitz verald, Sec. J. R. Webster, Treas. Sam'l McClay, Supt. J. S. P. Waiton. 9

LITTLE ROCK, ARK.—Little Rock & Citizens' Supt. J. S. P. Waiton. 9

LITTLE ROCK, ARK.—Little Rock & Citizens' Sipt. J. S. P. Waiton. 9

LICKPORT, N. V.—Lockport St. R. R. Co. 3½ m. V. Pres. Jas. R. Miller, Sec. & Treas. A. N. John-on, C. shier & Supt. R. D. Apperson. Office, cor. Markham & Spring sts. d.

LOCK PORT, N. V.—Lockport St. R. R. Co. 3½ m, 4-3½ g, 42 lo r, 8 c, 33 h. Pres. & Treas. John Hodge, Sec. W. T. Ran-om, Atty. E. M. Ashley. a.

LOGANSPORT, IND.—Logansport Ry. Co. 4 m, 4g, 30 lo r, 9 c, 46 mu. Pres. Frank G. Jaques, Sec. M. Jaques, Supt. Wm. P. Jaques. Office, Urana, Ill. k.

LONDON, CAN.—London St. Ry. Co. 6 m, 4-8½ g, 30 lb r, 12c, 40 h. Pres. V. Cronyn, Sec. Jas. II. Flock, Tieas. Chas. Currie, Supt. Henry 1. Smith. Office, Richmondst. a.

LONG ISLAND CITY, N. Y.—Steinway & Hunter's Point R. R. Co. 39 m, 4-8½ g, 47 lb r, 90 c, 300 h. Pres. G. A. Steinway, Steinway Hall, N. Y. City. V. Pres. & Man. Henry A. Cassebeer, Jr., Steinway P. O., Long Island Chy, N. Y. Sec. & Treas. Chas. Crawford, Brooklyn, N. Y. Treas. Patrick J. Gleason, Supt. Michael Conway. Offices 112 Front st.

Riker Ave. & Sandford's Point R. R. Co. 2½ m, 4-8½ g, 47 lb r, 10 r, 10

LONGVIEW, TEX.—Longview & Junction St. Ry. 3m, 3-6g, 16 lb r, 2 c, 4h. Pres. F. T. Rembert, Sec. R. B. Levy, Treas. F. S. Whaley, Supt. C. W.

Booth. d 1.08 ANGELES, CAL.—Central & Boyle Heights Co 6½ m. 3 6 g, 26 c, 110 h. Pres. E. F. Spence, Gen. Man. J. F. Crank, Sec. Fred Harkness, Supt. W.

Hanks. 6
Los Angeles Cable Ry. Co. 29 m, 3-6 & 4-8 g, 16 & 20 lb r, 57 c, 314 h. Gen. Man. Chas. Forman. Office, 132 N. Main st. 9
Los Angeles Electric Ry. Co. 5 m, 4-8 g, 4 c, Daft system, overnead wires. Pres. Geo. H. Bonebrake; Sec. & Man. C. H. Howland, Constructing Engr. A. II. Hayward. 6
Main St. & Agricultural Park Co. 8 m, 3-6 g, 15 c, 60 h. Pres. W. J. Broderick, Sec. A. C. Taylor, Supt E. M. Lorricke. 6
Second St. Cable Ry. Co. 1½ m cable & 1½ m steammotor extension, 3-6 g, 8 c, 6 grip c, 2 motors. Pres.

Second St. Cable Ry. C. 1% in cause A.7% in solvammotor extension, 3-6 g, 8 c, 6 grip c, 2 motors. Pres. & Treas. Jas. McLoughlin, Sec. & Supt. H. W. Davis, Asst. Supt. & Master Mechanic E. H. Hutchinson. 6 Temple St. Cable Ry. Co. 1% in 3-6 g, 6 c, 6 grip c. Pres. P. Beaudry, Sec. & Man. F. W. Woods, Supt. J. Fowler. 6

Pres. P. Beaudry, Sec. & Man. F. W. Woods, Supt. J. Fowler. 6

LOUISVILLE, KY.—Kentucky St. R. R. Co. 5
m, 5g, 52 lb r, 22 c — h. Pres. T. J. Minary, Sec. 1'. Conglan. 6

Central Pass. R.R. Co. 51 m, 5g, 52 lb r, 156 c, 800 h, Pres. B. du Pont. V. Pres. & Man. T. J. Minary. Sec. T. C. Doulgan. Office, 18th & Walnut Sts. 6

Crescent Hill R.R. Co. 3 m. Leased and operated by Central Pass. R. R. Co. 6

Louisville City Ry. Co. 70 m, 5g, 25 to 58½ lb r, 250 c, 1,500 mu. Pres. Maj. Alexander Henry Davis, Syracuse, N. Y., V. Pres. St. John Boyle, Sec. & Treas. R. A. Watts, Supt. H. H. Littell. Office, 13th and Main Sts. 6

Sts. C. LOWELL, MASS.—Lowell Horse R.R. Co. 12 m, 4.8½ g, 28-33-45 lb r, 43 c, 160 h. Pres. Edward H. Tucke, Sec. & Treas. Walter H. Sawyer, Supt. J. A.

Tucke, Sec. & Treas. Watter H. Savyer, Supt. 5. A.
Lowell & Dracut St. Ry. Co. 9 m, 4.8% g, 35 lb iron
and 1½ m Longstreet r, 16 c, 120 h. Pres. Aug. Fels,
Treas. Waiter M. Sawyer, Supt. J. A. Chase. *k
LYNCHBURG, VA. — Lynchburg St. Ry. Co.
4 m, 5.1 g, 20 lb T & 26 lb tram r, 7 c, 40 h. Pres., Sec.
& Treas. Stephen Adams. h
LYONS, IA.—Clinton & Lyons Horse Ry. Co. 7
m, 3-8 g, 18-30 lb r, 18 c, 40 h. Pres. D. Joyce, Sec.
W. T. Joyce, Supt. Frank Crapser. f
MACON. GA.—Macon City & Suburban St. R.R.
Co. 12 m, 5 g, 20 lo T r, 25 c, 100 mu. Pres. John S.
Branstord, Nashville, Tenn., Sec. and Supt. Jno. T.
Voss. 7

NANCHESTER, N. Hem., sec. and Supt. Viol. 17.

MADISON, IND.—Madison St. Ry. Co. 2½ m, 4
g, 15 lb r, 7c, 4 h, 11 mu. Pres. & Supt. Jacob Wendel,
V.Pres. & Treas. Peter F. Robinius, Sec. John K.
Wever. Office, 1026 Walnut st. a
MADISON, WIS.—Madison St. Ry. Co. 2½ m, 4
g, 23 lb r, 8 c, 28 mu. Pres., D. K. Tenney, Sec. &
Treas. B. W. Jones, Supt. A. R. Kentzler. Office,
MANCHESTER, N. H.—Manchester Horse R. R.

7 m, 3 g, 27-34 lb r, 14 c, 60 h. Pres. S. N. Bell, Treas. G. F. Smyth, Clerk J. A. Weston, Supt. A. Q. Gage. Office Depot st. 6
MANKATO, MINN.—Mankato St. Ry. Co. 2½ m, 3-6 g,27 lb steel r, 4 c, 12 h. Pres. &Man. W. M. Farr, Sec. and Treas. John C. Noe, Capital, \$50,000; office, 313 So Front street. 1
MANSFIELD, O.—Mansfield Elcc. St. Ry. Co. 4½ m, 4 8½ g, 43 lb s-b r, 10 c, 15 H. P. each, Daft system. Pres. Edward Oothout, New York. V. Pres. Huntington Brown, Sec. C. E. McBride, Treas. M. Van Rensselaer, New York, Engr. Knight Neftel, Supt. W. G. Root. Capital, \$75,000. 1
MARSHALTOWN, 1A.—Marshaltown St. Ry. Co. 3 m, 4 g, 25 lb r, 7 c, 20 h. Pres. B. T. Frederick, Sec. C. C. Gilman, Man. & Treas. A. E. Shorthill. f. MARYSVILLE, CAL.—City Pass. R.R. Co. MAYNVILLE, CAL.—City Pass. R.R. Co. Freas. & Treas. & Supt. W. S. Frank. Office, Court st. d. McPiterson, Sec. Treas. & Supt. W. S. Frank. Office, Court st. d. McPiterson, KAN.—McPherson St. Ry. Co. 3%

ter Co. 3½ m., 20 lb r, 4-8½ g, 7 c, 32 mu. Pres. L. W. Robertson, Sec., Treas. & Supt. W. S. Frank. Office, Court st. d
Mr.PHIERSON, KAN.—McPherson St. Ry. Co. 3½ m., 3 6 g, 20 lb Tr, 3 2-h c, 13 mu. Pres. A. A. Irvin, Sec. Scott Bukey, Treas. C. Aug. Heggeland, Pur. Agt. M. D. Herrington. Supt. Benj. Hunt. 9
MECHANICSBURG, H.L. — Mechanlesburg & Buffalo Ry. Co. 7½ m, 3-10 g, 16 & 20 lb r, 3 c, 4 mu. Pres. J. B. Hunter, V. Pres. H. Thompson, Sec. J. T. Fullenweder, Treas. A. T. Thompson. b
MEMPHISTERSON, M. D. Bright City R. R. Co. 18 m, 5 g, 38-40 br, 80 c, 320 h. Pres. R. Dudley Frayser, V. Pres. & Gen. Man. Thos. Barrett, Sec. James Frost, Treas. S. P. Read, Jr., Supt. W. F. Shippey. Office 474 Main st. f. Cutzens' St. R. R. Co. 40 m, 4-8½ & 5 g, 33 lb girder r for 34 m, 45 lb tram r for 6 m, 160 2-h c, 604 mu. Pres. Napoleon Illil, V. Pres. & Gen. Man. Thos. Barrett, Sec. R. Dudley Frayser, Treas. S. P. Read, Jr. a East End Ry. Co. 6 m, 4-8½ g, 35 lb steel r, 6 c, 2 dummy engines. Pres. W. M. Sneed, V. Pres. B. M. Stratton, Sec. & Treas. J. W. Falls. Office, 3102d st. 11 Memphis & Prospect Park R. R. 5 m, 4-8½ g, 4 c, steam dummy. Pres. T. J. Latham, V. Pres. J. A. Van Iloose, Sec. & Treas. T. A. Lamb. Capital, \$100,000. c. Union R. R. Co. 14 m, 38 c, 200 h and mu.

Van Iloose, Sec. & Treas. T. A. Lamb. Capital, \$100,000. C
Union R. R. Co. 14 m, 38 c, 200 h and mu.
MERIDEN, CONN.—Meriden Horse R. R. Co. 5 m, 4-8 g, 35 lb r, 15 c, 100 h. Pres. Geo. R. Curtis, Sec. & Treas. Chas. L. Rockwell, Supt. Danl Barker. 6
MERIDIAN, MISS.—Meridian St. Ry. Co. 2½ m, 4-8 g, 16lb r, 5 c, 20 mu, Pres. Geo. S. Covert, V. Pres. and Sup. J. L. Ilandiey, Sec. R. M. Houston, Treas. J. A. Kelly. d
MICHIGAN CUTY, IND. Citizane, St. By

A. Kelly. d

MICHIGAN CITY, IND.—Citizens' St. Ry.
CO 4 m, 48½ g, 30 lb r, 4 c, 15 h. Pres. Wm. Gr.
Knight, V-Pres. John Lyons, Sec. Jacob Henderon, Treas. Jerry Il.Knight. Office West Washington st., South Bend, Ind. i

MIDDLETOWN, CONN.—Middletown Horse
R.R. Co. 2 m, 36lb r, 6 c, 30h. Pres. John M. Douglas,
Sec. & Treas. J. K. Guy, Supt. Walter Baldwin. Office
MIDDLETOWN Co. Maddit.

ton st., South Bend, Ind.

MIDDLETOWN, CONN.—Middletown Horse R.R. Co. 2 m, 36lb r, 6 c, 30h. Pres. John M. Douglas, Sec. & Treas. J. K. Guy, Supt. Watter Baldwin. Uffice 166 Main st.

a MIDDLETOWN, O.—Middletown & Madison St. R.R. Co. 2 m, 4-8½ g, -r, 4 c, 8 h. Pres. C. F. Gunckel, Sec. and Treas. E. W. Gunckel, Supt. T. C. Reed. 11

MILLERSVILLE, PA.—Lancaster & Millersville St. R.R. Co. (See Lancaster, Pa.)

MILWAUKEE, WIS.—Cream City R.R. Co. 17 m, 4-8½ g, 38 & 52 lb glider r, 27 lb tram r, 80 c, 319 mu. Pres. Winfield Smith, V. Pres. Christian Preusser, Treas. Ferdinand Kuehn, Sec. Wm. Damkoehler, Gen. Man. D. Atwood, Supt. H. J. C. Berg. Office, 440 E. Water st. h.

Milwaukee City Ry. Co. 30 m, 4-8½ g, 45 lb r, 81 c, 513 h. Pres. Peter McGeoch, Sec. & Treas. Geo. O. Wheatcroft. Office 209 West Water st. a

West Side St. Ry. Co. Pres. Washington Becker Sec. Thos. J. Durnin, Supt. A. Menaughion. 12

MINNEAPOLIS, MINN.—Minneapolist. Ry. Co. 52 m, 3-6 g, 27-33-45 lb r. 186 c, 876 h, 230 mu. Pres. Thos. Lowry, V. Pres. C. Morrison, Sec. & Gen. Man. C. G. Goodrich, Treas. M. B. Koon. Supt. D. W. Sharpe, Engr. E. T. Abbott. Office, 200 3d ave. N. g

MOBILE, ALA.—Mobile St. Ry. Co. 23 m, 5-2½ g, 35-60 lb T & tram r, 74 c, 4 freight. c, 230 mu & h. Pres. W. M. Duncan, V. Pres. Gaylord, B. Clark, Sec. & Gen. Man. R. K. Warren.

MOBILE, Spring Hill R.R. Co. 8 m, 5-2½ g, 35 lb r, 16 c, 35 h, 1 dummy. Pres. Daniel McNeill, Sec. & Treas. C. F. Sheldon, Man. F. Ingate. b

MOHAWK, N. V.—Mohawk & Ilion R.R. Co. 12 m, 4-8½ g, 30 lb r, 4c (contract for motive power). Pres. O.w. Bronson, V. Pres. C.W. Carpenter, Sec. H. D. Alexander, Treas. R. M. Devendorff, Supt. O. W. Bronson. E. Ry. Co. 12 m, 4-8½ g, 30 lb r, 4c (contract for motive power). Pres. O. W. Bronson, V. Pres. C. W. Carpenter, Sec. H. 10. Alexander, Treas. R. M. Devendorff, Supt. O. W. Bronson. E. Ry. Co. 14 m, 4-8½ g, 11 m tram ½ m T, 7 c, 10 h. Pres. P. H. Wessel, V. Pres. M. Y. Cody, Sec. W. R. Moore. Treas. C. F. Hemenway. 1

JHONTGOMERY. ALA.—Capital City E

V-Pres. W. Hoffman, Sec. T. R. Fltzgerald, Treas. S. M. Hughes. k. MUSKEGON, MICH.--Muskegon Ry. Co. 4½ m. 4-6g, 20 lb r, 8 c, 17 h, 9 mu. Pres. F. A. Nims, V. 9 res. Chas. Merriam, Boston, Mass., Sec. Thomas Munroe, Treas. G. R. Sherman, Supt. Wm. McLaugh-

NASHUA, N. II.—Nashua St. Ry. Co. 2 m, 3 g, 35 lb r, 6c, 24 h. Pres. John A. Spaiding, Clerk, R. D. Barnes, Treas. 1ra F. Harris, Supt. Q. A. Woodward. e

NASHVILLE, TENN.—Nashville & Edgefield R.R. Co. Fatherland Street Railway Co. North Edgefield & Nashville St. R.K. Co., one management. 6 m, 5 g, 16-20-38 lb r, 18 c, 110 mu. Pres. Jas. H. Yarbrough, Sec. & Treas. H. B. Stubblefield, Supt. Thos.

5 m, 5 g, 16-30-38 10f, 18 c, 110 mu. Pres. Jas. H. Yaf-brough, Sec. & Treas. H. B. Stubblefield, Supt. Thos. R. Donahue.

McGavock & Mt. Vernon Horse R.R. Co. 14½ m, 5 g, 16-20-28-32-38 lb r, 46 c, 300 mu. Pres. John P. White, V. Pres., Sec. & Treas. H. B. Stubblefield, Supt. & Pur. Agt. Daingerfield Deaderick.

South Nashville St. R. R. Co. 4½ m, 5 g, 16-20-20 lb r, 10 c, 70 h. Pres. W. M. Duncan, Sec., Treas. & Supt. C. L. Fuller. Office cor. Franklin and Cherry Sts. & NATCHEZ, MISS.—Natchez St. Ry. 2½ m, 4-8½ g, 18 & 45 lb r, 4 c, 10 h, 6 mu. Owner, Thos. Reber. 11 NATICK, MASS.—Natick & Cochituate St. Ry. 3 m, 4-8½ g, 35 lb r, 7 c, 19 h. Pres. Harrison Harwood, Supt. Geo. F. Keep. Clerk Frank Hays. e NEW ALBANY, IND.—New Albany Ry. Co. 6½ m, 4-11 g, 25 lb r, 14 c, 55 h. Pres. Geo. T. Vance, Treas. Letitla V. Vredenburgh, Supt. & Pür. Agt. Wm. L. Timberlake. Office cor. Vincennes and Spring Sts. 9

NEWARK, N. J.—Essex Pass. Ry. Co. 50 m, 5-2½

6½ M, 4-11 g, 25 lb r, 14 c, 55 h. Pres. Geo. T. Vance, Treas. Letitla V. Vredenburgh, Supt. & Pur. Agt. Wm L. Timberlake. Office cor. Vincennes and Spring sts. 9

NEWARK, N. J.—Essex Pass. Ry. Co. 50 m, 5-2½ g, 47 lbr, 141 c, 899 h. Pres, S. S. Battin, Sec. Fred T. Kirk, Supt. 11. F. Totten. Paymaster, W. L. Mulford. Office, 768 Broad st. d. Newark & Irvington St. Ry. Co., 7 m, 5-2½ g, 47 lbr, 22 c, 166 h. Pres. S. S. Battin. Sec. W. L. Mulford. Supt. H. F. Totten. Office 766 Broad st. d. Newark & So. Orange, Ferry St. & Hamburg Place R. R. Co. 15 m, 5-2½ g, 45 lb r, 49 c, 300 h. Pres. John Radel, Scc. Andrew Radel, Treas. Joseph Criqui. Office, cor. So. Orange ave. & So. 19th st. f. NEWARK, 0.—Newark City Ry. Co. 5 m, 4-8½ g, 35 lb r, 6c, 21 h. Pres. Stephen G. Clarke, V. Pres. Suppl. Byron E. Clarke, Sec. John W. Lanehart, Treas. Harry M. Clarke. Office, 239 W. Main st. I. NEW BEDFORD, MASS.—Union St. Ry. Co. 18 m, 4-8½ g, 35, 45 & 50 lb tram, 45 lb steel & 38 lb girder r, 84 2-h c, 290 h. Pres. Samil. C. Hart, Treas. A. G. Perce, Clerk Abbott P. Smith, Auditor Geo. K. Phillips, Supt. Stables Chas. E. Cook, Supt. Transportation Wm. H. Allen. Capital, \$260,000. j. NEW BRITAIN, CONN.—New Britain Tramway Co. 3½ m, 4-8½ g, 35 lb r, 4 c. Pres. Aliston Gerry, Treas. Jos. A. Flynn, both oi New York City. 5 NEW BRUNSWICK, N. J.—New Brunswick City R. R. Co. 4 m, 4-8½ g, 40 lb r, 5 c, 20 h. Press. F. M. Delano, Treas. Carroll Sprigg.

NEWBURGH, N. Y.—Newburgh St. Ry. Co. 2½ m, 4-8½ g, 35 lb r, 18 c, 60 h. Pres. Rowland F. Hill, V. Pres. Sidney W. Hopkins, Sec. & Treas. Wm. Moores, Gen. Man. H. Ives Smith. President's office, 3 Broad St., New York. b. NEWBURYPOPORT, MASS.—Newburyport & Amesbury Borse R. R. Co. 6 1-3 m, 4-8½ g, 35 lb r, 18 c, 50 h. Pres. Chas. Odell, Sec. G. H. Stevens, Treas. A. G. Reynolds, Supt. W. B. Ferguson. 5 hack Rocks & Sallsbury Beach St. Ry. Co. Dummy road. 2 m, 4-8½ g, 25 lb T, 7 c, c, 1 dummy engine. Clerk Geo. Titton. 7

Plum Island St. Ry. Co. 5 m, 4-8½ g, 35 & 40 lb r, 10 c, 25 h. Pres.

whithey Ave. Ry. Co. 22 in, 4-02 5, 25 125 13, 5 c, 4.

Ners. Geo. H. Watrous, Sec. George D. Watrous, Treas. Ell Whitney, jr., Leased to State St. Horse R. R. Co. a

NEW ORLEANS, LA.—Canal & Clalborne Sts. R.R. Co. 13 m, 5-2½ g, 37 lb r, 40 c, 200 h. Pres. E. J. Hart, Sec. & Supt. Jos H. DeGrange. a

Alglers & Gretna Ry. Co. 3.1 m, 3 g, 50 lb T r, 3 1-h

Alglers & Gretna Ry. Co. 3.1 m, 3 g, 50 lb T r, 3 1-h

Co. 17 h. Pres. J. E. Auvray, Sec. Wm. Bogel, Supt. John Reaney. Office, 352 St. Charles St. b

Crescent City R.R. Co. 26 m, 5-2½ g, 35-45 lb r, 90 c, 400 h. Pres. W. J. Behan, Sec. & Treas. J. R. Juden, Supt. A. V. Smith. c

Orleans R.R. Co. 9½ m, 5-2½ g, 35 lb r, 32 c, 155 h. & mu. Pres. & Supt. H. Larquie, Sec. & Treas. P. Cougot. Office, oor. White & Laharpe sts. b

St. Charles St. R.R. Co. 15 m, 5-2½ g, 35-40 lb r, 61 c, 260 mu. Pres. & Supt. Alden McLellan. Sec. V. Riviere, Operates 3 lines. Office cor. Carondelet & 8th sts. a. New Orleans & Carrollton R.R. Co. 8 m, 4-8½ g, 30-45 lb r, 65 c, 200 h, 19 engines. Pres. Jos. Hernandez, Sec. Walter V. Crouch, Supt. Chris. V. Haile. a

New Orleans Clty & Lake R.R. Co. 60 m, 5-2½ g, 48 lb r, 170 st. c, 40 coaches. 7 locomotives, 800 mu. Pres. J. A. Walker. Sec. W. E. Leverich, Supt. F. Wintz. Office, 102 Canal st. 6

NEW PORT, KY.—Newport St. R.R. Co. NEW ROCHELLE, N. Y.—New Rochelle & Pelham R. R. Co. 10 m, 4-8½ g, 42 lb r, 8 c, 30 h. Pres. W. R. Bergholz, Sec. Eugene Durnin, Treas. Thos. E. Crimmins. 1.

NEW TON, KAN.—Newton City St. Ry. Co. Pres. Allen Moore, V. Pres. John A. Randall, Sec. W. G. Oldfield. Treas. J. M. Ragsdale. 6 m, 3-6 g, 20 lb steel r, 8 c, 24 mu. Capital, \$60,000. 7

NEW YORK, N.Y.—Ninth Ave. R.R. Co. 16 m, 4-8½ g, 50 lb r, 50 c, 500 h. Pres. Geo. Law, Sec. & dec. Law, Sec. & dec. Law, Sec. & dec. Law, Sec. & dec. & dec.

E. H. Johnson, Prest. F. J. Sprague, V. Prest. & Gen. Man. A. S. Beves, Sec. & Treas. H. McL. Harding, Gen. Agt.

THE SPRACUE ELECTRIC RAILWAY & MOTOR CO.

NEW YORK: 16 & 18 Broad St. BOSTON: 55 Oliver St.

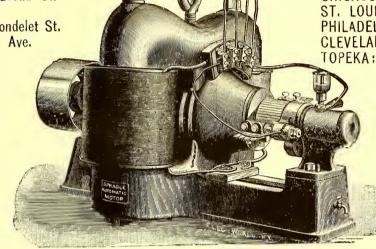
NEW ORLEANS: 20 Carondelet St. DETROIT: 133 Jefferson Ave.

This is the only company in the United States devoting its entire energies to the various questions involved in the transmission of power, and it is putting into practical use more motors of and over one-half horse power than all other companies combined.

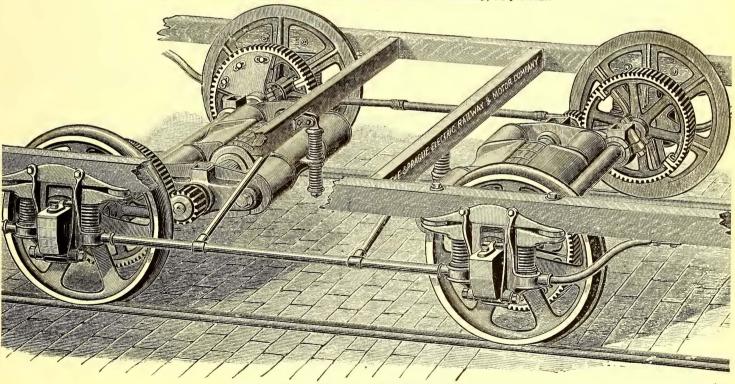
This company, having now perfected a Street Rail-

CHICAGO: 185 Dearborn St. ST. LOUIS: 304 Locust St. PHILADELPHIA: 119 So. Fourth St. CLEVELAND, O.: 117 Public Square, TOPEKA: 700 Kansas Avenue.

> way System in all its details, is prepared under suitable guarantees of successful operation, to take contracts for equipping new roads with all the appliances. both electrical and mechanical, for operating street railroads, and also for equipping roads now in operation.



Sprague Automatic Motor.—15 Horse Power. 220 Volts. Efficiency, 91 per cent.



Showing Motors. CHARACTERISTICS OF RAILWAY MOTORS.

Lightest weight consistent with Highest Efficiency. Simple, Compact in Construction.

Non-Liability to get out of order. No Skilled Labor. Strong enough to do the work under all conditions. Simplicity and ease of operation. Commutator wear Reduced to a Minimum.

SYSTEM. DETAILS OF

Generators of Highest Efficiency and Reliability.

Systems of Conducting Current to the Cars with the Impossibility of an Accident at any Point of the Line Interfering with the Operation of the Remainder of the Road.

Motors Flexibly Suspended from the Axles to insure Perfection of Running. Greatly Increased Traction by the Application of Motors to each Axle with

Greatest Return for Given Amount of Coal Burned.

Entire Freedom from Disagreeable Noises by means of Split-Gears and Spring Suspension.

Absence of all Ropes, Belts, Sprocket-Wheels and Chains.

No Useful Room in the Car taken up by the Motor.

No Changes in Truck.

No Complicated Nest of Gearing.

Use of Single Sets of Brushes for both Directions of Driving.

Storage Battery or Overhead System.

Treas. James Affleck, Supt. Lewis P. Foulk. Offices, Ninth Ave., cor. 54th st. a.

Broadway & Seventh Ave. R.R. Co. 16 m, 4-8½ g, 47-60 lb r, 227 c, 2240 h. Pres. Henry Thompson, Sec. & Treas. Thos. F. Ryan, Supt. Henry A. Newell. Office 761 Seventh ave. f
Central Crosstown R.R. Co. 5.22m, 4-8½ g, 52 lb r, 45 c, 241 h. Pres. Geo. S. Hart, V. Pres. A. Cammack, Sec. Milton I. Masson, Treas. E. Burton Hart. Office, 365 Ave. A.

Central Park, North & East River R.R. Co. 26 m, 4-8½ g, 60 lb r, 165 c, 1,152 n. Pres. G. H. Scribner, V. Pres. C. D. Wyman, Sec. & Treas. J. L. Valentine, Supt. W. N. A. Harris. Office, Tenth Ave., 53d & 54th St. j.

Chambers St. & Grand St. Ferry R. R. Pres. H.

Supt. W. N. A. Harris. Office, Tenth Ave.,53d & 54th st. j.
Chambers St. & Grand St. Ferry R. R. Pres. II. Thompson.
Christopher & Tenth St. R.R. Co. 5 m, 4-8 g, 45 lb r, 47 c, 290 h. Pres. Jacob Sharp, Treas. W. T. Hatch, Sec. & Supt. G. W. Linch. Office, 168 Christopher St. T. Dry Dock, East Broadway & Battery R.R. Co. 18½ m, 4-8½ g, 60 lb r, 185 c, 1102 h. Pres. William White, Sec. & Treas. Richard Kelly, Anditor E. T. Landon, Supt. Fred F. White. Offices, 605 Grand St. a Eighth Ave. R.R. Co. 20 m, 4-8½ g, 60 lb r, 112 c, 1155 h. Pres. Geo. Law, Sec. & Treas. James Affleck, Supt. II. B. Wilson. Office, Eighth Ave. & 60th st. 4. Forty-second Street & Grand Street Ferry R.R. Co. 10½ m, 8-4 g, 64 lb r, 59c, 480 h. Pres. Chas. Curtlss, Sec. & Treas. E. S. Allen. Supt. John M. Caihoun. Office, 653 W. 42d st. Forty-second St., Manhattanville and St. Nicholas Avenue Ry. Co. 18 m, 4-8½ g, 60 lb r, 105 c, 650 h. Pres. John S. Foster, Sec. C. F. Naething, Treas. Arhur Leary. Office, 118 E. 42 St. a.

Harlem Bridge, Morrisania & Fordham Ry. Co. 16.37 m, 4-8½ g, 45-60 lb r, 65 c, 316h. Pres. and Supt., II. Spratiey, V. Pres. Wm. Remsen, Sec. & Treas. Wm. Cauldwell. Office, Third ave., near 170 st. f. 110uston, West Street & Pavonla Ferry R.R. Co. 12.3 m, 4-8½ g, 60 lb r, 50 c, 340 h. Pres. Henry Thompson, Sec. & Treas. Danlel B. Hasbrouck, Supt. II. W. Edes. Office 415 E. 10 st. f. Jerome Park R.R. 1 2-3 m, 4-8½ g, 50 lb r, Pres. Theodore Moss. Office, cor. 5th. ave. & 22d st. 6 New York City St. Ry. Co. 10 m, (not In operation). Pres. Loomis L. White, Sec. W. L. McCorkie, Treas. Wm. L. Skidmore.

New York-& Harlem R. R. Co. 18½ m, 4-8½ g, 60-75 lb r, 172 c, 1,500h. Pres. C. V. Nanderbilt, V. Pres. C. C. Clarke, Sec. & Treas. Ed. V. W. Rossiler, Supt. Al-tred Skilt, Pur. Agt. Chas. Reed. Office, Grand Central Depot. 6 Sixth Ave. R.R. Co. 2% m, 4-8½ g, 60 lb r, 10 c, 250 h. Pres. Frank Curtiss, Sec. and Treas, Ilenry S. Moore, Supt. Edw E. Moore. Office, 67 and Central Lens, 12 h. Pres. Henry Ilart, Sec. & Treas. Albert

St. b. Ave. R.R. Co. 28 m, 48½ g, 60 lb r, 316 cars, 1750 h. Pres. W. S. Thorn, V. Pres. J. Wadsworth. Sec. & Treas. J. B. Underhill. Office Second ave. cor. 66 th St. 6 c. 2190 h. Pres. Lewls Lyon, 739 Madison ave., Sec. Alfred Lazarus, 436 W. 61st st., Treas, Jcin Beaver, 211 E. 13th st., Supt. John H. Robettson, 307 E. 65th st., Eng. Wm. 11. Palne. Office, 1,115 Third ave. k

E. 65th St., Eng. Will. II. Faill.

ave. k

Twenty-third St. Ry. Co. 14 m, 48 kg g, 54 fb r, 122 c,

70 h. Pres. Arthur Leary, V. Pres. George N.

curtis, Sec. Thos. II. McLean, Treas. Walter T.

Hatch. Office, 621 West 23d st. f

NfAGARA FAIL.S, N. V.—Nlagara Falls & Suspension Bridge Ry. Co. 2½ m, 4-8½ g, 38 lb r, 14

c, 50 h. Pres. Benj. Flagler, V. Pres. II. Nlelson, Sec.

John Mackay, Man. & Treas. A. Schoellkopf, Supt.

F. Dean.

John Mackay, Man. & Treas. A. Schoellkopf, Supt. John Mackay, Man. & Treas. A. Schoellkopf, Supt. J. NIAGARA FALLS, CAN.—Nlagara Falls, Wesley Park & Clifton Tramway Co. 4 m., 4-8½ g., 30 & 45 br., 10 c., 31 h. Pres. J. II. Mooney, Sec. John H. Bache, Treas. John N. Hayward, Supt. J. H. Bache, h. NORFOLK, VA.—Norfolk City R. R. Co. 3½ m. 5-2 g., 43 ibr., 20 c., 67 h. Pres. John B. Whitehead Sec. & Treas. II. C. Whitehead. Supt. E. W. Savage. b. NORRISTOWN, P.A.—Clificens' Pass. Ry. Co. 4m., 5-2½ g., 47 ibr., 8 c., 50 h. C. aprilal, \$80.0. Pres. Geo. D. Bolion. Sec. Geo. R. Kite, Treas. Geo. Shannon, Supt. D. B. Hartranft.

Norristown Pass. Ry. Co. 1¼ m., 5-2½ g., 45 ibr., 2-1-14 2-h. c., 12 h. Pres. H. M. Lutz, Sec. Eutene D. Eubert, Treas. & Supt. Norman Egbert. 10

NORTHADAMS, MASS.—Hoosac Valley St. Ry. Co. 6 m., 4-8½g. 40 lb. r, 8 c., 31 h., 2 steam motors. Pres. Wm. B. Baldwin, V. Pres. L. W. Cronkhite, Sec. S. Proctor Thayer, Treas. Chas T. Beach.

NORTHANDTON, MASS.—Northampton St. Ry. Co. 3½ m., 4-8½ g., 32 lbr., 9 c., 35 h. Pres. Oscar Edwards, Sec. M. H. Spaulding, Treas. & Sup. E. C. Clark.

NORWALK, CONN.—Norwalk Horse R. R. Co.

Clark. l.

NORWALK, CONN.—Norwalk Horse R. R. Co.
1½ m, 4-8 g, 40 lb r, 7 c, 21 h. Pres., Supt. & Treas.
James W. Hyatt, Sec. Edwin G. Hoyt. j

NORWICH, CONN.—Norwich Horse R. R. Co.
6 m, 4-8½ g, 20 lb r, 12 2-h c, 39 h. Pres. Thos. Cunningham, See., Treas., Supt. & Pur. Agt. T. West. 9

OAKLAND, CAL.—Berkeley Villa R. R. Co.
Props. Berryman & Chaffellet.
Broadway & Piedmont R.R. Co. 3 m. 5 g, 30 lb r,
18 c, 46 h. Pres. Walter Blair, Sec. Montgomery
Howe. 9
Brookivn & Fruit-Vale R. R. 2½ m, 5 c, 18 h. Pres.

18 c, 46 h. Pres. Walter Blair, Sec. Mongomery Howe. 9
Brooklyn & Fruit Vale R. R. 2½ m, 5 c, 18 h. Pres. E. C. Sessions, Sec. W. W. Gill. 2
Fourteenth St. R.R. Co. 8 m. 5 g, 23-40 lb r, 10 c, 46 h. Pres. & Supt. Walter Blair, Sec. P. J. Van Lobe., office, 524 14th st. 1
Oakland R. R. Co. 8 m. 3 g, 60 lb r, 9 c. 83 h. Pres. Jas. G Fair. Sec. Chas. S. Neal, Supt. Geo. Y. Loring. Office, 21st & Jones sts. 5
Oakland, Brooklyn & Fruit Vale R. R. Co. 2½ m, 6 g, 35 lb r, 4 c, 25 h. Pres. H. Tubbs, Sec. W. C. Mason, Supt. J. Dlxon, Pur. Agt. Geo. H. Mason. Office, 301 Central ave. a
Oakland Cable Ry. Co. 5 m, 3 g, 40 lb. Iron r.10 c. Pres. Jas. G. Fair, Sec. & Treas. Chas. S. Neal, Supt. Geo. Y. Loring. Office, 21st & Jones sts. 6

OGDEN CITY, UTAII.—Ogden City Ry. Co. 3 m, 4.8 g, 20 lb r, 4 c, 20 h. Pres. L. W. Shurtliff, V. P. & Supt. O. P. Arnold, Sec. & Treas. H. S.

OGD ENSBURG, N. Y.—Ogdensburg St. Ry.Co. 5m, 4-8½ g, 25 lb. r, 6c, 22 h. Pres. W. H. Daniels, Sec. E. A. Newell, Treas. A. E. Smith. b OLEAN, N. Y.—Olean St. Ry. Co. 1.34 m, 3-6 g, 25 lb r, 3 c, 7 h. Pres. & Supt. John Fobes, V. Pres. C. S. Carey, Sec. & Treas. M. W. Barse.

OMAHA, NEB.—Omaha Horse Ry. Co. 22 m, 4-8½ g, 30, 35 & 45 lb r, 62 c, 470 h. Pres. Frank Murphy, V. Pres. Guy C. Barton, Sec. J. E. Wilber, Treas. W. W. Marsh, Supt. W. A. Smith. Office 1504 Farnam st.

W. W. Marsh, Supt. W. A. Smith. Office 1504 Farnam st. e
Cable Tramway Co. of Omaha, 6½ m, 4-8 1-2 g, 58½
lb r, 35 c, each with grip; operated by cable. Pres. & Treas. S R. Johnson, V. Pres. L. B. Williams, Sec. & Treas. S R. Johnson, V. Pres. L. B. Williams, Sec. G. B. Rustin, Chief Engineer Robert Gilitham. Capital stock, \$500,000. General office, 130 South 13th st. a
Omaha Southwestern St. Ry. Co. 8 m, 4-8½ g, 2; lb No. 1 steel r, 10 c, motors. Steam motor and electricity ultimately. Pres. Henry Ambler, V. Pres. C. R. Woolley, Sec. Sam'l J. Howell, Treas. C. F. Harrison. Capital, \$50,000. Office, 217 S, 14th st. c
ONEIDA VILLAGE, N. Y.—Onelda Ry. Co. 2
m, 4-8½ g, 47 lb r, 3 c, 7 h. Pres. W. A Stone, Sec. & Treas. W. E. Northrup, Supt. Chas. Bonta. j
ORANGE, N. J.—Orange Crosstown and Orange
Valley St. Ry. Co. 2½ m, 5-2 g, 35 lb Johnson girder
rall, 81-h, 2-2 hc, 38 h. Pres. Francis M. Eppley, of Orange, Sec. Thos. Marsh, Treas. Edw. A. Pearson.
Capital stock, \$20,000; bonds, \$20,000. h
ORLANDO, FLA.—Orlando St. Ry. 2 m, 4-8½ g, 30 lb r, 3 c, 8 mu. Pres. f. J. Shine, V. Pres. N. L.
Mills, Sec. & Treas. J. D. Beggs. Capital, \$50,000. a
OSHKOSII, WIS.—Oshkosh St. R. R. Co. 3½ m, 4-8½ g, 27 lb r, 10 c, 40 h. Pres. Leander Choate, V. Pres. J. H. Jenkins, Sec. & Treas. J. Y. Hull, Sup. L. F. Thompson. g

OSHROSH, WIS.—OSHROSH St. RK. CO. 3½ M, 4-8½ g, 27 lb r, 10 c, 40 h. Pres. Leander Choate, V. Pres. J. H. Jenkins, Sec. & Treas. J. Y. Hull, Sup. L. F. Thompson. g

OSWEGO, N.Y.—Oswego St. Ry. Co. 2½ M, 4-8½ g, 45 lb r, 5 c, 25 h. Pres. R. J. Oliphant, V. Pres. H. D. McCaffrey, Sec. & Treas. Albert Illmes. Supt. Wm. S. Turner. Office, West Bridge, near Third ave. d

OTTAWA, KAN.—Outawa St. Ry. Co. 2 m, 4-8½ g, 20 & 30 lb T and girder r, 1 1-h 3 2-h c, 16 mu. Pres. John P. Harris, Sec. & Treas. Peter Shiras, Supt. David Miller. 10

OTTAWA, ONT.—Ottawa City Passenger Ry. Co. 5 m, 4-8½ g, 30 lb r. 10 c, 45 n. Pres. Thomas C. Keeter, V. Pres. R. Blackburn, Sec. James D. Fraser. 1

OTTUMWA, IA.—Ottumwa St. R.R. Co. 2 m, 3-65 (2.7 lb r, 4 c, 2 h. 14 mu. Pres. J. M. Hedrick, Sec. & Treas. II. L. Hedrick, Supt. C. M. Hedrick, Mineral Springs St. Ry. 1 m, 3-6 g, 16 lb r, 1 c, 4 mu, Owner, L. E. Gray. 8

OWENSBORO, KY.—Owensboro City R. R. Co. 3¼ m, 4-8½ g, 20 lb Tr, 7 c, 19 mu. Pres. J. M. Alsop, Sec. J. D. Powers. Treas. John Wandling, Supt. W. T. Alsop. Capital, \$25,000. 12

PADUCAH, KY.—Paducah St. Ry. Co. 5½ m, 4-8½ g, 30 lb flat r, 9-1-hc, 26 mu. Pres. C. Defafield, Sec. Henry II. Ilouston. Treas. J. C. Thompson. Office. 110 S. 3d st. 9

PARIS, TEX.—Parls Ry. Co. 2½ m, 4-8½ g, 22 lb. Tr, 3 pass. 4 ft c, 11 mu. Pres. D. F. Latimer, Sec. & Supt. C. G. Caviness, Treas. W. D. Latimer. Capital, \$50,000. a

PATERSON, N. J.—Paterson & Passaic R. R. Co. 7 m, 4-10½ g, 33 lb r, 16 c, 30 h. Pres. John N. Terlune, Sec. E. S. Brown, Treas. John J. Brown, Man. & Supt. Ambross T. King. Asst. Supt. Townsend Rider. Office, First National Bank Bidg. e

Paterson City Ry. Co. 8½ m, 4-8½ g, 35 lb r, 10 c, 40 h. Pres. Garret Planten, Treas. & Man. H. Romaine, Sec. Albert A. Wilcox, Supt. M. Pettigrew. Office

40 h. Fres. Galler, A. Wilcox, Supt. M. Pettigrew. Sec. Albert A. Wilcox, Supt. M. Pettigrew. 27 Broadway. a PAWTUCKET, R. I.—Pawtucket St. Ry. Co. 8 m. 54 lb r. 4 g, 24 c, 124 h. Pres. A. B. Chase, V. Pres. & Gen'l Man. D. F. Longstreet, Treas. E. N. Little-field, Engr. Geo. c. Tingley. Office Broad St. k PELIIAM, N. Y.—Pelham Park R. R. Co. 1½ m, 3-6 g, 30-57 lb T and s-b r, 4 1-h c, 9 h. Pres. W. R. Lamberton, V. Pres. & Supt. Henry D. Carey. Sec. & Treas. E. N. Anable. Office, 16 Exchange place, New York. f

York. f
PENSACOLA, FLA.—Pensacola St. Car Co. 3 m,
48½ g, 30 lb r, 10 c, 33 mu. Pres. A. V. Clubbs, Sec.
W. A. Blount, Treas. Thos. C. Watson. Capital,
\$100,000. Office, 100 E. Government st. c
PEORIA, II.I..—Central City Horse Ry. Co. 10
m, 5-8 g, 40 & 57 lb r, 40 c, 90 h. Pres. & Gen. Man.
II. R. Woodward, 3ec. C. R. Wheeler, Treas. E. Callender, Supt. John strong.
Central Horse & Cable R. R. Co. 3 m, 4-8½ g, 30 &
40 lb r, 9 c, 22 h. Pres. & Gen. Man. H. R. Woodward,
Sec. Jos. Elder, Treas. E. Callender, Supt. John
Strong.

Sec. Jos. Elder, Treas. E. Callender, Supt. John Strong.

[7]
East Bluff Peorla Horse Ry. Co. 2 m, 4-8½ g. 30 lb tram r, 8 c, 45 mu. Pres. & Gen. Man. H. R. Woodward, Sec. C. R. Wheeler, Treas. Ellot Callender, Sunt. John Strong. Capital, \$11,000. k

Fort Clark Horse Ry. Co. 8 m, 4-8½ g, 20-35 lb r, 32 c, 80 mu. Pres. J. II. Hall. Sec. II. W. Wells, Treas. H. Detweller. Supt. J. H. Hall. f
Peorla Horse Ry. Co. 6 m, 4-8½ g, 40-60 lb r 14 c 60 h. & mu. Pres. & Gen. Man. H. R. Woodward, Sec. E. R. Wheeler, Treas. E. Callender, Supt. John Strong.

rong. j PETER BURG, VA.—Petersburg St. Ry. 3½ m, 8½ g, 42 & 47 lb r, 9 c, 2 h, 35 mu. George Beadle,

Prop. 7 (101), 9 c, 2 h, 35 mu. George Beadle, PHILADELPHIA, PA.—Citizens' Pass. Ry. Co. 10% m, 5-2 g, 45 47 lb r, 86 c, 470 h. Pres. Chas. E. Ellis. Sec. & Treas. J. Q. Adams, Sup. H. C. Keen, Office, n w cor. 12th and Susquehanna ave. Capital, \$192,500.

\$192,500. a Empire Pass. Ry. Co. 8½ m, 5-2 g, 45 b r, 32 c, 250 h, Pres. James McManes. Sec. and Treas. John I. Adams. Office, n w cor. 12th st. and Susquehanna

av. a. Frankford & Southwark Phila. City Pass. R.R. Co. 18.10 m,5-2g, 47 lbr, 100c, 8 dummles,650h. Pres. John Nobilt, Sec. Thos. S. Harris, Treas. R. C. Brewster, Supt. T. E. Cox. Capital, \$750,000. Office, 2501 Kensington ave.

Germantown Pass. Ry. Co. 29½ m, 5-2½ g, 47 lb r, Cars and horses, leased. Pres. Cralg D. Ritchie, Sec. & Treas. Lewis S. Renshaw. Office, 1,001 Chestut st. f Green & Coates R. R. Co. (Leased to People's Pass.

Ry. Co.) Office, 8th & Dauphin sts. 8 Hestonville, Mantua & Fairmount Pass. R.R. Co. 20 n, 5-4½ g, 45 lb r. 60 c, 500 h. Pres. Chas. H. Laffer-ty, Sec. & Treas. W. C. Foster. Office, 4,300 Lancas-

aLombard & South Sts. Pass. Ry. Co. 10 m, 5-2 g, 43 b, r, 51 c, 276 h. Pres. John B. Parsons, Sec. & Treas. hos. C. Barr, Supt. J. H. Fresh. Office, 25th & South

Manayunk & Roxborough Incline Plane & Ry. Co. 5½ m, 5-2½ g, 45 lb r, 8 c, 33 h. Pres. C. J. Walton, Sec. W. L. Lewis, Treas. C. J. McGlinchey, Supt. A. Tibben. 9

Manayunk & Roxborough Incline Plane & Ry. Co. 5½ m, 5-2½ g, 45 lb r, 8 c, 33 h. Pres. C. J. Walton, Sec. W. B. Lewis, Treas. C. J. McGillnchey, Supt. A. Tibben. 9
People's Pass. Ry. Co. 45 m, 5-2 g, 47 lb r, 174 c, 1153 h. Pres. C. Barr, Sec. & Treas. David C. Golden, Supt. Chas. S. Whiting. Office, sth & Dauphin sts. a
Philadelphia City Pass. Ry. Co. 12.417 m, 5-2½ g, 47 to 78 lb r, 132 c, 708 h. Pres. Wm. W. Colket, Sec. & Treas. T. W. Pennypacker. (Leased to W. Phila. Pass. Ry. Co.) Office, 202 Walnut place. a
Philadelphia Traction Co. 109 m, 5-2½ g, 47 lb r, 594 c, 2608 h. Pres. W. H. Kemble, V. Pres. P. A. B. Widener & W. L. Elkins, Sec. & Treas. D. W. Dickson, Engr. A. D. Whitton. Office, n w cor. 41st and Haverford sts. f
Philadelphia & Darby Ry. Co. 6½ m, 5-2½ g, 42 lb r, road leased. Pres. C. L. Borle, Sec. and Treas. Wm. W. Colket. Office, 202 Walnut pl. Leased to Phila. City Pass. Ry. Co. a
Philadelphia & Gray's Ferry Pass. R.R. Co. 10 1-3 m, 40 c, 200 h. Pres. Matthew Brooks, Treas. J. C. Dawes. Sec. J. Crawford Dawes, Supt. Patrick Lovett. Office, 25th st. and Gray's Ferry Rd. 6
Ridge Ave. Ry. Co. 15 m, 5 g, 47 lb r, 60 c, 350 h. Pres. E. B. Edwards, Treas. Wm. S. Blight, Supt. Wm. Myers. a
Second & Third St. Pass. Ry. Co. 37 m, 5-2½ g, 43 to 55 lb r, 116 c, 675 h. Pres. Alexander M. Fox, Treas. William F. Miller, Sec. Charles D. Matlack, Supt. D. W. Stephens. Office, 2,653 Frankford ave. a
Seventeenth & Fitteenth Sts. Pass. Ry. Co. 7½ m. Pres. Matthew S. Quay, Sec. & Treas. John B. Peddle. (Leased to Philada. Traction Co.)
Thirteenth & Fitteenth Sts. Pass. Ry. Co. 14 m, 5-2 g, 47 lb r, 48 c, 52) h. Pres. Thos. W. Ackley, Sec. & Treas. Alex. Rennick, Supt. Wm. P. Cooper. Office, 15th & Cumberland Sts. a
Union Pass. Ry. Co. 70 m, 348 c, 1,724 h. Pres. Wm. H. Kemble, Sec. & Treas. John B. Peddle. (Leased to Philada. Traction Co.)
West Philadelphia Pass. Ry. Co. 18½ m, 5-2½ g, 47 lb r, 122 c, 112 h. Pres. Peter A. B. Widener, Sec. & Treas. D. W. Dickson, Supt. Jas. T. Gorman. Office, cor. Haverford &

West Finhadelphia Pass. Ry. O. 18½ ft., 5-2½ g., 42 ftbr, 122 c., 112 h. Pres. Peter A. B. Widener, Sec. & Treas. D. W. Dickson, Supt. Jas. T. Gorman. Office, cor. Haverford & 41st sts. (Leased by the Phila. Traction Co.) 5

PHILLIPSBURGH, N. J.—Phillipsburgh Horse Car R. R. Co. 2½ m., 4-8 g. 35 lb r., 4 c., 13 h. Pres. Daniel Runkle, Sec. & Treas. James W. Long. a

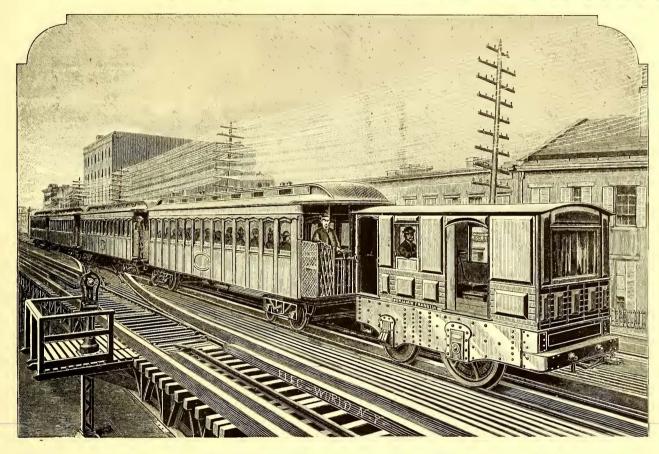
PINE BIJUFF, ARK.—Cittzens' St. Ry. Co. 2½ m., 4-8 ½ g., 34 lb T., 8 c., 50 mu. Pres. John M. Taj. or, V. Pres. & Supt. H. P. Bradford, Sec. John O'Conneil, Treas. Il. H. Hunn. Capital, \$30,000. 9

PITTSBURGH, PA.—Central Pass. Ry. Co. 6 m., 5-2½ g., 47 lb r., 16 c., 115 h. Pres. Geo. 1. Whitney, Sec. & Treas. F. L. Stepnenson, Supt. R. G. Herron. a Cittzens' Traction Co. 16½ m., 5-2½ g., 47 lb r., 52 c., 337 h. Pres. Jno. G. Holmes, Sec. C. M. Gormly, Treas. N. Holmes, Supt. Murray A. Verner. Capital, \$2 500,000. Office, 739 Penn ave. 11

Federal St. & Pleasant Valley Ry. Co. 6 m., 5-2½ g., 47 lb r., 22 c., 168 h. Pres. Wm. McCreery, Sec. R. F. Ramsey, Treas. James Boyle, Supt. Wm. J. Crozler, Allegheny City. office, 129 Taggart St., Allegheny City. a

People's Park Pass. Ry. Co. 2 m., 5-2½ g., 45 lb r., 10 c., 80 h. Pres. Wm. McCreery, Sec. R. F. Ramsey, Treas. James Boyle, Supt. Wm. J. Crozler, Allegheny City. office, 129 Taggart st., Allegheny City. of the pres. Date Taggart st., 120 Taggart st., 120 T

THE DAFT SYSTEM ELECTRIC RAILWAY PROPULSION.



For Street Railways the DAFT SYSTEM possesses the following named advantages:—
Unobtrusiveness of the Electrical Machinery.—It is entirely beneath the car-floor, and the regulating gear on each platform requires less space for its operation than the hand brake; besides permitting the driver to be always in front, without recourse to a turntable at every reversal of direction.

No Disturbance to Balance of Car or Resilience of Springs.—Carbuilders have reached the present excellence in these respects only by long and tedious experience, and the "Daft System" requires no change of existing methods, as the motive machinery is absolutely independent of the body of the car, and sustained entirely by the axles.

NO BELTS, SPROCKET-WHEELS AND CHAINS, OR OTHER OBJECTIONABLE MECHANICAL DEVICES USED.

The invariable position of the motor shaft with respect to the car-axle permits the use of the only trustworthy means—under the circumstances—of transmitting rotary motion, viz.:

Accurately Cut and Perfectly Fitting Steel Gearing, which is alone employed.

Freedom from Noise, Jar and Magnetization of Watches.

The remoteness of the motive machinery from the passengers; its being insulated electrically and acoustically by India-rubber washers and bushings at its connection with the caraxles; and its being covered by a magnetic shield, which affords perfect protection to the watches of passengers from magnetization—render the "Daft System" of Street Railway Propulsion peculiarly free from the above serious objections.

For Full Particulars and Estimates, Address

THE DAFT ELECTRIC LIGHT COMPANY,

Offices, 115 Broadway, New York. Factory, Jersey City, N.J.

Talbot, Treas. Chas. A. Ward, Jr. Office, 306 Huron

ave. h Port Huron St. Ry. Co. 6¼ m, 4-8½ g, 7 c, 22 h. Pres. J. P. Sanborn, Sec., Treas. & Man. J. R. Was-

Moore, Sec. & Supt. J. T. Clark, Treas. J. N. Carlisle. 5

QUEBEC, CAN.—Quebec St. Ry. Co. 3 m, 4-8%, g, 45 lb r, 9 c, 46 h. Pres. Chas. St. Michel, Quebec, V. Pres. G. R. Renfrew, Quebec, Sec., Treas. & Supt. Samuel Moore. b

St. John St. Ry. Co. Lim. 1½ m, 4-8% g, 35 lb r, 4 c. 23 h. Runs 4 'buses out 4 m. from city limits, Pres. Jos. W. Henry, V. Pres. A. Robertson, Sec. & Man. W. W. Martin. b

QUINCY, H.L.—Quincy Horse Ry. & Carrying Co. 6 m, 5 g, 71 lb r, 21 c, 118 mu. Pres. Lorenzo Bull. V. Pres. C. Il. Bull, Sec. & Treas. E. J. Parker, Supt. E. K. Stone.

V. Pres. C. II. Bull, Sec. & Treas. E. J. Parker, Supt. E. K. Stone.

RACINE, WIS.—Belle City St. Ry. Co. 4 m. 4 g, 32 lb r, 9 c, 40 h. Pres. Geo. B. Hathaway, V. Pres. & Treas. Chas. Hathaway, Sec. J. E. Dodge. d

RALEIGH, N. C.—Raielgh St. Ry. Co. 5 m. 48½ g, 16 T Steel r, 6 c, 36 mu. Pres. V. E. Turner, Sec. & Treas. R. T. Gray, Atty. F. H. Busbee. Capital stock, \$25,000. 6

RAPID CITY. DAK.—Rapid City St. Ry. Co. 1½ m, 4 g, 1b r, 2 c, 4 h. Pres. Fred. T. Evans, Sec. & Treas. G. Schnasse. a

READING, PA.—Reading City Pass. Ry. Co. 4 m, 5-2½ g, 47, 50 & 52 lb r, 30 c, 125 h. Pres. B. F. Owen, V. Pres. Jas. L. Douglas, Sec. & Treas. H. A. Muhlenberg, Supt. J. A. Rigg. Office, 537 8, 6th st. a
Perklomen Ave. Pass. Ry. Co. 4½ m, 5-2½ g, 38-45 b r, 18 c, 75 h. Pres. Chas. Brenelser, Sec. & Treas. Rsaac Hiester, Supt. John B. Houp. Office, Perklomen ave. & 19th st. e

RED OAK, IA.—Red Oak St. R.R. Co. 1½ m, 4-2½ g, 20 lb r, 2 c, 4 h. Pres. John Hayes, V. Pres. Edw. Hayes, Sec. F. M. Byrlket, Treas. & Supt. Marcus Bonham. a and g

RICHMOND, IND.—Richmond City R. R. Co. 4m, 3 g, 20 lb r, 13c, 40h. Pres. J. C. Shaffer, V. Pres. Rsky G, 20 lb r, 13c, 40h. Pres. J. C. Shaffer, V. Pres. Half y G, 20 lb r, 12c, 15 h. Pres. J. L. Schoolcraft, Treas. Walter Kidd, Man. C. M. Bolton, Supt. Charles Seiden. a

Richmond & Manchester Ry. Co. 3½ m, 4-8½ g, 38

Treas, Walter Kldd, Man. C. M. Bolton, Supt. Charles Selden. a
Richmond & Manchester Ry. Co. 3½ m, 4-8½ g, 38 lb r, 5 c, 26 h. Pres. J. E. Taylor, V. Pres. J. Bryan, sec. & Treas. Jackson Brandt, Supt. B. R. Selden. a
Richmond Union Pass. Ry. Co. 13 m, 4-8½ g, 45 lb r, 40 c, Sprague elec. motors, 2 on each c. Pres. J. Thompson Brown, Sec. & Treas. John F. Barry. Capital, \$500,000. Office, 1,103 Bank st. e
ROCHESTER, N. Y.—Rochester Clty & Brighton R.R. Co. 37 m, 4-8½ g, 30-45-57 lb r, 170 c, 682 h. Pres. Patrick Barry, Sec. C. C. Woodworth, Treas. C. B. Woodworth, Supt. Thomas J. Brower. e
Citizens' St. Ry. Co. Pres. Wm. H. Jones, Sec. & Treas. J. E. Pierpont, Supt. S. A. Green.
ROCKFORD, ILL.—Rockford St. Ry. Co. 61-2m, 4-8½ g, 30-40-10 r, 13 c, 54 b, 26 mu. Pres. Antbony Haines, Sec. H. H. Robinson, Treas. N. E. Lyman, Supt. Fred. Haines c
ROCK ISLAND, ILL.—Rock Island & Milan St. Ry. Co. 12 m, 4-8½ g, 30, 30 & 40 lb r, 8 pass c, 8 ft c, 7 h, 2 motors. Pres. & Supt. Balley Davenport, Sec. E. C. Hurst, Treas. J. F. Robinson. e
ROME, 4-A.—Rome St. R. R. Co. 7 m, 4-8 g, 20 & 35 lb r, 7 c, 8 h, 2 motors. Pres. J. W. Rounsaville, Sec. J. L. Bass, Treas. T. F. Howcl. Capital, \$10,-000. 1
ROME, N. Y.—Rome Clty St. Ry. Co. 6½ m, 4-8½ g, 38½ lb r, 14 c, 75 h. Pres. Rowland F. Hill. 3

Sec. J. L. Bass, Treas. T. F. Howel. Capital, \$10,200. 11

ROME, N. Y.—Rome City St. Ry. Co. 63 m, 4-8% g, 38% ib r, 14 c, 75 h. Pres. Rowland F. Hill, 3 Broad st., New York: Sec. & Treas. Wm. Moores, New York; Supt. Wm. P. Rayland, 115 John st., Rome. 11

RONDOUT, N. Y.—Kingston City R. R. Co. 2.78 m, 4-8% g, 40 ib r, 8 c, 39 h. Pres. James G. Lindsley, V. Pres. S. D. Coykendall, Sec. & Treas. Peter E. Schoonmaker, Auditor, Oscar L. Eastman, Gen. Man. Geo. Coykendall, Supt. Wm. H. De Garmo. J. RUTLAND, VT.—Rutland St. Ry. Co. 8 m, 4-8% g, 20 lb r, 8 c, 30 h. Pres. John N. Woodfin, Treas. A. H. Tuttle, Supt. M. McKeogh. Office, 7% Center st. g. SACRAMENTO. CAL.—Sacramento City Ry. Co. 121-horse and 10 2-horse c, 60 h. Prop. R. S. Carey, Supt. Geo. W. Carey.

SAGINAW, MICH.—City of Saginaw St. R. R. Co. 2% m, 4-8% g, 42 lb r, 14 c, 50 h. Pres. David H. Jerome, V. Pres. Geo. F. Williams, Sec. & Treas. Geo. L. Burrows, Supt. Fred G. Benjamin. Office, 311 Court st. 5

SALEM, MASS.—Naumkeag St. Ry. Co. 34 m, 4-8½ g, 35-45 lb tram & T r, 55 box 49 open c, 360 h. Pres. Chas. Odell, Treas. Henry Wheatland. Office, 233 Essex st. 9 SALINA, KAN.—Sallna Ry. Co. 2½ m, 3-6 g, 20 lb Tr, 3-2 hc, 18 mu. Pres. M. D. Herrington, Sec. A. L. Dodge, Treas. M. D. Teague, Supt. C. F. Hilton.

SALINA, N. Y .- Woodlawn and Butternut St.

A. L. Dodge, Treas. M. D. Teague, Supt. C. F. Hilton. 9
SALINA, N. Y.—Woodlawn and Butternut St. Ry. Co.
SALT LAKE CITY, UTAH.—Salt Lake City R.R Co. 13 m. 4-8½ g. 20 lb r, 16 c, 106 mu. Pres. John Taylor, Sec. David McKenzle, Treas. James Jack, Supt. Orson P. Arnold. a
SAN ANTONIO, TEX.—San Antonio St. Ry. Co. 18 m. 4 g. 38 lb r, 40 c, 150 mu. Pres. A. Belknap, San Antonio, V. Pres. F. W. Pickard, N. Y. City, Treas. J. Withers, San Antonio, Sec. E. R. Norton, Supt John Robb. 1
Prospect Hillst. R.R. Co. 1¼ m, lc, 2h. Pres. Sam. Maverick, v. Pres. & Gen. Man. P. J. Moss, Sec. Leonardo Garza, Treas. L. Wm. Menger. a
SAN BERNARDINO, CAL.—Motor road to Colton, owned by Mr. Button. 9
SANDUSKY, O.—Sandusky St. Ry. Co. 4 m., 4-8½ g. 32 lb r, 7 c, 28 h. Pres. Chas. V. Olds, Sec. & Treas. A. C. Moss, Supt. Clark Rude.
SAN FRANCISCO, CAL.—Calliornia Street Cable R. R. Co. 7 m, 3-6 g, 34 lb r, 27 c, 25 dummies, 4 h. Pres. Chas. Mayne, V. Pres. Robt. Watt, Sec. T. W. Hinshman, Treas. A. Borel, Supt. J.W. Harrls. Office, 1435 California st. g. Central R. R. Co. 12 m, 5 g, 45 lb r, 31 2-h & 26 1-h c, 293 h. Pres. Chas. F. Crocker, V. Pres. T. Hopkins, Sec. & Gen. Man. J. L. Willcutt, Treas. N. T. Smith, Supt. J. F. Clark. Office, 4th & Townsend sts. g. City R. R. Co. 11 m, 5 g, 45 lb r, 31 1-h 16 2-h c, 289 h. Pres. Leland Stantord, V. Pres. Chas. F. Crocker, Sec. & Gen. Man. J. L. Willcutt, Treas. N. T. Smith, Supt. J. F. Clark. Office, 4th & Townsend sts. 7 Clay St. Hill R. R. Co. 2 m. 3-6 g, 30 lb r, 11 c, 12 dummy cars. Pres. Joseph Britton, V. Pres. Chas. Mayne, Treas. Henry L. Davis, Sec. Chas. P. Campbell. Office, 8 w cor. Clay & Leavenworth sts. A Geary St., Park & Ocean R.R. Co. 8 m, (5 m cable, 3 m steam) 5 g. 45 lb r, 30 c, 26 dummies. 4 motors. Pres. Chas. F. Crocker, V. Pres. Timothy Hopkins, Sec. & Gen. Man. J. L. Willcutt, Treas. N. T. Smith, Supt. Johnson Reynolds. Office, 4th & Townsend Sts. 7 Clay St. Hill R. R. Co. 2 fm. 4-8½ g, 37-38 lb r. 38 cable c, 25 h c, 86 h. Pres. Leland Stanford, V. Pres.

sec. & Gen. Man. J. L. Willcult, Treas. N. T. Smith, Supt. Johnson Reynolds. Office, 4th & Townsend sts. g
Market St. Cable Ry. Co. 25 m, 4-8½ g, 37-38 lb r, 38 cable c, 25 h c, 86 h. Pres. Leland Stanford, V. Pres. Chas. F. Crocker, Treas. N. T. Smith, Sec. & Gen. Man. J. L. Willcult, Supt. A. W. Barron. Office, 4th & Townsend sts. d
North Beach & Mission R. R. Co. 16 m, 5 g, 45 lb r, 50 two h. c, and 14 one h. c, 400 h. Pres. Albert Meyer, Sec. H. W. Hathorne, Treas. Wm, Alvord, Supt. M. Skelly. Office, 4th & Louisa sts. h
Ocean Beach Ry. Co. (operated by Market St. Cable Ry Co.) 2 m, 4-8½ g. Pres. Leland Stanford, V. Pres Chas. F. Crocker, Treas. N. T. Smith, Sec. J. L. Willcutt. Office, 4th & Townsend sts. d
Omnibus R. R. & Cable Co. 18 m, 5 g, 40-45 lb r, 60 c, 400 h. Pres. Gustav Sutro, V. Pres. D. Skein, Sec. G. Ruegg, Supt. M. M. Martin. Office 727 Howard st. Will soon change to cable. g
Park & Ocean R. R. Co. 8 m, 35 and 40lb r, 4-8½ g, 7 dumny englies, 16 pass. c, 6 flat and section c. Pres. Chas. F. Crocker, V. Pres. Timothy Hopkins, Treas. N. T. Smith, Sec. J. L. Willcutt. Office, 4th & Townsend sts. Operated by Market St. Cable Ry. Co. d
Potrero & Bay View R. R. Co. 3 m, 5 g, 35 lb r,

Treas. N. T. Smith, Sec. J. L. Willeutt. Office, 4th & Townsend sts. Operated by Market St. Cable Ry. Co. d
Potrero & Bay View R. R. Co. 3 m, 5 g, 35 lb r, 10 1-h 10 2-h c, 43 h. Pres. Leland Stanford, V. Pres. Chas. Crocker, Treas. N. T. Smith, Sec. & Gen. Man. J. L. Willcutt, Supt. H. O. Rogers. Office, 4th & Townsend sts. d
Sutter St. R. R. Co. 14 m, 4-11 g, 45 lb r, 50 c, 185 h. Pres. R. F. Morrow, Sec. A. K. Stevens, Treas. M. Schmitt. Office, cor. Sutter & Polk sts. f
Telegraph Hill R.R. Co. 1,560 ft, 4-8½ g, 45 lb r, 2 c, — h. Pres. Gustave Sutro. V. Pres. C. Kohler. Sec. & Supt. Chas. J. Werner. Suspended operations. Cable taken up and stored away. e
SAN JOSE. CAL.—San Jose & Santa Clara R.R. Co. 8½ m, 4-8 and 3 g wide g, 40 lb r, narrow g, 20 lb r, 25 c, 75 h. Pres. S. A. Bishop, V. Pres. W. S. Mc-Murtry, Treas. Jacob Rich, Sec. E. M. Rosenthal, Man. Wm. Fitts. h
First St. R. R. 4½ m, 3 g, 20 lb r, 7 c, 30 h. Jacob Rich, Sole Owner, Sec. E. M. Rosenthal. 11
First St. & San Pedro St. Depot R. R. Co. Pres. Frank C. Bethel.
North Side Horse R.R. Co. 2½ m, 3 g, 16 lb r, 3 c, 10 h. Pres. & Man. Jacob Rich, Sec. E. M. Rosenthal, Treas. S. A. Bishop. 1
Willow Glen R.R. 7½ m, 3 g, 20 lb r, 8c, 30 h. Sole owner Jacob Rich, Sec. E. M. Rosenthal. k
SANTA BARBARA, CAL.—Santa Rosa St. Ry. Co. 1½ m, 3 g, 32 lb tram r, 2 l-h 2.2 h. c, 6 h. Pres. & Treas. M. L. McDonald, Sec., Supt. and Pur. Agt. J. B. Reed. 9
SARNIA, CAN.—Sarnia St. Ry. Co. 5m, 4-8 g, 32 lb r, 2 c, 9 h. Pres. J. F. Lester, Sec. & Treas. Thos.

SARNIA, CAN.—Sarnia St. Ry. Co. 5m, 4-8 g, 32 lb r, 2 c, 9 h. Pres. J. F. Lester, Sec. & Treas. Thos. Symington, Supt. Henry W. Mills. Office, Canadian

Symington, Supt. Hemy W. Mins. Onice, Canadian Block. c
SAUGATUCK, CONN.—Westport & Saugatuck Horse R. R. Co. (See Westport, Conn.)
SAVANNAH, GA.—City & Suburban R. R. 12½ m steam line, 6 m street line, 5 g, 35, 38 & 42 lb r, 40 street c, 12 steam c. 130 h, 3 engines. Pres. J. H. Johnston, Sec. A. L. Hartridge, Treas. E. Schmidt. 1 Coast Line R. R. Co. 7 m, 5 g, 35 lb r, 17 c, engine, 35 h, 5 m suburban line 35 lb T r steam. Pres. Geo. Parsons, New York, Sec.. Treas. & Gen. Man. R. E. Cobb, Savannah. Office, Bolton st. c
SCHENECTADY, N.Y.—Schenectady St. Ry. Co. 2 m, 48½ g, 40 lb steel girder r, 5 c. 28 b. Pres. A. R. Chisolm, New York, Sec. L. M. Fulton, Treas. & Gen. Man. Alfred Ely, 29 Nassau st., New York, Supt & Pur. Agt. D. G. Christle, Schenectady. 10.
SCRANTON, PA.—People's St. Ry. Co. of Luzerne Co. 10 m, 4-8½ g, 25-40-52 lb r, 20 c, 90 h. Pres.

Wm. Matthews, Sec. & Treas. Horace E. Hayd, Supt. F. Pearce. K
Scranton Suburban Ry. Co. 4½ m, 4-8½ g, 52 lb flat & 42 lb T, 8 c, operated by electricity, Van Depoele system; overhead conductor; two 180 H. P. engines. Pres. Edward B. Sturges, Treas. T. F. Torrey, Sec. Geo. Sanderson. Supt. John Lathrope. 6
SEARCY, ARK.—Searcy & West Polnt R.K. Co, 8 m, 4-8½ g, 20 lb r, 7 c, 8 m. Pres. Jas. E. Skillem, Sec. W. H. Lightle, Treas. Jasper Hicks. 12
SEATTLE, W. T.—Seattle St. Ry. Co. 12½ m, 4-8½ g, 25 & 30 lb T steel r for 2½ m, 35 lb flat steel r for 2 m, 7 c, 24 h. Pres. & Gen. Man. F. H. Osgood, Sec. Geo. Kinnear. a
SEDALIA, MO.—Sedalía St. Ry. Co. 2½ m, 4-10 g, 22 lb r 6 c 25 h. Pres. Joseph D. Stcher, V. Pres. Louis Deutscb, Treas. F. H. Guentber, Sec. Chas. S. Conrad. 1
SELMA, ALA.—Selma St. R.R. Co. 2½ m, 5 g, 20 lb r, 7 c, 7 h. Pres. H. L. McKee, Sec. J. F. Bruwn. g
SEVASTOPOL, IA.—Des Molnes & Sevastopol St. Ry. Co. 2 m, 4 g, 20 lb r, 3 c, 10 h. Pres. 6. Van Ginkel, Sec. C. G. Van Ginkel, Treas. & Man. John Weber. 9
SILEFFIELD, ALA.—Sheffield St. Ry. Co. 9 m,

Weber. 2 SHEFFIELD, ALA.—Sheffield St. Ry. Co. 9 m., 4.8½ g, 33 lb r, 6 c, 2 steam motors. Pres. H. B. Tompkins, Gen. Man. & Supt. W. S. White, Sec. E. B. Almon, Treas. C. D. Woodson. Capital, 100,-

4-8½ g, 33 lb r, 6 c, 2 steam motors, Pres. H. E. Tompkins, Gen. Man. & Supt. W. S. White, Sec. E. B. Almon, Treas. C. D. Woodson. capital, 100, 000. d

SHERMAN, TEX.—Sherman City R. R. Co. 4 m, 5 g, 20 lb r, 9 c, 54 mu. Pres. C. W. Batsell, Treas. J. M. Batsell. Sec. C. W. Batsell, Jr. d

SHREVEPORT, LA.—Sbreveport City R.R. Co. 1½ m, 44 g, 46 lb r, 6 c, 14 h. Pres. Peter Yource. 9

SILVER CLIFF, COL.—Silver Cliff St. R.R. Co. 13 m, 44 g, 46 lb r, 6 c, 125 h. Pres. Fred. T. Evans, V. Pres. D. A. Magee, Sec. & Treas. F. T. Evans, V. Pres. D. A. Magee, Sec. & Treas. F. T. Evans, V. 25 ib r, 13 c, 2 duamy englies. Prev. W. W. Byam. Sec. F. B. Hutchins, Treas. W. C. Hutchins Sup. S. B. Jackson. c

SOUTH BEND, IND.—South Bend St. Ry. 7 m. 4-8½ g, 30 lb r, 16 c, 56 h. Pres. Jacob Woolverton, Treas. & Gen. Man. Luclus Clark, Sec. W. G. George, Supt. Will Miller. a

South Bend & Mishawaka St. Ry. Co. 10 m, 4 8½ g. Tand s b r, 13 2 h c, 44 h. Pres. J. W. Boynton, Sec. & Treas. E. W. Ellithorp, Mishawaka, Ind.

SOUTH CHICAGO, ILL.—South Chicago City Ry. Co. 6 m for which 3 m are 40 lb Johnson girder r, 1½ m 35 lb tram & ½ m Tr), 7 c, 37 h. Pres. Douglass S. Taylor, Sec. & Supt. Andrew Kilmbill, Treas. C. O. Pomeroy. Office, 46 Calumet Bidg, Chicago. e

SPRINGFIELD, H.L.—Citzlens' St. R. R. Co. 8½ m, 3-6 g, 20 & 36 lb r, 31 c, 100 mu. Pres. J. H. Schuck, Sec. Chas. Herrman, Treas. Frank Keisch. Office Washington st. Springfield City Ry. Co. 7 m, 4-8½ g, 30-45 lb r, 10 open & 10 box c, 85 mu. & h. Pres. A. L. Ide, V. Pres. Geo. Il. Black, Treas. Wm. Ridgeley, Sec. Geo. Brinkerhoff, Supt. Irwin Johnson. Office, Monroe st., bet. 4th & 5th. d.

SPRINGFIELD, MA.S.—Springfield St. Ry. Co. 9½ m, 4-8½ g, 33-40 lb r, 15 c, 28 h, 48 mu. Pres. R. C. Kerens, V. Pres. B. F. Hobart, Sec. and Treas. A. M. Longwell, Supt. F. R. Smith, Ex-Com. Il. F. Ekling. Office, I Main st. a SPRINGFIELD, MO.—Cittzens' Ry. Co. of Springfield and No. Springfield, 7 m, 4-8½ g, 33-40 lb r, 15 c, 28 h, 48 mu. Pres. R. C. Kerens, V. Pres. B. F. Hobart, Sec

m, 4 g, 30 lb r, 30 c, 145 b. Pres. D. W. Stroud, V. Pres. H. s. Bushnell, Treas. Ross Mitchell, Sec. F. S. Penfield. a

STAFFORD, KAN.—Stafford St. Ry. Co. Im, T. 3 2-h. c, 12 h. Pres. S. upt. and Pur. Agt. John Clyne, Sec. J. Il. Cothness, 'Treas. Frank Cox.

STAMFORD, CONN.—Stamford Horse R. R. Co. 5 m. 4-8½ g, 8 c, 40 h. Pres. Wm, R. Fosdick, V. Pres. Wm. W. Gillesple, Sec. & Treas. Robt. A. Fosdick, Supt. Wm. H. Hay. h

STATEN ISLAND, N. Y.—Staten Island Shore Ry. 9 m. 4-8½ g, 25 lb Tr, 10 c, 40 h. Supt. Thos. Moore. Office, Tompkinsville. 8

ST. CATHARINE'S, ONT.—St. Catharlne's, Merritton & Thoroid St. Ry. Co. 6 m, 4-8½ g, 30 lb r, 12 c, Van Depoele elec. system, 16 motors, 15 H. P. each. Dynamo of 1,160 H. P. Water power. Pres. E. A. Smyth, Sec. A. P. Frlesman, Supt. E. A. Smyth, Electrician Walter Bradley. Capital, \$60,00. b

ST. CLOUD, MINN.—St. Cloud St. Ry. Co. 3 m, 4-2g, 30 lb flat r, 51-h. c, 12 h. Pres. C. P. McClure, Sec. F. Folman, Treas. A. G. Whitney. 6

STERLING. HLL—Rock River St. Ry. Co. 4 m, 4-8½ g, 20 lb Tr, 8-1-hc, 45 h. Pres. Chas. D. Haines, Treas. A. G. Haines.

STILLWATER, MINN.—Union Depot St. Ry. & Transter Co. 7 m, 4-8½ g, 25-30 lb r, 4 c, 6 h. Pres. W. L. Denison, V.-Pres, Lyman Smith, Gen. Supt. Peter Van Veghten, Sec. & Treas. Edw. 1. Wood. k

ST. JOHN. N. B.—St. John St. Ry. Co. 7 m, 4-8½ g, 45-60 lb r, 15 c, 65 h. Pres. John R. Bothwell, New York, and St. John, N. B.

ST. JOSEPH, MICH.—St. Joseph & Benton Harbor St. Ry. Co. 1¾ m, 4-8 g, 30 lb r, 3-2-h c, 32 h, 4 mu. Pres. & Supt. M. C. Burnes, Sec. & Treas. W. Bullinger. 9

ST. JOSEPH, MICH.—St. Joseph & Benton Harbor St. Ry. Co. 1¾ m, 4-8 g, 30 lb r, 3-2-h c, 32 h, 4 mu. Pres. & Supt. M. C. Burnes, Sec. & Treas. C. C. Burnes, Sec. & Supt. Supt. 14 c, 80 h. Pres. C. C. Burnes, Sec. & Supt. Supt. 14 c, 80 h. Pres. C. C. Burnes, Sec. & Supt. Supt. 14 c, 80 h. Pres. C. C. Burnes, C. C. Burnes, Sec. & Supt. Supt. 14 c, 80 h. Pres. C. C. Burnes, Sec. & Supt. Supt. 14 c, 80 h. Pres. C. C. Burnes, C. C. Burnes, C. C. Burnes, C. C.

ger. 9

ST. JOSEPH, MO.—Citizens' Ry. Co. 3 m, 4-8½ g, 28, 38 & 52 lb r, 14 c, 80 b. Pres. C. C. Burnes, Sec. & Man. Jos. A. Corby, Treas. S. A. Walker. Office, 511 Francis st. c
Frederick Ave. Ry. Co. 3½ m, 4-8½ g, 42 lb r, 10 c, 70 h & mu. Pres. D. D. Burnes, Sec. & Gen. Man. J. A. Corby, Treas. S. A. Walker. Office, 511 Francis st. d Union Ry. Co. 9¾ m, including 1 m elec., overhead wire, Sprague system. 4-8½ g, 20, 30, 35 & 52 lb r, 32 c, 110 h. Pres. Seymour Jenkins, Sec. & Treas. A. Steinacker, Supt. Chas. Wilson. Office, Highland & St. Joseph avez. c

THE SHORT & NESMITH SERIES ELECTRICAL RAILWAY SYSTEM

OF THE

United States Electric Company, DENVER, COLORADO, U.S.A.

This Series System of Electrical Railway solves the problem of electrical traction. It has no disagreeable features. No unsightly poles on the street; there being but one wire in the track way, no shocking can occur. The simplicity and practical construction of the system, and the fact that it is the only one on which a large number of cars can be operated, makes it the system which will immediately come into general use.

See description in "Street Railway Journal" for July, 1887.

Bentley-Knight Electric Railway Co.,

115 Broadway, New York.

CONTRACTORS FOR THE CONSTRUCTION OF CITY STREET RAILWAYS AND SUBURBAN TRAMWAYS USING EITHER UNDERGROUND, SURFACE OR ELEVATED CONDUCTORS.

Estimates furnished on application.

N. B.—The Bentley-Knight Electric Railway Company absolutely controls all efficient and economic methods of operating electrically equipped cars by means of conductors contained in and protected by sub-surface conduits. Entering the field long in advance of all others, it first encountered the many difficulties which had to be met and overcome; and the many patents now owned and controlled by it, effectually cover each and every detail (both mechanical and electrical) necessary to the successful construction and operation of an electric railway in a city street.

ST. LOUIS, MO.—Baden & St. Louis R.R. 3½
m, 49½ g, average 28 lb r, 10 c, 23 h. Pres. George
S. Case, V. Pres. William Z. Coleman, Supt. H. Nelson, Office, Broadway, near Baden ave. c
Benton-Bellefontaine Ry. Co. 8m, 4-10 g, 52 lb r, 60
c, 240 h. Pres. Chas. Parsons, V. Pres., Sec. & Treas,
Robert McCulloch. Office, 4238 N. 20th st. d
Cass Avenue & Fair Ground Ry. Co. 8½ m, 4-9½ g,
69 lb r, 34 c, 278 h. Pres. Julius S. Walsh, V. Pres. &
Treas, Jas. Campbell, Sec. Patk. Gorry, Supt. M. J.
Moran, Engr. Jas. Boland. Office, 2,900 Cass ave. c
Cittizens' R. R. Co. 21 m, 4-9½ g, 63 lb r, 80 combination, 40 grip, 60 open c, 225 h, 200 mu. Pres.
J tius S. Walsh. V. Pres. J. P. Helfenstein, Supt.
Chas. J. Luckner. Office, Easton ave., Three-mile
House.
Forest Park, Laclede & Fourth St. Ry. Co. 5½ m,
4-10 g, 44 lb r, 20 c, 190 h. Pres. C. H. Turner. Sec &
Treas. Wm. D. Henry. Office, 1,827 Market st.
Jefferson Ave. Ry. Co. 5 m, 4-9 g, 56 lb r, 21 c. Pres.
John Scullin, V. Pres. Frank Carter, Sec, Jas. fl.
Roach, Treas. Clement M. Seaman. Office, Jefferson
ave. & La Salle st.
Lindell Ry. Co. 13½ m, 4-10 g, 45 lb r, 75 c, 407 h.
Pres. John H. Maxon, Sec. & Treas. Geo. W. Baumhoff. Office, 2207 Washington ave. c
Missourl R.R. Co. 11½ m, 4-10 g, 45 lb r, 75 c, 498 h.
Pres. P. C. Maffit, Sec. Wm. D. Henry, Supt. James
F, Davidson. Office, 1,827 Market st.
— Mound City Ry. Co. 178 m, 4-10 g, 46 lb r, 50 c, 488 h.
Pres. P. C. Maffit, Sec. Wm. D. Henry, Supt. James
F, Davidson. Office, 1,827 Market st.
— Mound City Ry. Co. 178 m, 4-10 g, 45 lb r, 60 c, 488 h.
Pres. P. C. Maffit, Sec. Wm. D. Henry, Supt. James
F, Davidson. Office, 1,827 Market st.
— Mound City Ry. Co. 178 m, 4-10 g, 45 lb r, 60 d.

Northern Central Ry. Co. 10½ m, 4-3½ g, 50 lb r, 60 c, 280 h. Pres. Juilius S. Walsh, Sec. & Treas. Chas.

Frank Carter, Sec. Jas. H. Roach, Treas. C. M. Seaman, Supt. Jas. Scullin. Office, 2,500A St. Louis ave. 7
Northern Central Ry. Co. 10½ m, 4-9½ g, 50 lb r, 69 c, 280 h. Pres. Julius S. Walsh, Sec. & Treas. Chas. K. Dickson, Supt. John Mahoney, Asst. Supt. Thos. Bergin, Forewan Wm. Hannigan, Cash. T. C. Callahan. Office, 2,400 Spring av. 12
People's R. R. 5 m, 4-10 g, 44 lb steel r, 63 2-h c, 314
h. Pres. Chas. Green, Sec. & Treas. Jos. Perry, Supt. Patrick Shea. Office, 1,810 Park ave. 11
Southern Ry. Co. 74-5 m, 4-10 g, 35-52 lb r, 54 c, 281
h. Pres. W. L. Johnson, Sec. Joe S. Minary. Supt. Jas. F. Uhl. Office, 4,041 So. Broadway. a
St. Louis R.R. Co. 11 m, 4-10 g, 38-44 lb r, 58 c, 375 h. Pres. C. Peper, Sec. & Treas. R. B. Jennings, Supt. Chas. Ischer. Office, 3,710 N. Broadway.
St. Louis Cable & Western Ry. Co. 19 m, 4-10½ g, 40 lb r, 78 c on cable division, 6 locomotives & 26 c on seam division. Pres. Dwight Tredway, Sec. & Gen. Man. A. de Figueiredo, Supt. M. A. Shipley. Office, Franklin & Channing aves. c
Tower Grove & Lafayette Ry. Co. 4-10 g, 44 lb r, 20 c, 96 h. Pres. Chas. Green, Sec. & Treas. Joseph Perry, Supt. Patrick Shca. Office, 1,810 Park ave. 11
Union Depot R.R. Co. 16 m, 4-10 g, 45 lb r, 72 c, 375 h. Pres. John Scullin, V. Pres. & Treas. C. M. Seaman, Sec. Jas. H. Roach, Supt. Jas. Scullin, Engr. Wm. Jens. Office, Gravois & Jefferson aves. 7 Union Ry. Co. 8 m, 4-10 g, 52 lb r, 140 open & 40 box c, 80 h, 235 mu. Pres. Julius S. Walsh, V. Pres. J. P. Helfenstein, Sec. & Treas. C. N. Duffy, Supt. Michael Moran. Office, 3,623 Kossuth ave. c
STONEHAM, MANS.—East Middlesex St. R. R. Co. 154 m, 4-8½ g, 35 lb r, 57 c, 158 h. Pres. A. F. Breed, Treas. F. H. Monks, Supt. Nathan E. Morton. Office, 35 Congress st. Boston. & ST. PAUL, MINN.—St. Paul City Ry. Co. 52 m, 4-8½ g, 45-52 lb r, 128 c, 650 h. & mu. Pres. Thos. Lowry V. Pres. C. G. Goodrich, Sec. A. Z. Levering, Treas. W. R. Merriam, Supt. A. L. Scott, Auditor & Cashler G. C. Eddings. Office, cor. Oak, Forbes and Ramsey Sts. 2

W. R. Merriam, Supt. A. L. Scott, Auditop: & Cashler G. C. Eddings. Office, cor. Oak, Forbes and Ramsey sis. a

**STROUDSBURG, PA.—Stroudsburg Passenger Ry. Co. 1½ m, 48½ g, 28-30 ib r, 3 c, 10 h. Pres. & Treas. J. Lantz, Sec. Jacob Houser. 4

**ST. THOMAS, CAN.—St. Thomas St. R. R. Co. 1½ m, 3-6 g, 30 lb r, 5 c, 9 h. Pres. Jos. Griffin, Sec. & Treas. Geo. Wegg. f

**SUPERIOR, WIS.—Douglas County St. Ry. Co. 1½ m, 3-6 g, 27 lb r, 3 c, h power. Pres. Henry D. Minot, St. Paul, Minn., Treas. Peter E. Bradshaw, Supt. Michael O'Brien. Capital, \$20,000. c

**SYRACUSE, N. Y.—Syracuse & Onondaga R. R. Co. 2 3-5 m, 4-8½ g, 28-47 lb r, 10 c, 30 h. Pres. Peter Burns, V. Pres. Chas. P. Clark, Sec. & Treas. Lyman C. Smith, Supt. W. B. Thompson. Office, 165 So. Clinton st. 1

Central City Ry. Co. 2½ m, 4-8½ g, 47 lb r, 14 c, 48 h. Pres. Daniel Pratt, V. Pres. Jonathan C. Chase, Sec. & Treas. James Barnes, Supt. & Pur. Agt. George Crampton. 4 Syracuse Savings Bank Building. a Flith Ward R. R. Co. 2½ m, 4-8½ g, 35-56 lb r, 8 c, 30 h. Pres. P. B. Brayton, V. Pres. John D. Grey, Sec. & Treas. O. C. Potter, Supt. Hugh Purnell. Office W. Washington st. 10

Genesee & Water St. R. R. Co. and Fourth Ward R. R. Co. 4 m, 4-8½ g, 35-54 lb r, 10 c, 47 h. Pres. Robt. G. Wynkoop, Sec. & Treas. Goo. J. Gardner, Supt. W. J. Hart. Office, Onondaga Savings Bank Building. J

New Brighton & Onondaga Valley R. R. Co. 1½ m, New Brighton & Onondaga Valley R. R. Co. 1½ m.

Supt. W. J. Hart. Office, Onondaga Savings Bank Building. *j*New Brighton & Onondaga Valley R.R. Co. 1% m, 48 g, 16-35 lb r, 2 c, 6 h, 1 dummy. Pres. Matthias Britton, Sec. T. W. Meacham, Treas. J. H. Anderson, Supt. Arthur G. Markham. Office, 58 W. Railroad st

St. Seventh Ward Ry. Co. 2 m., 4-8½ g, 47 lb s-b r, Seventh Ward Ry. Co. 2 m., 4-8½ g, 47 lb s-b r, 6 1-h c, 25 h. Pres. Sec. & Treas. Edw. F. Rice, Supt. F. Purnell. Office, 3 Hendrick's Block, Fayette

Supl. F. Furneri. Office, 3 Hentick's Block, Payette st. Syracuse & Geddes Ry. Co. 2½ m, 4 8½ g, 30-45 lb r, Sc, 35 h. Pres. R. Nelson Gere, Sec. & Treas. Rasselas A. Bonta, Supt. Wm. J. Hart. Gen. offices, 1 Onondaga Co. Savings Bank Building.

**TAMPA, FLA.—Tampa St. Ry. Co. 2½ m. 3-3 g, 25 lbr, 7 c, 2 dummies. Pres. C. A. Martinez Ybor, Sec. & Treas. G. T. Chamberlain, Supt. C. E. Parcell.

cell. c
TAUNTON, MASS.—Taunton St. Ry. Co. 4 m,
4-8½ g, 14 c, 45 h. Pres. Wm. C. Lovering, Treas.
Henry M. Lovering, Clerk, Orville A. Barker, Supt.
Geo. C. Morse. 1

Geo. C. Morse. 1 TERRE HAUTE, IND.—Terre Haute St. Ry. Co. 10 m, 4-8% g, 38 lb r, 18 c, 1 h, 81 mules. Pres. Jos. Collett, V. Pres. D. W. Mimshal, Sec. J. R. Paddock, Treas. W. R. McKeen, Supt. Jos. G. Elder. Office, 101 N. Ninth St. c

TEXARKANA, ARK.—Texarkana St. Ry. Co. 3 m, 3 g, 16 & 24 lb r, 6 c, 10 h. Pres. C. E. Mitchel, Sec. & Treas. Thos. Orr, Supt. B. M. Foreman. e TOLEDO, OHIO.—Toledo Consolidated St. Ry. Co. 21 m, 48½ g, 42 lb r, 50 c, 255 h. Pres. & Treas. J. E. Batley, Sec. A. E. Lang. Supt. John Gilmartin.

Co. 21 m, 48½ g, 42 lb r, 50 c, 255 h. Pres. & Treas.
J. E. Baley, Sec. A. E. Lang. Supt. John Gilmartin.
3 Central Passenger R.R. Co. 9 m, 3 g, 27 lb r, 17 c, 80 h. Pres. F. E. Seagrave, Sec. C. F. Parkis, Treas.
A. R. Seagrave, Supt. Joseph Murphy.
4 Metropolitan St. R.R. Co. 10 m, 3 g, 28-35 lb r, 30 c, 115 h. Pres. & Sec. Jno. J. Shipherd, Treas. H. E. Wells, Supt. & Gen. Man. T. F. Shipherd. Office, Cherry St., near Bancroft.
5 TOPEKA, KAN.—Topeka City Ry. Co. 10½ m, 4 g, 25, 28 & 38 lb r, 27 c, 55 h, 4 mu. Pres. Joab Mulvane, V. Pres. D.W. Stormont. Sec. & Treas. E. Wilder, Supt. Jsses Shaw. Office, 116 W. 10th ave. b West Side Circle Ry. Co. 5 m, 4 8½ g, 38 lb r, 4 c, 3 steam motors. Pres. Thos. A. Osborn, V. Pres. H. C. Linn, Sec. R. H. Delahay, Treas. P. l. Bonebrake. Capital, \$30,000. Office, 621 Kansas ave. a Topeka Rapid Transit Ry. Co. 14 m, 4 8½ g, 35 & 38 lb r, 10 c, 6 Baldwin steam motors. Pres. John Francis, Sec. J. B. Bartholomew, Treas. John Norton, Supt. Fred. Payne. Capital, \$250,000. Office, Jackson & Huutoon sts. b 12
TORONTO, CAN.—Toronto St. Ry. Co. 60 m. 4-10½ g, 30 lb r, 180 c, 850 h. Pres. Frank Smith, Sec. James Gunn, Supt. John J. Franklin. Offices, 94 & 6 lbr st. 26 db. Pres. Gen Lewis Perrine

TRENTON, N. J.—Trenton Horse R. R. Co. 5 m, 5-2 g, 45 tb r, 12 c, 54 h. Pres. Gen. Lewis Perrine, Sec. & Treas. Lewis Perrine, Jr., Supt. Thomas S Morris. Office, Ciluton & Greenwood aves. f City Ry. Co. 10 m, 5-2 ½ g, 35 tb r, 24 c, 108 h. Pres. Adam Exton, V. Pres. W. H. Skirm, Sec. H. B. Howell, Treas. & Mang. Director Chas. Y. Bamtoid. Office, 264 Cilinton ave. a

Clinton ave.

Clinton ave. a

TRINIDAD, COL.—Trinidad St. Ry. Co. 1½ m, 3-2 g, 14 lb r, 2c, 8 mu. Pres. S. H. Jaffa, Treas. T. B. Coliter, Sec. R, L. Wootton, Supt. R. L. Pearson.c

TROY, N.Y.—Troy & Albia Horse R. R. Co. 3.33 m, 4-8½ g, 35-45 lb r, 10 c, 41 h. Pres. Thos. A. Knickerbacker, Sec. & Treas. Theo. E. Ilaskehurst, Supt. W. R. Bean. Office, 11 First st. a

Troy & Lansingburgh R. R. Co. 21½ m, 4-8½ g, 45 lb r, 95 c, 420 h. Pres. Charles Cleminshaw, V. Pres. Jos. B. Carr. Sec. & Treas. Joseph J. Hagen. Asst. Supts. L. C. Brown and C. 11. Smith. Office, 205 River st. a

TUSKALOSA, ALA—Tuskaloosa & Lake Loraine St. Ry. Co. 4½ m, 4-8½ g, 25 lb steel r, S c, 32 h. Pres. Jas. H. Fitts, Man., Sec. & Treas, S. F. Aiston. 10

URBANA, ILL.—Urbana & Champaign St. Ry.

RIVER St. Ry. Co. 4½ m, 4.8½ g, 35 lb steel r, 8 c, 32 h, Pres. Jas. H. Fitts, Man., Sec. & Treas, S. F. Alston. 10

URBANA, HIL.—Urbana & Champaign St. Ry. Co. 2 m, 4.5½ g, 33 lb r, 4 c, 20 h. Pres. & Supt. Wm. Park, Sec. & Treas, Frank G. Jaques. 11

UTICA, N.Y.—Utlca, Clinton & Binghamton St. R. R. Pres. Jas. J. Scollard, Sec. & Treas, Robt, S. Williams. Leased to and operated by Utlca Belt Line St. R. R. Co. 2

Oneida St. R. R. Co. 1½ m, (2½ m more building), 48½ g, 20 lb center bearing r, 3 c, 8 h. Pres. Henry Ney, V. Pres. Daniel L. Jones, Jr., Sec. Frank J. Cronk, Treas. Wm. C. Willcox. Capital, \$40,000. Office, 71 Genesee st. b

Utlca & Mohawk R. R., Co. 3½ m, 4.8½ g, 47 lb r, 9 c, 16 h. Pres. Jas. F. Mann, V. Pres. R. W. Sherman, Sec. Wm. E. Lewis, Treas. Geo. D. Dimon. Office, 26 Mann Bidg. a

Utlca & Mohawk R. R., Co. 20m, 4.8½ g, 32 c, 97 h, Pres. J. Mather, V. Pres. J. W. Boyle, Treas. Chas W. Mather. 4

VALEJO, CAL.—Valejo St. Ry. Co. Pres. E. J. Wilson, Sec. S. G. Hilborn.

VICKSBURG, MISS.—Vicksburg St. Ry. Co. Hill City R. R. Co. VINCENNES, IND.—Vincennes St. Ry. Co. 2½ m, 4.8½ g, 36 lb r, 4 c, 2½ h. Pres. & Treas. Fredk, Graeter, Sec. Geo. W. Graeter. Office, Fair Ground ave. 4

WACO, TEX.—Waco St. Ry. Co. 8 m, 4.8½ g, 18, 20 & 25 lb r, 16 c, 64 mu. Pres. E. Rotan, Sec. & Treas. F. W. Fort, Supt. J. W. Sedberry. J

WALTHAMI, MASS.—Waltham & Newton St. Ry. Co. 34 m, 4.8½ g, 36 br, 4 c, 2½ h. Pres. & Treas. Fredk, Graeter, Sec. Geo. W. Graeter. Office, Fair Ground ave. 4

WACO, TEX.—Waco St. Ry. Co. 8 m, 4.8½ g, 18, 20 & 25 lb r, 16 c, 64 mu. Pres. E. Rotan, Sec. & Treas. F. W. Fort, Supt. J. W. Sedberry. J

WALTHAMI, MASS.—Waltham & Newton St. Ry. Co. 34 m, 4.8½ g, 36 br, 4 c, 2½ h. Pres. & Treas. Fredk, Graeter, Sec. Geo. W. Graeter. Office, Anacostia, D. C. g

Columbia R.R. Co. 5 m, 4.8½ g, 36 lb r, 45 c, 76 h. Pres. C. White, Sec. & Treas. W. E. Boughton, Supt. Andrew Glass.

6 Anacostia & Potoma Glass. Geo. & Treas. W. H. H. Clagett, Supt. H. A. Griswold, Sec. & Treas. J. B. Pitcher. Office

24 c, 115 h. Pres, Geo. R. Kelsey, Sec. Sam'l L Smith, Treas., Supt. & Gen. Man. W. W. Ward. a WESTPORT, CONN.—Westport & Saugatuck Horse R. R. Co. 1½ m, 4-8½ g, 40 lb r. 4-c, 6 h. Pres. A. S. Hurlbutt, Sec. and Treas. B. L. Woodworth, Supt. E. S. Downes. c WHEELING, W. VA.—Citizens' Ry. Co. 10 m, 5-2½ g, 45 lb r. 16 c, 60 h. Pres. Dr. Geo. B. Caldwell, Sec. Frank P. Hall, Supt. Michael Lotus. a Wheeling & Elm Grove R.R. 7 m, 4-8½ g, 30 lb r. 12 c, 4 Baldwin Motors. Pres. J. D. DuBois, Sec. E. J. Rutter, Supt. C. Hirsch. Office, 16th st. a WICHITA, KAN.—Wichita City Ry. Co. 18 m, 3-6 g, 20 & 25 lb r. 50 c, 300 h & mu. Pres. G. L. Rouse, V. Pres. B. B. Campbell, Sec. & Man. G. M. Dirkson, Treas. J. O. Davidson. Office, 121 N. Market st. k Riverside & Suburban R. R. Co. 5 m, 6-8 g, 45 lb r, 6 c, 8 h, 1 steam motor. Pres. & Treas. J. O. Davidson, Sec. W. E. Stanley. Office, 100 Douglas ave. a WILKESBARRE, PA.—Wilkesbarre & Kingston Pass. R.R. 3 m, 5-2 g, 30-45 lb r, 10 c, 22 h. Pres. & Man. Wm. J. Harvey, Sec. & Treas. A. J. Davis. a Coalville Passenger H. K. Co. 2½ m, 4-8½ g, 20-34 lb r, 3 c. 12 h. Pres. Geo. W. Kirkendall, Supt. A. S. Orr, Sec and Treas Geo. Loveland. Capital, \$62.675. a WILLIAMSPORT, PA.—Williamsport Pass. Ry. Co. 3¼ m, 4-8½ g, 36 lb center bearing r, 10 c, 30 h. Pres. Kobt. P. Allen, V. Pres. Henry C. Parsons, Sec. J. M. Gamble, Treas. R. J. C. Walker, Supt. W. Hall. a WILLIAMSPORT, PL.—Front & Union St. Pass.

J. M. Gambie, 11eas. A. J. J. Hain. a
WILMINGTON, DEL.—Front & Union St. Pass.
Ry. Co. 2 m, 5-2 g, —10 r, 7 c, 22 mu. 2 Sprague elec.
C. Pres. Geo. W. Bush, Supt. Sam'l A. Price, Treas.
E. T. Taylor. Office, Front & Union sts. e

C. Pres. Geo. W. Bush, Supt. Sam'l A. Price, Treas. E. T. Taylor. Office, Front & Union sts. 6

Wilmington City Ry. Co. 6½ m, 5-2g, 47 lb r, 23 c, 81 h. Pres. W. Canby, Sec. & Treas. John F. Miller. Supt. Wm. H. Burnett. Office, Delaware ave. & Dupont st. f. WINDSOR, CAN.—Sandwich & Windsor Passenger R.R. Co. Pres. Henry Kennedy.

Windsor Electric St. Ry. Co. 1½ m, 1 motor, 2 cars. Van Depoele system; overhead conductor. Steam powe. Pres. W. M. Boomer, Sec. & Treas. A. H. Joseph. Office, 19 Sandwich st., W. 5

WINFIELD, KAN.—Union St. R. R. Co. 4½ m, 20 lb r, 7 c, 14 h. Pres. Wm. Matthewson, Sec. R. M. Platt, Treas. Thos. J. Eaton. c. WINNIPEG, MANITOBA, CAN.—The Winnipeg St. Ry. Co. 5 m, hair single, half double, 4-8½ g, 35 lb r, 15 c, 15 sleighs, 100 h. Pres. Jas. Austin, Sec. & Mangr. Albert W. Austin, Supt. Geo. A. Young. 11

WINONA, MINN.—Winona City Ry. Co. 4 m, 3-6 g, 27 lb r, 10 c, 37 h. Pres. B. H. Langley, Sec. & Treas. C. H. Portee, Supt. L. Marion. Office, 119 Center st. f.

C. H. Portee, Supt. L. Marion. Onlog.

St. # WOBURN. MASS.—No. Woburn St. R.R. Co.
4.52 m, 4.8½ g, 35 ib flat r & 40 lb T r, 6 open & 7 box
c, 29 h. Pres. Amos F. Breed, Treas. Frank H.

Monks, Supt. Gilman F. Jones. Office, 35 Congress
St., Boston. Consolidate with East Middlesex St.
Ry. Co. Same officers. k

WOONSOCKET, R. I.—Woonsocket St. Ry. Co.
7 m, 4.8½ g, 30 & 50 lb r, 9 elec. c, 15 H. P. Cach; Bentley-Knight-system; engines, 1,000 H. P. Pres. Horace
A. Jenckes, Sec. & Treas. L. C. Lincoln. Capital,
\$100,00. 9

A. Jenckes, Sec. & Treas. L. C. Lincoln. Capital, \$100, 100.

WORCESTER, MASS.—Worcester Consolidated St. ky. Co. 16 m, 4-8 g, 351b fiat r, 57-9-h c, 282 h. Pres. Chas. B. Pratt, Sec. & Treas. H. S. Seeley, Supt. J. N. Akarman. Office, 15 Market st. 12

WYMORE, NEB.—Wymore & Blue Springs Ry. Co. 3½ m, 3-6 g, 22 lb r, 4 c, 10 h. Pres. J. H. Reynolds, V. Pres. Ben Reynolds, Sec. & Treas. E. P. Reynolds, Jr., Supt. Jacob Baumann. k

YONKERS, N. Y.—Yonkers R. R. Co. 5½ m, 4-8½ g, 42-48 lb r, 14 c, 88 h. Pres. D. N. Stanton, Sec. John F. Brennan, Treas. D. Perry Stanton, Supt. Edw. W. Stanton.

YORK, PA.—York St. Ry. Co. 1½ m, 4-8½ g, 38 lb r, 6 c, 11 h. Pres. W. H. Lannius, Sec. D. K. Trimmer, Treas. C. S. Weiser. Authorized capital, \$50,000.

2½ m, 3 g, 24 & 27 lb r, 6 c, 18 h. Pres. John R. Davis, Sec. & Treas. Airred Smith.

ZANESVILLE, O.—Zanesville & McIntire St. Ry. Co. 3 m, 3-6 g, 38 lb r, 12 c, 51 h & mu. Pres. F. M. Townsend, Sec. W. C. Townsend, Treas. O. H. Townsend.

CABLE RAILWAYS.

BINGHAMTON, N. Y.-Washington St. & State

ANIOHAMTON, N. Y.—washington St. & State
Asylum R. R. Co.
CHICAGO, ILL.—Chicago City Ry. Co.
CINCINNATI, O.—Mt. Adams & Eden Park Inclined R. R. Co.
Mt. Auburn Cable Ry. Co.
Price Hil Inclined Plane R. R. Co.
GRAND RAPIDS, MICH.—Vailey City St.,
Cable & Ry. Co.
HOBOKEN, N. J.—No Hudson Co. Ry. Co. Elevaled

Ated.

KANSAS CITY, MO.—Kansas City Cable Ry. Co.
Corrigan Consolidated St. Ry. Co.
Grand Ave. Ry. Co.
LOS ANGELES, CAL.—Second St. Cable Ry. Co.
LOS ANGELES, CAL.—Second St. Cable Ry. Co.
Temple St. Cable Ry. Co.
NEW YORK, N. Y.—Third Ave. R. R. Co. Line
n Tenth ave.

NEWYORK, N. Y.—Third Ave. R. R. Co. Line on Tenth ave.
OAK LAND, CAL,—Oakland Cable Ry. Co.
OMAHA, NEB.—Cable Tramway Co. of Omaha.
PEORIA, III.—Central Horse & Cable R. R. Co.
PHILADELPHIA, PA.—Phila. Traction Co.
SAN FRANCISCO, CAL.—California St. Cable R. R. Co.
Clay St. Hill R. R. Co.
Geary St. Park & Ocean R. R. Co.
Market St. Cable Ry. Co.
Omnibus R. R. & Cable Co.
Sutter St. R. R. Co.
Telegraph Hill R. R.
ST. LOUIS, MO.—St. Louis Cable & Western Ry.
Co.

GEORGE WESTINGHOUSE, JR., President. THOMAS B. KERR, Vice President and Secretary. JOHN CALDWELL, Treasurer,

THE OVERHEAD CONDUCTOR ELECTRIC RAILWAY COMPANY.

OF PITTSBURGH, PENN.

The Patents of JOSEPH R. FINNEY, No. 231,552, Aug. 24, 1880, reissued Nov. 2, 1882; No. 270,186, of Jan. 2, 1883; and No. 285,353, of Sept. 18, 1883, owned and controlled by this Company, COVER EVERY FORM OF APPARATUS for supplying electricity to electric machinery upon moving vehicles, making use of TRAVELERS or ROLLING CONTACTS running upon OVERHEAD CONDUCTORS.

This Company owns and controls OTHER INVENTIONS of IMPORTANCE in Electric Railway Appliances.

TEN CENTS por ca.

Two-thirds as much to run with Electric Accumulators,
Only One-third as much to run with Overhead Conductors. TEN CENTS per car-mile for HORSE POWER, for street railway service.

THE OVERHEAD CONDUCTOR IS COMPARATIVELY INEXPENSIVE.

It is Quickly Erected. It is Not Necessarily Unsightly. It Does Not Waste Electric Energy. It Does Not Easily Get Out of Order.

Of the Fifteen Electric Street Railways, in successful operation in this country, in August, 1887, Thirteen are using the Overhead Conductor, and many others are under construction.

This Company is now prepared to license RAILWAY COMPANIES, CONTRACTORS, and others desiring to use its patented inventions upon OLD or NEW ROADS upon reasonable terms.

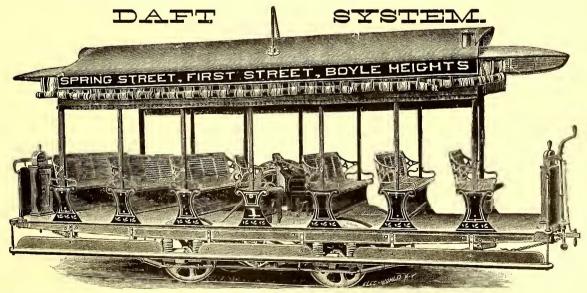
POTICE is hereby given, that makers, sellers and users of infringing apparatus will be proceeded against. Information furnished upon application. Address all communications to

THOMAS B. KERR, Vice President and Secretary, Pittsburgh, Pa.

SAFETY ELECTRIC RAILWAY & POWER COMPANY.

Electric Railway Motors, Separate, or Attached Directly to Street or other Cars.

ELECTRIC LIGHT AND POWER MACHINES. ELECTRICAL CONDUCTORS.



We are prepared to equip railways with our electric system and supply Power and Light machines at the shortest notice.

The ONLY street railway in practical and economical operation by electricity in America is run by our system.

We guarantee the successful operation of our system. Heaviest grades no obstacle.

We are now building, in the city of Pittsburg, a road which will cost \$120,000. This road has a 14 per cent grade, and has overhead and underground conductors, if the motors.

We are now building, in the city of Pittsburg, a road which will cost \$120,000. This road has a 14 per cent grade, and has overnead and underground conductors, and five motors.

The cost of electric power per car per day on the Baltimore road, operating our system, is \$4.00. Fifty or more cars could be run at an average of \$1.50 per day. The grade on this road is 350 feet per mile. Average speed, cight miles per hour. By horse power the speed was only four miles per hour, and the cost under the old system was \$6.50 per car per day. SEND FOR ESTIMATES.

On receipt of full particulars of your road, or of power wanted, we will send you exact estimates for equipping and operating it by our system. SEND FOR CIRCULARS.

ELECTRIC RAILWAYS.

APPLETON, WIS.—Appleton Electric St. Ry. ASBURY PARK, N. J.—Seashore Electric Ry.

BALTIMORE, MD.—Baltimore Union Pass.

BALTIMORE, MD.—Battimore Chick
Rallway Co.
BELLEVUE, PA.
BINGHAMTON, N. Y.—Washington St. & State
Asylum R. R. Co.
DENVER, COL.—Denver Tramway Co.
DETROIT, MICH.—Detroit Electric Ry. Co.
Highland Park Ry. Co.
GRATIOT, MICH.—Gratiot Electric Ry. Co.
ITHACA, N. Y.—thaca St. Ry. Co.
KANSAS CITY, MO.—Kansas City Electric Ry.
LIMA, O.—Lima St. Ry., Motor & Power Co.
LOS ANGELES, CAL.—Los Angeles Electric
Ry. Co.

y, Co. MANSFIELD, O. – Mansfield Eiec. St. Ry. Co. MONTGOMERY, ALA. – Capital City Eiectric

PORT HURON, MICH.—Port Huron Electric RICHMOND, VA.-Richmond Union Pass. Ry.

RUIDION, PA.—Scranton Suburban Ry. Co. SCRANTON, PA.—Scranton Suburban Ry. Co. ST. CATHARINE'S, CAN.—St. Catharine's, Merritton & Thorold St. Ry. Co. WICHITA, KAN.—R. verside & Suburban R. R.

CO.
WINDSOR, CAN.—Windsor Electric St. Ry. Co.
WGONSOCKET, R. I.—WOOUSOJKE St. Ry. Co.

NEW ROADS.

NEW ROADS.

ALAMEDA, CAL.—Theo. Meetz and associates have a franchise; will likely consolidate with Alamedia, Oakland & Pieduont R. R. Co. 2 m., prob. 3 g. 0 & 33 ib r., 3 or 4 c, b traction for the present, later perhaps elec. Will begin work within six months and finish within a year. Capital, \$100,000. 1 11

Cotumbus Bartlett has franchise for road on Park st., which he assigned to J. A. Woodard. 10

ALBANY, GA.—Albany St. Ry. Co. J. G. Stephens is interested. 9

ALLEGHENY, PA.—Observatory Hill Pass. Ry. Co. 4 m, 5-2 g. 54 lb r, 4 c, elec, motors, Bentley-Knight system, 3 m overhead conductor and 1 m couduit in city streets. Capital, \$125,000. Work now under way. Expect to open about Dec. 1, Pres. oliver P. Scaife, Sec. Arthur Kennedy, Treas. Jas. B. Scott, all of Pittsburgh. a 11

Alegheny Rapid Transit Co. from Northside bridge to California avenue. 6

Nunnery Hill Incline Plane Ry. Co. 1,200 ft., 5 g, 2 c, using wire rope and drum. Pres. Oliver P. Scaife, Capital, \$60,000. Will be opened soon. 8

ALTON, ILL.—Alton Impt Assin. To operate n. or cable tys. Pres. c. W. Minnery Pass II. Watson, Sec. & Treas. H. R. Phinney. Capital, \$25,000. 10

AMERICUS. (GA.—Montgomery pactics ask for a permit to build. 11

ANNISTON, ALA.—Anniston St. Ry. Co. Work will begin at once. Pres. John W. Noble Sec. &

a permit to build.

ANNISTON, ALA.—Anniston St. Ry. Co. Work will begin at once. Pres. John W. Noble, Sec. & Treas, Wm. A. Davis.

C. H. Canfield and others will build a dummy road.

C. H. Williams and others will build a dummy

C. H. Williams and others will build a dummy road. 11

W. B. Ke trney and others of Birmingham ask for permission to build a dummy road. 9

ANSONIA, CONN.—Derby Horse Ry. Co. 4 m, 48½ g. 45 lb r, 9 cats, 4 motors, Van Depoele system, steam power. Capital, \$40,000 paid ln; will increase to \$50,000 or \$60,00 m. Began work May 2; will be in operation Jan. 1. Pres. John B. Wallace, V. Pres. H. Holton Wood, Sec. & Treas. Wm. J. Clark, Birmingham, Supt. Jas, D. Kennedy. Capital, \$50,000. Office, Birmingham, d 11

ASHEVILLE, N. C.—Asheville Imp't & St. R, R. Co. C. M. McLeod is interested. 7

Ohio parties talk of building a st. ry. 9

ASHLAND, KAN.—Ashland St. Ry. Co. incorp'd by Jas. P. Weeks, Frank B. Brooks and others. Capital, \$5,000. 8

ASHLAND, WIS.—Ashland St. Ry. Co. 3 m, 48½ g. 35 ib r, 5 c, about 29 h. Road will be opened soon. Pres. Edwin Ellis, Sec. W. M. Tomkins. Treas. Thos. Bardon, Supt. G. H. Hopper. Capital, \$50,000. 5

ATHENO, KAN.—Atchison Rapid Transit St. & Road Ry. Co. Mechanical traction. John Price, J. W. Parker and others incorporators. Capital, \$600,000. 5

ATHENS, GA.—J. H. Dorsey will prob. build a line lere. 8

ATHANDA, GA.—Harry Hill is organizing a

they will build.

ATHENS, GA.—J. H. Dorsey will prob. build a line here.

ATHANTA, GA.—Harry Hill is organizing a scheme for a belt st. ry.

Atlanta & Edgewood St. R. R. Co. 2 m, 2 steam dummies, 4 c. 9

Elec. ry. projected. 11

Atlanta City and Suburban St. Ry. Co. incorp'd by L. J. Hill and others. 13 m, to Decatur, dummy line. Capital, \$25,000. 11

E. C. Peters will build a dummy line. 7

East Atlacta Land Co. will build a dummy line. 7

ATTLEBORO. MASS.—Attieboro, No. Attieboro & Wrentham St. Ry. Co. Among the directors are H. G. Bacon and J. E. Draper. To run from Attleboro to Planville, 6 is, and to be built in the spring. Sprague system. Capital, \$10,400. 11

AUBITRN, ALA.—Dummy rr. 11

BANTIMORE, MD.—Baltimore, Brooklyn & Cedar Hill Ry. Co. 10 m, 5 2 g, 30 lb steel Tr. 25 c, 50 h, Partly fulshed and road will be opened in Jan. Will run from Baltimore to Cedar Hill Cemetery, in Anne Arundel co., via Light st. bridge and the town of Brooklyn. Caoital, \$50,000 and \$50,000 ist morigage bonds. Office, 305 St. Paul st. Pres. Orrick Swann, Sec. N. W. Paynter, Treas. Levi Condon, Supt. I. M. Thompson. 2 10

Baltimore & Sparrow's Point Ry. Co. has been incorp'd by Geo. Smatl, Fredk. W. Wood and Nicholas P. Bond.

Baltimore & Sparrow's Point Ry. Co. has been incorp'd by Geo. Small, Fredk. W. Wood and Nicholas P. Bond. 9

Co. formed to build st. ry. from North ave, and Division st. to Highland Park Hotel. 11

BANGOR, ME.—Electric ry. 5

BAY CITY, MICH.—West Bay City St. Ry. Co. Pr b. elec. Next year will be extended to Salzburg. Capital, \$30,000, or which \$10,0.0 paid in. Pres S. O. Fisher, Sec. & Treas. Dr. W. E. Magill. 11

BELOIT, KAN.—Beloit City St. Ry. Co. Will begin work in spring, and thish road before close of year. 2m. Pres. D. W. Soper, Sec. F. T. Burnham, Treas. M. S. Atwood. Capital, \$75,000. d 9

BESSEJIER, ALA.—Bessemer Dummy Line Co. 14 m, 4-8½ g, 40 lb Steel r, 4 c, 2 steam motors. Nearly completed. Pres. w. P. Pinchard, Sec. & Treas. Mortis Adler, Su. t. B. B. Gordon. Capital, \$250,-00. 1 11

Another st ry. is projected. 11

BIDDEFORD.JIE.—Biddeford & Saco Horse R. R. To be operated by animal, electric or cable power. Pres. Suephen F. Shaw, Sec. Chas. II. Prescott, Treas. Chas. A. Moody. 9

BINGHAMITON, N. Y.—Court St. & East End R. R. Co. Now building; will be opened about Dec. 1. 2½ m, 4-8½ g, 45 lb flat and 35 lb T r, 4 c, 10 to 15 lh. Pres. Class. M. Stone, Sec. & Treas. Wm. G. Phelps. Capital, \$25,000. 1

West Side St. Rv. incorp'd by Jas. E. Shafley and others. Capital, \$25,000. 11

Washington St. & Spring Forest Cemetery Ry. Co. De built in the spring, out Ciluton st. toward the Ashery. 9

BIRMINGHAM, ALA.—Birmingham & Jones Valley St. R.R. 6 m. 45 lb. steel r. Heflin & Knox

To be built in the spring, out Ciluton st. toward the Ashery.

BIRMINGHAM, ALA.—Birmingham & Jones Valley St. R.R. 6 m, 45 lb, steel r. Heffin & Knox received proposals.

Smith & Eastman have made surveys for electric road to run 3 m from the city to their real estate near North Birmingnam.

4. Western Valley St. Ry. Co. 4 m. 4-8½ g, 24 lb r, 6 c, 20 mu; but will tikely change motive power uitimately. Work to be commenced at once. Capital, \$50,000. Press. J. C. Westbrook, V. Pres. W. E. Berry, Gen. Man. S. Torrey.

5. Walker Land Co. will soon build a dummy line from Eastlake to Gate City.

11. BLOOMFIELD, FLA.—Wm. D. Mendenhail will build tram fine to Lake Harris, \$\frac{3}{4}\$ m.

11. BLOOMFIELD, FLA.—Blount Springs Co. will build a dummy rr.

11. BLOOMFIELD, FLA.—Blountsville & Bangor Dummy Line Co. 12½ m, broad g, medium r, 2 or more c; 2 or more steam motors. Work will begin as soon as capital is obtained. Capital, \$10,000. Pres. F. N. Hudson, Sec. A. D. Howell, Treas. Green J. McCoy.

12. BOSTON, MASS.—West End St. Ry. Co. H. M.

McCoy. 12

BOSTON, MASS.—West End St. Ry. Co. H. M. Wh.they, Asa P. Potter, Eben D. Jordan and others incorporators. S to 15 m, 4-8½ g, 90 to 100 lb imported girder r with grooved head. Pres. H. M. Whitney, Treas. G. D. Braman, Clerk Elmer D. Howe. Hope to use electricity as motive power. Will lay 10 or 12 miles of track this year.

Suburban St. Ry. Co., proposes to lay tracks through Park, Beacon, Arlington and Mariboro streets to West Chester Park. 5 m, 4-8½ g. Pres. Henry M. Whitney. Sec. & Treas. G. D. Braman. Capital, \$59,000. Office, Equitable Building. BRIDGETON, N. J.—Elec. ry. will he built here. 11-3 m, and if successful as much more will be built. Oberlin Smith is interested. 11

BRISTOL, VA.—Bristol-Goodson St. Ry. Co. has

BRISTOL, VA.—Bristol-Goodson St. Ry. Co. has hern incorporated. W. E. Chamberiain is inter-sted. 10 ested

BRISTOL, VA.—Bristol-Goodson St. Ry. Co. has been incorporated. W. E. Chamberiain is interested. 10

BROCKTON, MASS.—New co. projected in eastern part of city.

BROOKLYN, N. Y.—Annex St. Ry. Co., in progress, to he completed soon. Pres. F. M. Delano, New York, V. Pres. H. II. Adams, Brookiyn. Treas. Philip Richardson, New York. Office, 204 Montague st., Brooklyn, N. Y.

Brooklyn, N. Y.

Brooklyn & suburban St. Ry. Co. To run from Bedford ave. through Flatbush to Flatlands, with a branch to the Cemetery of the Holy Cross. Will use either horse or cable power. Geo. Malcom, Wm. Zlegter, Wm. J. Gaynor, thenry H. Adams, Jas. Ryan, Petter Stutter and Patk. McCanna, Directors. Paldup capital, \$100,000.

4 Union Ry. Co. of the City of Brooklyn.

Brooklyn Heights Ry. Co. Capital, \$150,000. To build along Montague street from Court street to Wall Street Ferry. Will use electricity. Pres. S. B. Chittenden, V. Pres. John Jay Pierrepont, Sec. Geo. W. Chauncey, Treas. Michael Chauncey. & m., 4 g. about 50 lb. r, 6 c.

7 Capitalists interested in Calvary Cemetery road are building from Ash street to Park avenue. Pres. Jas. B. McKewen, Sec. Michael Just, Treas. John R. Connor, Man, D. W. Sullivan.

6 Franklin Ave. R. R. Incorporated May 21. To run from Grand and Second Sts., in the Eastern District, via Second st., Wythe ave., Franklin ave., and Malbone st., to Flatbush ave., in the town of Flatbush. Capital. \$100,000. Wm. A. Wheelock and Walter R. Gorman of New York, and Thos. D. Jordan of Jersey City, are among the directors.

7 BRUNS-WICK. GA.

BUFFALO, N. Y. -Buffalo West Slde St. Ry. Co. Capital, \$50,000. Pres. Geo. V. Forman: Olean, V. Pres. H. L. Taylor, Buffalo, Sec. Chas. M. Howe, Buffalo, Theas. W. W. Welch, Gowanda. Did not secure franchle they were organized to build for, and may never secure it; but propose a complete new syslem of Street rrs., with cable or efec. traction.

11 Buffth, Mar. F. Eutre St. R. R. Co. Pushing constru tion. 10 m., 4 8½ g. 30 lbT r. 15c., 3 steam notors, 60 h. Capital, \$25.,000. Pres. Wi

CALERA, ALA.—So. Calera Land & Imp't Co. Work in progress, and road will be opened about Nov. 1. 2½ in, standard g, 40 lb steel r, a dummy engine. Capital, \$150,000. Office, Calera. b CAPE MAY, N. J.—Elec. st. ry. co. Location granted.

CAPE MAY, N. J.—Elec. st. ry. co. Location granted. 11
CARBONDALE, PA.—Carbondale & Jermyn Elec. st. Ry. 5 m, 4-8½ g, 25 1b T & 57 1b flat r, sprague elec. motors; overhead system. Work begun in July; will be opened about Dec. 1. Capital, \$50,000. Pres. John W. Aluken, V. Pres. M. Moses, Sec. & Treas. J. E. Burr. a. 11
CHARLESTON, S. C.—King St. & Crosstown Ry. Co. Will begin work soon. F. L. M. Hugh is interested. 11
CHARLESTON, W. VA.—Gienwood Co. will lay out a town near the city and ultimately construct a road 1½ m long. This is a land co. Supt. Benj. Brown. Capital, \$55,400. 8
CHARLESTON, G. Lindenthal, C. C. Anderson and others. 10
Chattanooga & Suburban St. Ry. Co. incorp'd by J. D. Lindsay, F. C. Hoyt and others. 11
Chattanooga Elec. St. R. Co. has been incorporated. 11
Tennessee tiver & Walden's Ridge R. R. Co. Dum.

Chattanooga Elec. St. R. Co. nas been incorporated. 11
Tennessee Hiver & Walden's Ridge R. R. Co. Dummy line from Hill City to Walden's Ridge, S. J. A. Frazier, John C. Griffiss and others incorporators. 8
City St. Ry. Co. has been organized by John T. Williamson and others. The Cheyenne St. Ry. Co. Wilbuild 12: H. By Dec. 1. Supt. — Planigan. 9
CH1CAGO, 11.1.—The Crosstown Pass. Ry. Co. Orthicago, 30 m. 48 12. g. 48 1b. T. 5. 550 10. 800 h. Pres. John J. Currar, Treas. Geo. P. Bunker, Sec. & Pur. Agt. Elias curran. Capital stock, \$1,000,000. Gen. office, room 18, No. 164 Washington st. Time of commencement of work undecided. 1
Lakeside City St. Ry. Co. To operate h. or dummy roads in Chleago and its suburbs. Incorporators, Sam'l P. McConnell, C. H. Merrill and Theo. P. Elliott. Capital, \$23,000. 5
Union Pass. Ry. Co. Incorp'd by James C. Page, Volna P. Sherwin and others. Capital, \$1,00,000. Horse, cable, elec. or steam. 9
CHICOPEE, MASS.—Chinopee St. Ry. Co. Franchise secured. Capital, \$25,000 Work to begin soon. Horse, cable, elec. or steam. 9
CHICOPEE, MASS.—Chinopee St. Ry. Co. Franchise secured. Capital, \$25,000 Work to begin soon. Horse, cable, elec. or Steam. 9
CHICOPEE, MASS.—Chinopee St. Ry. Co. Franchise secured. Springfield crosses the River road. About 4 m. 4-8½ g. not less than 35 lb r. Pres. Olmsted, of Springfield St. Ry. Co., has hought controlling interest. Ex-Goy. Robinson is a stockholder. Will build in spring. Ultimately will prob. be consolidated with the Spring gried system. 11
CHILLICOTHE, H.L.—Chillicothe St. Ry. Co. (12 m., prob. 4-% g. light flat r, animal power. Pres. L. S. Hoyt. Sec. & Treas. R. H. Truitt. Capital, \$30,000. Will begin work in spring. 1 if Chillicothe St. Ry. Co. (12 m., prob. 4-% g. light flat r, animal power. Pres. L. S. Hoyt. Sec. & Treas. R. Ry. Co. Incorpor Thos. B. MicKearney and others. Capital, \$30,000. Pres. J. T. Cralk, Sec. & Gen. Man. J. II. CHILLICOTHEUS, J. T. Cralk, Sec. & Gen. Man. J. II. Chillicothe St. Ry. Co. (12 m., prob. 4-2 m., pres. Chillicothe

H. A. PEVEAR, President. C. A. COFFIN, V. Prest. & Treas.

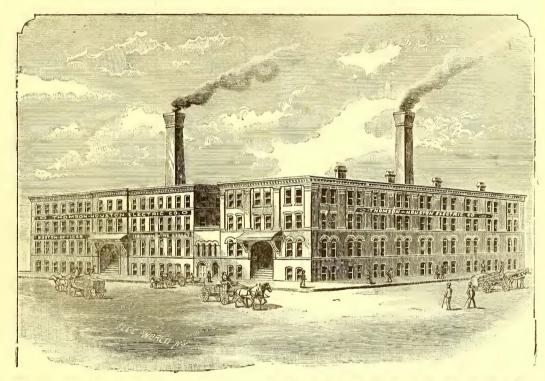
S. A. BARTON, Gen'l Manager. E. I. GARFIELD, Secretary. E. THOMSON, Electrician.

Thomson-Houston Electric Company.

PRINCIPAL OFFICE:

178 Devonshire Street & 33 Federal Street,
Boston, Mass.

Chicago Office: Pullman Building.



ELECTRIC TRAMWAYS.

Our Dynamos and Motors Stand Pre-eminent.

Highest Economy.

Perfectly Adapted.

Absolutely Reliable.

ESTIMATES FURNISHED UPON APPLICATION FOR THE CONSTRUCTION OF CITY STREET RAILWAYS AND SUBURBAN TRAMWAYS USING EITHER UNDER-GROUND, SURFACE OR ELEVATED CONDUCTORS.

Two 500 H. P. engines for each line. Offices, 42 & 43 Barth Block. e 9
Denver & Boulevards Cable Ry. Co. incorp'd by Ernest W. Lowrey, W. A. H. Loveland, G. W. Bowman and others. Will acquire the franchise secured by California parties and the tranchise for the cable line on the Boulevard. Work will begin at once on latter line. 11
Denver & West Side Cable Ry. Co. 12 m, 3-6 g, 16 & 20 lb Tr, 50 c. Work has begun, and it is thought that 2 m will be opened by Feb. 1. Pres. Geo. Wirt Bowman, V. Pres. & Treas. Thos. J. Bourke, Sec. John D. Woodruff. Capital, \$15,000, with right to Increase. Office, 1,518 Curtis st. a 11
DETROIT, MICH.—East Detroit & Grosse Pointe Ry. Co. 10 m, 4-8½ g, 25 lb streel Tr, 10 c. Fisher elec. system. Capital, \$100,000. Pres. C. K. Brandon, Sec. Hibbard Baker, Treas. Frank E. Snow. Began work June 15: expect to open soon.

Metropolitan Elec. Ry. Co. 9
Springwells, Ecorse & Wyandotte R. R. Co. Incorporated by J. B. Molony and others. Capital, \$10,000.

DODGE CITY, KAN.—Dodge City & So. Dodge St. Ry. Co. Incorp'd by Jas. II. Crawford and others. Capital, \$20,000.

Capital, \$20,000. 11

DULUTH, MINN.—Duluth Highland Cable Ry.
Co. Propose to build to the hill top unless the old
Co. after notice build there, II. W. Bradley and Wm.
W. Billson, or Duluth, and J. A. Willard, of Mankato,
are interested. Capital, \$200,000. 5

Park Point St. R. R. Co., prob. name. 6 m, 4-8%
g, h or mu. R. W. Petre is interested. Uncertain
when they will organize. 10

FASTON. PA.—I afayette Traction Co. Elec.

EASTON, PA.—Lafayette Traction Co. Elec., D.ft. system. 1 m, 5 2½ g, 35 & 56 lb r, 2 c. Pres. J. Marshall Young, Sec. & Treas. D.W. Nevin. Capital, \$12,000. Work has begun, and the road will be opened Dec. 1. a 12

EAST PORTLAND, ORE.—Seilwood & Vancouver By Co. Notons.

opened Dec. 1. a 12
EAST PORTLAND, ORE.—Sellwood & Vancouver Ry. Co. Motors. 7
Stark St. Ferry Co. 7
EAST ST. LOUIS, 1LL.—East St. Louis Motor Ry. Incorporated by 11. D. Sexton, Henry O'Hara and Wm. II. Hill. Capital, \$200,000. 6
EL DORADO, KAN.—El Dorado City St. Ry. Co. Now building. Pres. John Foutch, Sec. Robt. H. Hazlett. Treas. F. P. Gillespie. 9
ELIZABETH, N. 1.—Henry II. Isham of New York, Fredk. L. Heidritter and others, propose to build a crosstown road from Fourth ave. to the Singer factory and Elizabethport station. 7
Elec. ry. Incorp'd and ask for franchise. Ex-Free-holder Ofliver, ex-Councilman Reeve and ex-Mayor Green are interested. 8
ELMIRA, N. Y.—Articles of incorporation signed by J. II. Clark, John Brand, M. H. Arnot, D. C. Robinson and others. Location, Fifth ward. Capital, \$20,000. Will use horses. Hope to complete road very soon. 7 soon.

Yery soon. 7
ELSINORE, CAL—Lake Shore Elec. Ry. 30 m.
4-8½ g, prob. 30 lb r. prob. 12 c, elec. motors. Work
to begin at once, and part of it to be in operation by Dec. 1. Pres. D. Gilbert Dexter, V. Pres.
Chas. S. Gilbert, Sec. Howard L. Couard. Capital.
\$500,0°0. g 11

\$500,0°0. g 11
EUFAULA. ALA.—City of Eufaula St. Ry. Co.
4 m, 48½ g, 20 lb r, 4 regular cars and several excursion flats. 12 h, Will commence work very soon,
and the road may be opened this year. Pres. E
B. Young, Sec. Geo. McCormick, Treas. Ell Shorter.
Capital \$25,000. 4.

EHREKA, CAL.-Co. formed to build an elec.

EUREKA, CAL.—Co. formed to build an elec.

FY. S.

EUTAW, ALA.—Dunmy rr. to Falki nd. 12

FERNANDINA, FLA.—Gideon Palmer and associates ask for permit. 11

FINDLAY, O.—Findlay St. Ry. Co. 4 m, 4-8½ g, 25 lb Tr. 8.c. 48 h. 11

FLUSHING, N. Y.—Flushing & College Point R. R. Co. Pres Jos. Dykes, Sec. Arthur Herrin, Treas. Henry Clement, llave obtained a charter to run a line from Flushing to College Point, Electricity may be used. Will be built in 6 mos. 8

FOND DU LAC, WIS.—Co. organized. 9

FORESTVILLE, GA.—Printup City & Forestville St. R. R. organized. 8

FORT PAYNE, ALA.—Fort Payne Land & Imp't. Co. May build dummy or cable road. 11

FORT SMITH, ARK.—Belt Line St. Ry. Co. W. M. Fishback is interested in a contemplated st. y. Wants information as to dummy engines burning petroleum. 11

W. M. Fishback is interested in a contemplated st. y. Wants information as to dummy engines burning petroleum. 11

Metropolitan St. Ry. Co. 2 m, 4-10 g, 38 lb r, 10 c, elec. or animal power. Sec. & Treas. Geo. Tilles. Engr. John P. Hely. Will begin work in 30 days. 10 Sulphur Springs Ry. Co. 3½ m, 3-6 g, 38 lb r, 12 c, 25 mu. In progress; will be opened in 60 days. Pres. & Gen. Man. W. J. Johnston, Sec. Edgar Bryant, Treas. W. R. Martin. Capital, \$50,000. e. 10

FORT WAYNE, IND.—Fort Wayne St. Ry. Co. incorr'd by John A. Bass and others. Capital, \$300,000. 10

FORT WORTH, TEX.—North Side St. Ry. Co. chartered by J. P. Smith, John D. Templeton and others. Carital, \$100,000. 2 m. Dummy or cable. To be completed in Smonths. 9

FRAMINGHAM, MASS.—Framingham Union St. Ry. Co. \$60,000 capital. The Haines Bros. & Geo. W. Stetson, of New York, are interested. To be in operation Jan. 1. Sec. Clifford Folger, Treas. Sam'l B. Bird. 10

Framingham Center Ry. Co. Capital, \$25,000. 2½ m, 4-8½ g. 4.

FREEPORT, ILL.—Freeport, Dodgeville &

Framingham Center Ry. Co. Capital, \$25,000. 27
m, 4-8½ g. 4.
FREEPORT, ILL.—Freeport, Dodgeville & Northern Ry. Co. Pres. Jas. I. Neff, Sec. & Treas. B. Moc. Chicago, Ill. 9
FRYEBURG, ME.—Now building. 8
GADSDEN, ALA.—Gadsden Land & Imp't Co. will build a dummy rr. via Believue to Black Creek Fails. Expect to begin work next spring, and finish It by next summer. 5 m, standard g. 35 lb r, 4 c, steam motors. Sec. & Treas. M. L. Foster. Capital, \$50,000. 11
GRAND FORKS, DAK.—Secretary of State McCormack, of Bismarck, has secured franchise, and

Is said to be backed by Duluth and New York capl-

GRAND ISLAND, NEB.—Grand Island St. Ry.

GRAND ISLAND, NEB.—Grand Island St. Ry.
Co. Expect to have 4 m in operation this year. 4-6 g,
20 lb steel T r, oak tles, 5 c, 30 h. Will change to
elec, when they can get a cheap and practicable
system. Capital \$100,000, of which 25 per cent is paid
in. Pres. A. H. Baker, V. Pres. H. A. Koenig, Sec.
O. B. Thompson, Treas. Wm. A. Hagge. h. 7
GRAND RAPIDS, MICH.—Cable St. Ry. Co.
incorporated by Robt. Wetherell and others. Capital, \$500,000. 8
Valley City St. & Cable Ry. Co. 10 m, of which
13 m cable and a portion of remainder prob. elec.
Uitimately will cable white system, putting in 2 or
3 m each year. 4-8½ g 30 lb r, 8c at present. Pres.
Wm. P. Innes, V. Pres. A. W. E gleston, Sec. &
Treas. Robt. W. Innes, Constructing Eng. Wm.
Phenix, Keing bullt by Continental construction
Co., of Minneapolis. When finished Horace P.
Breed will pro. be Pres., W. S. Crosby Sec. & Treas,
Sam. B. Tibbits Vice Pres., and A. W. Eggleston
Supt. Now building. Part of road will be opened
Dec.1. Capital, \$200,000. e. 12
GREENSBORO, N. C.—J. W. Griffith has rec'd
permit. There is talk of an electric road. 9
GREENSBORO, N. C.—J. W. Griffith has rec'd
permit. There is talk of an electric road. 9
GREENVILLE, MISS.—Deaton & Skinner contermolate building of the

st. ry. 6
GREENVILLE, MISS.—Deaton & Skinner contemplate building a st. ry. 11
GREENVILLE, TEX.—Greenville St. Ry. Co. organized. Capital, \$50,000. Must be completed in 5 months. Pres. C. W. Collier. 12
Another co. has also received permission to lay tracks; must be completed in 5 months. Pres. T. H. King. 12

tracks; must be completed in 5 months. Pres. T. H. King. 12
GREENWICH, CONN.—Greenwich Horse R. R. Co. To run along Putnam and Greenwich aves. and Steamboat road to the steamboat dock, with a branch along Railroad ave. to the N. Y., N. H. & H. station. Capital, \$30,000. Prob. 4 cars. Delano-Richardson syndicate are back of the scheme. 5
HART AND, KAN.—Hartland St. Ry. Co. 2
m, narrowg, light r, 2 c, 1 mu. Pres. E. S. Snow, Sec. & Treas, Logan A. Garten, Supt. W. S. Handy. Capital stock, \$5,000. 3
HELENA. ARK.—Citiz ns'St. Ry. Co. Capital, \$30,000. Pres. Greenfield Quaries. Sec. D. T. Hargraves, Treas. S. H. Horner. Work to begin at once. 12
Citizens' St. Ry. Co. will begin building at once. 12
HOLDEN. MO.—Franchise granted to Wm. Steele, J. S. Johnson, John T. Bruce, J. N. McDonald and Thos, C. Carter. To run on Oilve st. from 2d to 14th. to Main. to 2d, to starting point. 6
HOPKIN-SVILLE, KY.—Hopkinsville St. Ry. Co. has been incorporated. Will not begin work before Jan. 9

Co. has been in orporated fore Jan. 9

fore Jan. 9

HOT SPRINGS, ARK.—Road to Gillen's White Sulphur Springs projected by J. L. Goodbar. 11

HOUSTON, TEX.—Co. formed with capital of \$125,000. 11

11 HUDSON, N. Y.—Edw. J. Hedge bought the franchise at auction, and the road will be built

franchise at auction, and the road with be balls soon. 8

HUNTINGTON, N. Y.-3½ m, from the Long island R, R. station along the east side of Huntington Harbor. Stockholders. D. Schuberth and R. G. Phelps of New York. Henry S. Brush and others of Huntington. Capital stock, \$35,000, 4-8½ g, 40 lb r, 3 c, 8 h. Prob. build in Oct. 10

HUNTINGTON, W. VA.-J. L. Caldwell will build a street railway here. 9

HUNTSVILLE, ALA.-Huntsville Belt Line & Monte Sano R. R. Co. 5 im. Backed by No. Ala. Imp't Co. Work to begin in 3 or 4 months. Capital \$100,000. 11

\$100,000. 11
HUTCHINSON, KAN.—Metropolitan St. Ry.
Co. Being rapidly pushed to completion. Capital,
\$50,000. Directors G. W. Hardy, Jas. H. Perkins,
Hiram Constant, J. W. Mulky and A. H. Robin-

\$50,000. Directors G. W. Hardy, Jas. H. Perkins, Hiram Constant, J. W. Mulky and A. H. Robinson. 5

INDIANAPOLIS, IND.—Indianapolis Cable St. R. R. Co. 14½ m cable, 15½ m horse, 4-8½ g, 54 lb r, 70 closed and 20 open c, cable and h&motoriraction. Work on cable line to begin in winter, and track laying March 15. Pres. W. W. Dudley, V. Pres. T. A. Morris, Sec. W. R. Holloway, Treas. Oran Perry. Capital, \$1,200,000. Office, 90½ E. Marker st. 9

JACKSON, TENN.—Jackson & Suburban St. R. R. Co. Tm, 4g, 30 lb r, 4 c for the present, 12 mu. Pres. C. P. Heath, V. Pres. J. H. Duke, Sec. R. B. Crawford, Treas. J. L. Wisdom. Road to be opened about Oct. 1. Capital, \$50,000. Office for present, 212 Kansas St., Sloux City, Ia. e 9

JACKSONVILLE, FLA.—Jacksonville, Suburban & R. Est. R. R. Co. Pres. Henry A. L'Engle, Sec. C. F. Adams, Treas. W. A. Bisbee. 11

JUNCTION CITY, KAN.—Junction City & Fort Riley St. Ry. Co. 8 m. Horses will be used in the city, and some other faster motor between Junction City and Fort Riley. Must obtain franchises from city, co unity and Congress. Expect to have bill through Congress by Feb. 1 for right of way on Fort Riley Reservation. Capital \$30,000. Pres. B. Rockwell, V. Pres. G. E. Harvey, Sec. & Treas. C. G. Thurston. 7

KANSAS CITY, MO.—McGee, E. Seventeeth & Suburban Ry. Co. Dummy. Capital, \$50,000, one-half paid in. B. F. Jones, M. J. Payne and Isaac Whitaker are stockholders. 9

Kansas City, Masten Park & Westport R. R. Co. To be completed by Nov. 9. 10

People's Cable Ry. Co. Capital, \$750,000. Chicago capitalists interested. Pres. J. Foster Rhodes, V. Pres. C. F. Dwight, Sec. & Treas. W. P. Rice, Chief Eng. Robt. Gillham. Tenth st. to Brooklyn ave. South to city limits. Now building. 12

Citizens' Cable Ry. Co. organized; capital, \$750,000. First-class road, to extend from Sixth street south on Holmes street to a point ½ m south of southern city limits. T. A. Harris, Bernard and Thos. Corrigan and E. J. Lawless are the principal stockholders. Are likely to get franchise, when werk will

Centropolis, Blue Valley & Independence Ry. Co. Incorp'd by L. R. Moore, J. W. Mercer, Walter Holmes and others to build a cable road from the terminus of Fifteenth st, line to Independence. Work to begin in May, Grand Ave. Ry. Co. Is thought to be back of the scheme.

11

Kansas City & Olathe Investment & Rapid Transit Co. 21 m. 4-8% g, 45 lb r, 12 c, 4 steam motors. Begin work next spring and expect to open in a year. Pres. D. B. Dyer, V. Pres. J. W. Strayer, Sec. J. A. Stewart, Treas. Thos. H. Durham. Capital, \$1,000,000. Gen. Office, Wyando te, Kan.; branch office, 809 Delaware st., Kansas City.

Union Ry. Co. 13 m, from Missouri ave. and Main st, to the St. Paul bridge. W. M. Broadwell is interested.

KEENE, N. H.—Keene St. Ry. Co. Pres. Hon.

KEENE, N. H.—Keene St. Ry. Co. Pres. Hon. R. F. Batchelder Clerk Chas. H. Henry, Treas. Wm. B. Frink. 9
KINSLEY, KAN.—Kinsley St. Ry. & Elec. Lighting Co. lncory'd by C. A. Read and others. Capital,

R. F. Batcheder Clerk Chas. H. Henry, Treas. Wm. B. Frink. 9

KINSLEY, KAN.—Kinsley St. Ry. & Elec. Lighting Co. Incorp'd by C. A. Read and others. Capital, \$10,,000. 10

KNOXVILLE, TENN.—Knoxville & Edgewood Ry. Co. Will build at once, and open this year. 2 to 5 m. Have proposals from other new lines to join them, and it will depend upon which they accept what mode of propulsion, car and rall will be adopted. Pres. Wm. Caswell, V. Pres. E. C. Camp, Sec. Arthur Swan. F. A. Moses, A. N. Jackson and S. R. Rogers also interested. Capital, \$26,000. 5

Fountain Head R. R. Co. Lucorp'd by F. A. R. Scott, J. H. Cruze and others to build a dummy rr. 6

Knoxville Beit R. R. Co. 8½ m., 48½ g. 80th steel r. 4 pass. c, 2 englues. Capital, \$100,000. Will begin work soon, and open in a year. Pres. W. R. Tuttle, Sec. I. W. S. Frierson, Treas. Sam. House. 10

Knoxville R. Est. Co. will build dummy line. 9

Magnolia Ave. Dummy Line. In progress. T. S. Frierson is nierested. 10

So. Side and Market Sq. R. R. Co. Pres. H. Schubert, Sec. P. Kern. 2 m., 2 c, about 12 h. Road to be completed within a month. Capital, \$20,000. 9

West End St. Car Co. In progress. Jas. D. Cowan is interested. 10

LA CRANGE, GA.—La Grange St. R. R. Co. F. M. Ridley, F. M. Longley and others are interested. Will prob. cost \$20,000. 10

LA CRANGE, GA.—La Grange St. R. R. Co. F. M. Ridley, F. M. Longley and others are interested. Will prob. cost \$20,000. 10

LAKE CITY, FLA.—H. S. Halnes, Gen. Man. Sav., Fla. & W. Ry. and all the Plant system in Fla., has right of way.

ŁAKESIDE, O.—Contracts awarded for elec. ry. 3 m., 2 open c. Prob. use overhead conductors. 7

LAREDO, TEX.—International Bridge & Tramway Co., of San Antonio, will build here. Pres. P. Ornelas. 11

LEXINGTON, GA.—W. A. Shackelford and others will build a dummy line to Crawford. 8

LINCOLIN. NEB.—Elec. motor co. From city to stockyards. Capital, \$100,000. 6

Lincoln Cable Ry. Co. 5 m, 48½ g, 56 lb r, 10 c, storage batteries and motors. Work to begin at once, and to be opened in early spring.

orporators. 7
Standard St. R. R. Co. incorp'd by L. G. Baldwin,
M. H. Baldwin and Chas. Pitcher. Capital \$100,-

LISBON, DAK .- Lisbon St. Ry. Co. incorp'd, but

LISBON, DAK.—Lisbon St. Ry. Co. incorp'd, but never built.

11
LITCHIFIELD, 11.L.—J. A. Beverly, H. H. Beach, S. M. Grubbs and B. F. Johnston are the Directors, 9
LIVERMORE, CAL.—Charter granted to J. W. Seligman, of New York, and others. Steam or other motor may be used.

11
LOS ANGELES, CAL.—The American Rapid Transit Co. has been formed here, capital, \$500,000, to build from Passadena to Monica, under the Enos elevated electric system.

build from Passadena to Monica, under the Enos elevated electric system. 4
Pacific Elec. R. R. Co. incorp'd by J. H. Book and others. Capital, \$250,000. 11
J. H. Moon and others have franchise for elec. road with storage batteries. 11
Brooklyn Heights Ry. Co. 6½ m, 4-2 g, 16 lb r, about 15 c, h for one year, then elec. Pres. Clarence J. Richards, V. Pres. Chas. M. Baker, Sec. Carl F. Van Brunck, Treas. 6dw. Records. Worksto begin in Nov. and road to be opened in March prob. Capital, \$300,000 Office, 10 Courtst. 11
S. O. Brown will build a road 6½ m long to Glendale. 5

tal, \$300,000 Onlice, 10 Courts. J m long to Glendale. 5
Los Angeles & Vernon St. Ry. 5 m, 4-8½ g, 20 lb T & 27 lb flat r, 6 c, 12 h, 1 dummy. In progress; will be completed by Dec. 1. Capital, \$90,000. Pres. D. G, Stephens. V. Pres. C. E. Day, Sec. F. A. Gibson, Treas. E. W. Kysor. e 10
Azusa Valley St. R. R. Co. Incorp'd by J. S. Phillips and others. Capital, \$100,000. 8
Los Angeles Cable Ry. Co. 10 m, 3 6 g, 46 lb r, 15 c, cable. Work to begin at once and to be finished in a year. Pres. J. F. Crank, Gen. Man. Chas. Forman, Sec. S. P. Jewett. Asst. Sec. R. D. T. Widner. Capital, \$1,500,000. Office, 132 N. Main st. 10
LYONS, KAN.—E. A. Deupree, Sam Steiner, C. W. Shumway and others incorporators. 5
MACON, GA.—R. K. Hines and others will build a st. ry. here. 7
Central City St. Ry. Co. has been incorp'd. 9
Macon City & Suburban Ry., Light & Power Co. has been incorp'd. 9
Vineville St. R. R. Co. 9
Metropoiltan St. R. R. Co. 9
Metropoiltan St. R. R. Co. 9
MARBLE FALLS, TEX.—A. R. Johnson and others will build line. 9
MARION, KAN.—Marion St. R. R. Co. 1 to 4 m. Park Color. In the control of the proper may the crude net relegate means the proper may the crude net relegate means.

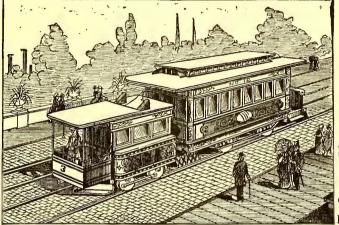
MARION, O.—Marion St. R. R. Co. 1 to 4 m. Prob. elec., though may use crude petroleum en-gines. 8

STREET

ROLE S

Differential Lever Car Starter, Runner & Brake.

Starts easily, Brakes as certainly and effectively as the air or Steam brake.





Standard No. 3 Motor

Specially Designed Low Pressure Condensing Engine

of great power in small space and having no escapes on the street.

MOTOR SYSTEM.

The system can be operated by compressed air and is so recommended where good all-the-year-round water power can be secured to compress the air. Can be operated by storage battery, electricity or soda, ammonia, and other motive powers.

Warranted to climb hills, start on hills, and when the track is so slippery that the driving wheels will slip round under the motor, we still guarantee the motors starting by a system of ground levers.

WE ARE FULLY SECURED BY PATENTS.

We claim the only motor system capable of starting and going when the tracks are slippery, excepting only the cable motor. Ours is a cheaper outfit.

Correspondence solicited.

Pole Street Car Motor System,

310 Chestnut Street, Philadelphia, Pa.

MARYVILLE, TENN.—Capital, \$5,000. Dr. John P. Blankeusuip, Rev. P. M. Bartlett, W. T. Parkham and others are interested.

MATTOON, ILL.—Mattoon St. Ry. Co. Now bullaing. 5 m, 4-8½ g, steel Tr. Pres. J. B. Craig, Sec. Joseph Millington, Treas. Rob. Owens.

McKEESPORT, PA.—McKeesport Pass. Ry. Co. Now building. 4 m, 5-2½ g, 38 ib girder r, 4 2-h c, 25 h. Pres. J. C. Smith, Sec. & Treas. E. F. Woods.

McPHERSON, KAN.—Franchise owned by Sallnast. Ry. Co.

MEMPHIS, TENN:—East End Ry. Co. 20 m, 48½ g, 35 lb r, 6 c, to be operated by 3 dummles will be running in Oct. Pres. W. M. Sneed, V. Fres. B. M. Stratton, Sec. & Treas. J. W. Falls. Capital, \$200,003.

B. M. Stratton, Sec. & Treas. J. W. Falls. Capital, \$200,003.

B. M. Stratton, Sec. & Treas. J. W. Falls. Capital, \$200,003.

B. M. Stratton, Sec. & Treas. J. W. Falls. Capital, \$200,003.

B. M. Stratton, Sec. & Treas. J. W. Falls. Capital, \$10,000. Omice, 41 Madison St. 11.

Memphis & Chelsea Ry. Co. Chartered by Thos. F. Duffin, J. H. S. Bilen, W. D. Beard and others. 9.

MIDDLEBORO, MA-SS.—H/S m. perhaps elec. Capital, about \$31,000. D. Chas. Cypeland, S. B. Ryder and others are interested.

B. Yder and others are interested. 9.

MILWOLDE MORE, MA-SS.—Millord & Hopedale St. Ry. Co. 4 m, 4-8 g, neavy 1, 6 or 8 c. 0. & elec. Capital, \$30,000. Will begin work in spring. C. W. Shippee interested. W. M. S.—Millwukee Cable Ry. Co. corporated by Wm. P. McL ren, Geo. W. Mitchell and Joh 1 A. Hinsey; capital, \$300,00. To build from center of city to western limits. Hope to open in a year. 2½ m, 4-8½ g, about 50 c, cable. Work to begin as soon as ordinance passes. 8.

Milwaukee & Wauwatosa Cable Ry. Co. Frank L. Glison & Judge Frisoy are interested. 9.

Robt. Nunnemacher, Wm. S. underso: & others ask to ouild a h or cibe ry. along 'groadway', Oneida, Wells and othersts. 9.

Robt. Nunnemacher, Wm. S. underso: & others ask to ouild a h or cibe ry. along 'groadway', Oneida, Wells and othersts. 9.

MINNEAPOLIN, MINN.—Minneapolis West Side St. Ry. Co, hoorporators: Randolph Burgess, John T. Byrnes, A. G. Chamberlain, H. J. Mitchell and Matthew Walsh, all of Minneapolis. Capital stock, \$200,000. From Leke Calnoun to Lake street bridge, with a branch to Lakewood cemetery. 7 m, 4-8½ g. Pres. Randolph Burgess, Sec. & Treas. John T. Ryrnes, Supt. Albert C. chamberlin. Office, 112 Hennepin ave. 5.

MOBILEY, ALA.—Mobile & Dauphin Island R. R. Co. W. W. Absley & Co. of Birningbam have contract to grade 5 in and to large track from M

Valley. 12

NEWBURGH, N. V.—Third St. Rv. Co. 5% m, cabl., 4 c. Sec. & Treas. C. L. Waring. Expect to bull'd in spring. Capital, \$40,00). Office, 76 Water

NEW BRUNSWICK, N. J.-Elec. ry. contem-

NEW BRUNSWICK, N. J.—Elec. ry. contemplated. 7
NEW CASTLE, PA.—New Castle St. Ry. Co. Organized, but mode of propulsion not yet determined. About 3m. Pres. Geo. W. Johnson, V. Pres. L. Raney, Sec. Chas. s. Wallace. Work to begin soon. Capital, \$\$\\$\$\$\$,000; will increase to \$25,000. a \$\$ NEW HAVEN, CONN.—Cable road projected by Frank Blake. 7
NEW LONDON, CONN.—New London Horse Ry. Co. John Tebbetts, Incoporator.
NEW TON, MASS.—Newton St. R. R. Co. 6 m, 48\% g, 52 lb r. 12 c, 12 h, electric motors, Pres. Horace B, Parker, V. Pres. J. W. Stover, Sec. & Treas. Herbert C. Pratt. Capital stock, \$50,00, Office, Newtonville, Work will commence when Aldermen grant location. \$\frac{1}{2}\$ 8
NEW PORT, KY.—Co. organized. 8
NEW YORK, N.Y.—North & East Rivers Ry. Co. To run through Fulton and Cortlandt sts. Bentley-

Knight elec. system. Pres. W. W. Laman, Directors A. Hudnut, Ira Perego, David Bangs, Aaron Raymond, J. L. Truman, W. H. McDougal, W. G. Smith, Homer A. Nelson, R. R. Hazard, Robt. W. Blackwell and John T. Fanning, J. W. Childs, contractor for construction of road. Chairman Excom. R. R. Hazard. About completed. Prob. open in Jan. 10

Fractor for construction of road. Chairman Excom. R. R. Hazard. About completed. Prob. open In Jan. 10

Brooklyn Bridge & So. Ferry R. R. Co. incorp'd by G. C. Tracy of Brooklyn, Thos. H. Short of New York, and others. From Pa k row to So Ferry, via Nassau st. Capital, \$100,000. 12

New York Cable R. R. Co. Pres. W. S. Williams, V. Pres. J. B. Shaw, Sec. Abraham L. Earle, Treas. Thos. W. Evans. 11

New York Underground R. R. Co. Pres. Edw. Lauterbach. J. Coleman Drayton is Pres. of New York Underground Construction Co., which has made application to open Lafayette place to operate under the Bentley-Knight system. Col. Rowland R. Hazard is prominent in the enterprise. 4.

East & West Ferries R. R. Co. has been incorporated, with capital stock of \$50,000. Chas. W. Hough and others incorporators. 6

Twenty-eighth & Twenty-ninth Sts. R. R. Co. Secared franchise by agreeing to pay city 29,2 per cent of gross receipts for drst five years and 31.2 per cent thereafter. Pres. Jona. II. Crane, V. Pres. Edw. P. Beach, Sec. Fredk. A. Barclett, Treas. John H. Davis. 5 m, 4-8/g, 471bsteels-br, 40 to 51 c, prob. elec. Capital, \$500,000. Cffice, 188-191 temple Court, d. 10 NIAGARA FALLS, CAN.—Elec. Ty. building. 10 NORFOLK, NE6.—Norfolk & Western R. R. Co. talk of building a cable road to Lambert's Point. 11 Suburban & City Ry, & Impt. Co. want franchise for elec. ry. W. H. Stewart is Mang. Director. 12

OAKLAND, CAL.—Elec. ry. Fran'h, granted. 8 Geo. D. Metcalf, W. G. Henshaw and others ask for Iranchise. 12

OBERLIN, KAN.—Oberlin St. Ry. Co. Capital, \$50,000. R. A. Marks, Everton Doom and others incorporators.

OBERLIN, KAN.—Oberlin St. Ry. Co. Capital, \$50,000. R. A. Marks, Everton Doom and others incorporators. 5
OLATHE, KAN.—Kansas City & Olathe Investment & Rapid Transit Co. Dummy line to Kansas City. 8

ment & Rapid Transit Co. Dummy line to Kansas City. 8

OMAHA, NEB.—Metropolitan Cable Ry. Co. 4.7

m, 4-8½ g, 56 lb r, 20 c, cable, 10 motors. Pres. F. L.
Underwood, V. Pres. N. D. Allen, Sec. R. W. Patitck,
Treas. G. A. Joslyn. Work to begin at once and
road to be opened Sept. 1, 18-8. Capital, \$1,00,000. 9

Omaha & So. Omaha St. Ky. Co. Capital, \$1,00,000. Cable road. Wm. A. Paxton, John E. Creighton and
Isa c E. Corydon are among the incorporators.
City Suburban Transit Co. incorporators. 5.
City Suburban Transit Co. incorporated. Capital, \$500.
000, of which \$50,000 to be paid in before commencement of business. Samuel D. Mercer, Cifton E.
Mayne and others incorporators. Now laying track.
Electricity in city, Van Depoele system; steam outside. 5 m, 4-8½ g, 56 ib girder r, 20 12 ll. P. motors
& 250 ll. P. generators. Pres. Dr. S. D. Mercer, Sec.
J. T. Hertzman, Treas. S. S. Curlis. Hope to be in
operation in Nov. Office, 12th & Howard sts. 9

Line to asylum and pententiary. Ex-Gov. Dawes,
Senator S. W. Burnham, J. M. Hoffman and others
are interested. 6

So. Omaha St. Ry. Co. 5 m, 4 8½g. Will use h
power. Work to begin at once, and the road to be
opened next summer. Capital, \$100,000. To run from
Twenty-first street at Armour, along Twenty-first,
Wyman, Bellevue to the corporation limits, with a
number of branches. Pres. D. Anderson, V. Pres.
C. M. Hunt, Sec. C. C. Van Kuren, Treas. H. C. Bostwick. d. 6

Omaha Horse Ry. Cable Co. 2½ m, 4-8½ g, 45 lb

C. M. Hunt, Sec. C. C. Van Kuren, Treas. H. C. Bostwick. d. 6
Omaha Horse Ry. Cable Co. 2½ m, 4-8½ g, 45 lb
Johnson girder r, cable power. Capital, 81,500,000.
Work to commence soon. Pres. Guy C. Barton, V.
Pres. S. II. H. Clark, Treas. Frank Murphy. 7
Northwestern St. Ry. Co. have been granted a
franchise. 8
Omaha & Council Bluffs Ry. Bridge Co. To be built
by March. 1888. 6 m, 4-8½ g, 45 lb Tr, 12 c, 4 Baldwin
motors. Pres. John T. Stewart, Sec. Geo. T. Wright,
Treas. Jos. H. Millard, Supt. & Pur. Agt. Thos. J.
Evans. 9

ONTARIO, CAL.—Ontario & San Antorio Heights Ry. Co. 8 m. 4-8½ c, 34 lb r, 4 c, 3 elec. motors, Safety Elec. Co. 8 system. Pres. Chas. Frankish, V. Pres. Col. O. S. Picher, Sec. & Treas. D. McFarland. Now building; will be opened about Dec. 1. Capital, \$100,600.

Now building; will be opened about Dec. 1. Capital, \$100,00. 11

ORANGE, N. J.—Cable rr. up Orange mountain. 9
OSWEGO, N. Y.—Elec. ry. Daft system. 9
OTTA WA, ILL.—Ottawa St. Ry. Co. Contracts for construction awarded. Pres. F. A. Snerwood. 9
So. Ottawa & Ottawa St. Ry. Co. Will build as soon as they get franchise. 4½ m 12 c, h power. Pres. Jas. Milligan, Jr., V. Pres. L. A. Rose, Sec. Fred E. Mays, Treas. L. W. Hess. Capital, \$30,000. e 10
PAINESVILLE, O.—Palnesville & Fairport St. Ry. Co. Right of way and charter secured; and co. expects to be in oneration by Apr. 1. 1888 using gas or elec. 5 m, 4-8½ g, 30 lb flat r, 3 c, limit power of engines 60 h.
PALATKA, FLA.—Palatka, St. Ry. Co. Work

engines 60 h.

PALATKA, FLA.—Palatka St. Ry. Co. Work begins at once; to open in Jan. 13/2 m, narrow g, 20 lb r, 3 c, mu. Treas. W. W. Mitchell, Supt. J. H. Hibbard. Capital, \$10,000. 10

PAMONA, CAL.—Second St. R. R. Co. incorp'd by W. L. Johnson and others. Capital, \$10,000. 12

PAOLA, KAN.—Paola St. Ry. Co. Must be completed in 2 years from depots to park. Incorporators, S. D. Condon, J. H. Phillips and E. W. Robinson. 5

PARSONS, KAN.—Parsons St. Ry. Co. Expect to use elec. 8

PASADENA. CAL.—Elec ry. Daft-system. 9

PASADENA, CAL.—Elec, ry. Daft system. 9
PASSAIC, N. J.—Passaic St. Ry. Co. 3 m, from
Garfield to Passaic through Clifton; and if the Paterson Main street road build their line to the race

grounds the new co, will also build their line to mee; them.

PEABODY, KAN.—Peabody St. Ry. Co. incorporated by W. E. Scott and others, with a capital stock of \$10,000.

PENSACOLA, FLA.—Pensacola Gulf Land & Development Co. will build a st. ry. 11

PHILADELPHIA, PA.—Lehigh Ave. Ry. Co. To run up Lehigh avenue from second street to k dge avenue and directly to kast Fairmount Park. Pres. Jos. T. Bunting, Ser. & Treas. J. Mc K. Barron, Directors, Win. R. Wister, John Wister, Laughorn Wister and Jas. P. Booth. Other large stockholders are Win. Wharton, Jr., and Win. L. Elkins. Capital, \$600,000, of which \$60,000 is paid in. Double track the whole length. Will have filles of track; 6 minished; road will be opened nex. Spring. 5-2% g, 47 lb steel train r. Will use either horses or electricity. Temporary office, \$30 Walnut st. a 12

miles of track; 5 m finished; road will be opened next spring. 5-2½ g, 47 lb steel tram r. Will use either horses or electricity. Temporary office, 330 walnut st. a 12

PITTSBUKGH, PA.—Squirrel Hill R. R. Will intersect Patisburgh Traction Co.'s cable line and run to the Homewood and Lutheran cemeteries, 3 m. 4-5½ g, 6 c, 3 steam motors. Pres. Geo. W. Moirls, V. Pres. Alex. Mundoch, sec. Robt. Q. Whitten, Treas. J. M. Hoch. Work to be pushed this winter, and road opened next spring. Capital, \$40,000. Office, 28 Lewis Block. 11

Oakiand & Homestead Caule Road Co. To build to Squirrel Hill. 12

Forty-third St. & loomfield St. Ry. Co. To run to Millvale. To begin work by Jan. H. power. Walter Lyon, of Milvale, and J. T. Kell, of Pittsburgh, are among incorporators. Capital, \$20,000. 11

Duquesne Traction motor Co. To run from terminus of Birmingham line, on south slue of river, to Duquesne. Cable or elec. 11

Plususne Cable or elec. 11

Plususne Cable or lew or a being to chan. c this road to elec. or cable, work to begin early next spring. Capital, \$100 000. 11

Pittsburgh, East Liberty & Wilkinsburgh Ry. Co. 3 m, 4-81-2 g, 52 lb Johnson gitder r. Pres. Ed. Jan. Allen, Sec. & Treas. W. H. Allen. To use about a cand 20 h. Not decided when road will be opened. Cepital stock, \$15,000. Present office, 517 Wood St. Pittsburgh Traction Co. Cable, 11 m, 5-2 g, 66°. W. Elkins; Sec. Geo. L. McFarlane, Treas. W. McCard less, Engr. Geo. Rice. Office, Room 307, Hamilton Bidg. Market St. to Point Brevze, along Fitth ave. This co. will be successor to Pittsburgh, wakland & East Liberty Pas. Ry. Co. will have 4 550 H. P. Corliss engines. Began work Aug. 1; will be opened others. Track lad.

Overhead Conductor Elec. Ry. Co. incorp'd by Geo Westinghouse and others. Capital, \$300009. 9

Pittsburgh & East End-R. R. Co. Capital, \$25,000. Incorporators, Wm. L. Chalfort, John Bissel and others. Track lad.

Overhead Conductor Elec. Ry. Co. incorp'd by Geo Westinghouse and others. Capital, \$300 009. 9

Pittsburgh & East End-R. R. Co. Ca

Tr. as. O. H. Bailon, Omaha.

PLAINFIELD, N. J.—Elec. ry. will prob. b. built.

PLAINFIELD, N. J.—Elec. ry. will prob. b. built.

R. Co. 2½ m. 4-8½ g., about 3. lor, 4 to 6 c. elec., motor on each car. Are waiting for improvement in accumulator system. Capital stock, \$25,000.

James D. Thurber and others incorporators. Grant of location has expired but could be renewed.

POMEROY, O.—Pomeroy, Middleport & Sylacuse St. Ry. Co. 10 m, 5-9 g. 50 to 60 lb steel Tr, 8 or 10 box and 12 open c, steam prob. but have right to use animal or elec., about 6 motors. Work to begin in a rew weeks, and road to be opened in Sept. Whil haul freight cars for other roads as well s pass. business. Col. E. R. Davenport, Charleston, W. Va., has franchise.

PONTIAC, HLL.—Pontiac Ry. Co. Incorp'd by Reason M. George and others. Capital, \$20,000.

PORTIAND, ORE.—Portland Traction Co. Incorp'd by Van B. De Lashmut and others. Capital, \$500,000.

PORTIAND, ORE.—Portland Traction Co. Incorp'd by Van B. De Lashmut and others. Capital, \$500,000.

PORTIAND, ORE.—Portland Traction Co. Incorp'd by Van B. De Lashmut and others. Capital, \$20,000.

PORTIAND, ORE.—Portland Traction Co. Incorp'd by Van B. De Lashmut and others. Capital, \$20,000.

PORTIAND, ORE.—Portland Traction Co. Incorp'd by Van B. De Lashmut and others. Capital, \$20,000.

PORTIAND, ORE.—Portland Traction Co. Incorp'd by Van B. De Lashmut and others. Capital, \$40,000.

PORT CHESTER, N. Y.—Port Chester & Rye Beach St. Ry. Co. 4½ m, 4-8½ g, 10 lb side bearing r, 6 c, 6 elec. motors. Work 10 begin March 1; road to be opened May 1. Pres. Chas. D. Haines, V. Pres. Andrew G. Haines, Sec. & Treas. F. H. Skeele. Capital, \$40,000. Office, 45 Broadway, New York, Rooms A. & 5. a

PORTSMOUTH, VA.—Portsmouth St. Ry. Co. To be in operation by Jan. 1. S. T. Dunham, 45

Annew G. Malles, etc. & Teas. F.M. Sach. Copies, 18, \$40,000. Office, 45 Broadway, New York, Rooms 4 & 5. a 12

PORTSMOUTHI, VA.—Portsmouth St. Ry. Co. To be in operation by Jan. 1. S. T. Dunham, 45 Broadway, New York, has charge of construction: and Ruius Martin & Co. supply cars, 4tc. 4 m. 48% g, 35 lb s-b r, 6 c, 6 h at first, will change in a few months to elec. Pres. E. E. Gedney, V. Pres. Wm. H. Stewart, Sec. E. Z. Pennfield, Treas. Thornton N. Motley, Supt. J. E. Hudson. 11

PRESTON, IA.—2 m. R. T. Sheals interested. 10

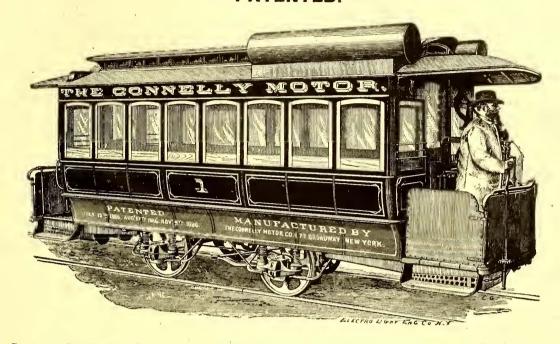
PROVIDENCE, R. I.—Providence, Warren & Bristol R. R. Co. will build cable road. 3/m, from their present terminus to center of city, 4-3½ 1.

Supt. Waterman Stone. Will begin work in a few months. Col. Paine will have supervision of the work.

Providence Ca' le Tramway Co. Cable or h road, prob. former, with termini at Red Bridge and Olney-ville. California system. Expect to make an anicable arrangement with Union R. R. Co. for a portion of latter's track. Work to begin in spring. Pres. Walter Richmond, Sec. Alfred Stone.

THE CONNELLY MOTOR.

PATENTED.



No Fire! No Smoke! No Dust! No Ashes! No Fireman! No Engineer!

Complete within Itself! Generates its own Power! Perfectly Independent! Can run on any Track!

No Cables, "grips" or expensive conduits.

No "Central Station" for generating now

No "Central Station" for generating power.

No loss of power in transmission.

No dangerous Electric currents.

No tearing up of streets for repairs.

No suspension of traffic for repairs.

The Connelly Gas Motor generates its own gas from Naphtha; carries a supply for a day's run, and consumes but ONE GALLON PER HOUR.

It excels all other motors in ECONOMY and CONTROLLABILITY, and stands alone in its INDIVIDUALITY.

The daily expense of operating a road with these motors IS IN EXACT PROPORTION TO THE NUMBER OF MOTORS IN USE, which cannot be said of any Cable or Electric system.

The cost of equipping a road with them is about ONE-HALF the cost of any Electric system, and less than ONE-FOURTH the cost of any Cable system.

The cost of operating, including Fuel, Lubrication, Care, Repairs and Royalties, will not exceed \$2.00 per day, being about HALF the cost by Cable or Electricity.

Any road can adopt these motors without making any change in their system, without interruption to their business, and without risking any investment in special plant, as a few motors can be put into use along with the Horse-cars, and the number gradually increased.

All companies desiring to abandon the use of horses should examine fully into the merits and peculiar advantages of our system, before making any contracts, as it is the only system that can be applied with equal economy on both large and small roads.

All parties interested in street or suburban roads are requested to correspond with us-

THE CONNELLY MOTOR CO., 177 BROADWAY, NEW YORK CITY.

PUEBLO, COL.—Pueblo & Bessemer St. Ry. Co. G. M. Chitcott, And. McClelland and others are interested. 8 Pueblo, Be-semer, Highland & Mineral Park Circle R. R. ask for right of way. QUINCY, MASS.—Quincy St. R. R. 5 m, 48 g, 42 lb T r, 5 c, etec. Pres. H. M. Federhen, Supt. W. F. Lunt. To begin work in Ma ch and open road in Aralle 16 H, N. c.—Jas. Graham, who is backed by the Messrs. Pratt, the oil men, has obtained a franchise.

RICHFIELD SPRINGS, N. Y.—Richfield Springs & Chandarago Lake Surface R. R. 1 m. D. C. Hadcock of Syracuse organizer. Capital \$15,500. RIVERSIDE, CAL.—Riverside & Arington St. Ry. 12 m, 4 8½ g, 16 lb r, eiec. Work to be 4m soon. Capital, \$500 000. Pres. Thos. Bakewell, Treas. 1. S. Castleman, Gen. Man. & Ch. ef Eng. G. O. Neuman, 9 ROANOKE, VA.—Roanoke St. Ry. Co. Chartered, with capital of \$10,000. Pres. Thos. Lewis, Sec. F. T. Brinkley. 5

Castleman, Gen. Man. & Ch. ef Eng. G. O. Neuman. 9

ROANOKE, VA.—Roanoke St. Ry. Co. Chartered, with capital of \$10,000. Pres. Thos. Lewis, Sec. F. T. Brinkley. 5

ROCHESTER, N. Y.—Rochester Cable R. R. Co. 10 in, 4-8 g, about 30 c, cable traction. Work to begin as soon as Iranchise is granted, and road to be opened by July 1, 1888. Pres. Valentine Fleckenstella, V. Pres. John W. Harman, Sec. P. 1718 G. Clark, Treas. Geo. W. Archer. Capital, \$1,00,000. Office, 24 Elmwood Bilg. 9

Eiter yc. co. i corp'd by Henry Brinker, Asa T. Soule and others. Capital, \$75,000. Work has begun. 9

West Side R. R. Co. Incorp'd by C. B. Woodworth and others. Capital, \$75,000. Work has begun. 9

ROCKLAND, MASS.—To connect with No. Abington. 9

ROCKLAND, MASS.—To connect with No. Abington. 9

ROCKAWAY, N. Y.—Elec. y. 9

SACRA MENTO, CAL.—Lewis & Alsip have tranchise for J& N. St. road 11

Highland Park Ry. Work has begun. F. D. Meyer is Interested. 12

SAN JO-16, CAL.—Franchise granted to J. W. Rea, W. P. Dougberty and others for elec. or cable road. Work to begin at once. 10

SANTA BARBARA, CAL.—Cittzens' Ry. Co. incorp'd by G. H. Bouebrake and others. Capital, \$50,000. 10

SAULT STE. MARIE, MICH.—Sault Ste. Marie St. Ry. Co. 6 m. Contemplate elec. Work to begin May 1. Fres. E. M. Lacy, V. Pres. P. C. Keleber, Sec. & Treas. Thos. Ryan, Gen. Man. Lorenzo G. Cody. Capital, \$25,300. 11

SAYRE, PA.—Sayre St. Ry. To connect Sayre, Athens, Pa., and Waverly, N. Y. 4 m. Streets now being graded for track. To be built by Sayre Land Co. Pres. Howard Finner, Treas. Wm. Stevenson. 6

SALT LAKE CITY. U. T.—Elec. Ry. Co. 9

SAN ANTONIO, TEX.—R Woolley, Jr., of Clinciunatl, represents co. formed there to build a st. ry. at San Antonio. 5 or 6 m. 9

West End St. Car Co. incorp'd by G. W. Russ, J. W. Moon and others. Capital, \$50,000. Have not decided on motor. Will build 6 m soon. 11

SAN FRANCISCO. CAL.—Powell St. Ry. Co. Flee, ry., to El Canon, 15 m. 9

West End St. Car Co. incorp'd by G. W. Russ, J. W. Moon and others. Capital, \$50,000. Have n

ested. 9
Telpherage Electric Ry. Co. has been incorporated. Pres. F. M. Speed. Prof. N. S. Keith has charge of engin's. Experimenting on 19th st. 8
Broadway Cable R. R. Co. incorp'd by Robt. Sherwood and others. Capital, \$1,000,000. 8
NANTA ROSA, CAL.—T. J. Glary, M. Doyle and A. B. Ware have formed co. with capital of \$25,000, work to begin soon. 6

OO? Work to begin soon. 6

SAVANNAH, GAA.—Savannah St. & Rural Resort Ry. 6 m, 4-8½ g, 50 lb r, about 20 c, elec or h. Work to begin at once and road to be opened by May 1. Pres. & Gen. Man. H. P. Smart, Se^{*}. C. H. Dorsett. Capital, \$100,000. 11

NAYRE, PA.—Sayre Lead Co., of which Howard Elmer is Pres., will build a st. ry. 1

SCRANTON, PA.—The Nayaug Crosstown R.R. Co. Pres. G. Clark, V. Pres. H. C. Dowd. Sec. T. C. Snow, Treas. B. E. Leonard. Will build 5 m, and probably use electricity. Capital, \$50,000. 2

SEASIDE, FLA.—Sutherland Land & Imp't Co. an Omaha concern, with capital of \$250,000, will build a st. ry. to Lake Butler, 4 m, steam motors. C. F. Wall is interested.

SHERMAN, TEX.—H. A. Burnett will build a road this year. 5
East S.erman R. R. Will soon begin work. N. M. Lee is interested. 11
SIOUX CITY, IA.—E. W. McNell, Manager Rasmussen cable, will build a road here, 2½ m. 3
Sloux City & Morning Side St. Ry. Co. incorp'd by John T. Cheney and others. 3½ m, 4-8½ g. Prob. is setsam motor. Work has begun. Road must be in operation by July 1. Capital, \$100,0 0. 11
SIOUX FALLS, DAK.—Sloux Falls St. R. R. Co. Company must have z m running by Jan. 1 and a mile each year for five years thereafter. Incorporators, L. F. Pettigrew, L. L. Dunning and S. L. Tate, sloux Falls; Jas. Cre.ghton, Cbicago; Elnathan Sawtelle, Evansville, Wis. Capital, \$150,000. 5
SOUTH PITTS-URG, TENN.—So. Pittsburg R. R. Co. chartered by W. M. Duncan, Sam'l Cowan and others. 7
SOUTH BT. PAUL, MINN.—So. St. Paul Rapid Transit Co. 8 m, 49 & 56 lo r, 10 c, etec., 4 motors to each c. Enos Elevated Ry. system, with Datt motors. Work now under way. Will be completed this year. Pres. A. E. Clark, Sec. & Gen. Man. J. H. Lawrence. Capital, \$500,000. Office, German Bank Bidg., St. Paul. 7
SPARTAN burg, S. C.—Spartanburg Land & Imp's Co. chartered by John B. Cleveland, S. J. Simpson and others to build a st. rr. among other things. Capital, \$10,000. 9
B. H. Rice, of Union, S. C., will build. 11
ST. AUGUSTINE, FLA.—Elec. ry. in contemplation. Northern capitalists interested. 8
STAUNTON, VA.—M. Lelterman and A. D. Payne, of Charlottesville, have made procostion. 10
J. Thompson Brown, of Ricbmond, also asks to build. 10
ST. CLOUD, MINN.—St. Cloud Motor Line Co. incorp'd by H. C. Watte, F. E. Searle, C. F. MacDonal

STAUNTON, VA.—M. Letterman and A. D. Payne, of Charlottesville, have made proposition. 10 J. Thompson Brown, of Riebmond, also asks to build. 19
ST. CLOUD, MINN.—St. Cloud Motor Line Co. incorp'd by H. C. Waite, F. E. Searle, C. F. MacDonal and others. Wm. M. Hewiti, of Muscatine, reports 1½ m completed. 11
STERLING, KAN.—H. H. Jackman, of Wichita, will build a street railway here at once. 9
STEUBENVILLE, O.—Haines Bros. propose building a new tine here this year. 8
ST. JOSEPH, MO.—Wyatt Park Ry. Co. 5 m, 4 8½ g, cabie. Fres. J. M. Huffman, Sec. I. R. Williams. Capital, \$3 0,0.0. Being constructed by D. J. Miller, and the Miller system will be adopted. Road may be finished by Jan. 11
Circle Cable Ry. Co. Work has begun. Franchise is owned by Messrs. Johnson, Lillis and Lucas, of the Cittzens' Cable Co., Kansas City. 6 m. 10
Elec. ry. in No. St. Josepb. Being built. 10
ST. LOUIS, MO.—John Jackson, Julius S. Walsh, J. R. Heifenstein and others are interested in a new road on Grand avenue, to use horse, cable or electric power. 6
St. Louis Cable Ry. Assn. Capital, \$100,000. Julius S. Walsh and others, incorporators. 7
Elec. el. ry. to be built by Henry D. Loughten. 7
So. St. Louis Ry. Co. Pres. W. L. Johnson. Will prob. put in Johnson-Rasmussen cable in spring. 9
ST. PAUL, MINN.—St. Paul Cable Ry. Co. V. Pres. Thos. P. Wilson. Now building. 7
St. Paul & Minneapolis Rapid Transit Co. incorp d to build an elevated or surface road between the two cities. Incorporators are P. R. L. Hardenberg and others, of St. Paul, a... win. W. Huntington and others, of Minneapolis, II they build a surface road, will prob. use elec. 11
Metropolitan & Suburban Ry. asks for charter, to use cable or h. One mile must be in operation by Jan. 1, 1888.
St. Paul Elec. Ry. Co. Daft system. 9
SUFFOLK, VA.—Suffolk St. R. R. Co. Incorporated. 7
SUMTER, S. C.—Maryland Elec. Motor M'g. Co., of Ballumore, will build elec. road. 10

rated. 7
SUMTER, S. C.—Maryland Elec. Motor Mig. Co., of Baltimore, will build elec. road. 10
SUNBURY, PA.—Sunbury & Northumberland St. Ry. Co. Eleo, ry. Pres. H. E. Davis, Sec. L. H. Case, Treas, S. P. Wolverton.
SYRACUSE, N. Y.—Butternut St. Ry. Co. 2m. To be built this year 2
People's R. R. Co. 5½ m, 4-8½ g, 45 c, 165 h. Work to go forward this ialiand road to be opened in April. Pres. J. R. Swan, Utica, V. Pres. Daniel Candee, Syracuse, Sec. S. A. Beardsiy, Syracuse. Capital, \$300,-600.
29
Palmyra St. Surface R. R. Co. Pres. John Hadcock.

cuse, Sec. S. A. Beardsiy, Syracuse. Capital, \$300,cuse, S. C. Beardsiy, S. C. Brewster.
2 m, 4-8 x g, 36 lb r, 4 c, 10 h. Capital, \$30,000. To be
built this fall.

9
Hudson St. Surface R. R. Co. Pres. D. C. Hadcock
V. Pres. W. A. Beach, Sec. & Treas. T. D. Brewster.
2 m, 4-8 x g, 36 lb r, 5 c, 12 h. Capital, \$30,000. To be
built this fail.
9
Lyons St. Surface R. R. Co. Pres. Wm, A. Beach,
V. Pres. D. C. Hadco k, Sec. & Treas. T. D. Brewster.
2 m, 4-8 x g, 36 lb r, 4 c, 12 h. Capital, \$30,000.
To be built this fail.
9
Syracuse R. R. Co. incorp'd by Roger S. Perry and
others. Capital, \$100,000.
8
Totrd Ward Ry. Co. To at once build 3 x m. to
Geddes, tranchise having been granted. Pres. Wm.
B. Cogswell, Sec. and Treas. W. S. Wales, Daft elec.
system, with Sprague truck and bearings. Metallic
st. ry.
9
TacCOMA WASH T. —Allen C. Mason is inter-

st. rv. 9
TACOMA, WASH. T.—Allen C. Mason is interested. Will be pushed to an early completion. May use any power but steam, but the co. want this re-

striction removed, saying they may use a noiseless motor, and elec. is also talked of.

TALLADEGA, ALA.—From city to Spring Lake park. Willis Shaw of Birmingham and W. H. Skaggs of Talladega are among incorporators. Taliadega Land & Imp't Co. are interested. 8

TARPON SPKINGS, FLA.—Will prob. be built this winter. 9

Skaggs of Talladega are among incorporators. Tailadega Land & Impt Co. are interested.

TARPON SPRINGS, FLA.—Will prob. be built this winter.

TAUNT-N, MANS.—Scadding St. Ry. Co. Franchise granted, 3½ m. To build through Cedar street from Main to Grant, thence through School, Purchase, Washington and Bay to Scadding's pond, 10 c, 30 h. Capital, \$'0,000. W. W. Swan is interested. Wish to negotiate with parties who would like to take hold of the enterprise.

TEXARKANA, ARK.—State Line Ry. Co. Capital, \$25,000. E. A. Warner, Samuel Lemby and others are incorporators.

B. B. Harrell will build a new line.

TIFFIN, O.—Piffin St. Ry. Co. nas been incorporated. Capital, \$10,00. Perry M. Adams and others, incorporators. May use elec.

TOPEKA, KAN.—Sixth Ave. & Deer Creek St. Ry. Co. Incorporators, Guiliord Dudley, B. F. Goloen, W. D. Alexander and others. Steam, electricity or other motive power. To accommodate the east side and to be built at once.

Higbland Paik Circle Ry. Co. Incorporated, and first 3 m., will be completed by Dec. 1. Steel r, narrow g, dummy engine. Major Hudson is at the head of the enterprise.

TUSKALOOSA, ALA.—Tuskaloost Belt Ry. will be built by Puskaloosa toal, from and Land Co. Officers of both roads: Pres. W. C. Jemison, V. Pres. B. Friedman, Sec. J. W. Castleman, Treus. Geo. A. Searcy. Work to begin at once. v. m, 4 8½ g, 35 lb r, 2 c, 1 steam motor.

TYLER, TEX.—A St. Louis party proposes to build a st. ry. here.

ULYNSLS, KAN.—Ulysses St. Ry. Co incorp'd by Herbert L. Gift and others. Capital, \$10,000. 11 UNION SPRINGS, ALA.—Union Springs St. Car Co. Sec. T. H. Mab-ou, Jr. Building.

WASHING, AA.—Huntsville & Monte Sano. R. Co. has been granted charter. 11

WATERTOWN, DAK.—Chas. Josselyne has received a franchise allowing him the use of any streets he wisnes, and to use etber horse, steam or electric motors. At least 1 mile must be in operation by May 1, 1888.

1, 1888. 5
WATERTOWN, N. Y.—Watertown St. Ry. Co. Incorp'd by A. D. Remington and othe s. Capital, \$40,000. 11

WATERTOWN, N. Y.—Watertown St. Ry. Co.
Incorp'd by A. D. Remington and othe s. Capital,
\$40,000. 11

WAUKESHA, WIS.—Waukesha St. Ry. Co.
Not to be built immediately. Pres. Jas. V. Anderson, Treas. T. W. Haight. 11

WAXAHACHIE, TEX.—Waxshachle St. Ry.
Co. cbartered by Messrs. Duniap, White and others.
Capital, \$25,000. 10

WEATHERFORD, TEX.—Weatherford St. Ry.
Co. Will begin building soon. Pres G. M. Bowie,
Sec. Jas. L. Simmons, Treas. C. H. Milliken, Supt.
L. M. Baitey.
WEST BAY CITY, MICH.—West Bay City St.
Ry. Co. incorp'd by Spencer O. Fisher and others.
Capital, \$30,000. 11

WESTFIELD, MASS.—Westfield St. Ry. Co. 5

m. Directors Eugene Cole and J. H. Stoil, of New
Jork, owning a majority of stock; Orrin D. Parks,
Y. H. Bryan and others. 9

WHELING, W. VA.—Wheeling Ry. Co. 5½ m.
Jos. Spiedel, Sec. John M. Sweeney. Work in progress; will be opened about Dec. 15. Capital, \$50,000. a 11

WICHITA, KAN.—West End Motor Line Co.

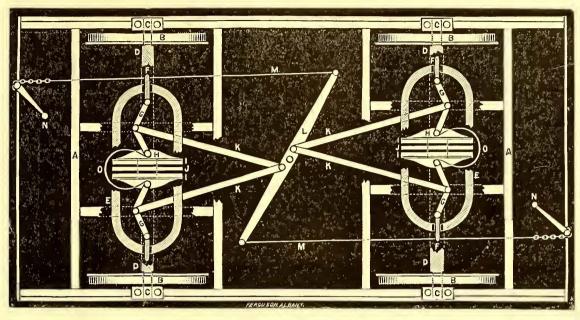
WICHITA, KAN.—West End Motor Line Co. capital, \$100,000. Wm. P. Carey is one of the incorporators. 6
Market St. Horse Ry. Co. incorp'd by H. H. Richards and others. Capital, \$50,00. 11
H. H. Jackman has franchise. Either horse, steam or elec. 2 m, 3 g, 18 lb r, 4 c, 20 mu or 10 h. Road to be opened by next spring at latest. 11
WILLINGTON, N. C.—Wilmington St. Ry. Co. Pres. J. D. Bellamy, Jr., Sec. Sol. C. Weill, Treas. F.H. Stedunan. 11
WINCHESTER, KY.—T. G. Stuart & Co. have been granted franchise for dummy line, and want estimaty. 2 to 4 m, will use h and motors. Work to begin in 2 or 3 months and road to be opened by Sept. 11
WINSTON, N. C.—Winston Elec. Light & Motor

WINSTON, N. C.—Winston Elec. Light & Motor ower Co. will build a line. 7
WOODLAND. CAL.—J. D. Lawson and W. M. oward have rec'd fanchise, and will build at nec. 11

WOODLAND. CAL.—J. D. Lawson and W. M. Coward have ree'd fanchise, and will build at once. 11
O. I. Cheney wants franchise for elec. ry. 1 m. 11 ad O dland
WOOSTER, O.—Elec. ry. 9
WORCESTER, MASS.—Lake Quinsigamond road, 4 m, to be changed from steam to electricity. Daft system. 9
WYANDOTTE, KAN.—Inter-State Consolidated Rapid Transit Ry. Co. 5.6 m, 4-8½ g, 35, 50 and 62 lo c-b and Tr. 24 c, motors. Cable, 2½ m, being built. Pres. David M. Edgerton, Sec. D. D. Hoag, Treas. A. A. Calef, New York, Pur. Agt. D. E. Tyler, Supt. Troe, E. Lewis.
YANKTON, DAK.—Co. Incorp'd, but will not build this year.

218 SO. FOURTH ST., PHILADELPHIA, PA. Screet Railway Journal, 113 Liberty St., N. Y

Messier Car Brake.



Car Frame, B—Car Wheels, C—Journals, D—Axles, E—Brake Frame, F—Adjustable bolts, G—Toggle Joints, H—Brake Shoes, I—Wooden Facing of Shoes, J—Brake Wheel or Friction Disk, K—Draw Bars, L—Brake Lever, M—Pulling Rods, N—Standards, O—Spring,

The Brake, working on the third wheel, placed at such a height from the surface of the road, renders it impossible to clog with snow or ice in winter weather; removing the iron shoes from the wheels and saving the expense of new shoes; also the wearing of flat places on the wheels.

The Shoes placed on the Messier Brake are guaranteed for o e year.

We will place one Brake on any Horse Railroad in the United States for cost of manufacturing.

Remember the Messier Brake can be made duplicate, so that it can be applied to one or both trucks from either end of the car, without placing any additional weight on the car.

After a thorough test of fourteen weeks on the State street road in Albany (this road having a grade of 10 feet to 100 feet), it was told us that it was the first and only Brake ever applied that would stop a large summer open car with lifty-two passengers without setting the wheels.

Letters of inquiry or any question of information will be gladly answered by addressing the Manager,

W. N. LEWIS, No. 8 State Street, ALBANY, N. Y.

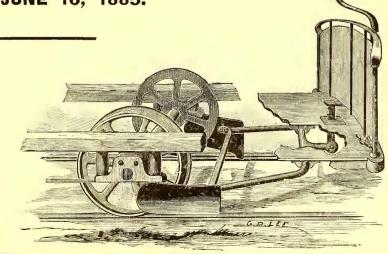
LITTELL'S TRACK SCRAPER.

PATENTED JUNE 16, 1885.

WILL CLEAR THE TRACK OF

SNOW, ICE, MUD, SAND or STONE.

They have the great advantage over all other Track cleaners of being Controlled by the FOOT of the DRIVER, allowing him the full use of his hands.



H. H. LITTELL,

Louisville, Ky.

OFFICE PHILADELPHIA, PA.,

MANUFACTURERS OF THE

GREENWOOD SOLID CALK

PLAIN AND DOUBLE BEVELED

HORSE & MULE SHOES

For Street Railway Use.

STREET RAILWAY COMPANIES CAN HAVE ANY KIND OF SPECIAL SHOE MADE IN QUANTITIES.

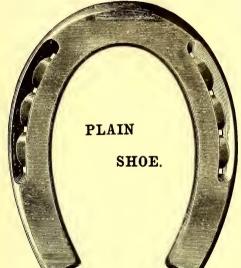
ALL DROP FORGED FROM BEST MATERIAL, IN STEEL OR IRON.

THESE SHOES ARE IN CONSTANT USE ON MANY OF THE LEADING RAILROADS
OF THE COUNTRY.

CORRESPONDENCE SOLICITED.

P. F. GREENWOOD, Manager.

THE BRYDEN FORGED HORSESHOE WORKS, Limited,



CATASAUQUA, PENN.,

MANUFACTURERS OF

BRYDEN

Forged Solid Calk



HORSE AND MULE SHOE.

These shoes are forged into shape under heavy drop hammers, greatly condensing the iron and adding very much to wearing qualities, making it nearly equal to steel in durability.

SOLID

CALK

HORSE

SHOE.

The distinctive feature of our system of manufacture is, that it produces a *finished* shoe, calked, or plain, ready for attaching to the hoof.

The crease is made low and the nail holes are punched well in and beveled to permit the nailhead to be well driven in, reducing the strain on the nails and insuring a firmly fastened shoe.

The foot bearing of the shoe is level, thus materially aiding in the preservation of the hoof.

It is not necessary to heat the shoe in order to fit it.

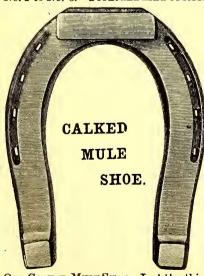
There are no welds in the shoe to break, the calks being solid forged up from the web. The shoes have a good substantial clip drawn up from metal driven outside the regular outlines of the shoe for that purpose. The outer edge of the clip, when drawn up, coinciding with the outlines of the shoe, requires no robbing of the hoof wall to let in the clip.

wall to let in the clip.

Among the street railways using our shoes are, the Third Avenue R. R. Co., Eighth Avenue R. R. Co., Broadway & Seventh Avenue R. R. Co. of New York city; Bushwick R. R. Co., Brooklyn City and Newtown R. R. Co. of Brooklyn; Philadelphia Traction Co., Citizen's Passenger R. R. Co., Second & Third Street R. R. Co. of Philadelphia; Metropolitan R. R. Co. of Washington, D. C.; North Chicago R. R. Co., Chicago City R. R. Co., West Division R. R. Co. of Chicago, Ill.; New Orleans City & Lake R. R. Co. of New Orleans, La.

We present illustrations of some of the many designs of shoes manufactured by us.

OUR CALKED SHOE. A good, strong, reliable shoe to have on hand. The calks will not come off. Always ready to nail on. A handy shoe for the Winter, easily sharpened, and, as the calks will not break, will give as much service as steel. Made in sizes No. 1 to No. 6. Front and hind of steel or iron.



OUR FROG PRESSURE SHOE. The advocates of the frog pressure system of horseshoeing have in this shoe the verything they want. The best shoe made for curing corns or contracted feet. Made in sizes No. 1 to No. 6. Front and hind, iron, or steel.

OUR PLAIN SHOE. "The best railroad shoe made," so says one of the largest consumers of horseshoes in New York city. This shoe is used by the largest street railroads in New York city and Philadelphia. Made in sizes No. 1 to 6. Front and hind.

OUR CHICAGO SPECIAL. Designed to meet the wants of many of our western customers. Extensively used in Chicago, on the principal railroads and for custom work. A light calked shoe for shoeing trotting and driving horses. Made in sizes No. 1 to No 4 of iron or steel.



OUR CALKED MULE SHOE. Just the thing for street railway and coal mining work; solid calks. Made in sizes No. 1 to No. 5 in iron or steel

J. B. WHITE, Manager Sales Department.

DAN'L CRUICE & CO.

Office: 25 Spring st., New York.

Now offers for sale to the public the Reliable Hoof Clasp, which is used as shown in the above cut, for the purpose of closing cracks in horses' feet and holding the hoof firmly together, thus preventing the entrance of water, dirt or sand within the horny shell or wall. It is well understood by horse owners having experience with sand and quarter cracks that they become mischievous only when some foreign substance makes its way beneath the outside crust, which will, if not attended to promptly, cause the horse great pain, and render him useless to his owner. The method now generally practiced for closing hoof cracks is by nailing or riveting, which is both cruel and dangerous. There are many instances on record where tetanus (lockjaw) has set in as a result of the nailing process.

The Reliable Hoof Clasp possesses none of these objections, as there is no hammering required, it being adjusted to the foot by fastening a small vise to both ends of the clasp, allowing the tongue of one side to enter the loop of the other, and by means of a screw the foot is drawn gently together, until the crack is completely closed, and held in that position, by simply pulling the tongue over and laying it flat against the hoof.

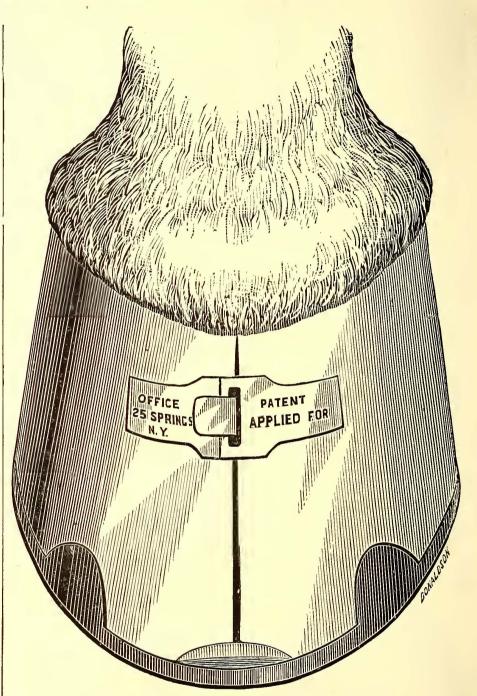
It is well to state, in order to obtain the best results from the clasp, that the soreness should be well out of the foot, and the horse shod properly; if the sole of the foot, having crack, is dropped, it will be necessary to put on a wide web shoe, well concaved, with a bar welded across the center in order to protect the sole from concussion. Good cup feet can be shod in the ordinary way. The clasp should not be applied until the shoe is put on, and the clinches laid down. The horse is then ready for work, and will not give any further trouble.

For Street Railroad Companies the Reliable Clasp will be of special value, as they have a great many fine able horses laid up solely on account of cracked feet.

Those desiring to use the Reliable Hoof Clasps can have them forwarded by mail, together with the necessary tools for applying them, by addressing

Dan'l Cruice & Co...

25 SPRING ST., NEW YORK.



DIRECTIONS FOR APPLYING CLASP.

1st. Place gauge across the crack. Strap it on firmly so that-it will not shift, then insert burning iron without teeth, placing your hand in a slanting position towards the crack, pressing until the iron comes in contact with gauge, then you are deep enough.

and. Place the grips of Clasps into the indentation made by burning iron, inserting at the same time the tongue of one side of the Clasp into the loop of the other, then catch both ends of Clasp in the vise and turn the screw which pushes the tongue through the loop, and at the same time draws both sides o

the hoof together, thus completely closing the crack,

3rd. Pull the tongue of the Clasp well up with pinchers, so that it will lie snugly against the loop, then turn it entirely over so that it will lay flat on the hoof, in order that the horse will not interfere if placed on the inside quarter of the foot. If in time the clasp should become loose apply the vise to both ends, then lift the tongue so that in compressing the vise you push the tongue forward, then lay the tongue back by the aid of the punch in order that it may be brought up snugly to the end of the loop.

Send for Price List.



WM. SOMERVILLE & SONS,

CELEBRATED

MEDICINE NTI-FEVER

The Anti-Fever Medicine has now been in use for over 30 years as a specific in all Diseases of an Inflammatory Character in Horses and Cattle. Anti-Fever Medicine is a Certain Cure for Chills and Fever, Sore Throat, Inflammation of Lungs, Coughs, Staggers, Inflammation of the Bowels, Spasmodic Coile, and Pleuro-Pneumonia in Cattle. This valuable Medicine is now used by the Principal Stables in the Country, by the U.S. and American Express Companies, and many of the Street Car Companies. Try one bottle and you will be convinced of its value in your stable. Sold by all Druggists. PRICE \$1 per bottle. Discount to Wm. Somerville & Sons, Buffalo Horse Infirmary, 127 Erie st. Buffalo, N.Y. the Trade. Address Mention this paper.

P.F. Burke, c. F. Dewick & Co.,

Manufacturer of

Street Railway Companies.

The subscribers beg leave to inform all purchasers of Envelopes for Street Railways, that they are largely engaged in manufacturing

Envelopes of all Kinds,

Especially those used for Change.

They have recently introduced a new style, making each denomination of DIFFERENT COLORED PAPER, thus more easily distinguished by the driver. All well made and gummed. Samples sent when requested.

SAMUEL RAYNOR & CO., 117 William St., N. Y.

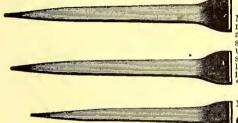
Patent Steel Shoe CALKS, Blunt and Sharp.

Welding Dies for Sharp, and Horse Shoers' Foot Vises. 360 Dorchester Ava.,

Boston, Mass. SEND FOR CIRCULARS.



For Sale by Iron, Steel and Heavy Hardware Dealers

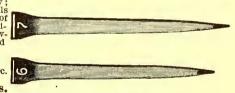


CHAMPION HORSE NAILS.

Manufactured from very best Swedish Metal. Will not split. Are accurately pointed, tough, strong and hold the shoes. Soft enough to clinch readily; stiff enough to drive without bending. All nails uniform and perfect. They are used in thousands of shops with the best of satisfaction, and are especially liked by "floor-men" for their good reliable driving. Made in two patterns, "Large Heads" and "CITY HEADS."

QUALITY GUARANTEED. Nos. 4, 50c; 5, 28c; 6, 25c; 7, 23c; 8, 22c; 9, 21c; 10, 20c.

Champion Horse Nail Co., Appleton. Wis.

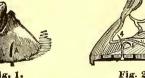


TO

Highest Award at the







YOUR





Centennial Exhibition.

These drawings show how many horses are made lame and permanently injured by the use of the cold cut and sheared-pointed Nails. This process of manufacture produces lamination, causing the iron to form in layers, and when driven into the foot, the horny fibers of which the hoof is composed cause the nail to separate at the point, and one portion passes into the foot.

No. 4 represents one of these nails which was driven into the hoof and slivered in trying, one thin blade passing into the quick or sensitive sole; No. 5 the thick blade of the nail passed out of the wall of the hoof for clinching. After a few days the horse was returned lame, and upon the removal of the shoe, a nail similar to the above was broken off, leaving the sliver in the foot: lock-Jaw ensued, from which the horse died. Upon dissecting the foot a portion of the nail was found to have penetrated through the coffin bone, as seen in Fig. 2, letter A, thus sacrificing the life of a valuable animal.

It requires but little observation and reflection, one would think, to arrive at the conclusion as to the kind of nails to be used in the horse's foot, whether a mangled piece of iron rendered DANGEROUS by the COLD ROLLING ANDSHEARING process, or one made from the rod at a welding heat, where all the fibers remain intact and a perfect oneness maintained and being pointed by the hammer, rendering such an accident as silvering utterly imnossible.

The foot is the Most important member of the animal's body, to which the greatest care and attention should be directed; for when it becomes injured or

diseased, no matter how perfect the other parts may be, the horse's services are diminished or altogether lost. Hence the value of a horse depends upon the condition of his feet.

The horse at every step brings an immense power and weight to bear upon the foot. The hoof is a thing of life and yields to the pressure. The PUT AM NAIL being forged accommodates itself to the pressure of the hoof. It is far otherwise, however, with stiff rolled and cut nails. They remain rigid and their sheared edges are therefore pressed like sharp knives against the horny fiber. This is what causes the broken and rotten appearance so frequently seen in horses shod with cheap cut nails. Can a horse owner afford to attempt to save a few cents in price of nails and ruin his horse? Surely not, for the old adage is true as ever.

As the remedy lies with the owner of the horse, it is for him to prohibit any cold-rolled or sheared nails being used in his horse's feet.

The only Hot-Forged and Hammer-Pointed Horse-Shoe Nail in the

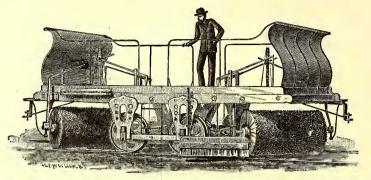
The only Hot-Forged and Hammer-Pointed Horse-Shoe Nail in the World that is not cut, clipped or sheared upon the point, and will not split in driving, is THE PUTNAM NAIL.

THE PUTNAM NAIL CO., NEPONSET P.O., BOSTON, MASS.

THE BROOKLYN RAILWAY SUPPLY COMPANY,

37, 39 and 44

Walworth St.,



BROOKLYN,

DRY DOCK, EAST BROADWAY & BATTERY
R. R. CO., NO. 605 GRAND STREET,
PRESIDENTS OFFICE,
NEW YORK, Feb. 6, 1887.

THE BROOKLYN RAILWAY SUPPLY CO:
DENTLEMEN—The sweepers constructed by you for this Company have been most thoroughly tested on the four lines we operate, on narrow streets mainly, and have in all respects met our expectations, not noily as to wear and tear, but in the efficiency of the work performed by them, as demonstrated during several seasons, both in light and heavy falls of snow
Yours respectfully,
WM. WHITE, PRESIDENT.

OFFICE RICHMOND CITY RAILWAY,
RIGIMOND, VA., Feb. 9, 1887
Mr. Chas. B. Allyn, Pres't, Brooklyn, N. Y.:
Dear Sir—It gives me pleasure to testify to the
orth of your sweeper. I purchased one about fourteen mon hs since, and have tested it thoroughly
and am satisfied of its efficiency Before using it, we
found it always necessary to double up our teams
whenever a few inches of snow fell. Since using we
are able to run our usual schedule with ordinary
teams.

Respectfully,
CHANNING M. BOLTON,
Manager Richmond City Railway.

Manager Richmond City Railway.

PITTSBURG, ALLEGHENY AND MANCHESTER
PASSENGER RAILWAY COMPANY,
MARKET AND LIBERTY STREETS,
PITTSBURG, PA., Feb. 12, 1887.

BROOKLYN RAILWAY SUPPLY CO., Brooklyn, N. Y.:
GENTLEMEN—In response to your inquiry respecting the performance of the sweeper we bought of you ast November, we have to say that for unately our snows have not been heavy the past winter, still sufficient to afford an ample test of what was claimed for the sweeper.

We used it only in removing snow, but occasionally in clearing away soft mud in anticipation of its freezing on the rail.

We are now fully prepared to state, which we do with pleasure, that the machine is all that was promised for it. Is performs its work perfectly, and to our entire satisfaction in every particular. Our Superintendent is delighted with it.

Respectfully yo rs, etc.,
Chas. Twell, Pres't.

OFFICE OF
FAIR HAVEN AND WESTVILLE RAILROAD CO.,
NEW HAVEN, CT., May 20, 1887.
BROOKLYN RAILWAY SUPPLY CO.:
The snow sweeper this Company purchased of you tast fall was used during the winter in cleaning our tracks and gave perfect satisfaction in all respects.
We consider it by far the best machine we have ever used.

Yours respectfull,
H, B, IVES, Pres't.

JERSEY CITY AND BERGEN RAILROAD CO., NO. 1 EXCHANGE PLACE, JERSEY CITY, Feb. 19, 1887.

Mr. Chas. B. Allyn,

37 Walworth st., Brooklyn, N. Y:
Dear Sir.—Yours of the 8th inst. in relation to the
sweepels manufactured b "The Brooklyn Railway
Supply Company," I referred to our Superintendent,
and inclose his reply, by which you will notice that
they have given entire satisfaction.
We have had them in use for four winters, and
they are decidedly the best we have ever met with,
working as they do in either direction, and moving
easily around curves.

C. B. Thurston, Prest.

JERSEY CITY AND BERGEN RAILROAD CO., SUPERINTENDENT'S FFICE, JERSEY CITY, Feb. 16, 1887

Mr. C. B. THURSTON, Pres't:
DEAR SIR—In reterence to the snow sweepers built by the Brooklyn Rallway Supply Co., I do not hestate in saying that I believe it to be the best sweeper in use. We have three of them now in use, and one M M. White Sweeper, which was of no u e u til we had the machinery and brooms altered by the Brooklyn Rallway Supply Co., and now it is as good as any of the other sweepers we have in use. The first one we have used four winters, the second one three winters, and the White Sweeper we had rebuilt over we have used three winters, and te last one we

purchased this winter is what is called the improved, and I think is the best one we have. About the only expense we have had for repairs is for new rattan used, w ich, of course, with the constant wear on the paving stones, wears out, which annot be prevented on any machine.

Very respectfully ours,

T. M. SAYRE, Supt.

OFFICE OF THE
CONEY ISLAND AND BROOKLYN RAILROAD CO.,
SMITH AND HUNTINGTON TREETS,
BROOKLYN, Feb. 8, 1887.
THE BROOKLYN SUPPLY CO.:

The Brooklyn Supply Co.:

Gentlemen— aving used one of yoursn w sweepers for over five years, I can cheeffully testify to their great superiority over all o he's.

During that time we never had occasion to double up teams; not in the most heavy snow storms.

The great saving in salt, as well as the enormous saving to horses, must be apparent to all who use your machines.

Resp. ctiully 'ours, Wm. Farrell, Supt.

BROOKLYN CITY R. R. CO. REPAIR SHOP, 1129 MYRTLE AVE., BROOKLYN, March 11, 1887.

C. B. ALLYN. ESO .:

C. B. ALLYN, Esq.:

DEAR SIR—Yours in reference to certain sweepers built by the Brooklyn Supply Co. and in use on several of our roads is at hand. In reply 1 am gravided to say that they all have given us entire satisfaction, and have proven all that they were represented to be. The small one received a year ago with horizontal lift, I consider a decided improvement, and much prefer it to the angle lift, on the first four s eepers received from you. With this new horizontal lift I consider your build of R. R. sweepers as about perfect. about perfect.

Yours respectfully, A. W. Dickie. Supt. Repairs, B. C. R. R. Co.

OFFICE OF CENTRAL RAILWAY COMPANY,
PRESTON AND CONSTITUTION STS.,
BALTIMORE, Feb. 11, 1887.

CHAS. B. ALLYN, Esq.,
Pres't Brooklyn Railway Supply Co.:

Pres't Brooklyn Railway Supply Co.:

DEAR SIR—We have your letter of 7th inst., asking if our snow sweeper, purchased from your Company, gives satisfaction, etc. In reply we have to state that the machine has given us entire satisfaction, and we cheerfully recommend it as the best appliance for clearing street railwa tracks of snow that we know of. • e think it will soon pay for itself in saving cost of s it and usual labor of clearing away snow.

Yours trully,

Walter Blakistone,

Sec'y and Treas.

NORTH CHICAGO STREET RAILROAD CO.,
OFFIOE, 444 NORTH CLARK ST.,
CHICAGO, Feb. 10, 1887.

THE BROOKLYN RAILWAY SUPPLY CO.
Brooklyn, N. Y.:
GENTLEMEN—I am happy to testify to the excellence of your sweepers. Think more work has been required of them this witter than any for a long time. They have given thorough service, and with very little expense for repairs—in fact, it is seldom they need any. They are the best make of sweeper we know of.

Respectfully yours,
CHAS, T. YERKES, Pres't.

THE 42D STREET, MANHATTANVILLE AND ST.
NICHOLAS AVENUE RAILWAY CO.,
118 AND 1 O EAST FORTY-SECOND STREET,
NEW YORK, eb. 11, 1887.
THE BROOKLYN RAILWAY SUPPLY CO.:

GENTLEMEN—Your snow sweeper has been used by us during the past winter, and after a fair trial we are pleased to say it has given perfect satisfaction. Yours trul John S. Foster, Prest.

OFFICE OF
BRIDGEPORT HORSE R. R. Co.
BRIDGEPORT, CONN., Feb. 5, 1887.
BROOKLYN RAILWAY SUPPLY CO.:
GENTS—I ship by boat to-day per "Pier 25, Bridgeport Steambo t Company dock," New York, broom

heads for our sweeper. I wish you would fill the same and return to us as soon as possible, as we shall ne d th m for the next storm.

The broom is giving me great satisfaction, and I can cheerfully recommend it.

B. F. LASHAR, Supt.

THE NEW WILLIAMSBURGH & FLATBUSH R. R. CO. AND GREENPOINT & LORIMER ST. R. R. CO; GENERAL OFFICE—COR. NOSTRAND & PARK AVS., BROOKLYN, Feb. 12, 1887.

TO THE BROOKLYN RY. SUPPLY Co., 37 Walworth street, City:

'ENTLEMEN—In answer to yours of the 7th instant would say that we are using three (3) of your improved snow sweepers on our four (4) lines with great s ccess and to our entire satisfactio., and without any hesitation can say that your sweepers have no equal.

Yours respectfull.,

CHAS. E. HARRIS, Supt.

Kansas City Cable Railway Co., Kansas City, Mo., April 9, 1886. The Brooklyn R'y Supply Co., Brooklyn, N. Y.:

THE BROOKLYN R'Y SUPPLY Co., Brooklyn, N. Y.:
GENTLEMEN—I beg leave to bear testimony to the excellent service rendered by your snow sweeper on this line during the past winier.
One trip with it after a snow-storm left the trick in good condition for cars to run on. So effectual were its services that we did not lose a single trip on account of snow.
I can safely recommend it to any one desiring a good serviceable machine.
EDW J. LAWLESS, Supt.

OFFICE OF CITIZENS' PASSENGER RAILWAY CO., N. W. COR. TWELFTH & SUSQUEHANNAH AVE., PHILADELPHIA, Feb. 9, 1887. CHARLES B. ALLYN:

DEAR SIR—We have used your Brooklyn sweeper on our road for two years, and find it the most efficient machine we have ever had on the road, and would recommend it to any parties needing one.

Yours respectfully,

JOHN MCCARTHY, Pres't.

OFFICE OF THE B'KLYN CABLE Co., 35 PARK Av.,
BROOKLYN, N. Y., Feb. 9, 1887.

CHAS. B. ALLYN, Esq., 37 Walworth st., Brooklyn, N. Y.:

37 Walworth St., Brooklyn, N. 1.:

DEAR SIR—Yours of Feb 8th, in which you ask my opinion of your sweeper, at hand.

I will ay that the two that I have had in use in Cleveland have proven perfectly satisfictory.

I believe your sweeper to be the best in the market.

Very truly yours,

Tom L. Johnson.

Office of the Cream City Railroad Co., 440 East Water Street, Milwaukee, May 9, 1887. Brooklyn Railway Supply Co.:

We have given to the sweeper you sent us a year and more since a prolonged trial, intended to be thorough. Both in winter at d summer it has been found to be most efficient, surpassing anything we ever used before for cleaning track. Our manager reels that he would on no account dispense with it, and we expect, therefore, to rely upon the use of your sweeper hereafter.

WINFIELD SMITH.

FED. ST. & PLEASANT VALLEY PASSENGER RY.,
PROPLE'S PARK PASSENGER RAILWAY,
ALLEGHENY CITY, FED. 12, 1887.
BROOKLYN R. R. SUPPLY CO., Brooklyn, N. Y.:

GENTLEMEN-We regard the track sweeper purchased from you two years since as a "perfect" machine. During the present season we have frequently used it for no other purpose than to afford perfect footing for the animals, for which alone it is invaluable.

Respectfully yours,

WM. J. CROZIER, Supt.

37, 39 and 44 Walworth St., Brooklyn, N. Y.



Parrott Varnish Co., FINE GOACH VARNISHES.

Bridgeport, Conn., U.S.A.

A. AYRES, Manufacturer and Patentee of AYRES' PATENT AUTOMATIC SWITCH



and only maker of one-horse Automatic Switch. Warranted the best used. Refers to largest roads in New York and Brooklyn. Also AYRES? PATENT TURN TABLE. New style Bending Machines. Wrought Iron Channel Plates, Double and Single Lip and Side Bearing, and maker of all kinds of wrought and cast track and car work.

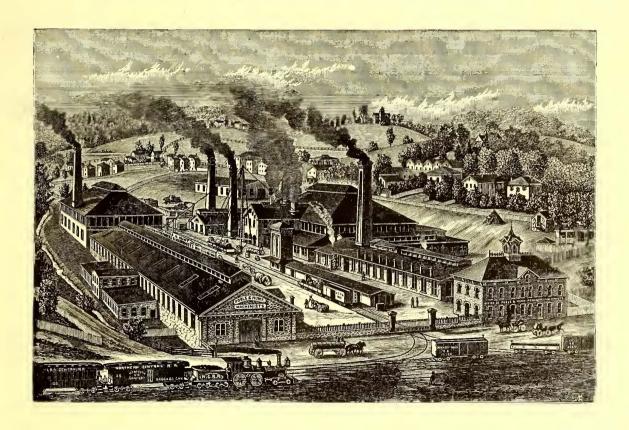
Licensed to Make and Sell Curved Steel Grooved Rail; also Straight-Grooved ones always on hand.

502 to 518 West 45th Street, New York.

RAILWAY CAR VARNISHES

THE STREET RAILWAY JOURNAL, \$2.00 PER YEAR.

POOLE AND HUNT,
Baltimore, Md.,



Manufacturers of Cable Railway Plant,

Machine Moulded Gearing for Mills and Factories.

SAVE THE WOODWORK OF YOUR STALLS

Anti-Cribbing Oil

Also Powerful Disinfectant. For particulars and samples apply to

J. C. SAXTON,

Railway Supplies,

52 Broadway, New York

F. W. JESUP & COMPY., 67 LIBERTY ST., NEW YORK,

Street Railway Supplies,

OF EVERY DESCRIPTION.

Steel Rails, all patterns; Cars; Automatic Switches; Turntables; Curved Rails; Channel Plates; Frogs; Crossings and other Track Castings, Knees, &c. Countersunk Spikes, specially adapted for Center-bearing Rails.

BRODERICK & BASCOM ROPE CO.,

MANUFACTURERS OF

Cable Rope for St. Railways



704 and 706 No. Main St., St. Louis, Mo.

INDURATED FIBRE WARE.

SEAMLESS

STABLE PAILS

FOR STREET RAILWAYS.

LIGHT, STRONG AND DURABLE, NO HOOPS TO DROP OFF.

WILL NOT GROW SOUR.

Spittoons, Tubs, Basins, Pans, etc., etc.

Mou'ded in one piece from wood pulp. Treated chemically, giving great strength and durability, and at the same time making the ware impervious to liquids, hot or cold, Being neither painted or varnished, it will not impart taste to anything put in it, and will not further absorb liquid or odor so as to become heavier or foul. Is very light. Has no hoovs to drop or rust off. Warranted absolutely seamless and unaffected by extremes of weather.

Every Article Warranted, Handled by Jobbers Cenerally.

FACTORIES:

Portland, Mc., Watertown, Mass., Mechanicville, N.Y., Oswego, N. Y., Lockport, N. Y., Winona, Minn., Skowhegan, Mc.

UNION INDURATED FIBRE COMPANY, 110 Chambers St., N. Y., 39 Wabash Ave., CHICAGO.

JOHN A. ROEBLING'S SONS CO.,

MANUFACTURERS OF

PLOUGH STEEL ROPES.

Iron and Steel



AT ROPI

WIRE ROPE FOR STREET CABLE RAILWAYS.

SWITCH ROPES.

PLOUGH ROPES,

TELEGRAPH WIRE.

JOHN A. ROEBLING'S SONS CO.,

Works: Trenton, N. J.

BRANCH OFFICES:

215 Lake Street, Chicago, III. 14 Drumm Street, San Francisco, Cal. . H. L. SHIPPY, Manager, New York Warehouse,

117 and 119 Liberty Street, New York.

Washburn & Moen Manufacturing Company,

Worcester, Mass.

New York City.

Every Variety of

Chicago.



WIRE

For all Purposes.

MAKERS OF IRON AND STEEL.

The Largest Wire Drawers in the United States. WIRE ROPE AND CABLE



OF EVERY DESCRIPTION

A SPECIALTY MADE OF STREET RAILWAY CABLES.

Worcester. Mass.

New York Warehouse, 16 Cliff Street. Chicago Warehouse, 107 & 109 Lake Street.

N. P. Hyndman, Sales Agent,
5 SIXTH AVENUE, PITTSBURG, PA.
L. R. Pratt & Co., Sales Agents,
KANSAS CITY, MO.

THE BEST
WIRE ROPE

IRON STEEL
AND GALVANIZED.
HAZARD MFC CO.
MANUFACTURERS,
WILKES-BARRE, PA

Thos. D. Conyngham, Sales Agent,
87 LIBERTY STREET, NEW YORK.

Mershon & Bancroft, Sales Agents,
204 LAKE STREET, CHICAGO, ILL.

CABLES FOR STREET RAILROADS A SPECIALTY.

GENERAL OFFICE AND WORKS,

WILKES-BARRE, PENN.

A.J. HUTCHINSON. CONTRACTOR

BUILDER OF STREET & ELECTRIC RAILWAYS, Switches and Crossings Laid, Materials Furnished, &c

EOUITABLE BUILDING.

120 Broadway, NEW YORK.

STEAM & STREET

AND DEALER IN

Railroad Materials.

Estimates given. Curves and Switches laid at short notice. Office and Res-

487 Monroe Street, Brooklyn, N. Y.

ENGINEERS & CONTRACTORS.

41 Liberty Street, - - - New York.

We make a specialty of street railway work, acting as engineers, or will contract for the construction of new lines. Repairs promptly executed on out-of-town work. Estimates for warehouse tramways promptly furnished.

SEA SHORE CONSTRUCTION CO.,

(INCORPORATED.)

uippers

M 'PS OF ROUTES, SPECIFICATIONS 13 PARK ROW, CALVIN GODDARD, P. est. ESTIMATES FURNISHED.

New York.

J. ED. ACKLEY, Treas. RUFUS MARTIN, Secy.

P. CRAIC.

and Dealer in Supplies. St., Office 95 Liberty

GROOVE RAIL FOR CURVE constantly on hand, Straight or Curved to any radius or length, at short notice.

CURVING MACHINES of Best Style and Make.

SPECIAL RATES given on AUTOMATIC SWITCHES, TURNTABLES, TRACK CASTINGS, KNEES, JOINT PLATES, SPIKES and all other material for Railway Construction.

Having had over 25 years' practical experience in Street Railway Construction feel confident in saying to parties who contemplate building will find it t their experts to correspond with me before making contracts or ordering material.

WM. HEWITT. M. Contractor

HORSE, MOTOR & ELECTRIC RAILWAYS.

(8 YEARS' EXPERIENCE. Curves, Spikes, Switches, Tram & T Rails constantly on hand.

MUSCATINE, IOWA.

RAYMOND.

Steam and Street Railroad Builder and Contractor. RAILROAD MATERIAL AND ROLLING STOCK FURNISHED.

Railroad and County Bridge Masonry a Specialty. Contracts entered into for the Construction of Canal Water Works, Sewerage, etc.

64 & 66 Broadway, (Room 42.)

NEW YORK.

F. W. CHILDS, Secty.

Wall St.,

NEW YORK. Steel Rails, Railroad Equipment, Electric Motors, Railroad Contracts and Securities Negotiated. Second-hand Rails, Locomotives, Passenger and Freight Cars Purchased and for Sale.

KIMBARK.

Railway Equipment and Supplies, Contractors'
Tools and Supplies, Mining Machinery
and Supplies, Lumbermen's Supplies, Street Railway Supplies.

Michigan Avenue and Lake Street, Chicago, III.

T. WILLIAM HARRIS & CO.,

WATER AND GAS WORKS,

Street Railways & City Improvements Designed & Built.

Special attention given to Electric Railways, and changing old Roads to Electric Motive Power.

BUILDERS OF LOOMIS' PATENT Illuminating & Fuel Gas Works.

No. 2 NASSAU ST., cor. Wall St.,

Room 17.

NEW YORK.

CHARLES HATHAWAY.

FRANK DEHASS ROBISON.

HATHAWAY ROBISON.

RAILROAD CONTRACTORS & BUILDERS.

Hathaway & Robison's Patent Transfer Table for Car Houses. Also F. DeH. Robison's Patent Automatic Switch.

Turn Tables, Tram and T Rails, Switch Castings, Spikes and Street Railway Material generally on hand.

Office, No. 14 Case Block,

Cleveland, Ohio.

CAR WOODWORK.

Pillars, Sills, Sashes, Doors, Curves, Bows, Mouldings, Paneis, all patterns.

CELEBRATED Keg-Shaped Spring for St. Cars

CAR SEATS AND BACKS.
3-Ply, Plain or Perforated, and Frames for Seats; also Rattan and Slat.

FIT ANY BOX.

Are Elastic and Superior to any Springs yet made.

Trial sets furnished. Prices Low.

Cotton Duck and Scrims.

Specialties in this Article.

Write for Prices.

OILS AND GREASE.
Paints, Varnishes, Etc.

Specialties in Lu-

bricants.

CAR IRONWORK.

Chillad Brake Shoes, Pedestals, Boxes, all patterns of Castings and Wrought Iron, Drop Forgings.

D. W. Pugh.

J. S. Pugh,

F. D. Russell

Bearings & Check Plates.

Outside Trimmir gs of Bronze. Grab-Handles, Dash Rail Caps and Ends, etc.

Car Hardware and Trimmings.

Brass, Bronze or Plated Locks, Sheaves, Gongs, Lifts, Change Slides, etc.

Send for illustrations.

Hame Bells a Specialty.

Loop or Solid Shank; Plain

or Strapped; Strong and Durable.

PUGH & RUSSELL, STREET CARS, RAILS,

AND EVERY DESCRIPTION OF

TREET DAILWAY OURDLUE

STREET RAILWAY SUPPLIES.

General Representatives of

THE JOHN STEPHENSON COMPANY, Limited NEW YORK.

STREET CARS.

General Agents of

THE A. FRENCH SPRING COMPANY, Limited PITTSBURG, PA.

STREET CAR SPRINGS.

Eastern Agents

THE JOHNSON STEEL STREET RAIL COMPANY JOHNSTOWN, PA.

Clipping Machines for Horses and Mules. Can be run by Hand or Power, Send for cuts. NEW YORK, STEWART BUILDING, Broadway, Reade and Chambers Sts.

CHICAGO,
PHENIX BUILDING.

CHIMNEYS.

All Patterns — Selected and
Annealed. Will outlast
any others on the
Market.

FIRST HANDS

CAR MATS.

The Folding Mat the Best Made. Also Diamond, Plain, and Co-

ALL DESCRIPTIONS OF TRIMMINGS, CAST-INGS AND GENERAL SUPPLIES. WHEELS AND AXLES.

Snow Sweepers and Plows.

Fare Boxes, etc.

STREET RAILWAY BUYERS

WILL SAVE TIME AND MONEY BY DEALING WITH US.

LAMPS.

Center Lamps and Parts. End Lamps and Drip Cups.

BURNERS

of all patterns.

THE MONARCH our specialty.

Trial orders solicited.

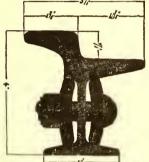
THE GIRDER SYSTEM OUR SPECIALTY.

THE

Johnson Steel Street Rail Company,

JOHNSTOWN, PA.

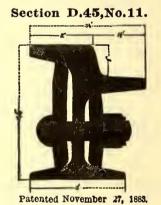
Section C. 28, No. 111.



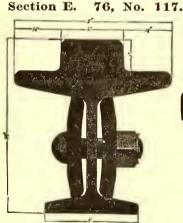
Patented February 20, 1883.

SIDE BEARING GIRDER RAILS

OR



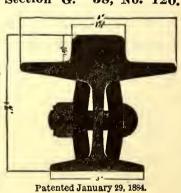
Section G. 58, No. 120.



Patented January 29, 1884.

CENTER BEARING GIRDER RAILS.

Large Assortment of different Weights and Sections.



Rolled Steel Switches, Frogs, Curve Crosses, Etc.

We Furnish Every Detail Wanted in Track Work.

Our customers are guaranteed against all suits for infringements on goods purchased from us and we further undertake to defend the patents covering the details of our Girder System.

To those contemplating the use of the Girder System, we offer, FREE OF COST, to survey their routes, and after consultation as to the best and most economical construction, to furnish full and complete estimates of cost of the completed work. Send for Illustrated Catalogues.

STEEL RAILS

PENNSYLVANIA

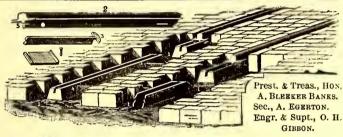
Standard Sections
Light Sections
Street Rails
Fish Plates,
Frogs, Switches
STEPHEN W. BALDWIN
SALES AGENT

STEEL COMPANY

50 to 80 lbs. per yard, 16 " 45 " " " " 30 " 88 " " " " Bolts & Nuts, and Crossings.

NO. 2 WALL STREET, NEW YORK, N.Y.

16 lbs. Full Size.



The Metallic Street Railway Supply Co.

DANY NEW YORK

ALBANY, NEW YORK.

Cheapest, quickest laid and most durable track known. Dispense

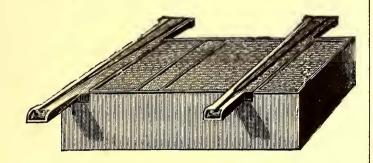
Cheapest, quickest laid and most durable track known. Dispenses with all timbers, butts, spikes, knees, &c. Estimates for building and relaying street railway tracks and full particulars sent on application.

N.Y. Office, 1 Broadway, Humphreys & Sayce, Contracting Agents.

M. M. White & Co.,

531 WEST 33d STREET,

NEW YORK.

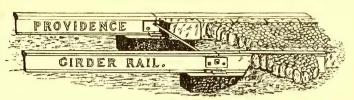


OWNERS AND BUILDERS OF

H. DOUGLASS'

Patent Automatic Switch

FOR STREET RAILROADS.
FRANK H. ANDREWS, Sole Agent, 545 West 33d St., N.Y.

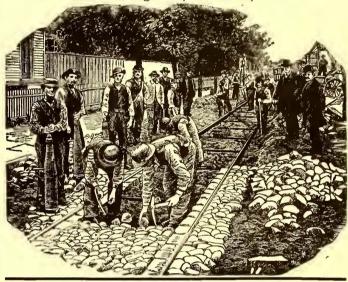


ALL IRON AND STEEL.

The most permanent and very best form of railroad construction for public streets. Fully endorsed by city and town authorities. Send for circular.

Prices furnished on application to

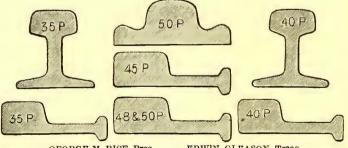
Wm. Wharton, Jr. & Co., Lim., Phila., Pa., General Agents.
Or D. F. Longstreet, Providence, R. I.



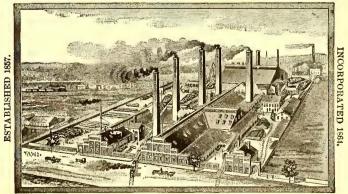
WORCESTER STEEL WORKS,

Formerly WASHBURN IRON CO., Manufrs. of

Bessemer Steel Street Rails.



GEORGE M. RICE, Pres. EDWIN GLEASON, Treas. SAM'L D. NYE, Man. M. J. P. McCAFFERTY, Sec. W. E. COLLES, Gen. Supt.



Works, opposite Union Passenger Station, on Bloomingdaie Road,

WORCESTER, MASS.

Two minutes' walk from the station. Address all communications to WORCESTER STEEL WORKS.

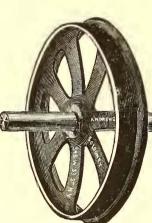
FRANK H. ANDREWS,

OFFICE:

545

W. 33d St.,

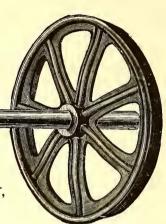
NEW YORK



STREET CAR WHEELS

OF EVERY DESCRIPTION,

On Axles.



WORKS:
535 to 551
West 33d St.,

538 to 552West 34th St.,

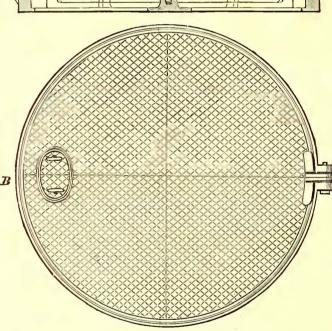
NEW YORK

Manufacturers of

Elliptic, Spiral,

Volute, Car and

Engine



Street Railway Turn-table.

Car Wheels,
Axles,
Brake Shoes,
Pedestals,
Boxes,
Brass Bearings

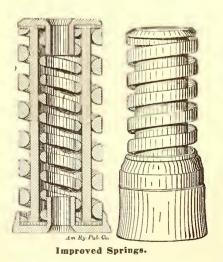
ANI

Castings

of all Descriptions where great Strength is Required.

SPRINGS

Of Every Description.

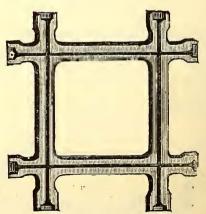


ALSO

Sweepers, Snow Plows, Turn-Tables,

Track Work, Automatic Switches, Etc.

EXCLUSIVE AGENTS IN AND FOR CANADA,



Street Railway Crossings.

BACON BROTHERS, 377 St. Paul street, Montreal, Canada.

FRANK H. ANDREWS,

SUCCESSOR TO

ANDREWS & CLOONEY,

Manufacturers and Contractors for Constructing Street Railways.

THE BUILDING OF

CABLE ROADS,

AND FURNISHING MATERIALS FOR SAME, A SPECIALTY.

All Kinds of Steel and Steel Grooved Rails,

Straight or Bent to any Radius.

Knees, Fishplates, Spikes, Bolts, Etc., Etc.

MACHINERY:

Wheel Presses, Wheel Borers, Axle Lathes, Drills, &c.,

EITHER FOR STEAM OR HAND POWER.

Promptness and Reasonable Prices,
Send for Illustrated Catalogue.

THE LEWIS AND

27, 29, 31, 33 and 35

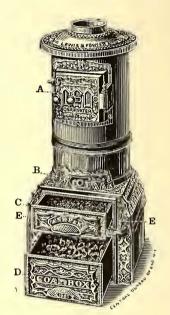
FOWLER'S

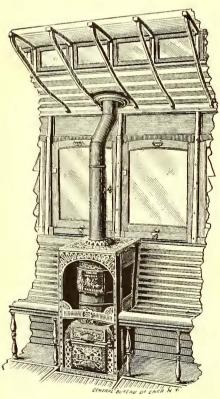
Patent Improved

STOVE BOX

——AND —

Street Car Heater.



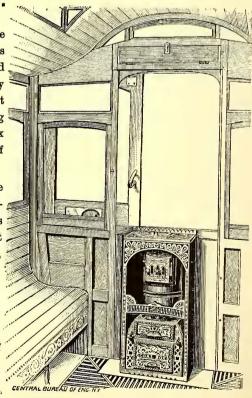


EXPLANATION OF CUTS.

No. 1—Car Heater is designed for one horse or fare box cars, to be fitted as shown in Cut No. 4—when car is operated only from one end. This design does away with the cutting out of seat and does not interfere with seating capacity, projecting only 7 in. into the car. Height of box and stove over all, 2 ft. 10 in. Width of box, 16 in.

No. 2—Car Heater is designed for large car—can be used in small cars when operated from both ends. To be fitted as shown in Cut No. 3. Size of box for Cut No. 2. Width, 16 and 18 in. Height of box, 2 ft. 10 in.

- A-Door, sliding or swinging.
- B-Shaker and Improved Grate.
- C-Ash pan.
- D—Coal Box (which holds one hod of coal, shovel and shaker).
- E. E.-Slides to regulate draft.



IMPROVED "ALARM" PASSENGER REGISTER.

USED BY RAILWAY COMPANIES IN ALL PARTS OF THE COUNTRY,
KEPT IN REPAIR ONE YEAR FREE OF CHARGE.

Guaranteed the most Complete Machine in the U.S. for the purpose

FOWLER MF'G Co.

Walworth St., Brooklyn, N.Y.

MANUFACTURERS OF MATERIALS FOR

Street and Cable Railway Construction

KNEES

SPIKES

CHANNEL PLATES

FROGS

POINTS

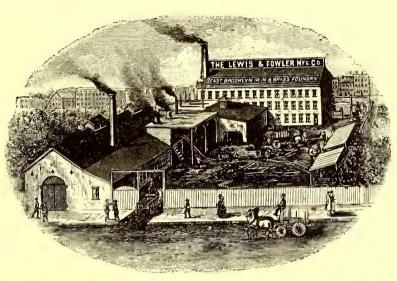
TONGUESWITCHES

GROOVED RAILS

FOR CURVES

BENT ANY DE-

SIRED RADIUS



PEDESTALS

OIL BOXES

BRAKE SHOES

WHEELS & AXLES

BRASS BEARINGS

TURNTABLES

SNOW SWEEPERS

PLOWS

ETC. ETC. ETC.

AUTOMATIC



AND

RAILROAD CASTINGS

OF EVERY DESCRIPTION AND MOST APPROVED PATTERNS.

FOWLER'S IMPROVED RANDALL BOX & RUNNING GEAR.

CATALOGUE FREE TO RAILROAD COMPANIES.

H. H. MARSHALL, Prest.

JAS. M. STONE, Treas. & Atty.

M. V. B. STIMSON, Agent.

NATIONAL RAILWAY

AND

Street Rolling Stock Company,

CONCORD, N. H.

Manufacturers of

THE STIMSON IMPROVED CAR-AXLE BOX.

Office, 191 High Street, Boston, Mass.

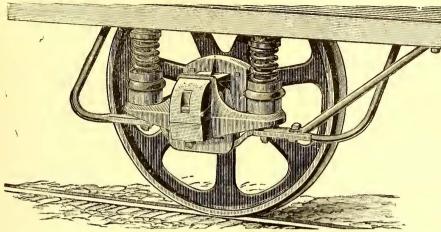
This Box is eminently practical, effecting great economy in expenses for labor and in the care of them, and in the use of oil.

It also furnishes a protection against hot boxes, arising from loss of oil, and in the accumulation of dust, dirt, grit, and other foreign substances, thus reducing the liability to loss or accident from these causes to the minimum.

After a careful inspection of this box as made for steam cars it is regarded as admirably adapted as a substitute for the present washer on account of its simplicity and the easy means of applying it.

The remarkable test of this car axle box on the steam roads, which has been in every way satisfactory, has fully demonstrated its adaptability for the street car service.

The Bemis Car Box Co...



Boston Consolidated St. Ry.
South Boston R. R.
Cambridge (Mass.) R. R.
Lynn & Boston R. R.
Union R. R., Providence, R. I.
Globe St. Ry., Fall River, Mass.
Citizens' St. Ry., Worcester.
Brooklyn Cross Town R. R.
Second Ave. R. R., New York.
42nd St. & Grand St. Ferry Ry., New York.

Send for Catalogue to

Rochester City & Brighton Ry.
Buffalo St. R. R.
Citizens' Pass. Ry., Pittsburgh.
Pittsburgh & Birmingham Pass. Ry.
Columbus Consolidated St. Ry.
Detroit City Ry.
Louisville City Ry.
Denver City Ry.
Milwaukee City Rv.
Cream City Ry., Milwaukee.

The Bemis Patent Journal Box.

Light Draft, Easy Riding, Durable, Economical. Brasses are warranted for 10 years, and Journal for 20 years. Requires oiling or inspecting but once in 12 months. Boxes are positively dust proof.

We Refer to the

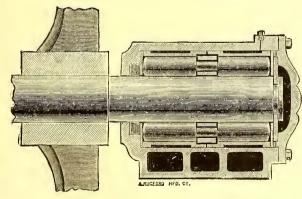
Minneapolis St. Ry.
St. Paul City Ry.
Galveston City Ry.
North Baltimore Pass. Ry.
Chicago Pass. Ry.
Brooklyn City R R.
Grand Ave. Ry., Kansas City.
Metropolitan St. Rv., Kansas City.
East Clevelaud St. R. R., Cleveland.
Sixth Ave. R. R., New York.

THE BEMIS CAR BOX COMPANY.

Springfield, Mass.; 18 & 20 Platt St., New York; 426 Insurance Exchange, Chicago.

The Chaplin Roller Bearing Tramwav

CAR BOX AND GEAR.



LIGHT DRAFT EASY RIDING DURABLE POSITIVELY DUST PROOF AND OIL TIGHT

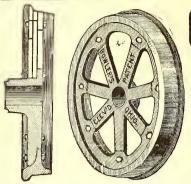
Boxes Hold Sufficient Oil for One Year. No Waste Used for Packing nor Babbitting for Boxes.

Overcomes Friction in Taking a Curve.

SUPERINTENDENT'S OFFICE, HIGHLAND STREET RAILWAY,
NO. 827 SHAWMUT AVE., BOSTON, AUGUST 19, 1886.
CHAPLIN M'E'G CO., MESSES.:—In reply to your note 1 will say we have had a set of your
Gear under car, "Gov. Rice." for the past four years and it has proved very acceptable, so
much so that we have decided to put on 50 sets of your improved pathern. The wear on the
journal is imperceptible, and it is beyond question the easiest running gear in the market.
Respectfully, J. E. Rugg, Sup't.

SEND FOR CATALOGUE.

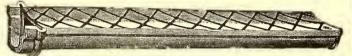
The Chaplin Mfg. Co., 69 Wall street, New York.



Cleveland Foundry,

Manufacturers of

Car and Locomotive Wheels, either Chilled or Steel Tired; with or without axles. Street Railway Wheels, Turnouts and Turntables. Patent Chilled Face RR. Frogs. Engine & Heavy Castings a Specialty.



Graded Stable Cutter with Straight or Curved Cover.

Descent % inch per foot. Pieces 5 feet lengths; short pieces furnished to suit any length. Spouts to connect with sewer.

They control and make N. P. Bowler's Patent Street Railroad Wheel. The tire of this wheel is cast separately from the hub and spokes; the latter is made of soft strong iron, and is perfectly free from strain—therefore can be made much lighter and more durable. The tires and the spokes or center of the wheel are made perfectly interchangeable so that when the tire or rim is worn out another can be put in its place by any employee with no other tool than a common wrench.

Bowler & Co. Winter St. Cleveland, O.

ESTABLISHED 1847.

A. WHITNEY & SONS,

CAR WHEEL WORKS.

PHILADELPHIA, PENN.

CHILLED WHEELS.

FOR EVERY KIND OF SERVICE.

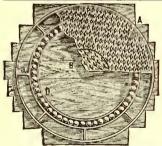
Street Railway Wheels of all Sizes.

Clute's Patent Double



durability, and is perfect in regard to leakage.

GEORGE M. CLUTE, Sole Manufacturer; Also Dealer in Car Reflectors, Chimneys, Burners, Etc. WEST TROY, N. Y.

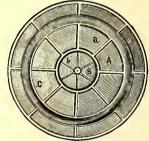


S. M. CARPENTER, Prop.

C. J. LANGDON, Secy.

FULTON FOUNDRY,

MANUFACTURERS OF



STREET RAILWAY SUPPLIES,

Carpenter's Patent Turn-tables and Transfer-tables,

Open Wheels of all sizes and weights. Wheels and Axles of all sizes fitted on short notice.

Chilled curve rail, Turnouts, Switches, etc., etc. on Application.

Blue prints and Bills Furnished

Send for Illustrated Catalogue. Address,

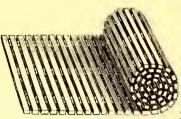




FOUNDRY, LTON

202 MERWIN ST.

CLEVELAND, OHIO.



WARNECK & TOFFLER,

211 Enst 22nd Street, New York. Sole Mfrs. & Patentees of the only

ROLLING WOOD MAI

FOR STREET CARS.

This matting, made either in round or square slats, is a self clenning mut, neat, convenient, and by far the cheapest one in the market. Please send for particulars.

SUPERIOR TARRED ROPE TRACE.



BELL AND HAME STRAP COMBINED.



Monthly, \$1 per Year. Sample Copy Free. Power, 113 Liberty St. NEW YORK.

Power is a practical journal covering that branch of mechanics which includes all forms of development and transmission of power,



Sole Manufacturer

Eureka Folding Mat.

The Most Durable, Easiest Cleaned and Repaired Wood Mat ever made.

I would respectfully call the attention of Managers of Street Railw ys to my latest improved Reversible Folding Mat, made to fit any size car. Sample

1193 Broadway, New York.

FACTORY-CRANFORD, N. J.

VULCANIZED **DUST-GUARDS.** FLEXIBLE

SUPERIOR TO LEATHER OR ANY OTHER MATERIAL.

Keep the Oil in the Car Boxes, and Sand and Dust out of them.

They are not affected by oil, grease, or petroleum; do not cut the axles, as grit does not adhere to them; keep their shape well, and will outwear several leather ones. Cut to order of any desired thickness or pattern. Send drawing or sample for estimate. This material is absolutely free from grit and will not become brittle and break. Now in use on the Leading Railroads, giving general satisfaction.

BE SURE TO SEND FOR SAMPLES AND PRICES.

New York Office, No. 14 Dey St.

VULCANIZED FIBRE CO., Wilmington, Del.





DUX LUBRICAN

The Leading New Grease for Street Railways Trade Mark Pat. Mar. 13, 1883.

The Best Lubricant for Street Railways Known.

Will run for One Year on One Packing. Cars will run easier packed with Dux, than with oil and waste. Why? Because we give you a better lubricant. No drip from Car Boxes when packed with Dux, and, therefore, keeps the car boxes and trucks clean.

Try it and you will use no other Lubricant.

DUX FOR STREET RAILWAYS. PITTSBURG, ALLEGHENY & MANCHESTER RY. Co., PITTSBURG, PA., Aug. 13, 1885.

Leib Lubricating Co.:

GENTLEMEN—We have used Dux Lubricant for the past nine months. It has given entire satisfaction; in fact, it is the best I have ever used. Think it fully as good as represented.

Yours truly,
J. C. COTTON, Supt.

OFFICE OF CAMDEN HORSE RAILROAD CO., CAMDEN, N. J., Dec. 14, 1886. Leib Lubricating Co., 196 and 198 Chicago st., Buffalo. We have used your "Dux Lubricant" for about two years and regard it as the best and cheapest lubricant ever used by this company. John Hood, Supt., etc.

OFFICE OF ACUSHNET STREET RAILWAY CO., NEW BEDFORD, MASS., Dec. 11, 1886.

OFFICE OF ACUSHNET STREET MAIDIA.

The Leib Lubricating Co., Buffalo, N. Y.:

DEAR SIR—We have used several packages of your "Dux" and like it very much. We can recommend it to any one us ng axle grease.

Yours very truly,

A. P. SMITH, Treas.

Byron Weston, First-Class Ledger and Record Paper, Dalton, Mass., Oct. 15, 1886.

Leib Lubric sting Co., Buffalo, N. Y.
Gentlemen—Yours of the 13th inst. received. In reply; we like your Dux

Lubricating Compound very much, and when this is used up that we have on hand shall order more. I find on heavy bearings where no other oil or grease would cool it yours did the work.

Yours truly,
HARRY W. HITT, Supt.

FAULENER MILLS .- F. J. HASTINGS & Co., MILLERS.

FAULKNER MILLS.—F. J. HASTINGS & C. 23, 1886.

Leib Lubricating Co., Buffalo, N. Y.

GENTS:—Your favor of the 17th inst. duly received. In reply we would say, that for several years we had much trouble and annoyance to find a lubricant for our heavy bearings that would stand, and tried various articles on the market without being satisfied, until a friend connected with a large manuracturing concern gave us a few pounds of the Dux Lubricant to try. It worked so much better than anything we had ever had that we ordered enough from you to give it further trial, and as a result have used it ever since, and can truly say it is the best lubricant we ever used. It will stand heat, gives off no drip and is economical, and we are very much pleased with it and do not hesitate to declare that it is our firm belief that there can be nothing ever made to equal it. Our experience on wagons has been equally satisfactory; our first attempt being on a heavy wagon used every day, heavily loaded, ran 21 days when it went into the shop to be painted, and then was in a good condition to run longer. The only thing we regret is that we did not at once try and arrange to sell it in this locality, still one of our townsmen to whom we gave your address, Mr. Littlefield, has since obtained the agency, we learn, and we can obtain it through him.

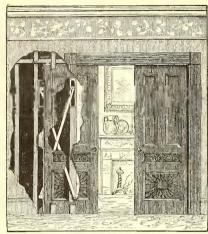
Yours truly.

F. J. Hastings & Co.

MANUFACTURED BY

The Leib Lubricating Co., 196 & 198 Chicago St., Buffalo, N.Y.

FRANTZ & ENNIS, WILKESBARRE, SOLE AGENTS FOR PENNSYLVANIA.



BRACE HANGER.

PRESCOTT'S DOOR HANGER.

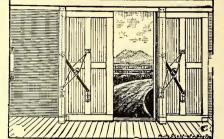
TRUSS HANGERS, for Baras, Warehouses, Freight Stations, etc., BRACE HANGERS, Concealed from View, for Parlor Doors.

NO ROLLS OR TRACK.

Hangers for Elevator Doors a Specialty.

Send for Circular.

Prescott Manuf. Co.,



61 & 63 OLIVER STREET, BOSTON, MASS., U.S.A.

THE HAYCOX

PATENT DOOR FASTENER.

ADOPTED BY

All Cleveland Railway Companies.

Patented May 5, 1885.

Fastener detached, made of malleable iron, weight about five pounds.

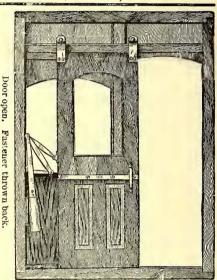
Especially adapted for Elevator Doors.

For further particulars, prices, circulars, etc., address

Haycox Door Fastener Company,

W. E. HAYCOX, Manager.

1,158 Euclid Avenue, Cleveland, O.



JOHN C. WUERFEL

HENRY KAHLO.

WALTER PICKENS.

ROOT HEATERS. CAR

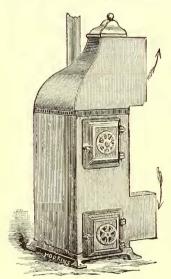
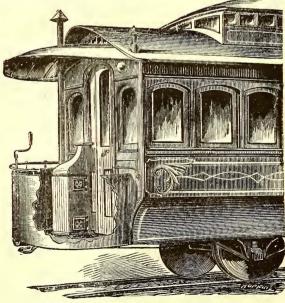
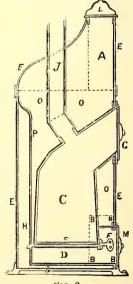


FIG. 1. External appearance of The Root Patent Car Heater,



Represents Heater in Position on Front Platform of Cars.



Sectional View of Fne Root Pat. Car Heater.

Represents Heater in Position of Fig. 1.—Is the Heater detached, showing a section of Smoke Pipe. 3 inches in diameter, the upper door for coal and the lower door for removal of ashes. Arrows indicate hot and cold air registers. The doors contain dampers for regulation of draft.

Description of Fig. 2.—A, hot air; B B, cold air receivers; C, fire pot; D, ash pit; E E, outline of heater; F, double dumping and shaking grate; G, door; H, cold air space between outside casings; J, flue; L, removable tops; M, lower door; O P, air passage.

The features of excellence claimed for the Root Patent Car Heater are: They occupy a space of only 10½x14 inches, and are located on the front platform of cars; they furnish heat for the driver and do not interfere in the discharge of his duties; the cars are not mutilated in attaching the Heaters; neither the sliting nor standing capacity of car is curtailed; the heat is made uniform by drawins the cold air from the bottom of cars; they render cars abundantly warm in the coldest weather and are easily operated and regulated. They are convenient, economical and efficient.

The Root Patent Car Heaters have been in use from one to six years on Street Railways in Ruchester, Brooklyn, Albany, Pittsburgh, Wheeling, Baltimore, Elmira, Milwaukee, Minneapous, St. Paul, Bay City, St. Joseph and other cities. We have many testimonials in behalf of all that is claimed for them. Further information can be obtained by addressing

THE TOLEDO CAR HEATER COMPANY.

FACTORY, WATER AND CHERRY STREETS, TOLEDO, OHIO.

NATIONAL CAR



IMPROVED.

For Warming Horse or Street Railway Cars,

These car heaters are in successful operation on all of the street raliway lines in the city of Brooklyn, New York, and on railroad lines in the United States and Canadas, and give entire satisfaction.

It is neat in appearance, occupies but little space, is an ornament to a car, is not costly in price, nor expensive in its operation.

Sole Manufacturers.

NATIONAL

STOVE CO.,

243 Water St.,

New York City.

HEATER. "The Reliable Sand Box"

Over 600 Now in Use.

W. T. BUTLER, Esq.,

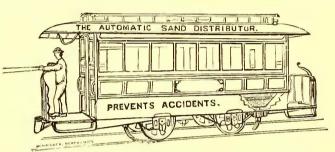
GEN'L MANAGER CAR TRACK FRICTION APPLIANCE Co.

DEAR SIR:-I hereby endorse all that President Cummings says. We have had a more lengthened experience with your Sand Boxes, and I think I can truthfully say that no street railway can afford to do without them.

Very respectfully,

C. A. RICHARDS.

Pres. Metropolitan R. R. Co.



THE AUTOMATIC SAND DISTRIBUTOR,

For Horse, Cable, Electric and Steam Cars.

Charges the Sand direct on top of rail, in front of wheel, in any quantity, whenever wanted. Acts instantaneously by foot pressure.

Patented and manufactured by

The Jordan-Mills Manufacturing Co., 32 Nassau Street, New York.

CAR EATING

BY CLINE'S PATENT

Aromatic Carbonic Compound Fuel,

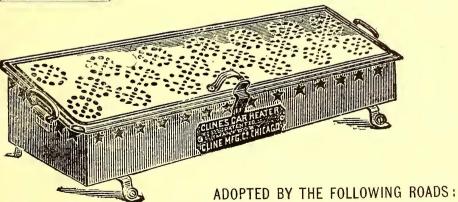


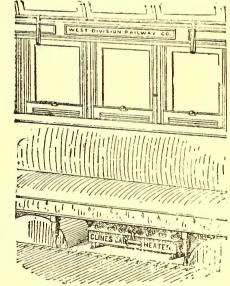
Convenient.

Safe.

Once Filling lasts 18 hours.

NO CUTTING OF CAR TO PUT





CHICAGO WEST DIVISION; CITY OMNIBUS CO., Chicago; SOUTH CHICAGO CITY RAIL-WAY CO.; PEOPLE'S PASSENGER, Philadelphia; PITISBURG & BIRMINGHAM AND OTHERS.

CO., 277 and 279 South Canal Street, CHICAGO, ILL. SOLE AGENCY FOR MISSOURI & KANSAS, 219 & 221 MARKET ST., ST. LOUIS, MO.

REGISTER RAILWAY

MANUFACTURING

MANUFACTURERS AND OWNERS OF THE Latest Designs, Improvements and Inven tions in Registers, Indicators, Classifiers and Punches, for the Recording of Fares Collected on Street and Steam Railroads.



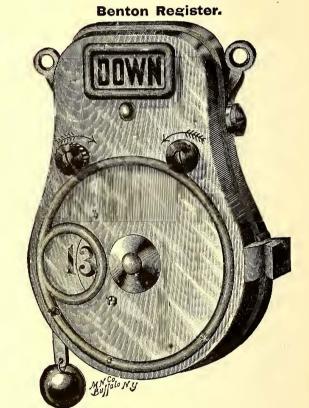
JAMES McCREDIE, Pres., Buffalo, N. Y.

COMPANY.

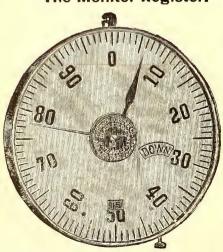
This company owns over 100 Patents embracing all the Valuable Features of Fare Registers, Indicators, etc., and was awarded three Medals at the Chicago Exposition of Railway Appliances.

The Alarm Registering Punch.

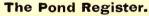
This Register, which is so generally used throughout the United States and Europe, we claim to be the most perfect check that has ever been placed before the public for the Collection and Registration of Fares on Street Railroads, especially where different rates of Cash fare and tickets are to be collected.

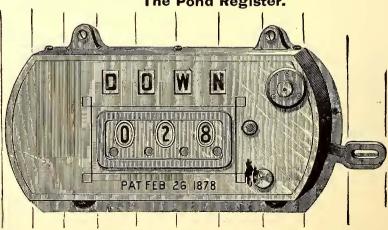


The Monitor Register.



Railway com-panies desir-ing to use a Stationary Register will consult their own interest by examining this Register before adopting any of the cheap devices now offered as it is the most Reliable Register of its kind. For further particulars address





EDWARD BEADLE, Manager, 1193 Broadway, New York City, N. Y.

JOHN F. COURTNEY, Gen. Agt., 423 Walnut St., Philadelphia, Pa.

ELI BALDWIN, President.

THE

Walter S. Baldwin, Sec'y & Treas.

STANDARD INDEX AND REGISTER COMPANY,

138 FULTON STREET, NEW YORK,

SOLE LICENSEES AND MANUFACTURERS OF THE

SIMPLE.

IMPROVED

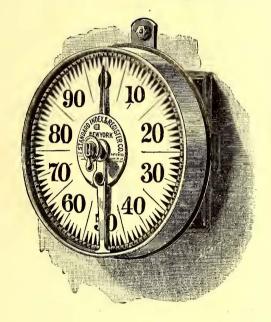
DURABLE.

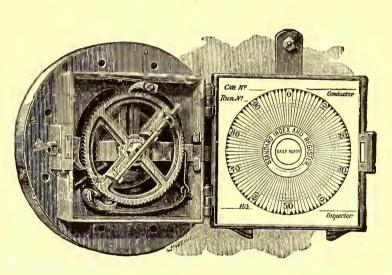
STANDARD

INFALLIBLE.

INDEX & REGISTER.

ECONOMICAL.





ADOPTED BY THE LEADING RAILROADS IN THE UNITED STATES.

Besides indicating upon its face, the fares as the alarm is rung, this register indelibly records them as well as the trips made upon a paper dial inside. This paper dial is removed at the end of the day and is a correct report of the fares registered each trip and the number of trips made, which cannot be altered or obliterated.

We therefore claim our system of registering fares to be the simplest and best, and it positively stops any collusion between employees.

Testimonials confirming this statement from roads on which the "Standard" has been used for the past five years will be furnished upon application.

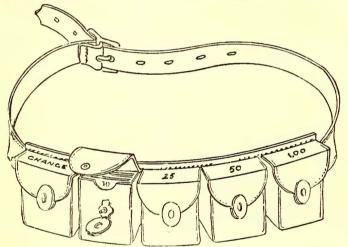
RUFUS MARTIN & CO.,

13 Park Row, New York.

MAKERS OF AND DEALERS IN

STREET RAILWAY MATERIALS AND SUPPLIES.

Martin's Change Belt.



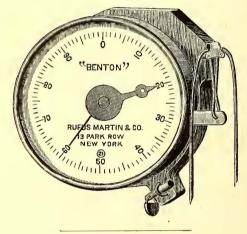
BRILL'S PAT. CAR APPLIANCES.

"EQUALIZING GEAR."
"CHANGEABLE END-LIGHT."
"RATCHET BRAKE-HANDLE."
"REVERSIBLE SIGN-CASTING."

CAR TRIMMINGS

Iron, Brass & Bronze.

"Benton" Register.



Stationery & Office Supplies.

Harnesses & Stable Supplies.

Rubber Goods & Step Treads.

Lubricants and Oils.

FARE BOXES.

WESTERN

AGENCY

Wichita Construction and Supply Co., - - Wichita, Kan.

Extensive makers of Patented Street Car Seats

of every description.

Our Patent Spring Seats covered with Rattan or Carpet are fast being adopted by the best railroads in the country. Seats for Steam Cars a Specialty. owners and makers of all the Cobb patents



Many R. R. Co's use our Rattan Pat. Canvas Lined Seats for Summer and cover the same with carpet for Winter. This method of seating we recommend as durable and economical, for the reason both a Summer and Winter seat is obtained in one.

Estimates & Particulars cheerfully given (mention this paper), satisfaction gnaranteed

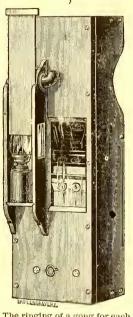
A TRIAL SOLICITED.

OFFICES: 48 & 50 NO. SIXTH ST.

FACTORIES: 615 to 621 Filbert St.,

THE HALE & KILBURN MANFG. CO., Horace A. Keefer & Co.,

St., Cable & Motor Road Track, Material & Equipment a Specialty.



COLLECTOR FARE THE BEST THE

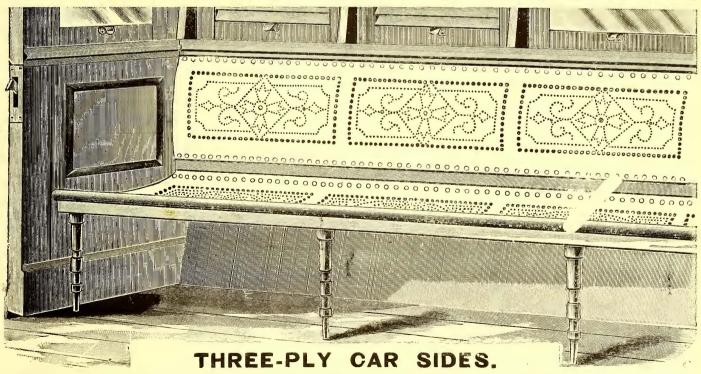


The ringing of a gong for each fare, checks the passenger as well as driver, and hence conductors' bell punch is unnecessary.

SEND FOR PRICES AND CIRCULARS BEFORE BUYING.

WESTERN AGENTS FOR Hamilton-Corliss Engine. Ltd. Bemis Car Box Co. Pails, Splices, Spikes, Bolts & Nuts of all Kinds.

PHILADELPHIA, PA. Cut of section of cross for summer car.



These seats and backs have been in use a number of years and have given universal satisfaction. They have received such a thorough test and are so well known that they show their good qualities and we need say nothing for them. Our facilities for doing this work are the largest in the world. We own the forest from which our lumber is cut. We cut our own veneer and do our own work in all its departments. We keep, laid up in stock, seats and backs and can fill all orders promptly. Our 3-ply white wood car sides, ends and roof add fully 75 per cent to the strength of cars. We can also furnish car ceilings made of any kind of wood desired, plained decorated. Send for Rallroad Catalogue.

Frost & Peterson, 161 & 163 West 18th St., N.Y.

W. P. SECUINE, Manager Railroad Department.
PURDY & HUNTINGTON CO., Limited, Agents, 59 ShoeLane, London, E. C.

"PAY HERE."

Fare Boxes and Change Receptacles



Box No. 3. Front or Passengers'

OUR NEW FARE BOX NO. 3

Is pronounced by the many Street Car Companies using it to be the best.

The following are some points of superiority in this box over others:

Simplicity of Construction, Quickness and Convenience of Cleaning, Security of Money Drawer, Beauty of Finish and Much Cheaper in Price.



RECEPTACLE.

Descriptive and Illustrated Circular on application.

Examine the merits of this box and get our prices before buying.



Box No. 3. Back or Driver's

The only satisfactory arrangement in use for making change with the driver.

WALES MANUF. CO., 76 & 78 E. Water St., Syracuse, N.Y.

SLAWSON'S PATENT FARE BOXES

These Boxes are of the latest and most approved pattern, and contain a front door, by opening which all of the glass inside can be conveniently cleaned. This is a late patent, and is a very valuable improvement over the old method of taking the boxes apart for that purpose. They are well made and not liable to get out of order, cannot possibly be picked, and even if all the glass is broken no fare can be extracted from the drawer.

The late J. B. Slawson originated the "FARE Box Sys-

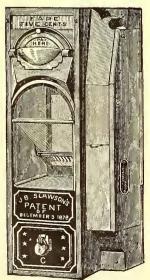


Change Stide. Outside View.

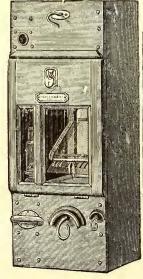
CHANGE

TEM," and all of his Boxes, Change Gates and Drivers' Change Box are protected by several patents, and parties using them are not liable to claims for iniringements, as may be the case with some boxes which are now being offered for sale.

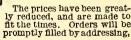
These Boxes, etc., are now in use not only in the United States and Canada, but in Mexico, South America, Europe, Asia, Africa and Australia—in fact, nearly all places where street cars are used.



C. Front View.



Change Gate. Outside View.



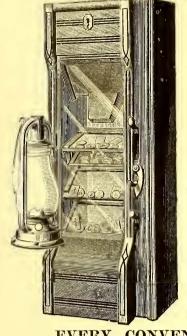


D Front View.



D. Back View.

NEW YORK. MILTON I. MASSON, Agent, 365 AVENUE A,



THE BEAMAN FARE BOX.

MANUFACTURED UNDER TWO PATENTS OF FEB. 15th, 1887.

Absolutely Secure, Whether Fastened to the Car, or Not.

No Fares can Possibly be Turned Out or Abstracted by any Known Means.

EVERY CONVENIENCE PROVIDED FOR THE INSPECTION OF FARES.

Easily Cleaned, Simple and Durable in Construction.

The Smallest Detail has been Carefully Designed.

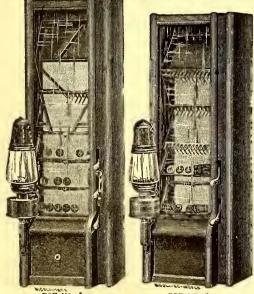
Its many New and Important Features, it is Conceded, place It Beyond Competitors.

For Full Particulars, Address,

T. L. BEAMAN, Knoxville, Tenn. TOM L. JOHNSON'S

IMPROVED FARE BOX.

NOW IN GENERAL USE IN CITIES THROUGHOUT THE U.S.



Patented Oct. 14, 1873.

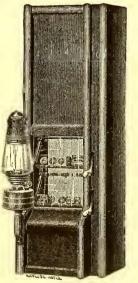
Fares Cannot be Extracted or boxes Robbed without violence.

Roads Equipped with Boxes on Trial, and if not satisfactory, returned without any expense to the company trying them.

Ornamental to any Car.

Special Sizes built to order.

NOTICE.—All parties are cautioned against using fare boxes recently placed on the market which are direct infringements on our patents.



BOX NO. 3.



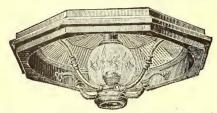
HARIOT PATTERN.

REDUCED PRICES

Write for Descriptive Circular and Price List. Address all correspondence to

A. A. ANDERSON, INDIANAPOLIS, IND.

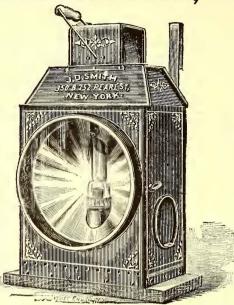
JOSEPHINE D. SMITH, Successor to the late WILLARD H. SMITH, 350 & 352 Pearl Street, New York.



No. 3. Bombay Center Car Lamp, fancy arms, 25 in. corrugated glass reflector, with cover. Finished in brass or bronze.



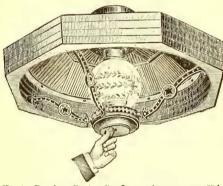
No. 1. Bombay Center Car Lamp, plain arms, 25 in. corrugated glass reflector, with cover. Finished in brass or bronze.



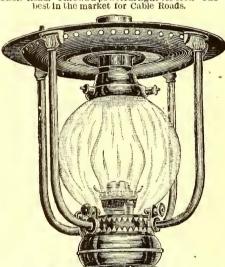
No. 10. Head Light. As used on Tenth Avenue, New York, Cab.e Road. Throws a powerful light 100 feet. The best in the market for Cable Roads.



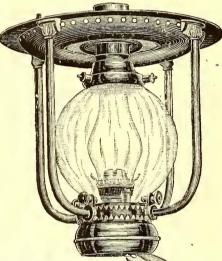
No. 10.—Two-light Car Lamp as used on Tcnth Avenue (N. Y.) Cable Road.

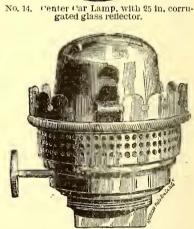


Bombay Center Car Lamp, fancy arms, 25 in. corrugated glass reflector, with cover. Finished in brass or bronze.



No. 2. Center Car Lamp, 14 in. Nickel Reflector. In general use throughout the United States and Canada.





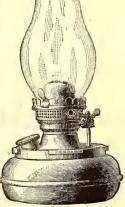
J. B. M. Two spring Burner.
This is the best double-spring burner made.
Universally used for Street Car Center and Box Lamps.



o, 1. Center Car Lamp, with 25 in. corru-gated glass reflector; in general use on horse railways throughout United States and Canada.



No. 3. Center Car Lamp, with 25 in. corrugated glass reflector.



Center Car Lamp Oil Fount with J. B. M. Borner and patent wick raising attachment. This fount interchanges with all of my Center Car Lamps.



No. 3, Brass Box Lamp, with drip pan and J. B. M. Burner.



No. 20. Small Head-light, 16 in. high over all. 10 in. face.

Manufacturer of Smith Patent Center Car Lamps & Reflectors.

For Street Cars, Cable, Elevated & Steam Passenger Coaches. Also all kinds Trimmings pertaining to Car Lamps, Burners, Chimneys, Globes, Wicks, Corrugated Reflector Glass, etc., etc.

RICHARD VOSE.

13 Barclay Street,

PATENTEE AND MANUFACTURER OF

Graduated Street Car Springs.

RUBBER CONE.

Patented, April 15th, 1879.

ADAPTED TO THE

STEPHENSON,

BEMIS.

RANDALL,

HIGLEY.

BRILL,

JONES,

BALTIMORE,

VOLK.

CHAPLIN.

LACLEDE

And all other Boxes.



No. 0, for 10-ft. Light Cars.

No. 1, for 10-ft. Cars.

No. 2, for 12-ft. Cars.

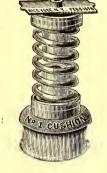
No. 3, for 14-ft. Cars.

No. 4, for 16-ft. Cars.

No. 5, for 16-ft. Cars. (Single Pedestal.)

No. 1, Cushion, for 16-ft. Cars.

No. 2, Cushion, for 12 and 14-ft. Cars.







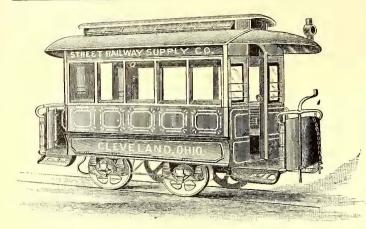
Adapted to all Pedestal AND Post Cears.



Slow-

It has no Rapid Vibrations.

This Spring is weakest on the ends, and strongest in the center. The bar is coiled on a mandril of equal diameter throughout. Thus where the greatest strength is needed the greatest amount of metal is found. The load first compresses the ends of the coils, and as the load is increased the center of the spring is brought into requisition,



HIGLEY CAR JOURNAL CO., CLEVELAND, O.,

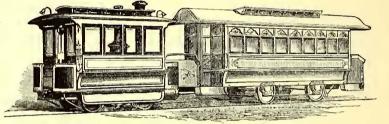
Kailway Supplies

GEAR SUPPLIES A SPECIALTY.

Established, BALDWIN LOCOMOTIVE WORKS 1831.

Annual Capaci-

BURNHAM, PARRY, WILLIAMS & CO., Props., PHILADELPHIA. PA.



Noiseless Motors and for

Catalogue sent upon application of customers.

WILLIAM DICKINSON, President.

JOHN W. DICKINSON, Sec. & Treas,

EMPIRE WAREHOUSE COMPANY,

ENGLISH & GERMAN PORTLAND CEMENTS

AGENTS FOR THE

Merchants Line of Montreal & Chicago Propellers. Chicago. 198 to 210 Market St.,

Our brands of Portland Cement have been subjected to the most severe and exacting tests, and have been found superior to all others. Owing to their great strength and perfect condition they have been selected in every instance in the construction of the several Cable Systems of Chicago, Kansas City and Omaha. We guarantee perfect results with our Cements, and they are especially adapted for all work where great strength is required. The following Companies have used our brands exclusively:

CHICAGO CITY RAILWAY CO., CHICAGO.

NORTH CHICAGO STREET RAILROAD CO., CHICAGO.

FIFTEENTH ST. CABLE LINE RAILWAY CO., KANSAS CITY.

KANSAS CITY CABLE RAILWAY CO., KANSAS CITY.

METROPOLITAN STREET RAILWAY CO., "

GRAND AVE. CABLE LINE RAILWAY CO.. "

OMAHA CABLE TRACTION CO. MAHA.

KUHLMANN CARCO.

CLEVELAND, O

BUILDERS OF

Street Railway Cars

All NECESSARY WOOD WORK for CONSTRUCTING SAME.

OFFICE-490 ST. CLAIR ST.
WORKS-488 & 590 ST. CLAIR STREET AND

221 & 223 OREGON STREET.

Street Railway Journal

It tells the whole story about street railways, and frequently contains a single article worth many times the year's subscription.

Price, \$2.00 per Year.

STREET RAILWAY JOURNAL,

113 LIBERTY ST.,

New York.

Evans & Patriquin,

Newburyport, Mass.,

BUILDERS OF

Street Railroad CARS

Of Every Description.

J. W. EVANS.

LOUIS PATRIOUIN.

St. Louis Car Co.,

MANUFACTURERS OF

Horse, Cable, Electric, and all other Motor Cars,

Narrow Cauge Coaches, &c.

The Largest Car Works in the U.S.

Office: 3023 North Broadway, ST. LOUIS, MO., U.S. A.

J. M. JONES' SONS,

ACENTS,

Street Railway Car Builders,

West Troy, New York.

ESTABLISHED 1857.

INCORPORATED 1875.

Brownell and Wight Car Company, St. Louis, Mo.

BUILDERS OF

STREET CARS

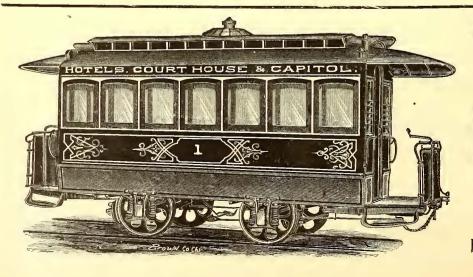
OF EVERY STYLE AND SIZE FOR

Horse, Cable or Other Motive Power.

EXCLUSIVE MANUFACTURERS OF

BROWNELL'S PATENT COMBINATION CARS

FOR SUMMER AND WINTER SERVICE.



ROBINSON & HITT,

WATERLOO, IOWA,

Manufacturers of all kinds of

Street Cars

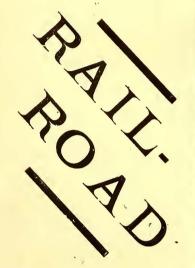
AND

OMNIBUSES

Also Contractors for Building and Furnishing Street Railways,

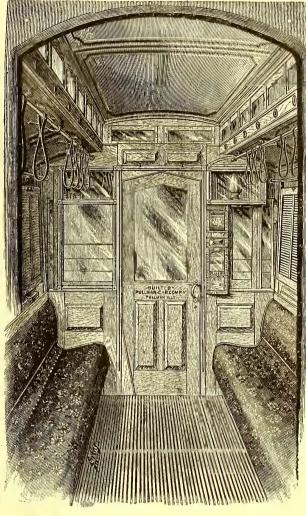
Pullman's Palace Car Co.,

Manufacturers



CARS

Pullman, Illinois.



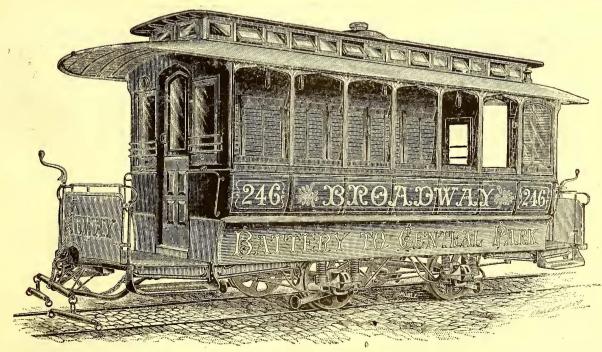
Make a Specialty of

Street Cable Crip

A Alectric Motors

CARS.

Detroit, Michigan.



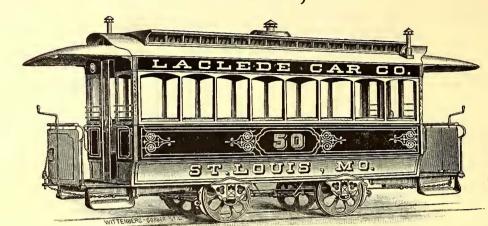
Address all correspondence

PULLMAN'S PALACE CAR CO., Chicago, Ill.

THE LACLEDE CARCO.

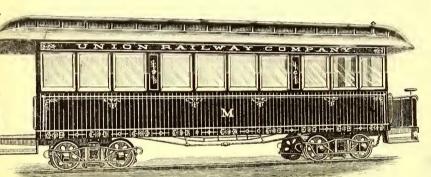
ST. LOUIS, MO.

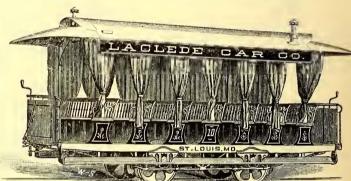
MANUFACTURERS OF



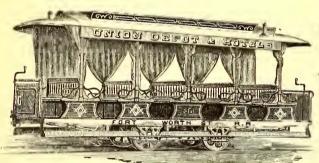
ALL KINDS OF

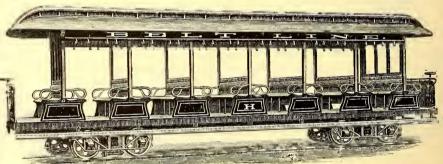
STREET RAILWAY CARS





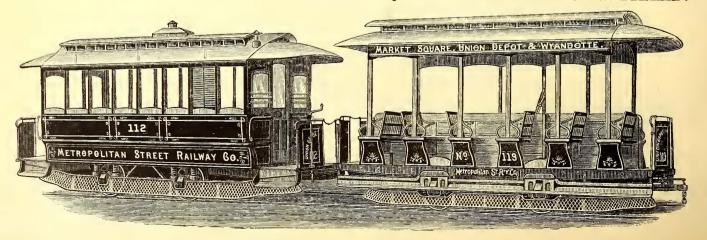
Of the Latest Improved Patterns.





All Parts being Interchangeable and Easily Duplicated.

ORDERS QUICKLY AND CAREFULLY FILLED.



ESTABLISHED, 1856.

INCORPORATED, 1883.

THE FEIGEL CAR COMPANY.

BUILDERS OF

CARS FOR STREET RAILWAYS.



TESTIMONIAL.

HALIFAX, Sept. 10th, 1887.

MESSRS. HUTTON & SWAN, Managers,

FEIGEL CAR CO., New Utrecht, L. I.

GENTLEMEN: The Open Cars down here are a great success and have become very popular at once.

They are beauties and no mistake about it.

Yours, &c., JOHN F. ZEBLEY, Treas.

HUTTON & SWAN, Managers,

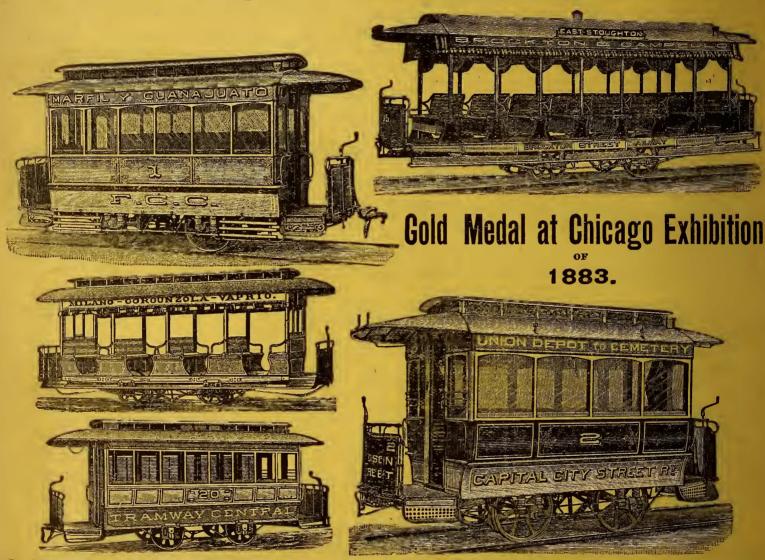
OFFICE: 108 Wall St., New York.

J. G. BRILL COMPANY,

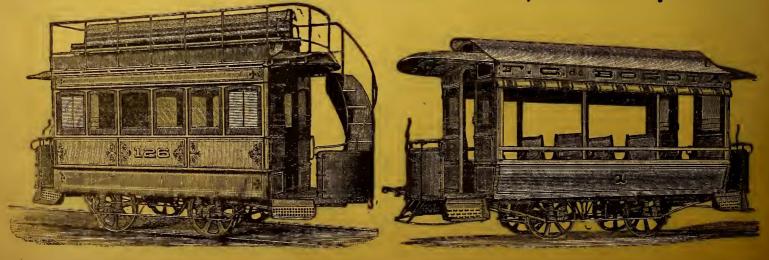
PHILADELPHIA,

BUILDERS OF

Railway or Tramway Cars



Gold Medal at New Orleans Exhibition of 1885, for Best Open Cars.

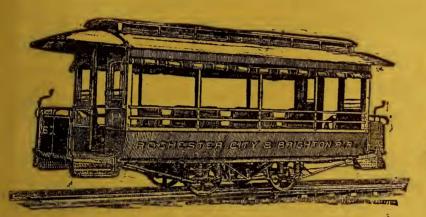


J. G. BRILL COMPANY,

PHILADELPHIA,

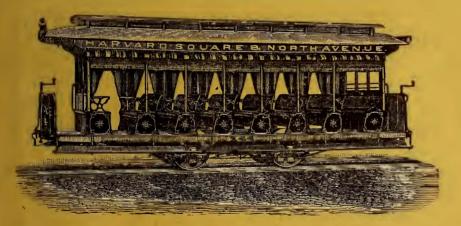
BUILDERS OF

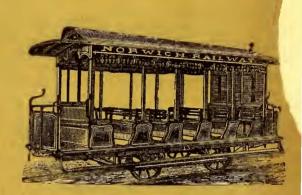
RAILWAY& TRAMWAY CARS





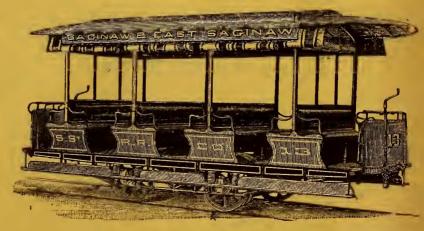
Passenger Cars of all Kinds.





Light Cars for Suburban Roads.





Construction Cars, Cane Cars, Power Hand Cars, Small Merchandise Cars.

ESTABLISHED 1831.

JOHN STEPHENSON COMPANY,

(LIMITED,)

NEW YORK

STREET (TRAMWAY) CARS

IN

Great Variety,

AND

Combining

ALL

Valuable

Improvements.



LEADING

"THE TIMES"

AND OF

-BEST-

Standards.



SUPERIOR

Elegance, Lightness, Durability,

THE RESULT OF

FIFTY-SIX YEARS EXPERIENCE.



ADAPTED

---TO ALL-

COUNTRIES

---AND---

CLIMATES.

PARTICULAR

ATTENTION

—то—

SHIPMENTS.



Cable Cars.

Electric Motor Cars.

STREET CAR

OF EVERY

DESCRIPTION.



New York: 47 E. 27th St. Chicago: Phenix Building.

