


U. S. PATENT OFFICE.
OCT 2 1890

THE STREET RAILWAY JOURNAL



Vol. III. No. 9.

JULY, 1887.

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

THE 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, 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.

Contributions. Those interested in street railways will greatly assist us in making the JOURNAL of value if they will send us such items of news as come under their observation, results of tests, questions of practical interest to street railway men, contributions giving their ideas and the results of their experience in practical matters pertaining to the service, and in short everything you would like yourself to read if contributed by others.

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

NEW ADVERTISEMENTS.

THE UNITED STATES ELECTRIC CO., of Denver, announce their readiness to equip roads with the Short and Nesmith Series Electric System.

THE SPRAGUE ELECTRIC RAILWAY & MOTOR CO. have something new to say.

THE BALDWIN LOCOMOTIVE WORKS show a new dummy engine.

THE ST. LOUIS CAR CO. have a new advertisement.

T. WILLIAM HARRIS & Co. announce New York as their headquarters.

CHADBOURNE & HASTINGS, agents for the Sprague Electric Railway & Motor Co., make an announcement.

PUGH & RUSSELL and THE JOHN STEPHENSON CO. announce a change in the location of their Chicago offices.

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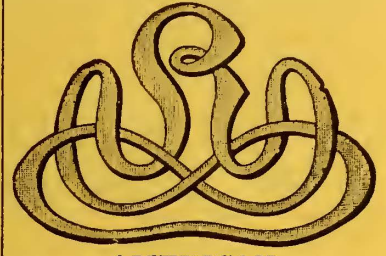
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- ELECTRICITY AS A MOTIVE POWER.—WILLIAM WHARTON, JR., Pres., Cape May and Schellenger's Landing Railroad Company, Cape May City, N. J.
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- PRACTICAL DEVICES USEFUL IN THE ECONOMIC MANAGEMENT OF STREET RAILROADS.—DE WITT C. CREGIER, Supt., Chicago West Division Railway, Chicago, Ill.

NEXT ANNUAL MEETING.

The next regular meeting of the Association will be held in Philadelphia, Pa., the third Wednesday in October, (the 19th), 1887. Communications concerning Membership, Reports, etc., should be addressed to the Secretary. Communications on subjects for discussion should be sent to the committees.

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THE STREET RAILWAY JOURNAL



Vol. III.

NEW YORK & CHICAGO, JULY, 1887.

No. 9.

EDITORIAL.

Our Change of Form.

The STREET RAILWAY JOURNAL had become so large that it was inconvenient to make up and bind it in what is called the inset form. We also noticed in traveling among street railways that the paper was so much read and referred to that it was quite apt to become soiled and mutilated on the outside. For these and other similar reasons we determined to adopt the present improved form.

On the front page of the cover will be found a table of contents and an index to departments, the Publishers' Notice and a notice of New Advertisements. The second, third and fourth cover pages contain our "Personal Directory" of street railway supply men and houses and our business directory of manufacturers and dealers in street railway supplies, each of which is an index to advertisements. These directories, with the advertisements to which they refer, constitute by far the most complete reference book of street railway supplies published in any form, and their peculiar value to the buying official of the street railway will be greatly increased by the very convenient position which they occupy.

The next annual convention of the American Street Railway Association will begin in Philadelphia, Wednesday, Oct. 19th.

We are credibly informed that very satisfactory results are being obtained in experiments with the storage battery for street cars, now going on in Philadelphia.

The burning of the barns, cars and other property of the Central Park, North & East River Co. in New York reminds us that we have not yet a street railway mutual insurance company. As we understand it, all that is needed is some one to take the lead in the matter.

The trial of Jacob Sharp for bribery of the Board of Aldermen in the Broadway railroad matter is considered by Assistant District Attorney Nicoll the most important case since the trial of Tweed. He hopes to establish the fact that the bribe giver is as amenable to the law as the bribe taker.

Notwithstanding the increase in size of the JOURNAL to eighty-eight pages, we are obliged by lack of space to hold over a number of valuable articles from this issue. Among them is a continuation of considerable interest on cable roads, and a letter from our mechanical editor describing the Paris street railway system.

One of the foremost electric railway men in the country says, the slightest obstacle to success with which they have to contend is the slipping of wheels. In fact in nearly or quite all cases where the motor has been geared to both axles, one pair of wheels has been found to give sufficient traction and the other has been abandoned.

Public discussion in a number of leading cities on the city transportation question is such as to remind street railway managers that the question of the adoption of mechanical motive power should be considered, not only from the standpoint of its economy compared with horse power, but also from the standpoint of the probability of their own horse power being supplanted by other modes of travel on parallel lines.

The New York State Railroad Commissioners have had occasion to state the law relative to street railroads as common carriers, pending a strike, substantially as follows: A road's charter cannot be affected nor is it subject to mandamus so long as it continues without intermission to make efforts to run its cars, and these efforts are commensurate with the public necessity.

The Commissioners, however, leave the question an open one whether the road should under such circumstances pay more wages than those of which the strikers complain.

The electrical journals are very enthusiastic in their faith in electricity as the solution of the city passenger transportation question. The Electrical World, referring to the Boston problem, in a recent issue says: "It is high time, indeed, that resort was made to electricity, which is, beyond a shadow of doubt, the one means for dealing with the matter successfully, and for giving Boston a system of intramural passenger service of which she can be proud."

The Electrical Engineer claims, in a re-

cent editorial, that a railroad employing 200 horses could supply itself with motive power by electricity at "something like one-fourth the cost of the existing system."

Progress in the Power Question.

Perhaps the most significant argument in favor of mechanical power in lieu of horses is the number of cable and electric roads now running successfully, those contracted to be built, and those projected. These, however, by no means measure the interest that is felt in the question of improved motive power. Hundreds of street railroad men feel that horse power is in many ways unsatisfactory, that it is not in keeping with this age of improvements, and are anxiously looking for the most desirable substitute. In fact many companies now using horses are fully convinced that mechanical traction would be both more economical and efficient, but are waiting to get the best and to be reasonably sure that the system adopted will not in its turn be superseded by a better in too short a time.

The cable in large cities runs cars at about one-half per mile what it costs to run with horses, and runs them much faster and more satisfactorily. It is needless to say that in these cases cable power is relatively satisfactory; but as the foremost cable man in the country, C. B. Holmes of Chicago, says, "it would be very foolish to claim that the cable furnishes the best possible motive power."

As to electricity, there are now nearly a dozen electric railways in the country running regularly, and they are not only doing as good work as could be expected of a new system, but so far as we are able to learn are very satisfactory to their owners, at least so far as the principle of electricity as a motive power is concerned. In cases where the railway companies have been willing to make an investment sufficient to lay good track and put in good equipment and plant, they are enthusiastic in their praise of electricity. Scranton, Pa., and Montgomery, Ala., are cases in point.

Meantime the gas engine is successfully used, the ammonia motor has become more than a myth, the soda motor is still heard of, compressed air has its adherents, and the eud is not yet.

Storage Batteries on Street Cars.

In a paper read before the Elektrotechnischer Verein, at Berlin, J. L. Huber, the engineer of the Hamburg street railway, gives some interesting details regarding the cost and operation of storage batteries on street railway lines. The system employed by Herr Huber is the Julien, in which the storage batteries are carried by the car.

In order to obtain reliable results, experiments were undertaken on a specially difficult line, both as regard curves and grades, and which, in addition, crossed much-frequented streets, so that all the difficulties met with in railroad traffic in populous cities were encountered. The road extends from the Rathhausmarkt, in Hamburg, to the Berthastrasse, Barmbeck, over the Muehlendamm, on which line grades of 30 per cent are encountered.

Herr Huber's experience shows that 12,500 miles can be run before renewal of plates become necessary. A car which, including passengers and storage batteries, weighs 7 tons, and which is to ascend grades of 30 per cent, such as occur on the Hamburg line, requires 1,700 lbs. of active material in the positive plates, and its renewal, including the cleaning of the grids, which can be used over again, as they are not oxidizable, costs 13-5 cents per car mile for renewal of plates.

The total cost, including attendance, oil, maintenance, etc., amounted to 53-5 cents per car mile, or $\frac{1}{2}$ cent per ton mile.

Comparing the cost of electrical traffic with that of horses, Herr Huber states that to operate the usual one-horse car, which, including driver and conductor, carries 26 persons, 7 horses are required on the same line for one day of 62 miles run. So that, as the electric car carries 31 persons, 835-100 horses would be necessary. The cost of maintenance for one horse during the last year, according to the report of the Hamburg Street Railway Co., amounted to 49 cents per day per horse; so that the cost per car mile amounts to 62-5 cents. It follows, therefore, that even to-day electricity is more economical than horse-flesh, and the cost of the former can be considerably reduced by improvements.

The results of experiments show that 88 per cent of the energy stored in accumulators can be drawn out, and Herr Huber only counts upon 80 per cent for safety; that is to say, that of the electrical energy delivered by the dynamos, 20 per cent is lost by the use of accumulators.

The above are the results of experiments which were carried out from the end of May to the end of December of last year, with a public passenger car, and the distance traveled amounted to 7,500 miles. As these experiments were undertaken in public traffic on an ordinary horse road made specially difficult by its grades, and not upon a road specially constructed for the purpose, it follows, as Herr Huber states, that the life and power of competition with other systems, of the storage battery, is definitely assured.

Personal.

H. M. SWETLAND is in Boston.

Gen. A. K. STILES is in Chicago.

WALTER JONES was in our New York office last week.

President H. M. WATSON, of the Buffalo City Railroad, was in New York last week.

Col. RICHARD VOSE has decided to make his permanent residence at his elegant house in New York.

A. C. WHITE, of M. M. White & Co., and Mr. Edward C. White, have just returned from a trip to the Pacific Slope.

Prof. SIDNEY H. SHORT, Electrician of the U. S. Electric Co., Denver, and proprietor of the Short Electric Railway, is spending some time in Ohio.

P. J. McMAHON, of New Orleans, inventor of the ammonia street railway motor, will soon be North on a trip in the interest of his motor.

C. M. BARCLAY has been appointed Western manager of the Sprague Electric Railway & Motor Co., with headquarters at 185 Dearborn street, Chicago.

J. H. MCGRAW, Secretary and a Director of the American Railway Publishing Co., was married on June 8th to Mildred F. Whittlesey, of Corfu, N. Y.

E. PACKER, formerly representing the Lewis & Fowler Manufacturing Co. at Philadelphia, now spends most of his time at the Brooklyn office of that company.

GEORGE C. BAILEY, Western Manager for the John A. Roebling's Sons Co., will hereafter be found at the new store of the company, 171 and 173 Lake street, Chicago.

EDWARD B. STURGES, President of the Scranton Suburban Railroad, believes that "within ten years first-class street railways using horse power will be more rare than electric roads now are."

CHARLES J. VAN DEPOELE, of the Van Depoele Electric Manufacturing Co., believes that twenty years hence a large proportion of the through railway trains will be moved by electricity instead of steam locomotives.

EDWARD P. SHAW, President of the Plum Island Street Railway Co., Newburyport, is referred to by the Herald of that place as "one of the most enterprising and pushing citizens Newburyport ever had the good fortune to possess."

SEYMOUR L. HUSTED, one of the organizers, and for some time President of the Brooklyn City R. R., and a controlling stockholder in the Bushwick and Broadway roads of Brooklyn, died in Brooklyn June 13th, in the 77th year of his age. Mr. Husted was a man whose judgment was universally sought, and who took a very active part in many of the most prominent industries of Brooklyn, being President of the Dime Insurance Bank, a controlling spirit in the Williamsburg ferries and Brooklyn Gas Co., also Vice President and member of the Executive Committee of the Mutual Life Insurance Co. of New York.

A Strike and a Moral.

Street railway people generally will learn with satisfaction of the stand taken and maintained by the John Stephenson Company in the matter of the strike in their shop last month. Not only were no concessions made by the company, nor points gained by the strikers, but only such of the strikers were able to recover their former positions as found them unfilled by new men. All men taken back were required to renounce all connection with any organization that would tend to interfere with the discharge of their duties as employees. The company is in control of its own shops and business, and much credit is due to John Stephenson for the manner in which the contest was conducted.

Electric Motors Under Cars.

In response to a letter to the Van Depoele Electric Manufacturing Co. on this subject, we have the following from Gen. Stiles, Manager of that company:—"The Van Depoele company claim to have the most experience in street railway business. Nearly all the electric railroads running in the United States have been equipped by the Van Depoele company, and all these railways are running successfully. The plan of putting motors under the cars and of connecting by gearing has been tried by them years ago. Very many serious objections will be seen as soon as cars have run in this way a few months. This feature in electric railways is *old* and entirely impracticable. The motor and all the electric apparatus possible should be under the eye of the operator all the time. This will be ascertained as soon as some of these proposed unobjectionable roads have been started. It is easy to run an electric railroad *on paper*."

In an article referring to the Peckham elastic car wheel, in the last issue of the STREET RAILWAY JOURNAL, the word "re-boring" was used when the word "refitting" should have been.

Statistics of Electric Railways.

The accompanying tables were prepared by Mr. T. C. Martin, and presented at the meeting of the American Institute of Electrical Engineers, May 18. "In Europe, as here," says Mr. Martin, "various systems of transmitting the current and of connecting up the motor with the car axles and wheels are in use, and, as yet, no determination as to the best method seems to have been reached. . . . The facts may be summed up by saying that in Europe the electric railways are now carrying passengers at the rate of 3,000,000 annually. In America they are carrying at the rate of over 3,500,000, and when the roads now building are finished—to say nothing of the scores for which contracts are being made—the number carried will be at least 7,000,000 annually."

ELECTRIC RAILWAYS IN EUROPE, APRIL, 1887.

PLACE.	Length.	Motors and Motor cars.	No. of passengers.	Freight.	Total expense of operation.	Car miles run yearly.	System of Conductors.	Prime power.
Lichterfelde-Berlin, 1881	1½ miles	2	100,000 yearly.				All rail.	Steam engine.
Brighton, 1882	1 mile (single track).	2	1,000,000 total.		{ 1.92 pence per car mile.	{ 46,950.	All rail.	Gas engine.
Moedling-Ilnterbruehl, 1884	2.8 miles (single track and sidings).	12	340,000 yearly.		{ 3.42 pence per car mile.	{ 91,002.	Overhead slotted tubes.	Steam engine.
Frankfort-Offenbach, 1884	4.1 miles (double track).	14	990,000 yearly.		{ 3.83 pence per car mile.	{ 292,269.	Overhead slotted tubes.	Steam engine.
Zankerode (mine) 1882	790 yards (double track).	1 locom. } 16 wagons }		300 tons daily	.77 penny per ton	660 wagons daily.	Overhead inverted <u>l</u> rail.	Steam engine.
Hohenzollern (mine) 1884	820 yards (double track).	1 locom. } 15 wagons }		300 tons daily	.5 penny per ton	609 wagons daily.	" " "	Steam engine.
Portrush, 1883	6 miles (single track).	4	{ Over 100,000 up to 1885.		{ 2½ pence per car mile.		Third rail.	Water power.
Besspool, 1885	3 miles (single track).	8	300,000 yearly.	{ 20,000 tons yearly.	{ 4 pence per train per mile.	{ 60,000 train miles yearly.	Third rail.	Water power.
Blackpool, 1884	2 miles (single and double).	10	{ Over 1,000,000 total.		{ Less than 4 pence per car m.		Conduit.	Steam engine.
Brussels, 1887		5					Operated by storage batteries.	
Hamburg, 1886		2					Operated by storage batteries.	

NEW ROADS.—A special charter has been granted by the Austrian Government for a road in the Austrian Alps to cost about \$350,000, and to be 15 miles in length.

A road is being built in the great salt mines at Stassfurt, Germany.

The North Metropolitan Tramway Company in London has several motors now ready for use with storage batteries, on its line, awaiting powers from Parliament.

ELECTRIC RAILWAYS IN AMERICA, MAY, 1887.

PLACE.	Length.	Motors and Motor cars.	No. of passengers.	Freight.	Expense of operation.	Car miles run.	System of Conductors.	Prime power.
*Baltimore, Md., 1885	{ 2 miles (single track with turn outs).	6	200,000 yearly.		{ \$4 per car per day.	{ Each motor runs { 73 miles daily.	{ Third rail and overhead { wire.	{ Steam engine
*Los Angeles, Cal. 1887	{ 3 miles, single and double.	8	200,000 yearly.				{ Single and double overhead { wire.	{ Steam engine
*Port Huron, Mich., 1885	4 miles, single track.	8	275,000 yearly.				{ Single overhead conductor.	{ Steam engine
*Windsor, Can., 1885	{ Nearly 2 miles, single track.	2	200,000 yearly.		{ \$4 per day for { power.	{ 64 miles each car { per day.	{ Single overhead conductor.	{ Steam power { from electric { light station.
*Highland Park, Detroit, Mich., 1886	{ 3½ miles, single track.	2	200,000 yearly.		{ \$0 cents per day { for fuel.	{ Each runs 13 hrs daily; capacity, 30 passengers; speed, 15 miles an hour.	Sunken central rail.	{ Steam engine
*Dix Road, Detroit, Mich., 1886	{ 1½ miles, single track.	1	300,000 yearly.			{ The trains run { from 6 a. m. to 11 p. m.	{ Double overhead conductor.	{ Steam engine
*Appleton, Wis., 1886	{ 4½ miles, single track & dbie.	8	400,000 yearly.		{ For power, wages of one man as they own their own water power.	17 hours daily.	Double overhead wire.	{ Turbine with { in wheels.
*Scranton, Pa., 1886	{ 3¼ miles, single track, four sidings.	3	300,000 yearly.		{ \$9 per day for power, but are putting in their own engine.	{ Each car runs 85 { miles per day.	Overhead wire.	{ Steam power { from electric { light station.
Denver, Col., 1886	{ 3½ miles, single and double.	7	500,000 yearly.		{ \$1.50 per day { for fuel.		Conduit for series system.	Steam engine.
Montgomery, Ala. 1885-86	{ 11 miles, single and double.	18	This ran 2 cars one year. Have just started other cars. (1,000,000 yearly).		{ Fifty per cent less than horse and m. traction—General Manager's report.		Overhead conductor.	Steam engine.
†Kansas City, Mo. Orange, N. J., 1887	½ mile built.	1					Overhead conductor.	Steam engine.
Boston, Mass. (sugar refinery), 1887	{ Short track within the works.	1 locomotive, 3 cars.		The cars in constant use all day; the loads averaging 10 tons per trip, and each round trip averaging 5 minutes			Overhead conductor.	{ Operated { from the { lighting { dynamo.

* Extending line or increasing rolling stock.

† No specific details received, line not being yet in regular operation.

NEW ROADS—Electric railways are now in course of construction, or under contract, at Pittsburg (3 roads); Los Angeles; Binghamton, N. Y., 4½ miles, 8 motor cars; Lima, O., 3 miles, 6 cars; San Diego, Cal., 9 miles, four 40 h. p. motor cars; Ansonia, Conn., 3½ miles (water power); New York City (for Fulton street); St. Joseph, Mo., 20 cars; Mansfield, O.; Ithaca, N. Y.; Harrisburg, Pa.; Woonsocket, R. I.; Richmond, Va., 40 cars, 11 miles of track.

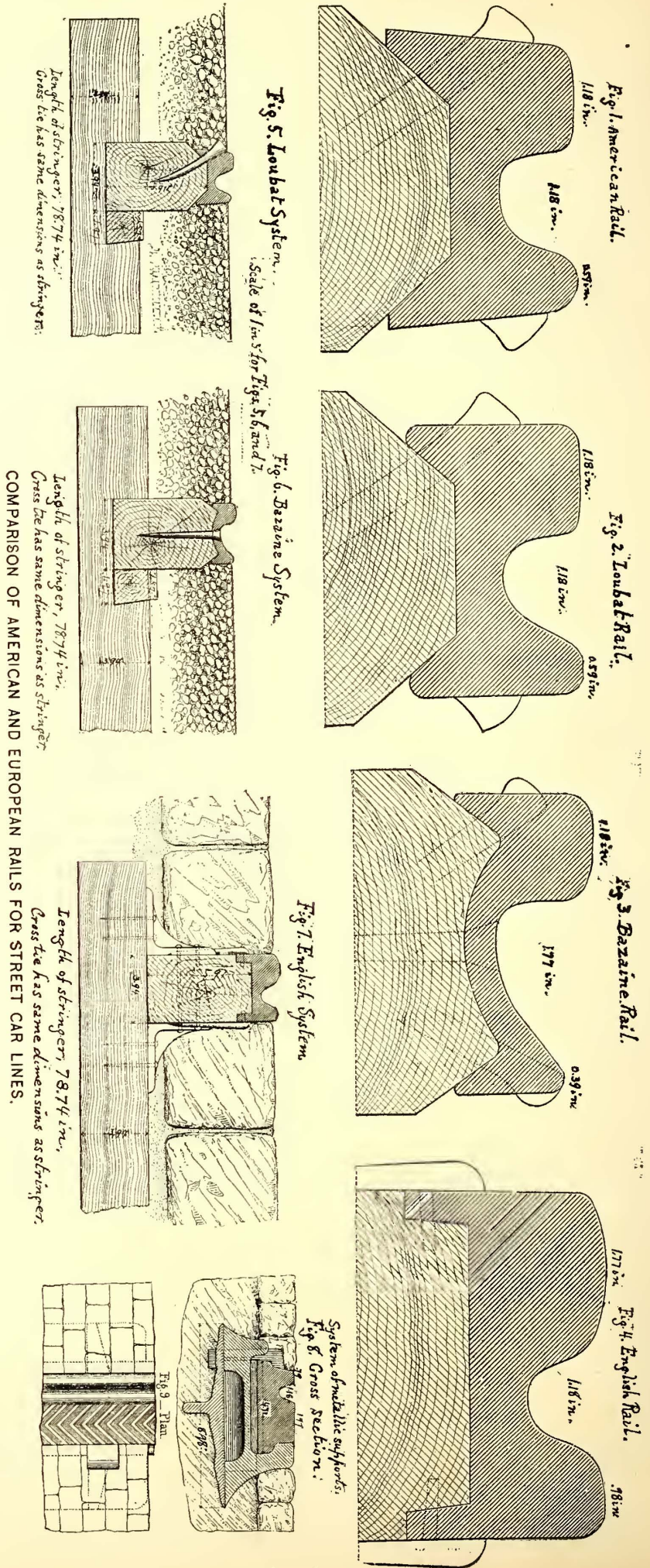
Companies have been formed or steps taken to build and operate electric roads at Flushing, L. I., (2); Lincoln, Neb.; Brookline, Mass., (2); East Cambridge, Mass.; Newton, Mass.; Boston, Mass.; Asbury Park, N. J.; Pelham Park, N. Y.; New Brunswick, N. J.; Plainfield, N. J.; Bayonne, N. J.; Worcester, Mass.; Scranton, Pa.; Carbondale, Pa.; Philadelphia, Pa.; Reading, Pa.; Bangor, Me.; Blldeford, Me.; Westfield, Mass.; Chicopee, Mass.; Muncie, Ind.; Gratiot, Mich.; Tiffin, O.; Cincinnati, O.; Brooklyn, N. Y.; Coney Island, N. Y.; Rockaway, N. Y.; Winston, N. C.; Jacksonville, Fla.; Pensacola, Fla.; Birmingham, Ala.; Selma, Ala.; Atlanta, Ga.; Fort Smith, Ark.; Wichita, Kan.; San Francisco; San Jose, Cal.; Newton, Kan.

European City and Suburban Tramway Construction.

Under the heading of European Tramways are those which are built for the city and the immediate outskirts, and those which are run as branch lines. It must be recollected that it was only about 1870 that the American tramway, as it is still called, was really adopted in the cities of continental Europe, and that even in England its adoption preceded it only by a few years, and that the few roads which were built were considered merely as contributory lines, and that they looked to London and the English cities as affording the best examples for imitation. The English engineers, in adopting the systems of tramways which had gained such headway in the United States, did so by adding several modifications of their own, and their everyday experience seemed to point out to them that for their own particular needs these modifications were essential; and new ones became more and more radical until the systems which are in use in the different countries, although starting from the same foundation and really representing one another, have very many radical points of difference.

The breadth of gauge which is adopted in England is the same as that which is adopted in this country, 4 ft. 8½ in., and is the same as that of ordinary railroads. In fact, the gauge was brought to this country and then carried back to England, and was originally the English standard. In France they have made the gauge 1.54 metres, or very nearly 5 ft. Their gauge is so wide that when two horses are pulling the car the horses can trot with ease without stepping on the rails. This is of very great advantage. In this country the horses are continually stepping upon the rails, because the gauge is so narrow, whereas if the rails were a couple of inches farther out on either side a great deal of this slipping would be avoided. The French consider that when the rails are placed nearer together than their standard it will be necessary to harness the horses to their car in tandem. This arrangement of tandem driving is perhaps the best for freight hauling, but for the transportation of passengers it is out of the question. At first it was thought that the traction of cars in the streets by horses would greatly inconvenience the movement of the heavier traffic, and that the rails must be put in out-of-the-way positions, but the engineers have come to the conclusion now that it is preferable to place them directly in the center of the street. This arrangement has the effect of dividing the movement, and thus giving an opportunity for circulation upon the right and left of the track, and furthermore leaves the approach to the sidewalks perfectly free.

In London tramways are constructed in the following manner:—They first cut in the center of the street a trench which is filled with beton, having a thickness of about 9 in. Upon this beton the cross ties are placed, and the stringers are in turn



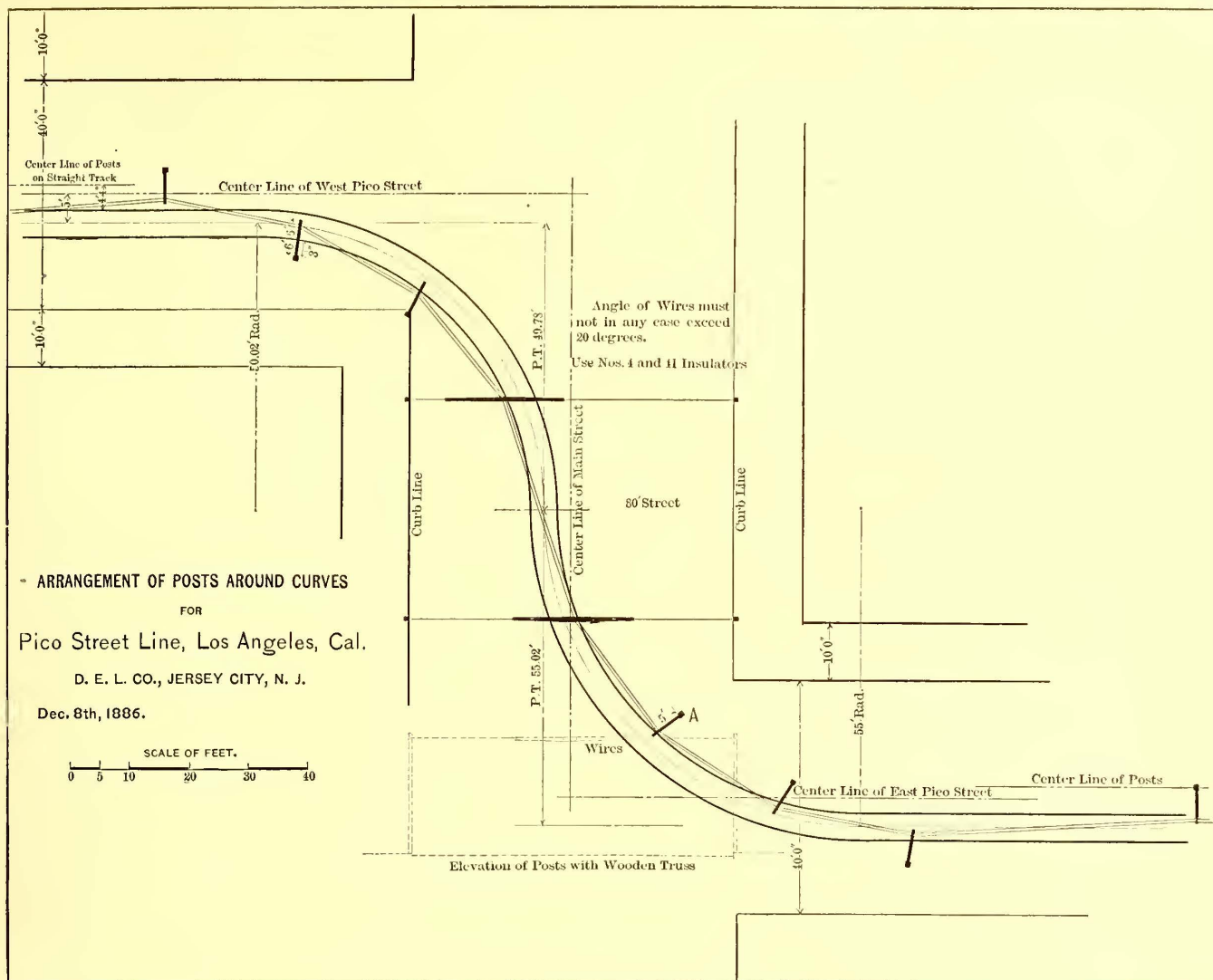


FIG. 1. DAFT ELECTRIC SYSTEM.

placed upon them. The cross ties and stringers are made of creosoted fir, cut to the size of 6 in. by 3 in. The wood is not gained in any place and the stringers are held upon the ties by means of cast-iron knees, which are securely bolted to both pieces.

Lips are rolled on the side of the rail, which extend down and hold it securely from any slipping on the stringer, as shown in the engraving, Fig. 7. It should be remarked in this connection that a bed of gravel is placed upon the beton, about an inch thick, on which paving stones are placed, and the joints between them are filled with mortar.

The London roads, in case of heavy traffic, are double tracked, and they allow 4 ft. between the rails. The portion of the street comprised between the rails and that outside to the distance of 2 or 3 ft. is paved with stones of red granite about 4 in. deep. On some of the lines, such as the Clapham and Bow, cross ties are done away with and the stringers are held the proper distance apart by iron feet through which iron braces are run and simply placed under the paving stones. This, of course, does not require that the trench in which the road is laid should be so deeply excavated as the plan we have already indicated. The rails are fixed to the stringers by pins

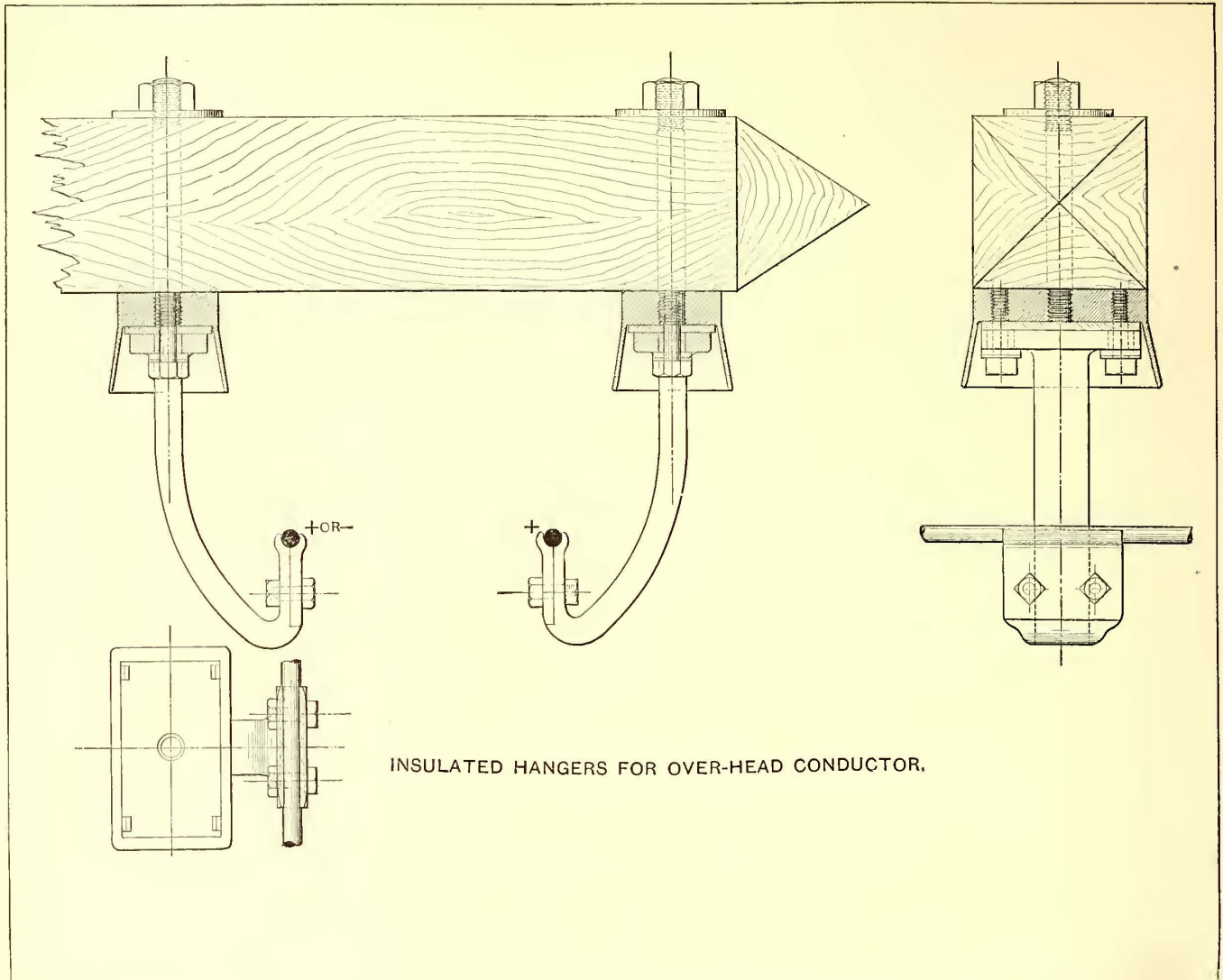
which are placed vertically, and those heads are bolted into the lip which projects down on either side of the stringer, as shown in our Fig. 7. These pins are placed about 2 ft. 6 in. apart, but at the joints they are placed nearer together. Under the joints are placed iron plates the same as we have used in this country. A contractor will readily lay about three-quarters of a mile of this double track per month.

It may be added here that the method of rail attachment which is used in these Clapham and Bow lines has been severely criticised. One basis of the criticism is that the rails form a gutter where rain water collects, and which penetrates into the stringers by means of the holes in the pins, and causes them to decay very rapidly. Furthermore, the pins are subject to coming loose and give a play, so that the road becomes dangerous and injurious to the feet of pedestrians and animals. In order to overcome this difficulty, Mr. John Gregory, a well-known street railway engineer, proposed to substitute for the wooden stringers cast-iron ones, which are shown in Figs. 8 and 9. These have a length of 30 in. and a width of 8 1/4 in., weigh 45 lbs. each, and are spaced 16 in. apart. The rail rests upon this stringer by means of wooden feet, to which the inventor has given the dimensions of 4 1/2 in. by 10 in. by 1 1/2 in.

This arrangement avoids the holes in the rail, and preserves to the very last their resisting power, and causes the inconvenience of the rapid decay of the wood to disappear. We have no positive data, and in fact we have been unable to obtain it, in regard to what experience has shown as to the value of the Gregory system. By an examination of Fig. 9, it will be seen that the rail has part of its surface striated to a width of about 2 in. A horse stepping upon the edge of this rail will not slip. Mr. Gregory considered it necessary to offer some resistance to the smooth shoes of the horses in order to prevent them from falling, but this danger the French consider that they have done away with by widening their gauge.

There have been many different systems of railway construction proposed in Europe, just as there have been in this country, but there is one in particular which they consider has given the best results. It is the system of M. Loubat, who had lived in America, and by slightly modifying the American system built the lines from the Place de la Concorde and from Port Marly.

The Loubat system is shown in Figs. 2 and 5. The rails are 20 ft. long and weigh from 40 to 50 lbs. to the yard. They are fastened to the stringers by means of pins placed upon one side, and having the point



INSULATED HANGERS FOR OVER-HEAD CONDUCTOR.

FIG. 2.

curved back toward the center. The stringers rest upon cross ties, to which they are held by means of knees. The iron plates are 10 in. long, $\frac{3}{8}$ in. thick, and $1\frac{1}{4}$ in. wide, and are placed under the joints of the rails, where they prevent them from cutting into the timber. The general dimensions of the stringers are 4 in. by 6 in., or the same as those of the English roads.

In order to lay a French road, they first cut a trench in the street to the depth of about 15 in., and wide enough to lay the stringers. When they are once put in place they adjust them and attach the rails. The road is dressed up with great care, and they ballast by means of gravel over which heavy rollers are run. Within the last few years cross ties have been dispensed with upon the Concorde line, and they use a type of rail which is very similar to that which is used on the Loubat in general, but the rail is, as a usual thing, somewhat lighter than those used upon American roads, and the groove is too narrow to allow the flanges of the wheels sufficient play upon their curves. This small dimension results in the rapid wearing away of the tires of the wheels, and sometimes stalls the car entirely on curves where the radius is short.

This last inconvenience, however, is more noticeable in London than in Paris.

The wheels on the street cars in the latter place are not always attached rigidly to the axle, and consequently do not have the same rigidity as the American street cars. In the early days of the exploitation of the line from Clapham to Westminster, they were obliged to stop the service at one time because the friction in the flanges on the curves in turning from one street into another would frequently stop the car.

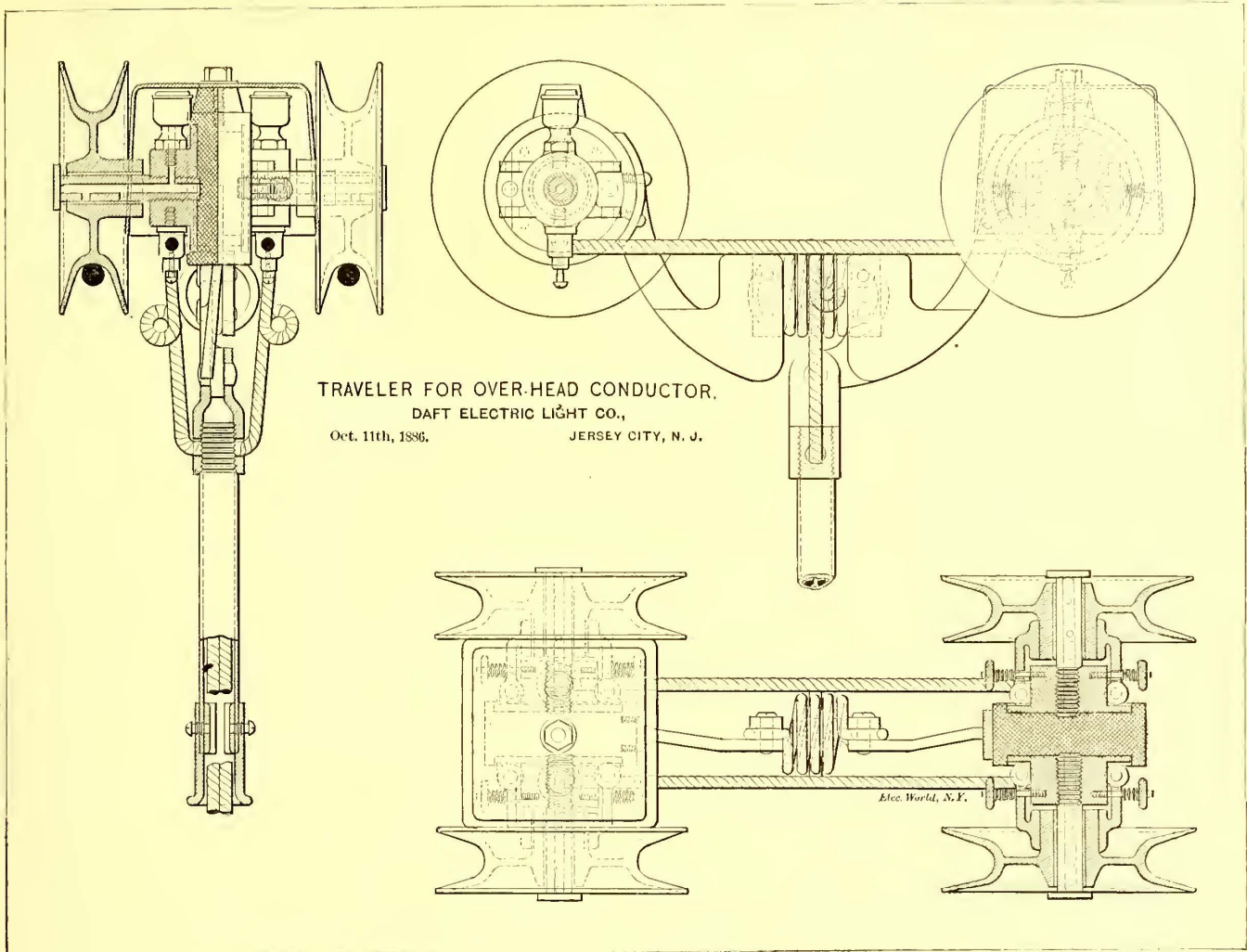
M. Bazaine proposed for an economical road where horse traction was used that the system represented in Figs. 3 and 6 should be used. The groove of the rail is large enough to allow the passing of the flanges of the wheels in the curves, and also wide enough to allow the wheels of carriages which should be caught in them to be easily taken out. The same objection, however, may be raised to this as to the Clapham tramway, since the arrangement of spikes for fastening the rail to the stringer allows the water to rot the latter away, but this part of the objection it is possible to remedy. The Bazaine system seems to us preferable to the system of Loubat and the English systems, because he supplies rails which weigh only from 28 to 32 lbs. to the yard, in place of those which weigh from 40 to 50, and which offer at the same time, thanks to their curvature, more resistance to transverse bend-

ing and greater stability when placed upon the top of the stringer. The rails are fastened to each other on the curves. The Bazaine way appears, in some respects, to be especially adapted for small branch lines where a light material is supplied from the necessities of the case, in order to make exploitation practicable.

The Loubat way is estimated to cost about \$5,400 or \$6,000 per mile, which may be distributed as follows:—

Wood, iron and gravel.....	\$4,152.00
Labor.....	1,030.00
Miscellaneous expenses..	218.00

Of course these figures may be increased, and it is claimed may be slightly lowered in some cases. M. Delonchat, who was for a long time chief engineer of a Paris omnibus company, and who sought to bring every possible method of economical construction into the management of street railways, put the actual cost of these roads, with the rails, at \$3,800 per mile, using rails weighing 40 lbs. to the yard, and \$470 per year as the total cost of new material, care, wear and tear and running of the road. The figures given apply to a part of the line from the Place de la Concorde, which is included between the fortifications of Rond Point de Boulogne, where the circulation is most active. These expenses are considered very small abroad, and it would be difficult to reduce



TRAVELER FOR OVER-HEAD CONDUCTOR.
DAFT ELECTRIC LIGHT CO.,
Oct. 11th, 1886. JERSEY CITY, N. J.

FIG. 3.

them to any kind of a standard for American roads, inasmuch as the whole system is different and the cost of labor is entirely disproportionate between the two lines. The Bazaine system is said to cost about \$10,000 per mile. By diminishing the weight of the rails for lines with small traffic, this figure, it is said, may be brought down as low as \$7,500.

In England the tramways in the large cities cost very much more, when we compare their price, with those of French lines, without speaking of those in London, whose price, it is said, runs up as high as \$70,000 per mile. The tramways in Glasgow were valued, a few years ago, at \$35,000 per mile. Some of the lines which have been constructed in London have been built with the greatest care, and the high expenses which are attached to them are in part attributable to the high price which they were obliged to pay for the paving for the street on either side of their road, and which they were obliged to maintain in good condition.

The John Stephenson Co., Lim., are preparing patterns, etc., for cars especially adapted for the various electric systems of power. They are also using their influence to bring the requirements of these systems as near as may be to existing patterns of cars, thus necessitating as little change as possible in case of substitution.

The Daft System of Overhead Conduction at Los Angeles, Cal.

BY THOMAS WHITESIDE RAE, C. E.

The possibility of electrical propulsion has come to be a generally accepted fact, and further argument in that direction is simply gratuitous.

Its practicability, however, has not yet obtained recognition in the popular consciousness; nor can it hope to do so until a much greater store of record and precedent has been accumulated than would be possible in its present short life.

With a view to supplying in some degree this lack, and putting people in possession of data from which they can form their own judgment, the following description is given of the Los Angeles Electric Railway, a line which has been in continuous operation since New Year's day of the current year, but of which not much is known on this side of the continent.

One of the most salient features is the large patronage its rapidity and comfort have attracted, in spite of obvious disadvantages of position, in its present stage of development. The perfected plan contemplates a length of five miles and a terminus in the city Plaza, and is being pushed to completion with all practicable speed, but the portion we shall describe is only three miles long and ends abruptly one and a half miles from the center of the

town. In spite of its passing through a sparsely populated region, which supplements to a very small degree the total traffic, and that the vast majority of patrons have to be brought to it over quite a distance by horse cars, its many attractions—notably its speed of twelve miles per hour—drew during one month—February—an average of 500 passengers per day, and as many as 1,500 have been carried in three cars in a single afternoon. The line is equipped with independent motors and with motor cars, the latter being of the open curtained type permissible in that genial climate.

While the route involves no especial difficulties in the way of gradient, the curves present the customary problem, which is dealt with as shown in Fig. 1, which represents the line from East Pico, across Main, into West Pico streets. It will be observed that the conductor along Main street is supported by a spar suspended from a wire secured to posts at the curbs of the sidewalks, instead of the more usual arm extending from a single post. This arrangement obviates the objectionable expedient of erecting posts in the midst of thronged thoroughfares, and possesses certain merits which possibly entitle it to general use.

The manner of insulating and attaching the conductors to the arms and spars referred to is given in Fig. 2. The end ele-

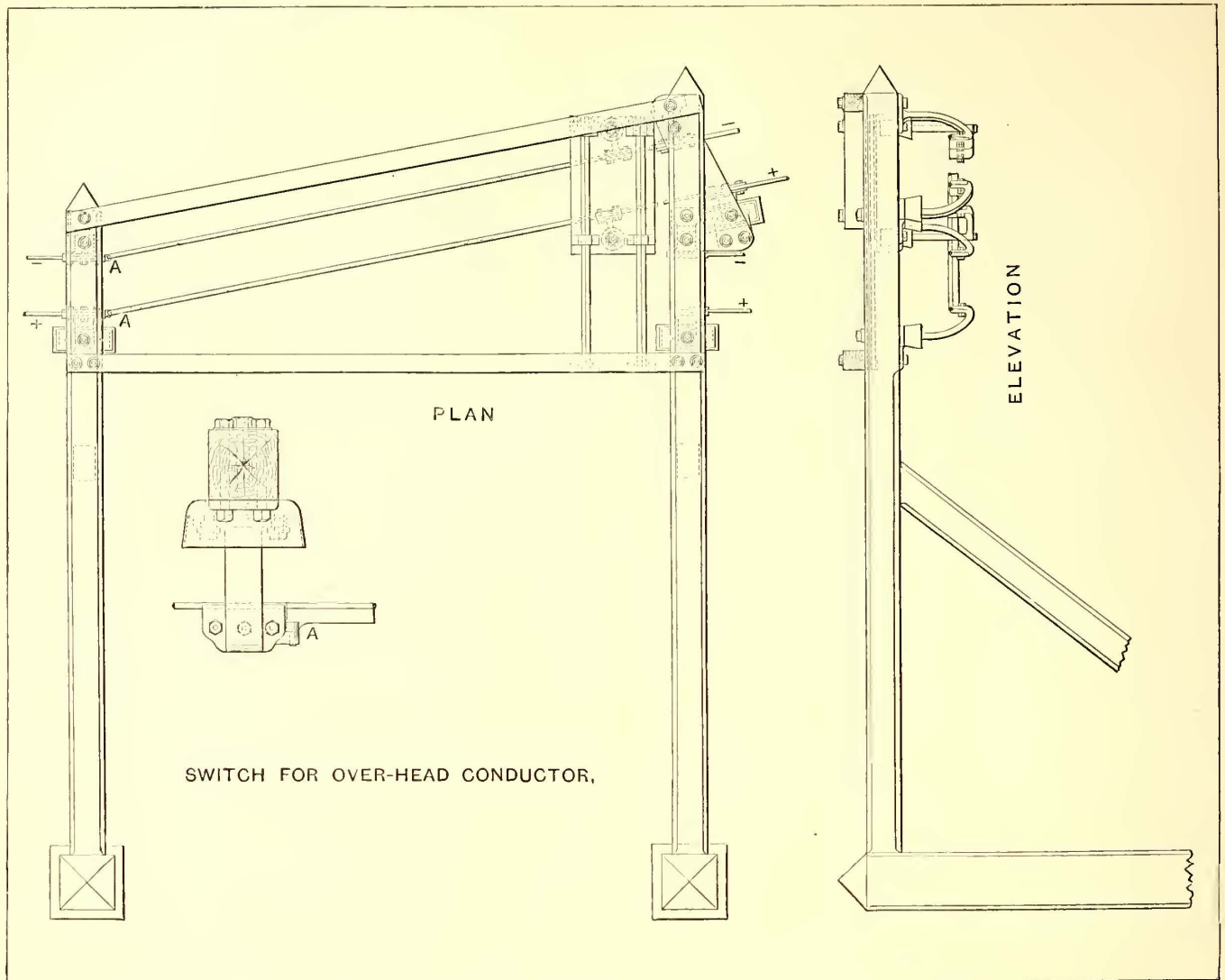


FIG. 4.

vation is the most intelligible, and it shows an inverted cast-iron box secured by dowels and a single bolt to the under side of the supporting beam. The bent arm which carries the conductor is attached by tap bolts to this box, and insulated from it by bushings of non-conducting material around the bolts and a washer of the same under the foot of the arm.

The curvature of the arms allows the four wheeled traveler, or trolley, shown in Fig. 4, to pass freely between them, and the clamps which hold the wire do not grasp it so tightly as to prevent its to-and-fro motion, under the influence of expansion and contraction, or its being tightened whenever it may become unduly slack.

Fig. 3 illustrates the arrangement for shunting, or switching, to a branch line. It involves the lengthening of the arm of one post and its connection to the adjacent post arm on the single line by two tie beams, best seen in the plan. The ends of the swinging wires are attached to a platform traveling between the wire ends of the main and branch line, and operated from the ground by a cord and pulley. The guides on which this platform moves are shown in the plan resting on the tie beams which connect the post arms. The insulators supporting the wire ends of the branch line are secured to an angular plate, which

may be seen in the cut, attached to the lower side of the longer post arm.

Fig. 4 gives the details of the traveler, or trolley, which follows the movements of the motor upon the conductors, collecting and returning the current from and to them and transmitting it to and from the motor as needed. It is substantially a four-wheeled carriage whose deeply grooved bronze wheels insure its safe motion along the wires and its constant electrical contact with them. This is farther assisted by the spiral spring connection between front and rear wheels shown in the plan.

It must be borne in mind that one wire of the two is for the current out from the generating station and the other for the return; the only connection between them being through the machinery of the motors.

Complete insulation between opposite wheels is essential, and is obtained by the block of non-conducting material between them, shown in the plan. Electrical contact is had through metal sleeves enveloping the inner hubs and connected to the insulated wires leading to the pendent arm, all of which are depicted in the vertical section. A flexible cord conveys the current thence to the motor, and the return wire, also visible in the vertical section, follows the same path. The apparatus is protected from dust and weather, as far as possible,

by metal covers, and in every case of its use has given entire satisfaction. Lubrication has not been found to involve the slightest difficulty.

It is not to be inferred from the foregoing that overhead conduction imperatively demands the double wire here described. The arrangement is the best, as it insures absolute regularity of operation of the traveler, but the return current can perfectly well be accommodated through the rails. On the ground of preliminary economy this recourse may be worth considering, but the ultimate saving is very dubious. As the greater includes the less, no specific description of this modification will be needed.

IT DOESN'T MEAN THE PASSENGERS.—In the engineer's room on the cars of the Suburban Railway Co., the following notice is conspicuously posted: "Engineers must oil travelers every three hours." The sign in question causes many inquiries from people riding in the cars, and to settle the matter definitely and set at rest the minds of many people, it may be well to state that the word "travelers" has no reference to passengers who ride in the cars, but to the little arrangement that runs on the wire above, and which conducts electricity to the motor.—Scranton Republican.

The Short & Nesmith Electric Railway.

A leading characteristic of the electric railway* invented by Sidney H. Short, and somewhat modified by John W. Nesmith, is what is called the Series system, by the use of which the current passes through each car on the road in exactly the same way a current passes each telegraph instrument on the line, or through each arc light on a circuit. It is claimed by Mr. Short that as in the multiple arc system of electric railways the current passes out along one conductor through the car and back to the power station through a second conductor, the power lost in overcoming the resistance of a conductor may be saved

motor, and back to the sectional conductor through the second motor, and finally through the return wire to the dynamo.

THE SECTIONAL CONDUCTOR, AN INSULATED LEAD-ENCASED CABLE.

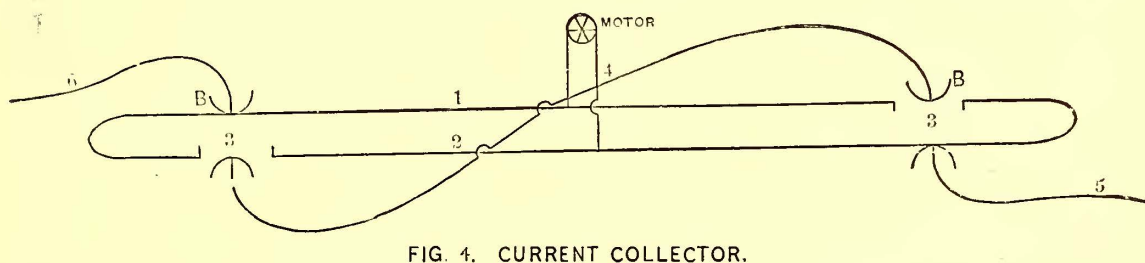
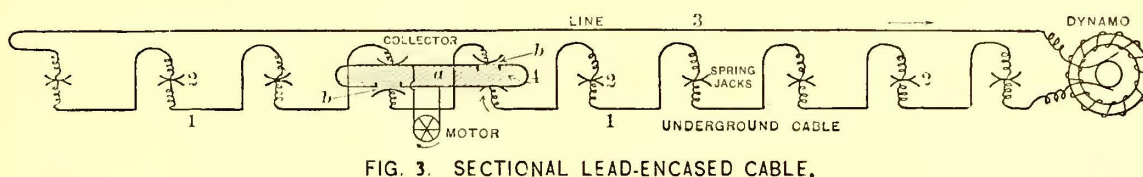
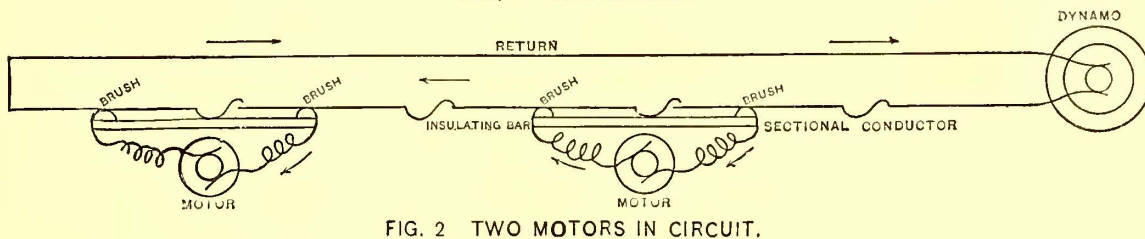
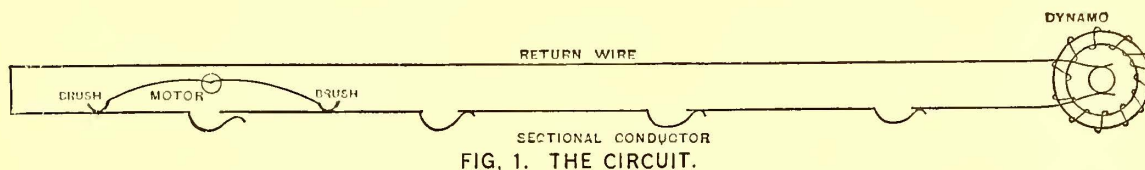
It is impossible to insulate bare conductors in conduits placed in wet, muddy streets. Such conduits, to withstand the traffic of large cities, must be made of stone and iron. As soon as the insulating supports of the bare conductor become wet or dirty the electrical energy escapes through them. Then too, the constant rubbing of brushes, or contact pieces, against the conductor soon wears it out.

Fig. 3 shows at 1-1 the sectional conductor used in the Short and Nesmith

conductor is at this moment cut out of circuit by the insulating breaks at 3-3. The current collector is by construction somewhat longer than the distance between spring jacks, hence it does not leave one before it enters another. By this means the entire current is diverted from the conductor through the motor, as through an arc electric light, and all possibility of flashing is avoided. Cars may follow each other as closely as is desired.

THE CURRENT COLLECTOR.

The current collector used in the city of Denver is shown in Fig. 5. It is a hickory bar 26 ft. long and 1½ in. by 2 in. in section. It is supported by four shoes made of hard iron, and is pushed by the



by the use of this system, in which a single current passes through all the cars on the line, the resistance of a conductor being proportioned to the square of the current quantity.

The saving effected by the series system over the multiple arc system is claimed to be very marked, as shown by tables in the catalogue prepared by the company.

As in the Short and Nesmith system the same current is made to pass through every car, it is necessary that only a single wire shall pass along the roadway, the return wire passing back in any convenient manner. The principle of the series system is shown in a simple manner by Fig. 1. In Fig. 2 it is shown how the insulating bar between two brushes is made to hold open the circuit closing springs as the car passes. The arrows show how the current passes from the dynamo through the first

Electrical Railway. This lead-encased cable is laid in the ground near the center of the road-bed. The ends of the sections are connected by the spring jacks or circuit closers 2-2-2. These spring jacks are placed in the conduit 25 or 30 feet apart, and are insulated in the most careful manner. Each car carries with it a current collector or "arrow," shown at 4, Fig. 3. This arrow is a long rod of insulating material with copper strips fastened to its sides, as shown at 1-2, in Fig. 4. These strips bend around the ends of the arrow, but do not meet at 3-3. The current collector moves through the conduit, passes between the contacts of the circuit closers, and holds them open, as shown at B-B. The current is thus forced to pass from section 5 of the insulated conductor to strip 2 and, through the motor, to strip 1 of the current collector, thence out to section 6 of the conductor and on to the next car. Section 4 of the

drivers shown at each end of the arrow. The wire cables coming out of the end shoes and twined around the wooden drivers pass from the copper strips on the sides of the arrow to the motor. The shoes are connected by iron rods placed over the slot so as to take the strain from the wooden arrow. The arrow moves in the conduit beneath the car. Only the shoes and drivers are above the ground. There is nothing in the conduit but the current collector or "arrow," which has just room enough to pass freely. Should the car run off the track the pushers would drop out of place and leave the arrow unharmed. A spring jack connected with the underground conductor is shown at the center of the arrow.

THE ROAD-BED.

The ordinary street railway track construction is preserved, as shown in Fig. 6. On cross-ties 2, and stringers 3, rails 4-4

*U. S. Electric Co., Denver, Col.

are placed. The pavement between the rails is removed and a cast-iron or steel conduit, made in sections of convenient length, is spiked to the ties. The conduit has a narrow slot at the top and is provided with braces and yokes to make it strong enough to withstand the traffic of the street. Catch pits are placed at intervals along the road, into which the dirt from the conduit is swept by brooms attached to the current collector. These pits may be opened at the surface of the street and the dirt removed whenever necessary. The lead-encased cable buried in the ground is shown at 6, to the right of the conduit. The con-

ducting wheels. They are operated from either end of the car. No turn-tables are required. The cars move with equal facility in either direction, and the driver can always stand on the front platform. A snow plow is provided, which is pushed by the car. In Fig. 7 one pair of wheels are removed to show the motor and gearing. One side of the conduit and road-bed is removed to show the current collector in its place. It is supported by the shoes on the surface of the street. Its driving arms are attached to both the forward and rear shoes and to the motor frame. A catch pit is shown in the conduit at the right.

THE TRUCK.

Fig. 8 shows the truck used in this system. The axles are placed five or six feet apart, as are those of the horse car truck. The motor, which weighs from 1,200 to 1,500 lbs., is supported upon a wrought-iron frame. It has two bearings on the driving axle and one in the center of the other axle, to admit of some lateral movement of this axle in rounding curves. On one end of the motor shaft are the commutator and brushes, which can be inspected at the side of the car by opening a small door in the casing. On the other end of the motor shaft is a toothed or friction

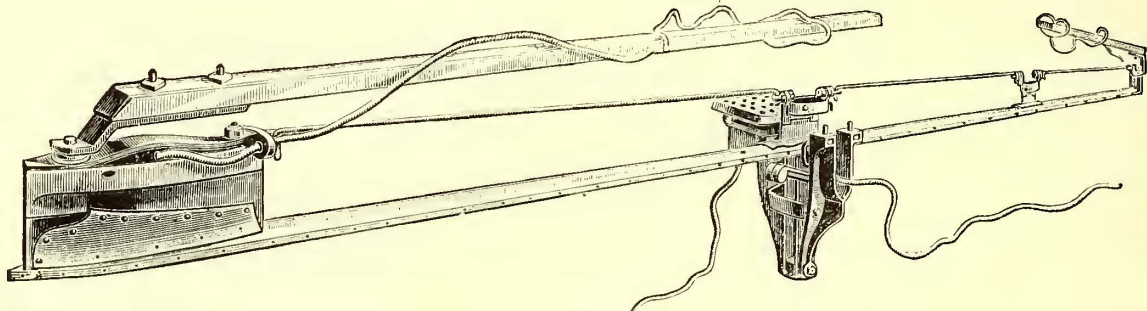


FIG. 5. THE ARROW.

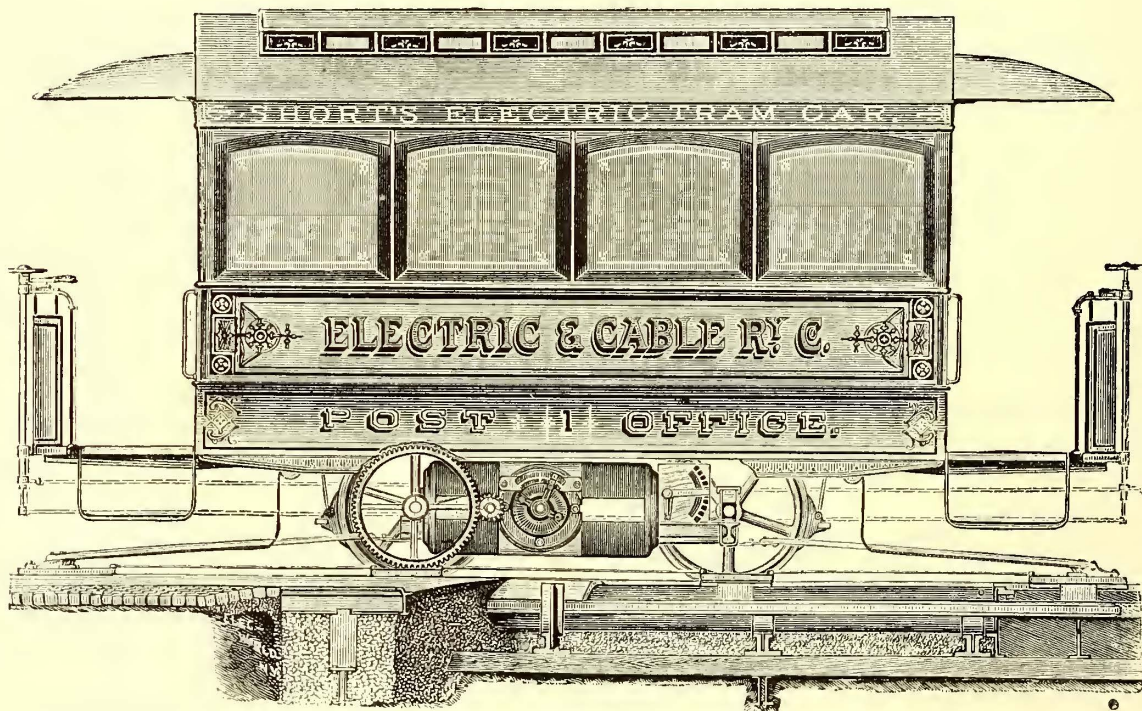


FIG. 7. THE CAR.

duit can be laid in existing street car tracks without disturbing either ties or rails or interfering with the regular running of cars. It weighs from 20 to 40 lbs. per running foot. The lighter weight may be used in streets having smaller traffic.

THE CAR.

In this system of electrical railway the ordinary horse car is used. The motor, as shown in Fig. 7, is supported on a frame below the car floor, and geared to the axles of the car wheels by noiseless, toothed gears. It is controlled by a single, movable handle, to be placed on upright shafts outside of the dash-boards. The ordinary hand brake is used. Sand boxes are placed under the seats and over the

These electric motor trucks, with current collectors, arrow drivers, speed and reversing levers and cable attachments, all complete, and ready for car bodies, are furnished by the U. S. Electric Co. As the standard wheel and axle are used in constructing the electric motor truck, it will be seen that all the rolling stock owned by existing car and cable companies can be made available for use under the Short and Nesmith Series Electric System. The electric motor truck is complete in itself, and will run on the track without the body or car box. The car body is carried upon the ordinary spring pedestal, and in no way connected with the motor or machinery of locomotion beneath it.

pinion made of paper or raw hide. This pinion drives a gear on a counter or intermediate shaft supported by the frame. On this counter shaft is a second pinion which meshes with the large gear on the driving axle of the car, as may be seen in the cut. This large gear is made in two parts to clamp on the axle of the ordinary street car truck. The motor is thoroughly insulated from the motor frame, and this, in turn, from the axles and wheels. The speed, direction and stopping of the car are controlled by rocking the brushes. This is done by means of levers attached to the platforms of the car. The motor is encased for protection from dust and moisture in an air-tight box.

LIGHTED BY INCANDESCENT ELECTRIC LAMPS.

The cars are provided with a simple and efficient device which diverts the necessary amount of electricity from the conductor to operate incandescent lamps in the lamp boxes, at each end of the car, in the cash boxes, and in the chandelier in the center of the ceiling. Large lamps are placed on the dash boards to light the street in front of the cars.

ALARM BELLS.

The cars move on so noiselessly that large gongs to give warning of their approach are necessary in crowded streets. A new invention, a bell that will ring on a closed circuit without opening the circuit, is provided for this purpose. This bell is

fire winter, through snow, rain and mud, without any difficulty, and the workmen in charge claim that the road runs better in wet than in dry weather, and requires less power.

A wealthy syndicate has been formed in Cleveland, O., who will immediately begin work on a very extensive system of street railways to be operated under the Short and Nesmith patents, and many other roads will be built during the summer.

Traction Rope Railways. II.

BY D. J. MILLER.

CARRYING PULLEYS.

In examining the working and condition

in diameter and three and one-half inches long, running in a composition box which was made up especially for the purpose. This metal, under the load and speed, has served with absolutely no attention for six months.

On the Tenth avenue cable road, in New York, there are upward of 1,900 carrying pulleys, half of them in constant operation for 22 hours a day.

Two men only, at \$1.75 each, take entire charge of all wheels connected with the road, starting at one end of the line in the morning and arriving at the terminus at the close of the day. These men walk slowly over the route, listening to the running of pulleys as they pass same. Should

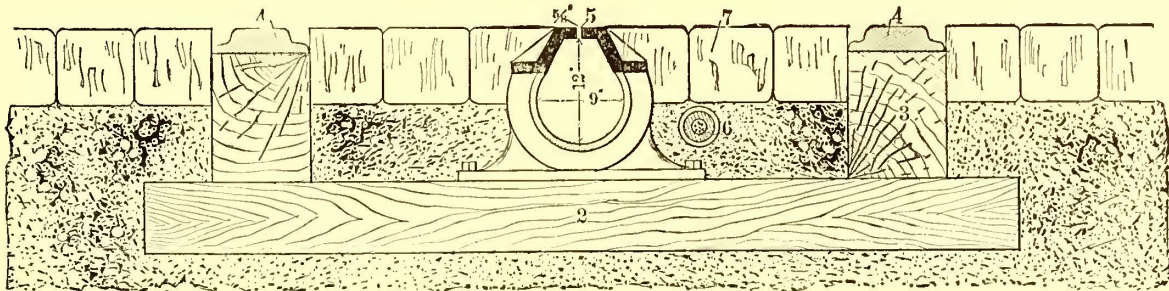


FIG. 6 THE ROAD-BED.

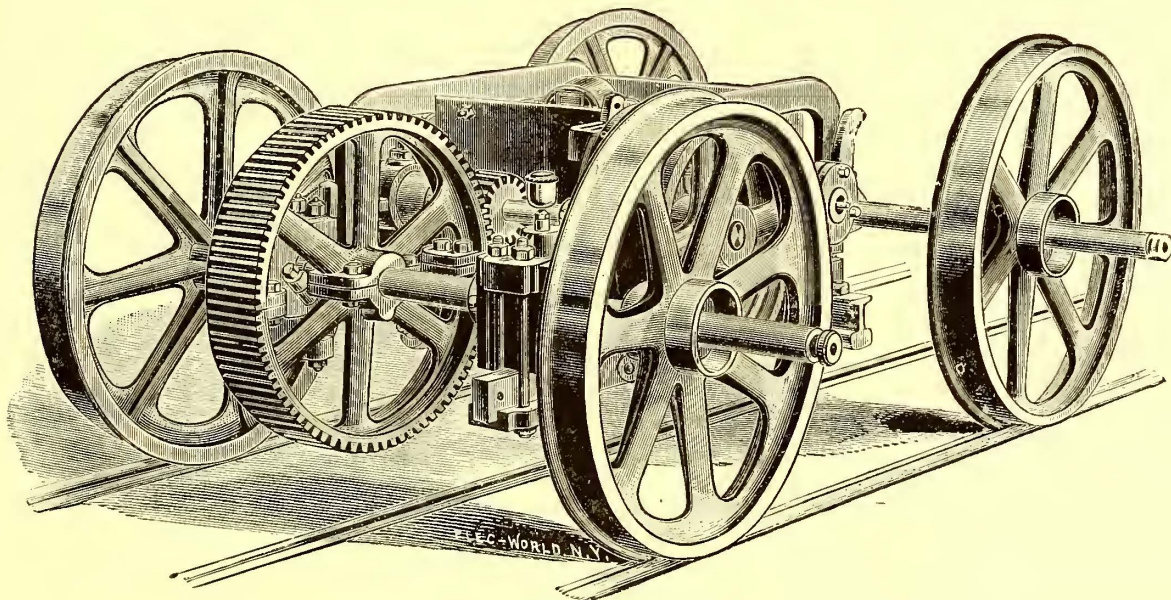


FIG. 8. THE TRUCK

operated by the foot of the driver or conductor.

The first street railway equipped and put in operation under the Short and Nesmith patents was in Denver, Col. The line was $3\frac{1}{2}$ miles in length, and has been running regularly every day since July 31st, 1886.

This road is equipped with 8 cars, all of which are driven by one 100 H. P. engine, and the engine is not working nearly to its capacity. Only one dynamo is in use, being capable of delivering 60 H. P. to the cars. An average of 5 H. P. is required by each car while in regular service.

The cars have been making an average of over 100 miles per day from 6 A. M. to 12 P. M. About \$5.00 worth of coal is used in 24 hours. The cars have run the en-

of carrier pulleys on several cable roads, I concluded that there was room for improvement in their design, and also that the journal boxes for same were capable of betterment. A poorly balanced wheel will injure the cable and assist in its own destruction, and it is my opinion that there are roads on which the carrying pulleys alone cost more than the cable.

I have endeavored to design a pair of wheels sufficiently wide to prevent the rope from leaving same; also have them large and light enough to move slowly and easily on the journal boxes.

The carrying pulleys of this system are twenty-four inches in diameter over flanges, and six and one-half inch face. Each wheel weighs thirty-nine pounds independent of shaft. The journals are seven-eighths inch

they expose each pair of wheels there would be 950 covers, weighing 250 lbs. apiece, for them to remove and replace, and at best not more than forty could be examined in one day, consequently were it not for the afore-mentioned arrangement of boxes, men would be needed every few blocks on the avenue. This road has been in operation eighteen months, and the original wheels are still in use, several of which we have calipered, and find no perceptible wear.

With all this in their favor, we have to record one fault, and that is their resonance. The ringing sound has been distinguished for a distance of 200 feet when the street was perfectly quiet, and this can only be totally destroyed by lining the sheaves with a non-metallic substance, an

expenditure hardly justifiable except on streets used exclusively for residence, as the noise is not particularly noticeable on a business thoroughfare.

CURVES. (SEE FIGS. 2 AND 3.)

The conduit is 3 feet deep on curves, and cables are carried around at different elevations, the line of inner rope being 14 inches and the outer 24 inches below grade. The horizontal wheels are 32 and 40 inches in diameter. The first or top wheel has a flat face, against which the grip takes bearing and thereby hinders the inner cable from leaving the grip in case the car is stopped on the curve when the latter rope is in operation. This inner cable rests on or runs against the single groove sheave (represented in drawing) between the top flat-faced wheel and the lower conical wheel, and said conical wheel has a spiral groove

required. One continuous line of main shafting is used, transmitting power to four driving drums, each pair being connected by a system of gears, and power transmitted from the main shaft by friction clutches, which are composed of sixteen wrought iron and steel plates, each three-eighths inch thick by four feet in diameter. These plates give sufficient area in square inches, so that the pressure applied to operate one rope will not force the lubricant from between their surfaces. The driving drums are ten and one-fourth inch face, with five grooves each, which are about twelve feet in diameter, the first groove on the first drum being the largest; the first groove on the second drum is one-eighth inch less in circumference than the first groove on the first drum, and all other grooves are reduced successively in the same ratio. Each pair

make two or three wraps, then pass to the tension wheel, which is on a car, and traverses a track in the rear of the driving machinery, then is carried out into the street again. With cables about four miles in length, they give a movement to the tension car of from four to five feet, making from eight to ten feet of rope to be disposed of every few minutes, thus continually moving the tension car back and forth.

As the car with the wheel is quite heavy, its movement is not easily checked, and a quantity of rope is usually payed out and received into the building, which would not be the case if car were properly governed. This duplicate system has been provided with an automatic variable tension, decreasing or increasing the tensile strain on the traction rope as the circumstances may require.

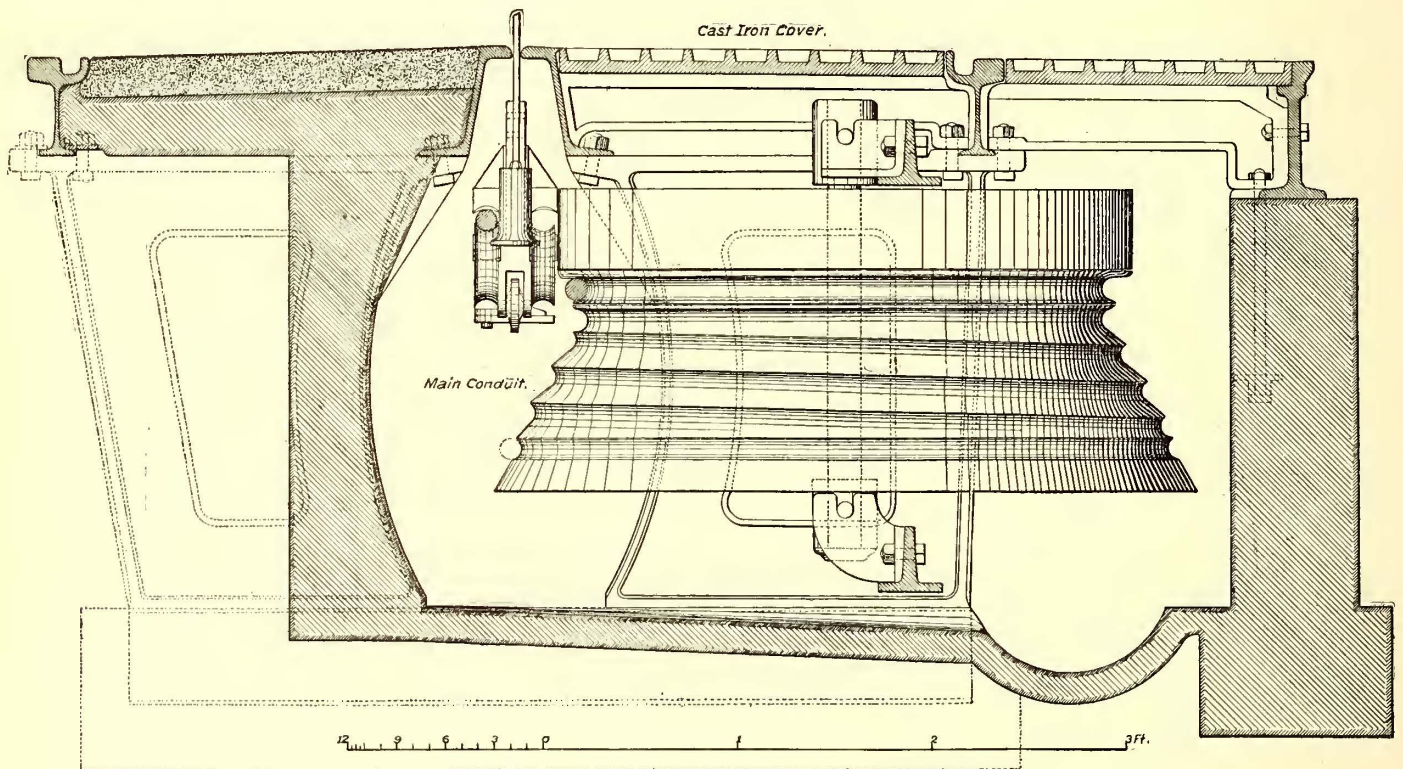


FIG. 2.

for guiding the outer and lower rope (when in use) down to its proper line after the grip has passed. These wheels are placed every 4 feet on sharp curves of, say, 40 or 50 feet radius, and at 8, 12 or 16 feet where there is less curvature.

The cast-iron riser of the yoke supports the street from the central slot to the concrete wall, a distance of 15 inches from the inner rail. Cast brackets are placed immediately above the risers aforementioned, and support the cast-iron grating of the street, which extends the length of curve, presenting a uniform surface far superior to the usual paving.

MOTIVE POWER.

The building containing the motive power of the Tenth avenue cable road is situated on the east side of Tenth avenue, having a frontage of one block (200 feet). The plant consists of two twenty-eight by forty-eight Wright engines, arranged to be operated together or independently, as may be

of driving drums has an independent train of driving gears, and in the center, between the drums, a pair of eight by eight upright engines are located. These are connected together and so arranged that they can be thrown in gear to operate the main drums.

To avoid accidents and stoppage of the road from stranding of the rope, it is necessary to frequently examine the cable to keep it in perfect order. To do this thoroughly, the rope should be detached from the main machinery and operated at a slow rate of speed. The service required of the auxiliary engine is to move the rope slowly for examination, run an old rope out and a new one in, or for any repairs necessary on the main machinery. The driving machinery being divided into two sets of four driving drums each, and each set having the drums arranged in pairs, the auxiliary engines between same can be connected to operate either pair as may be desired. The cables are taken in around said drums and

CABLES.

Each cable for the Tenth avenue road was manufactured complete in one piece and shipped to 128th street and Tenth avenue, mounted on a single reel, which with cable weighed 94,000 pounds.

Cables used on the majority of roads are composed of six strands, each strand having nineteen wires, seven of them forming the heart, around which the remaining twelve are wrapped; and these latter receive all the wear. One of the Tenth avenue cables has seven small and nine larger outer wires, while the second rope is composed of nine small inner wires with ten larger outside wires. This change in the size of wires was made by the rope manufacturers as an experiment.

For every mile of single track there are over one hundred and fifty carrying pulleys, and on a road running ten miles per hour for 24 hours the cable will pass over thirty-six thousand carrying pulleys each

day; there are also horizontal wheels on curves, and several large sheaves in wheel vaults, and should any number of the above be out of order the cable must be seriously injured.

ESTIMATED COST OF CABLE ROADS.

Many inquiries have been made concerning the cost of a good cable road, and the operating expenses of the same. We give below some information on this subject, and although the different items are not detailed, the figures are sufficiently accurate for the purpose. The estimate is for 2½ miles, everything included:—

2½ miles road-bed complete, paving included.....	\$319,000
Plant, including real estate, buildings and motive power complete.....	113,500
Rolling stock.....	70,000
	<hr/>
	\$502,500
Add 10 per cent for miscellaneous expenses..	50,250
	<hr/>
Giving total cost of road and equipment....	\$552,750
Operating expenses per year, \$102,953. To this add interest at 5 per cent on first cost of road, say \$600,000, \$30,000, making total operating expense.....	132,953
This would require a traffic of 2,659,060	

To perform this work with animal traction would require 272 horses on a comparatively level road, which would cost annually for maintenance and renewals..... \$59,568
 The operating expenses of the motive power with the cable system..... 26,640
 Showing saving annually effected..... \$32,928

The estimate on cost, and also operating expenses, are liberal, but the minimum number of horses have been considered. With animal traction, there could be no sudden expansion of the carrying capacity; but with a road such as described above it is only necessary for a railroad company to have adequate rolling stock and they are prepared for any emergency. There is no other system of traction that can so readily respond to the demand of traffic for increased accommodation.

Two passenger cars can be attached to a single grip and carry, easily, 125 passengers. And by supplying cars sufficient to dispatch one train every minute a carrying capacity of 7,500 per hour in one direction would be secured, or a total of 15,000 passengers.

Kansas City. Kansas City Cable Ry. Co.: 4 miles, in operation since June, 1885.
 Metropolitan Ry. Co.: 14 miles, under construction.
 Corrigan Consolidated Ry. Co.: 16 miles, under construction.

New York City. Third Avenue R. R. Co.: duplicate system, Tenth Avenue Line, 6 miles, in operation since August, 1885; 125th Street Line, 4½ miles, in operation since December 1, 1886.

Philadelphia. Philadelphia Traction Co.: Market Street Line, 8 miles, in operation since the spring of 1885; Sansom Street Division, 4 miles, in operation since October, 1886; Columbia Avenue Division, 6 miles, in operation since the beginning of 1885.

St. Louis. St. Louis Cable & Western Ry. Co.: 6 miles, in operation since April, 1886.

San Francisco. California Street Cable R. R. Co.: 5½ miles, in operation since 1876. Clay Street Hill R. R. Co.: 2 miles, in operation since August, 1873. Geary Street Park & Ocean R. R. Co.: 5 miles, in

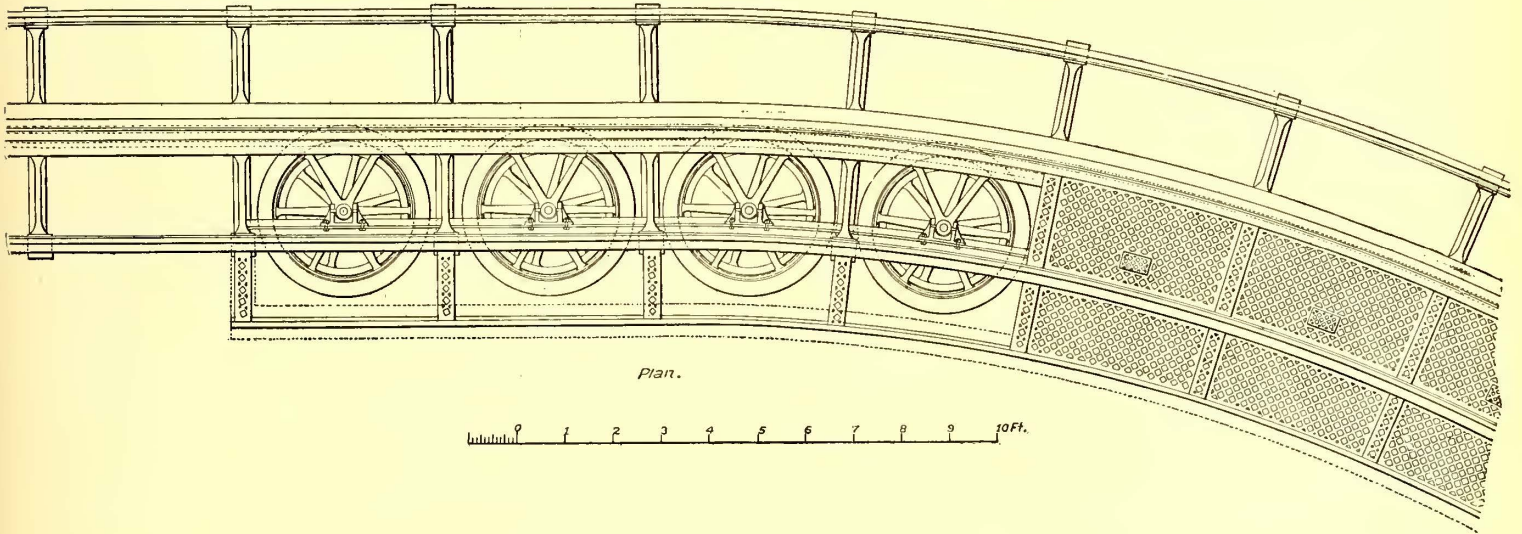


FIG. 3.

per annum. The excursion traffic being a large item with all cable roads, we will therefore allow 25 days during the year in which 20,000 passengers will be carried, making 500,000, leaving 2,159,060 passengers to be carried in the remaining 340 days, which gives us 6,850 passengers per diem.

If 75 per cent of this number, or 2,000 per mile per day, can be calculated on with a horse road, it will be perfectly safe to invest in the cable system owing to the increase.

As the above is for 2½ miles, one mile of road will cost \$221,100. By multiplying the latter figure by the number of miles desired to build, a close and reliable estimate will be obtained. The foregoing covers real estate, buildings and equipment. Operating expense covers officers' salaries, pay of employees, taxes, and in fact every item of expense connected with the operation of the road.

It must be borne in mind that the estimate given above covers the expense of making 435 round trips every 24 hours.

The estimate of cost here given is based on prices and conditions for construction of roads in large cities such as New York, Philadelphia, Boston and Chicago. For smaller cities much reduction might be made.

As this paper is now quite lengthy, we deem it advisable to bring it to a close, omitting several subjects upon which we had intended to treat; and trusting we may be able to furnish a supplement in the near future. We give in conclusion a list of the cable roads now in operation and under construction.

LIST OF CABLE ROADS.

Chicago. Chicago City Railway Company; Cottage Grove Avenue and State Street Lines, 20¼ miles, in operation since 1882; State Street and 63d Street Line, 4 miles, under construction; Cottage Grove Avenue Extension, 4 miles, under construction. North College City Ry. Co.: 14 miles, under construction.

Cincinnati, Mt. Adams & Eden Park Inclined R. R. Co.: Walnut Hills and Cincinnati Line, 8 miles, in operation since October 1, 1886.

operation since 1880. Market Street R. R. Co.: Market street and branches, 16½ miles, in operation since 1884. Omnibus R. R. & Cable Co. Sutter Street R. R. Co.: 3½ miles, in operation since 1876. Telegraph Hill Street Ry. Co.: 3,120 feet.

Several miles of road have recently been put in operation in Melbourne, Victoria, and about four years ago a road was built in New Zealand. In 1884 two or three miles were constructed in London, England.

(To be Continued.)

STREET CAR CONDUCTORS are gentlemen of considerable importance in Mexican society, with their silver-garnished sombreros, embroidered linen, breeches bedecked with silver buttons up the outside seams and handsome pistols protruding from their belts. Why the pistols, it would be hard to tell, but a conductor always wears two of them conspicuously displayed, probably because otherwise he doesn't consider himself in "full dress." Indeed, the wearing of pistols is universal in Mexico.

Notes and Items.

Allegheny, Pa.

OBSERVATORY HILL PASS. RY. CO. Work on this road is now under way, and they expect to open it about Oct. 1. They will use electric motors. The length of track is 4 miles; gauge, 5 ft. 2½ in.; 52 lb. Johnson street rail; 4 cars to start with. Oliver P. Seaife of Pittsburg is President, and Arthur Kennedy Secretary. Capital stock, \$125,000.

Ansonia, Conn.

THE ELECTRIC RAILWAY here will use water power.

Asbury Park, N. J.

SEASHORE ELECTRIC RY. CO. is the name of the new company organized here, with a capital stock of \$100,000. Henry S. Isclin and others are incorporators. The Daft system will be employed, and 15 cars will be used. The work of construction has already begun.

Asheville, N. C.

THE NEW COMPANY formed here, to which we referred last month, is styled the Asheville Improvement and Street Railroad Co.

Atlanta, Ga.

ATLANTA STREET R. R. CO. will build a double track extension of 1½ miles to the Piedmont Fair Grounds. The line will run out Calhoun street. This street is to be opened 90 ft. wide to the grounds.

EAST ATLANTA LAND CO. will build a dummy line.

A DUMMY LINE will be built by E. C. Peters.

Auburn, N. Y.

AUBURN CITY RY. CO. The Auburn & Owasco Lake Ry. Co. and the East Genesee St. & Seward Ave. Ry. Co. have consolidated under the above name; and the company have relaid their entire substructure. They have 3½ miles of track, of 4 ft. 8½ in. gauge, 30 to 42 lb. rail, 10 cars, 41 horses. G. W. Allen is President, H. B. Hollins of New York Vice President, Bronson Peck, Jr., of New York Secretary, E. L. Horton of New York Treasurer, and J. L. Windsor Superintendent.

Baltimore, Md.

YORKVILLE TURNPIKE ROAD CO., not hitherto reported in full in our Directory, has 11½ miles of track, 5 ft. 4½ in. gauge, 25 and 45 lb. rail, 19 cars, 133 horses. President, Samuel H. Tagart; Treasurer, Joseph W. Jenkins; Agent, A. D. Sanks.

PIMLICO & PIKESVILLE RY. CO. will improve their road this season but will make no additions. This company, which has not hitherto been reported in full in our Directory, has 6 miles of track, of 5 ft. 4 in. gauge, 30 lb. rail, with 4 cars and 17 horses. P. H. Walker is President, Frank Caughy Secretary, and Arthur Chenoweth Treasurer and Superintendent. The office is at Pikesville, Baltimore county.

PEOPLE'S RY. CO. reports 13.2 miles of track, with 42, 45 and 47 lb. rail; and increases to 210 horses.

BALTIMORE, BROOKLYN & CEDAR HILL RY. CO. is a new company, whose route is from Baltimore city to Cedar Hill cemetery, in Anne Arundel county, via Light street

bridge and the town of Brooklyn. They have begun work, and the road will be opened Sept. 10. The length of track will be 9 miles, of 5 ft. 2 in. gauge, 30 lb. steel rails, 20 cars and 40 horses. Capital stock, \$50,000, and \$50,000 first mortgage bonds. President, C. Orrick Swann; Secretary and Attorney, S. C. Long; Treasurer, Levi Z. Condon; Superintendent, I. M. Thompson. Office, 305 St. Paul street, Baltimore.

Bayoune, N. J.

AN ELECTRIC RAILWAY is talked of here.

Bellaire, O.

BELLAIRE ST. R. R. CO., of which George W. Stetson of New York is owner, will entirely rebuild the line and make an addition of about a mile. They have now 2½ miles track, of 3 ft. 6 in. gauge, 15 lb. rail, 4 cars and 13 horses. Fred Rodewig, Manager.

Beloit, Kan.

BELOIT CITY ST. RY. CO. Though a charter has been granted to C. J. Brown and others for this road, nothing will be done for a long time to come.

Birmingham, Ala.

BIRMINGHAM UNION RY. CO. increases to 22 miles of track, with 25 cars and 212 mules. J. A. Van Hoose is President, B. C. Scott Secretary and Treasurer, and T. S. Morton General Superintendent.

Boston, Mass.

WEST END ST. RY. CO. The consolidation bill in the interest of this company, which has been passed by the Legislature and signed by the Governor, is very liberal in its terms. It provides for the issue of 5 per cent preferred stock to the amount of \$12,500,000, dividends on which are to be cumulative, which stock is to be exchanged, on such terms as may be agreed upon, for the stock of the other companies. The company may, with the consent of the Board of Aldermen, establish the cable and electric systems, or either of them. It may construct tunnels wherever it wishes except under Boston Common. A minority report objects to the capitalization allowed, and says that, even with the addition of the Consolidated railroad, which the West End people do not claim to control, the total capital stock of the Boston roads is only \$6,400,000, on which the total dividends last year were \$456,000, and the stock of these railroads should not be increased to \$12,500,000 with a perpetual cumulative dividend charge of \$625,000. It is claimed by the opponents of the bill that a consolidation in the interest of the West End Street Railway Co., 785 of whose 800 shares are owned by the West End Land Co., would mean the development of the West End Land Co.'s property in Brookline at the expense of other sections of the city. A correspondent at Boston writes in regard to the bill that the tunnel under Beacon hill will probably extend from Charles street to Franklin, coming out between Washington and Devonshire streets, with perhaps a branch to Dock square and another branch from the corner of Charles and Cambridge streets. The West End people have been investigating the different kinds of track. They were at first inclined to favor the Richards rail, but they

may adopt some new devices which were shown them, and which appear to possess merit. President Richards of the Metropolitan will probably be Vice President of the new line, and the Directors may insist upon the retention of all his services, by making him General Manager. He is wanted in another field, however, having been made President of the new steam heating company. The West End company reports that its capital stock is \$80,000, and that work will be commenced this summer.

ELECTRICAL EXPERIMENTS. The electrical car which had been under construction for the previous two months at the car house of the Cambridge Railroad Co., was tested May 24 in the presence of several gentlemen connected with the road, the electric light company and the press. The car is fitted with a Julien storage battery of 104 cells. A part of the current is used for the motor, which has a normal capacity of five-horse power, and a part for lighting the car, which is furnished with five incandescent lamps of 16 candle power. Electric bells, for starting and stopping the car, are also connected with the battery and operated with push buttons on the front and rear and at several points in the interior. The maximum speed of the car with its present battery, as described, is ten miles an hour. The car is adapted to be operated and reversed by a shifting lever at both ends. A Weston shunt-wound motor was used. The charge in the battery at the time of the test had been in use for two weeks. The experiments were confined exclusively to within the car house, over a fifty-foot section of track, and were quite successful. It is announced that the managers of the West End Street Railway Co. have decided to run an electrical car between Harvard square and Boston. The power will be supplied by the Cambridge Electric Light Co. The car is being built in New York, and is nearly ready for use.

BOSTON CONSOLIDATED ST. RY. CO. The new Columbus avenue and Main street line was opened May 23. The line is equipped with elegant cars containing the latest improvements. The cars run from Franklin street, East Somerville, through Main street, Charlestown, over Warren bridge to Causeway street, through Causeway to Canal, passing or going very near to all the northern depots, through Canal, up Sudbury into Tremont street, thence via Boylston street through Columbus avenue.

Bristol, Va.

BRISTOL-GOODSON ST. RY. CO. has been incorporated.

Bridgeton, N. J.

AN ELECTRIC STREET RAILWAY is to be built at Bridgeton.

Brooklyn, N. Y.

BROADWAY R. R. CO. write that they are laying new 60 lb. steel rail on their Reid avenue branch—2 miles.

CONEY ISLAND & BROOKLYN R. R. CO. The only change is that G. W. Chauncey is now Treasurer.

ATLANTIC AVE. R. R. CO. increases to 32½ miles of track, and reports now 255 cars and 938 horses.

CONEY ISLAND, SHEEPSHEAD BAY & OCEAN AVE. R. R. Co. Andrew McClellan is President, James Callory Secretary, and Hoyt Van Valkenberg Treasurer.

GRAND ST., PROSPECT PARK & FLATBUSH R. R. Co. is leased to the DeKalb Ave. R. R. Co. Thomas Clark, Jr., is President and Charles Creifelds Secretary and Treasurer.

A NEW SURFACE RAILROAD, extending from Prospect park to Newtown creek, Greenpoint, will be in operation before the close of the summer. The route will be through Melbourne street to Nostrand avenue, to Bergen street, to Kingston avenue, to Fulton street, to Throop avenue, to Union, to Van Cott avenue, to Oakland, to Box street, to Manhattan avenue.

THE LEWIS & FOWLER MANUFACTURING Co. is building a new pattern shop, 25 x 100 ft. in size, two stories. A new car stove recently gotten out by them combines a coal box which is placed where the ash-pit formerly was, the ash-box being raised up. It is a very neat and complete stove, and is sold at a price only slightly above the ordinary stoves. Street railway companies would do well to see this before ordering their stoves for next fall.

BROOKLYN HEIGHTS RY. Co., the new company that is to build along Montague street from Wall street ferry to Court street, a distance of $\frac{1}{2}$ mile, will have a 4 ft. gauge, 50 lb. rail, and 6 cars, to be operated by electricity. It has not yet been determined when work will be commenced. The officers are: President, S. B. Chittenden; Vice President, John Jay Pierrepont; Secretary, George W. Chauncey; Treasurer, Michael Chauncey.

FRANKLIN AVE. R. R. Co. filed articles of incorporation at Albany May 21. The road is to commence at the corner of Grand and Second streets, in the Eastern District of the city, and to run thence through and along Second street to Wylie avenue, to Franklin avenue, to Malbone street, in the town of Flatbush; thence along Malbone street to Flatbush avenue, in the town of Flatbush. The capital is \$50,000, and the directors are: William A. Wheelock, Henry Day, J. Langdon Ward, Sidney Dillon Ripley, Daniel Lord, Jr., George V. Turner, Edward C. Mossar, William Alexander, and Walter R. Gorman, of New York; Henry C. Deming, of Highland, N. J.; Franklin B. Lord, of Lawrence, Queens county, and Thomas D. Jordan, of Jersey City, N. J.

BROOKLYN CITY R. R. Co., it is announced, has decided to abandon the use of horse power on all its lines and substitute either the cable or the electric system. The change is pretty sure to be carried out within a year. The company has sent out a number of men who are to canvass the whole length of Fulton street to East New York, and afterwards of Flatbush avenue to the town of Flatbush, and get the opinions of storekeepers and property owners as to a change. The first train was run over this company's surface steam line from Twenty-fifth street and Third avenue to the Thirty-ninth street ferry on the 29th of May; and trains were run every half hour

during the day, and were well patronized. The Brooklyn City has just added 20 of Jones' open cars to its equipment.

Brunswick, Ga.

BRUNSWICK ST. R. R. Co. has 4 $\frac{1}{2}$ miles of track, of 4 ft. 8 $\frac{1}{2}$ in. gauge, 38 lb. steel rail, 6 cars, 24 horses. President, C. P. Good-year; Secretary and General Manager, U. Dart; Treasurer, W. E. Kay. This is the first full report we have had from this company.

Carbondale, Pa.

A COMPANY has been formed here for building an electric street railway.

Chester, Pa.

CHESTER ST. RY. Co., having opened a new line of 2 miles, increases to 9 $\frac{1}{2}$ miles of track, of 5 ft. 2 $\frac{1}{2}$ in. gauge, 47 lb. rail; and has now 18 cars, against 14, and 80 horses, against 66. E. Mitchell is President, William S. Blakeley Secretary, and Samuel H. Seeds Treasurer.

Chesapeake, O.

CHESAPEAKE ST. RY. Co. has been incorporated.

Chicago, Ill.

CHICAGO WEST DIVISION RY. Co. increases from 45 $\frac{1}{2}$ to 46 $\frac{1}{2}$ miles of track, from 688 cars to 900, and from 3,825 horses to 4,300. This company's track is laid with 43 lb. rail.

THE VAN DEPOELE ELECTRIC MANUFACTURING Co.'s shops present an appearance very well calculated to dispel such doubts as any one may entertain as to the practicability of electricity as a street railway motor. Five floors, 90 by 90, are covered with machinery, all of which, with the required number of men, are busy in the production of street railway electric motors. Among the works now in course of construction by this company may be mentioned the new road at Ansonia, Conn.; a road in Birmingham, Ala.; the road from Jamaica to Brooklyn, N. Y., 7 miles; the road in St. Catharine's, Ont., to be completed in August; that in Lima, O., has been begun, and various other work.

THE PULLMAN PALACE CAR Co. are building combination cars for the Citizens' road of St. Louis, for the Twelfth street road of Kansas City, for the Metropolitan road of Kansas City, and are delivering trip and open cars for the St. Louis Cable & Western Ry. Co.

PUGH & RUSSELL have moved their Western office into the new Phenix Building, where the John Stephenson Company are also represented. This building is one of the finest in Chicago, and is being quite generally patronized by the iron and railroad companies.

OUR CHICAGO LETTER.

Street railway matters here are at present holding the even tenor of their way. The new roads and extensions of old ones are all progressing finely, and manufacturers and dealers of street railway appliances report business lively.

The Chicago City Ry. Co. now have their State street extension open for actual business as far as Sixty-third street. The distance from Madison street to this terminus is seven and a half miles, and is run

in forty minutes. Residents along the line are highly pleased with the means thus afforded them for quick transit, and in fact I am told that those people in the vicinity of Fifty-seventh street who at one time favored an elevated road are now entirely converted to the belief that the cable is the most efficient and practicable method of transportation. This company have also completed the horse line to Forty-seventh street from Ashland avenue to State, a distance of two miles, double track. The cable extension on Cottage Grove avenue is also being pushed forward as fast as possible.

The West Division Railway Co., who I have now I believe the largest horse car road in the United States, are busy at their shops repairing and repainting in an elegant manner their winter cars.

While riding on a west side car a few days since my attention was called to a new design of fare register in the hands of the conductor, and I found upon inquiry that it was the improved Meeker patent. I have since been told that this register is now in use upon all the roads in the city, a large number of which are now being made for the City Railway Co.

The Pullman people are very busy in their street car department. An order has just been received from the Metropolitan Street Railway Co., Kansas City, for twenty-five combination cars to be used on the Twelfth street cable line, which when built will present something both novel and original in street car construction not heretofore attempted to the knowledge of your correspondent. From the drawings which I have seen, the plan of the new cars has the appearance of being a successful plan to do away with grip cars. The car is to be thirty-five feet in length, about two-thirds of it being inclosed. The gripman stands at the front or open part, four seats being on each side, and the closed part being immediately behind him. It is calculated to comfortably seat fifty passengers, and will have eight wheels on trucks which combine the excellences of the famous Pullman sleeping car trucks, and are of original design. The St. Paul City Railway Co. have just placed an order with them for sixteen cars, twenty feet in length, to be used on their new cable line. Orders have also recently been received from Detroit, Benton Harbor, Pittsburg and Minneapolis.

The Cline Manufacturing Co., who recently suffered a considerable loss from fire, have removed their entire plant to Canal street, where their facilities for manufacturing will be greatly increased. They will soon be prepared to fill the numerous orders for their patent heaters and fuel which they already have on hand for next season.

P.

Chicago, Ill., June 18.

Cincinnati, O.

CINCINNATI ST. RY. Co. are building 7 miles cable road from the Post Office and Fountain square to Clifton and the Zoölogical Gardens. Owing to unavoidable delays it will probably not be completed be-

fore September or October. Twenty-five new cars of the Stephenson make are to be added, 10 of which are open cars and 15 closed, each with grip attached, and equipped with the Wharton inside bearing wheel. The Johnson side bearing rail, 52 lb., will be used. This company have also obtained a charter and will build during the present year some 8 or 10 miles single track electric road from the Court House to Avondale, and about 7 miles over Colrain pike to Cumminsville. Arrangements are also pending with the people of the eastern and western suburbs to build either cable or electric railway during the coming year. The Cincinnati Inclined Plane Ry. is soon to be purchased by this company.

Clay Center, Kan.

CLAY CENTER CITY RY. CO. It was expected that work would be commenced this month, and that 1 mile would be in operation by July 10 and the balance by Dec. 31. There will be 5 miles of track altogether, of standard gauge, 25 lb. rail, 10 cars, steam or electric motor, 4 motors. The capital stock is \$100,000. Officers, President, G. M. Stratton; Vice President, J. M. Frank; Secretary and Treasurer, William Sharpe; General Manager, O. E. Walker.

Cleveland, O.

ELECTRIC RAILWAY. We understand that a wealthy syndicate has been formed to build an electric railroad in this city on the Short and Nesmith Series system.

FULTON FOUNDRY has more than its usual amount of street railway work. Among orders which it is now building may be mentioned those for turn-tables for the Richmond St. Ry. Co., Richmond, Va.; West Side, Milwaukee; Rock Island & Milan; the Union and Frederick Ave. roads, St. Joseph, Mo.; the Salina, of McPherson, Kan.; also transfer tables for Chattanooga, Central City of Peoria, Waco, Tex.; West Side, Milwaukee. They are also making curved rails, switches and various other work for nearly all parts of the country.

THE STREET RAILWAY SUPPLY CO. has been constantly increasing its facilities since the fire, and is now better prepared for turning out work than ever before. The last month's business was larger than that of any month in the history of the old company or the new. Among orders on the books are those for five sets of the Higley box from the Louisville City road, five cars fitted with the Shattuck box and gear for the St. Clair road, a number of Worswick boxes, etc.

WOODLAND AVE. & WEST SIDE ST. R. R. CO. is laying 1½ miles of the Richards rail.

Columbus, O.

THIRD & SCHULLER ST. R. R. CO. After considerable opposition from those who claimed that it was a paper railway, etc., the City Council passed the ordinance granting this company its franchise, June 7. Cars must be running on at least three full squares within two years. Work will begin as soon as the capital stock—\$75,000—is subscribed for. It is desired to have the line opened before winter. It will have 3½

miles of track, of 5 ft. 2 in. gauge, 8 cars. The method of propulsion has not been decided upon; they are thinking of trying electric motors. Officers: President, P. E. Blesch; Vice President, H. Mithoff; Secretary, C. Herman; Treasurer, J. A. Kremer. Dr. Blesch writes: "Our road is a good one, and it will be a good investment for some capitalist to come and take hold with us."

Cortland, N. Y.

CORTLAND & HOMER HORSE R. R. CO. reports 6 cars and 16 horses.

Council Bluffs, Ia.

COUNCIL BLUFFS ST. RY. CO. has now 5 miles of track.

Covington, Ky.

SO. COVINGTON & CINCINNATI ST. RY. CO. ask the right to extend their tracks, also for a lessened liability for keeping the streets in repair, and to be relieved from having conductors on their cars. A good deal of opposition to these requests has been manifested in the City Council.

Dallas, Tex.

DALLAS & OAK CLIFF ELEVATED R. R. CO. has been incorporated, with a capital of \$400,000, to build an elevated railroad, by T. L. Marsalis, Thomas Field, J. T. Dargan, J. T. Elliott, W. J. Storms, Frank Field and others. The cars will be operated by cable or electricity.

Dayton, O.

DAYTON TERMINAL & BELT R. R. CO. has been incorporated, with a capital stock of \$10,000, by J. O. Arnold and others.

Danville, Ill.

CITIZENS' ST. RY. CO. A. E. Daniel is Vice President of this company. They report 5 miles of track.

Dayton, Ky.

NEWPORT & DAYTON ST. RY. CO. has decided to change from horses to electricity.

Decatur, Ala.

A NEW LINE will be built here by A. H. Howland and others, of Montgomery, Ala.

DECATUR RY. CO. has been incorporated by W. G. Wharton, H. G. Bond, W. E. Forest, E. E. Greenleaf and J. D. Roquemore.

Detroit, Mich.

DETROIT ELECTRIC RY. CO. reports 2 miles of track, of 30 lb. rail, 4 cars, electric motors, Van Depoele system. H. M. Campbell is President and Bethune Duffield Secretary.

EAST DETROIT & GROSSE POINT ELECTRIC RY. CO. has been formed and will build at once. The road will be 8 miles in length. One mile will be within the city limits, and on that section a conduit will be used. Over the other part of the road the conductor will probably be a third rail. The power station will consist of two 80 H. P. steel boilers, two 60 H. P. automatic engines, and two dynamos. Each of the dynamos will be of sufficient power to handle the entire system. The working equipment will consist of four 16 ft. cars, with motors on the front platform, and 2 motors of sufficient power to draw 3 open cars at a speed of not less than 25 miles per hour. The road will follow Jefferson avenue to Cadillac boulevard, thence following the

Mack road to Grosse Point, which is a fashionable suburb of Detroit.

GRAND RIVER ST. RY. CO. reports 4½ miles of track.

Dubuque, Ia.

DUBUQUE ST. R. R. will add one mile of track. They have now 7 miles, with 52 lb. rail, 22 cars and 60 horses.

Dunedin, N. Z.

THE TRAMWAYS CO. carried last year 1,774,859 passengers, but their traffic receipts show a decrease of £406, which took place wholly within the last six months. Owing to the commercial depression many people who were formerly regular travelers have ceased to use the cars.

East Portland, Ore.

THREE COMPANIES ask for a right of way through the city—the Sellwood & Vancouver Ry. Co., the Willamette Bridge Ry. Co. and the Stark St. Ferry Co. The first named proposes to use steam motors, probably Baldwin motors, and to build from Sellwood to Vancouver, crossing the Columbia on a ferry, and extend its lines to Mount Tabor on the base line and section line roads.

El Paso, Tex.

EL PASO ST. RY. CO., part of whose full title is "Compañia del Ferrocarril Urbano y Puente de Paso del Norte, Mexico," has 6 miles of track now; and the material is on hand and grading being done for 5,230 ft. of new line. The gauge is 4 ft. 8½ in.; number of cars, 18; mules, 40. Some of the officers have been recently changed, and the list is now as follows: President, J. F. Crosby; Vice President, B. H. Davis; Treasurer, C. R. Morehead; Secretary and Superintendent, G. N. Marshall.

Elizabeth, N. J.

NEW CROSSTOWN LINE. Henry H. Isham, a capitalist, of New York, and Adjustment Commissioner Frederick L. Heidritter, of Elizabeth, are about to build a crosstown road from Fourth avenue through High street across the New Point road and down Trumbull street to the Singer factory and Elizabethport station. Petitions are being circulated among the property owners along the line of the proposed route, and there is little doubt of a majority being obtained in favor of the project, as Messrs. Isham and Heidritter themselves own nearly half the land through which the line is to run. The new road will build up a large tract of unimproved property.

ELIZABETH & NEWARK HORSE R. R. CO. The syndicate that has obtained control of this road began laying a double track through the city to the Port, June 14, and other improvements are contemplated.

Elmira, N. Y.

NEW STREET RAILWAY. Articles of incorporation have been signed for a new road in the Fifth ward, with a capital stock of \$20,000. Horse power will be employed. The directors are J. H. Clark, John Braud, M. H. Arnot, G. M. Robinson, W. W. Fish, Frederick Barker and D. C. Robinson. The road will run from the corner of Lake and Water streets to the Northern Central company's shops, via Maple avenue and Miller street. It will be single track ex-

cept over the bridge. It is hoped to have the road in operation by Sept. 1.

Findlay, O.

FINDLAY ELECTRIC ST. R. R. Co. Part of the natural-gas celebration, June 8, 9 and 10, consisted of laying the first rail of the above road.

Fitchburg, Mass.

FITCHBURG ST. RY. Co. are extending to Fitchburg park, 4,000 ft. from the Summer street terminus. Work commenced June 8. The construction is in charge of Superintendent Sargent, who is a practical track layer. T rail is used. The work will be finished by July 1.

Flushing, N. Y.

FLUSHING & COLLEGE POINT SURFACE R. R. Co. We referred recently to the scheme for a railway here. The company has now been organized, and has applied for a charter to run a line from Flushing to College Point. The officers are: President, Joseph Dykes; Treasurer, Henry Clement; Secretary, Arthur Herring; Trustees, George Pople, A. H. P. Dennett, Samuel McCreary, David Master, Thomas Elliott, John Henderson, Charles Frey, Joseph K. Murray, John Hepburn and E. Platt Stratton. A company composed of outside capitalists has also applied for a similar franchise.

Fort Worth, Tex.

FORT WORTH ST. RY. Co. will build another line.

Gadsden, Ala.

GADSDEN LAND & IMPROVEMENT Co. will build a dummy railroad by way of their hotel at Bellevue to Black Creek Falls, about two miles from the city.

Gainesville, Tex.

GAINESVILLE ST. RY. Co. increases from 2½ to 3 miles of track, and from 12 to 22 horses and mules. Their gauge is 3 ft. 8 in., 16 to 18 lb. rail, and they have 4 cars. The officers have been changed, and are now as follows: President, Sam. Lazarus; Vice President, L. Dreyfoos; Secretary and Treasurer, Zac. Farmer.

Gastein, Austria.

SIEMENS & HALSKE are to build an electric railway between Lend & Gastein, which is to be extended as far as Boeckstein.

Gloucester, Mass.

GLoucester ST. RY. Co., whose report has not been complete till now, has 4 miles of track, of 4 ft. 8½ in. gauge, 38 lb. rail, 13 cars, 86 horses. The officers are: President, Morris C. Fitch; Vice President, Walter A. Jones; Secretary, D. S. Presson; Treasurer, F. W. Homans; Superintendent, W. A. Strongman.

Gratiot, Mich.

GRATIOT ELECTRIC RY. Co. has the same officers as the Port Huron Electric Ry., noted below. They have a capital of \$25,000 and will have 1½ miles of track, with 16 lb. steel rail.

Grand Island, Neb.

GRAND ISLAND ST. RY. Co., a new company which is now rapidly building its road here, expect to have 3½ miles of track in operation here by July 1 and 4 miles this year. They use 20 lb. steel T rails and oak

ties. Will have 5 14-ft. 2-horse cars and 30 horses, but will change motive power as soon as they can get a system of electric motors that are reasonably cheap and appear thoroughly practicable; although, writes Secretary Thompson, "this is a Paradise for horse railways, as fair horses can be had for from \$40 to \$60, and oats and corn are plenty at from 15 to 20 cents per bushel." A. H. Baker is President of the company, H. A. Koenig Vice President, O. B. Thompson Secretary and William A. Hagge Treasurer. The capital stock is \$100,000, of which \$25,000 is paid in. As we go to press we learn from St. Louis that the company has decided to run its cars by electricity.

Greenville, Tex.

GREENVILLE ST. RY. Co. has been organized, with a capital of \$50,000.

Harrisburg, Pa.

HARRISBURG CITY PASS. RY. Co. are this summer relaying about 2½ miles of track. They have increased their capital stock to \$100,000, all paid in. They have now 6 miles of track, 26 cars and 72 horses.

Hastings, Neb.

HASTINGS IMPROVEMENT Co. is the name of the new road here. They have ordered 3 miles more of track.

Hamilton, O.

HAMILTON ST. RY. Co. The tracks will soon be extended ½ mile, using the Cambria T rail. Mr. J. C. Bigelow, the Superintendent and Lessee of the road, has made many and much needed improvements recently, including the repairing of all the cars by the Fulton Foundry, of Cleveland. The company has now 11 cars and 18 horses. Daniel P. Cass is Secretary.

Herkimer, N. Y.

HERKIMER & MOHAWK ST. RY. Co. has 3 cars and 6 horses. The officers are: President, J. M. Ausman; Vice President, Aaron Harter; Secretary, Henry McNeal; Treasurer, H. D. Alexander.

Hong Kong, China.

A CABLE ROAD has been constructed from the town to the peak, a range of very steep hills, on which are fine villa residences. The incline on which the road operates is 4,800 feet long, and the line, which is partly single and partly double, is laid with 35 lb. steel rails on steel sleepers. The gradients vary between 1 in 2 and 1 in 10, closely following the natural contour of the ground. The total height to which the cars have to be raised is 1,300 feet, and the ropes, of which one is the working rope and the other the safety rope, run on separate sets of friction rollers. The cars are attached to each end of the ropes, and as one pair of cars ascends the incline the other pair descends. Each car is to contain 60 passengers, the maximum load being 7½ tons at each end of the ropes. The working rope is passed over a pair of drums 8 feet in diameter, and the safety rope over one drum, the drums being fixed at the top of the incline and driven by two compound steam engines, 40 nominal horse power each. The speed of the cars is to be six miles an hour.

Hopkinsville, Ky.

HOPKINSVILLE ST. RY. Co. has been incorporated.

Hot Springs, Ark.

HOT SPRINGS R. R. Co. will extend their line.

Huntington, W. Va.

A NEW STREET RAILWAY is to be built here by J. L. Caldwell.

Jackson, Tenn.

JACKSON & SUBURBAN ST. RY. Co., capital stock \$50,000, has been organized, with C. P. Heath, of Sioux City, Ia., as President and General Manager; J. H. Duke, Vice President; R. B. Crawford, Wayne, Neb., Secretary, and John L. Wisdom, Treasurer. It is expected that the road will be in operation by the middle of September.

Jersey City, N. J.

JERSEY CITY & BERGEN R. R. Co. The Mayor has signed the resolution permitting the extension of the tracks down Montgomery street to West Side avenue. Speaking of the changes necessitated by the law which compels the companies to make a day of twelve consecutive hours' work for their employees, the Jersey City Sunday Morning News says: "President Thurston could not have been blamed, if, in rearranging the time table, he had made the assignments of the employees so onerous and unprofitable as to have made them cry out that the law, which had been designed to bless them, had proven to be a curse. He did not see fit to do this, however. He strove to confine the ills of the situation to as small a compass as possible. After all, when the new time schedule went into operation some of his men were dissatisfied. There were too many 'trippers' whose earnings were small and too few men to whom steady work and adequate pay could be given. Mr. Thurston heard their grievances, and began anew the study of his time schedule with the view of redressing them. The result is that more cars were put on. Smaller intervals between trips are provided. A larger force of men is given steady employment and a full day's pay."

Junction City, Kan.

JUNCTION CITY & FORT RILEY ST. RY. Co. will have 8 miles of track. Horses will be used in the city, and some other faster motor between Junction City and Fort Riley. Work will probably not be commenced until all the franchises are obtained, which come from the city, the county and the United States. They expect to have a bill through Congress by Feb. 1 for a right of way on Fort Riley Reservation.

Kansas City, Mo.

KANSAS CITY CABLE RY. Co. has ordered 11 grips, 9 summer and 10 close cars from the John Stephenson Co., the Pullman Palace Car Co. and a St. Louis company.

METROPOLITAN ST. RY. Co. has ordered 10 grips and 10 coaches, the order being divided between the John Stephenson Co., the Pullman Palace Car Co. and a St. Louis company.

CITIZENS' CABLE RY. Co. Articles of as-

sociation have been filed. The capital stock is \$750,000, half paid up. A. W. Armour holds 100 shares; T. A. Harris, 550; Bernard Corrigan, 500; W. H. Winants, 150; Thomas Corrigan, 3,000; E. W. Lawless, F. C. Farr, J. C. Tarsney, B. F. Jones and Frank Chick, 100 shares each. This road will extend from Sixth street south on Holmes street to a point one-half mile south of the southern city limits. The road will be one of the very best that can be built, and will be pushed to completion as fast as possible.

CABLE LINES. A year ago there was but one cable line in operation in Kansas City—the Ninth street line. To-day there are three roads all operated by cable, with an aggregate length of twenty miles. And eighty miles more of cable road are either building or projected. Kansas City has one of the best elevated railways in existence. It connects the city at the Union Depot and the terminus of the Ninth street cable road with the suburban towns of Kansas City, Kan.; Wyandotte, Armourdale, etc. There are three and a half miles of L railway now in operation, and Mr. Robert Gillham, chief engineer of the road, is now building a tunnel and cable railway to connect it with the business center of the city on Eighth street. This tunnel is 1,000 feet long and will contain a double-track railway connecting with a surface cable line in the city at the western approach to the tunnel. The L road is a steel structure of special design, and has proved one of the most successful enterprises, both financially and from the point of utility, in Kansas City. Mr. Gillham, who is a native of Hackensack, N. J., is now one of the most conspicuous civil engineers in the Southwest. Not only did he build the Ninth street cable road and the L road, but he is also building one and a half miles of cable railway at Riverview and two miles of double-track surface steam road to Chelsea Park. Mr. Gillham is also consulting engineer for, and has under his charge, the Tenth street cable road, Holmes street cable road, St. Joseph, Mo., cable roads, the Omaha cable roads and others.

THE METROPOLITAN CABLE RAILWAY has placed orders for ten grip cars and ten 16 ft. coaches. The latter are built by the Pullman Car Co., the former elsewhere. All are equipped with the Bemis gear and Vose spring. They have also ordered 30 combination cars, 34 ft. 9 in. long, for their Twelfth street line, a part of which will be built by the Pullman company and the remainder elsewhere. These are equipped with trucks having the Bemis box and the Vose graduated spring with graduated equalizers. In point of finish they have no superior in this country.

ELECTRIC RAILWAY. The company has been delayed by the difficulty of securing good machinery and by the illness of Superintendent Henry. Now, just after its new machinery had arrived and the hopes were the highest, the Council repealed the franchise of the company whose tracks the electric company had leased, and the probability is that the street will now be taken

up by a cable line. But the stockholders, who have sunk about \$25,000 in the electric road so far, are determined to carry it on to success or absolute failure.

Kingman, Kan.

KINGMAN ST. RY. Co. will build 1½ miles within the next 60 days. They have ordered rails and cars.

Knoxville, Tenn.

MARKET SQ. ST. RY. Co. John S. Van Gilder is now President of this company. He is also President of the Knoxville St. R. R. Co. and of the Mabry Bell Ave. & Hardee St. Ry. Co.

NEW COMPANY. P. Kern, L. H. Hamilton, S. B. Luttrell, L. A. Gratz, and H. Schubert have chartered a company to build a street railroad.

KNOXVILLE ST. R. R. Co. J. S. Van Gilder is now President. T. L. Beaman is Treasurer and Manager. The company has 2.6 miles of track, 5 cars and 26 horses.

Lakeside, O.

ELECTRIC RAILWAY. Contracts have been awarded for a line 3 miles long. There will be 2 open cars, and they will probably use overhead conductors. It is not intended to operate the road during the winter season.

Laredo, Tex.

A STREET RAILWAY is to be built here by Albert McLean and others.

Lampasas Springs, Tex.

LAMPASAS SPRINGS ST. R. R. Co. has 3 miles of track, 6 cars and 13 horses. W. H. Little is Secretary and Treasurer.

Lawrence, Kan.

LAWRENCE TRANSPORTATION Co. has now 38 horses and 6 mules.

Lexington, Ga.

DUMMY R. R. A road is pretty sure to be built to Crawford, 3 miles.

Lexington, Ky.

LEXINGTON CITY RY. Co. will extend their lines.

Lincoln, Neb.

So. LINCOLN ST. RY. has filed articles of incorporation. A line will be built to the Insane Asylum and Penitentiary and other points within five miles of the city. Capital, \$25,000. J. H. McClay, S. W. Burnham, J. M. Hoffman, H. C. Eddy, J. E. Baum and C. D. Hyatt are among the incorporators.

Long Island City, N. Y.

STEINWAY & HUNTER'S POINT R. R. Co. is having built by the Feigel Car Co. a number of open cars with seats on the sides like box cars. The object, we believe, in paneling up the sides and admitting passengers only at the end of the car, is safety.

London, Can.

LONDON ST. RY. Co. An increase from 5 to 6 miles of track and from 30 to 40 horses is reported. Charles Currie is Treasurer.

Los Angeles, Cal.

CITY & CENTRAL R. R. Co. expect to build a cable road. They have now 22 miles of track, of 3 ft. 6 in. and 4 ft. 8 in. gauge, 16 and 20 lb. rail, 37 cars and 234 horses. President, I. W. Hellman; General Manager, J. F. Crank; Secretary, R.

D. P. Widner; Superintendent, William Hawks.

Macon, Ga.

A STREET RAILWAY will be built here by R. K. Hines and others.

MACON CITY & SUBURBAN ST. R. R. Co. is now building its Second street extension, a distance of 1½ miles. They have now 12 miles of track, an increase of 2; 26 cars, an increase of 6; and 100 mules, an increase of 10. It is claimed that Macon has the best street car accommodations to the thousand population of any city in the South. It is growing rapidly, and it is one of the most beautiful cities in that section.

Mansfield, O.

MANSFIELD ELECTRIC ST. RY. Co. will open their line July 4. It has 4½ miles of track, of 4 ft. 8½ in. gauge, with 43 lb. side bearing rail, and uses the Daft system, with 5 cars, motors under the cars. The officers are: President, Edward Oothout, New York; Vice President, Huntington Brown; Secretary, C. E. McBride; Treasurer, M. Van Rensselaer, Jr., New York; Engineer, Knight Neftel, New York; Superintendent, William G. Root.

Mankato, Minn.

MANKATO ST. RY. Co. reports 4 cars and 12 horses.

Marshalltown, Ia.

MARSHALTTOWN ST. RY. Co. will build ¾ mile track in the spring of 1888, but nothing before then. The officers of this company are: President, B. T. Frederick; Manager and Treasurer, A. E. Shorthill; Secretary, C. C. Gilman.

Memphis, Tenn.

A NEW LINE, 5 miles long, to Lake Park, is being built. Will use 3 Baldwin motors and 6 Brill cars to begin with. Capital, \$100,000. They expect to have the cars running by August 1, as the work is light. The officers are: President, T. J. Latham; Vice President, J. A. Van Hoose; Secretary and Treasurer, T. A. Lamb.

Meridian, Miss.

MERIDIAN ST. RY. Co. has now 2½ miles of track, and shows a gain in stock from 17 to 20 mules.

Michigan City, Ind.

CITIZENS' ST. RY. Co. contemplate extending 1 mile, to the cemetery. They report 4 miles of track. They have 15 horses.

Middletown, Conn.

AN ELECTRIC RAILWAY here will use the Daft system.

Milwaukee, Wis.

MILWAUKEE CITY RY. Co. The citizens' committee of the Seventeenth ward waited on President McGeoch, who signified his willingness to build a line into the ward, and suggested that the committee select a route and submit it to him. Most of the routes proposed are open to the objection that they make dangerous grade crossings of steam railroads; and over some of them the Cream City line is supposed to control the right of way. The company will also extend from Greenfield avenue and Reed street via Reed to Maple, to Clinton, to Becher, to Robertson avenue, to Lincoln avenue, to Howell avenue, to Potter avenue, to Clement street, to Russell avenue, to

Superior street, to Estes street. The road will be built to Becher street this year. The extension to the Soldiers' home will not be undertaken this year.

CHICAGO CITY RY. Co. asks permission to lay double tracks and operate a street railway until July 1, 1924. The route is from Broadway at Wisconsin street to Oneida, to Wells, to Sixth, to Vliet, to the city limits.

WEST SIDE ST. RY. Co. asks to extend its track on Center street from Twelfth to Hopkins road, to Teutonia street.

CREAM CITY R. R. Co. At a meeting of citizens of the Sixth and Thirteenth wards it was shown that there are two propositions before the Common Council. One proposed to extend the Cream City line up Pleasant street to Island avenue, on Island avenue to Lloyd, on Lloyd to Booth, and from Booth to Center street. The second ordinance is asked for by the Milwaukee City Railway, and includes a proposition to extend from Third street to Reservoir avenue, thence to North avenue, east to Booth street, and from Booth north to Center street. The route favored by the meeting was for the Cream City line to extend over the Pleasant street bridge to Island avenue, thence to Harmon street, east to Holton street, and north to Center street. The company will also probably extend their Russell avenue line to Bishop or Superior street. At all events they have determined to build from Kinnickinnic avenue to the east side of the Seventeenth ward, formerly Bay View; and the work of track laying will commence as soon as the materials can be obtained.

MILWAUKEE CABLE RY. Co. has been incorporated by William P. McLaren, George W. Mitchell and John A. Hinsey, with a capital stock of \$300,000. It is the intention of the company to build a road from the center of the city to the western limits along such streets as will the least interfere with the roads already established. They say that they will put in a first-class cable road, and there is said to be enough available capital to carry the project through.

Moscow, Russia.

AN ELECTRIC RAILWAY, the first in Russia, will be built by Belgian capitalists to connect the towns of Varsovie, Wilanow, Mokotow and Czerniakow, near Moscow.

Muncie, Ind.

AN ELECTRIC RAILWAY will probably be built here.

Nashua, N. H.

NASHUA ST. RY. Co. increases to 6 cars and 24 horses. The Treasurer of this company is Ira F. Harris.

Natick, Mass.

NATICK & COCHITUATE ST. RY. has 7 cars and 19 horses.

New Albany, Ind.

NEW ALBANY ST. R. R. Co. reports 6½ miles of track, of 4 ft. 11 in. gauge, 25 lb. rail, 14 cars and 53 horses.

Nashville, Tenn.

THE BROAD STREET LINE is being extended from Spruce street to the Cumberland river.

A NEW LINE, leading out along the Charlotte pike, will soon be built. The charter has been registered.

MAIN ST. & GALLATIN TURNPIKE R. R. Co. has been organized.

ROAD TO WEST NASHVILLE. E. T. Holman and associates have obtained a charter for a dummy railroad from the public square to the new town of West Nashville, some 3½ miles, and have asked the City Council of Nashville for the right of way. As soon as they get this they will commence active work.

OVERLAND RY. Co. Work commenced on this steam dummy line in March, and the road will be opened between the 10th and 15th of July. There are 9½ miles of track, of 4 ft. 8½ in. gauge, 45 lb. Johnson steel rail, 6 cars and 3 steam motors. The capital stock is \$500,000. O. F. Noel is President, and James E. Caldwell Secretary and Treasurer.

New Haven, Conn.

CABLE ROAD. Frank Blake, who is described as an "enterprising capitalist from Arizona," is talking of surrounding the city with a cable road.

Newark, N. J.

CHANGING TO CABLE. It is understood that permission to introduce the cable system on the horse car lines of this city will be asked of the Common Council at its next meeting by the lines running from Newark to Orange, Irvington and the big suburban towns.

ESSEX PASS. RY. Co. increases to 797 horses, and reports now 113 cars.

NEWARK & IRVINGTON ST. RY. Co. increases since its last report from 30 cars to 32 and from 150 horses to 165.

New Brunswick, N. J.

AN ELECTRIC RAILWAY is contemplated here.

New Orleans, La.

CANAL & CLAIBORNE STS. R. R. Co. The question of the respective rights of the city and the company in regard to reselling the company's franchise is now before the Supreme Court of the State. The court below decided in favor of the city.

Newton, Kan.

NEWTON CITY ST. RY. Co. have just opened their line, with 6 miles of track, though they will ultimately have 24. The gauge is 3½ ft., with 20 lb. steel rail, stone ballast, 8 cars, 24 mules. They have a fine stone barn, 66 by 125, costing \$12,500, including land. They have \$60,000 capital, which is all invested in the plant, and they would now like to negotiate about \$60,000 6 per cent bonds. J. M. Ragsdale is Treasurer.

Newton, Mass.

NEWTON ST. RY. Co. will use electricity, and will have 6 cars. They will have 8 miles of track. Work will begin as soon as the Board of Aldermen grant their location. The officers are as we last reported them in our Directory of New Roads except that J. W. Stover is now Vice President.

Newburyport, Mass.

PLUM ISLAND ST. RY. Co. Charles Odell, President of the Naumkeag St. Ry. Co. of

Salem and of the Newburyport & Amesbury Horse R. R. Co. of Newburyport, with other capitalists, has purchased a controlling interest in the above road, which was recently completed by E. P. Shaw and others of Newburyport. The new purchasers intend to make Plum Island a great summer resort. A modern hotel has been built, bowling alleys and pavilions will be erected, and already a score of cottages are going up on the ocean front. Last season a horse railroad was built along the upper end of the island to connect with the People's line of steamers, and now the round trip can be made from the steamer's wharf in Newburyport. The road is 5 miles long, of 4 feet 8½ in. gauge, 35 and 40 lb. steel and Johnson rail, and has 10 cars, 20 horses and 1 dummy engine. The capital stock of the company is \$40,000. The new officers are: President, Charles Odell, of Salem; Superintendent, W. B. Ferguson, of Salem.

New York, N. Y.

TWENTY-EIGHTH & TWENTY-NINTH ST. R. Co. has applied for permission to use other than horse power.

CHRISTOPHER & TENTH ST. R. R. Co. It is reported that Louis de Bebian will succeed Jacob Sharp as President.

NEW YORK & HARLEM R. R. Co. (Fourth avenue line) has now 18½ miles of track.

BROADWAY & SEVENTH AVE. R. R. Co. At the annual meeting of stockholders, June 13, the old Board of Directors was re-elected except that D. B. Hasbrouck, who is Secretary and Treasurer of the Houston, West St. & PAVONIA FERRY R. R. Co., takes the place of Jacob Sharp.

HOUSTON, WEST ST. & PAVONIA FERRY R. R. Co. reports 340 horses. H. W. Edes is Superintendent of the company. This company applied to the Aldermen, June 21, for permission to extend their tracks through East Houston, Mangin, Stanton and Pitt streets.

THIRD AVE. R. R. Co. asks the Supreme Court to order the Commissioner of Public Works to allow the company to lay a cable from One Hundred and Thirtieth street to the City Hall.

THE RIGHT TO CARRY FREIGHT. It having been stated that the surface roads of this city have not in their charters the right to carry baggage or freight, it is shown that the charter of the Belt line gives them this privilege.

EDWARD BEADLE is getting out a new and lighter pattern of the Eureka folding mat. He reports a satisfactory number of orders for the old style.

THE RAILWAY REGISTER MANUFACTURING Co., Edward Beadle, reports a brisk business in bell punches, having now on hand orders for 500.

SAND ON THE TRACKS. The Health Board has amended the Sanitary Code so as to prohibit railway and stage lines from depositing dirt, sand, ashes or similar substances on the streets. Superintendent Robertson says that the Third Avenue R. R. Co. has been using about forty carloads of sand a week.

T. WILLIAM HARRIS & Co. have changed their headquarters to 2 Nassau street. They have just finished a large contract for Cincinnati, and have contracted to build the new Sprague electric railway in Richmond. This road is to be over 11 miles long, we believe the longest electric road in the world.

TWENTY-THIRD ST. RY. Co. At the annual election, June 20, eight of the old directors were retired. The new Board consists of S. M. Cadwell, Charles Phelps, George N. Curtis, Anthony Leary, T. B. Burnham, George H. Prentiss, E. Lewis, Jr., Solomon Mehrbach, and L. de Bebian, new members; and Jacob Sharp, John Downey, James Lynch, and Henry Sanford, re-elected.

THE JOHN STEPHENSON Co. was caused some little delay by the recent strike in its shops, but the readiness with which the delay was overlooked by its customers was very commendable considering the cause. Among orders now under way may be mentioned cars for the Brooklyn Cross Town; for St. Joseph, Mo.; Sioux City, Ia.; Indianapolis; Brisbane, Queensland; Citizens' Ry., St. Louis (42 cars); Oakland, Cal.; Christ Church, New Zealand; Arkansas City, Kan.; Lincoln, Neb.; Pensacola, Fla.; Kansas City, Mo.; San Bernadino, Cal.; Meriden, Conn.; Newburgh, N. Y.; Baltimore, Md.; Pine Bluff, Ark.; Topeka, Kan.; Paducah, Ky.; Para, Brazil; Merida, Yucatan; Washington, D. C.; Taunton, Mass.; Nashville, Tenn.; Hartford, Conn.; Rome, N. Y.; and a large number for the Central Park, North & East River of New York.

LATE LEGISLATION. About the last bill passed was one providing that the auction clause of the Cantor bill of 1885 shall not apply to cities of less than 85,000 inhabitants; that when a company advertises and secures consent to build a street railroad, the franchise being sold to another bidder, the successful bidder shall pay the expense of securing the consent; that the present lines of street railroads may be extended without consent of local authorities and without the privilege of extending the line being sold at auction; that the Mayor shall fix the compensation for this privilege.

SALE OF FRANCHISES. The first public sale under the Cantor law took place June 1. The franchises disposed of were those of the Twenty-eighth and Twenty-ninth Street Crosstown line, and of the electric line to run through Fulton and West streets, connecting Fulton, Wall, Cortlandt and Chambers street ferries. The former was sold for 26.2 per cent of the gross receipts and the latter for 35 per cent of the gross receipts. This, in each case, of course, is in addition to the amount required by law to be paid to the city, which is 3 per cent a year for the first five years and 5 per cent a year thereafter. The purchasers of the first-named franchise are the Twenty-eighth and Twenty-ninth St. R. R. Co., the originators of the route. The officers are Jonathan N. Crane, President; Edward P. Beach, Vice President; Frederick A. Bartlett, Secretary, and John H.

Davis, Treasurer. The only competition was from the Manhattan Surface Ry. Co., a new concern. Lawyer Harrison, counsel for the successful company, said they would at once begin the work of construction, but he thought it very hard that the bidding should have been run up to such a figure by a "striking company" after his company had already spent \$30,000. For the electric franchise there were three bidders—the Fulton St. Crosstown R. R. Co., the North & East River R. R. Co., and the Fulton, Wall & Cortlandt St. Ferries R. R. Co. The franchise was finally knocked down to the North & East River R. R. Co. for 38 per cent of the gross receipts for the first five years and 40 per cent thereafter. The work of construction will begin at once, and no doubt is entertained that both roads will be completed at an early date. Mayor Hewitt was surprised at the figures obtained, and said that the sale gave some indication of what the city might obtain if all its franchises could be disposed of in this way, but he thought there might be some chance yet when the companies came to change from horse to other motive power.

CENTRAL PARK, NORTH & EAST RIVER R. R. Co. The stables of this company (better known as the Belt line), at Tenth avenue and Fifty-third street, were destroyed by fire early in the morning of May 27, causing a loss of \$655,000, as follows: Building, \$250,000; horses, about 1,200 head, \$175,000; cars, 145, \$150,000; harness, grain, hay and tools, \$75,000; sweepers and plows, \$5,000. On this there was an insurance of \$307,000. The building was 420 feet by 200, and cost \$550,000 to build in 1873. Four thousand bales of hay, 12,000 bushels of grain and 5,000 bales of straw were destroyed. The loss to adjoining buildings is estimated at \$250,000. Over 100 families were burned out, and one woman died of fright. Two hundred horses were purchased within a day or two, at very high prices; and 110 cars were borrowed from other companies, and an order given to the J. G. Brill Company, of Philadelphia, to build 20 more. At a meeting of the Executive Committee of the Board of Directors it was determined to ask the Board of Aldermen to allow the company to try some other motive power than horses. The charter of the company is such that the Aldermen have the power of granting the right of using other motive power. President Scribner said: "The time for horse railroads is past. In other cities it has been proven that the other systems are cleaner and less expensive. If the Board will allow us we will probably try electricity on the west side, cable on Fifty-ninth street and independent motor on the east side. We are willing to go to almost any expense and will try any experiment the Board may think best. We are having an independent motor built by Declamater which will be shown the Board, and it is something superior to any before invented and emits no smoke or dust." This refers to a naphtha rotary engine. The one that has been ordered is of 5-horse

power. It is stated that the company will rebuild on the same site, as they own the ground. One of the directors says that the new building will be the finest horse-car stable in the world. Sixty-five shares of the company's stock brought \$85 per share after the fire. Before the fire 95 was bid and 100 asked.

New Utrecht, N. Y.

THE FEIGEL CAR WORKS are now under the management of Messrs. Hutton & Swan, Mr. John Hutton having been the former foreman of the works, and Mr. R. C. Swan the traveling agent. A building 40 by 20 ft. in size is to be erected for finishing. The shop is at work to its full capacity on street cars. It is believed that under the new management the works will do an excellent business.

North Adams, Mass.

HOOSAC VALLEY ST. RY. Co. has now 8 cars, 31 horses and 2 steam motors. The only change in officers is that Charles T. Beach is the present Treasurer.

Oakland, Cal.

OAKLAND, BROOKLYN & FRUIT VALE R. R. Co. George H. Mason is now Purchasing Agent. The company reports 2½ miles of track, 4 cars and 25 horses.

Omaha, Neb.

OMAHA HORSE RY. Co. increases from 18 miles of track to 22, from 40 cars to 62, and from 350 horses to 470.

So. OMAHA ST. RY. Co. Work will be commenced the coming fall, and the road opened next summer. Capital, \$100,000. The length of track will be 5 miles, of 4 ft. 8½ in. gauge, and horse power will be employed. The officers are: President, D. Anderson; Vice President, C. M. Hunt; Secretary, C. C. Van Kuren; Treasurer, H. C. Bostwick.

OMAHA HORSE RY. CABLE Co., a newly organized company, has a capital stock of \$1,500,000. Work will commence soon. There will be 2½ miles of track, of 4 ft. 8½ in. gauge, 45 lb. Johnson girder rail; and cable power will be used. The officers of the company are: President, Guy C. Barton; Vice President, S. H. H. Clark; Treasurer, Frank Murphy.

OMAHA MOTOR RY. Co., on the ground that its franchise was carried at the late election, began laying its track on Leavenworth street, but the rails at Sixteenth were torn up by the Omaha Horse Ry. Co., who began laying tracks of their own. Each company at once asked for an injunction, and some property owners on the street also asked for an injunction against the Motor company, on the ground that they were using T rails and were building their track in a curved and irregular manner, so as to keep out other companies.

Ottumwa, Ia.

OTTUMWA ST. R. R. Co. J. M. Hedrick is President.

Paris, France.

THIS YEAR'S RETURNS show a slight falling off in tramway travel and an increase in omnibus travel.

Peabody, Kan.

PEABODY ST. RY. Co. has been incorpo-

rated by W. E. Scott and others, with a capital stock of \$10,000.

Philadelphia, Pa.

LEHIGH AVE. RY. Co. This company's 6 miles of track are about finished, and the road will be opened this summer. It is of 5 ft. 2½ in. gauge, with 47 lb. rail. They will use either horses or electricity. Capital stock, \$500,000, of which \$60,000 is paid in. The officers are as we last gave them in the Directory of New Roads, except that J. McK. Barron is Secretary and Treasurer.

GERMANTOWN PASS. RY. Co. The bill giving this company the right to extend its tracks on Fourth, Eighth and Norris streets has been reported favorably to the Councils, in spite of strenuous opposition from other companies.

Port Huron, Mich.

PORT HURON ELECTRIC RY., which bought out the old Port Huron St. Ry. Co., reports 2½ miles of track, of 4 ft. 8½ in. gauge, 27 lb. rail, 8 cars (3 being motor cars), 11 horses. The officers are: President, William F. Botsford; Vice President, John F. Talbot; Secretary, J. H. Talbot; Treasurer, Charles A. Ward.

Portsmouth, Va.

PORTSMOUTH ST. RY. Co. The charter has recently been granted, and they expect to organize in July or August. The capital must be not less than \$8,000 nor more than \$200,000.

Port Chester, N. Y.

PORT CHESTER & RYE BEACH RY. Co. Work will be commenced July 15, and the road will be opened Sept. 15. It will have 4 miles of track, of 4 ft. 8½ in. gauge, 40 lb. side bearing rail, 6 cars, and will use electricity. Capital, \$40,000. The officers are: President, Charles D. Haines; Secretary, E. T. Haines; Treasurer, F. H. Skeele.

Pottsville, Pa.

PEOPLE'S RY. Co. T. A. Reilly is President and William D. Pollard Secretary and Superintendent. They have 4½ miles of track, of 4 ft. 8½ in. gauge, 45 to 60 lb. rail.

Pittsburg, Pa.

SOUTH SIDE PASS. R. R. Co. are extending their tracks to the stables of the Pittsburg & Birmingham R. R. Co., 1 mile.

CENTRAL TRANSIT Co. will put up a large building at Oakland, for stables, car sheds and other purposes. They will use most of their horses after the cable road is in operation, as they propose to build two or three feeders a mile or more in length to the outlying districts of the East Liberty valley, over which horse cars will be run.

Plainfield, N. J.

ELECTRIC RAILWAY. Steps have been taken to build an electric road here.

Reading, Pa.

A COMPANY has been formed for the purpose of building an electric street railway at this place.

Red Oak, Ia.

RED OAK ST. R. R. Co. has a new list of officers, as follows: President, John Hayes; Vice President, Edward Hayes; Secretary, F. M. Byriket; Treasurer and Superintendent, Marcus Bonham.

Richmond, Ind.

RICHMOND CITY R. R. has 4 miles of track, and increases from 30 horses to 40.

Richmond, Va.

RICHMOND UNION PASS. RY. are building their road at the rate of a mile a week. T. William Harris & Co. are the contractors. Forty cars, like those on Broadway, New York, have been ordered, and will be put on when the construction of the eastern half of the road is completed. This is the company that will employ the Sprague system, using the form of motor illustrated in last month's STREET RAILWAY JOURNAL. The work of electric construction is going on rapidly.

Roanoke, Va.

ROANOKE ST. RY. Co. has been unable thus far to procure the necessary legislation from the City Council.

Rochester, N. Y.

ROCHESTER CITY & BRIGHTON R. R. Co. increases from 142 cars to 170 and from 596 horses to 682. They have 30, 45 and 57 lb. rail.

Rome, Ga.

ROME INVESTMENT Co. will build a dummy line through East Rome, and will begin work soon.

San Diego, Cal.

AN ELECTRIC RAILWAY is to be built here, 9 miles long, with 4 40 H. P. motor cars.

San Francisco, Cal.

ELECTRIC RAILWAY. The conduit iron for the new Folsom street line is being prepared at the Pacific Rolling Mills, and when completed it will be laid from Nineteenth to Twenty-sixth street near Folsom. The steam engine used for the generation of the electricity will be set up at Nineteenth street. A speed of about eight miles an hour will be attained, and a saving of 60 per cent as compared with the cable is claimed.

POWELL ST. RY. Co. Work on this cable company's road has been going on since last December, and it will be opened in October. It will have 11 miles of track, of 3 ft. 6 in. gauge, with 38 lb. rail, 32 cars. Capital stock, \$2,000,000. The officers are: President, W. J. Adams; Vice President, Thomas Magee; Secretary, G. H. Waggoner; Treasurer, W. H. Lynch; Agents, W. H. Martin & Co.

A DYNAMITER SENTENCED. John E. Stiles, convicted of placing a dynamite cartridge on the track of the Sutter street cable road, was sentenced to two years and four months imprisonment in State prison.

BARK & OCEAN R. R. Co. reports 8 miles of track.

POTRERO & BAY VIEW R. R. Co. reports 3 miles of track.

MARKET ST. CABLE RY. Co. reports 25 miles of track. They have 86 horses.

Scranton, Pa.

SCRANTON SUBURBAN RY. Co.'s electric road (Van Depoele system) carried 10,000 people in one week recently. Two 25 H. P. motors have been ordered, and further generating plant.

PEOPLE'S ST. RY. Co. of Luzerne Co. increases to 20 cars and 90 horses. Horace E. Hayd is now Secretary and Treasurer, and F. Pearce Superintendent.

Seattle, Wash. T.

SEATTLE ST. RY. Co. have 7 cars and 24 horses. F. H. Osgood is President and General Manager.

South Pittsburg, Tenn.

So. PITTSBURG CITY R. R. Co. has been chartered by W. M. Duncan, Samuel Cowan, J. H. Fall, J. Vertrees and James Bowron.

South St. Paul, Minn.

AMERICAN RAPID TRANSIT Co. intend to open, July 4, 2 miles of electric railroad on the Enos system.

A CHARTER has been granted for another company, to use either motors or horse power. Thomas T. Smith, A. E. Clark, George H. Staples and others are incorporators.

South Chicago, Ill.

SOUTH CHICAGO CITY RY. Co. have just completed the extension of their track on Ninety-second street from Commercial avenue to Ewing avenue and across Ewing avenue bridge, a distance of about one mile double track, the entire road along the line being macadamized.

Springfield, Mass.

SPRINGFIELD ST. RY. Co. Track laying has been finished on the extensions on Worthington and Carew streets. The company are buying horses for the new lines as fast as possible, and will probably add 30 to their force of 170. Car room is needed badly, and an addition will have to be built for this purpose in the rear of the stables.

St. Joseph, Mo.

AN ELECTRIC RAILWAY is in course of construction here, which will have 20 cars.

St. Louis, Mo.

ST. LOUIS CABLE RY. ASSOCIATION has been incorporated by Julius S. Walsh and others, with a capital stock of \$100,000.

ST. LOUIS CAR Co., Daniel McCialesler, President; Julius Leffman, Secretary; P. M. Kling, Manager, have let the contract for building their new shops, which are to be especially adapted for the manufacture of street cars. The shops are to be entirely of brick, and will contain an area of 48,370 ft., the four buildings costing \$20,000, power to be furnished by a 60 H. P. engine. They are fitted with the latest improved machinery, are to be completed July 30th, and will be one of the most complete in the country.

ELECTRIC RAILWAY. An elevated electric railway will be built by Henry D. Loughten.

WE NOTICE that the Lewis & Fowler fare collector is used on the fare-box cars of St. Louis with a familiarity that would seem to indicate that the cars had always been fitted with them and that the fare collector was a necessity.

MOUND CITY RY. Co.'s stables, with 300 mules, were burned June 14, causing a loss of \$50,000.

UNION DEPOT R. R. Co. James H. Roach

is now Secretary and James Scullin Superintendent.

CITIZENS' R. R. Co. It has been decided that this road, which is being converted into a cable line, shall be extended out Easton avenue to King's highway. At the corner of these streets a fine depot will be built.

Stoneham, Mass.

EAST MIDDLESEX ST. RY. Co. is the name of a new company combining the Stoneham, Woburn, Winchester, etc., roads, near Boston. A. F. Breed is President and F. H. Monks Treasurer. They have just received 30 cars from J. M. Jones' Sons.

St. Paul, Minn.

THE ST. PAUL CABLE ROAD has placed an order for 10 grip cars. Work on the power house is progressing rapidly. It will be 171 by 132 ft., of brick.

Stamford, Conn.

STAMFORD HORSE R. R. Co. is being extended in the lower part of the town. There is talk of building a bridge over the canal and running the road to Shippan by a short cut.

St. Thomas, Can.

ST. THOMAS ST. R. R. Co. will extend their track $\frac{1}{2}$ mile this year.

Suffolk, Va.

SUFFOLK ST. R. R. Co. has been incorporated.

Talladega, Ala.

A STREET RAILWAY will be built from the center of the city to Spring Lake park. The incorporators are Willis Shaw and Percy R. Smith, of Birmingham; W. H. Skaggs and M. O. Arnold, of Talladega.

Texarkana, Ark.

A NEW LINE will be built by B. B. Harrell.

TEXARKANA ST. RY. Co. Two miles have been completed and running for about two months, and have been doing a good business. There will be 3 miles altogether, of 3 ft. gauge, $\frac{1}{2}$ mile being of 16 lb. rail and the balance of 24 lb. rail. Work of construction on the remainder of the road is being pushed. They have now 4 cars and 10 horses, and 2 more cars have been ordered. Capital stock, \$10,000. President, C. E. Mitchel; Secretary and Treasurer, Thomas Orr; Superintendent, B. M. Foreman.

Tiffin, O.

TIFFIN ST. RY. Co., recently organized, is quite likely to use electricity.

Topeka, Kan.

TOPEKA RAPID TRANSIT RY. Co. has completed 6 miles of its contemplated 30, and will be opened in July. It will have 20 cars and 10 steam motors. John Norton is now Treasurer and J. F. Gwin Superintendent.

Trenton, N. J.

TRENTON HORSE R. R. Co. increases from 10 cars to 12 and from 33 horses to 54.

Troy, N. Y.

TROY & LANSINGBURGH R. R. Co. Mr. William Kemp has resigned the office of President. Mr. Charles Cleminshaw has been elected in his stead, and Gen. J. B. Parr is elected to the office of Vice President. The belt line experiment of this road is said to be very successful.

Tuscaloosa, Ala.

TUSCALOOSA & CASTLE HILL R. EST. & MFG. Co. has bought out the Tuscaloosa St. Ry. Co., $1\frac{1}{4}$ miles, and has contracted to build $2\frac{1}{2}$ to $2\frac{3}{4}$ miles more, on which work has now begun. It will run from the city to Lake Lorraine. Standard gauge, between 20 and 40 lb. rail, 6 or 8 cars, horse power. Capital, \$350,000. W. W. Hill is General Manager.

Utica, N. Y.

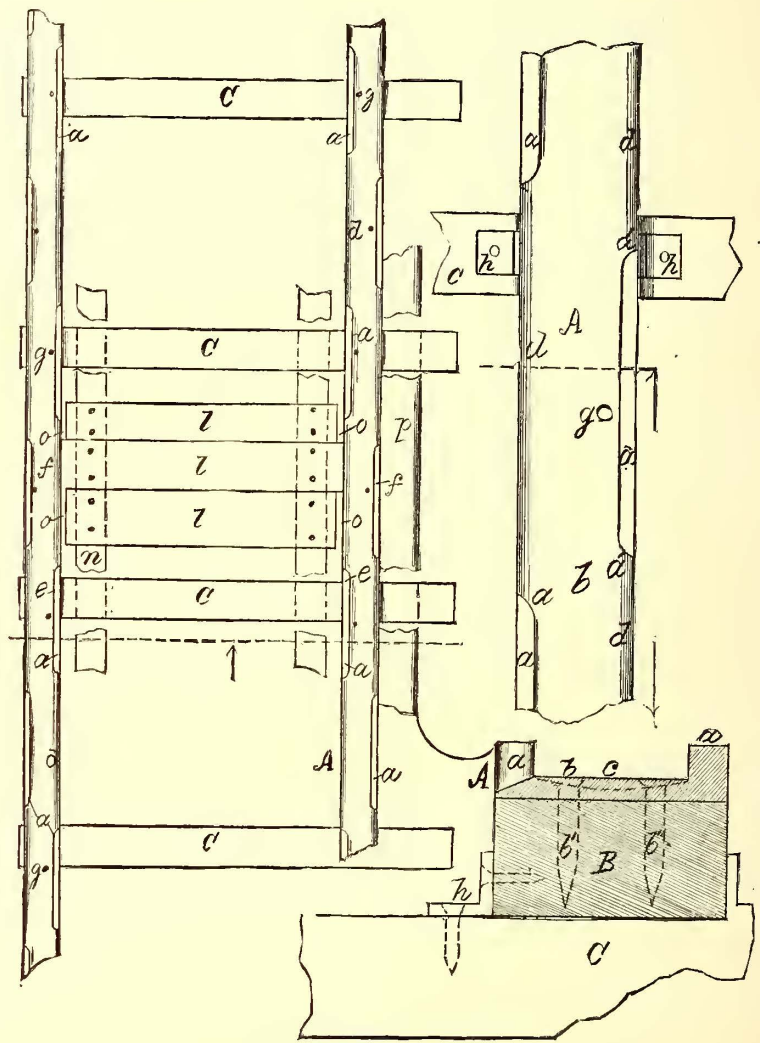
ONEIDA ST. RY. Co.'s line will be finished July 1. It has 4 miles of track, of 4 ft. $8\frac{1}{2}$ in. gauge, with 30 lb. center bearing steel rail, and with 3 cars and 6 horses.

Worcester, Mass.

AN ELECTRIC RAILWAY will probably be built here.

Whalen's Wagon Track.

The object of this design is to produce an improved road for common vehicles or wagons, that is to take the place of the ordinary plank road or other improved roads running into cities, or for equipping much traveled thoroughfares where heavy hauling is done. The road is formed of iron tracks of the peculiar form shown in our engraving, and adapted to the wheels of passing vehicles, and also includes an im-



WHALEN'S WAGON TRACK.

Capital stock, \$40,000. President, Henry Ney; Secretary and Superintendent, Frank J. Cronk; Treasurer, William C. Wallace.

Washington, D. C.

METROPOLITAN R. R. Co. increases from 110 cars to 113 and from 445 horses to 460.

Westfield, Mass.

AN ELECTRIC RAILWAY will probably be built here.

Winston, N. C.

WINSTON ELECTRIC LIGHT & MOTIVE POWER Co. will build a line.

Woonsocket, R. I.

THE ELECTRIC RAILWAY, which is rapidly approaching completion, will obtain its power from the Woonsocket Electric Light & Power Co.

proved road bed between the tracks. The road consists practically, as we have said, of a line of broad grooved rails in which the wheels of vehicles may be made to track. Such tracks as these have been used in a greater or less degree in European cities, and some street railway or omnibus lines have laid their track upon these principles. The track is spiked to stringers the same as ordinary street rails, and pinned together by cross ties. The advantage of this would be apparent on roads where there is a large market traffic with heavy laden wagons, and might be made to connect street car lines, thus serving a double service by adding a stage traffic to the haulage over the road.

Convention Oct. 19 at Philadelphia, Pa.

The Storage Battery for Street Car Propulsion.

The electrical storage battery possesses much fascination as a street railway motor on account of its requiring no connection by overhead or underground connection with a central plant. Any investigation, therefore, that throws new light upon the subject, will be of interest to a large number of street railway people.

Experiments have been going on for the past few months under the auspices of William Wharton, Jr., C. A. Richards, and Thomas Cochrane, the results of which, so far as obtained, we are now able to give.

A 16 ft. car is equipped with a 13 H. P. Sprague motor geared to one axle, as shown in the June issue of the JOURNAL. The motor is geared to but one axle, a gear wheel with 13 teeth on either end of the armature shaft actuating a 63 tooth gear wheel on either end of the forward axle. Electricity for this is supplied from a storage

times. The single car took at times as high as 120 amperes and an average of 30 amperes.

We regret that we are unable to obtain at present definite figures as to cost of equipping or maintenance, but the only conclusion is that the electric storage battery will do the work required in ordinary street car traffic, and, so far as can at present be seen, will do it in a very satisfactory manner. G. Herbert Condict is the electrician in charge, and Prof. Anthony Reckenzaun of London is consulting electrician.

Prevention of Accidents on German Street Railways.

Several accidents on street railways induced the Cologne Street Railway Co. to submit to 40 other street railway companies certain questions relative to accidents and precautionary measures against them on their respective roads. In reply the

A Long Car.

We show herewith a car of which a number have just been completed by the John Stephenson Company for use in Chattanooga, Tenn. The car is twenty-two feet in length, and as shown has single truck. The engraving makes plain the various other features of the car.

Notes and Items.

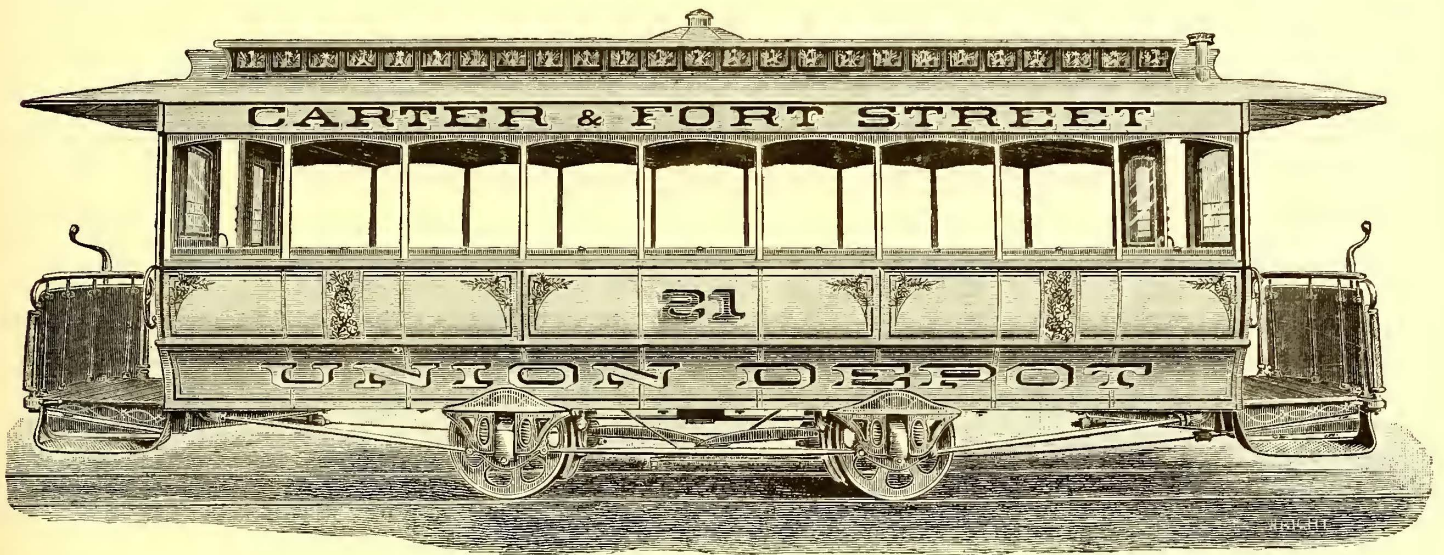
Received too late for classification.

Chicago, Ill.

THE EMPIRE WAREHOUSE Co. have received contracts to furnish the well-known Portland cement for the Olive street line, St. Louis, Mo.

Philadelphia, Pa.

MESSRS. CHADBOURNE & HASTINGS, who recently opened their office in the Forrest Building, No. 119 South Fourth street, as agents for the Sprague Electric Railway & Motor Co., report a boom in street railway



A LONG STREET CAR.

battery placed under the seats, consisting of 84 23 C cells, 2 volts, with 150 ampere hours. That is, if the car required an average of 30 amperes, a single charge would last, theoretically, five hours. The weight of the motor is 1,300 lbs., that of the storage battery 3,500, making the whole electrical equipment on the car weigh little less than 5,000 lbs. An experimental track 1,050 ft. long contains grades of 5 ft. in 100, at the foot of one of which is a curve of 33 ft. radius, turning something more than a right angle.

Around this track the car, under the perfect control of the driver, was run several times at the rate of about $7\frac{1}{2}$ miles per hour, with thirty odd men on board. No difficulty was experienced in rounding this sharp curve and making the ascent following it. On the down grade the driver did not succeed in stopping the car with the motor (there being no friction brake), owing to the slipping of the wheels. Had the track been sanded this could probably have been done. A train of two additional open cars, with seventeen men on board, were subsequently taken around the track several

Cologne Street Railway Co. has received the following from 36: 17 employ regularly safety appliances, and 12 of them did so at the request of the police authorities; 8 reported an undoubted favorable result from their employment; 7 probably good results, and 7 considered the proposed means unnecessary or even dangerous; 14 took no precautions whatever. Of the 17 companies above mentioned which regularly employ safety appliances, 11 use a single guard in front of the wheels and 6 other appliances, such as masking the wheels, wire gratings or iron covers attached to the body of the car. Of the simple guards in front of the wheels that prescribed by the Berlin police has been found of the most practical utility. It is the device of Engineer Peiser. A detailed description thereof is to be found in No. 32, 1887, of the Zeitung des Vereins Deutscher Eisenbahn-Verwaltungen.

RUFUS MARTIN & Co. have issued a 28 page catalogue containing illustrations of their car attachments, stable supplies, and a full line of street railway appliances.

work. They have closed a contract with the Wilmington City Railway Co., at Wilmington, Del., to equip an extension of their road about two miles in length. The road will be operated by the overhead system, and each car will have two motors, one attached to either axle. They can be operated from either end, and will run backward as well as forward. They have several other roads considering the matter, and almost every day requests come in for estimates on cost of electrical equipment, showing how general has become the interest in electric power for street railways.

Lima, O.

LIMA ST. RY. MOTOR & POWER Co. have $3\frac{1}{2}$ of their $6\frac{1}{2}$ miles completed, and will open the road July 1. They have 40 lb. Johnson steel rail, 7 Pullman cars and 7 Van Depoele motors.

Manchester, N. H.

MANCHESTER HORSE R. R. Co. has nearly completed its extensions to South Manchester, and is running cars over a portion of the line.

Milwaukee, Wis.

MILWAUKEE CABLE RY. Co. hope to open

their road within a year. They will have 2½ miles of track and about 50 cars. The capital stock is \$200,000, all subscribed.

Nashville, Tenn.

OVERLAND RY. Co. began work last March, and the road will be opened in July. It will have 9½ miles of track, of 4 ft. 8½ in. gauge, 35 and 45 lb. steel rail, 6 cars, 3 steam motors.

Davenport, Ia.

BRIDGE, SECOND ST. & NORTHWESTERN St. Ry. Co. has received its franchise, after some opposition. It can only use tram rails.

Framingham, Mass.

FRAMINGHAM UNION ST. RY. Co. The organization of this company, with \$60,000 capital subscribed, is the result of a combination of interests that were working for a franchise. Its requests will probably be granted, though the projected Framingham Center Ry. Co. is still in the field in opposition.

Gadsden, Ala.

GADSDEN LAND & IMP'T Co. expect to begin work on their 5 mile steam motor line this fall and to finish it by next spring.

San Francisco, Cal.

OMNIBUS R. R. & CABLE Co. write us that they will shortly change their road to a cable line. They have 18 miles of track, with 60 cars and 400 horses.

St. Louis, Mo.

CABLE ROADS. In the House of Delegates it was stated that it was "well understood that nearly all the street car lines of St. Louis are about to be converted into cable roads."

Brooklyn, N. Y.

BROOKLYN CITY R. R. Co. has increased its capital stock from \$2,000,000 to \$4,000,000 to meet the expenditures on the contemplated cable roads.

Quarterly Reports.

QUARTER ENDED MARCH 31.

HARLEM BRIDGE, MORRISANIA & FORDHAM.

	1886.	1887.
Gross earnings.....	\$40,031.80	\$47,532.20
Operating expenses.....	33,023.01	37,758.87
Net earnings.....	7,002.79	9,773.33
Income from other sources..	105.00	183.50
Gross income.....	\$7,107.79	\$9,956.83
Deductions from income:—		
Interest on funded debt....	\$1,292.50	\$1,292.50
Taxes on property.....	1,219.95	1,876.81
Taxes on earnings.....	625.00	700.00
Interest on loans.....		381.66
Total.....	\$3,137.46	\$4,252.97
Gross income.....	\$7,107.79	\$9,956.83
Charges.....	3,137.46	4,252.97
Net income.....	\$3,970.33	\$5,703.86

BALANCE SHEET—ASSETS.

Cost of road and equipment.....	\$485,522.95
Supplies on hand.....	20,155.22
Cash on hand.....	8,731.94
Taxes on property (open acct.).....	3,720.61
Total.....	\$518,130.72
LIABILITIES.	
Capital stock.....	\$350,000.00
Funded debt.....	75,000.00
Loans and bills payable.....	10,000.00
Profit and loss (surplus).....	83,130.72
Total.....	\$518,130.72

BROOKLYN, FLATBUSH & CONEY ISLAND.

	1886.	1887.
Gross earnings.....	\$3,433.33	\$2,134.15
Operating expenses.....	6,852.44	7,318.33

Loss.....	\$3,419.11	\$4,184.18
Income from other sources..	50.00	
Loss.....	\$3,369.11	\$4,184.18
Charges:—		
Interest on funded debt.....	\$17,500.09	\$17,500.00
Taxes.....	1,645.14	1,473.51
Other interest.....	1,612.91	
Total.....	\$19,112.71	\$23,358.52
Gross income.....	—\$3,369.11	\$4,184.18
Charges.....	19,112.71	23,358.52
Net income.....	—\$22,481.82	—\$27,542.70

BALANCE SHEET—ASSETS.

Cost of road and equipment.....	\$1,697,226.11
Supplies on hand.....	1,499.00
Cash on hand.....	511.74
Profit and loss (deficiency).....	141,531.26
Total.....	\$1,840,669.11

LIABILITIES.

Capital stock.....	\$496,150.00
Funded debt.....	1,000,000.00
Loans and bills payable.....	69,249.00
Interest due and accrued.....	207,865.00
Due companies, etc.....	67,415.11
Total.....	\$1,841,669.11

THE BUFFALO STREET.

	1886.	1887.
Gross earnings.....	\$65,157.54	\$68,010.58
Operating expenses.....	62,801.19	66,963.43
Net earnings.....	2,356.35	1,047.15
Other income.....	none	none
Gross income.....	\$2,356.35	\$1,047.15
Charges:—		
Interest on funded debt....	\$13,496.94	\$13,823.87
Taxes.....	2,100.00	3,323.00
Rentals.....	158.83	
Total.....	\$15,745.77	\$16,149.87
Gross income.....	\$2,356.35	\$1,047.15
Charges.....	15,745.77	16,149.87
Net income.....	—\$13,389.42	—\$15,101.72

Operating cost, per cent of earnings, 96.38 in 1886; 98.46 in 1887.

BALANCE SHEET—ASSETS.

Cost of road and equipment.....	\$857,100.58
Stocks and bonds of other cos.....	15,000.00
Supplies on hand.....	12,396.75
Due by agents on account of traffic.....	1,523.90
Due by cos. and individuals.....	59,261.45
Cash on hand.....	9,320.56
Total.....	\$984,513.24

LIABILITIES.

Capital stock.....	\$100,000.00
Funded debt.....	781,500.00
Loans and bills payable.....	29,500.00
Interest on funded debt.....	16,191.50
Due for wages and supplies.....	4,277.65
Due companies and individuals.....	2,638.85
Taxes unpaid.....	6,611.87
Profit and loss (surplus).....	43,793.37
Total.....	\$984,513.24

THIRD AVENUE.

	1886.	1887.
Gross earnings.....	\$362,110.75	\$272,788.44
Operating expenses.....	263,863.19	214,909.71
Net earnings.....	98,242.56	56,879.13
Income from other sources..	9,650.29	12,035.41
Gross income.....	\$107,892.85	\$69,915.54
Charges:—		
Interest on funded debt.....	\$42,500.00	\$42,500.00
Taxes on property.....	16,668.52	5,951.41
Taxes on earnings.....	3,934.00	4,037.14
Taxes other than above.....		12.2 2.81
Rentals.....	2,000.00	2,000.00
Total.....	\$63,102.52	\$66,701.35
Gross income.....	\$107,892.85	\$69,915.54
Charges.....	63,102.52	66,701.35
Net income.....	\$42,790.33	\$3,214.19

BALANCE SHEET—ASSETS.

Cost of road and equipment.....	\$3,792,950.37
Stocks and bonds of other cos.....	15,000.00
Other perm't investments (cable road and depot).....	1,490,042.75
Accrued interest.....	85,000.00
Cash on hand.....	57,876.99
Bonds of this co.....	54,920.00
Profit and loss (deficiency).....	19,231.61
Total.....	\$5,514,101.72

LIABILITIES.

Capital stock.....	\$200,000.00
Funded debt.....	2,500,000.00
Loans and bills payable.....	950,000.00
Interest due and accrued.....	42,500.00
Due for wages and supplies.....	21,601.72
Total.....	\$5,514,101.72

BUFFALO EAST SIDE STREET.

	1886.	1887.
Gross earnings.....	\$37,667.61	\$41,264.67
Operating expenses.....	30,611.33	32,281.74
Net earnings.....	7,056.28	8,982.93
Other income.....	none	none
Gross income.....	\$7,056.28	\$8,982.93
Charges:—		
Interest on funded debt....	\$9,610.00	\$9,753.31
Taxes.....	1,500.00	1,800.00
Rentals.....	233.16	
Total.....	\$11,446.16	\$11,558.32
Gross income.....	\$7,056.28	\$8,982.93
Charges.....	11,446.16	11,558.32
Net income.....	—\$4,389.88	—\$2,575.33

Operating cost, per cent of earnings, 82.27 in 1886; 78.33 in 1887.

BALANCE SHEET—ASSETS.

Cost of road and equipment.....	\$747,312.05
Supplies on hand.....	4,709.12
Due by agents on account of traffic....	1,060.00
Cash on hand.....	1,282.09
Profit and loss (deficiency).....	24,052.89
Total.....	\$778,416.15

LIABILITIES.

Capital stock.....	\$100,000.00
Funded debt.....	566,500.00
Loans and bills payable.....	20,000.00
Interest on funded debt.....	9,207.50
Due for wages and supplies.....	4,875.74
Due companies and individuals.....	72,997.82
Taxes unpaid.....	4,835.09
Total.....	\$778,416.15

TROY & LANSINGBURGH.

	1886.	1887.
Gross earnings.....	\$75,900.13	\$71,054.19
Operating expenses.....	53,310.43	62,201.24
Net earnings.....	12,599.70	8,852.95
Income from other sources..	89.20	276.58
Gross income.....	\$12,678.90	\$9,129.53
Charges:—		
Interest on funded debt.....	\$4,203.33	\$4,173.32
Taxes on property.....	1,112.83	1,225.00
Taxes on earnings.....	529.81	579.18
Taxes other than above.....	36.11	
Rentals.....	1,159.00	1,150.00
Total.....	\$7,032.05	\$7,127.50
Gross income.....	\$12,678.90	\$9,129.53
Charges.....	7,032.05	7,127.50
Net income.....	\$5,646.85	\$2,002.03

BALANCE SHEET—ASSETS.

Cost of road and equipment.....	\$638,420.43
Mortgages.....	1,100.00
Supplies on hand.....	14,667.39
Cash on hand.....	14,191.81
Total.....	\$668,379.63

LIABILITIES.

Capital.....	\$300,000.00
Capital of leased roads.....	65,000.00
Funded debt.....	261,555.00
Loans and bills payable.....	34,665.00
Interest on funded debt.....	3,385.55
Profit and loss (surplus).....	3,794.08
Total.....	\$668,379.63

SECOND AVENUE RAILROAD CO.

	1886.	1887.
Gross earnings.....	\$216,341.90	\$168,757.80
Operating expenses.....	166,419.08	141,138.90
Gross income.....	\$49,922.82	\$27,618.90
Charges:—		
Interest on funded debt....	\$21,000.00	\$19,334.86
Taxes.....	13,000.00	3,000.00
Rentals.....	432.36	432.36
Total.....	\$34,432.36	\$22,767.22
Gross income.....	\$49,922.82	\$27,618.90
Charges.....	34,432.36	22,767.22
Net income.....	\$15,490.46	\$4,851.68

Operating cost, per cent of earnings, 1886, 76.92; 1887, 83.63.

GENERAL BALANCE SHEET—ASSETS.

Cost of road and equipment.....	\$3,462,048.67
Supplies on hand.....	85,375.49
Sundries.....	97,732.37
Cash on hand.....	44,359.93
Total.....	\$3,689,516.46

LIABILITIES.

Capital stock.....	\$1,862,000.00
Funded debt.....	1,600,000.00
Loans and bills payable.....	125,000.00
Interest on funded debt to April 1.....	34,720.80
Due for wages and supplies.....	6,569.27
Profit and loss (surplus).....	61,226.39
Total.....	\$3,689,516.46

SIXTH AVENUE RAILROAD CO.

1886.			1887.		
Gross earnings.....	\$201,439.70	\$170,025.95	Operating expenses.....	142,719.86	118,615.15
Net earnings.....	61,719.84	51,410.80	Income from other sources..	750.90	760.80
Gross income.....	\$62,469.84	\$52,171.69	Charges:—		
Interest on funded debt....	\$8,750.00	\$8,750.00	Taxes.....	9,000.00	12,000.00
Arrears of taxes.....	12,664.07		Total.....	\$30,413.07	\$20,750.00
Gross income.....	\$62,469.84	\$52,171.69	Charges.....	20,413.07	20,750.00
Net income.....	\$32,056.77	\$31,421.69	Operating cost, per cent of earnings, 1886, 69.81; 1887, 69.76.		

GENERAL BALANCE SHEET—ASSETS.

Cost of road and equipment.....	\$1,931,355.37
Stock and bonds of other cos.....	6,300.00
Supplies on hand.....	10,000.00
Due by cos. and individuals.....	17,905.55
Cash on hand.....	107,317.22
Total.....	\$2,122,878.14

LIABILITIES.

Capital stock.....	\$1,530,000.00
Funded debt.....	500,000.00
Interest on debt to April 1.....	8,750.00
Due for wages and supplies.....	10,000.00
Due companies and individuals.....	48,633.67
Profit and loss (surplus).....	55,264.47
Total.....	\$2,122,878.14

FORTY-SECOND ST. & GRAND ST. FERRY R. R. CO.

1886.			1887.		
Gross earnings.....	\$90,291.90	\$87,090.35	Operating expenses.....	55,124.29	63,340.17
Net earnings.....	35,167.51	23,450.18	Income from other sources..	608.83	1,911.03
Gross income.....	\$35,776.34	\$25,361.21	Charges:—		
Interest on funded debt....	\$4,130.00	\$4,130.00	Taxes on property.....	5,879.80	6,952.05
Taxes on earnings.....	1,272.87	1,220.25	Other taxes.....	625.00	
Total.....	\$11,907.67	\$12,302.30	Operating cost, per cent of earnings, 1886, 61.05; 1887, 73.07.		
Gross income.....	\$35,776.34	\$25,361.21	Charges.....	11,907.66	12,302.30
Net income.....	\$23,868.67	\$13,058.91	Operating cost, per cent of earnings, 1886, 61.05; 1887, 73.07.		

GENERAL BALANCE SHEET—ASSETS.

Cost of road and equipment.....	\$1,042,300.73
Supplies on hand.....	800.00
Due by cos. and individuals.....	10,400.00
Cash on hand.....	45,803.33
Total.....	\$1,099,309.06

LIABILITIES.

Capital stock.....	\$748,000.00
Funded debt.....	236,000.00
Loans and bills payable, including unpaid track tax.....	32,500.00
Interest on funded debt to April 1.....	8,240.00
Due for wages and supplies.....	3,675.00
Profit and loss (surplus).....	70,874.06
Total.....	\$1,099,309.06

ATLANTIC AVENUE, BROOKLYN.

1886.			1887.		
Gross earnings.....	\$109,387.37	\$117,649.01	Operating expenses.....	109,967.42	104,954.06
Net earnings.....	7,419.95	12,694.95	Income from other sources..	8,086.12	9,123.61
Gross income.....	\$15,506.07	\$21,818.56	Charges:—		
Interest on funded debt....	\$13,603.64	\$15,577.36	Taxes on property.....	2,272.15	2,393.23
Taxes on earnings.....	2,122.01	1,401.52	Taxes on dividends.....	350.00	250.00
Taxes other than above.....	332.13	372.32	Rentals.....	818.82	662.37
Total.....	\$19,499.03	\$20,746.90	Operating cost, per cent of earnings, 1886, 93.21; 1887, 89.20.		
Gross income.....	\$15,506.07	\$21,818.56	Charges.....	19,499.08	20,746.90
Net income.....	—\$3,993.01	\$1,071.60	Operating cost, per cent of earnings, 1886, 93.21; 1887, 89.20.		

GENERAL BALANCE SHEET—ASSETS.

Cost of road and equipment.....	\$1,935,699.73
Stocks and bonds.....	142,750.00
Supplies on hand.....	76,857.37
Due on account of traffic.....	4,700.82
Due by companies and individuals.....	121,979.66
Cash on hand.....	21,943.37
Total.....	\$2,303,464.21

LIABILITIES.

Capital.....	\$759,350.00
Funded debt.....	739,300.00
Loans and bills payable.....	492,000.00
Interest on funded debt.....	21,602.17
Dividends unpaid.....	11,000.00
Due for wages, etc.....	6,516.99
Due companies, etc.....	1,417.91
Profit and loss (surplus).....	393,794.88
Total.....	\$2,333,920.95

TWENTY-THIRD STREET.

1886.			1887.		
Gross earnings.....	\$140,251.45	\$150,243.00	Operating expenses.....	118,631.90	117,847.21
Net earnings.....	21,619.55	32,495.79	Other income.....	29,130.00	210.00
Net income.....	\$50,749.55	\$3,705.79	Charges:—		
Interest on funded debt....	\$7,273.07	\$6,231.25	Taxes.....	6,387.95	4,823.53
Rentals.....	21,343.84	21,323.81	Total.....	\$31,984.86	\$34,353.62
Gross income.....	\$50,749.55	\$2,705.79	Charges.....	34,984.86	32,758.62
Net income.....	\$15,764.69	\$317.17	Operating cost, per cent of earnings, 1886, 81.5; 1887, 78.38.		

GENERAL BALANCE SHEET—ASSETS.

Cost of road and equipment.....	\$1,172,851.70
Permanent investments.....	3,401.00
Supplies on hand.....	13,688.00
Cash on hand.....	33,540.47
Total.....	\$1,229,480.17

LIABILITIES.

Capital stock.....	\$600,000.00
Funded debt.....	388,500.00
Interest due and accrued.....	9,293.15
Due for wages and supplies.....	15,859.58
Profit and loss (surplus).....	215,831.44
Total.....	\$1,229,480.17

FORTY-SECOND ST., MANHATTANVILLE & ST. NICHOLAS AVE.

1886.			1887.		
Gross earnings.....	\$63,554.90	\$60,662.15	Operating expenses.....	64,749.93	63,991.68
Net earnings.....	804.97	16,670.00	Income from other sources..	112.59	
Gross income.....	\$917.47	\$16,670.47	Charges:—		
Interest on funded debt....	\$18,000.00	\$18,000.00	Taxes.....	6,249.99	
Interest on real estate mortgage.....	2,317.35	1,287.49	Rentals.....	801.00	1,437.49
Sundries.....	8,042.26		Total.....	\$29,157.61	\$26,974.97
Gross income.....	\$917.47	\$16,670.47	Charges.....	29,157.61	26,974.97
Loss from operation.....	\$28,249.14	\$19,344.50	Operating cost, per cent of earnings, 1886, 98.77; 1887, 77.33.		

GENERAL BALANCE SHEET—ASSETS.

Cost of road and equipment.....	\$5,095,274.53
Real estate.....	138,962.18
Supplies on hand.....	5,419.69
Due by cos. and individuals.....	4,882.36
Cash on hand.....	1,404.04
Profit and loss (deficiency).....	110,458.01
Total.....	\$5,356,403.11

LIABILITIES.

Capital stock.....	\$2,500,000.00
Funded debt.....	2,725,000.00
Loans and bills payable.....	13,000.00
Interest on funded debt to April 1.....	6,000.00
Due companies and individuals.....	22,403.11
Total.....	\$5,356,403.11

THE ALBANY RAILWAY.

1886.			1887.		
Gross earnings.....	\$33,132.31	\$34,016.14	Operating expenses.....	28,532.07	35,525.08
Net earnings.....	4,603.24	1,508.94	Other income.....	188.59	
Gross income.....	\$4,603.24	—\$1,320.35	Charges:—		
Interest on funded debt....	\$2,127.29	\$1,428.25	Taxes.....	947.24	1,203.45
Rentals.....	249.00	207.28	Total.....	\$3,323.53	\$2,838.98
Gross income.....	\$4,603.24	—\$1,320.35	Charges.....	3,323.53	2,838.98
Net income.....	\$1,276.71	—\$1,159.33	Operating cost, per cent of earnings, 1886, 86.11; 1887, 104.4.		

Operating cost, per cent of earnings, 1886, 86.11; 1887, 104.4.

GENERAL BALANCE SHEET—ASSETS.

Cost of road and equipment.....	\$344,116.06
Permanent investments.....	35,691.13
Supplies on hand.....	16,044.41
Due by cos. and individuals.....	1,928.40
Cash on hand.....	12,437.65
Profit and loss (deficiency).....	6,128.97
Total.....	\$416,346.65

LIABILITIES.

Capital.....	\$275,000.00
Funded debt.....	111,400.00
Loans and bills payable.....	20,000.00
Interest on debt due and accrued.....	2,084.95
Due for wages and supplies.....	7,861.70
Total.....	\$416,346.65

CENTRAL CITY, (SYRACUSE.)

1886.			1887.		
Gross earnings.....	\$5,719.10	\$6,654.10	Operating expenses.....	3,055.71	3,667.67
Net earnings.....	2,623.39	2,986.43	Income from other sources..	629.18	208.21
Gross income.....	\$3,252.57	\$3,194.64	Charges for taxes.....		
Interest on debt.....	325.00	300.00	Operating cost, per cent of earnings, 1886, 54.1; 1887, 55.1.		
Net income.....	\$2,927.57	\$2,894.64	GENERAL BALANCE SHEET—ASSETS.		

GENERAL BALANCE SHEET—ASSETS.

Cost of road and equipment.....	\$52,933.22
Cash on hand.....	4,576.47
Total.....	\$57,509.69

LIABILITIES.

Capital.....	\$50,000.00
Profit and loss (surplus).....	7,509.69
Total.....	\$57,509.69

BROOKLYN, BATH & WEST END.

Gross earnings.....	\$7,431.55
Operating expenses.....	7,084.03
Net earnings.....	347.52
Income from other sources..	3,836.46
Gross income.....	4,183.98
Interest on debt.....	2,400.00
Net income.....	\$1,783.98

BALANCE SHEET—ASSETS.

Cost of road and equipment.....	\$566,318.93
Supplies on hand.....	1,000.00
Accrued interest.....	173.10
Due by agents.....	100.00
Due by others.....	57.80
Cash on hand.....	3,208.05
Total.....	\$570,557.93

LIABILITIES.

Capital stock.....	\$250,000.00
Funded debt.....	250,000.00
Loans and bills payable.....	1,300.00
Interest on debt.....	2,400.00
Due for wages and supplies.....	3,777.70
Due companies, etc.....	621.50
Profit and loss (surplus).....	63,158.73
Total.....	\$570,557.93

CALVARY CEMETERY, GREENPOINT & BROOKLYN.

1886.			1887.		
Gross earnings.....	\$1,927.24	\$2,133.75	Operating expenses.....	2,135.48	2,069.14
Net earnings.....	—48.24	64.61	Income from other sources..	16.35	
Gross income.....	—\$431.89	\$64.61	Charges:—		
Interest.....	\$1,200.00	\$1,200.00	Rentals.....	148.75	
Total.....	\$1,348.75	\$1,200.00	Operating cost, per cent of earnings, 1886, 100; 1887, 100.		
Gross income.....	—\$431.89	\$64.61	Charges.....	1,348.75	1,200.00
Net income.....	—\$1,780.64	—\$1,135.39	BALANCE SHEET—ASSETS.		

Cost of road and equipment.....	\$171,000.00
Cash on hand.....	389.29
Profit and loss (deficiency).....	10,685.76
Total.....	\$182,075.25

LIABILITIES.

Capital stock.....	\$91,000.00
Funded debt.....	80,000.00
Interest on debt.....	8,800.00
Due companies, etc.....	2,275.00
Total.....	\$182,075.25

OUR NOTES AND ITEMS this month have news concerning 54 electric railroads.

The Stub-tailed Mule.

(AN IDYL OF A RICHMOND STREET CAR.)

All up the street at a stately pace
The maiden came with her April-face,
And the roses I'd paid for, upon her breast,
Where white as the eggs in a partridge-nest,
While behind her the driver, upon his stool,
Tinkled the bell of the street-car mule.

"Going to walk up the street?" I said;
She graciously bowed her beautiful head.
"Then I'll walk too; 'tis a lovely day"—
Thus I opened the ball in my usual way.
"Do you see the car behind?" inquired
The April-face, "I'm a trifle tired."

I urged a walk; 'twas a useless suit!
She gently waved her parachute;
The stub-tailed mule stopped quick enow;
I handed her in with a stately bow.
And the bell rang out with a jangled quirk,
As the stub-tailed mule went off with a jerk.

Three men as she entered solemnly rose,
And quickly trampled their neighbors' toes;
A dudish masher left his place,
And edged near the girl with the April-face,
Who sat on the side you'd call "the lee"
With the same sweet smile she'd sat on me).

The day was lovely; mild the air;
The sky like the maiden's face was fair;
The car was full and a trifle stale
(Attached to the mule with the stubby tail);
Yet the maiden preferred the seat she hired
To the stroll with me; for I made her tired.

And now when the maiden walks the street
With another's flowers, and a smile so sweet,
I wave to the driver upon his stool,
And stop the stub-tailed street-car mule,
While I purchase a seat with half my pelt;
For it makes me a trifle tired myself.

Points and Suggestions.

If we can have but one, soap or varnish, soap is preferable.

In refitting and revarnishing old cars, it frequently seems to be forgotten that windows are intended to raise and lower.

As a rule, it is believed that such management as will best accommodate the public will in the end be most lucrative to the company.

Rattling windows, and the jar caused by poor springs and trucks out of square, are more annoying to the average tired street car patron than managers are apt to think.

In a city of 20,000 inhabitants, the policy of running cars at 20 minutes headway and a speed of 3½ miles an hour should not be considered to be the best policy until a different one has been tried.

Greater speed of horses, promptness in starting and stopping, and better time generally, could be made without the use of any other motive power than horses on most roads.

It does not require large things to turn the tide of travel from one road to another. A little cleaner cars, slightly better seats, less rattle of windows, more polite and obliging driver and conductor, and numerous other minor points, each one has its influence.

Street railroads are frequently forced by competition into the adoption of a policy which it would have been much better to have pursued regardless of competition, that is, it would have been more profitable even if no competition had ever made its appearance.

It does not seem to have occurred to some street railway managers that the ability to speak and understand the English language should be one of the requirements of a conductor or a driver of a horse car. A man in charge of a street car is looked to by strangers, and with some reason, for directions.

STREET RAILWAY STOCK QUOTATIONS.

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.	7	January, 1887	28	31
1st mort.	1,000	700,000	J. & J.	7	July, 1900	115	118
Broadway & Seventh Avenue	100	2,100,000	Q.—J.	2	January, 1886		185
1st mort.	1,000	1,500,000	J. & D.	5	June, 1904	103	106
2d mort.	1,000	500,000	J. & J.	5	July, 1914	103	106
Broadway Surface Guaranteed	1,000	1,500,000	J. & J.	5	July, 1924		100
Additional	1,000	1,000,000	J. & J.	5	July, 1905		100
Brooklyn City—Stock	10	2,000,000	Q.—F.	2	May, 1887	165	170
1st mort.	1,000	800,000	J. & J.	5	January, 1902	106	110
Brooklyn Crosstown	100	200,000	A. & O.	4	April, 1887	160	165
1st mort bonds	1,000	400,000	J. & J.	7	July, 1888	105	109
Central Park North and East River Con. mort. bonds	1,000	1,800,000	Q.—J.	2	January, 1887	85	90
Christopher & Tenth	100	1,200,000	J. & D.	7	December, 1902	121	122½
Bonds	100	650,000	F. & A.	1½	February, 1887	120	125
Central Crosstown	100	250,000	A. & O.	7	October, 1898	110	116
1st mort.	1,000	600,000	Q.—F.	1½	January, 1887	150	160
Dry Dock, East B'way & Battery	100	250,000	M. & N.	6	November, 1922	118	125
1st mort consol.	500	1,200,000	Q.—F.	2	February, 1887	150	155
Scrp.	100	1,900,000	J. & D.	7	June, 1893	108½	111
42d & Grand St. Ferry	100	1,200,000	F. & A.	6	August, 1914	105	107
1st mort.	1,000	748,000	Q.—F.	3	February, 1887	210	215
42d St., Manhattan & St. Nich. Av.	100	236,000	A. & O.	7	April, 1893	110	112
1st mort.	1,000	2,500,000				38	40
2d mort. In. bonds	1,000	1,200,000	M. & S.	5		1910	108
Elighth Avenue—Stock	100	1,200,000	J. & J.	6		1915	60
Scrp.	100	1,600,000	Q.—J.	2	April, 1887	155	160
Houston, West St. & Pavonia Ferry	100	1,000,000	F. & A.	6	August, 1914	105	110
1st mort.	500	250,000	Q.—F.	2	August, 1885	150	160
Second Avenue—Stock	100	1,000,000	J. & J.	7	July, 1894	110	111
1st mort.	1,000	500,000	J. & J.	5	January, 1887		130
Consol.	1,000	1,862,000	M. & N.	5	November, 1909	104	106
Sixth Avenue	100	550,000	M. & N.	7	May, 1889	103	
1st mort.	1,000	1,050,000	M. & S.	3	February, 1887	170	175
Third Avenue—Stock	100	500,000	J. & J.	7	July, 1890	110	112
1st mort.	1,000	2,000,000	Q.—F.	3	February, 1886	200	205
23d St.—Stock	100	2,000,000	J. & J.	7	January, 1890	110	112
1st mort.	1,000	600,000	F. & A.	5	February, 1887	245	250
Ninth Avenue	100	250,000	M. & N.	7	May, 1893	110	113
Chicago City Railway	100	800,000		3	September, 1885	107	112
						299	325

PHILADELPHIA STOCKS.—Corrected by ROBERT GLENDINNING & Co., 303 Chestnut st., Philadelphia.

Company.	Par.	Capital.	Period.	Rate.	Date.	Bid.	Asked.
Citizens	50	\$500,000	Q.—J.				
Continental	50	1,000,000	J. & J.			122	125
Frankford & Southwark	50	750,000	Q.—J.				290
German town	50	1,500,000	Q.—J.				96
Green & Coates	50	500,000	Q.—J.				117
Hestonville	50	2,050,000				20	
Lombard & South	25	500,000					94
People's	25	1,500,000				34½	35
Philadelphia City	50	1,000,000	J. & J.			143	145
Philadelphia & Gray's Ferry	50	617,500	J. & J.			89	90
Philadelphia Traction	50	5,000,000				63	68½
Ridge Avenue	50	750,000	Q.—J.				225
Second & Third	50	1,060,200	Q.—J.			150	155
Seventeenth & Nineteenth	50	500,000	J. & J.				
Thirteenth & Fifteenth	50	1,000,000	J. & J.			145	
Union	50	1,250,000	J. & J.			150	
West Philadelphia	50	750,000	J. & J.			150	180

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

Company.	Par.	Capital.	Period.	Rate.	Date.	Bid.	Asked.
Metropolitan	50	\$2,000,000	J. & J.	10	January, 1887	115	120
South Boston	50	750,000	J. & J.		July, 1886	110	122½
Boston Consolidated	100	1,700,000	J. & J.	8	January, 1887	156	157½
Cambridge	100	1,950,000	J. & J.	5	January, 1887	118	121

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	\$400,000	Jan.	1½		95	100
Cass Ave. & Fair Grounds	50	300,000				80	
Citizens'	100	1,000,000	April	1½		60	70
Forest Park & Laclède	100	100,000				100	
Jefferson Avenue	100	112,000				100	
Lindell	100	600,000	April	2		100	105
Missouri	100	600,000	April	2		150	
Mound City	100	125,000				103	107
Northern Central	100	200,000					
People's	50	300,000	Jan.	.50		40	42½
St. Louis	100	900,000	May	2		50	55
Tower Grove	50	300,000	Jan.	.50			9
Union	50	600,000				13	15
Union Depot	100	400,000				75	80
St. Louis Cable	100	1,000,000				95	100
BONDS.							
Benton-Bellefontaine	1,000	\$50,000	A. & O.	6	1880	102	
Cass Avenue	1,000	2,000,000	F. & A.	6	1886	102	103
Citizens'	1,000	200,000	J. & J.	6	1883	103	104
Lindell	1,500	87,500	F. & A.	7	1879	102	
Mound City	1,000	125,000	J. & J.	6	1884	102	103
People's 1st mort.	1,000	125,000	J. & D.	6	1882	103	105
2d mort.	1,000	75,000	M. & N.	7	1886		
Northern Central	1,000	200,000	J. & J.	6	1884	102	103
St. Louis Cable	1,000	600,000	M. & N.	6	1884	107	110
Union	1,000	150,000	M. & N.	6	1885	102	103
Union Depot	1,000	350,000	A. & O.	6	1886	103½	105

Business Notes.

THE CARPENTER TURN-TABLE, built by the Fulton Foundry, Cleveland, O., is warranted to run without repairs, oiling, or removal for the purpose of cleaning it in case of filling up with mud. These turntables are meeting with much favor, and are being shipped to all parts of the country.

JERSEY CITY, JUNE 4, 1887.
W. T. BUTLER, Esq.

DEAR SIR:—In reply to yours of the 20th inst. I would state that your sand boxes as applied to one of our cars, I think a success, and is the only box which I have seen that will do the work under all circumstances to which street cars are subject.

Yours Truly,
J. H. SMALL, Manager
Pavonia Horse R. R. Co.

CHADBOURNE & HASTINGS, Philadelphia, Pa., desire to call attention to the fact that they have been appointed sole agents for the States of Maryland, Delaware and Eastern Pennsylvania for the sale of the Sprague Electric Motor, and that any and all communications relative to the purchase of said motor, or the equipment of railways in this district, should be addressed to their office, 119 South Fourth street, Philadelphia.

THE CHICAGO WOOD FINISHING Co., of Chicago, Ill., are manufacturing a line of finishing materials, comprising rough stuff, for the bodies of cars, wood fillers, stains and a polish for all varnished work, with which they are supplying the trade throughout the country. During the eight years in which these goods have been on the market they have been subjected to the most exacting tests on street cars, and in no case has their rough stuff cracked, scaled or blistered; nor has their wood filling shrunk in the pores of the wood. A superior floor paint for the floors and mats of street cars is also made by them, which is held in favor.

WM. SOMERVILLE & SONS, veterinary surgeons, Main street, Buffalo, and the manufacturers of the Somerville anti-fever medicine, have formed a stock company, known as the Somerville Medicine Co., with Dr. Wm. Somerville, Sr., as President. This company, with increased capital and facilities for extending business, are now ready to supply stables, breeding farms and dealers with their medicines, at wholesale prices. The Somerville medicines are in use in all the principal stables in the country, and are a great favorite with horse-car companies. They are for sale by all druggists, \$1 per bottle. The company's pamphlet, which they send free, contains much useful instruction to owners of horses and cattle.

THE CLINE MANUFACTURING Co., Chicago, Ill., had their works recently damaged by fire, sustaining a loss of some \$1,500. In consequence of this they have removed their entire plant to much larger and more commodious quarters, at 277 and 279 So. Canal street, where their facilities for manufacturing will be greatly increased. They will soon be in running order again, though for the present they are unable to fill the many orders for heaters and fuel which they already have on hand for next season from street railways throughout the country. They will soon open an Eastern branch in New York, having already established an agency at 219 and 221 Market street, St. Louis, Mo., for the States of Missouri and Kansas.

EDITOR STREET RAILWAY JOURNAL:—

In reply to your inquiries as to the working of the Van Depoele Electric System on our road, I would say that we are more pleased the longer we use it. Our motors are all doing splendid work, each car averaging about 600 people daily, carried over a road remarkable for its grades and curves. Cars are frequently loaded down with 60 to 80 people each, but it seems to tax the power very little. The fact that we have commenced the erection of a "power station" costing over \$25,000, and are continually ordering more cars and machinery, is certainly the best evidence of our opinion as to the system. The future may have great improvements in store, but after an examination of nearly every electric road in the United States and Europe, the writer is satisfied that there is more good, practical business in the Van Depoele system than any other now in use. Also that within ten years first-class street railways using horse power will be more rare than electric roads now are.

EDWARD B. STURGES, Pres.
Scranton Suburban Ry. Co.
SCRANTON, PA., May 30th, 1887.

STREET RAILWAY STOCKS.—Continued.

PROVIDENCE STOCKS.—Corrected by CHACE & BUTTS, Bankers, Providence, R. I.

Company.	Par.	Capital.	Period.	Rate.	Date.	Bid.	Asked.
Union R. R. Co., Prov.....	100	\$1,500,000	Q.—J.	8	April, 1887.	263	266
Pawtucket St. Ry. Co.....	100	270,000	New.	New.		167½	170

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

Company.	Par.	Capital.	Period.	Rate.	Date.	Bid.	Asked.
Fair Haven & Westville R. R. Co....	25	\$30,000	J. & J.	3	January, 1887	133	
State Street Horse R. R. Co.....	25	23,000	J. & J.	4	January, 1887	109	
" " Bonds.....		12,000	J. & J.	7		110	
New Haven & West Haven R. R. Co.	25				12	
New Haven & Centerville H. R. Co..							
Whitney Ave. Ry. Co.....							
Bridgeport Horse R. R. Co.....	100	140,000					
" " Bonds.....	1,000	50,000		6			

SPECIAL NOTICES.

Advertisements under the heading of Wants, For Sale, etc., are charged at the rate of ten cents per line, about eight words to a line. Street Railway Companies, or their Officers, may send advertisements to be billed and paid for after insertion.

FOR SALE.—Second-hand N. Y. Sweeper, in good working order. If sold at once, \$250. Address Brooklyn Railway Supply Co., 37, 39 & 44 Walworth St., Brooklyn, N. Y.

WANTED.—Capitalist to invest money in the best Cable Grip yet invented. First-class inducements and best of references. RELIABLE, care STREET RAILWAY JOURNAL.

WANTED.—Four Second Hand one-horse Cars, with Fire Boxes. Gauge, 5 ft 2½ in. Must be in good running order. CITIZENS' RAILWAY Co., Wheeling, West Va.

WANTED.—A live man to introduce among street railways the best system of heating street cars yet devised. Address A. W., care STREET RAILWAY JOURNAL, 113 Liberty street, New York.

WANTED.—Offers to supply three miles of second hand steel or iron T rails, 20 or 25 lbs. to yard. Also four second-hand one-horse street cars. TUSCALOOSA & C. H. R. E. & M. Co., Tuscaloosa, Ala.

WANTED.—Offers to supply, f. o. b., good second-hand St. Railway Johnson and T rail, iron or steel (steel preferred), 20, 25 and 30 lbs to the yard, for one-half to two miles track, and splices to match. Communicate best terms, describing finity surface width, height, weight, condition, etc. DENISON STREET RAILWAY Co., Denison, Texas.

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ABBREVIATIONS—m, miles; g, gauge; lb r, pounds rail to the yard; c, cars; h, horses; mu, mules. Officers' addresses are the same postoffice as the company unless otherwise specified.

AKRON, O.—Akron St. Ry. & Herd Co. 2 1/2 m. 6c, 31 h. Pres. Ira M. Miller, V. Pres. James Christy, Treas. B. L. Dodge, Sec. F. M. Atterholt, Supt. John T. Metlin. *k*

ALBANY, N. Y.—Watervliet Turnpike & R. R. Co. 15 m, 4-8 1/2 g, 30-45 lb r, 31 c, 145 h. V. Pres. C. B. Tillinghast, Sec. & Treas. Cantine Tremper, Supt. Amos Fleece. Offices, 1165 Broadway. *b*

The Albany Ry. 14 m, 4-8 g, 54 c, 232 h, 33-47 lb r. Pres. Supt. and Treas. John W. McNamara, V. Pres. Robt. C. Pruyn, Sec. Jas. H. Manning, Cashier, Wm. W. Dennin, Asst. Supt. Edgar S. Fassett, Accountant, J. N. Murphy. Offices 3 & 5 N. Pearl st. *f*

ALLEGHENY CITY, PA.—Federal St. & Pleasant Valley 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. Crozier. Office, 129 Taggart st. *a*

People's Park Pass. Ry. Co. 5.2 m, 5-2 g, 45 lb r, 10 c, 70 mu. Pres. Wm. McCreery, Sec. R. F. Ramsey, Treas. Jas. Boyle, Supt. Wm. J. Crozier. Office, 129 Taggart st. *a*

ALLENTOWN, PA.—Allentown Pass. R.R. Co. 3 1/2 m, 4-8 1/2 g, 19 lbs. r, 3 coaches, 22 h. Pres. Samuel Lewis, Treas. & Sec. Joseph E. Ballett. Supt. A. T. Brown. Office Hamilton st. Capital, \$45,260. *k*

ALTON, ILL.—Alton & Up. Alton Horse Ry. Co. *k*

ALTOONA, PA.—City Pass. Ry. Co. of Altoona, Pa. 3 1/2 m, 5-3 g, 43 & 45 lbs. r, 17 c, 40 h. Pres. John P. Levan, Sec. & Treas. L. B. Reifschneider, Supt. John J. Buch. Capital, \$68,000. *a*

AMSTERDAM, N. Y.—Amsterdam St. R. R. Co. 1 1/2 m, 4-8 1/2 g, 35 lb r, 4 c, 11 h. Pres. Henry Herrick, Treas. David Cady, Sec. M. L. Stover. Leased to Jas. R. Snell. *a*

APPLETON, WIS.—Appleton Electric St. Ry. 4 1/2 m, 4-8 1/2 g, 33 lb r, 5 c, 5 motors. Pres. J. E. Harriman, V. Pres. N. B. Clark, Sec. & Treas. Jos. Koffend. *a*

ASHTABULA, O.—Ashtabula City Ry. Co. 4 m, 4-8 1/2 g, 40 lb r, 9c, 60 h. Owner & Prop. Jno. N. Stewart, Cleveland, O. *5*

ATCHISON, KAN.—Atchison St. Ry. Co. 9 m, 20 c, 65 h, 4-8 1/2 g, 20-31 lb r. Pres. J. H. Beeson, Treas. H. M. Jackson, Sec. J. P. Adams. Gen. Supt. Geo. W. Carpenter. *11*

Gate City S. R. R. Co. 2 1/2 m, 4-8 1/2 g, 16 & 60 lb r, 7 c, 26 h. Pres. L. B. Nelson, V. Pres. L. DeGline, Sec. & Treas. John Stephens, Solicitor, A. Remharat. *6*

West End & Atlantic R.R. Co. 2m, 4-8 1/2 g, 20 lb r, 6 c, 34 mu. V. Pres. T. L. Langston, Sec. & Treas. B. H. Brumhead, Man. & Pur. Agt. Jno. S. Brumhead. *1*

ATHENS, GA.—Classic City St. Ry. Co. 3 1/2 m, 4 g, 16 & 20 lb r, 4 c, 30 mu. Pres. Geo. M. Snodgrass, V. Pres. R. B. Russell, Treas. Lamar Cobb, Supt. J. H. Dorsey. *4*

ATLANTA, GA.—Atlanta St. Ry. Co. 13 m, 4-8 1/2 g, 42 lb c, B. rail, 40 two h cars, 150 horses. North Atlanta Line 1 m. Decatur St. Line 1.50 m. Marietta St. Line 2.50 m. McDonough St. Line 1.50 m. Peachtree St. Line 2.50 m. West End Line 2.50 m. Whitehall St. Line 1.50 m. Pres. Richard Peters, Sec. & Treas. J. W. Culppeper, Supt. & Purch. Agt. E. C. Peters. Office, 49 Line st. *g*

Gate City St. R. R. Co. 2 1/2 m, 4-8 1/2 g, 16 & 60 lb r, 7 c, 28 mu. Pres. R. Peters, Sec. & Treas. J. W. Culppeper, Supt. & Pur. Agt. E. C. Peters. *6*

Metropolitan St. R. R. Co. 6 m, 4-8 1/2 g, 20 lb r, 20 c, 84 h. Pres. J. W. Rankin, Sec. J. S. Hanluttu, Office cor. Hunter and Butler sts. *6*

West End & Atlanta St. R. R. Co. Pres. T. G. Healey. *6*

ATLANTIC, N. J.—Atlantic City Ry. Co. *6*

AUBURN, N. Y.—Auburn City Ry. Co. 3 1/2 m, 4-8 1/2 g, 30-42 lb r, 10 c, 41 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. Sec. C. B. Kesters, Supt. J. L. Windsor. *g*

AUGUSTA, GA.—Augusta & Summerville R.R. Co. 6 m, 5 g, 30 lb r, 13 c, 42 h. Pres. Patk. Walsh, Supt. & Sec. Edw. G. Mosher, Auditor, Frank E. Pettit. Office, 513 McKinne st. *a*

AURORA, ILL.—Aurora City Ry. Co. 5 m, 4-8 1/2 g, 28 lb r, 7 c, 10h, 30 mu. Pres. H. H. Evans, V. Pres. S. W. Thatcher, Sec. A. J. Hopkins, Treas. E. W. Trask, Supt. I. B. Chattle. *1*

BABYLON, N. Y.—Babylon Street Ry. Co. 1.53 m, 4-9 g, 60 lb r, 3 c, 3 h. Pres. W. F. Norton, Sec. Jos. F. Sammis, Treas. John R. Reed, Supt. David S. S. Sammis. *d*

BALTIMORE, MD.—Baltimore & Powhatan Ry. Co. 6 m, 5-4 1/2 g, 30 lb r, 4 c, 18 h. Pres. & Treas. E. D. Freeman, Sec. R. B. Clark, Supt. I. M. Ketrick. Office 406 Laurens st. *1*

Baltimore City Pass. Ry. Co. 44 m, 5-4 1/2 g, 46 & 47 lb r, 135 c, 3065 h. Pres. & Supt. Oden Bowie, Supt. car shops J. M. Blundell, Supt. tracks, Boyer Parks, Treas John Bolgiano, Sec. S. L. Bridge. Office cor. Calvert & Baltimore sts. *a*

Baltimore Union Pass. Ry. Co. 16 m, 5-4 1/2 g, 47 lbs r, 61 c, 291 h. Pres. N. Perrin, Gen. Man. T. C. Robbins, Treas. E. P. D. Cross, Sec. Leon Fender, Asst'to Gen. Man. R. E. Robbins, Office cor. Huntington ave. & Oak st. *k*

Baltimore, Catonsville & Elliott Mills Pass. Ry. Co. 6 m, 5-4 1/2 g, 35 lb r, 15 c, 42 h. Pres. T. C. Robbins, Sec. W. V. Orendorf, Treas. E. P. D. Cross. *a*

Central Ry. Co. 11 1/2 m, 5-4 1/2 g, 40 lb r, 22 c, 2 sweepers, 186 h. Pres. Peter Thompson, Sec. & Treas. Walter Blackstone. Office cor. Preston and Constitution sts. *b*

Citizen's Ry. Co. 20 m, 5-4 1/2 g, 47 lb r, 36 c, 400 h. Pres. Jas. S. Hagarty, Treas. Jos. Balzino, Supt. & Pur. Agt. C. C. Speed, Cashier Wm. V. Hamersley, a Highlandtown & Point Breeze Ry. Co. City Div. 6 m, 5-8 g, — lb r, 15 c, 90 h. Pt. Breeze Div. 3 m, 1 loco, 4c. Pres & Gen. Man. Francis Hazlehurst, of Philadelphia, Treas. Robt. D. Morrison. *1*

North Baltimore Passenger Ry. Co. 21 m, 5-4 1/2 g, 45 lb r, 72 c, 400 h. Pres. Jas. L. McLane, Treas. Dan'l J. Foley, Sec. Thos. J. Wilson. *1*

People's Ry. Co. 13-2 m, 5-4 1/2 g, 42-45-47 lb r, 38 c, 210 h. Pres. T. Edw. Hambleton, Treas. Gustavus Ober, Sec., Supt. & Pur. Agt. Wm. A. House, Jr. Office, Druid Hill ave. extension, Clifton. *f*

Pimlico & Pikesville Ry. Co. 6 m, 5-4 g, 30 lb r, 4 c, 17 h. Pres. P. H. Walker, Sec. Frank Caughy, Treas. & Supt. Arthur Chenoweth. Office, Pikesville, Balt. Co. *d*

Yorktown Turnpike Road Co. 11 1/2 m, 5-4 1/2 g, 25 & 45 lb r, 19 c, 133 h. Pres. Sam'l H. Taggart, Treas. Jos. W. Jenkins, Agt. A. D. Sanks. Office, 6 N. Halliday st. *j*

BATTLE CREEK, MICH.—Battle Creek St. Ry. 4 m, 3-6 g, 28 lb r, 8 c, 20 h. Pres. G. L. Beveredge, Chicago, V. Pres. Lucius Clark, S. Bend, Ind., Sec. H. H. Brown, Battle Creek, Treas. H. C. Miller, Chicago, Supt. Geo. Wolf, Battle Creek. *c*

BAY CITY, MICH.—Bay City St. Ry. Co. 7 1/2 m, 4-8 1/2 g, 18 lb r, 13 c, 35 h. Pres. James Clements, Treas. Wm. Clements, Sec. Edgar A. Cooley. *1*

BEATRICE, NEB.—Beatrice St. Ry. Co. 4 m, 4-8 1/2 g, 25 lb r, 4 c, 28 h. Pres. J. D. Kilpatrick, Purchasing Agt. J. E. Smith. *h*

BEAVER FALLS, PA.—Beaver Valley St. Ry. Co. 3 1/2 m, 5-2 1/2 g, 35 lb r, 3c, 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.—Bellare St. R.R. Co. 2 1/2 m, 3-6 g, 15 lb r, 4 c, 18 h. Owner Geo. W. Stetson of New York, Man. Fred. Rodevlg. *7*

BELLEVIEW, ONT., CAN.—Belleville St. Ry. Co. 1 1/2 m, 3-6 g, 25 lb r, 5 c, 14 h. Pres. D. Lockwood, Sec., Treas. & Man. S. A. Lockwood. *l*

BELLVILLE, ILL.—Citizen's St. Ry. Co. 4 1/2 m, 4-8 1/2 g, 16 lb r, 7 c, 20 h. Pres. D. P. Alexander, Man. & Treas. H. A. Alexander, Sec. J. E. Thomas. Office N. E. cor. Main and High sts. *j*

BEREA, O.—Berea St. R. R. Co. 1 1/2 m, 3-6 g, 25 lb r, 2c, 4h. Pres. C. W. D. Miller, V. Pres. T. Churchward, Treas. F. T. Pomery, Supt. A. W. Bishop. *a*

BINGHAMTON, N. Y.—Washington Street & State Asylum R.R. Co. 4 1/2 m, 4 g, 16-35 lb r, 13 c, 23 h. Pres. R. H. Meagley, V. Pres. Geo. Whitney, Sec. Ira J. Magley, Treas. F. E. Ross, Supt. Wm. Whitney, Binghamton Central R.R. Co. 3 1/2 m (3 m. laid.) 3 g, 25 lb r, 6 c, 8 h. Pres. Geo. L. Crandall, V. Pres. Alonzo Everts, Sec. Chas. O. Root, Treas. H. J. Kneeland, Supt. Nelson Stow. Offices 65 Court st. *d*

Binghamton & Port Dickinson R.R. Co. 5 m, 4-8 1/2 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. *d*

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*

Main, 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. *3*

Park Ave. R. R. Co. 1 m, 4 g, 20 lb r. Pres. F. Ross, Treas. F. E. Ross, Sec. E. A. Matthews. S. M. Nash. lessee. *5*

BIRMINGHAM, ALA.—Birmingham Union Ry. Co. 22 m, 4-8 1/2 g, 16 lb r, 25 c, 212 mu. Pres. J. A. Van Hoose, Sec. & Treas. B. C. Scott, Supt. T. S. Morton. *7*

East Lake Land Co. 7m, 4-8 1/2 g, 40 lb r, 6c, 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 Avenue R. R. 6 1/2 m, 4-8 1/2 g, 30 lb r, 5 c, 23 h. Pres. H. M. Caldwell, Man. W. J. Miller, Supt. J. M. Lens, Eng. H. School. Owners, The Elyton Land Co. *1*

Birmingham & Pratt Mines St. Ry. Co. 5 m, 4-8 1/2 g, 16 lb r, 6 c, 30 h. Pres. and Gen. Man. J. A. Van Hoose, Sec. & Treas. Wm. Berney. *c*

BLOOMFIELD, N. J.—Newark & Bloomfield R. R. (See Newark, N. J.) *1*

BLOOMINGTON, ILL.—Bloomington & Normal Horse Ry. Co. 5 1/2 m, 4-8 1/2 g, 36 lb r, 10 c, 60 h. Pres. & Proprietor A. H. Moore, Sec. Edw. Sharp. *c*

BOONE, IA.—Boone & Boonsboro St. Ry. Co. 1 1/2 m, 3 g, 20 lb r, 3 c, 1 bus, 10 h. Pres. L. W. Reynolds, Treas. Ira B. Hodges, Sec. and Supt. A. B. Hodges. *f*

Twin City & Des Moines 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. Huetsinger. *k*

BOSTON, MASS.—Boston Consolidated St. Ry. Co. 51 1/2 m, 4-8 1/2 g, 45-50 lb r, 375 c, 1800 h. Pres. Chas. E. Powers, Treas. Sam'l Little, Ass. Treas. John H. Studley, Jr., Gen. Supt. Julius E. Rugg, Supt. J. H. Studley, 19 City Square, Charlestown. Capital, \$1,700,000. Office, 27 Tremont row. *k*

Boston & Chelsea R. R. Co. 4.154 m, 4-8 1/2 g, 45-60 lb r. Pres. W. W. Wheldon, Treas. and Clerk, John H. Studley, Jr. (Operated by the Boston Consolidated St. Ry. Co.) Office, 27 Tremont row. *f*

Albany St. Freight Ry. Co. .93 m, 4-8 1/2 g, 90 lb r, no c, no h. Pres. Chas. L. Pierson, Treas. Geo. F. Child. Office, 439 Albany st. *j*

Lynn & Boston R. R. Co. 42 1-6 m, 4-8 1/2 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. 83 m, 48 to 54 lb r, 687 c, 3543 h. Pres. C. A. Richards, Sec. Wm. P. Harvey, Treas. Chas. Boardman. Office, 16 Kilby st. *k*

So. Boston Ry. Co. 16 m, 4-8 1/2 g, 50 lb r, 199 c, 970 h. Pres. Chas. H. Hersey, V. Pres. Ezra H. Baker, Sec. & Treas. Wm. Reed, Supt. Daniel Cooldge. Office, 715 Broadway, So. Boston. *k*

Somerville Horse R. R. Co. (Operated by the Boston Consolidated Street Ry. Co.) 5.4 m, 4-8 1/2 g, 43-

60 lb r. Pres. Sam'l E. Sewall, Treas. & Clerk, J. H. Studley, Jr. Office, 27 Tremont row. *a*

Winnislimmet R. R. Co. 1.95 m, 4-8 1/2 g, 48 lb r, no c, no b. Pres. Wm. R. Pearnain, Chelsea, Mass. Treas. & Clerk, E. Francis Oliver, Boston. Office, 13 Tremont row. *1*

BRADFORD, P.A.—Bradford & Kendall R.R. Co. 1 1/2 m, 4-8 1/2 g, 33 lb r, 3 c, 5 h. Pres. James Broder, Treas. Enos Parsons. Capital, \$12,000. *7*

BRANTFORD CAN.—Brantford St. Ry. Co. 4 m, 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, 4 g, 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 Bldg., North st. *l*

BRIDGEPORT, CONN.—Bridgeport Horse R.R. Co. 6 1/2 m, 4-8 1/2 g, 42 lb r, 20 c, 90 h. Pres. Albert Eames, Sec. & Treas. F. Hurd, Supt. B. F. Lashar. *j*

Bridgeport & Stratford Horse R. R. Co. 3 1/2 m, 4-8 1/2 g, 45 lb r, 10 c, 40 h. Pres. David F. Hullister, Sec. & Treas. Henry D. Drew, Man. Henry N. Beardsley. *j*

BROCKTON, MASS.—Brockton St. Ry. Co. 11 1/2 m, 4-8 1/2 g, 85 lb r, 32 c, 130 h. Pres. W. W. Cross, Treas. C. R. Fillebrown. Supt. H. B. Rogers. Office, Main st. *j*

BROOKLYN, N. Y.—Atlantic Avenue R. R. Co. of Brooklyn. 32 1/2 m, (leased and owned), 4-8 1/2 g, 50-60 lb r, 255 c, 938 h. Pres. William Richardson, Sec. W. J. Richardson, Treas. Newbery H. Frost. Office, cor. Atlantic & Third aves. *d*

Broadway R.R. Co. 12 m, 4-8 1/2 g, 60 lb r, 199 c, 750 h. Pres. Edwin Beers, Sec. & Treas. Robert Sealy, Supt. Joshua Crandall. Office 21 Broadway, E. D. *e*

Brooklyn Cable R. R. Co. Leases its line from Atlantic Ave. R. R. Co., for 14 per cent of gross receipts. Capital, \$1,000,000. *4*

Brooklyn Cross Town R.R. Co. 16 m, 4-8 1/2 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 585 Manhattan ave. *j*

Bushwick R. R. Co. 28 m, 4-8 1/2 g, 45-50 lb r, 172 c, 600 h. Pres. Frank Cromwell, V. Pres. Wm. H. Husted, Treas. & Sec. S. D. Hollowell, Supt. Wm. M. Morrison. Office 22 Broadway, N. Y. *1*

Brooklyn, Bushwick & Queens County F. R. Co. 11 m, 4-8 1/2 g, 42-47 lb r, 50 c, 214 h. Pres. Geo. W. Van Allen, Sec. Wm. B. Wait, Treas. C. B. Cottrell, Supt. Chas. E. Harris. Office of Pres. & Supt. cor. Nostrand & Park av. *b*

Brooklyn City R. R. Co. 8 1/2 m, 4-8 1/2 g, 45-64 lb r, 501 close c, 335 open c, 3176 h. Pres. Daniel F. Lewis, V. Pres. Wm. M. Thomas, Sec. H. M. Thompson, Asst. Sec. Francis E. Wrigley, Treas. Cromwell Hadden. Offices, 10 Fulton st. *a*

Brooklyn City & Newtown R. R. Co. 13 1/2 m, 4-8 1/2 g, 45-60 lb r, 125 c, 400 h. Pres. Col. John N. Partridge, Sec. & Treas. Duncan B. Cannon; Supt. John L. Heins. Office cor. DeKalb & Central aves. *d*

Calvary Cemetery, Greenpoint & Brooklyn R. R. Co. 6 m, 4 1/2 g, 50 lb r, 10 c, 30 h. Pres. Jas. B. McKewan, Sec. & Treas. John R. Conner, Supt. D. W. Sullivan. Office, 555 Manhattan ave. *a*

Coney Island and Brooklyn R. R. Co. 18-3-5 m, 45 lb r, 4-8 1/2 g, 103 c, 344 h. Pres. James Jourdan, Sec. Ed. F. Drayton, Treas. G. W. Chauncey, Supt. William Farrell. Office cor. Smith & Huntington sts. *d*

Coney Island, Sheepshead Bay & Ocean Avenue R. R. Co. 2 1/2 m, 4-8 1/2 g, 4 c, 8 h. Pres. A. McClennen, V. Pres. Daniel Mone, Sec. Jas. Callery, Treas. Hoyt Van Valkenberg. Office 16 Red Hook Lane. *1*

Crosstown Line, Hamilton Ferry to Bridge. *d*

Grand St. & Newtown R.R. Co. 13 1/2 m, 4-8 1/2 g, 50-60 lb r, 72 c, 250 h. Pres. Martin Joost, Sec. & Treas. Wm. E. Horwill, Supt. Walter G. Howey. Office 394 Kent ave. *l*

Grand Street, Prospect Park & Flatbush R.R. Co. Pres. Thos. Clark, Jr., Sec. & Treas. Chas. Relfelds. Leased to De Kalb Ave. R. R. Co. *7*

Greenpoint & Lorimer St. R. R. Co. 5 1/2 m, 4-8 1/2 g, 50 lb r, 36 c, 183 h. Pres. Geo. W. Van Allen, Sec. Wm. B. Wait, Treas. C. B. Cottrell, Supt. Chas. E. Harris. Office, cor. Nostrand and Park aves. *j*

New Williamsburgh & Flatbush R. R. Co. 17 1/2 m, 4-8 1/2 g, 47-50 lb r, 78 c, 278 h. Pres. Geo. W. Van Allen, 54 Ann st., New York, Sec. W. B. Wait, 34th st. & 9th ave., New York, Treas. C. B. Cottrell, 8 Spruce st., N. Y. City, Supt. Chas. E. Harris, Nostrand & Park aves., Brooklyn. *j*

Prospect Park & Flatbush R.R. 3 m, 4-8 1/2 g, 24 lb r, 70 c, 360 h. Pres. Loftis Wood, Sec. & Treas. Sam'l Parkhill, Supt. Loftis Wood. Offices 45 Broadway. *1*

South Brooklyn Central R.R. Co. 8 1/2 m, 4 1/2 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 aves. *1*

Van Brunt St. & Erie Basin R.R. Co. 3 m, 4-8 1/2 g, 45 lb r, 7 c, 24 h. Pres. John Cunningham, Sec. & Treas. Edmund Terry. Offices, 264 Van Brunt st. *1*

BRUNSWICK, GA.—Brunswick St. R. R. Co. 4 1/2 m, 4-8 1/2 g, 35 lb r, 6 c, 24 h. Pres. C. P. Goodyear, Sec. & Gen. Man. U. Dart, Treas. W. E. Kay. Office, Newcastle st. *7*

BUFFALO, ILL.—See Mechanicsburg, Ill. *1*

BUFFALO, N. Y.—Buffalo St. R.R. Co. 15 1/2 m, 4-8 1/2 g, 50 lb r, 109 c, 615 h. Pres. Henry M. Watson, V. Pres. P. Pratt, Sec. S. S. Spaulding, Treas. W. H. Watson, Supt. Edward Edwards. Office, 346 Main st. *6*

Buffalo East Side St. Ry. Co. 31 m, 4-8 1/2 g, 50 lb r, h. Pres. S. S. Spaulding, V. Pres. Joseph Churchyard, Sec. H. M. Watson, Treas. W. H. Watson, Supt. Edward Edwards. Office 346 Main st. *6*

BURLINGTON, IA.—Burlington St. R.R. Co. 3 1/2 m, 4-8 1/2 g, 16-22 lb r, 9 c, 22 h, 10 mu. Pres. & owner, John Patterson, Sec. & Man. C. T. Patterson. Office, 1401 Summer st. *a*

Union St. Ry. Co. 8 1/2 m, 4-8 1/2 g, various r, 20 c, 80 h. Pres. Geo. A. Duncan, Sec., Treas. & Supt. F. G. Jones. *c*

BURLINGTON, VT.—Winooski & Burlington Horse Ry. Co. 3 1/2 m, 4-8 g, 25 lb r, 7 c, 24 h. Pres. W. A. Woodbury, V. Pres. F. C. Kennedy, Supt. K.

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. Julien'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 Antwerp 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 passengers, and in competition with steam and compressed air motors; and the jury, consisting of eminent Engineers from England, 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 on 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 met them, that it has been adopted in 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 in as perfect condition as when they were first put in the cars.

In April, 1886, Mr. Julien 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 not already done 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. Fontaine at the head. They did service between the Place de la Concorde and the Palais de l'Industrie 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 conditions arising from sharp curves and an irregular track, as to travel easily at a rate of eight and one-half (8½) 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, in 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 than 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 tons 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. In 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 Electricians know, Mr. Julien's is the only battery that can pretend to stand so high an intensity. Yet it may be seen every day on 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 run 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 and 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 than 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. One company now adopting Mr. Julien's System are undertaking 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.

B. Walker, Treas. L. E. Woodhouse, Clerk, G. W. Walls. Office, Winooksklave. g

CAIRO, ILL.—Cairo St. Ry. Co. 2 m, 3-6 g, 25 lb r, 4 c, 12 h. Pres. J. A. Goldstine, V-Pres. C.V. Neff, Supt. & Treas. Thos. Lewis, Sec. H. Schulze. k

CAMBRIDGE, MASS.—Cambridge R. R. Co. 51-59 m, 4-8 1/2 g, 50 lb r, 255 c, 1,428 h. Pres. Prentiss Cummings, Treas. & Clerk Franklin Perrin, Exec. Com. I. M. Spielman, P. Cummings, O. S. Brown, Clerk of Directors, O. S. Brown, Supt. Wm. A. Bancroft. a

CAMDEN, N. J.—Camden & Atlantic St. Ry. Camden Horse R.R. Co. 9 m, 5-1 g, 35-52 lb r, 26 c, 85 h. Pres. Thos. A. Wilson, Sec. Wilbur F. Rose, Treas. & Supt. John Hood. Office 1125 Newton ave. h

CANTON, O.—Canton St. Ry. Co. 4 1/2 m, 4 g, 28 lb r, 11 c, 53 h. Pres. & Treas. G. E. Cook, Sec. John F. Clark, Supt. O. L. Stanton. Office, 4 E. 7th st. a

CAPE MAY, N. J.—Cape May & Schellenger Landing Horse R. R.

CARTHAGE, MO.

CEDAR RAPIDS, IA.—Cedar Rapids & Marion Ry., 13 1/2 m, 4-8 1/2 g, 28-30-35 lb r, 20 c, 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. a

CHAMPAIGN, ILL.—Champaign R.R. Co. Urbana & Champaign St. R.R. Co. (See Urbana.)

CIATHAM, CAN.

CHARLESTON, S. C.—Charleston City Ry. Co. 8 1/2 m, 4-8 1/2 g, 38 lb r, 32 c, 110 h. 1 mu. Pres. Jno. S. Kiggs, Sec. and Treas. Evan Edwards, Asst. Treas. Frank Whilden, Supt. Jno. Mohlenhoff. Office 2 Broad st. k

Enterprise R.R. Co. 15 m, 5 g, 42 lb r, 29 pass. c, 10 freight c, 95 h. Pres. A. F. Ravenel, Sec. & Treas. U. E. Hayne, Supt. T. W. Passalunague.

Middle Street Sullivan Island Ry. Co. 2 1/2 m, 4-8 1/2 g, 20 lb T r, 7 c, 14 mu. Pres. B. Callaghan, Sec. & Treas. Frank F. Whilden, Supt. B. Buckley. Office 2 Broad st. d

CHARLOTTE, N. C.—Charlotte St. Ry. Co. 2 1/2 m, 4-8 1/2 g, 16 lb r, 4 c, 20 mu. Pres. W. J. Rushton Sec. and Treas. E. K. P. Osborne, Supt. F. W. Dixon, Capital, \$20,000. f

CHATTANOOGA, TENN.—Chattanooga St. R. R. Co. 12 m, 4-8 1/2 g, 25-45 lb r, 25 c, 120 h. Pres. and Treas. J. H. Warner, Sec. C. R. Gaskill. 3

CHESTER, PA.—Chester St. Ry. Co. 9 1/2 m, 5-2 1/2 g, 47 lb r, 18 c, 80 h. Pres. E. Mitchell Cornell, Sec. Wm. S. Blakeley, Treas. Sam'l H. Seeds. Office, 1301 Edgmont ave. e

CHICAGO, ILL.—Chicago City Ry. Co. 90 m, 4-8 1/2 g, 45-63 lb r, 697 c, 1,600 h, cable doing work of 2,500 h. Pres. C. B. Holmes, Sec. H. H. Windsor, Treas. T. C. Pennington, Supt. C. B. Holmes. Office 2,020 State st. a

Chicago Pass. Ry. Co. 21 m, 52 lb r, 6 c, 500 h. Pres. Harvey T. Weeks, Supt. Austin J. Doyle. 5

Chicago West Division Ry. Co. 45 1/2 m, 4-8 1/2 g, 43 lb r, 900c, 4,300 h. Pres. J. R. Jones, Sec. George L. Webb, Supt. De Witt C. Cregler. Office of Pres., 59 State st.; Supt., 51 Randolph st. a

North Chicago City R.R. Co. 45 m, 4-8 1/2 g, 45 lb r, 375 c, 1,800 h. Pres. Chas. T. Yerkes, Treas. Hiram Crawford, Supt. Fred L. Thredgy, Purch. Agt. John M. Roach, Master Mechanic J. Millar, Car Builder H. N. E. Cottler. Office, 411 N. Clark st. 5

CHILLICOTHE, O.—Chillicothe St. R.R. Co. 13 1/2 m, 3 g, 16 lb r, 7 c, 10 h. Pres. E. P. Safford, Sec. A. E. Wenis, Treas. William Polanel, Supt. Ewel McMartin.

CINCINNATI, O.—Cincinnati Inclined Plane Ry. Co. 6 1/2 m, 5-2 1/2 g, 43 lb r, 25 c, 140 h. Pres. Geo. A. Smith, Sec. & Supt. James M. Doherty, Tr. J. S. Mill. a

Cincinnati St. Ry. Co. 96m, 5-2 g, 42-52 lb r, 250c, 2,000 h. Pres. Jno. Kilgour, Treas. R. A. Dunlap, Sec. & Auditor, Jas. A. Collins, Supt. Jno. Harris, Pur. Agt. B. F. Haughton. Office second floor of Apollo Building. k

Columbia & Cincinnati St. R.R. Co. 3 1/2 m, 3 g, 40 lb r, 6 c, 3 dummy c. Pres. & Auditor C. H. Kilgour, V. Pres. John Kilgour, Treas. & Sec. A. H. Meier, Mt. Lookout, O. Office Station C. a

Mt. Adams & Eden Park Inclined R.R. Co. 7 m, & 8 m cable, 5-2 1/2 g, 42 lb r, 20 c, 40 cable c, 175 lb. Pres. G. B. Kerper, Sec. J. R. Murdoch, Supt. R. P. Alley. Office, head of Mt. Adams Incline. a

Price Hill Inclined Plane R.R. Co. 8-13 m, 5-6 g, 60 lb r, 4 c. Pres. M. W. Oliver, Gen. Man. Reas. E. Mc Duffie, Sec. & Treas. Geo. T. McDuffie. a

So. Covington & Cincinnati. (See Covington, Ky.)

CLARKSVILLE, TENN.—Clarksville St. Ry. Co. 2 m, 4-8 1/2 g, 16 lb T-r, 4 c, 16 mu. Pres. John F. Shelton, Sec. & Treas. John W. Faxon, Capital, \$6,250. Office, Farmers' & Merchants' Nat. Bank. 1

CLEVELAND, O.—Brooklyn St. R.R. Co. 12 1/2 m, 4-8 1/2 g, 52 lb r, 70 c, 402 h. Pres. Tom. L. Johnson, V. Pres. A. J. Moxham, Sec. J. B. Hoetgen, Treas. John McConnell, Supt. A. L. Johnson. Office 1,301 Pearl st. 7

Broadway & Newburg St. R.R. Co. 11.4 m, 4-8 1/2 g, 43 lb r, 26 c, 165 h. Pres. Joseph Stanley, V. Pres. H. E. Andrews, Sec. & Treas. E. Fowler, Supt. J. J. Stanley. Office 1373 Broadway.

Superior St. R.R. Co. 15 m, 4-8 1/2 g, 45 lb r, 46 c, 265 h. Pres. Frank De H. Robinson, V. Pres. John Koch, Sec. & Treas. & Supt. J. H. Robinson, Jr.

East Cleveland R. R. Co. 20 1/2 m, 4-8 1/2 g, 45 lb steel r, 110 c, 517 h. Lines, Euclid ave. & Prospect st.; Cedar ave.; Garden st. Pres. A. Everett, V-Pres. Chas. Wason, Sec. & Treas. H. A. Everett, Supt. E. Duty. Offices, 1154 Euclid ave. a

Woodland Avenue & West Side St. R.R. Co. 40 m, 4-8 1/2 g, 43-45 lb r, 140 c, 630 h. Pres. M. A. Hanna, V. Pres. C. F. Emery, Sec. & Pur. Agt. J. B. Hanna, Gen. Supt. George G. Mulhern. Office, cor. Pearl and Detroit sts. a

South Side St. R.R. Co. 3 1/2 m, 3 g, 40 lb r, 8 c, 60 h. Pres. Tom L. Johnson, Supt. A. L. Johnson, Sec. & Treas. J. B. Hoetgen. Office 1301 Pearl st. 7

St. Clair Street Ry. Co. 9 m, 4-8 1/2 g, 40 lb steel r, 10 one-h. & 20 two-h. c, 150 h. Pres. & Treas. Chas. Hathaway, V-Pres. S. S. Lyons, Sec. Alfred G. Hathaway, Supt. A. W. Lynne. Office, 814 St. Clair st. a

CLIFTON, CAN.—Niagara Falls, Wesley Park and Clifton Tramway Co. 3 1/2 m, 4-8 1/2 g, 30 lb r, 8 c, 40 h. Pres. J. H. Mooney, 280 B'way, N. Y. Treas.

John N. Hayward, 52 B'way, N.Y. Sec. John H. Bache, Niagara Falls, Ont. h

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

COLUMBIA, S. C.—Columbia St. Ry. 4 1/2 m, 4-8 1/2 g, 30 lb r, 6 c, 18 h. 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. R.R. Co. 3 m, 4-8 1/2 g, 16 lb r, 6 c, 25 h. Pres. Cliff B. Grimes, Sec. L. G. Schnessler, Treas. N. N. Curtis, Supt. J. A. Ga-bourgh.

COLUMBUS, O.—Columbus Consolidated St. R.R. Co. 25 m, 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. 4 1/2 m, 3-6 g, 24 lb r, 4 c, 19 h. Pres. A. D. Rodgers, V. Pres. B. S. Brown, Sec. R. R. Rickett, Treas. S. S. Rickett, Supt. Jonas Willcox. Office 9 S. High st. k

CONCORD, N. H.—Concord Horse R. R. Co. 7 1/2 m, 3 g, 34 lb r, 9 c, 15 h, 2 steam motors. Pres. & Supt. Moses Humphrey, Treas. H. J. Crippin, Clerk E. C. Hoag. k

CORTLAND, N. Y.—Cortland & Homer Horse R.R. Co. 4 m, 4-8 g, 25-30 lb r, 6 c, 16 h, Pres. Chas. H. Garrison, Troy, N. Y. V. Pres. E. Mudge, sec. & Treas. S. E. Welch. Office 33 N. Main st. g

COUNCIL BLUFFS, IA.—Council Bluffs St. Ry. Co. 5 m, 4-8 1/2 g, 27 lb r, 10 c, 32 h. Pres. S. R. Callaway, Sec. & Treas. Geo. R. Hall, Supt. Wm. H. Burns. Office, 506 First ave. f

COVINGTON, KY.—Covington & Cincinnati St. Ry. Co. 17 1/2 m, 5-2 1/2 g, 43 lb r, 46 c, 296 h. Pres. E. F. Abbott, Sec. J. C. Benton, Treas. G. M. Abbott. 7

DALLAS, TEX.—Dallas Consolidated St. Ry. Co. 13 m, 4-8 1/2 g, 20-38 lb r, 26 c, 126 mu. Pres. J. E. Henderson, Sec. W. C. Connors. Capital, \$300,000.

DANVILLE, ILL.—Citizens' St. Ry. Co. 5 m, 4 g, 20 lb r, 8 c, 41 mu. Pres. Wm. P. Cannon, V. Pres. A. C. Daniel, Sec. & Treas. Adam R. Samuel. Office, 146 Vermilion st. f

DAVENPORT, IA.—Davenport Central St. Ry. Co. 3 m, 4-8 1/2 g, 20 lb r, 14 c, 24 h, 15 mu. Pres. Whit. M. Grant, V. Pres. W. L. Allen, Treas. J. B. Fidler, Sec. O. S. McNeil, Supt. J. W. Howard. k

Davenport City Ry. Co. 3 1/2 m, 4-8 1/2 g, — lb r, 14 c, 46 h. Pres. C. S. Watkins, Sec. and Treas. S. D. Bawden. e

DAYTON, KY.—Newport & Dayton St. Ry. Co. 2 m, 5-2 1/2 g, 44 lb r, 9 c, 36 h. Pres. & Supt. W. W. Bean.

DAYTON, O.—Dayton St. R.R. Co. 7 1/2 m, 4-8 1/2 g, 44 lb r, 25 c, 95 h and mu. Pres. C. J. Fernelund, V. Pres. G. W. Rogers, Sec. C. A. Craighead, Supt. A. W. Anderson. Office, W. 3d st. d

Fifth St. R. R. Co. 7 m, 4-8 1/2 g, 45 lb r, 18 c, 58 h. Pres. A. A. Thomas, Sec. D. B. Corwin, Treas. R. I. Cummins, Supt. J. M. B. Lewis. Office, 7 E. 3d st. a

Oakwood St. Ry. Co. 6 m, 4-8 1/2 g, 38 lb r, 14 c, 56 h. Pres. Charles B. Clegg, Sec. H. V. Perrine. a

The Wayne & Fifth St. R. R. Co. 4 1/2 m, 4-8 1/2 g, 38 lb r, 10 c, 35 h. Pres. Geo. W. Shaw, Sec. & Treas. Eugene Walchert, Supt. N. Rutzahn. Office, 29 Wayne st. k

DECATUR, ILL.—Decatur & North Park St. Ry. Co. Atly. Geo. Brown. 4

Citizens' Street R.R. Co. 2 m, 4-8 1/2 g, 20 lb T r, 9 c, 48 h & mu. Pres. D. S. Shellabarger, Sec. W. L. Shellabarger, Treas. & Gen. Man. W. L. Ferguson. a

DENISON, TEX.—Denison St. Ry. Co. 3 1/2 m, 3-6 g, 16 lb r, 7 c, 25 mu. Pres. C. A. Walterhouse, Supt. J. J. Campbell. 5

DENVER, COL.—Denver City Ry. Co. 24m, 3-6 g, 16 lb r, 64 c, 332 h. Pres. Geo. H. Holt, 10 Wall st. New York City, Sec. G. D. L'huillier, 10 Wall st., New York City, Treas. & Man. G. E. Randolph. h

Denver Tramway Co. 4 m, 3-6 g, 16-18 lb r, P.C. Run by electricity. Pres. Rodney Curtis, V. Pres. John J. Riechman, Sec. Wm. G. Evans. e

DES MOINES, IA.—Des Moines St. R. R. Co. 12 m, 3 g, 25-38-52 lb r, 18 c, 125 h. Pres. W. McCaln, V-Pres. C. W. Rogg, Sec. F. A. Sherman, Treas. G. B. Ilippee. a

Capital City St. Ry. Co. 7 m, 4-8 1/2 g, 45 lb r, 6 c, 32 h. G. Van Ginkel, Sec. H. E. Teachout, Treas. J. Weber. Office, cor. E. 5th & Locust sts. a

Des Moines & Sevastopol St. Ry. Co. (See Sevastopol, Ia.)

DETROIT, MICH.—Fort Wayne & Elmwood Ry. Co. 9.1 m, 4-8 1/2 g, 45 lb r, 33 c, 216 h. Pres. H. B. Brown, V. Pres. Edward Kanter, Sec. N. W. Goodwin, Treas. E. S. Helmenan, 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. Pres. H. M. Campbell, Sec. Bethune Duffield. 7

Detroit City Ry. 30 m, 4-8 1/2 g, 40-43 1/2 lb r, 130 c, 700 h. Includes Jefferson Ave. line, Woodward Ave. line, Michigan Ave. line, Gratiot Ave. line, Brush St. line, Cass Ave. line, Congress & Baker line. Pres. Sidney D. Miller, Treas. George Hendrie, Sec. James Heugh, Gen. Supt. Robert Bell, M. M. John Willis. Office, 12 Larned st. W. 4

Grand River St. Ry. Co. 4 1/2 m, 4-8 1/2 g, 45 lb r, 15 c, 160 h. Pres. & Treas. Jos. Dalley, Sec. J. W. Dalley, Supt. C. M. Dalley. e

Highland Park Ry. Co. 3 m, 4-8 1/2 g, 42 lb r for 1/2 m in city limits, outside 35 lb T r, 2 c, electric motors. Pres. and Treas. Frank E. Snow, Sec. F. Woodruff. Capital, \$50,000. Office, 92 Griswold st. a

DOVER, N. H.—Dover Horse R.R. Co. 5 m, 3 g, 30 lb r, 4 c, 14 h. Pres. Chas. H. Sawyer, Treas. Harrison Haley. a

DUBUQUE, IA.—Dubuque St. R.R. 7 m, 4-8 1/2 g, 52 lb r, 22 c, 60 h. Pres. J. A. Rhinberg, Sec. & Treas. B. E. Linehan, Supt. J. J. Linehan. Office, 21st st. & Couler ave. a

DULUTH, MINN.—Duluth St. Ry. Co. 5 1/2 m, 3-6 g, 35-45 lb r, 18 c, 91 mu. Pres. Sam'l Hill, V. Pres. T. P. Wilson, Sec. & Treas. A. S. Chase, Supt. T. W. Hoopes. d

EAST SAGINAW, MICH.—East Saginaw St. Ry. 8 m, 4-8 1/2 g, 30 and 40 lb r, 23 c, 70 h. Pres. Walter A. Jones, Acting Sec. C. A. Bartlett, Supt. A. Bartlett. 4

EAST ST. LOUIS, ILL.—East St. Louis St. R.R. Co.

EASTON, PA.—The Easton & So. Easton Passenger Ry. Co. 1 1/2 m, 5-2 1/2 g, 45 lb r, 4 c, 20 h. Pres. H. A. Sage, Sec. & Treas. H. W. Cooley, Supt. Elisha Burwell, So. Easton. Capital, \$29,562. Office, 348 Northampton st.

The West End Passenger Ry. Co. 1 1/2 m, 5-2 1/2 g, 45 lb r, 6 c, 20 h. Pres. H. A. Sage, Sec. & Treas. H. W. Cooley, Supt. Samuel Berry.

EAU CLAIRE, WIS.—Eau Claire St. Ry. Co. 5 m, 4-8 1/2 g, 27 lb, 42 lb center bearing steel, and 60 lb grooved steel r, on all curves, 16 c, 80 h. Pres. A. G. Bradstreet, New York, V-Pres. Geo. B. Shaw, Eau Claire, Sec. & Treas. Weston Lewis, Gardiner, Me. h

ELGIN, ILL.—Elgin City Ry. 2 1/2 m, 4-8 1/2 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, 5-2 1/2 g, 4-10 1/2 g, 30 lb r, 24 c, 74 h. Pres. & Treas. Jacob Davis, Sec. & Supt. John F. Pritchard. Elizabeth St. Ry. Co. Pres. & Supt. Amos Clark, Sec. & Treas. John P. Earl. 4

ELKHART, IND.—Citizens' Ry. Co. 4 1/2 m, 4-8 1/2 g, 30 lb r, 7c, 25 h. Pres. F. W. Miller, V. Pres. J. W. Ellis, Sec. C. W. Fish, Treas. J. A. Cook, Man. Director, Jas. Kavanagh. Office, 101 N. Main st. b

ELMIRA, N. Y.—Elmira & Horseheads Ry. Co. 10 m, 4-8 1/2 g, 25-30-40 lb r, 18 c, 34 h. Pres. & Treas. George M. Diven, V. Pres. Geo. W. Hoffman, Sec. Wm. S. Kershner, Supt. Henry C. Silsbey. Officers 212 E. Water st. k

EL PASO, TEX.—El Paso St. Ry. Co. 6 m, 4-8 1/2 g, 30-40 lb r, 18 c, 40 mu. Pres. J. F. Crosby, V. Pres. B. H. Davis, Treas. C. R. Morehead, Sec. & Supt. G. N. Marshall. Office, 175 Seventh st. a

EMPORIA, KAN.—Emporia City Ry. Co. 3 1/2 m, 3-6 g, 20 lb r, 8 c, 24 h. Pres. Van R. Holmes, Treas. A. F. Crowe, Sec. & Man. J. D. Holden.

ENTERPRISE, MISS.—Enterprise St. Ry. Co. 1 1/2 m, 3-6 g, 24 lb r, 2 c, 6 h. Pres. John Kampe, V. Pres. E. B. Gaston, Sec. & Treas. J. W. Gaston. g

ERIE, PA.—Erie City Passenger Ry. Co. 8 1/2 m, 4-8 1/2 g, 30, 40 & 45 lb r, 20 c, 85 h. Pres. W. W. Reed, 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. W. S. Gilbert, Supt. T. J. Gist. Office, cor. First and Main sts. a

FALL RIVER, MASS.—Globe St. Ry. Co. 16 m, 4-8 1/2 g, 35-40-46-47 lb r, 51 c, 210 h. Pres. Frank S. Stevens, Treas. F. W. Brightman, Sec. M. G. B. Swift, Supt. John H. Bowker, Jr. Office, 182 N. Main st. j

FAR ROCKAWAY, N. Y.—Village Ry. Co. 1 m, 4-8 1/2 g, 47 lb r, 5 c, 10 h. Pres. C. A. Cheever, Treas. D. L. Haight, Sec. J. S. Auerbach, Supt. Rufus Martin. Office, 13 Park row, New York. 10

FITCHBURG, MASS.—Fitchburg St. Ry. Co. 3 1/2 m, 4-8 1/2 g, 35 lb r, 9 c, 35 h. Pres. H. A. Willis, V. Pres. H. I. Wallace, Treas. B. F. Wallis, Sec. H. C. Hartwell, Supt. & Pur. Agt. Wesley W. Sargent. Office of Pres. 131 Main st.; Supt., 41 River st. f

FORT SCOTT, KAN.—Bourbon County St. R. R. 3m, 4 g, 16 lb r, 5 c, 22 h. Pres. J. D. Hill, v.c. C. O. French, Treas. J. H. Richards, Supt. E. Strong. 4

FORT SMITH, ARK.—Fort Smith St. Ry. Co. 2 m, 3-6 g, 28 lb r, 5 c, 16 mu. Pres. Sam'l M. Loud, Sec. & Treas. Geo. T. Sparks. h

FORT WAYNE, IND.—Citizens' St. R.R. Co.

FORT WORTH, TEX.—Fort Worth St. Ry. Co. 7 1/2 m, 4 g, 25-88 lb r, 16 c, 89 mu. Pres. K. M. Vanzandt, Treas. W. A. Huffman, Supt. J. T. Payne. 4

FRANKFORT, N. Y.—Frankfort & Iilon Street Ry. Co. 2 1/2 m, 5 g, 4 c. Pres. A. C. McGowan, Frankfort, Sec. D. Lewis, Iilon, Treas. P. Remington, Iilon, Supt. Fredk. Gates, Frankfort.

FREDONIA, N. Y.—Dunkirk & Fredonia R.R. Co. 3 1/2 m, 4-10 g, 25 lb r, 5 c, 9 h. Pres. W. McKinsty, Sec. & Treas. M. M. Fenner, Supt. Z. Elmer Wheelock. 5

FREPORT, ILL.—Freeport St. Ry. Co. 4 1/2 m, 4-5 1/2 g, 8 c, 43 h. Pres. Jacob Krohn, V-Pres. F. C. Platt, Sec. W. G. Barnes, Treas. John B. Taylor, Supt. H. T. Warner. a

FULTON, N. Y.—Fulton & Oswego Falls St. Ry. Co. 6,000 ft, 4 8 1/2 g, Gibbon's metallic stringer and r, 4 c, 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. i

GAINESVILLE, TEX.—Gainesville St. Ry. Co. 3 m, 3-6 g, 16-20 lb r, 4c, 22h, 1mu. Pres. Sam. Lazarus, V. Pres. L. Dreyfoos, Sec. & Treas. Zac. Farmer. 7

GALESBURG, ILL.—College City St. Ry. Co. 5 m, 4-8 1/2 g, 18-20-35 lb r, 9 c, 24 h. Pres. L. W. Sanborn, V-Pres. A. S. Hoover, Supt. & Sec. Geo. S. Clayton, Treas. A. Matteson. g

GALVESTON, TEX.—Galveston City R.R.. Co. 25 m, 4-8 1/2 g, 30 lb r, 79 c, 218 mu. Pres. Wm. H. Sinclair, Sec. & Treas. F. J. DeMeritt, Supt. M. J. Keenan. Office, cor. Twenty-first & I sts. a

Gulf City St. Ry. & Real Estate Co. 13 1/2 m, 4 g, 25-30 lb r, 32 c, 81 mu. Pres. J. H. Burnett, Sec. P. S. Wren, Treas. F. D. Allen. Office P. O. st., bet. 23d & 23d. i

GARDEN CITY, KAN.—Garden St. Ry. Co. 4

GLENS FALLS, N. Y.—Glens Falls, Sandy Hill & Fort Edward St. R. R. Co. Pres. Henry Crandall, Sec. & Treas. T. S. Cooldige, Supt. Albert V. Brayton. 12

GLOUCESTER, MASS.—Gloucester City R. R. 4 m 4-6 g, 35 lb r, 10 c, 90 h. 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 1/2 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

GRAFTON, MASS.—Dummy road. 4-8 1/2 g, 40 lb r.

GRAND RAPIDS, MICH.—Street Ry. Co. of Grand Rapids, Mich. 14 1/2 m, 4-8 1/2 g, 25-40 lb r, 29 c, 190 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. Bevier, Grand Rapids. Office, cor. Washington & Indiana sts. g

JOS. A. SLEEPER, Pres.
W. A. STILES, Secy. and Treas.

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GREENBUSII, N. Y.—North & East Greenbush St. Ry. Co. 1½ m, 4-8½ g, 4 c, 12 h. Pres. & Treas. A. Bleeckerbanks, Supt. J. Gascolgne.

GREEN CASTLE, IND.—Green Castle City St. Ry. Co. 2½ m, 4-8½ g, 23 lb r, 3 c, 14 h. Pres. & Supt. Dudley Rogers, Sec. James S. Nutt, Treas. Ralph Rogers, Gen. Man. E. W. Rogers. Office, 16 S. Jackson st.

GREENVILLE, S. C.—Greenville City Ry. Co. 1 m 5 g, —1 b r, 5 c, 20 h. Proprietors, Gilreath & Harris. HALIFAX, N. S.—Halifax St. Ry. Co. (Lim.) 7 m, 4-8½ g, 45-60 lbs. r, 15 c, 65 h. Pres. John Bothwell, Sec. & Treas. H. K. Adams, Supt. John C. Conlan, Offices, Room 39, Drexel Building, New York, and Halifax, N. S.

HAMILTON, O.—Hamilton St. Ry. Co. 4 m, 3 g, 28 lb r, 11 c, 18 h. Pres. James F. Griffin, Sec. Dan'l P. Cass, Supt. & Lessee J. C. Bigelow.

HANNIBAL, MO.—Hannibal St. Ry. Co. 2 m, 4-8½ g, 36 lb r, 6 c, 22 h. Pres. & Supt. M. Doyle, Sec. & Treas. James O'Hara, Office, 300 Market st.

HARRISBURG, PA.—Harrisburg City Passenger Ry. Co. 6 m, 5-2½ g, 42-47-50 lb r, 26 c, 72 h, Pres. H. A. Kelker, Sec. John T. Ensminger, Treas. R. F. Kelker. Capital, \$100,000. Office, 27 South 2d st.

HARTFORD, 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.

HAVERHILL, MASS.—Haverhill & Groveland St. Ry. Co. 13.7 m, 4-4½ g, 30-35 lb r, 36 c, 131 h. Pres. Jackson B. Sweet, Treas. John A. Colby. Office 3 Water st.

HELENA, MON.—2½ m, 4-8½ g, 35 lb r, 5 c. Pres. C. W. Cannon, V.-Pres. J. B. Wilson, Sec. & Treas. L. A. Walker.

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

HOBOKEN, N. J.—North Hudson County Ry. Co. 2½ m, 4-7 g, 50-60 lb r, 116 c, 635 h. Pres. John H. Bonn, Sec. E. J. Mallory, Treas. Fredk. Michel, Supt. Nicholas Goetz.

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. H. M. Smith.

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.

HOUSTON, TEX.—Houston City St. Ry. Co. 14 m, 4-8½ g, 20-30-40 lb r, 40 c, 118 mu. Pres. Wm. H. Sinclair, Galveston, V. Pres. & Gen. Man. H. F. MacGregor, Houston, Supt. Henry Freund, Houston, Sec. & Treas. E. H. Bailey, Houston. Office, 99 Travis st.

HUTCHINSON, KAN.—Hutchinson St. Ry. Co. 2½ m, 4-4 g, 20 lb r, 6 c, 18 h. Pres. A. L. Forsha, V. Pres. John Severance, Treas. S. W. Campbell, Sec. Fred. A. Forsha, Office, 5 North Main st.

ILION, N. Y.—Frankfort & Ilion St. R. R. Co. 2½ m, 5 g, 25 lb r, 5 c, 5 h. Pres. A. C. McGowan, V. Pres. P. A. Skiff, Sec. & Treas. John A. Giblin, Supt. J. J. Hlannah.

INDIANAPOLIS, IND.—Citizens' St. Ry. Co. 35 m, 4-8½ g, 33-38-45-50 lb r, 70 c, 550 mu. Pres. A. W. Johnson, Indianapolis, Treas. Tom L. Johnson, Cleveland, O. Sec. A. Anderson, Indianapolis, Man. W. T. Steele, Indianapolis. Office 80 W. Louisiana st.

JACKSON, MICH.—Jackson City Ry. Co. —m, —g, —lb r, 11 c, 40 h. Pres. Hiram H. Smith, Treas. Samuel Hopewell, Gen. Supt. Henry H. Smith.

JACKSON, MISS.—Jackson City R.R. Co. 1½ m, 5 g, 3c, 9 mu. Pres. P. W. Peoples, Sec. & Tr. J. B. Bradford.

JACKSONVILLE, FLA.—Pine St. R.R. Co. 2½ m, 5 g, 25 lb r, 4 c, 18 m. Pres. S. B. Hubbard; V. Pres. J. M. Schumacher; Treas. J. C. Greeley; Sec. & Man. H. S. Ely.

Jacksonville St. Ry. Co. 8 m, 5 g, 25 lb r, 22 c, 93 mu. Pres. H. S. Haines, Savannah, Ga.; V. Pres. Geo. R. Foster, Jacksonville, Fla.; Treas. J. M. Lee, Savannah; Supt. G. W. Haines, Savannah.

JACKSONVILLE, ILL.—Jacksonville Ry. Co. 4½ m, 4-8½ g, 30 lb r, 16 c, 30 h. Pres. Wm. S. Hook, Sec. T. J. Hook, Treas. Marcus Hook, Supt. B. F. Sibert.

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 Fodick, 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. Ross, V. Pres. L. B. Warner, Sec. E. E. Gifford, Treas. A. N. Broadhead, Supt. G. E. Malby.

JANESVILLE, 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, 630 h. Pres. Chas. B. Thurston, V. Pres. Wm. Keene, Treas. C. B. Place, Sec. Warren E. Dennis, Supt. Thos. M. Sayre.

Jonestown Ferr St. R. R. Man. J. H. Small.

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.

JOHNSTOWN, PA.—Johnstown Pass. Ry. Co. 7¼ m, 5-3 g, 41-43 lb r, 15 c, 74 h. Pres. James McMillen, Sec. B. L. Yeagley, Treas. W. H. Rosensteel, Jr.

JOLLET, ILL.—Jollet City Ry. Co. 3½ m, 4-8½ g, 38 lb r, 16 c, 30 h. mu. Prop. J. A. Henry, Supt. A. Bischnan, Treas. J. Hulstzer.

JOPLIN, MO.—

KALAMAZOO, MICH.—Kalamazoo St. Ry. Co. 8.16 m, 4-8 g, 35 lb r, 30 c, 50 h. Pres. E. M. Irish, V. Pres. Dr. Chase, Man. J. W. Bounton, Sec. & Treas. Arthur Ellithorp, Auditor, Wm. Shakespeare. Office, 128 Main st.

KANSAS CITY, MO.—Kansas City Cable 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. Chft Wise, Supt. F. A. Tucker, Office, S. E. cor. Ninth & Washington sts. e Corrigan Consolidated St. Ry. Co. 20 m, 4-1 g, 30 lb r, 80 c, 350 h. Pres. Bernard Corrigan, Gen. Man.

Thos. Corrigan, Sec. Jas. T. Kelley. Operated by Metropolitan St. Ry. Co.

Grand Avenue Ry. Co. 8 m, 4-8 g, 40 lb r, 15 c, 75 h. Pres. C. F. Morse, V. Pres. and Gen. Man. W. H. Holmes, Sec. & Atty. D. B. Holmes, Engineers, Knight & Bouton, Auditor, T. J. Fry, Supt. C. F. Holmes. Capital stock, \$1,200,000. Office, 15th & Grand av.

Kansas City Electric Ry. Co. 2 m, 4-8½ g, 70 lb girder r, 4 motor c (Henry system). Pres. W. W. Kendall, V. Pres. Hugh L. McElroy, Sec. & Treas. Warren Watson, Supt. John C. Hervey. Office, 1139 E. 5th st. Capital, \$10,000.

Kansas City & Rosedale St. Ry. Co. Operated by the Metropolitan St. Ry. Co.

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

KEOKUK, IA.—Keokuk St. Ry. Co. 4 m, 4-8½ g, 27 lb steel r, 12 c, 40h. Pres. Jas. H. Anderson, Sec. Wm. E. Anderson.

KINGSTON, ONT., 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.

KNOXVILLE, TENN.—Knoxville St. R.R. (o. 2. 6 m, 4-8½ g, 22 lb r, 5 c, 26 h. Pres. John S. Van Gilder, Treas. & Man. T. L. Beaman. Office, 336 Broad st.

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, 335 Broad st.

Market Sq. St. Ry. Co. 2 m, 4-8½ g, 22 lb r, 4 c, 18 h. Pres. John S. Van Gilder, Sec. W. B. Henderson, Treas. W. H. Simmonds, Supt. L. O. Rogers. Office, 143 Gay st.

LACONIA, N. H.—Laconia & Lake Village Horse R.R. 2½ m, 3 g, 34 lb r, 5 c, 20 h. Pres. A. G. Folsom, Sec. J. P. Hutchinson, Treas. Edmund Little, Man. Bela S. Kennison.

LA CROSSE, WIS.—La Crosse City Ry. Co. 5½ m, 4-8 g, 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 Main st.

LA FAYETTE, IND.—LaFayette St. Ry. 2¼ m, 4-8½ g, 35 lb r, 6 c, 38 h. Pres. F. B. Caldwell, LaFayette, Sec. & Treas. E. G. Jones, Decatur Ill., Supt. F. Greer, LaFayette.

LAMPASAS SPRINGS, TEX.—Lampasas Springs St. R.R. Co. 3 m, 4-8½ g, 6 c, 13 h. Sec. & Treas. W. H. Little. Office, Elm st.

LANCASTER, PA.—Lancaster & Millersville St. Ry. Co.—m, 4-8½ g, 30 lb r, 4 c, 14 h. Pres. J. C. Hager, V. Pres. H. S. Shirk, Sec. & Treas. Chas. Dennes.

Lancaster City St. Ry. Co. 1.1 m, 5-2 g, 33 lb r, 6 c, 4 h. Pres. W. D. Sprecher, Treas. J. H. Baumgardner, Sec. Thos. B. Cochran, Man. J. B. Long. Gen. Office, 129 North Queen st.

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

LARCHMONT, N. Y.—Larchmont Manor Co. 1¼ m, 4-8 g, 25 lb r, 2 c, 10 h. Pres. C. H. Murray, Treas. T. H. French, 38 East Fourteenth st., N. Y. City.

LAWRENCE, KAN.—Lawrence Transportation Co. 5½ m, 4-1 g, 38 lb r, 8 c, 38 h, 6 mu. Pres. H. Tisdale, Sec. W. N. Bangs, Supt. Geo. Fricker.

LAWRENCE, MASS.—Merrimack Valley Horse R.R. Co. 6¼ m, 4-8½ g, 48 lb r, 22 c, 87 h. Pres. Wm. A. Russell, Clerk & Treas. James H. Eaton, Supt. A. N. Kimball.

LEWISTON, ME.—Lewiston & Auburn Horse 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.

LEXINGTON, KY.—Lexington City Ry. Co. 8 m, 4-10 g, 20 lb r, 20 c, 85 h. Pres. & Treas. R. B. Metcalfe, V. Pres., Man. & Sec. Albert Cross, Supt. Bert. Cross.

LEXINGTON, MO.—Lexington St. Ry. Co. 1½ m, 4-4 g, 30 lb r, 2 c, 5 h. Supt. John C. Young. Office, 124 Main st.

LINCOLN, NEB.—Lincoln St. Ry. Co. 12 m, 4-8½ g, 20 lb steel r, 24 c, 150 h. and mu. Pres. J. W. Deeweese, V.-Pres. John R. Clark, Sec. & Treas. C. J. Ernst, Supt. Wm. R. Carter.

LITTLE ROCK, ARK.—Citizens' & Little Rock St. Ry. Co. 12 m, 4-10 g, 25, 35 & 45 lb r, 30 c, 200 mu. Pres. Jas. R. Miller, Sec. & Treas. Allan Johnson, Supt. J. A. Garrett. Office, cor. Markham & Spring sts.

LOCKPORT, N. Y.—Lockport St. R. R. Co. 3½ m, 4-8½ g, 42 lb r, 8 c, 33 h. Pres. & Treas. John Hodge, Sec. W. T. Ransom, Atty. E. M. Ashley. Office, 19 & 20 Hodge Opera House Bldg.

LOGANSPORT, IND.—Logansport Ry. Co. 2½ m, 4g, 30 lb r, 6 c, 39 mu. Pres. Frank G. Jaques, Sec. M. Jaques, Supt. Wm. P. Jaques. Office, Urbana, Ill.

LONDON, CAN.—London St. Ry. Co. 6 m, 4-8½ g, 30 lb r, 12 c, 40 h. Pres. V. Cronyn, Sec. Jas. H. Flock, Treas. Chas. Currie, Supt. Henry I. Smith. Office, Richmond st.

LONG ISLAND CITY, N. Y.—Stelneway & Hunter's Point R. R. Co. 30 m, 4-8½ g, 47 lb r, 68 c, 225 h. Pres. H. A. Stelneway, Stelneway Hall, N. Y. City. V. Pres. Henry A. Cassebeer, Jr., Stelneway P. O., Long Island City, N. Y. Sec. & Treas. Chas. F. Treibaur, Stelneway Hall, N. Y. City. Supt. W. H. Delahanty. Offices Stelneway Hall, N. Y.

Dutch Kills & Hunter's Point R.R. — m, —g, —lb r, —c, —h Pres. R. J. Gleason.

Long Island City & Newtown Ry. Co. 4½ m, 4-8½ g, 45-55 lb r, 25 c, 60 h. Pres. Isaac Buchanan, N. Y. City. Sec. Geo. S. Crawford, Brooklyn, N. Y., Treas. Patrick J. Gleason, Supt. Michael Conway. Offices 112 Front st.

LONGVIEW, TEX.—Longview & Junction St. Ry. ¾ m, 3-6 g, 16 lb r, 2 c, 4 h. Pres. F. T. Rembert, Sec. R. B. Levy, Treas. F. S. Whaley, Supt. C. W. Booth.

LOS ANGELES, CAL.—City & Central R.R. Co. 22 m, 3-6 & 4-8 g, 16 & 20 lb r, 37 c, 231 h. Pres. I. W. Hellman, Gen. Man. J. F. Crank, Sec. R. D. P. Winder, Supt. Wm. Hawks.

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. Hawks.

East & West Los Angeles Co. 7 m, 2) c, 80 h. Pres. & Gen. Man. J. F. Crank, Sec. Fred Harkness, Supt. W. Hawks.

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. Lorrick.

Second St. Cable Ry. Co. 1½ m cable & 1½ m steam-motor 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.

Temple St. Cable Ry. Co. 1½ m, 3-6 g, 6 c, 6 grip c. Pres. P. Beaudry, Sec. & Man. F. W. Woods, Supt. J. Fowler.

Los Angeles Electric Ry. Co. 5 m, 4-8 g, 4 c, Daft system, overhead wires. Pres. Geo. H. Bonebrake; Sec. & Man. C. H. Howland, Constructing Engr. A. H. Hayward.

LOUISVILLE, KY.—Kentucky St. R.R. Co. 5 m, 5 g, 52 lb r, 22 c —h. Pres. T. J. Minary, Sec. T. C. Donigan.

Central Pass. R.R. Co. 51 m, 5 g, 52 lb r, 156 c, 800 h, Pres. B. du Pont, V. Pres. & Man. T. J. Minary, Sec. T. C. Donigan. Office, 18th & Walnut Sts.

Crescent Hill R.R. Co. 3 m. Leased and operated by Central Pass. R.R. Co.

Louisville City Ry. Co. 65 m, 5 g, 40 to 58 lb r, 230 c, 1,400 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.

LOWELL, MASS.—Lowell Horse R.R. Co. 7.7 m, 4-8½ g, 28-33-45 lb r, 33 c, 125 h. Pres. Wm. E. Livingston, Gen. Man. J. A. Chase.

Lowell & Draut St. Ry. Co.

LYNCHBURG, VA.—Lynchburg St. Ry. Co. 2½ m, 5-1 g, 20-26 lb r, 6 c, 32 h. Pres. & Treas. Stephen Adams, Supt. William M. Payne.

LYONS, IA.—Clinton & Lyons Horse Ry. Co. 4½ m, 3-8 g, 19-30 lb r, 15 c, 40 h. Pres. D. Joyce, Sec. W. T. Joyce, Supt. Frank Crapsey.

MACON, GA.—Macon City & Suburban St. R.R. Co. 12 m, 5 g, 20 lb T-r, 25 c, 100 mu. Pres. John S. Bransford, Nashville, Tenn., Sec. and Supt. Jno. T. Voss.

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. Robinus, Sec. John K. Weyer. Office, 1026 Walnut st.

MADISON, WIS.—Madison St. Ry. Co. 2½ m, 3 g, 23 lb r, 8 c, 25 mu. Pres. D. K. Tenney, Sec. & Treas. B. W. Jones, Supt. A. R. Kentzer. Office, Williamson st.

MANCHESTER, N. H.—Manchester Horse R.R. 7m, 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.

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.

MARSHALSTOWN, IA.—Marshalltown St. Ry. Co. 3 m, 4 g, 25 lb r, 7 c, 20 h. Pres. B. T. Frederick, Sec. C. C. Gillman, Man. & Treas. A. E. Shorthill.

MARYSVILLE, CAL.—City Pass. R.R. Co.

MAYSVILLE, KY.—Maysville St. R. R. & Transfer 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.

MECHANICSBURG, ILL.—Mechanicsburg & Buffalo Ry. Co. 3½ m, 3-10 g, 16 lb r, 3 c, 4 mu. Pres. J. N. Fullenwelder. Treas. A. T. Thompson, Sec. H. Thompson.

MEMPHIS, TENN.—Memphis City R.R. Co. 15 m, 5 g, 38-40 lb r, 80 c, 320 h. Pres. R. Dudley Frayser, V. Pres. Thos. Barrett, Sec. James Frost, Treas. S. P. Read Jr. Supt. W. F. Shippey. Office 474 Main st. f 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. Dan'l Barker.

MERIDIAN, MISS.—Meridian City R.R. Co. 2½ m, 4-8 g, 16 lb r, 5 c, 20 mu, Pres. Geo. S. Covert, V. Pres. and Sup. J. L. Handley, Sec. R. M. Houston, Treas. J. A. Kelly.

MICHIGAN CITY, IND.—Citizens' St. Ry. Co. 4 m, 4-8½ g, 30 lb r, 4 c, 15 h. Pres. Wm. G. Knight, V.-Pres. John Lyons, Sec. Jacob Henderson, Treas. Jerry H. Knight. Office West Washington st., South Bend, Ind.

MIDDLETOWN, CONN.—Middletown Horse R.R. Co. 2 m, 6 c, 36 lb r, 30 h. Pres. John M. Douglas, Sec. & Treas. J. K. Guy, Supt. Walter Baldwin. Office 166 Main st.

MIDDLETOWN, O.—Middletown Horse R.R. Co. Middletown & Madison St. R.R. Co. 2 m, 5-9 g, —r, 4 c, 8 h, Pres. C. F. Gunkel, Sec. and Treas. E. W. Gunkel, Supt. T. C. Reed.

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 girder 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.

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.

West Side St. Ry. Co. Pres. Washington Becker Sec. Thos. J. Durnin, Supt. A. McNaughton.

MINNEAPOLIS, MINN.—Minneapolis St. Ry. Co. 62 m, 3-6 g, 27-35-45 lb r, 186 c, 773 h, 226 mu. Pres. Thos. Lowry, V. Pres. C. Morrison, Treas. W. W. Herrick, Sec. C. G. Goodrich, Supt. D. W. Sharp.

MOBILE, ALA.—City R.R. Co. 17½ m, 5-2 g, 35 lb T-r, 60 c, 200 h. Pres. O. W. Cawthon, V. Pres. A. H. Spira, Sec. Peter Stark, Supt. R. R. Benson. d Dauphin & Lafayette Ry. Co. 2 m, 5-2½ g, 40 lb

THE SPRAGUE ELECTRIC RAILWAY & MOTOR CO.

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.

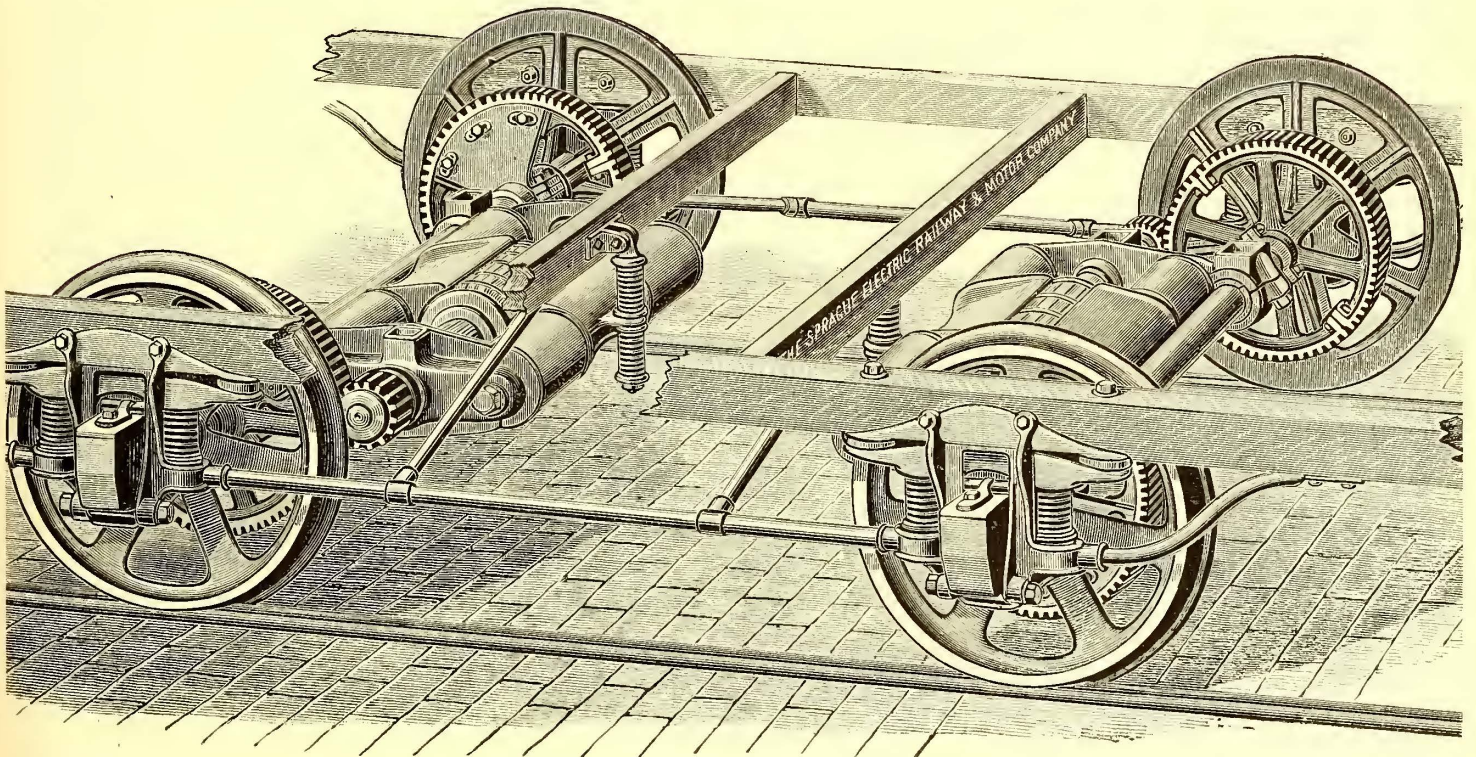
OFFICES:

NEW YORK: 16 & 18 Broad St.
BOSTON: 55 Oliver St.
CHICAGO: 185 Dearborn St.

ST. LOUIS: 304 Locust St.
NEW ORLEANS: 20 Carondelet St.
DETROIT: 133 Jefferson Ave.

PHILADELPHIA: 119 So. Fourth Street.
CLEVELAND, O., 117 Public Square.

This company, having now perfected a Street Railway 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.



Street Car Truck 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.

DETAILS OF SYSTEM.

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 Independent Driving.
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.

r, 9 c, 10 h, 12 m. Pres. D.P. Bestor, V. Pres. & Sec. G. V. Overall, Treas. & Acting Sec. Jas. W. Gray, Pur. Agt. & Man. J. B. Robertson. e

Mobile & Spring Hill R.R. Co. 8 m, 5-2 1/2 g, 35 lb r, 15 c, 35 h, 1 dummy. Pres. Daniel McNeill, Sec. & Treas. C. F. Sheldon, Man. F. Ingate. b

MOHAWK, N. Y.—Mohawk & Iliou R.R. Co. 1 1/2 m, 4-8 1/2 g, 30 lb r, 4 c (contract for motive power). Pres. O. W. Bronson, V. Pres. C. W. Carpenter, Sec. H. D. Alexander, Treas. R. M. Devendorf, Supt. O. W. Bronson. f

MOLINE, ILL.—Moline Central St. Ry. Co. 1 1/2 m, 4-8 1/2 g, 30 lb r, 3 c, 10 h. Pres. P. H. Wessel, V. Pres. M. Y. Cady, Sec. W. R. Moore, Treas. C. F. Hemenway, Office, 314 16th st. i

Moline & Rock Island St. Ry. Co. 5 m, 4-8 1/2 g, 20 lb r, 8 c, 40 h, 2 steam motors. Pres. & Treas. Eugene Lewis, Sec. I. M. Buford, Gen. Man. Geo. W. French, Supt. Jas. Cazatt. j

MONTGOMERY, ALA.—Capital City Electric Ry. 11 m, 4 g, 42 lb r, 20 c. Electric motors. Pres. E. B. Joseph, Gen. Man. J. A. Gaboury, Treas. Thos. E. Hannon. e

MONTREAL, CAN.—Montreal St. Ry. Co. 30 m, 4-8 1/2 g, 80 c, 80 siclghs, 40 buses, 700 h. Pres. Jesse Joseph, V. Pres. Alex. Murray, Sec. & Man. Ed. Lusher, Supt. T. H. Robillard. d

MOULTREVILLE, S. C.—Middle St. & Sullivan's Landing Ry. 2 1/2 m, 4-8 1/2 g, 20 lb r, 7c 4 h. Pres. B. Callahan, Treas. B. Buckley. c

MT. VERNON, N. Y.—Mt. Vernon St. Ry. Co. Mount Vernon & East Chester R.R. Co. 3 1/2 m, —g, —r, 7 c, 30 h. Pres. Wm. A. Butler, V. Pres. Thos. Nichols, Sec. Jas. T. Byrne, Treas. Benj. L. Welt-helmer, Office, 261 Broadway, N. Y. e

MUSCATINE, IA.—Muscatine City Ry. Co. 3 1/2 m, 3-6 g, 21 lb r, 7 c, 34 h & mu. Pres. Peter Musser, V. Pres. W. Hoffman, Sec. T. R. Fitzgerald, Treas. S. M. Hughes. k

MUSKEGON, MICH.—Muskegon Ry. Co. 4 1/2 m 3-6 g, 20 lb r, 8 c, 17 h, 9 mu. Pres. F. A. Nims, V. Pres. Chas. Merriam, Boston, Mass., Sec. Thomas Munroe, Treas. G. R. Sherman, Supt. Wm. McLaughlin. a

NASHUA, N. H.—Nashua St. Ry. Co. 2 m, 3 g, 35 lb r, 6c, 21 h. Pres. John A. Spaulding, Clerk, R. D. Barnes, Treas. Ira F. Harris, Supt. Q. A. Woodward. e

NASHVILLE, TENN.—Nashville & Edgefield R.R. Co. Fatherland Street Railway Co. North Edgefield and Nashville St. R.R. Co., one management. 5 m, 5 g, 16-20-32 lb r, 21 c, 100 mu. Pres. Jas. H. Yarbrough, Sec. & Treas. H. B. Stubblefield, Supt. D. Deaderick. j

McGavock & Mt. Vernon Horse R.R. Co. 7 1/2 m, 5 g, 16-20-32 lb r, 25 c, 140 h & mu. Pres. John P. White, V. Pres. B. P. Wilson, Sec. & Treas. H. B. Stubblefield, Supt. Daingerfield Deaderick. k

South Nashville St. R. R. Co. 4 1/2 m, 5 g, 16-20-32 lb r, 19 c, 68 h. Pres. W. M. Duncan, Sec., Treas. & Supt. C. L. Fuller, Office cor. So. Franklin and Cherry sts. i

NATCHEZ, MISS.—Natchez St. Ry. Controlled by Thos. Reber.

NATICK, MASS.—Natick & Cochituate St. Ry. 3 m, 4-8 1/2 g, 35 lb r, 7 c, 19 h. Pres. Harrison Harwood, Supt. Geo. F. Keep, Clerk Frank Hays. e

NEW ALBANY, IND.—New Albany St. R. R. Co. 6 1/2 m, 4-11 g, 25 lb r, 14 c, 53 h. Pres. Geo. T. Vance, Treas. Letitia V. Vredenburg, Supt. & Pur. Agt. Wm. L. Timberlake. Office cor. Vincennes and Spring sts. 7

NEWARK, N. J.—Newark & Bloomfield St. R. R. Co. Consolidated with Essex Pass. Ry. Co. 5 Essex Pass. Ry. Co. 50 m, 5-2 1/2 g, 47 lb r, 133 c, 797 h. Pres. S. Battin, Sec. Fred T. Kirk, Supt. H. F. Totten, Paymaster, W. L. Mulford. Office, 786 Broad st. d

Newark & Irvington St. Ry. Co., 7 m, 5-2 1/2 g, 47 lb r, 32 c, 163 h, Pres. S. S. Battin, Sec. W. L. Mulford, Supt. H. F. Totten. Office 786 Broad st. d

Newark & So. Orange Ferry St. & Hamburg Place R. R. Co. 15 m, 5-2 1/2 g, 45 lb r, 49 c, 300 h. Pres. John Radel, Sec. Andrew Radel, Treas. Joseph Criqui, Office cor. So. Orange ave. & So. 19th st. f

NEWARK, O.—Newark City Ry. Co. 5 m, 4-8 1/2 g, 35 lb r, 6c, 24 h. Pres. Stephen G. Clarke, V. Pres. & Supt. Byron E. Clarke, Sec. John W. Lanehart, Treas. Harry M. Clarke. Office, 239 W. Main st. 1

NEW BEDFORD, MASS.—Union St. Ry. Co. 17.78 m, 4-8 1/2 g, 35, 38, 45 & 50 lb r, 84 c, 311 h. Pres. Sam'l C. Hart, Treas. A. G. Pierce, Clerk Abbott F. Smith, Auditor, Geo. R. Phillips. Capital, \$266,000.

NEW BRITAIN, CONN.—New Britain Frmway Co. 3 1/2 m, 4-8 1/2 g, 35 lb r, 4 c. Pres. Alston Gerry, Treas. Jos. A. Flynn, both of New York City. 5

NEW BRUNSWICK, N. J.—New Brunswick Horse R.R. 4 m, 4-8 1/2 g, 40 lb r, 5 c, 20 h. Pres. F. M. Delano, Treas. Carroll Sprigg. e

NEWBURGH, N. Y.—Newburgh St. Ry. Co. 2 1/2 m, 4-8 1/2 g, 40 lb r, 5 c, 28 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

NEWBURYPORT, MASS.—Newburyport & Amesbury Horse R.R. Co. 61-3 m, 4-8 1/2 g, 35 lb r, 18 c, 50 h. Pres. Chas. Odell, Sec. G. H. Stevens, Treas. A. G. Reynolds, Supt. W. B. Ferguson. 5

Plum Island St. Ry. Co. 5 m, 4-8 1/2 g, 34 & 40 lb steel and Johnson r, 10 c, 20 h, 1 dummy engine. Pres. Chas. Odell, Salem, Supt. W. B. Ferguson, Capital, \$40,000. 1

NEW HAVEN, CONN.—Fair Haven & Westville R.R. Co. 10 m, 4-8 1/2 g, 50 lb r, 28 c, 207 h. Pres. H. B. Ives, Sec. & Treas. L. Candee, Supt. Walter A. Graham. Office 736 Chapel st. a

New Haven & Centreville Horse R.R. Co. 2 1/2 m, 4-8 1/2 g, 42 lb r, 8 c, 42 h. Trustee Cornelius Pierpont. Office, 1 Broadway. 6

New Haven & West Haven R.R. Co. (See West Haven).

State Street Horse R.R. Co. 2 1/2 m, 4-8 1/2 g, 43 lb r, 6 c, 40 h. Pres. C. A. Warren, Sec. & Treas. J. E. Emery. Office 16 Exchange Bldg. d

Whitney Ave. Ry. Co. 2 1/2 m, 4-8 1/2 g, 25 lb r, 3 c, 20 h. Pres. Geo. H. Watrous, Sec. George D. Watrous, Treas. Ell Whitney, Jr., Lessee J. A. Davis. a

NEW ORLEANS, LA.—Canal & Claiborne Sts. R.R. Co. 13 m, 5-2 1/2 g, 37 lb r, 40 c, 200 h. Pres. E. J. Hart, Sec. & Supt. Jos. H. DeGrange. a

Crescent City R.R. Co. 26 m, 5-2 1/2 g, 35-45 lb r, 90 c, 400 h. Pres. V. J. Behan, Sec. & Treas. J. R. Juden, Supt. A. V. Smith. c

Orleans R.R. Co. 9 1/2 m, 5-2 1/2 g, 35 lb r, 32 c, 155 h. & mu. Pres. & Supt. H. Larquie, Sec. & Treas. P. Cougot. Office, cor. White & Laharpe sts. b

St. Charles St. R.R. Co. 15 m, 5-2 1/2 g, 35-40 lb r, 61 c, 260 mu. Pres. & Supt. Alden McLehan, Sec. & Riviere. Operates 3 lines. Office cor. Carondelet & 8th sts. a

New Orleans & Carrollton R.R. Co. 8 m, 4-8 1/2 g, 30-45 lb r, 65 c, 200 h, 19 engines. Pres. Jos. Hernandez, Sec. Walter V. Crouch, Supt. Chris. V. Haille. a

New Orleans City & Lake R.R. Co. 60 m, 5-2 1/2 g, 46 lb r. Pres. J. A. Walker, Sec. W. E. Leverich, Supt. F. Wintz. Office, 102 Canal st. 6

NEWPORT, KY.—Newport St. R.R. Co.

NEW ROCHELLE, N. Y.—New Rochelle & Pelham R. R. Co. 10 m, 4-8 1/2 g, 42 lb r, 8 c, 30 h. Pres. W. R. Bergholz, Sec. Eugene Durbin, Treas. Thos. E. Crimmins. l

NEWTON, 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 m. Capital, \$60,000. 7

NEW YORK, N. Y.—Ninth Ave. R.R. Co. 16 m, 4-8 1/2 g, 50 lb r, 50 c, 500 h. Pres. Geo. Law, Sec. & Treas. James Aitcke, Supt. Lewis P. Fouk. Offices, Ninth Ave., cor. 54th st. a

Broadway & Seventh Ave. R.R. Co. 16 m, 4-8 1/2 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. c

Central Crosstown R.R. Co. 5.22 m, 4-8 1/2 g, 52 lb r, 45 c, 241 h. Pres. Geo. S. Hart, V. Pres. A. Cammack, Sec. & Treas. Milton I. Masson, Office 365 Ave. A. c

Central Park, North & East River R.R. Co. 26 m, 4-8 1/2 g, 60 lb r, 162 c, 1,200 h. Pres. G. H. Scribner, V. Pres. C. D. Wyman, Sec. H. Scribner, 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. 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. f

Dry Dock, East Broadway & Battery R.R. Co. 18 1/2 m, 4-8 g, 60 lb r, 185 c, 1,102 h. Pres. William White, Sec. & Treas. Richard Kelly, Auditor E. T. Landon, Supt. Fred F. White. Offices, 605 Grand st. a

Eight Ave. R.R. Co. 20 m, 4-8 1/2 g, 60 lb r, 112 c, 1,155 h. Pres. Geo. Law, Sec. & Treas. James Aitcke, Supt. H. B. Wilson. Office, Eighth Ave. & 60th st. 4

Forty-second Street & Grand Street Ferry R.R. Co. 10 1/2 m, 8-4 g, 64 lb r, 50 c, 500 h. Pres. Chas. Curtis, Sec. & Treas. E. S. Allen, Supt. John M. Calhoun. Office, 653 W. 42d st. 2

Forty-second St., Manhattanville and St. Nicholas Avenue Ry. Co. 18 m, 4-8 1/2 g, 60 lb r, 105 c, 650 h. Pres. John S. Foster, Sec. C. F. Naething, Treas. Arthur Leary. Office, 118 E. 42d st. a

Harlem Bridge, Morrisania & Fordham Ry. Co. 16.37 m, 4-8 1/2 g, 45-60 lb r, 165 c, 316 h. Pres. and Supt., H. Sprately, V. Pres. Wm. Remsen, Sec. & Treas. Wm. Caudwell. Office, Third ave, near 170 st. f

Houston, West Street & Pavonia Ferry R.R. Co. 12.3 m, 4-8 1/2 g, 60 lb r, 50 c, 340 h. Pres. Henry Thompson, Sec. & Treas. Daniel B. Hasbrouck, Supt. H. W. Edes. Office 415 E. 10 st. f

Jerome Park R.R. 1 2-3 m, 4-8 1/2 g, 50-56 lb r. Pres. Leonard W. Jerome, Sec. Fred A. Lovcraft, Treas. 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. McCorkle, Treas. Wm. L. Skidmore.

New York & Harlem R. R. Co. 18 1/2 m, 4-8 1/2 g, 60-75 lb r, 172 c, 1,600 h. Pres. C. Vanderblit, V. Pres. C. C. Clarke, Sec. & Treas. Ed. V. W. Rossiter, Supt. Alfred Skitt, Pur. Agt. Chas. Reed. Office, Grand Central Depot. e

Sixth Ave. R.R. Co. 9 1/2 m, 4-8 1/2 g, 60 lb r, 109 c, 1,250 h. Pres. Frank Curtis, Sec. and Treas. Henry S. Moore, Supt. Edw. E. Moore. Office, 758 6th ave. 2

South Ferry Ry. Co. 1 1/2 m, 4 8 1/2 g, 60 lb r, 6 box 4 open c, 32 h. Pres. Henry Hart, Sec. & Treas. Albert I. Elias, Supt. Chas H. Meeks. Office, 20 Whitehall st. b

St. Nicholas & Crosstown R. R. Co. (See New Roads.)

Second Ave. R.R. Co. 28 m, 4 8 1/2 g, 60 lb r, 316 cars, 1750 h. Pres. W. Thorn, V. Pres. J. Wadsworth, Sec. & Treas. J. B. Underhill. Office Second ave. cor. 96th st.

Third Ave. R. R. Co. 29 1/2 m, 4-8 1/2 g, 60 lb r, 360 c, 2190 h. Pres. Lewis Lyon, 739 Madison ave., Sec. Alfred Lazarus, 436 W. 61st st., Treas. John Beaver, 211 E. 112th st., Supt. John H. Robertson, 307 E. 65th st. Office, 1115 Third ave.

Twenty-third St. Ry. Co. 14 m, 4-8 1/2 g, 54 lb r, 122 c, 764 h. Pres. Jacob Sharp, V. Pres. Isaac Hendrix, Sec. Thos. H. McLean, Treas. Lewis May. Office 621 West 23d st. f

NIAGARA FALLS, N. Y.—Niagara Falls & Suspension Bridge Ry. Co. 2 1/2 m, 4-8 1/2 g, 35 lb r, 32 c, 41 h. Pres. Benj. Flagler, V. Pres. H. Nielson, Sec. W. J. Mackay, Man. & Treas. A. Schoellkopf. g

NORFOLK, VA.—Norfolk City R. R. Co. 3 1/2 m 5-2 g, 43 lb r, 20 c, 67 h. Pres. John B. Whitehead Sec. & Treas. H. C. Whitehead, Supt. E. W. Savage. b

NORTH ADAMS, MASS.—Hoosac Valley St. Ry. Co. 6 m, 4-8 1/2 g, 40 lb r, 8 c, 31 h, 2 steam motors. Pres. Wm. B. Baldwin, V. Pres. L. W. Cronkite. Sec. S. Proctor Thayer, Treas. Chas T. Beach. e

NORTHAMPTON, MASS.—Northampton St. Ry. Co. 3 1/2 m, 4-8 1/2 g, 32 lb r, 9 c, 35 h. Pres. Oscar Edwards, Sec. M. H. Spaulding, Treas. & Sup. E. C. Clark. l

NORWALK, CONN.—Norwalk Horse Ry. Co. 1 1/2 m, 4-10 g, 42 lb r, 7 c, 19 h. Pres. & Supt. James W. Hyatt, Sec. Edwin G. Hoyt. j

NORWICH, CONN.—Norwich Horse R.R. Co.

OAKLAND, CAL.—Alameda, Oakland & Piedmont R.R.

Berkley Villa R.R.

Broadway & Piedmont R.R. Co. 3 m, 5-2 g, 30 lb r, 18 c, 46 h. Pres. Walter B. Carr, Sec. Montgomery Howl.

Brooklyn & Fruitvale R. R. 2 1/2 m, 5 c, 18 h. Pres. E. C. Sessions, Sec. W. W. Gill. 2

Fourteenth St. R.R. Co. 8 m, 5 g, 25-40 lb r, 10 c, 46 h. Pres. & Supt. Walter Blair, Sec. P. J. Van Lobe, Office, 624 14th st. l

Oakland R. R. Co. 8 m, 3 g, 60 lb r, 9 c, 63 h. Pres. Jas. G. Fair, Sec. Chas. S. Neal, Supt. Geo. Y. Loring. Office, 21st & Jones sts. 5

Oakland, Brooklyn & Fruitvale R. R. Co. 2 1/2 m, 5 g, 35 lb r, 4 c, 25 h. Pres. H. Tubbs, Sec. W. C. Mason, Supt. J. Dixon, 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. 5

OGDEN CITY, UTAH.—Ogden City Ry. Co. 3 m, 4-8 1/2 g, 20 lb r, 4 c, 20 h. Pres. L. W. Shurtliff, V. P. & Supt. O. P. Arnold, Sec. & Treas. H. S. Young. d

OGDENSBURG, N. Y.—Ogdensburg St. Ry. Co. 6m. 4-8 1/2 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 1/2 m, 3-6 g, 25 lb r, 3 c, 7 h. Pres. & Supt. M. B. Fobes, Sec. & Treas. M. W. Barse, Asst. Sec. John Fobes. Office, Union st. f

OMAHA, NEB.—Omaha Horse Ry. Co. 22 m, 4-8 1/2 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 1604 Farnam st. e

Cable Tramway Co. of Omaha, 4 m, 4-8 1-2 g, 58 1/2 lb r, 10 c, each with grip; operated by cable. Pres. S. R. Johnson, V. Pres. L. B. Williams, Sec. and Treas. C. E. Yost, Chief Engineer Robert Gillham. Capital stock, \$300,000. General office, 130 South 13th st. a

ONEIDA VILLAGE, N. Y.—Oneida Ry. Co. 2 m, 4-8 1/2 g, 47 lb r, 3 c, 6 h. Pres. W. A. Stone, Sec. & Treas. W. E. Northrup, Supt. Chas. Bonta. j

OSHKOSH, WIS.—Oshkosh St. R. R. Co. 3 1/2 m, 4-8 1/2 g, 27 lb r, 9 c, 24 h. Pres. Leander Choate, V. Pres. F. Zentner, Sec. & Treas. J. Y. Hull, Sup. F. L. Thompson. g

OSWEGO, N. Y.—Oswego St. Ry. Co. 2 1/2 m, 4-8 1/2 g, 45 lb r, 5 c, 25 h. Pres. R. J. Oliphant, V. Pres. H. D. McCaffrey, Sec. & Treas. Albert Himes, Supt. Wm. S. Turner. Office, West Bridge, near Third ave. d

OTTAWA, ONT.—Ottawa City Passenger Ry. Co. 5 m, 4-8 1/2 g, 30 lb r, 9 c, 40 h. Pres. Thomas C. Keeler, V. Pres. R. Blackburn, Sec. James D. Fraser. 1

Ottawa St. Ry. Co.

OTTUMWA, IA.—Ottumwa St. R.R. Co. 2 m, 3-6 g, 27 lb r, 4 c, 2 h, 14 mu. Pres. J. M. Hedrick, Sec. & Treas. H. L. Hedrick, Supt. C. M. Hedrick.

Mineral Springs St. Ry. 1 m, 3-6 g, 16 lb r, 1 c, 1 mu, Owner, L. E. Gray.

PARIS, TEX.—Paris Ry. Co. 2 1/2 m, 4-8 1/2 g, 22 lb. T. R. 3 pass. 4 ft. c, 11 mu. Pres. D. F. Latimer, Sec. & Supt. C. G. Caviness, Treas. W. D. Latimer. a

PATERSON, N. J.—Paterson & Passaic R.R. Co. 7 m, 4-10 1/2 g, 33 lb r, 16 c, 30 h. Pres. John N. Terluene, Sec. E. S. Brown, Treas. John J. Brown, Man. & Supt. Ambrose T. King, Asst. Supt. Townsend Rider. Office, First National Bank Bldg. e

Paterson City Ry. Co. 8 1/2 m, 4-8 1/2 g, 35 lb r, 10 c, 400 h. Pres. Garret Planten, Treas. & Man. H. Romaine, Sec. Albert A. Wilcox, Supt. M. Pettigrew. Office 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. Littlefield. Office Broad st. k

PELIHAM, N. Y.—Pelham Park St. Ry. Co. Road just completed by Wm. P. Craig. 7

PENSACOLA, FLA.—Pensacola St. Car Co. 3 m, 4-8 g, 6 h, 30 mu. Pres. A. V. Cluubs, Sec. W. A. Blount, Treas. Thos. C. Watson. Capital, \$100,000. Office, 100 E. Government st. c

PEORIA, ILL.—Central City Horse Ry. Co. 10 m, 4-8 1/2 g, 40 & 60 lb r, 40 c, 20 h. Pres. & Gen. Man. H. R. Woodward, Sec. & Treas. E. Callender, Supt. John Strong. Office 2011 N. Adams st. j

Central Horse & Cable R. R. Co. 3 m, 4-8 g, 30 & 40 lb r, 9 c, 22 h. Pres. & Gen. Man. H. R. Woodward, Sec. Jos. Elder, Treas. E. Callender, Supt. John Strong. Office, 2011 N. Adams st. f

East Bluff Peoria Horse Ry. Co. 1 m, 4-8 1/2 g, 30-40 lb r, 4 c, 24 h. Pres. N. Giles, Sec. R. R. Bourland, Treas. M. E. Culver. Capital, \$11,000. 4

Fort Clark Horse Ry. Co. 8 m, 4-8 1/2 g, 20-38 lb r, 32 c, 80 mu. Pres. J. H. Hall, Sec. H. W. Wells, Treas. H. Detweiler, Supt. J. H. Hall. Office, 1,600 Perry st. f

Peoria Horse Ry. Co. 6 m, 4-8 1/2 g, 40-60 lb r, 14 c 60 h. & mu. Pres. & Gen. Man. H. R. Woodward, Sec. & Treas. E. Callender, Supt. John Strong. j

PETERSBURG, VA.—Petersburg St. Ry. 3 1/2 m, 4-8 1/2 g, 42 & 47 lb r, 9 c, 35 mu. George Beadle, Prop. 7

PHILADELPHIA, PA.—Citizens Pass. Ry. Co. 10 1/2 m, 5-2 g, 45-47 lb r, 86 c, 470 h. Pres. John McCarthy, Sec. & Treas. J. Q. Adams, Sup. H. C. Keen, Office, n w cor. 12th and Susquehanna ave. Capital, \$192,600. a

Empire Pass. Ry. Co. 8 1/2 m, 5-2 g, 45 lb 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, 5-2 g, 47 lb r, 100 c, 8 dummies, 650 h. Pres. John Noble, Sec. Thos. S. Harris, Treas. R. C. Brewster, Supt. T. E. Cox. Capital, \$750,000. Office, 2501 Kensington ave. a

Germantown Pass. Ry. Co. 29 1/2 m, 5-2 1/2 g, 47 lb r, Cars and horses, leased. Pres. Craig D. Ritchie, Sec. & Treas. Lewis S. Renshaw. Office, 1,001 Chestnut st. f

Green & Coates R. R. Co. (Leased to People's Pass. Ry. Co.) Pres. Moses A. Dropsie, Sec. & Treas. Lewis S. Renshaw. Office N. W. cor. 10th and Chestnut sts. 6

Hestonville, Mantua & Fairmount Pass. R.R. Co. 20 m, 5-4 1/2 g, 45 lb r, 60 c, 500 h. Pres. Charles H. Lafferty, Sec. & Treas. W. C. Foster. Office, 4,300 Lancaster ave. a

Lombard & South Sts. Pass. Ry. Co. 10 m, 5-2 g, 43 lb r, 51 c, 276 h. Pres. John B. Parsons, Sec. & Treas. Thos. C. Barr, Supt. J. H. Fresh. Office, 25th & South sts. k

People's Pass. Ry. Co. 45 m, 5-2 g, 47 lb r, 125 c, 1153

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h. Pres. John B. Parsons, Sec. & Treas. D. C. Colden, Supt. Chas. S. Whiting. Office, 8th & Dauphin sts.

PHILADELPHIA CITY PASS. RY. CO. 12.417 m, 5-2½ g, 47 & 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.

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. Office, n w cor. 41st and Haverford sts.

PHILADELPHIA & DARBY RY. CO. 6½ m, 5-2½ g, 42 lb r, road leased. Pres. C. L. Boric, Sec. and Treas. Wm. W. Colket. Office, 202 Walnut pl. Leased to Phila. City Pass. Ry. Co.

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 Gray, Supt. Patrick Lovett. Office, 36th st. and Gray's Ferry Rd.

RIDGE AVE. PASS. RY. CO. 15 m, 5-1 g, 47 lb r, 63 c, 350 h. Pres. E. B. Edwards, Sec. & Treas. Wm. S. Blight, Supt. Wm. Myers

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.

Seventeenth & Nineteenth sts. Pass. Ry. Co. 7½ m, Pres. Matthew S. Quay, Sec. & Treas. John B. Peddic. [Leased to Philada. Traction Co.]

Thirteenth & Fifteenth Sts. Pass. Ry. Co. 14 m, 5-2 g, 47 lb r, 49 c, 527 h. Pres. Thos. W. Ackley, Sec. & Treas. Alex. Kennick, Supt. Wm. P. Cooper. Office, 15th & Cumberland sts.

Union Pass. Ry. Co. 70 m, 348 c, 1,724 h. Pres. Wm. H. Kemble, Sec. & Treas. John B. Peddic, Supt. Jacob C. Petty. (Leased to Phila. 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, & 41st sts. (Leased by the Phila. Traction Co.)

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.

PITTSBURGH, PA.—Central Pass. R.R. Co. 6 m, 5-2½ g, 45 lb r, 16 c, 100 h. Pres. Geo. I. Whitney, Sec. & Treas. F. L. Stephenson, Supt. R. G. Heron.

Citizens' Pass. Ry. Co. 16½ m, 5-2½ g, 47 lb r, 40 c, 337 h. Pres. Jno. G. Holmes, Sec. C. M. Gormley, Supt. Murry Verner. Treas. Jas. J. Donnell, Capital, \$30,000.

Federal St. & Pleasant Valley Ry. Co. 6 m, 5-2½ g, 45-47 lb r, 22 c, 168 h. Pres. Wm. McCreery, Sec. R. F. Ramsey, Treas. James Boyle, Supt. Wm. J. Crozier, Allegheny City. Office, 129 Taggart st., Allegheny City.

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. Crozier, Allegheny City. Office, 129 Taggart st., Allegheny City.

Pittsburgh, Allegheny & Manchester Pass. Ry. Co. 10 m, 5-2½ g, 46 lb r, 44 c, 278 h. Pres. Chas. Atwell, Sec. & Treas. Chas. Selbert, Supt. James C. Cotton. Office, Market & Liberty sts.

Pittsburgh, Oakland & East Liberty Pass. Ry. Co. 11 m, 5-4½ g, 47 lb r, 22 c, 160 h. Pres. Thos. S. Bigelow, Gen. Man. G. W. Elkins, Sec. John G. Tragardh, Treas. A. W. Mellon, Supt. H. M. Cherry.

Pittsburgh Union Pass. R.R. Co. 10 m, 5-2½ g, 46 lb r, 29 c, 130 h. Pres. Chas. Atwell, Sec. Chas. Selbert, Treas. J. J. Donnell, Supt. James C. Cotton.

Pittsburgh & Birmingham Pass. R.R. Co. 3½ m, 5-2½ g, 45-47 lb r, 20 c, 177 h. Pres. W. W. Patrick, Sec. C. B. Agnew, Treas. John G. Holmes.

Pittsburgh & West End Pass. Ry. Co. 7 m, 5-2½ g, 40 lb r, 14 c, 74 h. Pres. & Treas. John C. Reilly, Sec. Thos. S. Bigelow, Supt. William J. Burns. Office, Wabash ave.

Pittsburgh & Wilkinsburg St. Ry. Co. Second Avenue Pass. Ry. Co. 5 m, 5-2 g, 47 lb r, 8 c, 40 h. Pres. Geo. Fawcett, Sec. Jas. F. Fawcett, Treas. W. J. Fawcett. Office, 2d ave.

South Side Pass. R.R. Co. 5 m, 5-2½ g, 45 lb r, 12 c, (only 6 in use), 40 h. Pres. D. Z. Brickell, Clerk J. A. Curry, Treas. W. T. Wallace, Supt. W. M. Rosborough. Office, 2,136 Sarah st.

Transverse Pass. Ry. Co. 6½ m, 5-2 g, 52 lb r, 39 c, 243 h. Pres. C. L. Magee, V. Pres. C. F. Klopfer, Sec. & Treas. Wm. R. Ford, Supt. Miller Elliot.

PITTSFIELD, MASS.—Pittsfield St. Ry. Co. Pres. Frank Harwood.

PITTSSTON, PA.—Pittsston St. Car Co. 1¼ m, 5-2 g, 42 lb r, 2 c, 6 h. Pres. Isaac Everitt, Sec. Eug. W. Mulligan, Treas. M. W. Morris.

PORT HURON, MICH.—Port Huron Electric RY. CO. 2½ m, 4-8½ g, 27 lb r, 8 c, (3 being motor c), 11 h. Pres. Wm. F. Botsford, V. Pres. John F. Talbot, Treas. Chas. A. Ward, Jr. Office, 306 Huron ave.

PORTLAND, ME.—Ocean St. R.R. Co. Operated by Portland R. R. Co.

Portland R.R. Co. 9½ m, 4-8½ g, 35-45 lb r, 36 c, 167 h. Pres. H. J. Libby, Treas. & Gen. Man. E. A. Newman. Office, 484 Congress st.

PORTLAND, ORE.—Portland St. Ry. Co. 2 m, 3-6 g, 25-42 lb r, 11 c, 40 h. Pres. Jos. Holladay, Sec. & Supt. C. K. Harbaugh. Office, 104 Fourth st.

Muttunomah St. Ry. Co. 2½ m, 3-6 g, 30 lb r, 19 c, 65 h. Pres. A. N. King, Sec. E. A. King, Supt. W. J. Matchette. Office, 294 Washington st.

Transcontinental St. Ry. Co. 10 m, 3-6 g, 25-35 lb r, 24 c, 100 h. Pres. & Gen. Man. Tyler Woodward, Sec. D. W. Wakefield. Office, 145 G st.

PORTSMOUTH, O.—Portsmouth St. R. R. Co. 2 m, 3-6 g, 18 lb r, 4 c, 10 h. Pres. James Skelton, Treas. Sec. & Supt. Enas Reed.

POTTSVILLE, PA.—People's Ry. Co. 4½ m, 4-8½ g, 45 to 60 lb r. Pres. T. A. Reilly, Sec. & Supt. Wm. D. Pollard.

POUGHKEEPSIE, N. Y.—City R. R. Co. 4 m, 4-8½ g, 35-42 lb r, 11 c, 39 h. Pres. Geo. B. Adrance, V. Pres. & Treas. Hudson Taylor, Sec. A. B. Smith, Supt. C. M. Davis. Office 491 Main st.

PROVIDENCE, R. I.—Union R.R. Co. 53.8 m, 4-8 g, 47-51 lb r, 27 c, 1,400 h. Pres. Jesse Metcalf, V. Pres. & Gen. Man. D. F. Longstreet, Sec. and

Treas. C. A. Babcock, Auditor B. A. Jackson. Office, Marketsq.

PUEBLO, COL.—Pueblo St. Ry. Co. 5 m, 3 g, 22 lb iron r, 8 c, 28 h. Pres. J. B. Osman, V. Pres. J. K. Moore, Sec. & Supt. J. T. Clark, Treas. J. N. Carlisle.

QUEBEC, CAN.—Quebec St. Ry. Co. 3 m, 4-8½ g, 45 lb r, 9 c, 46 h. Pres. Chas. St. Michel, Quebec, V. Pres. G. R. Renfrew, Quebec, Sec., Treas. & Supt. Samuel Moore.

St. John St. Ry. Co. Ltd. 1½ m, 4-8½ 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.

QUINCY, ILL.—Quincy Horse Ry. & Carrying Co. 6 m, 5, 7 lb r, 21 c, 118 m. Pres. Lorenzo Bull, Sec. C. H. Bull, 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, Sec. & Treas. J. E. Dodge. Office, 716 Park ave.

RALEIGH, N. C.—Raleigh St. Ry. Co. 5 m, 4-8½ g, 16 T steel r, 6 c, 36 m. Pres. V. E. Turner, Sec. & Treas. R. T. Gray, Atty. F. H. Busbee. Capital stock, \$25,000.

RAPID CITY, DAK.—Rapid City St. Ry. Co. 1½ m, 4 g, 16 r, 2 c, 4 h. Pres. Fred. T. Evans, Sec. & Treas. G. Schnasse.

READING, PA.—Reading City Pass. Ry. Co. 2-15 m, 5-2½ g, 45 lb r, 19 c, 44 h. Pres. B. F. Owen, V. Pres. Jas. L. Douglass, Sec. & Treas. H. A. Muhlenberg, Supt. J. A. Riggs.

Perkiomen Ave. Pass. Ry. Co. 4½ m, 5-2½ g, 38-45 lb r, 18 c, 75 h. Pres. Chas. Brenneiser, Sec. & Treas. Isaac Hiestler, Supt. John B. Houpe. Office, Perkiomen ave. & 19th st.

RED OAK, IA.—Red Oak St. R.R. Co. 1½ m, 4-2½ g, 30 lb r, 2 c, 4 h. Pres. John Hayes, V. Pres. Edw. Hayes, Sec. F. M. Byriket, Treas. & Supt. Marcus Bonham.

RICHMOND, IND.—Richmond City R. R. Co. 4 m, 3 g, 16 & 20 lb r, 13 c, 40 h. Pres. J. C. Shaffer, V. Pres. J. F. Miller, Sec. & Treas. H. I. Miller. Office, 15-21 S. 7th st.

RICHMOND, ILL.—Richmond St. R.R. Co.

RICHMOND, VA.—Richmond City Ry. Co. 7½ m, 4-8½ g, 30-40 lb r, 42 c, 185 h. Pres. J. L. Schoolcraft, Treas. Walter Kidd, Man. C. M. Bolton, Supt. Charles Selden.

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.

ROCHESTER, N. Y.—Rochester City & 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.

Citizens' St. Ry. Co. Pres. Wm. H. Jones, Sec. & Treas. J. E. Pierpont, Supt. S. A. Green.

ROCKFORD, ILL.—Rockford St. Ry. Co. 6-2-5 m, 4-8½ g, 30-40 lb r, 13 c, 52 h, 26 mu. Pres. Anthony Haines, Sec. H. I. Robinson, Treas. N. E. Lyman, Supt. Fred. Haines.

ROCK ISLAND, ILL.—Rock Island & Milan St. Ry. Co. 12 m, 4-8½ g, 20, 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.

RONDOUT, N. Y.—Kingsdon City R. R. 2.78 m, 4-8½ g, 40 lb r, 8 c, 40 h. Pres. James G. Lindsay, V. Pres. S. D. Coykendall, Sec. & Treas. Peter E. Schoonmaker, Auditor, Oscar L. Eastman, Gen. Man. Geo. Coykendall.

RUTLAND, VT.—Rutland St. Ry. Co. 8 m, 4-8½ g, 20 lb r, 8 c, 30 h. Pres. John N. Woodfin, Treas. A. H. Tuttle, Supt. M. McKeogh. Office, 7½ Center st.

SACRAMENTO, CAL.—Sacramento City Ry. Co. 12-1-horse and 10-2-horse c. Prop. R. S. Carey, Supt. Geo. W. Carey.

SAGINAW, MICH.—City of Saginaw St. R. R. Co. 2½ m, 4-8½ 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.

SALEM, MASS.—Salem & Danvers St. Ry. Co. 12 m, 4-8½ g, 35-45 lb r, 24 c, 117 h. Pres. Benj. W. Russell, Sec. & Treas. G. A. Vickers, Asst. Supt. David N. Cooke. Purchased by Naumkeag St. Ry. Co.

Naumkeag St. Ry. Co. 24 m, 4-8½ g, 35-45 lb r, 83 c, 275 h. Pres. Chas. Odell, Clerk Joseph F. Hickey, Treas. Henry Wheatland, Supt. Willard B. Ferguson.

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 McKenzie, Treas. James Jack, Supt. Orson P. Arnold.

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.

Prospect Hill St. R.R. Co. 1½ m, 1 c, 2 h. Pres. Sam. Maverick, V. Pres. & Gen. Man. P. J. Moss, Sec. Leonardo Garza, Treas. L. Wm. Menger.

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.—California Street Cable R. R. Co. 7 m, 3-6 g, 27 c, 25 dummies, 4 h. Pres. Chas. Mayne, V. Pres. Robert Watt, Sec. T. W. Hinchman, Treas. A. Borel, Supt. J. W. Harris. Office, 1435 California st.

Central R. R. Co. 12 m, 5 g, 45 lb r, 15-2-h & 16-1-h c, 290 h. Pres. Chas. F. Crocker, V. Pres. T. Hopkins, Sec. Jabez Hatch, Treas. N. T. Smith, Supt. J. F. Clark. Office, 44 Turk st.

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, s w cor. Clay & Leavenworth sts.

Geary St. Park & Ocean R.R. Co. 9½ m, (5½ m cable, 4½ m steam) 5 g, 45 lb r, 39 c. Pres. Chas. F. Crocker, V. Pres. R. F. Morrow, Sec. John N. Lynn, Treas. H. T. Smith, Supt. Johnson Reynolds.

Market St. Cable Ry. Co. 25 m, 4-8½ g, 37-38 lb r, 182 c, 2 motors, 86 h. Pres. Leland Stanford, V. Pres. Chas. F. Crocker, Treas. N. T. Smith, Sec. J. L. Will-

cut, Supt. H. D. Morton. Office, Fourth and Townsend streets.

North Beach & Mission R. R. Co. 16 m, 5 g, 4 lb r, 50 two h. c, and 14 one h. c. Pres. Albert Meyer, Sec. H. W. Hathorne, Treas. Wm. Alvord, Supt. M. Skelly. Office, 4th & Louisa sts.

Ocean Beach Ry. Co. (operated by Market St. Cable Ry. Co.) 2 m. Pres. Leland Stanford, V. Pres. Chas. F. Crocker, Treas. N. T. Smith, Sec. J. L. Willcutt, Supt. H. D. Morton. Office, 4th & Townsend sts.

Omnibus R. R. & Cable Co. 18 m, 5 g, 40-45 lb r, 60 c, 390 h. Pres. Gustav Sutro, V. Pres. D. Skel, Sec. G. Ruegg, Supt. M. M. Martin. Office 727 Howard st, Park & Ocean R. R. Co. 8 m, 35 and 40 lb r, 4-8½ g, 7 dummy engines, 16 pass. c, 6 flat and section c. Pres. Chas. F. Crocker, V. Pres. Timothy Hopkins, Treas. N. T. Smith, Sec. J. L. Willcutt, Supt. H. D. Morton. Office, 4th & Townsend sts.

Potrero & Bay View R. R. Co. 3 m, 5 g, 35 lb r, 10 c, 43 h. Pres. Leland Stanford, V. Pres. Chas. Crocker, Treas. N. T. Smith, Sec. J. L. Willcutt, Supt. H. O. Rogers. Office, 4th & Townsend sts.

Sutter St. R.R. Co. 13.5 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.

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.

City R.R. Co. 11 m, 5 g, 45 lb r, 72 c, 280 h. Pres. R. B. Woodward, V. Pres. Geo. E. Raum, Sec. M. E. Willis, Treas. Jas. H. Goodman, Supt. William Woodward, Master Car Builder, Frank O. Landgram.

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. McMurry, Treas. Jacob Rich, Sec. E. M. Rosenthal, Man. Wm. Fitts. Office, 20 W. Santa Clara st.

First St. R. R. & Willow Glen R. R. 4½ m, 3 g, 20 lbs. r, 6 c, 20 h. Jacob Rich, Sole Owner. Sec. E. M. Rosenthal. Office, 20 Santa Clara st.

First St. & San Pedro St. Depot R.R. Co. 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.

Willow Glen R.R. 7½ m, 3 g, 20 lb r, 8 c, 30 h. Sole owner Jacob Rich, Sec. E. M. Rosenthal. Office 20 W. Santa Clara st.

SANTA BARBARA, CAL.—Santa Barbara St. R.R. Co. 2-2-5 m, 3-6 g, 3 c, 12 mu. Pres. A. F. McPhail. Office, State st.

SARINIA, CAN.—Sarnia St. Ry. Co. 5 m, 4-8 g, 32 lb r, 2 c, 9 h. Pres. J. F. Lester, Sec. & Treas. Thos. Symington, Supt. Henry W. Mills. Office, Canadian Block.

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.

Coast Line R.R. Co. 7 m, 5 g, 35 lb r, 17 c, engine, 35 h, 5 m suburban line 35 lb r steam. Pres. Geo. Parsons, New York, Sec. Treas. & Gen. Man. R. E. Cobb, Savannah. Office, Bolton st.

SCRANTON, PA.—People's St. Ry. Co. of Luzerne Co. 10 m, 4-8½ g, 25-40-62 lb r, 20 c, 90 h. Pres. Wm. Matthews, Sec. & Treas. Horace E. Hayd, Supt. F. Pearce.

Scranton Suburban Ry. Co. 2½ m, 4-8½ g, 52-40 lb r, 3 c, operated by electricity. Pres. Edward B. Sturges, Treas. T. F. Torrey, Sec. Geo. Sanderson.

SEARCY, ARK.—Searcy & West Point R.R. Co. 8 m, 4-8½ g, 20 lb r, 7 c, 6 mu. Pres. A. W. Yarnell, Sec. W. H. Lightie, Treas. Jasper Hlocks.

SEATTLE, W. T.—Seattle St. Ry. Co. 4½ 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. Kinear.

SEDALIA, MO.—Sedalia St. Ry. Co. 2½ m, 4-10 g, 22 lb r, 6 c, 25 h. Pres. Joseph D. Sicher, V. Pres. Louis Deutsch, Treas. F. H. Guenther, Sec. Chas. S. Conrad.

SELMA, ALA.—Selma St. R.R. Co. 2½ m, 5 g, 20 lb r, 5 c, 8 h. Pres. H. L. McKee, Sec. J. F. Brown.

SEVASTOPOL, IA.—Des Moines & Sevastopol St. Ry. Co. 2 m, 4 g, 20 lb r, 3 c, 10 h. Pres. G. Van Ginkel, Sec. G. C. Van Ginkel, Treas. John Weber.

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.

SHREVEPORT, LA.—Shreveport City R.R. Co. 1½ m, 4-4 g, 46 lb r, 6 c, 14 h. Pres. Peter Youree.

SILVER CLIFF, COL.—Silver Cliff St. R.R. Co.

SIOUX CITY, IA.—Sioux City St. Ry. Co. 8 m, 4 g, 30 lb r, 16 c, 125 h. Pres. Fred. T. Evans, V. Pres. D. A. Magee, Sec. & Treas. F. T. Evans, Jr.

SOUTH BEND, IND.—South Bend St. Ry. Co. 7 m, 4-8½ g, 30 lb r, 16 c, 56 h. Pres. Jacob Woolvorton, Treas. & Gen. Man. Lucius Clark, Sec. W. G. George Supt. Will Miller.

South Bend and Mishawauka St. Ry. Co.

SOUTH CHICAGO, ILL.—South Chicago City Ry. Co. 6 m (of which 3 m are 40 lb Johnson girder r, 1½ m 35 lb tram & ½ m T r), 7 c, 30 h. Pres. Donald Lass, Supt. Sec. & Supt. Andrew Krimbill. Office, 46 Calumet Bldg., Chicago.

SPRINGFIELD, ILL.—Citizens' 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 Reisch. 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. H. Black, Treas. Wm. Ridgely, Sec. Geo. Brinkerhoff, Supt. Irwin Johnson. Office, Monroe st., bet. 4th & 5th.

SPRINGFIELD, MASS.—Springfield St. Ry. Co. 9½ m, 4-8½ g, 35 lb r, 40 c, 170 h. Pres. John Olmsted, Auditor L. E. Ladd, Clerk Gideon Wells, Treas. A. E. Smith, Supt. F. E. King. Office, 1 Main st.

SPRINGFIELD, MO.—Citizens' Ry. Co. of Springfield and No. Springfield, R. R. 4-8½ g, 35-40 lb r, 15 c, 28 h, 48 mu. Pres. R. C. Kerens, V. Pres. B. F. Ho-bart, Sec. and Treas. A. M. Longwell, Supt. F. B.

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SPRINGFIELD, O.—Citizens' St. R.R. Co. 11 1/2 m, 4 g, 30 lb r, 50 c, 145 h. Pres. D. W. Stroud, V. Pres. H. S. Bushnell, Treas. Ross Mitchell, Sec. F. S. Penfield.

STAMFORD, CONN.—Stamford Horse R.R. Co. 5 1/2 m, 4-8 1/2 g, 10 c, 40 h. Pres. F. M. Delano, Treas. Phillip Richardson, Supt. A. H. Lombar.

STATEN ISLAND, N.Y.—Staten Island Shore Ry. ST. CATHARINE'S, ONT.—St. Catharine's, Merritt & Thorold St. Ry. Co. 5 1/2 m, 4-8 1/2 g, 30 lb r, 8 c, 33 h. Pres. E. A. Smyth, Sec. A. P. Friesman, Supt. E. A. Smyth.

ST. JOHN, N. B.—St. John St. Ry. Co. 7 m, 4-8 1/2 g, 45-40 lb r, 15 c, 65 h. Pres. John R. Bothwell, Treas. John F. Zebly, Office Room 39 Drexel Bldg., New York, and St. John, N. B.

ST. JOSEPH, MO.—Citizens' St. R.R. Co. 3 m, 4-8 1/2 g, 28 lb r 14 c, 56 mu. Pres. Richard E. Turner, Sec. & Treas., Arthur Kirkpatrick, Supt. John F. Merriam.

Frederick Ave. Ry. Co. 3 1/2 m, 4-8 1/2 g, 42 lb r, 10c, 75 h. Pres. D. D. Burnes, Sec. & Gen. Man. J. A. Corby, Treas. S. A. Walker, Office, 511 Francis st., d Union Ry. Co. 8 1/2 m, 4-8 1/2 g, 20, 30 & 52 lb r, 29 c, 110 h. Pres. Seymour Jenkins, Sec. & Treas. A. Steinacker, Supt. Chas. S. Wilson.

ST. LOUIS, MO.—Baden & St. Louis R.R. Co. 3 1/2 m, 4-9 1/2 g, — lb r, 10 c, 23 h. Pres. George S. Case, V. Pres. William J. Coleman, Supt. John W. Archer, Office, Broadway, near Baden ave.

Benion-Bellefontaine Ry. Co. 8m, 4-10 g, 52 lb r, 57 c, 231 h. Pres. Chas. Parsons, Sec. & Treas. Robert McCulloch. Office, 4238 N. 20th st.

Cass Avenue & Fair Ground Ry. Co. 8 1/2 m, 4-9 1/2 g, 69 lb r, 34 c, 278 h. Pres. Julius S. Walsh, V. Pres. & Treas. Jas. Campbell, Sec. Patk. Gorry, Supt. M. J. Moran. Office, 2900 Cass ave.

Citizens' R. R. Co. —m,—g,—lb r,—c,—h. Pres. Julius S. Walsh, V. Pres. J. P. Helfenstein, Supt. Thos. Gartland. Office, Easton ave., Three-mile house.

Forest Park, Laclde & Fourth St. Ry. Co. 5 1/2 m, 4-10 g, 41 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. H. Roach, Treas. Clement M. Scaman. Office, Jefferson ave. & La Salle st.

Lindell Ry. Co. 13 1/2 m, 4-10 g, 45 lb r, 75 c, 407 h. Pres. John H. Maxon, Sec. & Treas. Geo. W. Baumhoff. Office, 2307 Washington ave.

Missouri R.R. Co. 11 1/2 m, 4-10 g, 44 lb r, 50 c, 488 h. Pres. P. C. Mallitt, Sec. Wm. D. Henry, Supt. James F. Davidson. Office, 1,827 Market st.

Mound City Ry. Co. Pres. John Scullin, V. Pres. Frank Carter, Sec. Jas. H. Roach, Treas. C. M. Seaman, Supt. Jas. Scullin. Office, 2,500A St. Louis ave.

Northern Central Ry. Co. 10 1/2 m, 4-9 1/2 g, 50 lb r, 60 c, 280 h. Pres. Julius S. Walsh, Sec. & Treas. Chas. K. Dickson, Supt. John Mahoney, Foreman Wm. Hampton, Cash. T. C. Callahan. Office, 2,041 Spring ave.

People's Line. Pres. Chas. Green, Sec. Jos. Perry, Supt. Patrick Shea. Office, 1,810 Park ave.

Southern Ry. Co. 7-5 m, 4-10 g, 35-52 lb r, 49 c, 250 V. Pres. Harry E. Drew, Sec. J. S. Minary, Man. W. S. Johnson. Office, Broadway, near Osage.

St. Louis R.R. Co. 11 m, 4-10 g, 38-41 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. 6 m, 4-10 1/2 g, 40 lb r, 88 c. Pres. Dwight Tredway, Auditor & Man. A. de Figueiredo, Supt. S. M. Sparklin. Office, Franklin & Channing aves.

Tower Grove & Lafayette Ry. Co. Pres. Chas. Green, Sec. Joseph Perry, Supt. Patrick Shea. Office, 1,810 Park ave.

Union Depot R.R. Co. —m,—g,—lb r,—c,—h. Pres. John Scullin, V. Pres. & Treas. C. M. Seaman, Sec. Jas. H. Roach, Supt. Jas. Scullin. Office, Gravois & Jefferson aves.

Union Ry. Co. 8 m, 4-10 g, 52 lb r, 40 c, 290 h. Pres. Julius S. Walsh, V. Pres. J. P. Helfenstein, Sec. & Treas. C. N. Duffy, Supt. Michael Moran. Office, Kossuth ave., opposite Fair Grounds.

ST. PAUL, MINN.—St. Paul City Ry. Co. 52 m, 4-8 1/2 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 & Cashier G. C. Eddings. Office, cor. Oak, Forbes and Ramsey sts.

ST. THOMAS, CAN.—St. Thomas St. R. R. Co. 1 1/2 m, 3-6 g, 30 lb r, 5 c, 9 h. Pres. Thos. Griffin, Sec. & Treas. Geo. Wegg.

STONEHAM, MASS.—Stoneham St. R. R. Co. 2 1/2 m, 4-8 1/2 g, 28 lb r, 11 c, 30 h. Pres. A. F. Breed, Treas. E. H. Monks, Supt. G. F. Jones. Office, 35 Congress st. Boston. Consolidated with East Middlesex St. Ry. Co. Same officers.

STILLWATER, MINN.—Stillwater St. Ry. Co. STILLWATER, N. Y.—Stillwater & Mechanicsville St. Ry. Co. 4 1/2 m, 4-8 1/2 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. I. Wood.

STROUDSBURG, PA.—Stroudsburg Passenger Ry. Co. 1 1/2 m, 4-8 1/2 g, 28-30 lb r, 3 c, 10 h. Pres. & Treas. J. Lantz, Sec. Jacob Houser.

New Brighton & Onondaga Valley R.R. Co. 1 1/2 m, 4-8 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.

Seventh Ward Ry. Co. Pres. E. F. Rice, Supt. R. Purnell.

Syracuse & Geddes Ry. Co. 2 1/2 m, 4-8 1/2 g, 30-45 lb r, 8 c, 35 h. Pres. H. Nelson Gere, Sec. & Treas. Russelas A. Bonta, Supt. Wm. J. Hart. Gen. offices, 1 Onondaga Co. Savings Bank Building.

Third Ward Ry. Co. Pres. W. B. Cogswell, Sec. & Treas. W. S. Wales.

TAMPA, FLA.—Tampa St. Ry. Co. 2 1/2 m, 3-3 g, 25 lb r, 7 c, 2 dummies. Pres. C. A. Martinez Ybor, Sec. & Treas. G. T. Chamberlain, Supt. C. E. Parcell.

TAUNTON, MASS.—Taunton St. Ry. Co. 4 m, 4-8 1/2 g, 14 c, 45 h. Pres. Wm. C. Lovering, Treas. Henry M. Lovering, Clerk, Orville A. Barker, Supt. Geo. C. Morse.

TERRE HAUTE, IND.—Terre Haute St. Ry. Co. 6 m, 4-8 1/2 g, 38 lb r, 16 c, 8 h, 76 mules. Pres. Jos. Collett, V. Pres. D. W. Mimschal, Sec. J. R. Paddock, Treas. W. R. McKeen, Supt. Jos. G. Elder. Office, 101 N. Ninth st.

TEXARKANA, ARK.—Texarkana St. Ry. Co. 3 m, 3 g, 16 & 24 lb r, 6 c, 10 h. Pres. C. E. Mitchell, Sec. & Treas. Thos. Orr, Supt. B. M. Foreman.

TOLEDO, OHIO.—Toledo Consolidated St. Ry. Co. 21 m, 4-8 1/2 g, 42 lb r, 50 c, 255 h. Pres. & Treas. J. E. Bailey, Sec. A. E. Lang, Supt. John Gilmartin.

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.

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.

TOPEKA, KAN.—Topeka City Ry. Co. 10 1/2 m, 4 g, 25, 28 & 38 lb r, 27 c, 55 h, 64 mu. Pres. Joab Mulvane, V. Pres. D. W. Stormont, Sec. & Treas. E. Wilder, Supt. Jesse Shaw. Office, 116 W. 10th ave.

TORONTO, CAN.—Toronto St. Ry. Co. 60 m. 4-10 g, 30 lb r, 180 c, 850 h. Pres. Frank Smith, Sec. James Gunn, Supt. John J. Franklin. Offices, 94 & 96 King st., east.

TRENTON, N. J.—Trenton Horse R.R. Co. 5 m, 5-2 g, 45 lb r, 12 c, 51 h. Pres. Gen. Lewis Perrine, Sec. & Treas. Lewis Perrine, Jr., Supt. Thomas S. Morris. Office, Clinton & Greenwood aves.

City Ry. Co. 10 m, 5-2 1/2 g, 35 lb r, 24 c, 108 h. Pres. Adam Epton, V. Pres. W. H. Skirm, Sec. H. B. Howell, Treas. & Mang. Director Chas. Y. Bamford. Office, 264 Clinton ave.

TRINIDAD, COL.—Trinidad St. Ry. Co. 1 1/2 m, 3-2 g, 14 lb r, 2 c, 8 mu. Pres. S. H. Jaffa, Treas. T. B. Collier, Sec. R. L. Wootton, Supt. R. L. Pearson.

TROY, N.Y.—Cortland & Homer Horse R.R. Co. 4 m, 4-8 1/2 g, 25-30 lb r, 2 c, —h. Pres. C. H. Garrison, V. Pres. E. A. Fish, Cortland, N.Y., Treas. Jas. M. Milen, Cortland, Sec. S. E. Welch, Cortland.

Troy & Abila Horse R.R. Co. 3.33 m, 4-8 1/2 g, 35-45 lb r, 10 c, 41 h. Pres. Thos. A. Kniekerbaeker, Sec. & Treas. Theo. E. Hasehurst, Supt. W. R. Bean. Office 11 First st.

Troy & Lansingburgh R.R. Co. 2 1/2 m, 4-8 1/2 g, 45 lb r, 95 c, 40 h. Pres. Charles Cleindinhaw, V. Pres. J. B. Parr, Sec. & Treas. Joseph J. Hagen, Asst. Supts. L. C. Brown, and C. H. Smith. 205 Iver st.

URBANA, ILL.—Urbana & Champaign St. Ry. Co. 2 m, 4-8 1/2 g, 33 lb r, 4 c, 20 h. Pres. Wm. Park, Sec. & Treas. Frank G. Jaques, Supt. W. Park.

UTICA, N.Y.—Utica, Clinton & Binghamton St. R. R. Pres. Jas. J. Scollard, Sec. & Treas. Robt. S. Williams. Leased to and operated by Utica Belt Line St. R. Co.

Utica & Mohawk R.R. Co. 3 1/2 m, 4-8 g, 47 lb r, 8 c, 11 h. Pres. Jas. F. Mann, V. Pres. R. W. Sherman, Sec. Wm. E. Lewis, Treas. Geo. D. Dimon. Office, 26 Union Bldg.

Utica Belt Line St. R. R. Co. 20m, 4-8 1/2 g, 32 c, 97 h. Pres. J. Mather, V. Pres. J. W. Boyie, Treas. Chas. W. Mather.

VALEJO, CAL.—Valejo St. Ry. Co. VICKSBURG, MISS.—Vicksburg St. Ry. Co. 1111 City R.R. Co.

VINCENNES, IND.—Vincennes St. Ry. Co. 2 1/2 m, 4-8 1/2 g, 36 lb r, 4 c, 24 h. Pres. & Treas. Fredk. Graeter, Sec. Geo. W. Graeter. Office, Fair Ground ave.

WACO, TEX.—Waco St. Ry. Co. 5 m, 4-8 1/2 g, 18 & 20 lb r, 15 c, 55 h. Pres. E. Rotan, Sec. & Treas. W. R. Kellum, Supt. J. W. Sedbury.

WALTHAM, MASS.—Waltham & Newton St. Ry. Co. 3.4 m, 3-8 1/2 g, 36 lb r, 7 c, 20 h. Pres. R. E. Robbins, Treas. & Supt. Henry Bond.

WASHINGTON, D. C.—Capital, No. 0 St. & So. Washington R.R. 13 1/2 m, 4-8 g, 35 lb r, 45 c, 176 h. Pres. C. White, Sec. & Treas. W. E. Boughton, Supt. Andrew Glass.

Anacostia & Potomac River Ry. Co. 3 m, 4-8 g, 37 lb r, 9 c, 24 h. Pres. H. A. Griswold, Sec. & Treas. J. B. Pitcher. Office, Anacostia, D. C.

Columbia R.R. Co. 5m,—g,—lb r, 23 c, 71 h. Pres. H. A. Willard, Sec. & Treas. Wm. H. Claggett, Supt. Elbert Claggett. Office, 15th st. and Boundary N. E.

Metropolitan R. R. Co. 19.44 m, 4-8 1/2 g, 38 lb r, 113 c, 400 h. Pres. George W. Pearson, V. Pres. A. A. Wilson, Sec. & Treas. Wm. J. Wilson, Supt. L. W. Emmart. Office 2411 P st. N. W.

WATERLOO, IA.—Waterloo St. Ry. Co. 2 m, 3 g, 20 lb r, 2 c, 1 baggage wagon, 9 h. Pres. W. H. Hartman, V. Pres. & Supt. J. A. Foye, Sec. & Treas. T. N. Klotz.

WEST HAVEN, CONN.—New Haven & West Haven Horse R.R. Co. 7 m, 4-8 g, 50 to 60 lb steel r, 24 c, 115 h. Pres. Geo. R. Kelsey, Sec. Sam'l L. Smith, Treas., Supt. & Gen. Man. W. W. Ward.

WESTPORT, CONN.—Westport & Saugatuck Horse R.R. Co. 1 1/2 m, 4-8 1/2 g, 42 lb r, 3 c, 6 h. Pres. A. S. Hurlbutt, Sec. & Treas. B. L. Woodworth, Supt. E. S. Downes.

WHEELING, W. VA.—Citizens Ry. Co. 10 m, 5-2 1/2 g, 45 lb r, 16 c, 60 h. Pres. Dr. Geo. B. Caldwell, Sec. Frank P. Hall, Supt. Michael I. Outus.

Wheeling & Elm Grove R.R. 7 m, 4-8 1/2 g, 30 lb r, 12 c, 4 Baldwin Motors. Pres. J. D. DuBois, Sec. E. J. Rutter, Supt. C. Hirsch. Office, 16th st.

WICHITA, KAN.—Wichita City Ry. Co. 18 m, 3-6 g, 20 & 25 lb r, 50 c, 800 h & mu. Pres. G. L. Rouse, V. Pres. B. H. Campbell, Sec. & Man. G. M. Dickson, Treas. J. O. Davidson. Office, 121 N. Market st.

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 R.R. Co. 2 1/2 m, 4-8 1/2 g, 20-34 lb r, 3 c, 12 h. Pres. Geo. W. Kirkendall, Supt. A. S. Orr, Sec. & Treas. Geo. Loveland. Capital, \$62,675.

WILLIAMSPORT, PA.—Williamsport Pass. Ry. Co. 3 1/2 m, 4-8 1/2 g, 36 lb center bearing r, 7 one h c, 26 h. Pres. Robt. P. Allen, V. Pres. Henry C. Parsons, Sec. R. J. C. Walker, Treas. and Gen. Man. S. A. Filbert. Office, 907 W. 4th st.

WILMINGTON, DEL.—Front & Union St. Pass. Ry. Co. 1 1/2 m, 5-2 g, — lb r, 7 c, 22 mu. Pres. Geo. W. Bush, Supt. Sam'l A. Price, Treas. E. T. Taylor. Office, Front & Union sts.

Wilmington City Ry. Co. 6 1/2 m, 5-2 g, 47 lb r, 23 c, 81 h. Pres. W. Canby, Sec. & Treas. John F. Miller, Supt. Wm. H. Burnett. Office, Delaware ave. & Dupont st.

WINDSOR, CAN.—Sandwich & Windsor Passenger R.R. Co. 12 Windsor Electric St. Ry. Co. 1 1/2 m, 1 motor, 2 cars. Van Depoele system. Pres. W. M. Boomer, Sec. & Treas. A. H. Joseph. Office, 19 Sandwith st., W.

WINFIELD, KAN.—Union-St. Ry. Co. 1 1/2 m, 4 g, 28 lb r, 2 c, 8 mu. Pres. A. J. Thompson, Sec. J. R. Clark, Treas. John A. Eaton. Capital, \$25,000.

WINNIPEG, MANITOBA, CAN.—The Winnipeg St. Ry. Co. 5 m, half single, half double, 4-8 1/2 g, 35 lb r, 15 c, 15 sleighs, 100 h. Pres. Jas. Austin, Sec. & Mangr. Albert W. Austin, Supt. Geo. A. Young. 2-6

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.

WOBURN, MASS.—No. Woburn St. R.R. Co. 4.52 m, 4-8 1/2 g, 35 lb r, 42 lb T r, 9c, 26 h. Pres. Amos F. Breed, Treas. Frank H. Monks, Supt. Gilman F. Jones. Office, 35 Congress st., Boston. Consolidated with East Middlesex St. Ry. Co. Same officers.

WORCESTER, MASS.—Worcester St. Ry. Co. 7 1/2 m, 4-8 1/2 g, 43-45 lb r, 32 c, 150 h. Pres. Geo. H. Seeley, Treas. H. S. Seeley, Supt. J. N. Akerman, Asst. Supt. I. B. Chapin. Office, 15 Market st.

Citizens' St. Ry. Co. 14 1/2 m, 4-8 1/2 g, 35 lb r, 57 c, 270 h. Pres. Chas. B. Pratt, Sec. & Treas. H. S. Seeley, Supt. J. N. Akerman, Asst. Supt. I. B. Chapin. Office, 15 Market st.

WYMORE, NEB.—Wymore and Blue Springs Ry. Co. 3 1/2 m, 3-6 g, 4 c, 10 h. Pres. J. H. Reynolds, V. Pres. Ben Reynolds, Sec. & Treas. E. P. Reynolds, Jr., Supt. A. N. Bradford.

YONKERS, N. Y.—Yonkers R. R. Co. 5 m, 4-8 1/2 g, 42-48 lb r, 10 c, 70 h. Pres. D. N. Stanton, Sec. John F. Brennan, Treas. D. Perry Stanton. Office, 83 Main st.

YORK, PA.—York St. Ry. Co. 1 1/2 m, 4-8 1/2 g, 38 lb r, 6 c, 11 h. Pres. W. H. Lannius, Sec. D. K. Trimmer, Treas. C. S. Weiser. Authorized capital, \$50,000.

YOUNGSTOWN, O.—Youngstown St. R.R. Co. 2 1/2 m, 3 g, 24 & 27 lb r, 6 c, 18 h. Pres. John R. Davis, Sec. & Treas. Alfred Smith.

ZANESVILLE, O.—Zanesville & McIntire St. Ry. Co. 3 m, 3-6 g, 33 lb r, 12 c, 51 h & mu. Pres. F. M. Townsend, Sec. W. C. Townsend, Treas. O. H. Townsend.

CABLE RAILWAYS.

BROOKLYN, N. Y.—Brooklyn Cable Co. CHICAGO, ILL.—Chicago City Ry. Co. CINCINNATI, O.—Mt. Adams & Eden Park Inclined R. R. Co.

DENVER, COL.—Denver Tramway Co. HOBOKEN, N. J.—No Hudson Co. Ry. Co. Elevated.

KANSAS CITY, MO.—Kansas City Cable Ry. Grand Ave. Ry. Co. Corrigan Consolidated St. 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 on Tenth ave.

OMAHA, NEB.—Cable Tramway Co. of Omaha. OAKLAND, CAL.—Oakland Cable Ry. Co. PEORIA, ILL.—Central Horse & Cable R. R. Co. PHILADELPHIA, PA.—Phila. Traction Co. SAN FRANCISCO, CAL.—California St. Cable R. R. Co.

Market St. Cable Ry. Omnibus R. R. & Cable Co. Clay St. Hill R. R. Co. Geary St. Park & Ocean R. R. Co. Sutter St. R. R. Co. Telegraph Hill St. Ry. Co.

ST. LOUIS, MO.—St. Louis Cable & Western Ry. Co.

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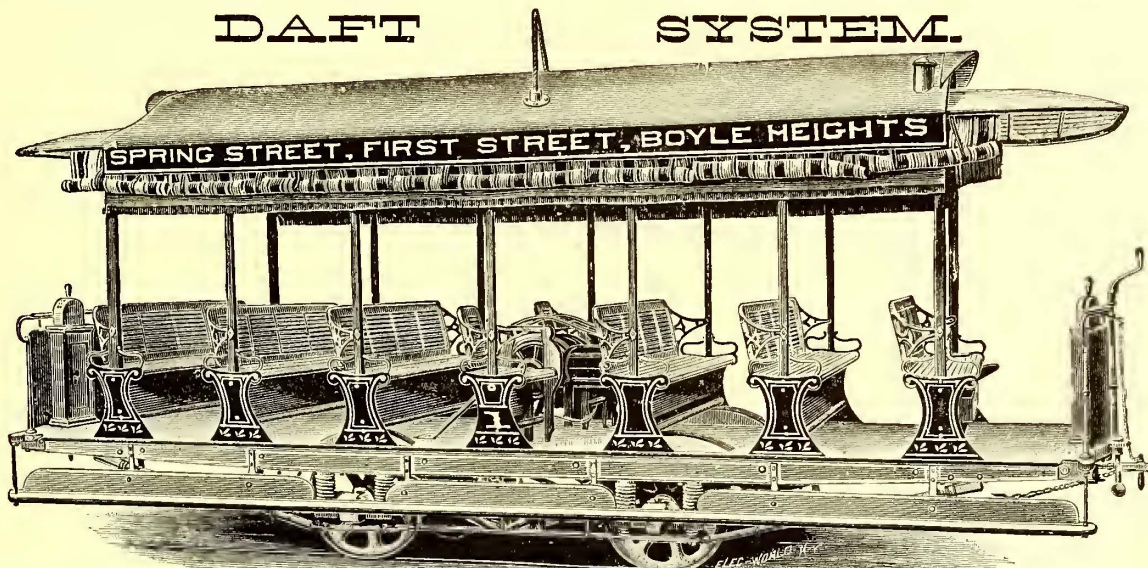
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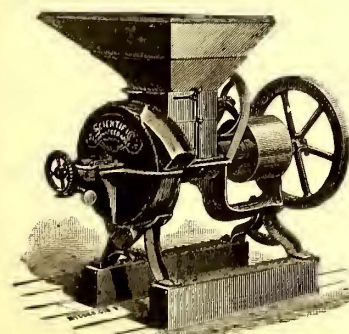
We are prepared to equip railways with our electric system and supply Power and Light machines at the shortest notice. The **ONLY** street railway in practical and economical operation by electricity in America is run by our system. We guarantee the successful operation of our system. Heaviest grades 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, 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, eight 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.**

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DENVER, COL.—Denver Tramway Co.
DETROIT, MICH.—Detroit Electric Ry. Co.
KANSAS CITY, MO.—Kansas City Electric Ry. Co.
LOS ANGELES, CAL.—Los Angeles Electric Ry. Co.
MONTGOMERY, ALA.—Capital City Electric St. Ry. Co.
PORT HURON, MICH.—Port Huron Electric Ry. Co.
SCRANTON, PA.—Scranton Suburban Ry. Co.
WINDSOR, CAN.—Windsor & Walkerville Electric Ry. Co.

NEW ROADS.

ALTON, ILL.—Alton Imp't Co. To operate h. or cable rys. Wm. Armstrong, Julius Raible & others, incorporators. Capital, \$25,000.
ALLEGHENY, PA.—Observatory Hill Pass. Ry. Co. 4 m, 5-2 1/2 g, 52 lb. Johnson steel r, 4 c, electric motors. Capital, \$125,000.
ALLEGHENY RAPID TRANSIT CO. From Northside bridge to California avenue.
ANSONIA, CONN.—Co. organized to build an electric rr. on Van Depoele system from Ansonia to Birmingham and Derby, 3 1/2 m. Will use water power.
ASHEVILLE, N. C.—Asheville Imp't & St. R. R. Co.
ANSBURY PARK, N. J.—Seashore Electric Ry. Co. Henry S. Iselin and others incorporators. Capital, \$100,000.
ATLANTON, GA.—Atlantion Rapid Transit St. & Road Ry. Co. Mechanical traction. John Price, J. W. Parker and others incorporators. Capital, \$600,000.
ATHENS, TENN.—Athens Mineral Land & Imp't Co. are ready to receive bids for a new railroad which they will build.
ATLANTA, GA.—Harry Hill is organizing a scheme for a belt st. ry.
E. C. Peters will build a dummy line.
East Atlanta Land Co. will build a dummy line.
BAITIMORE, MD.—Baltimore, Brooklyn & Cedar Hill Ry. Co. 9 m, 5-2g, 30 lb steel r, 20 c, 10 h. Work has begun and the road will be opened Sept. 10. Will run from Baltimore to Cedar Hill Cemetery, in Anne Arundel co, via Light st. bridge and the town of Brooklyn. Capital, \$50,000 and \$50,000 1st mortgage bonds. Office, 305 St. Paul st. Pres. C. Orrick Swann, Sec. & Atty. S. C. Long, Treas. Levi J. Condon, Supt. I. M. Thompson.
BAYONNE, N. J.—Elec. ry. talked of.
BELLEVUE, PA.—Elec. elevator and rr. Elevator will run to height of 90 ft., from there plane will run back 1/2 m to center of town. Now building.
BANGOR, ME.—Electric ry. proposed, in which D. F. Longstreet and Joshua W. Wilbour of Providence, R. I., are interested.
BIDDEFORD, ME.—Biddeford & Saco Horse R. R. To be operated by animal, electric or cable power.
BINGHAMTON, N. Y.—Van Depoele Co. will supply plant for new road; 6 c.
BIRMINGHAM, ALA.—Birmingham & Jones Valley St. R.R. 6 m, 45 lb, steel r. Heiflin & Knox received proposals.
Smith & Eastman have made surveys for electric road to run 3 m from the city to their real estate near North Birmingham.
Western Valley St. Ry. Co. 4 m, 4-8 1/2 g, 24 lb r, 6 c, 20 mu; but will likely change motive power ultimately. Work to be commenced in 60 days and road opened in 3 or 4 months. Capital, \$10,000. Pres. J. C. Westbrook, V. Pres. W. E. Berry, Gen. Man. S. Torrey.
BOSTON, MASS.—West End St. Ry. Co. H. M. Whitney, Asa P. Potter, Eben D. Jordan and others incorporators. About 8 m, 4-8 1/2 g. Pres. H. M. Whitney, Treas. G. D. Braman. Hope to use electricity as motive power. Work to be commenced this summer. Capital, \$80,000.
Suburban St. Ry. Co., proposes to lay tracks through Park, Beacon, Arlington and Marlboro streets to West Chester Park.
BRIDGETON, N. J.—Elec. ry. will be built here.
BRISTOL, VA.—Bristol-Goodson St. Ry. Co. has been incorporated.
BROOKLYN, N. Y.—Annex St. Ry. Co. in progress, to be completed soon. Pres. F. M. Delano, New York, V. Pres. H. H. Adams, Brooklyn. Treas. Philip Richardson, N. Y. Office, 204 Montague st., 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. Malcolm, Wm. Ziegler, Wm. J. Gaynor, Henry H. Adams, Jas. Ryan, Petter Sutter and Patk. McCanna, Directors. Paid-up capital, \$100,000.
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. 1/2 m, 4 g, about 50 lb r, 6 c.
Capitalists interested in Calvary Cemetery road are building from Ash street to Park avenue. Pres. John McKewen, Sec. Michael Just, Treas. John R. Connor, Man. D. W. Sullivan.
A new road from Prospect park to Newtown creek, Greenpoint, is expected to be in operation before the close of summer.
Line from Brooklyn to Jamaica, 7 m. To use electricity, Van Depoele system.
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.

BRUNSWICK, GA.—
BUTE, MONT. T.—Elec. ry. To be built in 4 months. Incorporators, Willard Bennett, Nelson Bennett and S. E. Larabee.
CALERA, ALA.—J. D. Hardy is interested in a new line that is projected.
CARBONDALE, PA.—Co. formed for an elec. ry.
CHARLESTON, W. VA.—Glenwood Co. will lay out a town near the city and ultimately construct a road 2 1/2 m long. Supt. Benj. Brown. Capital, \$35,400.
CHATTANOOGA, TENN.—North Side St. R. R. Co. Incorporators, G. W. Thompson, Geo. W. Ochs and others.
City St. Ry. Co. has been organized by John T. Williamson and others.
CHETOPA, KAN.—Chetopa St. Car Line Corporation. 2 m. Pres. Geo. D. Boon, Sec. W. L. Sly. Capital, \$5,000.
CHESAPEAKE, O.—Chesapeake St. Ry. Co. has been incorporated.
CHICAGO, ILL.—The Crosstown Pass. Ry. Co. of Chicago, 30 m, 4-8 1-2 g, 45 lb r, 75 c, 500 to 800 h, Pres. John J. Curran, Treas. Geo. P. Bunker, Sec. James A. Taylor. Capital stock, \$1,000,000. Gen. office, room 18, No. 164 Washington st. Time of commencement of work undecided.
Lakeside City St. Ry. Co. To operate h. or dummy roads in Chicago and its suburbs. Incorporators, Sam'l P. McConnell, C. H. Merrill and Theo. P. Elliott. Capital, \$250,000.
CHICOPEE, MASS.—New company started under the leadership of Haines Bros. Capital, \$25,000. Work to begin soon. Line to extend from Chicopee Falls through Chicopee Center to the point where the boundary line between Chicopee and Springfield crosses the river road. About 4 m, 4-8 1/2 g, not less than 35 lb r. Chas. D. Haines and Geo. W. Stetson of N. Y. City are the largest stockholders.
CLAY CENTER, KAN.—Clay Center City Ry. Co. 5 m, standard g, 25 lb r, 10 c, steam or elec. motor, 4 motors. Capital, \$100,000. Work was to be commenced this month, and 1 m to be in operation by July 10, balance by Dec. 31. Pres. G. M. Stratton, V. Pres. J. M. Frank, Sec. & Treas. Wm. Sharpe, Gen. Man. O. E. Walker. Office, 368 Lincoln ave.
COLUMBUS, MISS.—City R.R. Co. Capital, \$23,000. Pres. R. W. Banks, Sec. & Treas. E. T. Sykes. Will build at once.
COLUMBUS, O.—Third & Schuller St. R. R. Co. Franchise granted by City Council June 6. Cars must be running within 2 years. 3 1/2 m, 5-2 g. May use electricity. Capital, \$75,000. Work will begin as soon as stocks is taken. Pres. P. E. Blesch, V. Pres. H. Mithoff, Sec. C. Herman, Treas. J. A. Kreiner.
COVINGTON, GA.—W. C. Clark & Co. incorporators and owners. 1 m, 20 or 30 lb r, 2 pass. c, 2 flat c, pass. cars for 1 h, 6 to 8 mu. or h.
CROOKSTON, MINN.—Crookston St. Ry. Co. Capital, \$100,000. J. E. Sawyer and others incorporators. Line to be built this year.
DALTON, GA.—Dalton St. Ry. Co. Bids invited for 1 on, cars, etc. T. R. Jones, Secretary of Board of Directors.
DALLAS, TEX.—Dallas & Oak Cliff Elevated R. R. Co. Capital, \$100,000, incorporated by T. L. Marsalls, Thos. Fleid and others. Cars will be operated by cable or electricity.
DANVILLE, VA.—L. C. Berkeley, W. N. Ruffin, Albert Gerst and others are raising a bonus for whoever will build a road, and the town makes an offer of exemption from taxation.
DANBURY, CONN.—Danbury St. Ry. Co. 4m, between Danbury and Bethlechem. Work in progress.
DAYTON, O.—Dayton Terminal & Belt R. R. Co. Incorporated by J. O. Arnold and others. Capital, \$10,000.
DECATUR, ALA.—Decatur Ry. Co. Incorporated by W. G. Wharton, H. G. Bond, W. E. Forest, E. E. Greenleaf and J. D. Roquemore.
DENVER, COL.—Denver Cable Ry. Co. Capital stock, \$500,000. Jas. McCord and others incorporators.
DETROIT, MICH.—East Detroit & Grosse Point Electric Ry. Co. 8 m, 4 motor e, 2 motors, 3 open c. Will build at once.
DULUTH, MINN.—Duluth Highland Cable Ry. Co. Propose to build to the hill top unless the old Co. after notice build there. H. W. Bradley and Wm. W. Billson, of Duluth, and J. A. Willard, of Mankato, are interested. Capital, \$200,000.
Minnesota Point St. Ry. Co. Capital, \$100,000. Reginald W. Petre is one of the incorporators.
DURHAM, N. C.—Durham St. Ry. Co. 8 m, 4-8 1/2 g, 16 lb r, 16 c, 25 h. and mu. Pres. W. T. Blackwell, V. Pres. J. S. Carr, Sec. & Treas. R. D. Blackwell. Construction committee, R. D. Blackwell, W. W. Fuller, J. W. Blackwell. Capital stock, \$25,000.
EAST ST. LOUIS, MO.—East St. Louis Motor Ry. incorporated by H. D. Sexton, Henry O'Hara and Wm. H. Hill. Capital, \$200,000.
EAST PORTLAND, ORE.—Sellwood & Vancouver Ry. Co. Motors.
Willamette Bldge Ry. Co.
Star St. Ferry Co.
EL DORADO, KAN.—Expect to finish road by middle of summer. Sec. R. H. Hazlett.
ELIZABETH, N. J.—Henry H. Isham of New York and Fredk. L. Heldritter are about to build a crosstown road from Fourth ave. to the Slinger factory and Elizabethport station.
ELMIRA, N. Y.—Articles of Incorporation signed by J. H. Clark, John Brand, M. H. Arnot, D. C. Robinson and others. Location, Fifth ward. Capital, \$20,000. Will use horses. Hope to complete road in 2 months.
EUFULA, ALA.—City of Eufaula St. Ry. Co. 4 m, 4-8 1/2 g, 20 lb r, 4 regular cars and several excursion flats, 12 h. Will commence work about July, and the road will be opened in September. Pres. E. B. Young, Sec. Geo. McCormick, Treas. Eli Shorter. Capital \$25,000.
FINDLAY, O.—Elec. ry. Now building.
FLUSHING, N. Y.—Flushing & College Point

Surfac R. R. Co. Pres. Jos. Dykes, Sec. Arthur Herries, Treas. Henry Clement. Applied for a charter to run a line from Flushing to College Point. Electricity may be used.
A company of outside capitalists has applied for a similar franchise to the above.
FRAMINGHAM, MASS.—Framingham St. Ry. Co. So. Framingham to Framingham Center. Principal stockholders: Richard S. Brown, Chas. D. Haines, Geo. W. Stetson, Andrew G. Haines and Frank W. Stanley, all of New York. Capital \$35,000. Work begins soon. Main line 4 m, with a branch to Middlesex South Agricultural grounds, another to the Para Rubber Shoe Co.'s works, and another to the State muster field, 10 c. Treas. Geo. W. Stetson, Clerk Ira B. Forbes, Supt. of Construction R. S. Brown.
Framingham Center Ry. Co. Capital, \$25,000. 2 1/2 m, 4-8 1/2 g.
FORRESTVILLE, GA.—A. W. Ledbetter is interested in the co.
FORT SMITH, ARK.—Belt Line St. Ry. Co. Has been chartered.
Sulphur Springs Ry. Co. Has been chartered.
GADSDEN, ALA.—Gadsden Land & Imp't Co. will build a dummy rr. via Bellevue to Black Creek Falls, 2 m from city.
GAINESVILLE, FLA.—Gainesville City & Suburban Ry. Co. 6 m, 4-8 1/2 g, prob. about 20 or 24 lb. r, motive power undecided. Are just beginning to build. Pres. W. H. Robertson, Gen. Man. R. L. Robb.
GRAND FORKS, DAK.—Secretary of State McCormack, of Bismarck, has secured franchise, and is said to be backed by Duluth and New York capitalists.
GRAND ISLAND, NEB.—Grand Island St. Ry. Co. Expect to have 3 1/2 m of track in operation by July 4, and 4 m this year. 4 6 g, 20 lb steel T r, oak ties, 5 c, 30 h. Will change to electricity when they can get a cheap and practicable system. Capital stock, \$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. Hage.
GRATIOT, MICH.—Gratiot Elec. Ry. Co. 1 1/2 m, 16 lb steel r. Capital, \$25,000. Pres. Wm. F. Botsford, V. Pres. John F. Talbot, Sec. J. H. Talbot, Treas. Chas. A. Ward.
GREENVILLE, TEX.—Greenville St. Ry. Co. organized. Capital, \$50,000.
GREENVILLE, ALA.—J. T. Perry will build a st. ry.
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.
HARTLAND, KAN.—Hartland St. Ry. Co. 2 m, narrow g, light r, 2 c, 1 mu. Pres. E. S. Snow, Sec. & Treas. Logan A. Garten, Supt. W. S. Handy. Capital stock, \$5,000.
HASTINGS, NEB.—Hastings Imp't Co. 3 m, 5 c ordered. Have ordered 3 m more track.
HARRISBURG, PA.—Electric road, Van Depoele system, 3 1/2 m, to Steelton.
HAWAIIA, KAN.
HELENA, ARK.—Helena St. R. R. Co. Capital, \$30,000. Pres. Greenfield Quarles, Sec. D. T. Hargraves, Treas. S. H. Horner.
HOLDEN, MO.—Franchise granted to Wm. Steele, J. S. Johnson, John T. Bruce, J. N. McDonald and Thos. C. Carter. To run on Olive st. from 2d to 14th, to Main, to 2d, to starting point.
HOPKINSVILLE, KY.—Hopkinsville St. Ry. Co. has been incorporated.
HUDSON, N. Y.—To be built just as soon as authority is granted, and cars prob. be running by July 1. To cost \$20,000. Will form a belt line in the upper part of the city, and connect the two railroad depots. Mr. Haddock chiefly interested.
HUNTINGTON, N. Y.—3 m, from the Long Island 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, \$30,000.
HUNTINGTON, W. VA.—J. L. Caldwell will build a street railway here.
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. Robinson.
ITHACA, N. Y.—Haines Bros. are building here, and will use the Daft system, under contract with the Safety Electric Ry. and Power Co.
JACKSON, TENN.—Jackson & Suburban St. Ry. Co. organized, capital, \$50,000. Pres. & Gen. Man. C. P. Heath, Sioux City, Ia.; V. Pres. J. H. Duke; Sec. R. B. Crawford, Wayne, Neb.; Treas. John L. Wisdom. Will be in operation by middle of Sept.
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.
KANSAS CITY, MO.—Grand Avenue Ry. Co. (For officers see Directory). Now constructing: 8 m, double track cable road.
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. Line to be completed this year.
Citizens' Cable Ry. Co. organized; capital, \$750,000. First-class road, to extend from Sixth street south on Holmes street to a point 1/2 m south of southern city limits. A. W. Armour, T. A. Harris, Bernard and Thos. Corrigan and E. W. Lawless are the principal stockholders.
Elec. ry. Now building; \$25,000 expended already. Council has repealed franchise of co. whose tracks

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PUBLIC BENEFACTORS.—Burlington Free Press and Times.

ACCOMPLISHING WHAT FEW MEN WOULD UNDERTAKE TO DO.—Rutland Herald.

THEIR REPUTATION AS BUILDERS OF STREET AND SHORT LINE RAILWAYS HAS BECOME NATIONAL.—New York World.

THEIR WORK IS A GREAT TRIUMPH OF CONSTRUCTIVE GENIUS AND FINANCIAL SKILL.
—Syracuse Herald.

THEY NOT ONLY MAKE HAY WHILE THE SUN SHINES, BUT THEY SEEM TO BUILD RAILROADS AFTER THE ORB OF DAY GOES TO SLEEP IN THE WEST.—Newburg News.

THESE GENTLEMEN, AS THEIR WORK AND HISTORY SHOW, ARE THE MOST EMINENT IN THE UNITED STATES ENGAGED IN THEIR PURSUIT.—Newburg Journal.

the elec. co. used, and the st. may now be taken up for a cable line. Supt. — Henry. 7

KEYPORT, N. Y.—Co. will build at once, under the new law granting turnpike companies the right to lay horse railroad tracks on their roads.

KNOXVILLE, TENN.—Knoxville & Edgewood Ry. Co. Will build at once, and open in the fall, 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 rail 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. Incorp'd by F. A. R. Scott, J. H. Cruze and others to build a dummy rr. 6
Knoxville Belt Ry. Work to begin at once. Capital, \$100,000. Pres. W. R. Tuttle, Sec. J. W. S. Frieron, Treas. Sam'l House. 5
Co. chartered by P. Kern, L. H. Hamilton, S. B. Luttrell and others. 7

LAKE CITY, FLA.—H. S. Haines, Gen. Man. Sav., Fla. & W. Ry. and all the Plant system in Fla., has right of way.

LAKE SIDE, O.—Contracts awarded for elec. ry. 3 m, 2 open c. Prob. use overhead conductors. 7

LARUDO, TEX.—Albert McLean and others will build a st. ry. here. 6

LEXINGTON, GA.—Dummy rr. will prob. be built to Crawford, 3 miles. 7

LEAVENWORTH, KAN.—Leavenworth St. Ry. Co. Capital, \$500,000. Motor line, between the Penitentiary, Soldier's Home, the city of Leavenworth and Fort Leavenworth. Expected that road will be in operation by 4th of July. Capt. M. H. Inslay, Paul E. Hlavens and other incorporators. 5

LIMA, O.—Lima St. Ry. & Power Co. Pres. B. C. Fairrot. Electric road, on Van Depoelle system. Work has begun. 3 m, 6 c. 6

LINCOLN, NEB.—Elec. motor co. From city to stockyards. Capital, \$100,000. 6

So. Lincoln St. Ry. Co. Incorporated. To build to Insane Asylum, Penitentiary and other points within 5 miles of city. Capital, \$25,000. J. H. McClay, S. W. Burnham and C. D. Hyatt are among the incorporators. 7

LONG ISLAND CITY, N. Y.—Riker Avenue & Sandford's Point R. R. Co. 2 m, 4-8½ g, 47 lb steel r. Will have no cars of its own, but will be operated by Steinway & Hunter's Point R. R. Co. Horses will first be used, afterwards electrically. Road is located half in Long Island City and half in Newtown, running along Bowers Bay beach. Pres. J. H. Hempstead, Yonkers, Sec. & Treas. Oscar R. Steins. Capital \$20,000. Work in progress. Office, 107 E. Fourteenth st., New York. 4

LOS ANGELES, CAL.—The American Rapid Transit Co. has been formed here, capital, \$500,000, to build from Pasadena to Monica, under the Enos elevated electric system. 4

S. O. Brown will build a road 6½ m long to Glendale. 5

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

MANSFIELD, O.—Mansfield Electric St. Ry. Co. Netlet & Oothout of New York are now building the road. 1½ m, 5 c. motors under cars, 4-8½ g, 43 lb. side bearing r. In operation July 4. Daft system. Extensions will be built during the summer. Capital, \$75,000. Pres. Edw. Oothout, New York, V. Pres. Huntington Brown, Sec. C. E. McBride, Treas. M. Van Hensselaar, New York, Engr. Knight Netlet, Supt. W. G. Root. 7

MARYVILLE, TENN.—Capital, \$5,000. Dr. John P. Blankenship, Rev. P. M. Bartlett, W. T. Parkham and others are interested. 6

MCKESPORT, PA.—McKeesport Pass. Ry. Co. 6 m. Commenced work this spring. Pres. J. C. Smith, Sec. & Treas. E. P. Woods. 5

MEMPHIS, TENN.—Union St. Ry. Co. 2
East End St. Ry. Co. Incorporators, Wm. Sneed, H. M. Neely and others. 5

Line being built to Lake Park, 6 m. 3 Baldwin motors and 6 c to begin with. Capital, \$100,000. Cars running by Aug. 1. Pres. T. J. Latham, V. Pres. J. A. Van Hoose, Sec. & Treas. T. A. Lamb. 7

MIDDLETOWN, CONN.—Electricity. Daft system. 7

MILWAUKEE, WIS.—Milwaukee Cable Ry. Co. Incorporated by Wm. P. McLaren, Geo. W. Mitchell and John A. Hines; capital, \$300,000. To build from center of city to western limits. 7

Chicago Cable Ry. Co. ask for a franchise from Broadway at Wisconsin st., via Onocida, Wells, Sixth, and Vilet to the city limits. 7

MILFORD, MASS.—New road to be built.

MINNEAPOLIS, KAN.—Co. to build a surface rr. or dummy line, 3¼ m, forming a circle. \$20,000 paid in. 5

MINNEAPOLIS, MINN.—Minneapolis West Side St. Ry. Co. Incorporators: Randolph Burgess, John T. Byrnes, A. G. Chamberlain, H. J. Mitchell and Matthew Walsh, all of Minneapolis. Capital stock, \$200,000. From Lake Calhoun to Lake street bridge, with a branch to Lakewood cemetery. 5

MINNEAPOLIS, KAN.—Co. to build a surface rr. or dummy line, 3¼ m, forming a circle. \$20,000 paid in. 5

MUNCIE, IND.—Elec. ry. 7
MURFREESBORO, TENN.—Murfreessboro St. R. R. Co. Capital \$10,000. Incorporators, J. L. McKnight, W. M. Bell and others. 5

NASHVILLE, TENN.—West Nashville Pass. Ry. Co. Has been chartered by S. W. Steel, Volney James, Geo. K. Whitworth, R. T. Noel, L. H. Davis, J. H. Moore and others. 6
Hyde's Ferry St. R. R. Co. Incorporators, G. L. Ellinger and others. 5
Lake R. R. Co. has been organized by John Lelley, John McEwen and others. 6
Mansfield & University St. R. R. Co. 1½ m, to cost \$10,000.

North Nashville St. Ry. Co. J. G. Jones, Theo. Selfred, A. W. Willis and others incorporators. 6
Charter for a line leading out the Charlotte pike, 7
Main St. & Gallatin Turnpike R. R. Co. organized. 7

E. T. Holman and others have charter for dummy rr. from Nashville to West Nashville, 3½ m. Will begin active work as soon as right of way is obtained from Nashville City Council. 7

Overland Ry. Co. 9½ m, 4-8½ g, 45 lb Johnson steel r, 6 c, 3 steam motors. Work commenced in March, and the road will be opened between the 10th and 15th of July. Capital, \$500,000. Pres. O. F. Noel, Sec. & Treas. Jas. E. Caldwell. a 7
NEW BRUNSWICK, N. J.—Elec. ry. contemplated. 7

NEW CASTLE, PA.—New Castle St. Ry. Co. Organized, but mode of propulsion not yet determined. Sec. Chas. S. Wallace. 3

NEW HAVEN, CONN.—Cable road projected by Frank Blake. 7

NEW LONDON, CONN.—New London Horse Ry. Co. John Tebbets, Incorporator. 11

NEWTON, MASS.—Newton St. Ry. Co. 8 m, 4 8½ g, 6 c, electric motors, 35 lb r. Pres. Horace B. Parker, V. Pres. J. W. Stover, Treas. & Clerk Herbert C. Pratt. Capital stock, \$50,000. Office, Newtonville. Work will commence when Aldermen grant location. b 7

NEW YORK, N.Y.—St. Nicholas and Crosstown R. R. Co. (Incorporated and franchises partly granted.) 11

North & East Rivers Ry. Co. To run through Fulton and Cortlandt streets, operated by Bentley-Knight electric 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. 4

New York Underground R. R. Co. Pres. Edw. Lanterbach, 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 Ferris R. R. Co. has been incorporated, with capital stock of \$50,000. Chas. W. Hough and others incorporators. 6

Twenty-eighth & Twenty-ninth St. R. R. Co. Secured franchise by agreeing to pay city 29.2 per cent of gross receipts for first five years and 31.2 per cent thereafter. Pres. Jona. N. Crane, V. Pres. Edw. P. Beach, Sec. Fredk. A. Bartlett, Treas. John H. Davis. 7

NORRISTOWN, PA.—Citizens' Pass. Ry. Co. 4 m. Will connect the hospital, Montgomery Cemetery and railroad stations. 5

NORFOLK, NEB.—Norfolk St. R. R. Co. Capital, \$50,000. Incorporators, J. S. McClary, W. A. Rainbolt and others. 5

OVERLIN, KAN.—Overlin St. Ry. Co. Capital, \$50,000. R. A. Marks, Everton Doom and others incorporators. 5

OLATHIE, KAN.—Mr. Ogg has organized a co. to run a line between the Fort Scott and Southern Kansas depots. 5

OMAHA, NEB.—Cable line to be built by a Kansas City syndicate. Intended to have 3 m. In operation by next fall.

Lake Manawa R. R. Co. will run from Broadway down Eighth street and then off in the direction of the Lake. Directors: Samuel Haas, J. J. Brown, D. W. Archer, George F. Wright, E. A. Benson, George Keeline, N. Merrlam, of Omaha; H. H. Hay, of Minneapolis; T. J. Evans and Spencer Smith. 1

E. A. Benson, W. L. McEague and C. E. Mayne have formed a company which has received permission to build on Thirty-sixth street, Hamilton street and Institute boulevard; also on Lowe and Mercer avenues to Ylsta street; also on Leavenworth street, Lincoln place and west of Walnut hill to Institute boulevard. Work has begun. 4

Omaha & So. Omaha St. Ry. Co. Capital, \$1,000,000. Cable road. Wm. A. Paxton, John E. Creighton and Isaac E. Corydon are among the incorporators. 5

Omaha & Southwestern St. R. R. Co. Capital \$15,000. Incorporators, H. Ambler, S. J. Howell and others. 6

Omaha Motor Ry. Co. Incorporated. Capital, \$500,000, of which \$50,000 to be paid in before commencement of business. Samuel D. Mercer, Clifton E. Mayne and others incorporators. Now laying track. 7
Line to asylum and penitentiary. Ex-Gov. Dawes, Senator S. W. Burnham, J. M. Hoffman and others are interested. 6

So. Omaha St. Ry. Co. 5 m, 4 8½ g. Will use h power. Work to begin this fall, and the road will 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 Johnson girder r, cable power. Capital, \$1,500,000. Work to commence very soon. Pres. Guy C. Barton, V. Pres. S. H. H. Clark, Treas. Frank Murphy. 7

ORANGE, N. J.—Orange Crosstown and Orange Valley St. Ry. Co. 2½ m, 5-2 g, 35 lb Johnson girder rail, 5 Stephenson cars, are trying Daft electric system. Pres. Francis M. Eppley, of Orange, Sec. Jas. E. Brown of Elizabeth, Treas. Henry W. Pope of Elizabeth, Capital stock, \$20,000; bonds, \$20,000. 3

ORLANDO, FLA.—Orlando & Winter Park Ry. Co. 6 m, 4-8½ g, 25 lb r, 4 c, 2 motors. Pres. J. R. Mizell, Sec. Geo. R. Newell, Treas. J. S. Capen, Supt. J. H. Abbott. Work has begun, and the road will be opened by the Fourth of July. Capital stock, \$100,000. a 5

OTTAWA, KAN.
PADUCAH, KY.—Paducah St. Ry. Co. Contract has been let to S. R. Bulloch & Co., of New York, who will complete the line by August. 5

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. Robbins'n. 5

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 meet

them. Bradstreet & Curtis, 35 Pine st., N. Y., are interested in this co. 5

PEORIA, ILL.—East Bluff Horse R. R. Co. 1½ m, 4-8½ g, 30-40 lb r, 4 c, 24 h. Pres. N. Gilles, Sec. R. R. Boureaud, Treas. M. E. Culver. Capital stock, \$11,000. Work in progress. 7

PEABODY, KAN.—Peabody St. Ry. Co. Incorporated by W. E. Scott and others, with a capital stock of \$10,000. 7

PHILADELPHIA, PA.—Lehigh Ave. Ry. Co. To run up Lehigh avenue from Second street to Ridge avenue and directly to East Fairmount Park. Pres. Jos. T. Bunting, Sec. & Treas. J. Mc K. Barron, Directors, Wm. R. Wlster, John Wlster, Langhorn Wlster and Jas. P. Booth. Other large stockholders are Wm. Wharton, Jr., and Wm. L. Elkins. Capital, \$600,000, of which 60,000 is paid-in. Double track the whole length. Will have 6 miles of track. Nearly finished; will be opened this summer. 5-2½ g, 47 lb r. Will use either horses or electricity. Temporary office, 230 Walnut st. 7

PITTSBURG, PA.—From junction of cable road to Squitrel Hill, and will utilize the old rails and rolling stock and horses of the road replaced by the cable. 3

Wilkinsburg and East Liberty Ry. Co. 3 m, 4-8-1-2 g, Johnson T rails, Pres. Ed. Jay Allen, Sec. and Treas. W. H. Allen. To use about 5 c. and 20 h. Not decided when road will be opened. Capital stock, \$15,000. Present office, 517 Wood st.

Pittsburg & McKee's Rocks St. Ry. Co. Has begun laying tracks, and cars will be running by July 4. 6 c. Supt. Wm. J. Burns. 6

Tracton St. Ry. Co. V. Pres. Thos. M. Bigelow. Market st. to Point Breeze, along Fifth ave. Phila. parties interested. To cost from \$1,000,000 to \$2,000,000. 6

Pittsburg & East End R. R. Co. Capital, \$250,000. Incorporators, Wm. L. Chalfort, John Blissett and others. 5

Central Transit Co. Cable road. 7

PLATTSBOUTH, NEB.

PLAINFIELD, N. J.—Elec. ry. will prob. be built. 7

PLYMOUTH, MASS.—Plymouth & Kingston St. R. R. Co. 2½ m, 4 8½ g, r undecided, 6 to 10 c, 10 to 12 h, though electric motors will be used if the system is perfected in time. Capital stock, \$25,000. Joseph D. Thurber and others incorporators. Grant of location expires in the fall but could be renewed. 5

PORT CHESTER, N. Y.—Port Chester & Rye Beach Ry. Co. 4 m, 4-8½ g, 40 lb side bearing r, 6 c. Will use electricity. Work will be commenced July 15, and the road will be opened Sept. 1. Pres. Chas. D. Haines, Sec. E. T. Haines, Treas. F. H. Skeele. Capital, \$40,000. a 7

PORTSMOUTH, VA.—Portsmouth St. Ry. Co. Charter obtained, and will organize in July or August. Capital, not less than \$30,000 nor more than \$200,000. Wm. H. Stewart is interested. 7

RALEIGH, N. C.—Jas. Graham, who is backed by the Messrs. Pratt, the oil men, has obtained a franchise. 4

READING, PA.—Co. formed for an elec. ry. 7

RICHFIELD SPRINGS, N. Y.—Richfield Springs & Canadago Lake Surface R. R. 1 m. D. C. Haddock of Syracuse organizer. Capital \$15,500. 7

RICHMOND, VA.—Richmond Un. Pass. Ry. Co. 12 m, 4-8½ g, 40 lb r, 40 c, Sprague electric motors, 2 on each c. Now building. Pres. J. Thompson Brown, Sec. & Treas. John F. Barry of Boston. 6

ROANOKE, VA.—Roanoke St. Ry. Co. Chartered, with capital of \$10,000. Pres. Thos. Lewis, Sec. F. T. Brinkley. 5

ROCKMART, GA.—S. E. Smith is interested. 6

ROME, N. Y.—Rome City St. Ry. Co. 5 m, first-class track. To be built at once by Hill & Dayton of New York. 7

ROME, GA.—Rome Land Co. has purchased Rome St. Ry. Co. and will extend it at once to the lands. J. L. Bass is Sec. Board Trustees. 6

Rome Investment Co. will build dummy line through East Rome. Work to begin soon. 7

SAN DIEGO, CAL.—Elec. ry. now building. 9 m, 4 40 lb r. motor c. 7

SAN FRANCISCO, CAL.—Powell St. Ry. Co. 11 m, 3-6 g, 33 lb r, 32 c. Pres. W. J. Adams, V. Pres. Thos. Magee, Treas. H. H. Lynch, Sec. G. H. Waggoner. Capital stock, \$2,000,000. Work in progress. Cable traction. Office, 32 Merchants Exchange. Will be opened in Oct. 15

Telpherage Electric Ry. Co. has been incorporated by Julius Loatz, F. M. Speed, R. A. Wilson and others. 5

SANTA ROSA, CAL.—T. J. Glary, M. Doyle and A. B. Ware have formed co. with capital of \$25,000, work to begin within next two months. 6

SAVANNAH, GA.—Cars to be furnished by Pullman Palace Car Co. 3

SAYRE, PA.—Sayre St. Ry. Co. Pres. Howard Elmer. No work done.

SCHENECTADY, N. Y.—Schenectady St. Ry. Co. Jas. Graham, contractor. 5 c. already, and will have about 30 h. The Pratts (oil men) own all the stock and half the bonds. 4

SCRANTON, PA.—The Nayrag 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

SELMA, ALA.—Selma Land Imp't & Furnace Co. will build electric st. ry. Capital, \$3,000,000. R. M. Nelson, W. Ullman and V. T. Vaughan are among the incorporators. 4

SHEFFIELD, ALA.—Sheffield & Tusculmba St. R. R. Co. 6 m, broad g, heavy steel r, 2 c at first, steam dummy. Will be opened very soon. Pres. F. D. McMillan, V. Pres. J. T. Hull, Sec. Ed. B. Aliman, Treas. Jo. H. Nathan. d

SHERMAN, TEX.—H. A. Burnett will build a road this year. 5

SIoux CITY, IA.—F. W. McNeil, Manager Rasmussen cable, will build a road here, 2½ m. 3

SIoux FALLS, DAK.—Sloux Falls St. R. R. Co. Company must have 2 m running by Nov. 1 and a mile each year for five years thereafter. Incorporators, L. F. Pettigrew, L. L. Dunning and S. L.

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Tate, Sioux Falls; Jas. Creighton, Chicago; Elnathan Sawtelle, Evansville, Wis. Capital, \$150,000. 5

SOUTH PITTSBURG, TENN.—So. Pittsburg R. R. Co. chartered by W. M. Duncan, Sam'l Cowan and others. 7

SOUTH ST. PAUL, MINN.—Am. Rapid Transit Co. about to open electric rr. on Enos system. 7
Charter for motors or horse power to Thos. T. Smith, A. E. Clark and others. 7

STAFFORD, KAN.—1 m. to be in operation by July 4. Cars have been ordered. 7

STEELTON, PA. 3

STEBENVILLE, O.—Haines Bros. propose building a new line here this year. 8

ST. CLOUD, MINN.—Co. incorporated, with capital of \$50,000. To run in St. Cloud, E. St. Cloud and Sauk Rapids. Incorporators, C. P. McClure, A. G. Whitney, O. W. Baldwin, R. L. Gale, L. Troutman and F. Tolman. 5

ST. CATHARINE'S, ONT.—Electric road, on Van Depoele system, to be completed in August. 7

ST. JOSEPH, MO.—Elec. ry. Now building. 20

ST. LOUIS, MO.—John Jackson, Julius S. Walsh, J. R. Helfenstein 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

ST. PAUL, MINN.—St. Paul Cable Ry. Co. V. Pres. Thos. P. Wilson. Now building. 7

SUFFOLK, VA.—Suffolk St. R. R. Co. Incorporated. 7

SYRACUSE, N. Y.—Butternut St. Ry. Co. 2m. To be built this year. 2

People's R. R. Co. Capital, \$300,000. 6 m, from Wolf st. to So. Onondaga st. Among those interested are Frank D. H. Robinson, of Cleveland; Frank J. Callanen; and Frank B. Klock, of Syracuse. 6

Palmira St. Surface R. R. Co. Pres. John Haddock. V. Pres. W. A. Beach, Sec. & Treas. T. D. Brewster. 7

Hudson St. Surface R. R. Co. Pres. D. C. Haddock. V. Pres. W. A. Beach, Sec. & Treas. T. D. Brewster. 7

Lyons St. Surface R. R. Co. Pres. Wm. A. Beach, V. Pres. D. C. Haddock, Sec. & Treas. T. D. Brewster. 7

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 restriction removed, saying they will use a noiseless motor. 6

TALLADEGA, ALA.—From city to Spring Lake park. Willis Shaw of Birmingham and W. H. Skaggs of Talladega are among incorporators. 7

TAUNTON, MASS.—Scadding St. Ry. Co. Franchise granted, 4 m. To build through Cedar street from Main to Grant, thence through School, Purchase, Washington and Bay to Scadding's pond. Work begins at once. 4

TEXARKANA, ARK.—State Line Ry. Co. Capital, \$25,000. E. A. Warner, Samuel Lemby and others are incorporators. 6

B. B. Harrell will build a new line. 7

TIFFIN, O.—Tiffin St. Ry. Co. has been incorporated. Capital, \$10,000. Perry M. Adams and others, incorporators. May use elec. 6

TOPEKA, KAN.—Topeka Rapid Transit Ry. Co. 30 m, 4-8½ g, 35 & 38 lb r, 20 c, 10 noiseless steam motors. Pres. John Francis, Sec. J. B. Bartholomew, Treas. John Norton, Supt. J. P. Gwin. 6 m built and road to be opened in July. Capital, \$250,000. Office, 623 Kansas avenue. a 7

Sixth Ave. & Deer Creek St. Ry. Co. Incorporators, Gufford Dudley, B. F. Golden, W. D. Alexander and others. Steam, electricity or other motive power. To accommodate the east side and to be built at once. 5

Highland Park 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. 5

TUSCALOOSA, ALA.—Tuscaloosa & Castle Hill Real Estate & Mfg. Co. Have bought out Tuscaloosa St. Ry. Co., 1½ m. Have contracted for 2½ to 2¾ m more. Work begun from city to Lake Lorraine. Standard g, 20 to 40 lb r, 6 or 8 c, h. Capital, \$350,000. Gen. Man. W. W. Hill. b

UTICA, N. Y.—Onelda St. R. R. Co. Steel r, 3 c. Road to be opened July 1st. 6

WASHINGTON, KAN.—Co. organized. 5

WABERTOWN, DAK.—Chas. Jocelyne has received a franchise allowing him the use of any streets he wishes, and to use either horse, steam or electric motors. At least 1 mile must be in operation by May 1, 1888. 5

WESTFIELD, MASS.—Steps taken for building elec. ry. 7

WICHITA, KAN.—Riverside and Suburban Ry. Co. Pres. J. O. Davidson, Sec. N. G. Lee. Capital stock \$100,000. Work now in progress. 2

West End Motor Line Co. Capital, \$100,000. Wm. P. Carey is one of the incorporators. 6

WILMINGTON, N. C.—Wilmington St. Ry. Co. Incorporators include Lieut. Gov. Stedman, John D. Bellamy, Jr., and J. C. Devine. Will build 5 m at once, and have contracted with Sea Shore Construction Co. of New York for construction and entire equipment. Capital, \$25,000. 4

WINSTON, N. C.—Winston Elec. Light & Motor Power Co. will build a line. 7

WOONSOCKET, R. I.—Contract let, and cars will be running in a few weeks. Elec. ry. 7

WORCESTER, MASS.—Elec. ry. 7

WYANDOTTE, KAN.—Brighton Hill & Chelsea Park Ry. Co. Capital, \$100,000. Incorporators, D. M. Edgerton and Daniel D. Hoag of Wyandotte, Robt. Gillham of Kansas City, and others. 2 m, dummy road. 5

YANKTON, DAK.—Bids asked for the building of 2 m, work to commence in 30 days. 6

Recent Patents.

ISSUED MAY 21.

Switching grip for cable-road cars. No. 363,719. W. C. Keiminc, St. Louis, Mo.

Automatic safety guard and track cleaner for underground cable railways. No. 363,394. W. Ireland, Sr., San Francisco, Cal.

Construction of curve portions of cable railways. No. 363,545. E. Samuel, Philadelphia, Pa.

Transmitting power in cable railways. No. 363,576. R. S. Belfrage, Philadelphia, Pa.

ISSUED MAY 31.

Car seats. No. 364,011. H. S. Hale, Philadelphia, Pa.

Swing bearings for street cars. No. 364,192. W. Sutton, St. Louis, Mo.

Fare box. No. 364,164. W. T. Dryden, Argenta, Ark.

Electrical conductor for cables. No. 364,178. G. L. Kitson, Philadelphia, Pa.

Harness. No. 363,881. G. W. Baird, Hendersonville, N. C.

Horseshoe. No. 363,993. J. A. Dunning, Aulander, N. C.

Horseshoe. No. 363,925. F. and S. A. Ward, Sheffield, county of York, Eng.

Fly net for horses. No. 364,020. G. W. Kelsey, Chicago, Ill.

Grip apparatus for cable railway. No. 363,788. N. Abbott, Kansas City, Mo.

ISSUED JUNE 7.

Cable railway car. No. 364,393. T. Breen, Knowlton, Pa.

Car spring. No. 364,286. W. C. Perry, Charles-town, R. I.

Combined hook and clasp for horse collars. No. 364,164. L. T. Anderson, Carroll, Ia.

Horse collar fastening. No. 364,375. J. T. Rowlands, Racine, Wis.

Machine for sharpening horseshoe calks. No. 364,250. N. Newman, Springfield, Ill.

Die for forming sectional horseshoes. No. 364,244. J. B. Hague, Napoleon, O.

Fly net for horses. No. 364,455. F. S. Weaver, Moundsville, W. Va.

Conduit for cable railways. No. 364,500. E. D. Dougherty, Philadelphia, Pa.

Grip carriage for cable roads. No. 364,488 and 364,490. J. H. Dale, Philadelphia, Pa.

Gripper for cable railway. No. 364,381. G. W. Stewart, New York, N. Y.

Pulley for cable railway. No. 364,498. E. D. Dougherty, Philadelphia, Pa.

Tension device for cable railways. No. 364,489. J. H. Dale, Philadelphia, Pa.

ISSUED JUNE 14.

Street car motor. No. 364,881. S. W. Wood, Cornwall, N. Y.

Rails for street railways. No. 364,996. E. B. Entwistle, Johnstown, Pa.

Pole strap attachment for double harness. No. 364,633. P. W. Coreoran, Seneca, Ill.

Harness supporting device. No. 364,652. H. C. James and C. A. DeClavan, Denver, Col.

Heater for street cars. No. 365,030. J. M. Thayer, Randolph, Ill.

Horseshoe. No. 365,010. C. J. LeRoy, St. Louis, Mo.

Horseshoe machine. No. 364,689. T. S. Very, Boston, Mass.

Suspension wheel for wire cable tramways. No. 364,639. R. Prentice, Portage, Wis.

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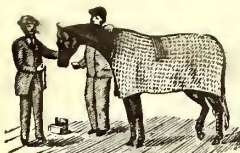
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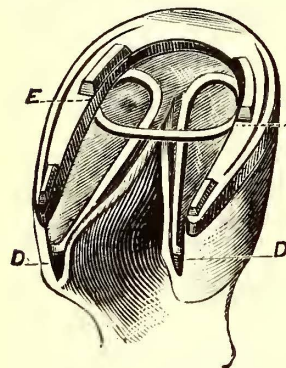
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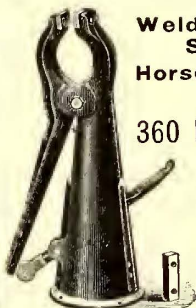
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Successor to
Manufacturer of

Patent Steel Shoe CALKS, Blunt and Sharp.

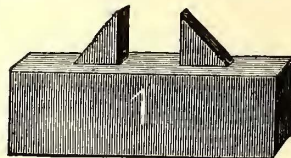


Welding Dies for Sharp, and Horse Shoers' Foot Vises.

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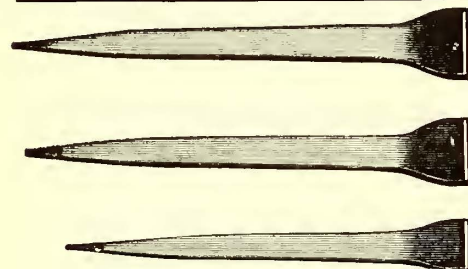
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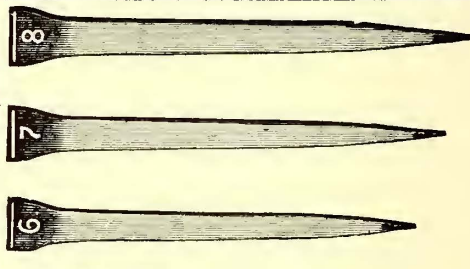


Manufactured from very best SWENISH METAL. Will not SPLIT. Are accurately pointed, tough, strong and hold the shoes. Soft enough to clinch readily; stiff enough to drive without bending. All nails uniform and perfect. They are used in thousands of shops with the best of satisfaction, and are especially 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.



THE PUTNAM NAIL CO.

LOOK WELL

TO YOUR

Highest Award at the

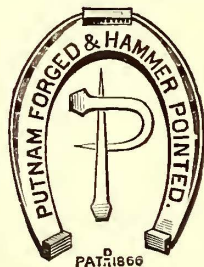


Fig. 1.

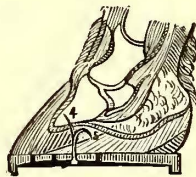
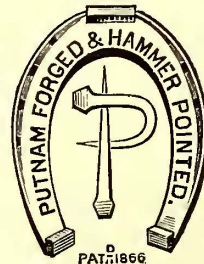


Fig. 2.



Centennial Exhibition.

HORSES' FEET

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 driving, 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 AND SHEARING 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 slivering utterly impossible.

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 PUTNAM 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, "NO FOOT, NO HORSE."

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 World

that is not cut, clipped or sheared upon the point, and will not split in driving, is THE PUTNAM NAIL.

Address for Circulars, etc.,

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THE BRYDEN FORGED HORSESHOE WORKS, Limited, CATASAUQUA, PENN.,

MANUFACTURERS OF

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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.

The distinctive feature of our system of manufacture is, that it produces a *finished* shoe, calked, or plain, ready for attaching to the hoof.

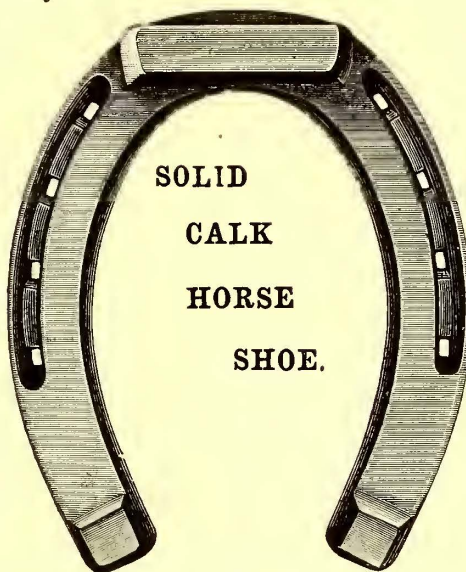
The crease is made low and the nail holes are punched well in and beveled to permit the nailhead to be well driven in, reducing the strain on the nails and insuring a firmly fastened shoe.

The foot bearing of the shoe is level, thus materially aiding in the preservation of the hoof.

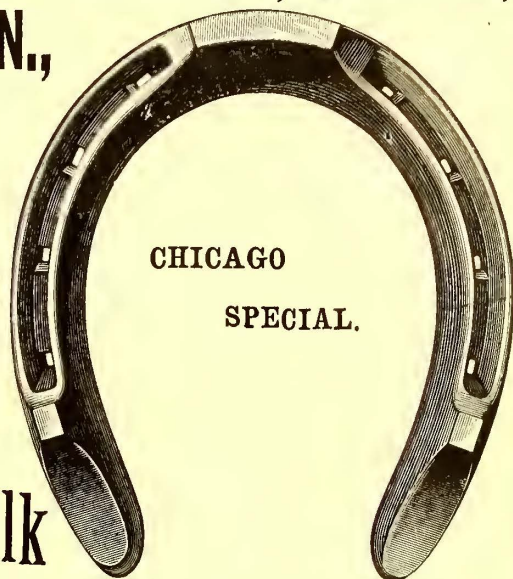
It is not necessary to heat the shoe in order to fit it.

There are no welds in the shoe to break, the calks being solid forged up from the web.

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.



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CALK
HORSE
SHOE.

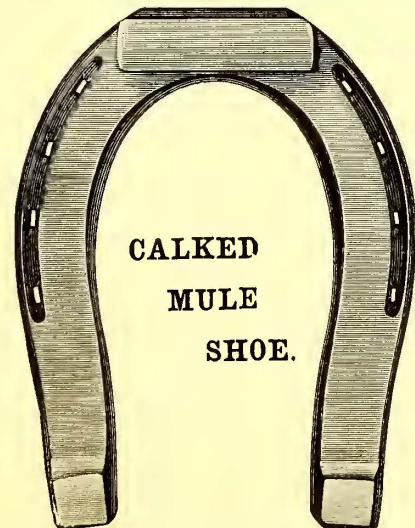


CHICAGO
SPECIAL.

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.

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.

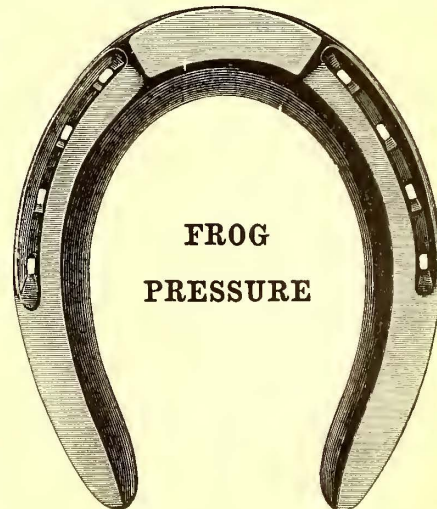


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MULE
SHOE.

OUR FROG PRESSURE SHOE. The advocates of the frog pressure system of horseshoeing have in this shoe the very thing 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.

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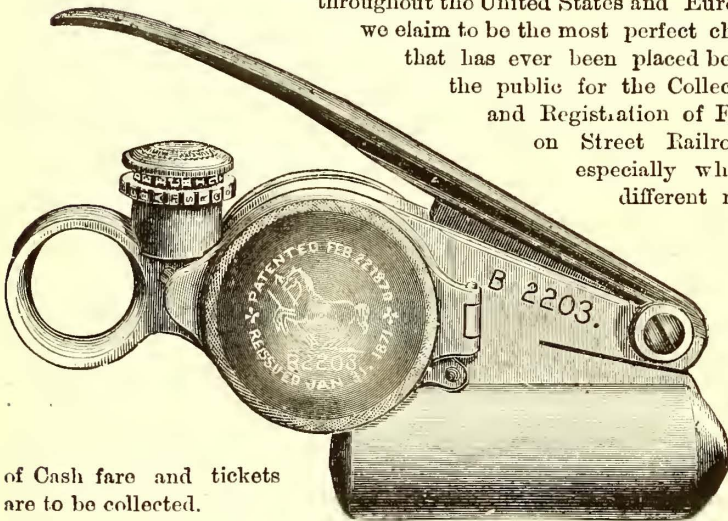
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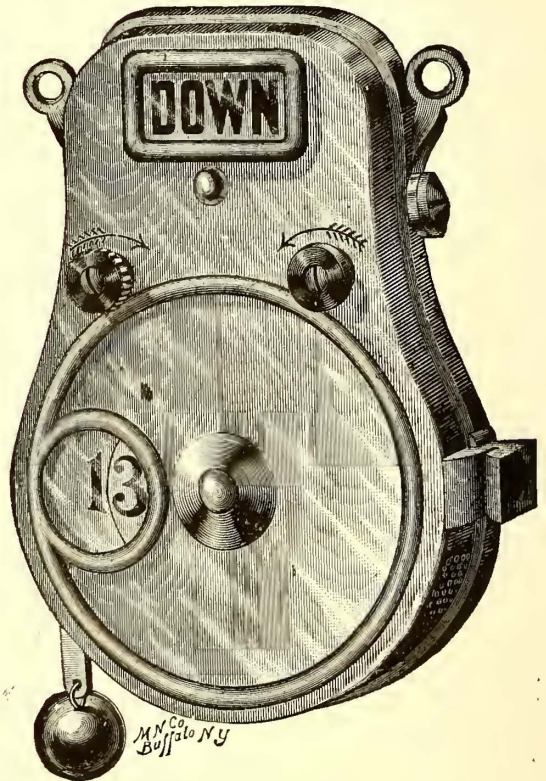
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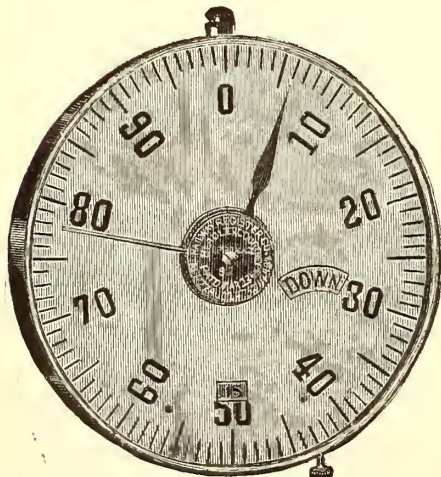


of Cash fare and tickets are to be collected.

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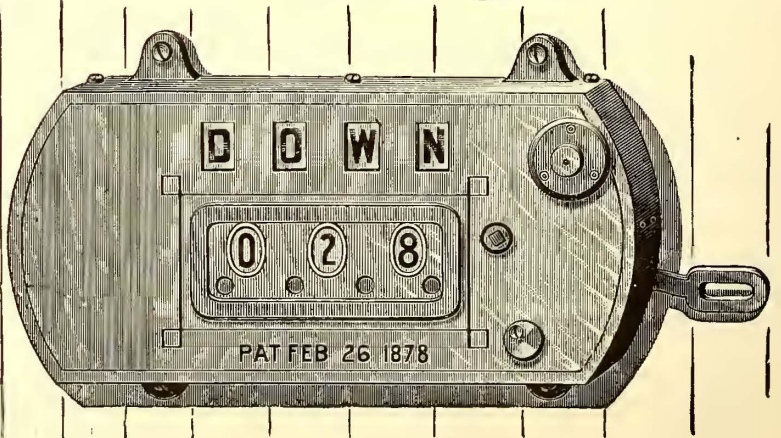


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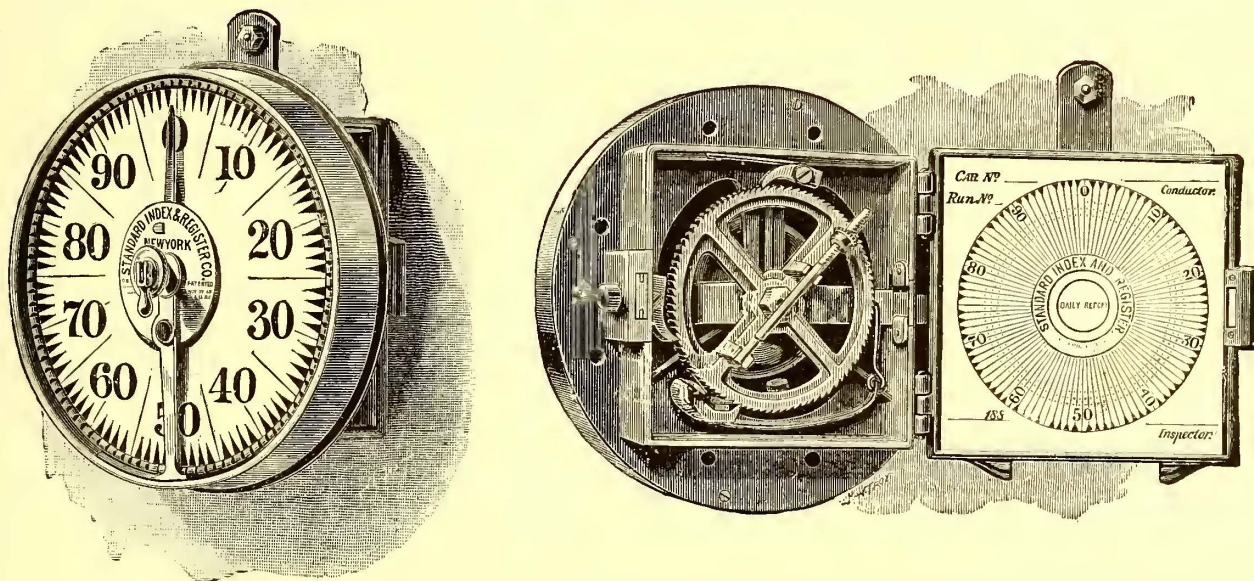
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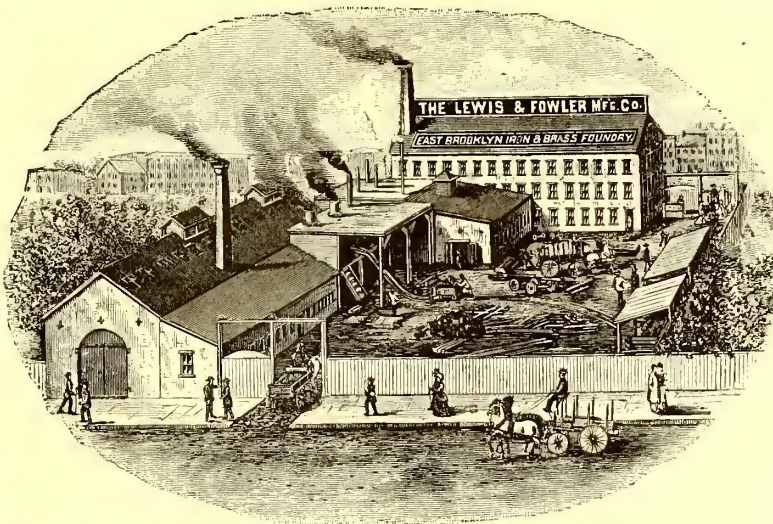
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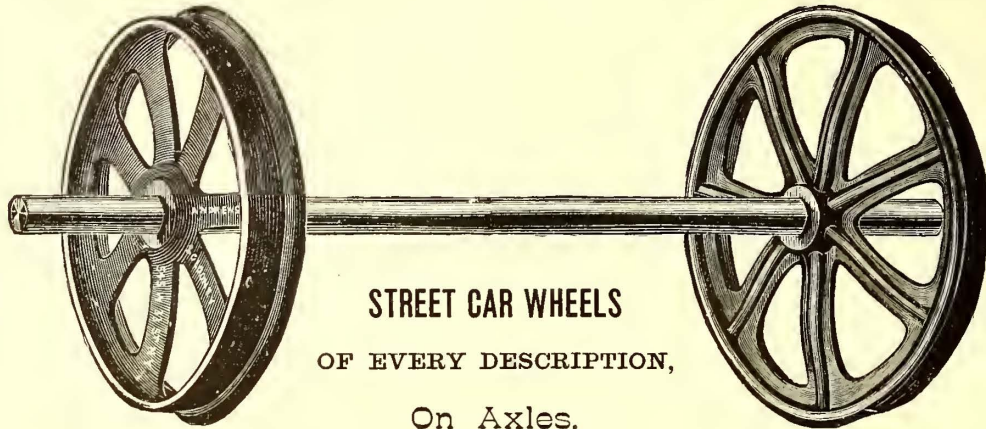
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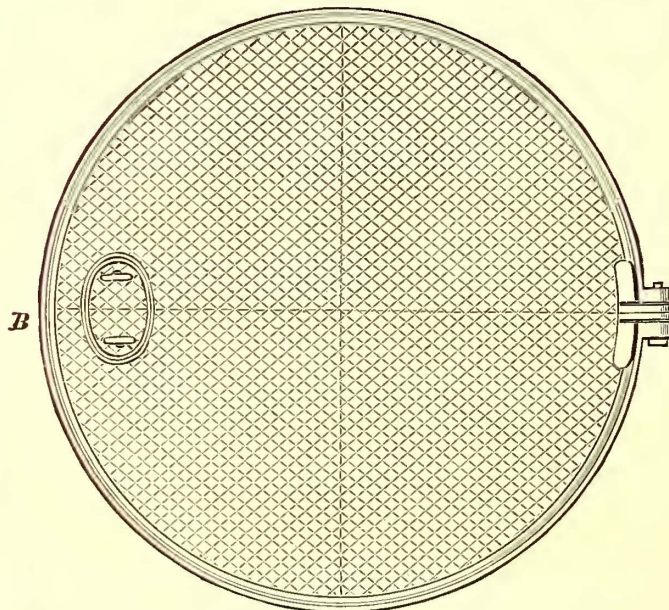
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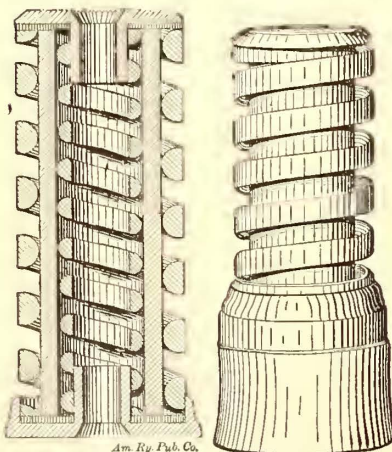
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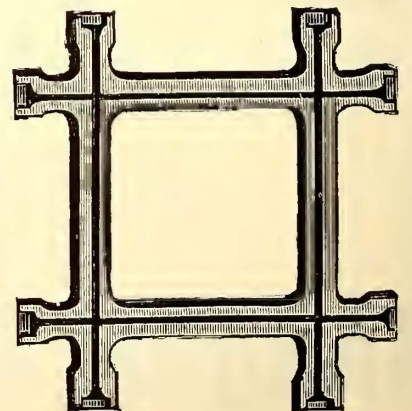
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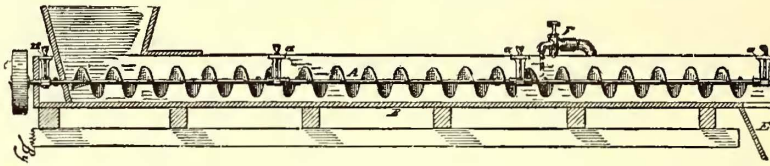
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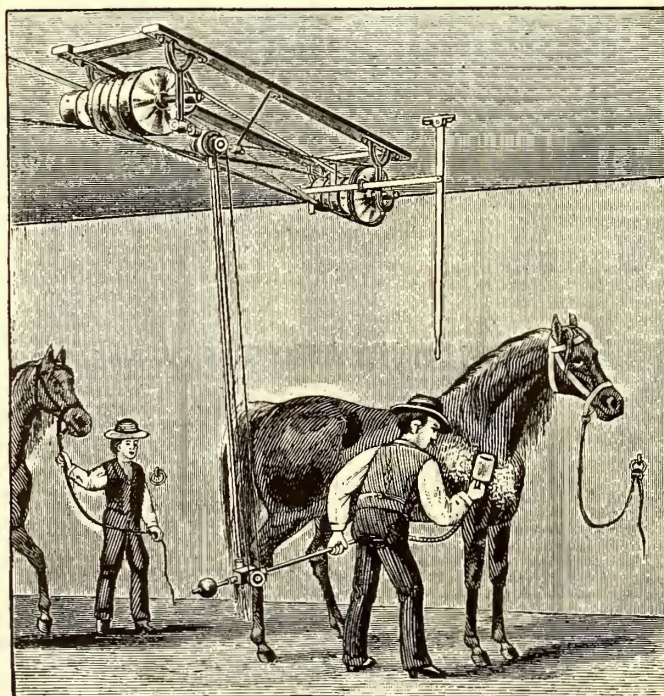
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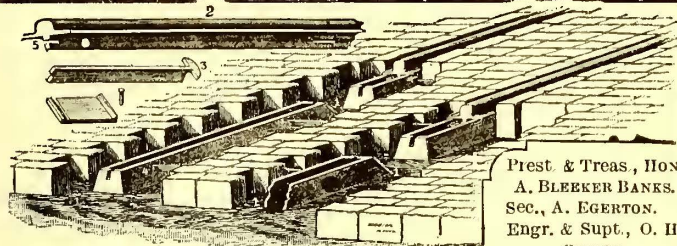
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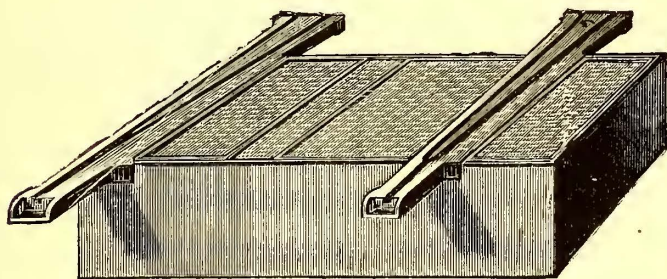
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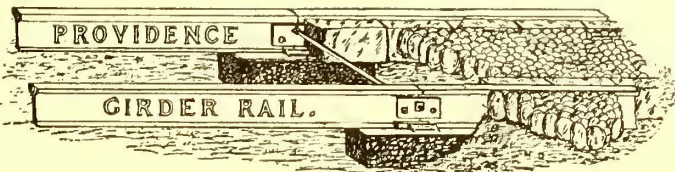
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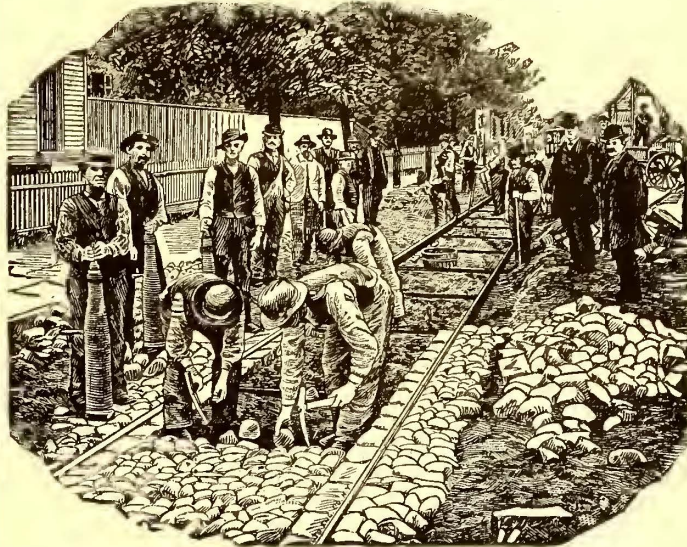


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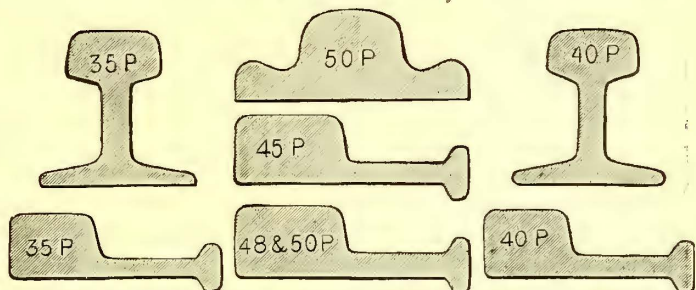
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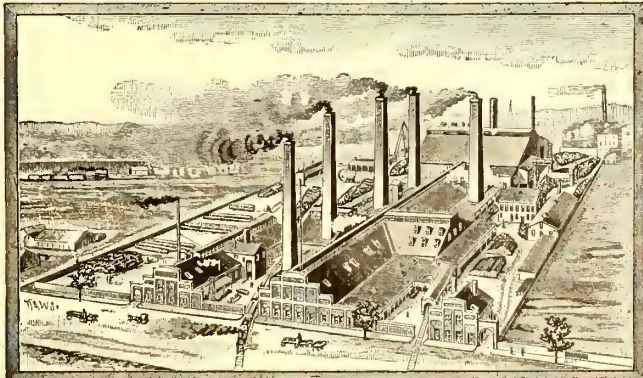
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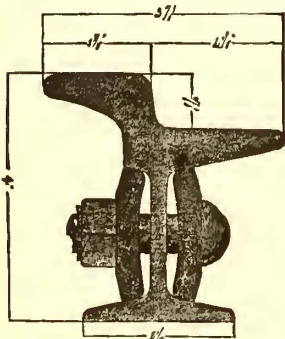
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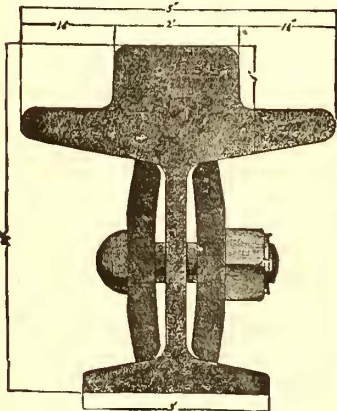
JOHNSTOWN, PA.

Section C. 88, No. 111.



Patented February 20, 1883.

Section E. 76, No. 117.

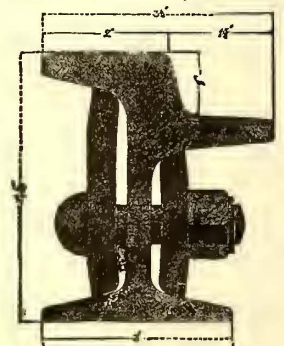


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SIDE BEARING GIRDER RAILS

OR

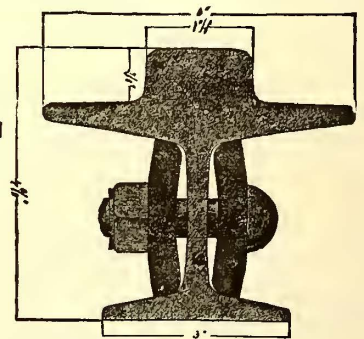
Section D. 45, No. 11.



Patented November 27, 1883.

CENTER BEARING GIRDER RAILS.

Section G. 58, No. 120.



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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.

The Wiser & Vail Car Starter.

A PRACTICAL DEVICE.

1. Overcomes one-half the draft.
2. When car is going and horses attempt to go faster the starter throws in gear and assists.
3. There is no dead strain on horses at any time.
4. If driver puts on his brake before holding horses back, the spring makes it easy on horses' shoulders.
5. Starter is automatic. Requires no attention more than oiling at time of oiling car.
6. Beneficial for Cable Roads as well as horse power.

FOR SALE Outright, or Upon Royalty, or Will Equip Roads.

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Wilson Brake Shaft.

ENTIRELY NEW & NOVEL IN CONSTRUCTION.
POSITIVE AND SURE IN ACTION.

BRAKES SET WITHOUT COMPLETELY TURN-
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MADE ON THE PRINCIPLE OF A FRICTION
CLUTCH,
SIMPLE IN DESIGN.

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and Gives the Driver the Best Possible
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THE SIMPLEST, THE MOST EFFECTIVE, AND BY FAR THE MOST ECONOMICAL METHOD OF OPERATING STREET RAILWAY CARS BY ELECTRICITY IS BY MEANS OF THE OVERHEAD CONDUCTOR.

THE EXPERIENCE OF FIVE YEARS

Has demonstrated that Street Railway Cars, propelled by Electric Motors, taking their supply of electricity from one or more Elevated Conductors, are an unqualified success.

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ONE-HALF MORE per car per mile to run with an ELECTRIC CONDUIT SYSTEM.

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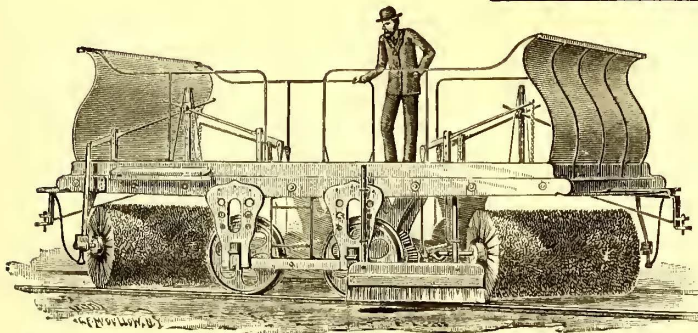
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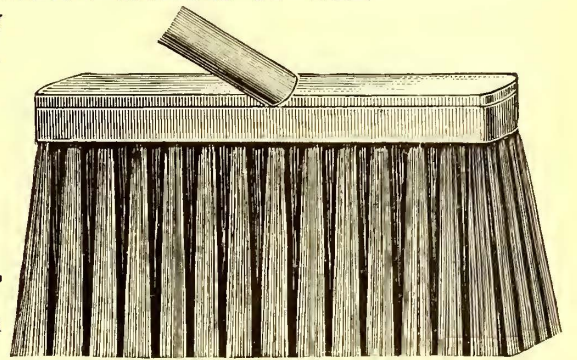
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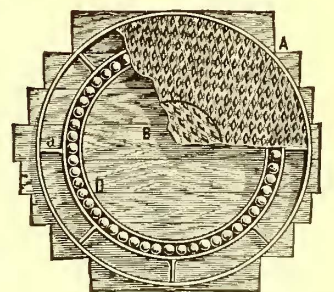
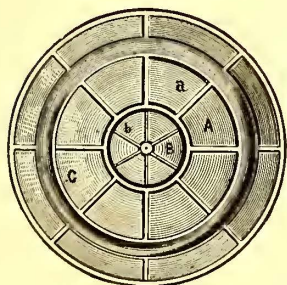
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All kinds Track and Stable Tools: Picks, Shovels, Rammers, Bars, Mauls,
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Latest Improved Snow Sweepers of our own
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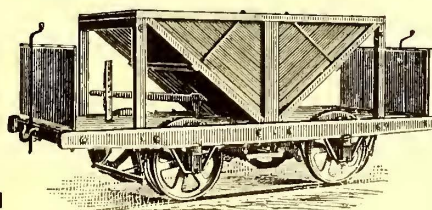
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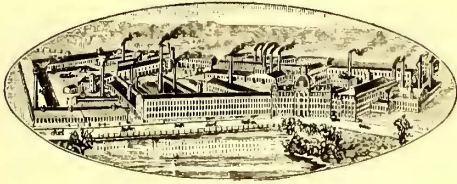
117 and 119 Liberty Street, New York.

Washburn & Moen Manufacturing Company,

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New York City.

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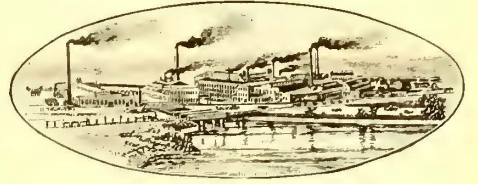


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For all Purposes.



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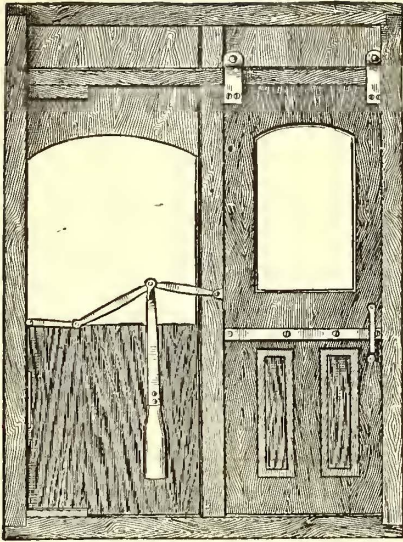
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CABLES FOR STREET RAILROADS A SPECIALTY.

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Door closed, fastener in position, weight suspended from the toggle joint, holding it closed.

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ADOPTED BY
All Cleveland Railway Companies.

Patented May 5, 1885.

Fastener detached, made of malleable iron, weight about five pounds.

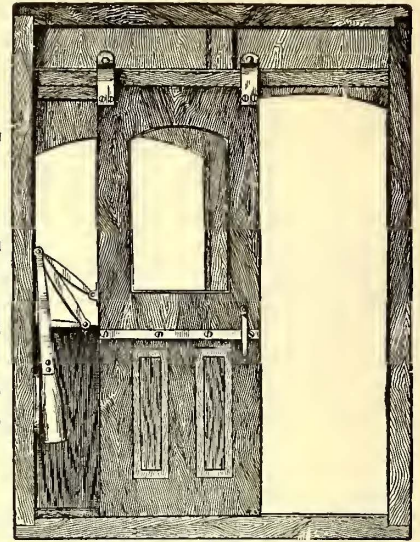
Especially adapted for Elevator Doors.

For further particulars, prices, circulars, etc., address

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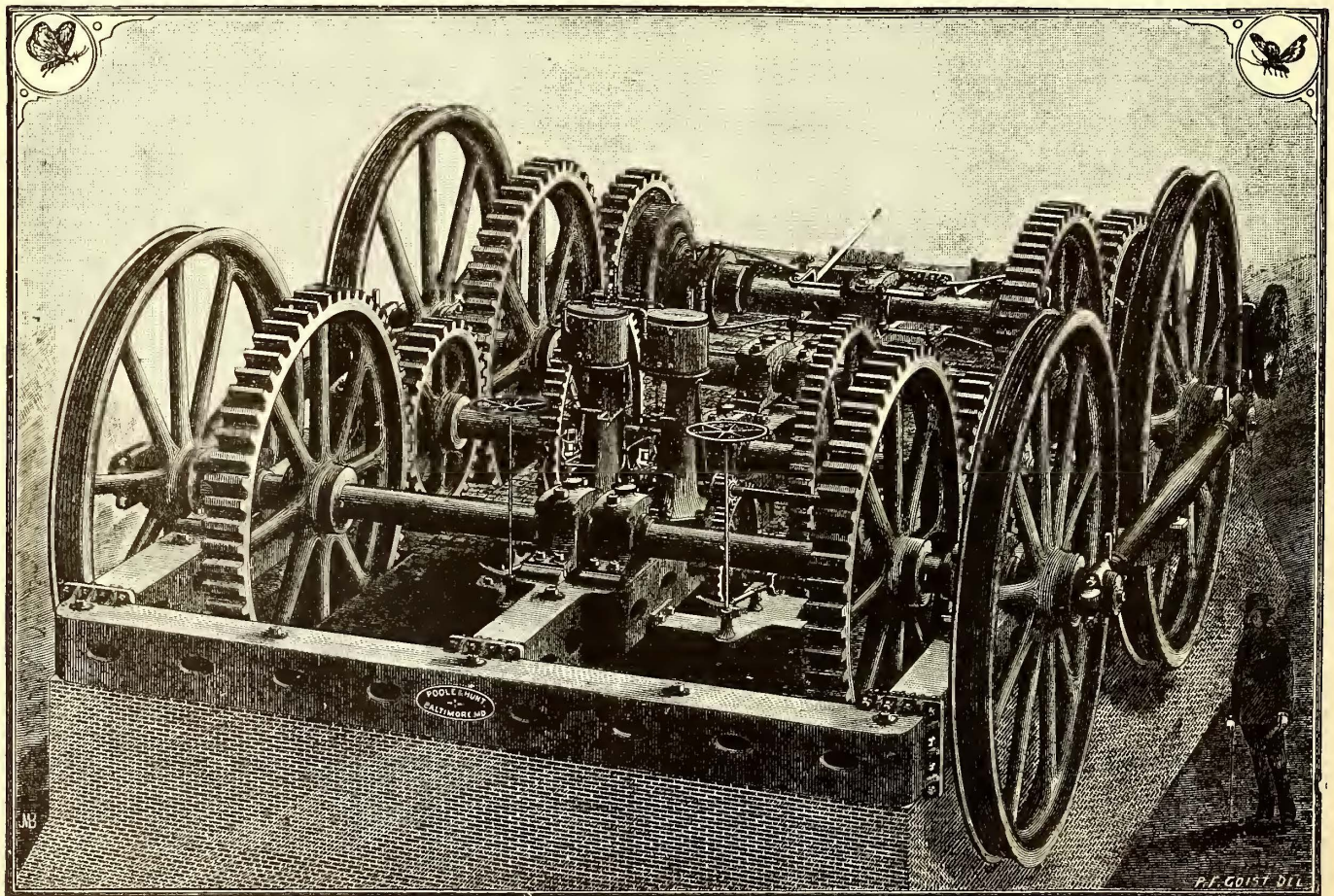
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Door open. Fastener thrown back.

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Machine Moulded Gearing for Mills and Factories.**

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WATKEYS' ADJUSTABLE CLUTCH AXLE.

1. Saves thirty per cent in the wear of wheels and rails.
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4. Enables horses to do twenty-five per cent more work, by sparing them the hard pull in rounding curves.
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Satisfaction Guaranteed

AT A COST SLIGHTLY ABOVE ORDINARY WHEELS AND AXLES.

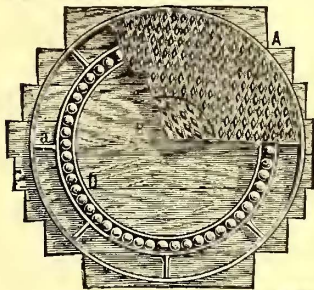
We use only the best car wheels, cold rolled steel axles of the finest quality, and our work is second to none in the country.

Our axle is now in use on the Jersey City and Bergen Railroad, and in Syracuse, N. Y. We refer to the officers of these lines to substantiate the above claims.

Now negotiating with other leading roads.

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THE EMPIRE AXLE MANUFACTURING COMPANY,
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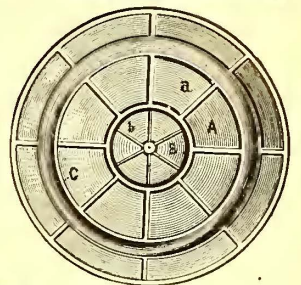


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STREET RAILWAY SUPPLIES,

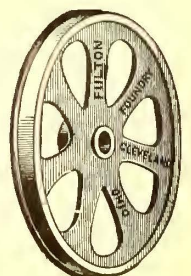
Carpenter's Patent Turn-tables and Transfer-tables,

Open Wheels of all sizes and weights. Wheels and Axles of all sizes fitted on short notice.

Chilled curve rail, Turnouts, Switches, etc., etc. Blue prints and Bills Furnished on Application. Send for Illustrated Catalogue. Address,



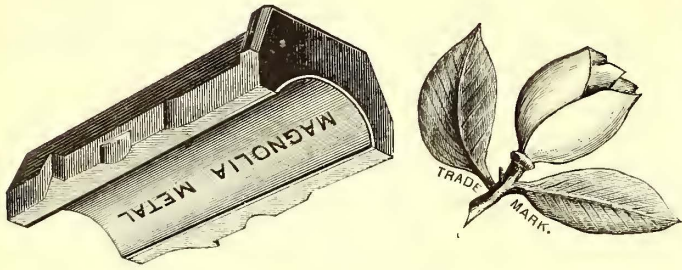
FULTON FOUNDRY,



202 MERWIN ST.

CLEVELAND, OHIO.

Magnolia Anti-Friction Metal.



TESTIMONIAL.

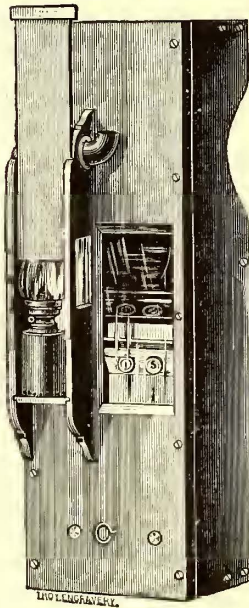
L. PFINGST, MASTER CAR BUILDER, THIRD AVENUE SURFACE ROAD, NEW YORK, JAN. 21, 1887.

CHARLES B. MILLER, Proprietor of Magnolia Anti Friction Metal, New York City.
 SIR—I have taken out the metal given me by you, placed it under Car No. 85 on our road. I find yours as sound as when put in, and the others entirely gone. This is the invention of Samuel Singley. You can call and see the journal bearings if you so desire. I am, yours truly, L. PFINGST, Formerly with Pullman Car Works.

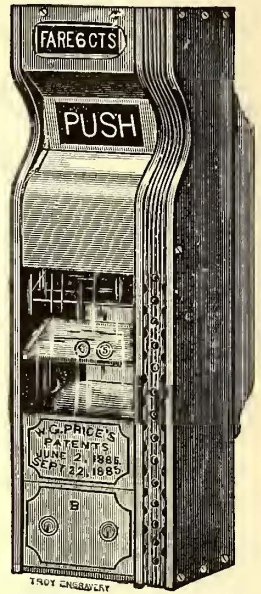
New York Depository, E. S. GREELEY & CO.,
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PRICE'S IMPROVED FARE BOX.
 THE BEST FARE COLLECTOR
 NOW IN THE MARKET.



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.

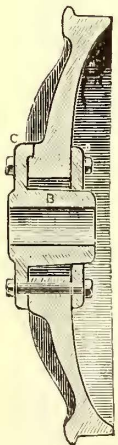
WESTERN AGENTS FOR

Hamilton-Corliss Engine. Bemis Car Box Co.
 The A. French Spring Co., Ltd. Fulton Foundry Co.
 Rails, Splices, Spikes, Bolts & Nuts of all Kinds.

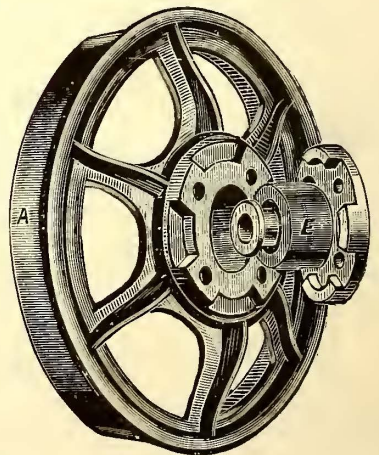
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Patent Elastic Street Car Wheel,

WITH INTERCHANGEABLE WEB, TUBULAR FIBROUS CUSHION AND
 INDESTRUCTIBLE CLUTCH JAW HUB.



The only Cushioned St. Car Wheel.
 The only Interchangeable
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 No Crystallization of Wheels or Axles.
 Noise and Jolting of Cars Prevented.



No Special Machinery or Skilled Labor Required for Renewals.

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Price Lists, Descriptive Circulars and Blue Prints furnished upon application.

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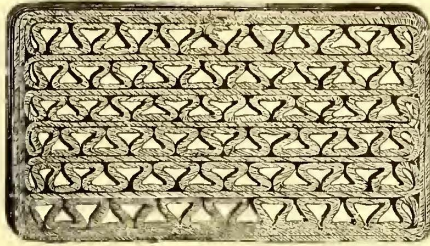
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Machine Braided Cocoa Car Mats.

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Order
Solicited.

Ayers' Anti Rattler,

FOR RAILROAD CAR WINDOWS.



The Best and Cheapest
ANTI-RATTLER IN THE
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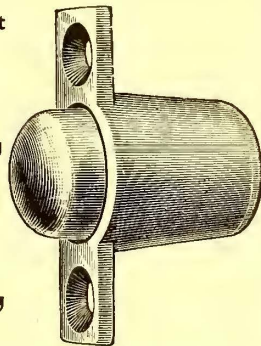
Ayers' Pat. Sash Holder,

FOR HOLDING CAR WINDOWS AT ANY
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Manufactured by the

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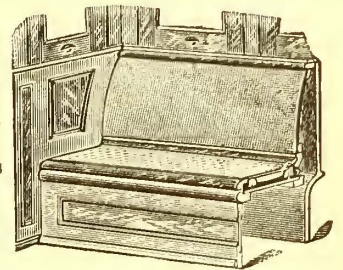


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THE HALE & KILBURN MANFG. CO.,

Extensive makers of Patented
Street Car Seats
of every description.

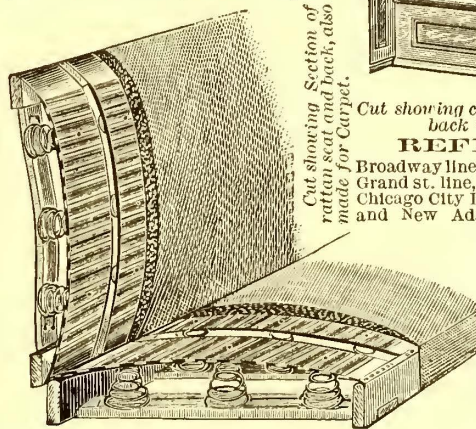
Our Patent Spring Seats covered with
Rattan or Carpet are fast being adopted
by the best railroads in the country.
Seats for Steam Cars a Specialty.
Owners and makers of all the Cobb patents



Cut showing car with rattan seat and
back without springs.

REFERENCES:

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Grand st. line, 3d and 4th ave lines, NY
Chicago City RR, Chicago W. Div. line,
and New Adams street line, Chicago;
East Cleveland R. R. Co.
and Woodland Ave. and
West Side R. R. Co.
Cleveland; Union Line,
St. Louis; 2d & 3d St. R.
R. Co., Frankford and
Southwark R. R. Co.,
Union Line, Chestnut &
Walnut R. R., Ridge Ave
R. R., or any other road
in Phila.; and 100 others
elsewhere.



Cut showing Section of
rattan seat and back, also
made for Carpet.

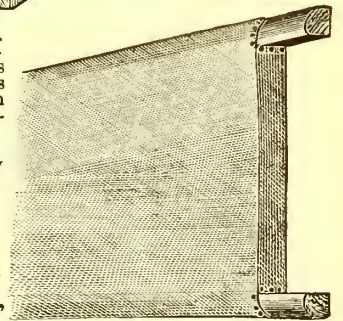
Many R. R. Co's use our Rattan Pat.
Canvas Lined Seats for Summer and cover
the same with carpet for Winter. This
method of seating we recommend as
durable and economical, for the reason
both a Summer and Winter seat is ob-
tained in one.

Estimates & Particulars cheerfully
given (mention this paper), satisfac-
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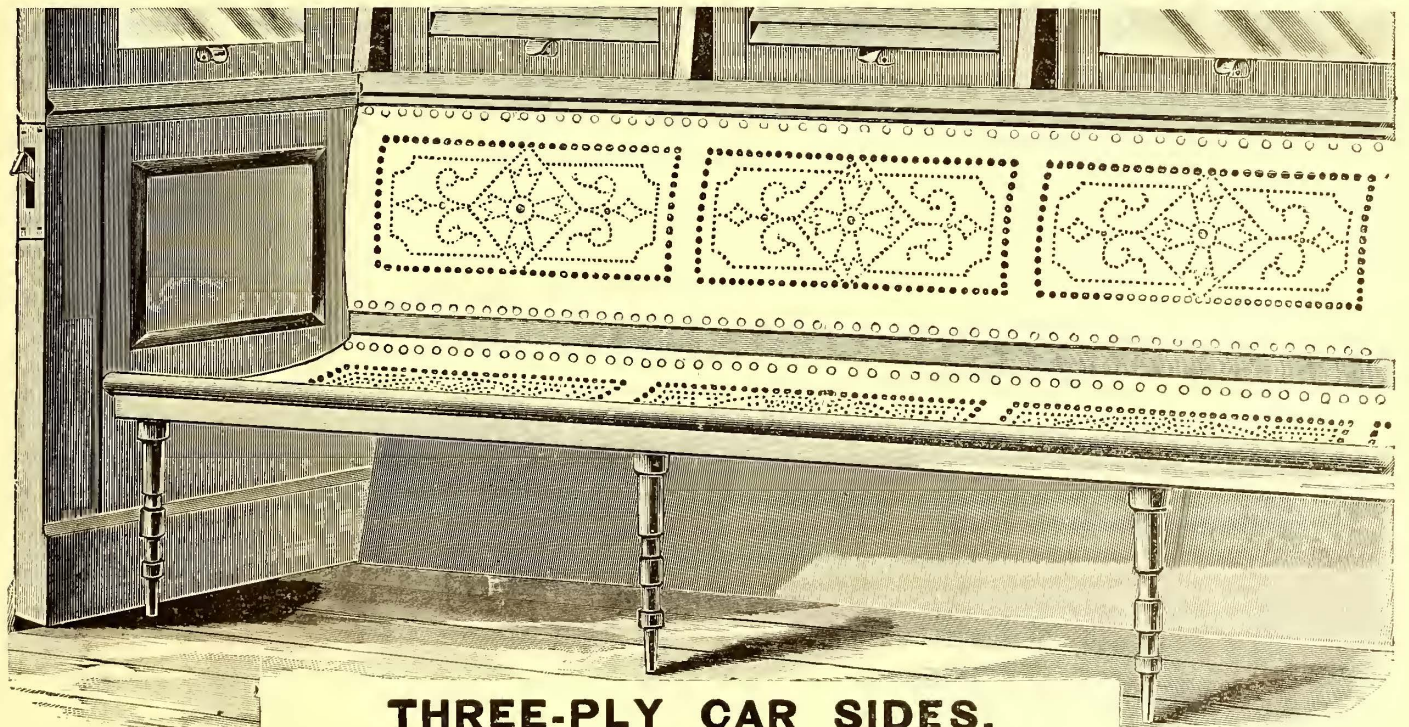
A TRIAL SOLICITED.

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PHILADELPHIA, PA. Cut of section of cross for summer car.



STREET CAR SEATS & BACKS.



THREE-PLY CAR SIDES.

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, plain or decorated. Send for Railroad Catalogue.

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This improved running gear needs oiling but twice a year, and the brasses will wear upwards of six years. No waste is required in the box, and the friction is reduced upwards of fifteen per cent. In ordinary running gears, oiling is necessary once or twice a week. Brasses wear out in less than one year, and the boxes require frequent re-stuffing with waste. This is the most comfortable, easy running and lasting gear in the market. It can be had to fit any ordinary pedestals.

Brake shoes, (improved pattern) sold by the pound.

BRILL'S PATENT RATCHET BRAKE HANDLE.

Made of Bronze and of Malleable Iron. The ratchet enables the driver to adjust the handle to any position, where he can obtain increased leverage and power. This Brake Handle will prove an economical attachment to any car, and can be attached to any shaft.

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An arrangement for altering the Signal Lights of a car, by which different routes can be designated. The center or stationary lens, or "bull's-eye" is white, and the two changeable lights may be had of any desired color. These lights are used to advantage in connection with the Reversible Signs, described below, and can be easily attached to any car.

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This is a Wooden Sign, placed on the sides or end of the cars, on the edge of the roof, and is used to designate certain streets or routes through which the car passes. Also to designate terminal points. The castings are sold complete, and it is an easy matter to fit in the board sign. When in place, a simple upward push will turn the sign and expose the reverse side. Done in an instant. Send for sample set of castings.

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IMPROVED CHANGE BELT.

SINGLE & DOUBLE HARNESS, HALTERS, WHIPS

& BLANKETS, BODY & DANDY BRUSHES,

CURRY COMBS, SPONGES & CHAMOIS.

Card Signs and Change Envelopes.

Conductors' Badges, Numbers, etc.

WHISTLES.

Car Trimmings, Brake Shoes, Fare Boxes.

Wood Mattings, Rubber Mattings and Treads.

Registers, Indicators and Punches.

WESTERN AGENCY

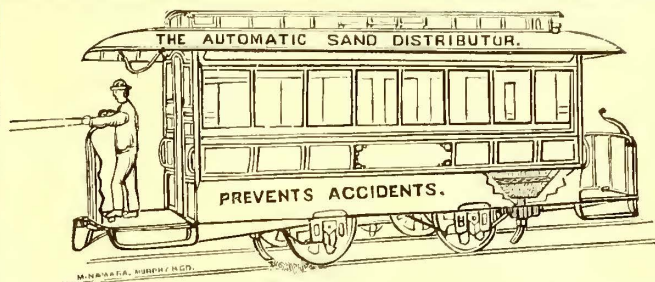
Wichita Construction and Supply Co., - - Wichita, Kan.



SEATS

EVERITT'S
Patent Car Floor Rack.
Cheap, durable, cleanly, firm,
labor saving, easily swept or
washed without removal.
Put down by any mechanic.
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New Haven, Conn.

SEATS



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.

Street Railway Supply Company,

SUCCESSOR TO

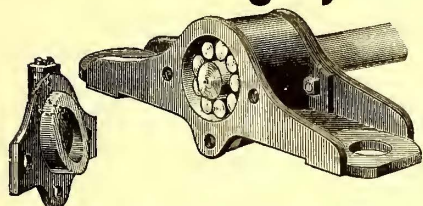
Higley Car Journal Company, Cleveland, O.,

— MANUFACTURERS AND DEALERS IN —

Street Railway Supplies

OF EVERY DESCRIPTION.

GEAR SUPPLIES A SPECIALTY.

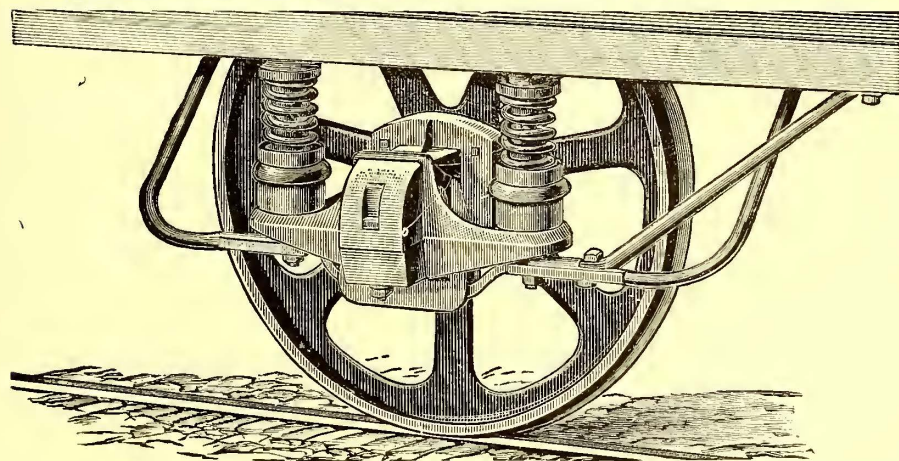


Worswick Patent Journal Box.

THE BEMIS CAR BOX COMPANY,

MANUFACTURERS OF

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

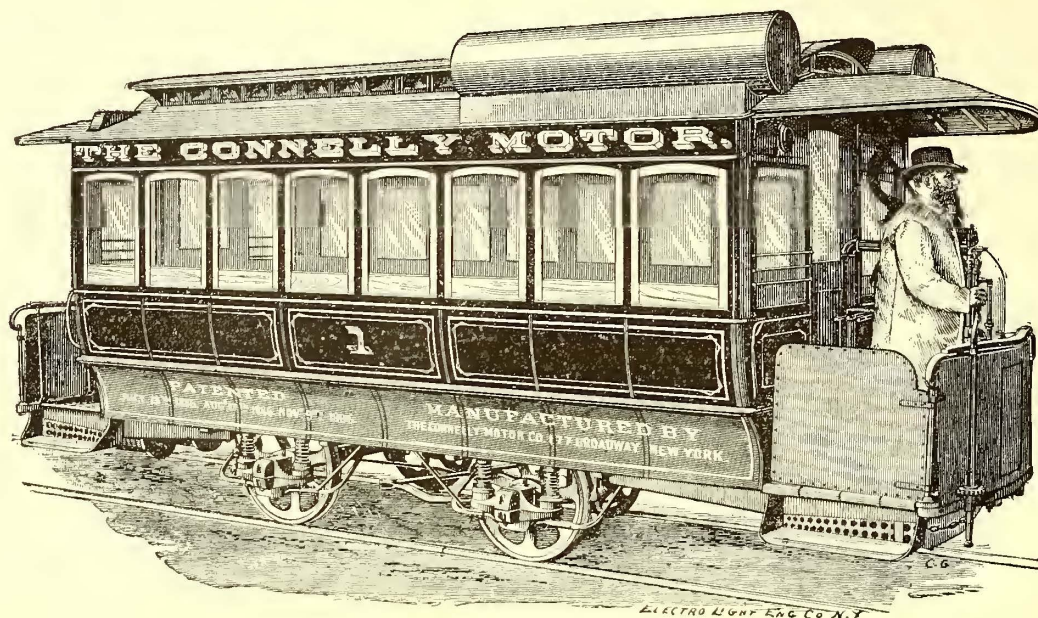
Boston Consolidated St. Ry. South Boston R. R. Cambridge, Mass., R.R. Lynn & Boston R. R. Union R. R., Providence, R. I. Globe St. Ry., Fall River, Mass. Citizens' St. Ry., Worcester. Brooklyn Cross Town R. R. Second Ave. R. R., New York. Forty-second St. & Grand St. Ferry Ry., New York. Rochester City & Brighton Ry. Buffalo St. R. R. Co. Citizens' Pass. Ry., Pittsburg. Pittsburg & Birmingham Pass. Ry., P'burg. Columbus Consolidated St. Ry. Detroit City Ry. Louisville City Ry. Denver City Ry. Milwaukee City Ry. Cream City Ry., Milwaukee. Minneapolis St. Ry. St. Paul City Ry. Galveston City Ry. North Baltimore Pass. Ry. Chicago Pass. Ry. Co. and others. SEND FOR CATALOGUE TO

THE BEMIS CAR BOX COMPANY.

SPRINGFIELD, MASS., or 18 & 20 Platt St., NEW YORK.

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 power.

No loss of power in transmission.

No dangerous Electric currents.

No tearing up of streets for repairs.

No suspension of traffic for repairs.

It excels all other motors in **ECONOMY** and **CONTROLLABILITY**, and stands alone in its **INDIVIDUALITY**.

It carries a supply of fuel for a day's run, and consumes but **ONE GALLON OF NAPHTHA PER HOUR**.

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.

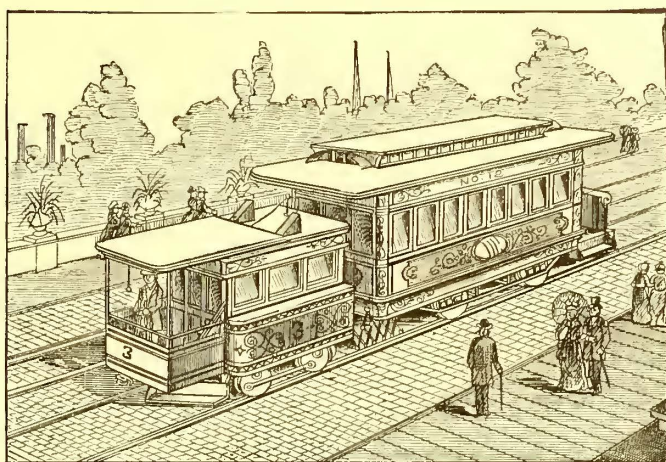
All parties interested in street or suburban roads are requested to correspond with us.

THE CONNELLY MOTOR CO., 177 BROADWAY, NEW YORK CITY.

POLE STREET CAR

Differential Lever Car
Starter, Runner & Brake.

Starts easily, Brakes as certainly and effectively as the air or Steam brake.



Standard No. 3 Motor
Is operated by a
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.

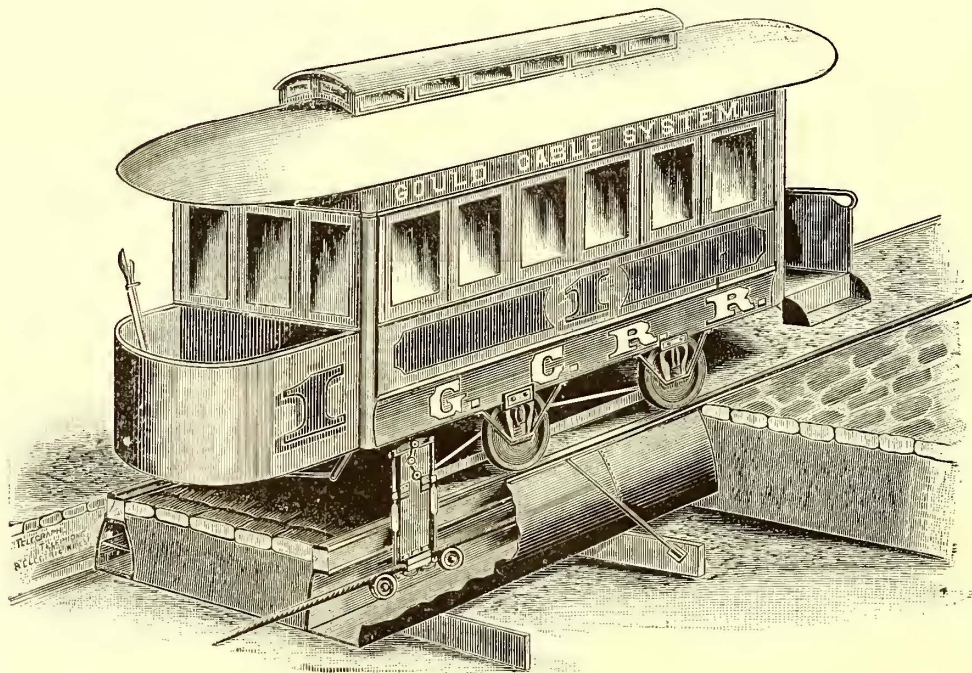
Pole Street Car Motor System,

310 Chestnut Street, Philadelphia, Pa.

THE GOULD DOUBLE CONDUIT.

A CONDUIT FOR THE CABLE AND AN EXTRA CONDUIT FOR TELEGRAPH,
TELEPHONE AND ELECTRIC WIRES, ETC.

Constant Tearing up of the Street Avoided.



The Conduit for the Cable is placed at the side, doing away with the Central Conduit entirely.

A Conduit on the other side is supplied for Electric and Telegraph Wires, Gas, Steam, Etc.

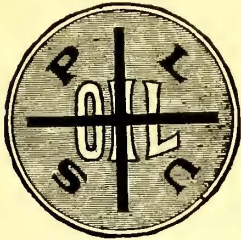
The Rails are Tied Together at the Surface.

The Slot which admits the Grip is placed outside the rails. The construction of the Grip is the simplest known.

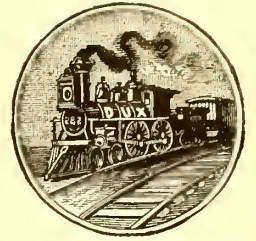
*THE INVENTOR WILL MAKE FAVORABLE TERMS WITH PARTIES WISHING
TO PUT THIS SYSTEM IN OPERATION, OR TO FORM COMPANIES
IN THE DIFFERENT STATES OR CITIES.*

Address all communications to

J. H. GOULD, Ninth and Market Streets, Philadelphia, Pa.



DUX LUBRICANT.



The Leading New Grease for Street Railways.

Trade Mark Pat. Mar. 13, 1883.

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., Buffalo, N. Y.:
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.
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 using axle grease.
Yours very truly,
A. P. SMITH, Treas.

BYRON WESTON, FIRST-CLASS LEDGER AND RECORD PAPER, }
DALTON, MASS., Oct. 15, 1886.
Leib Lubricating 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.

FAULKNER MILLS.—F. J. HASTINGS & CO., MILLERS.
SO. ACTON, MASS., Dec. 23, 1886.

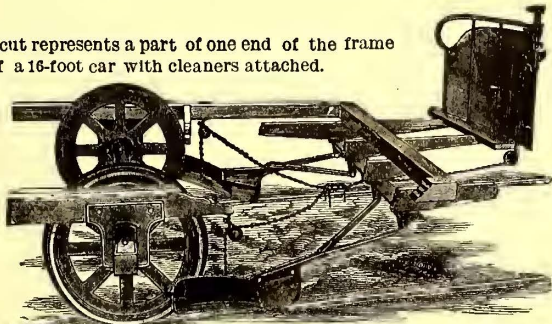
Leib Lubricating Co., Buffalo, N. Y.
GENTS:—Your favor of the 17th inst. duly received. In reply we would say, that for several years we had much trouble and annoyance to find a lubricant for our heavy bearings that would stand, and tried various articles on the market without being satisfied, until a friend connected with a large manufacturing 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.

DAY'S IMPROVED STREET RAILWAY TRACK CLEANERS.

The cut represents a part of one end of the frame work of a 16-foot car with cleaners attached.



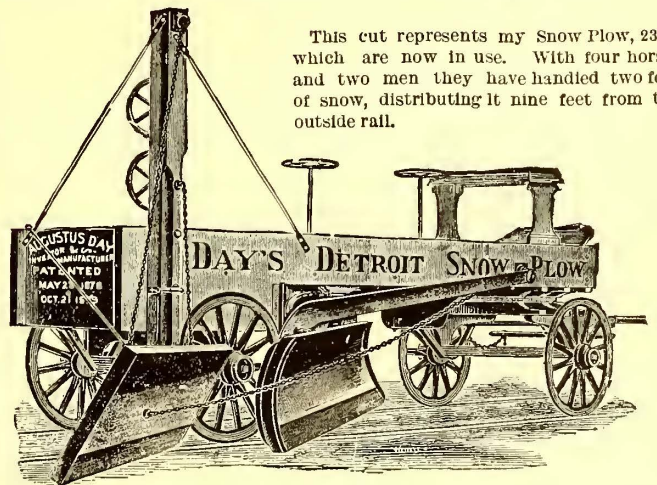
These Track Cleaners need no extended statement of their great superiority over all others invented. The fact of over three thousand pairs being now in use is sufficient evidence of their necessity and utility. Are adaptable to all kinds of rails and styles of cars. Clean Snow, Ice, Mud and Stones from the rail. The driver can raise or lower them instantly with one hand. To secure the largest benefit they should be attached to every car.

No estimate can be made of their advantage in saving of horseflesh hand labor, salt, and the making of time in stormy weather. Since their introduction new and valuable improvements have been made in their construction, mode of attachment, and convenience of handling. They are finished in a thorough, workmanlike manner of the best material obtainable, the design being to manufacture the most efficient article in preference to other considerations. Price includes right of use and is less than heretofore.

Reference is made to a few of the roads using these Cleaners.

Detroit City Ry., Detroit, Mich.....	154	Pair
Chicago City Ry., Chicago, Ill.....	400	"
Rochester City & Brighton R. R. Rochester, N. Y.....	100	"
Albany Ry., Albany, N. Y.....	75	"
Lynn & Boston R. R., Boston, Mass.....	68	"
Boston Highland Ry., Boston, Mass.....	46	"
Grand Rapids Street Ry.....	48	"
Naumkeig Street Ry., Salem, Mass.....	69	"
Bridgeport Horse Ry., Bridgeport, Conn.....	40	"
Cream City Ry., Milwaukee, Wis.....	40	"
Milwaukee City Ry., Milwaukee, Wis.....	60	"
Buffalo Street Ry., Buffalo, N. Y.....	32	"

This cut represents my Snow Plow, 23 of which are now in use. With four horses and two men they have handled two feet of snow, distributing it nine feet from the outside rail.



It is adapted to single or double track roads, adjustable where necessary; built in the most thorough and substantial manner of the best material. The Plow is not intended to supply the place of the small Track Cleaners, but is auxiliary to them. For execution in deep snow, ease, and convenience in handling, it surpasses all others in use. Orders should be given three month in advance.

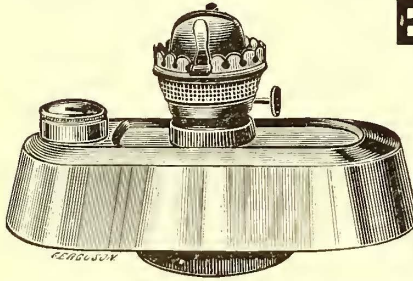
Reference is made to the following roads that use them:—Detroit City Ry., Detroit, Mich. (Two plows.) Rochester City & Brighton R.R. Rochester, N. Y. (Two plows.) Cream City Ry., Milwaukee, Wis. West Side Street Ry., Milwaukee, Wis. Chicago City Ry., Chicago, Ill. (Three plows.) Grand Rapids Street Ry., Grand Rapids, Mich. Highland St. Ry., Boston, Mass. Buffalo St. Ry., Buffalo, N. Y. (Two plows.) Johnstown Pass. Ry., Johnstown, Pa. Minneapolis St. Ry., Minneapolis, Minn. (Two plows.) St. Paul St. Ry., St. Paul, Minn. (Two plows.) Kalamazoo St. Ry., Kalamazoo, Mich. Worcester St. Ry., Worcester, Mass. South Bend Ry., South Bend, Ind. Milwaukee City Ry., Milwaukee, Wis.

For Further Information and Price, Address:

AUGUSTUS DAY, 76 State Street, cor. Park Place, - - - - - Detroit, Michigan, U. S. A.

EDWARD C. WHITE,
Brass & Bronze Works,
 531 West 33rd St., New York.
 Superior Quality Journal Bearings; Car, Locomotive and Machine Castings; Railway Hardware & Supplies.

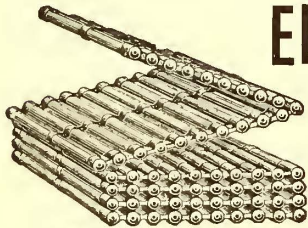
Clute's Patent Double Bottomed Street Car LAMP,



Is one that assures safety, 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.

EDWARD BEADLE,



Sole Manufacturer

OF THE

Eureka Folding Mat.

The Most Durable, Easiest Cleaned and Repaired Wood Mat ever made.

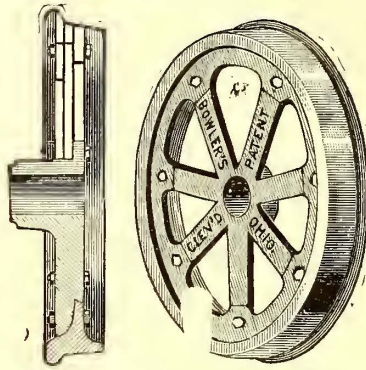
I would respectfully call the attention of Managers of Street Railways to my latest Improved Reversible Folding Mat, made to fit any size car. Sample order solicited.

1193 Broadway, New York.

FACTORY—CRANFORD, N. J.

The "BROADWELL CAR STARTER," having been subjected to practical tests, is now placed on the market at a very low price.

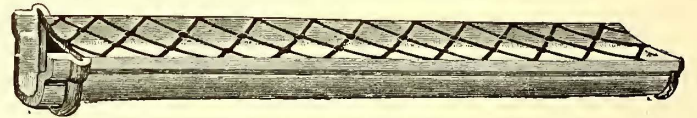
C. B. BROADWELL,
 169 Laurel Street, - New Orleans, La.



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 1/2 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., 10 TO 24 Winter St. Cleveland, O.

ANDERS' CABLE RAILWAY GRIP.

Simple, Durable, Efficient.

Cable may be dropped and picked up without leaving the platform. The whole under the constant control of the gripman.

Most efficient device in existence for releasing and gripping cable in crossing other roads.

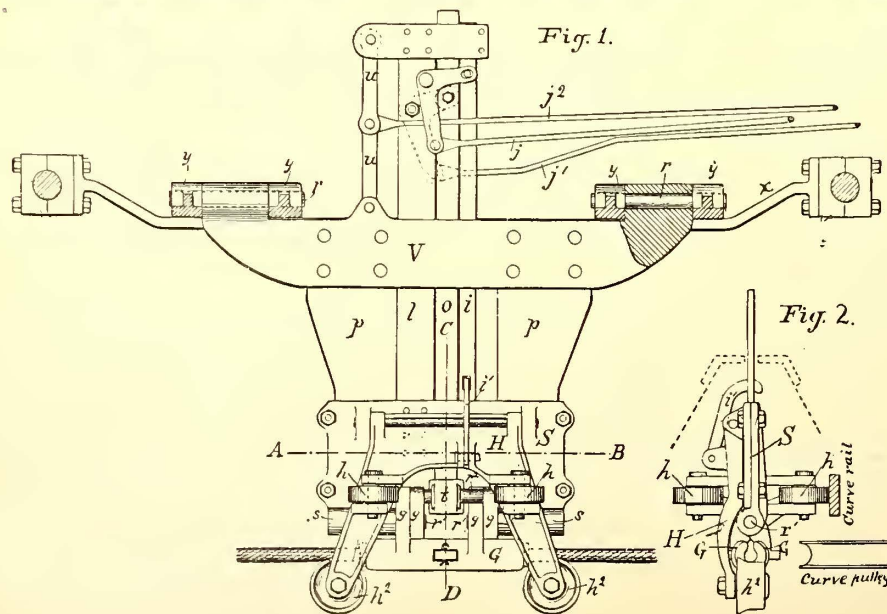
Can be worked from either end of the car.

Mechanism Simple and not Liable to get out of order.

The rope may be dropped at any time to a lower level than the path of the gripping device and again raised into the gripping jaws at the will of the gripman with perfect ease and safety.

D. B. ANDERS,

2313 RIDGE AVE., PHILADELPHIA, PA



CAR HEATING

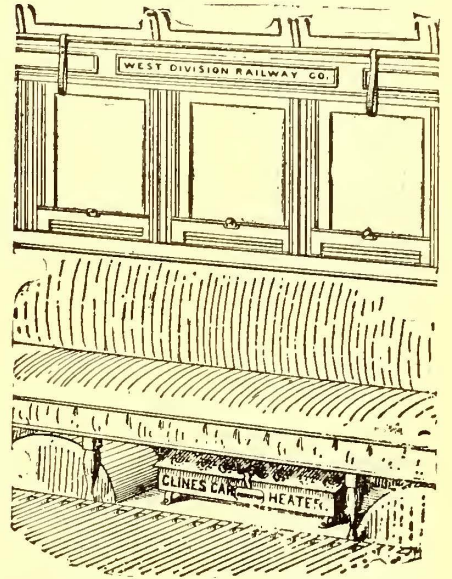
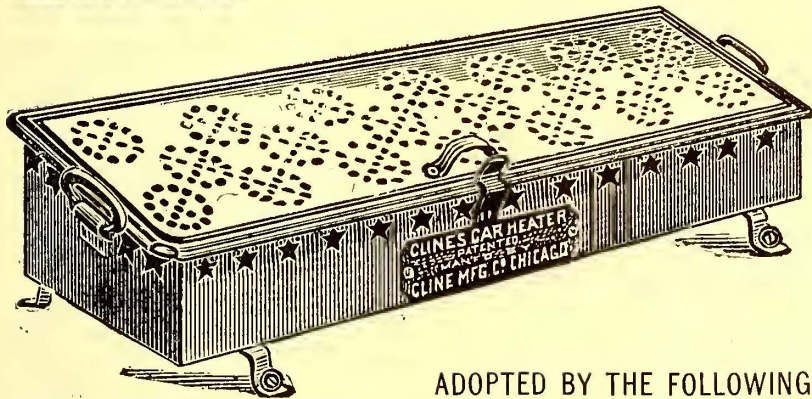
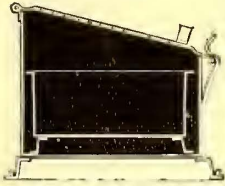
BY

Aromatic Carbonic Compound Fuel.

Cheap. Convenient. Safe.

Once Filling lasts 18 hours.

NO CUTTING OF CAR TO PUT IN.



ADOPTED BY THE FOLLOWING ROADS:

CHICAGO WEST DIVISION; CITY OMNIBUS CO., Chicago; SOUTH CHICAGO CITY RAILWAY CO.; PEOPLE'S PASSENGER, Philadelphia; PITTSBURG & BIRMINGHAM AND OTHERS.

CLINE MANUFG. CO., 277 and 279 South Canal Street, CHICAGO, ILL.
SOLE AGENCY FOR MISSOURI & KANSAS, 219 & 221 MARKET ST., ST. LOUIS, MO.

The Standard Fireless Engine Co.

P. O. Box 1914, New Orleans, La.



Use of Expansive Power of Condensed Ammonia as a Motive Power.

Machinery Simple in Construction, Effective, Economical in Action.

Thoroughly Tested and Practical Value Fully Demonstrated.

"PAY HERE."

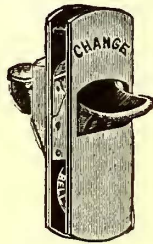
Fare Boxes and Change Receptacles FOR STREET CARS.

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:

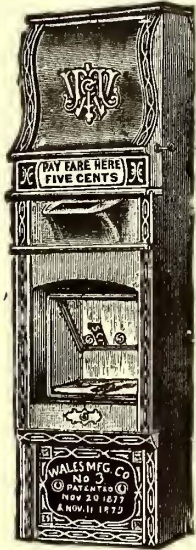
Simplicity of Construction, Quickness and Convenience of Cleaning, Security of Money Drawer, Beauty of Finish and Much Cheaper in Price.



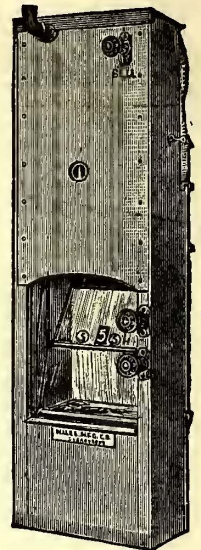
CHANGE RECEPTACLE.

Descriptive and Illustrated Circular on application.

Examine the merits of this box and get our prices before buying.



Box No. 3. Front or Passengers' View.



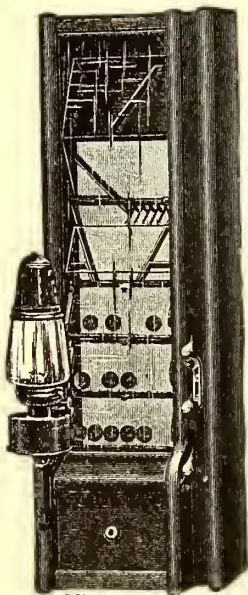
Box No. 3. Back or Driver's View.

The only satisfactory arrangement in use for making change with the driver.

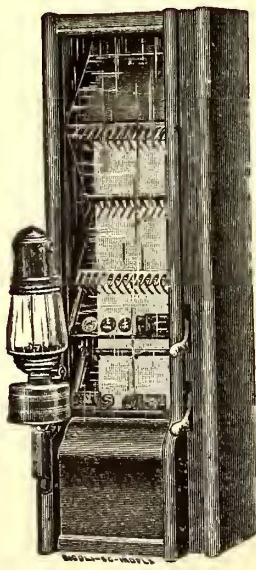
WALES MANUF. CO., 76 & 78 E. Water St., Syracuse, N.Y.

TOM L. JOHNSON'S IMPROVED FARE BOX.

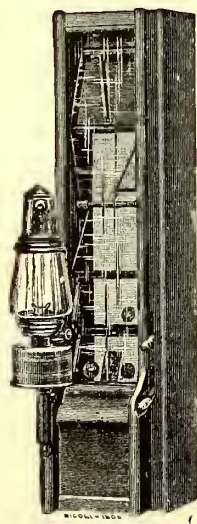
NOW IN GENERAL USE IN CITIES THROUGHOUT THE U. S.



BOX NO. 1.



BOX NO. 2.



CHARIOT PATTERN.

FARES CANNOT BE EXTRACTED OR BOXES ROBBED WITHOUT VIOLENCE.

SPECIAL SIZES BUILT TO ORDER.

ROADS EQUIPPED WITH BOXES ON TRIAL, AND IF NOT SATISFACTORY, RETURNED WITHOUT ANY EXPENSE TO THE COMPANY TRYING THEM.

Patented Oct. 14, 1873.

REDUCED PRICES.

Write for Descriptive Circular and Price List. Address all correspondence to A. A. ANDERSON, INDIANAPOLIS, IND.



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,

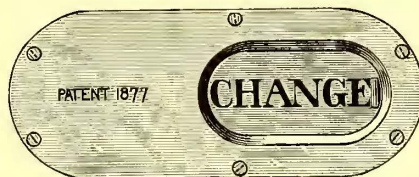
T. L. BEAMAN, Knoxville, Tenn.

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 SYSTEM," 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 infringements, 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.



C. Back View.

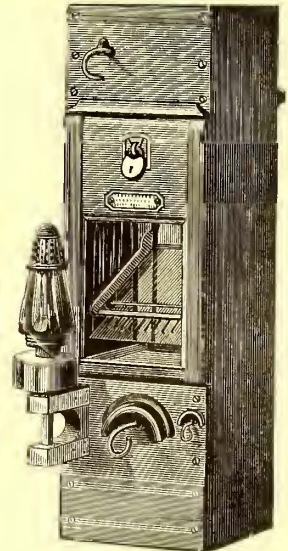
Change Slide. Outside View.



Change Gate. Outside View.



D Front View.

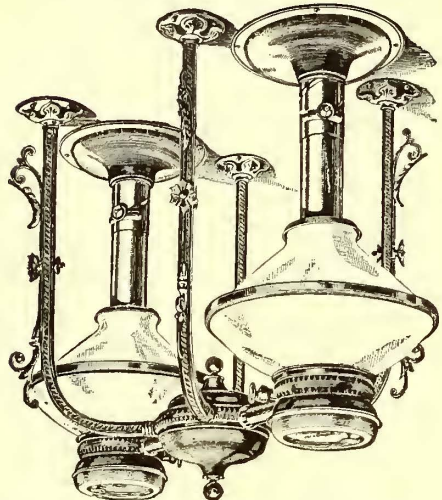


D Rear View.

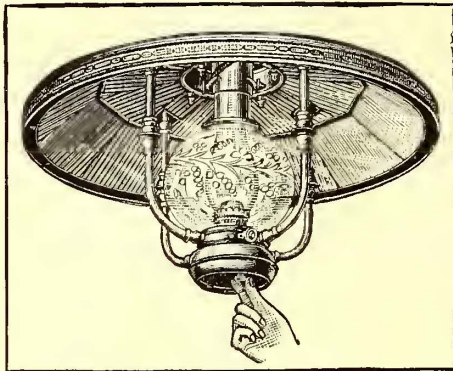
The prices have been greatly reduced, and are made to fit the times. Orders will be promptly filled by addressing,

MILTON I. MASSON, Agent, 365 AVENUE A, NEW YORK.

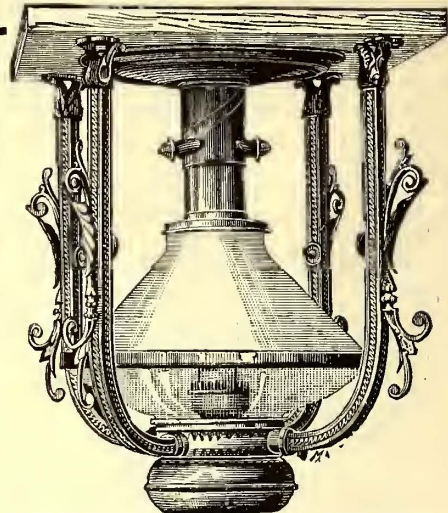
**JOSEPHINE D. SMITH, Successor to the late WILLARD H. SMITH,
350 & 352 Pearl Street, New York.**



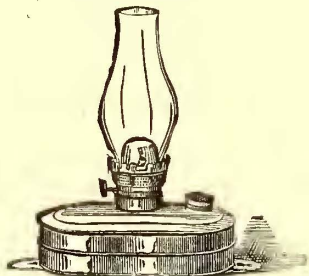
No. 10.—Two-light Car Lamp as used on Tenth Avenue (N.Y.) Cable road.



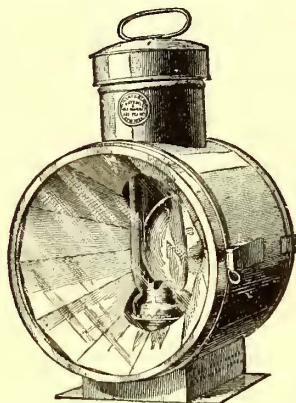
No. 14.—Center Car Lamp.



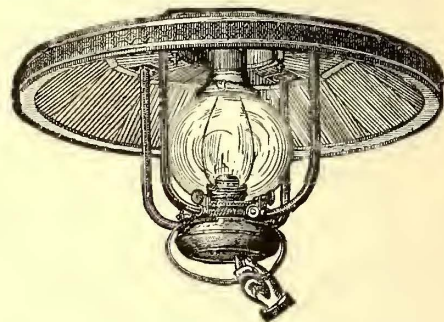
No. 8.—Center Car Lamp as used on Tenth Avenue (N. Y.) Cable road.



No. 3.—Box Lamp with drip cup.



Small Head Light for Grip Cars and Stages.

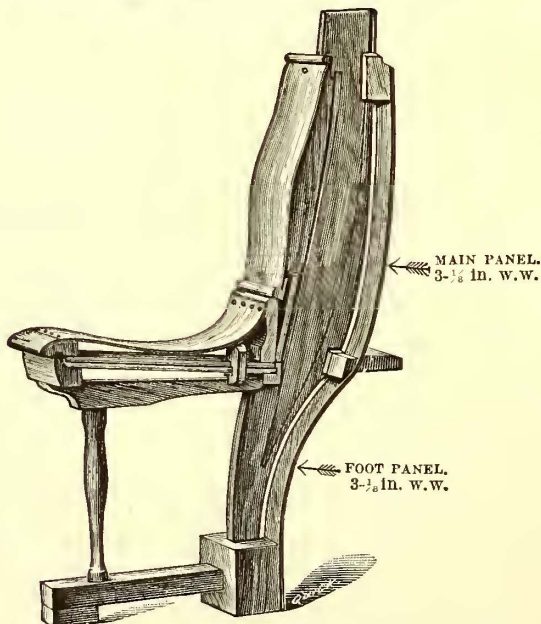


No. 1.—Center Car Lamp in general use throughout the United States and Canada.

All kinds of trimmings pertaining to car lamps.

MANUFACTURER OF W. H. SMITH'S PATENT RAILROAD CENTER LAMPS AND REFLECTORS.

STREET CAR SEATS & BACKS.



THREE-PLY CAR SIDES.

Having given our three ply white wood car sides a thorough trial for a number of years in our city street and railway lines, which test has left them as firm and good as the day they were put in, we unhesitatingly place these sides in the market as a superior article. They are composed of three white wood (or poplar) veneers, each 1/8 inch thick, the grain of the center layer running at right angles with the two outside layers. Hence they derive all the special and well-known advantages of glued up wood over single ply, namely:

- 1st. They are fully 75 per cent stronger, for they brace and stiffen the car.
- 2nd. They are lighter, being only 3-8 inch thick, and so do not add so much dead weight to the car.
- 3rd. They will not check or split by change of atmosphere.
- 4th. They will not split or crack when nailing into place, even though the nail be placed near the edge.
- 5th. Being laid over a form to suit the shape of the car frame or post they cannot buckle or twist, a feature which also adds strength to the car.

For repairing cars these sides have no equal. Our Three Ply Car Seats and Backs, so well known all over the world, are now the most popular seat and back in the market, and recommend themselves especially for their *Lightness, Cleanliness, Healthfulness and Beauty*, as also their *Cheapness and Durability*. For they are indestructible by moths (the great enemy of upholstery), and will not harbor vermin or insects, or carry or communicate contagion or disease. Our trade in this line has grown in thirteen years to vast proportions, which in itself is a sufficient guarantee of their merits. They are made either perforated or plain to suit customers. Birch is the wood most generally used. Today fully one-half the railroads in the country are using these seats and backs. We would also call attention to our *Veneer Ceiling* for cars. They are made either plain, perforated or decorated, and greatly add to the beauty of the car. For repairing cars they have no equal; for they are placed over the carlines and cover all the old paint and wood work. The woods generally used are *Birch, Birdseye Maple, Oak and Mahogany*.

GARDNER & CO.,

Manufacturers of Car Seats and Ceilings and Depot Seating,

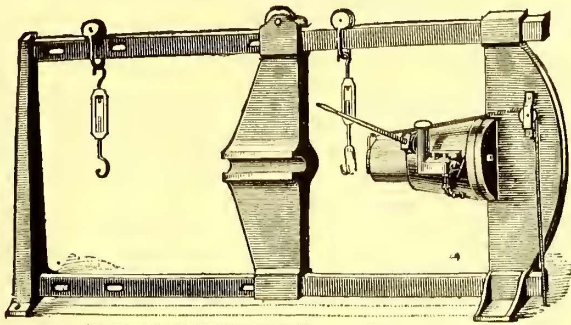
OFFICE AND FACTORY: 643, 645, 647, 649, 651, 653, 655 and 657 West 48th St., New York.

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See page 197, July, 1885.

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Watson & Stillman.
 204 to 210 East 43d Street. N. Y.

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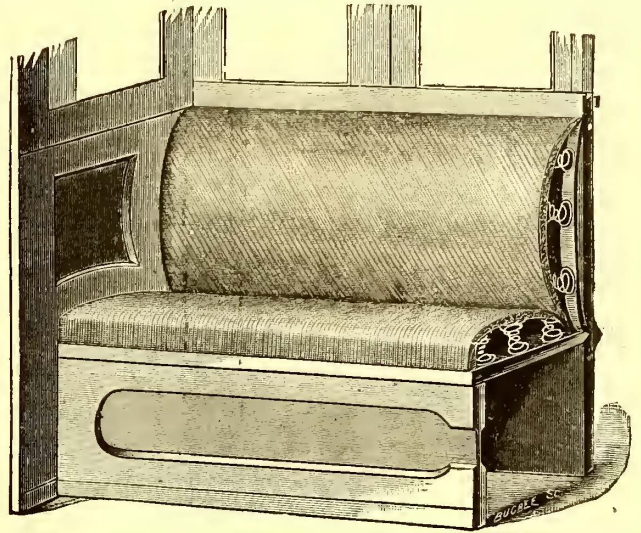
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CAR WHEEL WORKS,
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CAST CHILLED WHEELS,
AXLES AND BOXES
FOR EVERY KIND OF SERVICE.
 Street Railway Wheels of all Sizes.

ROBERTS' PATENT WOVEN-WIRE

Car Seats and Backs.

Especially adapted to Street Car use.
 Cleanly, Durable, Economical, Cool, Comfortable.
 Cannot be Cut, Injured or Defaced.
 Being entirely of Metal will last indefinitely.
 Can be covered in Rattan, Carpet, Leather or other material, with less labor in covering and less expense in material than any seat in the market.



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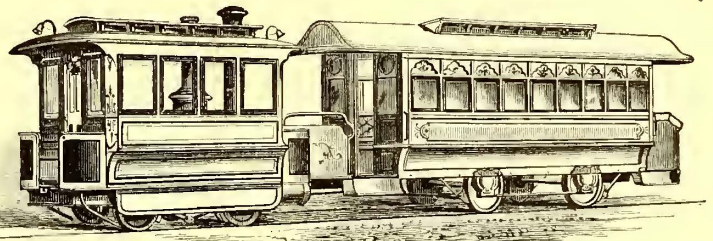
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Annual Capacity,
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Adapted to every variety of service, and built accurately to standard gauges and templates. Like parts of different engines of same class perfectly interchangeable.



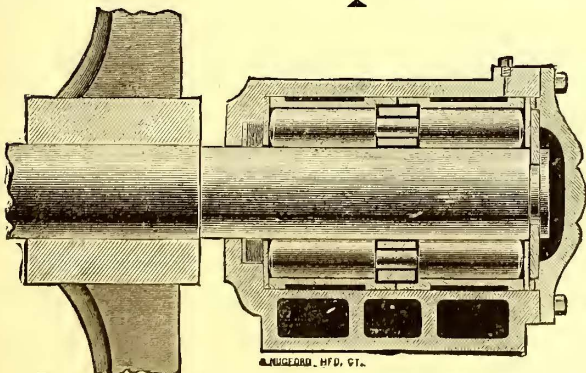
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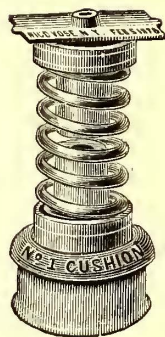
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No. 2, for 12-ft. Cars.

No. 3, for 14-ft. Cars.

No. 4, for 16-ft. Cars.

No. 5, for 16-ft. Cars.
(Single Pedestal.)

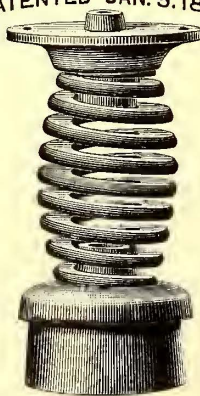
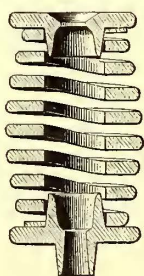


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Adapted to all
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Motion Soft and
Slow.

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.

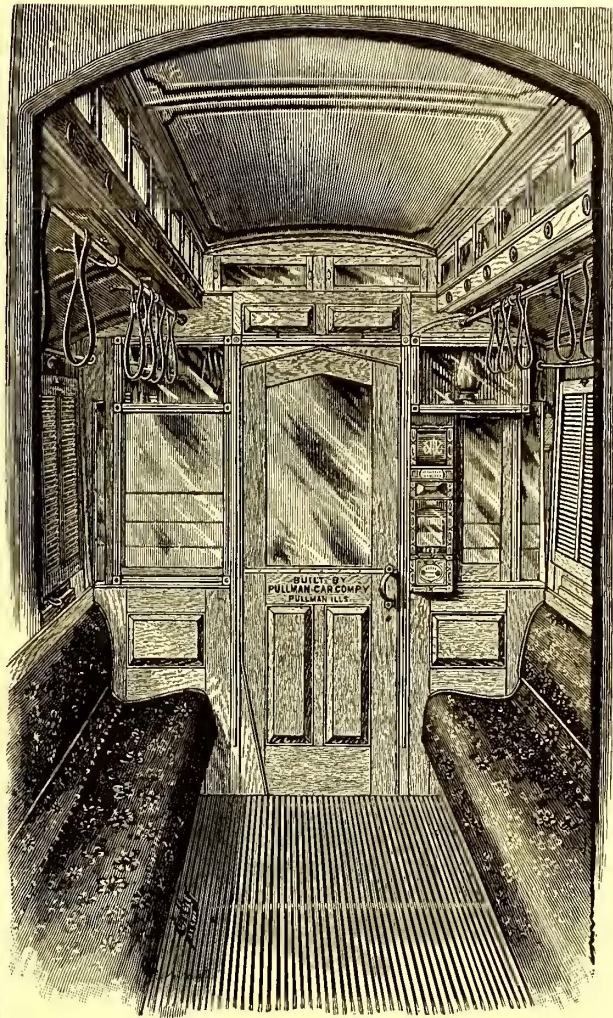
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Manufacturers
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RAIL-
ROAD

CARS.

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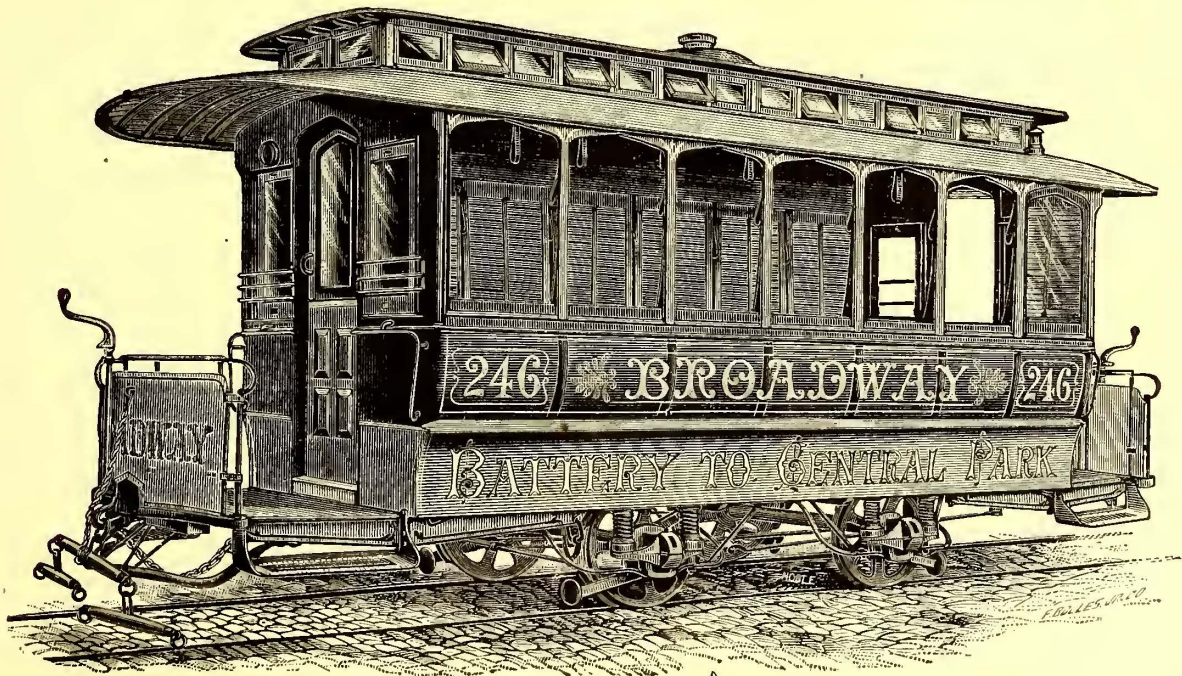


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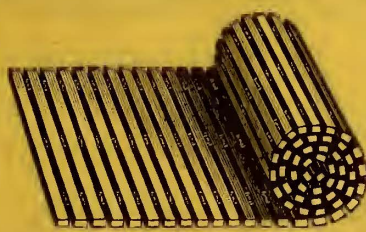
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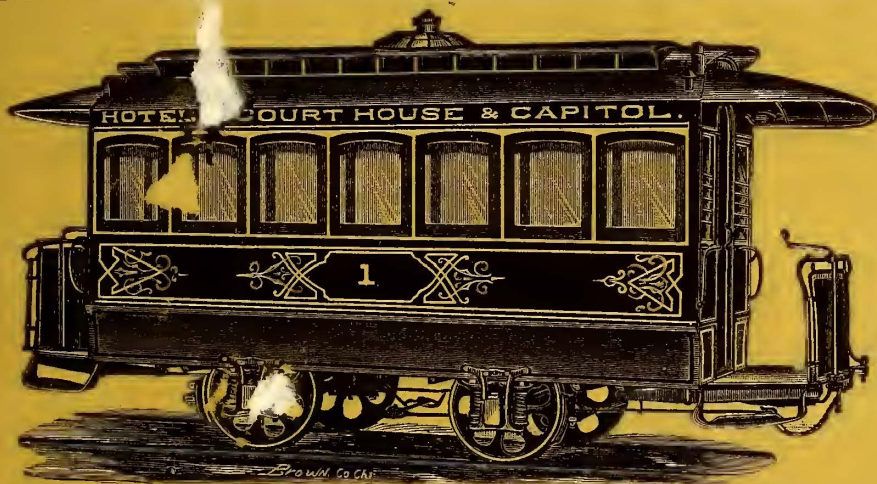


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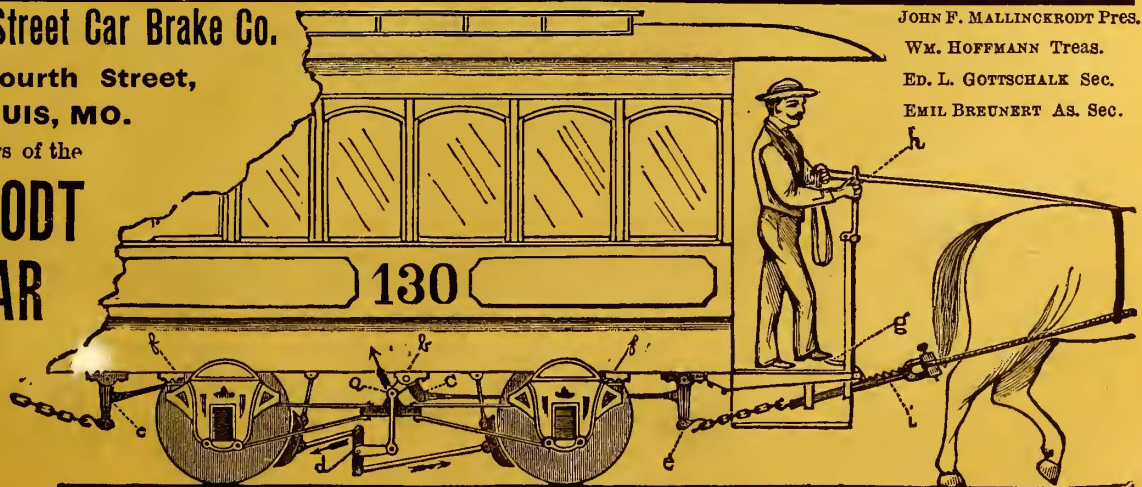
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See description on
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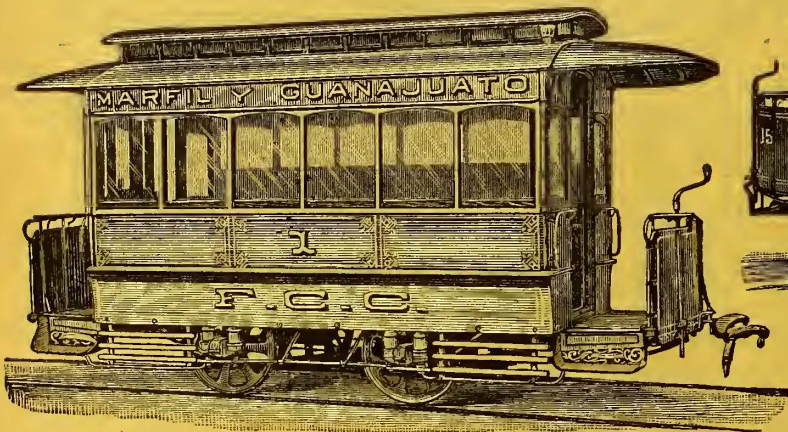


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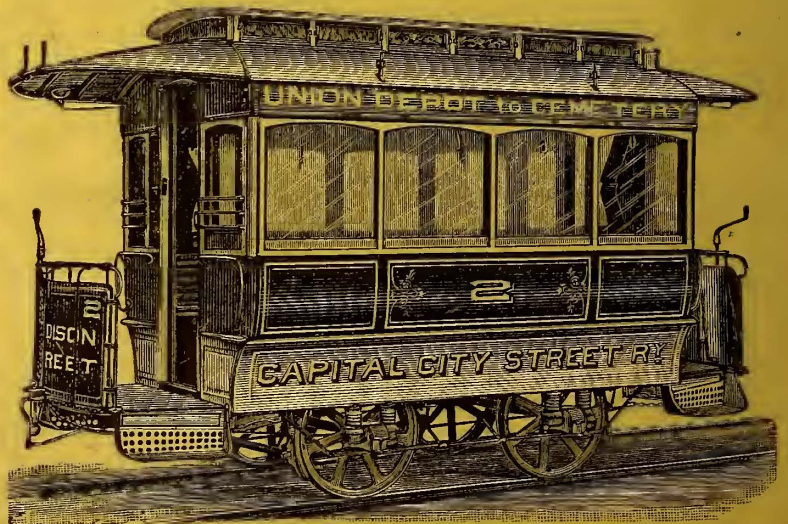
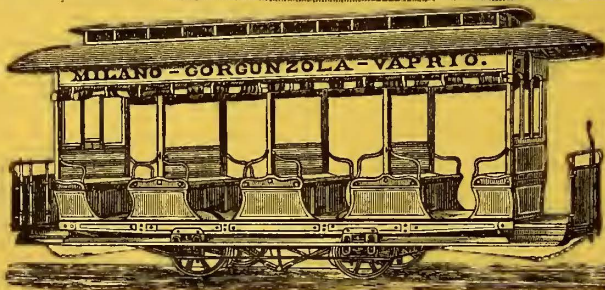
J. G. BRILL COMPANY,

PHILADELPHIA,
BUILDERS OF

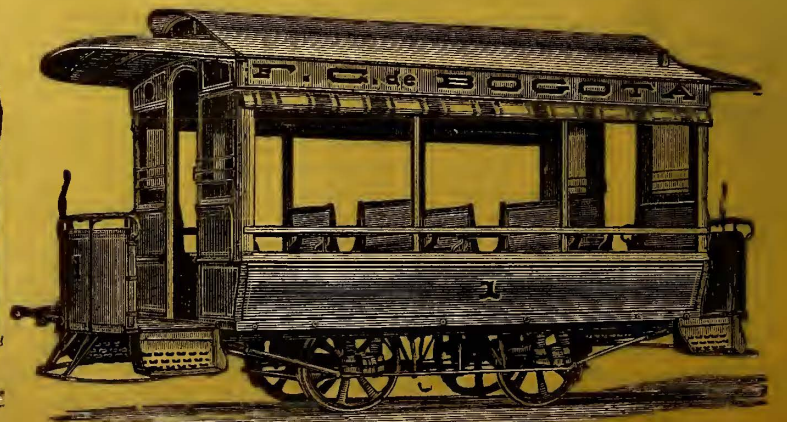
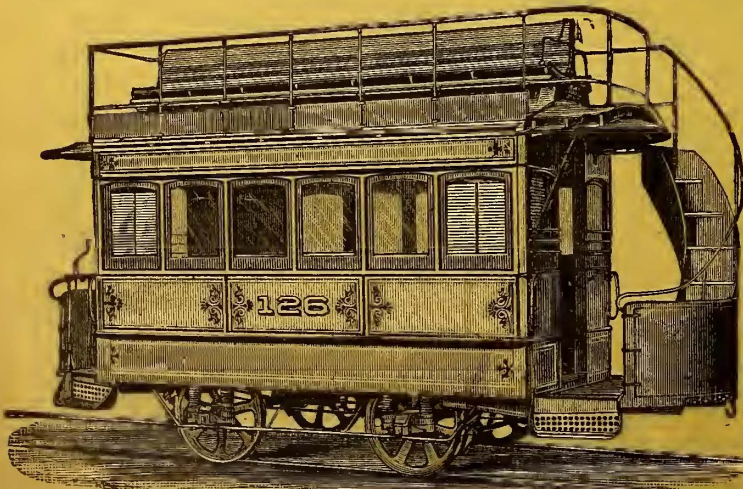
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Gold Medal at Chicago Exhibition
OF
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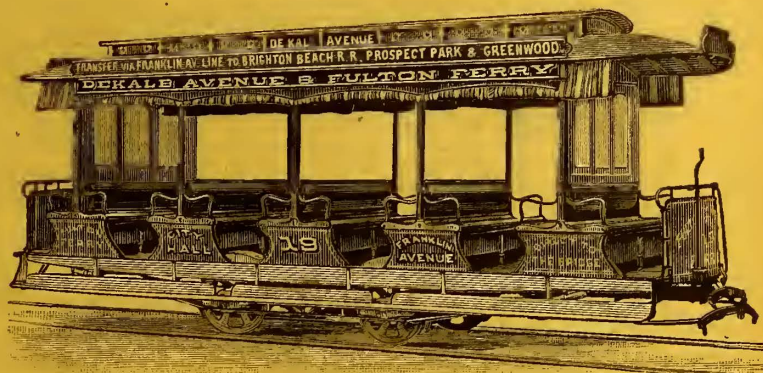
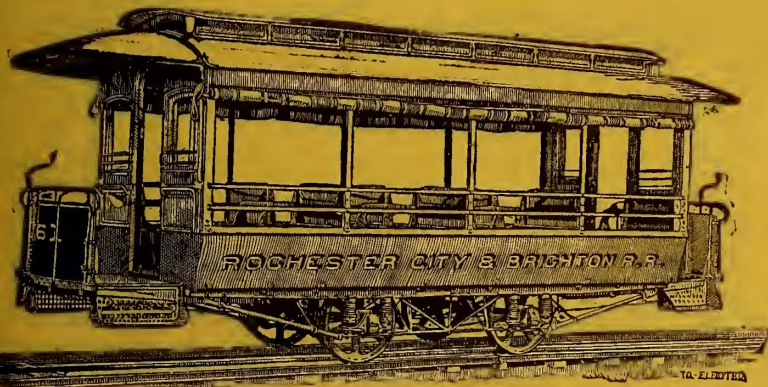


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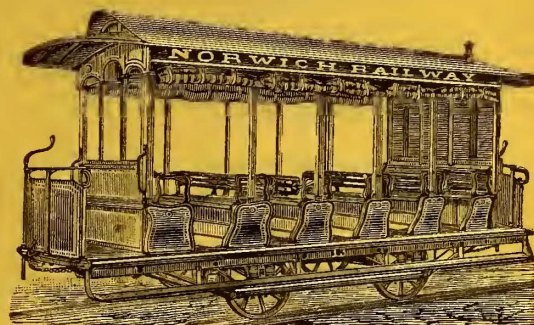
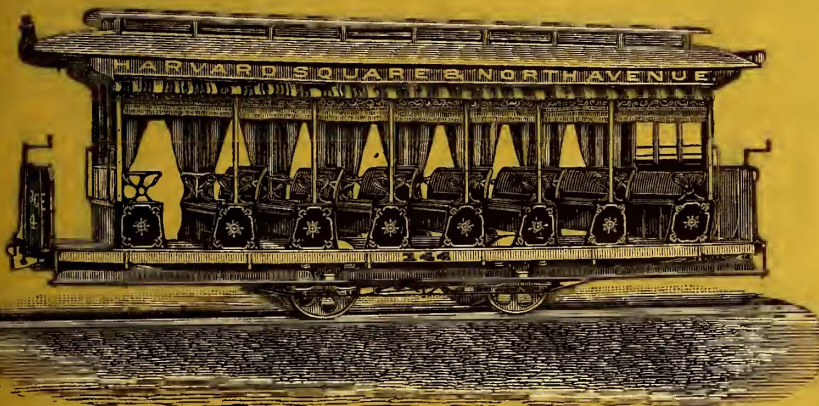
PHILADELPHIA,

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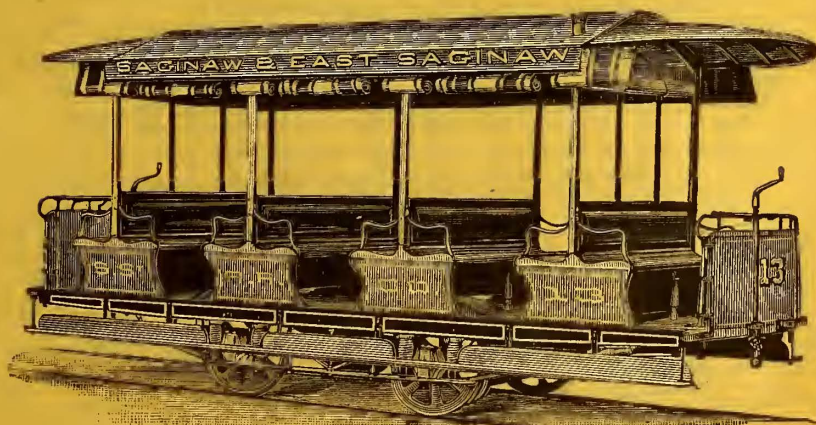
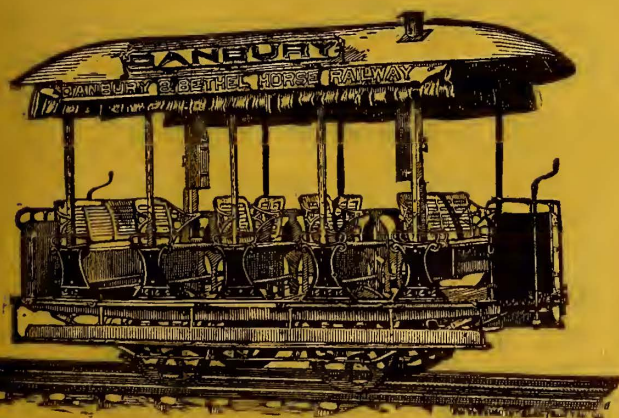
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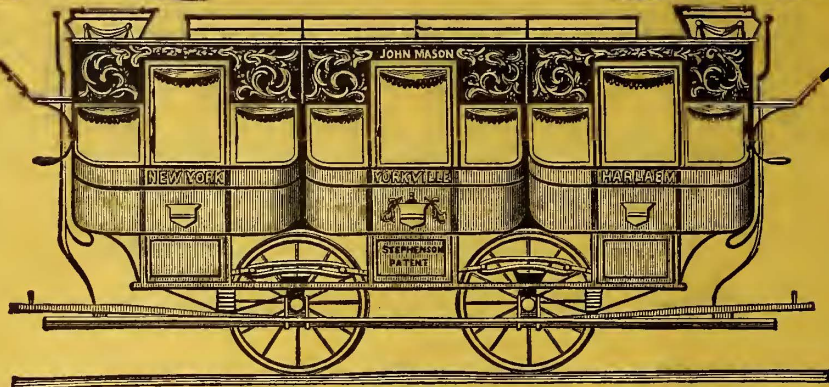


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