

VOL. III. 32 Liberty Street.

Thomas W. Ackley.

Mr. Thomas W. Ackley, who was elected President of the Street Railway Association at the recent convention in Cincinnati, was born in New Jersey, but went at the age of fourteen to Philadelphia. There he was

engaged in the retail drygoods business until the year 1843.

At that time he went into the wholesale dry-goods trade, becoming a junior partner in the firm in 1847.

He remained in this business until 1853, at which time the business was changed to the wholesale clothing trade. Mr. Ackley remained in this business for about twelve years.

Having become interested in street railway matters in the sixties, he was elected a director of the Thirteenth Street and Fifteenth Street Railway Co. in 1869, and Presidentin 1870, which latter position he now holds.

Mr. Ackley succeeded Mr. George Williams as President of the Board of Presidents of the City Passenger Railways, and is the present incumbent of that position.

Besides being a large stockholder in the Thir-

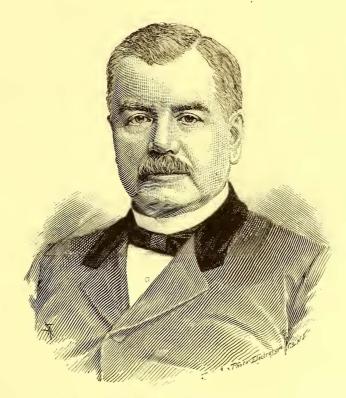
teenth and Fifteenth street road, of which he is President, he is largely interested in other street railways of Philadelphia. This brings him in contact with a large circle of street railway men, where he is very popular and influential.

Veterinary Practice.

Dr. Farr, in a recent number of the Ohio Farmer, gives some further directions for veterinary practice that may be of benefit to our readers. In a case where a colt was bruised back of the ears, and a swelling took place forming abscesses, he recommends the

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application of the tincture of iodine twice a day for the preliminary treatment. If at the end of a few days the enlargement does not subside, or become soft, it should be opened up freely with a knife and all the pus allowed to escape. The wound should then be injected with a carbolic lotion com



THOMAS W. ACKLEY, PRESIDENT AMERICAN STREET RAIL-WAY ASSOCIATION,

posed of one part of acid to twenty of water.

A horse that had strained a fetlock while running and had been allowed to stand in the stable and had his ankle treated with a solution of salt and vinegar, he gave a regular walking exercise, increasing the length of the walks as the difficulty became less. This prepared him for the heavier exertions that were required of him. While this treatment was going on, a liniment was applied, composed of tincture of camphor three ounces, alcohol six ounces, aqua ammonia one ounce, water one quart. This application was made twice a day.

{CHICAGO: {Lakeside Building.} No. 1.

The Cable Splice.

EDITOR OF THE STREET RAILWAY JOUNRAL: SIR—In your issue of this month you have an article on Mr. Thomas Nash's "cable splice" and therein Mr. Holmes concludes what he has to say thus "For it is

vital to the success of cable roads;" and Mr. Hovey says "that with this invention cable railways are a perfect success, no cable road can be operated successfully without this splice." To this we take exception; cable roads have been running fourteen years in San Francisco and do not use the Nash splice, though one road tried it once, and found no benefit from its use.

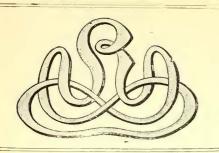
The Presidio & Ferries company run a cable two years until it is worn out, and never hear from the splice. The Clay Street Co. run a cable fifteen months, wear out the cable and never hear from the splice; and all the roads in San Francisco run without the Nash splice and are doing well nine roads, and most of them overcome very bad hills, some of them one foot in five.

In describing the splice you say "the cable is unlaid for a distance of seventeen

feet;" that would make a splice 34 feet long. Now we never unlay our cable for less than 50 feet, often more, making a splice not less than 100 feet long, and that seems to be what is the matter, trying to make a short splice do the work of a long one. As for the creeping of the strands, I never knew it to occur excepting once in an improperly made cable but never in a splice and I have been connected with this business since its beginning. B.

San Francisco, Sept. 24, 1886.

Toe horses should be blanketed now.



The A. S. R. A. Convention.

The Fifth Annual Convention of the American Street Railway Association was called to order in Cincinnati, at ten o'clock A. M., October 20th, by President Walsh. The roll was called by the Secretary, and the following gentlemen were present.

AUGUSTA, GA. Superintendent, E. J. Mosher.

BOSTON, MASS. Presidents, C. A. Richards, Moody Merrill; Superintendents, J. E. Rugg, Daniel Coolidge; Master Mechanic, I. H. Randall; Vice-President, Walter A. Jones.

BROOKLYN. Secretary, Wm. J. Richardson; Superintendents, Joshua Crandall, William N. Morrison.

BUFFALO. President, Henry M. Watson, Samuel S. Spaulding.

CAMBRIDGE, MASS. President, Prentiss W. Cummings, Director, Brown.

CAPE MAY, N. J. President, William Wharton, Jr.

CHICAGO. President, Charles B. Holmes; Secretary, Henry H. Wiusor; General Superintendent, De Witt C. Cregier.

CINCINNATI. Presidents, John Kilgour, George B. Kerper; Vice-President, A. G. Clark; Secretary, Jas. M. Dougherty, J. A. Collins.

CLEVELAND. Vice-Presidents, A. J. Moxham, John Koch, Jr., Charles Hathaway; Superintendent, M. S. Robinson, Jr.

COLUMBUS, O. President, A. D. Rogers; Secretary and Treasurer, E. R. Stewart, R. E. Sheldon.

DAYTON, O. Presidents, W. W. Bean, Charles B. Clegg.

DENVER, Col. Vice-President, Benj. A. Jackson.

DES MOINES, IA. President, M. P. Turner.

DETROIT. Secretary, C. Currie; General Manager, George Hendrie; Superintendent, George S. Hazard.

EASTON, PA. President, Henry A. Sage. EAST SAGINAW, MICH. President, Jones. HARTFORD, CONN. President, E. S.

Goodrich. KANSAS CITY. Superintendent, Edward

J. Lawless.

KEOKUK, IA. President, James H. Anderson.

LOUISVILLE. Superintendent, H. H. Littell.

MEMPHIS. President, R. Dudley Frayser. MILWAUKEE. General Malager, D. Atwood, Mr. ——; Director, C. E. Guun

NEWBURYPORT. Treasurer, H. N. Shepard.

NIAGARA FALLS. President, Benjamin Flagler; Treasurer, Arthur Schoellkopf. PAWTUCKET. D. F. Longstreet. PEORIA. President H. R. Woodward, J. H. Hall; Secretary, H. W. Wells; Superintendent, John Strong.

PHILADELPHIA. President, Thomas W. Ackley; Director, W. R. Warren.

PITTSBURG. President, Chas. Atwell; Auditor, J. W. Reed; Secretary, Charles Seibert.

PROVIDENCE. Vice President and General Manager, D. F. Longstreet.

RICHMOND, VA. President, J. L. Schoolcraft; Treasurer, F. D. Miller.

ROCHESTER. Secretary, C. C. Woodworth.

SALEM, MASS. Presidents, Charles Odell, Benj. W. Russell; General Superintendent, William B. Ferguson.

Springfield, O. President, D. W. Stroud.

ST. LOUIS. Presidents, J S. Walsh, John H. Maxon, Charles Green; General Manager, William L. Johnson.

TROY, N. Y. Vice-President, Charles Cleminshaw.

WASHINGTON, D. C. President, Henry Hurt.

Letters of regret were announced, from a number of delegates, on account of their inability to be present. An opportunity was then given for the eurollment of new members, and the following companies joined the Association.

Augusta & Somerville St. Ry. Co., Augusta, Ga., E. G. Mosher, Superintendent; Canton St. Ry. Co., Canton, O., George Cook, President and Treasurer; Chicago Passenger Ry. Co., Chicago, Ill., H. L. Weks, President; College City St. Ry. Co., Galesburg, Ill., George S. Clayton, Secretary and Superintendent; City St. Ry. Co., St. Joseph, Mo., R. E Turner, President; Dubuque St. Ry. Co., Dubuque, Ia., J. J. Liunehan, Superintendent; Galveston City Ry. Co., Galveston, Tex., William H. Sinclair, President; Gloucester St. Ry. Co., Gloucester, Mass., Walter A. Jones, Vice-President; Lincoln St. Ry. Co., Lincoln, Neb., L. P. Young, Superintendent; Metropolitan St. Ry. Co., Kansas City, Mo., E. J. Lawless, Superintendent; Utica Belt Line St. Ry. Co., Utica, N. Y., Walter A. Jones, Vice-President.

The reading of the minutes of the last meeting was on motion dispensed with. The President then made the following address.

PRESIDENT'S ADDRESS.

GENTLEMEN:—The annual meeting of the American Street Railway Association has been convened to-day, the fifth consecutive year, and I beg to express my sincere pleasure in meeting you, and congratulate you upon the large attendance and influential accessions to membership. It is an indication that there has been no misconception about the benefit flowing from an organization whose members meet and confer in the spirit of justice, fairness and enterprise: fully recognizing the several relations of the public, the stockholder and the employee.

The business of the past year has been generally prosperous, interrupted occasionally by labor disturbances, and it is to be regretted that many grave problems pertaining to that system still remain unsolved. The scale of wages and hours in the street railway service, has been regulated by the financial ability of each individual company and in no other unskilled business has there been paid such a uniformity of high wages.

It has come within the observation of all, that mechanics frequently abandon a profitable but varying trade to engage in a service where wages are promptly paid, with the occupation steady.

Designing men have attempted to estrange the loyalty of our employees and have succeeded in many cases in arraigning them against the companies. The weakness and inaction of constituted authority has permitted doctrines to be enunciated and disseminated, so monstrous, that if practiced, the perpetrators would be convicted of the grave crime of felony. To remedy the apathy of authority it behooves us to exercise in every legitimate manner, the full rigor of the franchise of American citizenship, and I feel confident that if we called our employees to assist in the work of purification, from the ranks of the thoughtful, a generous response would be heard.

With regard to progress in motors as a substitute for animal power and other pertinent topics, your committees have consented to submit in writing to the convention, their conclusions, and I feel that if I made any extended remarks upon such subjects, I would be trespassing upon their domain.

Gentlemen, I commit the business of the convention to your hands, and trust that when the hour of adjournment arrives we will be amply repaid, instructed and enriched by the free interchange of thought and experience.

The report of the Executive Committee was then read by the Secretary, which was as follows:

GENTLEMEN : The Executive Committee respectfully submits the following report :

APPOINTMENT OF COMMITTEES.

Directly upon the close of the last meeting of the Association, the Executive Committee met and selected the following subjects, upon which papersshould be prepared for consideration at the next meeting. " Cause, Prevention and Settlement of Accidents;" "Sanitary Condition of Street Cars;" " Ventilation, Lighting and Care of Cars;" " Progress of Cable Motive Power," and "Progress of Electric Motive Power." Committees were duly appointed, and are, doubtless, ready with their papers. Although there are not as many subjects this year as formerly, the range of topics is broad enough to serve as a very generous basis for the interchange of thought relative to important branches of our business. and sufficient to make this meeting of great interest to us all.

NEW MEMBERS.

The Association entered St. Louis last year with a membership of one hundred and twenty-three companies. At that meeting and since, eighteen companies have joined, as follows :

Dayton Street Railroad Company, Dayton, Ohio.

Newburyport & Amesbury Horse R. R. Co., Newburyport, Mass.

Washington & Georgetown R. R. Co., Washington, D. C.

Kansas City Cable Railway Co., Kansas City, Mo.

Union Depot R. R. Co., St. Louis, Mo. Cass Avenue & FairGrounds Railway Co., St. Louis, Mo.

St. Louis, R. R. Co., St. Louis, Mo. Cream City R. R. Co., Milwaukce, Wis. South Bostou R. R. Co., Boston, Mass. Des Moines Street Railway Company, Des Moines, Iowa.

Knoxville Street R. R. Company, Knoxville, Tenn.

Metropolitan R. R. Company, Washington, D. C.

Duluth Street Railway Company, Duluth, Minn.

People's Railway Company, Baltimore, Md.

Pawtucket Street Railway Company, Pawtucket, R. I.

Milwaukee City Railway Company, Milwaukee, Wis.

Reading City Passenger Railway Co., Reading, Pa.

The total number is now one hundred and forty companies, and embraces most of the largest in America, as well as many of the smaller roads.

MEMBERS' NAMES CHANGED.

During the year, two companies in the city of Boston, prominent members, have consolidated, forming one company under a new corporate name. The following correspondence in reference thereto explains itself:

Boston Consolidated St. RAILWAY Co., Boston, September 28, 1886.

DEAR SIR: I desire to officially inform you that on the 21st of August, last, the Middlesex Railroad Company of this city, of which I was the President, was consolidated with the Highland Street Railway Company, under the name of the "Boston Consolidated Street Railway Company,' the said new company acquiring all the powers, privileges, rights, franchises, property and estate held, possessed or enjoyed by the old Middlesex and Highland companies. Will you please, therefore, strike from the list of members of the American Street Railway Association the Middlesex Railroad Company and the Highland Street Railway Company, and substitute the name of the new company, the "Boston Consolidated Railway Company," in place of ,the former companies.

CHARLES E. POWERS, President. OFFICE OF

THE AMERICAN STREET RAILWAY ASSOCIATION BROOKLYN, September 29, 1886.

CHARLES E. Powers, Esq., President, Boston Consolidated St. Ry. Co.

DEAR SIR :--In reply to yours of the 28th instant would say that the name of the "Middlesex Railroad Company" and the

"Highland Street Railway Company" have been struck from the roll of members of this association, and the name of the "Boston Consolidated Street Railway Company" has been substituted in licu thereof, and I remain, very truly yours,

WILLIAM J. RICHARDSON, Secretary. Three other companies have changed their names during the year, as follows:

The Easton and South Easton Passenger Railway Company, of Easton, Pa., to the Easton, South Easton and West End Passenger Railway Company.

The Orange and Newark Horse Railroad Company, at Newark, N. J., to the Essex Passenger Railway Company; and the Street Railroad Company of East Saginaw, Michigan, to the East Saginaw Street R ilway Company.

LEGAL OPINIONS.

The following legal papers have been issued during the year, namely:

November-Brooklyn Crosstown Railroad Company against the City of Brooklyn.

December-John B. Conner against the Citizens' Street Railway Company, of Indianapolis.

January—Timothy Dixon against the Brooklyn City and Newtown Railroad Company.

February—Edwin P. Griswold against the New York and New England Railroad Company.

March—John Scheid against the Third Avenue Railroad Company, New York City.

April-John A. Stewart against the Brooklyn Crosstown Railroad Company.

May-John Dunn against the Cass Avenue and Fair Grounds Railway Company. June-Mary Laughlin against the Street

Railway Company of Grand Rapids, Michigan. July-Jersey City and Bergen Railroad

Company against John C. Ostigan and Thos. Egan.

August-Mary Coddington against Brooklyn Crosstown Railroad Company.

It will be seen that no opinion has yet been issued for either September or October, none having yet been received therefor by the Secretary. We take occasion to urge upon the members the importance of forwarding promptly opinions in reference to suits against the companies, as the latest law concerning our business is what we are all anxious to obtain.

FIRE INSURANCE.

In our last report we dwelt at considerable length upon what had been done relative to the formation of The American Street Railway Mutual Iusurance Company, setting forth the broad basis upon which the projectors of the company had planned to do the business of insuring street railway property substantially at cost.

Inquiries have been made during the year as to whether the company was in a position to take risks. From the lessons gained by losses sustained by some companies during the past year, usually but triffing, and the vexations delays and annoyances resulting from the adjustment of the losses, it is to be hoped that the scheme which had been so carefully planned and wisely undertaken will not fail of realization by lack of courage on the part of the companies to embark in the enterprise.

We commend, therefore, mutual streetrailway insurance as worthy of earnest consideration as a means of reducing **a** costly department of our business and at the same time of avoiding intensely annoying delays and difficulties in the adjustment of losses, when losses occur, and which, in case of loss, will inevitably result.

STREET RAILROAD TAXATION.

A very important subject which closely an I deeply concerns the street railroad business is the taxation by the government in many varied forms of our property and business. Upon the subject of street railroad fuxation a very valuable paper has recently been prepared by the Hon. G. Hilton Scribner, President of the Central Park, North and East River Railroad Company of New York City, and now President of the Street Railway Association of the State of New York. This paper is accessible to all. Owing to the ingenuity of the government to unjustly tax and increase the burdens of corporations, it behooves us to oppose by every honorable means within our power, further aggressions, which, though according to law, are thoroughly lawless in conception.

KNIGHTS OF LABOR.

Our business is a perfect financial meter by which to measure the prosperity of the country; there being no industry that is affected more delicately than our own; according as is the business of the country prosperous or depressed.

At about the same period in the Spring, all over the country, "strikes" occurred on the street reilroads; causing in many cases an entire stoppage of the business. This was brought about by an organization called the "Knights of Labor," a secret society, which required absolute obedience to the mandates of the few who controlled it. The injustice of the orders that our employees were required to obey was in many cases admitted by them, but so powerful was the organization at that time that no slavery could have been more abject, and it would seem more humiliating, than that to which the employees of the street railroads had become the willing subjects. The tyranny of the order was manifestly so un-American that the absolute power which it had shown at the outset soon waned. Exceedingly unwise and even foolish action followed their first efforts, and as the result what little respect the order had enlisted in the minds of the people was materially lessened, by reason of its reckless disregard of public convenience in wholly unwarranted stoppage of the great business of city passenger transportation. We believe the public would not tolerate a repetition of its discomforting experiences by the stoppage of our cars; and we are personally assured that only the most foolhardy in the organization would attempt to repeat the

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" strikes" of the Springtime. In this connection we can but commend that principle in our relations with our employees which is embodied in the maxim-"Do unto others as you would that they should do unto you." When a man treats his employees in such a way as he would wish to be treated, were their places changed, his action cannot be far removed from fair, honest and upright dealing. In this, we contend, the managers of street railroad companies will compare favorably with any of the other great business enterprises in the country. The year which had opened so promisingly was, therefore, beclouded; the strikes extending to all branches of business until, in the aggregate, many millions of dollars were lost to the laboring classes. We believe that the lesson learned by our employees will be lasting; and that they will not soon again attempt to do what could have been so much better obtained by direct personal and manly application to their employers, and without loss to themselves.

REDUCED FARES TO MEETING.

The Central Traffic Association and the main trunk lines from the East having last year generously granted to the delegates of this Association reduced rates of fare to the St. Louis Convention, it was believed the same privilege would be extended to the delegates of this year. For some reason, the concession this year was refused by the Central Traffic Association. We desire to acknowledge appreciation of the kindness of the Truuk Line Passenger Committee in their desire to secure us the reduced rates, and we trust the Central Traffic Association will next year extend the courtesies of last year, if for no other reason than that of the natural sympathy which exists between our businesses.

INVITATIONS TO MEETING.

Invitations to this meeting have been sent to all the street railway companies in the United States and Canada; and we believe that the attendance will be sufficiently large to make this meeting one of unusual interest.

AN OBITUARY.

In closing we are called upon to record the death of the President of one of our members,—Mr. John B. Slawson, at the time of his death President of the Crosstown Railroad Company, of New York City. Mr. Slawson was for many years prominently known as the leading street railroad inventor and business manager. It is with deep regret that we are called upon to make this record of the loss of an esteemed friend.

Respectfully submitted,

JULIUS S. WALSH, C. B. HOLMES, C. A. RICHARDS, JOHN KILGOUR, THOMAS W. ACKLEY, C. C. WOODWORTH, WILLIAM RICHARDSON.

TREASURER'S REPORT.

The Treasurer then read his report, the summary of which is as follows;

RECEIPTS.	
Balance in Bank Oct. 20, 1885,	\$792.70
Annual Dues, 134 companies	at
\$15 each,	2010
Admission Fees 17 companies	425
Salt Pamphlets,	5
Annual Reports,	12

DISBURSEMENTS.

Salary Secretary and Treasurer,	
\$1,000	
Type Writer, 80	
Printing Annual Report, 550	
Miscellaneous Running Expenses,	
596.63	
\$2.226.6	3

\$1,018.67

\$3,244.70

The reports of committees were then called for; the first being that of Mr. C. A. Richards, on the Cause, Prevention and Settlement of Accidents.

ACCIDENTS, THEIR CAUSES, PREVENTION AND SETTLEMENT.

In considering the first clause of this snbject, viz., the causes of accidents upon street railways, a valuable comparison can be made between transportation of passengers by steam cars and street cars. When a passenger takes his seat in a steam railroad car, he, as a general thing, has made up his mind upon two very important subjects. First, he has determined just where he desires to go, the distance he is to travel, and the point at which his journey will end. Second, he is aware that the car in which he is seated will come to a full stop, at that place, without his interference, and plenty of time will be given him to leave the car in safety. Then there is a very peculiar characteristic in human nature, in that the majority of all travelers are naturally under a certain nervous excitement upon these points. It will consequently be seen that the steam railroad company have a decided advantage over the street railroad companies in this respect.

The street car is used for a different purpose. It collects its passengers almost entirely as way travel, the percentage of those who enter its cars with the intention of riding from one terminus to another being a very low average. Many people get on to ride but a short distance, and then perhaps to jump on and off as their convenience or fancy dictates; others ride who are entirely ignorant of the locality, either of the street or number of their desired destination, and feel it entirely incumbent upon themselves to carefully guard against being taken beyond the place where they want to go. Passengers of this latter class always work their minds iuto a state of nervous apprehension, and after numerous and frantic altercations with the conductors, who find it impossible to gain their confidence, they jump off the car without giving any notice, or leave it before the conductor has time to stop it in accordance with his instructions.

Many other passengers acquire another dangerous habit of jumping from the car while it is in motion, and without notifying

the conductor of such an intention. This custom springs undoubtedly from a familiarity, by a daily use of the car to transport them from one point to another.

There is still another class of passengers, those who are not much accustomed to the use of street cars, who are taken up at the depots, and who become distracted with the confusion and bustle of the streets of our great cities, and who jump almost headlong from the car, when they think they have come to their point of destination.

Then again there is still another very serious difficulty we have to contend with, that is the manner of exit of different passengers, both in age and sex. An aged person feels the necessity of time, and the imprudence of haste. They leave the car by degrees, carefully looking all ways, and grasping with timid clutch everything to support and steady their motion, and often consume what seems to be an unnecessary amount of time. A cause of accidents in these cases often arises from the careless impatience of conductors in starting their cars before such a passenger has entirely left it. Again, the younger passenger, relying upon the agility of youth, takes the matter of leaving the car entirely within his own hands, and springs from his seat, and darts off the car, with all the pride and careless confidence of his age.

It will probably be conceded that in the larger cities and towns there is a greater percentage of accidents to females, and that the preceding statements will apply with stronger force to them. Naturally of a more nervous temperament, and not as much accustomed to the use of the street car as the opposite sex, they require constant care from the conductor while they are getting on oroff the car. Then again their methods are almost entirely different. Notice a lady of mature years leave a street car, and you will see that almost invariably she gets off one foot at a time, and either faces the rear or side of the car instead of the front, thereby placing herself in exactly the position to fall if the car starts up, or has not come to a full stop. Her younger and more active sister either steps off the car facing the sidewalk, or waltzes off with her face turned to the remaining passengers, so that she may be sure they notice her graceful exit. One and all seemingly utterly unconscious that to enter or leave a street car is a matter of some danger, and calls for the due care on the part of the passenger that the law expressly requires.

Accidents sometimes occur to passengers after they have got inside the car by the sudden starting of the horses, which throws the passenger off his balance, and causes him to pitch backward or forward as the case may be. It is a fact that, since theiutroduction of open cars, the percentage of accidents has largely increased upon street cars, owing doubtless to the fact that so many places of entrance and exit exist between the seats, affording the greatest temptation for passengers to leave the car without taking the time and giving the notice safety requires. Also a custom of program of the seats of the source of the seats of the source of the seats of running board of the open cars, used as a step to the seats, our narrow and crowded streets causing them to be pressed against or swept off by passing vehicles.

Accidents, or what may be called causes of litigation, often occur by conductors feeling obliged to eject passengers, who either from intoxication or disorderly conduct are insulting or annoying the other passengers. Entirely another cause of trouble arises from the injury to foot travelers in the streets being knocked down and run over during the trip of the car. Drivers have therein the chief cause for the utmost care, and complete education for their profession.

All that has been said about nervousness, carelessness, and offtimes utter recklessness of the passenger, applies with fourfold effect to those who are outside and not in the car. A driver meets all and every class of people, with every possible change or variation of circumstances. He finds the lame, the blind, the old and the young, even from feeble old age to tottering childhood, the gay and careless, the busy and the loitering, the intoxicated, the whole great stream of human life, all thronging across his path, all intent with their own purposes, and regardless of their own safety to a degree, that no one without exactly the experience of a car driver, can form any estimate. The certain and perhaps natural antagonistic opposition feeling that exists between the drivers of every other sort of vehicle and the street car is proverbial. Often will a driver of some team find his way upon the track of the street car, and getting ahead of a closely following car, persist in staying there. Both the driver of the car and the passengers become so impatient, that everybody becomes aware that it is not a Sunday school picnic out for an excursion. Accidents sometimes follow from this state of affairs, from collisions.

It is a mooted question whether it is a safe and profitable custom to permit passengers to ride upon the front platforms of our cars, and to get on or off therefrom without entering the car. Accidents occurring from this cause are the most dangerous in their results because they are in front of the wheels, and falling under they receive the worst injuries. It is an undoubted fact, that any profit derived from the revenue obtained from passengers riding on the front platforms of street cars, is more than lost by the risk and the consequences of such a custom, and it is thought by some that it should be abolished.

Time, nor a proper length for this paper, admits of detailed description of the thousand and one other causes of accidents. They are within the experience of us all whose business it is to manage a street railway, and doubtless each one of us could add largely to the list here submitted, of the causes of accidents. Let me turn now to the second part of the subject and discuss the best mode of their prevention.

PREVENTION OF ACCIDENTS ON STREET RAILWAYS.

After an analyzation of the cause of acci-

dents, the efforts for prevention are those that most directly apply to that class of accidents that are the most frequent. It will probably be found that in a classification, injury to persons who are or who are desirous to be passengers, occurs most frequently when getting on or off the cars. Of all the claims made at law, full ninety per cent. will contain this allegation: "I was getting on or off the car, and the conductor rang the bell before I was on or off the car." Not another word need be said or written on this point; it is the general experience of all of us here. It applies either in its truth or its falsity to the very case of the major part of all claims for accidents made to the street railroads of this country. It has become such a familiar expression, and has been so often used, that it is now generally given as the cause of accidents, even if some one tumbles down stairs in their own house, or fallsoverboard from a pleasure yacht. "The conductor rung the bell before I was off the car." The search for the truth of this statement has occupied courts, juries and street railroad presidents in this country, to a greater extent than any other question in modern times. That statement enfolds all the chances for accident that have been spoken of amongst the causes. And whether the experience of the nervous, the aged, the careless, those of feeble strength, who have defective hearing or eyesight, are intoxicated, and last but not least, the horse car accident "beat" whose business it is to get slightly hurt if he can, and then sue the company, it is an all absorbing expression, and is considered by members of both the legal and medical fraternity to be the one necessary statement, which, if asserted, will be sure to win every time, whether proved or not.

Prevention of accidents must first be found by teaching the conductors when, where, and how to "ring the bell." It is now the rule everywhere to give one pull of the bell strap to stop the car, and two to start it. As so much depends on this action it is of the utmost importance that the conductor should know of his own knowledge and see with his own eyes, that before he gives the two-bell signal, that his passenger is fully and entirely off and away from the car, or inside of it. He should know that "off the car" means everything off. Often the wearing apparel of ladies can be found on the car step when she is off and well on her way to the sidewalk. He should see to it that the old and feeble passenger has time enough for his or her slow and careful movement. He should see to it that the nervously excited do not jump off the car before his signal has given the driver time enough to stop the car. He should in all cases if he is inside the car when herings the bell, accompany the passenger to the platform of his closed car, or place himself in a position on his open car so that he can see that the passenger is safely landed.

The driver should also have his instructions. He should take time enough before starting his horses, or letting off his brake, so that in his judgment a passenger has a fair chance to get off or on the car, He should not, as is the custom, let his horses jump into their collars, and plunge forward on the instant the bell rings. Printed rules should be given them touching this matter and should be prepared for the study and careful consideration of both conductors and drivers. They should be kept under constant surveillance when on their trips, to the end that they act up to the positive requirements of this part of their duty. And if a conductor or driver is found habitually careless and thoughtless in this respect, he should be discharged, as no company can afford to keep such men in their employ.

A conductor on an open car should be on the watch, all the time, to see that passengers do not jump off the car without giving him notice to stop, for the rule of the trite assertion, "that he started the car before I was off," holds perfectly good in this case. He should also notify those standing on the running board or step of open cars to be careful when passing teams, etc. When it becomes necessary to care for an intoxicated passenger he should feel that he has a delicate business on his hands if he concludes to put him off the car. If he does not feel able to do this, and cannot allow the passenger to ride until he can ask the assistance of a police officer, he should go to his driver and notify him of his intended action, and then after the car has come to a full stop, he should with as little force as possible remove him from the car and lead him to the sidewalk. If necessary he should ask for assistance from the passengers on the car. It is a dangerous thing to eject passengers from the cars and much should beborne before doing it. Conductors should be taught that time is of no consequence, so far as making their trips, when compared with the chances for accidents to their passengers. They should give everybody time enough to get safely on and off the cars in all cases.

Drivers should understand that they should first give their attention to what is in front of them, or their horses, and next, to looking for passengers. On a trip, there are always dangerous places about running over people, particularly in streets where the poor live and congregate; where little helpless children are permitted to run about unattended, and where the travel of other teams is most abundant. With every sense on the alert; with their eyes in front of, and around their horses, and not attracted by what is going on anywhere else; with firm hold on their brake handles, and their teams well in hand, even then they will still find people to knock down, and children to run over.

Officers in charge of street railways should consider it their first duty to study the prevention of accidents. Their rules should be forcible, and their discipline in this respect unyielding and firm. They should first look into the cause of accidents, and then establish their own rules to prevent them. Men will be careless. But very little can be left to their discretion; they often behave as though they had no discretion. This habit, and a careless regard for their instructions, is the cause, and their removal from the service, the prevention, of half or more of all accidents. Teach your men not to hurry. Safety lies in taking time enough to make a trip; haste does, in this case, make a terrible waste of money.

When the peculiar business of transporting millions of human beings, with all the idiosyncrasies that go to make up the experience of human life, through the busy thoroughfares of these great cities, and of filling up and discharging these crowded cars, which has to be done at the will of each separate passenger, is considered, it is a fact and it is settled beyond controversy, that accidents must occur. It is one long contest between the existing state of things, and the managers, how to avoid accidents. The experience of one company is the same as all the rest, nothing but general rules can be recommended. New and unheard of claims are made every day; some are genuine and some are not. The liability of accidents is always with us, it accompanies every car on every trip. It is also within us, for employees are constantly pressing claims for remuneration and loss of time, caused by injuries received in their occupation, without any regard for the fact that their own carelessness was the cause of it all.

SETTLEMENT OF ACCIDENTS.

There are two ways of settlement of the damages, either real or alleged claims for accidents in our business; by arbitration or a resort to the courts of law. There is no doubt but that the general public are now more desirous of a verdict from a jury than they are to settle their claims by arbitration. This practice receives constant encouragement, from the large and very often unjust awards given by the average jury of the present day, with the injured party on one side and a corporation on the other. With the sympathy of the juryman adroitly called up by lawyers, who know that is their strongest point, and who know just how to do it, the testimony in the case is of but little avail when the case has been prepared by an unscrupulous lawyer, assisted often by an equally unscrupulous doctor, wherein the claimant becomes simply a conspirator in a regularly arranged and preconcerted plan to defraud the company, and to deceive the jury, by a false presentation of the injury for which damages are claimed. If the writer speaks strongly on this point he only gives the facts of his own experience, and believes that his statements have become a general custom all over this country. Large verdicts are constantly being produced in all our courts that are but the result of false testimony, and from representations of injuries made by the plaintiff, which are often entirely untrue, and which he has been told to swear to, by some members of both the legal and medical fraternity, who have carefully coached him.

It is a gratifying fact, however, and within the experience of managers of street railways, that by far the larger part of both of the professions mentioned are aware of this

state of things, and have by their denunciations of such practice, and their social os tracism of those who resort to such methods to gain their cases, and defraud railroad companies, done much to put an end to it. So that now both the honest and respectable members of the bar and the courts have been, and the medical fraternity are awakened to the positive enormity and decidedly fraudulent conclusions that juries have arrived at after having been utterly deceived to such an extent as to dismiss all sense of reason, or regard for testimony, and to let a false and misjudged sympathy entirely guide their action.

Another view of the case is that this sympathetic judgment of the case is often an honest one, and springs from the kindly nature of the juryman who cannot see anything else before him, but some poor and badly injured party on one side and a rich corporation on the other. In such a state of affairs his oath to deal justly and without prejudice is forgotten, and he becomes as blind to the real facts as the statue of justice with the scales in her hands.

There is not time or space in a report of this kind to present other, perhaps equally important facts, that belong to the legal aspect of the settlement of accidents. Enough has been said, at any rate, to advance an argument for arbitration, as the betterplan. There is one great advantage in arbitration of accidents, between the railroad company and the injured party; they are both, if they meet at all, free from the influence of lawyers and doctors, and are naturally disposed to do what is right and just and fair towards each other. The claimant may be very sure of receiving a very large amount of gratuitous advice from all his friends and acquaintances. Just as soon as he is hurt or his property damaged, he is advised to sue the company at once, and prospects of immediate riches, and the absence of any necessity for more exertion to obtain a livelihood, are presented to his mind. This idea is enforced by the frantic appeals of his then suddenly acquired friends, to go at once to some celebrated lawyer and leave it all to him. To this, the doctor, who has had him in his hands from the first hour of his misfortune (or, as he is getting ready to believe, his good fortune) readily assents, and immediately recommends his wellknown partner in other cases.

An early interview between the railroad managers and the party who is injured, sometimes prevents the effects of all this, and the parties calmly sitting together with none but an honest desire to do right, will in many cases settle all difficulties without dispute. It is then important and better to arbitrate at once. In any case humanity and a respect for the laws of decency and kindness present certain duties to be performed by the railroad company. They should show a deep and earnest interest in the matter where an accident occurs from any cause upon their road. They should order their conductors to do everything they can do under the circumstanc s to aid and assist the injured parties to their homes. They should then send a proper | and medical field, to aid us in this work.

person accustomed to that duty, to visit them, and proffer the service of any doctor the patient desires to see; and if, as in some cases, they find a poor family, destitute perhaps of the means to live, when the injured party could not work, they should provide for their immediate wants, no matter who was to blame for the accident.

On the other hand, there are certain preparatory arrangements that must be made for the advantage of the company, looking to a true and just understanding of the true cause of the accident. In preparation for such claims as may be made upon the company the writer has established upon his road a regular department called the Accident Department. The officer in charge of it has no other duties. He is always in readiness to be called, and to proceed at once to visit the injured, night or day. His first duty there is to offer and provide all the aid, both to the injured and to the family, that may be required; to get the name, occupation, and all else he can, so that he shall be thoroughly acquainted and familiar withall their circumstances. Then he examines the conductor's report of his evidence taken on the spot, and then interviews every witness and has their account taken down by his stenographer, read to them, written out and sworn to. These papers are then put away together, and marked with the day and date of the occurrence. He next visits the patient, either at his own home or the hospital; notices who the attendant physician is, and keeps a general oversight of the patient until recovery and settlement is made.

Injury to property, such as vehicles or their contents, are carefully examined into and noted, and often when found to be so damaged by the fault of the driver of the car, settlement is made as soon as possible, and the cost paid by the driver. A friendly suit brought after arbitration, and judgmententered for the plaintiff, who acknowledges satisfaction, is often resorted to as a sure means of final settlement.

In concluding this part of the report too much cannot be said upon the importance of guarding against fraud in settling accident cases. The street railroads of this country have come to be common game for accident hunters, and for "beats" of all kinds to try their fraudulent practices upon. While we are willing and ready to settle all cases upon a fair and equitable basis, let us all freshly determine that we will do everything we can in our power, to discover and root out the infamous and growing custom of deceit and fraud in the settlement of the accidents occurring upon our roads. To also endeavor to expose any and all professional men who shall lend themselves to such practices, and join in conspiracies for the sole purpose of sharing in the plunder. And also to awaken public sentiment to the fact that such practices do exist to an alarming degree, and that our courts are constant scenes of such attempts to defraud and rob the railroad companies. Let us also ask the aid of all high-minded and honest practitioners, both in the legal

Accidents we must have from the very nature of our business, and their cost, when honestly and fairly adjusted, is large enough, but when we have to add to this sum, the fearful amounts we are swindled out of, it is time to at least try and prevent it.

For the Committee, C. A. RICHARDS, Chairman.

MR. CLEMINSHAW then spoke in hearty endorsement of the committee's report, thought that nothing could be added to it and that it was all true.

MR. MERRILL of Boston, dissented from the report of the committee, on the subject of the legal and medical profession of Massachusetts. He thought also that accidents should in all cases be reported to the railroad, within thirty days from the day they occurred, that a law should be passed to this effect. Said the time had come when it was almost futile to take the case of an accident before a jury, and that the poorer the case the better the chances of obtaining a verdict. He cited a case in which the testimony of thirteen respectable white people and attending circumstances were outweighed by the testimony of two negroes who it cannot be ascertained were even on the car. He said that a large proportion of the accidents for which action was brought against his company, were entirely unheard of by the company itself, until claim was made at a late day for damages. He thought that more attention should be given to the subject of street railroad men than to any other whatever. He spoke of the difficulty of dealing with drivers and conductors on whose cars accidents had occurred, but thought it was a decided mistake to keep employees who had had bad luck even though not to blame for the accident. And this notwithstanding the liability of adverse testimony being given by the discharged men. He thought that the railroad should not be responsible to one employee for an accident which occurred through the carelessness of another; that a law making them so was very pernicious, in causing trumped up cases among employees.

MR. LAWLESS said his road employed a regular surgeon, whose services were always given regardless of where the responsibility rested.

MR, RICHARDSON of Brooklyn spoke of railroad " beats," and cited the case of one George Marratt, whom he described as being about thirty-eight or forty years of age, spare, clean shaven face, of about medium height, who gave his residence as No. 29 Prospect street, Brooklyn. Said that Marratt's method of operation was as follows: He would hire out to a company as driver or conductor and in a short time an accident would happen to some one, who would prove to be Marratt's colleague. Mr. Richardson suggested that if this man's portrait should be printed in the Cincinnati papers, no road would ever employ him under any circumstances, Another gentleman spoke of Marratt having turned up in another part of the country.

MR. HART said in his experience, that

lawyers relied very largely upon the absence of witnesses to postpone the case and render it more difficult for the road to defend itself.

MR. RICHARDSON said, that they made it a point to hunt up the absent witness.

MR. CUMMINGS of Boston thought that the attorncy of one road should not take up cases of claims against another road.

The report of the Committee on Sanitary Condition of Street Cars was then called for by the President, but as Mr. Edward Lusher of Montreal, Chairman of the Committee, was absent, the report on "Progress of Cable Motive Power," by Mr. Edward J. Lawless, was read by the Secretary.

PROGRESS OF CABLE MOTIVE POWER.

Mr. President and Gentlemen: We respectfully offer the following report. Not many additional cable lines have been added to the list of those already built and mentioned in the report read at the last meeting of this association. But considerable preparatory work for the construction of them, as well as additions to those already built, have been completed and many franchises for cable roads have been granted in different cities throughout the States.

In San Francisco two miles of double track have been added to the Market Street system. This branch is built on the same principle as the main line. The yokes are iron framed, forming skeleton of conduit, are of wrought iron each weighing about 27C lbs., laid three feet apart where traffic is heavy, elsewhere four feet six inches apart. The conduit or tube in which the cable runs is of concrete, the cement used being English Portland. The slot or channel along which the grip shank runs is of steel, weighs thirty-five lbs. to the yard, It is laid 11 inch higher than the track rail, to prevent mud and water flowing into the conduit.

Every eight feet a pier of concrete is laid reaching from bottom of conduit to lower level of city sewer. This was considered necessary, the soil being sandy and the sewers placed in the center of the streets. Where excavations are made under the track it is liable to settle; moreover, should the sewer be damaged by heavy rain fall, which frequently happens in that city, the track abovo it would not be affected.

The power house contains two engines, Corliss, of 250 H. P. each, three boilers, heaters, etc. The two drums two feet in diameter placed one behind the other have grooves lined with wood around which the cable forms the figure 8. The tension carriage way is of sufficient length to take up 250 feet slack cable. The carriage itself is weighted with about 8,000 lbs. The cable is 14 inch in diameter, 23,500 feet long, made of steel wire.

Work was commenced the 2d of January and completed the 29th of May last.

The branch line with power house and fully equipped for operation, cost about \$400,000. The reasons for the heavy outlay are the very substantial manner in which the work is done, the high price of labor and material, the cost of each yoke alone

being about \$10.50, and the large amount of concrete used.

In Los Angeles, Cal., two cable roads have been | uilt, namely, "The Second Street Cable Road," and "The Temple Street Cable Railway." They are single track, each one and a half miles long with three intermediate and two terminal turnouts, upon which four tracks are usually operated. The cables run in opposite directions in the same conduit. The grip is so constructed as to release the cable at any point on the single track and grasp the cable running in the opposite direction. Each road cost about \$100,000. These have proved that single track cable roads do not work satisfactorily, and already both companies have determined to double track their lines.

The St. Louis cable road was completed and put in operation this spring. The yokes are of wrought iron laid four feet apart. Sheet iron forms the inside of the conduit, back of which concrete is laid.

The slot rail is Z shaped and braced to yoke with 3 inch iron rods. They have three miles double track, operated by one cable $1\frac{1}{4}$ inch in diameter. There are a number of curves on this line, the wheels in them being about 14 inches in diameter. The power house contains two Corliss engines 250 H. P. each, three boilers, heater, etc. The drums are 10' in diameter, with four grooves. Some apprehension existed that so many curves would prove a serious obstacle to the successful operation of the cable, but although curves on a cable road are objectionable features, owing to extra wear on cable and machinery, still they are not such as to be insurmountable.

In Cincinnati four miles of double track in addition to those already operated are in course of construction. No material changes were considered necessary to be made except some improvements to simplify construction in curves.

In Chicago the City Railway is adding several miles of cable road to its present system, which works very satisfactorily, the cable running steadily for weeks at a time without a break or interruption, though taxed severely with ever increasing business.

New York and Philadelphia also contemplate extensions to their present systems.

In Omaha several miles of cable road are in course of construction, the plans adopted in Kansas City having been generally followed.

In Melbourne, Australia, several miles of cable road have been laid and more are in course of construction. They are built on the same principle as those of San Francisco, a sample grip and grip car having been sent from that city, The system has proved very successful there.

In Kansas City, however, more work has been done towards the extension of this system than anywhere else. Two companies already running horse car lines, are changing them to cable, while the cable company operating that system have built and are building several entensive additions.

The Kansas City Cable Railway Co., last July, completed one mile of double track,

as an extension to their present line. It is constructed on the same plan as that already operated. They are now constructing two branches, one of which, it is expected, will be completed next month. This last branch is somewhat different in construction from the main line, it being almost a copy of the Market Street line in San Francisco, except the yokes are of cast iron, and concrete piers are dispensed with. These yokes weigh about 375. lbs. each and are laid four feet apart on a concrete foundation. The conduit is formed of concrete. The track rail is bolted direct to the yoke; no stringers or chairs being used. Stone paving is placed between the slot and track rail as experience has taught that when paved with wood (which was done on the main line) it is impossible to keep the slot to standard gauge, viz., 4 inch, it sometimes expanding to $1\frac{1}{4}$ inch, and again closing to 1 inch under atmospheric influences. The carrying sheaves are twelve inches in diameter placed thirty feet apart. It is intended to operate this branch three-fourths of a mile in length by running main cable around two drums, making it form the figure 8, thereby transmitting power to the branch cable. Another branch two miles long is in course of construction, which it is expected will be completed next summer.

This company is at present operating three miles of double track with one cable 1¹/₄ inches in diameter.

The following is an extract of test of engines and boilers, made in July last.

Engine cylinder, 24 by 48 inches; coal used, nut; duration of trial, 17 hours; coal consumed, 14,000 lbs.; coal per H. per hour, 51 lbs.; water evaporated per lb. of coal, 7.37 lbs.; horse power of engine, 159.-7; power for cable engine and machinery, 119.06; power for cars and passengers, 40.64; number of trains running, 14; passengers carried, 15,000.

The Grand Avenue Cable Company of Kansas City will change their horse line to cable, and are constructing $2\frac{1}{2}$ miles additional.

The yokes of cast iron, each weighing about 385 lbs. laid four feet apart on a concrete foundation. The slot rail is a special form of angle steel leaving a friction surface of 11 inch for grip shank. It weighs about 38 lbs. to the yard, and is bolted to yoke with counter suuk bolts, pieces of sheet iron being placed between slot rail and yoke to permit of adjustment. The track rail is center bearing and rests on small steel chairs which are bolted to the yokes. The conduit is formed of concrete; connections from conduit to main sewer are made in such places as are necessary to carry off water. It is thought that portion of this road will be completed next spring, the balance next fall.

The Metropolitan Street Railway Compauy of Kansas City have obtained franchises to oonvert three of their horse lines into cable, and work is progressing rapidly on the most important oue, viz., the Fifth and Wyandotte line; at present it is a double track, narrow gauge line. The cable is

being placed on the same route and changed to broad gauge. The horse line is operated while the work of construction is going on by laying temporary side tracks.

The yokes are of cast iron with four feet two inches base, each weighing 340 lbs. laid four feet apart on a foundation of coucrete. The slot rail is Z shaped fastened to the yokes by bolts and ³/₄ inch brace rods. The top of the slot rail is slightly inclined from the outer edge to prevent horses' shoes and buggy wheels from entering the slot. The conduit is of concrete six inches thick where background is solid, elsewhere twelve inches thick, made from English Portland cement. The carrying sheaves are of cast iron chilled, twelve inches in diameter laid thirty feet apart. At crowns of hills the diameter of the carrying sheaves is increased to 30 feet, to provide for angle and heavy strain of the cable at those points. Special sewers are made to drain the pits containing these large sheaves. Drain pits are also made at the foot of all inclines into which water from the conduit flows, these pits in turn being connected with the main sewer by twelve inch pipes. The following figures will give some idea of the amount of work done and material used in the construction of this line.

track
" " " " paving (stone)
" " " " sand
" " " " gravel 175
No. of tons of yokes
" " " track rail 98
" " " slot rail 98
No. of brace rods for slot rail $\frac{3}{4}$ ' x 2' 5"
2,64010,890 lbs
No. of slot rail bolts for fastening slot rail to yokes $2\frac{4}{3}'' x \frac{4}{3}'' 5,280 \dots 508$ lbs
No. of bolts for fastening slot rail splices $1\frac{5}{2}$ x $\frac{5}{2}$ 704264 lbs
No, of bolts for fastening track rail to yokes $2\frac{2}{3}$ " x $\frac{4}{4}$ " 7,920
Carrying sheaves and frames4 tons
Curve pulleys and frames each175 lbs
It is estimated that this road will cost
\$50,000 per mile of single track. The power
house will contain two engines 400 HP.each.
Engines, heater pipe, fittings, &c., con-
tracted at\$25,C00
Machinery 18 000

 Machinery
 18,000

 Boilers
 13,000

 Building estimated at
 15,000

 Cable roads were very successfully oper

ated last winter, snow being combated in such a manner as not to impede the running of cars to any extent. Iu Kansas City, where grades are almost continuous, snow is swept away with ease. The cab cable line there had a snow plow and sweeper constructed to carry a grip between the axles, and one trip at full speed of the cable was generally sufficient to clear the track of snow, and iu no instance was the plow ever stalled. When the thermometer fell several degrees below zero, it was not necessary to keep the cable running all night, but the tension carriage was loosened, and sufficient slack allowed for contraction of the cable.

There are numerous parties who claim to have systems of operating cable roads, superior and more economical than those already in use, but as so far, they have not been put into practical operation to any reasonable extent, your committee did not deem it advisable to discuss them in this paper, but rather report on those roads that are operated under a system that has proved itself, beyond a doubt, a complete success.

Your committee here considers it interesting to call attention to the large increase in the value of property wherever cable roads are laid down. Even on those routes where horse cars have been running some time, a mere grant of a franchise to change them to cable has caused a material rise in the price of property.

The following figures are taken from actual sales. Before the Ninth street line of Kansas City started semi-business property along that route was valued at \$500 per front foot, and is now worth \$1,250. Residence property from one-half to two miles from center of city the average value of which was \$65 per front foot, is now worth \$200. First class residence property two and one-half to three miles from center of city, held at \$100 per front foot, now brings \$200.

MR. C. B. HOLMES of the Chicago Cable Railway, being called upon, made some very forcible remarks in favor of the cable system; citing the fact that in the five years of their experience of the cable road, their traffic had increased seventeen million of passengers per year. Said that the cable system afforded the best possible means of dealing with snow, that they had had no trouble from that source and had run the road frequently when it would have been impossible to do so with horses. He said that it would now be impossible to handle their traffic with horses, to the satisfaction of the public, and he had no doubt that had not the cable been introduced an elevated road would have been completed before this time. They now run their cars nine and a half to ten and a half miles per hour, and that there was no increase of accidents over the time when slower speed was run. They had twenty miles of cable road, accommodating the heaviest traffic, and sixty-seven miles of horse railroad, and three-fourths of their accidents occur on the horse railroad. Said that safeguards could be used on the cable road which were not applicable to horse cars. He substantiated the committee's report relative to the increase of the value of real estate resulting from the cable road. Said that property in Chicago had increased from fifty to one hundred per cent. as the result of its system. They are now adding six miles of single track, and the cable system is thoroughly satisfactory in Chicago. It would be impossible to do the work with horses. The first cost of the road was indeed large but the diminished expenses for running would amply repay the interest on the investment. Stated that the expense per car mile by the cable system was ten to eleven cents, while with horses it was twenty to twenty-five. He gave as the life of a cable

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of any merit not less than sixty thousand miles. Said that he had no doubt the new lines adopting the cable would introduce many improvements, and he believed the cable system to be far ahead of any other motor now in sight.

At the conclusion of his remarks, he introduced Mr. Cregier of Chicago. Mr. Cregier spoke of a small experiment now being made on his road with an inprovement of the Rasmeson system of cable railway as improved by Mr. Merrill. He also endorsed the remarks made by Mr. Holmes as to the success of the cable system in Chicago.

MR. WM. WHARTON, JR., thought the high speed of the carriage wheels of this system must be a serious trouble. With regard to the Philadelphia system of cable roads he said that the difficulty under which they formerly labored had been partly obviated and that the system is now a success. That accidents were now no more frequent than formerly with the horse system. Speaking of the cost of that road, he said that it was difficult to give, owing to the circumstances under which it had been built, but he should estimate that it could be duplicated, including the track and improved pavement, for from fifty to sixty thousand dollars.

MR. HOLMES later speaking of the expense of renewal, said, he considered the conduit made of English Portland concrete was good for five hundred years. He said the cable system was best so far as width and crowding of streets was concerned, wherever horses could be used; and in response to a question of Mr. Merrill, of Boston, said that the cable car had a great advantage over horses in that obstructing teams, etc., would get off from the track ahead of it much quicker than out of the way of horses.

MR. WHARTON said that the streets in Philadelphia were twenty-six feet from curb to curb, and that their narrowness caused no obstacle to, the use of the cable system. Said that an improved pavement was being put down outside of the tracks, leaving no excuse for driving on the track, and allowing a good road outside of it.

MR. KERPER, of the Cincinnati cable road, made some interesting remarks concerning their road and their experience in building it. This system will be described in a later issue of the STREET RAILWAY JOURNAL.

MR. WHARTON in response to a question as to the waste power in driving the machinery with the cable system, elicited from Mr. Holmes of Chicago the fact that 355 horse power were used in driving their twenty miles of cable and its machinery, and that 700 to 750 horse power were required to run 300 cars, that is, one horse power per car was required. Gave as the cost of furnishing steam for the entire plant from twenty-five to thirty dollars per day, the cheapest screenings of coal and the sweepings of barns being used for fuel. The length of their cars is twenty-one feet and their weight about seven hundred pounds.

MR. WHARTON spoke of an experiment being made in Philadelphia with a two truck eight wheel car with a wheel base of only about four and a half feet, and said it was very successful.

The meeting then adjourned to 3 o'clock.

WEDNESDAY AFTERNOON SESSION.

MR. LITTELL moved to appoint a committee of seven to recommend officers for the ensuing year, and a place for holding the annual meeting. The President then brought up again for discussion, the subject of Cable Roads, but no remarks being offered the report of the Committee on Ventilation, Lighting and Care of Cars was called for and read by Secretary Richardson which was as follows:

VENTILATION, LIGHTING AND CARE OF CARS.

In all the attempts heretofore made to afford ventilation for street cars, but half the subject has been treated; the aim seems to have been only to provide means for the escape of impure air; while the equally essential means of supplying fresh air has been overlooked. But little air can escape from a car, without a corresponding amount being admitted, hence any system of ventilation that provides only for the escape of air, is impracticable.

Under ordinary circumstances, when the weather will not permit the doors and windows to be kept open, the frequent opening of the door to allow passengers to enter and leave the car, will admit sufficient fresh air to revive that which has become heated and foul through repeated breathing of the passengers and the cool fresh air coming in will force the warmer air out through the roof ventilators, carrying with it the offensive odors and impurities. Thus we have a simple and effectual system of ventilators for ordinary every day wants.

But we cannot stop here, the demand of the public now is for cars to be heated during the cold weather. Therefore the question of ventilation becomes complicated when we introduce heaters into our cars. In a heated car, when well filled with passengers, the air soon becomes unpleasant, and when you enter a car thus heated, you at once feel the discomfort of the foul air, hence our atten ion should be directed to devising a system of ventilation, that is practicable for a heated street car.

In looking the ground over carefully, we recognize at once that no fixed system will meet the requirements of ventilating a heated car; the condition of the atmosphere being variable, so must any system of ventilation be variable to meet the arbitrary one. For example, to-day may be clear and cold, and if our car be heated to a temperature that is comfortable to the passengers, and our system of ventilation, which we assume to be fixed, so nicely adjusted as to carry off the surplus heated air which is in return replaced by fresh air coming in as the door is opened to allow passengers egress and ingress, what will be the effect on those days when we have a cold rain? The passengers will require warmth and also a free circulation of air. Of course this changed condition can be met partially by graduating the heat, and opening the ventilators.

This example is offered as an illustration to show that any system of ventilation, to be effective, must be variable, so as to permit a large or small amount of circulation, as the condition of the weather and temperature of the air in the car may require.

Your committee has given the subject of Ventilation for Street Cars considerable thought, but we cannot recommend any system that has come under our notice, as being an improvement upon the old system of side and end roof ventilation.

Passing from the subject of ventilation to that of lighting cars, your committee has but little to offer. A car provided with two end lights, and a center lamp, or two center lamps, without the end lights, as is now quite popular with some of our companies, seems to meet every demand for a well lighted car, and, until electricity is made applicable to a street car, we believe the public will be contented with either of the above systems.

In taking up the subject of Care of Cars, we will confine ourselves strictly to the economical side of the question. "A stitch in time saves nine" is an old maxim which applies particularly to this subject, but is as a rule overlooked. One of the requisites for successful street railway management is the maintenance of its property, which embraces cars, horses and tracks.

The best kept street railways are usually the best paying ones, and it is a natural consequence that a management neglectful of its property will soon become unpopular, and gradually but surely lose its patronage, and the first evidence of a careless management is in the unclean condition of the cars.

There is no economy in keeping a car continually in service. A car should be washed outside and inside as often as its condition requires. In some cities, the streets being well paved and free from dust, it is not necessary to wash every day. The car after being washed should be carefully inspected to see if any parts are broken, or if any nuts have become loosened or lost, and those little things, though small at first, lead to serious results if not looked after.

In the care of cars the most prominent neglect is in not varnishing them as frequently as we should. Every car should go through the paint shop once a year, and all parts that become broken be repaired, and all bare spots touched up with paint, and the whole outside receive two coats of varnish, one leveling coat to fill up the inequalities of the surface, to be well rubbed, when dry and hard, and then receive a wearing coat of the best fluishing varnish. The roof to havea coat of pure white lead, and the inside of panels and floor a heavy coat of mineral paint. This operation repcated yearly will keep your cars in good condition and appearence and with necessary minor repairs a car will last twenty-five vears.

A new car, after having been in service six months, should be put into the paint shop and the surface carefully rubbed down and receive a fresh coat of varnish, then each year thereafter, if you will shop your cars for a week, we will guarantee the paint will last for ten years.

There is no other way in which the expenditure of so little money will yield a larger return to the company than in painting, varnishing and renovating their cars each year.

WALTER A. JONES, Chairman of Committee.

Upon motion the report was accepted and ordered to be placed on the minutes.

MR. RICHARDS thought the present methods of ventilation were sufficient and satisfactory, if cars were not heated, and it seemed to him therefore, that the discussion hinged upon whether or not it was wise to heat cars. He had always been a determined opponent to heating cars, though he did not wish to be understood as opposed to any particular device for heating. Said that passengers in street cars rarely took off their wraps or coats and that the cars were liable to be heated up to eighty degrees instead of fifty-five, the temperature to which they should be kept if heated at all. Said that the car was liable to contain passengers from the sick room, having been exposed to contagious diseases, and that the odor of wet clothes and umbrellas, etc., was unpleasant.

MR. WOODWORTH of Rochester, on the contrary, took the grounds that heating was wise and profitable and that it was only a question of time when the cars in Northern eities would be heated.

MR. KILGOUR thought that street cars were not so built as to admit advantageously of heating, and that coming out of the cars was a prolific cause of pneumonia.

MR. WOODWORTH would not make cars hot but only heat to such a temperature, that with the frequent opening of the doors only the chill would be taken off.

A desirable device seen in Toledo, for heating, was spoken of.

MR. BAILEY concurred with Mr. Richards on the heating question, but said that in Toledo they were compelled to heat.

MR. CLEMINSHAW was on general principles opposed to heating, but it was necessary to do so in their city. He wished to hear from Mr. Richardson, of Brooklyn.

MR. SAGE said it was purely a question of profit. Said he was formerly of the opinion held by Mr. Richards, but that experience had proved, that his traffic had increased twenty-five per cent by the use of stoves. Though the fact that the poorer classes were not usually well clad, should be taken into consideration in this connection.

MR. WM. J. RICHARDSON said that he understood the street railway business to be a matter not of philanthropy but of profit. That they in Brooklyn at least were engaged in the business to make money. He spoke of a six mile run, over bleak, hilly, cold roads on which they had first adopted stoves, and here the results were favorable to heating. Gave as the expense of running stoves, ten cents per day. Said that while they depended on a regular traffic their profits were made from the ladies going shopping, etc., and experience had proved that this class of traffic was very greatly increased by heating cars. They had noticed a falling of a hundred dollars a day, on account of a rival line putting in stoves, before they did. He referred to this as the best of evidence that stoves were a necessity in Brooklyn. Said they seldom got complaints because cars were heated, but they were very frequent if stoves were not put in early enough or were taken out too early.

Spoke of a new line, which they had leased, which had not stoves, but when they were put in the receipts were very perceptibly increased.

MR. STRONG of Peoria spoke in favor of stoves as based upon experience in their city.

MR. LITTELL asked what the death rate wis in Peoria.

MR. KILGOUR asked whether heating cars was regulated by law in any city, to which no response was made in the affirmative. He thought the question almost wholly a local one.

MR. MERRILL of Boston thought the question not only local as to country, but also as to each individual city; different roads in the same city differing in circumstances and requirements. Thought that roads running into the country could use stoves advantageously and some could not do otherwise, but that in crowded cities heating was impracticable. Said that on Mr. Richards' road for instance, where every car was crowded at some time during each trip, that heating was impracticable, and that it was impossible to accommodate the traffic in a city like Boston, without the cars at some time in each trip were crowded.

MR. RICHARDS said he had been interested and instructed and thought the debate a profitable one.

MR. WILLIAMSON said the question came up last winter for legislation in his city. He said that ladies objected to heating cars.

At this point invitations were read for the convention to attend such places of resort as the "Zoological Garden," "Museum," &c., and also one to visit a brewery. Thanks of the convention were extended for the various invitations.

The question was then asked as to whether there was any special device for taking ears over a line of hose in case of fire. Mr. Lawless responded that he supposed the ordinary bridge was always used for that purpose.

The President then announced the committee on officers and place of next meeting, which was as follows: H. H. Littell, C. Cleminshaw, H. M. Watson, J. Senllin, C. A. Richards, A. G. Clark and Wm. Wharton, Jr.

The Convention then discussed for a short time the subject of requiring deposits from conductors and drivers.

MR. RICHARDS, being called upon, said that they required deposits of twenty-five dollars of each conductor, and though he was in doubt as to whether the amount could be held legally beyond the exact sum shown as shortage or damage caused, he thought the moral effect beneficial. Their road formerly required a fifty-dollar deposit, but he became satisfied that this in very many cases worked a hardship on conductors, that they were obliged to borrow the money, and in many cases give large interest, and in some instances to brokers who made it a business to lend to conductors, and in some cases the brokers taking the deposits in their own name. This last, however, was not allowed. They had found the deposit advantageous in a few instances, when men left at night, and were not again heard from.

MR. HOLMES of Chicago, spoke in favor of deposits. Said that, on their road, they required twenty-five dollars of conductors and forty dollars of drivers; this, however, in form was paid to the company as a bonus for becoming its employees, the road, therefore, not being compelled to return the amount, which of course they always did, unless in case of shortage on the part of conductors, or damage caused by the carelessness of either conductors or drivers. Thought that a deposit more important from drivers than conductors, and that it had a very salutary effect in preventing carelessness.

MR. RICHARDS queried as to the legality of the methods spoken of by Mr. Holmes.

MR. HOLMES thought there was no difficulty in that direction. Said that five per cent. interest was returned the employees with the twenty-five or filty dollars on his leaving the company. Healso spoke of receiving deposits from employees for safe keeping on which interest at four per cent. was allowed.

MR. KERPER believed in the deposit, and in his own experience had made a mistake when exceptions had been made to the rule.

MR. LITTELL said his company required a deposit of twenty-five dollars, but said that they could legally hold only such amount of shortage or damages as could be shown. He also spoke of a system of giving ten per cent. increase to employees on each preceding year's earnings.

Mr. Rugg, of Boston, had had the management of men for eighteen years; had never required deposit, and had seen no necessity for it; h d never lost any receipts as shown by conductors' reports. In most cases where damage occurred through the carelessness of conductors or drivers, he could arrange with the careless employee to defray a portion of the expense incurred. He declared himself against deposits.

DR. EVERETT, of Cleveland, did not believe in deposits, but handled his men very much as Mr. Rugg spoke of doing. At this point an invitation was received from the Chamber of Commerce to visitits rooms, and for delegates to avail themselves of its privileges.

The meeting then adjourned to meet at ten o'clock Thursday morning.

THURSDAY MORNING SESSION.

A letter of regret was read from Mr. T. C. Robbins, of Baltimore, on account of his inability to be present, after which his very interesting report of the committee on "Progress of Electric Motors" was read.

MR. PRESIDENT AND GENTLEMEN: Your Committee on the Progress of Electricity as a Motive Power, respectfully report as follows:

In searching for the first experimentor in the field of electric locomotion it very soon becomes apparent that extreme difficulty will be experienced, due to the great number of visionary experimentors which seem to be attracted to this branch of physics. Though the experiment of Jacobi on the River Neva in 1834, certainly demonstrated the possibility of producing a not inconsiderable force by electrical means, a casual inquiry as to the cost of the experiment conclusively proves that very little hope remained of its application assuming a commercial form so long as chemical decomposition was the only recognized means of exciting electricity.

It remained, however, for later scientific investigators to point out that this was not due so much to the inefficiency of the producer as the exceeding crudity of the receiving apparatus and the necessary high cost of the electric fuel, so to speak, which in this case as in many subsequent cases, was zinc. In view of the really discouraging character of this experiment regarded as even a possible commercial achievement, it is surprising that many inventors could have been found sufficiently bold to make any other attempts until radical changes had been made in the producing force, but history records that a number of other daring experimentors attempted to supplant the steam locomotive wit in the next decade; it is not, however, recorded that a sufficiently hopeful result was obtained at this period to be regarded as anything more than an interesting scientific display.

The intervening experiments being hardly worthy of record until the year 1860, when Prof. Page made the first recorded experiment of any note, with batteries having carbon plates in place of the inferior copper ones formerly employed. It is recorded that by means of his improved appuratus, Prof. Page was enabled to drive a car load of passengers through the streets of Washington with an electric locomotive. traveling at the rate of twenty miles an hour. Though it is quite possible the speed is here exaggerated and that the car load of passengers were propelled only on the level, which would not necessarily call for a powerful effort, it is still noticeable that such an achievement was possible simply by the use of batteries and the imperfect apparatus of that time, in a manner sufficiently satisfactory to have attracted a number of business men who for some time anticipated great results. It is now evident that nothing of a commercial nature could possibly have followed with the means at command, and though a number of more or less successful experiments of a similar kind were made, nothing of sufficient importance to even promise a commercial result occurred until the year 1879. when Messrs. Siemens & Halske of Berlin

operated a small electric railroad of about one-third of a mile in length at the Berlin Exhibition, employing an auxiliary conductor between the rails from which the current was taken up by means of a metal brush and transferred to the motor in the now well known manner. Several more of these small locomotives, being rated at one or two H. P., were made during the year of 1879 and 1880, and it is recorded that with this apparatus the current was sufficiently powerful to throw horses when accidentally placed in contact with the third rail. These latter experiments partook of a much closer approximation to the commercial character for the simple reason that during the interval between Prof. Page's test and that of Messrs. Siemens & Halske the greatest advance yet recorded in electric locomotives had taken place, namely, the introduction of the mechanical producer or dynamo machine, which apart from the details involved rendered possible the substitution of coal for zinc as a fuel; that the energy of the former had now to be passed through a steam engine was a comparatively important detail considering the enormous disproportion between the energy produced from coal and zinc, from a financial standpoint, and though the inefficiency of the engine as a thermo dynamic motor militated strongly against the complete triumph of this new order of things, the extraordinary efficiency of the infant dynamo operated in a great measure to place the new power on a commercial basis, indeed, so wonderfully efficient were even the earlier dynamos manufactured by Messrs. Siemens that the first recorded results proved indisputably that under such favorable conditions as those which Messrs. Siemens were able to avail themselves. competition with horse flesh seemed possible even from the first, though it was a daring man who in these lines would even hint at competition with steam and other well known convertors.

The little machines above noted were so satisfactory in their operation that they were quickly followed by an electric railway for actual business traffic which was constructed by Messra. Siemens & Halske between Hitcherfelde and Military College, Berlin. The elec ric motor or car on this road was built so as to closely resemble the ordinary European tram-car, and the motor was attached under the floor. It is recorded that the performance of this car was eminently satisfactory in dry weather, but considerable difficulty was experienced in operating in wet weather, until several changes had been made in the manner of conducting the current, it being subsequently found necessary to use an overhead conductor, which is the first recorded example of this kind, and appeared to be so successful that the road has continued running without any radical changes up to this time. It must, however, be remembered that the power required was very small since the road is entirely level from end to end, and the car was limited in size, being only able to carry about twenty-five persons when fully loaded.

Passing over a number of 'minor experiments which followed this achievement of Siemens on the other side, the first notable example after that of Prof. Page's in this country appears to be the electric locomotive of Thomas A. Edison in the summer of 1882, which is said to have attained a speed of nearly forty miles per hour on a level track, at Menlo Park, New Jersey. The experiments were conducted for a considerable time but did not appear to have been of a character sufficiently encouraging to warrant any attempt in a commercial way, and no machines of this type were ever placed on a commercial road. The munner of taking up the current was similar to what had before been tested by Siemens in Berlin, and afterwards abandoned as not affording sufficient insulation in wet weather.

Later in the year 1882, Leo Daft constructed a number of small electric locomotives which were tested and run for a considerable time on a track provided at the works of the Daft Electric Light Company at Greenville, New Jersey, which were the first recorded example of a number of locomotives (there were four employed at one time) running on the same track at the same time, from the same generating apparatus, and a number of experiments were conducted from time to time for the satisfaction of a large number of visitors, among whom were many electrical and engineering experts, to prove what was then a matter of considerable doubt, that locomotives could be run in parallel from a producer of sufficient capacity. This was so completely demonstrated at that time that in this direction no further doubts existed though it seemed to be for a long time the standing objection to the progress of this new enterprise from those who were less familiar with the true inwardness of this problem. On these occasions the four cars were purposely manipulated in the most difficult manner, being all started at the same time so nearly as possible and all the evolutions which a most exacting audience demanded without at any time showing the least reason to doubt that the system was cupable of indefinite extension on the same lines. Not the least extraordinary of the effects which constant experiments developed was the remarkable tractive capacity of the motors when operated with insulated wheels and using both rails as the conducting system. It was clearly shown that a small locomotive weighing but 450 lbs. was capable of developing the extraordinary tractive force of 300 lbs. on a dry rail; this was repeatedly demonstrated, and the subsequent experiments with the same apparatus developed the astonishing fact that it was capable of ascending a 2,900 feet per mile gradient of without any extra tractive appliances whatever, and with a driver weighing upwards of 150 lbs. to add on the car; it will thus be seen that an effect was arrived at contrary to anything which may be evolved from the co-efficients of Molesworth. There have been many opinions as to the cause of this, but the fact remains that the above achieve-

ment was repeated day after day before a large number of technical persons, and can of course be repeated at any time, though it is not possible to reproduce this effect on the large scale required by commercial practice for reasons which cannot form a part of this paper. The increased traction under favorable conditions is not by any means an unimportant feature in considering the relative weight and energy of a given motor. In the fall of 1882, an experiment was made at Chicago National Exhibition of Railway Appliances with a motor consisting of a Weston machine placed upon a platform car and driven by a second Weston machine, by means of two copper conductors placed near the track. This car traveled on a circular track under cover without any gradients, and as might have been expected, created a favorable impression among the spectators, though it would not be classed as commercial performances, since the energy required was comparatively insignificant; it served, however, to keep up the public interest in matters of that kind and was so far successful.

In February of the following year, it is recorded that a motor weighing 300 lbs. constructed by Chas. J. Van Depoele was put in operation at the works of their company, and operated a car which is stated to have been capable of carrying twenty-five people, and the trials were conducted for several days, and are said to have met with perfect success. In the following year a number of experiments were carried out at the Daft Company's factory at Greenville, New Jersey, with a view to demonstrate the possibility of electric locomotion on a much larger scale, and in May, 1883, an electric locomotive, afterward called "Ampere," was begun for an experiment on the Saratoga and Mt. McGregor Railroad, a narrow gauge road running from Saratoga about ten miles to Mt. McGregor. Sometime was occupied in experiment prior to the construction of this machine, but in the fall of the same year (1883), the locomotive was finally finished and forwarded to Saratoga, where а number of experiments were made on a part of the track, which had been furnished with a third rail to the distance of about a mile and a quarter from the depot, the dynamo machines being situated about midway and a few hundred feet from the track. In this case a third rail was used, supported on blocks of wood, saturated with rosin, and experiments revealed the fact that with the low potential employed, the insulation was sufficient for a practical experiment, even when a considerable portion of the tracks were covered with snow. The main achievement of this was, that it towed a car weighing over ten tons loaded with sixty-eight passengers, over the road, including a gradient of 93 feet per mile; though several difficulties were here experienced, due to the comparative crudeness and temporary character of the local arrangements, sufficient was accomplished to prove the possibility of commercial electric traction. and since it was the first example of electric locomotion on an ordinary steam railroad, it attracted attention, and encouraged others to proceed in the same direction. It is noticeable that about this time a number of experiments were recorded with whatare now known as accumulators on the other side of the water, and a number of more or less successful experiments were made which only served to develop the fact that accumulators were then, as they are prebably now, susceptible of great improvement.

The extraordinary impetus which had been given by the introduction of the dynamo machine was reinforced by the comparative success of the experiment just noticed, so that within the next few months a large number of electricians and others found themselves sufficiently encouraged to construct a great variety of electric apparatus for the complete extinction of horses and steam. As you are doubtless aware, the greater part of these have been entirely unproductive, but the most notable cases have not only survived, but are now being prosecuted with a vigor and success which naturally results from their having assumed a thoroughly commercial character, and in the year 1884, a combination of important capitalists was effected under the title of the American Electric Railway Co., with a view to placing everything of this kind on a sufficiently strong commercial basis to insure its adoption, but as some difficulty was experienced in securing concerted action, nothing of importance has yet resulted from this combination, the inventors, as before, pursuing their different ways alone. Here, perhaps, it may be as well to state that electric locomotion alone had not by any means absorbed the attention of inventors. the question of transmission of power for stationary purposes having appeared to present an even more attractive field. Much had been accomplished in this direction, and practical results attained by such distinguished inventors as M. Marcel Deprez, Messrs. Siemens & Halske, of Germany, and Sir William Siemens, of England, together with Messrs. Ayreton and Perry, and others of lesser note. Notable among the achievements of the French inventor, being the transfer of nearly forty horse power for a distance of several miles by an ordinary telegraph wire.

In this country, though workers in this direction have apparently been less numerous, the results have generally assumed a more important character regarded as a commercial achievement. The first recorded example of the establishment of a central station exclusively for the distribution of power, was that of the Massachusetts Electric Power Company, which was placed in May, 1884, and has since grown to considerable proportions. This company uses the Daft system. Several others similarly equipped have since been put in operation with entirely satisfactory results, which my paper will not allow me to describe. There are, however, a large number of satisfactory motors in operation in different parts of the country, though not, so far as I know, worked from stations exclusively for power; among the motors so employed may be mentioned the Sprague, Van Depoele, Edgerton, Baxter, D'hul and a host of others which may fairly be said to be too numerous to be mentioned, though with one or two exceptions these inventors have devoted themselves to matters of very small power ϵ specially for use in operating sewing machines, dental instruments, etc.

In August, 1885, Messr. Knight and Bentley operated a small road in the City of Cleveland, O., with subterraneau conductor, which may be said to be the first serious attempt with that form of conduit, yet made in this country. The experiment extended over a cousiderable period, and is described as being quite successful, though for some reason of which I am not informed the plan was not adopted and the experiments have been discontinued, though these gentlemen are still doing good work in Providence, R. I., and are I trust, preparing themselves for a brilliant future. It will be unnecessary for me to remind you that a plan of this kind must ultimately be adopted in many of our large cities, particularly since the beginning of the overhead wire crusade.

In the year 1885, C. J. Van Depoele constructed and operated a locomotive which is said to have done excellent work at the Toronto Exhibition, in the fall of last year, and this has been followed up from time to time by notable work and experiments in different parts of the country, chiefly among which may be mentioned, Montgomery, Ala., South Bend, Ind. This inventor, after the manner of the early German road, hasadopted an overhead conductor which seems specially suited for use in cities where the necessary permits can be obtained, and appears to have met with such success as to promise greater things in the future.

Passing over some minor achievements I am led to speak of the installation of the Baltimore & Hampden Electric Railroad as the one commercial plant which has been operated for a sufficient time to allow of a proper statistical comparison not only with horses, but with other mechanical tractors, and in so doing I append figures showing results of operating this road for twelve months by the Daft system, including a winter of extraordinary severity for that region, and under such conditions as I am sure you will conceive are sufficiently commercial in their character. A profile of the gradients and curves on this road will be a sufficient assurance that the experimental element has not been allowed to predominate in selecting the ground for such purpose, except in a manner sufficiently prejudicial to afford unusually severe means for satisfying ourselves as to its enduring character. The statistics here appended will afford so clear an insight into the result of this experience that I will not further dwell upon it except to remark that though I must confess myself strongly in favor of so convenient and sufficient a substitute for horses, or other mechanical tractor so far tested. I have not allowed myself to be led astray by the scientific allurements of the case and feel satisfied that a careful analysis of the case will lead others to conclude as I do, that electricity employed as the means of transferring the energy of mechanical tractors is not only coming but is here, and in all essential particulars has been here for sometime past. It is not too much to add that the Baltimore & Hampden Road stands alone in this particular, that it was started on a purely commercial basis as a purely commercial transaction, and has continued, and is now being extended simply because it has proved its right to stay, by the performance, which leaves little to be desired in that direction.

About the time that the Baltimore Road was started, the Daft Company were engaged upon the manufacture of a large electric motor "Ben Franklin," intended for use for experiment on the Ninth Avenue Elevated Railroad, in New York. This was subsequently put in operation and experimentally used for a considerable time on a short track at Fourteenth street, and also towed four carsover two miles of that road. It was ascertained during these experiments that a more powerful motor would be required to fully meet the requirements of the case, and the experiments will shortly be resumed on a larger basis.

Lieut. F. J. Sprague has since built and put in operation a motive car on a short branch of the Third Avenue Elevated Railroad at Thirty-fourth street. The experiments with this motor have not yet been concluded, but I understand that they have been quite successful, and will probably result in an extended application of this motor.

In concluding this brief review of this comprehensive subject, I feel that I should not be doing it full justice if I were not to attempt a refutation of many charges which have been brought against electricity by persons unfamiliar with its peculiarity.

It is said to be unsafe, and though with high potential, this is undoubtedly the case, I am prepared to say that with the potential now in use on the Baltimore & Hampden Railway, the experience by a year's constant running eighteen hours per diem leads me to state that so far as human life is concerned it is absolutely harmless.

Secondly: It has been said to be uncertain. Again, quoting the experience of a year, I am able to state that after the little difficulties incidental to a primary installation had been removed during the first month for two, it is as certain as any other form of mechanical tractor in all weather. Third: It has been stated that specially skilled help would be required to operate a line so equipped. I am again able to say that the experience before referred to has enabled me to place upon the road men who were entirely unfamiliar with electricity in any of its applications, and that these men are now our sole reliance for all the operations required, and interruptions are as much the exception with us now as with any ordinary road.

For the year ending September 1st, 1885, the road carried with three cars with horses, 227,155 passengers at 5 cents each, making \$11,357.75. For the year ending September 1st, 1886, the road carried with two cars, propelled by the Daft Electric Motor, 311,141 passengers, at 5 cents each, making \$15,557.05.

An increase of 83,986 passengers with two propelled by electricity, as against three cars propelled by horse power for the same corresponding time, and an increase of \$4,199.30.

The average number of passengers carried per car per aunum propelled by electric power was 155,570.

The average carried per car per annum for corresponding time by horse power was 75,718 passengers, an excess of passengers per car per annum in favor of electric power of 79,852.

The average gross earnings per car per annum, with cars propelled by electric power, was \$7,778.52; the average gross earnings per car per annum by horse power was \$3,785.91, showing an excess of gross earnings per car per annum in favor of electric power of \$3,892.61.

The average cost of horse power per car per day is estimated at \$6.50; the average cost of electric power per day on this road, is one and a half tons of coal at \$3.50, equals \$5.25.

Engineer, \$2.00; fireman, \$1.50; oil and waste, .50; interest on plant and repairs, \$2.75; making \$12.00 per day. The power furnished at this cost is ample to run three motors and cars on this road, making electric power per car per day \$4.00. Under more favorable conditions, such as cheaper fuel or water power to drive the dynamos, and more favorable gradients and curves, the cost of electric power per car per day would be proportionately reduced.

> Respectfully subscribed by T. C. ROBBINS,

Chairman Committee.

The report having been accepted and ordered on file, it was announced that Mr. Guest, familiar with the Daft Electric System, was present, and would answer any questions about the Baltimore road or the Daft system generally.

MR. WHARTON said that he had ridden over the Baltimore road, and was very agreeably surprised by the successful work it was doing. Would like to hear from Mr. Guest.

Mr. GUEST modestly declined to make a speech in behalf of the Daft system, but stated his willingness to answer any questions that might be put to him.

MR. MOXHAM thought there must be some deep rooted reason why so old a principle as electricity had not been more generally adopted, and in his judgment thought that the difficulty was due to numerous minor defects which rendered the system impracticable for crowded streets or anything but country or suburban use. He spoke of a former reference by Mr. Richards to electricity as an infant which would eventually become a giant, but did not agree with him inasmuch as electricity had been in use for generations.

MR. WHARTON thought that great strides of progress had been made, was of the opinion that all obstacles to success for suburban traffic had been substantially overcome, and spoke at length of the Baltimore experiment as promising great things in the future; believed electricity would soon be very generally used on street railroads. He also spoke of storage batteries to be used on each car separately, and thought these promised much. Referred to two motors of the Julian system just brought from England, the batteries charged there, which would soon be tried in New York. Referred to this in evidence that loss in storage was very slight.

MR. MOXHAM thought that the liability of individual motors getting out of order was so great that the trouble might assume as large proportions as in the case of cable roals.

MR. WHARTON, in response to Mr. Moxham, thought it was absurd to speak of all the storage batteries on a road getting out of order at the same time. He was not here to advocate electricity, much less any particular system of electricity, but that he regarded the promise of electricity as a motor with which to supersede horses as very encouraging. He said rails used in Baltimore and various other features of the rude construction of that road would render it impracticable for thickly settled districts. but regarded it still more encouraging as an experiment on that account. Said that there was no danger to human life from coming in contact with the third rail. Had seen Mr. Robbins grasp both rails at a time, forming a circuit, and while he did not feel called upon to follow Mr. Robbins' example would vouch for the fact that no detrimental results followed. He said that the in fant "Electric Motor" for steam railways was destined to grow to be a Hercules.

MR. RICHARDS then spoke eloquently at some length about the difficulty of understanding the science of electricity, and dwelt upon the profound mystery by which it was still surrounded; closing his speech with the remark, "All honor to those who are giving an hour or a dollar to the development of the important agent."

MR. HOLMES of Chicago said he thought it was the duty of the convention to extend an earnest and cordial greeting to every man who is trying to replace bad with good. Said that when a man had walked the floor all night thinking of the proper course to pursue before his board of directors the following day, as he had done before recommending an expenditure of from three to four million dollars, he would earnestly appreciate every particle of help or sympathy from whatever source it came. That he believed that the resources of God were not by any means exhausted, and there would yet be discovered powers at present entirely undreamed of, not only better than horses and cables but than any now known.

One delegate thought that recent steam motors were nearly perfection, and that if city councils would grant permits to use them they would solve the motor question.

A letter of regret was then read from Mr. Edward Lusher of Montreal, after which the committee report on Sanitary Condition of Street Cars was read.

After the acceptance of this report re-

marks were made by Messrs. Moxham and Wharton concerning switch-plates, railgrooves, curves, etc.

The committee on nominations then reported the following list of officers for the ensuing year:

President—Thos. W. Ackley, Philadelphia; First Vice President—A. G. Clark, Cincinnati; Second Vice President—Wm. H. Sinclair Galveston; Third Vice President—Prentiss W. Cummings, Cambridge. Secretary and Treasurer—Wm. J. Richardson, Brooklyn.

Executive Committee-Julius Walsh, St. Louis; H. Hurt, Washington; C. Dinsmore Wyman, New York; Dr. A. Everett, Cleveland; S. S. Spaulding, Buffalo.

Philadelphia was named as the place for holding the next convention.

On motion a single ballot was cast for the gentlemen named, and they were declared unanimously elected, and the committee's report adopted as to place of meeting.

The newly-elected President was then escorted to the chair by a committee, and introduced by the retiring President, and made a few remarks. Votes of thanks were then offered to Ex-President Walsh and the Secretary and Treasurer.

MR. RICHARDS on behalf of the Executive Committee spoke somewhat discouragingly of the custom of giving banquets at the expense of the local roads in the city where the convention was held. An invitation was received from Mr. Kerper to visit his cable railroad, which was accepted, and aunouncement made of a program of entertainment for the next day, given by the roads of Cincinnati, Newport, and Covington to their guests. Delegates were requested to step forward after the meeting adjourned and receive their badge of invitation to the banquet to be given in the evening at the Gibson House by the Cincinnati, Newport, and Covington roads.

The Banquet.

On Thursday evening (Oct. 21) the members of the association and their invited guests assembled at the Gibson House to partake of the annual banquet. At eight o'clock the procession, headed by Mr. A. G. Clark, and the invited guests, took up the line of march to the large dining rooms. The tables were profusely and artistically decorated with flowers and evergreens, while back of the presiding officer Currier's orchestra was placed, and eugaged in the rendition of operatic and popular airs during the progress of the feast.

The menu cards were exceedingly neat in execution and design.

On the back was the picture of a streetcar laden with hilarious mules, and underneath the motto, "Let Us Rest from Our Labors and Be Gay." At the top, in colored letters, was the inscription: "Fifth Annual Dinner to the American Street Railway Association," and beneath, "given at the Gibson House Oct. 11, 1886." An ingenious arrangement of spikes made out the year 1886. Within was a humorous cartoon of a street car dashing along at full speed, and an old lady wildly waving her umbrella. Then followed

THE MENU. Blue points on shell. Haut Sauterne. Printaniere Royale. Filet of Sole. Sauce Beyrout. Celery en Mayonaise Supreme of Chicken. Chateau Lafitte. French Asparagus. 📓 i Terrapin. Southside. Champagne Funch au Burgundy. Cigarettes. Filet of Pheasant. Pommery Sec. Lettuce. Ice Cream on Forne. Cake. Biack Hamburg Grapes. Roquefort and Brie Cheese. Coffee, Cigars. Liqueurs.

At ten o'clock Mr. Clark announced the first of the post-prandial remarks. On behalf of the people of Cincinnatihe expressed the hope that their guests had enjoyed their visit, and if they went away saying so it would be the greatest compliment that could be paid to Cincinnati. The first toast is, "Our Guests." It is our sincere hope that their remembrance of Cincinnati will be measured by the same degree of pleasure which it affords us to greet them. He called upon Mr. Moody Merrill of Boston to respond.

Mr. Merrill was warmly greeted, and craved for indulgence in his first attempt at after-dinner speaking. In Boston they had an organization called the Presidents' Association, and one of its principles was that the presiding officer (Mr. Richards) should do all the talking and the others all the list_ ening. To the people of Cincinnati he would express the visitors' high appreciation of the generous hospitality accorded them. There was, however, a more serious subject to be dwelt upon. It was probably the last time he should address them as an important railroad official. He had passed through in his career what few had experienced. He then detailed his entering into the street railroad business in Boston fourteen years ago on what was known as the Highland voute. After dwelling upon the dividends paid by the roads in Boston, the inauguration of the system of consolidation and the advantages that had accrued, notwithstanding that great doubt had at first been expressed as to the result. Street railroads, he said, were run solely for the purpose of making money, and consolidation had increased the revenues of the companies and redounded to the advantage of the public. He closed with the heartfelt wish that the day would not be long coming when the visitors from Boston could return the generous hospitality of the good people of Cincinnati.

Mr. Clark then announced the second toast—"Our Retiring President—whose gentlemanly and intellectual administration has increased the respect which we already felt for him as a fellow-member."

Three cheers and a tiger were given for Mr. Julius S. Walsh, of St. Louis, who referred to the fact that last year he had assumed the duties of presiding officer with mittee reports next ye motive power subjects.

trepidation, and expressed the wish that the same kindness and consideration extended during his incumbency would always continue.

"Our next toast," said Mr. Clark, "is to our President. May he bear the cares of office lightly, and upon his retirement have the satisfaction of knowing the good work has gone bravely on."

Three cheers and a tiger also greeted Mr. Thomas W. Ackley, of Philadelphia, as he arose to respond to the sentiment. He had attended the convention for a double purpose.

First, he had come to receive information, and then he was delegated to invite the next annual convention to meet in Philadelphia. He brought with him the warm invitation of every street railroad in Philadelphia, and cordially wished all to join them in that city in October, 1887, and he would guarantee to each and every one the heartiest of welcomes.

For the next sentiment, said Mr. Clark, he had found few anxious to respond, but the selection had fallen on Mr. C. B. Holmes, Superintendent of the cable roads of Chicago. His subject would be "Street Railroads and Public Opinion." Mr. Holmes said that in turning the subject over he was reminded of the time when the ice broke with him, and he found the water very cold and very deep. The subject intrusted to him he had found to be fathomless.

Mr. Calvin A. Richards, of Boston, then eloquently and touchingly spoke to the sentiment, "Our Home and the Ones We Left Behind Us." He urged all to bring next time their wives and children. He had found here the whitest souls and the finest men he had ever seen.

General M. Ryan, in a characteristic speech, spoke to "Our Passengers," ingeniously taking the vein that Mr. Kerper had transformed our woodlands into a great city, replaced the cow-bell with the gong of the cable car, so that where land formerly sold per farm, it was now sold per front foot. He neatly coupled Mr. Kilgour's name with that of Mr. Kerper.

For the toast "The Press," Mr. Clark presented a gentleman who needs no introduction, Mr. Halstead. That gentleman dwelt in interesting terms on the importance of the street railroad interest, the good it had done for the city, and how, with the press, it was engaged in building up Cincinnati, and placing it in the rank of leading American cities.

This ended the regular programme, but several gentlemen were called upon and mude happy impromptu remarks.

Much of the success of the affair is due to the Reception Committee, composed of James Doherty, General George B. Kerper, A. G. Clark and John Kilgour.

The interest manifested by the convention in motive power was very marked and the increase over that shown at the '85 convention was quite noticeable. Of the committee reports next year three will be on motive power subjects.

At the Cincinnati Convention.

The following gentlemen not delegates were in attendance at the Street Railway Convention at Cincinnati.

John Stephenson Co. and Pugh & Russell, represented by John S. Pugh, H. W. Pugh, James A. Tackabery and H. C. Evans.

A. French Spring Co. G. W. Morris, General Manager, and William Lawrence. Johnson Steel Street Rail Co. A. J.

Moxham, President of the company.

Pullman Car Works of Chicago. Charles E. Pullman.

J. G. Brill & Co., Philadelphia. John A. Brill.

Railway Registor Manufacturing Co., Beadle & Courtney, General Agents. Edward Beadle, Charles Courtney.

Fulton Foundry, Cleveland. C. J. Langdon, Secretary, and T. C. White, salesman. Hathaway & Robinson. Charles Hath-

away. John A. Roebling, Sons & Co., of Tren-

ton. George C. Bailey, Manager of the Chicago office.

Standard Index and Register Co., New York. Charles B. Baldwin.

Walter A. Crowders.

Baltimore Car Wheel Co. A. S. Littlefield,

Richard Vose, New York. J. C. Guibert, William P. Williams, William S. Silvers,

- and A. W. Slee. Laclede Car Works, St. Louis. William Sutton, Superintendent.
- Wales Manufacturing Co., Syracuse. W. S. Wales, President.

John Strong, Peoria.

Augustus Day, Detroit.

Hale & Kilburn, Philadelphia. George

F. Small.

Bryden Forged Horse Shoe Works, Catasauqua, Pa. J. B. White, Manager Sales Department.

Lewis & Fowler Manufacturing Co. H. C. Simpson, Secretary; E. Packer and L.

E. Robert, salesmen.

D. B. Andres, Philadelphia. Frank H. Andrews, represented by F. T.

Lerned. Brownell & Wight Car Co., St. Louis,

represented by Mr. Brownell.

W. L. Everit, New Haven.

Cleveland Foundry. N. B. Bowler, Proprietor.

Michigan Stove Co., Detroit. G. H. Barbour, Secretary, and M. B. Mills, Treasurer.

Valentine & Co., New York. W. L. En Earle.

H. K. Porter & Co., Pittsburg. T. W. Belle.

J. O. Haddock, Louisville.

A. Ballenberg, Chicago.

M. M. Willson, Troy, N. Y.

Post & Co., Cincinnati. E. V. Cherry, Vice President; Isaac Kinsey, Manager;

and Peter Leidenger, salesman. Bemis Car Box Co., Springfield, Mass. Charles J. Stearns.

D. J. Miller, New York,

Exhibit of Street Railway Appliances at the Cincinnati Convention.

The John Stephenson Co., New York, through Pugh & Russell, general representatives, made the following exhibit:

1. Exhibit a handsome section of a Broadway car of New York City, of which they are now delivering the second fifty of the one hundred cars of this style built by them for the Broadway Road.

2. This exhibit shows the patent spring draw-head and hook with latch, thus preventing the whiftletrees from becoming detached by accident, or the horses.

3. The adjustable windlass handle, allowing the driver to set his brake according to the various conditions of the load.

4. The telephone signal system by which the passenger is enabled to signal the conductor for stopping the car.

5. The metal sash style, rubber lined, thus cushioning the glass and preventing rattling and extending the field of vision.

6. The high windows permit a passenger standing in the aisle to read the store and street signs, without having to stoop as formerly, and not in any manner sacrificing the strength of the car.

7. The ventilated ceiling affording pure air in the car at all times and conditions, also the drop sash at the ends of car and in doors, which when opened give a free circulation of air.

8. The patent ventilated lamp-house with the signal light having the bull's eye surrounded by clear glass to light the platform and roadway, and lettered with the destination.

Pugh & Russell, New York and Chicago, general agents for A. French Spring Company, exhibit graduated keg-shaped steel street car springs which are now being universally used.

Pugh & Russell, agents Johnson Steel Street Rail Company, exhibit sections of the Johnson girder rail of various weights, both center and side bearing.

Pugh & Russell, sole agents, exhibit Nelson car heater, now used extensively throughout the country.

J. G. Brill & Co., Philadelphia, exhibited their

1. New dust-and-oil-tight journal box; will be illustrated in a future issue.

2. New reversible sign boards for cars. New system to change signal lights.

3. Bell with movable plunger for striking.

4. Full line of car trimmings.

5. New ratchet brake handle.

6. Patent brake shoe.

7. Patent sash stop.

8. New journal box with link motion.

9. The Brill gear.

10. New and improved patent reversible seat for open cars.

Beadle & Courtney exhibited a full line of registers, manufactured by the Railway Register Manufacturing Co. of Buffalo.

Edward Beadle exhibited the Eureka Folding Mat for car floors.

Hathaway & Robinson, Cleveland, exhibited their new transfer table.

Hale & Kilburn, Philadelphia, exhibited their car seats and springs.

Bryden Forged Horseshoe Works, Ld., Catasauqua, Pa., exhibited a full line of their horse and mule shoes.

Detroit Brush Co. exhibited a sample line of their brushes.

Leib Lubricating Co., Buffalo, exhibited Dux grease for street railways.

Lewis & Fowler Manfg. Co. exhibited their Patent Alarm Passenger Register; their new heater designed expressly for one-horse cars; their two-horse heaters, fancy stove box for each size; two sections of a car, showing the location and arrangement of the heater, one of which was for a one-horse car in front doorway.

Frank H. Andrews exhibited car wheels, White's Patent Automatic Switch, turn table, snow sweeper, etc.

Brownell & Wight Car Co., St. Louis, exhibited a complete and very elaborately finished car containing various improved devices and features which we hope to describe fully in a later issue.

D. B. Andres, a new grip for cable railways; complete working model.

W. L. Everit, New Haven, improved car floor.

Morgan Envelope Co., sample lot of their change envelopes.

The Standard Index and Register Co., N. Y., exhibited their Standard Register, as used on the Broadway Road, New York.

Walter A. Crowders, electric fare box.

The Street Railway Supply Co., Cleveland, O., the Shattuck and Worswick journal boxes.

W. E. Haycox, Cleveland, new patent door fastener for street cars.

Josephine D. Smith exhibited sample of very fine end and center lamps for street cars.

J. Wilder & Co., Belle City Feed Cutter. The Champion Horse Nail Co., Appleton,

Wis., full line of horse nails, for country and eity street railway use. The Wales Manfg. Co., Syracuse, sam-

The Wales Manfg. Co., Syracuse, sample of fare box and change gates. Tom. L. Johnson and A. A. Anderson,

Tom. L. Johnson and A. A. Anderson, Indianapolis, showed specimens of Johnson's Fare Box, with prices.

John Strong, Peoria, new patent brake.

Augustus Day showed a track scraper. Cleveland Foundry showed a sample of Bowler's Patent Wheel.

Michigan Stove Co., Detroit, showed two street car stoves.

Barret Manfg. Co., Boston, Barret's new Journal Box.

J. O. Haddick, Louisville, revolving car stool for drivers.

A. Ballenberg, Chicago, new method for heating cars.

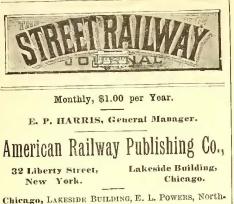
E. Hambujer, Detroit, showed a car heater.

M. M. Willson, patent brake shaft.

Post & Co., Cincinnati, a variety of street railway appliances, notable among them their new center lamp, head and monitor lamps for cable cars, car brass bearings, car trimmings, student and hand lamps for office use; all kinds of burners, chimneys, wicks, lenses, etc., etc. with a general line of track builders' tools and supplies. Some of them are new and will be described in a later issue.

Julius Jaegel, patent pneumatic electric subway. complete model.

L. Jordan & Co., automatic railroad sand distributor.



western Manager. Boston, Mass., 185 SUMMER STREET, H. M. SWET-

LAND, Manager. Philadelphia, 119 So. FOURTH ST. J. H. McGRAW, Manager.

The Convention.

To all who attended the convention of the Street Railway Association at Cincinnati there must be a feeling of pleasure at the complete success attending all of the arrangements and in the carrying out of the programme. The interest manifested in the work and the thorough way in which it was performed, is shown by our report of the proceedings. The committees having charge of the subjects for report and discussion entered into their work with an earnest interest that showed itself in the extent and thoroughness of the reports.

Mr. Richards' report on the Cause, Prevention and Settlement of Accidents, is especially interesting as showing the dilemmas in which street railway officials are placed, and the aunoyances to which they are subjected by the unjust claims for damages that are trumped up against them.

Mr. Richards' suggestious are very similar to those employed by Mr. Thompson of the Pennsylvania R. R. a number of years ago, and which made him so popular and successful in the treatment of such cases, that it was declared to be almost a positive luxury to be hurt upon that road.

The subject of mechanical propulsion for street cars has received so much attention from outsiders and the railroad managers, that considerable was naturally expected from the committees having the cable and electric systems in charge. Nor was there any disappointment in this regard. There is a strong yet good natured fight waging between the advocates of the two systems; and while the railroad men are ready to discard their old love, the horses, as being expensive and troublesome, they have difficulty in choosing between the other two. sighing: "How happy could I be with either, were t'other dear charmer away."

These papers and the discussions upon them will therefore be read with considerable interest.

Nor must we forget the banquet, where the members of the convention meet in the goodly presence of well-laden tables, and are lighted up with the happy disposition to be pleased with everybody and everything: when the present moment seems the happiest of their lives, and strikes and unions, break downs, accidents and worries

are forgotten, and the management of a street railroad assumes the features of a lotus-eater's paradise.

But, perhaps, after all, this outside appearance of success and smoothness that characterized every feature of the convention, was due to the fact that the whole was under the control of men who have the management of the most difficult of industries in their hands, and to whom the management of a convention, where solid work is done, partakes of the freedom of a school boy's holiday.

Rudiments of Driving. BY W. E. PARTRIDGE.

It is a wonder of street railroading that no one has attempted to put in available shape for use, by drivers of street cars, instructions in regard to the proper manner of driving a pair of horses. Even Bergh, the great philanthropist of the horse, the ass and the mule, has never seen fit to issue directions for the ordinary driver. On most roads where a man can handle a brake, get his team from one end of a car to the other, or manage a turntable, his education in that line is supposed to be complete. So little is known by the drivers of the best methods of driving a team, that if the horses did not know more about driving than the men who hold the lines, the business of our large cities would stop. The wear and tear in horse flesh, caused by this ignorance, is something fearful. Teams are worn out yet the work is not done. The labor is expended in pulling against the brake, in surging against the lines and in other namcless ways which fret and tire the horses without performing work.

Of all the senses bestowed upon a horse the hearing is the most delicate, and the one upon which the animal places almost as much dependence as upon any other, except perhaps that of smell. In spite of this, most horses in the city of New York, at least, are driven by the whip and lines. The voice is not used until the team has been jerked up or the whip applied. Even gentlemen often drive their horses as if they were mere machines.

The following rules will be found to work well in practice. Their correctness can be easily demonstrated by applying them to a private team.

The voice should be used first in every case where the horse is required to do anything, in starting, stopping, turning to the right or left, increasing or decreasing the speed. To put it more clearly, the driver should express every wish in words before using lines or whip, or brake if on a car. The words should be simple and for the same action should not be varied. In some parts of the Eastern States, the following vocabulary covers the usual orders: "Whoa," for a stop, given in a sharp tone for a sudden stop and more softly when the gait is to be slacked up. It is also used to signify that the team has turned far enough, etc. "Come here," when the team is to turn to the left, and "Get off," for a turn to the right. "Gee up," derived like the make room for our Convention report.

last two from the language of the ox driver, starts the team and is also used to increase the speed. Almost any word may be used for the latter purpose.

What the words are, makes very little difference if they are used without variation and are not so much alike in sound as to be misunderstood. Any ordinary team of horses will learn the ; ords as easily and as quickly as a child four years old. As a rule, a horse will fear the voice more than the whip and will respond to it quicker, even when tired and overloaded. The time needed for this latter lesson is short. Let the voice invariably precede the use of the whip and let a blow always follow the voice if the horse does not quicken his speed in proportion to the command or the tone in which it is given. Sometimes a horse will, in an hour's drive, learn the lesson so as not to forget it for days. If the practice be made a habit, the horse thus trained will respond to the voice when whipping scarcely urges him out of a walk. The dread of a punishment to come appears to be greater than that of one which has already fallen.

The same principle applied to teaching a team to make a sudden stop is of the greatest use to the driver of a car. The team that has been taught to stop at the sound of the voice, will slack their traces in case of an emergency before the driver could gather his lines and thus leave him to apply the full power of the brake, The drill for this is simple. Say "Whoa!" sharply before touching the lines, and then, if the horses do not instantly respond, pull them up and make the shortest possible stop. Horses can stop themselves quicker at the word than the most stalwart driver can stop them by aid of the lines. A turnout square across the track or the turn of a truck at a corner can be taught in a similar manner and has the same advantages. Teams driven in this manner do not fret themselves, are always ready for the driver's voice and seem to enjoy obeying orders. As a rule such teams do a greater amount of work without falling off in condition, than those driven in the ordinary manner.

Whether it is possible to introduce reforms in driving car horses appears questionable. If an attempt is made to improve the class of men employed, it can be done. If the men are to remain but one remove from the day laborer, it is useless to think of any scheme which calls for any exercise of intelligence.

Subjects for Discussion at the Next Convention.

The subjects for consideration at the Street Railway Convention of 1887 in Philadelphia, are as follows: "Electric Motive Power;" "Cable Motive Power;" "All Other Kinds of Motive Power;" "Practical Devices Looking Towards Economy in Street Railway Practice ;" "Mutual Insurance for Street Railway Companies," and "Track Construction."

Much valuable matter is crowded out to

THE STREET RAILWAY JOURNAL.

Stephenson's Broadway Car.

The John Stephenson Co. are building some new cars for the Broadway line in New York, that embody the latest improvements in car construction. They are of the narrow seven foot width pattern in use upon that road, and have the same coloring as the old cars. One of the most recent improvements introduced is in the drawbar. It is a spring bar, so that the team is not obliged to make a dead pull against an unyielding load when starting the car. It has also a clip hook that holds the ring of the whiffletree in place, but may be raised by the driver with his foot, when he wishes to detach the team. Beyond the hook proper there is a buffer that serves the double purpose of protecting the car against other cars that are run into it, and of affording a place upon which the whiffletreo rests, and is held from the ground at all times, so that it never drags upon the ground and the traces are not trailing under the horse's feet.

Instead of the wooden strip that has lately been put upon the dasher to afford a comfortable leaning place for standing passengers, and which following horses delight to gnaw, a strip of brass of the same shape is fastened. The brake handle is of the kind that allows the brakes to be set without making a complete revolution, as we have already described it in a previous number.

The running gear has super springs and the rubber track cleaner, both of which we will illustrate in a future issue and therefore refrain from further particulars at present.

In the interior, the decorations are plain finished natural woods (mahogany and maple.) The windows are large with metallic frames and the stiles projecting under the exterior casing so that from the outside there is really nothing to be seen but the glass. The windows are prevented from rattling by a spring attached to the side.

The end windows are made to drop, and that in the door also. The bullseye lights are surrounded by a piece of clear glass bearing the word " Battery " in black letters. The car has the Stephenson ventilated ceiling and the telephone bell pull, so that the passenger can signal the car to stop without moving from the seat or waiting to attract the attention of the conductor.

Another feature outside the car proper, is the matting. It is made of rubber, and laid in squares in such shape that it can be readily changed about to bring an even wear upon all parts. The squares are perforated in such a way that coins cannot get out of reach when dropped upon the floor.

The cars when we saw them, were ready delivery.

Personal.

Thos. Lowrey, of Minncapolis, is in Europe.

J. B. Hanna, of Cleveland, is in Colorado. Daingerfield Deaderick, of Nashville, is in California,

Convention Briefs.

Willson's new brake was pronounced practical.

The new grip shown by W. B. Andresattracted much attention.

Cable roads were a good deal discussed. and the Cincinnati road attracted much attention.

A special car was chartered by F. T. Lerned and carried a party of Eastern gentlemen to the convention.

The names of H. M. Watson and Charles Cleminshaw were mentioned for the presiding office the ensuing year.

J. G. Brill & Co. exhibited several new patents, improved devices, in the street railway line, descriptions of which will appear in a future issue of this paper.

The Cincinnati, Covington and Newport street railway companies entertained their guests, the delegates and their friends, in a very handsome manner.

Charles Cleminshaw, of Troy, so well known as a street railroad man, is also a member of the firm of H. C. Curtis & Co., manufacturing the celebrated "C. & C." collars and cuffs.

The increased number of exhibits appearing would seem to substantiate the prediction made by the STREET RAILWAY JOURNAL a year ago that this yearly show of improved devices is destined to assume large proportions. New ideas expressed in models and samples are as valuable to live delegates as those expressed in words on the floor of the convention.

New Publications,

We have received from President H. M. Watson a new edition of the official timetable of Buffalo Street Railroad and Buffalo East Side Railway. It is a neat little book, containing full information about the street car routes of the city, also other information concerning the railroads, and a airectory of the streets of the city.

THE FOURTH AVENUE LINE have experienced so much competition, on the part of the elevated railroad, since the fares have been cut down to five cents, that they have added 44 more cars to those that run during the day. This gives a headway from one minute to one minute and a half during the whole day. It seems to be the intention of the company to have so many cars on this line, that whenever a person crosses the avenue, there will always be a car approaching him within a block, so that there will be an inducement to take a street line, rather than walk to the elevated station. The delay in putting the cars on after men had been engaged, and the cars had been promised to them, caused some complaint in the morning papers, but the new schedule was posted on the afternoon of the day the complaint appeared, and the employ-ees found therefore, that they had really nothing to complain of.

THE CHAPLIN MANUFACTURING Co. have issued a new illustrated catalogue of their roller bearings, showing its adaptability to street, steam and hand cars, carriages, traveling cranes, and other places where it is desirable to haul heavy loadwith a light draft.

Notes and Items.

Akron, O.

THE AKRON ST. Ry. & HERDIC CO. will add two miles of track to their present road, next year.

Allentown, Pa.

Mr. A. T. Brown has succeeded Edwin Yeager as Superintendent of the Allentown Pass. R. R. Co.

Allegheny City, Pa.

THE FEDERAL STREET & PLEASANT VAL-LEY PASS. Ry. Co. have added two cars and fifteen horses to their equipment. No more additions will be made at present. Altoona, Pa.

THE CITY PASS. Rr. Co. have laid a 45 lb. rail over some portions of their road, and increased the number of horses to forty.

Albany, N.Y.

THE WATERVLIET TURNPIKE & R. R. Co. have added six cars and seven horses to their equipment since our last report. Mr. C Tremper has also succeeded Mr. P. Way as Secretary and Treasurer.

THE ALBANY RAILWAY report 14 miles of track, 54 cars and 232 horses. The officers of last year were re-elected at their recent annual meeting.

Atchison, Kan.

THE ATCHISON ST. RY. Co. have now nine miles of track. Geo. W. Carpenter is Gen. Superintendent.

Augusta, Ga.

Frank E. Pettit has been added to our list of officers, as Auditor of Augusta & Summerville R. R. Co.

Baltimore, Md.

THE NORTH BALTIMORE PASS. Ry. Co. have now twenty-one miles of road in operation.

Poole & Hunt are furnishing a large amount of machinery for four extension cable roads.

THE PEOPLE'S Ry. Co. have now 101 miles of track, and are using 45 and 47 lb. rail. T. Edward Hambleton is now President; the other officers remain as heretofore.

THE CENTRAL RY. Co. report the same mileage and officers as before, and no improvements in contemplation before next spring.

THE BALTIMORE UNION PASS. Ry. Co. are extending their track one mile to the City Hall.

THE BALTIMORE CITY PASS. Ry. Co. are now operating 44 miles of track, with 151 cars and 1,051 horses. J. M. Blandell has charge of the car shops and Boyer Parks of the roadway.

Geo. V. Keen is Treasurer of the Citizens' Ry. Co.

Beatrice, Neb.

THE BEATRICE ST. Ry. Co. is running with the following equipment and officers. The road is four miles long, of 4'81 gauge, and is laid with 25 lbs. rail. Four cars are used and 20 horses are owned. Mr. J. D. Kilpatrick is President and J. C. Smith Superintendent and Purchasing Agent.

Birmingham, Ala.

THE EAST LAKE LAND Co. are building a road 7 miles long, to be operated by motors. It is expected that it will be opened in January. Robert Jennison is President and S. M. Hanley is Secretary.

The personnel of the Highland Ave. R. R. 1Co. has been somewhat chauged since our ast report. Mr. W. J. Milner, formerly Superintendent, is now Manager, and J. M. Lens is Superintendent. H. Schoel is Engineer aud H. M. Caldwell, President. Boene, Iowa.

TWIN CITY & DES MOINES RIVER MOTOR ST. RY. Co. have now six miles of track laid with 20 lb. rail. They contemplate making extensions of from two to five miles in length to reach the coal mines; when it is anticipated that it will be the best paying road in the State. In time it is the intention of the management to reorganize under the railroad laws, making the company a railroad company.

THE BOONE & BOONESBORO ST. RY. Co. remain exactly the same in officers and equipment as during last year.

Boston, Mass.

THE LYNN & BOSTON R. R. Co. have increased their mileage to 37 miles, and their stock to 748 horses and 175 cars.

William P. Harvey is now Secretary of the Metropolitan Co. in the stead of H. R. Harding, heretofore reported.

THE SOMERVILLE HORSE R. R. Co. and the Boston & Chelsea Co. are both operated by the Boston Consolidated Street Ry. Co. The Boston Consolidated Street Ry. Co. will continue to build the expensive and elegantcars formerly used on the Highland line, maintaining the system of external plaiding that was there **u**sed.

Ezra H. Baker has succeeded James C. Davis as Vice-President of the South Bostou Ry. Co.

THE METROPOLITAN STREEE RAILWAY Co. have the new shop on Bartlett street nearly completed. It stands in the rear of their preseut storehouse and stable at that place and the main building is 350 by 100 feet, three stories, boiler house 38 by 60, foundry 40 by 80. The first floor of the main building will be used for blacksmith shop, machiue shop, and engine room, the second floor for painting room and construction room, and wood-working machinery and carpenter work will be doue on the third floor.

The engine, boilers and a few large tools are uninjured from the fire and will be used in the new plant.

The second floor of the main building will be connected by a bridge to the same floor of the storehouse, giving an additional floor space of 220 by 180 feet.

The company are laying the Richards girder railon Harrison avenue, which is now being double tracked two miles, making about six miles of new track this year, including the new "First Section" in East Boston, which is a new line just opened connecting the ferries, Cunard wharf, and Jeffreys point.

Car building is now couducted in the

storehouse, where 22 new cars have been built since the fire, and besides the usual repair work they have a capacity of about 10 new cars a month; 24 snow plows are to be built, and Randall's patent "Jumbo" snow shovel, which was completed last season too late to be used, and was burned with the shop, will be at once reproduced for service this season.

THE CONSOLIDATED RAILROAD Co. have already had some interviews with the dissatisfied employees. It seems that the latter must have been very harshly treated, inasmuch as they were enabled to find 27 cases of complaint, which were submitted to Presideut Powers, in the form of a series of resolutions, while the preamble demanded that the company should acquiesce in these resolutions within one week. President Powers referred the matter to the Directors, and the latter promptly returned complete power into his hands. The demands of conductors and drivers were that they should receive \$2 a day for 10 hours work, and that this 10 hours work should be done within a limit of 12 consecutive hours. Further, that the men going to work before 6 o'clock in the morning should have at least one hour for breakfast and one hour for dinner, and those going to work between 6 and 8 o'clock in the morning, shall have at least one hour and a half for dinner. That all extra work shall be paid for at the rate of 25 cents per hour. Then there were resolutions regarding the purchase of uniforms at whatever place the employees should see fit, that the officers should not keep boarding houses, etc, etc., to the end of the twenty-seven resolutions. Some of them were of course so absurd that they could not be considered, whereas where they were just in their demand, President Powers has granted them without a demur.

Binghamton, N. Y.

Ira J. Meagley has succeeded G. O. Root as Secretary of the Washington Street & State Asylum R. R. Co. Burlington, In.

THE BURLINGTON CITY R.R. Co. keep four cars in constant use, hold five in reserve for emergencies.

Brenham, Tex.

To the list of officers of Brenham Street R. R. Co. we add F. Krentzlin as Vice-President, and E. B. Randle as Manager. Brockton, Mass.

C. R. Fillerbrown has succeeded Z. C. Keith as Treasurer of the Brockton Street Ry. Co.

Bridgeport, Coun.

THE CHAPLIN ROLLER BEARING Co. report that they have recently shipped orders to the City of Buenos Ayres Tramway Co.; Central Pass. R. R. Co. of Louisville, Ky., and to J. M. Joues' Sons, West Troy, N. Y. This latter firm is building the twenty new cars for the Boston Consolidated St. Ry. Co., which will be of the elegant pattern introduced by the Highland St. Ry. Co. previous to the consolidation.

Brooklyn, N. Y.

The following is a list of the officers of the Brooklyn City and Newtown R. R. Co.: lyn. The other companies are only waiting

Pres. Col. John N. Partridge; Sec. ad Treasurer, Duncan B. Cannon; Supt. John L. Heins. The number of horses is now 400 instead of 410 as heretofore.

In March last Pres. Richardson of the Atlantic Ave. R. R. applied to the Common Council for permission to substitute a cable for horses on the Park avenue line, part of which is already built and the rest in the course of construction.

The aldermen favored cable railways and granted the permit at once. The Corporation Counsel, however, found that the City Fathers had been a little too premature, as the law required the change to be advertised for fourteen days. Mr. Richardson, fearing that the work on his road might be delayed because of the legal point raised, at once began to advertise the fact of the proposed change. Before the expiration of the fourteen days, however, the Common Council adjourned for its summer vacation.

This caused another long delay and oversights and technicalities delayed the final approval of the Council far beyond the necessary limit of time. The resolutions have, however, had their final presentation to the board, they have been found to be all right and Mayor Whitney has a fixed his signature to them.

The right thus extended affects the Atlantic Avenue and the Prospect Park and Coney Island Railroad companies.

To begin with the substitution will be made on but a small section and a fair chance will be given to see how the system works. Should the verdict be favorable it will be extended over the entire route. Mr. Richardson claims that the Johnson girder plan of cable traction, which he proposes to use, is the best yet tried and that it will recommenditself to the public as an easy solution of the rapid transit problem. The first test is to be made on Park avenue from Washington avenue to Broadway.

The City Works Commissioner, under the resolutions, is authorized to issue a permit to the railroad company to open the streets after the company has given a bond in the sum of \$50,000 "that it will pave and keep harmless the city of Brooklyn from all damages or injury caused by the adaptation or maintenance of the road caused by any interference of said company, its lessees, contractors, agents or employees with the streets, water pipes or sewers." The resolutions were signed in the morning, and in the afternoon Mr. Richardsou filed with the Corporation Counsel an indemnity bond for \$50,000 which was signed by himself as President and N. N. Frost as Treasurer of the Atlantic Avenue Railroad Company. Plans of the works are already in the hauds of the Chief Engineer of the City Works Department and the application for a permit has been made. Within sixty days Mr. Richardson expects to demonstrate to the people of power the superiority of cable traction as a means of locomotion over all others.

If this is done Mr. Richardson's road will simply be the first step towards the general introduction of the cable system in Brooklyn. The other companies are only waiting to see the result of the scheme. President Hazard, of the Brooklyn City Railroad, is strongly in favor of the cable system, and if the Park avenue venture proves a success he will probably follow in Mr. Richardson's wake.

In his argument in favor of the cable railway Mr. Richardson presents some interesting facts. In the first place, he claims that the abolishment of horses is a sanitary necessity. The Atlantic avenue road uses 1,361 horses in pulling its cars over the route, and he estimates that these horses contribute 2,200 tons of filth to the street. The Brooklyn City Railroad, with its 3,200 horses, adds 6,400 more tons to this amount. This, of course, is detrimental to the health of the city. The introduction of the cable system will do away with this.

Unless something interferes the work on the Park avenue road will be continued this month.

After seeing the various systems in operation in New York, Chicago, Cleveland and other cities, Mr. Richardson decided that the Johnson system was the most practicable. Thomas L. Johnson, the inventor, is a member of the Street Railway Association and President of the lines in Cleveland, O., and Indianapolis, Ind. His system differs from those first in use. The cars run by two parallel wire ropes, located an inch apart and connected at intervals of six inches by drop forged steel links. This is carried on rollers in a conduit a few inches below the street's surface, running the entire length of the line. The chain gears with a toothed wheel carried by the car which replaces the grip of other systems. The wheel is attached below the center of the car and revolves on an axis that is elevated or depressed by the operator of the car, raising the wheel from or lowering it into the slot of the conduit. By a wheel on the platform the operator is enabled to apply a brake acting on the gear wheel, which retards the latter's action and completely stops its rotation when sufficiently applied. When this is done the carmoves at the speed of the cable. By applying the brake gradually the car can be started without the jerking motion. The system is a new one and has not been used on any other line as yet. A trial line of one-tenth of a mile was built in Cleveland, O., and it was there that Mr. Richardson, in company with Mr. Hazzard, saw it work. The test was sufficient to show the practical operation of the system.

THE BROOKLYN CITY RAILROAD has added seventy-four cars and 164 horses to their equipment since we received their last report.

THE BROOKLYN CROSSTOWN RY. Co. are adding new heaters to their cars, of the Lewis & Fowler make.

There has been an indignation meeting at Flatbush, to get something out of the Brooklyn, Coney Island, and Flatbush Railroad Co.'s one horse car line between Windsor Terrace and Parkville. The claim is that the residents between the City line and Parkville, are poorly served, they are dumped out into the weather, into a disagreeable waiting room, and obliged to wait the pleasure of a dispatcher. The case as far as we can see, seems to be somewhat exaggerated, and the railroad company are not so altogether negligent as the indignant parties claim.

Buffalo, N.Y.

THE BAILWAY REGISTER MANUFACTURING Co., Beadle & Courtney, general agents, are tasked to their utmost capacity to fill orders for bell punches, which would not seem to indicate that the "trip slip" device was waning in popularity.

Cambridge, Mass.

The consolidation that took effect October 1, removes the Charles River Street Ry. Co. from our list of roads.

Cedar Raplds, Ia.

Secretary N. B. Consigny, of the Cedar Rapids & Marion Ry., writes that they have recently been extending their city lines on Sixteenth street, for about threequarters of a mile. He also announces the death of Mr. O. T. Richmond, the Vice President of the company.

Charleston, S. C.

THE ENTERPRISE R. R. Co. have 15 miles of track, and are running 25 passenger and 10 freight cars with 95 horses.

Chicago, Ill.

THE CHICAGO CITY RY. Co. are now running 90 miles of tracks. They are using 1,600 horses beside the cable, and run 697 cars.

THE UNION ELECTRIC Co. shipped on Oct. 25 a car load of electrical apparatus to Kansas City for the use of the Kansas City Street Railroad. The electrician of the road, Prof. Henry, expects to have his Fifth street line in operation inside of two weeks.

THE ELECTRIC ELEVATED RY.Co. has been licensed in this city, with a capital stock of \$5,000,000, to construct and operate electric railways in Chicago and Cook county. corporators, Charles W. Rigdon, Silas S. Willard, George P. Everhart.

Cincinnati, O.

THE CINCINNATI ST. Rv. Co. report 96 miles of track laid with 42 and 52 lb. rail, 250 cars and 2,000 horses. The road is under the same management as last year. They further expect to begin work on the construction of two cable roads next spring.

Cleveland, O.

THE BROOKLYN ST. R. R. Co. have added four miles to their roadway, four cars and 27 horses, since our last report from them] Cortlandt, N. Y.

B. B. Terry has succeeded S. E. Welch as Superintendent of the Cortlandt & Homer Horse Railroad Co. Mr. Welch retains his position as Secretary and Treasurer which he formerly held in conjunction with that of Superintendent.

Cleveland, O.

THE EAST CLEVELAND Co. have increased the weight of the rail they are now using to 45 lbs., all steel. They have at present 570 horses.

Danville, Ill.

THE CITIZENS' ST. RY. Co. are about to purchase some new cars to be delivered in the spring. They have added one-half mile of track since their last report.

Des Moines, Iowa.

The present board of officers of Des Moines Street R. R. Co., as just handed in, is as follows: President, M. McCain; Vice-President, C. W. Rogg; Secretary, F. A. Sherman; Treasurer, G. B. Hippee.

Dayton, O.

THE WAYNE & FIFTH ST. R. R. Co. have added one new car to their equipment, and propose to relay a part of their track with new rails.

Denver, Col.

THE DENVER CITY Rv. Co. have added eight miles of track, fourteen cars and eighty-two horses to their equipment during the past year.

Eau Claire, Wis.

THE EAU CLAIRE ST. RY. Co. are now operating four miles of road, laid with rails weighing 27 lbs. to the yard. They have sixteen cars and seventy horses. The officers are: President, A. G. Bradstreet, New York; Secretary and Treasurer, Weston Lewis, Gardiner, Me.; and Vice President, George B. Shaw, Eau Claire.

Fort Smith, Ark.

THE FORT SMITH ST. Rv. Co. are using mules instead of horses as heretofore reported.

Haverbill, Mass.

THE PENTUCKET STREET RY. Co. has gone out of existence, or as our correspondent puts it, "has all blown over."

Hutchinson, Kan.

THE HUTCHINSON ST. RY. Co. report two miles of track with four cars and 24 horses. Jacksonville, Fla.

We are informed by Mr. Henry S. Ely, Secretary and Manager of the Pine Street R. R., that the report that G. A. Buckinstea was the owner of the road is erroneous. The gentleman in question never owned any of the stock, and his only interest was that of lessee for two years. The officers of the road are as they always have been: President, S. B. Hubbard; Vice-President, S. M. Schumacher; Treasurer, J. C. Greeley; Secretary and Manager, H. S. Ely.

London, Eng.

THE NORTH METROPOLITAN TRAMWAY Co. now runs every Thursday afternoon over its line, from Stratford Church to Manor Park, an electric locomotive and car; and as soon as the necessary legislative powers can be obtained, regular trips will be made and passengers carried. This is the first serious attempt that has been made in London to use electricity as a motive power for cars or tramways. The company is thoroughly satisfied with its experiments, and is proceeding with the manufacture of electric locomotives. The speed is about the same as that of the ordinary horse-car, and the cost of maintenance is about 40 per cent. lower than on the present tram-car system, the saving effected being estimated at over \$250,000 per annum in the case of a single company.

Lockport, N. Y.

The iron has arrived from Dansville, Pa., for the new street railway. Opposition to the scheme is dying out.

New Brunswick, N. J.

NEW BRUNSWICK STREET RAILWAY Co. opened their roads on Oct. 14th, and celebrated the event by carrying passengers althe afternoon about the city free.

New York.

THE CHAMBERS STREET AND GRAND STREET FERRY R. R. are preparing to enter their new offices at Tenth and Cherry streets. At present they are in the building of the Broadway and Seventh Avenue R. R. at Fiftieth street.

A hearing has been granted by the Railroad Committee of the Board of Aldermen for arguments in favor of the Fulton Street cross-town road, but no decision has been reached. N. S. Smith and Homer Nelson appeared for the road. There was no opposition.

The Railroad Committee of the board have reported in favor of granting a franchise to the Twenty-eighth and Twentyninth street cross-town line under the restriction of the act of 1884 as amended by the Cantor act.

THE PROPOSED FULTON ST. LINE comprises a plan proposed by the North and East River Railroad Co. to connect the Fulton, Chambers, and Cortlandt street ferries. It is proposed to lay a double track and permit the Bleecker street line to run through Fulton street to Broadway.

THE JOHN STEPHENSON Co. are building cars for the New Britain Tramway Co. of New Britain, Conn., the Christopher street and Broadway lines in New York and the Waterbury Co. of Waterbury, Conn.

The Railroad Committee of the Board of Aldermen have reported in favor of the cross-town surface road through Twentyeighth and Twenty-ninth streets. Also in favor of the application from the St. Nicholas Avenue Cross-town Railroad Co. for permission to lay tracks on One Hundred and Sixteenth street and almost every street above that to One Hundred and Thirty-fifth street.

There has been a growl from the residents along the line of the Ninth Avenue surface railway, because no through cars are run on the Eighth or Ninth Avenue after 11 o'clock in the evening. The growler claims that even though the company should run these cars at a loss, they ought to be compelled to do so, on account of the profit they make during the day, and the accommodation which it would be to the few persons who would care to travel at that late hour.

The Board of Aldermen have come to the conclusion, that the car drivers shall receive back the amount paid by them for their licenses under the unconstitutional ordinance passed by the Aldermen over the Mayor's veto. The board recently passed

a resolution requesting the Board of Estimate and Apportionment to appropriate a sufficient sum to make a repayment.

A motion which, it is said, has been pending since December 1875, for the appointment of Commissioners of Appraisal to determine the amount of compensation to be paid to the city of New York for the right to use such of the streets and avenues as are proposed to be occupied by the lines of the elevated and other railroads projected by the Metropolitan Transit Company, came before Judge Donohue in Supreme Court. Chambers. Many well-known lawyers were present, representing the city, the elevated railroads, the Broadway and Seventh Avenue Railroad, the New York District Ruilway Company and the New York Arcade Railway Company. The motion was adjourned to suit the convene uce of counsel for the petitioner.

The Metropolitan Transit Company claims to be organized under chapter 832 of the laws of 1872, and chapter 636 of the laws of 1881. It proposes to construct and operate various lines of railroad, both elevated, underground or depressed, and suspended. Exactly what kind of a railroad is intended by a "suspended" railroad does not distinctly appear from the papers in the case. The main line is to run from Broadway, opposite Bowling Green, through private property to Church street, thence through Church to Canal street, thence mainly through private property to Seventh avenue, near Christopherstreet, and thence through Seventh avenue, Thirty-seventh street, Eighth avenue, Fifty-fifth street, Broadway and Sixty-third street, to a point about two hundred feet west of Ninth avenue, thence parallel with Ninth avenue and Seventy fifth street, and thence to the Hariem River. This is the main line, and in addition there are several branches. One "branch" is to run from the Harlem River at Kingsbridge, along the Kingsbridge road to the Boulevard, through the Boulevard to Tenth avenue, through Tenth avenue to West street and along West to Morris street, and thence to Church street to connect with the main line there. Another "branch" is to run from the main line at Eighth avenue and Forty-third street. through Forty-third street to Eleventh avenue and Fifty-ninth street, where it is to connect with the tracks of the Hudson River Railroad.

But the line which will probably chiefly interest the public is the "bianch" which is projected to connect with the main line at Chambers and Church streets, and which then is to run through Chambers street to Broadway, thence through Broadway to Forty-third street, down Forty-third street to the Grand Central Depot. The plans for this line are for an elevated railroad with a double track, one over each Broadway curbstone.

THE THIRD AVENUE RAILROAD Co. are rapidly completing their crosstown line through 125th street, to the East river, and the cars will be running shortly. The managers are keeping a sharp look out for a suitable and economical method of propulsion, for the street cars to be used on the Third Avenue line between the City Hall and Harlem. They state that they are convinced of the economy of motors over horses, and are understood to be carefully searching for a desirable system. They state that they have now received the most serious blow that can be dealt them by the elevated railroad, as they now know the

exact extent to which the overhead competition will affect their receipts. They disclaim all ideas of reducing their fares to three cents, and maintain that the road can still be made to pay, with the same fares that the elevated railroad is charging.

The directors of the Manhattan elevated railroad having ascertained that five cent fares on the Second, Third and Ninth Avenue lines are such an absolute success, have decided to reduce the fares upon the Sixth Avenue line to five cents, upon Nov. 1st.

Superintendent White of the Dry Dock, East Broadway, and Battery Railroad Company has just finished building a horse car that will dazzle the residents of the east side. The roof is covered with plates of fancy decoration in gold and silver panel. The passengers may sit and gaze at gor-geous poppies, kingfishers with golden wings and radiant birds of paradise. Over the windows, where the advertisements generally are, are plate glass mirrors, and the ventilating windows are of stained glass. All the metal work is nickel plated. The car is 135, and will be put on the Grand street Mr. White will next try his hand in line. making a car with opera chairs on the sides, which will fold up when unoccupied.-Ex.

THE JOHN STEPHENSON Co. are now delivering the second load of 50 cars to the Broadway Railroad, making one hundred of the style of which a section was exhibited at Cincinnati convention. The former load of Stephenson's cars have been running on the road for a year.

Ogdensburg, N. Y.

The officers of the Ogdensburg Street Railway Co. are as follows: President, W. H. Daniels; Treasurer, W. A. Egert; Secretary, E. A. Newell. They are operating 5 miles of road with 6 cars and 18 horses. Paducab. Ky.

THE PARK R. R. Co., reported to exist at this place, does not exist. Philadelphia, Pa.

MESSRS. HALE & KILBURN report that they have orders from the Chicago West Division Railway Co. and Chicago City Railway Co. for seventy-five cars of their spring seats; also twenty-five cars of spring seats (Broadway pattern) from the Pullman Palace Car Co.

J. G. BRILL & Co. have just shipped two large orders of cars to South America and an order of twelve cars to Costa Rica. To one man in South America they have now sold 330 cars. Scranton, Pa.

THE SCRANTON SUBURBAN Ry. Co. will not be opened before Nov. 15, instead of on the 1st, as originally anticipated. St. Paul. Minn.

A. L. Scott, Superintendent of St. Paul St. Railway, speaking of lameness in horses, says he has used on sixty different animals with success Gombault's Caustic Balsam. Syracuse, N. Y.

The officers of the Syracuse and South Bay Street Ry. Co. are: President, H. McGonegal; Vice-President, W. S. Wales; Treasurer, A. E. Mathews; Secretary, James C. Rann. The office is in Room C of the Wieting Block.

THE WALES MANUFACTURING Co. have just shipped a second lot of fare boxes to the new electric road at Appleton, Wis. They are also supplying the boxes for the new electric road at Montgomery, Ala. Have new orders from Philadelphia and Washington Territory. Report business good.

Wichita, Kan.

THE RIVERSIDE AND SUBURBAN RY. Co. has been organized, with J. O. Davidson as President and N. G. Lee as Secretary. The capital stock is \$100,000. Work has been commenced upon the roadway, and it is intended to open in January.

THE STREET RAILWAY JOURNAL.

A Stove Box.

We illustrate one of several styles of stove boxes* to protect the woodwork of the car, and the pissengers, from the direct action of the heat and stove, as they are used in heating street railway cars. The design we illustrate shows the construction very accurately; and the simplicity of the device will be very apparent to all. It consists of a wooden box placed in the center of the car, occupying the place of one or more seats, according to the size of the heater used, and is handsomely polished on the outside; it has sheet iron trimmings, which sertion. A great many business men as well as others do most of their reading on their way to and from busi...ess, and in almost every instance the passenger will read, provided he can see his paper at all, and consequently a well lighted car is invariably well patronized. Regarding the injury to the eyesight from the jolting of the car, when the car is poorly lighted, it is to a certain extent hurtful. But when a car is properly and thoroughly lighted the strain on the eye is thereby avoided. Passengers of street railway cars of twenty or even ten years ago used to be annoyed continually by miserably lighted and ventilated

A Street Car Replacer.

We illustrate in this connection a very simple device* that has been introduced for the purpose of replacing street cars that have left the track and to derail them where it becomes necessary to haul them off the track. The mechanism is shown in perspective in section and in plan in our engraving. It consists of a light cast-iron plate, with a frog cast upon it, and may be placed so as to catch the flange as it lies outside of the rail, lifting it over the same into place, or it may be reversed and catch it so as to carry it up and out, thus throwing



LEWIS & FOWLER'S STOVE BOX.

are ornamented to a greater or less extent, according to the expense which is to be lavished upon it. It is merely a fire screen and its true design is readily seen from the engraving.

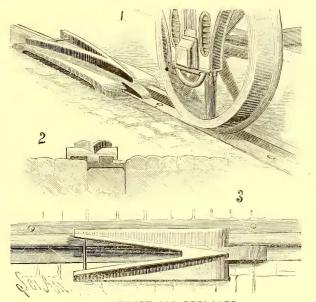
*Lewis & Fowler, Mfg. Co., 27 to 35 Walworth st., Brooklyn, N. Y.

Street Car Lighting.

EDITOR STREET RAILWAY JOURNAL: Your article in the October number on Lighting is to my mind a decided mistake, as a street car of the present day is not by any means considered complete unless well lighted either by one or two center lamps, and many street railroad companies are even using three. A brilliantly lighted car is not only attractive in appearance, but invariably causes an increased traffic, considerably more than is sufficient to pay the additional expense. The constantly increasing demaud for more light in all classes of appender cars substantiates the above as-

cars, the lamp which would dimly flicker at one time, and then suddenly yield a length of flame that went cavorting through the lamp chimney to the roof of the car, causing timid passengers to hold their breath, jump to their feet or remain in a state of constant fear, while requently the odor of unconsumed carbon pouring down upon the traveler and the odor of the kerosene was simply intolerable.

Enterprising railroad companies have now remedied this evil. But those, like the old Bourbons, who never learn anything, still annoy their patrons with insufficiently lighted cars. A revolution has occurred in this matter within a few years, however, and the change, I claim, is due entirely to the genius and enterprise of the late Willard H. Smith, the well known manufacturer of railroad car lamps and reflectors; and the street car of to-day is not complete without the latest and most approved lighting. And railway companies find it profitable as well. CHAS, G. SMITH



STREET CAR REPLACER.

the car into the street. It weighs about twelve pounds, and may be readily carried in the car, under the seat or on the platform, wherever it is convenient for driver or conductor.

*Pugh & Russell, Stewart Building, New York.

Car Licenses in New York City.

The city sued the Third Avenue Railroad Company to recover an annual license fee of \$20 a car from the company for each and every car run during the busiest season of the year. Many years ago effort was made to compel the road to pay the license fee of \$50 a car prescribed by the horse car or-dinance. The Court of Appeals, however, held that that particular license fee could not be recovered from this company, which had received its charter before the ordinance was passed. The city then claimed that the road should pay the license fee of \$20 each for each car, being the amount of license fee exacted from stages or ompibuses at the time the road was chartered. The language of the grant provided that the Third Avenue road should 'pay, from the date of opening the railroad, the annua license fee, for each car, now allowed by law.'

Judge Lawrence has sustained this claim after elaborate argument, the case being tried for the defendants by John E. Parsons, James P. Lowery, Charles C. Applegate and Edward Lauterbach, and for the city by Corporation Counsel Lacombe.

by Corporation Counsel Lacombe. The amount of judgment to be entered under this decision is \$49,000. And the decision courtols a further action for \$40,000, covering the fees down to and including the year 1881, and will also, if sustained, carry fees at the rate of \$20 a car for all subsequent years.



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

ABBREVIATIONS—m, mlles; g, gauge; lb r, pounds rall 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. & Herdlc Co. 214 m. 6c, 31 h. Pres. Ira M. Miller, V. Pres. James Christy, Treas. B. J. Dodge, Sec. F. M. Atterholt, supt. John M. Metlin. ALBANY, N. Y.—Watervliet Turnpike & R. R. Co. 15 m, 4-8½ g, 26-45 lb. r, 31 c, 150 h. Pres. Chas. Newman, V. Pres. C. B. Tillinghast, Sec. & Treas. Cautine Tremper, Supt. Amos Free. Offices 1165 Broadway. Broadway

Cautine Tremper, Supt. Amos Frée. Offices 1165 Broadway.
The Albany Ry. 14 m, 4-8 g, 54 c. 232 h. 33-47 lb r. Pres., Supt. and Treas. John W. McNamara. Sec. Jas. H. Manning. Offices 3 & 5 N. Pearf st.
ALLEGHENY CITY, PA.—Federal St. & Pleas-ant Valley Pass. Ry. 4.8 m, 5-2 g, 50 lb r, 22 c. 160 h and mu. Pres. Wm. McCreery, Sec. R. F. Ramsey, Supt. Wm. J. Crozler. Office, 129 Taggart street, People's Park Pass. R. R. Co. 4.2 m, 5-2 g, 50 lb r, 10 c, 70 mu. Pres. Wm. McCreery, Sec. R. F. Ramsey, Supt. Wm. J. Crozler. Office, 129 Taggart st.
ALLENTOWN, PA.—Allentown Pass. R.R. Co. 3/2 m, 4-8/2 g, 19 lbs. r, 3coaches, 22 h. Pres. Samuel Lewis, Treas. & Sec. Joseph E. Balllet. Supt. A. T. Brown. Office Hamilton St. Capital, \$45,260.
ALTON, ILL.—Alton & Up. Alton Horse Ry. Co. ALTOONA, PA.—City Pass. Ry. Co. of Altoona. J3/2 m, 5-3 g, 43 & 45 lbs. r, 7 c, 40 h. Pres. John P. Levan, Sec. & Treas. L. B. Reifsneider, Supt. John J. Buch. Capital, \$65,000.
AMISTERDAM, N. Y.—Amsterdam St. Ry. Co. 1% m, 4-8 g, 25 lb r, 3 c, 10 h. Pres. Henry Herrick, Treas. David Cady, Sec. M. L. Stover. Leased to Jas. R. Sneil.
APPLETON, WIS.—Appleton Electric St. Ry.

Jas. R. Snell. APPLETON, WIS.—Appleton Electric St. Ry. ASHTABULA, O.—Ashtabula City Ry. Co. 4 m, 4.8% g, 40 lb r,9c, 60 h. Owner & Prop. Jno. N. Stewart. ATCHISON, KAN.—Atchison St. Ry. Co. 9 m, 20 c, 65 h, 4-8% g, 20-30 lb r. Pres. J. H. Beeson, Treas. 11. M. Jackson, Sec. J. P. Adams. Gen. Supt. Geo. W. Carnenter

20 c, 65 h, 4-8½ g, 20-30 hbr. Pres. J. H. Béeson, Treas. II. M. Jackson, Sec. J. P. Adams. Gen. Supt. Geo. W. Carpenter.
Gate Clty S R.R. 1.Co. 2½ m, 4-8½ g, 16 hb r, 7 c, 26 h. Pres. L. B. Nelson, V. Pres. L. DeGive, Sec. & Treas. John Stephens, Solicitor, A. Remharat.
Metropolitan St. R. Co.
West End & Auantic R.R. Co. 2m, 4-8½ g, 20 lb r, 6 c, 34 mu. Pres. J. D. Turner, V. Pres. T. L. Lang-ston, Sec. & Treas. B. H. Brunhead, Man. & Pur. ATLANTA, GA.-Atlanta St. Ry. Co. 13 m, 4-8½ g, 42 lb C. B. rail, 40 two h cars, 150 horses. North Atlauta Line 2.50 m. McDonough st. Line 1.50 m. Peachtree St. Line 2.50 m. McDonough st. Line 1.50 m. Peachtree St. Line 2.50 m. McDonough st. Line 1.50 m. Peachtree St. Line 2.50 m. McDonough st. Line 1.50 m. Peachtree St. Line 2.50 m. McDonough st. Line 1.50 m. Peachtree St. Line 2.50 m. McDonough st. Line 1.50 m. Peachtree St. Line 2.50 m. McDonough st. Line 1.50 m. Peachtree St. Line 2.50 m. McDonough st. Line 1.50 m. Peachtree St. Line 2.50 m. McDonough st. Line 1.50 m. Peachtree St. Line 3.50 m. Pres. Richard Peters, Sec. & Treas. J. W. Culpepper, Supt. & Purch. Agt. E. C. Peters. Office, 49 Liue st. ATLANTIC, N. J.-Atlauta City Ry. Co. AUBURN, N. V.-Auburn & Owasco Lake R.R. Co. AUBURN, N. V.-Auburn & Owasco Lake R.R. Co. AUBURN, St. Jab. Pres. David M. Osborne, Sec. & Treas. C. B. Kosters, Supt. B. F. Andrews. East Genesee & Seward Ave. Ry. Co. 21 m, 4-8½ g, 30 lb r, 6 c, 25 h. Pres. David M. Osborne, Sec. & Treas. C. B. Kosters, Supt. B. F. Andrews. Last Genesee A: Seward Ave. Ry. Co. 21 m, 4-8½ g, 30 lb r, 6 c, 25 h. Pres. David M. Osborne, Sec. & Treas. C. B. Kosters, Supt. B. F. Andrews. Last Genesee A: Seward Ave. Ry. Co. 5 m, 4-8½ g, 28 lb r, 7 c, ++, 30 mu. Pres. H. H. Evans, V. Pres.

513 McKinne St. **AURORA, ILL.** – Aurora City Ry. Co. 5 m, 4-8½ g 28 lb r, 7 c, i + 30 mu. Pros. H. II. Evans, V. Pres. S. W. Thatcher, Sec, A. J. Hopklus, Treas. E. W. Trask, supt. I. B. Chattle. **BABYLON, N. Y**–Babylon Horse R.R. Co. 1½. m, 4-9 g, 60 lb r, 3 c, 3 h. Pres. W. F. Norton, Sec. Jos. M. Sammis, Treas. John R. Reid, Supt. David S. S. Sammis

S.

. Samuls. BALTIMORE, MD.—Baltimore & Powhatan Ry. 17 b. Pres. & Treas. E. D.

S. sammis.
BALTIMORE, MD.—Baltimore & Powhatan Ry.
Co. 6 m, 5.4% g, 4 c, 17 h. Pres. & Treas. E. D.
Freeman, Sec.R. B. Clark, Supt. I. M. Ketrick.
Baltimore City Pass. Ry. Co. 44 m, 151 c, 1051 h.
5.4% g, 46 & 471b r. Pres. & Supt. Oden Bowle,
Supt. car shops J. M. Blemdell, Supt. Lrucks, Boyer
Parks. Treas John Bolgiano, Sec. S. L. Bridge. Office
cor, Calvert & Baltimore Sts.
Baltimore Union Pass. Ry. Co. 16 m, 5.4% g, 471bs
r, 61 c, 391 h. Pres. N. Perrin. Gen. Man. T. C. Robins, Treas. E. P. D. Cross, Sec. Leon Fender, Asst.
to Gen. Man. R. E. Robbins. Office cor. Huntington
Ave. & Oak St.
Baltimore & Catonsville Ry. Co. 6 m, 5.4% g, 351b
G. W. Appleby. Office Pratt St. & Frederick av.
Baltimore & Planleo & Pikesville R.R. Co.
Central Ry. Co. 114 m, 2 sweepers 182 h, 5.4% g,
40b r, 22c. Pres. Peter Thompson, Sec. & Treas.
Walter Blakistone. Office cor Preston st and Greenmount ave.
Cittigeris Ry Co. 20 m. 5.4% g, 326 b

Sint Schuller Reality and Scottardal, Souther Sciences and Sc

Maln, Court & Chenango St. R.R. 5 m, 4-8g, 40 lb r, 0, 25 h. Supt. & Lessee, N. L. Osborn. Offices 83 fashington st.

Washington st.
BHRMINGHAM, ALA.—Birmingham St. Ry. Co.
5½ nn, 4-8 g, 16 lb r, 13 c, 40 m. Pres. Geo. L. Morris, Supt., Sec. & Treas. W. H. Morris.
East Lake Land Co. (see New Roads.).
Highland Avenue R. R. 6½ m, 4-8½ g, 30 lb r, 5 c, 28 h. Pres. H. M. Caldwell, Man. W. J. Milner, Supt. J. M. Lens, Eng. II. Schoel. Owners, The Elyton Land Co. Land Co.

J. M. Lens, Eng. II. Schoel. Owners, The Elyton Land Co.
Birmingham & Pratt Mines St. Ry. Co. 5 m, 4-8½ g, 16 lb r, 6 c, 30 h. Pres. and Gen. Man. J. A. Van Hoose, Sec. & Treas. Wm. Berney.
BLOOMITELD, N. J.—Newark & Bioomfield R.
R. (see Newark, N. J.)
BLOOMINGTON, ILL.—Bioomington & Normal Horse Ry. Co. 5½ m, +8½ g, 36 lb r, 10 c, 60 h. Pres.
& Proprietor A. H. Moore, sec. Edw. Sharp.
BOONE, IA.—Boone & Boonsboro St. Ry. Co
154 m, 3g, 20 lb r, 3 c, 10 h. Pres. L. W Reynolds Treas. Ira B. Hodges, Sec. and supt. A. B. Hodges, Twin City & Des Moines River Motor St. Ry. Co
6 u, 20 lbs. r, 3-6 g, 2 motors, 3 c. President & Supt. J. B. Hodges, Treas. A. B. Hodges, Sec. S. K. Huntsinger.
BOSTON, MASS.—Boston Consolidated St. Ry. Co. 512 m, 4-8½ g, 4-So lb r, 250 c, 1720 h. Pres. Chas. E. Powers, Treas, Sami Little, Ass. Treas. Con H. Studley, Jr., Gen. Supt. Julius E. Rugg. Capital, \$1,700,000. Office, Termontrow, cor. Pem-berton sq.
Boston & Chelsea R. R. Co., Pres. W. W. Wheud0pi

John H. Studley, Jr., Gen. Supt. Junus E. Avgs. Capital, \$1,700,000. Office, Tremont row, cor. Peinberton sq.
Boston & Chelsea R. R. Co., Pres. W. W. Wheldon; Treas, and Clerk, John H. Studley; (Operated by the Boston Consolidated St. Ry, Co.)
Albany st. Freight Ry, Co. .93 m, 4-8½ g, 99 lb r, no c, no h. Pres. Chas. L. Plerson, Treas. Geo. F. Child, Office, 439 Albany st.
Lynn & Boston. 37 m, 4-8½ g, 25-48 lb r, 175 c, 748 h. Pres. Amos F, Breed, Treas, & Sec. E, Francis Oliver, Supt. Edwin C. Foster. Office, 214 Broadway, Chelsea, Mass., & 13 Tremont row. Metropolitan R. R. Co. 83 m, 48 to 54 lb r, 657 c, 3543 h. Pres. Ch. 84 (heresy, V. Pres, E. Killy st. So. Foston Ry, Co. 16 m, 4-8½ g, 50 lbr, 199 c, 970 h. Pres. Chas. H. Hersey, V. Pres, E. Kather, Sec. & Treas. Wm. Reed, Supt. Daniel Coolidge. Office, 715 foodway, So. Boston.
Somerville Horse R. R. Co. (Operated by the Boston Coosolidated Street Ry, Co.) Pres. Sam't E. Sewail, Treas. & Clerk, J. H. Studley, Jr. Office, 27 Trenont row.

Tremont row.

Winnlsimmet R. R. Co. 1.95 m, 4.8½ g, 48 lbr, no noh. Pres. Wm. R. Pearmain, Chelsea, Mass. eas. & Clerk, E. Francis Oliver. Office, 13 Tre-out row. C. no r Treas. mont row

Heav, & Cleix, E. Francis onver. Once, is Tremont row.
BRADFORD, PA.—Bradford & Kendall R.R. Co. 15 (m. 4.8%); 38 10 r, 3 c, 4 h. Pres. James Brodey, sec. Geo. II. vioon, Gen. Man. & Supt. Enos Parsons. Capital. \$12,000.
BRENHAM, TEX.—Brenham St. R. R. Co. 2 m, 4g, 20 1b r, 3 c, 18 mu. Pres. T. J. Pampell, V-Pres. F. Krentzlin, Sec. John A. Randle, Treas. D. C. Gldings Man. E. B. Randle. Office, Gruber Bidg., North st. BRIDGEPORT, CONN.—The Bridgeport Horse R.R. Co. 6 m, 4-8% g, 42 1b r, 16 c, 50 h. Pres. Albert Eamer, Sec. & Treas. F. Hurd, Supt. B. F. Lashar. Bridgeport & W. Stratford Horse R. R. Co. 3% m, 4-8% g, 45 1b r, 10 c, 40 h. Pres. David F. Hullister, Sec. & Treas. Henry D. Drew, Man. Henry N. Beardsley.

BROCKTON, MASS.—Brockton St. Ry. Co. 11% m, 4-8% g, 35 lb. r, 32 c, 140 h. Pres. W. W. Cröss, Treas. C. R. Fillerbrown; Supt. H.B. Rogers, jOffice, Main St. Main

Main St. BROOKLYN, N. V.-The Atlantic Avenue R. W. Co. of Brooklyn. 32% m, (leased and owned). 4-8% g, 50-60 lb r, 223 c, 955 h. Pres. William Richardson, Sec. W. J. Richardson, Treas. Newbery H. Frost. Office cor. Atlantic & Third Aves. Broadway R.R. Co. 12 m, 4-8% g, 45-50-60 lb r, 166c, 657 h. Pres. Edwin Beers, Sec. & Treas. Robert Sealey, Supt. Joshua Crandall. Office 21 Broadway, E. D.

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Brooklyn Cross Town R.R. Co. 16 m, 4-8% g, 40-60 lb 7, 72 c, 400 h. Pres. Henry W. Slocum, V. Pres. Ezra B. Tuttle, Sec. & Treas. John R. Connor, Supt. D. W. Sullivan. Offices 585 Manhattan Ave.

Bushwick R.R. Co. 28 m, 4-8½ g, 45-50-60 lb r, 172 c, 600 h. Pres. Frank Cromwell, V. Pres. Wm. H. Hus-ted, Treas. & Sec. S. D. Hallowell, Supt. Wm. M Mor-rison. Office 22 Broadway, N. Y. The Brooklyn, Bushwick & Queens County F.R. 11 m, 4-8½ g, 42-47 lb r, 41 c, 117 h. Pres. Richard H. Green, V. Pres. James W. Elwell, 59 South st. N. Y. Sec. John D. Elwell, Treas. Wm. W. Greene. Brooklyn City R.R. Co. 87 m, 4-8½ g, 45-60-64 lb r, 835 c, 18 dunniles, 3209 h Pres. Wildim H. Hazzard, V. Pres. Wm. M. Thomas, Sec. & Treas. Daniel F. Lewis, Asst. Sec. Francis E. Wrigley. Offices 8 & 10 Fulton st.

Lewis, Asst. Sec. Francis E. Wrigley. Offices 8 & 10 Fulton st.
Brooklyn City & Newtown R.R. Co. 13% m, 4-8%%
45-601b r, 125 c, 400 h. Pres. Col. John N. Partridge;
Sec. & Trcas. Duncan B. Cannon; Supt. John L.
Heluss. Office cor. DeKalb & Central Aves.
Calvary Cemetery, Greenpoint & Brooklyn Ry. Co.
Coney Island and Brooklyn R.R. Co. 18 3-5 m, 45
Ibr, 4-8% g, 103 c, 344 h. Pres. James Jourdan, Sec.
Coney Island, Treas. John Williams, Supt. William Farrell, Office cor. Smith & Huntington sts.
Coney Island, Sheepshead Bay & Ocean Avenue
R. R. Co. 2% m, 4-8% g, 4 c. Pres. A. A. McClemue
Pres. DanielMone, Sec. John McMahon, Sheepser, head Bay, Treas. Horace Valkulyh. Office 16 Red
Hook Lane.
Crosstown Line, Hamilton Ferry to Bridge.
Grand St. & Newtown R.R. Co. 13 m, 4-8% g, 50-60 br, 72 c, 230 h. Pres. Martin Joost, Sec. & Treas.
Win E. Horwill, Supt. Walter G. Howey. Office 374
Kent Ave.
Grand Street Prospect Park & Elathush B. R. Co.

Kent Ave.

Wm. E. Horwill, Supt. Walter G. Howey. Onles 374 Kent Ave. Grand Street, Prospect Park & Flatbush R.R. Co. 11½ m, 4-8½ g, 50 br, 75 c, 244 h. Pres. Louis Fitz-gerald, 120 Broadway, N. Y., Sec. & Treas. Duncan B. Cannon, Supt. Jno. L. Heins. Offices Franklin Ave. and Prospect Place. Greenpoint & Lorimer St. R. R. Co. 5½ m, 4-8½ g, 50 br, 75 c, 198 h. Pres. Geo. W. Van Allen, Sec. Wm. B. Walt, Treas, C. B. Cottrell, Supt. Chas. E. Harris. Office, cor. Nostrand and Park aves. Prospect Park & Concy Island R. R. Co. 25 m, 45-50 lb r, 4-8½ g, 69 c, 214 h. Pres. A. R. Culver Treas. A. C. Washington, Sec. George H. Smith, Eng. Supt. R. Schermerhorn, Supt. Robert A ttlesey. Offices 16 Court st. (Leased to Atlantic Ave. R. R. CO).

Col. Prospect Park & Flatbush R.R. 3 m, 4-8½ g, 34 1b r. 70 c, 360 h. Pres. Loftis Wood, Sec. & Treas. Sam'l Parkhill, Supt. Loftis Wood. Offices 45 Broad-

lb r. 70 c. 360 h. Pres. Loftis Wood, Sec. & Treas. Sam?l Parkhill, Supt. Loftis Wood. Offices 45 Broadway. South Brooklyn Central R.R. Co. 8½ m, 4 8½ g, 60
lb r, 42 c, 192 h. Pres. Wm. Richardson, Sec. Wm. J. Richardson, Treas. N. H. Frost, Supt. James Rud-dy. Offices, Atlantle & 3d aves.
The New Williamsburgh & Flatbush R. R. Co. 17½ m, 4-8½ g, 47-50 lb r, 74 c, 255 h. Pres. Geo. W. Van Alien, 54 Ann St., New York, Sec. W. B. Waitt, 34th St. & 6th Ave., New York, Sec. W. B. Waitt, 34th St. & 6th Ave., New York, Sec. W. B. Waitt, 34th St. & 6th Ave., New York, Chas. E. Harris, Nost-rand Ave. Carroll st., Brooklyn.
Van Brunt St. & Erle Basin R.R. Co. 3 m, 4-8½ g, 45 lb r, 7 c, 24 h. Pres. John Cunningham, Sec. & Treas. Edmund Terry. Offices, 264 Van Brunt st. BRUFFALO, HL. See Mechanicsburg, III. BUFFALO, H.L. See Mechanicsburg, III. BUFFALO, H. V. --Buffalo St. R.R. Co. BUFFALO, Sec. S. Spaulding, Treas. W.
N. vatson, Supt. Edward Edwards. Buffalo East Side St. R.R. Co. 27.45 m, 4-8½ g, 42 Ib r, 47 c, 218 h. Pres. S. Spaulding, V. Pres. Joseph Churchyard, Sec. H. M. Watson, Treas. W. 11. Watson, Son, Supt. Edward Edwards.
BURLINGTON, IA. --Burlington City R.R. Co. 24 m, 4-8½ g, 15-20 lb r, 9 c, 22h. Pres. John Patter-son, Sec. & Man. C. T. Patterson. Office 1401 Sum-mer st.
Uuin St. Ry. Co. 8½ m, 4-8½ g, Varlous r, 19 c, 85

DDILLING HON, IA. TRAINING OF COMPAREMENT OF THE SUMMER AND THE SUMM

Broad st. CHATTANOOGA, TENN.—Chattanooga St. R. R. Co. 5% m, 4-8% g, 25-45 lb r, 12 c, 54 h. Pres. and Treas. J. H. Warner, Sec. C. R. Gaskill. CHESTER, PA.—Chester St. Ry. Co. 5% m, 5-2% g, 47 lb r, 14 c, 66 h. Pres. Richard Peters, Jr., Treas. * Sam'l H. Seeds, Sec. & Manager E. M. Cornell.

CHICAGO, H.L.—Chicago City Ry. Co. 90 m, 4-8% g, 45-63 lb 1, 697 c, 1,600 h, cable doing work of 2,509 h. Pres. C. B. Holmes, Sec. H. H. Windsor, Treas. T. C Pennington, Supt. C. B. Holmes. Office 2,020 State

1. O Tohning Son, Supe, C. B. Holmes, Onlec 2, 920 Chicago West Division Ry, Co. 451(m, 4-83/g, 40 r, 6-85, 2, 3-25 h, Pres, J. R. Jones, Scc. George L. Webb, Supt. De Witt C. Cregler. Office, 59 State st. Chicago & Ilyde Park St. - m, -g, -lb r, -c, -h. Pres, Douglas S. Clarke. Crosstown Pass. Ry, Co. (See New Roads.) North Chicago Clty R. R. Co. 45 m, 4-83/g, 45 lb r, 375 c, 1,800 h. Pres, Chas, T. Yerkes, Sec. & Treas, Hiram Crawford Asst. Supt. Fred L. Threedy, Supt. Horse Dept. Robt. Atkins, Purch. Agt. John W. Roach, Master Mechanic J. Miller.

CHILLICOTHE, O.—Chillicothe St. R.R. Co. 134 m, 3 g, 16 lb r, 7 c, 10 h. Pres, E. P. Safford, Sec. A. E. Wenis, Treas. William Poianel, Supt. Ewel McMartin.

Sec. A. E. Wenls, Treas. William Polanel, Supt. Ewel McMartin.
CINCINNATI, O. --Cincinnati Inclined Plane Ry.
Co. 6½ m, 5-2½ g, 43 lb r, 25 c, 140 h. Pres. Geo. A.
Smith, Sec. & Supt. James M. Doherty, Tr. J. S. Hill.
Clincinnati St. Ry. Co. 96m, 5-2 g, 42-52 lb r, 250 c, 2,000
h. Pres. Jino. Kilgour, V. Pres. Albert G. Clark, Treas. R. A. Dunlap, Sec. & Auditor, Jas. A. Colitins, Supt. Jno. Harris, Pur. Agt. B F. Haughton. office second floor of Apolio Buliding.
Columbia & Cincinnati St. R. R. Co. 3½ m, 3 g, 40
lb r, 3 c, 6 dummy c. Pres. & Auditor C. H. Kligour, V. Pres. John Kligour, Treas. & Sec. A. H. Meler, Mt. Lookout, O. Supt. J. J. Henderson, Mt. Look-out, O. Office Station C.
Mt. Adams & Eden Park Inclined R.R. Co. 3½ m, 5-2½ g, 42 lb r, 40 c, 3 20 h. Pres. & Treas, J. P. Ker-per, Sec. J. R. Murdock, Supt. Chas. Whitten, So. Covington & Cincinnati. (See Covington, Ky.)
CLARKSVILLE, TENN.-Clarksville St. Ry.
Co. 4. 4-8½ g, 16 lb Tr. J. 4. facon. Capital, \$6,250. Office, Farmers' & Merchants' Nat. Bank.
CLEVELAND, O. --The Brooklyn St. R., Co. 12½ m, 4-8½ g, 5, 25 lb r, 70 c, 402 h. Pres. Tom. L. Johnson, V. Pres. A. J. Moxham, Sec. J. B. Hoefgen, Treas. John McConnell, Supt. A. L. Johnson. Office 1,301 Pearl st. Broadway & Newburg St. R.R. Co. 6 m, 4-8½ g, 10

John McConnell, Supt. A. L. Johuson. Office 1,301 Pearl st.
Broadway & Newburg St. R.R. Co. 6 m, 4.8% g, 10 c, 160 h. Pres. & Supt, Joseph Stanley, V. Pres.
Sam'l Andrews, Sec. & Treas. E. Fowler.
Superlor St. R.R. Co. 15 m, 4.8% g, 45 lb r, 46 c, 225 h. Pres. Frank De II. Robison, V. Pres. John Koch, Sec., Treas. & Supt. M. S. Robison, Jr.
The East Cleveland R.R. Co. 20% m, 4.8% g, 45 lb steel r, 110 c, 570 h. Pres. A. Everett, V-Pres. & M. C. B. Chas. Wason, Sec. & Treas. H. A. Everett, Supt. E. Duty. Offices, 1154 Euclid Ave. Woodland Avenue & West Side St. R.R. Co. 40 m, 4.5% g, 4.345 lb r, 128 c, 606 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. R. R. Co. 3% m, 3g, 40 lb r, 8 c, 60 n. Pres. J. B. Hoefgen. Office l301 Pearl st. St. Clair Street RY. Co. -m -g, -lbr-c, -Pres. Chas Hathaway.

Hathaway. CLIFTON, CAN.--Niagara Falls, Wesly Park and Clifton Transway Co. 32 m, 4-83 g, 30 lb r, 8 c, 40 h. Pres. J. H. Mooney, 286 B'way, N. Y. Treas. John N. Hayward, 52 B'way, N.Y. Sec. John II. Bache, Niagara Falls, Ont.

CLINTON, IA .- Lyons & Clinton Horse R.R. Co. (See Lyon

(See Lyons.) • **OLUMBIA**, S. C.—Columbia St. Ry. 4½ m, 4-8½ g, 301b r, 6 c, 18 h. Pres. J. S. Pierson, New York, V. Pres. H. M. Pierson, New York, Treas. W. K. Lawton, New York, Sec. E. M. Cole, 32 Liberty st. New York. Capital, 550,000. **COLUMBUS, GA.**—Columbus St. R.R. Co. 3 m, 4-8½ g, 16 lb r, 6c, 25 h. Pres. Cliff B. Grimes, Sec. L. G. Schnessler, Treas. N. N. Curtis, Supt. J. A. Ga-bourgh.

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COLUMBUS, 0. – Columbus Consolidated St. R. R.
COLUMBUS, 0. – Columbus Consolidated St. R. R.
Co. 19 m, 5-2 g, 30-52 lb r, 92 c, 350 h. Pres. A. Rodgers, V. Pres. II. T. Chittenden, Sec. & Treas. E. K.
Stewart, Supt. J. I. Atcherson.
Glenwood & Greenlawn St. R.R. Co. 4½ m, 3-6 g, 24 lb r, 9 c, 25 c. Pres. A. D. Rodgers, V. Pres. B. S.
Brown, Sec. R. R. R. +kly, Treas. S. S. Rickly, Supt. Jonas Willcox.
CONCORD, N. H.—Concord Horse R. R. Co. 7½
m, 3 g, 34 lb r, 9 c, 15 h, 2 steam motors. Pres. & Supt. Moses Humphrey, Treas. H. J. Crippin, Clerk E. C.

Moses Humphrey, Treas. It. o. Orppin, Hoag. CORTLAND, N. Y.—Cortland & Homer Horse Ry. Co. 4 m, 4-3% g, 25-301b r. 5 c, 15 h, Pres. Chas. H. Gar-rison, Troy, N. Y. V. Pres. E. Mudge, Sec. & Treas. G. E. Welch, Supt. B. B. Terry. Office 25 N. Main st. COUNCIL BLUFFS, IA.—Council Bluffs St. R.R. COUNCID, KY.—So. Covington & Checking F. F. Abbotz, Sec. J. C. Benton, Treas, G. M. Abbotz COVINCITON, GA.—W. C. Clark & Co. (see new roads.)

COVINCTION, WALLER, W. C. 4% m, 4-8% poads) DALLAS, TEX.—Dallas St. Ry. Co. 4% m, 4-8% g, 20-38 fb 7, 12 c, 4 h, 72 mu. Pres. Wm. J. Keller, Sec. Haury Keller, Supt. C. E. Keller. Colsmerce & Ervay St. R.R. 1% m, 4-8% g, 20 lb r, c 2 mu. Pres. A. C. Ardrey, Sec., Trea. & Man. H. W t eller.

W t clier. DANVILLE, ILL. --Clizens' St. Ry. Co. 42 m, 4 g, 20 lb r, 8 c, 41 m. Pres. Wm. P. Cannon, V. Pres. & Gen. Mah. Wm. Stewart, Sec. & Treas. Adam R. Samuel. DAVENPORT, IA. --Davenport Central St. Ry. Co. 3 m, 4-8% g, 20 lb r, 14 c, 24 h, 15 mu. Pres. Whit. M. Grant, V. Pres. W. L. Allen, Treas. J. B. Fidler, Su pt. J. W. Howard, Sec. O. S. McNeil. Davenport Clip Ry. Co. 3% m, 4-8% g, --lb r, 14 c, 46 h. Pres. C. S. Watkins, Sec. and Treas. S. D. Bawden.

DAYTON, KY.—Newport & Dayton St. Ry. Co. m, 5-2¼ g, 44 lb r, 9 c, 36 h Pres. & Supt. W. W. 2 m, Bean

Bean. DAYTON, O.—Dayton St. R.R. Co. 7½ m, 4-8½ g, 44 lb r, 24 c, 80 h and mu Pres. J. W. Stoddard, V-

Pres. H. S. Williams, Sec. C. A. Craighead, Supt. A.

W. Anderson. Fifth St. R. R. Co. 7 m, 4-8½ g, 45 lb r, 18 c, 58 h. Pres. A. A. Thomas, Scc. D. B. Corwin, Treas. R. I. Cuamin, Supt. J. M. B. Lewis. Olive, 7 E. 3d st. Oakwood St. Ry. Co. 6 m, 4-8½ g, 38 lb r, 14 c, 56 h. Pres. Charles B. Clegg, Sec. H. V. Perrine. The Wayne & Fitth St. R. R. Co. 3½ m, 4-8½ g, 38 lb r, 6 c, 30 h. Pres. Geo. M. Shaw, Sec. & Treas. Eugene Winchet, Supt. N. Routzahn. Olfice 29, Wayne st.

Eugene Winchet, Supt. N. Routzahn. Olfice 29, Wayne st.
DECATUR, ILL.-Decatur Horse Ry. Co.
Citizens' Street R.R. Co. 2 m, 4-8½ g, 20 lb T r, 7 c, 47 h & mu. Pres. D. S. Shellabarger, Sec., Treas. & Supt. A. E. Kinney.
DENISON, TEX.-Denison St. Ry. Co. 3 m, 2-6 g, 16 lb r, 5 c, 22 mu. Pres. C. A. Walterhouse supt. S. A. Robinson.
DENVER, COL.-Denver City Ry. Co. 24m, 3-6 g, 16 lb r, 64 c, 332 h. Pres. Geo. II. Holt, 10 Wall st. New York City, Treas. & Man. G. F. Randolph.
Denver Tramway Co. 4 m, 3-6 g, 16-18 h b r, 8c. Run by electricity. Pres. Rodney Curtis, V. Pres. John J. Riechman, Sec. Wn. G. Evans.
DEN MOINES, IA.-Des Moines St. R. R. Co. 14 m, 3g, 39-52 lb r, 28 c, 120 h. Pres. W. McCaln, Treas. G. B. Hippee. B. Hippee. Des Moines & Sevastopol St. Ry. Co (See Sevasto-

B. Hippee.
Des Moines & Sevastopol St. Ry. Co (See Sevastopol Ia).
DETIROIT, MICH. — Fort Wayne & Elmwood Ry.
DETIROIT, MICH. — Fort Wayne & Elmwood Ry.
DETIROIT, MICH. — Fort Wayne & Elmwood Ry.
Detroit City, Ry. 30 c, 180 c, 180 h. Pres. H. B.
Brown, V. Pres. Edward Kanter, Treas. George B.
Pease, Sec. N. W. Goodwin, Supt. Geo. S. Itazard.
Detroit City Ry. 30 m, 4-8½ g, 40-43½ lb r, 180 c, 700 h. Includes Jefferson Ave. line, Woodward Ave.
Ine, Michigan Ave. line, Gratiot Ave. line, Brush St.
Ine, Cass Ave. Ine, Congress & Baker line. Pres.
Sidney D. Miller, Treas. George Hendrie, Sec. James
Heugh, Gen. Supt. Robert Bell, M. M. John Wills.
Grand River St. Ry. Co. 2½ m, 4-8½ g, 42 lb r, 13 c, 10 h. Pres. & Treas. Jos. Dailey, Sec. J. W. Dailey,
Supt. C. M. Dalley.
Highland Park Ry. Co. 3 m, 4-8½ g, 42 lb r for ½
m in citv limits, outside 35 lb T, 2 c, electric motors.
Pres. and Treas. Frank E. Snow, Sec. F. Woodruff.
Capitel, \$50,000. Office, 92 Griswold st.
DOVER, N. II. — Dover Horse R.R. Co. 5 m, 3 g, 30 lb r, 4 c, 14 h. Directors, Z. S. Wallingfor, Chas.
II. Sawyer, Jas. E. Lothrop, C. W. Wiggin, Harrison Haley, Frank Williams, Cyrus Littlefield, Treas.
Harlison Radey.
DUBU4UE, IA. — Dubuque St. R.R. 5 m, 4-8½ g, 22 c, 45 h. Pres. J. A. Rhonberg, Sec. & Treas. B. E.
Linehan, Supt. J. J. Linehan.
DULUTH, MINN. — Duluth St. Ry. Co. 5½ m, 3-6 g, 32-45 lb r, 18 c, 92 mu. Pres. Sam'l Hill, V. Pres.
T. P. Wilson, Sec. & Treas. A. S. Chase, Supt. T. W.
Hoopes.
EAST OAKLAND, CAL.—Oakland, Brooklyn &

Hoopes. **EAST OAKLAND, CAL.**—Oakland, Brooklyn & Fruitvale R.R. Co. **EAST SAGINAW, MICH.**—East Saginaw St. Ry, Co. — m, 4-8% g, 80 and 43 lb r, 23 c, 70 h. Pres. Walter A. Jones, Sec. and Treas. Chas. F. Shaw, Supt A. Bartlett.

EAST ST. LOUIS, ILL .-- East St. Louis St. R.R.

Co. EASTON, PA.—The Easton & So. Easton Passen-ger Ry. Co. 13, m, 5-24, 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

ger Ry. Co. 1½ m, 5-2½ 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. 1½ m, 5-2½ g, 45 lb r, 6 c, 20 h. Pres. H. A. Sage, Sec. & Treas. H. W. Cooley, Supt. Samuel Berry. EAU CLAIR, WIS.-Eau Clair St. Ry. Co. 4 m, 4-S½ g, 37 lb r, 16 c, 70 h. Pres. A. G. Bradstreet, New York, V.-Pres. Geo. B. Shaw, Eau Clair, Sec. & Treas. Weston Lewis, Gardiner, Me. ELGIN, 1LL.-Elgin City Ry. Co. 2 c. Pres. Sec. Treas. Supt. & Owner, B. C. Payne. ELIZABETH, N. J.-Elizabeth & Newark Horse R.R. Co. 14 m, 5-2½, 4-10½ g, 20 lb r, 24 c, 74 h. Pres. & Treas. Jacob Davis, Sec. & Supt. John F. Pritchard. ELKHART, IND.-Citizens' Ry. Co. 3½ m, 4-8½ g, 30 lb r, 6 c, 30 h. Pres. F. W. Miller, V. Pres. G. C. Johnson, Sec. E. C. Bickel, Treas. A. R. Burns. ELMIRA, N. Y.-The Elmira & Horseheads Ry. Co. 10 m, 4-8½ g, 25-30-40 lb r, 18 c, 34 h. Pres. & Treas. George M. Diven, V. Pres. Geo. W. Hoffman, Sec. Wm. S. Kershner, Supt. Henry C. Silsbee. Offi-cers, 212 E. Water st. EL PASO, TEX.-El Paso St. Ry. Co. 2½ m, 4-8½ g, 20 lb r, 6 c, 23 h. Pres. B. H. Davis, Vice Pres. J. F. Crosby, Treas. C. R. Morehead, Sec. & Supt. H. W. Marks. ELPAGN, TEX.-El Paso St. Ry. Co. 3½ m, 5 g, 20 lb r, 8 c, 25 h. Pres. Van R. Holmes, Treas. A. F. Crowe, Sec. & Man. J. D. Holden. ETERPHISE, MISS.-Enterprise St. Ry. Co. 1½ m, 3-6 g, 24 lb r, 2 c, 6 h. Pres. John Kampe, V. Pres. E. B. Gaston, Sec. & Treas. J. W. Gaston. EREP. PA.-Eric City Pasenger Ry. Co. 532 m, 4542 g, 30-40 sb lb r, 20 c, 85 h. Pres. Wm. W. Keed, Treas. Wm. Spencer, Sec. W. A. Demorest, Supt. Jacob Berst. EUREKA SPRINGS, ARK.-Eureka Springs City Ry. Co. EVANSYILLE, IND.-Evansville St. Ry. Co. 12 m. 4.86 will LE, 100.-Evansville St. Ry. Co. 12

EUREKA SPRINGS, ARR. - Later C. C. 12 City Ry, Co. EVANSVILLE, IND. - Evansville St. Ry. Co. 12 m, 4-8 g, 28 lb r, 31 c, 190 mu. Pres, John Gilbert, Sec. P. W. Raleigh, Treas. John Gilbert, Supt. W. Bahr. FALL RIVER, MASS. - Globe St. Ry. Co. 12 m, 4-84 g, 40-46-47 lb r, 40 c, 160 h. Pres. Frank S. Stev-ens, Treas, F. W. Brightman, Sec. M. G. B. Swift, Supt. John H. Bowker, Jr. FAR ROCKAWAY, N. Y.-Village Ry. Co. 1 m, 4-84 g, 47 lb r, 5 c, 10 h. Pres, C. A. Cheever, Treas. D. L. Haight, Sec. J. S. Armbach, Supt. Rufus Mar-tin.

tin. FITCHBURG, MASS.—Fitchburg St. Ry. Co. 3% In 4-8% g, 6 c, 31 h. Pres. H. A. Willis, V. Pres. H. J. Wallace, Treas. B. F. Wallis, Sec. H. C. Hartwell, Supt. Wesley W. Sargent. FORT SCOTT, KAN.—Bourbon County St. Ry. Co. 1 m, 4 g, 22 lb r, 2 c, 4 m. Pres. Isaac Stadden, V. Pres. Benj, Filcs, Scc. Wm. Perry, Treas. J. H. Bandolbh.

Randolph.

FORT SMITH, ARK.—Fort Smith St. Ry. Co.
2m, 3-6 g, 28 lb r, 5 c, 16 nu. Pres. Sam'l M. Loud, Sec. & Treas. Geo. T. Sparks.
FORT WAYNE, IND.—Cltizens' St. R.R. Co.
FORT WORTH, TEX.—Fort Worth St. Ry. Co.
7% m, 4 g, 25-38 lb r, 16 c, 78 m. Pres, K. M. Van-zandt, Treas. W. A. Huffman, Acting Sec. & Gen.
Man. S. Mims, Supt. J. T. Payne.
FRANKFORT, N. Y.—Frankfort & Hion Street Ry. Co. 2% m, 5 g, 4 c. Pres. A. C. McGowan, Frank-fort, Sec. D. Lewis, Illon, Treas. P. Remington, Illon, Supt. Fred. Gates, Frankfort.
FREDONIA, N. Y.—Dunkirk & Fredonia R.R.Co.
3% m, 4-10 g, 25 lb f, 5 c, 8 h. Pres. Wm. M. McClns-try, Sec. & Treas. M. N. Fenner, Supt. Z. Elmer, Wheelock.
FULTON, N. Y.—Fulton & Oswego Falls St. Ry

Wheelock.
FULTON, N. Y.-Fulton & Oswego Falls St. Ry
Co. 6,000 tf, 4 8½ g, Glbbon's metallic stringer and
r, 4 c, 12 h. Pres. Joseph Walker, Jr., V. Pres. N. N.
Stranahan, Sec, and Treas. Chas. Lyman. Capital, \$15,000. Office, 15 Broad st., New York.
CAINSVILLE, FLA.-Gainsville St. Ry. Co. 2½
M. 3-6 g, 17 lb r, 4 c, 12 h. Pres. C. N. Strenos, V.
Pres. J. T. Harris, Sec. & Treas, F. R. Sherwood.
GALVESTUN, TEX.-Galveston City St. Ry. Co. 3
m, 4-½ g, 18-20-48 lb r, 4 c, 16 h. Supt. Geo. S. Clayton.
GALVESTON, TEX.-Galveston City St. Ry. Co. 18 m, 4-5½ g, 30 lb r, 68 c, 169 mu. Pres. Wm. H. Sinclair, Sec. & Treas. F. D. Merrit, Supt. M. J. Keenan.
Gult City St. Ry. & Real Estate Co. 15 m, 4 g, 20-30 lb r, 30 c, 90 mu. Pres. J. H. Burnett, Sec. & Treas.
F. D. Alfen.

GLOUCESTER, MASS.-Gloucester City R.R. Gloucester St. Ry. Co. Pres. & Supr. Morris (

GLOUCESTER, MASS.—Gloucester City R.R. Gloucester St. Ry. Co. Pres. & Supt. Morris C. Fitch, V. Pres. Walter A Jones, Treas. Francis W. Homans, Sec. David S. Presson. GRAND RAPIDS, MICH.—Street Ry. Co. of Grand Rapids, Mich. 14½ m, 48½ g. 25-40 lb r, 29 c, 190 h. Pres. C. A. Otls, 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, GRIEE CASTLE, I D.—Green Castle City St. D. Rogers, Sec. James S. Nutt, Treas. Rudolph Rogers.

A. Beyler, Graud Rapads.
 GREE CANTLE, I D., -Green Castle City St. Ry, Co. 2 m, 4-8% g, 23 lb r, 3 c, 12 h. Pres. A supt. D. Rogers.
 GREE VILLE, S.C., -Greenville City Ry, Co. 1 m. 5 g, -lb r, 5 c, 20 h. Proprietors, Glireath & Harris. IIALIFAX, N.S., -Halifax St. Ry, Co. (Lim.) 7 m, 4-8% 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 Halliax, N.S.
 HAMILTON, G., -The Hamilton St. Ry. Co. 4 m, 3 g, 28 lb r, 11 c, 12 h. Pres. James F. Griffin, Sec. 0. Y. Parrish, Treas. H. L. Morey, Supt. J. C. Bigelow, HANNIP U, MO., -Hannibal St. Ry. Co. 2 m, 4-8% g, 36 lb r, 6 c, 22 h. Pres. & Supt. M. Doyle, Sec. & Treas. James O'Hern.
 HARIISBURG, PA., -Harrisburg City Passenger Ry. Co. 5 m, 5-2% g, 42-47 lb r, 25 c, 65 h. Pres. H. A. Keiker, Y. Pres. Janiel Epply, Sec. John 7. Ensminger, Treas, R. F. Kelker, Supt. S. B. Reed. Capital, \$82,500. Office 27 South 2d st.
 HARTPFOHD, CONN., -Hartford & Wethersfield Horse R.R. Co. 12 m, 4-8% g, 45 lb r, 49 c, 250 h. Pres. & Treas. E. S. Goodrich, Sec. Ge. Sexton.
 HAVERHILL, MASS., -Haverhill & Groveland St. Ry. Co. 14% m, 4-4% g, 30 lb r, 12 c, 20 h. Pres. & Gen. Man. Jas. D. White, Treas. John A. Colby. HERKIMER, N. Y., -Herkimer & Mohawk St. Ry. Co. 14% m, 4-5% g, 250 lb r, 8 c, 2 m, 4-8% g, 35 lb r, 8 c, 26 h. Pres. J. M. Ansmen, Sec. Joab Smail, Treas. H. D. Alexander.
 HOBKOEK, N. J., -North Hudson County Ry. Co. 14% m, 4-7 g, 50-60 lb r, 116 c, 630 h. Pres. John H. Bonn, Sec. F. J. MAIOY, Treas. Fredk. Mickel, Union, Supt. Nicholas Goetz, Union.
 HOT YOKE, MASS. -Holyoke St. Ry. Co. 2 m, 4-8% g, 35 lb r, 8 c, 26 h. Pres. W. M. Chase, Treas. C. Fayette Smith, Supt. H. N. Smith, Hol. Smith, Hol. Smith, Hol. Smith, Hol. Smith, Supt. H. N. Smith, Hol. Smith, Supt. J. L. Butterfield.
 HOUSTON, TEX.,-Holyoke St. Ry. Co. 14 m, 4-8% g, 20-33-840-62 lb r, 70 c,

JACKSONVILLE, ILL.—Jacksonville Ry. Co. Supt. B. F. Sibert. JAMAICA, N. Y.—Jamaica & Brooklyn R.R. Co. 10 m, 483/g 5, 65-60 lb r, 29 c, 56 h. Pres. Aaron A. De-grauw, Sec. Martin J. Durea, Treas. Morris Fos-dick, supt. Wm. M. Scott. JAMIESTOWN. N. ——Jamestown St. Ry. Co. 3.67m 4-83/g 3, 30-44 lb r, 13 c, 16 h. Pres. R. N. Marvin, V. Pres. F. E. Gifford, Treas. A. N. Broadhead. Supt. G. E. Mattby, Sec. & Atty. C. R. Lockwood.

JERSEY CITY, N. J.—Jersey & Bergen R. R. Co. 21 m, 4-10 g, 60 lb r, 73 c, 494 h. Pres. Chas. B. Thurston, V. Pres. Wm. Keeney, Treas. C. B. Place, Sec. Warren E. Dennis, Newark, Supt. Thos. M.

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Sec. Warren E. Dennis, Newark, Supt. Thos. M. Sayre.
JOHNSTOWN N. Y.—The Johnstown, Gloversylle & Kingsboro Horse R.R. Co. 5% m, 4.8% g, 26 lb
r, 6 c, 16 h. Pres. James Younglove, V. Pres. R. Fancher, Sec. & Treas., J. McLaren.
JOHNSTOWN, PA.—Johnstown Pass. R.R. Co. 7% m, 5-8 g, 41-43 lb r, 13 c, 73 h. Pres. James McMillen, Sec. B. L. Yeagley, Treas. W. H. Rosensleet, Jr.,
Supt. D. J. Duncan. Capital. \$100,000.
JOLIET, ILL.—Joliet City Ry. Co. 3% m, 4-8% g, 30 lb Johnson T r, 16 c, 30 h. & mu. Prop. J. A. Henry, Supt. A. Bischman, Treas. J. Ilulsizer.

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LAKE CITY, FLA.-Lake CIty St. Ry. Co. LAMPAAS SPRINGS, TEX.-Lampasas City Ry. Co. 34 m, 45% g, 22 lb r, 6 c, 15 h. Receiver, — Maddox. LANCASTER. PA.-Lancaster & Millersville St. Ry. Co.-m, 4 5% g, 30 lb r, 4c, 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, 38 lb r, 6c, 4 h. Pres. W. D. Sprecher, Treas. J. H. Baungard-ner, Sec. Thos. B. Cochrane, Nan. J. B. Lang. Gen. Office. 129 North Queen st LANCHMONT, N. Y.-Larchmont Manor Co. 1 m, 4-8 g, 25 lb r, 2 c, 8 h. Pres. C. H. Murray, Treas. S. H. French, 38 East Fourteenth st, N. Y. City. LAWRENCE, KAN.-Lawrence Transportation Co. 5 m, 41 g, 38 lb r, 7 c, 34 h. Pres. H. Tisdale, Sec. W. H. Bangs LAWRENCE, MASS.--Merrimack Valley Horse R. R. Co. 5 4-5 m, 4-5% g, 48 lb r, 20 c, 70 h. Pres. Wm. A Russell, V. Pres. Jas Walton, Methuen. Cierk & Treas James II. Eaton, Supt. A. N. Kimbali, Lawrence: LEWISTON, ME. -Lewiston & Auburn Horse R.R. Co. 7 s, m, 4-8% g, 32 lb r, 16 c, 45b. Pres. Frank W Dana, Lewiston, Cierk H. C. Little, Lewiston, Treas. H. C. Packard, Auburn, Supt. P. Stinchfield, Auburn LEXINGTON, KY.-Lexington St. Ry. Co. JINCOLN, NEB.-Capital City Ry. Co. 5 J. Morg. 20 br, 20 c, 86 h. Pres. John Cross, V. Pres. C. R. Diver, Sec. & Supt. Bert. Cross. LEXINGTON, KY.-Lexington St. Ry. Co. LINGOLN, NEB.-Capital City Ry. Co. 44 h. Pres. & Treas St. Diver, Sec. A Supt. Bert. Cross. LEXINGTON, NEB.-Capital City Ry. Co. 44 h. St. 2 g, 25 br, 8 c, 64 h. Pres. A Treas. E. B. Durfee, Sec. & Supt. H. B. Durfeee. Lincoin St. Ry. Co. 64 m, 10 c, 60 h. Pres. Frank L: Sheldon, Supt. L. P. Young. LINTLE ROCK, ARK.--Little Rock St. Ry. Co. LING, J. C. MAK.--Little Rock Street Railway co. Same offices. LOCKPORT, N. Y. (See New Roads.) LOCKPORT, N. Y.

LONGVIEW, TEX.-Longview & Junction St Ry. %m, 3-6 g, 2 c, 4 h. Pres. F. T. Rembert, Sec

R. B. Levy, Treas. F. L. Whaley, Supt. C. W. Booth LOS ANGELES, CAL.—Boyle Helghts R.R. Co. Central R.R. Co. and the Sixth & San Fernando St, R.R. Co. 7 m, 3-6 g, 16 ib r, 13 c, —h. Pres. E. T. Spencer, Sec. F. X. Palmer, supt. J. A. Falrchild. City & Central St. Ry, CO. 4½ m, 3-6 & 4-8 g, —l b r, 2 g cars, 167 h. Pres. I. W. Hellman, Sec. Fred Harkness, Supt. Wm. Hawks. Los Angeles & Aliso Ave. St. R.R. Co. Main St. & Agricultural Park Ry, Co. Pres. W. J. Broderick, Sec. Col. John Wheeler, Supt. Wm Hawks. Second St. Cable Ry. Co. 6 c and 6 grip c. Pres. Jesse Garnell, Sec. & Man. Edw. A. Hall, Eng. and Supt. —Kibble. Temple. St. Cable Ry. Co. 8 c. and S grip c. Pres. Watter S. Maxwell, Supt. and Man. Col. A. H. Wands

Wands

LOUISVILLE, KY.-Kentucky St. Ry. Co. 5 m, 5-2 g, -ib t, 22 c -h. Pres. T. J. Minary, Sec. &

LOUISVILLE, K Y.-KENTUCKY St. Ry. Co. 5 m, 5-2 g, -- lb r, 22 c -h. Pres. T. J. Minary, Sec. & Treas. Thos. Donlgan. Central Pass. R.R. Co. -m, -g, -lb r, -c, -h, Pres. -, V. Ires. Thos. J. Minery. Crescent Hill Ry. Co. Louisville City Ry. Co. 63 m, 5 g, 58 lb r, 214 c, -mu. Pres. Maj. Alexander Henry Davis, Syracuse, n Y., V. Pres. St. John Boyle, Sec. & Treas. R. A. Watts, Supt. H. H. Littell.

Y., V. Pres. Si, John Boyle, Sec. & Treas. R. A. Watts, Supt. II. II. Littell.
LOWELL, MASS.—Lowell Horse R. R. Co. 6 m. 8½ g, 28-47 lb 7, 28 c, 100 h. Pres. Wm. E. LlvIngston, Gen. Man. J. A. Chase. Lowell & Dracut St. Ry. Co.
LYNCHBURG, VA. — Lynchburg St. R.R. Co. (m. 5/2, g, 26 lb 7, 6 c, 31 h. Pres. Stephen Adams, Treas. John L. Adams, Supt. William M. Payne.
LYONS, IA.—Clinton & Lyons Horse Ry. Co. 4½ m, 3-8 g, 19-30 lb 7, 15 c, 40 h. Pres. D. Joyce, V. Pres. & Man. R. N. Rand.
MACON, GA.—Macon & Suburban St. R.R. Co. 6½ m, 4-8½ éz, 20 lb T r, 20 c, 100 mu. Pres. John S. Branstord, Nashvi le, Tenn., Sec. and Supt. Jno. T. Voss. Office, Elm st.
MADISON, IND.—Madison St. Ry. o. 5½ m, 4 g, 27-34 lb 7, 14 c, 55 h. Pres. N. Bell, Treas. B W. Jones, Supt. A. R. Kentzler
MANCHESTER, N. H.—Mantato St. Ry. Co. 2½ m, 3-4g g, 27-34 lb 7, 14 c, 55 h. Pres. N. Bell, Treas. F Sinyth, Clerk J.A. Weston, Supt. A. Q. Gage.
MANTHESTER, N. H.—Mantato St. Ky. Co. 2m, 3-6g, 27 lb steel r, 3 c, 10 h. Pres. and Man. W. M. Farr, Sec. and Treas. John C. Noe, Capital, S0,000; office, So Front street.
MARSHALLTOWN, IA.—3 m, 4 g, 25 lb r, 7 c, 20 h. Pres. T. Frederick, Treas. T. E. Foler, sec.

So Front street.
MARSHALLTOWN, IA. -3 m, 4 g, 25 lb r, 7 c, 20 h. Pres. B. T. Frederick, Treas. T. E. Foley, Sec. C. C. Gillman, Supt. A. E. Shorthill.
MARYSVILLE, CAL. - Clty Pass. R.R. Co. MAYSVILLE, K. - Maysville St. Ry. & T. Co. 3 m, 20 lb r, 4-8½ g, 6c, 32 mu. Pres. L. W. Robertson, Sec. & Treas. W. S. Frank.
MECHANICSBURG; ILL. - Mechanlcsburg & Buffalo Ry. Co. 3½ m, 3-10 g, 16 lb r, 3 c, 4 mu. Pres. J. N. Fullenweider, Treas. A. T. Thompson.

¹¹ nompson. MEMP(11>, FE>>>>> mphls Clty R.R.Co. 18 m, 5 g, 38-40 lb r, 66 c, 320 h. Pres. R. Dudley Frayser, V. Pres. Thos. Barrett, Supt. W. F. Shippey. MERIDIAN, MISS.—Meridlan St. Ry. Co. 2 m, 4-8 g, 16 lb T r, 5 c, 11 mu. Pres.Geo.S. Conant, V. Pres. and Sup. J. L. Handley, Treas. J.A. Kelly, Sec. R M. Houston liouston

Houston.
MICHIGAN CITY, MICH.—MichCitySt.Ry Co.
MIDDLETOWN, CONN.—Middletown Horse
Ry. Co 2 m, 6 c, 31 h. Pres. John M. Dantord, Sec.
and Treas. J. K. Guy, Supt. Joseph Lane.
MIDDLETOWN, 0.—Middletown Horse R.R. Co.
Pres. John M. Douglas, Sec. & Treas, Jas. K. Guy.
Middleton & Madison st. R.R. Co. 2m, 59 g, -r, 4
s h, Pres. F. Gunchel, Sec. and Treas, E. W. Gunchel

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MILLERSVILLE, PA.-Lancaster & Millersville

e, s h, Pres. F. Gunchel, Sec. and Treas, E. W. Gun-chel. MILLERSVILLE, PA. – Lancaster & Millersville st. R.R. Co. (See Lancaster, Pa.) MILWAUKEEE, WIS. – Cream City R.R. Co. 81-6 m, 4-8% g, 27-38 ib r, 74 c, 307 m, 2 h. Pres. Winfield suith, V. Pres. Christian Preusser, Treas, Ferdinand Knehn, Sec. Wm. Damkoehler, Gen. Man. D. Atwood, supt. H. J. C. Berg. Milwatee City Ry. Co. 30 m, 4-8% g, 27 lb iron & 4's ib steel r, 80 c, 450 h. Pres. Peter McGeoch, Sec. & Treas. Geo. 0. Wheatcroft. West Side St. Ry. Co. Owner & Manager, Wash-Ington Becker, Supt. – McNaughton. MINNEAPOLIS, MINN.–Minneapolis St. Ry. Co. 29 m, 3-6 g, 27-35-45 lb r, 186 c, 1050 h and 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. 17% m, 5-2 g, 35lb Tr, 68 c, 240 h. Pres. Jon. Maguire, Sec. I.strausse, Treas, Myer I. Goldsmith, Supt. A. Moog.Dauphin & Lafayette Ry. Co. 2 m, 5-2% g, 40 lbr, 9 c, 10 h. 12 m. Pres. D.P. Bestor, V. Pres. & Sec. G.Y. Overall, Treas, & Acting Sec. Jas. W. Gray, Pur.Agt. & Man. J. B. Robertson.Mobile & Spring Hill R.R. Co. 8 m, 5-2% g, 35 lb r,hobile & Spring Hill R.R. Co. 8 m, 5-2% g, 35 lb r,hobile & Spring Hill R.R. Co. 8 m, 5-2% g, 35 lb r,MOHAWK, N. Y. –Mohawk & Hilon R.R. Co.13' m, 4-8% g, 30 lb r, 4 c (contract for motive power).Pres. O.W. Bronson, V. Pres. J. Brown, Sec. H. D. Alex-ander, Treas. R. M. Devendorff, Supt. O. W. Bronson.MOLINE, HLL.–Moline Central St. Ry. Co. 1%m, 4-8% g, 30 lb r, 4 c. (ba h. Rose, 1. M. Butord,Treas. C. June, Supt. Wn. Gamble.MONTGOMERY, ALA.–Capital City ElectricSt. Ry. Co. Electric motors. Pres. E. H. Joseph,WONTGOMERY, ALA.–Capital City ElectricSt. Ry. Co. Electric motors. Pres. E. Hannon,sec. Taylor Robert.MONTGAMERY, ALA.–Capital City ElectricSt. Ry. Co. Electric motors. Pres. E. Hannon,sec. Taylor Robert.MONTGAMERY, ALA.–Capital City Pass. Co. 21m, 48% g, — lb r, 76 c, 45 h. Pres. Jesse Joseph, V.Pres. Alex Murray

WONTREAL, CAN. – Montreal City Pass. Co. 21 (4-8)% g, – lb r, 76 c, 465 h. Pres. Jesse Joseph, V. res. Alex. Murray Sec. & Man. Ed. Lusher, Supt. T. Roblingthered Structure Statements (2019) (201 Pres. Alex. Murray Sec. & Man. Ed. Lusher, Supt. T. H. Robillard. MOULTRIEVILLE, S. C.-Middle St. & Sulli-

November, 1886.

 Varis Landing Ry. 24 m, 4-84 g, 20 lb r, 7c 4 h.

 Pres. B. Callahan, Treas. B. Buckley.

 MT VERNON. N.Y., -M. Vernon St. Ry. Co.

 Mount Vernon & East Chester R.R. Co. 34 m, -g.

 r, 7c, 30 h. Pres. Wm. A. Butler, V. Pres. Thos.

 Nichols, Sec. Jas. T. Byrne, Treas. Benj. L. Welther, of the sec.

 Michols, Sec. Jas. T. Byrne, Treas. Benj. L. Welther, of the sec.

 Mount Vernon & East Chester R.R. Co. 34 m, -g.

 M. Sec. Jas. T. Byrne, Treas. Benj. L. Welther, of the sec.

 Michols, Sec. Jas. T. Byrne, Treas. Benj. L. Welther, of the sec.

 M. B. Start, R. J. Muscalme Citz, Ry. Co. 37 m, 3-6 g, 211 br, 7 c, 19 h. Pres. Peter Musser, V.

 Pres. C. Richman, Sec. T. R. Fitzgeraid, Treas.

 M. Murce. Treas. G. R. Sherman, Supt. C. H. Newell.

 NSHUAN, N. H.-Nashua St. Ry. Co. 2 m, 3 g, 35 hr, 5 y, 16-00.

 Nashiwa Street Railway Co. North Edge-field R. K. Co. Fatheriand Street Railway Co. North Edge-field an Nashville St. R.R. Co. 4 m, 5 g, 16-20 hr, 6 g, 6 hr, 2 hr, 2 hr, 140 h & mu. Pres. Join P. White, yer Set. B. F. Wilson, Sec. A Treas. H. B. Stubber, Sec. A Treas. H. B. Stubber, Sec. M. Rashville St. R.R. Co. 4 gram, 5 g, 16-20 hr, 6 g, 6 hr, 9 hr, 1 hr, 5 g, 16-20 hr, 6 g, 6 hr, 2 hr S. H. G. Go, 7 m, 5 g, 16 hr, 16 g, 5 hr, 8 m, 1 hr, 2 g, 10 hr, 10 hr, 7 g, 2 hr, 6 g, 5 hr, 5 hr, 8 hr, 6 g, 7 hr, 2 g, 4 hr, 7 g, 1 hr, 2 g, 1 hr, 1

New Haven & Centreville Horse R.R. Co. 22 m, 48 g 42 lb r, 4 c, 30 h. Trustee Cornelius Plerion. New Haven & West Haven R.R. Co. (See West Haven).
State Street Horse R.R. Co. 24 m, 48 g, 42 lb r, 4 c, 40 h. Pres, C. A. Warren, Sec. Arreas. C. C. Blatchen, The Whitney Ave. Horse Ry. 24 m, 4.8 g, 42 lb r, 4 c, 40 h. Pres, C. A. Warren, Sec. Arreas. C. C. Blatchen, The Whitney Ave. Horse Ry. 24 m, 4.8 g, 52 lb r, 3 c, 25 h. Pres. Geo. H. Watrous, Sec. George D. Warrous, Treas. Ell Whitney, Jr.
NEW MARLEANS, LA.—Coanal & Claborne St. R.R. Co. 13 m, 5-2% g, 37 lb r, 40 c, 200 h. Pres. F. J. Hart, Sec. & Supt. Jos H. DeGrange.
New ORLEANS, LA.—Coanal & Claborne St. R.R. Co. 13 m, 5-2% g, 37 lb r, 40 c, 200 h. Pres. Frank Roder, Sec. & Treas. Jn. J. Juden, Supt. A. V. Smith.
New Orleans St. R.R. Co.
Orleans R.R. Co. — m, — g, — lb r, 32 c, 140 h. & M. M. Pres. & Supt. Alden McLellan, Sec. V. Riviere. New Orleans & Carroliton R.K. Co. 8 m, 4-8% g, 30 ds lb r, 56 c, 200 h. 19 engines. Pres. Wm. Beathuluysen, Scc. Walter P. Crouch, Supt. C. V. Halle.
New Orleans & Carroliton R.K. Co. 6 tn, 5-2% g, 740 do b, 740 h. dt. Maker, Sec. W.E. Leverich, Supt. F. Wintz. New Orleans & Carroliton R.K. Co. 6 tn, 5-2% g, 76 d-0 b r, 180 c, 39 coaches, dummy engines, 1050 mu. Pres. J. A Walker, Sec. W.E. Leverich, Supt. F. Wintz. New Orleans & Carroliton R.K. Co. 6 th, 5-2% g, 76 d-0 b r, 180 c, 39 coaches, dummy engines, 1050 mu. Pres. J. Awaker, Sec. W.E. Leverich, Supt. F. Wintz. New YORK, N.Y.—Ninth Ave. R.R. Co. 16 m, 4-8% g, 60 b r, 52 c, 530 b. Pres. W.H. Hays, Sec. & Treas. James Affleck, Supt. Heman B. Wilson. Office, Set. Stroker, Supt. Henry A. Newell, Office 76, Seventh Ave.
Text YORK, N.Y.—Ninth Ave. R.R. Co. 16 m, 4-8% g, 76 b b, 52 c, 530 b. Pres. Henry Thompson, Sec. & Treas. Thos. B. Kerr, Supt. Henry A. Newell, Office 76, Seventh Ave.
Text YORM, Net & East River R.R. Co. 19 m, 45% g, 60 b b, 76 c, 540 b. Pres. J. H. Schiner, Yreas. J. L.

Avenue Ry. Co. 18% m. Pres. Dan'l D. Conover, Sec. and Treas, John P. Roberts, Supt. Abram L. Smith. Offices 42d street and 7th aves.
Harlem Bridge, Morrisania & Fordham Ry. 16.37 m, 4-84 g, 45-60 lb r, 65 c, 318h. Pres. and Supt. H. Spratley, V. Pres. Richard M. Hoe, Sec. & Treas. Wm. Caudwell. Office, North Third Ave, near 170 st. Houston, West Street & Pavonia Ferry R.R. Co. 12-3 m, 4-84 g, 60 lb r, 50 c, 450 h. Pres. Rich, Kelly, Sec. & Treas. Daniel B. Hasbrouck. Office, 415 E. 10 st. Jerome Park R.R. 12-3 m, 4-84 g, 50 lb r, 50 c, 450 h. Pres. Rich, Kelly, Sec. & Treas. Daniel B. Hasbrouck. Office, 415 E. 10 st. Jerome Park R.R. 12-3 m, 4-84 g, 50 5-56 lb r. Pres. Iconard M. Jerome, Sec. Fred A. Lovecraft, Treas. Theodore Moss. Office, cor, 5th. Ave. & 22d st. New York City St. Ry. Co. 10 m, [not ln operation]. Pres. Loomis L. White, Sec. W. L. McCorkle, Treas. Wm. L. Skidmore.
New York & Harlem R.R. Co. 17½ m, 4-8½ g, 60-75 b r, 161 c, 1,560 h. Pres. — Y. Pres. & Sec. Cornelius Vanderbilt, Treas. Ed. V. W. Rossleter, Supt. Alfred Skitt, Pur. Agt. P. S. Bemis. Sixth Ave. R.R. Co. 9½ m, 4-8½ g, 60 lb r, 127 c, 1296 h. Pres. Frank Curtiss, Sec. and Treas, Henry S. Moore, Supt. Edw E. Moore. Office, 758 6th Ave. South Ferry Hy. Co. 1½ m, 4-8½ g, 60 lb r, 13 c, 41 h. Pres. Henry Hart, Sec. Wm. N. Cohen, Treas. Albert J. Ellas, Supt. Chas H. Meeks. Office 20 Whitehall st.
St. Nicholas & Crosstown R. R. Co. (See New Roads.)
The Second Ave. R.R. Co. 28 m, 4-8½ g, 60 lb r, 36 Gors, 175 0 h. Pres. W. Thorn, Y Pres. J. Wadsworth, Sec. & Treas. J. B. Underhill. Office Second Ave. cor. 96th st.

96th st. The Third Ave, R. R. Co. 16 m main line, 6½ m 10th Ave, cable line, 4 m 125th street cable line, 48% g, 60 & 74 lb r, 318 c, 2150 h. Pres. Lewis Lyon, 739 Madison ave., V. Pres. Henry Hart, 110 Tribune Building, Sec. Alfred Lazarus, 436 W. 61st st. Treas, John Beaver, 211 E. 112th st., Supt. John H. Robert-son, 307 E. 65th st. Twenty-third St. R.R. Co.14 m, 4.8% g, 54 lbr, 102 c, 692 h. Pres. Jacob Sharp, Sec. Thos. H. McLean, Treas. Lewis May, Act-Supt. George Ferry. Office 621 West 23d st.

West 23d st.
NIAGARA FALLS, N. Y.-Nlagara Falls & Suspension Bridge Ry. Co. 3% m, 4-8% g, 38-42 ih r, 8 c, 36 h. Pres. Benj. Flagler, Sec. W. J. Mackay, Treas. A. Schoelkopt.
NORFOLK, VA.-Norfolk & City R.R. Co. 3% m, 5-2 g, 44 lb r, 18 c, 65 h. Pres. John B. Whitehead, Treas. H. C. Whitehead, Supt. E. W. Savage.
NORTHADAMS, MASS.-North Adams Horse Ry. Co.

NORTHAMPTON, MASS.—Northampton St. Ry. Co. 33 m, 4-8% g, 32 lb r, 7 c, 26 h. Pres. Oscar Edwards, Sec. M. H. Spaulding, Treas. & Sup. E. C. Clark.

Bowards, Sec. M. H. Spanlung, Treas. & Sup. E. C. Clark.
NORWALK, CONN, —Norwalk Horse R.R. Co.
2 m, 4-10 g, — lb r, 7 c, 20 h. Pres. James W. Hyatt,
V. Pres. & Sec. Edwin G. Hoyt, Sup. James W. Hyatt,
NORWICH, CONN.—Norwich Horse R.R. Co.
OAKLAND, CAL.—Alameda, Oakland & Piedmont R.R.
Berkley Villa R.R.
Broadway & Piedmont St. R.R. Co.
Fourteenth St. R.R. Co. 6 m. 5 g, 20-30 lb r, 6 c, —
D. Pres. & Supt. Walter Blair, Sec. P. J. Van Loben.
Oakland, Brooklyn & FruitvaleR. R. Co. (See East Oakland,)

Oakland, Brooklyn & FruitvaleR. R. Co. (See East Oakland.) OGDE V CITY, UTAH.—Ogden City Ry. Co, 3m, 4-84 g, 20 lb 7, 4 c, 21 h. Pres. L. W. Shurtle, Ogden City, V. F. & Supt. O. P. Arnold, Salt Lake City, Sec. & Treas. H. S. Young, Ogden City. OGDENSBURG.N.Y.—Ogdensburg St. Ry.Co.5m. 4-84 g, 25 lb r, 6c, 18 h. Pres. W. H. Daniels, Treas. W. A. Egert, Sec. W. H. Daniels. OLEAN, N.Y.—Olean St. Ry. Co. 14 m, 3-6 g, 25 lb r, 3 c, 8 h. Pres. M. B. Fobes, Sec. & Treas. M. W. Barse.

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OMAHA, NEB.—Omaha Horse Ry. Co. 15 m, 48% g, 35 lb r, 40 c, 300 h. Pres. Frank Murphy, V. Pres, Guy C. Barton, Treas. W. W. Marsh, Supt. W. A. Smith. Cable (see new roads.)
ONEIDA VILLAGE, N. Y.—Oneida Ry. Co. 2 m, 4-8% g, 47 lb r, 3 c, 6 h. Pres. Jerome Hickox, Sec. & Treas. W. E. Northrup, Supt. Chas. Bonta.
OSHKOSII, WIS.—Osbikosh St. R. Co. 3% m, 4-8% g, 27 lb r, 9 c, 24 h. Pres. Leander Choate, V. Pres. F. Zentner, Sec. & Treas J. Y. Hull, Sup. F. L. Thompson.

Prés. F. Zenther, Sec. & Treas J. Y. Hull, Sup. F. L. Thompson.
OSWEGO, N.Y.—Oswego St. Ry. Co. 2¼ m, 4-8½ g, 45 lb r, 3 c, 23 h. Pres. Jas. F. Johnson, V. Pres.
R. J. Oliphant, Sec. Haynes L. Hart, Treas. Robt. G.
Post, Gen. Man. James O'Connor.
OTTAWA, ONT.—Ottawa City Passenger Ry.Co.
3 m, 4-8½ g, 30 b r, 9 c, 40 h. Pres. Thomas C. Keet-er, V. Pres. R. Blackburg, Sec. James D. Fraser.
Ottawa St. Ry. Co.
OTTUMWA, IA.—Ottumwa St. R.R. Co. 2 m, 3-6 g, 27 lb r, 4 c, 2 h. J hun. Pres. J. M. Hedrick, Sec. & Treas. H. L. Hedrick, Supt. C. M. Hedrick, Sec. & Treas. H. L. Hedrick, Supt. C. M. Hedrick, Sec. & Treas. H. L. Hedrick, Supt. C. M. Hedrick, Sec. & Treas. H. L. Hedrick, Supt. C. M. Hedrick, Sec. & Treas. H. L. Hedrick, Supt. C. M. Hedrick, Sec. & Treas. J. J. Hun. Pres. J. M. Hudrick, Sec. Go. M. Dwner, L. E. Gray.
PARIS, TEX.—Paris Ry. Co. 1½ m, 4-8½ g, 22 lb r, 2 pass. 4 ft c, 16 mu. Pres. I. M. Daniel, Sec. Geo. M. Daniel, Treas. D. J. Latimer, Supt. C. G. Caviness.
PATERSON, N. J.—Paterson & Passale R.R. Co. 7 m, 4-10 g, 35 lb r, 16 c, 24 h. Pres. Johu N. Ter-hune, Treas. John I. Brown, Sec. E. S. Brown, Man.
Pur. Agt. Ambrose T. King, Supt. M. O. Rourke. Paterson City R.R. Co. 64 m, 4-8½ g, 35 lb r, 12 c, 31 h. Pres. Garrett Planten, Treas. Helmas Romaine, Hec. Albert A. Wilcox.
PAWTUCKET, R. I.—Pawtucket St. Ry. Co. 8 m 54 lb r.
PENSACOLA, FLA.—Pensacola St. Ry. Co.

PAW TUCHER, ALA. Pensacola St. Ry. Co. PENSACOLA, FLA. Pensacola St. Ry. Co. PEORIA, ILL. Central City Horse Ry. Co. 4% m, 4-8% g, 40 lbr, 60 c, 135 h. Pres. H. R. Woodward, Bec. M. Pheffer, Treas. Eillot Callender, Supt. John

Fort Clark Horse Ry. Co.-m,-g,-lb r,-c,-h.-Pres. J. H. Hall. Peorla Horse Ry. Co. 7% m, 4-8% g, 40 lb r, 63 c, 140 h. Pres. H. Woodward, Sec. M. Pfelffer, Treas. H. N. Wheeler, Supt. John Strong.

PETERSBURGH, VA.—Petersburgh St. Ry. Co. 3% m, 4-8% g, 42 lb r, 9 c, 44 h. George Beadle, Pro. PHILADELPHIA, PA.—Citizens Pass. Ry. Co. 10% m, 5-2 g, 45 41 b r, 92 c, 420 h. Pres. John Mc-Carthy, Sec. & Treas. J. J. Adams, Sup. Sam'l Cline. (olitice, h w cor. 12th and Susquehanna ave. Capital, \$192,500. Empire Pass. Ry. Co. 814 m. 500. 45 the Same Same

Chice, I. W. GOT. 1201 and Susquehanna ave. Capital, Empire Pass. Ry. Co. 8½ m, 5-2 g, 45 lb r, 32 c, 250
h. Press. James McManes, Sec. and Treas. John 1.
Adams. Oflice, n w cor. 12th st. and Susquehanna av. Frankford & Southwark Phila, City Pass. R.R. Co.
18 m, 5-2 g, 47 lb r, 102 c, 8 dummy c, 618 h. Press.
Henry Gelger, Sec. & Treas. Geo. S. Gandy, Supt. W.
H. Janney. Capital, \$750,000. Germantown Pass. Ry. Co. 29½ m, 5-2½ g, 47 lb r,
Cars and horses, leased. Press. Craig D. Ritchie, n w cor. 10th and Chestnut sts.
Hestonville, Mantua & Fairmount Pass. R.R. Co. 20
m, 5-2 g, 43 lb r, 50 c, 480 h. Pres. Charles F. Laffer-ty, Sec. & Treas. W. C. Foster. Office, 4,300 Lancas-ter ave.

n 6-2 g, 43 lb r, 50 c, 480 h. Pres. Charles F. Laffer-ty, Sec. & Treus. W. C. Foster. Office, 4,300 Lancas-ter ave.
Lehigh Ave, Pass. Ry. Co. Pres. John Lamon, Sec.
Chas, A. Porter, Treas. John L. Hill, [Track not laid.] Lombard & South Sis. Pass. Ry. Co. - m, 5-2g, 43
lb. r, 51 c, 278 h. Pres. John B. Parsons, Sec. & Treas. Francis Hazelburst. Supt. Jno. M. Gaughen. Office, 2,509 South st.
Preople's Pass. Ry. Co. 44 m,5-2g, 47 lb r, 125 c, 1,080
h. Pres. John B Parsons, Sec. & Treas, John C. Menson, Sec.
Prople's Pass. Ry. Co. 44 m,5-2g, 47 lb r, 125 c, 1,080
h. Pres. John B Parsons, Sec. & Treas, Jno. C. Des-salet, Supt. Wm. Hagenswiler.
Philadelphia City Pass. Ry, Co. 7 m, 5-2% g, 47 lb r, -c, -h. Pres. Wm. W. Colket, Sec. & Treas. T.
Philadelphia Traction Co. 109 m, 5-2% g, 45-78 lb r, 594 c 2,942 h. Pres. W. H. Kemble, V. Pres. P. A. B.
Widener & W. L. Elkins, Treas. D. W. Dickson Of-fice, n w cor. 41st and Haverford sts.
Philadelphia & Darby Ry. Co. 64 m, 5-2% g, 42
lb r, road leased. Pres. C. L. Borle, Sec. and Treas. Mm. 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 Dawes, Supt. Patrick Lovett. Office, 36th st. and Gray's Ferry Ras. Ry. Co. 37 m, 116 c, 669h.
Pres. Alexander M. Pox, Treas. William +, Miller, Second & Third Sts. Pass. Ry. Co. 14 m, 5-2 g, 43 lb r, 55 (352 h. Pres. E. B. Edwards, V. Pres. John Lam-bert, Sec. & Treas. Wm. S. Bilght, Supt. Wm. Iages. Seventeenth & Nineteenth Sts. Pass. Ry. Co. 14 m, 5-2 g, 43 lb r, 73 c, 452 h. Pres. Thos. W. Ackley, Sec. & Treas. Thos S. Harrls, Supt. Wm. B. Cooper.
Union Pass. Ry. Co. 70 m, 348 c, 1,724 h. Pres. Mm. H. Kemble, Sec. & Treas. John B. Peddle, Supt. Jacob C. Petty. (Leased to Phila, Traction Co.)
Thirteenth & Fifteenth Sts. Pass. R

\$200,000. Federal St. & Pleasant Valley Pass. Ry. Co. 26 m, 5-2½ g, 46-50 lb r, 20 c, 154 h. Pres. Wm. H. Creery, Sec. R. F. Ramsey, Treas. James Boyle, Supt. Wm. J. Crozler, Allegheny City. People's Park Pass. Ry. Co. 2 m, 5-2½ g, 45 lb r, 10 c, 75 h. Pres. Wm. McCreery, Sec. R. F. Ramsey, Treas. James Boyle, Supt. Wm. J. Crozler, Allegheny City.

Pittsburgh, Alle then & Manchester Pass Ry. Co.
Pittsburgh, Alle then & Manchester Pass Ry. Co.
5 m. 5-2% g, 46 lb r, 40 c, 275 h. Pres. Chas. Atwell,
Sec. & Treas. Chas. Selbert, Supt. James C. Cotton.
Manager J. P. Speer.
Pittsburgh, Oakland & East Liberty Pass. Ry. Co.
11 m, 5-4% g, 47 lb r, 32 c, 110 h, 61 mu. Pres. J. T.
Gordon, Sec. John G. Traggardh, Treas. A. W.
Mellon, Supt. H. M. Cherry.
Pittsburgh Union Pass. R.R. Co. 5 m, 5-2% g, 45 lf
r, 29 c, 170 h. Pres. Chas. Atwell, Supt. James C.
Cotton, Sec. & Treas. Chas. Seibert, Cash. Saml. C.
Hunter.

Pittsburgh & Birmingham Pass. R.R. Co. 3½ m, 25 A S Ib r. 20 c, 170 h. Pres. W. W. Patrick, S

Pittsburgh & Birmingham Pass. R.R. Co. 3½ m, 5-2% g, 48 lb r, 20 c, 170 h. Pres. W. W. Patrick, See D. F. Agnew, Treas. John G. Ilolmes.
Pittsburgh & West End Pass. Ry. Co. 3½ m, 5-2% f. 18 c, 75 h. Pres. John C. Reilly, Scc. & Treas.
Thomas S. Bigelow, Supt. William J. Burns.
Pittsburgh & Wilkinsburg St. hy. Co. Scoond Avenue Pass. Ry. Co. 3½ m, 5-2% g, 47 lb r, 8c, 60 h. Pres Geo. Fawcett, Sec. Jas. F. Fawcett, Treas W. J. Fawcett.
South Side Pass. R.R. Co. 2½ m, 5-2% g, 45 lb r, 12 c, 80 h. Pres. D. Z. Brickell, Sec. & Treas. W. T. Wallace, Supt. W. M. Rosborough.
Transverse Pass. Ry. Co. 6½ m, 5-2% g, 52 lb r, 39 c, 743 h. Pres. C. Magee, V. Pres. C. F. Klopter, Sec. & Treas. Witk.nsburg & East Liherty Ry. Co. (see new roads.)

roads.) PITTSTON, PA. -Pittston St. R.R. Co. 1% m,

PITTSTON, PA. –Pittston St. R.R. Co. 1% m, 3c, 5 h. Pres. Thomas Griffith, Treas. M. W. Morris. Sec. William Allen.
PI.YMOUTH, MASS.–Plymouth & Kingston St. R. R. Co. (See new roads.)
PORT HURON, MICH.–Port Huron St. Ry. Co. 6% m, 4-8% g, 7 c, 22 h. Pres. Jno. P. Sanborn, V.Pres. Frank A. Beard, Sec. Treas. & Man. J. R. Wastell.
PORTLAND, ME.–Ocean St. R.R. Co. Portland R.R. Co. 7% m, 4-8% g, 30-33-45 lb r, 34 c, 154 h. Pres. H. J. Libby, Treas. & Gen. Man. E. A. Newman, Supt. Geo. W. Soule.
PORTLAND, ORE.–Portland St. Ry. Co. 2 m, 3-6 g, 25-42lb r, 11 c, 40 h. Pres. D. P. Thompson, Sec & Supt. C. K. Harbaugh.

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c. 1901. Pres. Chas. Odeli, Clerk Joseph F. Hickey, Treas. Henry Wheatland, Supt. Willard B. Ferguson. SALINA. N. Y.—Woodlawn and Butternut St. Ry. Co.
SALT LAKE CITY, UTAIL.—Salt Lake City R. Co. 13 m, 4-8% g. 20 b r, 20 c, 115 mu. Pres. John Taylor, Sec. David McKenzle, Treas. James Jack, Supt. Orson P. Arnold.
SAN ANTONIO, TEX.—San Antonio St. Ry. Co.
San ANTONIO, TEX.—San Antonio St. Ry. Co.
SAN MOLSKY, O.—Sandusky St. Ry. Co. 2 m, – G. – Db r, – c, – h. Pres. Chas. B. Ods, Sec. & Treas.
Nithers, San Antonio, Sec. E. R. Norton, Supt John Robb.
Prospect Hill St. Ry. Co.
SAN FRANCISCO, CAL.—California St. R.R. Co. Central R. R. Co. 12 m, 5 g, 45 lb r, 31 c, 290 h, Pres. Chas. Main, V. Pres. S. C. Bigelow, Treas. A. Gunston, Sec. C. V. LeBreton Supt J. F. Clark. Clark R. R. Co. 12 m, 5 g, 45 lb r, 31 c, 290 h, Pres. Chas. Main, V. Pres. S. C. Bigelow, Treas. A. Gunston, Sec. C. V. LeBreton Supt J. F. Clark. Clark R. R. Co. 12 m, 5 g, 45 lb r, 31 c, 290 h, Pres. Chas. Main, V. Pres. S. C. Bigelow, Treas. A. Gunston, Sec. C. V. LeBreton Supt J. F. Clark. Clark St. Hill R. R. Co. 1m. 3-6 g, 30 lb r, 11 c, 12 dummy cars. Pres. Joseph Britton, V. Pres, James Moffit, Treas. Henry L. Davis, Sec. Chas. P. Camp-bell, Supt. Joseph Britton. Geary St. Park & Ocean R.R. Co. 9% m, (5½ m cable, 4½ m steam) 5 g, 45 lb r, 39 c. Pres. Danied Meyer, V. Pres. R. F. Morrow, Treas. S. C. Bigelow, Supt. Johnson Reynolds, Sec. John N. Syme. Market St. Cable Ry. Co. 12⁴, m, 4-8½ g, 37-38 lb r. 182 c, 2 motors, 82 h. Pres. Leland Stanford, V. Pres, Chas. F. Crocker, Treas. N. T. Smith, Sec. J. L. Wil-lout, Supt. M. D. Morton. Office, Fourth and Townsend streets.
North Heach & Mission R.R. Co. 8 m, 5 g, 46 c, 400 h. Pres. Carl Ahpel, Sec. H. W. Hathorne, Treas. Wm. Alvord, Supt. M. Skelly.
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. Willoutt, Supt. H

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c, 364 h. Pres. Gustav Sutro, V. Pres. D. Callaghan, Sec. G. Ruegg, Supt. M. M. Martin. Park & Ocean K.R. Co. 4.62 m, 35 and 401b r, 4-8% g, 7 dummy engines, 16 pass. c, 6 flat and section c. Pres. Theorem V. Pres. Thmothy Hopkins, Treas. N. T. Smith, Sec. J. L. Willcutt, Supt. H. D. Morton.
Potrero & Bay View R.R. Co. 1% 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.
Poweil & Jackson St. R. R. Co. (see new roads.)

Crocker, Treas. N. T. Smith, Sec. J. L. Willeutt, Supt. H. O. Rogers. Poweil & Jackson St. R. R. Co. (see new roads.) Sutter St. R.R. Co. 5_X m, 4-11 g, 35-45 lb r, 40 c, 180 h. Pres. R. F. Morrow, Sec. A. K. Stevens, Treas. M. Schmitt, Supt. James McCord. 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. The City R.R. Co. 11 m, 5 g, 45 lb r, 72 c, 280 h. Pres. R. H. 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:s and 3 g wide g, 40 lb r, narrow g 20 lb r, 25 c, 75 h. Pres. S. A. Bishop, V. Pres. W. S. Mc-Murtry, Treas. Jacob Rich, Sec. E. M. Rosenthal, Man, Wm. Fitts. Office, 20 W. Santa Clara St. First St. & R. R. & Willow Glen R. R. 7½ in, 3 g, 20 lbs. r, 8 c, 30 h, Jacob Rich, Soie Owner, Sec. E. M. Rosenthal. Office, 20 Santa Clara St. First St. & San Fedro St. Depot R.R. Co. North Side Horse R.R. Co. 2½ m, 3 g, 16 lb r, 3 c, 0 h. Pres. & Man, Jacob Rich, Sec. E M. Rosenthal, Treas. S. A. Bishop. Willow Glen R.R. 7½ m, 3 g, 20 lb r, 8c, 30 h. Sole owner Jacob Rich, Sec. E. M. Rosenthal, Treas. S. A. Bishop. Willow Glen R.R. 7½ m, 3 g, 20 lb r, 8c, 30 h. Sole owner Jacob Rich, Sec. E. M. Rosenthal, Sole Owner Jacob Rich, Sec. E. M. Rosenthal. Office 20 W. Santa Clara st. SANTA BARBARA, CAL.-Santa Barbara St.

Santa Clara st

owner Jacob Mich, Sec. E. M. Rosenthal. Office 20
W. Santa Clara st.
SANTA BARBARA, ÇAL.—Santa Barbara St.
R.R. Co. 1 m, 3-6 g, 3 c, 8 mu. Pres. A. W. McPhall.
SARNA, CAN.—Sarnia St. Hy. Co. 292m, 4-8 g, 32 lb r, 2 c, 9 h. Pres. J. F. Lister, Sec. & Treas. Thos.
Symington, Supt. Henry W. Mills.
SAUGATUCK, CONN.—Westport & Saugatuck
Horse R.R. Co. (See Westport, Conn.)
SAVANNAH, GA.—City & Suburban Ry. Co. 18½
m, 5 g, 16-30 lb r, 49 c, 110 h, 3 engines. Pres. J. H. Johnson, Asst. J. W. Alley. Treas. E. Schmidt.
Coast Line R.R. Co. 7 m, 5 g, 30 lb r, 17 c, 37 h.
Pres. Geo. Parsons, New York, Sec., Treas. & Gen.
Man. R.E. Cobb, Savannah.
SAYRE, PA.—Sayre St. Ry. Co. Pres. Howard Elmer, (See new roads.)
SCRANTON, PA.—People's St. Ry. Co. 9½ m, 4-8½ g, 25-52 lb r, 19 c, 70 h. Pres. W. Matthews, 55 c. & Treas. J. C. Platt.
Scranton Suburban Ry. Co. (sce new roads.)
SEARCY, ARK.—Searcy & West Point R.H. Co, 8 m, 4-8½ g, 20 lb r, 7 c, 6 mu. Pres. A. W. Yarnell See. W. I. Lightle; Treas. Jasper Hicks.
SEATTLE, W. T.—Seattle St. Ry. Co. 3½ m 4-8½ g, 25 lb r, 5 c, 20 h. Pres. F. H. Osgood, 8cc.
SEDALLA, MO.—Scdalla 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. Conta.

g, 22 hD f of 25 h. Treas. F. H. Guenther, Sec. Chas. S. Conrad. SELMA, ALA.—Selma St. R.R. 2½ m, 18 hD r, 5 c, 8h. Pres. E. Gilman, Sec. & Treas. J. H. Hollis, Supt. W. Bohlia. Sec. & Treas. J. H. Hollis, Supt. W. Bohlia. Sec. & Treas. J. H. Hollis, SELMA, ALA.—Selma St. R.R. 2½ m, 18 hD r, 5 c, 8h. Pres. E. Gilman, Sec. & Treas. J. H. Hollis, Supt. W. Bohlia. Sec. G. & Treas. J. H. Hollis, SEVASTOPOL, 1A.—Des Moines & Sevastopol st. R.R. CO. 13% m, 4g, 36 hD r, 2 c, 12 h. Pres. G. Van Ginkel, Sec. G. C. Van Ginkel, Treas John Weber. Olfic, Main st. SHERMAN, TEX.—Sherman City R.R. CO. 34 m 5 g, 20 hD r, 7 c, 32 hu. Pres, C. W. Batsell, Treas. J. M. Batsell, Sec. C. W. Batsell, Jr. SHERMAN, TEX.—Sherveport City R.R. CO. 1½ m, 44 g, 46 hD r, 6 c. 14 h. Pres. Peter Youree. SHAVER CLIFF, COL.—Shrver Cliff St. R.R. CO. ISIOUX CITY, I.A.—Shoux City St. Ry. CO. 5 m, 4 g, -r, 8 c, 52 mu. Pres, Fred. T. Evans, V. Pres. D. A. Magee, Sec. & Treas. Vred Evans, Jr. SOUTH BEND, IND.—South Bend Railway Co 6 m, 4.8½ g, 30 hD, 17 c, 49 h. Pres Jacob Woolver-con, Treas Luctus (lark, Sec W G George. Office, 212 W Market st, UHCa, N Y. SOUTH CHICAGO, ILL.—Chicago Horse & Dummy R.R. 5 m, 48% g, - hD r, - c, - h. Pres. D. L. Huff, Treas. A. C. Calkins, Sec. E. R. Bilss, [Not in operation.] South Chicago City Ry, Co, 4 c, 8 h. Pres. An-drew Rehm, Sec. & Supt. A. Krimbell, Treas H. South PUERELO, COL.—Pueblo St. R.R. Co.

drew Rehm, Sec. & Supt. A. Krimitaii, Treas II. Shearrer. SOUTH PUEBLO, COL.—Pueblo St. R.R. Co. SPRINGFIELD, ILL.—Citizens' St. R. R. Co. 9% m, 3 6 g, 20-36 lb r, 29 c, 100 h. Pres. J. 1l. schrick, Treas, Frank Reisch, Sec. Chas, F. Harman. Springfield City Ry. Co. SPRINGFIELD, MASS.—Springfield St. Ry. Co. 4.8% g, 33-40 lb r, 30 c, 120 h. Pres. John Olmstead, Auditor L. E. Ladd, Clerk Gldeon Wells, Treas. A. E, Smith, Supt. F. E. King. SPRINGFIELD, MO.—Citizens' Ry Co. of Spring field and No Springfield, 5½ m, 5-5½ and 4.10 g, 30, 33 and 40 lh r, 16 c, 70 h & mu. Pres. R C Kerens, V Pres B F Hobart, Sec and Treas A M Longwell, Supt F B Smith, Ex-Com L II Murray, H F Den-ton, C B McAtee.

ton. C B McAtee. **SPRINGFIELD**, O.—Citizens' St. R.R. Co. 10 m, 4 g, 29 c. 135 h. Pres. D. W. Stroud, V. Pres. A. S. Bushnell, Treas. Rose Mitchell, Sec. F. S. Penfield, SUPL W. H. Hanford. **STATEN ISLAND, N. Y.**—Staten Island Shore Ry. **ST. CATHARINE'S, ONT.**—St. Catharine's, Mer-rilton & Thoroid St. Ry. Co. 5½ m, 4-8½ g, 30 lb r, 8 c, 32 h. Pres. E. A. Smyth, Sec. S. R. Smyth, Supt. E. A. Smyth.

rllton & Thorold St. Ry. Co. 5½ m, 4-8½ g, 30 10 r, s c, 32 h. Pres. E. A. Smyth, Sec. S. R. Smyth, Supt. E. A. Smyth. **ST. JOHN. N. B.**—St. John St. Ry. Co. 7 m, 4-8½ g, 45-60 br, 15 c, 65 h. Pres. John R. Bothwell, Sec. & Treas. John J. Pyle. Office Room 39 Drexel Building, New York, and St. John, N. B. **ST. JOSEPH**, MO.—Citizens' St. R.R. Co. 3 m, 4-8½ g, 28 lb r 14 c, 52 mu. Pres. Richard E. Turner, Sec. & Treas.' Arthur Kirkpatrick, supt. John F. Merriam.

Merriam.

Frederick Ave. Ry. Co. 1½ m, 3 g, 16 lb r, 6 c, 16 h. Pres. Thos E. Tootle, V. Pres. Winslow Judson, Sec. W.D.B. Motter, Treas, Thos W. Evins, Sup. S. Rowen.

W. D.B. Mother, Treas, Thios W. Brans, Sup, S. Rowen, St. Joseph Lake St. R. Co.
 Union RY, Co. - m., - g. 2b, 30 and 22 lb , 72 c, 110
 J. Tres Stymour Jeakins, Sec & Treas S Stein-acker, Supt Harvey E Lewis. Office, cor Highland
 S. T. LOUIS, MO. - Baden & St. Louis R.R. Co.
 B. W. S. J. S. Chapman, Y. W. Fres, Class.
 W. Pers, J. G. Chapman, Y. Pres, Class.
 W. Sasa Avenue & Fuir Grounds Ry, Co. 84 m, 410 g, Sub R. 30, 255h. Press, V. K. Allen, Y. Pres, Geo, W.
 Allen, Sec, Arreas, J. W. Wallace, Supt. G. G. Gibson, Cashier O. H. Williams.
 Turier, See H. B. Davis.
 J. Bern, S. C. K. Pickeson, Gen. Man. John Scullin, Sec. C. J. Dickson.
 Forest Park, Laciede & Fourth St. Ry, Co. Pres. Jefferson Ave. Ry. Co. Pres. John M. Gellesson, Gen. Man. John Scullin, Sec. C. K. Dickson.
 Gen Han, John Scullin, Sec. C. K. Dickson.
 Gen Han, John Scullin, Sec. C. Lewellyn.
 Northerr Central.
 Missouri I.K. Koo. Iman, Sec. John M. Gellesson, Gen. Man. John Scullin, Sec. C. John Manon, Y. Ku, Co. 74 5 n, 410 g, 3552 Br , 40 c, 250 V.
 Tres, E. R. Coleman, Sec. J. S. Minary, Man. W.
 St. Louis Cable & Western RY. Co, Press. M. A. Jowanis, K. P. Collwarn, Sec. A. Staman, Supt. Jast. St. Brass. C. M. Seaman, Supt. Fairtick Sine.
 St. Louis Cable & Western RY. Co, Press. M. A. Jowanis, V. Press. F. Columan, Sec. J. S. Minary, Man. W.
 St. Jouis Cable & Western RY. Co, Press. M. A. Jowanis, Y. Press. C. M. Seaman, Supt. Fairtick Sine.
 Too Depot. R.R. Co. -m., -g. -ib T, -e, -h.
 Pres, C. Sonderlan, Sec. J. S. Minary, Man. W.
 St. Jouis Cable & Western RY. Co, Press. M. A. Jowanis, Supt. Minney, Minary, Man. W.<

NOVEMBER, 1886

Kent. WEST HAVEN, CONN.—New Haven & West Haven R.R. Co. 6 m, 4-8½ g, 54 lbr, 24 c, 115 h. Pres. Geo. R. Kelsey, Supt. W. W. Ward, Treas. D. Trow bridge, sec. Sam'l L. Smith. WESTPORT, CONN.—Westport & Saugatuck Horse R. R. Co. 1½ m, 4-8½ g, 40 lb r. 3 c, 5 h. Pres. A. S. Hurlbutt, Sec and Treas B L Woodwerth, Supt E S Downe

Supt E S Downe WHEELING, W. VA.—Citizens Ry. Co. 10 m, 5-2% g, 451b 1, 20 c, 55 h. Pres. Dr. C. A. Wingetter. Sec. Van B. Hall, Supt. Michael 1 o.tus. Wheeling & Elm Giver R. 7 m, 4-8% g, 30 lb r, 12 c, 4 Baldwin Moters. Pres. J. D. DuBols, Sec. E. J. Rutter, Supt. E. Hirsch. WICHITA, KAN.—Wichita City Ry. Co. 7% m, 11 c, 60 mu, 4 h. Pres. B. II. Campbell, V. Pres., Treas. & Gen. Man. E. R. Powell, Sec. G. W. Lara-mer, Atty. E. C. Ruggles. WILKESBARRE, PA.—Wikkesbarre & Kingston pass. R.

Pass. R.R.

Jass, R.R. 215 mar. A. 215 mar. A. 215 mar. A. 216 mar. A. 216

WILDIINGTON, DEL.-Front & Union St. Passenger Ry. Co. 1% m, 5-2 g, - 1b r, 7 c, 20 h. Pres. Geo. W. Bush, Supt. Sam'l A Price, Treas. E. T. enger ky. Co. 14 m, 5-2 g, -10 r, 7 c, 20 h. Pres.
Geo. W. Bush, Supt. Sam'l A Price, Treas. E. T. Taylor.
Wilmington City Ry. Co. 6 m, 5-24 g, 45 ib r, 19 c, 80 h. Pres. W. Canby, Sec. & Treas. John F. Milier, supt. Wm. H. Burnett.
WINDSOR, CAN.-Sandwich & Windsor Passengar B E Co.

WINDSWITCH ger R.R. Co. Windsor & Walkerville Electric Ry. Co. WINFIELD, KAN.-Dulon St Ry Co 2½m 4 g, 281b r, 2c, 8mu Pres — Shuler, V Pres H E Silliman, Treas John D Pryor, Sec John A Eaton Capital, \$25,000

apital, \$25,000 WINNIPEG, MANITOBA, CAN.—The Winni-eg St. Ry. Co. 5 m, 4-8½ g, 351b r, 13 c, 75 h. Pres. Duncan MacArthur, Sec. & Mangr. Albert W. Austin,

beg St. Ry. Co. J. M. 4-5% g, 55 101, 15 c, 75 h. Pres.
buncan MacArthur, Sec. & Mangr. Albert W. Austin, supt. Geo. A. Young.
WINONA, MINN.-Whona City Ry. Co. 4 m, 3-6 c, 27 lb r, 10 c, 39 h. Pres. John A. Mathews, V. Pres.
B. H. Langley, Sec. & Treas. C. H. Porter.
WOBURN. MASS.-No. Woburn St. Ry. Co. 2% m, 48 kg, 40 lb r, 5 c, 4 h. Pres. & Treas. J, R. Carter. Supt. Dexter Carter.
WORCESTER, MASS.-Worcester St. Ry. Co. 6% m, 4-8% g, 43-45 lb r, 28 c, 131 h. Pres. Geo. H. Seeley. S upt. and Treas Henry S Searls Citizens' St. Ry. Co. Pres. Chas. B. Pratt, Sec. & Treas. F. W. Brigham.
WYMORE, NEB.-Wymore and Blue Springs Ry Co. 2% m, 3-6 g, 3 c, 8 h. Pres. E. P. Reynolds, Rock Island, III., V. Pres. I. H. Reynolds, Gen. Man. Benreynolds, Jr.
YOUNGSTOWN, O.-Youngstown St. R.R. Co. ZANESVILLE, O.-Zanesville & McIntire St. Ry. Co. 3 m, 3-6 g, 38 lb r, 12 c, 54 m. Pres. J. Bergen, Sec. W. C. Townsend, Treas. T. B. Townsend.

THE STREET RAILWAY JOURNAL

NEW ROADS.

BIRMINGHAM. ALA.—East Lake Land Co. 7 m. 4.8% g, 45 lb r, 4-8 c, motor power. Pres. Robt. Jennison, V.-Pres. A. A. Clisby, Treas. T. B. Lyons, Sec. S. M. Hanby. Capital \$200,000. Work in pro-gress, to be completed in January, 1887. BROOKLYN, N. Y .- Union Ry. Co. of the City of Brooklyn.

of Brooklyn. **COVINGTON, GA.**—W. C. Clark & Co. Incorpor-ators 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. Work will be commenced by Nov. 1 or delayed until spring. **CHICAGO, II.1.**—The Crosstown Pass. Ry. Co. of Chicago, 30 m, 48 1-2 g, 45 lb r, 75 c, 500 to 800 h. Pres. John J. Currar, Treas. Geo. P. Bunker, Sec. James A. Taylor. Capital stock, \$1,000,000. Gen. of-flee, room 18, No. 164 Washington st. Time of com-mencement of work undecided. **DANRIEV.** CONN.—Daphyry St. Ry. Co. 4m

DANBURY, CONN.-Danbury St. Ry. Co. 4m, between Danbury and Bethlehem. Work in pro-

KANSAS CITY, MO.—Grand Avenue Ry. Co (For officers see Directory). Now constructing: a m, double track cable road.

LOCKPORT, N. Y.-Lockport, St. Ry. Co-

in, double track cable road.
LOCKPORT, N. V.-Lockport, St. Ry. Co-(Work in progress)
MERIDEN, CONN.-Meriden St. R. R. 4% m, 48% g, 35 lb r, 12 c, 56 h. John L. Billard, Man.
Work under contract.
NEW BRITAIN, CONN.-New Britain Transway Co., chartered by C. S. Lander. 3½ m, Capitai \$25,000.
NEW LONDON, CONN.-New London Horse Ry. Co. John Tebbetts, Incoporator.
NEWTON, MASS.-Newton St. Ry. Co. 5 m, 4 8% g, 5 c. 5 electric motors, 35 lb r. Pres. Horace B. Patker, V. Pres. Lnclus G. Pratt, Treas. Herbert G. Pratt. Capital stock, \$30,000.
Prest. Logital stock, \$30,000.
Pratt. Capital stock, \$30,000.
Prest. Boston, Mass. Work will be commenced and the road opened in the spring of 1887.
NEW YORK, N.Y.-St. Nicholas and Crosstown R. R. Co. (Incorporated and franchises partly granted.)
OMAILA, NEB.-Cable Tramway Co. of Omaha, 4 m, 4-8 1-2 g, 58 lb r, 10 c, each with grip; operated by cable. Pres. S. Johnson, V. Pres, L. B. Wil-Hams, sec. and Treas. C. E. Yost, Chief Engineer Robert Gilham. Capital stock, \$30,000.
General of a stock, \$20,000.
General of a stock, \$20,000.
Guerat of Labat.
PLYMOUTHI, MASS.-Plymouth & Kingston St. R. R. Co. 2½ m, 48½ g, rundecleve, 6 to 10 c, 10 to 12 h. Capital stock, \$20,000.
Joseph D. Thurber and others incorporators. Work to be begun in spring of 1887.
PITTSBURG, PA.-Wilkinsburg and East Lib-ertv RV. Co. 3 m. 4.81-2 g, Johnson Trails, Pres. Ed.

to 12 h. Capital stock, \$25,000. Joseph D. Thurber and others incorporators. Work to be begun in spring of 1887.
PITTSBURG, PA.-Wilkinsburg and East Liberty Ry. Co. 3 m, 481-2 g, Johnson Trails, Press. 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. SCRANTON, PA.-Scranton Suburban Ry. Co. In process of construction, will use electric motor on Van Depoele system. To be in operation about Nov. 45, 1886. 21-8 m, 481-2 g, 52 and 40 lb r, number of cars undecided. Press. Edward B. Sturges, Treas. T. F. Torrey, Sec. Geo, Sanderson.
SAN FRANCISCO, CAL.-The Powell & Jackson St. R. R. Co. 11 m, 3-6 g. Press. W. J. Adams, V. Pres. H. H. Lynch, Treas. W. H. Martin, Sec. G. H. Waggoner. Capital stock, \$2,000,000. Work in progress. Cable traction.
SYRACUSE, N. Y.-Butternut St. Ry. Co. 2m. To be built in the spring of 1887.
SAMFORD, CONN.-J. B. Curtis and W. W'Jillisbee, Incorporators.
UTICA, N. Y.-Utica Belt Line St. Ry. Co. 8 m, 15 c. Pres. Dr. C Tefft, V. Pres. W. A. Jones, Sec. and Gen. Man. Isaac J. Griffith, Treas. Chas. W. Mather. To be opened about Dec. 1. Work now in progress.

WATERBURY, CONN.-Waterbury St. R. R. WATERBURY, CONN.-Waterbury St. R. R. 5% m, 4-8% g, 40 lb r, 13 c, 60 h. Pres. D. S. Plume, Treas. E. F. Turner, Sec.-Baldwin. Work in pro-

gress, WINSTED, CONN.—Geo. S. Rowe, Incorporator WICHITA, KAN.—Riverside and Suburban Ry. Co. Pres. J. O. Davidson, Sec. N. G. Lee. Capital stock \$100,000. Work now in progress, road to be opened about January, 1887.

Horse-Cars in New York and Brooklyn.

In the matter of neatness, cleanliness and an attractive exterior, the car equipment of the horse railroads in the cities of New York and Brooklyn is not creditable to the companies operating the lines, nor to a great metropolitan community which prides itself on the extent of its local facilities for passenger transportation. It is true, that upon some of the lines the cars are kept in a passably decent condition, but upon others there is a uniform shabbiness in their appearance which calls for a more frequent use of the scrubbing broom and paint brush. The cars of the New York Third Avenue line have long been au eyesore on account of their soiled and unsavory appearance, and yet they are only a little worse in this respect than those of some other lines that might be named that have been less seriously crippled by strikes and boycotts. Even in the "City of Churches," where cleanliness and godliness ought to go hand in hand, the seedy looking cars

that are run on some of the lines would present a sorry contrast if they were ranged alongside of those on the street lines of some other cities—those of Boston, for example. This neglect, which is fast be-coming chronic, cannot be justified on the plea of low fares or light traffic. The fares with scarcely an exception are as high as they are elsewhere, the traffic is heavy and rapidly increasing, and regular ten per cent, dividends are the rule. Why, then, should not the cars be kept furbished up so as to be as good as the best? The an-swer is easy. The patronage is a continuous, dead sure thing, and why should divi-dends and surplus balances be whittled down the tithe of a hair, even, for such luxurious trifles as sweet smelling cars and bright and showy coats of paint?

It may also be suggested whether the horse-car management in these populous cities could not be improved by the adoption of a ticket system that would facilitate the collection of fares to the extent that passengers might buy tickets. Even if no discount were allowed, the time saved in handing a ticket to the overworked and over-spotted conductor, instead of waiting for him to make change for a dime or a dollar, would be an inducement to buy tickets. Such a system is certainly practicable, and if put in operation great numbers of those who ride regularly every day on particular lines would avail themselves of it as a matter of convenience; and where the fares are

uniform and the traffic heavy, as they are in New York and Brooklyn, the tickets might be exchangeable between the several lines and balances be settled at a clearing office.

Another source of discomfort in our street cars-the open or summer cais more particularly which are run almost exclusively on the principal Brooklyn lites during the warm season—is the incommodious seating arrangement. Each car has ten cross seats made of the hardest kind of hardwo d. Five persons of average size can be crowded in to each seat, where they sit back to back with those in the next seat, and knee to knee with those facing them in front. The seats are narrow from back to edge, and slightly concave to provent slipping off. One seatback answers for each pair of seats, and this back, in order to economize space longitudinally, is of necessity straight up and down. When the car is full, each occupant is in a sort of pillory and half of them must, of course, ride backward. Would it be too much of an inroad on the revenues of the prosperous companies if this semi-barbarous way of carrying people were modified a little by making the seats reversible or by turning the car round at the end of each trip, so everybody could ride facing forward instead of staring at one another at such a disagreeably short range while in transit? The introduction, also, of a little rattan into the seats to soften their adamantine rigidity would be very much appreciated .- National Car Builder.

STREET RAILWAY STOCK QUOTATIONS.

Corrected by H. L. GRANT, 145 Broadway, N. Y. City.

New York Stocks.	Par.	Amount.	Period.	Rate.	Date.		Bid.	Asked.
Bleecker St. & Fulton Ferry	100	\$900,000	J. & J.		January,	1886		30
1st mort	1,000	700,00	J. & J.	74	July,	1900	116	125
Broadway & Seventh avenue	100	2,100,000	QJ.	2	January,	1886	210	225
1st mort	1,000	1,500,000	J. & D.	5	June,	1904	104	107
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	100
Additional	1,000	1,000,000	J. & J.	5	July,	1905		100
Brooklyn City-Stock	10	2,000,000	QF.	2	August,	1886	190	195
1st mort	1,000	800,000	J. & J.	5	January.	1886	106	110
Brooklyn Crosstown	100	200,000	A. & O.	4	April,	1886	165	175
1st mort bonds	1,000	400,000	J. & J.	ź.	January,	1888	105	109
Central Park North and East river.	100	1,800,000	QJ.	2	January,	1886	115	118
Con, mort. bonds	1,000	1,200,000	J. & D.	7	December.	1902	120	123
Christopher & Tenth	100	650,000	F. & A.		February,	1886	132	135
Bonds	1,000	250,000	A. & O.	72	October.	1898	110	116
Central Crosstown	100	600,000	QF.	13/	January,	1886	160	165
1st mort	1.000	250,000	M. & N.	6	November,	1922	114	115
Dry Dock, East 'way & attery	100	1,200,000	QF.	2	February,	1886	160	160
1st mort consol.	500	1,900,000	J. & D.	7	June,	1893	114	116%
Scrip	100	1,200,000	F. & A.	6	August,	1914	105	107
42d & Grand St. Ferry	100	748,000	QF.	3	August,	1886	225	235
1st mort	1.000	236,000	A. & O.	7	April,	1893	111	115
42d St., Manhattan & St. Nich. av	100	2,500,000				1000	35	37
1st mort	1,000	1,200,000	M & S.	5		1910	109	110
2d mort. In. bonds	1,000	1,200,000	J. & J.	6		1915	58	60
Elghth Avenue-Stock	100	1.600,000	Q.—J.	2	October.	1886	205	210
Scrip	100	1,000,000	F. & A.		August,	1914	105	110
Houston, West St. & Pavonia Ferry	100	1,000,000	Q - F.		August,	1885	120	130
1st mort	500	250,000	J. & J.		July.	1894	112	113
Second Aveuue-stock	100	500,000	J. & J.		July.	1886	185	190
1st mort		1,862,000	M. & N.		November.	1909	106	107
Consol	1,000	550,000	M. & N.		May.	1888	103	101
Sixth Avenue	100	1,050,000	M. & S.		August,	1885	200	210
1st mort	1.000	500,000	J. & J.		July.	1890	112	116
Third Avenue-Stock.	100	2,000,000	QF.		February,	1886	260	270
1st mort	1.000	2,000,000	J. & J.		January,	1890	110	112
23d St.—Stock	100	600,000	M. & N.		May,	1885	265	275
1st mort	1,000	250,000	M. & N.		May,	1893	110	113
Ninth Avenue	100	800,000		3	September,	1885	110	120
Chleago St. Baliway.	100						299	325

Phila. Street Railway Stocks.

Corrected by ROBERT GLENDINNING & Co., 303 Chestnut street, Philadelphia, Pa.

	Par.	Period.	Amount.	Rate.	Date.	Bid.	Asked.
Citizens	50	QJ.	\$500,000				
Continental	50	J. & J.	1,000,000				130
Frankford £ Southwark	50	QJ.	750,000				320
Germantown	50	0J.	1,500,000			97	99
Green & Coates	50	QJ.	500,000			51	122
Hestonville	50		2,050,000	1			34
Lombard & South	50		500,000			83%	04
People's	50		1,500,000			40%	411
Pniiadelphia Clty	50	J. & J.	1,000,000			140	4171
Philadelphia & Gray's Ferry	50	J. & J.	617,500			83%	85
	50		5,000,000			86	
Philadelphia Traction	50	J. & Q.	750,000			225	871/2
Ridge Avenue	50					230	00*
Second & Third		QJ.	1,060,200				205
Seventeenth & Nineteenth	50	J. & J.	500,000				4.50
Thirteenth & Flfteenth	50	J. & J.	1,000,000			150	152
Union	50	J. & J.	1,250,000			180	
West Philadelphia	50	J. & J.	750,000	1 1		1	200

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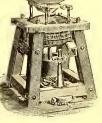
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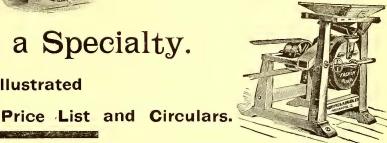
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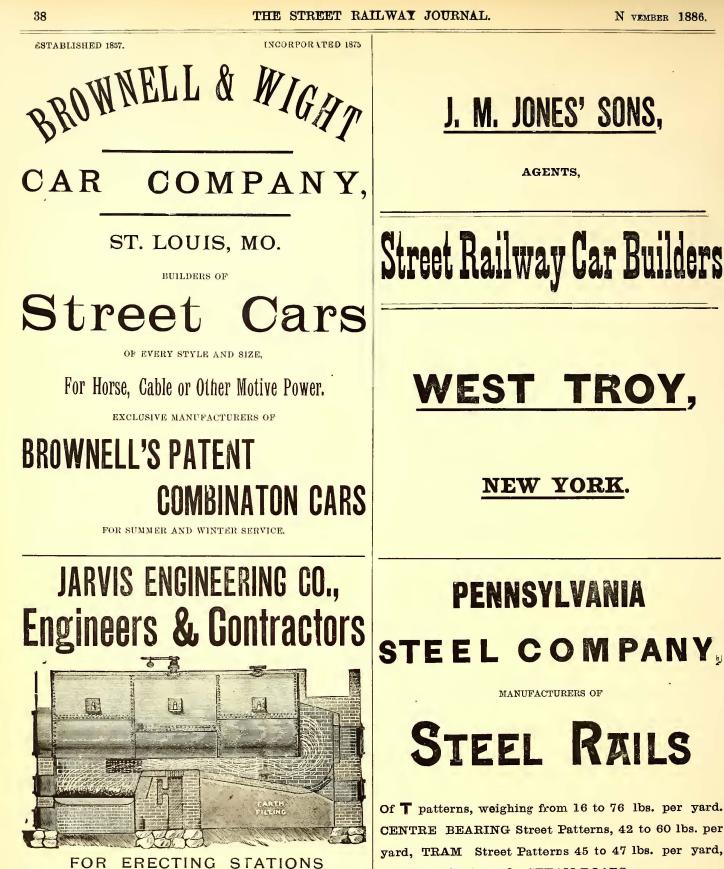
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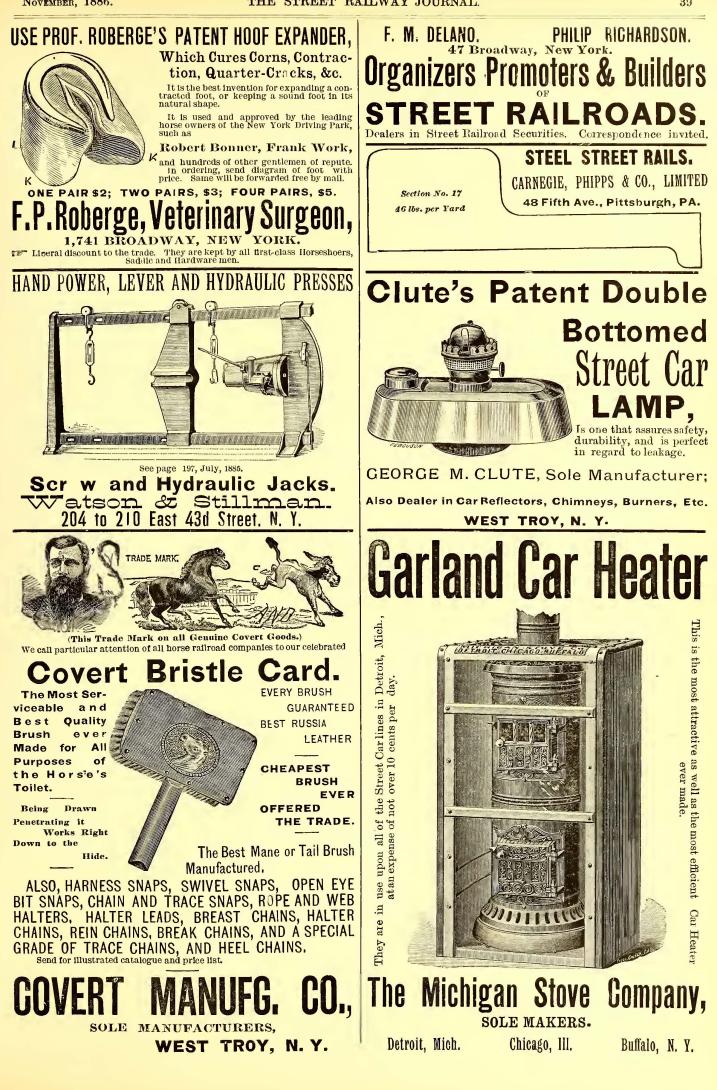
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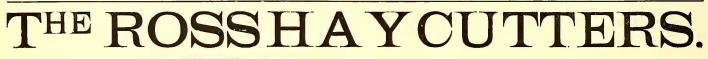
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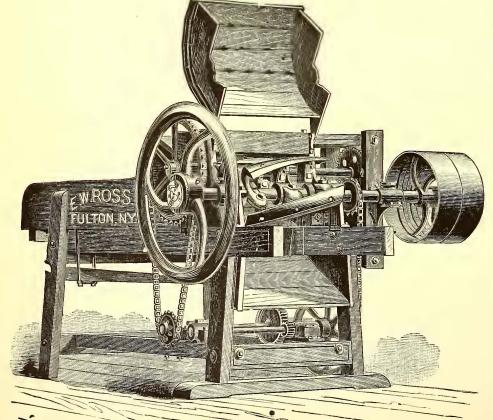
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Center Lamps, all sizes. Globe Brass End Lamps, Tin Box Lamps,

Cable Car Head Lamps, Office Lamps.

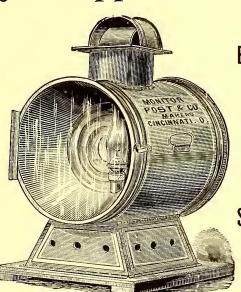
TRIMMINGS. CAR

ALL STYLES.

Street Car Gongs,

Journal Bearings,

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TRACK MATERIALS.

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SPECIAL TRIMMING 3 MADE TO ANY ORDER TO ANY DESIGN. ESTIMATES FURNISHED. SEND FOR ILLUSTRATED CATALOGUE AND PRICES.

No. 1 Monitor Head Lamp, 16 inch Reflector.

For Lame and Strained Horses,

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speedy and reliable remedy for Curb, Splint, Sweeney, Poll Evil, Grease Heel, all kinds of simple lameness, strains, etc. Capped Hock, Strained Tendons, Founder, Wind Puffs, Mange, Skin Diseases, Old Sores, Dropsical Affections, Inflammations, Throat Difficulties, Swellings or Ulcerations, Lameness from Spavin, Ringbone and other bony tumors, and many other diseases or ailments of horses or mules. Will quickly remove all bunches or blemishes, without leaving any scar or other injurious effects. It can also be

STREET CAR BARN SUPERINTENDENTS will find this to be a safe, reduced with sweet or raw linseed oil, and used as a most valuable liniment for

IT SURPASSES ALL LINIMENTS, BLISTERING OR FIRING, NEVER LEAVES ANY SCAR OR BLEMISH, Very rapid in its action, giving immediate beneficial results, and is as convenient to use as a liniment.

Price \$1.50 per bottle, sent by express, charges paid. Special prices for orders of half dozen or over. TRY IT.

Lawrence, Williams & Co,

Sole Importers, CLEVELAND, OHIO, U.S.A.

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NOVEMBER, 1886.

THE WAY FOUNDRY COMPANY.

WAY, RHODES & BLANKLEY,

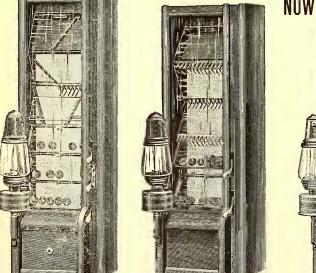
"STREET RAILWAY SUPPLIES A SPECIALTY."

Contractors for Construction of Street Railways.

Manufacturers of

Frogs, Turnouts. All sizes of Curves, Switches, Joint Plates. Knees. Crossings. Steel grooved and Tram Rails at special rates. All kinds of Brake Shoes. Pedestals & Boxes, Turntables. AND ALL MATERIALS USED IN THE CONSTRUCTION OF STREET RAILWAYS. Philadelphia, Pa. Twenty-third & Wood Sts.. .

TOM. L. JOHNSON'S IMPROVED FARE BOX.



NOW IN GENERAL USE IN CITIES THROUGHOUT THE U. S.

Ornamental to any Car.

REDUCTION IN PRICE WHERE TWO BOXES ARE PLACED IN ONE CAR.

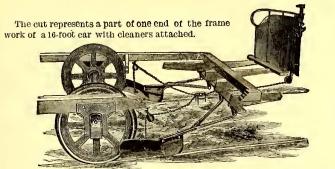
Roads Equipped with Boxes on Trial, and if not Satisfactory, Returned Without Auy Expense to the Company trying them.

Patented Oct. 14, 1873.

BOX NO. 1. BOX NO. 2 CHARIOT PATTERN. One of the principal merits of these Fare Boxes over all others, consists in the fact that the fares are not turned out of sight at once by the drivers, leaving nothing but the bare word and memory of the parties as evidence of the payment, thereby making it easy for deception to be practised, even though an officer is on the other, and is endeavoring to see that the driver is faithfully performing his duties. They are so constructed that the fares are lept in sight from one end of the road to the other, and at any point on the line an officer of the company, or indeed any other person, can tally passengers with the fares. The drops can easily carry from 75 to 80 fares, and can be counted without mistake, and counterfeit money can be easily detected. These boxes are very simple in construction, being cleared, when required, in the minutes, whereas any other box takes a much inorger time. The glass fronts and drops render them so transparent that a person stitting in the further end of car can readily count the fares and make the tally, without making himself conspicuous in the matter, if desirable. They are light from an outside lantern, (which is only on the car at night, and should be taken off during the day.) giving an excellent light, for the fares can be seen all most as plain as by day. When the box is put in a car it can not be taken out or tampered with, unless the keys are obtained from the office, and can not be robbed without violence. Special attention given to correspondence on the subject of street railway construction, equipment and operation. Address all correspondence to

A. A. ANDERSON, with TOM. L. JOHNSON, Indianapolis, Ind.

DAY'S IMPROVED STREET RAILWAY TRACK CLEANERS.



These Track Cleaners need no extended statement of their great superiority over allothers 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, lee, 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 their stormy weather. Since their introduction new and valuable improvements have been made in their construction, mode of at-tachment, and conventence of handling. They are finished in a thorough, work-manilke manner of the be-t material obtainable, the design being to manufac-ture the most efficient article in preference to other considerations. Price in-cludes right of use and is less than heretofore. Reference is made to a few of the roads using these Cleaners.

the reader is made to a rew of the roads using these cleaners.		
Detroit City Ry., Detroit, Mich	154	Pair
Chicago City Ry, Chicago, Ili.		66
Rochester City & Brighton R. R. Rochester, N. Y.	100	6.4
Albany Ky., Albany, N. Y.	75	4 .
Lvnn & Boston R. R., Boston, Mass	68	
Boston Highland Ry., Boston, Mass	46	66
Grand Rapids Street Ry	48	**
Naumkeig Street Rv., Salem, Mass	69	**
Bridgeport Horse Ry., Bridgeport, Conn		46
Cream City Ry., Milwaukee, Wis	40	66
Milwaukee City Ry., Milwaukee, Wis	50	46
Buffalo Street Ry., Buffalo, N. Y.		66

It is adapted to single or double track roads, adjustable where necessary: built in the most thorough and substantial manner of the best materelal. The Plow is not intended to supply the place of the small Track Cleanrs, but be auxiliary to them. For execution in deep snow, ease, and convenience inhandling, it sur-passes 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. be-troit, Mich. (Two plows) Rochester City & Brighton R.R. Rochester, N. Y. (Two plows.) Cream City Rv., Milwaukee, wis. West Side Street Ry. Mil-waukee, Wis. Chicago City Ry., Chicago, Ill. (Three plows.) Grand Rapids Street Ry., Grand Rapids, Mich. Highland St. Ry., Johnstown, Pa. Min-neapolis St. Ry, Minneapolis, Minn. (Two plows.) St. Paulst, Ry., St. Minn. (Two plows.) Kalamazo oSt. 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,

SLAWSON'S PATENT FARE BOX

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 pur-pose. They are well made and not liable to get out of order, cannot possibly be picked, and even if all the glass is proken no fare can be extracted from the drawer. Is broken no fare can be extracted from the drawer. The late J. B. Slawson originated the "FARE Box SYS-

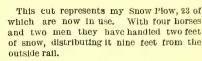


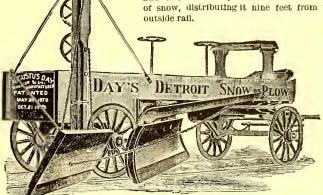
TEM," and all of his Boxes, Change Gates and Drivers' Change Box are protected by several patents, and par-ties using them are not liable to claims for iniringe-ments, as may be the case with some boxes which are now being offered for sale. These Boxes, etc., are now in use not only in the United States and Canada, but in Mexico, South Ameri-ca, Europe, Asia, Africa and Australia—in fact, nearly all piaces where street cars are used.

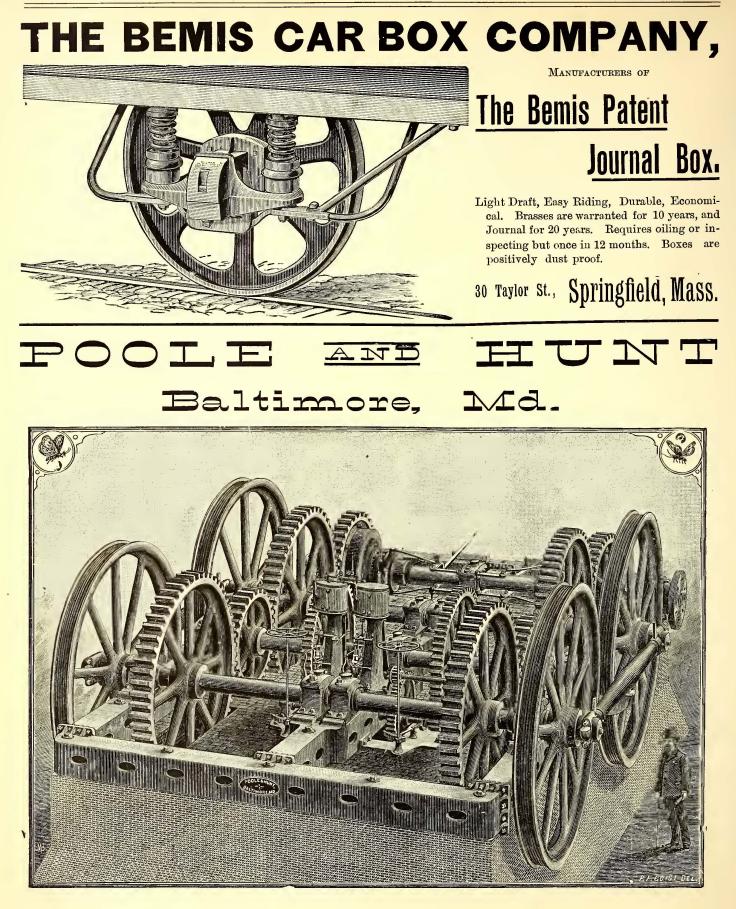
Detroit, Michigan, U. S. A.



or the JOHN STEPHENSON COMPANY, Limited, 47 EAST TWENTY-EVENTH STREET. New York.

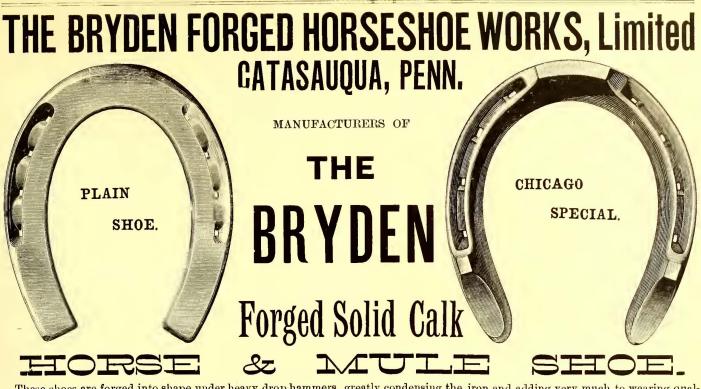






Manufacturers of Cable Railway Plant. Machine Moulded Gearing for Mills and Factories. CORRESPONDENCE SOLICITED. November, 1886.

THE STREET RAILWAY JOURNAL



These shoes are forged into shape under heavy drop hammers, greatly condensing the iron and adding very much to wearing qualities, making it nearly equal to steel in durability.

SOLID

CALK

HORSE

SHOE.

The distinctive feature of our system of manufacture is, that it produces a *finished* shoe, calked, or plain, ready for attaching to the hoof.

The crease is made low and the nail holes are punched well in and beveled to permit the nailhead to be well driven in, reducing the strain on the nails and insuring a firmly fastened shoe.

The foot bearing of the shoe is level, thus materially aiding in the preservation of the hoof.

It is not ne essary 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. 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.,

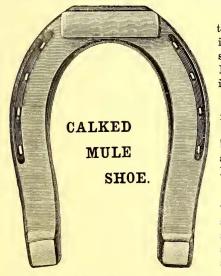
Among the street railways using our shoes are, the Third Avenue R. R. Co., Eighth Avenue R. R. Co., Broadway & Seventh Avenue R. R. Co., Broadway & eity; Bushwick R. R. Co., Brooklyn City and Newtown R. R. Co. of New York eity; Bushwick R. R. Co., Brooklyn; Philadelphia Traction Co., Citizen's Passenger 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.

The shoes have a good substantial clip

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We present illustrations of some of the many designs of shoes manufactured by us.

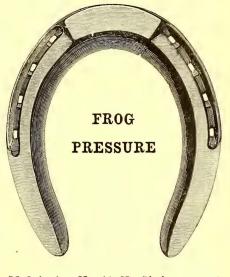
OUR CALKED SHOE. A good, strong, reliable shoe to have on hand. The calks will not come off. Always ready to nail on. A handy shoe for the Winter, easily sharpened, and, as the calks will not break, will give as much service as steel. Made in sizes No. 1 to No. 6. Front and hind of steel or iron.



OUR FROG PRESSURE SHOE. The advocates of the frog pressure system of horseshoeing have in this shoe the verything they want. The best shoe made for curing corns or contracted feet. Made in sizes No. 1 to No. 6. Front and hind, iron, or steel.

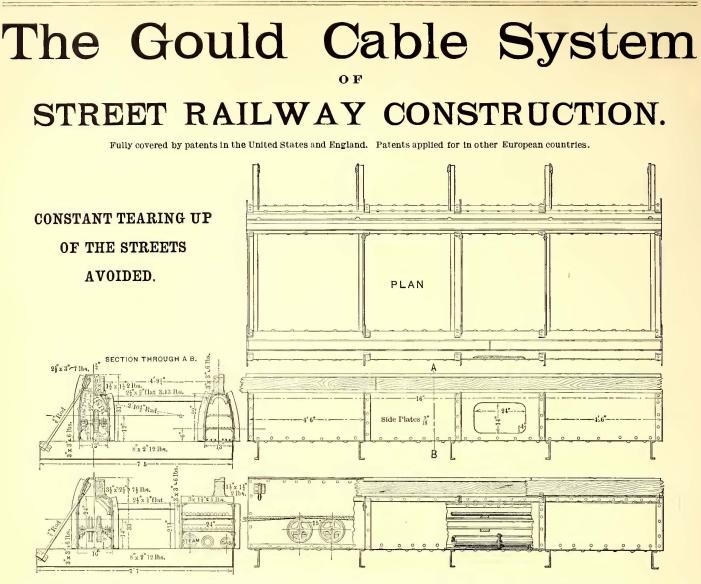
OUR PLAIN SHOE. "The best railroad shoe made," so says one of the largest consumers of orseshoes in New York city. This shoe is used by the largest street railroads in New York city and Philadelphia. Made in sizes No. 1 to 6. Front and hind.

OUR CHICAGO SPECIAL. Designed to meet the wants of many of our western customers. Extensively used in Chicago, on the principal railroads and for custom work. A light calked ahoe for shoeing trotting and driving horses. Made in sizes No. 1 to No 4 of iron or steel.



Our Calked Mule Shoe. Just the thing for street railway and coal mining work; solid calks. Made in sizes No. 1 to No. 5 in iron or steel.

J. B. WHITE, Manager Sales Department.



The conduit is placed at the side, doing away with the central conduit entirely. A conduit is supplied for natural gas, steam, electric and telephone wires, etc.

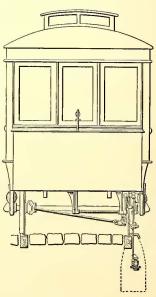
THE RAILS ARE TIED TOGETHER AT THE SURFACE.

The construction of the grip is the simplest known.

The slot which admits the grip is placed outside the rails.

The inventor will make favorable terms with parties desiring to put this system into operation.

A capital chance for the right man to organize a company.



N. B.-Parties Infringing on this Grip will be Prosecuted to the full Extent of the Law.

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MANUFACTURERS OF ALL KINDS OF

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RAILWAY



Of the Latest Improved Patterns,

ALL PARTS BEING INTERCHANGEABLE AND EASILY DUPLICATED.

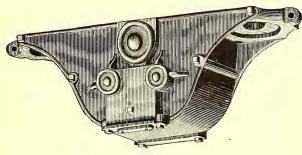
ORDERS QUICKLY AND CAREFULLY FILLED.

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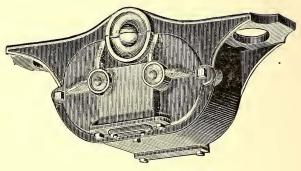
SUCCESSORS TO

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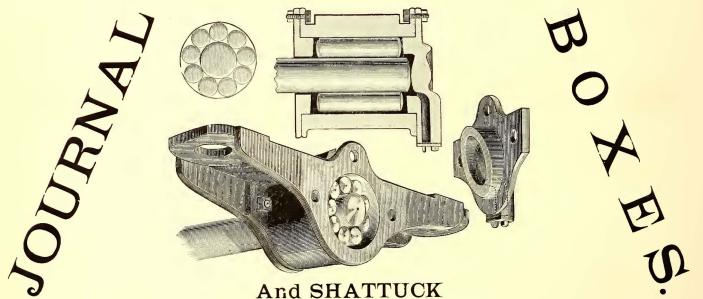
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Open Wheels of all sizes and weights, Wheels and Axles of all sizes fitted on short notice.

Chilled curve rail, Turnouts, Switches, etc., etc. Blue prints and Bills Furnished on Application.

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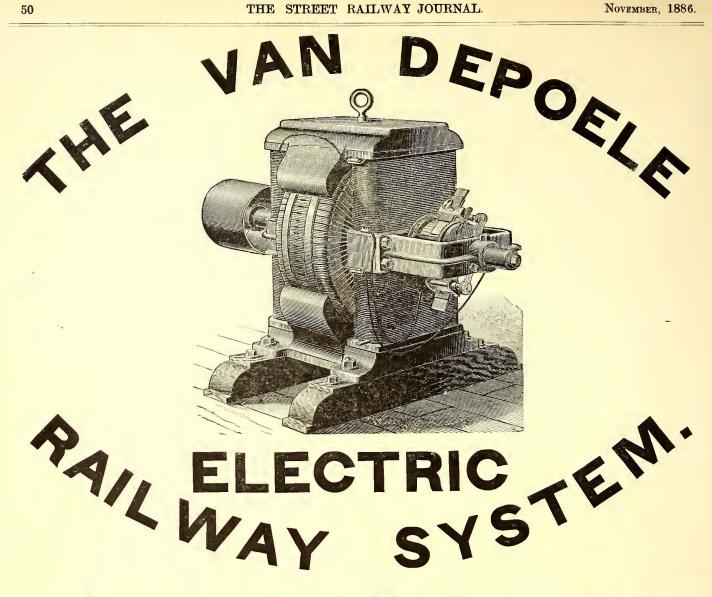
Twenty-Fifth Street and Washington Avenue,

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And All Appurtenances.

The Oldest and Largest Manufacturers of Street Railway Track Appliances in the World, Responsible parties contemp'ating Building, Renewals or Extensions will find it to their interest to correspond with us.



The Van Depoele Electric Manufacturing Company

NORTH CLINTON STREET, CHICACO, ILL., 21

Owning the Van Depoele Patents for Electric Railways and for Van Depoele Motors, are prepared to equip railways with their Electric System.

We claim to have the best and most economical Electric Motor in the World.

We are not Selling Stock, but Doing Business.

Would be pleased to furnish estimates to new companies or those desiring to extend lines or wanting more rapid transit.

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COMPANY.

This company owns over 100 Patents embracing all the Valuable Features of Fare Registers, Indicators, etc., and was awarded three Medals at the Chicago Exposition of Railway Appliances.

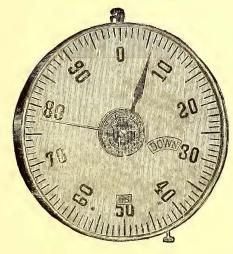
Benton Register.

The Alarm Registering Punch.

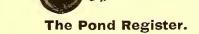
This Register, which is so generally used throughout the United States and Europe, we claim to be the most perfect check that has ever been placed before the public for the Collection and Registration of Fares on Street Railroads, especially where different rates

of Cash fare and tickets are to be collected.

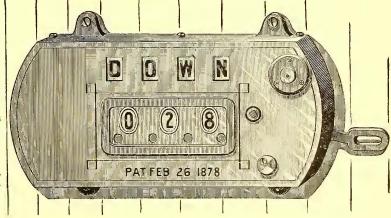
The Monitor Register.



Railway com-panies desiringto use a Stationary Register will consult their own interest by examining this Register before adopting any of the cheap devices now offered as it is the most Reliable Register of its kind. For further particulars address



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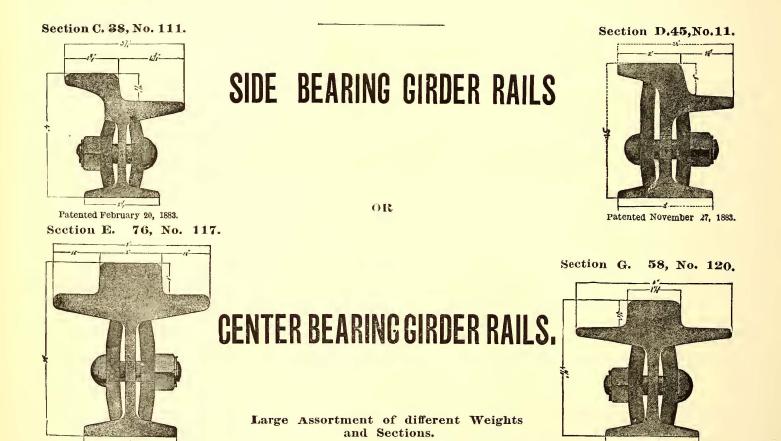
Patented January 29, 1884.

THE GIRDER SYSTEM OUR SPECIALTY.

THE

Johnson Steel Street Rail Company,

JOHNSTOWN, PA.



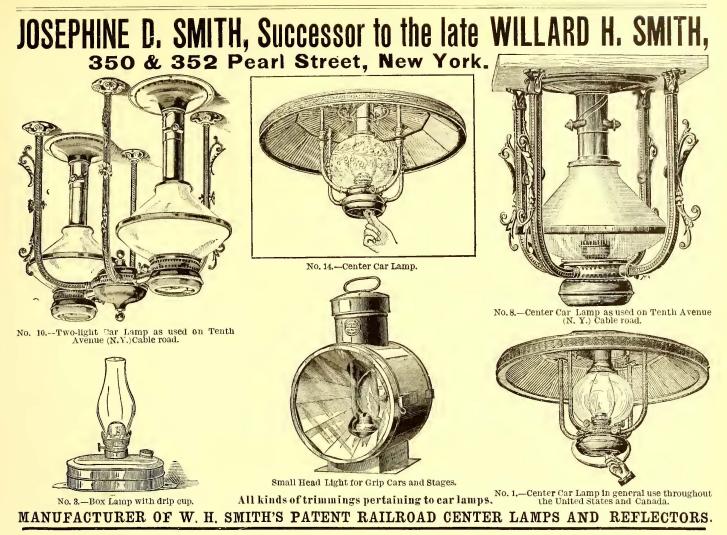
Rolled Steel Switches, Frogs, Curve Crosses, Etc.

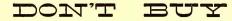
We Furnish Every Detail Wanted in Track Work.

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.

Patented January 29, 1884.





FARE BOXES FOR STREET CARS

UNTIL YOU

Investigate the Merits of the

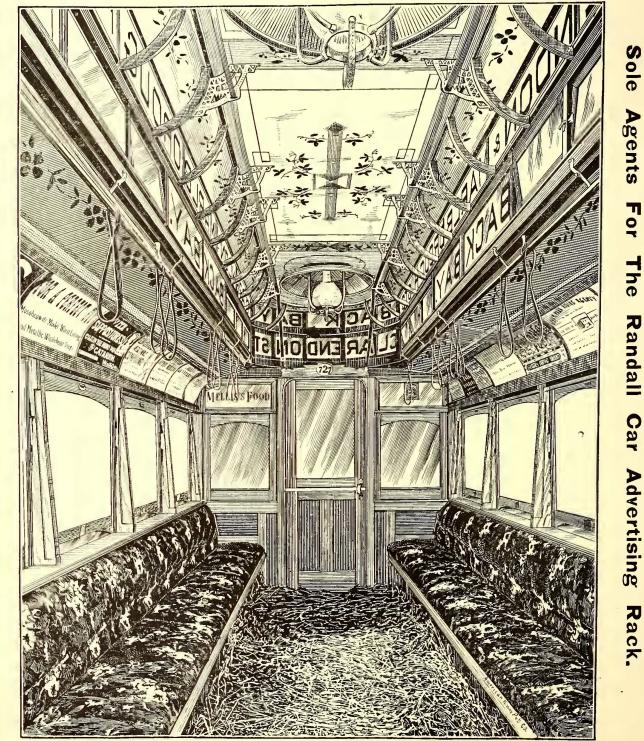
WALES BOX.

WALES MANUFACTURING CO.,

SYRACUSE, N. Y.

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The United States Steam and Street Railway Advertising Company, Limited,

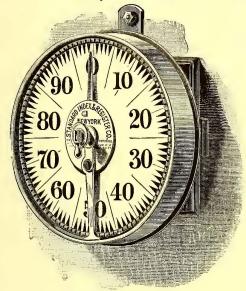


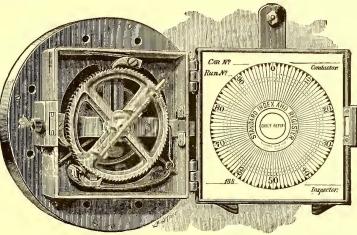
Contractors for Advertising Space in Street Railway Cars. WM. F. CARLETON, Manager, 239 Broadway, N. Y. P. O. BOX 2366.

THE STANDARD INDEX & RECISTER CO., NEW YORK. SOLE LICENSEES AND MANUFACTURERS OF THE STANDARD INDEX AND REGISTER.

ADOPTED BY THE LEADING RAILROADS IN THE UNITED STATES,

For Indelibly Recording upon paper the number of trips made, and passengers carried for each trip as well as for any number of trips for any period of time, and sounding an alarm simultaneously with each registration made.





The recent decision of the U.S. Circuit Court in our favor after three years of litigation in which the Standard was involved, justifies us in accepting orders

It will appear obvious upon inspection that the Standard Register is the only device that should be adopted by railway com-panies anxious to secure a correct report and record of trips made and fares collected, for the reason that, in addition to the visual dial and indicator, a permanent registration of each trip made, and the exact number of fares collected or passengers carried, is auto-preserved in the office of the company for reference and comparison with fares turned in by the conductor, and for filing for future purposes. purposes.

TESTIMONIALS.

METROPOLITAN RAILROAD COMPANY. PRESIDENT'S OFFICE. C. A. RICHARDS. 16 KILBY STREET,

BOSTON, March 9, 1883.

Boston, March 9, 1883. ELI BALDWIN, ESQ., Prest. Standard Index & Register Co., New York, N. Y., Dear Sir,—In answer to your inquiry of March 8 I would most respectfully state, that after a trial of some months of the two hundred odd registers that you have placed in our cars, I feel that I do no more than exact justice to your com-pany in giving you in the strongest and most unqualified manner my entire ap-proval of them. They are in every way all that you claimed, and all that you promised me they would prove to be. In short, I like them. They answer my purpose completely, and I would not exchange or part with them for any other device of the kind I have yet seen. Very respectfully yours, &c., President Metropolitan Railroad Co.

C. A. RICHARDS, President Metropolitan Railroad Co.

C. A. RICHARDS, President. CHAS. BOARDMAN, Treas. W. P. HARVEY, Secy. OFFICE OF

THE METROPOLITAN RAILROAD COMPANY, NO. 16 KILBY STREET,

Boston, March 23, 1886. E. BALDWIN, ESQ., Prest. Standard Index and Register Co.: Dear Sir.—We have now in daily use four hundred and twenty-five of your registers. They have by repeated purchases come to this number. We like the registers very much, and have no fault to find with them. With an experience of four years we feel that we are justified in recommending them. Very respectfully yours, &c., C. A. RICHARDS, President.

CENTRAL PARK, NORTH & EAST RIVER RAILROAD COMPANY.

G. Hilton Scribner, Prest. C. Densmore Wyman, Vice Prest. J. L. Valentinc, Secy. and Trcas. W. N. A. Harris, Supt. OFFICE, 10TH AVENUE, 53D AND 54TH STREETS,

New York, August 31, 1852. New York, August 31, 1852. The Standard Index Register instruments purchased from you about a year and a half ago have since that time been in constant use upon the cars of this line, and I am very free to acknowledge their superiority over any device hitherto tried by us. We believe from our experience that in their construction

and result they attain the object sought with accuracy and at the same time with a minimum liability to external tampering or dishonest manipulation. Very respectfully, C. DENSMORE WYMAN, Vice President.

CENTRAL PARK, NORTH & EAST RIVER RAILROAD COMPANY G. Hilton Scribner, Prest. C. Densmore Wyman, Vice Prest. J. L. Valentine, Treas. Howard Scribner, Secy. W. N. A. Harris, Supt.

Treas. Howard Scribner, Secy. W. N. A. Harris, Supt. TENTH AVENUE, 530 AND 54TH STREET, NEW YORK, March 24, 1886. ELI BALDWIN, ESq., Prest. Standard Index & Register CO., 138 Fullon Street, New York : My Dear Sir, --We have used about 150 of your "Standard Index Registers" for the past five years and such use has demonstrated their entire utility and adaptation for the purposes intended in their construction. We are more than satisfied with them, finding that by reason of the simplicity of their construction they require hardly any repairs, while they are accurate and reliable and at the same time by virtue of the inside paper dial are free from the danger of being tampered with. In a word we are thoroughly satisfied with the Standard and it is but just to you that I should express this opinion to you. Very sincerely yours, C. DENSMORE WYMAN, Vice President.

OFFICE OF THE BROADWAY AND SEVENTH AVENUE RAILROAD COMPANY, COR. 7TH AVE. AND 50TH STREET,

COR. 7TH AVE. AND 50TH STREET, NEW YORK, March 25, 1886. ELI BALDWIN, ESQ., Prest. Standard Index & Register Co: Dear Sit,—Concerning your inquiry as to the result of our experience in the use of the Standard Register furnished by your company and the satisfaction given I will state that after five years' test during which they have been in use on the cars of our roads, we have found them the embodiment of all that you have claimed, and I cheerfully endorse them as the best registers that we have ever seen and have found them reliable and not easily put out of order. In short we would not be without them. The paper register or tablet upon which regis-trations are recorded of the number of passengers carried and trips made is an invaluable feature, producing as it does an infallible and indelible record of fares collected, serving as a check where a division of trust is questioned. We have upwards of two hundred of your Registers on the cars of our roads at the present time. Very Truly Yours, J. W. FOSHAY, President.

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STANDARD INDEX & REGISTER COMPANY, 138 Fulton St., N. Y.

RICHARD VOSE.

13 Barclay Street, New York.

PATENTEE AND MANUFACTURER OF

Graduated Street Car Springs.

RUBBER CONE. Patented, April 15th, 1879.

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RICHARD VOSE. Dear Sir,—We have had in constant use upon this road for several years the "Vose Grad-uated Spring," and they have given very general satisfaction. So much so that we shall continue to order them. Very truly, CHAS. E. POWERS, Prest.

NO. CHICAGO CITY RY. CO., CHICAGO, ILL.

RICHARD VOSE, ESQ. Dear Sir, —This company has had in use for the past seven or eight years your Patent Graduated Car Spring, and our experience leads us to the conclusion that they are all in every respect which you represent them to be. And cer-tainly all that we desire. Yours Respectfully, V. C. TURNER, Prest.

B'DWAY & 7TH AVE. R.R. CO., NEW YORK CITY-MR. RICHARD VOSE. Dear Sir,—We have 125 cars equipped with your Graduated Springs. They have given entire satisfaction. They are undoubtedly the best in the market. Very Resply. J. W. FOSHAY, Prest.

BROOKLYN CITY R.R. CO., BROOKLYN N. Y.

RICHARD VOSE, ESQ. Dear Sir,—Yours of May 27 to Mr. Hazzard, Prest., has been referred to me for reply. And would say that we have now in use about 600 sets of your Patent Graduated Car Springs. And up to date have given perfect satisfaction. Yours truly, A. N. DICKIE, Supt.

CHICAGO CITY RY. CO., CHICAGO, ILL.

RICHARD VOSE, ESQ. Dear Sir,-Replying to your wor of a recent date I beg to say that we have been AVOR

using your Graduated Car Springs since 1881 and have increased the number, until at the present time we are using 369 sets, and the same have invariably proved satisfactory. Yours truly, C. B. HOLMES, Supt

CAMBRIDGE R.R. CO., CAMBRIDGE, MASS.

COL. RICHARD VOSE. Dear Sir, — We have used your Graduated Street Car Springs for several years and I need only say with such success that we con-tinue to use them. Very Respty, W. A. BANCROFT, Supt.

CINCINNATI I. P. R.R. CO., CINCINNATI, O.

RICHARD VOSE. Dear Sir,—Send us 6 more sets of your new pattern Car Spring, same as the lot we ordered of you last Sept. in every way. This is the best answer we can make to your question of "How we like them." Yours truly, J. M. DOHERTY, Supt.

LYNN & BOSTON R.R. CO., CHELSEA, MASS.

RICHARD VOSE, ESQ. Dear Sir,—All I can say in favor of the Vose Spring is that we continue to apply them to most of our new cars. Have about 60 cars equipped and think very well of them. If they could be produced for less money should think better of them. Very Respectfully Yours, E. C. FOSTER, Supt.

CREAM CITY R.R. CO., MILWAUKEE, WIS.

Gentlemen,—Yours of May 28 at hand, with re-gard to your Car Springs. We find they are the best in use. They come a little higher than the Barrel Spring, but they are much the better springs. Yours truly, H. J. C. BERG, Supt.

LOWELL HORSE R.R. CO., LOWELL, MASS.

To WHOM IT MAY CONCERN: We have used the Rich ard Vose Graduated Car Springs for several years, and are well pleased with them. Should be unwil-ling to change them for any other. All of our cars use these springs. Yours Respectfully, J. A. CHASE, Treas.

DAYTON STREET R.R., DAYTON, O.

MR. RICHARD VOSE. Sir,—We have eighteen cars equipped with your Patent Graduated Spring, and will use your springs to replace all other kinds as fast as repairs are needed. Your springs give the best satisfaction to our company and *patrons* of any that we have ever tried. that we have ever tried. Yours Respectfully, A. W. ANDERSON, Supt.

FT. WAYNE & ELMWOOD RY. CO., DETROIT, MICH.

RICHARD VOSE, ESQ. Dear Sir,—For the past four years we have been using your Graduated Springs on all of our cars (30). Our Superintendent says that none of them have ever had to be repaired and that they are the best springs we ever used. Yours truly, N. W. GOODWIN, Secy.

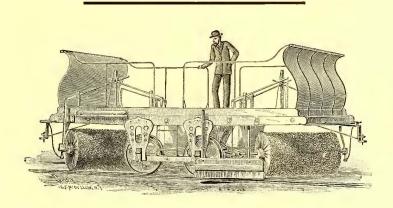
RICHARD VOSE, ESQ. Dear Sir,—I have your favor of the 20th ultimo. We have about 70 cars equipped with your springs. Our experience is that they wear well and give general satisfaction. Yours truly, GEO. HENDRIE, Treas.

DETROIT CITY RY., DETROIT, MICH.

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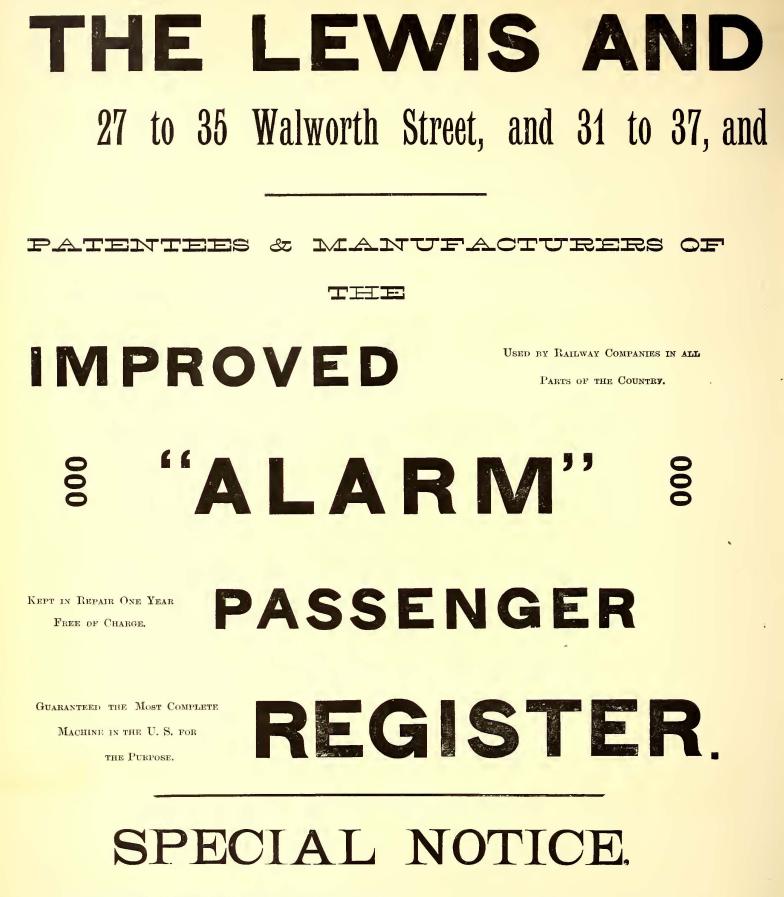
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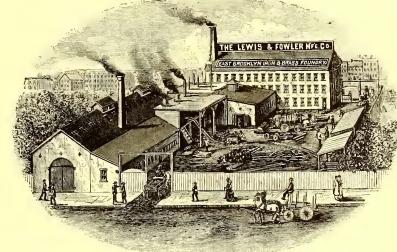
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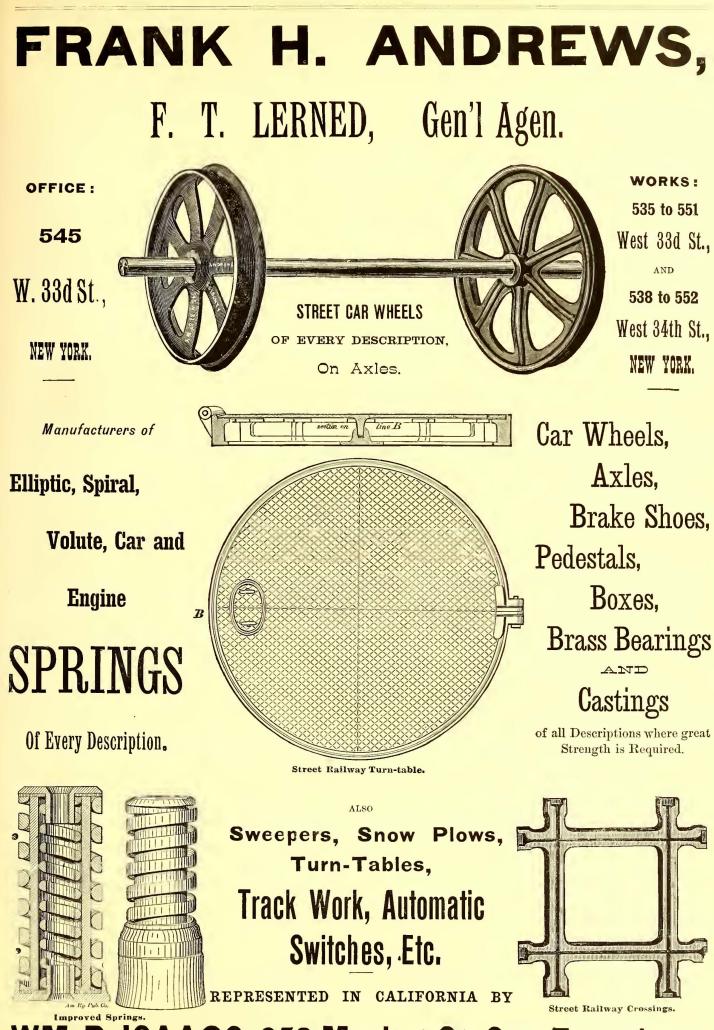
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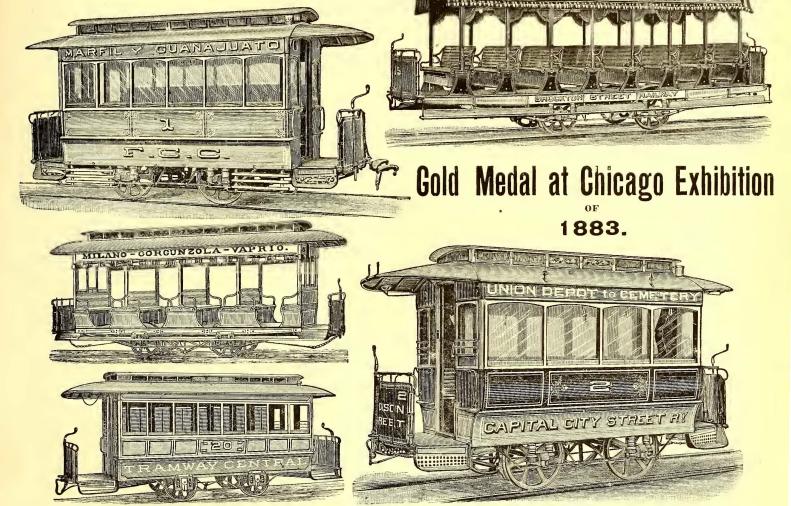
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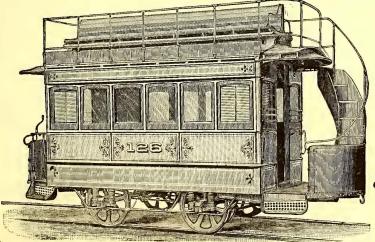
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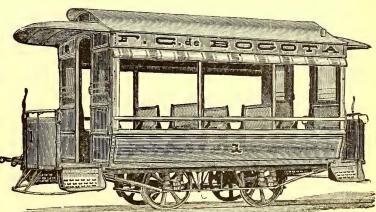


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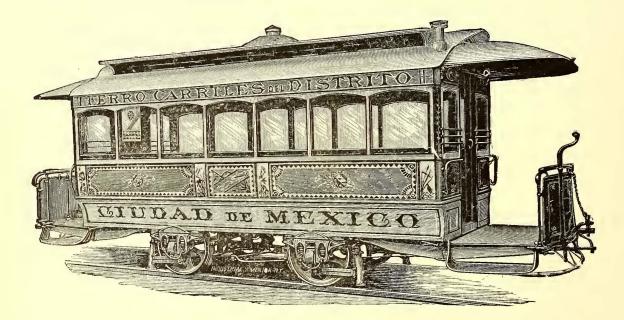
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