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#### STREET RAILWAY JOURNAL.

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

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

#### NEW ADVERTISEMENTS.

NEW ADVERTISEMENTS.

THE ST. LOUIS CAR CO. USE ANOTHER PAGE. THE FEIGEL CAR CO. Show cuts of cars and a new testimonial.

THE NATIONAL STOVE CO. call attention to the National Car Heater.

THE BEMIS CAR BOX CO. Increase the size of their advertisement.

DANIEL CRUICE & CO. take a page for a display of the Reliable hoof clasp.

THE TOLENO CAR HEATER CO. have illustrations of the Root Car Heaters.

THE WALES FARE BOX USE another half page to advertise their fare boxes.

THE GREENWOOD HORSE SHOE CO. call attention to their horse and mule shoes.

THE LACLEDE CAR CO. USE a page to direct attention to their business of car building.

THE MEAKER FARE REGISTER'S advertisement will be found in the advertising columns.

columns.

THE BENTLEY-KNIGHT ELECTRIC RAIL-WAY Co. make a change in their adver-tisement.

THE BENEFIT AND THE PRESENT MAILS AND STREET AND THE BUPPRAT ELECTRIC RAILWAY CABLE CO. have a page advertisement of the Roiling wood mat.

THE EUPPRAT ELECTRIC RAILWAY CABLE CO. have a page advertisement of the Euphrat system.

THE PENNSYLVANIA STEEL CO. Show cut of street car rail, and call attention to their other specialties.

THE CAN TRACK FRICTION APPLIANCE CO. give a new testimonial in regard to the Reliable sand box.

J. B. GREENSFELDER & CO., importers of sponges and chamols, will be found in the advertising columns.

THE LEWIS & FOULER MANUFACTURING CO. give illustrations of the Fowier stove box and street car heaters.

THE PRESCOTT MANUFACTURING CO. insert an advertisement of the Prescott truss and brace door hangers.

THE NATIONAL RAILWAY AND STREET ROLLING STOOK CO. have a page advertisement of the Stimson car axle box.

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#### AMERICAN

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ORGANIZED, 1882.

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#### \_\_\_\_\_ Subjects of Papers and Special Committees.

CABLE MOTIVE POWER .- TOM L. JOHNSON. Pres., Brooklyn Street Railroad Company, Cleveland, O.

ELECTRICITY AS A MOTIVE POWER .-WILLIAM WHARTON, JR., Pres., Cape May and Schellenger's Landing Railroad Company, Cape May City, N. J.

MOTORS OTHER THAN CABLE OR ELECTRIC. -D. Arwoon, General Supt., Cream City Railroad, Milwaukee, Wis.

ROADWAY CONSTRUCTION.—CALVIN RICHARDS, Pres., Metropolitan Railroad Company, Boston, Mass.

STREET RAILWAY MUTUAL FIRE IN-SURANCE.—JOHN MAGUIRE, Sec., City Railroad Company, Mobile, Ala.

PRACTICAL DEVICES USEFUL IN THE ECON-OMIOAL MANAGEMENT OF STREET RAIL-ROARS.-DE WITT C. CREGIER, Supt., Chicago West Division Railway, Chicago, Ill.

#### NEXT ANNUAL MEETING.

The next regular meeting of the Association will be held in Philadelphia, Pa., the third Wednesday in October, (the 19th), 1887.

Communications concerning Membership, Reports, etc., should be addressed to the Secretary. Communications on suljects for discussion should be sent to the committees.

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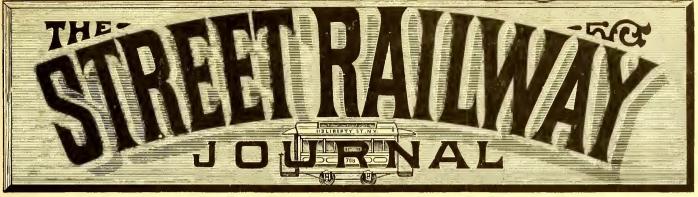
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187 Broadway, N. Y 885	T. Wm Harris & Co., 2 Nassau st., New York904	Chicago Wood Finishing Co., 148-145 So. Clinton st., Chicago, Ill

# Personal Directory of Street Railway Supply Men.

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Andrews, Frank H., F. T. Lerned, General Agent, 545 West 33d st., New York	Hale and Kilburn Mrg Co Cheney Kilburn	State st., Chicago, Ill. J. W. Meaker, Pres. & Supt. E. A. Blodgett, Sec'y & Treas 925
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Babcock, John, & Co., 2 Liberty sq., Boston, Mass. 920 Bacon Bros., Canadian agts. F. H. Andrews, 377	I Darris, E. P., Ed. & Man. St. Ry, Journal 841	Knode Island Locomotive Works, constructors of
St. Paul st., Montreal, Can	Harris, T. Wm. & Co., 2 Nassau st., New York 904 Hastings, Edw. H., Chadbourne & Hastings 891	Bentley-Knight Electric Ry
Baldwin, A. L., Sec. and Treas. Standard index	Hathaway & Robison, 14 Case Block, Cleveland 905 Haycox Door Fastener Co. W. E. Haycox, Man-	Rice, George M., Pres. Worcester Steel Works 901 Roberge, F. P., 1,741 Broadway, N. Y 895 Robert, L. E., Lewis and Fowler Mig. Co 908-909
and Register Co	ager. 1158 Euclid ave., Cleveland, O 918 Hazard Mig. Co., Chas. Parrish, Pres.; Woodward Leavenworth, Sec. and Treas.; T. C.	Robison & Hitt, Waterioo, lowa 930 Robison, Frank De Hass, Hathaway & Robison.
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Bascom, Jos. D., Sec. Broderick & Bascom Rope	Hibbard, Geo. B., Pres Empire Axle Mfg. Co 913	G. Roebling; Sec and Treas., F. W. Roebling; H. L. Shippy, Man. N. Y. Warehouse; Geo.
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Vol. III.

NEW YORK & CHICAGO, OCTOBER, 1887.

No. 12.

E. P. HARRIS, Editor and Manager.
GEORGE L. FOWLER, Mechanical Editor.

About sixty per cent of the new equipment for the Belt Line of New York has been received and is in service.

Augustine W. Wright has had no connection with any trade paper, either as Director or President, since June last.

In our next issue we shall give a report of the convention of the American Street Railway Association, to be held Oct. 19, 20 and 21.

The annual convention of the American Street Railway Association will be held in Room C at the Continental Hotel in Philadelphia, beginning Wednesday, Oct. 19.

We give in full in this issue the several papers read before the Street Railway Association of the State of New York at its meeting in Brooklyn, Sept. 20, also the President's address and an abstract of the discussions.

We regret to state that through a misunderstanding of the local authorities in Philadelphia, a hotel has been selected for the holding of the Street Railway Convention at which no suitable space is afforded for an exhibit of street railway appliances.

State Associations are peculiarly valuable to street railways in that all members have interests in common in the opposing of unjust and burdensome legislation. Street railway companies cannot vote, but they can protest, and should learn to do so in harmony with one another.

A number of electric roads using the Van Depoele system are arranging to use their electrical apparatus for lighting the suburbs of the cities in which they are located, the Montgomery, Ala., and Scranton, Pa., companies each having ordered a sixty-light plant for that purpose.

The Central Park, North & East River Co.'s new building, covering two or three blocks, now in course of construction, is sail to be the largest building erected in New York for several years. It is so arranged as to be easily changed to adapt it to the use of motive power other than horses.

In St. Louis it is proposed next summer to carry children to parks and suburbs at a fare that will barely cover the expense of running cars. Can it not be so arranged by carrying the children out at a time when the outgoing cars are usually empty and bringing them in while the incoming cars are usually empty, at a mere nominal fare, and thus confer a great blessing upon the poor at no loss and possibly slight profit to the roads?

Charging a street railway company for the use of streets simmers down to the old tollgate principle, with the injustice added of applying it to only that portion of the people using the street car. To be sure, under ordinary circumstances fare is not increased by the prices paid for the use of the street, but in the long run rides, like most articles of merchandise, sell for what they cost plus a fair margin of profit. Such is the law of competition. At all events the benefit of free use of streets accrues immediately to the users of the street car where franchises are sold to the bidder of the lowest fare, as suggested by Mr. Scribner in an article printed elsewhere.

T. A. Edison gave before the late convention of the American Association for the Advancement of Science the results of his labors and researches on the subject of production of electricity direct from coal, that is, without the use of the steam engine or other motor. Well informed electricians are of the opinion that his discoveries and inventions in this direction at least afford the basis on which this great problem will be solved. If electricity is produced direct from the fuel, and the process saves anything like the loss sustained by producing it by means of an engine, the extent to which the expense of motive power for street railway purposes can be reduced will be great.

Wisdom, clearness and force characterize the address of Hon. G. Hilton Scribner as President of the Street Railway Association of New York State, printed elsewhere in this issue. In this address and in a communication to the Street Railway Journal written at an earlier date, he discusses what seem to him to be the most important questions now before the street railways, namely, the sale of franchises

under the Cantor law, street railway taxation and the labor question. The injustice of the system of street railway taxation in New York State is very clearly shown; and the absurdity of selling the right to drive vehicles in the streets dedicated to that purpose is made very conspicuous. Street railway companies would do well to bring such wholesome views to the notice of the public, and especially the local authorities, by securing the publication of extracts from these articles in their local papers.

Write for your paper. Give your fellow managers the benefit of your experience and in return read theirs. One of the most valuable features of a trade paper is the opportunity it affords for the exchange of ideas between practical men. Many are deterred from contributing their valuable experience from lack of practice in newspaper writing. Do not hesitate on this account, for it is the newspaper man's business to put into shape for publication ideas that come to him from all sources and in every conceivable form. More than that, the trade paper is not primarily intended as a place to display brilliant literary gifts. Send in the ideas in any form in which you have time to put them and they will be taken good care of. Have you made experiments or tests the results of which, favorable or otherwise, would be of interest or value to others? On what subject would you like the opinion of other practical street railway men? What point in the management of your road gives you trouble? Regarding any of these matters the STREET RAILWAY JOURNAL would be glad to hear from you.

#### Continuous Rails.

By a number of new inventions for welding and tempering metals by electricity it is proposed to join rail sections into one continuous rail, dispensing with rail joints, chairs, fish plates, nut locks, etc., and producing a road consisting of practically a single rail. It is claimed that the welded portions of the rail are rendered stronger and tougher than the other portions, so that no amount of pounding or strain can affect the jointure, and that the operation of welding and tempering takes place much faster and can be effected at less expense than by the laying of the ordinary joints. To provide for expansion and

contraction a special form of slip joint has been devised, of which there are ordinarily four to the mile. The section of rail between two joints is firmly spiked at its central portion and allowed to expand in both directions. This sliding joint is so arranged as to give a solid support to the wheels while passing, so that practically the entire track is one smooth continuous way.

We hope to give a full description of the methods and processes in an early issue of this paper. It is needless to say that if the matter is practical it is of great importance.

#### Bureaus and Statistics of Labor.

There are now twenty States in the Union which have regularly constitucted Bureaus of Labor. These with the United States Bureau have for their objects the securing and compiling of statistics pertaining to the labor question. The figures thus obtained are supposed to furnish data upon which to base more intelligent legislation on questions affecting more particularly wage workers. Concerning a commodity which constitutes so important a factor in all industrial enterprises, as does labor, too much cannot be known either by the buyer or seller. It is, however, of the utmost importance that these data be given with perfect freedom from bias of any sort, for figures may be made to lie. If, for example, the figures secured and given by the various bureaus should exhibit the same amount of prejudice as the deductions drawn from known facts, by the Commissioner of the New York State Bureau, only mischievous results could follow their publication. therefore it is proposed by these bureaus, as it was at their last national convention. to place the census taking in their hands, it is fair to ask if the errors thus sought to be corrected would not be more than counterbalanced by the one-sidedness of the Labor Commissioners' way of looking at things.

#### Street Railways as Mail Routes.

The step taken by President G. B. Kerper, of the Mount Adams & Eden Park road of Cincinnati, and later by President Cleminshaw, of the Troy & Lansingburgh road, in securing the designation of their roads as U. S. Mail routes, is attracting much attention, and the advantages and disadvantages of such an arrangement on the part of other roads is being discussed. Armed with the protective laws guarding Uncle Sam's mails, the street railway company would certainly decline to submit to some of the unreasonable obstructions of streets with which it is now annoyed. The "U. S. Mail," posted upon a car, would come to have a wholesome effect upon the careless truckman, the malicious striker and numerous others who disregard the delay of many passengers for their own convenience or to gratify their own malice. Transporting mail carriers at a reduced rate is already practiced by some roads.

There are obvious advantages to the carrier in making the compensation by the year rather than by the trip. The carrier frequently finds it convenient to swing onto a car at one corner and off at the next, making shorter rides than he would care to bother to pay for. The matter is certainly worth looking into by all roads where the free mail delivery is in operation.

#### Building of Cars by Railway Companies.

The relative advantages of building and buying cars by medium sized and large companies is a subject which has been much discussed. The interesting paper on the subject by President William White, printed elsewhere in this issue, gives some interesting suggestions in the way of pointing out advantages to the company which constructs its own cars, but there is a notable absence of figures to substantiate the claim of economy wich is broadly made.

A good car will last thirty years, and therefore, on a road running one hundred cars, only about three cars per year are required to keep the stock good. This number may of course be increased by the demands of fashion and for an increase of equipment. With but three to five cars to build per year it is difficult to see how an efficient corps of men and modern shop equipment can be maintained. In the regular car shop the subdivision of labor is very minute, which cannot be had to any practical extent in a small shop. The large shop also attracts to it the highest grade of helpon account of the more satisfactory surroundings, better compensation and larger product. For these and a dozen other reasons quite obvious, we believe the tendency of the times is away from rather than towards the building of cars by street railway companies. Just as in most other enterprises, the trend is away from and not towards the doing of anything for which the company and plant are not primarily organized.

#### St. Louis Traffic.

Reference has been made in these columns to the wise means adopted by various street railway companies for increasing their business by practically creating their traffic. By promoting the growth of the suburbs through which it passes, a road often secures a profitable and permanent traffic; and by the establishment of places of amusement at points to be reached by its line, loads are sometimes secured going in the opposite direction from its regular passengers riding to and from home and business.

These and other well-known ways of increasing business and dividends are, however, very conservative, not to say old fogyish, as compared to the ways it is done in St. Louis. For heretofore every known scheme for securing passengers has been limited by the number of people who desire to "go somewhere," and the possible business has borne some sort of relation to the population of the city or neighbor-

hood. According to the deep laid schemes of St. Louis railway managers, traffic is not to be so limited. Not content with running double decked cars, the upper decks of which are occupied by lovers and concert parties who ride up and down the line for hours together, the wily St. Louis roads now propose to haul on the lower deck men too drunk to go home and meet their wives. Now of course the lover on the upper deck drops with delight, and the drunkard in the lower cabin fumbles over with some difficulty, nickel after nickel, without ever leaving his seat. In fact it is intimated that the occupant of the lower cabin, when affected with the results of certain kinds of Mississippi water, will patronize the car to an extent only limited by the amount of funds remaining at his immediate disposal. It must be borne in mind that the time when the traffic begins is after the busy hours of the early evening are over, and it is peculiarly adapted for cable service, inasmuch as frequent stopping of cars is entirely unnecessary.

The influence of this newly developed business upon the style of the future street car is quite obvious, and needs no comment, for it is not to be supposed that it is long to be confined to St. Louis roads. We must, however, utter a word of warning as to the results of this class of traffic upon the granting of franchises in the future and the obtaining of consents of property owners. We may lightly pass the objections which may be made by old fogies on the score that the sobering of drunkards on the lower deck and the intoxicating of lovers with the "wine of the gods," on the upper, is really subverting the use of the streets, which were intended for true pedestrian or transportation purposes. This objection can readily be met, but what property holder will without compulsion or expensive persuasion sign a consent which shall include the listening to the nocturnal twang of a four-tune shilling banjo or the "singing" of a swain who by his voice was divinely intended to manage a Kentucky mule? Gentlemen, this new business has far reaching results that should be well weighed before the traffic grows to more enormous proportions.

#### Street Car Travel in Boston.

The Engineering News has an interesting article on the Growth of Boston Passenger Travel, by Francis E. Galloupe. He shows that, while the cost of roads has only moderately increased, the earnings have more than doubled in ten years, and amount to far more than double the amount of earnings per mile of track of the steam railroads of the State. Further, the net earnings and average rate of dividends do not correspondingly increase, the latter having actually diminished.

The value of property and assets is row \$11,410,997; number of miles run in 1886, 15,105,161. The increase of the Boston horse railway traffic for the last ten years has been 132.55, or an average increase of 13.26 per cent annually, and the amount

of traveling of each resident, as shown by the number of rides per inhabitant, has nearly doubled in that period. In 1882 the number of passengers carried was 57,452,421, not including 4,754,210 carried by the Lynn & Boston Railroad. For the last four years the increase of travel has been 28,794,359, equal to 50.12 per cent, or 5,758,872, equal to 12.53 per cent, annually.

Only street railway lines accommodating strictly Boston traffic have been taken, omitting roads which have the great bulk of their business ten or fifteen miles from the city, although these lines may enter the city, since it is impracticable to separate the Boston from such other traffic.

The nine steam railroads carried in and out of Boston, during the year ending Sept. 30, 1886, 38,225,687 passengers, an increase of 3,009,227, or 8.54 per cent, over the previous year.

The average annual growth of passenger travelis as follows: Increase of population, 9,176, or 1.9 per cent; increase of horse railway travel, 5,758,872, or 12.5 per cent; increase of rides per inhabitant, 7.35, or 9.5 per cent; increase of steam railway travel, 3,009,227, or 8.5 per cent.

The total passenger travel of Boston, including carriage service, is estimated at 134,472,467 per annum, or 448,242 daily.

#### The Season's Growth.

In another column will be found a table. compiled from our Directory of Street Railways, showing the number of miles of single track, of cars and of horses, in March and in September of the present year, of the street railways of the United States and Canada, arranged by States. It will be seen that there has been a very satisfactory though unevenly distributed in-The New England and Middle crease. States show a substantial gain, while in the West and South the growth has been remarkable. Arranged by sections, the percentage of increase of mileage has been 15 per cent in New England, 18 per cent in the Middle States, 33 per cent in the South, 23 per cent in the West, 47 per cent on the Pacific coast, and 9 per cent in Canada. The increase in the United States and Canada combined has been 23 per cent. A corresponding gain in cars and equipment will be observed. Of course some allowance is to be made for companies that did not report to us so fully in March as they do at present. Still, there can be no question that our street railways have made a larger increase the past season than ever before in their history.

Our totals are inclusive of cable and electric railway mileage, in which the increase has been more than 100 per cent, the mileage of cable railways in March having been 61.83 and in September 120.08, showing a gain of 58.25 miles, and the mileage of electric railways 20.25 in March and 55.55 in September, showing a gain of 35.3 miles. The number of steam motors in use reported in March was 75, and in September 142, showing a gain of 67.

#### FACTS AND OPINIONS.

- \*\*\* The cable system has doubled the value of property.—C. B. Holmes.
- \*\*\* A good rule in the stable, Pure Air, Cleanliness and Copperas.—A. A. Cassebeer, Jr., Steinway & Hunter's Point road.
- \*\*\* Prof. Reckenzaun, from London, thinks that when storage batteries get into general use the cost of deterioration will be very slight.
- \*\*\* No matter how large a road may be, the President should meet personally every conductor and driver hired, and see every horse bought.—William Richardson.
- \*\*\* In my opinion, street-car horses should not be purchased younger than five and not older than seven years. Horses about these ages will last on an average about eight years.—T. H. Robillard.
- \*\*\* The custom of building stables with cellars to receive the manure is not recommended; and unless there is yard-room enough to pile the manure compactly outside the building, it should be removed from the premises daily.—J. E. Rugg.
- \*\* The workingman must have a trades paper, one of the many for which this country is famous, devoted to his special line of service, that he may be kept well informed of the latest progress of the world at large in his specialty.—C. S. Byrkit.
- \*\*\* In a Buffalo street car the other day there were riding at the same time a Chinaman with a laundry package, a negro with a whitewash brush, an Indian with a basket of sassafras, an Italian with a bag of peanuts, an Irishman, a Dutchman and a native dude.—Ex.
- \*\* It has been said that man is a bundle of habits; it might be added that man's success depends to a great extent upon the number of good habits he adds, during the formative period of his existence, to the bundle of which he is the personification.—Jules Blever.
- \*\*\* The street railway comes as a benefactor, its mission is to create, not to destroy. It is the pioneer that causes the outlying and waste places to spring up into life. It furnishes an incentive for the ambition and goes hand in hand with the progress of every city and town.—C. A. Richards.
- \*\* Trades unions do great harm to competent workmen. The good craftsmen are virtually forced to carry on their broad shoulders their less competent associates; they are handicapped to the extent of the difference between their individual ability and the ability of their entire guild.—Jules Bleyer.
- \*\*\* Prof. Reckenzaun is the authority for the statement that experiments have shown that the horse-car rail in use in this country does not necessitate the employment of as much motive power for street cars as the use of the English or narrow-grooved rail. The American type of rail requires about 15 per cent less power, there being practically no loss from friction in the broad groove,

#### PERSONAL MENTION.

- A. K. STILES is now in the East.
- P. J. McManon is at Tangipahoa, La.
- T. A. Edison, it is said, is at work on a street railway electric system.

BYRON ALLEY has been chosen Superintendent of the Bay City Street Railway Co., of Bay City, Mich.

WILLIAM R. FOSDICK has just been elected President of the Stamford Horse Railroad Co., of Stamford, Conn.

SHELDON BECKWITH, proprietor of the Street Railway Supply Co., Cleveland, O., is on a two months' Western trip.

MURRAY SWAIN has been chosen Superintendent of the Easton, South Easton & West End Passenger Railway Co.

Col. E. R. DAVENPORT, of Charleston, W. Va., is interested in a network of street railways projected in the interior towns of Ohio.

THOMAS W. ACKLEY, President of the American Street Railway Association, recently called at the STREET RAILWAY JOURNAL office.

- A. RECKENZAUN recently read a paper on electric roads, with especial reference to gearing, before the Electrical Institute, New York.
- H. M. Thompson, Secretary of the Brooklyn City road, was formerly Secretary of the New York State Board of Railroad Commissioners.

JOHN W. McNamara, President, Treasurer and Superintendent of the Albany Railway, is the newly elected President of the New York State Street Railway Association.

J. L. WILLOUTT, of San Francisco, is Secretary and General Manager of five street railway companies, most of them operating cable roads; and is also Secretary of two other companies.

James A. Bonnell, late General Superintendent of the Forty-second Street, Manhattanville & St. Nicholas Avenue road, New York, is now connected with the Atlantic Avenue road of Brooklyn.

President P. C. Maffit, of the Missouri Railway Co., allays the fears of his conductors and drivers by the assurance that most of them will be employed as conductors and gripmen of the new cable cars.

Daniel Cruice, who has devised a comprehensive system for the treatment of cracked hoofs, and patented a device in connection therewith, has been for years foreman of the horse-shoeing shops of the Second and Third Avenue railroads of New York.

Joshua Crandall, for the past twentyseven years Superintendent of the Broadway road in Brooklyn, run the first street car in that city July 4th, 1854, and celebrated the day by reducing the fare from five to four cents, and took in some \$30. Mr. Crandall has been in the street railway business ever since with the exception of four years. Editorial Correspondence.

#### The Berlin Street Railways.

The management of the Berlinstreet railways probably approaches more nearly to the American system than that of any other city on the continent, and there are no greater differences apparent to the eye of the passenger than can be found between the different roads in the United States. There is perhaps a trifle more of state and city interference than we would consider essential to the happiness of the stockholders, but there is not the same prying, regulating and microscopic oversight that we have found in Paris. The city authoritics naturally regulate the streets upon which the roads may be laid, the kind of rail to be used, the pavement that is to be laid, and a few more of the more important matters, as they do with us. But when this is done all competition is removed, and the Grosse Berline Pferde Eisenbahn has a complete monopoly of the street railway business in the city, and no one else can get a foothold. There are two other small companies, but their lines run from points in the city to the suburbs. But the price paid for this monopoly is a high one. The company pay to the city six per cent of their gross receipts up to eleven million of marks. Of the twelfth million they pay six and one-half per cent, of the thirteenth million seven per cent, and so on. Last year their receipts were eleven millions of marks, and of this they paid to the city 660,000 marks, or something over \$158,000.

In addition to this their franchise is a short one, and all of their street property mist by turned over to the city in 1912. They have therefore still a little over twentyfour years of life. This does not, however, include the stable and other buildings, horses and cars, but merely that part of their property which is laid in the street. They have also to construct and maintain the pavement for a distance of two and onehalf meters from the center of the tracks; thus for a single track line they have a street five meters in width to maintain. This pavement varies on different streets, and coasists of cobble stones, square blocks and asphalt. Still, with this drain upon their income and the necessity of establishing a large sinking fund to meet the total loss of their roadbed in 1912, the company pays an annual dividend of eleven per cent.

Changes in road construction and other matters pertaining to the improvement or blockading of the streets must be referred to the city before they can be undertaken; but it is rare that a refusal is given, and beyond this the company is free to manage its business as it chooses.

In this respect the hand of the engineer is apparent, and the cars have the same airy, open effect that we pride ourselves so much upon in America. In fact the first effect is that the car is of an American build, until the name of a Dutch or German firm says "no." The windows are placed in the same way except that they are frequently larger and higher, for there are very many cars with only five windows. The seats have the same curves, the same supports and are made of the same perforated three ply veneers. Even the lamps at the ends and the hoods over the platforms have the same shape. All this is naturally a little mystifying until one sees the name Stephenson on some of the older cars, and then it is evident where the models for the present construction were procured. The principal difference between the cars is that many if not the majority of the Berlin cars have an iron floor framing.

Two men are always upon each car, whether it is drawn by two horses or one, and the "complete" system of Paris is also in vogue. A sixteen foot car, too, is registered to seat twenty persons instead of twenty-two as we make it, and this extra person makes just the difference between a roomy seat and uncomfortable crowding. Four persons are allowed upon each platform, so that twenty-eight passengers are carried on a sixteen foot car. Some of the cars have outside seats on the roof, and this will add twenty more to the capacity of the car. There is, however, a little latitude allowed, and one occasionally sees, when there is a great rush, a number standing inside the car, but there is never the same jam as with us, and a passage from the door to the right hand side of the rear platform must always be kept

The fares vary with the distance ridden, and run from ten to twenty-five pfennigs (two and a half to six cents). The rate is about ten pfennigs per mile. On paying the fare the passenger states the place or street to which he wishes to go and the conductor gives him a ticket of which we give a representation, together with a translation into English.

looking along the points on the ten pfennige ticket it will be seen that it is farther from the Landsberg Thor to Rosenthaler Thor than to Schönhaus Thor. The intervals are of course longer still on the twenty and twenty-five pfennige tickets. As the Ringbahn is a circular railway, the number of intervals is naturally the same for all of the tickets, but, on those roads which are simply straight lines, they are fewer in number as the fare increases.

When the conductor collects a fare he strips off a ticket corresponding to the fare paid, and punches a hole in the margin through the two points between which the passenger is to ride. For instance, if a person gets on at the Brandenburg Thor and wishes to get off at or before Ascanisches Platz, the conductor gives a ten pfennige ticket and punches a hole in No. 7, in the lower left hand corner. A longer ride is more, and the next point will be Hallesches Thor, and the fare will be fifteen pfennige. The ticket is not given up, and serves simply as a certificate or receipt for the passenger to show in case there is any question on the part of the conductor as to the fare having been paid. The numbers on the tickets also serve as a check on the conductor to prevent knocking down, for he must account in cash for all of the tickets that have been delivered to him. The only case where he can gain an advantage is to pick up a ticket that a departing passenger may throw away, and sell it again on another trip for a passage between the same two points. As this requires considerable skill in sleight of hand to produce the ticket and appear to punch it without doing so, it can only be attempted very rarely indeed.

There is just another point in regard to the tickets: those of different prices are printed on different colored papers, white, pink, blue and yellow being in use.

#### Waehrend der Fahrt aufzubewahren!

1. Landsbg. Th. Schoennaus. Th FAHRSCHEIN 34043 2. Koenigs Phor Rosenthaler Th. und Beschelligung ueber gezahlte | Pfennige 3. Prenziauer Th Fahrgeld, als Ausweis fuer diejenige Person und Fahrt, ruer weiche geloest, auf der durch Lochung bezeichnet. Strecke u.unter den in den Wergen ausbeangaden Eehr . RosenthalerTh Koenigs-Piatz Wagen aushaengenden Fahrbedingungen. 6. Karlz-Piatz Potsdamer Th. Dir. d. Gr. Berl, Pferdeeisenb.

7. Brandenbg. Th Ascanisch. Pl.

8. Potsdamer Thor Hallesches Thor FAC-SIMILE OF ORIGINAL TICKET.

Friedrich-Strasse 218

To be retained during the Trip! Ascanisch, Pi. Prinzenstr. 1. CERTIFICATE 0. Haliesch. Th Moritz Platz.

11. Prinzenstr. 1 Koepnicker Str.

12. Moritz Platz. Koepnicker Br.

13. Koepnick, Str. Andreas-Platz

4. Koepnick. Br Landsberg, Th.

5. Andreas Pl. Koenigs Thor.

34043 and Receipt for

payment of Pfennige

Fare, as a certificate for the Fare, as a certificate for the person paying and on the trip for which it is detached, between the points designated by the hole in the margin, under the conditions named on the card hanging in the car. Dir. of the Great Berlin Horse Railway, 218 Friedrich St.

TRANSLATION.

The above is a ten pfennige ticket on the Ringbahn or Belt Line of the city. The other tickets are practically the same, with the exception of having 15, 20 or 25 where this card has 10 and of having the two points under the same heading farther apart. For example, No. 1, on this same line, for the fifteen pfennige fare, has Landsberg Thor and Rosenthaler Thor, instead of Landsberg Thor and Schönhaus Thor, as on the ten pfennige ticket. By

There is a further check upon the conductor by the employment of inspectors whose duties are about the same as with us. They board the cars at uncertain times and unexpected places; they inspect the tickets of the passengers and tear a corner from each one. This gives them a record, by the colors, of the fares paid. They make a memorandum of the same in a book carried by the conductor, and which is handed in at the office.

The street cars of Berlin have regular stopping places, also, as they have in Paris, but without the elaboration of the French system. A neat iron sign, placed near the ourb, reads, "Stopping Place for the Horse Railway," and about this the passengers congregate. The cars are not stopped between stations, but any one, man or woman, is allowed to board the car wherever it is convenient, but at their own peril and There is a great advantage in this, in that the stops are fewer and the transit between distant points more rapid. These stations average about two blocks apart, and the stronger and more pushing are the first to get seats. It is seldom, however, that all who wait cannot be accommodated,

for the Grosse Berline Pferde-Eisenbahn is a wide awake, money making concern, and they take pains to run cars enough to accommodate the public. The American who is in the habit of boarding a moving car need experience no inconvenience from overcrowded stopping points. As the German with his heavy bulk is not an expert in getting on and off the moving car, he naturally goes to a stopping point, whereas a more supple man can wait some forty feet away and step upon the moving car before it reaches the station, and to this no objection will be made.

As we announce the coming of a car by the tinkling of a bell upon the collar, and the Parisians by the blast of a horn, so in Berlin they hang rigidly from the hood a bell with a sixinch flare, and attach a strap to the tongue

which the driver operates whenever he wishes to signal his approach.

The cars are neat, clean and comfortable, well ventilated, and in every way equal to anything to which we are accustomed. The roadbed is solid and substantial, and the horses about on a grade with ours. The men we would consider above the average. As a result of these accommodations, the company pays a good dividend and is prosperous, and is not interfered with by minute police regulations.

It is Proposed to have a "continuous" electric railway or "carrying platform" around the grounds of the Paris Exhibition. The rails are to be laid in trenches as deep as the height of an ordinary car. The train is to be driven at a walking pace, so that passengers can step on or off at any point.

Hon. G. Hilton Scribner.

We present a portrait of the President for the past year of the Street Railway Association of New York, Hon. G. Hilton Scribner, ex-Secretary of State, and who is also the President of the Central Park, North & East River Railroad Co., more commonly known as the Belt Line, of New York. We have gathered also a few interesting facts concerning the professional, public and business life of Mr. Scribner, with which most members of the association are very likely familiar.

After completing a liberal education, Mr. Scribner practiced law very successfully in New York from 1856 to 1868, then retired

M. Ar. PUB. CQ.

HON. G. HILTON SCRIBNER.

from the profession and visiting Europe, residing with his family in Dresden for a year. On his return he was elected to the Legislature from the First District of Westchester for the session 1869-70. At the close of the session he was presented with a testimonial at the Board of Underwriters by fifty or more corporations of the city of New York, consisting of a silver dinner service and complimentary resolutions, etc., for his defense of proprietary and vested rights when attacked by striking bills and other assaults under the Tweed regime. At the Convention of 1870 at Syracuse he was unanimously nominated for the head of the Republican ticket as candidate for Secretary of State, and was elected by twenty thousand majority.

At the close of the term he retired from political life and accepted the Vice

Presidency of the Central Park, North & East River Railroad Co., in which he was largely interested at the time; and in 1880 was elected President of the same company, which position he now holds. Under his administration the stock of this company has been brought up from a very low figure at one time, of not more than ten to twenty per cent, to one hundred and fifty, which price it bore until the labor troubles commenced and the great fire occurred that destroyed the company's stables.

In 1886 he was elected President of the Street Railway Association of the State of New York, which position he has held for the past year with general satisfaction.

The marked peculiarity of Mr. Scribner's character is the peculiar courage and the apparent fearlessness of consequences with which he expresses his convictions and carries them into action. This has been the secret of his success in political life and in business. In the association of which he has been President he has at times stood and fought single handed for what he deemed to be right, and in any controversy he is not likely to ask or give much quarter. So he has been very serviceable in his advocacy of the interests which this association seeks to protect, as is well illustrated by his annual address given in this issue and a paper delivered at the 1885 convention on Street Railway Taxation, in which the subjects under discussion are handled with marked intelligence, and the rights of the street railway

interests presented with clearness and force. He has, therefore, the highest esteem and warmest friendship of the association's membership.

I was riding in a pretty well-filled street car the other day, when a young couple got aboard. The only vacant seats in the car were the one by my side and one by the side of the gentleman in front of me. When the couple got on the car, the young lady sat down in front of me and the gentleman at my side. I started to get up and proposed to the young gentleman that I would take the seat in front, so that he and the lady could sit together. He paralyzed me, however, by waving me back and saying, in an audible whisper: "Don't trouble yourself, sir; it's only my wife." Louisville Post.

#### CORRESPONDENCE.

#### Elevated Electric Railways.

EDITORS STREET RAILWAY JOURNAL:-

I notice in your issue for September, you say "the Daft system will be used in St. Paul." I presume we are the only company building with the intention of using electric power. We do use the Daft motors, but the system is the "Enos Elevated Railway," parent company in Boston. No surface road is or can be thoroughly successful where a great depth of snow falls, hence the desire to use an elevated railway and operate by electricity, which overcomes nine-tenths of the existing prejudices against elevated railways. Shall be pleased to give you particulars when ready to operate.

J. H. LAWRENCE, Gen. Mau. So. St. Paul Rapid Transit Co.

#### Wheel vs. Track Brakes.

EDITORS STREET RAILWAY JOURNAL:-

The August number has an article said to be from a car-wheel maker, with sign of "K," on the subject of Tram Car Brakes. The article referred to may mislead and do harm, for reasons subsequently explained.

- 1. A tram car should have the brake shoe to operate chiefly on the wheel flange.
- 2. The "wear" or abrasion of the wheel with the shoe thus located is in no sense an evil, but is meritorious, in fact a necessity.

Reasons. The ordinary tram rail has its head elevated above the tram  $\frac{a}{4}$  in. or more. Wheel flanges have usually a depth of  $\frac{a}{16}$  in, or nearer  $\frac{a}{6}$  in.; the tread of the wheel will wear down  $\frac{1}{2}$  in. or more upward, and the surface of the rail head will wear downward, so that in a short time the periphery of the flange will contact with the tram and impinge with increasing propensity, wearing off the edge of the flange and working a groove into the tram, until in about five years (in our city and Brooklyn) the outer verge of the tram would be separated from the rail head.

This splitting off of the tram from the rail head is accomplished by the rubbing contact of the flauge with the tram, with the silt or dirt of the street intervening, the circumference of the flauge being  $3\frac{1}{2}$  in. more than the wheel tread.

This process operates as a brake on the wheels, adding (by estimate of intelligent engineers) about 50 per cent tax on the energies of the horse, and often making it impracticable to operate cars on grades otherwise admissible.

These conditions are true, though in lesser degree, on street roads having the "edge" or T rail, because the flanges must make their channel or way through the earth or material adjoining the rail, which by accumulations become hardened like rock, and when frozen is like a granite brake shoe against the wheel.

Conclusion. No brake is adapted to regular tram car service that does not apply the shoe upon the wheel flange; nor is any form of rail good for tramways that

has not protection for flange and wheel tread, so that stones and earth cannot contact.

John Stephenson.

New York, Sept. 10.

#### Sale of Franchises.

EDITORS STREET RAILWAY JOURNAL: -

Your kind note asking my views as to the best and most satisfactory method of fixing the compensation which street railway companies should pay tocities, should have received earlier attention, but my time has been fully occupied. It seems to me so unjust as well as impolitic that such companies should pay anything to cities, that I hardly know how to answer your inquiries.

Most people, I think, will admit that the sole purpose of opening streets and dedicating them to the public is to permit persons and vehicles to get about from place to place through them. Such being the case it seems to me a reasonable deduction that no street railway should be allowed in any street until it is evident that this very purpose cannot be as well conserved without it as with it. In other words, a railway should not be permitted in any street until it is plain that it is a necessity in order that the street may best subserve the purpose for which it was constructed and is maintained.

Now why should a company operating such a railway and under such circumstances be required to collect from certain persons who are using the street for the ouly purpose for which the street was made, and in a way which is most consistent with such purpose, to wit, those who ride on its cars, a larger sum than is necessary for their transportation, including all fixed charges and fair interest on invested capital, and pay such excess into a city treasury? It is evident to every one that all the money such a company receives is collected from those who are in this way passing through the street on their own private business. Why should they be selected out from all others who use the street for like purposes, and compelled in this way to bear au unequal share of burden in supporting a municipal corporation?

Many of these people do not live in the city in which they are riding. Many do not live in the same State nor in the United States. What sense or justice is there in thus taxing them? If they rode iu a manner which lessened or contravened the highest usefulness of the street, and so were a hinderance, as would be the case if they all rode in their own private carriages, there might be some excuse for such a proceeding; but if a railway in a street is the best possible thing in turning the street itself to the best account in answering the purposes for which it was made, it is evidently unjust to fine every man, woman and child aud on every occasion when they so use it.

I am well aware that I am criticising a plain statute of the State of New York, but I cannot see any justice or propriety in it. I cannot find any fair excuse or pretext for it. If street railways are not within the lines of the highest usefulness of streets, then they should not be permitted at all, and if they are within those lines then the company which would accept the franchise and agree to transport passengers in cars best adapted to the purpose, with the greatest expedition and safety and for the least expense to such passengers, should have the right to do so. The franchise could be sold at auction upon such conditions of competition as well as any other, and then no injustice or unequal taxation would be imposed upon any one.

Right and justice are so related to order that methods may be easily established for conducting any system founded upon them; but it is extremely difficult to devise plans for inflicting injustice and wrong so that the measure shall hurt every one it is inteuded to equally and a like. I must ask you to excuse me from attempting it.

G. HILTON SCRIBNER.

Clifton Springs, N. Y.

#### The Cantor Law.

EDITORS STREET RAILWAY JOURNAL:--

Since the so-called Cantor bill requiring street railway franchises to be sold at auction to the highest bidder, became a law in this State, and the exposure of the Broadway road "deal," it is causing many persons to feel that a street railroad franchise is of great value and that some compensation should be paid for it, by the company, to the city. This is leading street railroad companies to consider whether it is just and right that they should be compelled. and can afford to pay any compensation to the city for the use of its streets. And if they are not now the means, directly and indirectly, of bringing into the city treasury a large amount of money yearly-more than any other corporation-of which the city would be deprived, were it not for the road. Franchises have sold lately in New York city on condition that some 35 per cent of the gross receipts of the company be paid to the city yearly. Syracuse lately granted a franchise which required the company to widen a certain street through which its track is to be laid, the expense of which will probably not be less than \$7,000 or \$8,000.

It is a fact conceded by all considerate persous, that a street railroad is a great benefit to a city, and an accommodation to the public. The city grants the right to run the cars upon the public highway, which is intended for the accommodation of the public, and the street car serves that purpose in carrying the public. Generally in cities, the franchise granted provides that the road shall be paved between its tracks, and two feet outside, (and ten to one many of the streets have neither heard nor seen of paving before, and would not for years to come but for the car company), to conform to all changes in pavement in future, to keep street free from snow, and subject at all times to the mercy and order of the Council of the city. Now when this is done, it would seem that a company had paid out enough to compensate the city for the privilege of investing their money, maintaining and operating an enterprise which to a large extent helps build up a town.

Few companies make any money for the first few years of their existence, and cannot afford to give to the city any compensation. They get no dividends or returns for some time on their money invested, but the public and the city are getting benefits right along. The city could ill afford to be without the road. It is the most needed and appreciated public improvement a town can have, and it does not seem right nor just that a city should exact any compensation for a street car using the public streets, and for the public good.

No manufacturing or other corporation does as much for the public good and improvement of a place as a street railroad. In any locality where tracks are laid the value of property is immediately enhanced, as the assessment books will show. Were it not for the street car company the land would remain dead and unsalable, but it at once becomes desirable for business and residence. The street car is what made it valuable, and is the direct cause of bringing to the city additional revenues at the expense of no one but the street car company.

A church, public school, manufactory, or any other industry or enterprise, may be established but they do not enhance the value as a street railroad, and in many cases a locality is not benefited but on the other hand damaged, by the locating of some enterprise. Very few if any cases can be called to mind where a street railroad has proved itself an injury to the public or city in which it is located.

Remove the track of any company from the streets of a city and see what the effect will be on the place. Take up the Broadway road to-day, and see what the people who so strongly opposed its being built will say. Again, the street car company is taxed upon all its buildings and tracks, and upon all its capital stock. From this the city derives a good return.

In view of the many facts, it does not seem just that such a public benefactor as a street car company should be compelled to pay to a city any further compensation for the right to use the public highway, which was created and maintained for the public, and which in reality belongs to the public.

ONONDAGA.

THE BRAKE of a horse car on the North Hudson County Railway Co. of Hoboken, broke recently just as it began to descend a steep hill, and the car started down at a rapidly increasing speed. The driver, who is a new man, retained his presence of mind, however, and, holding a firm line, he urged his horses to a gallop, and succeeded in keeping them out of the way of the runaway car. The car was crowded with passengers, who were badly frightened.

Street Railway Association of the State of New York,

PROCEEDINGS OF FIFTH ANNUAL MEETING.

The Annual Convention of the Street Railway Association of the State of New York was held at the Hotel St. George, in Brooklyn, Tuesday, September 20th.

Among those present were the President, Secretary, and Messrs. Watson, Cleminshaw, Hart, William Richardson, Partridge, McNamara, Lewis, Thompson, Hasbrouck, Harris, Starr.

President G. Hilton Scribner, after calling the meeting to order, gave the very able and interesting address printed in full elsewhere in these columns.

The report of the Executive Committee, then read, gave as the membership of the association twenty-seven companies, called attention to the fact that no strikes had been reported among its members during the past year, regarding this as an evidence of amicable relations between employer and employee, and recommended that attention be given to the subject of making street car lines United States mail routes.

The report of the Treasurer was then read, after which the Secretary read the paper on "Car Building by Street Railway Companies," by William White, of the Dry Dock, East Broadway & Battery Railroad Co., which is given in full in another column

The subject, "The Best Checks Upon Conductors' Returns," was then treated of by James A. Bonnell, formerly Superintendent of the Forty-second Street, Manhattanville & St. Nicholas Avenue road, and now connected with the Atlantic Avenue road in Brooklyn. This paper is printed in full in this issue.

A discussion then followed on the subject of having street railway lines United States mail routes, that is, making special terms for transporting mail carriers in cities where free mail delivery is established. Mr. Cleminshaw said that his road had completed arrangements of this kind. Secretary Richardson read letters from George B. Kerper, President of the Mount Adams & Eden Park road of Cincinnati, in which Mr. Kerper spoke highly of the mail plan which had been adopted by him. Messrs. William Richardson, Starr and others also took part in the discussion.

The subject of

DISINFECTING STABLES

was then discussed.

William Richardson had never believed in anything but lime, copperas and such common articles for this purpose, but would like to hear from others as to their experience.

MR. HASBROUCK, of the Houston, West Street & Pavonia Ferry road, New York, thought that the manure pit was one of the most prolific causes of bad odors and disease, and said that if he were to build a new barn he would have no manure pit, but arrange to have manure all removed by contractors immediately.

MR. McNamara, of Albany, agreed with

Mr. Hasbrouck and thought that the cause should be removed.

Mr. Scribner stated how the remains of the burned horses of the Belt Line stables had been removed, with almost no odor, by the use of a certain deodorizing preparation.

Mr. Hasbrouck said that Professor Chandler, an excellent authority, recommended copperas.

Mr. Cassabeer, of the Steinway & Hunter's Point road, spoke in favor of copperas, and said the mistake of considering a deodorizer as a disinfectant was too frequently made. He gave as a motto in the matter, Pure air, cleanliness and copperas.

Mr. Scribner spoke of the fact that new hospitals were more conducive to health than old ones under the same circumstances, and thought that barns in the same way became impregnated with the germs of disease. Said that in the construction of the new barns of his road he should use a large amount of sulphur in paint, whitewash, etc. Said he had seen boats painted with a paint in which sulphur was a large ingredient, and that no vegetable or animal matter would attach to it.

Mr. RICHARDSON referred to the use of sulphur and copperas.

Mr. Cassabeer said that sulphur had been used as spoken of by Mr. Scribner for years and with success, but that sulphate of copper was better. On being asked as to the use of asafetida, he said that it was only valuable for the benzoic acid it contained, and that that could be bought cheaper pure.

Mr. CLEMINSHAW had tried to cleanse an unwholesome stable by scrubbing and then thoroughly fumigating with burning sulphur, but without success.

MESSRS, CASSABEER and SCRIBNER thought Mr. Cleminshaw's failure to kill the germs of disease due to lack of thoroughness.

Mr. Starr spoke of the necessity in cases of tearing down old walls to get rid of the germs of disease.

Mr. RICHARDSON spoke of the loss of two horses from cerebro-spinal meningitis, and asked if others had any cases,

Mr. Lewis thought there was no cause for apprehension on that subject in Brooklyn.

Mr. Hasbrouck spoke of the loss of one horse from this cause.

MR. McNamara, in the course of the discussion on disinfectants, thought the turn of the subject unkind just at lunch time.

Mr. Richardson was surprised that any man's stomach or appetite should be affected if he was regularly engaged in the street railway business, and last of all a man from Albany.

The meeting then adjourned to the dining room, where awaited the members an elegant dinner provided by the Brooklyn companies.

When the meeting was called to order a paper by Joshua Crandall, of the Broadway road, Brooklyn, was read, subject, Disinfecting Stables. (The paper will be found elsewhere.)

Mr. McNamara moved a vote of thanks to the Brooklyn companies for their hospitality.

The committee on nomination of officers for the ensuing year, Cleminshaw, William J. Richardson and Hasbrouck, then made its report as follows:-For President, John W. McNamara, of the Albany city road; First Vice President, C. C. Woodworth, Secretary Rochester City & Brighton Railway; Second Vice President, John N. Partridge, President Brooklyn City & Newtown Railroad; Secretary, William J. Richardson, Secretary Atlantic Avenue Railroad, Brooklyn; Executive Committee, G. Hilton Scribner, President Central Park, North & East River Railroad, Daniel F. Lewis, President Brooklyn City Railroad, and Lewis Lyou, President of the Third Avenue road of New York.

After the unanimous election of these officers the convention adjourned, fixing upon New York as the next place of meeting.

## The Preservation of Railroad Ties by the Use of Antiseptics.

BY JOSEPH P. CARD,\*

The antiseptics that have been used up to the present time, to any considerable extent, in the preservation of railway ties and timber, are: Corrosive sublimate, kyanizing; sulphate of copper, Boucherie; chloride of zinc, Burnetizing; and dead oil, creosoting.

In treating timber with corrosive sublimate, it is generally placed in large wooden vats for one day for each inch in thickness, not counting the day it is put in or takeu out, or say ten days for an 8 in. × 8 in. square stick.

The handling of the timber after treatment has to be done with care, or serious consequences may follow. The solutiou used has generally been one part in 100 of water.

The treatment with sulphate of copper has generally been done by the Boucherie process, or in copper cylinders, on account of its corrosive properties, while the treatment with chloride of zinc is done in iron cylinders, which cost say oue-tenth as much as copper. All three of these salts being more or less liable to be chemically changed or washed out of the wood, and as the chloride of zinc has, under most conditions, when injected in proper quantities, answered equally as well, and being cheaper and more economically handled, it has come more generally into use than either of the others. In fact, comparatively speaking, corrosive sublimate and sulphate of copper have practically gone out of use.

Mr. J. W. Putnam, of New Orleans, in a letter to the Chairman of the Committee on Preservation of Timber of the American Society of Civil Engineers, says: "With reference to creosoting, wherever the coating is broken, and the air, with its dust, allowed to come in coutact with the uutreated wood, decay follows, and extends in each direction from the opening," and he is but one of the many who make this or similar statements,

The Burnetized ties on the Chicago, Rock Island & Pacific Railway, near Englewood-and, so far as I have examined. those on other roads also, where the work was well done-were sound under the rail but decayed where they came in contact with the ground. Mr. Alexander in his report of March 23, 1882, to Mr. Hugh Riddle, then President of the Rock Island Co., says: "I have made a careful examination of the Burnetized hemlock ties we laid in the main track just west of Englewood in November, 1866, last summer, and found at least 75 percent of them still in the track, and, in my opiuion, in such a state of preservation that they will be serviceable for two or three years longer. Five or six of these ties were taken out of track, and found to be sound and solid iu the center, and only decayed to the depth of ½ to ¾ in. on the surface and sides. The rail has not worn into these hemlock

ties to any greater extent than would have occurred with oak, and they hold a spike fully as well as the oak tie. The pine and cedar ties that were Burnetized at the same time have worn out in the fifteen years' service, and have disappeared. The tamarack have held out about the same as the hemlock." Continuing, he says: "My experience is that untreated hemlock ties decay first in the center or heart, when the spike becomes loose and the tie crumbles; but these treated ties are sound in the center, which shows that where the chloride of zinc is not washed out, the wood is in a perfect state of preservation."

I saw these ties a short time after they were taken up, and examined those remaining in the track in June, 1883 (they had been down seventeen years), and found them to be sound under the rail, with hardly an exception. I also had the sound wood from several of these ties analyzed, and found them to contain from 0.05 to 0.14 per cent of chloride of zinc to weight of the wood when dry.

#### The Season's Growth in Street Railway Business.

The following table, compiled from our Street Railway Directory, gives the principal statistics of the street railways of the United States and Canada, in March and in September of the present year, arranged by States, with comparisons. The figures include the mileage of cable and electric railways.

STATE.	March.	ack, Miles	s. Inc.	Cars,	1 and 2 h Sept.	orse. Inc.	Ho March	rses and mu . Sept.	iles. Inc.
Maine New Hampshire Vermont. Massachusetts. Rhode Island. Connecticut.	17.5 23.75 11.5 389.83 61 71	19.26 23.75 11.5 457.21 63.8 86.5	1.75 67.38 2.8 15.5	37 15	56 38 16 2,238 301 235	2 1 1 237 47 36		227 133 60 11,370 1,524 1,221	3 2 6 899 124 183
Total, N. E. States	574.58	662.01	87.43	2,760	3,084	324	13,318	14,535	1,217
New York New Jersey Pennsylvania Delaware	876.3 130 25 477.33 7.33	916.37 207.5 631.23 7.83	40.07 77.25 153.90 .50	5,117 417 1,872 27	5,421 606 2,472 30	189	27,346 2,359 10,340 102	28,513 3,274 13,086 103	1,167 915 2,746 _1
Total, Middle States	1,491.21	1,762.93	271.72	7,433	8,529	1,096	40,147	44,976	4,829
Maryland. District of Columbia. Virginia. West Virginia. North Carolina. South Carolina. Georgia.	143 25 53.57 20.5 17 7.5 33.5 68.25	171 45 60.94 21.75 17 9.5 35.25 74	28.2 2.37 1.25  2 1.75 5.75	424 356 82 28 6 86 178	486 367 86 28 22 88 196	62 11 4  16 2 18	2,783 1,551 349 60 36 262 598	3,156 1,589 365 60 102 285 717	373 38 16  66 23 119
Florida Alabama Mississippl Louisiana	4.88 53.5 4.75	17.5 116.25 7.5 136,1	12.62 62.75 2.75 3.1	14 134 10 294	44 187 14 467	30 53 4 173	54 453 32	181 569 51 2,046	127 116 19 711
Texas. Tennessee. Kentucky Arkansas Missouri	112 57 147.75 18 130.05	121.5 121 157.75 26 250.05	9.5 64 10 8 120	280 177 467 45 622	410 366 498 54 1,219	121 189 31 9 597	959 841 2,459 132 2,771	1,146 1,650 2,675 248 5,274	187 809 216 116 2,503
Total, Southern States	1,009.5	1,343.54	334.04	3,212	4,532	1,320	14,675	20,114	5,439
Ohio. Indiana. Illinois. Iowa. Michigan. Wisconsin. Minnesota.	363.89 80.5 293.28 90.75 93.23 71 110.5	404.14 109.25 376.78 112.75 121.07 72 134	40.25 28 75 83.5 22 27.84 1 23.5	1,120 192 1,991 188 322 217 299	1,166 227 2,313 227 393 224 351	46 35 322 39 71 7 52	5 798 1,095 8,165 692 1,575 952 1,742	6,279 1,245 9,278 825 1,776 1,090 1,908	481 150 1,113 133 201 138 166
Dakota Terr	1.5 2.25 29.5 41.5 46.5	1.5 2.25 43.5 56.5 75.75	14 15 29.25	2 5 74 79 95	2 5 102 118 221	28 39 12'	4 15 340 544 384	4 17 492 692 858	2 152 148 474
Total, West. States & Terr.	1,224.4	1,509.49	285.09	4,584	5,349	765	21,306	24,464	3,158
California	156.74 16 11.75 3.5	240,28 16 14.75 4.5	83.54 3 1	711 20 45 5	801 20 54 7	90  9 2	1,728 127 170 20	2,213 126 2 15 24	485 —1 35 4
Total, Pac. States & Terr	187.99	275.53	87.54	781	882	101	2,045	2,578	523
Canada	148.45	162.2	13.75	475	490	15	2,071	2,090	19
N. E. States Middle States Southern States Western States & Terr Pacific States & Terr Canada	1,009.0	662,01 1,762,93 1,343,54 1,509,49 275,53 162,2	87.43 271.72 334.04 285.09 87.54 13.75	2,760 7,433 3,212 4,584 781 475	3,084 8,529 4,532 5,349 882 490	1,096 1,3:0 765		14,535 44,976 20,114 24,464 2,568 2,090	1,217 4,829 5,439 3,159 523 19
Grand Total	4,636.14	5,715.7	1,079.57	19,245	22,866	3,621	93,562	108,747	15,185

<sup>\*</sup>Paper read before the Western Society of Engineers.

#### A New Cable Conduit:

The cable conduit\* here illustrated is so designed that the cable tunnel and the pulley vaults may be made entirely, or almost entirely, of cast-metal plates having flat

lower plates as shown in the figure. The upper plates are represented as secured respectively to the slot bars and to the transverse yokes formed on opposite walls of the vault. The lower plates are united to the upper by rabbeted and bolted or riveted

supported by transverse bars extending from the slot bar to the track rail. It will be seen that the pulley vaults are constructed in the same general manner as the tunnel proper, and as all the plates are previously made to sizes, it is only necessary

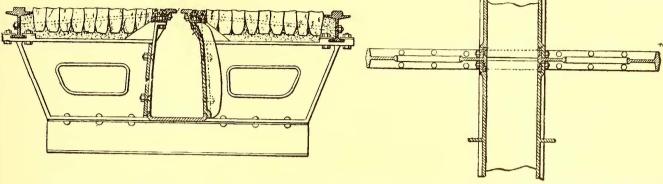


FIG. 1. TRANSVERSE SECTION OF TUNNEL,

FIG. 2. HORIZONTAL SECTION OF FRAME SUPPORTING TRACK.

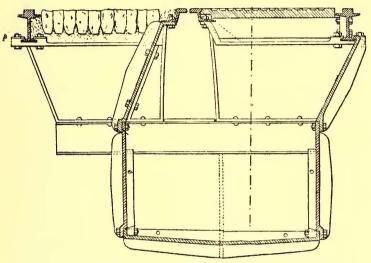


FIG 3. TRANSVERSE SECTION THROUGH PULLEY VAULT.

to keep the street open long enough to lay the pieces down and bolt or rivet them together.

Fig. 1 is a transverse section of the tunnel. Fig. 2 is a horizontal section, showing the yoke and the sides of the tunnel by its shaded portions. Fig. 3 is a transverse section through a pulley vault. Fig. 4 is a longitudinal section of the pulley vault, the section being taken through the dotted line in Fig. 3.

#### Car Stable Disinfecting.

BY JOSHUA CRANDALL.\*

Your committee on Disinfecting Stables and Hospitals for Horses begs to submit the following report:—

In my experience I have found that the

or plane surfaces. The rails and slot bars are supported at suitable intervals by transverse frames or yokes, which are of ordinary form, and are bolted to an I beam that lies beneath the rail. The flat side plates and bottom plates have strengthening ribs on the outside, and are constructed so as to form rabbeted joints with lateral flanges on the transverse yokes or frames, and the side and bottom plates are rabbeted to one another.

The plates composing the tunnel may be put together very quickly, and with little labor, and without the necessity of leaving the excavation in the street open for a long time in order to enable cement or masonry to become properly dried before being covered with earth. The plates being provided of proper size, they can be arranged in place and secured together so as to form the tunnel almost as rapidly as the excavation can be made, and the interference with surface travel is therefore small.

The ends of the pulley vault, or sheave pit, down to the level of the cross beams, may be formed solely by the transverse yokes; and the longitudinal walls, or those walls of the vault which are lengthwise of the track, may be formed by upper and

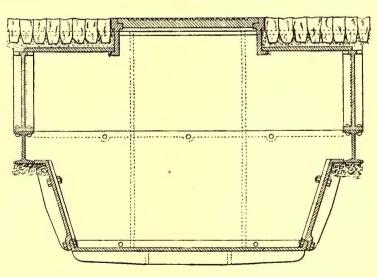


FIG. 4. LONGITUDINAL SECTION OF PULLEY VAULT,

joints; and the lower end plates, forming the lower portions of the end walls of the vault, extend only to the transverse beams or girders, and are bolted or riveted to the plates that form the longitudinal lower walls of the vault. The bottom of the vault is formed by a plate which is rabbeted to the end and side plates.

Each pulley vault has a manhole at the street surface, which is closed by a cover

rule of an ounce of prevention being better than a pound of cure has held good in the question of car stable disinfecting. It, therefore, seems to me that a paper on disinfecting will properly embrace the question of the construction of stables, which is very intimately related to it.

Our stables are built briefly in the following manner:—First, we lay a floor of 2 in. plank in concrete, running lengthwise

<sup>\*</sup>Julius Jonson, 118th st., Harlem River, New York city.

of the stall. These planks are covered with tan and on top of them we lay strips of 11 in. plank, 4 in. wide, 4 in. apart, extending back to the gutter. Behind these is a gutter of solid stone, the stone being 12 in. wide by 4 in. in thickness. In this a gutter is chipped about 7 in. in width and 11 in. deep in the center. Trap basins leading to the sewers are provided every 50 to 100 ft., according to the pitch of the gut-The grooves 3 in. wide left between these planks are cleaned by just using a hook made for that purpose. Following the man with this hook is a man with a hose, and the broom is used to thoroughly sweep out the gutter. After which, and this I may remark is about the only disinfectant ever used in our stables, we sprinkle on a little slacked lime mixed with fresh sand, something about half and half. We also consider it an important condition that our mangers are so constructed as not to allow any feed to lodge in corners and become sour. It is our opinion that sour feed in this way produces more sickness than is us-

an average of about seven years' life of our horses, with fifteen miles drive per day. We consider it, when practicable, a good idea to air the bedding every morning.

We have had no complaint, that I am aware of, in the last twenty-five years, from offensive odors in our stables, and our stables are in very thickly settled portions of the city.

#### New Form of Street Rail and Track.

The new horse railway track of the West End Co., in Brookline, Mass., is something of an interesting novelty, as it is becrete extending 9 in. on each side of the rail center. It is made of the best Portland or hydraulic cement, 1 barrel cement to 2 barrels sand, mixed with small, hard broken stone and well rammed. The base of the rails rests upon a full and continuous bearing on the surface of the concrete. Crossties of chestnut 4×6 in. and 71 ft. long are placed across the track every 71 ft. The rails, which are 30 ft. long, weigh 90 to 100 lbs. per yd., and have splice-bars on each side at the joints, 16 in. long, containing four 3-in. bolts, with round heads and square nuts, the holes on one side being elongated for expansion. The cross-ties

21/2" x 1/2"

Iron Tie Rod

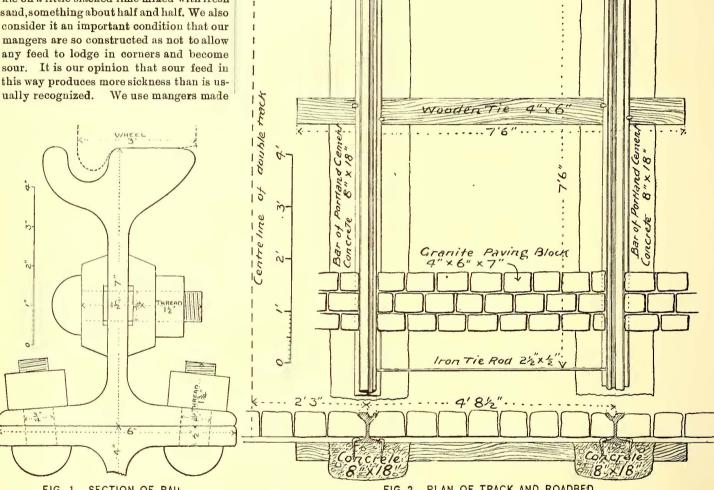


FIG. 1. SECTION OF RAIL.

FIG. 2. PLAN OF TRACK AND ROADBED.

of artificial stone or English cement, so rounded out as to enable the horse to leave thementirely clean. So much for the floor and manger.

Further, on the subject of ventilation, I would say that it seems very much better to us to use one-story stables. Ours are about 20 ft. between joints, so arranged that a clear-story ventilator extends the entire length of the stables between each row of stalls. These are so made as to admit of windows nearly 5 ft. high, every alternate one of which is hung on a pivot with cord leading down to the floor so that it may be readily opened.

With these precautions and the employ-

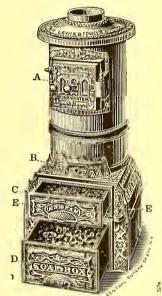
ment of no veterinary surgeon, we obtain \*Paper read at the September, 1887, meeting of the New York Street Railway Association. ing laid with the English grooved rail, known as the "Liverpool rail," somewhat medified as to the head, as shown in the accompanying illustrations. In section it is of the I-girder form, similar to that in use on steam roads, but is 7 in. in height, with 1/2-in. web, and a 6-in. flange at the base. The tread is 3 in. wide and lies wholly outside the inner line of web. The wheel flanges run in a groove inside the web, a lip being carried out from the web on the inside to form it. The top of rail and lip is flush with the paving block, and the depressed groove thus formed, which is sufficient to guide the wheels, is too narrow to allow carriage wheels to become caught in it. The bed for the rails consists of a continuous bar of concrete filled in trenches 8 in. wide by 8 in. deep, the con-

are placed near together at the ends of the rails, averaging six to a rail length. Iron tie rods 2} X 1/2 in., having 1/4-in. round screwed ends, are run across, being provided with two nuts for adjusting the gauge.

Granite paving blocks 4 in. thick, 8 in. long, by 6 in. deep, are laid on the lower flange so as come flush with its top. For double track the width of paving is to be 18 ft.; single track, 8 ft. 91 in. The foundation of the paving blocks is a bed of soft mortar covering the flanges of the rails, tops of concrete bars, and ties. A space of 1 to 1 in. is to be allowed between the blocks, and they are laid in mortar so that they do not touch. The whole is to be covered with one inch of sand, kept wet, until thoroughly set, and the street is ready for travel.

The bolt holes in the T base plate are 4 in. apart, two sets of bolts going into each end of the rail. The same is the case with the splice-bar bolts. The nuts are locked by making them very tight on the bolt.

The West End Co. is becoming an immense institution. Eight miles of track, similar to above, are under contract and the paving blocks are being delivered on Beacon street. The contracts provided that 785 gross tons of the imported steel tram rails, or about 5 miles, should be delivered by Aug. 15, and the company has 3 miles now on hand. The delay in getting the rails has been due to the adoption of a wider tread for the top of the rail than that of the "Liverpool" rail, which required new rolls to be made, to suit car wheels 3 in. wide. The Boston & Albany Railroad are filling the section of Beacon street beween St. Mary's and St. Paul streets, after which the track will be laid as rapidly as possible. It is expected cars will be run as far as Howard street, Brookline, by Jan. 1. The company expects to lay 10 or



FOWLER'S CAR STOVE. FIG. 1.

12 miles this year. This is the second railway laid with the Liverpool rail in this country; about 4,000 ft. having been laid in Baltimore, whereit has given satisfaction.—Engineering News.

#### Fowler's Car Stove and Coal Box.

The cuts herewith show a new design of car stove,\* combining a coal box as well as ash pan, without increase of space. In Fig. 1 the door A is made either sliding or swinging. B is the shaker and improved grate, and E E slides to regulate the draft. The coal box will hold one hod of coal with shaker and shovel. The cost is only slightly above the ordinary street car stove, and, as shown by the cut, the symmetry is not interfered with.

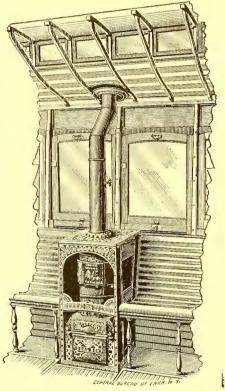
THE THIRD YEAR of the life of the STREET RAILWAY JOURNAL ends with this issue.

This number contains 96 pages.

#### The Prescott Truss Door Hanger.

We illustrate in connection with this article a truss door hanger\* that is intended for use on sliding doors. It consists of two cross-pieces hinged together, so as to form an X. One of the upper ends of the X is attached to a pin in the door, and the other to a pin in the wall. The two lower ends of the X slide in two vertical grooves in the door and in the wall, respectively. For ordinary small doors the component pieces of the X are simply bars of iron, but for very large ones they are trussed, and for intermediate sizes of doors one of them is trussed and the other is a plain bar, as is shown in the cut.

By making the length of the hanger pieces



FOWLER'S CAR STOVE. FIG. 2.

somewhat greater than the movement of the door, the friction of parts may be made very small, and the door will open and close with very little resistance.

 $^*\mathrm{Prescott}$  Manufacturing Co., 61 and 63 Oliver st., Boston, Mass.

Best System of Checking Conductors' Returns.

BY J. A. BONNELL.\*

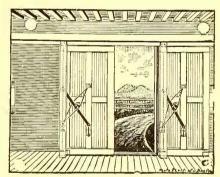
Your committee would respectfully offer the following report upon the "Best System of Checking Conductors' Returns:"—

The time was when the title "conductor" of a horse car was synonymous with that of a petty thief, and a man who held such a position was not given credit for honesty by the general public. His temptation to be dishonest was greatly increased by the fact that a large number, if not a majority, of his associates were

\*Paper read at September, 1887, meeting of New York State Street Railway Association. dishonest. Since the introduction of the alarm register a great change has taken place as to the estimation in which the integrity of the position of a conductor on a street railway is held by the public as well as the company. Now a conductor has it in his power to show to every passenger who rides upon his carthat he is an honest man, by always recording a fare promptly upon its collection.

It was not an uncommon occurrence for a conductor to be jokingly, and sometimes seriously, charged with "knocking down." Now a conductor who is similarly charged is justified in knocking down with his fistsauy person who so aldresses him, thus questioning his integrity.

There is no occupation upon which a man may enter that tests more thoroughly his inherent honesty; for it is simply impossible for the officers of a company to know exactly how many passengers ride upon a car and how many fares the conductor collects. This could only be known by the employment of a "counter" to ride on every half trip that the conductor makes. Of course, this would be impracticable. However, a man who is honest is honest all through; a man who is dishonest is likewise dishonest to the core. He may not steal on some trips; he will steal on others. He will sooner or later be discovered and ultimately discharged; and in so far as his discharge may affect his ob-



THE PRESCOTT TRUSS DOOR HANGER.

taining other employment, blast his reputation. He will know that he has brought it upon himself, and that he alone is to blame. No man is obliged to work for the wages that are paid him. If a man is not satisfied therewith, it is his duty to honorably resign from the employment of the company, and to give his position as a conductor to a man who is willing to work for the wages paid.

There have been many kinds of alarm registers invented for the checking of the collection of fares. They are essentially of two different characters, one class being known as "open" the other as "secret." The principle of one is that the conductor and the public shall know the number of fares collected, while the theory of the other is that neither the conductor nor the public should know the number of fares collected; but that both shall be kept in ignorance thereof, so far as the same is disclosed by the register. Both systems have their warm advocates, and it is a question which is the better.

<sup>\*</sup>Lewis & Fowler Manufacturing Co., 27 Walworth st., Brooklyn, N. Y.

The advantage that is claimed for the "stationary" register, namely, that the record made by the conductor may be seen by himself and the public, is considered for that very reason by those who advocate the "secret" register a disadvantage, and vice versa.

The advantages of a portable register are, that being always carried by the conductor it is absolutely under his control and free from interference by the passengers or others; also, fares can be more rapidly collected with it than with a stationary register, because of its immediate presence with the conductor. This, of course, applies to those portable registers that are suspended from the shoulders of the conductor, leaving both hands free for the collection of fares.

With a portable register, it is possible to have two sets of mechanism and alarms, covering "half" fares as well as adults' fares, in this way keeping the record for work done by the conductor absolutely correct.

Au evident disadvantage in a portable register is that it affords greater opportunity for the use of a "dummy" or false alarm bell in connection therewith. As an offset to this evident disadvantage, however, will be the detectives' returns, which ought very soon to disclose the improper use of such a false bell.

One essential rule, we think, should be applied to all alarm registers, regardless of their fundamental principle being either open or secret, and that is, a conductor should not be required to register a fare until he collects it. A stringent rule, that can be rigidly enforced, which will require a conductor to collect his fares promptly upon a passenger getting upon the car, will obviate the necessity of the conductor being obliged to register a passenger as soon as he steps upon the car and before the conductor collects the fare.

It seems to your committee that this manner of registration is but fair to the conductor, and in so important a matter doing only as we would wish to be done by, were we in his place and he in ours.

No alarm register, however perfect, or upon what principle constructed, will work itself. If a man is naturally dishonest, he will find some way of circumventing the register; either by not ringing at all, and thus barefacedly declaring that he is dishonest, or else by the use of a false bell, or by some other ingenious device, attempt to deceive the passengers and mulct the company. It is, therefore, necessary for every company to employ counters or detectives, and the system of management of these detectives will be such as may be best a lapted to the demands of each separate road.

A disadvantage in the stationary register is, that it is not always exclusively under the control of the conductor. It is sometimes possible for a passenger to pull the register strap in mistake for the drivers' bell strap for the stopping of the car.

In case of a fire, especially if it is prolonged, the record that may have been of the conductor and free from interfersonably certain.

made for that day is very largely destroyed if the stationary register is used, by reason of the fact that the conductor, being obliged to leave the car he first had, and take his passengers across the impending hose to another car, upon the other side, may get his accounts thereby considerably mixed, while for the counters who may be riding on the cars, the records of the registers would be made practically of little use, at least so far as showing totals is concerned.

The merits and demerits of a stationary register, forming a part of the car, are:—
Merit—If open face, a "ready reckoner" of the conductor's work.

Demerit—Because a ready reckoner, the conductor not being obliged to count his fares, in case he should have forgotten to register a fare (inasmuch as he has not counted his money at the beginning and end of the trip), the company would be the loser of the fares collected and not registered.

Merit—Being stationary in the car, whether "open" or "secret," a larger instrument, and, therefore, a much larger bell, may be used than it is possible to have in a portable register, and thus less danger of its being imitated by false or "dummy" bells.

Demerit—Being stationary and away from the conductor, it is not so easily manipulated as a portable register carried on the conductor's person, especially on "rush" trips

An open-face register, while it has the advantage of assisting an honest detective, yet as all men are not honest, it may be made use of by a detective to enable him to make his work easy by his failure to count every passenger whose fare is collected, but simply to rely upon the record made by the conductor upon the face of the register for the counter's returns. It will be seen, therefore, that what may be or should be an advantage is sometimes turned to the company's disadvantage.

The stationary registers being so large, it is not considered practicable to have two sets of registers, one for adult and the other for half fares, and this, as is manifest, introduces an element of discord into the conductor's record, either, on the one hand, by his ringing once for two half fares, or on the other by ringing once for each half fare.

The "secret" register has the advantage over the "open," in that the conductor is required to count his money at the end of every half-trip, and after deducting his own to turn the fares in to the company, thereby obliging him to know whether he has stolen from the company or not. In the case of the open register he will not count his money to ascertain that fact.

To summarize the relative advantages of the stationary and portable registers, would say, first, the portable has the advantage over the stationary register in the more rapid collection of fares; second, it is of greater advantage over the stationary register in being absolutely under the control of the conductor, and free from interfor-

ence on the part of outsiders; third, it is of greater advantage over the stationary register in that being portable, it accompanies the conductor in case of fire or other disturbance on the road when the changing of cars is necessary; fourth, it is of greater advantage over the stationary register, in that it is manipulated by the conductor and register inspector only.

The stationary register must be adjusted at the end of every half-trip by the starter, and the possibility of collusion is enhanced when the register is open-faced.

The advantage of the stationary register over the portable register is that, being much larger, and the alarm louder in sound, the conductor has not the same opportunity for using a false register.

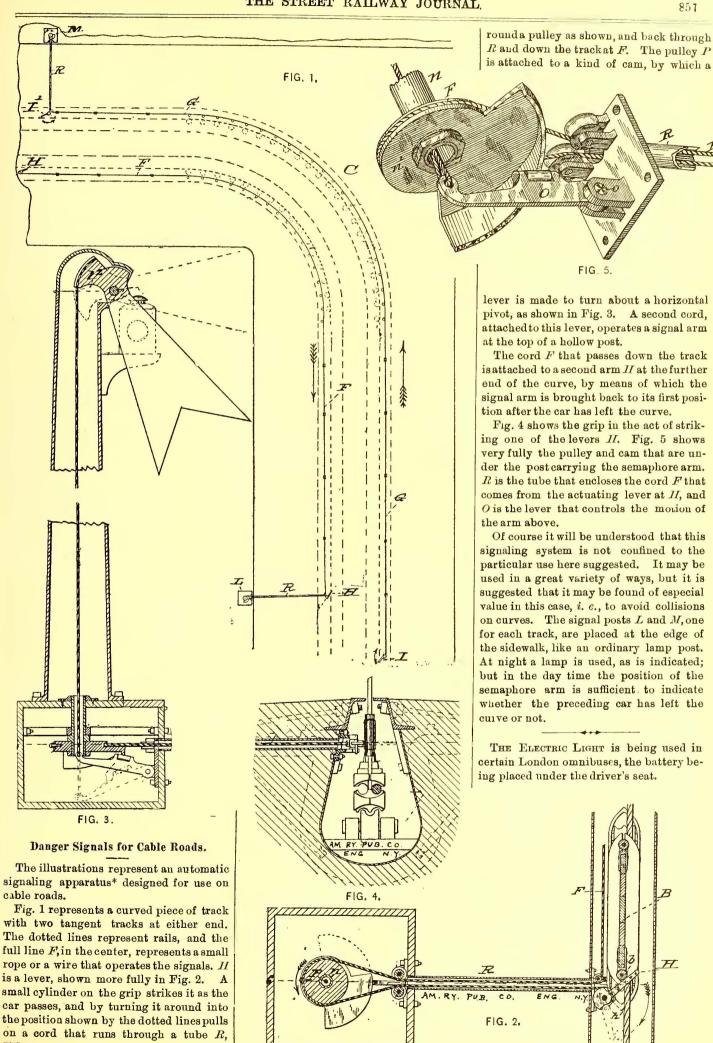
An additional check upon conductor's returns, and which your committee considers to be a valuable one, is a check against receivers in the office. A slip should be prepared for a summary of each conductor's work for the day, and enclosed in an envelope addressed either to the president or one of the officials of the company, and it should then be examined to see that the summary thus represented by the conductor is identical with the work upon the receivers' books. This precludes the possibility of a receiver altering the pencil figures of the conductor on his day slip and thus defrauding the company.

No honest man, whether receiver or conductor, will object to the placing of as many legitimate and proper checks upon the work done by him as are necessary, but will rather invite the placing of such checks upon his work, and such a man would heartily wish for such a register as would preclude the possibility of pilfering from the company, were such a thing in its very nature possible.

Again we say, in closing, see to it that your detective system is as nearly perfect as it is possible to get it, and do not rely too much upon the alarm register that your company may use.

#### Wall Street Express Trains.

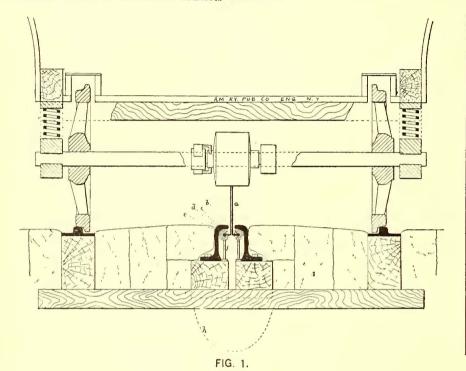
The report of the New York Rapid Transit Commissioners to Mayor Hewitt has been made. They are of opinion that there is need of a new road from Wall street to Forty-second street; that it should be a solid viaduct line through the blocks as far as possible; that the streets should be crossed by massive steel girders, with solid steel floors having no openings; that there would be no jar or break of continuity of motion in such a structure, and that trains could be run at a high speed with little noise; that the stations should be not less than half a mile apart and long enough for ten cars; that the cars should be as wide as possible; that the train should be run by independent motors at a speed of at least twenty-five miles an hour, including stops, making the trip from Wall street to Forty-second street in nine or ten minutes; and that the viaduct could be built for a sum on which a good return would be rea-



\*Benjamin F. Rex, 710 Olive st., St. Louis, Mo.

#### The Euphrat Electric Street Railway System.

In the Euphrat system\* the conductors are attached to the rails, or are placed in an underground conduit the upper surface of which is at or near the same level as the street. The peculiar feature of the system consists in the constitution of the conductor. In one of its forms it consists duit is used the conductors are supported by steel clamps, directly upon the ties. within it.



They are first secured in position, when the system is being introduced, and the sides of the conduit are laid down afterwards. In this way the cables and the conduit are independent, and any portion of the conduit may be removed and replaced without disturbing the conductors ble is shown at e, and one of the steel clamps that hold the conductors is shown at d. The conduit, indicated at h, is intended to remove whatever water or dust may fall through the slot b.

Fig. 2 is an enlarged view of a portion of the conduit, showing the brushes at a and b, and one of the steel clamps at c and f. The insulator that nearly surrounds the conductor is indicated at e, and the flexible covering, at d.

Figs. 3 and 4 show the way in which the flexible covering opens to admit the brushes. Fig. 5 is an enlarged view of one of the steel clamps, showing the manner in which they are secured to the stringers underneath the conduit. Fig. 7 shows the general appearance of a car run on the Euphrat system.

Besides the particular advantages named, this system possesses the additional advantage, in common with all similar systems, of permitting the cars to be lit by incandescent lamps.

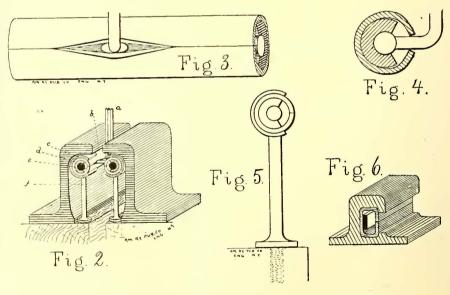
#### The Chaplin Roller Bearing.

It is claimed for the roller bearing\* which we illustrate that it differs from all other bearings of its class: First, in that the rollers are bound together and are kept in position by rings which are fitted into grooves formed therein and are consequently portable in an integral form, and may be inserted in any suitable box or casing which convenience may suggest.

of a rather heavy wire, nearly surrounded by dense insulating material, in which, however, there is a wide slit extending the entire length of the conductor. Around this there is a flexible insulating covering which is also slit throughout its entire length, though in this case the slit in its natural position is closed. A moving brush that makes contact with the conducting rod in the interior of the conductor, separates the lips of the outer insulating layer as it moves along, and they close together again immediately after it has passed.

The round form of conductor is shown in Fig. 3. A second form of conductor, and one which is generally preferable, contains a flat strip of metal about 1 in. thick and 5 in. wide. This is surrounded as before with a flexible covering, and acts in every way like the one already described. As the conducting rods are insulated, the conduit containing them may be very simple in construction, and with this system an injury from accidental discharge of the current through men or animals is practically impossible. Even if the conduit should break it would still be impossible to complete a circuit accidentally by any portion of the body, since both of the conductors are insulated.

As is shown in Fig. 6, the central conduit may be dispensed with, if so desired, and the conductors may be attached to the rails directly. When this is done a special form of rail must be used. In case the con-



THE EUPHRAT ELECTRIC STREET RAILWAY SYSTEM.

A drain is arranged beneath the conduit. to remove whatever water may enter through the slit above. The brush that bears against the conductors is so constructed that they may be removed from the conduit when necessary by first turning them round so that they are parallel to the slot. The general arrangement of the whole is shown in Fig. 1.

In this figure a is the brush that establishes electrical connection between the car and the conductors. It enters the conduit through a slot, b, between the protecting pieces c. The flexible covering of the ca-

Second, that there are no surfaces that rub against each other, no roller turning against roller, or against a containing cage. This peculiarity is the crowning excellence of this bearing. To produce this result, a short parting roller is inserted between the inner and outer rings, and in the groove formed in the main rollers for the rings to fit in. These parting rollers are so gauged for size, as, together with the necks formed by the grooves, to about equal the circumference of what is termed the circle of centers, and the whole adjustment is such as to keep the main rollers

<sup>\*</sup>Frederic Euphrat, 137 Broadway, Room 15, New York city.

from contact with each other. The necks alluded to, are less in diameter than the parting rollers, and consequently do not, when in proper working position, touch the rings.

A person slightly skilled in mechanical movements, will, upon a little reflection, observe the harmony of the movements of this combination of parts, which is briefly stated as follows: The axle acting as the primary or initial mover causes the main rollers to move together, all in the same rotating direction; these, in turn, act on

around the axle. A sleeve of steel is also provided to slip over the axle, and is held in position by a steel pin passed through them. This improves the running qualities and prevents wear of the axle. A steel cup, formed in the outer cap, is shaped for a steel ball to run in a circular groove and against a hardened steel bushing inserted in the sleeve, to take the end thrust of the axle when rounding curves, etc. This box as now made is the result of several years of observation and careful experiment, and the company now offers

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EUPHRAT ELECTRIC RAILWAY-CABLE CO.

FIG. 7.

OF THE U.S.

the parting rollers, causing them to rotate in the opposite direction; and these, being in contact with the outer ring, cause it to move in harmony with them. The inner ring is to keep the main rollers from falling out of place when the axle is withdrawn, and the parting rollers in position when in action.

It is free to the influence of gravity, and has no definite action in relation to the other parts. It should be observed that none of these parts come in contact with opposing forces, either moving or inert; therefore perfect harmony of movement is assured, and there is absolutely no friction.

This bearing may be adapted to almost every variety of axle, but it is especially useful in moving vehicles. It has proven to be of great value in street cars. The company are now making a box for this purpose that combines many excellent qualities with the roller bearing, of which we will here make brief mention. This box is adapted for the use of the Vose Patent Graduating Spring, which is growing in favor. All of the wearing parts are of steel and the workmanship is of the best class. Practice having proven that running in oil keeps the disintegrated particles, separated by pressure and motion, from adhering to the solid surface and from each other, provision is made for retaining it among the moving parts with the minimum of waste. To this end, the cap that closes the front of the box is turned true to a fit and is made a tight joint by the use of a thin coating of white lead. The back of the box is provided with a stuffing box and felt packing to make tight

\*Chaplin Manufacturing Co., Bridgeport, Conn.

it for sale with confidence that it will give satisfaction.

The Building of Cars by Street Railway Companies.

BY WILLIAM WHITE.\*

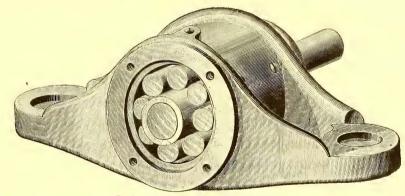
The question of car building by railway companies is so closely related to the re-

the solution of the question of economics. In large cities it is the matter of greatest expense presented.

Where the depot of a company operating 100 cars is properly constructed and arranged, no great addition to first cost is incurred by making provision for a complete car shop. The building of a single additional story for this purpose incurs but a slight additional expense, and in many instances does not cover even so large an area. And yet in the discussion of the question of profitableness now going on in our railway journals, too much stress is laid on the capital thus invested. The cost of machinery needful to engage in car building is not an expensive factor. though, beyond all that is really necessary, a door is open for extravagance. Competition in the production of car machinery, and large strides in improvements as to completeness and simplicity, have made this item comparatively inexpensive. This is made more so in the high finish of the work turned out and lessened cost there-

Railway supplies are continually offered by supply men, who are practical, shrewd and persistent, and whose catalogues cover every conceivable want. To all of us some of their wares are both necessary and valuable. Your committee has no adverse word respecting them: in their way and place, they bring every important device to notice. Yet, respecting many patented improvements, it is to be said that "but few are chosen." Many are utterly unnecessary, some quite meretricious and costly, and utterly needless for adoption by the company to whom offered, and of no advantage to its patrons.

Your committee advises any company



THE CHAPLIN ROLLER BEARING.

pairs of cars as to render it proper to consider them together.

As a rule minor repairs, and the painting and maintenance of car equipment, are considered to be a branch of railway management growing out of the necessities of the business, and are carried out by almost every company. The provision of a shop for this purpose is met in almost every instance in the purchase of real estate by each company in the organization of its business, being admitted to be the most expensive factor in

\*Paper read at September, 1887, meeting of New York State Street Railway Association. operating 100 or more cars to engage in their construction themselves.

To do so economically, the first requisite is to choose a pattern car necessary to its wants, including all the furnishings thereof, not for a moment losing sight of the fact that uniformity of patterns for every item of supply, repairs and renewals is a factor to be considered, both in first cost and thereafter. Too much stress cannot be laid upon this matter, as it involves thousands of dollars annually. These carefully considered furnish the data for the machinery required to turn out the work, as well as the uniform patterns to be kept

in the shop. Car wheels, axles, pedestals, boxes, brasses, etc., can be purchased on better terms than made by any company.

A master mechanic is a necessity, and this is equally true if only repairs are made. His shop properly arranged will provide at the same time for building and for repairs. Every department should be on the same floor. His experience will enable him to keep his special skilled workmen at the machinery, and making blinds, sashes, doors, etc. For the profit of such division of labor thus accrues to the company as well as to any other manufacturer.

The same number of mechanics is not at all times needed on repairs; yet a really good workman is always a prize, and should be kept.

A supply or store room under lock and key is a further necessity, from which, on printed requisitions, supplies should be dispensed, kept in record and regularly examined.

If the depot business goes on systematically, an engine will not be run simply to drive the machinery of the shop.

The machine men should do all their work while the engine is running to cut the hay and grind the feed. This effects a very large saving in construction and repairs.

The maintenance of tools and machinery is a very small item on cost. Lumber supplies are probably the largest item at interest, as all other supplies can be bought as needed or at the advantage of the market. And yet good seasoned timber is an excellent investment, when to be had in needed quality, and dimensions to cut without waste. Repairs of engine, shafting, etc., and coal, under such a system, belong to feed account; yet if strictly separated would be but a nominal sum.

Thus the matter discussed brings us to this question, Wherein is the profit of car building demonstrated to accrue to the individual company? For as to equipment of shop, cost of machinery, etc., no company is at any disadvantage, while as to some branches of expense it has the matter of economy most surely with it, as compared with the car builder.

We are told that we cannot estimate the cost, etc., etc. This is but to question the intelligence of the master mechanic and that of the management or administration, which is not admitted, as our standpoint is not that of the supply man.

Car builders' commissions paid to supply men on orders obtained are certainly an item; also the car builders' profit in addition thereto, both of which accrue to the company building its own cars.

Another source of profit accrues in the building of substantial cars, adapted for their particular service, and constructed with particular reference to the certain necessities of future repairs. Any railway management will understand the significance of this point.

Your committee is of the opinion that it is of no small account that every part of a car passing continually under the practiced | York State Street Railway Association

eye of the master mechanic of a company. up to the finishing stroke, is of prime importance. All the wood is seasoned; all the iron work is "Burden's Best," and cannot be questioned in case of accidents: all the paint and varnish are such as long experience has proved the value, quality, and durability of. Such cars can be and are built at less prime cost than the prices asked for similar cars of reputable make.

All supplies can be bought by any railway company at rates as favorable as by any car builders, even if in a few specialties a nominal discount accrues to the

The character of the materials furnished the workmen, as well as the completed work from their hands, will stand a favorable comparison as to finish and competitive service with any other in the country.

All of which is very respectfully submitted.

#### Improved Power-Taxation-Labor.

BY G. HILTON SCRIBNER.\*

GENTLEMEN OF THE ASSOCIATION:-

It gives me pleasure as President of the Street Railway Association of the State of New York to welcome you as delegates to this meeting. I shall not detain you with an extended address on this occasion, believing that all subjects claiming our attention can and will be more thoroughly and beneficially discussed during the progress of the session. By such a method of procedure each topic of interest will have light thrown upon it by those members whose personal observation and experience have best qualified them to deal with the subject in the most intelligent and practical manner.

The street railroad interest has grown to large proportions in this State, and its importance as a distinct industry is not likely to be over estimated. Since the formation of this association, a spirit of laudable emulation has arisen, promoting a better service and a desire to adopt better methods in management than existed at any time before. This spirit is in every way praiseworthy and should be fostered by every means in our power. Every improvement in construction and propulsion which has finally passed the condition of experiment, and which promises a better and more economical service, should be adopted by the companies without hesitation.

Of course it cannot be denied by any impartial observer that the several municipal corporations of the State within whose jurisdiction nearly all roads are located, are as a rule not only not helpful to the companies, but positively obstructive in taking these advanced steps. Every new motor has had to fight for a mere chance of trial, and in the city of New York a severe struggle awaits any company which seriously sets about inaugurating a better service. In this particular there is little doubt, however, that we are upon the threshold of a change from horse power to

\*President's Address at annual meeting of New

some other means of propulsion, which in a short time will force its own way and will revolutionize the whole system in this respect. Every company should encourage all legitimate effort in this direction, and not only welcome but adopt the first improved method which will answer the purposes of economy and efficiency, for these are the first elements in securing to each passenger the best possible return for his fare.

There is another matter which in my judgment is still more vital, and that is the matter of unequal taxation. There is no reason or justice in the present law of this State, which taxes the real estate of street railroad corporations on as full an assessed valuation as that of any citizen and then taxes the personal estate at three or four times its value, by the false standard of measurement which results from taking the aggregate market value of all its stock as the equivalent in value of its personal property, then afterwards taxing the company's gross receipts, then again taxing separately its dividends or net receipts, which in effect taxes the same property three times each year, taxing also its tracks as real estate, taxing each company specifically for support of the Rullroad Commission, and lastly taxing in the city of New York the cars a specific sum of fifty dollars per annum, with the threat that the companies are next to be taxed on what they owe.

The whole system is an outrage and has no good excuse nor one redeeming feature. If street railroads are inimical to the public welfare, if they are nuisances in the streets, subverting the proper uses for which streets are established, they should be abolished by the repeal of their charters. But if they are not so, if investors were justified in the first place in building street railroads, and it is honest and proper to maintain and operate them, then the corporations doing so should pay taxes for their real and personal estates assessed at a full and fair valuation, so that their property should bear just burdens as other property bears, and anything beyond this is an oppression and an injustice and should not be tamely submitted to by the companies for a moment. But my views upon this subject have been so recently and so fully expressed to you that I will not go further now than to say that this whole matter should be, I think, explained to and urged upon the attention of every Legislature until relief is granted, and in the mean time no company should submit to the injustice unless compelled to do so by the court of last resort.

There is another law which has recently gone into effect which in my judgment is equally impolitic and unjust, but which affects more seriously those who ride upon street railroads than the companies which build and operate them. Indeed, it does not affect at all the street railroads already in existence, but is curiously illustrative of the principle that injustice sometimes immediately, as it generally does in the end, rests most heavily on those who invent it and attempt to apply it to others.

I refer now to the method of selling the franchises for new railroads to the company which will engage to pay into the city treasury the largest proportion of the money it collects from the persons who ride on its cars. This is in effect selecting out from all those who use the street in common that particular class who choose to ride in street cars, and compelling them through the agency of the company to pay something into the city treasury for the privilege of doing so. In other words, this class are forced to pay a sort of fine or tax for using the street for the very purpose for which the street was made and for which all other persons are freely using it. If such franchise were accorded to the company which would carry persons most comfortably, safely and expeditiously and for the least sum of money, such a course would result in using the street to the best possible advantage, without injury or injustice to anybody.

The labor organizations, which commenced their existence, or at any rate their last dispensation, by persuading men that they were ill treated in our employment, at a time when ten new men armed with supplicating letters and recommendations were waiting for the place of each one who was discharged or in any way dropped out, have for the past year so extended their field of operations that the railroads are to a degree obscured and lost sight of for the time being behind the more momentous questions and movements with which these philosophers are now wrestling on a wider and more elevated platform. After much thought I have reached the following conclusions in respect to these labor unions. Between the Socialists who claim that the government should do everything and control everything, taking possession of all corporations and even fixing all profits in trade, on the one hand, and the anarchists who oppose all government whatever and claim that every man should be allowed to do just as he pleases, on the other, there exists in these labor organizations every shade of like opinion imaginable, but the tendency of each particular organization is toward one or the other of these extremes, and to one or the other of these extremes every interfering organization must inevitably reach in the end.

If these organizations meddle with other people's affairs according to any rule, it must soon come to be by authority or a uniform custom having the force of authority, and that is law and government, and so would justify further and further extensions of like interferences, until the government, as the Socialists claim it ought, would come to regulate all private relations and lastly how much a man may make in his transactions, or be worth. On the other hand, for any kind of illegal interference to become chronic is to foster another and still another interference, not different in kind but applicable to some new matter, until no rights are sacred in the individual except such as he can maintain by individual force, and this is an archy. It is hardly neces-

sary to add that either extreme means revolution as soon as it is reached, and war until order is again established.

These troubles, however, have, I believe, come to stay and to be tried and tested until these problems are worked out and settled once for all. And who shall say that they may not as well be solved now as at any time in the future?

I could not refrain from at least calling your attention to the three great questions, which are constantly pressing upon the attention of us all—the first involving the adoption of a better motor; the second that of securing relief from unjust and unequal taxation; and the labor question, which is always with us. Nor have I attempted in these allusions to find remedies for or even to solve our perplexities, but simply to state the nature of them, with the merest hint as to the possible way out of some of them.

There are other topics of interest to us and impinging upon our business and affairs, which I should like to touch upon, but I promised at the beginning to be brief and I will detain you no longer than to thank you each and all for the honor conferred in electing me as your President for and during the last year.

And lastly let me assure you that the welfare and prosperity of this association will always be a matter of deep interest to me, in whatever capacity I may be associated with it.

#### Cable Railway Fuller and His Lecture.

At a recent informal meeting of New Yorkers interested in street railways, Mr. Lawson N. Fuller was about to begin his oft repeated discourse in favor of cable roads.

"One moment, Mr. Fuller," interrupted a representative of an underground railroad who had been in Europe for many years. "The last time I remember seeing you at a railroad affair was twenty-five years ago. You were delivering a lecture at that time on the subject of a railway in the upper Boulevard. While you were talking, I was compelled to leave in time to prepare for sailing."

"I hope my lecture did not drive you out of the country," said Mr. Fuller, laughing.

"Oh, no," was the reply, "but I did not hear the end of it until my return a few months ago, when I read it in one of the daily newspapers. I merely wanted to ask if this was the same lecture?"

And even Mr. Fuller laughed.—Evening Sun.

According to a statement which has appeared in a German paper, the omnibuses and tramways of Paris carried in 1884 250 million persons, the cabs had 48 million fares, while 65 million travelers arrived at and departed from the railway stations, and 88 millions of passengers traveled by steamers. The circulation in public conveyances exceeds half a million per day. On Sundays and holidays it rises to over 600,000.

#### LEGAL INTELLIGENCE.

1. Railroad Companies—Obstruction of Street—Municipal Ordinance.

In an action by a municipal corporation against a railroad company for the violation of an ordinance relative to the obstruction of streets, where the defendant relied upon an ordinance vacating the street obstructed, which was not passed by a three-fourths majority of the Council, as required by statute, held that, in the absence of anything showing that the city had prevented the defendant from examining the records, it must be presumed to have known of the invalidity of the ordinance relied upon.

2. Same—Estoppel of Municipality—Acts of Officials.

A municipal corporation is not estopped from bringing an action against a railroad company for the violation of an ordinance relative to the obstructing of streets by the fact that a committee of the City Council had agreed that the defendant should have the use of the obstructed street for its yard; and that a deed of land in exchange for such street was given to the city attorney, who had no power to accept it in behalf of the city, and which was never presented to the City Council.

3. Same—License.

A license to a railroad company to use certain streets so far as the company may require in crossing them, in the construction of its track, switches, turn-tables, etc., but that such occupation shall be with as little inconvenience to the public as possible, does not preclude the passage of an ordinance by the city prohibiting the obstruction of such streets. 12 N. E. Rep., 680.

### Street Cars vs. Vehicles—The Law of the Road.

BY MYRON T. BLY, OF THE ROCHESTER BAR.

The relative rights of street cars and vehicles to the use of that part of the street covered by the tracks, have been settled by decisions of the courts of last resort of several States. These rights are not wholly one-sided, but are, to a certain extent, mutual in their nature, and at the same time there are mutual obligations. It is a notorious fact, however, that nine out of ten illegal acts are committed by the drivers of carriages and trucks. How often daily is the patience of car drivers, conductors and passengers tried by the obstinacy of a truck driver, who persists, in spite of warning, in blocking the track in front of a car. Doubtless, nothing but the time and annoyance to be involved. keeps superintendents and managers from calling more frequently upon courts and magistrates to enforce some of the following plain decisions of law:-

—In general terms, it may be said that the law of the road—the old common-law rule which requires one vehicle meeting another, to turn to the right and yield half of the road—does not apply to street cars, 51 N. Y., 295. —Because, in the language of the New York Court of Appeals, "A street railway is the private property of its owners, and although the highway over which it passes, remains a public highway, consistent with the unimpaired use of the railway, the railway itself is, notwithstanding, in the uses for which it is constructed, a private road for the accommodation of the public and the profit of its owners, upon which no one but its owners have the right to run a car." 51 N. Y., 299.

—And further, "That portion of the public highway, upon which the track is authorized to be laid, is necessarily so set apart for the exclusive use of the owner of the car and the track, as not to permit any one of the public, in passing over the highway, to interfere with the running of such car, or with the track upon which it is run, to the unnecessary hindrance of the business of its owner." 51 N. Y., 299. 15 N. Y., 380.

—But this rule strikes both ways, for if the driver of a cart, proceeding upon the track, meets a car, and, in turning out, turns to the left instead of the right, he is not necessarily negligent and he violates no rule of law. 15 N. Y., 380.

—And if, while in the act of turning to the left, he is struck by the car, which is being driven at an immoderate and dangerous rate of speed, he can recover damages. Id.

—And it follows therefore that there is no greater obligation upon truck drivers to turn to the right than to the left. Id.

—There is nothing unlawful in the use of the tracks by carriages and trucks, but the company has the exclusive right to the track while its cars are passing. Common vehicles must keep out of the way of the cars, and if they do not and are hit by a car, moving at a reasonable and lawful speed and with all such care as, considering the subject, can reasonably be used, their owners have no claim for damages. 1 Smith (N. Y.), 382.

—It will be uoticed that there is a proviso in these decisions as to the rate of speed with which the car is moving. While cars cannot lawfully be driven at an unsafe rate of speed, yet if the driver of a carriage, negligently or wilfully, places it, or allows it to remain, where a car may strike it, he has no right to claim damages, even though the car was proceeding at an immoderate rate. Id.

—On the other hand, the driver of a carriage may reasonably assume that street cars will be moved moderately and prudently. He can calculate distances and the time required to clear the track under ordinary conditions, and if he encounter a car driven furiously and immoderately through a crowded street, and makes a mistake as to time in getting out of the way, culpable negligence is not necessarily to be imputed to him. Id.

—The question frequently arises as to what is a reasonable and lawful speed for a street car. In many cities and towns this is regulated by ordinance, but in the absence of a statute or ordinance it has

been held that a lawful speed is the average rate of carriages used to convey passengers by horse power in the same street and under like conditions. 76 N. Y., 530.

-The duties and obligations resting upon one driving a carriage or truck along a cartrack have been well expressed by Judge Folger, of the New York Court of Appeals, iu an opinion which states the whole case sofally and clearly that it is worth the while of every car driver to know it, and it is a pity every truck driver does not know it and observe it. The opinion states that, if two common vehicles are traveling in the same direction, one may go faster than the other and the driver may turn out to pass his slower fellow and the latter is not bound to give any attention. But if the slower driver is on a street car track and it is a car behind him, the case is materially different. The opinion goes on to say: "He should be in constant expectation of the coming of a car, with a constant feeling that he will be at once required to do his duty of leaving the track. Therefore it is due from him, not only that he should turn off from the track when called upon to do so by a servant of the company, but that he should be more active than that in learning a necessity for getting ont of the way of a coming car. To this end he should listen to whatever signal there may be, either of tinkle of bell or cry of driver; and he should also, while from time to time looking foward to see that his way is clear before him, look behind to see whether he should not soon turn off, so that a car may pass without hindrance or undue slackening of ordinary speed. And if to look back, asks that he turn round his body or his head, that he must do." 76 N. Y., 530.

—On the other hand the driver of the car must use the care of a person of common prudence and caution, heightened by the greater power the car has to do harm, if a collision occurs. Id.

—And if the driver of a car observes a wagon ahead in time to stop and avoid a collision, but, instead of doing so, wilfully runs into it, he does not thereby necessarily make the company liable for the damages. If, however, he errs in judgment as to the time required to stop the car, it is a mistake for which the company is responsible. 51 N. Y., 298.

—If a collision occurs between a car and a truck proceeding in the same direction, the presumption of negligence is against the truck, as a collision could not occur, if each kept to that part of the street assigned to it. 41 Barb. (N. Y.), 375.

—And where a car was run into by a coal wagon and a passenger injured, who sued the company and recovered damages, the company was allowed to turn around and collect it of the owner of the wagon. 6 Bradwell (Ill.), 243.

Our European readers find it convenient to send subscriptions to our London agents, The Purdy & Huntington Co., Limited, 59 Shoe Lane, Charterhouse street, E. C., where the same terms may be secured as at this office.

#### STREET RAILWAY NEWS.

Alameda, Cal.

AN ELECTRIC RAILWAY is projected here.

Observatory Hill Pass, Ry. Co. The Pittsburgh Common Council has granted this company the right of way from Wood street and Sixth avenue to Liberty street to Seventh street to Northside bridge.

Alton, Ill.

Alton Imp'r Ass'n have not thoroughly organized their street railroad yet. The officers of the Improvement Association are: President, C. W. Milnor; Vice President, H. Watson; Secretary and Treasurer, H. R. Phinney.

Anniston, Ala.

BIRMINGHAM & SHADES VALLEY LAND Co. have given up their project of building a dummy line at Anniston.

Appleton, Wis.

APPLETON ELECTRIC ST. Rv. has now been running successfully for over thirteen mouths. It has to-day five cars in use. Each car makes fifteen trips on the main line, three miles long, or a round trip of six miles, which is ninety miles a day for each car. Judge Harriman, President of the company, says they are well satisfied with the electric system, and are quite positive that it would cost twice as much to run the same number of miles with animal power.

Asbury Park, N. Y.

SEASHORE ELEC. Ry. Co. successfully ran its cars several trial trips Sept. 7, and the road is now in full operation. The Daft system is employed. Many people spend the winter at Asbury Park, and the road will be run all winter.

Atlanta, Ga.

ATLANTA & EDGEWOOD ST. R. R. Co. proposes to extend its road into De Kalb county.

A CHARTER for a street railroad, with steam power, between Atlanta and Decatur, Ga., has been applied for by J. C. Kirkpatrick and others.

THE COMPANY formed by Jacob Haas and others has abandoned the project of building a street railway.

METROPOLITAN ST. R. R. Co. increases from 6 to 8 miles of track, from 17 cars to 20, and from 70 horses to 100. Their road is laid with 25 lb. steel rail. The only change in officers is that W. L. Abbott is now Superintendent and Purchasing Agent.

Anrora, Ill.

AURORA CITY Ry. Co. The only change is that T. H. Day is now Secretary.

Baltimore, Md.

CITIZENS' Rv. Co. is investigating the subject of electric motors.

BALTIMORE, BROOKLYN & CEDAR HILL Ry. Co. Work on this new road is being pushed forward, and the road will be opened in January. It will have 10 miles of track, 25 cars and 50 horses. The officers are as we last reported them except that N. W. Paynter is now Secretary.

BALTIMORE & POWHATAN RY, Co, have

asked for the right to extend their line along Edmonston avenue from Calverton road to the city.

Bar Harbor, Me.

AN ELECTRIC RAILWAY is to be built from Bar Harbor to Otter Cliffs and North East Harbor, passing through the Gorge; and another from Bar Harbor to Eagle Lake and Seal Harbor, by way of Jordan Pond.

Bay City, Mich.

BAY CITY ST. RY. Co. has now 12 miles of track, laid to 4 ft. 8½ in. gauge, with 42 and 75 lb. rail, 16 cars and 56 horses. The officers are as we last reported them except that Byron Alley is Superintendent.

Bellevue, Pa.

THE ELECTRIC RAILWAY here is completed and is running successfully. It has about half a mile of track, and is operated by the Fisher system.

Beloit, Kan.

BELOIT CITY ST. RY. Co. expect to build their road next spring. They have a capitil stock of \$75,000. D. W. Soper is President, F. T. Burnham Secretary, and M. S. Atwood Treasurer. They will have 2 miles of track.

Bessemer, Ala.

Bessemer Dummy Line Co. has been incorporated by E. A. Burke and others, with a capital stock of \$250,000.

Binghamton, N. Y.

Washington St. & State Asylum R. R. Co. The new electric road, on the Van Depoele system, is declared a marked success by Mr. S. M. Nash, the lessee. The plant consists of three 15 H. P. motors, three 10 H. P. motors and a 100 H. P. generator. It is at present renting prime power, but will build its own station in the spring. Real estate along the road is said to have advanced 25 per cent.

Birmingham, Ala.

BIRMINGHAM UNION RY. Co. have asked for a permit to build a dummy line along First avenue.

CLIFTON Ry. Co. will probably extend their dummy railroad.

B'ountsville, Ala.

A COMPANY is being organized to build a dummy railroad to Bangor. L. H. Matthews is interested in the project.

Boston, Mass.

WEST END St. Ry. Co. are to increase their common stock from \$80,000 to \$1,200,-000. The purposes stated are to pay the indebtedness of the company, incurred in the purchase of land on Beacon street, \$200,000; for constructing new section of B. & A. bridge on Beacon street, \$25,000; payment of debt for street construction, Brookline, \$320,000; for building and equipping the West Ead Ry. in Brookline (8 mile single track), \$240,000; for land and buildings, \$105,000; legal expenses, The preferred stock is to be \$10,000. \$6,400,000, entitled to 8 per cent cumulative dividends forever, into which the stock of the absorbed companies is being exchanged. This exchange is not going on very rapidly, and it is hardly probable that the new working organization will be offected until January next,

Brockton, Mass.

A New Street Railway is projected in the eastern part of the city.

Brooklyn, N. Y.

BROOKLYN CITY R. R. Co. has obtained the consents of property owners to the value of \$12,000,000 for the construction of a cable line on Fulton street.

Coney Island & Brooklyn R. R. Co., which operates a horse ralway from the Brooklyn city line to Coney Island, will, it is reported, reconstruct its roadbed before next season, and will substitute electric motors for its horses.

ATLANTIC AVE. R. R. Co. is having a sharplegal contest with the Union Elevated Ry. Co. In the special term of the Supreme Court, Sept. 6, before Justice Pratt, Gen. B. F. Tracy applied for an injunction restraining the Elevated Ry. Co. from constructing its road in front of certain property in Fifth avenue. There are seven distinct suits, and Gen. Wingate and ex-Gov. George Hoadly appeared in the interest of the elevated railway men. Gen. Tracy argued for the rights of the property owners, and also contended that the Union Elevated Ry. Co. was not legally constituted. Justice Pratt denied the motion, Sept. 17. That night the employees of the Atlantic avenue road ran out into the street all the old cars, snow plows and old rails from the depot at Fifth avenue and Twenty-third street. The sidewalk along the depot side was first covered with old rails, and over that the snow plows were firmly joined together, forming a cumbersome barricade, the object being to prevent the workmen of the Elevated road from digging the foundations for that part of their structure that is to be on the street in front of the depot. Ten of the street railway company's trackmen were arrested for obstructing the streets. Justice Massey paroled them until he could hunt up some law under which they could be punished. He expressed a doubt whether he could find such a law.

Sanding Tracks. Two employees of the Atlantic Ave. R. R. were arrested recently charged with violating a city ordinance by sprinkling sand along the tracks. On behalf of the company Gen. Tracy claimed there was no city ordinance prohibiting the sprinkling of sand, and also that it was an absolute necessity to enable the horses to pull the cars up the steep inclines. Decision was postponed.

BROOKLYN RY. SUPPLY Co. are busy filling orders for sweepers for both cable and horse railroads, and have orders enough ahead to last for some time. They are also filling orders for Boss & Walkaway plows, and business in all these specialties is better than ever before.

Charleston, S. C.

ENTERPRISE R. R. Co. will extend their street railroad.

Charlottesville, Va.

CHARLOTTESVILLE & UNIVERSITY St. Ry. Co. will build new stables and car sheds and put on new cars.

Chattanooga, Tenn.

NORTH SIDE ST. R. R. Co. has been in-

corporated by G. Lindenthal, C. C. Anderson, R. W. Price and others.

Chicago, Ill.

CHICAGO WEST DIVISION RY. Co. A press dispatch of Aug. 31 states that Messrs. Elkins and Widener, of the Philadelphia syndicate, were in Chicago the latter part of August, and before they left for the East succeeded in acquiring a controlling interest in the above road, thereby absorbing also the Chicago Passenger Ry. Co. As they already possess the North Chicago City R. R. Co., there only remains the Chicago City Ry. Co., and it is reported that the Philadelphians are negotiating for it, having offered the holders \$12,000,000. This movement is looked upon with favor from an electrical standpoint, as President Charles T. Yerkes, of the North Chicago City R. R. Co, who is identified with the syndicate, is known to favor electricity as a motive power. The drivers on this road asked for an increase in pay from 20 to 22 cents per hour, but finally accepted 21 cents, with a guarantee of ten hours' work per day.

OUR CHICAGO LETTER.

Talk of a huge deal whereby the syndicate which now controls the North Side Ry. will acquire the West Division Ry. has been for some time past a topic of greatest interest to street railway people here as well as the public in general. The daily press states that this Philadelphia syndicate has raised among Eastern capitalists the amount necessary to make the purchase, which amounts to some \$4,000,000. That there is a large probability of the deal being made is beyond doubt, but both President Yerkes of the North Side Ry. and President Jones of the West Division Ry. inform me that nothing definite has been done in the matter. It is my opinion, however, that the people of the West Side may hope for an electric or cable road in the near future.

The City Ry. Co. have already all the track laid on the Cottage Grove extension, and are busy in relaying portions of their old track.

The Van Depoele people are crowded to their utmost capacity in filling orders for street railway equipment. They have recently contracted to equip the "White Line," at Dayton, O., with 15 motors. A portion of the wire will be overhead and a portion underground. They are to furnish the Scranton, Pa., Suburban Ry. with 60 are lights to be used in lighting up the suburbs. At Appleton, Wis., in addition to the electric railway now in operation, they will soon equip a power plant with motors which will furnish power for two printing offices and a flouring mill.

There has recently been organized a new company, called the "Van Depoele Electric Railway & Power Co.," with a capital stock of \$2,000,000, which will purchase the patents now used in the electric railway by the Van Depoele Electric Manufacturing Co., and commence the manufacture of electric railways. This deal will take in some Eastern capital, and the erection of a \$500,000 plant is contemplated

at once. The old company will continue the manufacture of electric light apparatus.

The Cline Manufacturing Co. are crowded to their utmost capacity to fill orders for fuel and car heaters. They have recently made some improvements in the heater.

The Meaker Fare Register, of which I believe I wrote in a former letter, I see is now in use by all the railways in the city.

Surely a pretty good testimonial in its favor.

The West Division Railway Co. are concentrating three of their lines, which will enable them to carry the public direct to the gates of the International Encampment, to be held in this city next month.

#### Chillicothe, Ill.

CHILLICOTHE ST. Ry. Co. has been incorporated by Linus S. Hoyt and others, with a capital stock of \$40,000.

#### Cincinnati, O.

A STRIKE for higher wages became general on all the roads here Sept. 18.

#### Cleveland O

Garden St. Ry. Co. has been incorporated by Thomas B. McKearney and others, with a capital stock of \$250,000. The object is understood to be to supplant the East Cleveland R. R. Co. in Garden street.

NEW BELT LINE. A scheme is on foot to form a belt line of street railroad around the city, using the Fulton street and Kinsman street branches of the Woodland Avenue & West Side road. Superintendent George G. Mulhern, of this company, is reported to have stated that his people contemplate building such a line.

Woodland Ave. & West Side St. R. R. Co. are laying their tracks in Franklin avenue, and they occupy Detroit street. Clinton street is the thoroughfare lying between this line and the Brooklyn City R. R. and parallel with the two roads. The Brooklyn company have for some time been trying to get the right of way in this street for the purpose of tapping the territory of their rival company, and making practicable the plan of their southward extension. A good deal of opposition was shown by some of the property owners along the line, but most of them appear to be willing to have the road built.

Sr. Ry. Supply Co. report progress good for fall and winter business, and mention orders for a number of cars to be equipped with their new Worswick box and improved gear.

#### Columbia, Tenn.

COLUMBIA ST. RY. Co. Work on this new line has been going forward briskly this month, and it is expected that it will be opened by the 1st of October. It will have 6 miles of track, of 4 ft. 8½ in. gauge, 4 cars, 8 mules. The company has a capital stock of \$100,000, and the officers are: President, J. T. Craik; Secretary and General Manager, J. H. Dew; Treasurer, E. C. McDowell.

#### Columbus. O.

THE NEW ELECTRIC RAILWAY here, con-

structed upon the Short series system, will run two trains of cars with a carrying capacity of 120 passengers each. The speed will be about ten miles per hour. Corsicana, Tex.

CORSICANA St. Ry. Co., recently organized, has contracted for its material.

#### Dallas, Tex.

An ELECTRIC RAILWAY on the Fair Grounds is being built by D. M. Clower, of Dallas, and will be in operation by the opening of the Fair and Exposition, Oct. 20.

Another Street Railway, to connect with the Oak Cliff road, is projected.

#### Dayton, O

WHITE LINE ST. RY. Co.'s plant will consist of 1 mile of underground and 5 miles of overhead conductors, and the first order calls for 15 cars. The road will be operated by the Van Depoele system.

#### Denver, Col.

A Franchise for a cable road has been granted to George Wirt Bowman, and the franchise cannot be disposed of or assigned by the new company to any other company. The franchise is granted by the Commissioners of Arapahoe county, and does not include streets within the city limits. Barnum and Highlands, on the route, will grant right of way through their streets. The line will be 8 miles long, extending from a point in Denver to the new military post, Fort Sheridan. The company applied for an exclusive, perpetual franchise, but received an exclusive franchisc for five years. The line will be a horse car road at first, and subsequently changed to a cable road. Work will be commenced in December and the sections must be completed as follows: To Villa Park, horse car line, March 1, cable line, June 1; to south town line of Barnum, horse car line, May 1, cable line, July 1; to Fort Sheridan, horse line, Feb. 15, cable line, Aug. 1. The North Denver Cable Co. states that it will have 3 miles of road in operation between Barnum and Highlands by December. The cost is estimated at \$50,000 per mile.

Denver City Ry. Co. will have their new line of 3 miles completed Oct. 1 over the Twenty-third street viaduct to the Boston & Colorado Smelting Works. A. I.. Perry is Superintendent of the company.

#### Detroit, Mich.

Detroit City Ry. increases to 35 miles of track and 1,150 horses.

#### Duluth, Minn.

Park Point St. R. R. Co. will probably be the name of the new company projected by Reginald W. Petre and others. The point where they propose to build is cut off by the canal from Duluth, and, until they can get some better means of communication than a ferry boat, it is not probable that a road would pay. They contemplate a length of 6 miles, of standard gauge, with horse or mule power.

#### Easton, Pa.

THE NEW ELECTRIC RAILWAY. Construction has been contracted for with the Sea Shore Construction Co., of 13 Park row,

New York. Work is in progress, and the road will be in operation by the middle of October. The Daft system of electric power will be used.

Easton, So. Easton & West End Pass. Ry. Co. will double track part of their road, and build about a mile of extension. This company increases from 36 horses to 48 since its last report to us. The only change in officers is that Murray Swain is now Superintendent.

#### Elkhart, Ind.

CITIZENS' Ry. Co. has now 6½ miles of track, 9 cars and 25 horses. They report that they are looking anxiously for a motor suitable for their use at a price they can afford.

#### Elsinore, Cal.

THE ELECTRIC RAILWAY Co. that will build around the lake has a capital stock of \$900,000.

#### Findlay, O.

ELECTRIC RAILWAY. Part of the contracts, it is stated, have been closed; but George B. Kerper wants figures on rails,

#### Fond dn Lac, Wis.

THE COMMON COUNCIL April 15 granted to F. B. Hoskins, Clayton E. Strong and John E. Sullivan a 30 year franchise to build, maintain and operate a street railway on any of its streets and bridges. This is as far as the project has gone.

#### Fort Payne, Ala.

FORT PAYNE LAND & IMP'T Co. proposes to build a cable line.

#### Fort Smith, Ark,

SULPHUR SPRINGS Ry. Co. will begin work as soon as the iron arrives, and it is expected every day. They expect to open the road within two months. It will have  $3\frac{1}{2}$  miles of track, laid to 3 ft. 6 in. gauge, with 38 lb. rail, and they will have about 12 cars and 25 mules. The company has a capital stock of \$50,000, with privilege of increasing to \$100,000, and the officers are: President and General Manager, W. J. Johnston; Secretary, Edgar Bryant; Treasurer, W. R. Martin. Fort Smith is booming; they are boring for natural gas; and the transfers of property in the county have been \$10,000,000 thus far this year.

METROPOLITAN ST. Rv. Co. expect to begin work within 30 days. George Tilles is Secretary and Treasurer, and John P. Hely Engineer. They will have 2 miles of track, of 4 ft. 10 in. gauge, 38 lb. rail, 10 cars. Will use either electric or animal power.

#### Fort Wayne, Ind.

FORT WAYNE ST. Ry. Co. has been incorporated by John A. Bass and others, with a capital stock of \$300,000.

#### Framingham, Mass.

Framingham Union St. Rv. Co. The Directors have assessed 10 per cent of the capital stock of \$60,000. It is proposed now to obtain a charter, and to construct the road between South Framingham and Framingham Center, so that cars will be running as early as Jan. 1 next.

#### Grand Rapids, Mich.

It is Reported that the street railway will probably put in storage batteries for propelling its street cars,

VALLEY CITY ST. & CABLE RY, Co., which obtained its franchise in July and is now constructing its road, will have 11 miles cable (Phonix system) and 151 miles surface road. A portion of the latter will in all probability be operated by electricity, and perhaps all of it. The officers of the company at present are: President, William P. Innes; Secretary and Treasurer, Robert P. Innes. The Continental Construction Co., of Minneapolis, Minn., have the contract for building the road. The officers of that company are: President, Horace P. Breed, Minneapolis; Vice President and General Manager, Sam B. Tibbits, Grand Rapids; Secretary and Treasurer, W. S. Crosby, Grand Rapids. The three gentlemen last named will own and operate the Valley City St. & Cable Ry. Co., filling the same offices that they now hold with the construction company. A. W. Eggleston will be the Superintend-While the company is putting in only about 13 miles of cable this season, it is their purpose to cable the whole system, putting in from 2 to 3 miles cach year.

Hastings, Neb.

Hastings Improvement Co., who have just completed their line, have 15 miles of track, 16 cars, 60 horses and mules. It is said to be the best constructed horse railroad west of the Mississippi. Hastings is situated in the finest agricultural portion of Nebraska, and the business men are public spirited and enterprising. The officers of this company are: President, James B. Hartwell; Vice President, J. J. Wemple; Secretary, Charles D. Hartwell; Treasurer, H. Bostwick; Superintendent, J. A. Kraft.

#### Henderson, Ky.

Henderson St. Ry. Co. expect to open their new road Oct. 1. They have 1 mile of track at present, of 4 ft.  $8\frac{1}{2}$  in. gauge, 20 lb. steel Trail, 2 cars, 6 mules. The company has an authorized capital of \$100,000, and the officers are: President, David Banks, Jr.; General Manager, E. G. Sebree, Jr.; Secretary, Paul H. Banks.

Holyoke, Mass.

HOLYOKE ST. RY. Co. propose to extend their line from the Highlands to South Holyoke. It is intimated that inside of a year the tracks will be extended to Elmwood.

Huntington, N. Y.

HUNTINGTON ST. R. R. Co. will probably begin work on their new road in October, in which case it will be finished by November. Capital stock, \$35,000. They contemplate a length of track of 3½ miles, 4 ft. 8½ in. gauge, 40 lb. rail, 3 cars, 8 horses.

NORTH ALABAMA IMP'T Co. is backing and organizing a company to build a street railroad 3½ miles long. It will be called the Huntsville Belt Line & Monte Sano R. B. Co.

#### Independence, Mo.

KANSAS CITY, INDEPENDENCE & PARK DUMMY LINE. The arrival of the first train was celebrated Sept. 1.

Jacksonville, Fla.

JACKSONVILLE, SUBURBAN & REAL ESTATE | Levering Secretary.

R. R. Co. Surveys have been made, and the road will soon be built.

Jamestown, N. Y.

Jamestown St. Rv. Co. is contemplating a change from horse power to some other method of traction, probably electricity.

Jersey City, N. J.

Jersey City & Bergen R. R. Co. The Jersey City Board of Aldermen Sept. 13 passed an ordinance giving this company permission to lay tracks in First street. The railway company is friendly to the Pennsylvania Railroad Co., and the granting of the ordinance looks as if the latter company intended to carry out its threat to build a ferry at the foot of First street unless they are allowed to elevate their present tracks.

Kansas City, Mo.

CITIZENS' CABLE RY. Co. A. W. Armour writes that he is not interested in this road, as reported.

Kansas City, Masten Park & Westport R. R. Co. has entered into a contract with Mr. Hill, lessee of the Waldo Park dummy line, by which the latter agrees to go ahead with the construction and complete the road by Nov. 9.

Grand Ave. Rv. Co. The Fifteenth and Walnut street line of this important cable road is already completed, and the Westport line will be opened Dec. 1. In addition to the officers as we last reported them, D. B. Holmes is Secretary, and C. F. Holmes Superintendent.

Keyport, N. Y.

KEYPORT & MATAWAN ST. Ry. Co. expect to open their road Oct. 1. Work was begun in July. This company has purchased and operates the turnpike between Keyport and Matawan, under the new law provided in such cases. They have a capital stock of \$60,000. Will operate 3 miles of track, will have 6 passenger and 1 freight car, and 40 horses.

Kinsley, Kan.

KINSLEY ST. RY. & ELECTRIC LIGHTING Co. has been incorporated by C. A. Read and others, with a capital stock of \$100,-000.

Knoxville, Tenn.

KNOXVILLE BELT R. R. Co. will begin work very soon, and the road will be opened in about a year. This is not strictly a street railway, as it will be operated by 2 steam engines. Will have 8\frac{1}{3} miles of track, 4 ft. 8\frac{1}{2} in. gauge, 60 lb. steel rail, 4 passenger cars; will use freight cars of other roads. Capital stock, \$100,000. Officers: President, W. R. Tuttle; Secretary, I. W. S. Frierson; Treasurer, Sam House.

Magnolia Ave. Dummy Line is being built by T. S. Frierson and others.

WEST END St. CAR Co. is being constructed by James D. Cowan and others.

Lafayette, Ind.

LAFAYETTE St. Ry. Co. purpose adding 1½ miles of track, of Johnson girder rail, 38 and 52 lbs. to the yard. They have now 2½ miles of track, laid with 35 and 46 lb. rail. They have 5 cars and 30 horses. G. E. C. Johnson is President and T. J. Levering Secretary.

La Grange, Ga.

LA GRANGE ST. R. R. Co. F. M. Longley, F. M. Ridley, J. M. Thornton and G. E. Dallis are the incorporators of this new company. They think it will require about \$20,000 to build and equip the line. It will be 1½ miles long, and will probably have 2 cars and 4 horses.

Lake View, 111.

VAN DEPOELE ROAD. The ordinance giving the Van Depoele company the privilege of putting in 6 miles of road at Lake View has passed the Council, and operations will be begun at once.

London, England.

NORTH METROPOLITAN TRAMWAYS CO. It is stated that the Directors have decided to substitute electricity for horses as a motive power for street cars, and have ordered 300 cars on the new system. A prominent English railway official predicts that within two years not a single horse will be used on the London tramways.

Los Angeles, Cal.

Brooklyn Heights Ry. Co. has been incorporated by Clarence J. Richards and others, with a capital stock of \$300,000.

Los Angeles & Vernon St. Rv. have begun work, and expect to complete their road by the 1st of December. They will have 5 miles of track, of 4 ft.  $8\frac{1}{2}$  in. gauge, with 20 lb. T and 27 lb. flat rail, 6 cars, 12 horses inside the city and a steam dummy outside. The capital stock of this company is \$90,000, and the officers are: President, D. G. Stephens; Vice President, C. E. Day; Secretary, F. A. Gibson; Treasurer, E. W. Kysor.

Los Angeles Cable Ry. Co. will begin work at once, and expect to open their road in about a year. They will have 10 miles of track, of 3 ft. 6 in. gauge, 46 lb. rail, 15 cars, operated by cable. The company has a capital stock of \$1,500,000, and the officers are: President, J. F. Crank, General Manager, Charles Forman; Secretary, S. P. Jewett; Assistant Secretary, R. D. P. Widner.

Lowell, Mass.

Lowell & Dracut St. Ry. Co., it is reported, has purchased a controlling interest in the Lowell Horse R. R. Co., and a consolidation will be effected.

Mansfield, O.

Mansfield Electric St. Rr. Co. write that their Daft road, which has now been in operation a month, is having excellent success, mechanical and financial.

Memphis, Tenn.

Jackson Mound Park R. R. Co.'s road, to which we referred last month, will be operated either by cable or electricity. The capital stock of \$100,000 is all subscribed. They will build a north and south line, and work is to begin about Oct. 15. Holmes Cummins is President, S. Coleman Vice President, T. Krekel Secretary, and J. W. Cochran Treasurer. The road will be 6 miles long.

Meridian, Miss.

MERIDIAN St. Ry. Co. have extended their tracks nearly a mile.

Milwankee, Wis.

THE ELECTRIC RAILWAY COMPANY Who

ask for a franchise propose to operate under the Van Depoele system.

MILWAUKEE CITY RY. Co. Cars are now running on Broadway. Ten new cars of the latest pattern are about to be added to this company's equipment.

CREAM CITY R. R. Co. has completed an extension to the Exposition building.

Middletown, O.

Col. E. R. Davenport, of Charleston,
W. Va., is interested in the new line of
street railways to connect Middletown,
Pomeroy and Syracuse, and which are designed to transfer freight as well as passengers. There will be about 10 miles of
track, laid with steel T rails weighing 52
lbs. to the yard. Cars will be hauled by
noiseless, smoke consuming steam motors,
and a good class of equipment will be used.
The franchise runs for 25 years.

#### Mobile, Ala.

MOBILE St. Rv. Co.'s new stable will lost \$12,000. The contract has been awarded to B. Gossman.

Mobile & Dauphin Island R. R. Co. Surveys are completed and the work of grading is well under way.

#### Mount Vernon, N. Y.

MOUNT VERNON & EAST CHESTER R. R. Co. Louis Wertheimer, Treasurer, writes that the office of the company is no longer at 131 Water street, New York, but is at Mount Vernon.

#### Nashville, Tenn.

HYDE'S FERRY ST. R. R. Co. This company was incorporated, but it is understood that there is no probability of the road being constructed.

McGavock & Mt. Vernon Horse R. R. Co. will build stables and car sheds to cost \$22,000.

#### Natchitoches, La.

A COMPANY has been formed to build a street railroad. The Red River Land Co. is interested in the project.

#### Newark, N. J.

Essex Pass. Ry. Co. The new cable line will be in operation next January. The cable will be supplied by the John A. Roebling's Sons Co.

#### Newburgh, N. Y.

Newburgh St. Rv. Co. Alfred Heyn has brought his men and tools from New York to rebuild part of the road, which was laid last fall while frost was in the ground. It is now all out of gauge. He will also extend the road about 1½ miles.

#### Newburyport, Mass.

BLACK ROCKS & SALISBURY BEACH ST. RY. Co. intend to extend their line to Hampton River next season. They have now 6 cars and a dummy engine. The Directors of the company are Harvey N. Shepard, E. P. Shaw, J. Frank Tilton, David Sanborn and George Tilton. George Tilton is Clerk

#### New Haven, Conn.

STATE ST. HORSE R. R. Co. has leased the Whitney Ave. Ry. for 99 years from Oct. 1, 1887.

#### New Orleans, La.

A New Street Railway is to be built on Nashville avenue, by James Sweeney. New York, N. Y.

TWENTY-EIGHTH AND TWENTY-NINTH STS. R. R. Co. contemplate a length of track of about 5 miles, of standard gauge, with 47 lb. steel side-bearing rail, and from 40 to 50 horses. They will probably use electricity as a motive power. It has not yet been determined when work will be commenced. The company has a capital stock of \$500,000, and the officers are: President, Jonathan H. Crane; Vice President, Edward P. Beach; Secretary, Frederick A. Bartlett; Treasurer, John H. Davis. Their office is 188, 189 and 190 Temple Court. This is the company that secured its franchise at auction by agreeing to pay the city 29.2 per cent of gross receipts for first five years and 31.2 per cent thereafter.

NORTH & EAST RIVERS RY. Co.'s line, popularly known as the Fulton street electric road, will probably begin operations about the last of November. The track, motors, cars and almost all the castings are now completed, but there is one obstacle yet to be overcome. This is the single track of the Bleecker street horse car line. The electric company does not wish to put two additional tracks on so narrow a street, and proposes to take away the horse car track and allow the Bleecker street company to run its cars over the electric railway for the four blocks where they now conflict, and also as far as Broadway. The members of the Bleecker street Board, however, have been all out of town, and their assent to the plan, which is expected, has been thereby delayed. Delays have also been caused by the electric light junction boxes, the sewer-heads and the pipes of the water and steam-heating companies. These companies are removing their pipes at the railroad company's expense, but have been unavoidably delayed in obtaining materials. The removal of the sewer-heads has been very expensive. Sept. 20 the company asked the Subway Board for a permit for laying a conduit in Fulton street. The counsel for the company said that they were willing to let the Bleecker street company run over their tracks up to Broadway. He said the Bleecker street company would consent. The Mayor doubted whether there was any authority for allowing the Bleecker street cars to run up Fulton street to Broadway.

SECOND AVE. R. R. Co. Corporation Counsel O'Brien has sent to the Board of Assessors an opinion that this company is assessable for the expense of paving the roadway, including two feet outside of the tracks, from Ninety-second to 109th street, on First avenue. The company has claimed that property owners along the street should be assessed.

Third Ave. R. R. Co. When the cable road was built due allowance was made for the expansion and contraction of the ironwork itself caused by heat and cold, but not for the pressure on the rails caused by the same agencies. In consequence there was a good deal of trouble last winter. The company have now relaid the pavement be-

tween the tracks, leaving considerable space beteen the stones. These spaces are first filled with gravel and finally run as full of hot pitch as possible, in the hope that water will find no space to lodge and freeze in.

BROADWAY & SEVENTH AVE. R. R. Co. Comptroller Loew is exercised because the conductors do not ring up to register the transfer tickets which they receive from passengers, and thinks the city is being defrauded in getting its 2½ per cent of gross receipts. An official of the company said: "Mr. Loew had better investigate this thing before he talks about it. The transfers are all recorded. The cross-town lines pay our company for carrying the passengers, and the sum goes into the gross receipts, of which the city receives its percentage. If the company chooses not to register anything but cash fares, it is their own business." The number of transfer tickets used in February was 25,659; March, 42,-955; April, 54,627; May, 62,284; June, 79,-243; July, 91,208. "There is another thing I noticed," said the Comptroller. "When a passenger going up town gets into a Broadway car at Twelfth or Thirteenth street, the conductor does not collect his fare until the car reaches Sixteenth street, but if, coming down town, he gets on at Sixteenth street, the conductor is after him at once and collects the fare before the car reaches Fifteenth street. Now, as the Broadway road pays a percentage only on the fares collected below Fifteenth street, if the fare is collected above that point, of course no percentage is paid on it."

RUFUS MARTIN & Co. report numerous orders for their new engraved street car fare tickets. Recent sales include the Northampton St. Ry. Co., the Far Rockaway R. R. Co., and the Haverhill R. R. Co.

FEIGEL CAR Co., Hutton & Swan, Managers, 108 Wall street, have just shipped the first installment of six cars to the St. John, N. B., road. These are close cars, are finely built and equipped with the Slawson fare-box. They have nearly completed the order for cars from Ithaca and also from Easton. The cars on both these roads are to be run with the Daft system and to be lighted by electricity. At the factory work is progressing on the cars for the Jersey City Pavonia avenue road, and five are nearly completed for Paterson. The Paterson cars are also equipped with the Slawson fare-box. They are also building cars for the Forty-second & Grand Street Ferry Ry. Co. Most of the cars are equipped with the Bemis or Randall gears.

RAILWAY REGISTER MANUFACTURING Co., of New York and Buffalo, recently shipped a number of registers to the Melbourne Tramway Co., of Melbourne, Australia, making 800 of their registers now in use by that company.

#### Ningara Falls, Out.

An ELECTRIC RAILWAY is under construction here. It will be near the water level in the gorge from the Suspension Bridge to the Falls. There will also be two electric double elevators and electric lights in cars and along the line of the railway.

The motive power to run the generators will be steam.

#### Norristown, Pa.

CITIZENS' PASS, Ry. Co. increases from 6 cars to 8 and from 40 horses to 50.

Norristown Pass. Ry. Co. are about constructing 2 miles of additional track. They have now 1½ miles, of 5 ft. 2½ ingauge, 45 lb. rail.

#### Oakland, Cal.

OVERHEAD CABLE. An improvement on General Beauregard's original overhead cable for railways (the patent for which has expired) has been experimented with on the Piedmont line, together with a new grip invented by G. Henry Casebolt.

#### Omaha, Neb.

OMAHA MOTOR Rv. Co. are preparing to lay their track southward from Fourteenth and Diverport streets, the objective point being the new bridge across the Missouri, which they will probably reach by means of Douglas street.

THE CABLE TRAMWAY. It is now understood that this company has decided to run a line down California street from Underwood avenue on the Patrick farm to Lowe avenue. Where the outlet cityward will be from the latter point is not yet known. The company ordered two cables from the factory at St. Louis Sept. 16, which must be completed by Oct. 20. One of them will be 18,000 ft. long and weigh 50,000 lbs., and the other will be 16,000 ft. long and weigh 40,000 lbs. It has been decided to place the service on Harney, Tenth, Dodge to Twenty-sixth, and Twentieth to Cass in operation this year, and the work is being done with that view. The fly-wheel for the power house is 20 ft. in diameter and weighs 50,000 lbs. The engine is of 400 H. P. and the boilers of 600 H. P. The cars will be shipped to Omaha in about a week. It is expected now that the road will be in operation by Christmas.

#### Orange, N. J.

ORANGE CROSSTOWN & ORANGE VALLEY ST. Ry. Co. are about to extend their track. They have increased from 21 horses to 38 since their last report. Francis M. Eppley is President, Thomas Marsh Secretary, and Edward A. Pearson Treasurer.

#### Orlando, Fla.

ORLANDO St. Rv. has 2 miles of its new road completed and in operation already. They will have 5 miles altogether, of standard gauge, 30 lb. rail. They have 3 cars now and 8 mules. Their capital stock is \$50,000, and the officers are: President, T. J. Shine; Vice President, N. L. Mills; Secretary and Treasurer, J. D. Beggs.

#### Ottawa, Ill.

So. Ottawa & Ottawa St. Ry. Co. will begin work as soon as they can get their franchise. They will have  $4\frac{1}{2}$  miles of track and 12 cars. James Milligan, Jr., is President, L. A. Rose Vice President, Fred E. Mays Secretary, and L. W. Hess Treasurer. The capital stock of the company is \$30,000.

Owensboro, Ky.

OWENSBORO St. R. R. Co. will extend their line.

#### Palatka, Fla.

PALATKA ST. Rv. Co. will begin work on their new road about the 1st of November, and expect to open it by Jan. 1. They will have 1½ miles of track, of narrow gauge, with 20 lb. rail, will have 3 cars, and will use mules. W. W. Mitchell is Treasurer and J. H. Hibbard Superintendent. The company has a capital stock of \$10,000.

#### Philadelphia, Pa.

ELECTRIC CAR. The Railroad Committee of City Councils took a ride in the electric car of the Wharton Switch Co. Sept. 10. The car was run on the tracks of the Spruce and Pine streets line. The trip was considered very successful.

#### Pittsburgh, Pa.

TRANSVERSE PASS. Ry. Co. The branch from Wood street via Liberty street is rapidly nearing completion. This will be a serious competitor for the business of the Troy Hillline of the Pittsburgh, Allegheny & Manchester Pass. Ry. Co.

PITTSBURGH, ALLEGHENY & MANCHESTER PASS. Ry. Co. A movement is on foot to have the Troy Hill line extended from its terminus at Chestnut street, Allegheny, to the foot of the new incline plane on East Ohio street. It was the intention years ago to have this line extended to that vicinity, but Allegheny Councils would not at the time grant the right of way; but President Atwell will at once get up a new petition to Councils and have the matter pushed. The people all along the route of the proposed line favor the extension.

PITTSBURGH & ALLEGHENY TRACTION Co. has been granted a charter. This company is composed of the interests operating the Federal street and Pleasant Valley line, and the plan is to change the line from horse power to electricity or cable, with the preference in favor of electricity. It is thought that trouble would be encountered in running cables over a bridge. The work of making the change will probably begin early next spring. The Common Council has granted the new company the right of way, with the consent of the Pleasant Valley and People's Park companies, over the streets now occupied by those companies. The company is empowered to use cable or electricity as a motive power.

PEOPLE'S PARK PASS. Rv. has received permission from the Common Council to run over the tracks of the Transverse Pass. Ry. Co. from Smithfield street to Sixth avenue to Wood street to Liberty to Seventh to the Northside bridge.

FEDERAL St. & PLEASANT VALLEY Ry. Co. has been granted by the Common Council the right to use the tracks of the Transverse linefrom Smithfield street and Sixth avenue to Liberty street to Seventh street to the Northside bridge.

PITTSBURGH & WEST END PASS. RY. Co. have decided to use electricity in running their cars from the city to the West End

station and from the corner of Main and West Carson streets to Chartiers; but have notyetdecided what method to adopt. As the roadis very favorably situated as regards curves and grades, it is thought the work of substitution will not occupy more than a couple of months. The company intended in the first place to construct a cable line, but to this the bridge companies objected and would not allow them to lay a cable across the bridges, so that they had to abandon that method. This company's new road to Chartiers is now in running order. Tracks will soon be laid along Smithfield street.

PITTSBURGH TRACTION Co. The old road which this company's cable line replaces is a horse car line called the Pittsburgh, Allegheny & East Liberty Passenger Railway. Work has been going forward on the new line since Aug. 1, and the road will be opened next year. The cable extends along Fifth avenue. There will be 11 miles of track, of 5 ft. 2 in. gauge, with rail weighing 662 lbs. to the yard. They will have 15 cars, and the cable will be operated by 4 500 H. P. Corliss engines. The company has a capital stock of \$2,500,000, and the officers are: President, George W. Elkins; Secretary, George L. McFarlane; Treasurer, W. McCandless.

#### Port Chester, N. Y.

PORT CHESTER & RYE BEACH ST. RY. Co. will begin work on their new road Oct. 15, and it is thought that the road will be ready to open by Dec. 1. It will have 41 miles of track, of 4 ft. 81 in. gauge, with 30lb, rail, 6 cars and 40 horses. The idea of using electricity has been abandoned. The company must macadamize the space between the tracks and a space of 2 ft. each side af the tracks to a depth of at least 12 in. The size of stone and top dressing is specified. The company has a capital stock of \$40,000, and the officers are: President, Charles D. Haines; Vice President, Andrew G. Haines; Secretary and Treasurer, F. H. Skeele. Office, 45 Broadway, New York, Rooms 4 and 5.

#### Portland, Ore.

PORTLAND TRACTION Co. has been incorporated by Van B. De Lashmut and others, with a capital stock of \$500,000.

PORTLAND CABLE Ry. Co. has offered for sale \$200,000 of its first mortgage 6 per cent gold bonds, due July 1, 1907. This amount is the total issue, and proposals for all or any part will be received by the company's solicitors, at 142 South Fourth street, Philadelphia.

#### Portsmouth, Va.

PORTSMOUTH ST. Rv. Co. will build their road at once, and it will be in operation by the middle of November. S. T. Dunham, of 45 Broadway, New York, will handle the construction. Rufus Martin & Co. have made a contract to supply the cars, registers, harness and stable supplies. They will have 4 miles of track, of 4 ft. 82 in. gauge, with 30 lb. T rail, and 6 cars. Either electricity or horse power will be employed; 25 horses if the latter. The company has a capital stock of \$50,000.

Pratt. Kan.

CITY RY. Co. has been incorporated by George S. Chase, of Topeka, and others, with a capital stock of \$25,000.

Quincy, Mass.

QUINCY St. Rv. Co. has been formed, with a capital stock of \$40,000. A formal application to the State authorities for a location was drawn up, the route to extend from the boundary line between Quincy and Weymouth at the Quincy Point bridge to the boundary line between Quincy and Milton in the westerly section of the town. It is not proposed to build this entire distance at once, the route as at present laid out being from  $4\frac{1}{2}$  to 5 miles in length. The following temporary Board of Directors was chosen: Messrs. H. M. Federhen, King, Smith, Graham, Gill, Fenno and Merrill.

Rome, N. Y.

Rome City St. Ry. Co. Alfred Heyn, of New York, has the contract for the  $1\frac{1}{2}$  mile extension, and has just finished his work. The company now has 6 3-4 miles of track, 14 cars and 75 horses.

Sau Diego, Cal.

THE ELECTRIC RAILWAY to El Canon valley is to be run in connection with the city electric road.

San Diego & Old Town St. Ry. Co. Work on this road is nearly finished, and it will be opened some time in October. It will have 4 miles of track, of standard gauge, 20 and 30 lb. rail, 4 or more cars; and if electricity is a success it will be employed as the motor, otherwise steam. If electricity they will have a plant of 150 H. P. The officers of the company are: President, J. R. Thomas; Secretary, George B. Hensley; Treasurer, R. A. Thomas. The capital stock is \$100,000.

San Francisco, Cal.

Powell St. Rv. Co. ask for permission to lay a double or single track which shall extend their line from California street via Seventh avenue to the north line of Golden Gate Park, west of the Bay District race-track. Along the stretch of road they propose to run steam dummies to travel at a speed not to exceed twenty miles an hour. To connect this supplementary system with their main line the projectors also ask permission to lay tracks from Jackson street along Central avenue to California street, and thence out to the northeast corner of Laurel Hill Cemetery.

MARKET ST. CABLE Ry. Co. Work on the extension out Market street is going forward rapidly. The road will soon be open to Twenty-sixth and Castro streets and the dummy taken off, its place being taken by stages or horse cars until the north track is laid. The residents of Castro street have been promised through cars from Market street ferry to Twenty-sixth street without change at the junction of Market and Valencia streets. An additional turntable will probably be put in at the ferry. The Market street extension cable will be operated from the engine house at the junction of Market and Valencia streets. The Market Street Cable Railway Co. has now 138 cable cars, 25 horse cars and 86 horses. J. L. Willcutt is Secretary and General Manager; A. W. Barron, Superintendent.

CLAY St. HILL R. R. Co. It is understood that this property has been transferred to the Powell St. Ry. Co. This was the first cable road built in San Francisco, and has been running constantly since August, 1873. It is probable that the road will now be extended eastward.

San Jose, Cal.

SAN JOSE & SANTA CLARA R. R. Co., whose road has been in operation 19 years as a horse car line, are converting it into an clectric road, using the Fisher underground conduit system. The work began last June, and will be finished in about three months, at an expense of over \$360,000, being, it is claimed, the largest contract yet given for an electric railway. They will have 5 miles of double track, of 3 ft. gauge, with 45 lb. and 20 lb. steel T rails, 12 Pullman cars, 6 motors. The company has a capital stock of \$500,000, and its officers arc: President, Samuel A. Bishop; Secretary, Eugene Rosenthal; Treasurer, Jacob Rich. This road will connect Santa Clara, San Jose and East San Jose; and Messrs. Bishop and Rich have applied for a franchise for a sim lar road from East San Jose along Alum Rock road to King road, 4 miles.

A Franchise for another electric or cable road, to run on Market, Basset and First streets to the northern city line, has been granted to J. W. Rea, W. P. Dougherty and others. Work will begin at once.

Scranton, Pa.

SCRANTON SUBURBAN Ry. Co. President Sturges writes that they are still pleased with their electric power (Van Depoele system) and have added 2 miles to their road this summer, making 41 miles in all. power station has been erected at a cost of about \$30,000, having two 180 H. P. engines and two 100 H. P. generators. great feature is the use of "culm"—anthracite coal waste, which is being burned exclusively, at a cost of 10 cents per ton. This experiment has exploded the popular idea that the immense piles of refuse in the coal regions have lost their virtue as fuel, and it is now found that a ton of this culm, even after years of exposure, has about the same steam producing power as a ton of the best coal. The electric cars each carry about 500 people per day, over a road remarkable for its steep grades and curves. Several new motors and cars have been ordered, and the company claims to have the best equipped and most effective electric railway in the world.

Sioux City, Ia.

Sioux City & Morning Side St. Ry. Co. has been incorporated by W. L. Jay and others, with a capital stock of \$150,000.

Spartanburg, S. C.

A Franchise is asked for by B. H. Rice. Stamford, Com.

STAMFORD HORSE R. R. Co. shows a steady gain in receipts, though only 2 miles of the road are at present operated, and the most prospectively valuable portion is not yet open. Important measures for the further development of the property will

shortly be inaugurated. William R. Fosdick, of Stamford, has just been chosen President of the company, and William H. Hay Superintendent.

St. Catharine's, Can.

THE DYNAMO for the electric railway will be run by water power from the Welland canal.

St. Cloud, Minn.

St. Cloud Motor Line Co. has been incorporated by H. C. Waite, F. E. Searle, C. F. MacDonal and others.

St. Joseph, Mo.

THE CIRCLE CABLE LINE, the franchise for which is owned by Messrs. Johnson, Lillis and Lucas, of the Citizens' Cable Co., Kansas City, will soon be commenced. Ground has been purchased for the power house.

WYATT PARK Ry. Co.'s cable line will be constructed by D. J. Miller, and the Miller system will be adopted.

The Plant of the electric railroad in North St. Joseph has been delivered and is being erected.

St. Louis, Mo.

CITIZENS' R. R. Co. A Chicago firm has the contract for lighting the new cable cars of this company, and will make a specialty of that business. The work of construction is going rapidly forward. At Garrison and Franklin avenues the line crosses the present cable line. The conduits intersect each other, and the cable of the Citizens' line will dip up under, leaving the momentum to carry the cars over the breach. The car shed is two stories high, 396 by 200 ft.

Missouri R. R. Co. Ang 19, the first pick was struck in the work of construction of the Olive street cable line, and so great has been the progress since that the contractors are confident of fulfilling their contract by Oct. 15. Some 500 men are employed within six blocks.

St. Louis Car Co. have completed their new works and are already filling orders. The main building is 150 ft. in length and three stories high. The first floor is the mill proper, devoted to dressing the lumber, The cars are all erected on the second floor, while the third floor is the varnish room and cabinet shop. Besides the main building there is a paint shop, machine and blacksmith shops, all roomy and well fitted for the work. The machinery is being placed and their first cars are They have on hand two completed. orders from California for 10 cars; Memphis, Tenn., two 34 ft. cars; Ashland, Wis., four 12 ft. cars; Lafayette, Ind., four cars for electric railway; Wichita, Kan.; Butte City, Montana; Pine Bluff, Ark.; Kingman, Kan.; Shreveport, La.; and three cars for the Benton-Bellefontaine Co., St. Louis. They have plenty of work to keep them running three months to come. They can turn their work out in from five to six weeks from date of orders.

THE PROPOSITION to have the street cars stop every three blocks only, meets with strong opposition, and is not likely to be adopted.

LACLEDE CAR Co. report business brisk. They are working full time and are constantly adding new men to their force to keep up with their orders. made additions to their works the present season and have put in a complete outfit of wheel fitting machinery. Among the orders now filling are for a number of cars for the St. Paul City Cable Ry.; four cars for Corsicana, Tex.; twelve grip cars for the Kansas City Cable Ry.; ten grip cars for the Metropolitan road, St. Louis, as well as a number of combined grip and coach cars, the latter to be 34 ft. in length over all; a number of 34 ft., steam cars for Birmingham, Ala., Topeka, Kan., and Chattanooga, Tenn.

OUR ST. LOUIS LETTER.

As you are aware, we have just passed through extreme hot weather, wherein St. Louisians by experience know it's best to adopt the do-nothing policy. Result, nothing new to impart in railroadnews, as we don't suppose that any officer with the thermometer at 100 would have the energy to write out his resignation. As to electing new ones, you couldn't get a meeting of the Board, as most of the magnates take sum ner vacations, whether the stockholders do or not.

Cable roads are progressing very fine. The Franklin avenue line (Citizens' Railroad) expects to be in fall running blast in a very short time. The Olive street line (Missouri Railroad) has begun to lay the cable. Streets all torn up.

The Washington avenue line (Lindell Railroad) are still impressed with the opinion that electricity is the coming motor and are making experiments to that effect; and we are of the opinion that the Fifth streetline (St. Louis Railroad) is keeping one eye on the Lindell Railway's experiment, before they involve themselves in the tremendous expense of cabling. The South St. Louis Rullcoad (Sixth street line) expect to cable, with the Johnson cable, Mr. Johnson himself being interested in the railroad.

The St. Louis Western Cable Railroad is going to make a big effort this fall, in connection with their narrow gauge extension; as they have contracted to have here, during our fall festivities, along their road neur Union avenus, "The Fall of Pompeii," which was so successfully exhibited at the Eastern seashore this summer.

As to new railroad charters, our municipal assembly is not in session, but we understand there will be a lively time this fall when it does meet, as there are several of the contending lines seeking for charters over the same route. Will keep you posted. More anon.

OLIVE.

St. Paul, Minn.

St. Paul City Ry. Co. Work has begun on West Fourth street on the new cable line, and is being rapidly pushed forward by Col. Dudley, the representative of the contractors. The new West Side line of horse cars, running from Rice street to West St. Paul, has been opened.

ST. PAUL & MINNEAPOLIS RAPID TRANSIT

Co., chief office in St. Paul, has been incorporated to build an elevated or surface line between the two cities. The incorporators are P. R. L. Hardenberg, W. Lindeke and others, of St. Paul, and William W. Huntington, Anthony Kelly and others, of Minneapolis.

Sumter, S. C.

MARYLAND ELECTRIC MOTOR MANUFACT-URING Co., of Baltimore, will build an electric railway here, in connection with an electric light plant.

Topeka, Kan.

TOPEKA RAPID TRANSIT Ry. Co. opened 10 miles of their system Aug. 25. They have 12 Baldwin motors and 24 cars.

WEST SIDE CIRCLE Ry. Co. have completed their line, 5 miles long, and it is to be opened Oct. 1. They have 6 cars and 3 motors at present. The road is of 4 ft. 81 in. gauge, laid with 38 lb. rail. The company has a capital stock of \$50,000, and the officers are: President, Thomas A. Osborn; Secretary, R. H. Delahay; Treasurer, F. I. Bonebrake.

Trenton, N. J.

TRENTON HORSE R. R. Co. William P. Craig has begun work extending this line through Chambersburgh.

Washington, Ga.

A Company has been chartered to build a street railroad.

Waxahachie, Texa

WAXAHACHIE St. Ry. Co. has been chartered by Messrs. Dunlap, White, Strickland, Williams, Anderson, Lewis and others, with a capital stock of \$25,000.

Westfield, Mass.

WESTFIELD St. Ry. Co. will begin work at once, and expect to be in operation in six weeks. The project will take from \$25,-000 to \$40,000 of capital. J. A. Lakin is President and Manager. They will have about 5 miles of track, of 4 ft. 81 in. gauge, with 30 lb. steel rail, will have 5 cars at first, and will employ electricity as soon as they can use it.

Wheeling, W. Va.

WHEELING Ry. Co., whose incorporation we reported last month, will use the Van Depoele electric system.

CITIZENS' RY. Co. will extend their line. They are investigating the different electric systems, and are pretty sure to adopt one of them.

Wilmington, N. C.

Work on the new road will begin Oct. 1. cago, 111.

#### BUSINESS NOTES.

W. L. EVERIT, New Haven, reports rapid progress with his patent street-car floor, having just closed a contract with a South Boston road. All the roads in Boston and vicinity are now equipped with the Everit floor.

AUGUSTUS DAY, Detroit, informs us that his orders for cleaners were never so abundant as at this date from all parts of the country, and that without solicitation. This shows what the best article, weii advertised, will do.

T. WILLIAM HARRIS & Co. are doing the entire work for the new electric railway at Richmond, Va. Eleven miles of track are laid, and the poles for the wires are being put up at the rate of 50 a day. This is believed to be the most complicated and elaborate electric railway ever attempted.

YESTERDAY the conductors on North Side street cars wore for the first time the old registers that were discarded about six months ago. "That new register was a fraud," remarked a conductor. "It didn't keep a straight record, and nearly every time my trip sheet was open to correction. Sometimes I would be \$2 short. Next day maybe I would be \$1 ahead. Took an awful lot of figurin' to fix things right, you see, and I'm glad to give this a twist once more." At the Superintendent's office inquiry was made as to the changing of registers. "Merely a matter of royalty," was the answer.-Chicago

PORT HURON ELECTRIC RAILWAY COMPANY,

PORT HURON, Mich., May 19, 1887.

AARON K. STILES, Esq., Pres. Van Depoele Electric Manufacturing Co., Chicago, Ill.

DEAR SIR:-Our electric motor cars are doing a practical steady work on the business streets of this city and Fort Gratiot (two miles away).

We are so well pleased with their perfect action that we intend to equip our new line to the Huronia Beach summer resort, and shall place our order with you in a few days for more motors.

Yours very truly.

PORT HURON ELECTRIC RY. Co., J. II. TALBOT, Sec'y

THE CLINE MANUFACTURING Co., of Chicago, 111. manufacturers of Cline's Patent Car Warmer and Fuel, have recently improved their car warmer by placing a tube under the car, which carries a fresh air current to the heater directly over the fire, thus giving, it is claimed, only a pure warm air to the inside of the car and increasing the speed of the car the greater the heat. S. W. Cline, the Secretary, is now on an extended trip East, where he will visit the principal cities and towns, as well as Canada, in the interest of the company. He reports having sold to all cities visited, and orders are coming in so fast that they are behind in filling them, though they will be able to meet the demand if orders are sent in promptly. The following roads have ordered the Cline Heaters and Fuel for this winter, some of which used them last winter: Tenth Ave. & 125th St. cable road, New York; Baltimore & Yorktown Pike Road Co., Baltimore, Md.; Scranton Suburban Ry. Co., Scranton, Pa.; Pittsburgh & Birmingham R. R., Pittsburgh, Pa.; Metropolitan Ry. Co., Kansas City, Mo.: Bourbon Ry. Co., Fort Scott, Kan.; Citizers Ry. Co., St. Joseph, Mo.; Grand Avc. Ry. Co., Kansas City, Mo.; Missouri R. R. Co., St. Louis, Mo.; Richmond City Ry. Co., Richmond, Ind.; Waterloo St. Ry. Co., Waterloo, Ia.; Chicago West Division Ry. Co., Chicago, Ill.; So. Chicago City Ry. Co., So. Chi-

#### STREET RAILWAY STOCK QUOTATIONS.

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

Company.	Par.	Capital.	Period.	Rate.	Date.	B1d.	Asked.
Union R. R. Co., Prov. Pawtucket St. Ry. Co.	100 100	\$1,500,000 270,000	Q.—J. New.	New.	July, 1 7.	20.0 107½	2 8 110

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

Company.	Par.	Capital,	Period.	Rate.	Date.		Bid.	Asked.
Fair Haven & restviife R. R. Co State Street Ho se R. R. Co Bonds	25 25	\$30,000 23.0 0 12,00	J. & J. J. & J. J. & J.	4 3 7	January, January,	1 7	136 100 110	
New Haven & Cest Haven R. R. Co. New Haven & enterville H. R. Co.	25	12,00	9. 6. 9.	•			12	
Whitney Ave. Ry. Co Bridgeport Horse R. R. Co	50 100	25,000 140,000					6	
" Bonds	1,000	50,000	1	6				

#### STREET RAILWAY STOCKS,—Continued,

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

Company.	Par.	Capital.	Period.	Rate.	Date.		Bid.	Asked
Bleecker St. & Fulton Ferry	100	\$900,000	J. & J.	3/	January,	1887	28	31
1st mort	1,000	700,000	J. & J.	7	July,	1900	114	116
Broadway & Seventh Avenue	100	2,100,000	QJ.	2	January,	1886		180
1st mort	1,000	1,500,000	J. & D.	5	June.	1904	100	103
2d mort	1,000	500,000	J. & J.	5	July.	1914	103	105
Broadway Surface Guaranteed	1,000	1,500,000	J. & J.	5	July,	1924	-	91
Additional	1,000	1,000,000	J. & J.	5	July,	1905		91
Brooklyn Clty—Stock	10	2,000,000	QF.	2	May,	1887	124	130
1st mort	1,000	800,000	J. & J.	5	January,	1902	106	110
Brooklyn Crosstown	100	200,000	A. & O.	4	Aprll,	1887	160	165
1st mort bonds	1,000	400,000	J. & J.	7	July,	1888	105	109
Central Park, North & East River	100	1,800,000	QJ.	2	January,	1887	75	81
Con, mort. bonds	1,000	1,200,000	J. & D.	7	December,	1902	120	121
Christopher & Tenth	100	650,000	F. & A.	11%	August.	1887	120	125
Bonds	1.000	250,000	A. & O.	7'"	October.	1898	110	114
Central Crosstown	100	600,000	QF.	13/4	July	1887	155	160
1st mort	1,000	250,000	M. & N.	6	November.	1922	118	125
Dry Dock, East B'way & Battery	100	1,200,000	Q.—F.	2	August,	1887	142	147
1st mort. consol	500	1,900,000	J. & D.	7	June.	1893	108%	111
Scrip	100	1,200,000	F. & A.	6	August,	1914	104	106
42d & Grand St. Ferry	100	748,000	QF.	3	August,	1887	200	210
1st mort	1,000	236,000	A. & O.	7	Aprll,	1893	110	112
42d St., Manhattan & St. Nich. Av.,	100	2,500,000					38	42
1st mort	1,000	1,200,000	M & S.	5		1910	108	110
2d mort. In. bonds	1,000	1,200,000	J. & J.	6		1915	60	63
Eighth Avenue—Stock	100	1,600,000	QJ.	2	July,	1887	155	160
Scrip	100	1,000,000	F. & A.	6	August,	1914	105	110
Houston, West St. & Pavonia Ferry	100	1,000,000	Q -F.	2	August,	1885	150	160
1st mort	500	250,000	J. & J.	7	July,	1894	110	111
Second Avenue—Stock	100	500,000	J. & J.	5	January,	1887	118	121
1st mort		1,862,000	M. & N.	5	November,	1909	104	106
Consol	1,000	550,000	M. & N.	7	November,	1887	101	103
Sixth Avenue	100	1,050,000	M. & S.	3	August.	1887	175	180
1st mort	1,000	500,000	J. & J.	7	July,	1890	110	112
Third Avenue—Stock	100	2,000,000	QF.	3	August,	1887	210	225
1st mort	1,000	2,000,000	J. & J.	7	January,	1890	110	112
23d St.—Stock	100	600,000	F. & A.	5	August,	1887	224	23)
1st mort	1,000	250,000	M. & N.	7	May,	1893	110	113
Ninth Avenue	100	800,000		3	September,	1885	107	112
Chicago City Railway	100		1				299	325

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

Company.	Par.	Capital.	Period.	Rate.	Date.	Bld.	Asked.
Citizens	50 50	\$500,000 1,000,000	Q.—J. J. & J.		•		1221/
Frankford & Southwark	50 50	750,000 1,500,000	Q.—J. Q.—J.			9134	275 9534
Green & Coates	50 50	500,000 2,050,000	Q.—J.				116 26
Lombard & South	25 25	500,000 1,500,000	V				95 35
Philadelphia City Philadelphia & Gray's Ferry Philadelphia Traction	50 50 50	1,000,000 617,500 5,000,000	J. & J. J. & J.			140 65	88 67
Ridge Avenue	50 50	750,000 1,060,200	Q. —J. Q. —J.	1 3		152	07
Seventeenth & Nileteenth	59 50	500,000 1,000,000	J. & J. J. & J.			142	145
Union	50 50	1,250,000 750,000	J. & J. J. & J.			170	180

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

Company.	Par.	Capital.	Perlod.	Rate.	Date	Bld.	Asked.
Metropolitau South Boston. Boston Consolidated. Cambridge. West End Pref.	50 100 100	\$2,000,000 750,000 1,700,000 1,950,000 6,6~0,000	J. & J. J. & J. J. & J. J. & J. J. & J.	8	July, 1887 July, 1886 July, 1887 January, 1887	97½ 140	103½ 102½ 141 121 83

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

Company.	Par.	Capital.	Period.	Rate.	Date.	Bid.	Asked.
STOCKS.							
Benton-Bellefontaine	100	\$400,000	Jan.	11/2		95	100
Cass Ave. & Falr Grounds	50	300,000			l i	80	
Citizens'	100	1,000,0.0	Apl. '76	11/4		65	70
Forest Park & Lacledc	100	100,001			4	100	
Jefferson Avenue	100 100	112,400 600,000	June			100	10-
Llndell	100	600,000	Aprll	2 2		110 150	125
Mound City	100	125,000	Apm	~		103	107
Mound City	100	200,100				105	101
People's	50	300,000	June	2		40	42%
St. Louis	100	900, 00	May	2		50	55
Tower Grove	50	300,000	Jan.	.50			9
Unlon	50	600,000				13	15
Union Depot	100	400,000				75	80
St. Louis Cable	100	1,000,000					
BONDS.							
Benton-Bellefontaine	1,000	\$50,000	A. & O.	6	1880	102	
Cass Avenuc	1,000	2 0,000	F. & A.	6	1886	102	103
Cltizens'	1,000	200,000	J. & J.	6	1882	103	104
Lindell	1,000	87,500	F. & A.	7	1879	102	105
Mound City	1,000	125,000	J. & J.	6	18-4	102	103
People's 1st mort	1,000	125,000 75,000	J. & D. M. & N.	6 7	1882	103	105
Northern Central.	1,000	200,000	J. & J.	6	1886 1884	102	103
St. Louis Cable	1,000	600,000	M.& N.	6	1884	105	107
Unlon	1,000	150,000	M.& N.	6	1885	102	103
Union Depot	1,000	350,000	A. & O.	6	1886	102	1021/2

#### SPECIAL NOTICES.

#### TO RAILWAY OFFICIALS.

SELLING ON COMMISSION.

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

DESCRIPTION SHOULD BE SENT US

Of property advertised on commission.

In case of Position Wanted, names of references, salary expected, experience and other particulars should be given.

REGULAR CASH RATES.

When not Inserted on commission, Wants, For Sale, etc., are charged at the rate of ten cents per ilne, about eight words to a line. Street Railway Companies, or their Officers, may send advertisements to be billed and paid for after Insertion.

WHEN SENDING

Please state whether ad. is to be paid for at regular rates or on commission. If more convenient for advertiser the advertisement will be written at this office, full particulars being sent to us. Unless partles are known to us or appear in some of our directories, cash should accompany ad.

FOR SALE.—A full-sized Andrews Improved Snow Piow and Sweeper. Been used only six times. Would exchange for open cars in good condition. WATERBURY HORSE R. R. Co., Waterbury, Conn. 14

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

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

New York.

EXPERIENCED and thoroughly practical St. R. R. man, competent to fill any or all of the following positions: superintendent, secretary, Purchasing Agent, Auditor and Account int, desires a change; location no object. Present position combines the duties of Superintendent, Secretary, Auditor and Accountant. Would prefer position as General Manager or Superintendent to take hold of large fallure, entire charge of op-rating a medium sized road or to look after the interests of a syndicate controlling several smail roads.

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

dress, "Ex York City.

WANTED.—Three or four good second-hand street cars, 16 foot preferred. Also, good second-hand 25 lb. T ralls. Address H, JOURNAL

LOGGING, MINING, PLANTATION

STREET RAIL & TRAM ROADS.

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

HUMPHREYS & SAYCE, No. 1 Broadway, New York. THOS. GOGIN, Prest.

JAS. M. STONE, Treas. & Atty.

M. V. B. STIMSON, Agent.

# NATIONAL RAILWAY

AND

# Street Rolling Stock Company,

CONCORD, N. H.

Manufacturers of

# THE STIMSON IMPROVED CAR-AXLE BOX.

Office, 191 Kigh Street, Boston, Mass.

This Box is emimently practical, effecting great economy in expenses for labor and in the care of them, and in the use of oil.

It also furnishes a perfect protection against hot boxes, arising from loss of oil, and in the accumulation of dust, dirt, grit, and other foreign substances, thus reducing the liability to loss or accident from these causes to the minimum.

After a careful inspection of this box as made for steam cars it is regarded as admirably adapted as a substitute for the present washer on account of its simplicity and the easy means of applying it.

# STREET RAILWAYS

#### IN THE UNITED STATES & CANADA.

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

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

ABILENE, KAN.—Abilene St. Ry. Co., 3½ m, 3-6 g, 20 lb Tr, 41-h c, 8 mu. Pres. & Supt. M. M. Shi, e, Sec. A. C. Marconnier, Treas. J. M. Fisher. s AKRON, O.—Akron St. Ry. & Herdic Co. 3½ m, 4-8½ g, 40 lb tram r, 9 c, 40 h. Pres. Ira M. Miller, Sec. & Treas. Will. Christy, Supt. John E. Metlin. a ALBANY, N. Y.—Watervliet Turnpike & R. R. Co. 15 m, 4-8½ g, 26 45 lb tram & Tr, 4 l-h & 27 2-h c, 143 h. V. Pres. C. B. Tillinghast, Sec. & Treas. Cantine Tremper, Supt. Amos Free. Offices, 1165 Broadway. b

ALBANY, N. Y.—Watervilet Turnpike & R. R. Co. 15 m, 4-8½ g, 26 45 lb tram & T r, 4 1-h & 27 2-h c, 148 h. V. Pres. C. B. Tillinghast, Sec. & Treas. Caattne Tremper, Supt. Amos Free. Offices, 1165 Broadway. b
Albany & E. Greenbush Horse Ry. Co. 1.7 m, 4-8 g, 61-h and 6 2-h c, 20 h. Pres. A. B. Banks, Sec. & Supt. J. W. Giscolgne. Office, 473 Broadway. 8
Albany Ry. 15 m, 4-8½ g, 32 to 47 lb r. 59 c, 250 h. Pres., Treas. and stylt. John W. McMamara, V. Pres. Robt. C. Pruyn, Sec. Jas. H. Manning, Asst. Supt. J. ALLEGHENY, PA.—Federal St. & Pieasant Valley Pass. Ry. 4.8 m, 5-2 g, 50 lb r, 22 c, 166 h and mu. Pres. Wm. McCreery, Sec. R. F. Ramsey, Supt. Wm. J. Crozler. Office, 129 Taggart st. a
People's Park Pass. Ry. Co. 5.2 m, 5-2 g, 45 lb r, 10 c, 70 mu. Pres. Wm. McCreery, Sec. R. F. Ramsey, Treas. Jas. Boyle, Supt. Wm. J. Crozler. Office, 129 Taggart st. a
ALLENTOWN, PA.—Allentown Pass. R.R. Co. 3½ m, 4-8½ g, 19 lb tram r, 62-h c, 23 h. Pres. Samuel Lewis, Sec. & Treas. Joseph E. Balllet. Supt. A. T. Brown. Office Hamliton st. Capital, \$45,260. k
ALTON, HLL.—Alton & Up. Alton Horse Ry. Co. 5.2 m, 4-8½ g, 27 lb r, 4 c, 13 h, 2 mu. Pres. John Haley, Sec. & Treas. H. J. Crane, Pur. Agt. Theo. Scovel, Supt. Harriet S. Hathaway. Office, Upper Alton.

\*\*ALTOONA. PA.—City Pass. Ry. Co. of Altoona, Pa. 3½ m, 5-3 g, 43 & 45 lb tram r, 10 l-h, 8-2 h c, 33 h, 8 mu. Pres. John P. Levan, Sec. & Treas. L. B. Reitsneider, Supt. John J. Buch. Capital, \$68,000. a
AMSTERDAM, N. Y.—Amsterdam St. R. R. Co. 136 m, 4-8½ g, 25 lb T, 4 c, 12 h. Pres. Henry Herrick, Treas. David Cady, Sec. M. L. Stover. Leased to Jas. R. Snell.

a NNIS PON, ALA.—Anniston, Oxford & Oxanna St. Ry. Co. 34 m, 4-8½ g, 25 lb T, 4 c, 12 h. Pres. Henry Herrick, Treas. David Cady, Sec. M. L. Stover. Leased to Jas. R. Snell.

a NNIS PON, ALA.—Anniston, Oxford & Oxanna St. Ry. Co. 34 m, 4-8½ g, 20 lb Tr, 9-2 h. c, 60 h. Owner & Prop. Jno. N. Stewart, Cleveland, O. 5

ATCHISON, KAN.—Atchison St. Ry. Co. 9 m. 4-8½ g, 30 lb Tr, 92 h. c, 60 h. Owner & Prop. Jno. N. St

Sec. & Treas. J. W. Culpepper, Supt. & Purch. Agt. E. C. Peters, Engr. W. S. Larendon. Office, 49 Line st. g. Gate City St. R. R. Co. 2½ m, 4-8½ g, 16 1b T & 60 ib girder r, 7 c, 28 mu. Press. R. Peters, Sec. & Treas. J. W. Culpepper, Supt. & Pur. Agt. E. C. Peters. Office, 49 Line st. Metropolitan St. R. R. Co. 8 m, 4 8½ g, 18, 20 & 25 lb T & c-b r, 17 2-h c, 30 h, 40 mu. Pres., Treas. A Pur. Agt. J. W. Rankin, Sec. W. A. Hapgood, Supt. G. S. Hanluther. Office, Park ave. & Fair st. g. West End & Atlanta St. R. R. Co. 5 m, 4-8½ g, 20 & 30 lb T r, 8 2-h c, 32 mu. Pres. T. G. Healey, V. Pres. T. L. Langston, Pur. Agt. T. J. Hightower, Supt. B. F. Curtis. 6

ATLANTIC CITY, N. J.—Atlantic City Ry. Co. 3½ m. 4-18 Jk g, 28-30 lb T r, 12 2 h c, 42 h. Pres. G. W. Allen, V. Pres. H. B. Hollins, New York, Sec. Bronson Peck, Jr., New York, Treas. E. L. Horton, New York, Asst. Treas. C. B. Kosters, Supt. J. L. Windsor. g. AUGUSTA, GA.—Augusta & Summerville R.R. Co. 6 m. 5 g, 30 lb T r, 9 1-h c, 42 h. c, 50 h. Pres. Patk. Walsh, Sec., Supt. & Pur. Agt. Edw. G. Mosher. Auditor, Frank E. Petlt. Office, 513 McKinne st. a. AURORA, JILL.—Aurora City Ry. Co. 5½ m, 4-8½ g, 28-30 lb Tr. 31-h, 11 2-h c, 12 b, 110 mu. Pres. & Treas. C. B. Komman, S. W. Thatcher, Sec. A. J. Hopkins, Treas. E. W. Trask, Supt. J. B. Chattle. 1 AUSTIN, TEN.—Austin City R. R. Co. 7 m, 3-6 g, 25 & 30 lb Tr., 31-h, 11 2-h c, 12 b, 110 mu. Pres. & Treas. Wm. H. Tobin, Sec., Pur. Agt. & Supt. Geo. A. Proctor. 8

BABYLON, N. Y.—Babylon Street Ry. Co. 1.53

m, 4-9 g, 35 lb T r, 1 l-h, 1 2-h c, 3 h. Pres. W. F. Norton, Sec. Jos. F. Sammis, Treas. John R. Reld, Supt. David S. S. Sammis.

d BALTIMORE, MD.—Baltimore & Powhatan Ry. Co. 6 m, 5-4½ g, 30 lb r, 5 c, 19 h. Pres. & Treas. E. D. Freeman, Sec. R. B. Clark, Supt. & Pur. Agt. Jas. McKltrick. Office 406 Laurens st.

Baltimore City Pass. Ry. Co. 44 m, 5-4½ g, 46 & 47 lb tram r, 155 c, 1, 64 h. Pres. & Supt. Oden Bowle, Supt. car shops J. M. Blundell, Supt. tracks, Boyer Parks, Treas. John Bolglano, Sec. S. L. Bridge. Office cor. Caivert & Baltimore sts.

Baltimore & Hall Springs R. R. Co. 4½ m, 14 c, 68 h. Pres. H. J. Keyser, Supt. Jas. F. Heywood.

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

Baltimore, Catonsville & Ellicott's Mills Pass. Ry. Co. 6 m, 5-4½ g, 35 lb T r, 15 2-h c, 42 h. Pres. T. C. Robbins, Sec. W. W. Orendorf, Treas. E. P. D. Crossifice, Pratt st. & Frederick ave.

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

sweepers, 186 h. Pres. Petér Thompson, séc. & Treàs. Waiter Blakistone. Office cor Preston and Constitution sts. b.

Cittzens' Ry. Co. 20 m, 5-4½ g, 47 ib T r, 55 2-h c, 425 h. Pres. Jas. S. Hagerty, Sec. Wm. N. Hamersley, Treas. Jos. Bolglano, Supt. & Pur. Agt. C. C. Speed. Office, Retreat st. a

Highlandtown & Point Breeze Ry. Co. 11 m, 5-4½ g, 35 ib train & T r, 25 2-h c, 100 h. Pres. Francis Hazlehurst, Treas. Wm. Settridge, Asst. Treas. J. L. Wertzell, Supt. Jas. Smith. Office, Higblandtown. 7

North Baltimore Passenger Ry. Co. 21 m. 5-4½ g, 45 lb s-b r, 72 2-h c, 400 h. Pres. Jas. L. McLane, Treas. Dan'i J. Foley. Sec. Thos. J. Wilson. Office, McMeckin st. & Mt. Royal ave. 1

People's Ry. Co. 13.2 m, 5-4½ g, 42 45-47 lb r, 38 c, 42 0b r, Pres. T. Edw. Hambieton, Treas. Gustavus Ober, Sec., Supt. & Pur. Agt. Wm. A. House, Jr. Office, Druid Hill ave. extension, Clitton. 1

Pinilco & Pikesville Ry. Co. 7 m, 5-4 g, 30 lb r, 4 c, 17 h. Pres. P. H. Waiker, Sec. Frank Caughy, Tiens. & Supt. Arthur Chenoweth. Office, Pikesville, Balto. co. d

Yorktown Turnpike Road Co. 11½ m. 5-4½ g, 25 & 43 lb r, 19 c, 133 h. Pres. Sam'i H. Taggart, Freus. Jos. W. Jenkins, Agt. A. D. Sanks. Office, 6 N. Halliday St. 1

BATTLE CREEK, MICH.—Battic Creek St. Ry. 4 m. 3-6 a 28 lbr. 8 c 20 h. Pres G L. Beyeredge.

Balto. co. d
Yorktown Turnpike Road Co. 11½ m. 5-4½ g, 25 & 45 lb r, 19 c, 133 h. Pres. Sam! H. Taggart, Freas. Jos. W. Jenkins, Agt. A. D. Sanks. Office, 6 N. Halliday St. J. BATTLE GREEK, MICH.—Battle Creek St. Ry. 4 m, 3-6 g, 28 lb r, 8 c, 20 h. Pres. G. L. Beveredge, Chicago. V. Pres. Luclus Clark, S. Bend, Ind., Sec. H. H. Brown, Battle Creek, Treas. H. H. C. Miller, Chicago, Supt. Geo. Wolf, Battle Creek. C. BAY CITY, MICH.—Bay City St. Ry. Co. 12 m, 4-8½ g, 424.75 lb r, 16 c, 56 h. Pres. Jas. Clements, Treas. Wm. Clements, Sec. Edgar A. Cooley. 10
BEATRICE. NEB.—Beatrice St. Ry. Co. 4 m, 4-8½ g, 25 lb r, 4 c, 30 h. Pres. J. D. Kilpatrick, Purchasing Agt. J. E. Smith, Sec. A. L. Green, Treas. Jobn Ellis. h
BEAVER FALLS, PA.—Beaver Valley St. Ry. Co. 3½ m, 5-2½ g, 38 lb r, 8 c, 31 h. Pres. M. L. Knight, V. Pres. Col. J. Weyand, Sec. & Treas. J. F. Merriman, Supt. L. Richardson. Office, 1207 7tb av., Beaver Palls. a
BELLAIRE, G.—Bellaire St. R.R. Co. 2½ m, 3-8 g, 20 lb r, 4 c, 10 h. Owner Geo. W. Stetson of New York, Man. Fred. Rodewig. 7
BELLEVILLE, ONT., CAN.—Belleville St. Ry. Co. 1½ m, 3-6 g, 23 lb r, 5 c, 14 h Pres. D. Lockwood, Sec.. Treas. & Man. S. A. Lockwood. L
BEILEVILLE, ILL.—Cittzens' St. Ry. Co. 4½ m, 4 8½ g, 16 lb r, 9 c, 26 h. Pres. D. P. Alexander, Man. & Treas. H. A. Alexander, Sec. J. E. Thomas. Office N. E. cor. Main and High sts. J. Berrea, O.—Berea St. R. R. Co. 1½ m, 3-6 g, 25 lb r, 5 c, 24 h. Pres. C. W. D. Miller, V. Pres. T. Churchward, Treas. F. T. Pomeroy, Supt. A. W. Bisbop. a
BINGHAMTON, N. Y.—Washington Street & State Asylum R.R. Co. 4½ m. 4 g, 20-45 lb T & tram f. 6 l-h 22 hc, 20 h, 4 mu, 1½ m cable, 50 H. P. engine. 6 elec. c, 3 of 15 H. P. each and 3 of 10 H. P. each; Van Depoele system; over bead conductor. Pres. R. H. Meagley, Sec. Ira J. Meagley, Treas. F. E. Ross, Gen. Supt. R. H. Meagley, Sec. Las. O. Nooth. Pres. & Manh. R. H. Meagley, Supt. Wm. Whitney, Lessee S. H. Nash. 16 p. 10 p.

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

First ave. h

Highland Ave. & Belt R. R. Co. 25 m, 4-9 g, 12 m
30 lb r, 13 m 56 lb r, 16 pass, c, 7 flats, 5 dummy engines, 2 freight engines. Pres. H. M. Caldwell, Man.
W. J. Milner, Supt. I. M. Levis, Engr. R. H. Adams.
Office, Morris ave. & 20th st. 9

Birmingham & Pratt Mines St. Ry. Co. 5 m, 4-8½ g, 16 lbr, 6 c, 30 h. Pres, and Gen. Man. J. A. Van Hoose, Sec. & Treas. Wm. Berney. c

B1RMINGHAM, CONN.—Blrmingham & Ansonia Horse R. R. 3½ m, 4-8½ g, 30 lb side bearing r, 6 c, 25 h. Pres. Wm. H. Williams, Sec. Edwin B. Gager, Treas. Eugene M. Cole.

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

BLOOMINGTON, HLL.—Bloomington & Normal Horse Ry. Co. 5½ m, 4-8½ g, 36 lb r, 10 c, 60 n. Pres. & Proprietor A. H. Moore, Sec. Edw. Sharp. c

BOONE, J.A.—Boone & Roonsboro St. Ry. Co. 1½ m, 3 g, 20 lb r, 3 c, 1 bus, 10 h. Pres. L. W. Reynolds, Treas. Ira B. Hodges, Sec. and Supt. A. B. Hodges. f Twin City & Des Molnes River Motor St. Ry. Co. 6 m, 20 lbs. r, 3-6 g, 2 motors, 3 c. President & Supt. J. B. Hodges, Treas. A. B. Hodges, Sec. S. K. Huntsinger. k

BOSTON, MASS.—Boston Consolidated St. Ry. Co. 51½ m, 4-8½ g, 48-50 lb r, 375 c, 1,850 h. Pres. Chas. E. Powers, Treas, Sam'l Little, Ass. Treas. John H. Studley, Jr., Gen. Supt. Julius E. Rugg. Supt. J. H. Studley, Jr., Gen. Supt. Julius E. Rugg. Supt. J. H. Studley, Jr., Gen. Supt. Julius E. Rugg. Supt. J. H. Studley, 19 clty Square, Charlestown, Engr. Arthur Hodges. Capital, \$1,700,000. Office, 27 Tremont row. k

Albany St. Freight Ry. Co. .93 m, 4-8½ g, 90 lb r, no c, no h. Pres. Chas. L. Pierson, Treas. Geo. F. Child. Office, 439 Albany st. J

Boston & Chelsea R. R. Co. 4.154 m, 4-8½ g, 45-60 lb r. Pres. W. W. Wheildon, Treas, and Clerk, John H. Studley, Jr. Leased to Lynn & Boston R. R. Co. Thank Boston R. R. Co. 42 1-6 m, 4-8½ g, 28-48 lb r, 175 c, 748 h. Pres. Amos F. Breed, Treas. & Clerk E. Francis Oliver, Supt. Elwin C. Foster. Office, 13 Tremont row. k

Metropolitan R. R. Co. 87 m, 4-8½ g, 30-54 lb Trias tseel and Richards r, 721 2-h c, 3, 61 h. Pres. C. A. Richards, Sec. Wm. P. Harvey, Treas. Chas. Boardman, Supt. Car Reps. Isaac H. Randall. Office, 13 Tremont row. k

Metropolitan R. R. Co. 195 m, 4-8½ g, 45 lb r, no c, no h. Pres. Wm. R. Pearmain, Chelsea, Mass. Treas. Clerk, E. Francis Ol

Treas, & Cierk, E. Francis Onven, Bosson, Candy, 13 Tremont row. Leased to Lynn & Boston R. R. Co. 9

BRADFORD, PA.—Bradford & Kendall R.R. Co. 1½ m, 4.8½ g, 33 lb r, 3 c, 5 h. Pres. James Broder, Sec. G. H. Moore, Treas. Enos Parsons. Capital, \$12,000. 7

BRANTFORD CAN.—Brantford St. Ry. Co. 4 m, 3-6 g, 25 lb r, 6 c, 20 h. Pres. D. A. Flack, V. Pres. R. A. Pringle, Sec., Treas. & Man. Chas, H. Flack, h. BRENHAM, TEX.—Brenham St. R. R. Co. 2 m, 4g, 20 lb r, 3 c, 18 mu. Pres. T. J. Pampell, V-Pres. F, Krentziln, Sec. John A. Randle, Treas. D. C. Giddings. Man. E. B. Randle. Office, Gruber Bl'g., North St. 1 BRIDGEPORT, CONN.—Bridgeport Horse R.R. Co. 6½ m, 4-8½ g, 42 lb r, 20 c, 100 h. Pres. Albert Eames, Sec. & Treas. F. Hurd, Supt. B. F. Lashar, Engr. Chas. Miller. J. Bridgeport & W. Straitord Horse R. R. Co. 3½ m, 4-8½ g, 45 lb r, 10 c, 40 h. Pres. David F. Hullister, Sec. & Treas. Henry D. Drew, Man. Henry N. Beardsley. J. BROCK MON. MASS.—Brockton St. Ry. Co. 11½

Sec. & Treas. Henry D. Drew, Man. Henry N. Beardsley. J BROCKTON, MASS.—Brockton St. Ry. Co. 11½ m, 4-8½ g, 35 fb r, 32 c, 138 h. Pres. W. W. Cross, Treas. C. R. Fillebrown. Supt. H.B. Rogers. Office, Campello. J. BROOKLYN, N. Y.—Atlantic Avenue R. R. Co. of Brooklyn. 32½ m, (leased and owned). 4-8½ g, 50-60 lb r, 255 2-h, 30 1-h c, 1,157 h. Pres. Wm. Ricbardson, Sec. W. J. Richardson, Treas. Newbery H. Frost. Office, cor. Atlantic & Third aves. d. Broadway R.R. Co. 12 m, 4-8½ g, 60 lb r, 199c, 750 h. Pres. Edwin Beers, Sec. & Treas. Robert Sealy, Supt. Joshua Crandall. Office 21 Broadway, E. D. e. Brooklyn Cable R. R. Co. Leased its line from

E. D. e Brooklyn Cable R. R. Co. Leased its line from Atlantic Ave. R. R. Co., for 14 per cent of gross receipts, but discontinued operations, July, 1887. 7m, 48½ g, 59½ lb c-b girder, cable 3 m, 350 H. P. Pres. Tom L. Johnson, Sec. & Treas. A. l. Du Pont, Supt. A. L. Johnson. Office, 355 Park ave. Capital, \$1,000,100

4-8% g, 59% 10 C-0 grider, vasc. A. I. Du Pont, Supt. A. L. Johnson. Sec. & Treas. A. I. Du Pont, Supt. A. L. Johnson. Office, 355 Park ave. Capital, \$1,000,-100.

9
Brooklyn Cross Town R.R. Co. 16 m, 4-8½ g, 50-60 lb r, 72 c, 430 h. Pres. Henry W. Slocum, V. Pres. Ezra B. Tuttle, Sec. M. Joost, Treas. John R. Conner, Supt. D. W. Sullivan. Offices 585 Manbattan ave. J Bushwick R.R. Co. 23½ m, 4-8½ g, 35-45-50-60 lb r, 187 c, 650 h. Pres. Wm. H. Husted, V. Pres. Edwin Beers, Treas. & Sec. S. D. Hallowell, Supt. Wm. N. Morrison. Office 22 Broadway.

Brooklyn, Bushwick & Queens County F. R. Co. 11 m, 4-8½ g, 42-47 lb r, 50 c, 214 h. Pres. Geo. W. Van Allen, S'c. Wm. B. Wait, Treas. C. B. Cottreit, Supt. Chas. E. Harris. Office of Pres. & Supt. cor. Nostrand & Park av. b

Brooklyn City R.R. Co. 83½ m, 4-8½g, 45, 60 & 64 lb stope back & c-br (all steel), 501 close c, 335 open e, 18 steam dummy engines, 3,300 h. Pres. Daniel F. Lewis, V. Pres. Wm. M. Thomas, Sec. H. M. Thompson, Asst. Sec. Francis E. Wrigley, Treas. Cromwell Hadden. Offices, 10 Fulton st. Capital, \$1,000,000. a

Brooklyn City & Newtown R.R. Co. 13½ m, 4-8½ g, 45-60 lb r, 128 c, 400 h. Pres. Col. John N. Partridge; Sec. & Treas. Duncan B. Cannon; Supt. John L. Heins. Office cor. DeKalb & Central aves. d

Calvary Cemetery, Greenpoint & Brooklyn R. R. Co. 6 m, 4-8½ g, 50 lb r, 10 c, 30 h. Pres. Jas. B. McKewan, Sec. & Treas. John R. Conner, Supt. D. W. Sullivan. Office, 555 Manhattan ave. a

Coney Island & Brooklyn R.R. Co. 18 3-5 m, 45 lb r, 4-8½ g, 100 c, 344 h. Pres. James Jourdan, Sec. Ed. F. Drayton, Treas. G. W. Cbauncey, Supt. William Farrell. Office cor. Smith & Huntington sts. 9 Grand St.& Newtown R.R. Co. 13½ m, 4-8½ g, 50-60 lb r, 72 c, 254 h. Pres. Martin Joost, Sec. & Treas.

# The Julien Electric Company.

OFFICE, 120 BROADWAY, N. Y

FACTORY, CAMDEN, N. J.

# Electric Street Cars on Secondary Battery Principle.

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

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

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

In April, 1886, Mr. Julien closed a contract with all the Brussels street railways, whereby they have agreed to adopt his System and to put 107 cars in use in Brussels. They are now ready to put three lines of Mr. Julien's system in service, if they have not already done so. The street railways at Rio Janeiro have also adopted Mr. Julien's system.

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

#### COST.

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

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

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

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

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

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

Wm. E. Horwill, Supt. Walter G. Howey. Office 394 Kent ave. 1
Grand Street, Prospect Park & Flatbush R.R. Co. 8½ m. 4-8½ g., 50 lb c·br, 752-h c, 245 h. Pres. Thos. Clark, Jr., Sec. & Treas. Chas. Crelfelds, Supt., Pur. Agt. & Supt. Car Reps. John L. Helins. Leased to Brooklyn City & Newtown R.R. Co. Office, Franklin ave. & Prospect place. 8
Greenpoint & Lorimer St. R. R. Co. 5½ m, 4-8½ g, 50 lb r, 36 c, 183 h. Pres. Geo. W. Van Allen, Sec. Wm. B. Walt, Treas. C. B. Cottrell, Supt. Chas. E. Harris. Office, cor. Nostrand and Park aves. 1
New Williamsburgh & Flatbush R. R. Co. 17½ m, 4-8½ g, 47-50 lb r, 78 c, 299 h. Pres. Geo. W. Van Alien, 54 Ann st., New York, Sec. W. B. Walt, 34th st. & 9th ave., New York, Treas. C. B. Cottrell, 8 Spruce st., N. Y. City, Supt. Chas. E. Harris, Nostrand & Park aves, Brooklyn. 1
Prospect Park & Flatbush R. R. Co. 3 m, 4-8½ g, 34 br, 4 c, 16 h. Pres. John G. Jenkins, Sec. & Supt. W. G. Howey, Treas. Theo. F. Jackson. Offices 45 Broadway. 8
South Brooklyn Central R.R. Co. 8½ m, 4 8½ g, 60

W. G. Howey, Treas. Theo. F. Jackson. Offices 45 Broadway. 8 South Brooklyn Central R.R. Co. 8% m. 48½ g, 60 lb r, 42 c, 193 h. Pres. Wm. Richardson, Sec. Wm. J. Richardson, Treas. N, H. Frost, Asst. Treas. Jas. S. Suydam, Offices, Atlantic & 3d aves. 1 Van Brunt St. & Erle Basin R.R. Co. 3 m, 4-8½ g, 45 lb r, 7 c, 26 h. Pres. & Supt. John Cunningham, Sec. & Treas. Edmund Terry. Offices, 264 Van Brunt St. b

g, 43 ID F, 76, 26 II. Pres. & SUPI. JOHN CUMBINGHAM, Sec. & Treas. Edmund Terry. Offices, 264 Van Brunt St. b

BRUNSWICK, GA.—Brunswick St. R. R. Co. 4½ m 4-8½ g. 38 Ib Steel r, 6 c, 25 h. Pres. C. P. Goodye r, Sec. & Geu. Man. U. Dart, Treas. W. E. Kay. Offices, Newcastle st. 8

BUFFALO, ILL.—See Mechanicsburg, Ill. BUFFALO, ILL.—See Mechanicsburg, Ill. Watson, V. Pres. P. P. P. Pratt, Sec. S. S. Spaulding, Treas. W. U. Watson, Supt. Edward Edwards, Engr. Marsden Davey. Office, 746 Main st. 6

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

BURLINGTON, IA.—Burlington St. R.R. Co. 3½ m, 4-8½ g, 16-22 Ib r, 9 c, 22 h, 10 mu. Pres. & owner, John Parterson, Sec., Treas. & Man. C. T. Patterson. Office. 1401 Summer st. a

Union St. Ry. Co. 8½ m, 4-8½ g, various r, 20 c, 80 h. Pres. Geo. A. Duncan, Sec., Treas. & Supt. F. G. Jones. 6

Jones.

Jones. 6
BURLINGTON, VT.—Winooski & Burlington St. Ry. Co. 3½ m. 4-8 g, 25 lb r, 8 c, 30 h. Pres. U. A. Woodbury. V. Pres. F. C. Kennedy, Supt. K. B. Walker, Treas. L. E. Woodhouse, Clerk, G. W. Wales. Office, 167 Bank St. g
CAIRO, II.L.—Cairo St. Ry. Co. 3 m, 3-6 g, 25 lb r, 5 c, 12 h. Pres. J. A. Goldstine, V-Pres. C. V. Neff, Supt. & Treas. Thos. Lewis, Sec. H. Schulze. k
CALLIOPE, IA.—Callior & Hawarden St. R. R. Co. Gen. Man. E. E. Carpenter.
CAMBRIDGE, MASS.—Cambridge R. R. Co. 55%

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

m, 4-8½ g, 48 lb T and train r, 327 2-lb c, 1,646 ln. Pres. Preentlss Cummings. Treas & Clerk Franklin Perrin, Exec. Com. I. M. Spelman, P. Cummings, O. S. Brown, Clerk of Directors, O. S. Brown. Supt. Wm. A. Bancroft, Pur. Agt. & Supt. Car Reps. A. K. Sweet.

2 CAMDEN, N. J.—Camden & Atlantic St. Ry. 8½ m, 5-1 g, 35-47 lb tram r, 18 c, 100 mu. Pres Wm. L. Elkins, V. Pres. Wm. 4. Sewell, Sec. D. M. Zimmerman, Tre is. W. Taylor, Supt. Wm. N. Bannard. 8 Camden Horse R.R. Co. 9 m, 5-1 g, 33-52 lb r, 26 c, 87 h. Pres. Thos. A. Wilson, Sec. Wilbur F. Rose, Treas. & Supt. John Hood.

1 CANTON, 6.—Canton St. Ry. Co. 4½ m. 4 g, 28 lh r, 11 c, 58 h. Pres. & Treas. G. E. Cook, Sec. John F. Clark, Supt. O. L. Stanton. Office. 4 E. 7th st. a CAPE MAY, N. J.—Cape May & Schellenger's Landing R. R. Co. 3 m, 5-2 g, 45 lb r, 41-h 42-h c, 50 h. Pres. Wm. Whatton, Jr., Sec. & Treas. Wm. Selfridge, Supt. Jas. Leaming.

2 CARTHAGE, MO.—Carthage Horse Ry. Co. 3½ m, 3-6 g, 20 lb Tr, 3 2 h c, 16 mu. Pres. & Pur. Agt. J. W. Ground, Sec. Nelhe Ground, Treas. & Supt. A. J. Ground. Office, 19 S. Main st. 9

2 CEDAR RAPIDS, 1A.—Cedar Rapids & Marlon Ry., 13½ m, 48½ g, 28-30-35 lb r, 20; 44 h. Pres. W. Greene, V.-Pres. A. J. McKean. Sec. N. B. Consigny, Treas. G. Greene, Supt. Wm. Elsom. Office, 11 N. Second st. (a) CENTERVILLE, 1A.—People's St. Ry. Co. 13½ m. 3-6 g, 20 & 27 lb Tr, 3 lh c, 8 mu. Pres. Wm. Bradley, Sec. H. A. Russell. 9

2 CHAMPAIGN, ILL.—Champaign St. R. R. Co. Pres. J. L. Ray. Urhana & Champalgn St. R R. Co. (See Urbana.) CHATHAMPAIGN, ILL.—Champaign St. R. R. Co. Pres. J. L. Ray. Urhana & Champalgn St. R. R. Co. (See Urbana.) CHATHAMPAIGN, ILL.—Champaign St. R. R. Co. Pres. J. L. Ray. Urhana & Champalgn St. R. R. Co. (See Urbana.) CHATHAMPAIGN, ILL.—Champaign St. R. R. Co. Pres. J. L. Ray. Urhana & Champalgn St. R. R. Co. (See Urbana.) CHATHAMPAIGN, ILL.—Champaign St. R. R. Co. Pres. J. L. Ray. Urhana & Champalgn St. R. R. Co. (See Urbana.) CHATHAMPAIGN, ILL.—Champaign St. R. R. Co. 13½ m, 48½ g, 16 lb Tr, 3 1-h g. 40 h,

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

CHETOPA, KAN.—Chetopa St. Car Co. 4 m, 3-6 g, girder r, 3 1-h 6 2-h c, 20 h, 10 mu. Pres. V. S. Roy, Sec. D. Richards, Treas. K. H. Peters, Supt. P. D. Jeffries, Pur. Agt. k. S. Anderson, Supt. Car Reps. W. H. Allden. P. O. Box 75 9
CHICAGO, H.L.—Chicago City Ry. Co. 102 m, of which 26½ m cable, 4-8½ g, 45, 65 & 75 lb r, 5 0 2-h c, 232 cable c, 1,700 h, 5.000 H. P. engines. Pres. Supt. & Pur. Agt. C. B. Homes, V. Pres. S. B. Cobb, Sec. Henry H. Windsor, Treas. T. C. Pennington, Master Car Builder Jas. B. Wright, Track Master C. J. Luck. Office, 2.020 State st.
Chicago Pass. Ry. Co. 21 m, 52 lb r, 60 c, 500 h, Pres. Harvey 1. Weeks, Supt. Austin J. Doyle.
J. Chicago West Division Ry. Co. 93 m, 48½ g, 43 lb r, 900 c, 430 h. Pres. J. R. Jones, V. Pres. B. H. Campbell, Sec. & Treas. Geo. L. Webb, Supt. De Witt C. Creger. Office of Pres., 59 State st.; Supt., 51 Randolph st.
North Chicago City R. R. Co. 45 m, 4-8½ g, 45 lb r, 375 c, 1,800 h. Pres. Chas. T. Yerkes, Treas. Hiram Crawford, Supt. Fred L. Threedy, Purch. Agt. John M. Roach, Master Mechanic J. Mitlar. Car Builder H. N. E. Cottler. Office, 444 N. Clark st. 5 CHILLICOTHE, O.—Chilheothe St. R. R. Co. 2 m, 3 g, 16 lb r, 7 c, 20 mu. Pres. E. P. Safford, Sec. A. E. Wemis, Treas. William Poland, Supt. E. H. 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.

Hill. a Clncinnati St.Ry. Co. 100 m, 5-2 g, 42-52 lb r, 275 c, 2,000 h. Pres. Jno. Kligour, Treas. R. A. Dunlap, Sec. & Auditor, Jas. A. Collins, Supt. Jno. Harris, Pur. Agt. B F. Haughton. Office second floor of Apollo Bullding.

Agt. B F. Haughton. Office second floor of Apollo Building. k
Columbla & Cincinnati St. R.R. Co. 3½ m, 3 g, 40 lb r, 6 c, 3 dummy c. Pres. & Auditor C. H. Kilgour, V. Pres. John Kilgour, Treas. & Sec. A. H. Meier, Mt. Loykout, O. Office Station C. a
Mt. Adams & Eden Park Inclined R.R. Co. 7 m, & 8 m cable. 5-2½ g, 42 lb r, 20 c, 40 cable c, 175 h. Pres. G. B. Kerper, Sec. J. R. Murdoch, Supt. R. P. Alley. Office, h· ad of Mt. Adams incline. a
Mt. Auburn Cable Ry, Co. 8 m, cable, 5-2 g, 52 lb glrder r, 20 c, 2 350 H. P. engines. Pres. Henry Martin, Sec. W. F. Irwin, Treas John II. Martin. Office Highland ave. & Saunders st. 9
Price Hill Inclined Plane R.R. Co. 8-13 m, 5-6 g, 60 lb r, 4 c. Pres. M. W. Oliver, Gen. Man. Rees E. Mc Duffie, Sec. & Treas. Geo. T. McDuffie, Office, Price Hill.

Duffie, Sec. & Treas. Geo. T. McDuffie. Office, Price IIII.

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

CLARKSVILLE, TENN.—Clarksville St. Ry.
CO. 2 m, 4-8 g, 16 lb Tr., 3c, 16 mu. Pres. John E. Shelton, Sec. & Treas. John W. Faxon. Capital, \$6,250. Office, Farmers' & Merchants' Nat. Bank. 1

CLAY CENTER, KAN.—Clay Center City Ry.
CO. 5 m, 4 8 ½ g, 24 lb r, 4 c. motors. Capital, 10,060. Pres. G. M. Stratton, V. Pres. J. M. Frank, Sec. & Treas. Wim. Sharpe.

CLEVELAND, O.—Brooklyn St. R.R. Co. 12½
m, 4-8½ g, 52 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. 7

John McConnell, Supt. A. L. Johnson. Office 1,301 Pearl st. 7

Broadway & Newburg St. R.R. Co. 11.4 m, 4-8½ g, 43 lb r, 36 c, 280 h. Pres. Joseph Stanley, V. Pres. II. E. Andrews, Sec. & Treas. E. Fowler, Supt. J. J. Stanley. Office 1373 Broadway.

East Cleveland R. R. Co. 20½ m, 4-8½ g, 45 lb steel r, 115 c, 550 h. Pres. A. Everett, V. Pres. Chas. Wason, Sec. & Treas. H. A. Everett, Supt. E. Duty. Offices, 1154 Euclid ave.

Superlor St. R.R. Co. 15 m, 4-8½ g, 45 lb r, 46 c, 265 h. Pres. Frank De H. Robison, V. Pres. John Koch, Sec., J. H. Robison, Treas. & Supt. M. S. Robison, Jr.

South Side St. Ry. Co. 5 m, 3 g, 25 & 27 lb tram r, 82-h c, 26 h, 45 mu. Pres. Tom L. Johnson, Sec. & Treas. J. B. Hoefgen, Supt. Jebson Holeman. Office, 1301 Pearl St. & St. Clair Street Ry. Co. 9 m, 4 8½ g, 40 lb steel r,

1301 Pea'lst. k
St. Clair Street Ry. Co. 9 m, 4 8½ g, 40 lb steel r,
6 one-h. & 24 two-h. c, 165 h. Pres. & Treas. Chas.
Hathaway, V. Pres. S. S. Lyons Sec. Alfred G. Hathaway, Supt. A. W. Lynne. Office, 814 St. Clair st. a
Woodland Avenue & West Side St. R. R. Co. 40 m,
4-8½ g, 43-45 lb r, 140 c, 630 h. Pres. M. A. Hanna, V.
Pres. C. F. Emery, Sec. & Pur. Agt. J. B. Hanna,
Gen. Supt. George G. Mulhern. Office, cor. Pearl
and Detrolt sts. a
CLINTON, IA.—Lyons & Clinton Horse R.R. Co.
(See Lyons.)

and Detroit Sts. a
CLINTON, IA.—Lyons & Clinton Horse R.R. Co.
(See Lyons.)
COLUMBIA, S. C.—Columbia St. Ry. 4½ m,
4-5½ g, 30 lb r, 6 c, 24 h, 3 mu. Pres. E. M. Cole, Sec.
Edw. Benedict, Treas. W. de L. Benedict, all of 32
Libertv st., New York. Capital, \$50,000. 5
COLUMBUS, GA.—Columbus St. Ry. Co. 3 m,
4-8½ g, 16 h T r, 9-2 h c, 7 h, 27 mu. Pres. & Pur.
Agt. B. T. Haicher, Sec. & Treas. F. C. Weisiger,
Supt. J. B. Weisiger. 9
COLUMBUS, O.—Columbus Consolidated St. R.R.
Co. 25 m, 5-2 g, 35-52 lb r, 97 c, 383 h. Pres. A. D.
Rodgers, V. Pres. H. T. Chittenden, Sec. & Treas.
E. K. Stewart, Supt. J. H. Atcherson. a
Glenwood & Greenlawn St. R.R. Co. 4½ m, 3-6 g,
24 lb r, 8 c, 25 h. Pres. A. D. Rodgers, V. Pres. B. S.
Brown, Sec. R. R. Rickly, Treas. S. S. Rickly, Supt.
Jonas Willcox. Office 9 S. High st. d
CONCORD, N. H.—Concord Horse R. R. Co. 7½
M, 3 g, 34 lb r, 9 c, t 5 h, 2 steam motors. Pres. & Supt.
Moses Humphrey, Treas. H. J. Crippin, Clerk E. C.
Hoag. k

Hoag. k
CORNWALL, ONT.—Cornwall St. Ry. Co. 3 m,
4-8½ g, 10 lb T r, 4 c, 2 steam motors. Pres. Chas.
D. Haines, Sec & Treas. A. G. Haines. 9
CORTLAND, N. Y.—Cortland & Homer Horse R. R.
Co. 4m, 4-8½ g, 25-30 lb r, 6 c, 16 h. Pres. Chas. H. Garrison, Troy, N. Y. V. Pres. E. A. Fish, Cortland, Sec. & Treas. S. E. Welch, Cortland. Office 33 N. Main st. g

St. g

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

Sec. & Treas. Geo. R. Hall, Supt. Wm. H. Burns. Office, 506 First ave. f Lake Manawa Ry. Co. 4½ m, 4-8½ g, 25 lb steel r, 10 c, steam motors. Pres. & Treas. J. K. Graves, Sec., Gen. Man. & Pur. Agt. W. S. Couch. Capital,

COUNCIL GROVE, KAN .- Council Grove St.

Ry. Co 8

COVINGTON, KY.—So. Covington & Cincinnati
St. Ry. Co. 25½ m, 5-2½ g, 45 lb r, 61 c, 370 h. Pres
E, F. Abbott, Sec. J. C. Benton, Treas, G. M. Abbott. 9

DALLAS, TEX.—Dallas Consolidated St. Ry.
Co. 16 m, 4-8½ g, 30 lb r, 40 c, 130 mu. Pres. J. E.
Henderson, Sec. W. C. Connor, Treas, Royal A. Ferris. 2

Henderson, Sec. W. C. Connor, Treas. Royal A. Ferris. a

DANHIIRY, CONN.—Danbury St. R. R. Co. 4 m, 3 6 g, 25 lb T r, 7 1-h c, 3 h. Pres. John D. Halnes, Sec. & Treas. Charles D. Haines, Supt. & Pur. Agt. A. C. Haines. 9

Danbury & Bethel Horse R. R. Co. 4½m, 48½ g, 25 lb T r, 6 2-h c, 25 h. Pres. E. T. Haines, Sec. & Treas. Chas. D. Haines, Supt. A. G. Haines. 9

DANVILLE, HLL.—Citizens' St. Ry. Co. 5 m, 4 g, 20 lb c, 8 c, 42 mu. Pres. Wm. P. Cannon, V. Pres. A. C. Danlel, Sec. & Treas. Adam R. Samuel. Office, 146 Vermilon st. 1

DAVENPORT, 1A.—Davenport Central St. Ry. Co. 3 m, 4-8½ g, 20 lb r, 14 c, 24 h, 15 mu. Pres. Whit. M. Grant, V. Pres. W. L. Allen, Treas. J. B. Fidlar, Sec. O. S. McNeil, Supt. J. W. Howard. k

Davenport City Ry. Co. 3½ m, 4-8½ g, 27 lb r, 14 c, 46 h. Pres. C. S. Watklins, Sec. and Treas. S. D. Bawden, Supt. & Pur. Agt. H. Schnitger. e

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

DAYTON, O.—Dayton St. R. R. Co. 7½ m, 4-8½ g.

2 m, 5-2½ g, 44 lb r, 9 c, 36 h Pres. & Supt. W. W. Bean.
9
DAYTON, 0.—Dayton St. R.R. Co. 7½ m, 4-8½ g, 44 lb r, 25 c, 61 h, 40 mu. Pres. C. J. Ferneding, V. Pres. G. W. Rogers, Sec. C. A. Craighead, Supt. A. W. Anderson. Office, W. 3d st. d. Fifth St. R. R. Co. 7 m, 4-8½ g, 45 lb r, 18 c, 58 h. Pres. A. A. Thomas, Sec. D. B. Corwin, Treas. R. I. Cummin, Supt. J. M. B. Lewis. Office, 7 E. 3d st. a Oakwood St. Ry. Co. 6 m, 4-8½ g, 38 lb r, 14 c, 25 h, 33 mu. Pres. Charles B. Clegg, Sec. H. V. Perrine.
a Wayne & Fifth St. R. R. Co. 4½ m, 4-8½ g, 38 lb r, 10 c, 35 h. Pres. Geo. W. Shaw, Sec. & Treas. Eugene Waichet, Supt. N. Routzahn. Office, 29 Wayne st. k
DECATUR, ILL.—Decatur & North Bort. St. D.

38 10 f, 10 c, 35 h. Pres. Geo. W. Shaw, Sec. & Treas. Eugene Watchet, Supt. N. Routzahn. Office. 29 Wayne st. k

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

Citizens' Street R.R. Co. 2 m, 4-8½ g, 20 lb T r, 9 c, 48 h & mu. Pres. D. S. Shellabarger, Sec. W. L. Shellabarger, Treas. & Gen. Man. W. L. Ferguson. 4

DENISON, TEX.—Denison St. Ry. Co. 3¼ m, 3-6 g, 16 lb r, 7 c, 25 mu. Pres. C. A. Walterhouse, supt. J. J. Campbell. 5

DENVER, COL.—Denver City Ry. Co. 30 m, 3-6 g, 21 lb r, 80 c, 450 h. Pres. Geo. H. Holt, 10Wall st. New York City, Sec. G. D.L'hullier, il Wall st. New York City, Treas. & Man. G. E. Randolph. Office, 10 Wall st., New York City, Sec. G. D.L'hullier, il wall st. New York City, Treas. & Man. G. E. Randolph. Office, 10 Wall st., New York. h. Pres. T. S. Havden, Sec. & Pur. Agt. H. P. Chamberlain, Treas. D. Fietcher, Supt. J. Flannery. Office, 1,664 Lawrence st. 9

Denver Tramway Co. 4 m. 3-6 g, 16-18 lb r, 10 c. Run hy electricity. Condult; Short-Nesmith Serles system. Pres. Rodney Curtis, V. Pres. John J. Riechman. Sec. Wm. G. Evans. e

DES MOINES, IA.—Des Moines St. R. C. C. 22 h. 32 g, 25-30-38-52 lb r, 24 c, 140 h. Pres. W. Mc-Cain, V.-Pres. C. W. Rogg, Sec. F. A. Sherman, Treas. G. B. Hippee. a
Capital City St. Ry. Co. 7 m, 4-8½ g, 45 lb r, 6 c, 32 h. G. Van Ginkel, Sec. H. E. Teachout, Treas. J. Weber. Office, cor. E. 5th & Locust sts. a
Des Moines & Sevastopol St. Ry. Co. (See Sevastopol, 11).

J. Weber. Office, cor. E. 5th & Locust sts. a

Des Moines & Sevastopol St. Ry. Co. (See Scvastopol, 1a).

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

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

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

Grand River St. Ry. Co. 4½ m, 4-8½ g, 45 lb r, 15 c,
160 h. Pres. & Treas. Jos. Dalley, Sec. J. W. Dalley,
Supt. C. M. Dailey.

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

BIGHITON, KAN.—Western Kansas St. Ry. &

Snow, Sec. F. Woodruff. Capital, \$50,000. Office, 92 Griswold st. a DIGIITON, KAN.—Western Kansas St. Ry. & Tiansfer Co. 1 m, 4-8½ g, 1 1-h c, 1 h. Pres. V. H. Grinstead, Sec. H. A. Wishard, Treas, C. B. Frazer, 9 DOVER, N. H.—Dover Horse R.R. Co. 5 m, 3g, 30 lh r, 4 c, 14 h. Pres. Chas. H. Sawyer, Treas. Harrison Baley. a DUBUQUE, IA.—Dubuque St. R.R. 7 m, 4-8½ g. 20 lb r, 22 c, 60 h. Pres. J. A. Rhomberg, Sec. & Treas. B. E. Linehan, Supt. J. J. Linehan. Office, 21st st. & Coulier ave. a DULUTH, MINN.—Duluth St. Ry. Co. 5½ m, 3-6 g, 35-45 lb r, 15 c, 91 mu. Pres. Sam'l Hill, V. Pres. T. P. Wilson, Sec. & Treas. A. S. Chase, Supt. T. W. Hoopes. d

T. P. Wilson, Sec. & Treas. A. S. Chase, Supt. T. W. Hoopes. d
DURHAM, N. G.—Durham St. Ry. Co. 2 m, 4-9 g, 16 1b Tr, 2 1-h c, 6 h. Pres. W. T. Blackwell, Sec., Treas. & Supt. R. D. Blackwell. a
EAST SAGINAW, MICH.—East Saginaw St. Ry. 8 m, 4-8½ g, 30 and 40 lb r, 23 c, 70 h. Pres. Walter A. Jones. Aoting Sec. C. A. Bartlett, Supt. A. Bartlett. 4
EAST ST. LOUIS, ILL, —East St. Louis St. R.R. Co.

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

CHAS. J. VAN DEPOELE, Electrician.
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CHICAGO, ILL., U. S. A.

EASTON, PA.—Easton, So. Easton & West End Pass. Ry. Co. 4 m, 5-2½ g, 45 lb r, 11 1-h c, 48 h. Pres. H. A. Sage, Sec. & Treas. H. W. Cooley, Supt. Murray Swaln. a

Murray Swaln. a

EAU CLAIRE, WIS.—Eau Claire St. Ry. Co. 5 m,
4-8½ g, 27 lb, 42 lb center bearing steel, and 60 lb
grooved steel r, on all curves, 16 c, 80 h. Pres. A.
G. Bradstreet, New York, V. Pres. Geo. B. Shaw,
Eau Claire, Sec. & Treas. Weston Lewis, Gardiner,

Me. h ELGIN, ILL.—Elgln City Ry. 2½ m, 4-8½ g, 25 lb r, 4 c. 18 h. Pres., Sec., Treas. Supt. & Owner, B. C.

Me. h
ELGHN, ILL.—Elgin City Ry. 2½ m, 4.8½ g, 25
lb r, 4 c. 18 h. Pres., Sec., Treas. Supt. & Owner, B. C.
Payne. 4
ELIZABETH, N. J.—Elizabeth & Newark Horse
R.R. Co. 14 m, 5-2½, 4-10½ g, 30 lb r, 24 c, 74 h. Pres. &
Treas. Jacob Davis, Sec. & Supt. Joan f. Pritchard. 6
Elizabeth St. Ry. Co. Pres. & Supt. Amos Clark,
Sec. & Treas. John P. Earl.
4
ELIGHART, IND.—Citizens' Ry. Co. 6¼ m, 4-8½
g, 21 & 30 lb r, 9 c, 25 h. Pres. F. W. Miller, V. Pres. J.
W. Ellis, Sec. C. W. Fish, Treas. J. A. Cook, Man. Director, Jas. Kavanagh.

b
ELMHAR, N. Y.—Elmira & Horseheads Ry.
Co. 10 m, 4-8½ g, 25-30-40 lb r, 18 c, 34 h. Pres. &
Treas. George M. Diven, V. Pres. Geo. W. Hoffman,
Sec. Wm. S. Kershner, Acting Supt. B. F. Jennings.
Office, 212 E. Water St.
B. H. Davis, Treas. C. R. Morehead, Sec. & Supt.
G. N. Marshall. Office, 175 Seventh St.
B. H. Davis, Treas. C. R. Morehead, Sec. & Supt.
G. N. Marshall. Office, 175 Seventh St.
B. H. Davis, Treas. C. R. Holden.
B. ENPORIA, KAN.—Emporia City Ry. Co. 3½ m,
(2, 20 lb r, 8 c, 24 h. Pres. Van R. Holmes, Treas.
F. Crowe, Sec. & Man. J. D. Holden.
B. ENTERPRISE, MISS.—Enterprise St. Ry. Co.
1¼ m, 3-6 g, 24 lb r, 2 c, 6 h. Pres. John Kampe, V.
Pres. E. B. Gaston, Sec. & Treas. J. W. Gaston.
B. ENTERPRISE, MISS.—Enterprise St. Ry. Co.
1¼ m, 3-6 g, 24 lb r, 2 c, 6 h. Pres. John Kampe, V.
Pres. E. B. Gaston, Sec. & Treas. J. W. Gaston.
B. ENTERPRISE, MISS.—Enterprise St. Ry. Co.
1¼ m, 4-8 g, 30, 40 & 45 lb r, 20 c, 55 h. Pres. W. W. Keed,
Treas. Wm. Spencer, Sec. J. L. Sternberg, Supt.
Jacob Borst. Office, cor 2d & State sts.

EVANSVILLE, IND.—Evansville St. Ry. Co. 12
m, 4-8 g, 30-35-47 lb r, 61 c, 230 h. Pres. Frank S.
Stevens, Treas. F. W. Brightman, Sec. M. G. B.
Switt, Supt. John H. Bowker, jr. Office, 120 n.
FARR ROCKAWAY, N. Y.—Village Ry. Co. 1 m,
4-8 g, 74 lb r, 5 c, 10 h. Pres. C. A. Cheever, Treas.

SWIRT, Supt. John H. Bowker, jr. Office, 182 N. Maln St. j
FAR ROCKAWAY, N. Y.—Village Ry. Co. 1 m, 4.8½ g, 47 lb r, 5 c, 10 h. Pres. C. A. Cheever, Treas. D. L. Halph, Sec. J. S. Auerbach, Supt. Rufus Martin. Office, 13 Park row, New York. 10
FITCHBURG, MASS.—Fitchburg St. Ry. Co. 3½ m, 4.8½ g, 35 lb r, 9 e, 35 h. Pres. H. A. Willis, V Pres. H. I. Wallace, Treas. B. F. Wallis, Sec. H. C. Hartwell, Supt. & Pur. Agt. Wesley W. Sargent. Office of Pres. 131 Main St.; Supt., 41 River St. front Meade St. Car Co. 2½ m, 3 g, 25 lb Tr, 2 1-h c. 2 mu Pres. J. A. Edwards, Sec. C. C. Wilson, Treas. J. G. Carter, Supt. G. Durblshire.

2½ m, 3 g, 25 lb l r, 2 l-h c. 2 mu Pres. J. A. Edwards, Sec. C. C. Wilson, Treas, J. G. Carter, Supt. G. Durbishire.

FORT SCOTT, KAN.—Bourbon County St. R. R. Tim, 4 g, 16 lb l, 5 c, 22 h. Pres. J. D. Hill, Sec. C. O French, Treis. J. II. Richards, Supt. E Strong.

FORT SMITHI, ARK.—Fort Smith St. Ry. Co. 4½ m, 3-6 g, 30 & 45 lb T Steel and tram r, 18 l-h c, 56 mu. Pres. Sam'l M. Loud, Sec. & Treas. Geo. T. Sparks. Supt. W. A. Evers.

h FORT WAYNE. IND.—Citizens' St. R. R. Co. 7m, 4-9 g, 23 & 30 lb tram r, 2 l-h, 11 2-h c, 41 h. Pres. J. II. Bass, Sec. Jas. M. Barrett, Treas. C. F. W. Schelman, Receiver S. C. Lumbard.

FORT WORTH, TEX.—Fort Worth St. Ry. Co. 7½ m, 4 g, 25-88 lb r, 16 c, 89 mu. Pres. K. M. Vanzandt, Treas. W. A. Huffman, Supt. J. T. Payne. 4

FRANKFORT, N. V.—Frankfort & Illon Street Ry. Co. 2½ m, 5 g, 5 c, 5 h. Pres, A. C. MeGowan, Frankfort, Sec. & Treas. John A. Giblin, Illon, Supt. Freek, Gates, Frankfort.

FREEDONIA, N. V.—Dunkirk & Fredonia R.R.Co. 3½ m, 4-10 g, 25 lb r, 5 c, 9 h. Pres. W. McKinstry, Sec. & Treas. M. M. Fenner, Supt. Z. Elmer Wheelock.

FREEDORT, ILL.—Freeport St. Ry. Co. 4½ m. 4-3½ g sc. 48 h. Pres. Jacob Krohn, V.-Pres. F. C.

FREDONIA, N. Y.—Dunkirk & Fredonia R.R.Co. 3½ m, 4-10 g, 25 lb r, 5 c, 9 h. Pres. W. McKinstry, Sec. & Treas. M. M. Fenner, Supt. Z. Elmer Wheelock. 5
FREEPORT, ILL.—Freeport St. Ry. Co. 4½ m. 4-5½ g, S c, 48 h. Pres. Jacob Krohn, V.-Pres. F. C. Platt, Sec. W. G. Barnes, Treas. John B. Taylor, Supt. H. T. Warner. a
FULTON, N. Y.—Fulton & Oswego Falls St. Ry. Co. 6,000 tt, 4-8½ g, Glbbon's metallic stringer and r, 4 c, 8 h. Pres. Joseph Walker, Jr., V. Pres. N. N. Stranahan, Sec, and Treas. Chas. Lyman. Capital, \$15,000. Office, 15 Broad St., New York.
GAINESVILLE, FLA.—Gainesville Clty & Suburbin Rv. Co. 1½ m, 4-8½ g, 20 lb T r, 5 c, 40 mu. Pres. Wm. H. Robertson, Treas. Jas. D. Matheson, supt. & Pur. Agt. R. L. Robb. 6
GAINESVILLE, TEX.—Gainesville St. Ry. Co. 3 m, 3-8 g, 16 70 2) lb r, 4c, 2 h, 21mu. Pres. Sam. Lazarus, V. Pres. L. Dyvroos, Sec. & Treas. Zac. Faymer. 9
GAINESVILLE, GA.—Gatnesville & Hall Co. St. R. R. Co. 2½ m, 4-8½ g, 20 lb crescen' r, 3 pass. 2 freight c, 8 mu. Pres. Jas. R. Barnes, Sec. C. W. Du Pre, Treas. Ar. Pyr. Agt. Robt. E. Green. 6
GALESBURG, ILL.—College City St. Ry. Co. 5½ m, 4-8½ g, 18-20-38 lb. r, 9 c, 24 h. Pres. L. W. Sanborn, V. Pres. A. S. Hoover, Sec. & Supt. Geo. W. Delanov, Treas. J. K. Mitchell. g
GALVESTON, TEX.—Galveston City R. R. Co. 25m, 4-8½ g, 30 lb r, 79 c, 21 mu. Pres. Wm. H. Sinclair, Sec. & Treas. J. H. Burnett, Sec. & Treas. J. K. C. Becker, Supt. C. Hamerhouse. Office, Cor. Twenty-first & I sts. a
Guil City St. Ry. & Real Estate Co. 13½ m, 4 g, 25-30 lb r, 32 c, 81 mu. Pres. J. H. Burnett, Sec. & Treas. B. Fowler, Supt. M. J. Reenan. Office, cor. Twenty-first & I sts. a
Guil City St. Ry. & Real Estate Co. 13½ m, 4 g, 25-30 lb r, 32 c, 81 mu. Pres. J. H. Burnett, Sec. & Treas. B. Fowler, Supt. M. J. Byrne. d
GALOUESTEER, MASS.—Gloucester City R. R. Checker, Supt. C. Hamerhouse. Office, P. O. St., bet. 22d & 23d. 1
GARDEN City, KAN.—Garden St. Ry. Co. 4
GLENS FALLS, N. Y.—Glens Falls, Sandy Hill & Fort Edward St. R. R. Co. 7½ m, 3-6 g, 25 lb r, 8c. C. St. Pres

Sec. D. S. Presson. Treas. F. W. Homans, Supt. W. A. Strongman. Office, Rallroad ave. k
GRAND ISLANO, NEB.—Grand Island St. Ry. Co. 4 m. 4-6g, 20 lb steel Tr, 5 2-h 1 -h c, 32 h. Pres. A. H. Baker, V. Pres. II. A. Koenig, Sec., Pur. Agt. & Supt. O. B. Thompson, Treas. Wm. A. Hagge. 9
GRAND RAPIDS, MICH.—Street Ry. Co. of Grand Rapids, Mich. 14½ m, 4-8½ g. 25, 35 & 40 lb r, 61 c, 240 h. Pres. W. J. Hayes, Cleveland, O., V. Pres. L. H. Withey, Grand Rapids, Treas. C. G. Swensberg, Grand Rapids, Sec. 1. M. Weston, Grand Rapids, Supt. A. Bevler, Grand Rapids. Office, cor. Pearl & Canal Sts. g

A. Bevler, Grand Rapids. Office, cor. Pearl & Canal Sts. GRATIOT, MICH —Gratlot Elec. Ry. Co. 1¼ m, 16 lb steel r, 1 motor c, 1 summer c, Van Depoele overhead system. Pres. Wm. F. Botsford, V. Pres. John F. Talbot, Sec. J. H. Talbot, Treas. Chas. A. Ward. Capital, \$25,000. 8
GREENBUSH, N. V.—North & East Greenbush St. Ry. Co. 1½ m, 4-8½ g, 4 c, 12 h. Pres. & Treas. A. Bleekerbanks, Supt. J.Gascolgne. 1
GREEN CASTLE, IND.—Green Castle Clty St. Ry. Co. 2½ m, 4-8½ g, 23 lb r, 3 c, 14 h. Pres. & Supt. Dudley Rogers, Sec. James S. Nutt. Treas. Raiph Rogers, Gen. Man. E. W. Rogers. Office, 16 S. Jacksons st. a

Rogers, Gen. Man. E. W. Rogers. Office, 16 S. Jackson St. a
GREENVILLE, S. C.—St. Ry. Co. of the City of
Greenville. 2½ m, 5g, 16 lb r, 7c, 34 mu. Pres T.
C. Gowen, Sec. G. G. Weils, Supt. P. H. Rellly.
Props. & Owners, Gowen & Reility.
Props. & Owners, Gowen & Reility.
Props. & The St. St. St. Co. (Lim.) 7 m,
4-8½ g, 45-60 lb r, 15 c, 65 h. Pres. John R. Bothwell,
V. Pres. & Treas. John F. Zebley, Sec. II. B. Zebley,
Supt. J. C. McHonald. Offices, Room 39, Drexel
Building, New York, and Halitax, N. S.
11AMILTON, 6.—Hamilton St. Ry. Co. 4 m,
3g, 25 lb r, 11 c, 15 h. Pres. James S. Giffin, Sec.
D. V. Parrish, Treas. H. L. Morey. Office, Bechtel
Block.

D. V. Parrish, Treas. H. L. Morey. Office, Bechtel Block. g
HANNIB LL, MO.—Hannibal St. Ry. Co. 2 m, 4-8½ g, 36 lb r, 6 c, 22 h. Pres. & Supt. M. Doyle, Sec. & Treas. James O'Hern. Office. 300 Market St. g
HARRISBURG, PA.—Harrisburg City Passenger Ry. Co. 6 m, 5-2½ g, 42-47-50 lb r, 26 c, 72 h. Pres. II. A. Kelker, Sec. John T. Ensminger, Treas. F. Kelker Capital, \$100 000. Office. 27 South 2d st. e
East Hurrisburg Pass. Ry. Co. 1.2 m, 5-2½ g, 33 & 52 lb steel girder r, 41-1, c, 14 h. Pres. W. J. Calder, Sec. F. R. Leib, Treas. T. D. Greenwaldt, Supt. Jacob Shaffer. 9
HARTFORD, CONN.—Hartford & Wethersfield

Sec. R. R. Leib, Treas. T. D. Greenwaldt, Sapt. Jacob Shaffer.

HARTFORD, CONN.—Hartford & Wethersfield Horse R. R. Co. 12 m, 4-8½ g, 45 fb r, 53 c, 259 h. Pres. E. S. Goodrich, Sec. Dan'l R. Howe. g

HARTLAND, KAN.—Hartland St. Ry. Co. 3-6 g, 20 lb Tr, 21-h 12-h e. Pres. & Pur. Agt. E. S. Snow, Sec. Geo. Stallard, Treas. J. T. Kirtland, Supt. W. S. Handy.

HASTINGS. NEB.—Hastings Improvement Co. 15 m, 4-8½ g, 16 c, 60 h & mu. Pres. Jas. B. Harrwell, V. Pres. J. J. Wemple, Sec. Charles D. Hartwell, V. Pres. H. Bostwick, Supt. J. A. Kraft.

HAVERIHLL, MASS.—Haverhill & Groveland St. Ry. Co. 13-7 m, 4-4½ g, 30 35 lb r, 38 c, 110 h. Pres. Jackson B. Sweet, Clerk & Treas. John A. Colby. Office 3 Water St.

HELENA, M. T.—Helena St. Ry. Co. 20 m. d. S.

office 3 Water st. j
HELENA, M. T.—Helena St. Ry. Co. 2½ m, 4-8½
g, 381br, 52-br, 17 h. Pres. C. W. Cannon, V. Pres.
J. B. Wilson, Sec. & Treas. L. A. Walker, Supt. J. A.
Strong. 6

HELENA, M. T.—Helena St. Ry. Co. 2½ m, 4-8½ g, 381b r, 52-h c, 17 h. Pres. C. W. Cannon, V. Pres. J. B. Wilson, Sec. & Treas. L. A. Walker, Supt. J. A. Strong. 6
HERKINIER, N. V.—Herkimer & Mohawk St. Ry. Co. 1½ m, 4-8½ g, 25 lb r, 3c, 6 h. Pres. J. M. Ausman, V. Pres. Aaron Harter, Sec. Henry McNeal, Treas. II. D. Alexander.

HOBOKEN, N. J.—North Hudson County Ry. Co. 25 m, 4-7 g, 50-60 lb r, 16 c, 635 h. Pres. John H. Bonn, Sec. F. J. Mallory, Treas. Fredk. Michel, Supt. Nicholas Goelz. 6
HOLYOKE, MASS.—Holyoke St. Ry. Co. 3½ m, 4-8½ g, 35 lb r, 15 c, 55 h. Pres. Wm. A. Chase, Treas. C. Fayette Smith, Supt. H. M. Smith. a. HOT SPRINGS, ARK.—Hot Springs R.R. Co. 3m, 4g, 25 lb r, 1 c, 30 h. Pres. S. W. Fordyce, Sec. C. E. Maurice, Supt. J. L. Butterfield.
HOUSTON, TEX.—Houston City St. Ry. Co. 14 m, 4-8½ g, 20-30-40 lb r, 40 c, 118 mu. Pres. Wm. H. Sinclair, Galveston, V. Pres. & Gen. Man. H. F. MacGregor, Houston, Supt. Henry Freund, Houston, Sec. & Treas. E. H. Balley, Houston. Office, 90 Travis st. a
HUTCHINSON, KAN.—Hutchinson St. Ry. Co. 8 m, 4-6 g, 20 lb r, 12 c, 43 h. Pres. A. L. Forsha. V. Pres. John Severance, Sec. & Treas. Fred. A. Forsha, Supt. A. G. Statts. Office, 5 North Main st. 1 HLION, N. Y.—Frankfort & Illion St. R. R. Co. 2½ m, 5 g, 25 lb r, 5 c, 5 h. Pres. A. C. McGowan, V. Pres. P. A. Skiff, Sec. & Treas. John A. Giblin, Supt. J. Hannabr. C
INDEPENDENCE, MO.—Kansas City, Independence & Park Dummy Line. 10
INDIANAPOLIS, IND.—Citizens' St. Ry. Co. 3 m, 4-8½ g, 33-38-45-50 lb r, 70 c, 550 mu. Pres. A. W. Johnson, Indianapolis, Treas. John A. Giblin, Supt. J. Hannabr. C
Sm. 4-8½ g, 33-84-550 lb r, 70 c, 550 mu. Pres. Chas. D. Lake. Office, 45 Bdy. New York. 9
JACKSON, MICH.—Jackson City Ry. Co. 4 m, 3 6 g, 28 lb r, 11 c, 40 h. Pres. Hram H. Smith, Treas. Samuel Hopewell, Gen. Supt. Henry H. Smith. 6 JACKSON, MICH.—Jackson City Ry. Co. 4 m, 3 6 g, 28 lb r, 11 c, 40 h. Pres. Hram H. Smith, Treas. Samuel Hopewell, Gen. Supt. Henry H. Smith. 6 JACKSON, MISS.—Jackson City Ry. Co. 4 m, 3 6 g, 28 lb r

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

JAMESTOWN, N. Y.—Jamestown St. Ry. Co. 4.34 m. 4-8½ g, 30-42 lb r, 13 c, 40 h. Pres. Jas. B. Ross, V. Pres. L. B. Warner, Sec. F. E. Glifford, Treas. A. N. Broadhead. Supt. G. E. Maltby. J. JANESVILLE, WIS.—Janesville St. Ry. Co. Pres. Stephen G. Clarke, Chicago. 4

JERSEVILTY, N. J.—Jersey Clty & Bergen R.R. Co. 28 m, 4-10 g, 47-60 lb r, 80 c, 630 h. Pres. Chas. B. Thurston, V. Pres. Wm. Keeney, Treas. C. B. Place, Sec. Warren E. Dennis, Supt. Thos. M. Sayre, Engr. E. F. Brooks. 6

Pavonia Horse R. R. Co. 5 m, 4-10 g, 47 lb r, 24 c, 150 h. Man. J. H. Small.

JOHNSTOWN, N. Y.—Johnstown, Gloversville & Kingsboro Horse R.R. Co. 4 m, 4-8½ g, 26 lb r, 6c, 18 h. Pres. James Younglove, V. Pres. R. Fancher, Sec. & Treas. J. McLaren, Supt. Henry Slotter, a JOHNSTOWN, PA.—Johnstown Pass. Ry. Co. 7½ lh, 5-3 g, 41-43 lb r, 15 c, 74 h. Pres. James McMilen. Sec. B. L. Yeagley, Treas. W. H. Rosensteel, Jr. f. JOHLET, HLL.—Jollet Clty Ry. Co. 3½ m, 4-8½ g, 38 lb r, 16c, 30 h. & mu. Prop. J. A. Henry, Supt. A. Bischman, Treas. J. Hulstzer. 6

JOPLIN, MO.—6m, 4 g, 15, 21 & 27 lb T and tram r, 42-h. c, 26 mu. Pres. J. B. Nergeant, Sec., Treas., Supt. & Pur. Agt. Clark Craycraft.

KALAMAZOO, MICH.—Kalamazoo St. Ry. Co. 81-6 m, 4-8 g, 35 lb r, 30 c, 50 h. Pres. E. M. Irlsh,

Supt. & Pur. Agt. Clark Craycraft.

KALAMAZOO, MICH.—Kalamazoo St. Ry. Co. 81-6 m, 4-8 g, 35 lb r, 30 c, 50 h. Pres. E. M. 17lsh, V. Pres. Dr. Chase, Man. J. W. Bounton, Sec. & Treas. Arthur Ellithorp, Auditor, Wm. Shakespeare. Office, 128 Main st. a

KANSAS CITY, MO.—Kansas City Cable Ry. Co. 12 m, 4-8½ g, 45-56 lb r, 26 grip c, 39 pass. c, Pres. Wm. J. Smith, V. Pres. Philip A. Chase, Sec. W. H. Lucas, Chf. Eng. Clift Wise, Supt. F. A. Tucker. Office, S. E. cor. Ninth & Washington sts. e Corrigan Consolidated St. Ry. Co. 20 m, 4-1 g, 30 lb r, 80 c, 350 h. Pres. Bernard Corrigan, Gen. Man. Thos. Corrigan, Sec. Jas. T. Kelley. Operated by Metropolitan St. Ry. Co. 4

Grand Avenue Ry. Co. 13½ m, cable, 4-8½ g, 55½ lb r, 50 c, 2 450 H. P. engines. Pres. W. H. Holmes, V. Pres. V. B. Buck, Sec. D. B. Holmes, Treas. O. P. Dickinson. Andiror T. J. Fry. Supt. C. F. Holmes. Capital, \$1,200,000. Office, cor. 15th St. & Grand ave. e

Kansas City Electric Ry. Co. 2 m, 4-8½ g, 70 lb

Capital, \$1,200,000. Office, cor. 15th st. & Grand ave. e

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

Kansas City & Rosedale St. Ry. Co. Operated by the Metropolitan St. Ry. Co. 2½ m. 4-3½ g 42 lb Steel r, 8 2-h c, 60 mu. Pres. C. T. Morse, Sec. R. J. McCarty, Supt. E. J. Lawless, Pur. Agt. T. M. Pitkin.

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

Waldo Park Dummy Line. Mr. Hill is lessee. 10

KEOKUK, IA.—Keokuk St. Ry. Co. 4 m, 4-8½ g, 71 lb Steel r, 12 c, 40h. Pres. Jas. H. Anderson, Sec. Wm. E. Anderson. h

KINGSTON, ONT., CAN.—Kingston St. R.R. Co. ½ m, 3-6g, 9 lb, 10 c, 36 h. Pres. Robert Caron, Sec. & Treas. F. Sargent, Man. William Wilson.

Son, Sec. & Treas. F. Sargent, Man. William Wilson.

KNOXVILLE, TENN.—Knoxville St. R. R. Co. 3
m, 4-8½ g, 25 1b r, 5 c, 33 h. Pres John S. Van
Gilder, Treas. & Man. T. L. Beaman. Office, 336
Broad st. a
Mabry Bell Ave. & Hardee St. Ry. Co. 4 m, 4 8½ g,
22 lb r, 4 c, 27 h. Pres. John S. Van Gilder, Man. &
Treas. T. L. Beaman. Office, 336 Broad st. 5
Market Sq. St. Ry. Co. 2 m, 4 8½ g, 22 lb r, 4 c, 19
h. Pres. John S. Van Gilder, Sec. W. B. Henderson,
Treas. W. H. Slmmonds, Supt. L. O. Rogers. Office,
148 Gay st. h
LACONIA, N. II.—Laconla & Lake Village Horse
R. R. 2½ m, 3 g, 34 lbr, 5 c, 20 h. Pres. A. G. Folsom,
Sec. J. P. Hutchinson, Treas. Edmund Little, Man.
Bela S. Kenniston. a
LA GROSSE, WIS.—La Crosse City Ry. Co. 5½
M. 4-8 g, 40 lbr, 15 c, 70 h. Pres. B. Edwards, V.
Pres. Geo. F. Gund, Treas. Fred Tillman, Sec. Jas.
T. Daggett, Supt. (North Division), Peter Valler.
Supt. (South Division), Geo. F. Smith. Office 222
Main st. a
LAFAYETTE, IND.—Lafayette St. Ry. 2½ m.

The Jaggett, Supt. (With Prison), feet value and the supt. (South Division), Geo. F. Smith. Office 222 Main St. & LAFAYETTE, IND.—Lafayette St. Ry. 2½ m, 48½ g, 35 & 46 lb r, 5 c, 30 h. Pres. G. E. C. Johnson, Sec. T. J. Levering. 10

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

LANCASTER. PA.—Lancaster & Millersville St. Ry. Co.—m, 48½ g, 30 lb r, 4c, 14 h. Pres. J C. Hager. V. Pres. H. S Shirk, Sec. & Treas. Chas. Dennes. b Lancaster City St. Ry. Co. 1, 1 m, 5-2 g, 38 lb r, 6c, 4h. Pres. W. D. Sprecher, Treas. J. H. Baumgardner, Sec. Thos. B. Cochran, Man. J. B. Long. Gen. Office, 129 North Queen st. 

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

Lansing, Sec. John P. Altgeld, Supt. Byron E. Clarke, Lansing.

LARCHMONT, N. Y.—Larchmont Manor Co. 1½
m, 4-8 g, 25 lb r, 2 c, 10 h. Pres. C. H. Murray, Treas.
T. H. French, 38 East Fourteenth st.. N. Y. Clty. a
LARNED, KAN.—Larned St. Ry. Co. 2½ m, 3-9
g, flatr, 2 2-h c, 4 mu. Pres., Supt. & Pur. Agt. D.
H. Scott, Sec. G. H. Mlye, Treas. Wm. Scott. 9
LA SALLE, ILL.—La Salle St. R. Co. 1½ m.
Sec. G. Weerts. 9
LAWRENCE, KAN.—Lawrence Transportation
Co. 5½ m, 4-1g, 38 lb r, 8 c, 38 h, 6 mu. Pres. H.
Tlsdale, Sec. W. N. Bangs. Supt. Geo. Fricker. 7
LAWRENCE, MASS.—Mertimack Valley Horse
R.R. Co. 6¾ m, 4-8½ g, 48 lb, r, 22 c, 87 h. Pres. Wm. A.
Russell. Cierk & Treas. James H. Eaton, Supt. A. N.
Klmball. 1
LEAVENWORTH, KAN,—Leavenworth & Sub-

LEAVENWORTH, KAN,-Leavenworth & Sub-

# THE SPRACUE ELECTRIC RAILWAY & MOTOR CO.

THIS IS THE ONLY COMPANY IN THE UNITED STATES DEVOTING ITS ENTIRE ENERGIES TO THE VARIOUS QUESTIONS INVOLVED IN THE TRANSMISSION OF POWER, AND IT IS PUTTING INTO PRACTICAL USE MORE MOTORS OF AND OVER ONE-HALF HORSE POWER THAN ALL OTHER COMPANIES COMBINED.

#### OFFICES:

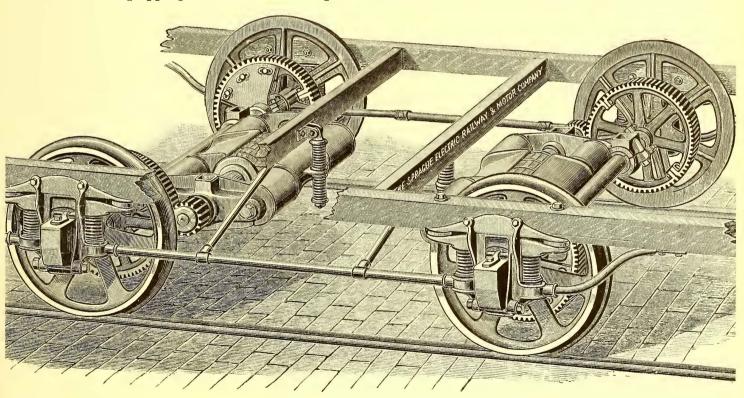
NEW YORK: 16 & 18 Broad St. BOSTON: 55 Oliver St.

CHICAGO: 185 Dearborn St.

ST. LOUIS: 304 Locust St. NEW ORLEANS: 20 Carondelet St. DETROIT: 133 Jefferson Ave.

PHILADELPHIA: 119 So. Fourth Street, CLEVELAND, O.: 117 Public Square.

This company, having now perfected a Street Railway System in all its details, is prepared, under suitable guarantees of successful operation, to take contracts for equipping new roads with all the appliances, both electrical and mechanical, for operating street railroads, and also for equipping roads now in operation,



Street Car Truck Showing Motors.

#### CHARACTERISTICS OF RAILWAY MOTORS.

Lightest weight consistent with Highest Efficiency. Simple, Compact in Construction.

Non-Liability to get out of order. No Skilled Labor. Strong enough to do the work under all conditions, Simplicity and ease of operation. Commutator wear Reduced to a Minimum.

#### SYSTEM. DETAILS OF

Generators of Highest Efficiency and Reliability. Systems of Conducting Current to the Cars with the Impossibility of an Accident at any Point of the Line Interfering with the Operation of the Remainder

Motors Flexibly Suspended from the Axles to insure Perfection of Running. Greatly Increased Traction by the Application of Motors to each Axle with Independent Driving.

Greatest Return for Given Amount of Coal Burned,

Entire Freedom from Disagreeable Noises by means of Split-Gears and Spring

Absence of all Ropes, Belts, Sprocket-Wheels and Chains.

No Useful Room in the Car taken up by the Motor.

No Changes in Truck.

No Complicated Nest of Gearing.

Use of Single Sets of Brushes for both Directions of Driving,

Storage Battery or Overhead System.

urban St. Ry. Co. 5 m, 4-8½ g, 22 lb tram r, 12 2-h c, 22 h, 3 mu. Pres., Sec., Treas. & Pur, Agt. Geo. A.

LEWISTON, ME.—Lewiston & Auburn Horse R.R. Co. 10 m, 4-8½ g, 32 lb r, 20 c, 60 h. Pres. Frank W. Dana, Clerk & Treas. C. C. Corbett, Supt. J. E. Fair-

N.R. CO. 10th, 4-8½ g, 32 10t, 20t, 00th. Pres. Frank V. Dana, Clerk & Treas. C. C. Corbett, Supt. J. E. Fairbanks. k

LEXINGTON, KY.—Lexington City Ry. Co. 8½ m, 4-10 g, 16 & 20 lb r, 22 c, 111 h. Pres. & Treas. R. B. Metcalfe, Sec. B. P. Carpenter, Supt. & Pur. Agt. W. W. Monroe. a

LEXINGTON, MO.—Lexington St. Ry. Co. 1½ m, 44 g, 30 lb r, 2 c, 8 h. Supt. John C. Young. Office, 121 Main st. 4

LIMA, O.—Lima St. Ry., Motor & Power Co. Elec. Ty., Van Depoele system; overhead conductor. 4 in completed, 10 in contemplated, 4-8½ g, 40 lb Johnson steel r, 7 c, 7 motors. Pres. B. C. Faurot, Sec. & Treas. F. L. Langan. Capital, paid in, \$50,000. a

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

Lincoln Rapid Transit Co. 7 m, 4-8½ g, 25 & 33 lb girder r, 8 2-h c, steam motors. Pres. John Fitz Gerald, Sec. J. R. Webster, Treas. Sam'l McClay, Supt. Jas. P. Walton. 9

LINSON, DAK.—Lisbon St. Ry. Co. Pres. Frank P. Allen. 9

HTTLE ROCK, ARK.—Citizens' & Little Rock St. Ry. Co. 12 m, 4-10 g, 25, 35 & 45 1b r, 30 c, 200 mu. Pres. Jas. R. Miller, Sec. & Treas. Allan Johnson, Supt. J. A. Garrett. Office, cor. Markham & Spriug

Supt. J. A. Garrett. Office, cor. Markham & Spring sts. d

1.OCKPORT, N. V.—Lockport St. R. R. Co. 3½ m, 4-8½ g, 42 lo r, 8 c, 33 h. Pres. & Treas. John lodge, Sec. W. T. Ransom, Atty. E. M. Ashley. Office, 19 & 29 llodge Opera House Bidg. 4

LOGANSPORT, IND.—Logansport Ry. Co. 4 m, 4g, 30 lb r, 9 c, 46 mu. Pres. Frank G. Jaques, Sec. M. Jaques, Supt. Wm. P. Jaques. Office, Urbana, ill. k

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

LONG ISLAND CITY, N. Y.—Steinway & Hunter's Point R. R. Co. 30 m, 4-8½ g, 47 lb r, 90 c, 300 h. Pres. G. A. Steinway, Steinway Hall, N. Y. City. V. Pres. & Man. Henry A. Cassebeer, Jr., Steinway P. O., Long Island City, N. Y. Sec. & Treas. Chas. F. Tretbar, Steinway Hall, N. Y. City. W. H. Delahanty. Offices Steinway Hall, N. Y. Cuty. Supt. W. H. Delahanty. Offices Steinway Hall, N. Y. Cty. Supt. W. H. Delahanty. Offices Steinway Hall, N. Y. Treas. Patrick J. Gleason, Supt. Michael Conway. Offices 112 Front st. Riker Aye. & Sandford's Point R. R. Co. 2½ m, Riker Aye. & Sandford's Point R. R. Co. 2½ m, Riker Aye.

Patrick J. Gleason, Super Michael Colling,
112 Front St.
Riker Ave. & Sandford's Point R. R. Co. 25 m,
4-8½ g, 47 lb r, h this year, electricity thereafter.
Operated under lease by Steiuway & Hunter's Point
R. R. Co. Pres. J. H. Hempsted, Scc. & Treas, Oscar
R. Steins. Capital, \$20,000. N. Y. Office, 107 E, 14th

R. Steins. Capital, Sey, 1988.

St. d

LONGVIEW, TEX.—Longview & Junction St.
Ry. 24m, 3-6 g, 16 lb r, 2 c, 4 h. Pres. F. T. Rembert,
Sec. R. B. Levy, Treas. F. S. Whaley, Supt. C. W.
Booth. d

LOS ANGELES, CAL.—Central & Boyle Heights
Co. 6½ m, 3 6 g, 26 c, 110 h. Pres. E. F. Spence, Gen.
Man. J. F. Crank, Sec. Fred Harkness, Supt. W.
Hawks. 6

Man. J. F. Crank, Sec. Fred Harkness, Supt. W. Hawks. 6
Los Angeles Cable Ry. Co. 29 m, 3-6 & 4-8 g, 16 & 20 lb r, 57 c, 314 h. Gen. Man. Chas. Forman. Office, 132 N. Main st. 9
Los Angeles Electric Ry. Co. 5 m, 4-8 g, 4 c, Daft system, overhead whres. Pres. Geo. H. Bonebrake; Sec. & Man. C. H. Howland, Constructing Engr. A. H. Hayward. 6
Main St. & Agricultural Park Co. 8 m, 3-6 g, 15 c, 60 h. Pres. W. J. Broderick, Sec. A. C. Taylor, Supt. E. M. Lorricke. 6
Second St. Cable Ry. Co. 1½ m cable & 1½ m steammotor extension, 3-6 g, 8 c, 6 gripc, 2 motors. Pres. & Treas, Jas. McLoughlin, Sec. & Supt. H. W. Davis, Asst. Supt. & Master Mechanic E. H. Hutchinson. 6
Temple St. Cable Ry. Co. 1½ m, 3-6 g, 6 c, 6 grip c. Pres. P. Beaudry, Sec. & Man. F. W. Woods, Supt. J. Fowler. 6
LOUISVILLE, KY.—Kentucky. St. R. R. Co. 5

Pres. P. Beaudry, Sec. & Man. F. W. Woods, Supt. J. Fowler. 6
LOUISVILLE, KY.—Kentucky St. R. R. Co. 5
m, 5 g, 52 lb r, 22 c — h. Pres. T. J. Minary, Sec. T. C. Donigan. 6
Central Pass. R.R. Co. 51 m, 5 g, 52 lb r, 156 c, 800 h, Pres. B. du Pont, V. Pres. & Man. T. J. Minary, Sec. T. C. Donigan. Office, 18th & Walnut Sts. 6
Crescent Hill R.R. Co. 3 m. Leased and operated by Central Pass. R. R. Co. 6
Louisville City Ry. Co. 65 m, 5 g, 40 to 58 lb r, 230 c, 1,400 mu. Pres. Maj. Alexander Henry Davis, Syracuse, N. Y., V. Pres. St. John Boyle, Sec. & Treas. R. A. Watts, Supt. H. H. Littell. Office, 13th and Main sts. c

A. Watts, Supt. H. H. Litteil. Office, 13th and Maiu sts. c
LOWELL, MASS.—Lowell Horse R.R. Co. 12 m, 4-8½ g, 28-33-45 ib r, 43 c, 160 h. Pres. Wm. E. Livingston, Gen. Man. J. A. Chase.
Lowell & Dracut St. Ry. Co. 9 m, 4-8½ g, 25 ib iron and 1½ m Longstreet r, 16 c, 120 h. Pres. Aug. Fels. Treas. Walter M. Sawyer, Supt. John F. Murphy. 8
LYNCHBURG, VA. — Lynchburg St. Ry. Co. 2½ m, 5-1 g, 20-26 ib r, 7 c, 38 h. Pres. & Treas. Stephen Adams, Supt. William M. Payne. Office, Main st. h. LYONS, IA.—Clinton & Lyons Horse Ry. Co. 4½ m, 3-8 g, 19-30 ib r, 15 c, 40 h. Pres. D. Joyce, Sec. W. T. Joyce, Supt. Frank Crapser.
MACON. G4.—Macon City & Suburban St. R.R. Co. 12 m, 5 g, 20 ib T r, 25 c, 100 mu. Pres. John S. Bransford, Nashville, Tenn., Sec. and Supt. Jno. T. Voss.

Weyer. Office, 1026 Wainut st. a. MADISON, WIS.—Madison St. Ry. Co. 2½ m, 4 g, 15 ib r, 7c, 4 h, 11 mu. Pres. & Supt. Jacob Wendel, V. Pres. & Treas. Peter F. Robinius, Sec. John K. Weyer. Office, 1026 Wainut st. a. MADISON, WIS.—Madison St. Ry. Co. 2½ m, 4 g, 23 lb r, 8 c, 28 mu. Pres., D. K. Tenney, Sec. & Treas. B. W. Jones, Supt. A. R. Kentzler. Office, Williamson St. 4

MANCHESTER, N. H.-Manchester Horse R.R.

7 m, 3 g, 27-34 lb r, 14 c, 60 h. Pres, S. N. Bell, Treas. G. F. Smyth, Clerk J.A. Weston, Supt. A. Q. Gage. Office Depot St. e
MANKATO, MINN.—Mankato St. Ry. Co. 2½ m, 3-6 g, 27 lb Steel r, 4 c, 12 h. Pres, &Man. W. M. Farr, Sec. and Treas. John C. Noe, Capital, \$50,000; office, 313 So Front street. f
MANSFIELD, O.—Mansfield Elec. St. Ry. Co. 4½ m, 4-8½ g, 43 lb s-b r, 10 c, 15 H. P. each, Daft system. Pres. Edward oothout, New York, V. Pres. Huntington Brown, Sec. C. E. McBride, Treas. M. Van Rensselaer, New York, Engr. Knight Neftel, Supt. W. G. Root. Capital, \$75.00. f
MARSHALTOWN, IA.—Marshaltown St. Ry. Co. 3 m, 4 g, 25 lb r, 7 c, 20 h. Pres. B. T. Frederick, Sec. C. C. Gilman, Man. & Treas. A. E. Shorthill. f
MARYSVILLE, CAL.—City Pass. R. R. Co. MAYSVILLE, CAL.—City Pas

fer Co. 3½ m, 20 lb r, 4-8½ g, 7 c, 32 mu. Pres. L. W. Robertson, Sec., Treas. & Supt. W. S. Frank. Office. Courtst. d

McPHERSON, KAN.—McPherson St. Ry. Co. 3¾ m, 3 6 g, 20 lb Tr, 3 2-h c, 12 mu. Pres. A. A. Irvin, Sec. Scott Bukey, Treas. C. Aug. Heggeland, Pur. Agt. M. D. Herrington, Supt. Benj. Hunt. 9

MECHANICSBURG, HLL.—Mechanicsburg & Buffalo Ry. Co. 7½ m, 3-10 g, 16 & 20 lb r, 3 c, 4 mu. Pres. J. B. Hunter, V. Pres. H. Thompson, Sec. J. T. Ful enweder, Treas. A. T. Thompson. b

MEMPHIS. TEN.—Memphis City R.R. Co. 18 m, 5 g, 38-40 lb r, 80 c, 320 h. Pres. R. Dudicy Frayser, V. Pres. & Gen. Man. Thos. Barrett, Sec. James Frost, Treas. S. P. Read, Jr., Supt. W. F. Shippey. Office 474 Main st. f

Citizens' St. R. R. Co. 40 m, 4-8½ & 5 g, 33 lb girder & 45 lb tram r, 140 2-h c, 604 mu. Pres. Napoleon Illi, V. Pres. & Gen. Man. Thos. Barrett, Sec. R. Dudicy Frayser, Treas. S. P. Read, Jr.

East End Ry. Co. 4 m, 4-8½ g, 36 lb steel r, 6 c, 2 dummy engines. Pres. W, M. Sneed, Treas. J. W. Falls. Office, 310 2d st. 9

Memphis & Prospect Park R. R. 5 m, 4-8½ g, 4c, 5 team dummy. Pres. T, J. Latham, V. Pres. J. A. Van Hoose, Sec. & Treas. T. A. Lamb. Capital, \$100,000.

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

A. Kelly. d

MICHIGAN CITY, IND.—Citizens' St. Ry.
Co. 4 m, 4-8 g g, 30 lb r, 4 c, 15 h. Pres. Wm. G.
Knight, V-Pres. John Lyons, Sec. Jacob Henderon, Treas. Jerry H. Knight. Office West Washington st., South Bend, Ind.
MIDDLETOWN, CONN.—Middletown Horse
R.R. Co. 2 m, 36 lb r, 6 c, 30 h. Pres. John M. Douglas,
Sec. & Treas. J. K. Guy, Supt. Waiter Baldwin, Office
166 Main st.
2

R.R. Co. 2 m., 3610 f., 6 c., 3011. Fres. John M. Dougnis.

Sec. & Treas. J. K. Guy, Supt. Watter Baldwin. Office

166 Main st.

MIDDLETOWN, O.—Middletown & Madison St.

R.R. Co. 2 m., 5-9 g.,—r., 4 c., 8 h, Pres. C. F. Guncket,

Sec. and Treas. E. W. Guncket, Supt. T. C. Reed.

MILLERSVILLE, PA.—Lancaster & Millersville

St. R.R. Co. (See Lancaster, Pa.)

MILWAUKEEE, WIS.—Cream City R.R. Co. 17

m., 4-8½ g., 38 & 52 lb girder r., 27 lb tram r., 80 c., 319

mu. Pres. Winfield Smith, V. Pres. Christian Preusser, Treas. Ferdinand Kuehn, Sec. Wm. Damkoehler,

Gen. Man. D. Atwood, Supt. H. J. C. Berg. Office,

40 E. Water st. b.

Milwaukee City Ry. Co. 30 m., 4-8½ g. 45 lb r., 81 c.,

1518 h. Pres. Peter McGeoch, Sec. & Treas. Geo. C.

Wheatcroft. Office 209 West Water st.

a. West Side St. Ry. Co. Pres. Washington Becker

Sec. Thos. J. Durnin, Supt. A. McNaughton.

MINNEAPOLIS, MINN.—Minneapolis St. Ry. Co.

25 m., 3-6, 27-35-45 lb r., 186 c., 876 h., 230 mu. Pres.

Thos. Lowry, V. Pres. C. Morrison, Sec. & Gen. Man.

C. G. Goodrich, Treas. M. B. Koon, Supt. D. W.

Sharpe, Engr. E. T. Abbott. Office, 200 3d ave. N. g.

MOBILE, ALA.—Mobile St. Ry. Co. 23 m., 5-2½ g.,

Salul T. & Erram. T. 26 c., 4 feelght. e. 290 mu. 8 h.

Sharpe, Engr. E. T. Abbott. Office, 200 3d ave. N. g
M()BHLE, ALA.—Mobile St. Ry. Co. 23 m, 5-2½g,
33-60 lb T & tram r, 74 c, 4 freight c, 230 mu & h.
P.es. W. M. Duncan, V. Pres, Gaylord, B. Clark, Sec.
& Gen. Man. R. K. Warren.

Mobile & Spring Hill R.R. Co. 8 m, 5-2½g, 35 lb r,
15 c, 35 h, 1 dummy. Pres. Daniel McNeill, Sec. &
Treas. C. F. Sheidon, Man. F. Ingate.

MOHAWK, N. Y.—Mohawk & Hion R.R. Co.
1½ m, 4-8½g, 30 lb r, 4 c (contract for motive power).
Pres. O. W. Bronson, V. Pres. C.W. Carpenter, Sec. H.
D. Alexander, Treas. R. M. Devendorff, Supt. O. W.
Bronson. f

Pres. O.W. Bronson, V. Pres. C.W. Carpenter, Sec. H.
D. Alexander, Treas. R. M. Devendorff, Supt. O. W.
Bronson. f

MOLINE, ILL.—Moline & Rock Island St. Car
Co. 5 m, 4-8½ g, 20 lb crescent tram & Tr, 131-h, 2
2-h c, 44 h. Pres. Jonathan Huntoon, Moline, Sec.
& Treas. J. M. Buford, Rock Island. 6

Moline Central St. Ry. Co. 1½ m, 4-8½ g, 1 m tram
½ m Tr, 3 c, 10 h. Pres. P. H. Wessel, V. Pres. M. Y.
Cady, Sec. W. R. Moore. Treas. C. F. Hemenway. 1
Union St. Ry. Co. 54 m, 4-8½ g, 38 lb Jonnson
girder r for 1½ m and 42 lb tram r for balance, 61-h
2 2-h c, 16 h, 12 mu, 2 steam motors. Pres. Eugene
Lewis, Moline, V. Pres W. H. Decker, Davenport,
Ia.; Sec. & Treas. G. Watson French, Davenport, Ia.;
Supt. Jas. Cazatt, Moline. 10

MONTGOMERY. ALA.—Capital City Electric
Ry. 11 m, 4 g, 42 lb r, 20 c. Electric motors; Van
Depoele system; overhead conductor. Pres. E.
B. Joseph, Gen. Man. J. A. Gaboury, Treas. Thos.
E. Hannon. 6

MONTREAL, CAN.—Montreal St. Ry. Co. 30
m, 4-8½ g, 80 c, 80 sleighs, 40 'buses, 700 h. Pres.
Jesse Joseph, V. Pres. Alex. Murray, Sec. & Man. Ed.
Lusher, Supt. T. H. Robillard. 3
MOULTRIEVILLE, S. C.—Middle St. & Sullivan's Landing Ry. 2½ m, 4-8½ g, 20 lb r, 7c 4 h.
Pres. B. Callahan, Treas. B. Buckley.

MT. VERNON. N. Y.—Mount Vernon & East
Chester R. R. Co. 5½ m, 7c, 13 h. Sold to Leopold
Werthelmer of New York, 1ate Sec. of co. Treas.
Louis Werthelimer. 10

MUSCATINE, IA.—Muscatine Cit, Ry. Co. 3½
n, 3-6 g, 21 lb r, 7 c, 34 h. & mu. Pres, Peter Musser,

V-Pres. W. Hoffman, Sec. T. R. Fitzgerald, Treas

V-Pres. W. Hollman, Sec. T. R. Fitzgerald, Treas S. M. Hughes. k.

MUSKEGON, MICH.--Muskegon Ry. Co. 43% m
1-6g, 20 lb r, 8 c, 17 h, 9 mu. Pres. F. A. Nims, Vres. Chas. Merrlam, Boston, Mass., Sec. Thomas
Munroe, Treas. G. R. Sherman, Supt. Wm. McLaugh-

Munroe, Treas, G. R. Sherman, Supt. Wm. McLaughtin.

\*\*MASHUA, N. H.—Nashua St. Ry. Co. 2 m, 3 g, 35 lor, 6c, 24 h. Pres. John A. Spalding, Clerk, R. D. Barnes, Treas. Ira F. Harris, Supt. Q. A. Woodward e NASHVILLE, TENN.—Nashville & Edgefield R. R. Co. Fatherland Street Raitway Co. North Edgefield and Nashville St. R.R. Co., one management. 5 m, 5 g, 16-20-38 lbr, 18 c, 100 mu. Pres. Jas. H. Yarbrough, Sec. & Treas. H. B. Stubblefield, Supt. Thos. R. Donahue.

\*\*McGavock & Mt. Vernon Horse R.R. Co. 7½ m, 5 g, 16-20-28-32 lbr, 25 c, 140 h & mu. Pres. John P White, V. Pres. B. F. Wilson, Sec. & Treas. H. B. Stubblefield, Supt. Daingerfield Deaderick.

\*\*South Nashville St. R. R. Co. 4½ m, 5 g, 16-20-20 lbr, 10 c, 70 h. Pres. W. M. Duncan, Sec., Treas. & Supt. C. L. Fuller. Office cor. Franklin and Cherry Sts. & NATCHEZ, MISS.—Natchez St. Ry. 2½ m, 4-8½ g. 18 & 45 lb flat & T r, 41-h c, 10 h, 6 mu. Owner, Thos. Reber.

\*\*NATICK, MASS.—Natche & Cochituate St. Ry. NATICK, MASS.—Natche & Cochituate St. Ry. NATICK, MASS.—Natche & Cochituate St. Ry.

NATCH EZA, HASS.—Natick & Cochituate St. Ry. Thos. Reber.

9 NATICK, MASS.—Natick & Cochituate St. Ry. 3 m, 48% g, 35 lb r, 7 c, 19 h. Pres. Harrison Harwood, Supt. Geo. F. Keep, Clerk Frank Hays. e NEW ALBANY, IND.—New Albany Ry. Co. 6½ m, 4-11 g, 25 lb r, 14 c, 55 h. Pres. Geo. T. Vance, Treas. Letitia V. Vredenburgh, Supt. & Pur. Agt. Wm. L. Timberlake. Office cor. Vincennes and Spring sts.

9 Fessey Pass. Ry. Co. 50 m, 5-2%

wood, Supt. Geo. F. Keep, Clerk Frank Hays. e
NEW ALBANY, IND.—New Albany Ry. Co.
6½ m, 4-11 g, 25 ib r, 14 c, 55 h. Pres. Geo. T.
Vance, Treas. Letitla V. Vredenburgh, Supt. & Pur.
Agt. Wm. L. Timberlake. Office cor. Vincennes and
Spring sts. 9
NEWARK, N. J.—Essex Pass. Ry. Co. 50 m, 5-2½
g, 47 ibr, 133 c, 797 h. Pres, S. S. Battin, Sec. Fr-d
T. Kirk, Supt. II. F. Totten, Paymaster, W. L. Mulford,
Office, 786 Broad st. d.
Newark & irvington St. Ry. Co., 7 m, 5-2½ g, 47 lbr,
32 c, 165 h, Pres, S. S. Battin, Sec. W. L. Mulford,
Supt. H. F. Totten. Office 786 Broad st. d.
Newark & So. Orange, Ferry St. & Hamburg Place
R. R. Co. 15 m, 5-2½ g, 45 lb r, 49 c, 300 h. Pres. John
Radel, Sec. Andrew Radel, Treas. Joseph Criqui.
Office, cor. So. Orange ave. & So. 19th st. f.
NEWARK, O.—Newark City Ry. Co. 5 m, 4-8½
g, 35 lb r, 6c, 24h. Pres. Stephen G. Clarke, V. Pres.
& Supt. Byron E. Clarke, Sec. John W. Lanehart,
Treas. Harry M. Clarke. Office, 239 W. Main st. I.
NEW BEDFORD, MASS.—Union St. Ry. Co.
18 m, 4-8½ g, 35, 45 & 50 lb tram, 45 lb steel & 38 lb
girder r, 84 2-h c, 290 h. Pres Sam? C. Hart, Treas.
A. G. Perce, Clerk Abbott P. Smith, Auditor Geo. R.
Phillips, Supt. Stables Chas. E. Cook, Supt. Transportation Wm. II. Allen. Capital, \$266,000. j.
NEW BRITAIN, CONN.—New Britain Tramway.
Co. 3½ m, 4-8½ g, 35 lb r, 4 c. Pres. Allston Gerry.
Treas. Jos. A. Flynn, both of New York City. 5
NEW BRUNSWICK, N. J.—New Brunswick
City R. R. Co. 4 m, 4-8½ g, 40 lb r, 5 c, 20 h. Pres. F.
M. Delano, Treas. Carroll Sprigg.
NEWBURGII, N. Y.—Newburgh St. Ry. Co.
2½ m, 4-8½ g, 40 lb r, 11 c, 60 h. Pres. Rowland F.
Illil, V. Pres. Sidney W. Hopkins, Sec. & Treas. Wm.
Moores, Gen. Man. H. Ives Smith. President's office,
3 Broad st., New York.
NEWBURGII, N. Y.—Newburgh St. Ry. Co.
2½ m, 4-8½ g, 50 lb r, 5 c, 20 h. Pres. F.
M. Delano, Treas. Carroll Sprigg.
NEWBURGII, N. Y.—Newburgh St. Ry. Co.
2½ m, 4-8½ g, 50 lb r, 5 c, 20 h. Pres. F.
M. Delano, Treas. Carroll Sprige.
NEWBURGII, N. S.—Pair Haven & Westville
R. Co. 10 m, 4-8½ g, 50

Office 16 Exchange Bidg. d
Whitney Ave. Ry. Co. 2½ m, 48½ g, 25 lb r, 3 c, 20
h. Pres. Geo. H. Watrous, Sec. George D. Watrous,
Treas. Ell Whitney, Jr., Leased to State St. Horse
R. R. Co. a
NEW ORLEANS, LA.—Canal & Claiborne Sts.
R. Co. 13 m, 5-2½ g, 37 lb r, 40 c, 200 h, Pres. E. J.
Hart. Sec. & Supt. Jos H. DeGrange. a
Algiers & Gretna Ry. Co. 3.1 m, 3 g, 30 lb Tr. 3 1-h
c, 17 h. Pres. J. E. Auvray, Sec. & Treas. Wm. Bogel,
Supt. John Reaney. Office, 382 St. Charles St.
Crescent City R. R. Co. 26 m, 5-2½ g, 35-45 lb r, 90 c,
400 h. Pres. W. J. Behan, Sec. & Treas. J. R. Juden,
Supt. A. V. Smith. c
Orleans R. R. Co. 9½ m, 5-2½ g, 35-45 lb r, 32 c, 155 h,
mu. Pres. & Supt. H. Larquie, Sec. & Treas. P.
Cougot. Office, cor. White & Laharpe Sts. b
St. Charles St. R. R. Co. 15 m, 5-2½ g, 35-40 lb r, 61 c,
260 mu. Pres. & Supt. Alden McLellan, Sec. V. Riviere.
Operates 3 lines. Office cor. Carondelet & 8th sts. a.
New Orleans & Carroliton R. R. Co. 8 m, 4-8½ g, 30-46 lb r, 65 c, 200 h, 19 engines. Pres. Jos. Hernandez,
Sec. Walter V. Crouch, Supt. Chris. V. Haile. a
New Orleans & Carroliton R. R. Co. 8 m, 4-8½ g, 30-46 lb r, 170 st. c, 40 coaches. 7 locomotives, 800 mu.
Pres. J. A. Walker. Sec. W. E. Leverich, Supt. F.
Wintz. Office. 102 Canal st.
6 NEW ROCHELLE, N. Y.—New Rochelle &
Pelham R. R. Co. 10 m, 4-8½ g, 42 lb r, 8 c, 30 h. Pres.
W. R. Bergholz, Sec. Eugene Durnin, Treas. Thos.
E. Crimmins. 1.
NEW TON, K. AN.—Newton City St. Ry. Co. Pres.
Allen Moore, V. Pres, John A. Randall, Sec. W. G.
Oldfield, Treas. J. M. Ragsdale. 6 m, 3-6 g, 20 lb steel
r, 8 c, 24 mu. Capital, \$60,000.
7 NEW YORK, N.Y.—Ninth Ave. R.R. Co. 16
res., Ninth Ave., cor. 54th st.
a.

# THE DAFT SYSTEM ELECTRIC RAILWAY PROPULSION.



For Street Railways the DAFT SYSTEM possesses the following named advantages:—

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The remoteness of the motive machinery from the passengers; its being insulated electrically and acoustically by India-rubber washers and bushings at its connection with the caraxles; and its being covered by a magnetic shield, which affords perfect protection to the watches of passengers from magnetization—render the "Daft System" of Street Railway Propulsion peculiarly free from the above serious objections.

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Offices, 115 Broadway, New York. Factory, Jersey City, N.J.

Broadway & Seventb Ave. R.R. Co. 16 m, 4-8½ g, 47-60 fb r, 227 c, 2240 h. Pres. Henry Thompson, Sec. & Treas. Thos. F. Ryan, Supt. Henry A. Newell. Office 761 Seventh ave. f Central Crosstown R.R. Co. 5.22 m, 4-8½ g, 52 lb r, 45 c, 241 b. Pres. Geo. S. Hart, V. Pres. A. Cammack, Sec. Milton I. Masson, Treas. E. Burton Hart. Office, 365 Ave. A. Gentral Park, North & East River R.R. Co. 26 m, 4-8½ g, 60 lb r, 162 c, 1,200 h. Pres. G. H. Scribner, V. Pres. C. D. Wyman, Sec. H. Scribner, Treas. J. L. Valentine, Supt. W. N. A. Harris. Office, Tenth Ave., 53d & 54th st. j. Chambers St. & Grand St. Ferry R. R. Pres. H. Thompson.

Valentine, Supt. W. N. A. Harris. Office, Tenth Ave., 53d & 54th st. j. Chambers St. & Grand St. Ferry R. R. Pres. H. Thompson.
Christopher & Tenth St. R.R. Co. 5 m, 4-8 g, 45 lb r, 47 c, 299 b. Pres. Jacob Sharp, Treas. W. T. Hatch, sec. & Supt. G. W. Lincb. Office, 168 Christopher st. r Dry Dock, East Broadway & Battery R.R. Co. 18½ m, 4-8½ g, 60 lb r, 185 c, 1102 h. Pres. William White, Sec. & Treas. Richard Kelly, Auditor E. T. Landon, Supt. Fred F. White. Offices, 605 Grand st. a Eighth Ave. R.R. Co. 20 m, 4-8½ g, 60 lb r, 112 c, 1155 h. Pres. Geo. Law, Sec. & Treas. James Affleck, Supt. H. B. Wilson. Office, Eigbth Ave. & 50th st. 4. Forty-second Street & Grand Street Ferry R.R. Co. 10½ m, 8-4 g, 64 lb r, 55c, 480 h. Pres. Cbas. Curtiss, Sec. & Treas. E. S. Allen. Supt. John M. Calhoun. Office, 653 W. 42d st. 3 Forty-second St., Manhattanville and st. Nicholas Avenue Ry. Co. 18 m, 4-8½ g, 60 lb r, 105 c, 650 h. Pres. John S. Foster, Sec. C. F. Naetbing, Treas. Artbur Leary. Office, 118 E. 42 st. a. Harlem Bridge, Morrisania & Fordham Ry. Co. 16.37 m, 4-8½ g, 45-60 lb r, 65 c, 316 h. Pres. and Supt., II. Spratley, V. Pres. Wm. Remsen, Sec. & Treas. Wm. Cauldwell. Office, Third ave., near 170 st. Houston, West Street & Pavonia Ferry R.R. Co. 12.3 m, 4-8½ g, 60 lb r, 50 c, 340 h. Pres. Henry Thompson, Sec. & Treas. Daniel B. Hasbrouck, Supt. H. W. Edes. Office 415 E. 10 st. Jerome Park R.R. 12-3 m, 4-8½ g, 50-56 lb r. Pres. Leonard W. Jerome, Sec. Fred A. Lovecraft, Treas. Theodore Moss. Office, cor. 5th. ave. & 22d st. 6 New York City St. Ry. Co. 10 m, (not in operation). Pres. Loomis L. White, Sec. W. L. McCorkle, Treas. Theodore Moss. Office, cor. 5th. ave. & 22d st. 6 New York City St. Ry. Co. 10 m, (not in operation). Pres. Loomis L. White, Sec. W. L. McCorkle, Treas. Theodore Moss. Office, cor. 5th. ave. & 22d st. 6 New York City St. Ry. Co. 10 m, (not in operation). Pres. Loomis L. White, Sec. W. L. McCorkle, Treas. Theodore Moss. Office, cor. 5th. ave. & 22d st. 6 New York City St. Ry. Co. 10 m, (not

fred Skitt, Pur. Agt. Chas. Reed. Office, Grand Central Depot. e Sixtb Ave. R.R. Co. 9% m, 4-8% g, 60 lb r, 109 c, 1250 b. Pres. Frank Curtiss, Sec. and Treas, Tlenry S. Moore, Supt. Edw E. Moore. Office, 7586th ave. 2 South Ferry Ry. Co. 1% m, 4 8% g, 60 lb r, 6 box 4 open c, 32 h. Pres. Henry Hart, Sec. & Treas Albert I. Elias, Supt. Chas H. Meeks. Office, 20 Wbitehall St. b.

St. b. Second Ave. R.R. Co. 28 m, 48½ g, 60 ib r, 316 cars, 1750 h. Pres. W. S. Thorn, V. Pres. J. Wadsworth, Sec. & Treas. J. B. Underhill. Ollice Second ave. cor.

Sec. & Treas. J. B. Underniii. Unice Second ave. cor. 6th st. 6 
Third Ave. R. R. Co. 28% m, 4-8% g, 60 lb r, 360 c, 2190 h. Pres. Lewis Lyon, 739 Madison ave., Sec. Alfred Lazarus, 436 W. 61st st., Treas, John Beaver, 211 E. 113th st., Supt. John H. Robertson, 307 E. 65tb st., Eng. Wm. II. Paine. Office, 1,115 Third ave. 6

Beaver, 211 E. 112th st., Supt. John II. Robertson, 307
E. 65tb st., Eng. Wm. II. Paine. Office, 1,115 Third ave. 6
Twenty-third St. Ry. Co. 14 m, 4 8 % g, 54 lb r, 122 c, 770 h. Pres. Arthur Leary, V. Pres. George N. Curtis, Sec. Thos. H. McLean, Treas. Walter T. Hatch. Office, 621 West 23d st. f
NIAGARA FALLS, N. Y.—Nlagara Falis & Suspension Bridge Ry. Co. 2 % m, 4 8 % g, 38 lb r, 14 c, 50 h. Pres. Benj. Hagler, V. Pres. H. Nielson, Sec. W. J. Mackay, Man. & Treas. A. Schoellkopf. 1
NIAGARA FALLS, CAN.—Nlagara Falis, Wesley Park & Clifton Tramway Co. 4 m, 4 8 % g, 30 & 45 lb r, 10 c, 31 h. Pres. J. fl. Mooney, Sec. John II. Bache, Treas. John N. Hayward, Supt. J. H. Bache, h NORFOLK, VA.—Norfolk City R. R. Co. 3 % m 5-2 g, 43 lb r, 20 c, 67 h. Pres. John B. Whitehead Sec. & Treas. II. C. Whitehead, Supt. E. W. Savage. b NORRISTOWN, PA.—Clifzens Pass. Ry. Co. 4m, 5-2 % g, 47 lb r, 8 c, 50 h. Capital, \$80,010. Pres. Geo. D. Bolton, Sec. Geo. R. Kite, Treas. Geo. Shannon, Supt. D. B. Hartrant.

Nortstown Pass. Ry. Co. 14 m, 5-2 ½ g, 45 lb r, 2 c, 12 h. 2 -b c, 12 h. Pres. H. M. Lutz, Sec. Eugene D. Egbert, Treas. A Supt. Norman Egbert. 10
NORTHADAMS, MASS.—Hoosae Valley St. Ry. Co. 6 m, 4-8 ½ g, 40 lb. r, 8 c, 31 h, 2 steam motors. Pres. Wm. B. Baldwin, V. Pres. L. W. Cronkhite, Sec. S. Proctor Thayer, Treas. Chas T. Beach. e

NORTHAMPTON, MASS.—Northampton St. Ry. Co. 3 % m, 4-8 % g, 20 lb r, 12 -b r, 23 lb. Pres. Thos. Cuningham, Sec., Treas., Supt. & Treas. & Sup. E. C. Clark. l.

NORWALK, CONN.—Norwalk Horse R. R. Co. 13 m, 4-8 % g, 20 lb r, 12 -b r, 39 h. Pres. Thos. Cuningham, Sec., Treas., Supt. & Pur. Agt. T. West. 9

OAKLAND, CAL.—Alameda, Oakland & Piedmont R. R. Co. Props. Berryman & Chaffel

Broadway & Piedmont R.R. Co. 3 m, 5 g, 30 lb r, 6 c, 46 h, Pres. Waiter Blair, Sec. Montgomery owe.

18 C, 46 h. Pres. Walter Blair, Sec. Montgomery Howe. 9
Brooklyn & FruitVale R. R. 2½ m, 5 c, 18 h. Pres. E. C. Sessions, Sec. W. W. Gill. 2
Fourteenth St. R.R. Co. 8 m. 5 g, 25-40 lb r, 10 c, 46 h. Pres. & Supt. Walter Blair, Sec. P. J. Van Loben, Office, 524 14tb St. 1
Oakland R. R. Co. 8 m., 3 g, 60 lb r, 9 c, 83 h. Pres. Jas. G. Fair, Sec. Chas. S. Neal, Supt. Geo. Y. Loring. Office, 21st & Jones Sts. 5
Oakland, Brooklyn & Fruit Vale R. R. Co. 2½ m, 5 g, 35 lb r, 4 c, 25 h. Pres. H. Tubbs, Sec. W. C. Mason, Supt. J. Dixon, Pur. Agt. Geo. H. Mason. Office, 301 Central ave. a
Oakland Cable Ry. Co. 5 m, 3 g, 40 lb. iron r, 10 c. Pres. Jas. G. Fair, Sec. & Treas. Chas. S. Neal, Supt. Geo. Y. Loring. Office, 21st & Jones Sts. 5

OGDEN CITY, UTAH.—Ogden City Ry. Co. 3 m, 4.8½ g, 20 lb r, 4 c, 20 h. Pres. L. W. Shurtliff, V. P. & Supt. O. P. Arnold, Sec. & Treas. H. S.

OGDENSBURG, N. Y.—Ogdensburg St Ry. Co. 5m, 4-8½ g, 25 lb. r, 6c, 22 h. Pres. W. H. Daniels, Sec. E. A. Newell, Treas. A. E. Smith. b
OLEAN, N. Y.—Olean St. Ry. Co. 1.34 m, 3-6 g, 25 lb r, 3 c, 7 h. Pres. & Supt. John Fobes, V. Pres. C. S. Carey, Sec. & Treas. M. W. Barse. i

OMAHA, NEB.—Omaha Horse Ry. Co. 22 m, 4-8½ g, 30, 35 & 45 lb r, 62 c, 470 h. Pres. Frank Mur-phy, V. Pres. Guy C. Barton, Sec. J. E. Wilber, Treas. W. W. Marsb, Supt. W. A. Smitb. Office 1504 Far-

Cable Tranway Co. of Omaha, 4 m, 4-8 1-2 g, 58% lb r, 10 c, each with grip; operated by cable. Pres. S. R. Johnson, V. Pres. L. B. Williams, Sec. and Treas. C. E. Yost, Chief Engineer Robert Gillham. Capital stock, \$300,000. General office, 130 South 13th St. a. Omaha Southwestern St. Ry. Co. 2½ m, 4-8½ g. 51 lb No. 1 steel r, 30 c, motors. Pres. Henry Ambler, V. Pres. C. R. Woolley, Sec. Sam'l J. Howell, Treas. C. F. Harrison. Office, 217 S. 14th St. c. ONEIDA VILLAGE, N. Y.—Oneida Ry. Co. 2 m, 4-8½ g, 47 lb r, 3 c, 7 h. Pres. W. A. Stone, Sec. & Treas. W. E. Northrup, Supt. Chas. Bonta. j. ORANGE. N. J.—Orange Crosstown and Orange

Séc. & Tréas. W. E. Northrup, Supt. Chas. Bonta. j ORANGE, N. J.—Orange Crosstown and Orange Valley St. Ry. Co. 2½ m, 5-2 g, 35 ib Johnson girder rail, 81-h, 22-h c, 38 h. Pres. Francis M. Eppley, of Orange, Sec. Thos. Marsh, Treas. Edw. A. Pearson. Capital stock, \$20,000; bonds, \$20,000. h. ORLANDO, FLA.—Orlando St. Ry. 2 m, 4-8½ g, 30 lb r, 3 c, 8 mu. Pres. T. J. Shine, V. Pres. N. L. Mills, Sec. & Treas. J. D, Beggs. Capital, \$50,000. a OSIIKOSII, WIS.—Oskhosh St. R. Co. 3½ m, 4-8½ g, 27 lb r, 10 c, 40 h. Pres. Leander Choate, V. Pres. J. H. Jenkins, Sec. & Treas. J. Y. Huil, Sup. L. F. Thompson.

OSHKOSH, WIS.—Oshkosh St. R. R. Co. 3½ m. 4-8½ g, 27 lb r, 10 c, 40 h. Pres. Leander Choate, V. Pres. J. H. Jenkins, Sec. & Treas. J. Y. Huil, Sup. L. F. Thompson. g
OSWEGO, N. Y.—Oswego St. Ry. Co. 2½ m. 4-8½ g, 45 lb r, 5 c, 25 h. Pres. R. J. Oliphant, V. Pres. H. J. McCaffrey, Sec. & Treas. Albert Himes, Supt. Wm. S. Turner. Office, West Bridge, near Third ave. d
OTTAWA, KAN.—Ottawa St. Ry. Co. 2 m. 4-8½ g, 20 & 30 lb T and girder r, 11-h 3 2-h c, 16 mu. Pres. John P. Harris, Sec. & Treas. Peter S. Hiras, Supt. David Miller. g
OTTAWA, ONT.—Ottawa City Passenger Ry. Co. 5 m. 4-8½ g, 30 lb r. 9 c, 40 h. Pres. Thomas C. Keerer, V. Pres. R. Blackburn, Sec. James D. Fraser. 1
OTTUMWA, 1A.—Ottumwa St. R.R. Co. 2 m., 3-65, 27 lb r, 4 c, 2 h. 14 mu. 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. Gray. 8
OWENSBORO, KY. Paducah St. Ry. Co. 5½ m, 4-8½ g, 30 lb flat r, 91-hc, 26 mu. Pres. C. Delafield, Sec. Henry H. Houston. Treas. J. C. Thompson. Orfice, 110 S, 3d st. 9
PARIS, TEX.—Parls Ry. Co. 2½ m, 4-8½ g, 22 lb. T. r, 3 pass. 4 tc, 11 mu. Pres. D. F. Latimer, Sec. & Supt. C. G. Caviness, Treas. W. D. Latimer. Capital, 450,000. a
PATERSON, N. J.—Paterson & Passaic R.R. Co. 7 m. 4-10½ g. 33 lb r, 16 c, 30 h. Pres. John N, Ter.

Tr., 3 pass. 4 tr., 11 mu, fres. D. F. Latimer, sec. & Supl. C. G. Caviness, Treas. W. D. Latimer. Capital, \$50,000. a

PATERSON, N. J.—Paterson & Passaic R.R. Co. 7 m, 4-10½ g, 33 lb r, 16 c, 30 h. Pres. John N. Teriune, Sec. E. S. Brown, Treas. John J. Brown, Man. & Supt. Ambrose T. King. Assr. Supt. Townsend Rider. Office, First National Bank B.dg.

Paterson City Ry. Co. 8½ m, 4-8½ g, 35 lb r, 10 c, 40 h. Pres. Garret Planten, Treas. & Man. H. Romaine, Sec. Albert A. Wilcox, Supt. M. Pettigrew. Office 27 Broadway. a

PAWTUCK ET, R. I.—Pawtucket St. Ry. Co. 8 m, 54 lb r. 4 g, 24 c, 124 b. Pres. A. B. Chase, V. Pres. & Gen'l Man. D. F. Longstreet, Treas. E. N. Littlefield, Engr. Geo. C. Tingley. Office Broad st. k

PELILAM, N. V.—Petham Park R. R. Co. 1½ m, 3-6 g, 30-57 lb T and s-b r, 4 1-b c, 9 h. Pres. W. R. Lamberton, V. Pres. & Supt. Henry D. Carey, Sec. & Treas. E. N. Anable. Office, 16 Exchange place, New York.

Lamberton, V. Ites. & Supr. Heili, D. Carlon, S. Treas. E. N. Anable. Office, 16 Exchange place, New York. f
PENSACOLA, FLA.—Pensacoia St. Car Co. 3 m, 4-8 g, 6 h, 30 mu. Pres. A. V. Clubbs, Sec. W. A. Blount, Treas. Thos. C. Watson. Capital, \$100,000. Office, 100 E. Government st. c
PEORIA, ILL.—Central City Horse Ry. Co. 10 m, 4-8% g, 40 & 60 ib r, 40 c, 90 b. Pres. & Gen. Man. Il. R. Woodward, iec. & Treas. E. Callender, Supt. John Strong. Office 2011 N. Adams st. j
Central Horse & Cable R. R. Co. 3 m, 4-8% g, 30 & 40 ib r, 9 c, 22 b. Pres. & Gen. Man. H. R. Woodward, Sec. Jos. Eider, Treas. E. Callender, Supt. John Strong. Office, 2011 N. Adams st. j
East Bluff Peorla Horse Ry. Co. 1 m, 4-8% g, 30-40 ib r, 4 c, 24 b. Pres. N. Glles, Sec. R. R. Bourland, Treas. M. E. Culver. Capital, \$11,000. 4.
Fort Clark Horse Ry. Co. 8 m, 4-8% g, 20-38 ib r, 32 c, 80 mu. Pres. J. H. Hall, Sec. H. W. Wells. Treas. H. Detweiller, Supt. J. H. Hall. Office, 1,600 Perry st. f
Peorla Horse Ry. Co. 6 m, 4-8% g, 40-60 ibr 14 c 60 h. & mu. Pres. & Gen. Man. H. R. Woodward, Sec. & Treas. E. Callender, Supt. John Strong. j
PETERSBURG, VA.—Petersburg St. Ry. 3% m, 4-8% g, 42 & 47 ib r, 9 c, 2 b, 35 mu. George Beadie, Prop. 7
PiHLADELPHIA, PA.—Citizens' Pass. Ry. Co.

Prop. 7
PHILADELPHIA, PA.—Citizens' Pass. Ry. Co. 10½ m, 5-2 g, 45 47 lb r, 86 c, 470 h. Pres. John McCarthy, Sec. & Treas. J. Q. Adams, Sup. H. C. Keen, Office, n w cor. 12th and Susquehanna ave. Capital, \$192,500.

\$192,500. a
Empire Pass. Ry. Co. 8½ m, 5-2 g, 45 ib r, 32 c, 250
h, Pres. James McManes, Sec. and Treas. John 1.
Adams. Office, n w cor. 12tb st. and Susquehanna

Auans. Onice, a wood average av. a Frankford & Southwark Phila. City Pass. R.R. Co. 18.10 m,5-2g, 47 lb r, 100 c, 8 dummies, 650 h. Pres. John Nobilt, Sec. Thos. S. Harris, Treas, R. C. Brewster, Supt. T. E. Cox. Capital, \$750,000. Office, 2501 Kensington ave. a Germantown Pass. Ry. Co. 29½ m, 5-2½ g, 47 lb r, Cars and horses, leased. Pres. Craig D. Ritchie, Sec. & Treas. Lewis S. Renshaw. Office, 1,001 Chestnut st.

nut st. f
Green & Coates R. R. Co. (Leased to People's Pass.

Ry. Co.) Pres. John B. Parsons, Asst. to Pres. Toos C. Barr, Auditor Chas. W. Carr, Sec. & Treas. David C. Golden, Supt. Chas. S. Wbiting. Office, 8th & Daupbin sts. 8

Hestonville, Mantua & Fairmount Pass. R.R. Co. 20 m, 5-4½ g, 45 ib r, 60 c, 500 b. Pres. Charles H. Lafferty, Sec. & Treas. W. C. Foster. Office, 4,300 Lancaster ave.

Lombard & South Sts. Pass. Ry. Co. 10 m, 5-2 g, 43 lb. r, 51 c, 276 b. Pres. John B. Parsons, Sec. & Treas. Thos. C. Barr, Supt. J. H. Fresb. Office, 25th & South sts. k
Manayunk & Royborough Incline Piane & Ry. Co. 5½ m, 5-2½ g, 45 lb r, 8 c, 33 h. Pres. C. J. Waiton, Sec. W. H. Lewis, Treas. C. J. McGlinchey, Supt. A. Tubben. Tibben.

ibben. 9 People's i'ass. Ry. Co. 45 m, 5-2 g, 47 lb r, 125 c, 1153 Pres. John B Parsons, Sec. & Treas. D. C. Colden, upt. Chas. S. Whiting. Office, 8tb & Dauphin

Stepladelphia City Pass. Ry. Co. 12.417 m. 5-2½ g. 47
& 78 lb r. 132 c. 708 h. Pres. Wm. W. Colket, Sec. &
Treas. T. W. Pennypacker. (Leased to W. Phila.
Pass. Ry. Co.) Office. 202 Walnut place. &
Philadelphia Tarciton Co. 109 m. 5-2½ g. 47 lb r.
504 c. 2008 h. Pres. W. H. Kemble, V. Pres. P. A. B.
Widener & W. L. Elkins, Sec. & Treas. D. W. Dickson,
Engr. A. D. Whitton. Office, n w cor. 41st and
Haverford sts. '
Philadelphia & Darby Ry. Co. 6½ m. 5-2½ g. 42
lb r. road leased. Pres. C. L. Borie, Sec. and Treas.
Wm. W. Colket. Office, 202 Walnut pl. Leased to
Philad Cit. Pass. Ry. Co. 15m, 5-2½ g. 42
lb r. road leased. Pres. C. L. Borie, Sec. and Treas.
Wm. W. Colket. Office, 202 Walnut pl. Leased to
Philad Cit. Pass. Ry. Co. 15m, 5-2½ g. 42
lb r. road leased. Pres. C. L. Borie, Sec. and Treas.
Wm. W. Colket. Office, 202 Walnut pl. Leased to
Philad Cit. Pass. Ry. Co. 15m, 5-24 g. 47
lb r. 64 c. 200 h. Pres. Mathew Brooks, Treas. J. C.
Dawes. Sec. J. Crawford Dawes. Subt. Patrick Lovett.
Office, 36th st. and Gray's Ferry Rd. '
Ridge Ave. Pass. Ry. Co. 15m, 51 g. 47 lb r., 63 c. 350
b. Pres. E. B. Edwards, Sec. & Treas. Wm. S. Bilght,
Supt. Wm. Myers, Engr. Morris Vose. '
Second & Third St. Pass. Ry. Co. 37 m. 5-2½ g. 43
by. Stephens. Office, 2655 Frankford ave. a
Seventeenth & Nimeteenth Sts. Pass. Ry. Co. 7½ m.
Pres. Matthew S. Quay, Sec. & Treas. John B. Pedd.
Co. 100 p. 200 p. Pres. Toos. W. Ackley. Sec. & Treas.
Alex. Rennick, Supt. Wm. P. Cooper. Office,
16th & Cumberland Sts. a
Union Pass. Ry. Co. 70 m. 348 c. 1,724 h. Pres.
Wm. H. Kemble, Sec. & Treas. John B. Peddle, Supt.
Jacob C. Petty. (Leased to Phila. Traction Co.)
West Philadelphia Pass. Ry. Co. 18½ m. 5-2½ g. 47
lb r., 122 c. 112 h. Pres. Peter A. B. Widener, Sec. &
Treas. Alex. Rennick, Supt. Wm. P. Cooper.
Gark R. Co. 2½ m. 45 g. 35 lb r. 4 c. 15 h. Pres.
Daniel Runkle, Sec. & Treas. John B. Peddle, Supt.
Jacob C. Petty. (Leased to Phila. Traction Co.)
West Philadelphia Pass. Ry. Co. 18½ m. 5-2½ g. 47
lb r., 122 c. 136 h. pres. Thomas. W. Long.
P

tell. 7
PORTLAND, ME.—Ocean St. R.R. Co. Operated by Portland R. R. Co. 12
Portland R.R. Co. 9½ m, 4-8½ g, 35-45 lb r, 36.c,

# THE SHORT & NESMITH SERIES ELECTRICAL RAILWAY SYSTEM

OF THE

# United States Electric Company, DENVER, COLORADO, U.S.A.

This Series System of Electrical Railway solves the problem of electrical traction. It has no disagreeable features. No unsightly poles on the street; there being but one wire in the track way, no shocking can occur. The simplicity and practical construction of the system, and the fact that it is the only one on which a large number of cars can be operated, makes it the system which will immediately come into general use.

See description in "Street Railway Journal" for July, 1887.

# Bentley-Knight Electric Railway Co., 115 Broadway, New York.

CONTRACTORS FOR THE CONSTRUCTION OF CITY STREET RAILWAYS AND SUBURBAN TRAMWAYS USING EITHER UNDERGROUND, SURFACE OR ELEVATED CONDUCTORS.

#### Estimates furnished on application.

N. B.—The Bentley-Knight Electric Railway Company absolutely controls all efficient and economic methods of operating electrically equipped cars by means of conductors contained in and protected by sub-surface conduits. Entering the field long in advance of all others, it first encountered the many difficulties which had to be met and overcome; and the many patents now owned and controlled by it, effectually cover each and every detail (both mechanical and electrical) necessary to the successful construction and operation of an electric railway in a city street.

167 h. Pres. H. J. Libby, Treas. & Gen. Man. E. A. Newman. Office, 484 Congress st. 4

PORTLAND, ORE.—Portland St. Ry. Co. 2 m, 3-6 g, 25-42lb T,11 C,40 h. Pres. Jos. Holladay, Sec & Supt. C. K. Harbaugh. Office, 104 Fourth st. k. Multnomah St. Ry. Co. 22 m, 3-6 g, 30 lb T, 19 C, 65 h. Pres. A. N. King, Sec. E. A. King, Supt. W. J. Matchette. Office, 294 Washington st. J. Transcontinental St. Ry. Co. 10 m, 3-6 g, 25-38 lb T, 24 c, 100 h. Pres. & Gen. Man. Tyler Woodward, Sec. D. W. Wakefield. Office, 145 G st. b. PORTSMOUTH, O.—Portsmouth St. R. R. Co. 2 m, 3-6 g, 18 lb T, 4 c, 10 h. Pres. James Skelton, Treas., Sec. & Supt. Enos Reed. a. POTTSVILLE, PA.—People'SRy. Co. 4½ m, 4-8½ g, 45-106 lb T, 16 C, 54 h. Pres. T. A. Reilly, Sec. & Supt. Wm. D. Pollard. 9

POUGHKEEPSIE, N. Y.—City R. R. Co. 4 m, 4-8½ g, 35-42 lb T, 11 C, 39 h. Pres. Geo. B, Adriance, V. Pres. & Treas. Hudson Taylor, Sec. A. B. Smith, Supt. C. M. Davis. Office 491 Main st. f. PROVIDENCE, R. I.—Union R.R. Co. 53.8 m, 48 g, 47-54 lb T, 277 c, 1,400 h. Pres. Jesse Metcaif, V. Pres. & Gen. Man. D. F. Longstreet, Sec. and Treas. C. A. Babcock, Auditor B. A. Jackson, Engr. Geo. C. Tingley, Office, Market Sq. k. PUEBLO, GOL.—Pucblo St. Ry. Co. 5 m, 3 g, 22 lo Iron T, 8 c, 28 h. Pres. J. B. Osman, V. Pres. J. K. Moore, Sec. & Supt. J. T. Clark, Treas. J. N. Carlisle, 5

QUEBEC, CAN.—Quebec St. Ry. Co. 3 m, 4-834

lo iron r, 8 c, 28 h. Pres, J. B. Osman, V. Pres, J. K. Moore, Sec, & Supt, J. T. Clark, Treas, J. N. Carlisle. 5

QUEBEC, CAN.—Quebec St. Ry. Co. 3 m, 4.8½ g, 45 lb r, 9 c, 46 h. Pres. Chas. St. Michel, Quebec, V. Pres. G. R. Renfrew, Quebec, Sec., Treas. & Supt. Samuel Moore. b. St. John St. Ry. Co. Lim, 1½ m, 4.8½ g, 35 lb r, 4 c. 23 h. Runs 4 'buses out 4 m. from city limits, Pres. Jos. W. Henry, V. Pres. A. Robertson, Sec. & Man. W. W. Martin. QUINCY, ILL.—Quincy Horse Ry. & Carrying Co. 6 m, 5 g, 71 lb r, 21 c, 118 mu. Pres. Lorenzo Buli, V. Pres. C. H. Bull, Sec. & Treas. E. J. Parker, Supt. E. K. Stone.

RACINE, WIS.—Belle City St. Ry. Co. 4 m, 4 g, 32 lb r, 9 c, 40h. Pres. Geo. B. Hathaway, Sec. & Treas. J. E. Dodge. Office, 716 Park ave. d.

RALEIGH, N. C.—Raleigh St. Ry. Co. 5 m, 4.8½ g, 16 T steel r, 6 c, 36 mu. Pres. V. E. Turner, Sec. & Treas. R. T. Gray, Atty. F. H. Busbee. Captal stock, \$25,000. 6

RAPID CITY, DAK.—Rapid City St. Ry. Co. 1½ m, 4g, lb r, 2 c, 4 h. Pres. Fred. T. Evans, Sec. & Treas. G. Schnasse. a

READING, PA.—Reading City Pass. Ry. Co. 4 m, 5-2½ g, 47, 50 & 52 lb r, 30 c, 125 h. Pres. B. F. Owen, V. Pres. Jas. L. Dourlas, Sec. & Treas. H. A. Muhlenberg, Supt, J. A. Rigg. Office, 537 S, 6th st. a
Perklomen Ave. Pass. Ry. Co. 4½ m, 5-2½ g, 38 45 lb r, 18 c, 75 h. Pres. Chas. Breneiser, Sec. & Treas. lsaac Hiester, Supt. John B. Houp. Office, Perklomen ave. & 19th St. e

RED OAK, IA.—Red Oak St. R.R. Co. 1½ m, 4-2½ g, 20 lb r, 2 c, 4 h. Pres. John B. Houp. Office, Perklomen ave. & 19th St. e

RED OAK, IA.—Red Oak St. R.R. Co. 1½ m, 4-2½ g, 20 lb r, 2 c, 4 h. Pres. John B. Houp. Office, Perklomen ave. & 19th St. e

RED OAK, IA.—Red Oak St. R.R. Co. 1½ m, 4-2½ g, 20 lb r, 2 c, 4 h. Pres. John B. Houp. Office, Perklomen ave. & 19th St. e

RED OAK, IA.—Red Oak St. R.R. Co. 1½ m, 4-2½ g, 20 lb r, 12 c, 40 h. Pres. J. C. Shaffer. V. Pres. J. F. Müller, Sec. & Treas. II. I. Miller. e

RICHMOND, VA.—Richmond City R. Co. 7½ m.

3 c, 20 lb r, 13c, 40h. Pres, J. C. Shaffer, V. Pres, J. F. Miller, Sec. & Treas. H. I. Miller. e RICHMOND, VA.—Richmond City Ry. Co. 7½ m. 4 8½ g, 30-40 lb r, 42 c, 185 h. Pres. J. L. Schoolcraft, Treas. Walter Kidd, Man. C. M. Bolton, Supt. Charles Seldon.

4 \$\frac{3}{g}\$, 30.40 lb r, 42 \cdot c, 185 h. Pres. J. L. Schoolcraft, Treas. Walter Kidd, Man. C. M. Holton, Supt. Charles Seiden. \( a \) Richmond & Manchester Ry. Co. 3\frac{1}{2}\text{m}, 4.8\frac{1}{2}\text{g}, 38 lb r, 5 \cdot c, 26 h. Pres. J. E. Taylor, V. Pres. J. Bryan, Sec. & Treas. Jackson Brandt, Supt. B. R. Seiden. \( a \) Richmond Union Pass. Ry. Co. 13 m, 4.8\frac{1}{2}\text{g}, 45 lb r, 40 c, Sprague elec. motors, 2 on cach c. Pres. J. Thompson Brown. Sec. & Treas. John F. Barry. Capital. \$500,000. Office, 1,103 Bank st. c ROCHESTER, N. Y.—Rochester City & Brighton R.R. Co. 37 m, 4.8\frac{1}{2}\text{g}, 20,45-57 lb r, 170 c, 682 h. Pres. Patrick Barry, Sec. C. C. Woodworth, Treas. R. C. B. Woodworth, Supt. Thomas J. Brower. c Citizens' St. Ry. Co. Pres. Wm. 11. Jones, Sec. & Treas. J. E. Plerpont, Supt. S. A. Green.

ROCK FORD, H.L.—Rockford St. Ry. Co. 62-5 m, 4.8\frac{1}{2}\text{g}, 30-40 lb r, 13 c, 52 h, 26 mu. Pres. Anthony Haines, Sec. H. 11. hobinson, Treas. N. E. Lyman, Supt. Fred. Haines. c ROCK ISLAND, H.L.—Rock Island & Milan St. Ry. Co. 12 m, 4.8\frac{1}{2}\text{g}, 20, 30 & 40 lb r, 8 pass c, 8 ft c, 7 h, 2 motors. Pres. & supt. Bailey Davenport, Sec. C. C. Hunt, Treas. J. F. Robinson. c ROME, GA.—Rome St. Ry. Co. 1\frac{3}{2}\text{m}, 4-8\frac{1}{2}\text{g}, 20, 30 & 40 lb r, 2 motors. Pres. J. W. Rounsaville, S\( c \) J. L. Bass, Treas. J. F. Howell, Supt. & Pur. Agt. F. C. Hand. 6

ld fr, 1 1-h 3 2-h c. Pres. J. W. Rounsaville, Sfc. J. L. Bass, Treas. J. F. Howell, Supt. & Pur. Agt. F. C. Hand. 6

ROME, N. V.—Rome City St. Ry. Co. 634 m, 4-846 g, 384 lb r, 14 c, 75 h. Pres. Rowland F. Hill, 3 Broadst., New York: Sec. & Treas. Wm. Moores, New York: Supt. Wm. P. Rayland, 115 John st., Rome. 10

RONDOUT, N. V.—Kingston City R. R. 2.78

RONDOUT, N. V.—Kingston City R. R. 2.78

Schoonmaker, Auditor, Oscar L. Eastman, Gen. Man. Geo. Coykendall. 1

RUTLAND, VT.—Rutland St. Ry. Co. 8 m, 4-846 g, 20 lb r, 8 c, 30 h. Pres. John N. Woodfin, Treas. A. II. Tuttle, Supt. M. McKeogh. Office, 7½ Center st. g. SACRAMENTO. CAL.—Sacramento City Ry. Co. 121-horse and 10 2-aorse c, 60 h. Prop. R. S. Carey, Supt. Geo. W. Carey.

SAGINAW, MICH.—City of Saginaw St. R. R. Co. 2½ m, 4-836 g, 32 lb r, 14 c, 50 h. Pres. David H. Jerome, V. Pres. Geo. F. Williams, Sec. & Treas. Geo. 12. Burrows, Supt. Fred G. Benjamin. Office, 31 Court st. 5

SALEEM, MASS.—Naumkeag St. Ry. Co. 34 m.

Court st. 5 SALEH, MASS.—Naumkeag St. Ry. Co. 34 m, 48\sqrt{8} g, 35-45 lb tram & T r, 55 box 49 open c, 360 h. Pres Chis, Odell, Treas. Henry Wheatland. Office, 233 Essex st. 9

ESSEX St. 9
ALINA, KAN.—Salina Rv. Co. 2½ m, 3.6 g, 20
r, 32.h c, 18 mu. Pres. M. D. Berrington, Sec.
L. Dodge, Treas. M. D. Teague, Supt. C. F. Hil-

SALINA, N. Y .- Woodlawn and Butternut St. SALT LAKE CITY, UTAH.—Salt Lake City R.R.Co. 13 m, 4-8½ g, 20 lb r, 16 c, 106 mu. Pres. John Taylor, Sec. David McKenzie, Treas. James Jack, Supt. Orson P. Arnold. d

SAN ANTONIO, TEX.—San Antonio St. Ry. Co. 18 m, 4 g, 38 lb r, 40 c, 150 mu. Pres. A. Belknap, San Antonio, V. Pres. F. W. Pickard, N. Y. City, Treas. J. Withers, San Antonio, Sec. E. R. Norton, Supt. John Robb.

Antonio, V. Pres. F. W. Pickard, N. Y. City, Treas. J. Withers, San Antonio, Sec. E. R. Norton, Supt. John Robb. J. Prospect Hill St. R. R. Co. 1½ m., 1c, 2h. Pres. Sam. Maverick, v. Pres. & Gen. Man. P. J. Moss, Sec. Leonardo Garza, Treas. L. Wm. Menger. d. SAN BERNARDINO, CAL.—Motor road to Colton, owned by Mr. Button. 9. SANDUSK Y, O.—Sandusky, St. Ry. Co. 4 m., 4-8½ g, 32 lb r, 7 c, 28 h. Pres. Chas. V. Olds, Sec. & Treas. A. C. Moss, Supt. Clark Rude. a. SAN FRANCISCO, CAL.—California Street Cable R. R. Co. 7 m., 3-6 g, 34 lb r, 27 c, 25 dummles, 4 h. Pres. Chas. Mayne, V. Pres. Robt. Watt, Sec. T. W. Hinshman, Treas. A. Borei, Supt. J. W. Harris. Office, 1435 California st. g. Central R. R. Co. 12 m., 5 g, 45 lb r, 31 2-h & 26 1-h c, 293 h. Pres. Chas. F. Crocker, V. Pres. T. Hopkins, Sec. & Gen. Man. J. L. Willcutt, Treas. N. T. Smith, Supt. J. F. Clark. office, 4th & Townsend Sts. g. City R. R. Co. 11 m., 5 g, 45 lb r, 51 1-h 16 2-h c, 289 h. Pres. Leland Stanford, V. Pres. Chas. F. Crocker, Sec. & Gen. Man. J. L. Willcutt, Treas. N. T. Smith, Supt. J. F. Clark. office, 4th & Townsend Sts. g. Clay St. Hill R. R. Co. 2 m. 3-6 g, 30 lb r, 11 c, 12 dummy cars. Pres. Joseph Britton, V. Pres. Chas. Mayne, Treas. Henry L. Davis, Sec. Chas. P. Campbell. Office, s w cor. Clay & Leavenworth sts. h. Geary St., Park & Ocean R. R. Co. 8 m., (5 m cable, 3 m Steam) 5 g, 45 lb r, 30 c, 26 dummies, 4 motors. Pres. Chas. F. Crocker, V. Pres. Timothy Hopkins, Sec. & Gen. Man. J. L. Willcutt, Treas. N. T. Smith, Supt. Johnson Reynolds. Office, 4th & Townsend Sts. g. Market St. Cable Ry. Co. 25 m, 4-8½ g, 37-38 lb r, 20 ch. 25 h. Res. 24 land Stantond. V. Pres. Cable Ry. Co. 25 m, 4-8½ g, 37-38 lb r, 20 ch. 25 h. Res. 24 land Stantond. V. Pres. Cable Ry. Co. 25 m, 4-8½ g, 37-38 lb r, 20 ch. 25 h. Res. 24 land Stantond. V. Pres. Cable Ry. Co. 25 m, 4-8½ g, 37-38 lb r, 20 ch. 25 h. Res. 24 land Stantond. V. Pres. Cable Ry. Co. 25 m, 4-8½ g, 37-38 lb r, 20 ch. 25 h. Res. 24 land Stantond. V. Pres.

Set. & Geh. Man. J. L. Willcutt, Treas. N T. Smith, Supt. Johnson Reynolds. Office, 4th & Townsend sts. g
Market St. Cable Ry, Co. 25 m, 4.8½ g, 37-38 lb r, 38 cable c, 25 h c, 86 h. Pres. Leland Stanford, V. Pres. Chas. F. Crocker, Treas. N. T. Smith, Sec. & Gen. Man. J. L. Willcutt, Supt. A. W. Barron. Office, 4'h & Townsend sts. d
North Beach & Mission R. R. Co. 16 m, 5 g, 45 lb r, 50 two h. c, and 14 one h. c, 400 h. Pres. Albert Meyer, Sec. II. W. Hathorne, Treas. Wm, Alvord, Supt. M. Skelly. Office, 4th & Louisa sts. h
Ocean Beach Ry. Co. (operated by Market St. Cable Ry Co.) 2 m, 48½ g. Pres. Leland Stanford, V. Pres Chas. F. Crocker, Treas. N. T. Smith, Sec. J. L. Willcutt. Office, 4th & Townsend sts. d
Omnibus R. R. & Cable Co. 18 m, 5 g, 40-45 lb r, 60 c, 400 h. Pres. Gustav Sutro, V. Pres. D. Skein, Sec. G. Ruegg, Supt. M. Martin. Office 727 Howard st. Will soon change to cable. g
Park & Ocean R. R. Co. 8 m, 35 and 40lb r, 4-8½ g, 7 dummy engines, 16 pass. c, 6 flat and section c. Pres. Chas. F. Crocker, V. Pres. Timothy Hopkins, Treas. N. T. Smith, Sec. J. L. Willcutt. Office, 4th & Townsend sts. Operated by Market St. Cable Ry. Co. d
Potrero & Bay View R. R. Co. 3 m, 5 g, 35 lb r,

Treas. N. T. Smith, Sec. J. L. Willcutt. Office, 4th & Townsend sts. Operated by Market St. Cable Ry. Co. d
Potrero & Bay View R. R. Co. 3 m, 5 g, 35 lb r, 10 1-h 10 2-h c, 43 h. Pres. Leland Stanford, V. Pres. Chas. Crocker, Treas. N. T. Smith, Sec. & Gen. Man. J. L. Willcutt, Supt. II. O. Rogers. Office, 4th & Townsend sts. d
Sutter St. R. R. Co. 14 m, 4-11 g, 45 lb r, 50 c, 185 h. Pres. R. F. Morrow, Sec. A. K. Stevens, Treas. M. Schmitt. Office, cor. Sutter & Polk sts. f
Telegraph Hill R. R. Co. 1,560 ft, 4-8½ g, 45 lb r, 2 c, —h. Pres. Gustave Sutro, V. Pres. C. Kohler. Sec. & Supt. Chas. J. Werner. Suspended operations. Cable taken up and stored away. e
SAN JOSE, CAL.—San Jose & Santa Clara R.R. Co. 8½ m, 4-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. McMurtry, Treas. Jacob Rich, Sec. E. M. Rosenthal, Man. Wm. Fitts. Office, 20 W. Santa Clara st. h
First St. R. R. 4½ m, 3 g, 20 lb r, 6 c, 30 h. Jacob Rich, Sole Owner; Sec. E. M. Rosenthal. Office, 20 Santa Clara st. 12
First St. & San Pedro St. Depot R. R. Co. Pres. Frank C. Bethel.
North Side Horse R.R. Co. 2½ m, 3 g, 16 lb r, 3 c, 10 h. Pres. & Man. Jacob Rich, Sec. E. M. Rosenthal, Treas. S. A. Bishop. f
Willow Glen R.R. 7½ m, 3 g, 20 lb r, 8 c, 30 h. Sole owner Jacob Rich, Sec. E. M. Rosenthal, Office 20 W. Santa Clara st. k
SANTA BARBARA, CAL.—Santa Barbara St. R.R. Co. 22-5 m, 3-6 g, 3 c, 12 mu. Pres. A. F. McPhall. Office, State st. 5
SANTA ROSA, CAL.—Santa Rosa St. Ry. Co. 1% M, 3 g, 32 lb tram r, 2 1-h 2 2-h c, 6 h. Pres. & Treas. M. L. McDonald, Sec., Supt. and Pur. Agt. J. B. Reed. 9
SARNIA, CAN.—Sarnia St. Ry. Co. 5 m, 4-8 g, 32 lb tr, 2 c, 9 h. Pres. J. F. Lester, Sec. & Treas. Thos. Symington. Supt. Henry W. Mills. Office, Canadian

SARNIA, CAN.—Sarnia St. Ry. Co. 5m, 4-8 g, 32 lb r, 2 c, 9 h. Pres. J. F.Lester, Sec. & Treas. Thos. Symington, Supt. Henry W. Milis. Office, Canadian

Symington, Supt. Henry W. Milis. Office, Canadian Block. c
SAUGATUCK, CONN.—Westport & Saugatuck Horse R. R. Co. (See Westport, Conn.)
SAVANNAH, GA.—City & Suburban R. R. 12½ m steam line, 6 m street line, 5 g, 35, 38 & 42 lb r, 40 street c, 12 steam c. 130 h, 3 engines. Pres. J. H. Johnston, Sec. A. L. Hartridge, Treas. E. Schmidt. 1 Coast Line R.R. Co. 7 m, 5 g, 35 lb r, 17 c, engine, 35 h, 5 m suburban line 35 lb T r steam. Pres. Geo. Parsons, New York. Sec., Treas. & Gen. Man. R. E. Cobb. Savannah. Office, Bolton st. c
SCHENECTADY, N. Y.—Schenectady St. Ry. Co. 2 m, 4-8½ g, 40 lb steel girder r, 5 c, 28 h. Pres. A. Gen. Man. Alfred Ely, 29 Nassaust., New York, Supt. & Pur. Agt. D. G. Christie, Schenectady.
SCRANTON, PA.—People's St. Ry. Co. of Luzerne Co. 10 m, 4-8½ g, 25-40-52 lb r, 20 c, 90 h. Pres. Wm. Matthews, Sec. & Treas. Horace E. Hayd, Supt. F. Pearce. k
Scranton Suburban Ry. Co. 4 m, 4-8½ g, 52 h fist.

Wm. Matthews, Sec. & Treas. Horace E. Haya, Supt. F. Pearce. k
Scranton Suburban Ry. Co. 4 m, 4-8½ g, 52 lb flat & 42 lb Tr, 5 c, operated by electricity, Van Depoele system; overhead conductor. Pres. Edward B. Sturges, Treas. T. F. Torrey, Sec. Geo. Sanderson. Supt. John Latbrope. 6
SEARCY, ARK.—Searcy & West Point R.R. Co, 8 m, 4-8½ g, 20 lb r, 7 c, 8 mu. Pres. A. W. Yarnelt Sec. W. H. Lightle, Treas. Jasper Hicks.

SEATTLE, W. T.—Seattle St. Ry. Co. 4½ m, 4-8½ g, 25 & 30 lb T steel r for 2½ m, 35 lb flat steel r for 2 m, 7 c, 24 h. Pres. & Gen. Man. F. H. Osgood, Sec. Geo. Kinnear. a SEDALIA, MO.—Sedalia St. Ry. Co. 2½ m, 4-10 g, 22 lb r 6 c 25 h. Pres. Joseph D. Sicher, V. Pres. Louis Deutsch, Treas. F. H. Guenther, Sec. Chas. S. Conrad.

S. Conrad. f
SELMA, ALA.—Selma St. R.R. Co. 2½ m, 5 g, 20
br, 7c, 7h. Pres. H. L. McKee, Sec. J. F. Brown, g
SEVASTOPOI., IA.—Des Moines & Sevastopoi
St. Ry. Co. 2 m, 4g, 20 br, 3 c, 10h. Pres. G. Van
Ginkel, Sec. G. C. Van Ginkel, Treas. John Weber. a
SHERMAN, TEX.—Sherman City R. R. Co. 4 m,
5 g, 20 lbr, 9 c, 54 mu. Pres. C. W. Batsell, Treas.
J. M. Batsell. Sec. C. W. Batsell, Jr. d

SHERMAN, TEX.—Sherman City R. R. CO. 4 m, 5 g, 20 lb r, 9 c, 54 mu. Pres. C. W. Batsell, Treas. J. M. Batsell. Sec. C. W. Batsell, Jr. d SHREVEPORT, LA.—Shreveport City R.R. CO. 1½ m, 44 g, 46 lb r, 6 c. 14 h. Pres. Peter Youree. 9 SHLVER CLIFF, COL.—Sliver Cliff St. R.R. CO. 15 m, 44 g, 46 lb r, 6 c. 14 h. Pres. Peter Youree. 9 SHLVER CLIFF, COL.—Sliver Cliff St. R.R. CO. SIOUX CITY, IA.—Sloux City St. Ry. CO. 8 m, 4 g, 30 lb r, 16 c, 125 h. Pres. Fred. T. Evans, V. Pres. D. A. Magee, Sec. & Treas. F. T. Evans, Jr. a Sloux City & Highland Park Motor Ry. CO. 4½ m, 4-8½ g, 30 lb T, dt. ghard Park Motor Ry. CO. 4½ m, 4-8½ g, 30 lb T, dt. ghard Park Motor Ry. CO. 4½ m, 4-8½ g, 30 lb T, dt. ghard Park Motor Ry. CO. 4½ m, 4-8½ g, 30 lb T, dt. ghard Park Motor Ry. CO. 4½ m, 4-8½ g, 30 lb T, dt. ghard Park Motor Ry. CO. 6 motor Which St. Ry. CO. 10 m. 4 8½ g, 7 and s.b r, 13 2-h c, 44 h. Pres. J. W. Boynton, Sec. W. Buth Miller. a South Bend & Mishawaka St. Ry. CO. 10 m. 4 8½ g, T and s.b r, 13 2-h c, 44 h. Pres. J. W. Boynton, Sec. & Treas. E. W. Ellithorp, Mishawaka, Ind. SOUTH CHICAGO, H.L.—South Chicago City Ry. CO. 6 m for which 3 m are 40 lb Johnson girder r, 1½ m 35 lb tram & ½ m T r), 7 c, 37 h. Pres. Jouglass S. Taylor, Sec. & Supt. Andrew Krimbill, Treas. C. O. Pomeroy. Office, 46 calumet Bidg, Chicago. e SPRINGFIELD, H.L.—Cittzens' St. R. R. CO. 8½ m, 3-6 g, 20 & 36 lb r, 31 c, 100 mu. Pres. J. H. Schuck, Sec. Chas. Herrman, Treas. Frank Reisch. Office Washington st. 5 pringfield City Ry. Co. 7 m, 4-8½ g, 30-45 lb r, 10 open & 10 box c, 85 mu. & h. Pres. A. L. Ide, V. Pres. Geo. H. Black, Treas. Wm. Ridgeley, Sec. Geo. Brinkerhoff, Supt. Irwin Johnson. Office, Monroe st., bet. 4th & 5th. d
SPRINGFIELD, MASS.—Springfield St. Ry. Co. 9½ m. 4-8½ g, 33 lb r, 40 c, 170 h. Pres. John Olmsted, Auditor L. E. Ladd, Clerk Gideon Wells, Treas. A. E. Smith, Supt. F. E. King. Office, 1 Main st. a SPRINGFIELD, MO.—Cittzens' St. R.R. Co. 11½ Springfield and No. Springfield, 7 m, 4-8½ g, 33-40 lb r, 15 c, 28 h, 48 mu. Pres

N. 42, 30 lb r, 30 c, 145 h. Pres. D. W. Stroud, V. Pres. H. S. Bushnell, Treas. Ross Mitchell, Sec. F. S. Penfield. a
STAFFORD, KAN.—Stafford St. Ry. Co. 1m, T. 7. 3 2-h c, 12 h. Pres., Supt. and Pur. Agt. John Clyne, S-c. J. H. Cothness, Treas. Frank Cox.
STAMFORD, CONN.—Stafford Horse R. R. Co. 5½ m, 4-8½ g, 10 c, 40 h. Pres. Wm. R. Fosdick, Supt. Wm. H. Hay. 10
STATEN ISLAND, N.Y.—Staten Island Shore Ry. 9 m, 4-8½ g, 25 lb T r, 10 c, 40 h. Supt. Thos. Moore. Office, Tompkinsville. 8
ST. CATHARINE'S, ONT.—St. Catharine's, Merritton & Thorold St. Ry. Co. 6 m, 4-8½ g, 30 lb r, 12 c, van Depoele elec. system, 16 motors. Pres. E. A. Smyth, Sec. A. P. Frlesman, Supt. E. A. Smyth, Electrician Walter Bradley. Capital, \$50,000 b
ST. CLOUD, MINN.—St. Cloud St. Ry. Co. 3 m, 4-2g, 30 lb flat r, 51-h c, 12 h. Pres. C. P. McClure, Sec. F. Folman, Treas. A. G. Whitney. 6
STERLING: ILL—Rock River St. Ry. Co. 4 m, 4-8½ g, 20 lb T r, 8-h c, 45 h. Pres. Chas. D. Haines, Treas. A. G. Haines.
STILLWATER, MINN.—Union Depot St. Ry. & Transter Co. 7 m, 4-8½ g, 55 lb r. Receiver E. D. Buffington. 10
STILLIWATER, N. Y.—Stillwater & Mechanicsville St. Ry. Co. 4½ m, 4-8½ g, 25-30 lb r, 4 c, 6 h. Pres. W. L. Denison, V.-Pres, Lyman Smith, Gen. Supt. Peter Van Veghten, Sec. & Treas. Edw. 1. Wood. k
ST. JOHN. N. B.—St. John St. Ry. Co. 7 m, 4-8½ g, 45-(0) lb r, 15 c, 65 h. Pres. John R. Bothwell,

Wood. k
ST. JOHN. N. B.—St. John St. Ry. Co. 7 m,
48½ g, 45-t0 lb r, 15 c, 65 h. Pres. John R. Bothwell,
Treas. John F. Zebley. Office Room 39 Drexel Bldg.,
New York, and St. John, N. B.
ST. JOSEPH, MICH.—St. Joseph & Benton Harbor St. Ry. Co. 1½ m, 48 g, 39 lb r, 3 2-h c, 22 h, 4 mu.
Pres. & Supt. M. C. Burnes, Sec. & Treas. W. Bullinger.

ger. 9 ST. JOSEPH, MO.—Citizens' St. R.R. Co. 3 m, 4-8½ g, 28 lb r 14 c, 56 mu. Pres. Richard E. Turner, Sec. & Treas., Arthur Kirkpatrick, Supt. John F.

48½ g, 28 ib r 14 c, 56 mu. Pres. Richard E. Turner, Sec. & Treas., Arthur Kirkpatrick, Supt. John F. Merriam. c
Frederick Ave. Ry. Co. 3½ m, 48½ g, 42 lb r, 10c, 70 h & mu. Pres. D. D. Burnes, Sec. & Gen. Man. J. A. Corby, Treas. S. A. Walker. Office, 511 Francis st. d
Union Ry. Co. 9½ m, including 1 m elec., overhead wire, 48½ g, 20, 30, 35 & 52 lb r, 32 c, 110 h. Pres. Seymour Jenkins, Sec. & Treas. A. Steinacker, Supt. Chas. Wilson. Office, Highland & St. Joseph aves. c
ST. LOUIS, MO.—Baden & St. Louis R.R. Co. 3½ m, 49½ g, — lb r, 10 c, 23 h. Pres. George S. Case. V. Pres. William Z. Coleman, Supt. John W. Archer. Office, Broadway, near Baden ave. c
Benton-Bellefontaine Ry. Co. 8m, 410g, 52 lb r, 57 c, 234 h. Pres. Chas. Parsons. Sec. & Treas, Robert McCulloch. Office, 4288 N. 20th st. d
Cass Avenue & Fair Ground Ry. Co. 8½ m, 49½ g, 69 lb r, 34 c, 278 h, Pres. Julius S. Walsh, V. Pres. & Treas, Jas. Campbell, Sec. Patk. Gorry, Supt. M. J. Moran, Engr. Jas. Boland. Office, 2,900 Cass ave. c
Cittzens' R. R. Co. 21 m, 49½ g, 63 lb r, 80 combination, 40 grip, 60 open c, 225 h, 200 mu. Pres. Julius S. Walsh, V. Pres. J. P. Helfenstein, Supt. Chas. J. Luckner. Office, Easton ave., Three-mile House.
Forest Park, Laclede & Fourth St. Ry. Co. 5½ m, 410 g, 44 lb r, 20 c, 190 h. Pres. C. H. Turner, Sec. &

House. Forest Park, Laclede & Fourth St. Ry. Co. 5½ m, 4-10 g, 44 lb r, 20 c, 190 h. Pres. C. H. Turner. See & Treas. Wm. D. Henry. Office, 1,827 Market st.

GEORGE WESTINGHOUSE, JR., President. THOMAS B. KERR, Vice President and Secretary. JOHN CALDWELL, Treasurer.

#### THE OVERHEAD CONDUCTOR COMPANY, ELECTRIC RAILWAY

PITTSBURGH, PENN.

The Patents of JOSEPH R. FINNEY, No. 231,552, Aug. 24, 1880, reissued Nov. 2, 1882; No. 270,186, of Jan. 2, 1883; and No. 285 353, of Sept. 18, 1883, owned and controlled by this Company, COVER EVERY FORM OF APPARATUS for supplying electricity to electric machinery upon moving rehicles, making use of TRAVELERS or ROLLING CONTRACTS running upon OVERHEAD CONDUCTORS.

This Company owns and controls OTHER INVENTIONS of IMPORTANCE in Electric Railway Appliances.

(TEN CENTS per car-mile for HORSE POWER, for street railway service, Two-thirds as much to run with Electric Accumulators, Only One-third as much to run with Overhead Conductors.

#### THE OVERHEAD CONDUCTOR IS COMPARATIVELY INEXPENSIVE.

It is Quickly Erected. It is Not Necessarily Unsightly. It Does Not Waste Electric Energy. It Does Not Easily Get Out of Order.

Of the Fifteen Electric Street Railways, in successful operation in this country, in August, 1887, Thirteen are using the Overhead Conductor, and many others are under construction.

This Company is now prepared to license RAILWAY COMPANIES, CONTRACTORS, and others desiring to use its patented inventions upon OLD or NEW ROADS upon reasonable terms.

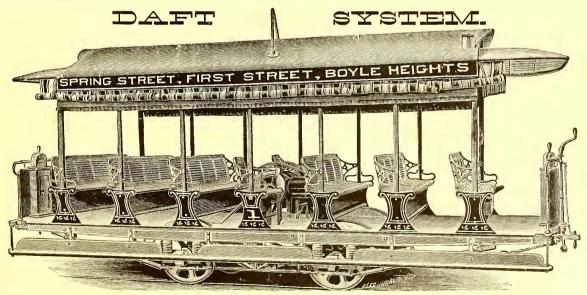
\*\*\*NOTICE is hereby given, that makers, sellers and users of infringing apparatus will be proceeded against. Information furnished upon application. Address all con munications to

THOMAS B. KERR, Vice President and Secretary, Pittsburgh, Pa.

# SAFETY ELECTRIC RAILWAY & POWER COMPANY.

Electric Railway Motors, Separate, or Attached Directly to Street or other Cars.

ELECTRIC LIGHT AND POWER MACHINES. ELECTRICAL CONDUCTORS.



We are prepared to equip railways with our electric system and supply Power and Light machines at the shortest notice.

The ONLY street railway in practical and economical operation by electricity in America is run by our system.

We guarantee the successful operation of our system. Heaviest grades no obstacle.

We are now building, in the city of Pittsburg, a road which will cost \$120,000. This road has a 14 per cent grade, and has overhead and underground conductors, if we material.

We are now building, in the city of Pittsburg, a road which will cost \$120,000. This road has a 14 per cent grade, and has overhead and underground conductors, and five motors.

The cost of electric power per car per day on the Baltimore road, operating our system, is \$4.00. Fifty or more cars could be run at an average of \$1.80 per day. The grade on this road is 350 feet per mile. Average speed, eight miles per hour. By horse power the speed was only four miles per hour, and the cost under the old system was \$6.50 per car per day. SEND FOR ESTINATES.

On receipt of full particulars of your road, or of power wanted, we will send you exact estimates for equipping and operating it by our system. SEND FOR CIRCULARS.

Office, 41 and 43 Wall Street, New York,

Jefferson Ave. Ry. Co. 5 m, 4-9 g, 56 lb r, 21 c, Pres. John Sculfin, V. Pres. Frank Carter, Sec. Jas. H. Roach, Treas. Clement M. Seaman. Office, Jefferson ave. & La Salle st. Lindell Ry. Co. 13½ m, 4-10 g, 45 lb r, 75 c, 407 h. Pres. John H. Maxon, Sec. & Treas. Geo. W. Baumhoff. Office, 2207 Washington ave. & Missourl R. R. Co. 11½ m, 4-10 g, 44 lb r, 50 c, 488 h. Pres. P. C. Maffit, Sec. Wm. D. Henry, Supt. James F, Davidson. Office, 1,827 Market st. e Mound City Ity. Co. Pres. John Scullin, V. Pres. Frank Carter, Sec. Jas. H. Roach, Treas. C. M. Seaman. Supt. Jas. Scullin. Office, 2,500A St. Louis ave.

Frank Carter, Sec. Jas. H. Roach, Treas. C. M. Seaman, Supt. Jas. Scullin. Office, 2,500A St. Louis ave. 7
Northern Central Ry. Co. 10½ m, 4-3½ g, 50 lb r. 61 c, 250 h. Pres. Julius S. Walsh, Sec. & Treas. Cbas. K. Dickson, Supt. John Mahoney, Forer an Wm. Hannigan, Cash. T. C. Callahan. Office, 2,401 Spring av. Peopie's R. R. S m, 4-10 g, 44 lb steef r, 58 2-h c, 28 lb. Pres. Chas. Green, Sec. Jos. Perry, Supt. Patrick Shea. Office, 1,810 Park ave.
Southern Ry. Co. 74-5 m, 4-10 g, 35-52 lb r, 52 c, 281 h. Pres. W. L. Johnson, Sec. Joe S. Minary. Supt. Jas. F. Uhl. Office, 4,041 So. Broadway.

St. Louis R. R. Co. 11 m, 4-10 g, 38-44 lb r, 58 c, 375 h. Pres. C. Peper, Sec. & Treas. R. B. Jennings, Supt. Chas. Ischer. Office, 3,710 N. Broadway.

St. Louis Cable & Western Ry. Co. 6 m, 4-10½ g, 47 lb r, 88 c. Pres. Dwight Tredway, Auditor & Man. A. de Figuelredo, Supt. S. M. Spirklin. Office, Franklin & Channing aves.

C. Tower Grove & Lafayette Ry. Co. Pres. Chas. Green, Sec. Joseph Perry, Supt. Patrick Shea. Office, 1,810 Park ave.
Union Depot R.R. Co. 16 m, 4-10 g, 45 lb r, 72 c, 375 h. Pres. John Scullin, V. Pres. & Treas. C. M. Seanan, Sec. Jas. H. Roach, Supt. Jas. Scullin. Engr. Wm. Jens. Office, Gravols & Jefferson aves. 7 Union Ry. Co. 8 m, 4-10 g, 52 lb r, 40 c, 230 h. Pres. Mashan, V. Pres. J. P. Helfenstein, Sec. & Treas. C. N. Duffy. Supt. Michael Moran. Office, Kossuth ave. Opposite Fair Grounds.

ST. PAUL, MHNN.—St. Paul City Ry. Co. 52 m, 4-8½ g, 32-33 lb T & glyder r, 11 2-h c, 30 h. Pres. A. F. Breed, Treas. F. H. Monks, Supt. G. F. Jones. Office, 35 Congress st., Boston.

ST. PAUL, MINN.—St. Paul City Ry. Co. 52 m, 4-8½ g, 45-52 lb r, 128 c, 650 h. & mu. Pres. Thos. Lowry V. Pres. C. G. Goodrich, Sec. A. Z. Levering, Treas. W. R. Merriam, Supt. A. L. Scott, Andlior & Cashler G. C. Eddings. Office, or. Oak, Forbes and R mssysts.

San Stroudsupperson.

G. C. Eddings. Office, cor. Oak, Forbes and Romsey Sts.

\*\*ROUDSBURG, PA.—Stroudsburg Passenger Ry. Co. 1½ m, 48½ g, 28-30 lb r, 3 c, 10 h. Pres. & Treas. J. Lantz, Sec. Jacob Houser. 4

\*\*ST. THOMAS, CAN.—St. Tbomas St. R. R. Co. 1½ n, 3-6 g, 30 lb r, 5 c, 9 h. Pres. Jos. Griffin, Sec. ¼ Treas. Geo. Wegg. 7

\*\*SYRACUSE, N. Y.—Syracuse & Onondaga R.R. Co. 23-5 m, 4-8½ g, 28-47 lb r, 10 c, 3) h. Pres. Peter Burns, V. Pres. Chas. P. Clark, Sec. & Treas. Lyman C. Smith, Supt. W. B. Thompson. Office, 165-80. Cllaton st. 10

Central City Ry. Co. 2½ m, 4-8½ g, 47 lb r, 14 c, 48 h. Pres. Daniel Pratt, V. Pres. Jouathan C. Chase, Sec. & Treas. James Barnes, Supt. & Pur. \*\*agt. George Crampton. 4 Syracuse Savings Bank Building. a Fifth Ward R.R. Co. 2½ m, 4-8½ g, 35-56 lb r, 8 c, 30 h. Pres. P. B. Brayton, V. Pres. Joun D. Grey, Sec. & Treas. O. C. Potter, Supt. Hugh Purnell. Office W. Washington St. 10

Genesee & Water St. R.R. Co. and Fourth Ward

W. Washington st. 10
Genesee & Water St. R.R. Co. and Fourth Ward
R. R. Co. 4 m, 4-8½ g, 37 & 47 lb r, 10 c, 47 h. Pres.
Robt. G. Wynkoop, Sec. & Treas. Geo. J. Gardner,
Supt. W. J. Hart. Office, Onondaga Savings Bank
Building.

Supt. W. J. Hart. Office, Onondaga Savings Bank Building. j New Brighton & Onondaga Valley R.R. Co. 17% m, 4-8 g, 16-35 lb r, 2 c, 6 h. 1 dummy. Pres. Matthlas Britton, Sec. T. W. Meacham, Treas. J. H. Anderson, Supt. Arthur G. Markham. Office, 58 W. Rallroad

Seventh Ward Ry. Co. 2 m, 4-8½ g, 47 lb s-b r, 6 l-h c, 25 h. Pres.. Sec. & Treas. &dw. F. Rice, Supt. F. Purnell. Office, 3 Hendrick's Block, Fayette

st.
Syracuse & Geddes Ry. Co. 2½ m, 48½ g, 30-45 lb r, 8c, 35 h. Pres. R. Nelson Gere, Sec. & Treas. Rasselas A. Bonta, Supt. Wm. J. Hart. Gen. offices, 1 Ononduga Co. Savings Bank Bullding.

TAMPA, FLA.—Tampa St. Ry. Co. 2½ m, 3-3 g, 25 lb r, 7 c, 2 dummies. Pres. C. A. Martinez Ybor, Sec. & Treas. G. T. Chamberlain, Supt. C. E. Parcell.

cell. c
TAUNTON, MASS.—Taunton St. Ry. Co. 4 m,
484 g, 14 c, 45 h. Pres. Wm. C. Lovering, Treas.
Henry M. Lovering, Clerk, Orville A. Barker, Supt.
Geo. C. Morse.

Henry M. Lovering, Clerk, Orville A. Barker, Supt. Geo. C. Morse. J. TERRE HAUTE, IND.—Terre llaute St. Ry. Co. 6 m, 4-8\forall g, 38 lb r. 16 c, 8 h, 76 mules. Pres. Jos. Collett, V. Pres. D. W. Mimshal. Sec. J. R. Paddock, Treas. W. R. McKeen, Supt. Jos. G. Eider. Office, 101 N. Ninth st. c. TEXARKANA, ARK.—Texarkana St. Ry. Co. 3 m. 3 g, 16 & 24 lb r, 6 c, 10 h. Pres. C. E. Mitchel, Sec. & Treas. Thos. Orr, Supt. B. M. Foreman. e. TOLEDO, OIIIO.—Toledo Consolidated St. Ry. Co. 21 m. 4-8\forall g, 42 lb r, 50 c, 255 h. Pres. & Treas. J. E. Balley, Sec. A. E. Lang. Supt. John Gilmartin.

J. E. Balley, Sec. A. E. Lang. Supt. John Ghinartin.

a Central Passenger R.R. Co. 9 m. 3 g, 27 lb r, 17 c, 80 h. Pres. F. E. Seagrave, Sec. C. F. Parkls, Treas. A. R. Seagrave, Supt. Joseph Murphy.

detropolitan St. R.R. Co. 10 m. 3 g, 28-35 lb r, 30 c, 113 h. Pres. & Sec. Jno. J. Shipherd, Treas. H. E. Wells, Supt. & Gen. Man. T. F. Shipherd. Office, Cherry st., near Bancroft.

6 TOPEKA, KAN.—Topeka City Ry. Co. 10½ m, 4 g, 23, 28 & 38 lb r, 27 c, 55 h, 64 mu. Pres. Joab Mulvane, V. Pres. D. W. Stormont. Sec. & Treas. E. Wilder, Supt. Seese Shaw. Office, 16 W. 10th ave.

b TORONTO, CAN.—Toronto St. Ry. Co. 66 m. 4 10½ g, 30 lb r, 180 c. 85 h. Pres. Frank Smith. Sec. Junes Gunn, Supt. John J. Franklin. Offices, 94 & 96 kin st., east.

j Trenton Horse R. R. Co. 5

Kin st., east. j TRENTON, N. J.—Trenton Horse R. R. Co. 5 m. 5 2 g, 45 lb r, 12 c, 54 h. Pres. Gen. Lewis Perrine, Sec. & Treas, Lewis Perrine, Jr., Supt. Thomas S Morris.

City Ry. Co. 10 m, 5-2½ g,35 lb r, 24 c, 108 h. Pres. Adam Exton, V. Pres. W. H. Skirm, Sec. H. B. Howell, Treas. & Mang. Director Chas. Y. Bamtord. Office, 264

Treas. & Mang. Director Chas. Y. Bamtord. Office, 264 Clinton ave. a

TRINIDAD, COL.—Trinidad St. Ry. Co. 1½ m, 3-2 g, 14 lb r, 2 c. 8 mu. Pres. S. H. Jaffa, Treas. T. B. Collier, Sec. R. L. Wootton, Supt. R. L. Pearson. c

TROY, N.Y.—Troy & Albia Ilorse R. R. Co. 3.33 m, 4-8½ g, 35-45 lb r, 10 c, 41 h. Pres. Thos. A. Knicker-backer, Sec. & Treas. Theo. E. Ilaslehurst, Supt. W. R. Bean. Office, 11 First st. a

Troy & Lauslagburgh R.R. Co. 21½ m, 4-8½ g, 45 lb r, 95 c, 420 h. Pres. Charles Clemiushaw, V. Pres. Jos. B. Carr. Sec. & Treas. Joseph J. Hagen. Asst. Supts. L. C. Brown and C. H. Smith. Office, 205 River St. a

River st. a. Tuskaloosa & Lake Lorraine St. Ry. Owned by Tuskaloosa & Castle Hill Real Estate & Manufacturing Co. 4½ m. 4-8½ g, 25 lb steel r, 5 c, 20 mu. Man., Sec. & Treas. S. F. URBANA, ILL. Turbaya.

Real Estate & Manufacturing Co. 4½ m. 4-8½ g, 23 lb steel r, 5 c, 20 mu. Man., Sec. & Treas. S. F. Alston. 8

URBANA, ILL.—Urbana & Champalgn St. Ry. Co. 2 m, 4-8½ g, 33 lb r, 4 c, 20 h. Pres. Wm. Park, Sec. & Treas. Frank G. Jaques, Supt. W. Park. 1

UTICA, N.Y.—Utlca, Clinton & Binghamton St. R. R. Pres. J.s. J. Scollard, Sec. & Treas. Robt. S. Willams, Leased to and operated by Utlca Belt Line St. R. R. Co. 1½ m, (2½ m more bullding), 4 8½ g, 30 lb center bearingr. 3 c, 8 h. Pres. Henry Ney, V. Pres. Danlel L. Jones, Jr., Sec. Frank J. Cronk, Treas. Wm. C. Willtox. Capital, \$40,000. Office, 71 Genesee st. b

Utlca & Mohawk R.R. Co. 3½ m, 4-8 g, 47 lb r, 8 c, 11 h. Pres. Jas. F. Mann, V. Pres. R. W. Sherman, Sec. Wm. E. Lewis, Treas. Geo. D. Dimon. Office, 26 Union Bidg. 4

Utlca Belt Line St. R.R. Co. 20m, 4-8½ g, 32 c, 97 h, Pres. J. Mather, V. Pres. J. W. Boyle, Treas. Chas W. Mather. 4

VALEJO, CAL.—Valejo St. Ry. Co. Ples. E. J. Wilson, Sec. S. G. Hilborn.

VICKSBURG, MISS.—Vicksburg St. Ry. Co. 1111 City R.R. Co. VINCENNES, IND.—Vincennes St. Ry. Co. 2½ m, 4-8½ g, 36 lb r, 4 c,24 h. Pres. & Treas. Fredk. Graeter, Sec. Geo. W. Graeter. Office, Fair Ground ave. 4

WACO, TEX.—Waco St. Ry. Co. 8 m, 4-8½ g, 38 d, 22 lb r, 15 c, 55 mu. Pres. E. Rotan, Sec. & Treas. W. R. Kellum, Supt. J. W. Sedberry. 5

WALTHIAM, MASS.—Waltham & Newton St. Ry. Co. 3.4 m, 3-8½ g, 36 k 2 lb r, 15 c, 55 mu. Pres. E. Rotan, Sec. & Treas. W. R. Kellum, Supt. J. W. Sedberry. 5

WALTHIAM, MASS.—Waltham & Newton St. Ry. Co. 3.4 m, 3-8½ g, 36 k 2 lb r, 15 c, 55 mu. Pres. E. Rotan, Sec. & Treas. W. R. Kellum, Supt. J. W. Sedberry. 5

WALTHIAM, MASS.—Waltham & Newton St. Ry. Co. 3.4 m, 3-8½ g, 36 k 2 lb r, 15 c, 55 mu. Pres. E. Rotan, Sec. & Treas. W. R. Kellum, Supt. J. W. Sedberry. 5

WALTHIAM, MASS.—Waltham & Newton St. Ry. Co. 3.4 m, 3-8½ g, 36 k 2 lb r, 15 c, 55 nu. Pres. E. Rotan, Sec. & Treas. W. R. Kellum, Supt. J. W. Sedberry. 5

WALTHIAM, MASS.—Waltham & Newton St. Ry. Co. 3.4 m, 3-8½ g, 36 k 2 lb r, 4 g br, 4 g br, 4 g br, 4

WALTHAM, MASS.—Waltham & Newton St. Ry. Co. 34, mj. 3-85 g, 36 & 42 lb., 8 c, 20 lb. Pres. R. E. Robbins, Treas. & Supt. Henry Bond. J WASHINGTON, D. C.—Capital, No. 9 St. & So. Washington R.R. 13½ m, 4 8 g, 35 lb r, 45 c, 176 h. Pres. C. White, Sec. & Treas. W. E. Boughton, Supt. Andrew Glass.

Anacostla & Potomac River Ry. Co. 3 m, 4-8 g, 37 lb r, 12 c, 30 h. Pres. & Supt. H. A. Girswold, Sec. & Treas. J. B. Pitcher. Office, Anacostla. D. C. g. Columbia R.R. Co. 5 n., 4-8 g, 18 lb crescent r, 24 l-h c, 73 h. Pres. H. A. Willard, Sec. & Treas. W. H. Willard, Sec. & Treas. W. H. W. Pearson, V. Pres. A. A. Wilson, Sec. & Treas. C. M. W. Pearson, V. Pres. A. A. Wilson, Sec. & Treas. W. J. Wilson, Supt. L. W. Emmart. Office 2411 P st., N. W. g. Washington & Georgetown R.R. Co. 20 m, 4-8½ g, 42 lb r, 173 c, 850 h. Pres. H. Hurt, Sec. & Treas. C. M. Koones, Gen. Supt. C. C. Saller.

WATERBURY, CONN.—Waterbury Horse R. R. Co. 5 km, 4-8½ g, 40 lb r, 13 c, 100 h. Pres. D. S. Plume, Sec. C. R. Baldwin, Treas. E. T. Turner, Supt. E. A. Bradley. Office, 4 Bank St. g.

WATERFORD, N. Y.—Waterford & Cohoes R. R. Co. 5 km, 4-8½ g, 45 lb r. Pres. Thos. Breslin, Sec. & Treas. C. d. Ormsby, Supt. E. A. Bradley. (Leased by the Troy & Lansingburgh R. R. Co.)

WATERFORD, N. Y.—Seneca Falls & Waterloo R. R. Co. 5 m. 4-8½ g, 40 lb r, 4 c. 2 dummles. Pres. W. H. Hartman, V. Pres. & Supt. J. A. Foye, Sec. & Treas. T. N. Kellogg.

WATERLOO, 1A.—Waterloo St. Ry. Co. 2 m, 3 g, 20 lb r, 2 c, 1 baggage wagon. 9 h. Pres. W. H. Hartman, V. Pres. & Supt. J. A. Foye, Sec. & Treas. T. N. Kellogg.

WATERLOO, N. Y.—Seneca Falls & Waterloo R. R. Co. 5 m. 4-8½ g, 40 lb r, 4 c. 2 dummles. Pres. S. L. WOLLLINGTON, KAN.—Cittlens' St. Ry. Co. 3 m, 4-8½ g, 20 lb r, 5 c. 6 lb. Pres. J. G. WATERLOO. 18 m. Sec. & Treas. T. W. Halpht.

WELLINGTON, KAN.—Cittlens' Ry. Co. 10 m, 5-2½ g, 45 lb T, 16 c, 60 h. Pres. Dr. Geo. B. Caldwell,

Ry. Co. 1½ m, 5-2 g, — ib r, 7 c, 22 mu. Pres. Geo. W. Busb, Supt. Sam'l A Price, Treas. E, T. Tay-lor. Office, Front & Union sts.

Wilmington City Ry. Co. 6½ m, 5-2 g, 47 lb r, 23 c, 81 h. Pres. W. Canby, Sec. & Treas. John F. Miller, Supt. Wm. H. Burnett. Office, Delaware ave. & Dupont st. f

Supt. Wm. H. Burnett. Office, Delaware ave. & Dupont st. f. WILMINGTON, N. C.—Wilmington St. Ry. Co-4-8½g, 25 lb °r, 10 2-hc, 40 h. Pres. D. Bellamy, Jr., Sec. Sol. C. Weill.

WINDSOR, CAN.—Sandwich & Windsor Passenger R.R. Co. Pres. Hearry Kennedy. 12 Windsor Electric St. Ry. Co. 1½ m, 1 motor, 2 cars. Van Depoele system; overhead conductor. Pres. W. M. Boomer, Sec. & Treas. A. H. Joseph. Office, 19 Sandwich st., W. 5 WINFIELD, KAN.—Unlon St. Ry. Co. 1½ m, 4 g, 28 lb r, 2c, 8 mu. Pres. A. J. Thompson, Sec. J. R. Clark, Treas. John A. Eaton. Capital, \$25,000. a WINNIPEG, MANITOBA, CAN.—The Winnipeg St. Ry. Co. 5 m, half single, half double, 4-8½ g, 35 lb r, 15 c, 15 sleighs, 100 b. Pres. Jas. Austin, Sec. & Mangr. Albert W. Austin, Supt. Geo. A. Young. 2 WINONA, MINN.—Winona City Ry. Co. 4 m, 3-6 g, 27 lb r, 10 c, 37 h. Pres. B. H. Langley, Sec. & Treas. C. H. Portee, Supt. L. Marlon. Office, 119 Center st. f

St. f
WOBURN, MASS.—No. Woburn St. R.R. Co.
4.82 m, 4.8½ g, 35 lb r with 42 lb Tr, 9 c, 26 h. Pres.
5. mos F. Breed, Treas. Frank H. Monks, Supt. Gliman F. Jones. Office, 35 Congress st., Boston. Consolidated with East Middlesex St. Ry. Co. Same of

solidated with East Middlesex St. Ry. Co. Same officers.

WOONSOCKET, R. I.—Woonsocket St. Ry. Co. 7 m, 4.8 \( \frac{1}{2} \) g, 30 \( \kappa \) 50 lb r, 20 c. Elec. power. Press. Horace A. Jenckes, Sec. Willard Kent, Treas. Francello G. Jillson. Capital, \$100,000.

Horace A. Jenokes, Sec. Willard Kent, Treas, Francello G. Jillson. Capital, \$100,00.

WORCESTER, MASS.—Worcester Consolidated St. ky. Co. 16 m, 4-8½ g, 351b flat r, 57 2-b c, 280 h. Pres. Chas. B. Pratt, Sec. & Treas. H. S. Seeley, Supt. J. N. Akarman. Office, 15 Market st.

WYMORE, NEB.—Wymore and Blue Springs Ry Co. 3½ m, 3-6 g, 4 c, 10 h. Pres. J. H. Reynolds, V. Pres. Ben Reynolds, Sec. & Treas. E. P. Reynolds, Jr., Supt. A. N. Bradfield. 3

YONKERS, N. Y.—Yonkers R. R. Co. 5 m. 4-8½ g, 42-48 lb r, 10 c, 70 h. Pres. D. N. Stanton, Sec. John P. Brennan, Treas. D. Perry Stanton. Office, 83 Main st. a

YORK, PA.—York St. Ry. Co. 1½ m, 4-8½ g, 38 lb r, 6 c, 11 h. Pres. W. H. Lannius, Sec. D. K. Trimmer, Treas. C. S. Weiser. Authorized capital. \$50,000. at YOUNGSTOWN, O.—Youngstown St. R.R. Co. 2½ m, 3 g, 24 & 27 lb r, 6 c, 18 h. Pres. John R. Davis, Sec. & Treas. Altred Smith. a

ZANESYILLE, O.—Zanesville & McIntire St. Ry. Co. 3 m, 3-6 g, 38 lb r, 12 c, 51 h & mu. Pres. F. M. Townsend, Sec. W. C. Townsend, Treas. O. H. Townsend. a

#### CABLE RAILWAYS.

BINGHAMTON, N. Y.—Washington St. & State

BIAGHASIAVA,
ASYlun R. R. CO.
CHICAGO, H.L.—Chicago City Ry. Co.
CINCINNATI, O.—Mt. Adams & Eden Park Inclined R. R. Co.
Mf. Auburn Cable Ry. Co.
Price Hill Inclined Plane R. R. Co.
HOBOKEN, N. J.—No Hudson Co. Ry. Co. Ele-

vated.

KANSAS CITY, MO.—Kansas City Cable Ry. Co. Corrivan consolldated St. Ry. Co. Grand Ave. Ry. Co.

LOS ANG ELES, CAL.—Second St. Cable Ry. Co. Los Angeles Cable Ry. Co. Temple St. Cable Ry. Co.

NEWBURYPORT, MASS.—Black Rocks & Salisbury Beach St. Ry Co.

NEWYORK, N. Y.—Third Ave. R. R. Co. Line on Teoth ave.

NEW YORK, N. Y.—Third Ave. A. A. On Tenth ave.
OAKLAND. CAL.—Oakland Cable Ry. Co.
OMAHA, NEB.—Cable Tramway Co of Omaha.
PEORIA, ILL.—Central Horse & Cable R. R. Co.
PHILADELPHIA, PA.—Phila. Traction Co.
SAN FRANCISCO, CAL.—California St. Cable R. R. Co.
Clay St. Hill R. R. Co.
Geary St. Park & Ocean R. R. Co.
Market St. Cable Ry. Co.
Omnibus R. R. & Cable Co.
Sutter St. R. R. Co.
Telegraph Hill R. R. Telegraph Hill R. R.
ST. LOUIS, MO.—St. Louis Cable & Western Ry

#### ELECTRIC RAILWAYS.

APPLETON, WIS.—Appleton Electric St. Ry. ASBURY PARK, N. J.—Seashore Electric Ry.

BALTIMORE, MD.—Baltimore Union Pass.

BALTIMORE, MD.—Baltimore Chief Talalway Co.

BINGHAMTON, N. Y.—Washington St. & State sylum R. R. Co.

DENVER. COL.—Denver Tramway Co.

DETROIT. MICH.—Detroit Electric Ry. Co.

Highland Park Ry. Co.

GRATIOT. MICH.—Gratlot Electric Ry. Co.

ITHACA, N. Y.—Ithaca St. Ry. Co.

KANSAS CITY, MO.—Kansas City Electric Ry.

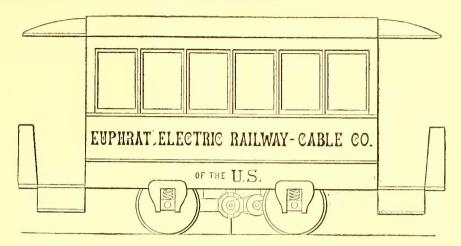
LIMA, O.—Lima St. Ry., Motor & Power Co.

LOS ANGELES, CAL.—Los Angeles Electric Ry. Co.

MANSFIELD, O. - Mansfield Elec. St. Ry. Co. MONTGOMERY, ALA.—Capital City Electric

PORT HURON, MICH.-Port Huron Electric Ry. Co.
RICHMOND, VA.—Richmond Union Pass. Ry.

SCRANTON, PA.—Scranton Suburban Ry. Co. SCRANTON, PA.—Scranton Suburban Ry. Co. ST. CATHARINE'S, CAN.—St. Catharine's, Merritton & Thorold St. Ry. Co.



# Euphrat Electric Railway-Cable Company

# Office: 137 BROADWAY, NEW YORK CITY, Room 15.

The Electric Railway-Cable recently patented by Mr. Frederic Euphrat is specially adapted to street railway service. It makes complete a system at once the most simple, the most effective and the least expensive of any method yet devised for using electricity as motive power for street passenger cars. It overcomes the obstacles that have stood in the way of adopting electric force as a substitute for horse power, and is adaptable to any good motor, and to ordinary street cars.

There is no longer any question about the feasibility of using electricity for street railways so far as efficiency in power and facility in working relate to it. Nor is there any question regarding its being a desirable substitute for horses. The difficult problem has been that of devising an economical system for supplying an electric current from conducting wires placed where they may be easily accessible and entirely available for the purpose, and yet be protected from accidental contact as well as from malicious tampering, and also secure from the great waste or diffusion of electric power consequent upon the wires being near to or under the surface of the

There is an increasing aversion to the use of horses for operating street railways, for sundry reasons, sanitary and humane. It has been demonstrated that such railways can be operated by electric motors supplied through overhead wires much less expensively than by horses and with at least equal facility; but there are insuperable objections to overhead wires, and inventive energy has been stimulated to its utmost to discover some way for supplying electric power that will be equally economical in costand working.

Experiments are making with storage batteries, some of which have worked admirably, but cars fitted with storage batteries are very costly and each one requires an expert to manage it. Besides, each car has only storage capacity enough to run four hours, and the same length of time is required for re-charging, so that every car must be out of running service at least half the time, twelve out of every twentyfour hours. Storage batteries therefore do not yet seem to be practicable for street railway service.

Conducting wires placed in conduits or air chambers underground is another system that has been in process of experimental development. Overhead wires do not require to be insulated except at the points of support, the air, at the usual distance from the ground, being a sufficient nonconductor to prevent waste or diffusion of electricity; but when these naked wires are brought near the ground or placed under the surface, not being covered with insulating material, the waste of electricity is so great as to make the cost of using it beyond the limits of practical economy. Thus far no conduit or dry air chamber has been devised that is not of itself too expensive to be practicable, besides not affording adequate protection from loss of electricity.

The problem is claimed to be solved by the Euphrat system, which entirely dispenses with storage batteries and overhead wires, and obviates any necessity for an expensive conduit or dry air chamber underground. It affords the only practicable way yet discovered of placing effectively insulated conducting wires of any desired length under the street surface, and supplying therefrom a direct and unbroken current of electricity to a traveling motor from a dynamo located at any one point most convenient for the purpose.

This is effected by an elastic insulating covering of the wires, which is provided with a slit or separable lips extending longitudinally its entire length, capable of opening to admit the passage of a moving brush or arm, and automatically closing immediately as the brush or arm passes, thus maintaining continuous contact with the conducting wire, which is also continuously insulated.

The conducting wires may be placed in a protecting conduit of the simplest construction, formed of wood and slot irons resting on and fastened to the cross-ties. These conduits may be provided with a simple drain underneath, kept clean by sewer connection or catch-pits at suitable distances along the line. Or the wires may be placed along the track rails above the surface, provided the rails are of suitable form for the purpose, and the need for a conduit thereby entirely obviated.

The Euphrat system possesses other, advantages:-Direct electric communication may be constantly maintained from the traveling motor to the generator and to any station along the line, and an electric current supplied for lighting the cars.

A company has been formed to introduce and promote the use of the Euphrat system. Estimates for construction will be prepared and licenses for using will be issued for single lines of railway or for territorial districts. Further information may be obtained by communicating with A. L. Earle or Frederic Euphrat, at the office of the company, No. 137 Broadway, Room 15, New York city.

See article on page 857 of this paper.

WICHITA, KAN.-Riverside & Suburban R. R.

CO.
WINDSOR, CAN.—Windsor Electric St. Ry. Co.
WOONSOCKET, R. I.—Woonsocket St. Ry. Co.

#### NEW ROADS.

ALBANY, GA.—Elec. ry. projected. 9
ALBANY, GA.—Albany St. Ry. Co. J. G. Stephens is interested. 9

ALBANY, G.A.—Albany St. Ry. Co. J. G. Stephens is interested.

ALLEGHENY, P.A.—Observatory Bill Pass. Ry. Co. 4 m, 5-2 g, 52 lb. Johnson steel r, 4 c, electric motors, 200 ll. P. Capital, \$125,000. Work now under way. Expect to open about Oct. 1. Pres. Oliver P. Scaife, Scc. Arthur Kennedy, Treas. Jas. B. Scott. Bentley-Knight system. 3 m overhead and 1 m conduit in city sis.

Allegheny Rapid Transit Co. From Nortbside bridge to California avenue.

Nunnery Hill Incline Plane Ry. Co. 1,200 ft., 5 g, 2 c, using wire rope and drum. Pres. Oliver P. Scaife, Capital, \$60,000. Will be opened about Oct. 1.

ALTON, ILL.—Alton impt Ass'n. To operate h. or cable rys. Pres. C. W. Milnor, V. Pres. H. Watson, Scc. & Treas. H. R. Phlnney. Capital, \$25,000. 10

ANNISTON, ALA.—Anniston St. Ry. Co. Work will begin at once. Pres. John W. Noble, Sec. & Treas. Wm. A. Davis. 9

W. B. Kearney and others of Birmingham ask for permission to build a dummy road.

ANSONIA, CONN.—Derby Horse Ry. Co. 3½ m, standard g, 46 lb r, 4 pass. 8 ft. c, 5 motors, Van Depoele system. Capital, \$40,000 paid fit; will increase to \$50,000 or \$60,000. Began work May 2; will be in operation in Oct. Pres. John B. Wallace, V. Pres. II. Ilotton Wood, Sec. & Treas. Wm. J. Clark, Birmingham, Supt. Jas. D. Kennedy. Office, 50 Main st. d

ASHEVILLE, N. C.—Asheville Imp't & St. R. R. Co. C. M. McLeod Is interested.

mingham, Supt. Jas. D. Kennedy. Office, 50 Main st. d

\*\*ASHEVILLE\*, N. C.—Asheville Imp't & St. R. R. Co. C. M. McLeod is interested. 7
Ohio parties talk of building a st. ry. 9
\*ASHILAND, KAN.—Ashland St. Ry. Co. Incorp'd by Jas. P. Wceks, Frank B. Brooks and others. Capital, \$5,000. 8
\*\*ASHILAND, WIS.—Ashland St. Ry. Co. 3 m, 4.8½ g, 35 lb r, 5 c, about 20 h. Road will be opened about Oct. 1. Pres. Edwin Ellis, Sec. W. M. Tomkins, Treas. Thos. Bardon, Supt. G. H. Hopper. Capital, \$50,600. h

\*\*ATCHISON, KAN.—Atchlson Rapid Transit St. & Road Ry. Co. Mechanical traction. John Price, J. W. Parker and others Incorporators. Capital, \$60,600. 5
\*\*ATHENS, TENN.—Athens Mineral Land & Imp't Co. are ready to receive bids for a new rathroad which they will build. 5
\*\*ATHENS, GA.—J. H. Dorsey will prob. build a line lieve. 8
\*\*ATLANTA., GA.—Harry Illil is organizing a scheme for a built st. my.

ine here. s
ATLANTA, GA.—Harry Ilill is organizing a scheme for a beit st. ry. 5.
Atlanta & Edgewood St. R. R. Co. 2 m, 2 steam dummies 4 c. 9

Atlanta & Edgewood St. R. R. Co. 2 m, 2 steam dummies, 4 c. 9
E. C. Peters will build a dummy line. 7
East Atlanta Land Co. will build a dummy line. 7
BACTIMORE, MD.—Baltimore, Brooklyn & Cedar Hill Ry. Co. 10 m, 5-2 g, 30 lb steel T r, 25 c, 70 h. Partly finished and road will be opened in Jan. Will run from Baltimore to Cedar Hill Cemetery, in Anne Arundel co., vla Light st. bridge and the town of Brooklyn. Capital, \$50,000 and \$50,000 lst mortgage bonds. Office, 305 St. Paul st. Pres. C. Orrick Swann, Sec. N. W. Paynter, Treas. Levi Condon, Supt. 1. M. Thompson. a 10
Baltimore & Sparrow's Point Ry. Co. has been incorp'd by Geo. Small, Fredk. W. Wood and Nicholas P. Bond. 9
BANGOR, ME.—Electric ry. 5

corp'd by Geo. Small, Fredk. W. Wood and Nicholas P. Bond. 9

BANGOR, ME.—Electric ry. 5

BAYONNE, N. I.—Elec. ry. talked of. 7

BELOIT, KAN.—Beloit City St. Ry. Co. Will begin work in spring, and finish road before close of year. 2m. Pres. D. W. Soper, Sec. F. T. Burnham, Treas. M. S. Atwood. Capital. 75,000. d 9

BELLEVUE, PA.—Elec. clevator and rr. Elevator runs to height of 90 ft.; from there plane runs back ½ m to center of town. Just completed. 10

BESSEMER, ALA.—Birmingham & Bessemer dummy line. J. W. Worthington & Co. have contract. 6 m, 4-8½ g, 40 lb r, steam power. Pres. W. P. Pinkard, Sec. & Treas. Mortis Adder. 9

Bessemer Dummy Line Co. incorp'd by E. A. Burke and others. Capital. \$250,000. 10

BIDDEFORD, ME.—Biddeford & Saco Horse R. R. To be operated by animal, electric or cable power. Pres. Stephen F. Shaw, Sec. Chas. H. Prescott, Treas. Chas. A. Moody. 9

BINGHAMTON, N. Y.—Court St. & East End R. R. Co. Will be built this fall. 2 m, 4-8½ g, 45 lb flat r, 31-h c, 12 or 15 h. Pres. Chas. M. Stone, Sec. & Treas. Wm. G. Phelps. Capital, \$20,0 0. 9

Washington St. & Spring Forest Cemetery Ry. Co. To be built in the spring, out Clinton st. toward the Ashery. 9

BIRMINGHAM. ALA.—Birmingham & Jones

To be built in the spring, out Clinton st. toward the Ashery. 9

BIRMINGHAM. ALA.—Blrmingham & Jones Valley St. R.R. 6 m, 45 lb, steel r. Heflin & Knox received proposals.

Smith & Eastman have made surveys for electric road to run 3 m from the city to their real estate near North Birmingham. 4.

Western Valley St. Ry. Co. 4 m. 4-8½ g, 24 lb r, 6 c, 20 mu; but will likely change motive power ultimately. Work to be commenced at once. Capital, \$50,000. Pres. J. C. Westbrook, V. Pres. W. E. Berry, Gen. Man. S. Torrey. 5

Walker Land Co. will build a dummy line. 8

BLOUNTSVILLE, ALA.—Dummy rr. to Bangor.

L. H. Matthewsis interested. 10

BOSTON, MASS.—West End St. Ry. Co. H. M. Whitney, Asa P. Potter, Eben D. Jordan and others incorporators. S to 15 m, 4-8½ g, 90 to 100 lb imported girder r with grooved head. Pres. H. M. Whitney, Treas. G. D. Braman, Clerk Elmer D. Howe. Hope to use electricity as motive power. Will lay 10 or 12 miles of track this year.

Suburban St. Ry. Co., proposes to lay tracks

Suburban St. Ry. Co., proposes to lay tracks through Park, Beacon, Arlington and Mariboro

streets to West Chester Park. 5 m, 4-8½ g. Pres. Henry M. Whitney. Sec. & Treas. G. D. Braman. Capital, \$50,000. Office, Equitable Building. b BRIDGETON, N. J.—Elec. ry. will be built here. 1 1-3 m, and if successful as much more will be built. Oberlin Smith is interested. 8

BRISTOL, VA.—Bristol-Goodson St. Ry. Co. has een incorporated. W. E. Chamberlain is inter-

BRISTOI, VA.—Bristol-Goodson St. Ry. Co. has been incorporated. W. E. Chamberlain is interested. 10

BROCKTON, MASS.—New co. projected in eastern part of city.

BROOKLYN, N. Y.—Annex St. Ry. Co., in progress, to be completed soon. Pres. F. M. Delano, New York, V. Pres. II. H. Adams, Brooklyn. Treas. Philip Richardson, New York. Office, 204 Montague st., Brooklyn, N. Y.

Brooklyn, N. Y.

Brooklyn & suburban St. Ry. Co. To run from Bedford ave. through Flatbush to Flatlands, with a branch to the Cemetery of the Holy Cross. Will use either horse or cable power. Geo. Malcom, Wm. Ziegler, Wm. J. Gaynor, Henry H. Adams, Jas. Ryan, Petter Sutter and Patk. McCanna, Directors. Paid-up capital, \$100,000. 4

Union Ry. Co. of the City of Brooklyn. 11

Brooklyn Heights Ry. Co. Capital, \$150,000. To build along Montague street from Court street to Wall Street Ferry. Will use electricity. Pres. S. B. Chittenden, V. Pres. John Jay Pierrepont, Sec. Geo. W. Chauncey, Treas. Michael Chauncey. ½ m, 4 g, about 50 lb r, 6 c. 7

Capitalists Interested in Calvary Cemetery road are building from Ash street to Park avenue. Pres. Jas. B. McKewen, Sec. Michael Just, Treas. John R. Connor, Man. D. W. Sullivan. 6

Franklin Ave. R. R. Incorporated May 21. To run from Grand and Second sts., in the Eastern District, via Second st., Wythe ave., Franklin ave., and Malbone st., to Flatbush ave., in the town of Flatbush. Capital, \$100,000. Wm. A. Wheelock and Walter R. Gorman of New York, and Thos. D. Jordan of Jersey City, are among the directors. 7

BRUNSWICK, GA.

BIFFALO, N. Y. – Buffalo West Side St. Ry. Co. Capital, \$50,000. To build to the Park via Elmwood ave., paying the city 36 per cent of gross receipts Composed of same parties who control Buffalo East Side Ry. Co. 9

Queen City St. Ry. Co. Capital, \$100,000. Pres. Geo. V. Forman. Olean, V. Pres. II. L. Taylor, Buffalo, Sec. Chas. M. Howe, Buffalo, Treas. W. W. Welch, Gowanda. 9

BUTTE, MONT. T.—Elec. ry. To be built in 4 montbs. Incorporators. Willard Bennett, Nelson

Sec. Chas. M. Howe, Buffalo, Treas. W. W. Welch, Gowanda.

BUTTE, MONT. T.—Elec. ry. To be built in 4 montbs. Incorporators, Willard Bennett, Nelson Bennett and S. E. Larable, C. O. Bean has charge of construction. Pres. W. Bennett, Sec. E. E. Congdon, Treas. W. A. Clark.

CALERA, ALA.—So. Calera Land & Imp't Co. Work in progress, and road will be opened about Nov. 1. 2½ m. standard g, 40 lb steel r, a dummy engine. Capital, \$150,000. Office, Calera. b. 8.

CANANDAIGUA, N. Y.—Canandaigua St. R. R. Co. Will be built this fall. Pres. Frank O. (hamberlain, Sec. Chas. F. Milliken, Treas. Alfred Denbow, Supt. Chas. L. Sackett.

CARBONDAILE, PA.—Carbondale & Jermyn Elec. Ry. 4½ m. 48½ g, 38 lb flat & Tr. 2 16-ft c, Sprague elec. motors. Work begun in July; will be opened soon. Capital, \$50,000. Pres. John W. Aiken, V. Pres. A. Mitchell, Sec. & Treas. M. Moscs.

a 8
CHARLESTON, W. VA.—Glenwood Co. will lay
out a town near the city and ultimately construct a
road 1½ m long. This is a land co. Supt. Benj.
Brown. Capital, \$55,400. 8
CHATTANOOGA, TENN.—North Side St. R. R.
Co. Incorporators, G. Lindenthal, C. C. Anderson
and others. 10
Tennessee River & Wolden's Place II. D.

Brown. Capital, \$55,400. 8

CHATTANOOGA, TENN.—North Side St R. R. Co. Incorporators, G. Lindenthal, C. C. Anderson and others. 10

Tennessee River & Walden's Ridge R. R. Co. Dummy line from Hill City to Walden's Ridge R. S. J. A Frazier, Join C. Griffiss and others incorporators, 8
City St, Ry. Co. has been organized by John T. Williamson and others. 6

CHESAPEAKE, O.—Chesapeake St, Ry. Co. has been incorporated. 7

CHLYENNR, WY. T.—Cheyenne St. Ry. Co. Will bulld 1'2 m by Nov. 1. Supt. ——Flanlgan. 9

CHICAGO, ILL.—The Crosstown Pass. Ry. Co. of Chicago, 30 m, 48 1-2 g, 45 lb r, 75 c, 500 to 800 h. Pres. Jobn J. Currar, Treas. Geo. P. Bunker, Sec, 2 Pur. Agt. Elias Curran. Capital stock, \$1,000,000. Gen. office, room 18, No. 164 Wasbington st. Time of commencement of work undecided. 1

Lakeside City St. Ry. Co. To operateh. or dummy roads in Chicago and its suburbs. Incorporators, Sam'l P. McConnell, C. H. Merrill and Theo. P. Elliott. Capital, \$250,000. 5

Union Pass. Ry. Co. incorp'd by James C. Page, Voina P. Sherwin and others. Capital, \$1,00,000. Horse, cable, elec. or steam. 9

CHICOPPEE, MASS.—New company started under the leadership of Haines Bros. Capital, \$25.000. Work to begin soon. Line to extend from Chicopee Falls through Chicopee Center to the point where the boundary line between Chicopee and Springfield crosses the Riverroad. About 4 m, 4 8½ g, not less than 35 lb r. Chas. D. Haines and Geo. W. Stetson of N. Y. City are the largest stockholders. 4

CHILLICOTHE, ILL.—Chillicothe St. Ry. Co. Incorp'd by Lindus S. Hoyt and others. Capital, \$25,000. 10

CINCINANTI, O.—Carden St. Ry. Co. incorp'a by Thos. B. McKearney and others. Capital, \$25,000. 00. Pres. R. W. Banks, Sec. & Treas. E. T. Sykes. Will build at once. 6

\$250,000. 10 US, MISS.—City R.R. Co. Capital, \$23,000. Pres. R. W. Banks, Sec. & Treas. E. T. Sykes. Will build at once. 6

COLUMBIA, TENN.—Columbia St. Ry. Co. 6 m, 4-8½ g, 4 c, 8 mu. Will be opened by Oct. 1. Capital, \$100,000. Pres. J. T. Craik, Sec. & Gen. Man. J. H. Dew. Treas. E. C. McDowell. d 10

COLUMBUS, O.—Third & Schuller St. R. R. Co. Franchise granted by City Council June 6. Cars must be running within 2 years. 3½ m, 5-2 g. May use electricity. Capital, \$75,000. Work will begin

as soon as stock is taken. Pres. P. E. Blesch, V. Pre 11. Mithoff, Sec. C. Herman, Treas. J. A. Kremer. d CORSICANA, TEX.—Co. formed, and has contracted for mat'l. 10

COVINGTON, GA.—W. C. Clark & Co. Incorporators and owners. 1 m, 20 or 30 lb r, 2 pass. c, 2 flat c, pass. cars for 1 h, 6 to 8 mu. or h. 2

CROOKSTON, MINN.—Crookston St. Ry. Co. Capital, \$100,000. Line to be built next year. Pres. Chas. E. Sawyer, Sec. John Cromb, Treas. A. D. Stepbens.

Stepbens. 8

DALTON, GA.—Dalton St. Ry. Co. Bids invited for iron, cars, etc. T. R. Jones, Secretary of Board of Directors.

DALLAS, TEX.—Dallas & Oak Cliff Ry. Co. 3½

m, 4-8½ g, 3 > lb r, 5 c, 2 motors, operated by steam.
Road will be finished by Oct. I. Capital, \$400,000.
Pres. T. L. Marsalls, V. Pres. Thos. Field, Sec. Frank Field, Treas. J. T. Elllott. e 9

DANVILLE, VA.—Danville St. Car Co. Now building, 1¾ m, 4-8½ g, 38 lb steel girder r, 7 1-h c, 20 mu. Pres. T. B. Fitzgerald, Sec. & Treas. P. R. Jones. 7

Jones. 7. B. Filegeraid, Sec. & Heas. F. R.

Jones. 7. DAVENPORT, IA.—Bridge, Second St. & Northwestern St. Ry. Co. Work to begin about Oct. 1.

½ m. 4-8½ g, 38 lb r, 6 c. Either elec, or animal power, 40 h if latter. Pres. H. F. Petersen, V. Pres. F. H. Hancock, Sec. Joseph Ochs, Treas. G. M. Schnledle, Capital, \$25,000, to be increased to \$100,000. e

Davenport & Rock Island St. Ry. Co. 50 lb r, 4-8½ g. Pres. Chas. H. Deere, Mollne, Ill.; Sec. E. Carl. Davenport; Treas. Morris Rosenfield, Rock Island. 7

DAYTON, O.—White Line St. Ry. Co. 8½ m, elec, now building, 4-8 g, 38 lb r, 16 c, 13 motors, Van Depoele system. Pres. John A. McMahon, Sec. Chas. D. Iddings, Treas. Michael A. Nipgen, Pur. Agt. Jos. C. 1.cwis. Work began Aug. 1; road will be opened Nov. 1. Capital, \$200,000. e

DECATUR, ALA.—Decatur St. Ry. Co. Work to

C. 1.cwis. Work began Aug. 1; road will be opened Nov. 1. Capital, \$200,000. e 9

DECATUR, ALA.—Decatur St. Ry. Co. Work to begin at once, mat'l having been bought. Pres. W. G. Wharton, Sec. S. D. Wharton, both of Montgomery. 9

Decatur & Trinity Beit Line R. R. Co. Torun from Decatur to a mountain near Trinity. Dummy. Jos Shackelford is interested. 9

DENVER, COL.—Denver Cable Ry. Co. Capital stock, \$500,000. Work has begun, and the road will be opened Apr. 10, 1888. 6 m. narrow g, 34 lb r, 35 c altogether, but only 12 for first line of 2 m, cable. Two 5 0 Il. P. engines for each line. Offices, 42 & 43 Barth Block. e 9

Geo. Wirt Bowman has franchise for hand cable road to Fort Sheridan. Work to begin in Dec. 10

DETROIT, MICH.—East Detroit & Grosse Pointe Ry. Co. 8 m, 4-8½ g, 25 lb strel Tr, 6 to 10 c. Fisher elec. system. Capital, \$100,000. Pres. C. K. Brandon, sec. Ilibbard Baker, Treas. Frank E. Snow. Began work June 15; expect to open Oct. 1.

Metropolitan Elec. Ry. Co. 9

Spring wells, Ecorse & Wyandotte R. R. Co. incorporated by J. B. Molony and others. Capital, \$10,000.

porated by J. B. Moiony and ountries. Capital, 2000. 8

DODGE CITY, KAN.—Dodge City St. Ry. Co. To be completed by March 1. 8

DULUTH, MINN.—Dulutb Highland Cable Ry. Co. Propose to build to the hill top unless the o d Co. after notice build there. II. W. Bradley and Wm. W. Blilson, of Duluth, and J. A. Willard, of Mankato, are interested. Capital, \$200,000. 5

Minnesota Point St. Ry. Co. Capital, \$100,000. Reginaid W. Petre is one of the incorporators. 6

EASTON, PA.—Elec. ry. Daft system. In progress. To be in operation by Oct. 15. 10

EAST PORTLAND, ORE.—Sellwood & Vancouver Ry. Co. Motors. 7

Stark St. Ferry Co. 7

gless. To be in operation by Oct. 15. 10

EAST PORTLAND, ORE.—Sellwood & Vancouver Ry. Co. Motors. 7

Stark St. Ferry Co. 7

EAST ST. LOUIS, ILL.—East St. Louis Motor Ry. incorporated by H. D. Sexton, Henry O'Hara and Wm. H. Hill. Capital, \$200,00.0 6

EL DORADO, KAN.—El Dorado City St. Ry. Co. Now building. Pres. John Foutch, Sec. Robt. H. Hazlett. Treas. F. P. Gillespie. 9

ELIZABETH, N. J.—Henry H. Isham of New York, Fredk. L. Heidritter and otbers, propose to build a crosstown road from Fourth ave. to the Singer factory and Elizabetbport station. 7

Elec. ry. Incorp'd and ask for franchise. Ex-Free-holder Oliver, ex-Councilman Reeve and ex-Mayor Green are interested. 8

ELMHRA, N. Y.—Articles of incorporation signed by J. 11. Clark, John Brand, M. H. Arnot, D. C. Robinson and others. Location, Fifth ward. Capital, \$20,000. Will use horses. Hope to completeroad in 2 months. 7

ELSINORE, CAL.—Eishore Elec, R. R. Co. incorp'd, to build around Elsinore Lake, 30 m. Work to begin at once. 9

EUFAULA, ALA.—City of Eufaula St. Ry. Co. 4 m, 48½ g, 20 lb r, 4 regular cars and several exursion flats. 12 h. Will commence work very soon, and the road will be opened this fail. Pres. E. B. Young, Sec. Geo. McCormick, Treas. Ell Shorter. Capital \$25,000. 4.

EUREKA, CAL.—Cindlay St. R. R. Co. Elec, ry. Est. Several & P. Frey.

EUREKA, CAL.—Co. formed to build an elec. ry.

FINDLAY, O.—Findlay St. R. R. Co. Elec. ry., Daft system, now building. Pres. Sam'l D. Frey, Sec. J. F. Burket, Treas. Chas. E. Niles.

FLUSHING, N. Y.—Flushing & College Point. R. R. Co. Pres Jos. Dykes, Sec. Arthur Herring, Treas. Henry Clement. Have obtained a charter to run a line trom Flushing to College Point. Flectricity may be used. Will be built in 6 mos.

FOND DU LAC, WIS.—Co. organized.

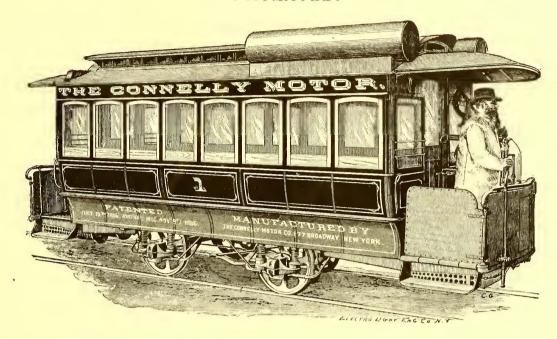
FORESTVILLE, GA.—Printup City & Forestville St. R. R. organized.

FORT SMITH, ARK.—Belt Line St. Ry. Co. Mas been chartered.

Metropolitan St. Ry. Co. 2 m, 4-10 g, 38 lb r, 10 c, elec. or animal power. Sec. & Treas. Geo. Tilles, Engr. John P. Hely. Will begin work in 30 days. 10 Sulphur Springs Ry. Co. 3½ m, 3-6 g, 38 lb r, 12 c, 25 mu. In progress; will be opened in 60 days. Pres. & Gen. Man. W. J. Johnston, Sec. Edgar Bryant, Treas. W. R. Martin. Capital, \$50,000.

# THE CONNELLY MOTOR.

PATENTED.



# No Fire! No Smoke! No Dust! No Ashes! No Fireman! No Engineer!

Complete within Itself! Generates its own Power! Perfectly Independent! Can run on any Track!

No Cables, "grips" or expensive conduits.

No "Central Station" for generating power.

No loss of power in transmission.

No dangerous Electric currents.

No tearing up of streets for repairs.

No suspension of traffic for repairs.

The Connelly Gas Motor generates its own gas from Naphtha; carries a supply for a day's run, and consumes but ONE GALLON PER HOUR.

It excels all other motors in ECONOMY and CONTROLLABILITY, and stands alone in its INDIVIDUALITY.

The daily expense of operating a road with these motors IS IN EXACT PROPORTION TO THE NUMBER OF MOTORS IN USE, which cannot be said of any Cable or Electric system.

The cost of equipping a road with them is about ONE-HALF the cost of any Electric system, and less than ONE-FOURTH the cost of any Cable system.

The cost of operating, including Fuel, Lubrication, Care, Repairs and Royalties, will not exceed \$2.00 per day, being about HALF the cost by Cable or Electricity.

Any road can adopt these motors without making any change in their system, without interruption to their business, and without risking any investment in special plant, as a few motors can be put into use along with the Horse-cars, and the number gradually increased.

All companies desiring to abandon the use of horses should examine fully into the merits and peculiar advantages of our system, before making any contracts, as it is the only system that can be applied with equal economy on both large and small roads.

All parties interested in street or suburban roads are requested to correspond with us.

THE CONNELLY MOTOR CO., 177 BROADWAY, NEW YORK CITY.

FORT PAYNE, ALA.—Fort Payne Land & Imp't.

Co. Cable road. 10
FORT WAYNE, IND.—Riverside St. Ry. Co.
Now building. 1½ m, 48½ g, 20 lh T r, 4 1-h 9 2-h c.
Pres. Edwin Evans, Sec. H. C. Hanna, Treas. Wm. L.

Carnahan. 9
Fort Wayne St. Ry. Co. incorp'd by John A. Bass

Fort Wayne St. Ry. Co. incorp'd by John A. Bass and others. Capltal, \$3%,000. 10

FORT WORTHI, TEX.—North Side St. Ry. Co. chartered by J. P. Smith, John D. Templeton and others. Capital, \$100,000. 2 m. Dummy or cable. To he completed in 8 months. 9

FRAMINGHAM, MASS.—Framingham Union St. Ry. Co. \$69,000 capital, The Haines Bros. & Geo. W. Stetson, of New York, are interested. To be in operation Jan. 1. Sec. Clifford Folger, Treas. Sam'l B. Bird. 10

Framingham Center Ry. Co. Capital, \$25,000. 2½ m. 4.8½ g. 4.

Framingham Center Ry. Co. Capital, \$25,000. 2½
m, 4-8½ g. 4,
FREEPORT, ILL.—Freeport, Dodgeville &
Northern Ry. Co. Pres. Jas. I. Neff, Sec. & Treas.
B. Moe, Chicago, Ill. 9
FRYEBIRG, ME.—Now building. 8
GADSDEN, ALA.—Gadsden Land & Imp't Co.
will build a dummy rr. via Believue to Black Creek
Fails. Expect to begin work this fall. and finish it
by next spring. 5 m, standard g, 34 lb steelr, 8 c,
4 steam motors. Sec. & Treas. M. L. Foster, Capital,
\$3,000,000. g. 8
GRAND FORKS, DAK.—Secretary of State
McCormack, of Bismarck, has secured franchise, and
is said to be backed by Duluth and New York capitalists. 6

is said to be backed by Duluth and New York capitalists.

6 GRAND ISLAND, NEB.—Grand Island St. Ry. Co. Expect to have 4 min operation this year. 4-6 g, 20 lb steel T r, oak ties, 5 c, 30 h. Will change to elec, when they can get a cheap and practicable system. Capital \$160,000, of which 25 per cent is paid in. Pres. A. H. Baker, V. Pres. H. A. Koenig, Sec. O. B. Thompson, Treas, Wm. A. Hagge, h. 7 GRAND RAPIDS, MICH.—Cabie St. Ry. Co. Incorporated hy Roht. Wetherell and others, Capital, \$500,000.

Valley City St. Ry. Co. incorporated. Capital, \$200,000. Cahle and h; cable system to he opened hy Jan. 1 and whole road June 1, 5 m, 48/6 g, 28 lb r, 14 c. Pres. Wm. P. Innes, V. Pres. A. M. Eggleston, Sec. & Treas. Robt. W. Innes, Engr. Wm. Sherix. g & GREENSBORO, N. C.—J. W. Griffith has ree'd permit. There is talk of an electric road.

GREENVILLE, ALA.—J. T. Perry with build a st. ry. 6

GREENVILLE, ALA.—J. T. Perry will bulld a st. ry. 6
GREENVILLE, ALA.—J. T. Perry will bulld a st. ry. 6
GREENVILLE, TEX.—Greenville St. Ry. Co. organized. Capital, \$50,000. 7
GREENWICH, CONN.—Greenwich Horse R. R. Co. To run along Putnam and Greenwich aves, and Steamboat road to the steamboat dock, with a branch along Railroad ave, to the N. Y., N. II. & H. station. Capital, \$30,000. Prob. 4 cars. Delano-Richardson syndicate are back of the scheme. 5
GREENSBORO, ALA.—Dummy line, to be built by Coleman & Coleman. 8
HARTI-AND, KAN.—Hartland St. Ry. Co. 2 m, narrowg, light r, 2 c, 1 mu. Pres. E. S. Snow, Sec. & Treas, Logan A. Garten, Supt. W. S. Handy. Capital stock, \$5,000. 3
HARRISBURG, PA.—EastHarrisburg Pass, Ry. Co. Work has begun, and the road will be opened in oct. 34 m, 5-2 g, 52 th r, 8 c, elec., 4 motors, either storage or overhead. Pres. W. J. Calder, Sec. D. Fleming, Jr., Treas, T. D. Greenawalt. Capital, \$100,000. Office, 16 N. Market sq. a 9
HASTINGS, NEB.—Clitzens' St. Ry. Co. Franchise obtained, similar to that of the Imp't Co., and are contesting the matter in the courts Pres. R. A. Beatty, Sec. flenry Shedd, Treas, C. L. Jones. 8
HELENA, ARK.—Helena St. R. R. Co. Capital, \$30,000 Pres. Greenfield Quarles, Sec. D. T. Hargraves, Treas, S. H. Horner. 5
HENDER'SON, KY.—Henderson St. Ry. Co. In progress, to be opened about Oct. 1. 1 m, 4-8½ g, 20 in steel T., 2 c, 6 mu. Pres. David Banks, Jr., Gen. Man. E. G. Sebree, Jr., Sec. Paul II. Banks. Capital, authorized, \$100.000.

HOLDEN, MO.—Franchise granted to Wm Steele, J. S. Johnson, John T. Bruce, J. N. McDonald and Thos. C. Carter. To run on Olivest. from 2d to 4th, to Main, to 2d, to starting point. 6
HOPKINSVILLE, KY.—Hopkinsville St. Ry. Co. has been incorporated. Will not begin work before Jan. 9
HOBEN, MO.—Franchise granted to Winsteeled. J. S. Johnson, John T. Bruce, J. N. McDonald and Thos. C. Carter. To run on Olivest. from 2d to 4th, to Main, to 2d, to starting point. 6

fore Jan. 9

HUDSON, N. Y.—Edw. J. Hodge bought the franchise at auction, and the road will be built soon. 8

franchise at auction, and the road will be build soon.

HUNTINGTON, N. Y.—3½ m, from the Long Island R, R. station along the east side of Huntington Harbor. Stockholders. D. Schuberth and R. G. Phelps of New York. Henry S. Brush and others of Huntington. Capital stock, \$35,000, 4-8½ g, 40 lb r, 3 c, 8 h. Prob. build in Oct. 10

HUNTINGTON, W. VA.—J. L. Caldwell will build a street railway here. 9

HUNTSVILLE, ALA.—Huntsville Belt Line & Monte Sano R. R. Co. 3½ m. Backed hy No. Ala. Impt Co. 10

HUTCHINSON, KAN.—Metropolitan St. Ry. Co. Being rapidly pushed to completion. Capital, \$50,000. Directors G. W. Hardy, Jas. H. Perkins, Hiram Constant, J. W. Mulky and A. H. Robinson. 5

INDIANAPOLIS, IND.—Indianapolis Cable St.

FITTAIN CONSERIT, J. W. MUIKY RIO A. H. RODINSON. 5

INDIANAPOLIS, IND.—Indianapolis Cable St. R. R. Co. 14½ m cable, 15½ m horse, 48½ g, 54 lh r, 70 closed and 20 open c, cable and h & motor traction. Work on cable line to begin in winter, and track laying March 15. Pres. W. W. Dudley, V. Pres. T. A. Morris, Sec. W. R. Hollowey, Treas. Oran Perry. Cardial, \$1,200,000. Office, 90½ E. Market st. 9

IACKSONVILLE, FLA.—Jackson wille, Suburbanar R. Est. R. Co. Surveys have been made. 10

JACKSON, TENN.—Jackson & Suburban St. R. Co. 7 m, 4 g, 30 lb r, 4 c for the present. 12 mu. Pres. C. P. Heath, "V. Pres. J. H. Duke, Sec. R. B. Crawford, Treas. J. L. Wisdom. Road to be opened about Oct. 1. Capital. \$50.000. Office for present, 212 Kansas st., Sloux City, Ia. e 9

JUNCTION CITY, KAN.—Junction City & Fort Riley St. Ry, Co. 8 m, Horses will be used in the

city, and some other faster motor between Junction city and Fort Riley. Must obtain franchises from city, co unty and Congress. Expect to have bill through Congress by Feb. 1 for right of way on Fort Riley Reservation. Capital \$50.00. Pres. B. Rockwell, V. Pres. G. E. Harvey, Sec. & Treas. C. G. Thurston. 7

KANSAS CITY, MO.—McGec, E. Seventeeth & Suburban Ry. Co. Dummy. Capital, \$500,00, one-hair paid in. B. F. Jones, M. J. Payne and isaac Whitaker are stockholders. 9

Kansas City, Masten Park & Westport R. R. Co. To be completed by Nov. 9. 10

People's Cable Ry. Co. Capital, \$750,000. Chicago capitalists interested. Pres. J. Foster Rhodes, V. Pres. C. F. Dwight, Sec. & Treas. W. P. Rice. Line to be completed this year. 5

Citizens' Cable Ry. Co. organized; capital, \$750,000. First-class road, to extend from Sixth street south on Holmes street to a point ½ in south of southern city limits. T. A. Harris, Bernard and Thos, Corrigan and E. J. Lawless are the principal stockhoders. 7

KEENE, N. H.—Keene St. Ry. Co. Pres. Hon. R. F. Batchelder Clerk Chas. H. Henry, Treas, Wm. B. Frink. 9

KINGMAN, KAN.—Kingman St. Ry. Co. In progress. 8

KINSLEY, KAN.—Kinsley St. Ry. & Elec, Light-

rouress. 8
KINSLEY, KAN.—Kinsley St. Ry. & Elec. Lightg Co. Incorp'd by C. A. Read and others. Capital,

INSLE, RAN.—Rhisely St. Ry. & Ref. Enging Co. incorp'd by C. A. Read and others. Capital, \$100,000. 10

KEYPORT, N. J.—Keyport & Matawan St. Ry. Co. 3 m, 4-8½ g, 33 lo girder side bearing r, 7 c, 40 h. Now building; will be completed by Oct. 1. Pres. Wm. H. Reid, V. Pres. Dan'l W. Pugh, Sec. John S. Pugh, Treas. Frank D. Russell. Capital, \$60,0 o. e 10 (K.NOXYHLLE, TENN.—Knoxville & Edgewood Ry. Co. Will ould at once, and open this year. 2 to 5 m. Have proposals from other new lines to John hem, and it will depend upon which they accept what mode of propulsion, car and rall will be adopted. Pres. Wm. Caswell, V. Pres. E. C. Camp, Sec. Arthur Swan. F. A. Moses, A. N. Jackson and S. R. Rogers also interested. Capital, \$26,000. 5

Fountain Head R. R. Co. Incorp'd by F. A. R. Scott, J. H. Cruze and others to build a dummy rr. 6

Knoxville Belt R. R. Co. 8½ m, 4 8½ g, 60th steel r, 4 pass. c, 2 engines. Capital, \$100,000. Will begin work soon, and open in a year. Pres. W. R. Tatale, Sec. I. W. S. Frierson, Treas. Sam. House. 10

Knoxville R. Est. Co. will huild dummy line. 9

Magnolia Ave. Dummy Line. In progress. T. S. Frierson is nierested. 10

So. Sidc and Market Sq. R. R. Co. Pres. II, Schubert, Sec. P. Kern. 2 m. 2 c, ahout 12 h. Road to be completed within a month. Capital, \$20,00 9

West Eud St. Car Co. In progress. Jas. D. Cowan is interested. 10

King Market Sq. R. La Grange St. R. R. Co. F. M. Ridley, F. M. Longley and others are interested.

completed within a month. Capital, \$20,0 0 5
West Eud St. Car Co. In progress. Jas. D. Cowan is interested. 10
LAA GRANGE, (A.—La Grange St. R. R. Co. F. Middley, F. M. Longley and others are interested. Will prob. cost \$20,000. 10
LAKE CITY, FLA.—H. S. Halnes, Gen. Man. Sav., Fla. & W. Ry. and all the Plant system in Fla., has right of way.
LAKESIDE, O.—Contracts awarded for elec. ry. 3 m. 2 open c. Prob. use overhead conductors. 7
LENINGTON, GA.—W. A. Shackelford and others will build a dummy line to Crawford. 8
LINCOLN. NEB.—Elec. motor co. From city to stockyards. Capital, \$100,000. 6
Cable ry., now building. 9
Rapid Transit St. Ry. Co. Now building. Will use compressed steam motors at first. 9
So. Lincoln St. Ry. Co. incorporated. To build to Insane Asylum, Penitentiary and other points within 5 miles of city. Capital, \$25,000. J. H. McClay, S. W. Burnham and C. D. Hyatt are among the incorporators. 7

corporators. 7 Standard St. R. R. Co. incorp'd by L. G. Baldwin, M. H. Baldwin and Chas. Pitcher. Capital \$103,-

oo. 8
LITCHFIELD, ILL.—J. A. Beverly, H. H. Beach,
S. M. Gruhbs and B. F. Johnston are the Directors, 9
LOS ANGELES, CAL.—The American Rapid
Transit Co has been formed here, capital, \$500.000, to
build from Passadena to Monica, under the Enos ele-

vated electric system. 4
Brooklyn Heights Ry. Co. incorp'd by Clarence J.
Richards and others. Capital, \$800,000. 10
S. O. Brown will huild a road 6½ m long to Glen-

000. 8
MARION, O.—Marion St. R. R. Co. 1 to 4 m.
Proh. elec., though may use crude petroleum en-

mattoon, ILL.—Mattoon St. Ry. Co. Now bullding. 5 m. 48½ c, steel Tr. Pres. J. B. Craig, Sec. Joseph Millington, Treas. Robt. Owens. 9 McKEESPORT, PA.—McKeesport Pass, Ry. Co.

Now building. 4 m, 5-2½ g, 38 lb girder r, 4 2-h c, 25 h. Pres. J. C. Smith, Sec. & Treas. E. F. Woods. 9 McPHERSON. KAN.—Franchise owned by Salinas St. Ry. Co. 8 MEMPHIS, TENN:—East End Ry. Co. 20 m, 4-8½ g, 35 lb r, 6 c, to be operated by 3 dummies. Will be running in Oct. Pres. W. M. Sneed, V. Pres. B. M. Stratton, Sec. & Treas. J. W. Falls. Capital, \$200.000

MEMPHIS, TENN.—East End Ry. Co. 20 m.
4-8½ g. 35 lb r, 6 c, to be operated by 3 dummtes.
Will be running in Oct. Pres. W. M. Sneed, V. Pres.
B. M. Stratton, Sec. & Treas. J. W. Falls. Capital,
\$200,000. a 9
Jackson Mound Park R. R. Co. Cable or elec.
Work to begin about Oct. 15. 6 m. Capital, all substitutes of the street.
Work to begin about Oct. 15. 6 m. Capital, all substitutes.
S. Coleman, Sec. T. Krekel, Treas. J. W. Cochran. 10
Memphis & Chelsea Ry. Co. Chartered by Thos.
F. Duffin, J. H. Smith, W. D. Beard and others. 9
MIDDLEBORO, MA-SS.—1½ m, perhaps elec.
Capital, about \$30,000. Dr. Chas. Copeland, S. B.
Ryder and others are interested. 9
MIDDLEBOWN, O.—J. H. Stolf & Co., of New
York, will build 3 m from Pomeroy to Middletown,
O., for both freight and pass. 9
MILHORD, MASS.—Miltord & Hopedale St. Ry.
Co. 4 m, 4.8 g, heavy r, 6 or 8 c, h. & elec. Are guaranteed about \$60 000 capital. Will begin work in
spring. C. W. Shippee is interested. 9
MILWAUKEE, WIS.—Milwaukee Cable Ry. Co.
incorporated by Wm. P. McLaren, Geo. W. Mitchell
and John A. Hinsey; capital, \$300,000. To build from
center of city to western limits, Hope to open in a
year. 2½ m, 4.8½ g, about 50 c, cable. Work to begin as soon as ordinance passes. 8
Milwaukee & Wauwatosa Cable Ry. Co. Frank L.
Gilson & Judge Frisby are interested. 9
Robt. Nunnemacher, Wm. Sunderson & others ask
to build a h or cable ry. along Broadway, Oneida,
Wells and other sts. 9
Milwaukee Elec, R. R. Co. ask for franchise on
River, E. Water & other sts. Adolph Toellner is leading spirit. 9
Minnaukee & Wauwatosa Cable Ry. Co.
Frank L.
Gilson & Judge Frisby are interested. 9
Minnaukee Elec, R. R. Co. ask for franchise on
River, E. Water & other sts. Adolph Toellner is leading spirit. 9
Minnaukee & Wauwatosa
Minnaukee & Cable Ry. Co. Frank L.
Gilson & Judge Frisby are interested. 9
Minnaukee Elec, R. R. Co. ask for franchise on
River, E. Water & other sts. Adolph Toellner is leading spirit. 9
Minnaukee & Co. of Birmingham have cotract to grade 5 m and to lay

Volney James, Geo. K. Whitworth, B. T. Noel, L. H. Davis, J. II. Moore and others. Dummy line. Now building.

Lake R. R. Co. has been organized by John Lellyett, John McEwen and others.

Selfred, A. W. Willis and others incorporators.

G. A. W. Willis and others incorporators.

G. Charter for a line leading out the Charlotte pike.

Main St. & Gallatin Pike St. R. R. Co. 2½ m., 4 8½

g, 38 lb Johnson girder r. 6 C, 45 mu. Pres. Thos. L.

Dodd, Sec. J. W. Baker, Treas. W. C. Dihrell. Work

began in Aug. & road will be opened in Nov. Captal, \$50,000.

E. T. Holman and others have charter for dummy

rr. from Nashville to West Nashville, 3½ m. Will

begin active work assoon as right of way is obtained

from Nashville City Council.

Overland Ry. Co. 8 m, 4-8½ g, 45 lb Johnson

steel r, 12 c, 2 steam motors. Work commenced in

March, and the road will be opened in Oct. Capital,

\$50,000. Pres. O. F. Noel, Sec. & Treas. Jas. E. Cald
well. a 9

well. a 9
NATCHITOCHES, I.A.—Co. formed. Red River
Land Co. is interested in project. 10
NEWBURGH, N. Y.—Third St. Ry. Co. % m,
cabl , 4 c. Sec. & Treas. C. L. Waring. Expert to
build in spring. Capital, \$40,000. Office, 76 Water

NEW BRUNSWICK, N. J.-Elec. ry. contem-

build in spring. Capital, \$40,000. Office, 70 water st. 9

NEW BRUNSWICK, N. J.—Elec. ry. contemplated. 7

NEW CASTLE, PA.—New Castle St Ry. Co. Organized, hut mode of propulsion not yet determined. About 3 m. Pres. Geo. W. Johnson, V. Pres. L. Raney, Sec. Chas. S. Wallace, Work to begin this fall. Capital, \$8,000; will increase to \$25,000. a 8

NEW HAVEN, CONN.—Cable road projected by Frank Blake. 7

NEW LONDON, CONN.—New London Horse Ry. Co. John Tebbetts, Incoporator. 11

NEW ORLEANS, LA.—Jas. Sweeney will build new road on Nashville ave. 10

NEWTON, MASS.—Newton St. R. R. Co. 6 m, 4-8½ g, 52 lb r. 12 c, 12 h, electric motors. Pres. Horace B. Parker, V. Pres. J. W. Stover, Sec. & Treas. Herbert C. Pratt. Capital stock, \$50,000. Office, Newtonville, Work will commence when Aldermen grant location. J

NEW PORT, KY.—Co. organized. 8

NEW YORK, N.Y.—North & East Rivers Ry. Co. To run through Fulton and Cortlandt sts. Bentley-Knight elec. system. Pres. W. W. Laman. Directors A. Hudnut, Ira Perego, David Bangs, Aaron Raymond, J. L. Truman, W. H. McDougal, W. G. Smith, Homer A. Nelson, R. R. Hazard, Robt. W. Blackwell and John T. Fanning, J. W. Childs, contractor for construction of road. Chairman Excom. R. R. Hazard. About completed. Prob. open in Nov. 10

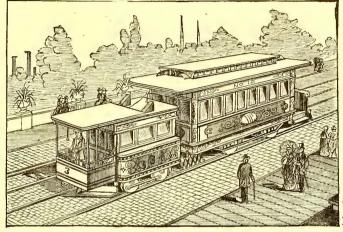
New York Underground R. R. Co. Pres. Edw. Lauterbach. J. Coleman Drayton is Pres. of New York Underground Construction Co., which has made application to onen Lafayette place to operate under the Bentley-Knight system. Col. Rowland R. Hazard is prominent in the enterprise. 4.

East & West Ferries R, R. Co. has been incorpo-

# STREEY

Differential Lever Car Starter, Runner & Brake.

Starts easily, Brakes as certainly and effectively as the air or Steam brake.



Standard No. 3 Motor Is operated by a Specially Designed Low Pressure Condensing Engine of great power in small space and having no escapes on the street.

#### MOTOR SYSTEM

The system can be operated by compressed air and is so recommended where good all-the-yearround water power can be secured to compress the air. Can be operated by storage battery, electricity or soda, ammonia, and other motive powers.

Warranted to climb hills, start on hills, and when the track is so slippery that the driving wheels will slip round under the motor, we still guarantee the motors starting by a system of ground levers.

## WE ARE FULLY SECURED BY PATENTS.

We claim the only motor system capable of starting and going when the tracks are slippery, excepting only the cable motor. Ours is a cheaper outfit.

Correspondence solicited.

# Pole Street Car Motor System,

310 Chestnut Street, Philadelphia, Pa.

rated, with capital stock of \$50,000. Chas. W. Hough

rated, With capital stock of \$50,000. Chas. W. Hough and others incorporators. 6

Twenty-eighth & Twenty-ninth Sts. R. R. Co. Secured franchise by agreeing to pay city 29,2 per cent of gross receipts for first five years and 31.2 per cent thereafter. Pres. Jona. H. Crane, V. Pres. Edw. P. Beach, Sec. Fredk. A. Bartlett, Treas. John H. Davis. 5 m, 4-9% g, 47 lb steels-br, 40 to 50 c, prob. elec. Capital, \$500,000. Cffice, 188-190 Jempie Court. d 10

NAOREOLIK NER.—North St. Py. Co. Capital

NORFOLK, NEB.—Norfolk St. Ry. Co. Capital, \$50,000, Pres. J. S. McClary, Sec. II. C. Brown, Treas. A. P. Pilgin.
OAKLAND, CAL.—Elec. ry, Franch. granted. 8
OBERLIN, KAN.—Oberlin St. Ry. Co. Capital,

\$50,000. R. A. Marks, Everton Doom and others in-corporators. 5

OLATHE, KAN.—Kansas City & Olathe Invest-ment & Rapid Transit Co. Dummy line to Kansas City. 8

OLATHE, KAN.—Kansas City & Olathe Investment & Rapid Transit Co. Dummy line to Kansas City.

OMAHA, NEB.—Cable line to be built by a Kansas City syndleate. Intended to have 3 m. in operation this fail.

Metropolitan Cable Ry. Co. 4 7 m, 4-8½ g, 55 lb r, 27 c, cable, 10 motors. Pres. F. L. Underwood, V. Pres. N. D. Allen, Sec. R. W. Patrick, Treas. G. A. Jostyn. Work to begin at on e and road to be opene 1 Sept. 1, 1888. Capital, \$1,0-0,000. 9 comaha & So. Omaha St. Ry. Co. Capital, \$1,00,000. Gable road. Wm. A. Paxton, John E. Creighton and Isa c E. Corydon are among the incorporators. Omaha Motor Ry. Co. Incorporated. Capital, \$500.000, of which \$50,000 to be paid in before commencement of bisicess. Samuel D. Mercer, Clifton E. Mayne and others incorporators, Now laying track. Electricity in city, Van Depoele system; steam outside. 5 m, 4-8½ g, 55 lb gi der r, 20 12 ll. P. mo'ors & 25) ll. P. generators. Pres. Dr. S. D. Mercer, Sec. J. T. Hertzman, Treas. S. S. Curtis. Hope to be in operation in Nov. Office, 12th & Howard sts. 9

Line to asylum and pententiary. Ex-Gov. Dawes, Senator S. W. Burnham, J. M. Hoffman and others are interested. 6

So. Omaha St. Ry. Co. 5 m, 4 8½g. Will use hower. Work to begin this fall, an ithe road to be op-ned next summer. Capital, \$100,000. To run from Twenty-first street at Armour, along Twenty-first, Wyman, Believue to the corporation limits, with a number of branches. Pres. D. Anderson, V. Pres. C. M. Hunt, Sec. C. C. Van Kuren, Treas. H. C. Bostwick. 6

Omaha 11orse Ry. Cable Co. 2¼ m, 4-8¼ g, 45 lb Johnson girder r, cable power. Capital, \$1,500.000. V. Pres. S. II. II. Clark, Treas. Frank Murphy. 7

Northwestern St. Ry. Co. have been granted a franchise. 8

Omaha & Council B'uffs Ry. Bridge Co. To be hullt by March, 1888. 6 m, 4-8½ g, 45 lb Tr. 12 c, 4 8 aldwin

V. Pres. S. II. II. Clark, Treas. Frank Murphy. 7
Northwestern St. Ry. Co. have been granted a
franchise. 8
Omaha & Council B'uffs Ry. Bridge Co. To be hullt
by March. 1888. 6 m, 4-8½ g, 45 lb Tr, 12 c, 4 Baldwin
motors. Pres. John T. Stewart, sec. Geo. T. Wright,
Treas. Jos. II. Millard, Supt. & Pur. Agt. Thos. J.
Evans. 9
ONTARIO, CAL.—Elec. ry. 8 m, 2 trains of 2 c
e.ch. 16 lb Tr. Terms asked for. 8
ORANGE, N. I.—Cable rr. up Orange mountain. 9
OSWEGO, N. Y.—Elec. ry. Datt system. 9
OTTAWA, ILL.—Ottawa St. Ry. Co. Contracts
for construction awarded. Pres. F. A. Sherwood. 9
So. Ottawa & Ottawa St. Ry. Co. Will build as
soon as they get franchise. 4½ m 12 c, h power.
Pres. Jas. Milligan, Jr., V. Pres. L. A. Rose, Sec. Fred
E. Mays. Trens L. W. Hoss. Capital, \$30 000. e 10
PAINESVILLE, O—Painesville & Fairport St.
Ry. Co. Right of way and charter secured; and co.
expects to be lin operation by Apr. I, 1888, using gas
or elec. 5 m, 4-8½ g. 30 lb flat r, 3 c, limit power of
engines 60 h.

engines 60 h.

PALATKA, FLA.—Palatka St. Ry. Co. Work
b\*gins Nov. 1; to open Jan. 1. 13, m, narrow g, 20
lb r, 3 c, mu. breas. W. W. Mitchell, Supt. J. II. Ilibbard Capital, \$10,00°. 10

PAOLA, KAN.—Paola St. Ry. Co. Must be completed in 2 years from depots to park. Incorporators,
S. D. Condon, J. H. Phillips and E. W. Robins m. 5

PARSONS, KAN.—Parsons St. Ry. Co. Expect
to use elec. 8

PARSONS, KAN.—Parsons St. Ry. Co. Expect to use elec. 8

PASSADENA, CAL.—Elec. ry. Daft system. 9

PASSADENA, CAL.—Elec. Ry. Co. 3 m, from Garfield to Passalc through clifton; and if the Paterson Main street road build their line to the race grounds the new co. will also build their line to meet them. 5

PEARODY KAN.—Peabody St. Ry. Co. Incorpose.

erson Main street road build their line to the race grounds the new o. will also build their line to meet them. 5

PEABODY, KAN.—Peabody St. Ry. Co. Incorporated by W. E. Scott and others, with a capital stock of \$10,000. 7

PEORIA, ILL.—East Bluff Horse R. R. Co. 1½ m, 4-8½ g, 30-40 lbr, 4 c, 24 h. Pres. N. Giles, Sec. R. R. Boureaud, Treas. M. E. Culver. Capital stock, \$11,000. Work in progress.

PHILADELPHIA, PA.—Lehlgh Ave. Ry. Co. To run up Lehlgh avenue from Second street to R dge avenue and directly to East Fairmount Park. Pres. Jos. T. Bunting, Sec. & Treas. J. Mc K. Barron, Directors, Wm. R. Wister, John Wister, Langhorn Wister and Jas. P. Booth. Other large stockholders are Wm. Wharton, Jr., and Wm. L. Elkins. Capital, \$600,000, of which 61(0) is paid in. Double track the whole length. Will have 6 mites of track. Nearly finished, will be opened this fall. 5-2½ g, 47 lb s-b r. Will use either horses or electricity. Temporary office, \$30 Walnut st. 7

PITTSBURGH, PA.—Road to Squirrel Hill. Will prob. be called Ea tern Heights R. R. Will Intersect Pittsburgh Traction Co.'s cable line and run to the Homewood and Lutheran cemeterles. 3 m, narrow g, either steam or elec. Capital, \$60,000. Sec. Howard Morton, 28 Lewis Bldg. 9

PIttsburgh & Allegheny Traction Co. Charter granted. Composed of same Interests as Federal St. & Pleasant Valley Co., the plan being to change this road to elec. or cable, work to begin early next spring. 10

PIttsburgh, East Liberty & Wilkinsburgh Ry. Co. 3 m, 4-8 1-2 g, 52 lb Johnson girder r. Pres. Ed. Jay Allen, Sec. & Treas. W. H. Allen. To use about 5 c and 20 h. Not decided when road will be opened. Cepital stock, \$15,000, Present office, 517 Wood st.

Pittsburgh Traction Co. Cable, 11 m, 5-2 g, 66% lb girder r, 30 c, 3 500 H. P. engines. Pres. Geo. W. Elkins, Sec. Geo. L. McFarlane, Treas. W. McCandless, Engr. Geo. Rice. Office, Room 307, Hamilton Bidg. Market St. to Point Breeze, along Fitch ave. This co. will be successor to Pittsburgh, Oakland & East Liberty Pass. Ry. Co. Will have 4 500 H. P. Corliss engines. Began work Aug. 1; will be opened next year. Capital, \$2,500,000. 10
Pittsburgh & East End R. R. Co. Capital, \$250,000. Incorporators, Wm. L. Chalfort, John Bissel and others. Track laid. 9
Overhead Conductor Elec. Ry. Co. incorpid by Geo. Westinghouse and others. Capital, \$300,000. 9
Pittsburgh, Knoxville & St. Clair St. Ry. Co. Elec. ry. Datt system. 5 25 H. P. motors have been completed. 3 m, 5-2½ g, 40 lb. tram r. Pres. Thos. Evans, Sec. J. W. Parterson, Treas. Henry Stamm. 9
Brownsvil'e Ave. St. Ry. Co. 8
Mt. Oliver Incline Co. Now building. 8
PLATTSMOUTH, NEB.—Plattsmouth St. Ry. Co. 2 m 4-8½ g, 35 lb tram r. Pres. S. D. Mercer, Omaha: Sec. & Pur. Agt. L. C. Mercer, Plattsmouth; Tras. O. II. Ballon, Omaha. 9
PLAINFIELD, N. J.—Elec. ry. will prob. be

PLAINFIELD, N. J.-Elec. ry. will prob. be

built. 7
PLYMOUTH, MASS.—Plymouth & Kingston St. R.R. Co. 2½ m, 4-8½ g, about 3: lb r, 4 to 6 c, elec., motor on each car. Are waiting for improvements in accumulator system. Capital stock, \$25.000. James D. Thurber and others incorporators, Grant of location has expired but could be renewed. 9

James D. Thurber and others incorporators. Grant of location has expired but could be renewed. 9

PONTIAC, ILL.—Pontiac Ry. Co. incorp'd by Reason M. George and others. Capital, \$20,000.

PORTIAND, ORE.—Portland Traction Co. incorp'd by Van B De Lashmut and others. Capital, \$500,000.

10

PORTIAND, ORE.—Portland Traction Co. incorp'd by Van B De Lashmut and others. Capital, \$500,000.

10

PORT CHESTER, N. Y.—Port Chester & Rye Beach St. Ry. Co. 4½ m. 4-8½ g. 30 lb side bearing r, 6 c. 40 h. Work to begin Oct. 15: road to be opened Dec. 1. Pres. Chas. D. Halnes, V. Pres. Andrew G. Haines, Sec. & Treas. F. H. Skeele. Capital, \$40,000. Office, 45 Broadway, New York, Rooms 4 & 5. a. 10

PORTSMOUTH, VA.—Portsmouth St. Ry. Co. To be in operation by Nov. 15. S. T. Dunham, 45 Broadway, New York, has charge of construction: and Ruius Martin & Co. supply cars, etc. 4 m. 4-8½ g. 30 lb T r, 6 c, etc. or h, 25 if latter. Capital, \$50,000.

10

PRATT, KAN.—City Ry. Co. incorp'd by Geo. S. Chase. of Topeka, and others. Capital, \$35,000.

10

PROVIDENCE, R. I.—Providence, Warren & Bristol R. R. Co. will build cable road. ¾ m, from their present terminus to center of city. 4-8½ g. Supt. Waterman Stone. Will begin work in a few months. Col. Paine will have supervision of the work. 8

PILEBLO, COL.—Pueblo & Bessener St. Ry. Co.

work. 8
PHEBLO, COL—Pueblo & Bessemer St. Ry. Co. G. M. Chilcott, And. McClelland and others are interested. 8
Pueblo, Bessemer. Highland & Mineral Park Circle
R. R. ask for right of way.
QUINCY, MASS.—Quincy St. Ry. Co. 4½m H.
M. Federhen is interested. Capital, \$40,000. 10
RALEIGH, N. C.—Jas. Graham, who is backed by the Messrs. Pratt, the oil men, has obtained a franchise. 4.
PROTECTED SPRINGS, N. Y.—Richfield

franchise. 4.
RICHFIELD SPRINGS, N. Y.—Richfield
Springs & Canadarago Lake Surface R. R. 1 m. D.
C. Hadook of syracuse organizer. Capital \$15.500.
RIVERSIDE, CAIL.—Riverside & Arilington St.
Ry. 12 m. 4 8½ g, 16 lb r. Work to begin this fail.
Capital \$500,000. Pres. Thos. Bakewell, Treas. I. S.
Cast'eman. 9

ROANGE VA.—Roanoke St. Ry. Co. Chartered.

ROANOKE, VA.—Roanoke St. Ry. Co. Chartered, with capital of \$10,000. Pres. Thos. Lewis, Sec. F. T. Brinkley.

Brinkley. 5

ROCHESTER, N. Y.—Rochester Cable R. R. Co. 10 m. 4-8 g, about 30 c, cable traction. Work to begin as soon as franchise is granted, and road to be opened by July 1, 1888. Pres. Valentine Fleckenstein, V. Pres. John W. Harman, Sec. Paris G. Clark, Treas. Geo. W. Archer. Capital, \$1,000,000. Office, 28 Elmwood Bidg. 9

Elec ry. co. 1-corp'd by Henry Brinker, Asa T. Soule and others. Capital, \$75,000. Work has begun. 9

West Side R. R. Co. incorp'd by C. B. Woodworth and others. Capital, \$50,000. 9

ROCK LAND, MASS.—To connect with No. Ablugton. 9

ROCKMART, GA.—S. E. Smith is interested. 6
ROCKAWAY, N.Y.—Elec. ry. 9
ROME, GA.—Rome Investment Co. will build dummy interturb East Rome. Work to begin

SOON. 7

SAYRE, PA.—Sayre St. Ry. To connect Sayre, Athens, Pa., and Waverly, N. Y. 4 m. Streets now being graded for track. To be built by Sayre Land Co. Pres. Howard Elmer, Treas. Wm. Stevenson. 6

SALT LAKE CITY, U. T.—Elec. Ry. Co. 9

SAN ANTONIO, TEX.—R. Woolley, Jr., of Cincinnati, represents co. formed there to build a st. ry. at San Antonio. 5 or 6 m. 9

West End St. Car Co. incorp'd by G. W. Russ, J. W. Moon and others, Capital, \$50,00. 9

SAN BERNARDINO, CAL.—Motor line to Harlem Springs. \$20,000 of stock subscribed already. 9

SAN DIEGO, CAL.—San Diego St. Ry. Co. Elec. ry., now building. Henry system. 9 m, 4 40 H. P. motor c. Pres. Dr. Granchenor, V. Pres. Juan Francesco. 9

San Diego & Old Town St. Ry. Co. Nearly fin-

P. motor c. Pres. Dr. Granchenor, V. Pres. Juan Francesco. 9
San Dlego & Old Town St. Ry. Co. Nearly finished. 4 m, 4-8% g. 20 & 30 lb r, 4 or more c. elec. or steam. Pres. J. R. Thomas, Sec. G. B. Hensley, Treas. R. A. Thomas. Capital, \$100,000. 10
Elec, rv. to El Canon, 15 m. 9
SAN FRANCISCO, CAL.—Powell St. Ry. Co. 11 m, 3-6 g, 38 lb r, 32 c. Pres. W. J. Adams, V. Pres. Thos. Magee, Treas. H. H. Lynch, Sec. G. H. Waggoner. Capital stock, \$2.000,000. Work in progress. Cable traction. Office, 32 Merchants Exchange. Will be opened in Oct. 15
J. M. Davies and J. L. Wetmore ask for franchise for elec, or cable road.

Columbus Bartlett has franchise for road on Park st., which he assigned to J. A. Woodard. 10 New cable road to beach. Thos. Magee is interested. 9

sted. 9 Theo. Meetz has franchise on Park street and will

New cable road to beach. Thos. Magee is interested. 9
Theo. Meetz has franchise on Park street and will build soon. 10
Telpherage Electric Ry. Co. has been incorporated. Pres. F. M. Speed. Prof. N. S. Keith has charge of enging. Experimenting on 19th st. 8
Broadway Cable R. R. Co. incorp'd by Robt. Sherwood and others. Capital, \$1,000,000. 8
SANTA ROSA, CAL.—T. J. Glary. M. Doyle and A. B. Ware have formed co. with capital of \$25,000, work to begin within next two months. 6
SAVANNAH, GA.—Savannah St. & Rural Reso t Ry. 6 m, 48% g, about 15 c, if rossible will use elec. motors. Man. H. P. Smart. Will commence work as soon as city gives its permission. Capital, \$100,00. 9
SCRANTON, PA.—The Nayaug Crosstown R.R. Co. Pres. G. Clark, V. Pres. H. C. Dowd. Sec. T. C. Snow, Treas. B. E. Leonard. Will build 5 m, and probably use electricity. Capital, \$50,000. 2
SELMA, ALA.—Selma Land Imp't & Furnace Co. will build electric st. ry. Capital, \$50,000. R. M. Nelson, W. Ullman and V. T. Vaughan are among the incorporators. 4.
SHEFFIELD, ALA.—Sheffield St. Ry. Co. 6 m, broad g, medium r. 4 c, 4 dummy engines. Road about fibished. Pres. H. B. Tompkins, Sec. Ed. B. Almon, Treas. C. D. Woodson, supt. W. S. White. Capital, \$50,00. 2
SHERMAN, TEX.—H. A. Burnett will build a road this year. 5
SHOUN CITY, IA.—H. W. McNeil, Manager Rasmussen cable, will build a road here, 2½ m. 3
S'OUN FALLS, DAK.—Sloux Falls St. R. R. Co. Company must have 2 m running by Nov. 1 and a mile each year for dwe years thereafter. Incorporators, L. F. Pettigrew, L. L. Dunning and S. L. Tate, Sloux Falls; Jas. Cre gluton, Chicago; Elnathan sawtelle, Evansville, Wis. Capital, \$150,000. 5
SOUTH PITTS burg, TENN.—So. Pittsburg R. R. Co chartered by W. M. Duncan, Sam'l Cowan and others. 7

R. R. Co chartered by W. M. Duncan, Sam'l Cowan and others.

SOUTH ST PAUL, MINN.—So. St. Paul Rapid Transit Co. 8 m, 40 & 56 lb r, 10 c, elec., 4 motors to each c. Enos Elevated Ry, system, with Datt motors. Work now under way. Will be completed this year. Pres. A. E. Clark, Sec. & Gen. Man. J. H. Lawrence. Capital, \$500,000. Office, Geiman Bank Bldg., St. Paul. 1 9

SPARTAN by ITG, S. C.—Spartanburg Land & Imp'l Co. chartered by John B. Cleveland, S. J. Simpson and others to build a st. rr. among other things. Capital, \$10,000. 9

ST. AUGUSTINE, FLA.—Elec. ry. in contemplation. Northern capitalists interested. 8

STERLING, KAN.—H. H. Jackman, of Wichita, will build a streer railway here at once. 9

STEUBENVILLE. 0.—Haines Bros. propose building a new inne here this year. 3

ST. JOSEPH, MO.—Wyatt Park Ry. Co. 5 m. 4 8½ g, cable. Pres. J. M. Huffman. Sec. I. R. Williams. Capital, \$3 0,000. Work to begin about Oct. 1, and to be finished early next year. e 8

Another cable road will soon be built here. 8

ST. LOUIS, MO.—John Jackson, Julius S. Walsh, J. R. Heltenstein and others are interested in a new road on Grand avenue, to use horse, cable or electric power. 6

St. Louis Cable Ry. Assn. Capital, \$100,000. Ju-

road on Grand avenue, to use horse, cable or electric power. 6
St. Louis Cable Ry. Assn. Capital, \$100,000. Julius S. Walsh and others, incorporators. 7
Elec. el. ry. to be built by Henry D. Loughten. 7
So. St. Louis Ry. Co. Pres. W. L. Johnson. Will prob. put in Johnson-Rasmussen cable in spring. 9
ST. PAUL, MINN.—St. Paul Cable Ry. Co. V. Pres. Thos. P. Wilson. Now building. 7
Metropolitan & Suburban Ry. asks for charter, to use cable or h. One mile must be in operation by Jan. 1, 1888. 8
St. Paul Elec. Ry. Co. Daft system. 9
SUFFOLK, VA,—Suffolk St. R. R. Co. Incorporated. 7

Jah. 1, 1888. 8

St. Paul Elec, Ry. Co. Daft system. 9

SUFFOLK, VA,—Suffolk St. R. R. Co. Incorporated. 7

SUNBURY, PA.—Sunbury & Northumberland St. Ry. Co. Elec. ry. Pres. II. E. Davis, Sec. L. H. Case, Treas. S. P. Wolverton.

SYRACUSE, N. Y.—Butternut St. Ry. Co. 2m. To be built this year 2

People's R. R. Co. 5½ m, 4-8½ g, 45 c, 165 h. Work to go forward this fall and road to be opened in April. Pres. J. R. Swan, Utlca, V. Pres. Danlel Candee, Syracuse, Sec. S. A. Beardsly, Syracuse. Capital, \$300,000. a 9

Palmyra St. Surface R, R. Co. Pres. John Hadcock, V. Pres. W. A. Beach, Sec. & Treas. T. D. Brewster. 2 m, 4-8½ g, 36 lb r, 4 c, 10 h. Capital, \$30,000. To be built this fall. a 9

Hudson St. Surface R. R. Co. Pres. D. C. Hadcock, V. Pres. W. A. Beach, Sec. & Treas. T. D. Brewster. 2 m, 4-8½ g, 36 lb r, 4 c, 12 h. Capital, \$30,000. To be built this fall. 9

Lyons St. Surface R. R. Co. Pres. Wm, A. Beach, V. Pres. D. C. Hadcock, Sec. & Treas. T. D. Brewster. 2 m, 4-8½ g, 36 lb r, 4 c, 12 h. Capital, \$30,000. To be built this fall. 9

Syracuse R. R. Co. Incorp'd by Roger S. Perry and others. Capital, \$100,000. 8

Third Ward Ry. Co. To at once build 3¼ m. to Geddes, franchise having been granted. Pres. Wm B. Cogswell, Sec. and Trea. W. S. Wales. Daft elec. system, with Sprague truck and bearings. Metallic St. ry. 9

TACOMA, WASH. T.—Allen C. Mason is interested. Will be pushed to an early completion. May use any power but steam, but the co, want this restriction removed, saying they will use a noiseless motor. 6

TALLABEGA, ALA.—From city to Spring Lake wash.

motor. 6
TALLADEGA, ALA.—From city to Spring Lake
park. Willis Shaw of Birmingham and W. H.
Skaggs of Talladega are among incorporators.
Talladega Land & Imp't Co. are interested. 8
TARPON SPRINGS, FLA.—Will prob. be built
this winter. 9
TAUNTON, MASS.—Scadding St. Ry. Co. Franchise granted. 3½ m. To build through Cedar street

from Main to Grant, thence through School, Purchase, Washington and Bay to Scadding's pond. 10 c, 30 h. Capital, \$60,000. W. W. Swan is interested. Wish to negotiate with parties who would like to take hold of the enterprise.

TEXARKANA, ARK.—State Line Ry. Co. Capital, \$25,000. E. A. Warner, Samuel Lemby and others are incorporators.

B. B. Harrell will build a new line.

TIFFIN, O.—Tiffin St. Ry. Co. has been incorporated. Capital, \$10,000. Perry M. Adams and others, incorporators. May use elec.

TOPEKA, KAN.—Topeka Rapid Transtt Ry. Co. 30 m, 48% g, 35 & 38 lb r, 24 c, 12 Baldwin steam motors. Pres. John Francis, Sec. J. B. Bartholomew, Treas. John Norton, Supt. J. F. Gwin. 10 m built and road to be opened soon. Capital, \$25,000. Office, 621 Kansas avenue.

b 10

Sixth Ave. & Deer Creek St. Ry. Co. Incorporators, Gullford Dudley, B. F. Golden, W. D. Alexander and others. Steam, electricity or other motive power. To accommodate the east side and to be built at once.

Highland Park Circle Ry. Co. Incorporated, and first 3 m. will be completed by Dec. 1. Steel r, nar-

row g, dummy engine. Major Hudson is at the head of the enterprise. 5 West Side Circle Ry. Co. 3 m. In progress. Will connect with the Rapid Transit line. 8

TUSKALOOSA, ALA.—Tuskaloosa Belt Ry. will be built by Tuskaloosa Coal, Iron and Land Co. Officers of both roads: Pres. W. C. Jemison, V. Pres. B. Friedman, Sec. J. W. Castleman, Treas. Geo. A. Searcy. Work to begin at once. 6½ m, 48½ g, 35 lb r, 2 c, 1 steam motor.

TYLER, TEX.—A St. Louis party proposes to build a st. ry. here. 8

UNION SPRINGS, ALA.—Union Springs St. Car Co. Sec. T. H. Mabson, Jr. Bullding. 9
WASHINGTON, KAN.—Co. organized. 5

WATERTOWN, DAK.—Chas. Joseelyne has received a franchise allowing him the use of any streets he wisnes, and to use either horse, steam or electric motors. At least 1 mile must be in operation by May 1, 1888.

WEATHERFORD, TEX.—Weatherford St. Ry. Co. Will begin building soon. Pres. G. M. Bowie, Sec. Jas. L. Simmons, Treas. C. H. Milliken, Supt. L. M. Balley.

WESTFIELD, MASS.—Westfield St. Ry. Co. 5 m. Directors Eugene Cole and J. H. Stoll. of New York, owning a majority of stock; Orrin D. Parks, J. H. Bryan and others. 9

WHEELING, W. VA.—Wheeling Ry. Co. Rec'd permit. Capital, \$10,00. N. Riester, J. M. Sweeney and others are interested. Will use electricity. 9 WICHITA, KAN.—West End Motor Line Co. Capital, \$100,000. W. P. Carey is one of the incorporators.

WINSTON, N. C.—Winston Elec. Light & Motor Power Co. will build a line. 7 WOOSTER, O.—Elec. ry. 9 WORCESTER, MASS.—Lake Quinsigamond road, 4 m, to be changed from steam to electricity. Daft system. 9

WYANDOTTE, KAN.—Inter-State Consolidated Rapid Transit Ry. Co. 5.6 m, 4-8½ g, 35, 50 and 62 to c-b and Tr, 24 c, motors. Cable, 2½ m, being bufft. Pres. David M. Edgerton, Sec. D. D. Hoag, Treas. A. A. Calef, New York, Pur. Agt. D. E. Tyler, Supt. Tkos. E. Lewis.

**YANKTON**, **DAK.**—Bids asked for the building of 2 m, work to commence in 30 days.

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All Parts being Interchangeable and Easily Duplicated.

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# Office: 25 Spring st., New York.

Now offers for sale to the public the Reliable Hoof Clasp, which is used as shown in the above cut, for the purpose of closing cracks in horses' feet and holding the hoof firmly together, thus preventing the entrance of water, dirt or sand within the horny shell or wall. It is well understood by horse owners having experience with sand and quarter cracks that they become mischievous only when some foreign substance makes its way beneath the outside crust, which will, if not attended to promptly, cause the horse great pain, and render him useless to his owner. The method now generally practiced for closing hoof cracks is by nailing or riveting, which is both cruel and dangerous. There are many instances on record where tetanus (lockjaw) has set in as a result of the nailing process.

The Reliable Hoof Clasp possesses none of these objections, as there is no hammering required, it being adjusted to the foot by fastening a small vise to both ends of the clasp, allowing the tongue of one side to enter the loop of the other, and by means of a screw the foot is drawn gently together, until the crack is completely closed, and held in that position, by simply pulling the tongue over and laying it flat against the hoof.

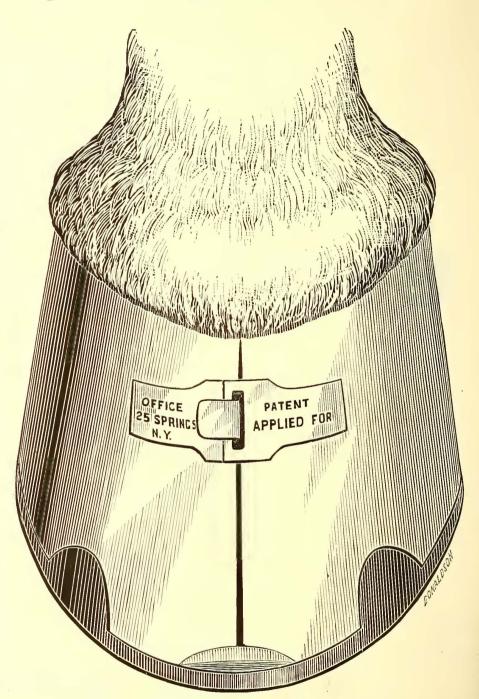
It is well to state, in order to obtain the best results from the clasp, that the soreness should be well out of the foot, and the horse shod properly; if the sole of the foot, having crack, is dropped, it will be necessary to put on a wide web shoe, well concaved, with a bar welded across the center in order to protect the sole from concussion. Good cup feet can be shod in the ordinary way. The clasp should not be applied until the shoe is put on, and the clinches laid down. The horse is then ready for work, and will not give any further trouble.

For Street Railroad Companies the Reliable Clasp will be of special value, as they have a great many fine able horses laid up solely on account of cracked feet.

Those desiring to use the Reliable Hoof Clasps can have them forwarded by mail, together with the necessary tools for applying them, by addressing

#### Dan'l Cruice & Co.,

25 SPRING ST., NEW YORK.



#### DIRECTIONS FOR APPLYING CLASP.

1st. Place gauge across the crack. Strap it on firmly so that it will not shift, then insert burning iron without teeth, placing your hand in a stanting position towards the crack, pressing until the iron comes in contact with gauge, then you are deep enough.

2nd. Place the grips of Clasps Into the Indentation made by burning Iron, inserting at the same time the tongue of one side of the Clasp into the loop of the other, then catch both ends of Clasp in the vise and turn the screw which pushes the tongue through the loop, and at the same time draws both sides of

the hoof together, thus completely closing the crack,

3rd. Pull the tongue of the Clasp well up with pinchers, so that it will lie snugly against the loop, then turn it entirely over so that it will lay flat on the hoof, in order that the horse will not interfere it placed on the inside quarter of the foot. If in time the clasp should become loose apply the vise to both ends, then lift the tongue so that in compressing the vise you push the tongue forward, then lay the tongue back by the ald of the punch in order that it may be brought up snugly to the end of the loop.

Send for Price List.

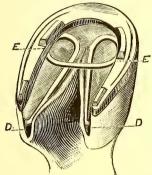


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USE PROF. ROBERGE'S PATENT HOOF EXPANDER,



Which Cures Corns, Contraction. Quarter-Cracks, &c.

It is the best invention for expanding a contracted foot, or keeping a sound foot in its natural shape.

It is used and approved by the leading horse owners of the New York Driving Park, such as

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and hundreds of other gentlemen of repute. In ordering, send diagram of foot, with price. Same will be forwarded free by mail.

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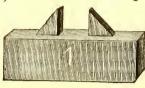
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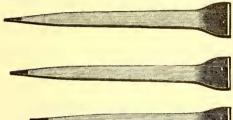


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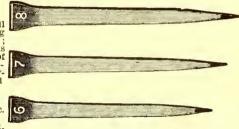
#### CHAMPION HORSE NAILS.

Manufactured from very best Swedish Metal. Will not split. Are accurately pointed, tough, strong and hold the shoes. Soft enough to clinch readily; stiff enough to drive without bending. All nails uniform and perfect. They are used in thousands of shops with the best of satisfaction, and are especially liked by "floor-men" for their good reliable driving. Made in two patterns, "Large Heads" and "CITY HEADS."

QUALITY GUARANTEED.

Nos. 4, 50c; 5, 28c; 6, 25c; 7, 23c; 8, 22c; 9, 21c; 10, 20c.

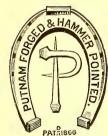
Champion Horse Nail Co., Appleton. Wis.



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Highest Award at the







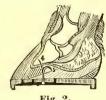


Fig. 2.



**Gentennial** Exhibition.

These drawings show how many horses are made lame and permanently injured by the use of the cold cut and sheared-pointed Nails. This process of manufacture produces lamination, causing the iron to form in layers, and when driven into the foot, the horny fibers of which the hoof is composed cause the nail to separate at the point, and one portion passes into the foot.

No. 4 represents one of these nails which was driven into the hoof and slivered in driving, one thin blade passing into the quick or sensitive sole; No. 5 the thick blade of the nail passed out of the wall of the hoof for clinching. After a few days the horse was returned lame, and upon the removal of the shoe, a nail similar to the above was broken off, leaving the sliver in the foot: Lock-Jaw ensued, from which the horse died. Upon dissecting the foot a portion of the nail was found to have penetrated through the coffin bone, as seen in Fig. 2, letter A, thus sacrificing the life of a valuable animal.

It requires but little observation and reflection, one would think, to arrive at the conclusion as to the kind of nails to be used in the horse's foot, whether a mangled plece of iron rendered DANGEROUS by the COLD ROLLING AND SHEARING process, or one made from the rod at a welding heat, where all the fibers remain intact and a perfect onkness maintained and being pointed by the hammer, rendering such an accident as slivering utterly moossible.

The foot is the most important member of the animal's body, to which the greatest care and attention should be directed; for when it becomes injured or

diseased, no matter how perfect the other parts may be, the horse's services are diminished or altogether lost. Hence the value of a horse depends upon the condition of his feet.

The horse at every step brings an immense power and weight to bear upon the foot. The hoof is a thing of life and yields to the pressure. The PUT AM NAIL being forged accommodates itself to the pressure of the hoof. It is far otherwise, however, with stiff rolled and cut nails. They remain rigid and their sheared edges are therefore pressed like sharp knives against the horny fiber. This is what causes the broken and rotten appearance so frequently seen in horses shod with cheap cut nails. Can a horse owner afford to attempt to save a few cents in price of nails and ruin his horse? Surely not, for the old adage is true as ever,

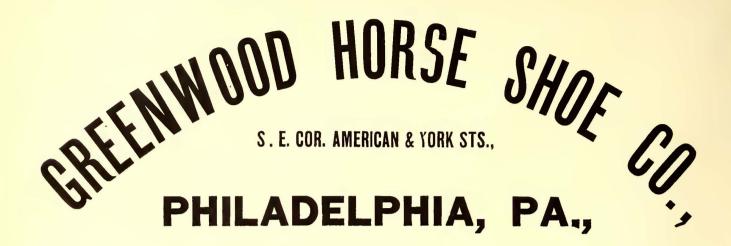
adage is true as ever, "NO FOOT, NO HORSE."

As the remedy lies with the owner of the horse, it is for him to prohibit any cold-rolled or sheared nalls being used in his horse's feet.

The only Hot-Forged and Hammer-Pointed Horse-Shoe Nail in the World

that is not cut, clipped or sheared upon the point, and will not split in driving, is THE PUTNAM NAIL.

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STREET RAILWAY COMPANIES CAN HAVE ANY KIND OF SPECIAL SHOE MADE IN QUANTITIES.

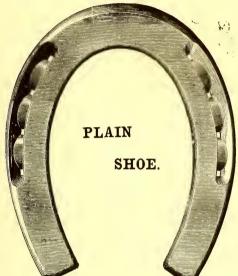
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THESE SHOES ARE IN CONSTANT USE ON MANY OF THE LEADING RAILROADS OF THE COUNTRY.

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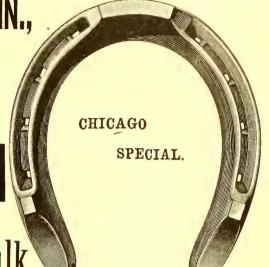


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HORSE AND MULE SHOE.

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

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

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

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

It is not ne essary to heat the shoe in order to fit it.

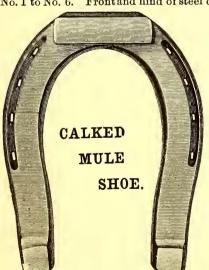
There are no welds in the shoe to break, the calks being solid forged up from the SOLID
CALK
HORSE
SHOE.

The shoes have a good substantial clip drawn up from metal driven outside the regular outlines of the shoe for that purpose. The outer edge of the clip, when drawn up, coinciding with the outlines of the shoe, requires no robbing of the hoof wall to let in the clip.

Among the street railways using our shoes are, the Third Avenue R. R. Co., Eighth Avenue R. R. Co., Broadway & Seventh Avenue R. R. Co. of New York city; Bushwick R. R. Co., Brooklyn City and Newtown R. R. Co. of Brooklyn; Philadelphia Traction Co., Citizen's Passenger R. R. Co., Second & Third Street R. R. Co. of Philadelphia; Metropolitan R. R. Co. of Washington, D. C.; North Chicago R. R. Co., Chicago City R. R. Co., West Division R. R. Co. of Chicago, Ill.; New Orleans City & Lake R. R. Co. of New Orleans, La.

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

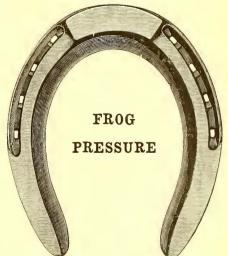
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OUR FROG PRESSURE SHOE. The advocates of the frog pressure system of horseshoeing have in this shoe the verything they want. The best shoe made for curing corns or contracted feet. Made in sizes No. 1 to No. 6. Front and hind, irou, or steel.

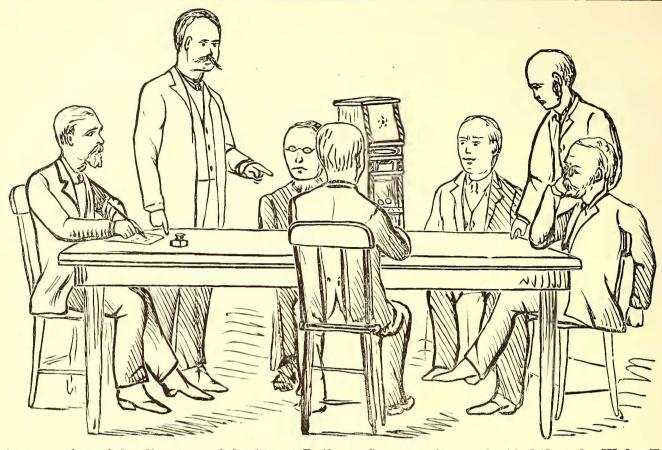
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At a meeting of the directors of the Street Railway Company it was decided that the Wales Fare Box was the best, and it was unanimously voted to adopt them on all their cars. The Secretary was instructed to order the boxes at once from

See page 926.

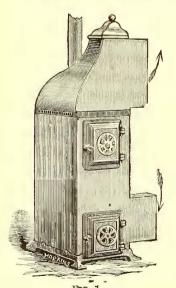
WALES MANUFACTURING COMPANY, SYRACUSE, N. Y.

HENRY KAHLO.

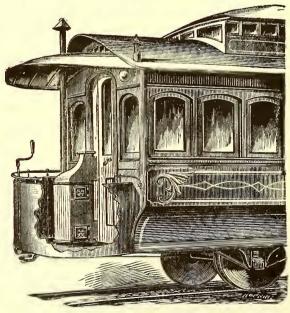
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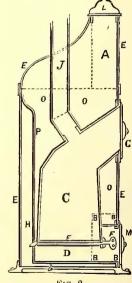
#### ROOT HEATERS. PATENT CAR



External appearance of The Root Patent Car Heater.



Represents Heater in Position on Front Platform of Cars.



Sectional View of Ine Root Pat. Car Heater.

Represents Heater in Position of Flation of Cals.

Description of Fig. 1.—Is the Heater detached, showing a section of Smoke Pipe. 3 inches in diameter, the upper door for coal and the lower door for removal of ashes. Arrows indicate hot and cold air registers. The doors contain dampers for regulation of draft.

Description of Fig. 2.—A, hot air; BB, cold air receivers; C, fire pot: D, ash pit: E E, outline of heater; F, double dumping and shaking grate; G, door; II, cold air space between outside casings; J, flue; L, removab'e tops; M, lower door; OP, air passage.

The features of excellence claimed for the Root Patent Car Heater are: They occupy a space of only 10½x14 inches, and are located on the front platform of cars; they furnish heat for the driver and do not interfere in the discharge of his duties; the cars are not mutilated in attaching the Heaters; neither the sitting nor standing capacity of car is curtialled; the heat is made uniform by drawing the cold air from the bottom of cars; they render cars abundantly warm in the coldest weather and are easily operated and regulated. They are convenient, economical and efficient.

The Root Patent Car Heaters have been in use from one to six years on Street Railways in Rochester, Brooklyn, Albany, Pittsburgh, Wheeling, Baltimore, Elmira, Milwaukee, Minneapolis, St Paul. Bay City, St. Joseph and other cities. We have many testimonials in behalf of all that is claimed for them. Further information can be obtained by addressing

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Clipping Machines Horses and Mules. Can be run by Hand or Power. Send for cuts.

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For Warming Horse or Street Railway Cars.

These car heaters are in successful operation on all of the street railway lines in the city of Brooklyn, New York. and on railroad lines in the United States and Canadas, and give entire satisfaction.

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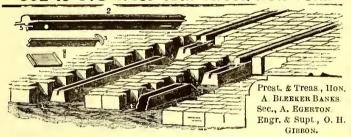
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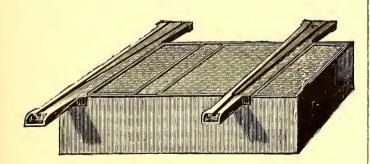
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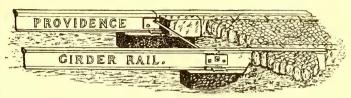
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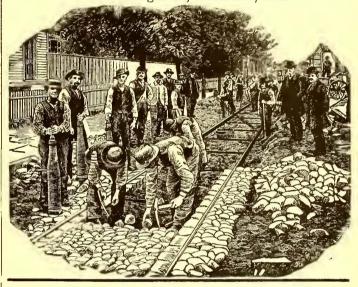
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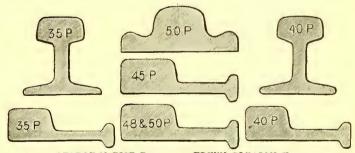
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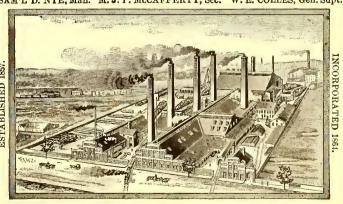
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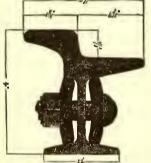
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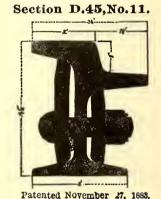
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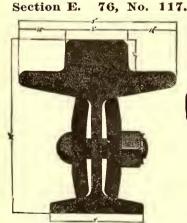


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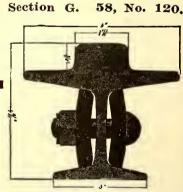




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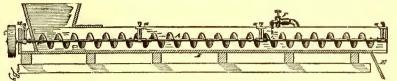
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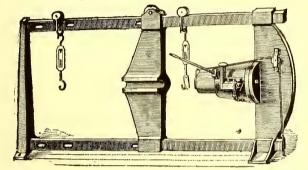
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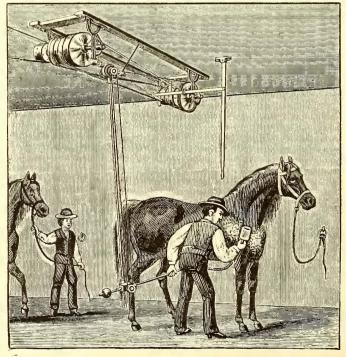
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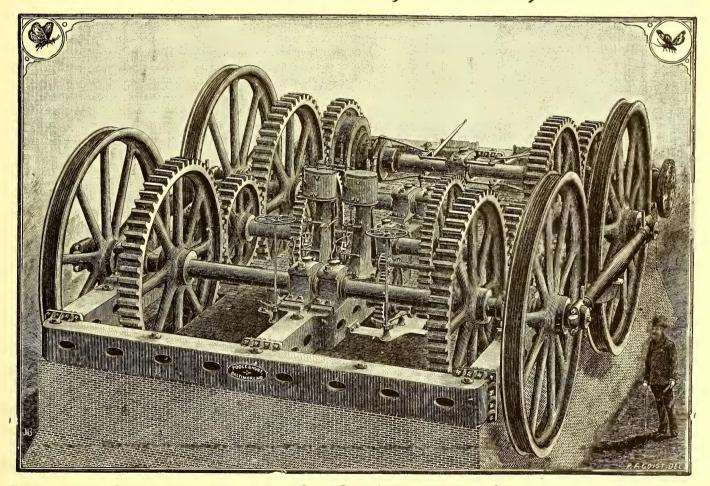
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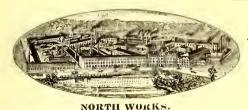
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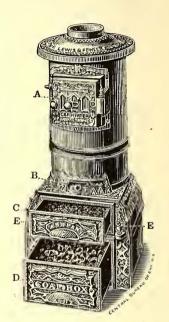
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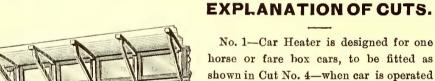
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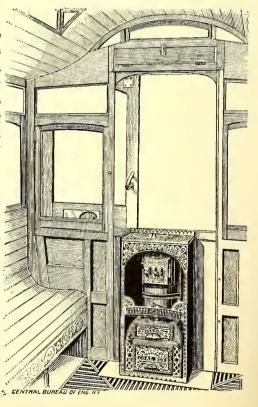


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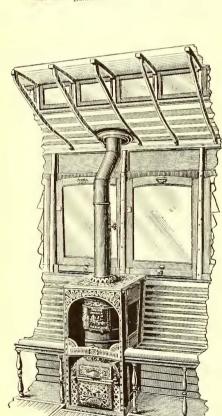
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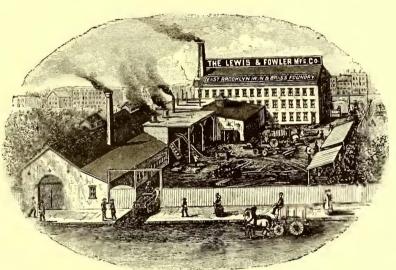
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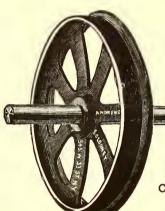
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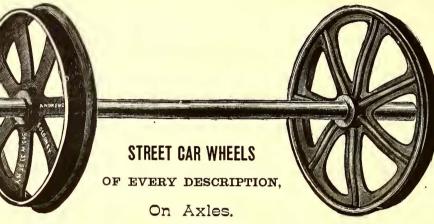
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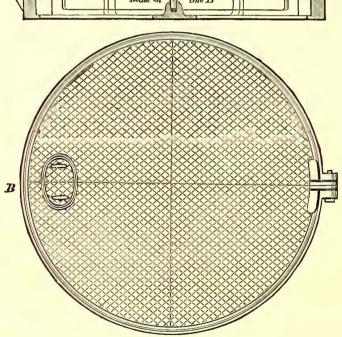
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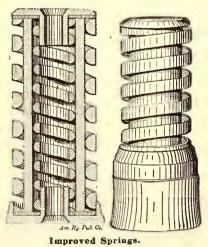
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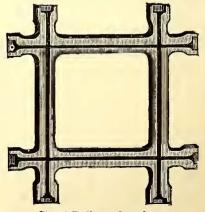
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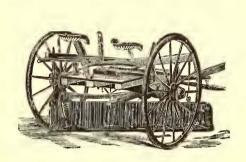
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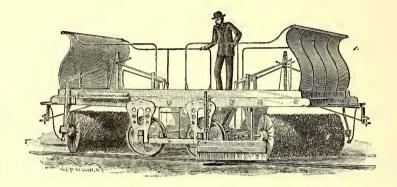
# The "Boss" and "Walkaway" Snow Plows.

One-Third the Price of other Plows and Satisfaction Guaranteed.

We are in receipt of letters from prominent railroad men all over the country and print a few to show what they think of them. Parties needing Plows are respectfully referred to any railroad companies using them.

NET PRICE FREE ON BOARD CARS: BOSS, \$100: WALKAWAY, \$150.





BOSTON CONSOLIDATED STREET RAILWAY CO.
CHAS. E. POWERS, PRES. SAMUEL LITTLE, TREAS.
JOHN H. STUDLEY, JR., ASST. TREAS.
TREMONT ROW COR. PEMBERTON SQUARE,)
BOSTON, May 25, 1887.

CHAS. B. ALLYN, Esq.:
DEAR SIR—In reply to yours of the 21st inst. I would say that during the snow storms of last winter we made use of the "Boss" Snow Plow and with very satisfactory results. It will do the work of very many men in leveling off the snow and keeping the levelings down. lcy ridges down.

Very truly yours,

CHAS. E. POWERS, Pres't.

MILWAUKEE, Wis., Jan. 7, 1887.
THOMAS KANE & CO.:
GENTS—The two "Boss" scrapers purchased from you some two weeks ago are doing very satisfactory work in scraping snow and ice from our tracks and leveling same. We are well pleased with them.

Very respectfully,

Peter McGeogh,

Pres. Mil. St. Ry. Co.

Sr. Louis, Jan. 14, 1887.

THOMAS KANE & Co.:

GENTS—Yours of recent date to hand. I have been using the "Walkaway" snow scraper on my roads for the past three weeks. It gives entire satisfaction. It paid for itself in one trip. It is almost a necessity for street railroads.

Very truly yours,

CHAS. GREEN,

Pres. People's Ry. Co.

MINNEAPOLIS, MINN., Feb. 14, 1887.
THOMAS KANE & CO.:
GENTS—I have SIX of your Walkaway Snow Scrapers on our roads in St. Paul and Minneapolis. We have had a very hard winter, and I have 22 snow plows, and I am pleased to say that your plows have given us the best satisfaction of any.

Respectfully yours.

C. G. GOODRICH.

Sacky Minneapolis St. Pr. Co.

Sec'y Minneapolls St. Ry. Co.

SOUTH BEND RAILWAY CO., SOUTH BEND, IND., Feb 4, 1857.)

FLEMING MFG. CO.:

We are perjectly satisfied with the "Boss" purchased of you, as it will do all claimed for it and we consider it the cheapest and best snow plow made for street car purposes.

A. F. Speenk.

A. F. SPEENK, W. F. MILLER, Supt.

St. Louis, Mo , Jan. 15, 1887.

ST. LOUIS, NO., USAN CO.:

GENTS—The Belle Fontaine Ry. Co. is using two of your Boss Snow Scrapers and they give entire satisfaction. It is difficult now to understand how we ever got along without them.

ROBERT MCCULLOCH,

ROBERT MCCULLOCH,

Sec'y Beile Fontaine Railway Co.

LANSING, MICH., Jan. 8, 1887.

Lansing, Mich., Jan. 8, 1887.

James A. Bell, Esq., Agent Fleming Mfg. Co.,
Dimondale, Mich.:
Dear Sir—I take pleasure in assuring you that
the "Walkaway" Snow Scraper we bought of you
has proved a very efficient aid in cleaning our
track of snowthis winter. We have had no difficulty
so far in removing the snow with the scraper and
one pair of horses. A specially valuable feature of
the machide is the ease with which one can level the
snow from the sides of the track, thus preventing it
being pushed back on the track by vehicles and
avoiding disagreeable controversy. The machine is
strong, simple, effective and the best snow fighter of
the kind I ever saw.

Yours truly,
H. M. Clark.
V. Pres, Lansing City Ry. Co.

Meriden, Conn., May 23, 1887.

Chas B. Allyn, Esq.:

Dear Sir—Yours of the 21st inst, at hand and I will say in regard to the "Boss" Snow Plow that I used it in three very hard snow storms this year just after we started the R. R. and will say I would take no price for it if I could not get another one. It did all you could ask for it to do.

Daniel Barker, Supt.

Meriden H. R. R. Co.

HANNIBAL, Mo., Jan. 4, 1887.

THOMAS KANE & CO.:
GENTS—We are well pleased with the "Boss" Snow Scraper. You gave it the proper name, as it is the Boss. We would not be without it for double what

James O'Hern, Sec. Hannibal St. Railway Co.

THE WATERBURY HORSE R. R. Co., WATERBURY, CONN., May 23, 1887.

WATERBURY, CORN,
BROOKLYN RAILWAY SUPPLY CO.:
GENTLEMEN—We are very much pleased with the
"Boss" snow plow purchased of you. I don't know
of anything that will handle a heavy snow equal to
it.
Respectfully yours,
E. A. Bradley, Supt.

MICHIGAN CITY, IND., Feb. 12, 1887.

SAM JENNINGS, ESQ.:

DEAR SIR—The snow plow we bought from you in my opinion meets all the requirements that it is intended for, and gives good satisfaction. We have used it on our road this winter when the snow was three feet deep on our track, and must say that it did its work admirably.

Yours truly,

JOHN LYONS,

V. Pres. M. C. St. R. R. Co.

PAVONIA HORSE RAILROAD, J. H. SMALL MANAGER, JERSEY CITY, N. J., Feb. 12, 1887.

BROSELYN RAILWAY SUPPLY Co.:
In reply to yours of 7th inst. I would say that I think the Boss Snow Piow is something that every road that has to fight snow should have. It has given me very great satisfaction this winter.

Yours truly,
J. H. SMALL,
Manager Pavonia H. R. R.

EAU CLAIRE ST. RAILWAY CO., EAU CLAIRE, WIS. TO THE FLEMING MFG. CO., Fort Wayne. Ind.:

GENTLEMEN—I have used the Boss Snow Scraper purchased of you and I find it giving entire satisfaction. I could not possioly run my cars had it not been for the use of it this winter, and I cheerfully recommend it to any street railway company that may be troubled with snow.

Yours very respectfully,
J. R. HARRIGAN, Supt.

ERIE, PA., Feb. 8, 1887.

ERIK, PA., Feb. 8, 1887.

FLEMING MFG. Co., Fort Wayne, Ind.:

GENTS—Yours of 2nd inst. is at hand. In reply I
would say that the "Boss" Snow Scraper and Track
Cleaner is all that you recommended it to be. We
have had considerable snow here, and had a good
opportunity to give it a trial. It is without a doubt
a Boss scraper and cleaner. I can recommend to
any one requiring the same.

JACOB BORST, SUIT.

JACOB BORST, Supt.

JANESVILLE. WIS., Dec. 19, 1886.
GENTS—We have had a good chance to try the Walkaway, and it did all you claim and is the best scraper I have seen work this winter. I like it a great deal better than one that runs on the rail, for we can leave rail in so much better shape than with the V scraper.

Your Struly,
CHAS, ATWOOD, SUPT.

Janesville St. Raliway Co.

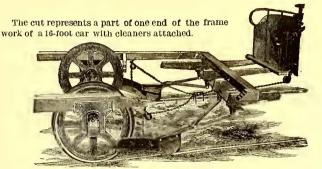
# THE BROOKLYN RAILWAY SUPPLY COMPANY,

44 Walworth St., Brooklyn, N. Y.,

AGENTS FOR THE NEW ENGLAND, EASTERN AND SOUTHERN STATES.

Machines Always in Stock for Export.

### DAY'S IMPROVED STREET RAILWAY TRACK CLEANERS.



These cleaners have proved their SUPERIORITY OVER ALL OTHERS INVENTED, FOUR THOUSAND pairs being NOW IN USE. Every part is furnished complete, including bolts.

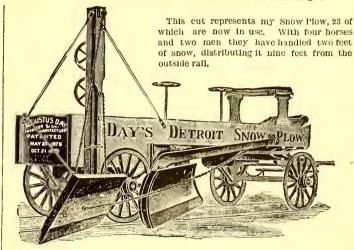
They are intended to be placed on every car in use, and thereby secure a clean rall during snow storms and the continual obstructing of the rail by passing teams.

teams.

They are adaptable to all kinds of rails and styles of cars; clean snow, ice, mud, dirt and stones from the rail; do not perceptibly increase the draft; doubling seldom required: are easily attached, and when fitted, can be shipped and unshipped in a few moments; are under the immediate control the driver, and can be lowered or raised instantly with one hand. ALL PARTS ARE MADE INTERCHANGEABLE and NUMBERED for convenience in dupitating.

MADE INTERCHANGEABLE and NUMBERED for convenience in cupincaling.

No estimate can be made of their advantage in saving of horseflesh, hand labor, salt, and themaking of time instormy weather. Since their introduction new and valuable improvements have been made in their construction, mode of attachment, and convenience of handling. They are finished in a thorough, workmanlike manner, of the best material obtainable, the design being to manufacture the most efficient article in preference to other considerations. It will readily be seen that in the full use of these scrapers the whole system of cleaning tracks will be somewhat changed, and the use of the snow plow very materially lessened, and in some cases almost entire y obviated. Long experience has proved conclusively the importance of placing them upon every car in use, as the car not having them on is continually packing down upon the track whatever is upon 1t, and rendering it difficult to keep a clean rail. Cleaners should be ordered 60 days before required for use.



My Snow Plows are built to gauge of track, and the tires on wheels are made similar in shape to the flange of car wheels and run upon the train part of the rail, and are easily kept on the track. For Trail a suitable from wheel is made. Have been in use if veers. During that time many improvements have been made in strength, efficiency, and adaptability. With FOUR INDESS AND TWO MEN they have HANDLED TWO FEET OF SNOW, distributing it nine feet from the outside rail.

It is adapted to SINGLE OR DOUBLE TRACK ROADS, adjustable where necessary; built in the most thorough and substantial manner, of the best material, with gas pipe rail all round. The plow is not in ended to supply the place of the small scrapers, but to be auxiliary to them. For execution in deep, snow, EASE AND CONVENIENCE IN HANDLING, it surpasses all others in use. 27 PLOWS NOW IN USE.

PLOWS SHOULD BE ORDERED THREE MONTHS BEFORE REQUIRED FOR USE.

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### ADJUSTABLE CLUTCH AXLE.

- I. Saves thirty per cent in the wear of wheels and rails.
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- 4. Enables horses to do twenty-five per cent more work, by sparing them the hard pull in rounding curves.
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#### AT A COST SLICHTLY ABOVE ORDINARY WHEELS AND AXLES.

We use only the best car wheels, cold rolled steel axles of the finest quality, and our work is second to none in the country.

Our axle is now in use on the Jersey City and Bergen Railroad, and in Syracuse, N. Y. We refer to the officers of these lines to substantiate the above claims.

Now negotiating with other leading roads.

MANUFACTURED BY

### THE EMPIRE AXLE MANUFACTURING COMPANY,

GEORGE B. HIBBARD, President,

32 Nassau Street, New York City.

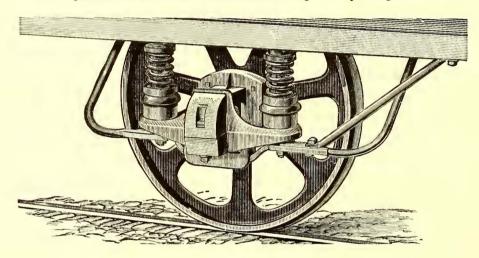
# The Bemis Car Box Co.,

MANUFACTURERS OF

### The Bemis Patent Journal Box.

Light Draft, Easy Riding, Durable, Economical.

Brasses are warranted for 10 years, and Journal for 20 years. Requires oiling or inspection but once in 12 months. Boxes are positively dust proof.



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Brooklyn Cross Town R. R.
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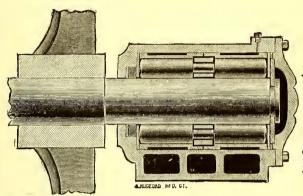
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### The Bemis Car Box Company,

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### CAR BOX AND GEAR.



LIGHT DRAFT EASY RIDING DURABLE POSITIVELY DUST PROOF AND OIL TIGHT

Boxes Hold Sufficient Oil for One Year. No Waste Used for Packing nor Babbitting for Boxes.

Overcomes Friction in Taking a Curve.

\*\* SUPERINTENDENT'S OFFICE, HIGHLAND STREET RAILWAY,
NO. 827 SHAWMUT AVE., BOSTON, AUGUST 19, 1886.

CHAPLIN M'F'G CO., MESSES.:—In reply to your note I will say we have had a set of your
Gear under car, "Gov. Rice." for the past four years and it has proved very acceptable, so
much so that we have decided to put on 50 sets of your improved pattern. The wear on the
journal is imperceptible, and it is beyond question the easiest running gear in the market.

Respectfully, J. E. Rugg, Sup't.

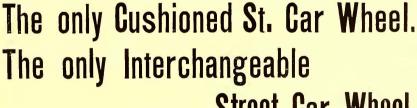
SEND FOR CATALOGUE.

The Chaplin Mfg. Co., 69 Wall street, New York.

# PECKHAM'S Patent Elastic Street Car Wheel,

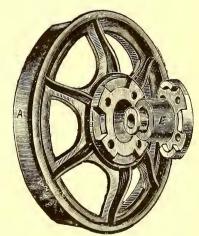
WITH INTERCHANGEABLE WEB, TUBULAR FIBROUS CUSHION AND

INDESTRUCTIBLE CLUTCH JAW HUB.



Street Car Wheel.

No Crystalization of Wheels or Axles. Noise and Jolting of Cars Prevented.



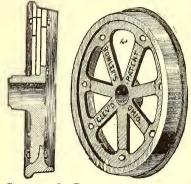
No Special Machinery or Skilled Labor Required for Renewals.

All Parts Interchangeable and Warranted.

-Price Lists, Descriptive Circulars and Blue Prints furnished upon application.

### The Peckham Car Wheel Company,

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# Cleveland Foundry, Cable

Manufacturers of

Car and Locomotive Wheels, either Chilled or Steel Tired; with or without axles. Street Railway Wheels, Turnouts and Turntables, Patent Chilled Face RR. Frogs. Engine & Heavy Castings a Specialty,



Graded Stable Gutter with Straight or Curved Cover.

Descent N inch per foot. Pieces 5 feet lengths; short pieces furnished to suit any length. Spouts to connect with sewer.

They control and make N. P. Bowler's Patent Street Railroad Wheel. The tire of this wheel is cast separately from the hub and spokes; the latter is made of soft strong iron, and is perfectly free from strain—therefore can be made much lighter and more durable. The tires and the spokes or center of the wheel are made perfectly interchangeable so that when the tire or rim is worn out another can be put in its place by any employee with no other tool than a common wrench.

### Bowler & Co. Winter St. Cleveland, O. Descriptive their address.

### Important to Street Railways!

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### Rope Traction,

As Applied to the Working of Street and Other Railways.

By J. BUCKNALL SMITH, C. E.

Illustrated with 76 plates showing the practical ideas of the best cable practice in the world, and including descriptions of the working plant of the cable roads of the United States, Europe, Australia and New Zealand. With a treatise on the manufacture of wire and wire rope and their application for cable traction, and for mine hoisting, etc.

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The Leading New Grease for Street Railways Trade Mark Pat. Mar. 13, 1883.

The Best Lubricant for Street Railways Known.

Will run for One Year on One Packing. Cars will run easier packed with Dux, than with oil and waste. Why? Because we give you a better lubricant. No drip from Car Boxes when packed with Dux, and, therefore, keeps the car boxes and trucks clean.

#### Try it and you will use no other Lubricant. DUX FOR STREET RAILWAYS.

PITTSBURG, ALLEGHENY & MANCHESTER RY. Co., PITTSBURG, PA., Aug. 13, 1885.

PITTSBURG, ALLEGHEST & Control of the past nine months. It has Green entire satisfaction; in fact, it is the best I have ever used. Think it fully as good as represented.

Yours truly,
J. C. Cotton, Supt.

Office of Camden Horse Railroad Co., Camden, N. J., Dec. 14, 1886. - Leib Lubricating Co., 196 and 198 Chicago st., Buffalo.

We have used your 'Dux Lubricant' for about two years and regard it as the best and cheapest lubricant ever used by this company.

John Hood, Supt., etc.

Office of Acushnet Street Railway Co., New Bedford, Mass., Dec. 11, 1886. The Leib Lubricating Co., Buffalo, N. Y.:

Dear Sir—We have used several packages of your "Dux" and like it very much. We can recommend it to any one using axle grease.

Yours very truly,
A. P. Smith, Treas.

Byron Weston, First-Class Ledger and Record Paper, Dalton, Mass., Oct. 15, 1886.

Leib Lubricating Co., Buffalo, N. Y.

GENTLEMEN—Yours of the 13th inst. received. In reply; we like your Dux

Lubricating Compound very much, and when this is used up that we have on hand shall order more. I find on heavy bearings where no other oil or grease would cool it yours did the work.

Yours truly,
HARRY W. HITT, Supt. FAULENER MILLS .- F. J. HASTINGS & Co., MILLERS.

FAULKNER MILLS.—F. J. Hashing So. Acton, Mass., Dec. 23, 1886.

Leib Lubricating Co., Buffalo, N. Y.

Gents:—Your favor of the 17th inst. duly received. In reply we would say, that for several years we had much trouble and annoyance to find a lubricant for our heavy bearings that would stand, and tried various articles on the market without being satisfied, until a friend connected with a large manulacturing concern gave us a few pounds of the Dux Lubricant to try. It worked so much better than anything we had ever had that we ordered enough from you to give it further trial, and as a result have used it ever since, and can truly say it is the best lubricant we ever used. It will stand heat, gives off no drip and is economical, and we are very much pleased with it and do not hesitate to declare that it is our firm belief that there can be nothing ever made to equal it. Our experience on wagons has been equally satisfactory; our first attempt being on a heavy wagon used every day, heavily loaded, ran 21 days when it went into the shop to be painted, and then was in a good condition to run longer. The only thing we regret is that we did not at once try and arrange to sell it in this locality, still one of our townsmen to whom we gave your address, Mr. Littlefield, has since obtained the agency, we learn, and we can obtain it through him.

Yours truly,

F. J. Hastings & Co.

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FRANTZ\_& ENNIS, WILKESBARRE, SOLE AGENTS FOR PENNSYLVANIA,

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AMER. RAILWAY PUBLISHING CO.,

ESTABLISHED 1847.

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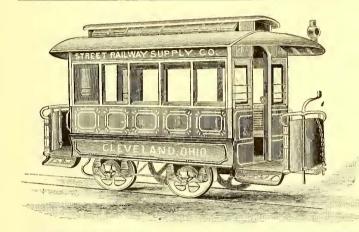
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### CAST CHILLED WHEELS,

AXLES AND BOXES

FOR EVERY KIND OF SERVICE.

Street Railway Wheels of all Sizes.



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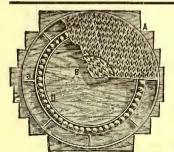
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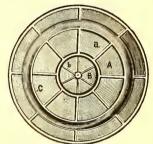


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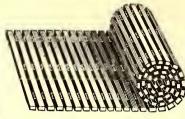
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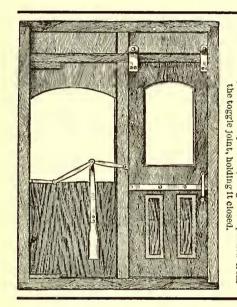
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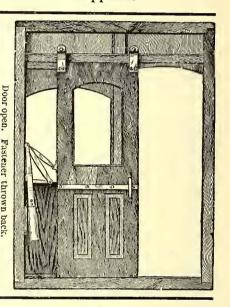
Especially adapted for Elevator Doors.

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TRUSS HANGERS, for Barns, Warehouses, Freight Stations, Etc.

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BRACE HANGERS, Concealed from View, for Parlor Doors.

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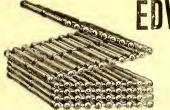
Hangers for Elevator Doors a

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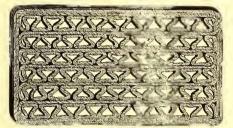
The Most Durable, Easiest Cleaned and Repaired Wood Mat ever made.

I would respectfully call the attention of Managers of Street Railways to my latest improved Reversible Folding Mat, made to fit any size car. Sample order solicited.

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Braided Cocoa Car Mats.

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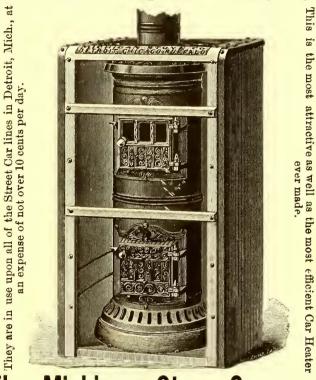


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Solicited.

# EDWARD BEADLE, Garland Car Heater



Company,

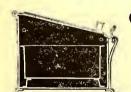
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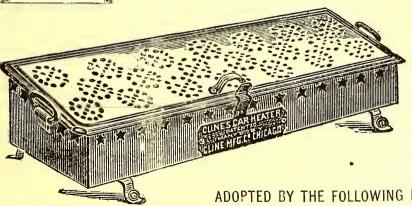
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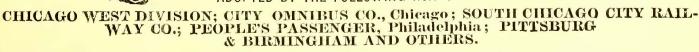
Convenient. Cheap.

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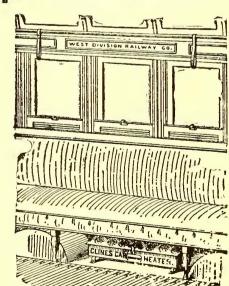
NO CUTTING OF CAR TO PUT IN.



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The "BROADWELL CAR STARTER," having been subjected to practical tests, is now placed on the market at a very low price.

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SUPERIOR TO LEATHER OR ANY OTHER MATERIAL.

Keep the Oil in the Car Boxes, and Sand and Dust out of them.

They are not affected by oil, grease, or petroleum; do not cut the axles, as grit does not adhere to them; keep their shape well, and will outwear several leather ones. Cut to order of any desired thickness or pattern. Send drawing or sample for estimate. This material is absolutely free from grit and will not become brittle and break. Now in use on the Leading Railroads, giving general satisfaction.

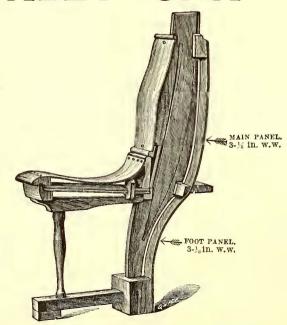
BE SURE TO SEND FOR SAMPLES AND PRICES.

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### STREET CAR SEATS & BACKS.



#### THREE-PLY CAR SIDES.

Having given our three piy white wood car sides a thorough trial for a number of years in our city street and railway lines, which test has left them as firm and good as the day they were put in, we unhesitatingly place these sides in the market as a superior article. They are composed of three white wood (or poplar) veneers, each ½ inch thick, the grain of the center layer running at right angles with the two outside layers. Hence they derive all the special and well-known advantages of glued up wood over single ply, namely:

1st. They are fully 75 per cent stronger, for they brace and stiffen the car.

2nd. They are lighter, being only 3-8 inch thick, and so do not add so much dead weight to the car.

3rd. They will not check or split by change of atmosphere.

4th. They will not split or crack when nailing into place, even though the nail be placed near the edge.

5th. Being laid over a form to suit the shape of the car frame or post they cannot buckle or twist, a feature which also adds strength to the

For repairing cars these sides have no equal.

Our Three Ply Car Seats and Backs, so well known all over the world, are now the most popular seat and back in the market, and recommend themselves especially for their Lightness, Cleanliness, Healthfulness and Beauty, as also their Cheapness and Durability. For they are indestructible by moths (the great enemy of upholstering), and will not harbor vermin or insects, or carry or communicate contagion or disease. Our trade in this line has grown in thirteen years to vast proportions, which in itself is a sufficient guarantee of their merits. They are made either perforated or plain to suit customers. Birch is the wood most generally used. Today fully one-half the railroads in the country are using these seats and backs. We would also call attention to our Veneer Ceiling for cars. They are made either plain, perforated or decorated, and greatly add to the beauty of the car. For repairing cars they have no equal; for they are placed over the carlines and cover all the old paint and wood work. The woods generally used are Birch, Birdseye Maple, Oak and Mahogany.

### GARDNER & CO.

Manufacturers of Car Seats and Ceilings and Depot Seating,

OFFICE AND FACTORY: 643, 645, 647, 649, 651, 653, 655 and 657 West 48th St., New York.

Sample and Salesroom: 206 Canal St., cor. Mulberry.

Send for Catalogue.

Address all Communications to Office.

### "The Reliable Sand Box"

Over 500 Now in Use.

JERSEY CITY, June 4th, 1887.

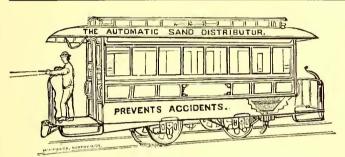
W. T. BUTLER, Esq.

19 Tremont Row, Boston:

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

Yours truly,

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



#### THE AUTOMATIC SAND DISTRIBUTOR,

For Horse, Cable, Electric and Steam Cars. Charges the Sand direct on top of rail, in front of wheel, in any quantity, whenever wanted. Acts instantaneously by foot pressure. Patented and manufactured by

Jordan-Mills Manufacturing Co., 32 Nassau Street, New York.

### THE HALE & KILBURN MANFG. CO.,

#### Street Car Seats

of every description.

Our Patent Spring Scats covered with Rattan or Carpet are fast being adopted by the best railroads in the country. Seats for Steam Cars a Specialty. owners and makers of all the Cobb patents



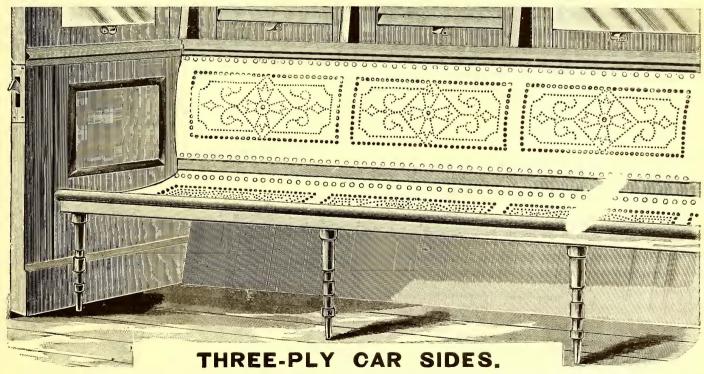
Many R. R. Co's use our Rattan Pat. Canvas Lined Seats for Summer and cover the same with carpet for Winter. This method of seating we recommend as durable and economical, for the reason both a Summer and Winter seat is obtained in one. both a Summ tained in one.

Estimates & Particulars cheerfully given (mention this paper), satisfaction guaranteed

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OFFICES: 48 & 50 NO. SIXTH ST., FACTORIES: 615 to 621 Filbert St.,

PHILADELPHIA, PA. Cut of section of cross for summer car.



These seats and backs have been in use a number of years and have given universal satisfaction. They have received such a thorough test and are so well known that they show their good qualities and we need say nothing for them. Our facilities for doing this work are the largest in the world. We own the forest from which our lumber is cut. We cut our own vencer and do our own work in all its departments. We keep, laid up in stock, seats and backs and can fill all orders promptly. Our 3-ply white wood car sides, ends and roof add fully 75 per cent to the strength of cars. We can also furnish car ceilings made of any kind of wood desired, plain decorated. Send for Railroad Catalogue.

### Frost & Peterson, 161 & 163 West 18th St., N.Y.

W. P. SECUINE, Manager Railroad Department,
PURDY & HUNTINGTON

REGISTER RAILWAY

### **MANUFACTURING**

MANUFACTURERS AND OWNERS OF THE Latest Designs, Improvements and Inven tions in Registers, Indicators, Classiflers and Punches, for the Recording of Fares Collected on Street and Steam Railroads.



JAMES McCREDIE, Pres., Buffalo, N. Y.

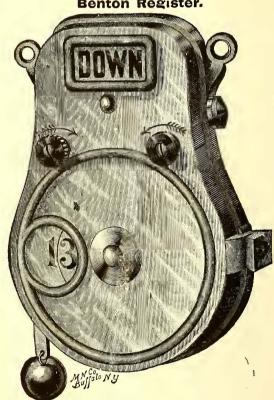
### COMPANY,

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

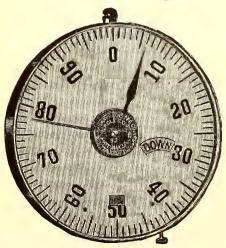
#### The Alarm Registering Punch.

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

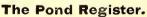
#### Benton Register.

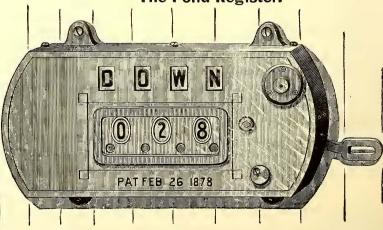


#### The Monitor Register.



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





EDWARD BEADLE, Manager, 1193 Broadway, New York City, N. Y.

JOHN F. COURTNEY, Gen. Agt., 423 Walnut St., Philadelphia, Pa.

ELI BALDWIN, President.

#### THE

WALTER S. BALDWIN, Sec'y & Treas.

### STANDARD INDEX AND REGISTER GOMPANY,

138 FULTON STREET, NEW YORK,

SOLE LICENSEES AND MANUFACTURERS OF THE

SIMPLE.

#### **IMPROVED**

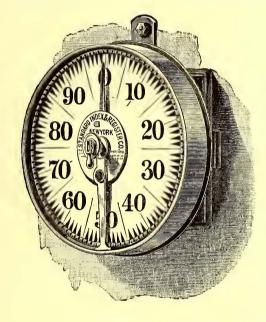
DURABLE.

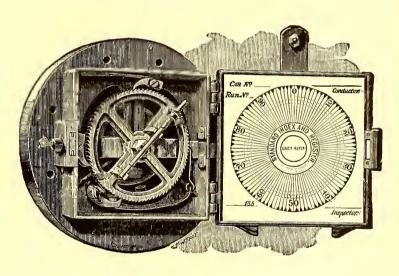
# STANDARD

INFALLIBLE.

INDEX & REGISTER.

ECONOMICAL.





ADOPTED BY THE LEADING RAILROADS IN THE UNITED STATES.

Besides indicating upon its face, the fares as the alarm is rung, this register indelibly records them as well as the trips made upon a paper dial inside. This paper dial is removed at the end of the day and is a correct report of the fares registered each trip and the number of trips made, which cannot be altered or obliterated.

We therefore claim our system of registering fares to be the simplest and best, and it positively stops any collusion between employees.

Testimonials confirming this statement from roads on which the "Standard" has been used for the past five years will be furnished upon application.

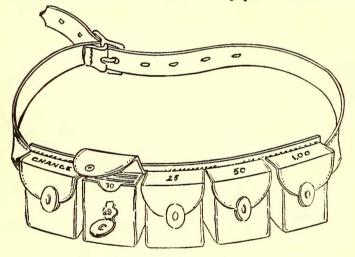
### RUFUS MARTIN & CO.,

13 Park Row, New York.

MAKERS OF AND DEALERS IN

# STREET RAILWAY MATERIALS AND SUPPLIES.

Martin's Change Belt.



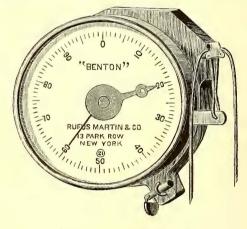
### BRILL'S PAT. CAR APPLIANCES.

"CHANGEABLE END-LIGHT."
"RATCHET BRAKE-HANDLE."
"REVERSIBLE SIGN-CASTING."

CAR TRIMMINGS

Iron, Brass & Bronze.

"Benton" Register.



Stationery & Office Supplies.

Harnesses & Stable Supplies.

Rubber Goods & Step Treads.

Lubricants and Oils.

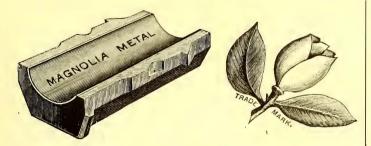
FARE BOXES.

WESTERN

AGENCY

Wichita Construction and Supply Co., - - Wichita, Kan.

### Magnolia Anti-Friction Metal.



#### TESTIMONIAL.

L. PFINGST, MASTER CAR BUILDER, THIRD AVENUE SURFACE ROAD, NEW YORK, Jan. 21, 1887.

CHARLES B. MILLER, Proprietor of Magnolia Anti-Friction Metal, New York City.

SIR—I have taken out the metal given me by you, placed it under Car No. 55 on our road. I find yours as sound as when put in, and the others entirely gone. This is the invention of Samuel Singley. You can call and see the journal bearings if you so desire.

I am, yours truly,

L. PFINGST,

Formerly with Pullman Car Works.

New York Depository, E. S. GREELEY & CO.,

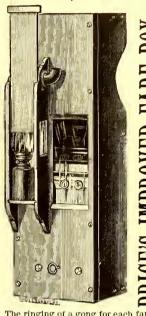
F. JORDAN, 200 Broadway, State Agent, outside city.

CHARLES B. MILLER, Manufacturer,

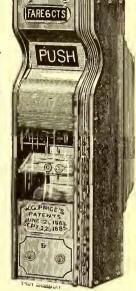
541 West 32d Street, New York.

# Horace A. Keefer & Co., St., Cable & Motor Road

Track, Material & Equipment a Specialty.



ICE'S IMPROVED FARE BOX, THE BEST FARE COLLECTOR NOW IN THE MARKET.



The ringing of a gong for each fare, checks the passenger as well as driver, and hence conductors' bell punch is unnecessary.

SEND FOR PRICES AND CIRCULARS BEFORE BUYING.

Hamilton-Corliss Engine.
The A. French Spring Co., Ltd. Fulton Foundry Co.
Rails, Splices, Spikes, Bolts & Nuts of all Kinds.

# THE MEAKER FARE REGISTER

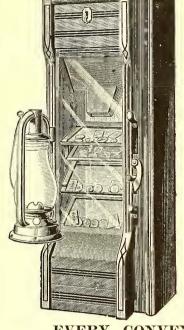
HAS NO RIVAL

# It will collect more fares than any other register in the world.

It is impossible to register without ringing the bell, and it is impossible to ring the bell without registering.

Adopted by ALL the street railroads in CHICAGO.

Office, 59 State Street, Chicago, Illinois,



# THE BEAMAN FARE BOX.

MANUFACTURED UNDER TWO PATENTS OF FEB. 15th, 1887.

### Absolutely Secure, Whether Fastened to the Car, or Not.

No Fares can Possibly be Turned Out or Abstracted by any Known Means.

EVERY CONVENIENCE PROVIDED FOR THE INSPECTION OF FARES.

Easily Cleaned, Simple and Durable in Construction.

The Smallest Detail has been Carefully Designed.

Its many New and Important Features, it is Conceded, place It Beyond Competitors.

For Full Particulars, Address,

### BEAMAN, Knoxville, Tenn.

# SLAWSON'S PATENT FARE BOXES

These Boxes are of the latest and most approved pattern, and contain a front door, by opening which ali of the glass inside can be conveniently cleaned. This is a late patent, and is a very valuable improvement over the old method of taking the boxes apart for that purpose. They are well made and not liable to get out of order, cannot possibly be picked, and even if all the glass is broken no fare can be extracted from the drawer.

The late J. B. Slawson originated the "Fare Box Sys-



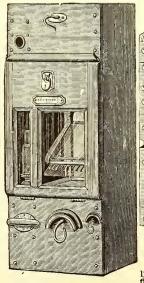
Change Stide. Outside View. PATENTS 1868 & 18

CHANGE

TEM," and all of his Boxes, Change Gates and Drivers' Change Box are protected by several patents, and parties using them are not liable to claims for infringements, as may be the case with some boxes which are now being offered for sale.

These Boxes, etc., are now in use not only in the United States and Canada, but in Mexico, South America, Europe, Asia, Africa and Australia—in fact, nearly all places where street cars are used.





Change Gate. Outside View. The prices have been greatly reduced, and are made to fit the times. Orders will be promptly filled by addressing,





MILTON I. MASSON, Agent, 365 AVENUE A, I NEW YORK.

### "PAY HERE."

# Fare Boxes and Change Receptacles



Front or Passengers'

**OUR NEW FARE BOX NO. 3** 

Is pronounced by the many Street Car Companies using it to be the best.

The following are some points of superiority in this box over others:

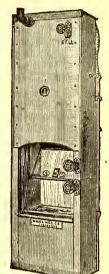
Simplicity of Construction, Quickness and Convenience of Cleaning, Security of Money Drawer, Beauty of Finish and Much Cheaper in Price.



RECEPTACLE. The only satisfactory arrangement in use for making change with the driver.

Descriptive and Illustrated Circular on application.

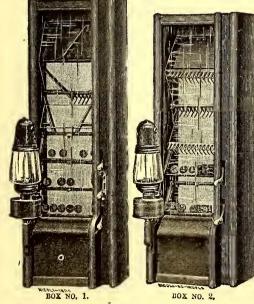
Examine the merits of this box and get our prices before buying.



Back or Driver's

NALES MANUF. CO., 76 & 78 E. Water St., Syracuse, N.Y.

### TOM L. JOI IMPROV



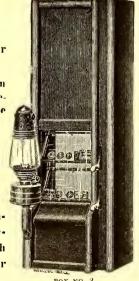
Patented Oct. 14, 1873.

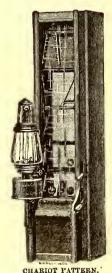
Fares Cannot be Extracted or boxes Robbed without violence.

Roads Equipped with Boxes on Trial, and if not satisfactory, returned without any expense to the company trying them.

Ornamental to any Car. Special Sizes built to order.

NOTICE.-All parties are cantioned against using fare boxes recently placed on the market which are direct infringements on our patents.

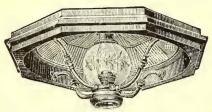




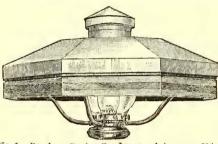
Write for Descriptive Circular, and Price List. Address all correspondence to

A. ANDERSON, INDIANAPOLIS, IND.

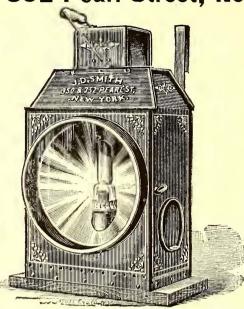
JOSEPHINE D. SMITH, Successor to the late WILLARD H. SMITH, 350 & 352 Pearl Street, New York.



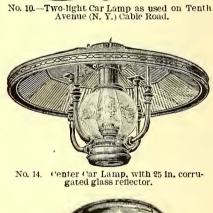
No. 3. Bombay Center Car Lamp, fancy arms, 25 in. corrugated glass reflector, with cover. Finished in brass or bronze.



No. 1. Bombay Center Car Lamp, plain arms, 25 in. corrugated glass reflector, with cover.
Finished in brass or bronze.

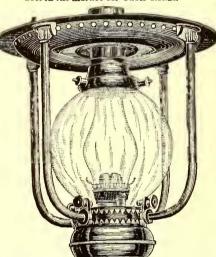


No. 10. Head Light. As used on Tenth Avenue, New York, Cable Road. Throws a powerful light 100 feet. The best in the market for Cable Roads.

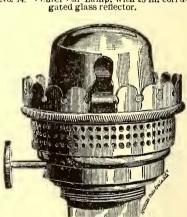


No. 4. Rombay Center Car Lamp, fancy arms, 25 th

No. 4. Bombay Center Car Lamp, fancy arms, 25 in. corrugated glass reflector, with cover.
Finished in brass or bronze.



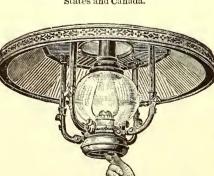
No. 2. Center Car Lamp. 14 in. Nickel Reflector. In general use throughout the United States and Canada.



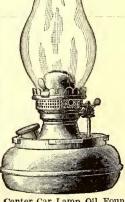
J. B. M. Two spring Burner. This is the best double-spring burner made. Universally used for Street Car Center and Box Lamps.



No. 1. Center Car Lamp, with 25 in. corrugated glass reflector; in general use on ho.se railways throughout United States and Canada.



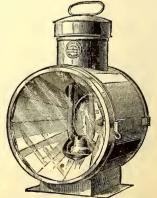
No. 3. Center Car Lamp, with 25 in. corrugated glass reflector.



Center Car Lamp Oil Fount with J. B. M. Burner and patent wick raising attachment. This fount interchanges with all of my Center Car Lamps.



No. 3, Brass Box Lamp, with drip pan and J. B. M. Burner.



No. 20. Small Head-light, 16 in, high over all, 10 in, face.

Manufacturer of Smith Patent Center Car Lamps & Reflectors.

For Street Cars, Cable, Elevated & Steam Passenger Coaches. Also all kinds Trimmings pertaining to Car Lamps, Burners, Chimneys, Globes, Wicks, Corrugated Reflector Glass, etc., etc.

### RICHARD VOSE,

13 Barclay Street,

PATENTEE AND MANUFACTURER OF

# Graduated Street Car Springs.

RUBBER CONE.

Patented, April 15th, 1879.

ADAPTED TO THE

STEPHENSON,

BEMIS.

RANDALL,

HIGLEY,

BRILL.

JONES.

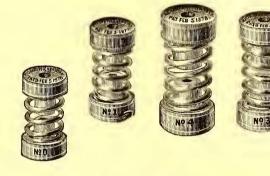
BALTIMORE.

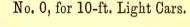
VOLK,

CHAPLIN.

LACLEDE

And all other Boxes.





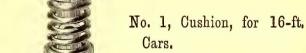
No. 1, for 10-ft. Cars.

No. 2, for 12-ft. Cars.

No. 3, for 14-ft. Cars.

No. 4, for 16-ft. Cars.

No. 5, for 16-ft. Cars. (Single Pedestal.)



No. 2, Cushion, for 12 and 14-ft, Cars.







**Adapted** 



Slow.

THE

### ST. LOUIS

St. Louis, Mo.,

BUILDERS OF

### Street

OF EVERY DESCRIPTION.

Works among the most complete in this country,

#### KUHLMANN CAR CO.

CLEVELAND, O.

BUILDERS OF

All NECESSARY WOOD WORK for CONSTRUCTING SAME.

OFFICE-490 ST. CLAIR ST. WORKS-488 & 590 ST. CLAIR STREET AND 221 & 223 OREGON STREET,

### Wilson Brake Shaft.

ENTIRELY NEW & NOVEL IN CONSTRUCTION. POSITIVE AND SURE IN ACTION.

BRAKES SET WITHOUT COMPLETELY TURN-ING THE HANDLE.

MADE ON THE PRINCIPLE OF A FRICTION CLUTCH.

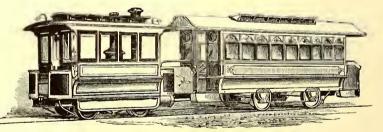
SIMPLE IN DESIGN.

Saves Room, Adds to Available Braking Power, and Gives the Driver the Best Possible Control over the Car.

Mordecai M. Wilson, Agent, TROY, N. Y.

LOCOMOTIVE WORK Annual Capaci-Established. 1831.

BURNHAM, PARRY, WILLIAMS & CO., Props., PHILADELPHIA, PA.

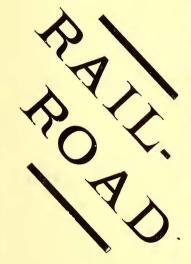


Motors Noiseless and

Catalogue sent upon application of customers.

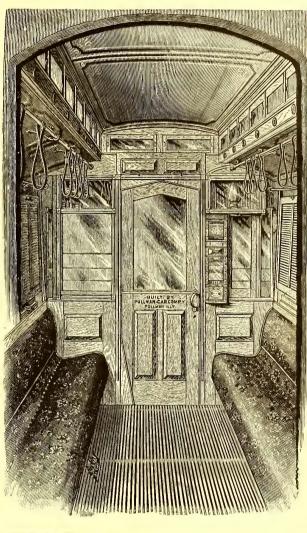
#### Pullman's Palace Car Co.,

**Manufacturers** of



CARS

Pullman, Illinois.



Make a Specialty of

Street, Cappe Chip

Rectnic Motor

CARS.

Detroit, Michigan.



Address all correspondence

PULLMAN'S PALACE CAR CO., Chicago, Ill.

ESTABLISHED 1857.

INCORPORATED 1875.

# Brownell and Wight Car Company,

St. Louis, Mo.

BUILDERS OF

# STREET CARS

OF EVERY STYLE AND SIZE FOR

Horse, Cable or Other Motive Power.

EXCLUSIVE MANUFACTURERS OF

### BROWNELL'S PATENT COMBINATION CARS

FOR SUMMER AND WINTER SERVICE.

### J. M. JONES' SONS,

ACENTS,

Street Railway Car Builders,

West Troy, New York.

ESTABLISHED, 1856.

INCORPORATED, 1883.

# THE FEIGEL CAR COMPANY.

BUILDERS OF

# CARS FOR STREET RAILWAYS.





#### TESTIMONIAL

HALIFAX, Sept. 10th, 1887.

MESSRS. HUTTON & SWAN, Managers,

FEIGEL CAR CO., New Utrecht, L. I.

GENTLEMEN: The Open Cars down here are a great success and have become very popular at once.

They are beauties and no mistake about it. . . . .

Yours, &c., JOHN F. ZEBLEY, Treas.

### HUTTON & SWAN, Managers,

FACTORY; New Utrecht, 'N. Y.

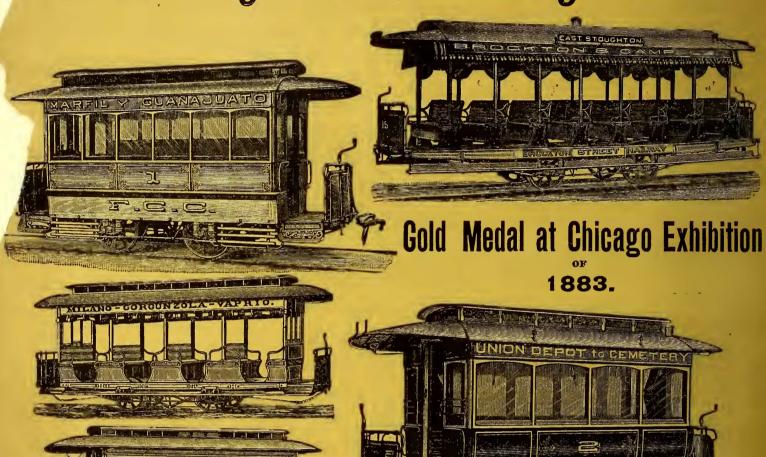
OFFICE: 108 Wall St., New York,

### J. G. BRILL COMPANY,

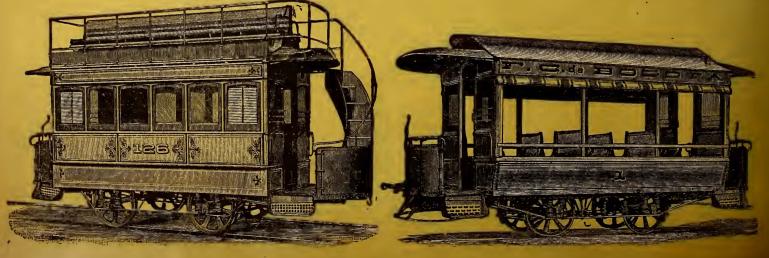
PHILADELPHIA,

**BUILDERS OF** 

Railway & Tramway Cars



Gold Medal at New Orleans Exhibition of 1885, for Best Open Cars.

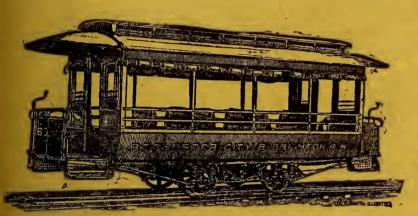


### J. G. BRILL COMPANY,

PHILADELPHIA,

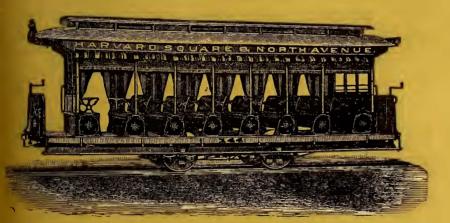
**BUILDERS OF** 

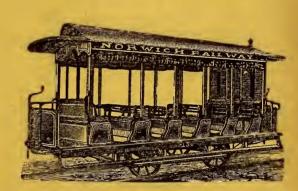
### RAILWAY& TRAMWAY CARS





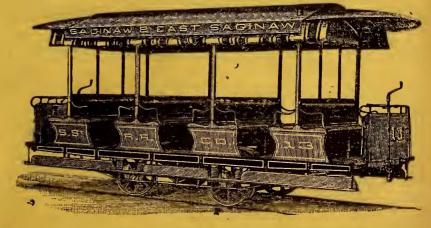
Passenger Cars of all Kinds.





Light Cars for Suburban Roads.





Construction Cars, Cane Cars, Power Hand Cars, Small Merchandise Cars,

ESTABLISHED 1831

# JOHN STEPHENSON COMPANY,

(LIMITED,)

NEW YORK

# STREET (TRAMWAY) CARS

IN

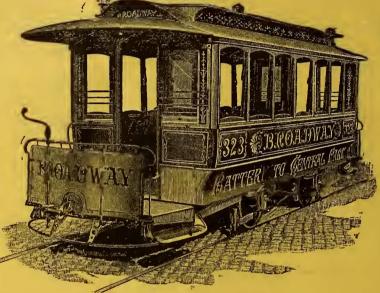
Great Variety,

AND

Combining

ALL

Valuable Improvements.



LEADING

"THE TIMES"

AND OF

—BEST—

Standards.



Elegance, Lightness, Durability

THE RESULT OF

FIFTY-SIX YEARS EXPERIENCE.



ADAPTED

TO ALL

<u>Countries</u>

---AND-

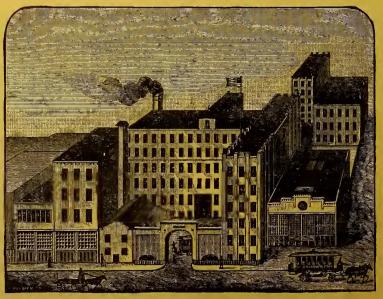
CLIMATES.

PARTICULAR

ATTENTION

\_\_\_то\_\_\_

SHIPMENTS.



Cable Cars.

Electric Motor Cars.

STREET CAR SUPPLIES

DESCRIPTION.



New York: 47 E. 27th St. Chicago: Phenix Building.

