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# THE STREET RAILWAY JOURNAL

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## Electricity for Street Railways.

In an address at the Baltimore meeting of the National Electric Light Association, Mr. Charles J. Van Depoele, in a paper he read, gave the following interesting details of his experience in electrical street railway experiments:

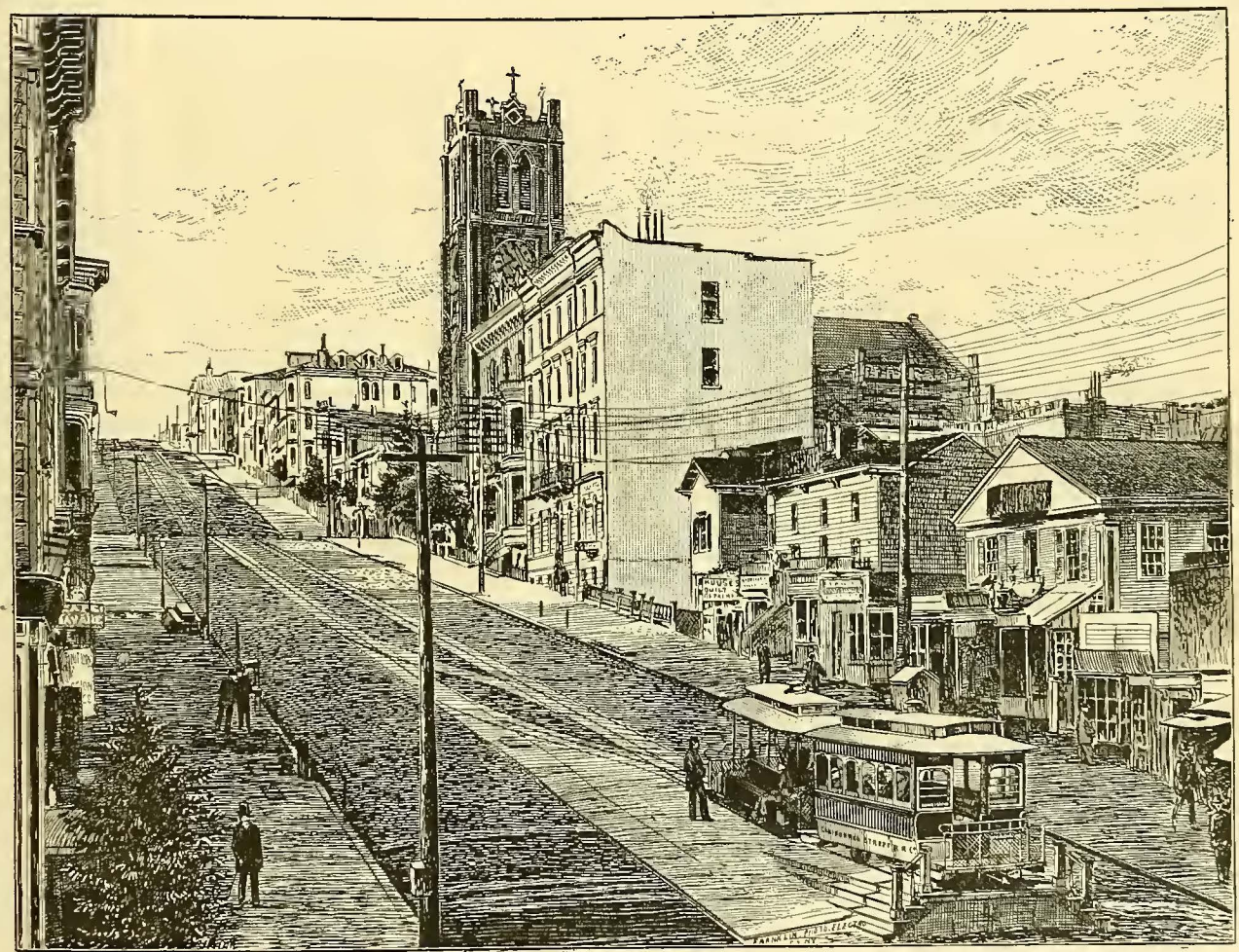
During the summer months of 1885, I

an electromotive force of about 1,400 volts, and an intensity of current of about 18 amperes. The engine and dynamo were placed in Machinery Hall, close to the boiler-room.

The dynamo was connected: one pole with the rails, which were fastened together by means of fish-plates, and the other pole to an overhead wire, hanging

motor the current was carried to the axles of the wheels, the wheels to the track, thus closing the circuit upon the generator.

We began placing poles, etc., on the 1st of September, and made our first trip on the 5th of September. From beginning to end not the slightest hitch occurred, running regularly from 8 A. M. till 10.30 P. M., without stopping a minute. On many oc-



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SAN FRANCISCO CABLE ROADS. VIEW ON THE CALIFORNIA STREET RAILWAY, UP CALIFORNIA STREET HILL.

entered into a contract with the directors of the Toronto (Ontario) annual exhibition, to run a train of three cars and a motor car, from the street railway terminus to the upper grounds of the exposition, a distance of a mile. Having only a single track, I had to prepare here for a light train and good speed. The plant consisted of the following: One steam-engine, 10x16, running 125 revolutions per minute, driving an ordinary 40-light arc machine, having

over the center of the track, by means of arms extending from poles placed along the length of the track. On top of the car on which the motor was placed, was a contact wheel, carried by a pivoted beam, the latter being provided with a spring, on one end, pressing the wheel at the other end up against the underside of the overhead wire; this contact wheel was in communication, by means of a flexible cable, with the switches, rheostat and motor. From the

casions, we carried from 225 to 250 people. On one end of the track we had a 200-foot curve to start, then a level of some 2,000 feet, with two curves of about 1,000 feet radius, then a grade of some 1,500 feet, gaining gradually to about six per cent. The rest of the road had a downward grade up to the terminus, which made it a disadvantage in starting. As above said, the distance was a mile, and the round trip never exceeded eight minutes; so, includ-

ing starting and stopping, we made, for part of the way, at least thirty miles per hour. During the last five days of the fair, we carried 50,000 (fifty thousand) people. The consumption of coal, as given by Doty & Sons, who ran the engine, was on the average 1,000 lbs. in ten hours.

The next step was to South Bend, Ind., where we equipped four ordinary street cars: one large open car, with a 10 horse-power motor, and the other three closed cars each with a 5 horse-power motor. The large car was run for the first time on Nov. 14, 1885, and was packed with humanity to its utmost capacity; everything worked like a charm. The plant consists at present of the following: A 50 horse-power water-wheel and two 20 horse-power generators, and as above stated, one 10 and three 5 horse-power motors. The track is laid with the ordinary flat rail; so in order to connect the rails together, we placed copper plates, 3"x12", under the joints, and spiked the rails down upon the copper plates; this was done on both sides of the track, so there is no chance of breaking circuit. As will be understood, the rails, in the present case, form again one part of the circuit; the other part consists of a copper wire,  $\frac{1}{2}$  inch diameter, suspended above the track, from cross-wires fastened to poles placed near the curbstone, and at a distance of about 100 feet apart. From the underside of this copper wire or conductor hangs a carriage, fastened to a flexible cable, passing to the inside of the car, where it is in connection with the switches, the motor, etc. This carriage travels along with the car, and makes a perfect contact. After the first trial, of Nov. 14th, the 5 horse-power motors were soon in place, and have worked admirably well. The tracks are never perfectly clean, on account of constant traffic over the road; but since both rails are connected, and also all four of the wheels, it is almost impossible to break circuit between the motor and the rails. The cars have run right along, through mud and snow, and no trouble has been experienced with the circuit.

On running the four cars at once, the generators work perfectly, from 6 at morning till 11 p. m., requiring not the slightest attention, the brushes are set in the morning and are not touched afterward. Every car works independently, back or forward, without interfering with the others; the division of the current leaves nothing to be desired. The only trouble we have encountered with the plant has been with some small mechanical details, such as link belts breaking, etc., these of course, being small matters, are easily perfected. The main point here was the electrical part, and this has proved to be an unqualified success; there is no wear to speak of on the generators, and the same can be said of the motors. The motors are placed under the cars, between the wheels, and connected to the axles by means of link belting. At either end of the car is placed a dial-plate fastened to the dash-board, over one-half of this moves a handle directing the motion of the car either forward or

backward; over the other half is another handle, by which the speed is regulated. When full current is turned on, the maximum speed of 8 miles an hour is attained, and this speed cannot be surpassed. Six to 8 miles an hour being the maximum speed allowed within the city limits on any ordinary tramway.

The length of the present road is about  $2\frac{1}{2}$  miles, the other roads will be equipped as soon as the weather allows the placing of the poles for the cross wires.

On the 6th day of October, 1885, we entered into a contract with Mr. McCannico, President of the New Orleans Exposition, to run a train of cars in the grounds, with a carrying capacity of from 180 to 200 people. This road is similar to the one in Toronto, nearly a mile long, running from St. Charles street main entrance, along the Government Buildings, through the grounds to the main building and Art Hall.

All was ready for operation for the opening day, but on account of delay in obtaining steam power, we only began running regularly on the 14th of December.

The generator is run by an engine 12x18, running 100 revolutions per minute; the generator is of 35 horse-power capacity; the motor is placed in the center of an open car, only taking away the two middle seats, thus leaving the other seats for the public. Besides this, are two more large open cars. The car containing the motor is provided with a contact wheel pressing up against the under side of the overhead wire, as in the Toronto road. This train runs regular from 8 a. m. to 7 p. m., and has up to date proved a perfect success. The maximum speed is 15 miles per hour.

The heaviest work we have done so far is in Minneapolis, Minn., and that during the winter months when snow and ice are faithful companions on the track; whether invited or not, they are there, never fail.

Before undertaking the job I was very much afraid that electricity would not be practicable in a climate where the thermometer rises seldom above the freezing point, for at least three months of the year. All my fears, however, have been removed in the past six weeks; we have ascended the grade and turned the curves with at least as much facility as the steam dummies. On one occasion the steam dummy brought us down to the road where we had our electrical connections. The steam dummy got stuck with our motor car and a large open car, the latter about fifty feet long; we dismissed the dummy, and as soon as we had current on we furrowed our way through the snow and had the track clear in a short time. This proves that we could do at least as much as the dummy.

A brief description of the track will give an idea of the work done by the motor.

Starting from Bridge square is a curve sixty feet radius; the road is then straight for about a mile, but rises and falls continually until 13th is reached, here is another curve of fifty feet radius to right, one block further is a similar curve to the left, the rest of the road straight, but continually rising up to 24th street, the top of the hill;

the steepest grade is about fifteen hundred feet long, and six per cent. beyond this is a switch and the termini of our present electrical equipment.

The electrical plant consists at present of one 60 horse-power generator and a 50 horse-power motor. Our circuit consists of the rails for one side and an overhead wire, 3-10 inch copper wire, for the side.

As in South Bend, we have water-power as the prime motor. We ran for the first time on New Year's Eve, 1885, and continued on New Year's Day. The water-wheel had no governor and we found it rather dangerous for the generator; as the water-wheel had to be governed by hand, it was impossible to keep the speed anywhere near constant. It was decided to put a governor on before running regularly. Several trips, however, were made over the entire length of the road, giving entire satisfaction. The weight of the motor is 3,500 lbs., and the total weight of motor-car or electric locomotive is 3 tons. The passenger cars in use here are similar to those on the New York Elevated. While the water-governor was being made a steam-engine with a 12x18 cylinder, 125 revolutions per minute, was used, and although too small for the purpose, very satisfactory work has been done. In some instances we had three to four inches of solid ice on the track and broke our way through it without the least trouble; in a few days the water-power will be in shape to run regular, when we will run on schedule time.

Thus far we have demonstrated that electric railroads can be operated anywhere where the steam motor can go, and that there is much in favor of electric motors in cold countries, is very evident; there is no danger of pumps freezing up, nor of brakes becoming inoperative, no water-tanks are needed along the road, nor is there any coal to be taken; in fact there are thousands of advantages in the application of the electric locomotive on street and other railroads. Whenever water-power is obtainable, the economy need not be disputed, and even in the case where steam is to be used as a prime motor, there will be considerable economy.

No cheaper nor better plant can be expected to run light trains on suburban roads than the electric motor, as for instance in the Detroit road now in progress, connecting the latter city with Dearborn. A single train will be run with six large sized street cars, the speed will be from 15 to 20 miles per hour; the length of this road is nearly three miles, and will be in operation in a few weeks.

A similar road will be in operation early in the spring, in Appleton, Wis.; in this case, however, six cars will be equipped with 10 horse-power motors and run independent; the length of the road is about 8 miles; the speed about 10 miles per hour. Water-power will be used to run the generators.

The street railway in Montgomery, Ala., is now being equipped with our motors, 12 cars in all, and will be running within 30 days.

In all the above places we are using overhead conductors, which are no more of an obstruction than the ordinary telegraph and electric light wires, in fact much less, since the conductors are over the center of the roads; so wherever wires are allowed for other purposes, they cannot be refused for the present purposes. I do not believe, however, that overhead wires would be practicable in large cities where other wires have to be buried; but in this case the electric conductors can be placed under ground in conduits similar to those used for cable cars; this will be much more expensive than the overhead conductors, but it will be a permanent and practical fixture.

I feel sorry that I have not found more

light and cheer during the absence of old Sol.

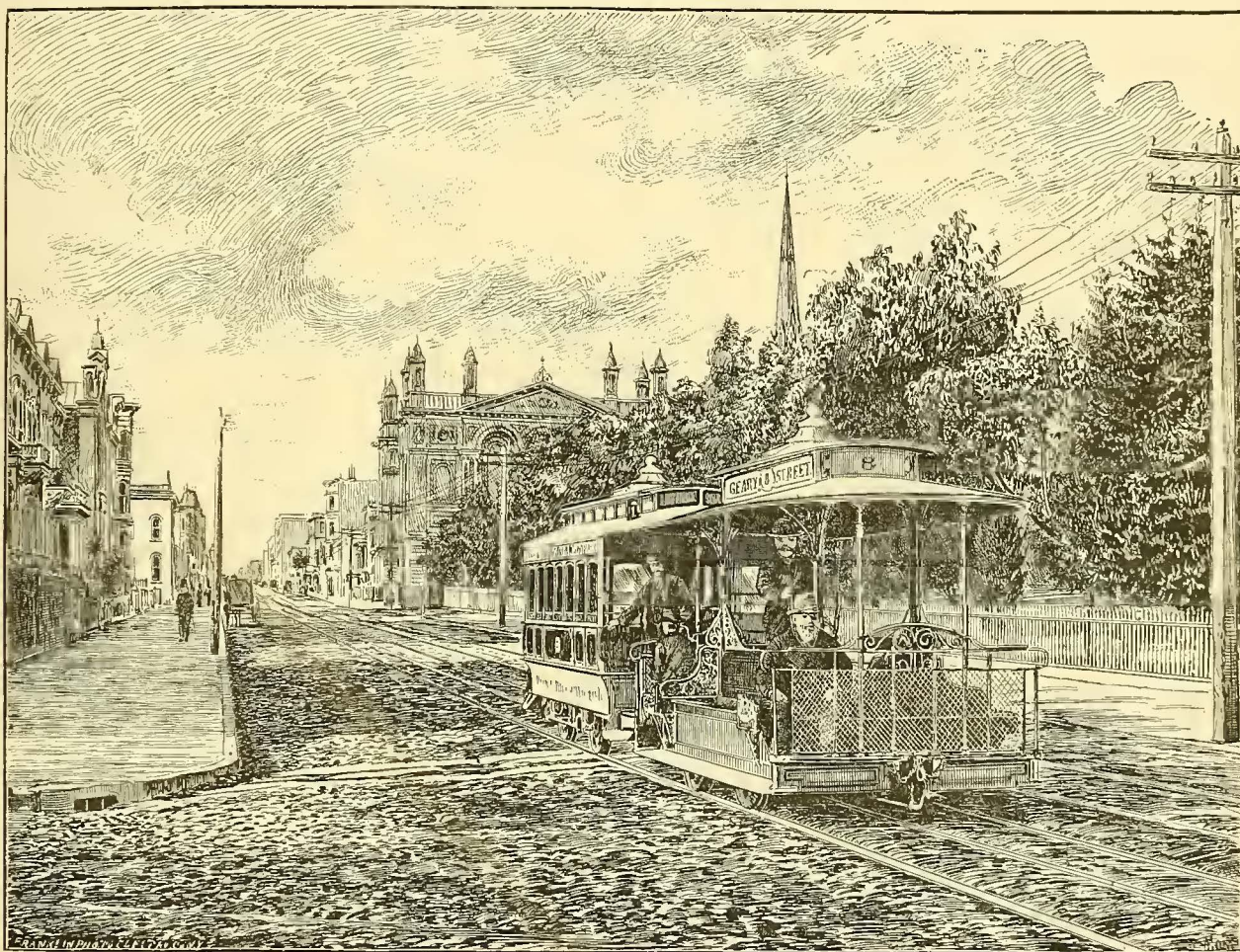
San Francisco Cable Roads.

We give three illustrations in this issue of views taken on the cable line of street roads in San Francisco. One view is taken on the Geary St. and Ocean R. R., along Geary St. from the corner of Stockton, another on the Presidio & Ferries road along Union St., showing Washington Square in the background with Telegraph Hill and the observatory in the distance. The third is a view up California St. Hill, from the corner of Kearney St. This last shows very clearly the changes of direction that are made on this line at each street crossing where the street crossing is level and the

Transmission of Power by Electricity.

At a recent meeting of the National Electric Light Association Mr. Upton of the Jarvis Engineering Co., of Boston, read a paper on the above subject. We give below that portion devoted especially to the subject as applied to street railways:—

The most important use to which the principle of electric transmission of power is at present being put, is the running of street railways. It was only a little over five years ago that the first electric railway was built in Germany, and to-day there are many in that country, where their practical success has been demonstrated. In France and England they are fast becoming popular, but it seems that those in America are yet almost of an experimental nature; in



SAN FRANCISCO CABLE ROADS. VIEW ON THE GEARY STREET, PARK AND OCEAN RAILWAY.

time to prepare some figures with regard to tests of motors and general transmission, but the above is a resume from practical experience and facts on the track instead of on paper. I am a solid believer in the saying that experience is the best teacher, and to all the above I have attended personally from beginning to end, and am more than ever convinced that electrical transmission of power has ceased to be ephemeral but has become a real fact and a blessing to the world; all is ready, it has only to be applied judiciously and success is imminent.

Many thousands of horse-power are now running waste in our water falls which can be all utilized to advantage, in some cases running our tramways, in others our factories, etc., giving at the same time

tracks run into the grade at each side.

The grade on this line from Dupont to Stockton streets is 18.2 per cent. and on the next block but slightly less. The car and dummy used on that road weigh something over 8,500 pounds. Sixty passengers is not an unusual load (110 having been carried up that grade at one load), which at 125 pounds each, would make the total weight of loaded car and dummy 16,000 pounds. Such a load can be found every day, about six o'clock in the evening.

The cuts were made from photographs, by our engraving department, expressly for the STREET RAILWAY JOURNAL. They give an excellent representation of the "surface working" of the system. The conduit, grip, and other features, were illustrated in our columns some months ago.

this branch of electrical science, at least, America is far from foremost.

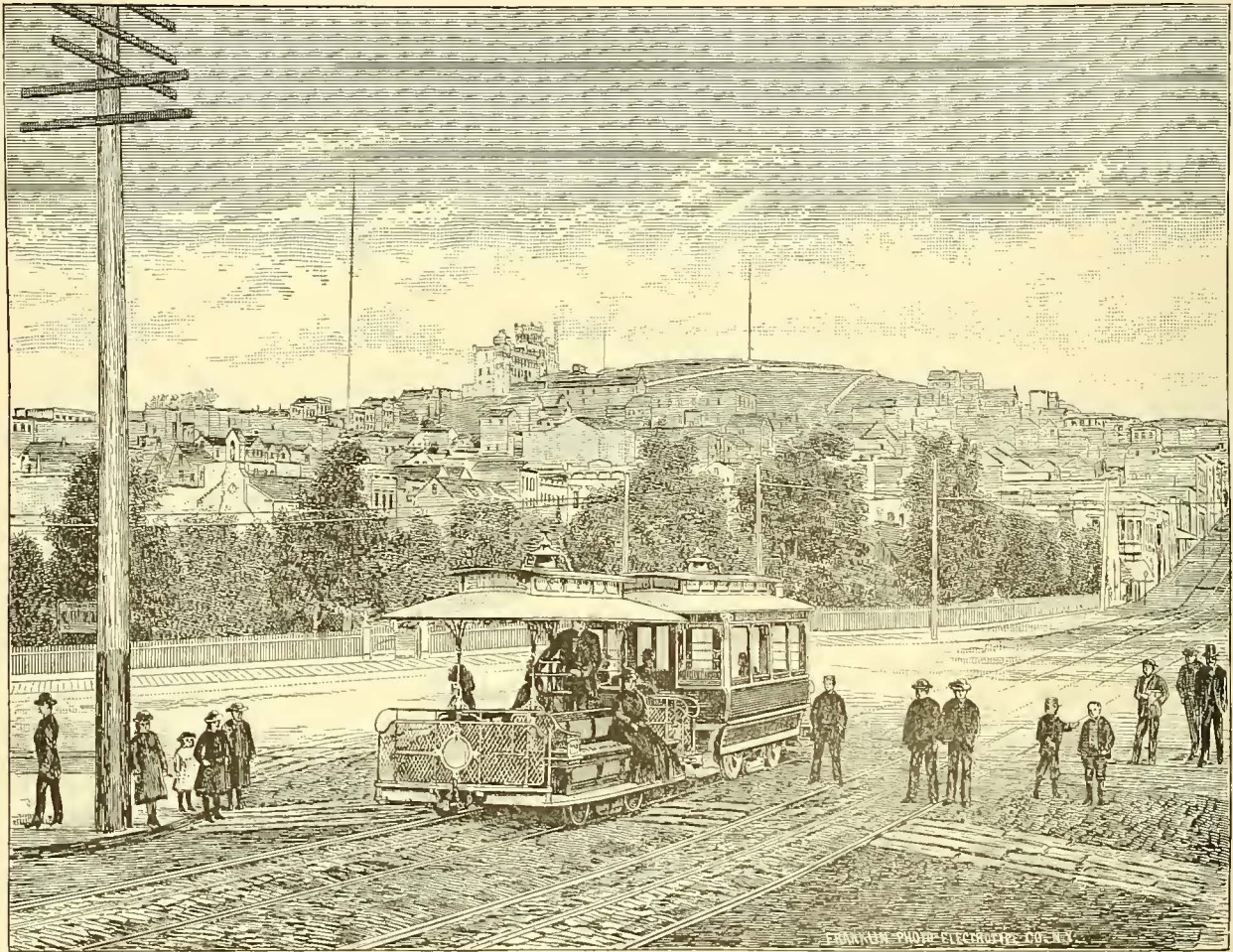
The advantages of electricity over steam for railroad purposes are many and great. In the first place, the bulky locomotive is done away with, as the electro or motor can be placed either under the car or on trucks by itself; in either case great weight and room being saved. The machinery for converting the coal into the power, or rather extracting the power from the coal, is not portable, but stationary, and can be placed in the most convenient spot. For transmitting the power, in many cases no difficulty has been experienced in using one middle rail as the conductor. Sometimes it has been found that the dirt sticking to the rails and the wheels formed a sort of crust so insulating as to prevent

adequate communication. From all the information I can gain on this subject, it is my opinion that the most practical way will be to use wires on poles. I understand this system is used in the West by the Van Depoele Company. The poles can also be made available for stringing electric wires for both incandescent and arc lighting. The future of this system is filled with possibilities. It will eventually become the motive power of all the present horse railroads. In a few years elevated electrical railroads will be as plenty as steam railroads are now, and in time it will supersede the present system of running locomotives on all railroads—and why not? It is simply a question of cost of making power. It is acknowledged by every practical engineer

ways, elevated or surface. The economy of this system over the cost of running horses, as used now, will be over fifty per cent.

As to speed, it is impossible to give the limit which can be reached on electric railways, because those so far constructed are on streets or in localities where very rapid transit is not possible or desirable. On the very first one built a rate of seven miles per hour was customary. On the Berlin railway, opened in 1881, the greatest speed reached was at the rate of eighteen miles per hour. More was possible, but the police authorities refused to permit more than nine miles per hour. Up to August, 1882, there had been no breakdown on this road. On the Siemens' railway, at the Paris Exhibition of Septem-

this, we propose to put it into actual practical operation. Petitions are now before the present Legislature of the State of Massachusetts for charters for over a dozen street railways, part surface and part elevated, all to be run by some system of electric motors. In Massachusetts a horse railroad can be started under the general law; but, as the law stands now, an electrical railway requires a special charter. A petition has been presented asking for an amendment to the general law, and allowing electrical railways to be started the same as horse railroads are started now. We believe that the cost of power, as compared with the present cost of using horses, will show an economy of over fifty per cent. In the town of Winthrop, Mass., near Boston, suf-



SAN FRANCISCO CABLE ROADS. VIEW ON THE PRESIDIO AND FERRIES RAILWAY.

hat the present system of making steam in locomotive boilers is expensive as well as wasteful. The evaporation of pounds of water to each pound of coal consumed to make steam in locomotive boilers does not average over three and one-half pounds of water, using the best grades of bituminous coal, while with stationary boilers set to burn coal screenings for fuel, an evaporation of nine pounds of water to one pound of fuel is made, and the reduction in cost of fuel is from one-third to one-half. It is only a question of time when all the different electric lighting stations in this country will use their engines in the day time to make power to be sold for manufacturing purposes, the same as they sell power in the form of electric lights now. They can also furnish power to run electrical rail-

ber, 1881, a distance of over 1,600 feet was traversed in a minute, which is at the rate of nearly twenty miles an hour. There is every probability that electric locomotives can be run faster than any steam locomotive now in use. About ten miles an hour is the average speed that a car can be run on an electrical street railway, but I think it possible to run at the rate of 100 miles an hour. In the near future, on elevated railways, this will, no doubt, be accomplished. I believe the time will come when cars will be run by electricity between Boston and New York in about two hours' time, where it now requires six hours by steam railroads. We Yankees call ourselves practical people; we believe in the success of the use of electricity for elevated and surface street railways; believing

efficient money has been subscribed for erecting an elevated railway on the Enos system to be run by electricity. The station will be constructed so as to include the use of dynamos for electric lights, and the elevated railway will be utilized for stringing wires to run them. If the charter is granted, work on this railway will be started at once. The plans are all made for an electrical station three stories high, the upper stories to be used as a manufactory, and power supplied from the station below—a most profitable way of utilizing the power of electric light stations in the day time.

We shall give the first of a valuable series of horse papers, by a well known veterinary authority, in an early issue.

Low sized, about 1100 pound horses, are the standard car horse in Boston.

### The Kingsbridge Cable Railway.

The Charter of the Kingsbridge Cable Railway Co. provides for a double track cable road, commencing at the intersection of the Boulevard and 59th street, at Central Park, running thence along the Boulevard to 65th street and 9th ave. along 9th ave. to 106th street, to New ave., along New ave. to St. Nicholas ave., along St. Nicholas ave. to Kingsbridge Road, and thence along Kingsbridge Road to Kingsbridge.

The cool breezy plateau constituting the upper section of Manhattan island, is without doubt the most picturesque and the most healthful portion of the city of New York. Already its peculiar advantages are drawing away the attention of builders from the densely settled east side and down-town districts, so that building activity, in dwellings at least, has been almost entirely transferred to the streets and avenues west and north of Central Park. The city itself realizes this, and is rapidly opening up new streets and putting existing streets in good order, building sewers and improving parks, in order to make,—what was till within a few years since, a *terra incognita*—the most beautiful part of the city. The cause, however, which has so long retarded development still obtains, and lack of proper transit facilities is universally admitted to be the great and only drawback, which here stands in the way of settlement.

This want has been in part met by the 10th avenue cable road which runs along 10th avenue from 125th street to 187th street. Property in the vicinity of this enterprise has already risen from 25 to 75 per cent. in value. A ride over the line, providing one is fortunate enough to squeeze into one of the little cars of the company, will disclose even to a casual observer the relative activity in building here, as compared to streets and avenues farther removed from the rails.

It will be noted that the line of the Kingsbridge Cable Railway runs through a well settled part of the city along 9th avenue, from 59th street, to some distance above Central Park. And it will be further remarked that beyond lies that part of the city where building is most active, and which is already well built up in many sections. Above 125th street, along St. Nicholas avenue and Kingsbridge Road the line of the intended road is, as nearly as possible, a median line between the Hudson and Harlem rivers. It avoids close proximity to the steep bluff of the Harlem, along the edge of which skirts the 10th avenue cable road, and similarly has a wider territory on either side to draw below 162nd street; neither is it merely a *section* of a road, but continues from 187th street up to Kings Bridge, and from 125th street down to 59th street and Central Park.

Cable cars *can* travel at the rate of ten miles per hour, or they may be made to slowly press and inch their way through a crowd, in sympathy with all its movements, and instantly responding to every touch of the grip-man. By reducing the grip pres-

sure on the cable the cable slips along, and the car takes any speed between that of the cable and complete rest. As an instance of the nice regulation possible, it may be stated that on a steep grade, the gripman by regulating the friction of the grip and the cable can bring the car to a stand still, and keep it there against gravity without applying the brakes to the wheels. Owing to the solid road bed of iron and concrete, the motion of the cars when properly managed is steady, and not jerky and shaky as with the horse cars. Cable cars can be started quickly, and yet not abruptly, and can be similarly brought to a stop.

Cable cars average much better time than horse cars on account of this advantage of starting and stopping quickly. This average gain varies much with the conditions of traffic, but when frequent stops are necessary it has been estimated to amount to full thirty per cent, and with fewer stops to greatly exceed this estimate. The average time taken to make the trip on the 10th avenue cable road from 125th street to 187th street, being a distance of three and a quarter miles, is twenty-three minutes.

Mr. D. J. Miller in an address delivered before the Western Society of Engineers, October 3, 1882, says:—"With all motors the carrying power is of necessity limited, but with the cable system it is, comparatively speaking, unlimited, and the tractive power of the cable, when operated by a stationary engine, gives this system an advantage over all others, as no dead weight is required to produce adhesion to the rails. It seems almost incredible, but is nevertheless a fact, that the State street (Chicago) road, now in operation, has a carrying capacity of ten thousand passengers per hour, and even this enormous traffic will not overburden the cable."

A cable railway necessitates an excellent driveway, which must be at least as wide as the distance between the outside rails. The roadway on each side of the cable track along the greater part of Tenth avenue, is in about as bad a condition as a city road can be, while the middle section, which constitutes the roof of the cable tunnel, is in a better condition than any pavement in the city, and constitutes about the only part of the avenue used for driving.

Another advantage to be brought about by the Kingsbridge Cable Railway Company, would be the means of avoiding the necessity of ascending the sixty-one steps of the elevated railroad station at 125th street, as this road would carry its passengers to the 104th street station, where the climb is made up of only twenty-eight steps.

Speaking of the San Francisco cable roads, The Mining and Scientific Press of that city, says in its issue of October 27, 1883:—"All these roads are in daily operation. They are always preferred to the horse cars by the public. On most routes they go where horse cars could not be run, and then equal speed up or down a hill is of course a very great advantage. Once in operation these roads are run much more cheaply than when operated by horses,

although the first cost of the road is greater with the cable system."

These roads without exception have been profitable from the beginning; no cable road yet built having been a losing operation. In every instance the stock is worth from 25 to 60 per cent more than it cost, which is a very important point for capitalists. \* \* \* \* "All those portions of the city which the road or its branches tap, have already felt the good influences of rapid communication, and the improvement will be even more plainly manifest within the next year. \* \* \* \* The cars ride smoother than any horse car in the city, there being none of the jolting motion so common. The road bed is so solid and the rails so well joined, that the whole road is smooth. The cars are well lighted by end and center lights, and brilliant head lights are used in front which light up the street far ahead. It is a mistaken idea that these cars can run no slower than the cable. By reducing the grip pressure by means of the lever, the cable slips along and the cars do not move so rapidly, in fact they may be slowed to a snail's pace almost, while waiting for a team to get out of the way; and the starting up is so gradual that no shock is felt. \* \* \* \* It is found in practice that one of these cars weighing 9,600 pounds, and loaded at that, while running at a speed of eight miles an hour, can be stopped in ten feet."

Many impracticable schemes have been devised for street locomotion, but none of these have met the wants successfully supplied by cable traction. The committee on motive power appointed by the street railway convention, held at Chicago, October, 1883, reported as follows:—"This is a system which utilizes the power of a stationary engine to operate cars at will miles away from the source of power, transmitting the power by the medium of an endless cable to the point required, and at the necessary time. This system, in our judgment, though it is yet in its infancy, is on the right road to solve the problem of dispensing with animal power; a system which instead of being a disadvantage, and less serviceable on heavy grades and in the midst of snow storms, furnishes at such times a superabundance of speed and ability to resist obstacles—a system that does not depend upon the friction between the wheels and the rail for its power of locomotion—a system that enables street railroads to handle immense crowds by the simple addition of a few more bushels of coal and the putting on of extra cars, without the fear of overloading its animals, and killing more in one day than its profit would be in a month; giving us, in other words, more latitude in the way of economizing in dull times, without having horses to feed, and furnishing ample means of expansion on short notice, without the necessity of hiring extra animals for such occasions."

"We believe in conclusion that the only practical means presented to our view of dispensing with animal power is the cable system. At present the cable road is confined to a few favorable localities; but

rapid strides are being made in the direction of its perfection, which will surely result in bringing this motive power within the reach of roads less favorably located.

"Concluding, we will add: Beware of 'car-starters,' and lend a helping hand to those trying to perfect a system which is, at present, our only hope for dispensing with the noise and expense of animal power."—It will be noted that this report emanated from horse car men.

In relation to the expense of operating cable roads it may be said that much depends on the manner in which a road is built, for if constant repairs must be made and the same number of horses maintained as if using animal power, it would be a difficult matter to find wherein a saving were effected; but if a road be properly constructed there is every reason to suppose that a gain of from 30 to 50 per cent. would be made where from 200 to 300 horses were needed for the work, and from 60 to 70 per cent. could probably be realized on larger roads with heavier traffic by careful and judicious management.

On one section of the Chicago road, before the cable was put in, the number of trips made necessitated the keeping of 600 horses at a daily expense of seventy-five cents per head, or \$450. After the introduction of the cable the number of trips necessary to be made was such as would have required twenty-five hundred horses at a daily expense of \$1875. The cost of running the cable per day, was about \$325.00 dollars including interest on capital invested. The President, Mr. C. B. Holmes, of this company says: "That the trouble that has been experienced against natural difficulties, stubborn prejudices and opposition of the most pronounced character, has resulted in a complete success for the company and its patrons, and has raised the value of property fifty per cent. over many miles of territory."

Geo. W. Specht, Civil Engineer, San Francisco, writing to the Engineering News, March 6th, 1886, in relation to the cable system there, says:

"The introduction of this system marks the beginning of an epoch of large and extensive improvements of the city. Large areas which were nothing but barren sand hills ten years ago, are now covered densely with large business houses and thousands of fine residences. Last year was especially marked by an immense activity in building. The principal cause of this must be attributed to the extensions of the cable railways. When the Geary street railroad was extended beyond Buchanan to Devisadero street, building lots along its line were sold for less than \$70 a front foot. Now in the same district between California and Haight streets the average price is \$110 per foot, and in many instances the increase in value is greater than fifty per cent. The difference along the Haight street route is even more marked. Five years ago an entire block, 412.5 ft. X 275 ft. on Fillmore street, was sold for \$20,000. It is to-day without improvements worth at least \$50,000. The

approach to it is on a very steep incline and horse cars would not have added much to its value. Another block was sold just before the construction of the Haight street cable road for \$12,000. On the mere prospect that the road was to be built, it was resold almost immediately to the railroad company for \$20,000. After the road was completed the company sold half of it for \$30,000 and the other half is now held at \$25,000. There are several cases like this. The mere expectation that the Market street line will be extended along Castro street, which is now being graded, has already caused an advance in that neighborhood."

In 1865 the railroads of New York city carried 79,618,818; in 1870, 113,609,539; in 1875, 165,737,079; in 1880, 209,444,888; in 1884, 281,205,332. This shows an enormous growth of intermural travel. From 1880 to 1884 inclusive, the increase of travel alone amounted to  $34\frac{2}{10}$  per cent.

New York is rapidly filling up. The northern section constituting part of the route of the Kingsbridge Cable Railway is the only remaining unbuild part of Manhattan Island. This region unprovided as it is with proper transit facilities is rapidly being built up. The action of the Kingsbridge Railway Company in building and properly equipping a cable road will not only add largely to values, but will also handsomely repay investment in its securities.

The company will include among its rolling stock a number of parlor cars handsomely furnished. During the hours when the travel is greatest these will be found to be of great convenience to ladies and others who can be certain of securing a seat at a small advance over the regular fare.

It will be remarked that the Kingsbridge Cable Railway constitutes not only the trunk line for upper New York, but is also the route over which the surface lines below 59th street will pass their up-town passengers.

Property along the lower section of the road is already well settled, and travel here is assured. The Summer pleasure travel to and from this charming locality will itself prove a most lucrative addition to the regular fares. And as the less built up portion of the route develops as it is doing and will much more rapidly continue to do under the stimulus of quick transit, there is no reason why the Kingsbridge Cable Railway Company, operated cheaply by steam, over a distance of eight miles, should not be one of the most profitable cable systems extant.

The committee on street railways of the New York legislature held a hearing recently on the expediency of legislation to grant street railroad companies the right to operate their roads by electricity and also distribute currents for incandescent and arc lights and the distribution of power. It is claimed that, under the present laws, towns and cities have a right to dictate what motive power shall be used on street railroads, and legislation is desired so that no difficulties may be in the way of a change. There was little opposition, and that only on the part of the Watertown Gas Co.

### Mack's Elevated Railway.

The elevated railroad that has been so successfully operated in New York, has naturally turned the attention of other large cities that are desirous of securing rapid transit through their streets. In New York, however, except the short distance run through Pearl street and the lower part of Greewich street, the streets occupied by the elevated tracks are wide enough to allow of a double track road being built without serious inconvenience to property holders along the line, of having their windows darkened by the structure that has been erected in the street.

In Boston, however, the streets in all of the central portion of the city are so exceedingly narrow, that the construction of the ordinary two-track road would darken the windows of the lower stories to such a degree as to necessitate the use of gas during even the brightest days. In order to overcome this difficulty and yet have the double-track road, in one and the same street, the various single rail designs have been brought out. Among these is one designed by Mr. W. B. Mack\*, who is already well-known as an inventor through the Mack injector. The superstructure of the roadway is intended to be built of heavy cast or wrought iron pipe, screwed into heavy foot-pieces, which in turn are firmly imbedded in a masonry foundation. It is the intention of the inventor to use two of these columns, placed a few feet apart, and thus form the lower portions of the structure. At a height of ten feet from the street these two columns are to be capped by a heavy casting that has pockets for the reception of three other pipes extending up to the roadway. At the top of this second tier of pipe is another cap, with a groove to receive the stringer carrying the center rail. At this point the peculiarity of the structure begins. The whole weight of the car is to be carried by a center rail, just as it is now carried by the center pin of the track; and as the side bearings are of use only to keep the car in balance so these side wheels serve the same purpose, running as they do upon light rails of twenty-five pounds or less fastened to the top chord of the girder. These rails may be of the ordinary pattern or of the side bearing street rail.

The girders serve to carry the weight of the center rail by means of cross girders, upon which the longitudinal stringer is placed. The advantages claimed for this style of construction in the narrow streets, are that the rail is lowered to the bottom of the girder instead of being placed eight or more inches above the top, and that the whole may be constructed of light open work without the capping of cross-ties now in use, that makes almost a complete shed the whole length of the road. The truck designed for use upon the structure must necessarily be of a somewhat unique design. At first it was intended to make it a three-wheeled truck but it was afterwards modified, and the form shown in the engravings

\*92 White street, East Boston, Mass.

is the one that it has been decided to use. It will be seen that there is a single axle extending across the middle of the truck upon which are placed the side-bearing wheels. In a central longitudinal line we find the two 33" wheels running upon the middle rail, and held in position by pedestals upon each side that are fitted with housings of the ordinary kind. The journals, of course, may be somewhat lighter than those that would be employed to carry the same weight with the ordinary construction. The wheels are double flanged, but there will be more play allowed between

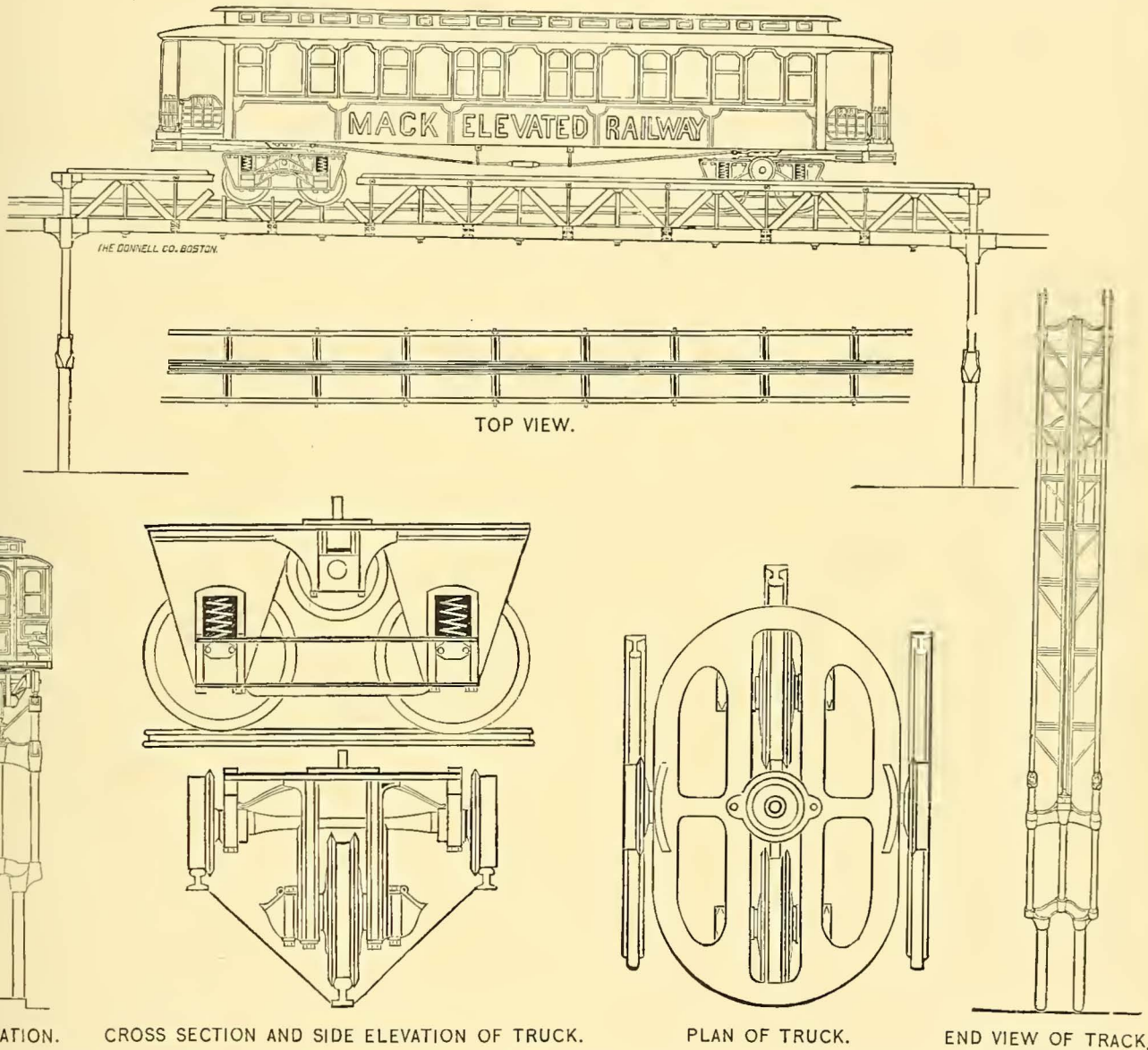
**The New York Third Avenue Street Railway.**

THE ELABORATE SYSTEM REQUIRED IN THE RUNNING OF STREET CARS.

THE DUTIES, HOURS OF LABOR, AND WAGES OF THEIR EMPLOYEES.

The following information gleaned by a reporter of the Sun, relates in a very comprehensive manner the inside story of a very perfect system of horse railroading. It will be found interesting to our readers whose systems are "yet small but growing." Probably not more than four corporations

—the oldest, and one of the largest and most perfect concerns of its kind in the world—is run. In addition to the line between the Post Office and Harlem, eight miles in length, there are two branches, one on 125th street, between Third and Tenth avenues, and another from Thirty-fifth street and Third avenue, through Thirty-fifth street and Lexington avenue to the Grand Central Depot. The cable road from 125th street up to or near Fort George is also run by this corporation, but as horse railroads are the theme in hand, that need not be considered here. The horse railro



the flanges and the rail-head in practice than is shown.

The springs upon which the car is hung are spiral, placed over the housings, and the long elliptic spring shown in the end elevation resting upon the boxes of the side wheels is intended to throw a small portion of the center weight upon these wheels. The frame of the truck is of wrought iron welded into the shape shown in the plan, and affording sufficient opportunity for bolting the pedestals, center plates, and other necessary truck attachments.

When wanting Street Railway Supplies consult our Directory.

in the country approach it in extent, and in most of those the service is so subdivided as to practically break them up into several systems. Undoubtedly Superintendent Robertson is a very busy man, as our readers will agree after reading the story detailed below.

Simple as it all looks, the running of a horse railroad is really a very complex business. The starting of the cars alone is a matter to bewilder and "rattle" most people.

To illustrate this, let us see if it is possible to convey to the mind of the reader just a general idea of the system upon which the Third avenue line and its branches

day, on the main line, begins with the starting out of a car from Harlem at 3.58 A. M., and from that time on they continue starting down-town until 2.20 P. M. At first the cars start only every ten minutes, then every six, then four, two, one and a half, and finally, in what the bulk of the community considers daytime, from 8.30 A. M. to 7.30 P. M., they are but one minute apart below the Sixty-fifth street depot, and double that above. After the latter hour the intervals gradually increase again to one and one-half, two, three, four, five, six, and so on until fifteen minute gaps are between the cars in the time from 1.30 to 4 A. M. Each driver and conduc-

tor on those long runs down to the Post Office and back, makes four trips—of two hours and forty minutes each actual running time, though ten minutes additional at the Harlem end are allowed—to constitute a day's work of 12 hours, for which the pay is \$2. Two of the trips are made before dinner, and two after. Thirty to forty minutes are allowed for dinner.

All that, which may be considered as the backbone of the system, is easily understood, but now the trouble begins. Sandwiched in between the long-trip Harlem cars are others that ply only between the Sixty-fifth street depot and the Post Office, a round trip that takes one hour and forty-five minutes. The first day car of this sort starts at 4.36 A. M. and the first night car at 6.58 P. M. Then there are twelve "run offs" of this sort, which take up in their turn the day cars as their regular drivers finish their twelve hours' work, and the night cars in like manner, each until the return of the regular drivers on schedule day and night time, so as to keep the trips continuous. And there are eight cars, known as "trippers," that are slipped in for four trips each over this lower half of the road to cover the time between 4.47 P. M. and 5.09 A. M., in place of the regular cars of the day men who were earliest off. Of another series of trippers sixteen run two trips each between Harlem and the Post Office, and six more make three such trips each. The first of these starts down town at 6.54 A. M. and the last at 8.57 A. M. And there are thirty cars that make two trips each, in the afternoon, between Sixty-fifth street and Harlem, or three down-town trips, the first, starting at 1.51 P. M., gets through at 10.41 P. M., and the last, starting at 2.57 P. M., finishes at 1.52 P. M. These runs are considered as day's works, and are so paid at the established rate of \$2 per diem, though the time occupied in making them is considerably less than the stipulated twelve hours, and consequently assignment to this service is considered a picnic by the men. The pay of the drivers and conductors on the trippers does not seem to be yet accurately fixed, but will, it is understood, be upon the basis of \$2 for twelve hours' work, and will not, in any case, be below \$1.50.

There are of regular cars on the Third avenue line, in operation in each twenty-four hours, 220; on the Grand Central branch, 26; on the 125th street line, 26; and on the cable road connection, 15; making 287 in all. That requires 547 drivers and as many conductors. Out of so many there will be daily at least 35 or 40 who, on account of sickness, family trouble, attendance at a wake the night before, or some other cause, are not able to work, and their places are filled by the starters from the ranks of the "extras," who are always in attendance looking for a job at the hours when their services are likely to be in demand.

When a man applies for employment on the road as a driver he goes to the Superintendent, Mr. J. H. Robertson, who, if his

references are satisfactory and he seems to understand the business, puts him on the list as an "extra," to await his turn for appointment to fill a vacancy as a "regular." In like manner the applicants for conductors' places, who have to make their applications to Mr. J. Beaver, Treasurer of the company, are listed as extras to await their turn. But it is a rather more serious matter to get employment as a conductor than as a driver. The conductor must not only bring a recommendation from his last employer testifying to his honesty, industry, sobriety, reliability, &c., but must give bonds in the amount of \$1,000 for the faithful discharge of his duties. It is to be feared, however, that in not a few instances those bonds are of rather mythical value. Not a great while since the bondsman for a conductor who left the company's services was looked up and found to be a well-to-do horseshoer over on the west side of town, who cannot write his name. Not only had his name been signed to the bond without his knowledge, but he had been falsely personated before the Notary Public whose attestation was upon the bond.

When a man is appointed as an extra his name is given to the starter, who puts it on a small slip of paper, which he slips into a recess at the bottom of a long list of names upon a board. At 4½ A. M. and again at 6 A. M. the starter calls the roll of these names. As temporary vacancies are reported among the regular men when the time comes for them to go on duty, the extras are drawn upon the draft, commencing at the top of the list, to fill their places. Those who do not answer at either of the roll calls are put at the bottom of the list to work their way up again to chance for employment as fortune may favor them. Those who have had a day's employment are in like manner put below to work their way up to the top again. There are always about fifty drivers and 100 conductors on the extra list, but their opportunities for chance work are at least sufficient to give them a living while waiting for places as regulars. While casual employment is a matter of rotation, appointment as a regular must be in order of date of getting place among the extras. The drivers are generally older men than the conductors, and a larger proportion are men of family. As a rule, too, more of them have been long in the service of the company. The conductor who has served longest has only collected fares about sixteen years, but there are several drivers still at work who came on when the operation of the road was begun in 1853.

In the big depot at Sixty-fifth street the company has set apart an old car for men to eat their dinners in, making it comfortable by steam pipes under the seats, and supplying a table for them to eat from. The single men among them keep going to two or three cheap restaurants in the neighborhood of each depot.

The starters, already mentioned as those who find work for the extras, only have that authority at the depots. Those at the Post Office have only to watch the dial

of their clock and strike the starting bell on time. There are ten of them—two in Harlem, two at Sixty-fifth street depot, two at the cable road, one at 125th street, two at the Post Office, and one at Forty-second street. They work twelve hours a day, with an hour off for breakfast and another hour for dinner. While they are away feeding their duties are discharged by the "monitors" who are stationed at each of the points mentioned to note and record the register indications in the cars as they arrive, except at the Post Office, where the "waterman"—who at other times waters the horses—is their relief, and at the Grand Central depot, where the foreman from the depot of that branch serves in the starter's stead at meal times. The starters get from \$2.25 to \$3.25 a day, according to the duration of their service and the responsibility of the posts they fill. The eight monitors get the same pay as conductors and drivers in some instances, and in others \$1.25 a day.

Boys from 16 to 20 years of age are employed to work the towing horses on the steep hills on the line and its branches at Chatham square, Seventy-fourth street and Thirty-fifth street; also during the summer when the heavy open cars are run, at Ninety-sixth street and Twenty-third street. They work from ten to twelve hours, with half an hour for dinner, and get \$1.25 a day each.

Trackmen, to keep the tracks in repair, are constantly employed in varying numbers, from 20 in winter to as many as 100 in spring, summer, and autumn. They work ten hours a day, except on Saturday, when they only work nine hours. The pavers get \$2, the rammers \$1.60 to \$1.75, and the laborers \$1.35 a day.

The hardest-worked man in the company's employ is beyond a doubt the Superintendent, Mr. J. H. Robertson. In good weather, when everything is working smoothly, he does not work more than from fourteen to sixteen hours a day, but when a snow storm occurs he has to be out fighting it from the time it begins until it ends, and the tracks are clear. Even if days elapse in the course of that continuous struggle, he can take no time for rest until the battle with the elements has been won. Every detail in the working of the road must be directed and supervised by him, on the line, in the shops, throughout the stables, everywhere in fact, and if he did not meet all the requirements of a superintendent, as specified in the beginning of this article, he would be no good. The morning of the recent great strike among the railroad employees was an anxious one for him. At 4 o'clock he found that the only men in that vast depot besides himself were the night engineer, the night starter, and the night foreman of the stables. To say nothing of the terrific damage that might have occurred from an accidental fire while there were only four men to fight it, there were 1,625 hungry and thirsty horses in the stalls to be fed and watered. Early in the forenoon he got twenty-five Italians to help in the stables, and at noon the strikers sent in enough stablemen to take care of the horses.



There are about one hundred stablemen employed in the Sixty-fifth street depot. Each man takes care of 16 horses, feeding, watering, and grooming them. The night men do the work of feeding the horses that are to go out early in the day. Between 4½ and 6 A. M. the day men come around to work. Their first work is to clean out the stable, and then to make ready for the 9 o'clock feeding. The horses that have been fed by the night men are put out in teams for the early cars by the day men who have just come on duty in time. When a stableman has got his horses out he knows exactly how long it will be before they come back and he will have to put others out, so he can arrange for his meals in the intervals quite conveniently, to snit himself. Nearly all the stablemen live close to the depot and can get their meals at home regularly, except the extras looking for work, who bring their dinners in cans. Their day's work only averages about ten hours, and their wages are \$1.75 a day. In the matter of feeding, their work follows that of the feed-room men. There are twenty-two of these, who work in night and day shifts of twelve hours each, and get \$1.75 a day. It is their duty to get the hay and grain up by the steam power elevators to the several floors where they are to be handled; to cut the hay by means of steam-cutting machines provided, and to mix it, when cut, with coarsely-ground and mixed corn and oats, in the proportion of 17½ pounds of grain meal to 8½ pounds of cut hay—a day's ration for a working horse. Water and a little salt are mixed with the cut and ground feed. The quantity specified is fed in three portions, the largest of which is the horse's dinner, and the others his breakfast and supper. The diet, though good, might strike a fastidious horse as somewhat monotonous, but if he reflected upon how hard and short a life he was doomed to in the street railroad service, he probably wouldn't care much about his feed. The average serviceable life of a horse in street railroad work is only from three to three and a half years, and the Third Avenue Railroad Company uses up about 600 horses a year. A knowledge of that fact might well alarm and depress any reflective horse. And yet the work laid out for the horses does not seem so very severe. Sixteen miles a day on the Third avenue line, which is, by reason of its grades, the hardest; or twenty miles on its branches are deemed a sufficient day's work for a horse. And then an effort is made to give each horse one day of rest in seven, or, failing in that, to make up its equivalent to him by diminishing his hours of toil. But the fret, and worry, and strain of frequent stopping and starting the car, and continual pounding of the feet on the hard, round cobblestones, and the cruel sprains inflicted by slipping on the smooth rails, all these soon wear out the poor horse, break his heart, and make him a mere wreck, fit only to snuffer a little longer between the shafts of a hackster's cart, or, by a happier fate, go to the knacker's yard at once. There is a good hospital here for

sick horses, capable, with the gangways reserved for this use, of accommodating as many as 100 sick and lame horses at once, but, except when the epizootic was in the stables, not so many animals worth treating have ever been in it at one time. If a horse is used up, or very sick, it is not worth while to bother with him here. Temporary lameness, caused by slips and falls, is the principal thing treated in the hospital. Last April when the police enforced the ordinance forbidding the sanding of the tracks, there were 75 horses lamed by the slippery pavements at one time. The hospital is in charge of a veterinary surgeon, whose duty it is to be on hand all day, and all night too if he is wanted, and who gets \$25 a week. He has as helpers four or five skilled old stablemen, who are selected for their possession of some knowledge of rough horse-doctoring, but who get no more pay than the others.

The company always has on hand in its stables from 2,000 to 2,300 horses. Of these, at the beginning of the present month, 1,625 were in the stables of the Sixty-fifth street depot building. As many as are kept here are about equally divided between the stalls on the lower floor—which is even with the ground at Second avenue, but one story down at Third avenue—and in those upon the upper floor; the intermediate floor, on a level with Third avenue, being devoted to the storage, shifting, and starting of cars. The horses from the lower floor are brought up by the stablemen two teams at a time, ready harnessed, their trace chains are made fast to the double-trees left lying in place by teams just discharged, and their lines are made fast to a long tant chain on the south side of the great opening in the floor, down which runs the sloping way to the stalls below. From that chain they are taken by the drivers to whose cars they belong; the double-trees behind each team is carried by the driver to the front of the car upon which he is about to start out, is quickly coupled up, and he is ready for the starter's bell to start on a down-town trip. The team that he has brought in he leaves tied to the chain for the stablemen to take away.

The other persons about the place who have anything to do with the horses are the five trackmen—who get \$2 a day for twelve hours' work in hauling continually to the stables loads of hay, ground feed and straw—and the horseshoers, of whom the company employes eighteen here, two in Harlem, and two at Thirty-fourth street depot, at a salary of \$3 a day for ten hours' work each week day, except Saturday, when they work but eight hours. The company buys its horseshoes ready made, so that men doing this work must be experts in the art of shoeing horses without laming them.

A corrugated iron building in the great yard inside the fireproof depot and stable—which occupies sixty lots—is a harness shop, where a foreman and five men are continually at work making harness. The collars, hames, and trace chains are purchased ready made, but all else of the harness used by the company is made here.

The hours of labor in the harness shop are nine on Saturdays and ten on other week days. The foreman gets \$2.50 a day and his men get from \$1.50 to \$1.91 2-7.

West of the feed room, which is on the Second avenue end of the building, is a great room, 200 by 300 feet in size, where cars are constructed and repaired. Since the building of twenty open cars, a year ago, the only work done here up to the present time has been repairing, but every facility is enjoyed in these shops for the construction of cars throughout, excepting their castings, and work will be commenced in a few days on a new lot of close cars. The ordinary complement of workers in the shops consists of fifteen to twenty blacksmiths, twenty carpenters, and six or seven painters. The painting is done by contract. Blacksmiths get from \$1.75 to \$2.37½ a day, and the carpenters, who receive various prices, average \$2.25. Those are less wages than are demanded by the unions of those two trades, but it is said that they should be less, because the men work under the most comfortable conditions, are employed steadily the whole year through, and are not the most skilled workmen, which, indeed, they are not all required to be. Open cars made here cost the company about \$1,000 each, and box cars from \$1,000 to \$1,100. The company has at present 350 cars in good condition. The new cars for the cable road, which Superintendent Robertson pronounces the most unqualified success, are being constructed by contract in Philadelphia, and will be much more expensive.

There are five more men, who are very important, who have to do with the financial results of the running of the cars. They are known as "receivers," and may be seen behind small grated windows in a large room on the north side of the main hall of the Sixty-fifth street depot, clenching the moneys that conductors hastily slam down before them momentarily. They handle all the money that is taken in on the road, having that gathered on the branches brought to them in a "bank wagon," in charge of a well-armed driver. They count it, report its amount to the Treasurer, who has one assistant only, make it up in proper form for banking and send it daily to be deposited in a bank. When it goes away it is in charge of one of their number and the driver of the bank wagon, which is built to resist invasion, and both men fairly bristle with offensive and defensive arms. A number of years ago one of the receivers was robbed of about \$200 which he was bringing from up town. He was riding in a horse car. A couple of desperadoes sprang aboard the car, pounded his head, jammed a pistol down his throat, and persuaded him to let go of the money box. Since then no chances are taken, and the person who seeks to interfere with Third Avenue Railroad funds in transit will be very liable to get only harm by his endeavor.

Are there any more regular employees of the company worth mentioning? Well, decidedly, yes; there is one; wiry, oily, shrewd, canny Scot John Stewart, whose business it is to guard the company, as far as possible, against damage suits, by getting up defensive evidence, finding out unpleasant things concerning antagonistic witnesses, compromising ugly cases with plaintiffs, and otherwise protecting the interests of his employees, whose respect and entire confidence he has won by many years of faithful and able service.

### Improvements in Track Sweepers.

The accompanying illustrations show several improvements in track sweepers.\*

Fig. 1 relates to a cast journal box which carries the outer end of revolving broom shaft. By means of lugs on the upper surface a vertical lifting bar is fastened to the box, and being connected with levers on upper part of sweeper raises and lowers the broom as required. By means of a ring or guide hole left in the side of the box it slides up and down on an arm or hanger which is rigidly fastened to the frame of the sweeper and which holds the broom firmly in place except in its up and down motion. These arms or hangers are gently curved, allowing the utmost freedom to the broom, which being constructed of oak, admits of an automatic adjustment to the inequalities of the track.

rod and confined between its bars, when the latter are folded and secured in the folded position by means of bolts passing through lugs secured to or formed on the bars. One pair of bars with their rod and rattan form a section. The section is then placed in position by its ends being received in the sockets in the broom heads.

It will, of course, be understood that the number of sockets in the heads and consequently the number of sections which go to make up a broom may be varied within certain limits. A broom of substantially circular form is thus constructed with more or less sections as desired.

Fig. 3 shows an improvement in construction of the pedestal by which the strain on the bolts from the plow-board or stationary broom is relieved by means of projections cast upon the face of the pedestal and forming a seat or rest for the rigid hang

twenty-five. The summit level occurs about midway, at an elevation of about 160 feet above either terminus, the total rise from the depot at Portrush to the summit being 203 feet. Some sharp curves exist along the line, the worst one having a radius of about forty feet. There was some doubt in the mind of Sir William Siemens, the constructor of the line, whether with the arrangements adopted these inclines could be worked satisfactorily; but experience has proved that they can be, and the car, when fully loaded, is drawn up the grades without difficulty. There are seven "passing places" along the line, where the "points" are set so that the cars traveling in opposite directions always take their own sides respectively.

At first the power was produced by a steam engine at Portrush, giving motion to a shunt-wound dynamo of twenty horse

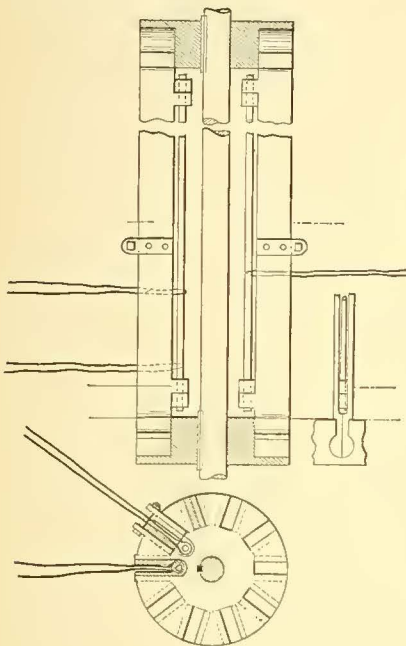


FIG. 2.

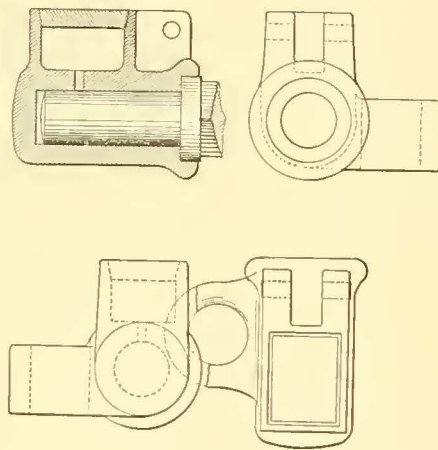


FIG. 1.

IMPROVEMENTS IN TRACK SWEEPERS.

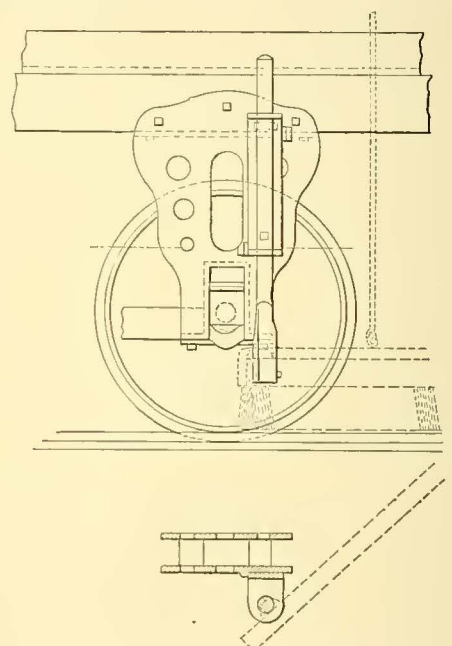


FIG. 3.

Fig. 2 relates to the construction of a revolving broom used in snow or dirt sweeping. These brooms are made in a cheap and rapid manner and may be repaired with little trouble. Two cast broom heads are employed keyed upon the broom shaft at such distance as the required length of broom dictates. Each head is formed with a series of radial sockets, the sockets in one head facing those in the other. Between the broom heads and parallel to the shaft extend stout bars hinged together in pairs by means of lugs and rods. The ends of these bars are so shaped that when folded they will fit into the sockets in the heads—all of the bars being of course of the same length—so that there are as many pairs of hinged bars connecting the heads as there are sockets in one of said heads. The splints or rattan, only a few of which are shown in the drawings, are bent at about midlength and pushed over the rod and between the bars, while the latter are open until a sufficient quantity of rattan is thus hooked to a

rod or supports that hold the stationary plow, so that almost all the leverage that is usually thrown upon the suspending lever that holds the broom in position is obviated and resolved into a direct strain upon the pedestal.

### Electricity in Ireland.

An electric railway has been in successful daily operation in the north of Ireland since November 5, 1883. It starts from the railway terminus of the Northern Counties railway at Portrush, in the county Antrim, and runs along the magnificent coast road to Bushmills, a distance of six miles, ending within a short distance of the Giant's Causeway. The total length of the way, including the branch way, to the harbor of Portrush, and the several sidings, is upward of seven miles. The road is one continuous series of long inclines; grades of one in forty-five and one in forty are frequent for upward of a mile in length, while steeper grades of one in thirty exist for shorter distances, the worst grade being one in

power, but arrangements were subsequently made to utilize a waterfall of ample power on the river Bush, situated 1600 yards from the nearest point of the tramway and six and a half miles from Portrush. A fall of twenty-six feet head of water is used to drive two turbines, each capable of working up to fifty-two horse-power.

A speed of ten miles an hour is readily obtained. Mr. Traill, the engineer of this road, told the Inventors' Institute last year that, after repeated failures, they had at last hit on a thoroughly trustworthy plan for getting electricity from the conductor. This was by means of a steel spring in the form of a carriage spring; two concave steel springs were fastened at the top and rubbed along the bottom. His cars had then successfully traveled over 30,000 miles with 100,000 passengers. The cost of electricity generated by water power a mile distant was one-quarter that of steam used on the same railway.

It is said that the construction of this road cost \$225,000; that it is paying a 12 per cent. dividend; and that the working expenses are five cents per train mile. An extension of six miles is contemplated.—Robert Luce, in *Electric Railways*.

\*The Brooklyn Railway Supply Co., 37 and 39 Walworth Street, Brooklyn, N. Y.

**Metallic Way vs. Timber Track.**

EDITORS STREET RAILWAY JOURNAL:—

In your last issue is a letter from Mr. W. P. Craig in reply to my letter on the above subject. I need not say that metal vs. timber for railway construction is a subject that has and now is occupying the minds of men in many parts of the world, and from what has practically been done to solve the problem, it is now generally conceded that iron has much longer life than timber, therefore these problems have been or are to be solved:—Has iron the qualities necessary for climatic changes? security in fastenings? uniformity of position? preservation of gauge? does it give smooth and elastic movement to the rolling stock? If it has all these qualities, economy must ensue irrespective of first cost.

Many years ago the governments of Germany, Belgium, India, Egypt and France built railways with iron sleepers with a view to their future adoption if found superior to timber. They detailed expert engineers to closely watch the movements of trains and note the results, and after many years of such observations called for their testimony as to the merits or demerits of the system. Below are some remarks on the subject.

In a circular issued some years ago by Von E. Gruttenfien, very high authority on such matters, he says: "In my opinion we must accustom ourselves to apply to the construction of the permanent way of railways a share of that intelligence which, for instance, is already assumed as necessary in the building of bridges, in order that we may place the construction and maintenance of the permanent way on a higher level than hitherto, to the furtherance of economy and of safety in working. \* \* \* The experience which has been gained with the iron sleeper system on the Prussian State Railways in the last five years leaves no doubt as to its lasting adoption. As compared to the construction with woodensleepers, the greater durability, the secure fastenings of the rail, the uniformity of position, the preservation of gange, and the smoother and more elastic movement of the rolling stock, caused by all these properties, are nearly generally acknowledged; nor has any material shifting of the permanent way, nor any waste by friction of the surface between rails and sleeper, been remarked."

Mr. Simon, Chief Engineer, England, says: \* \* \* "Moreover and independently of the question of economy in first cost, \* \* \* the inevitable consequence of using timber and iron together, is at all points of contact between iron and wood a want of that exactitude and reliability which is desirable and which can be secured by the use of iron parts only."

H. Reese, Esq., of Baltimore, an engineer of marked ability and who has devoted much thought on the subject, remarks: "What their life (iron sleepers) may be cannot be told, but some sleepers recently taken from an Indian railway which had

been in the track for over forty years were found to be still practically as good as new. Probably in ordinary track it would be safe to allow fifty years as the life of a metallic sleeper, but when at last worn out they would be worth at least half the current cost of iron to manufacture."

If these opinions of eminent men will not convince I would further illustrate the superiority of iron over timber as follows:

In the STREET RAILWAY JOURNAL of April 1885 is an estimate on the authority of Mr. Longstreet of Providence—who says the cost of material alone for tramway track, using 52-lb. rail, is \$5,147, to which may be justly added for track laying, carpenters and spikers

Actual cost in this city . . . . .	\$1,271.40
Taking up paving and repaving . .	699.00
Hauling sand, &c. . . . .	122.00
	\$2,092.40

a total of \$7,239.40 or about \$1<sup>37</sup>/<sub>100</sub> per lineal foot of track.

Our system will not exceed this figure. Assuming the life of rail and timber stringer to be the same, viz., twenty years, the cost of renewing the timber system would be \$7,239 with an addition of say \$400 for taking up and removing decayed debris, equals \$7,639.40, less seventy-five tons of scrap at \$20 equals \$1,500, would still leave an outlay of \$5,739.40 for first renewal.

Now assume that metallic longitudinal sleepers have but twice the life of timber, viz., forty years, we have only to renew the rail at the expiration of twenty years, which amounts to \$3,280, less for scrap, would amount to about \$1,825 for first renewal—the difference being \$3,814 in favor of the metal system.

Let us further assume that this amount, \$3,814, is placed at 4% interest as a sinking fund, we have at the expiration of twenty years over \$8,000 to meet the demand for the next renewal which would be:

Rails, metal, longitudinal sleepers, tie rods and wedge key . . .	\$7,239.00
Less 120 tons cast steel scrap at \$20 . . . . .	2,400.00
	\$4,839.00

Therefore at the expiration of forty years the timber system has cost:

First cost . . . . .	\$7,239.00
First renewal, twenty years . . . . .	5,739.00
Second renewal, forty years . . . . .	5,739.00
	\$18,717.00

The metallic sleeper system:

First cost . . . . .	\$7,239.00
First renewal, twenty years . . . . .	1,825.00
Second renewal, forty years . . . . .	4,747.00
	\$13,851.00
Less balance in sinking fund . . . . .	3,253.00

Cost of metallic track . . . . . \$9,598.00

In other words, the adoption of the metallic system, creates a fund more than equivalent to meet all demands for future renewals, besides reducing track repairs to a minimum. A timber track can be built for the same price we build a metallic track, but I doubt, nay am certain, the timber

track will not last as long, be as elastic and smooth riding, need so little repairs, or be worth as much at renewals. These are important items, which railway officials look at; they do not think "twenty years long enough."

The assertion that a hollow rectangular metal sleeper, when filled with, and embedded in the sand in the street, would be rigid, as track laid on solid stone, is a libel on theory and practice.

The eminent authorities I have quoted are worth more than my humble opinion, yet in Albany, I can show a track built of metal only, that possesses uniform elasticity, is smoother riding, and almost noiseless in comparison with the timber system.

T. H. GIBBON,  
Eng. Metallic Street Railway Co.  
Albany, N. Y.

♦♦♦♦♦  
**An Early Electric Motor.**

Professor Page made a trial trip with his electro-magnetic locomotive on Tuesday, April 29, 1851, starting from Washington. The progress of the locomotive was at first so slow that a boy was enabled to keep pace with it for several hundred feet. But the speed was soon increased, and Bladensburg, a distance of, I believe, about five miles and a quarter, was reached in thirty-nine minutes. When within two miles of that place, the power of the battery being fully up, the locomotive began to run, on nearly a level plane, at the rate of nineteen miles an hour, or seven miles faster than the greatest speed heretofore attained. This velocity was continued for a mile, when one of the cells cracked entirely open, which caused the acids to intermix, and as a consequence, the propelling power was partially weakened. Two of the other cells subsequently met with a similar disaster. The professor proceeded cautiously, fearing obstructions on the way, such as the coming of cars in the opposite direction, and cattle on the road. Seven halts were made, occupying in all forty minutes. But, notwithstanding these hindrances and delays, the trip to and from Bladensburg was accomplished in one minute less than two hours. The cells were made of light earthenware, for the purpose of experiment merely, without reference to durability. This part of the apparatus could therefore easily be guarded against mishap. The great point established was, that a locomotive on the principle of Professor Page, could be made to travel nineteen miles an hour. But it was found on subsequent trials that the least jolt, such as that caused by the end of a rail a little above the level, threw the batteries out of working order, and the result was a halt. This defect could not be overcome, and Professor Page reluctantly abandoned his discovery.—Ben. Perley Poore.

♦♦♦♦♦

The electric motors on the Baltimore & Hampden Railroad have given so much satisfaction that another line under the same direction is to be equipped with them.

### Pneumonia in Car Horses.

Following is a part of Dr. W. H. Arrow-smith's paper on "Diseases Common to Car Horses," read at the St. Louis convention, giving his very successful methods of detection and treatment of inflammation of the lungs. Stablemen will find profit in its careful study:

The causes of pneumonia are of a specific character, the nature of which is at present unknown. That it is a purely constitutional and not local disease is now held and believed by all of the most recent investigators; that it is essentially of a constitutional type is not only proven from the fact of its clinical history and anatomical nature, but also from the fact that it cannot be produced by any external or mechanical means.

Its nature and cause is believed to be due to some specific morbid condition of the blood, yet unknown, which nature endeavors to rid itself of by means of the local manifestations in the lung substance; still there are certain influences and conditions which are exciting and predisposing.

Horses that are convalescing from some debilitating disease, or run down and weakened from severe exertion, insufficient food, and bad hygiene are more liable, and usually undergo a severe type of the disease. Sudden variations in the temperature, at any time of the year, is a predisposing cause. The removal of horses from a distant place, the excitement and nervous prostration due to the journey, the change of climate, the want of proper clothing and good feed, are inducing causes. The lack of ventilation and insufficient air space in large stables, and the close confinement of a number of horses in a stable without due care given to the emanations and gases, will excite an attack of pneumonia.

The horses which are exposed to the vicissitudes of the weather and are over-worked are most liable, and yet the disease is frequently found among those animals that are carefully nurtured, well groomed, and used only for road purposes. Pneumonia also occurs as a complication of other diseases. Different affections of the kidneys have been supposed to stand in a causative relation to it.

In the middle Atlantic States, it occurs most frequently during the winter and spring months. Some years it prevails more and proves more fatal than others.

The symptoms of pneumonia are as a rule very prominent: anorexia, a dejected countenance, frequently a cough, although sometimes wanting, temperature increased from 102° to 104° Fahr., pulse and respiration increased, and in most cases there is a well-marked chill which may continue from one to three hours. The bowels become constipated, and the bladder is not evacuated as frequently as in health. These are the general symptoms. The local signs are to be elicited from the chest itself by means of percussion and auscultation. Percussion is an act performed by pressing the middle finger of the left hand firmly upon the different parts of the chest, either upon the ribs or the intercostal spaces, and distinctly

and uniformly tapping it with the tips of the closed fingers of the right hand. By this means if the lung is healthy there will be heard a low, resonant sound over all parts of the lung, but should any portion of the lung be inflamed and contain an exudative product, percussion on that point would elicit a hard distinct sound without resonance and appear as though one was rapping on a hard substance.

Auscultation is the method by which we listen to the sounds caused by the air passing in and out of the lungs. It is performed by pressing the ear against the different parts of the surface of the chest and listening to the sounds of the air passing in and out. If the lungs are healthy there will be a soft, rustling sound, somewhat approaching a murmur, and might be compared to the gentle rustling of green leaves in the woods. And in the first stage of pneumonia there will be heard over the affected parts a crepitant sound, which might be compared to the sound of salt sprinkled on the fire. This crepitation will continue for two or three days and then gradually give way to no sound at all, excepting the bronchial sound of the air passing into the larger bronchial tubes, and this want of any sound will indicate the second stage of red hepatization. This lack of respiratory murmur may continue from four to eight days, and then there will be noticed in the sounds a return of the crepitation, which will indicate a third stage. Should resolution continue favorable a return of the rustling murmur of healthy lung tissue will be found. Auscultation is the best means for determining the condition of the lungs when diseased, and also the most difficult. And to become familiar with the normal and abnormal sounds, one should carefully listen to the sounds of healthy lungs, and then compare them with those that are diseased.

By percussion or tapping the surface of the chest, the diseased portion of the lung will be detected by the sound. Instead of a clear, resonant sound that will be produced over a healthy lung, there will be heard over the affected part a dull, hard sound as though one was tapping on a board, or some solid substance.

In the treatment of pneumonia we must always remember that it is a self-limited disease, has three stages which it undergoes before resolution takes place, and therefore furnishes different therapeutical indications.

Should the case be seen in the first stage, that of engorgement, high fever, accelerated pulse and respiration, and presenting the crepitant sound upon auscultation, an endeavor should be made to arrest or at least to lessen the force of attack. Heretofore, blood-letting, cathartics and the so-called anti-phlogistic methods of treatment have been considered abortive; but experience has abundantly shown that these measures cannot be relied upon, and that they frequently leave the animal so debilitated as to be unable to withstand the remaining stages of the attack.

It has been found in the daily practice of

the writer, and verified by the testimony of other practitioners, that if the case is seen in its first stage, a full dose of sulphate of quinia from one to two drachms, according to the size of the animal, will in some cases arrest the disease, and should it not abort the disease, it always leaves a favorable influence in the course of it, by its anti-pyretic effect. Again, in the first stage the rational system of treatment should be employed, the animal should be placed in a roomy, well-ventilated, white-washed stall, containing clean fresh straw and plenty of light; there should be no draught and the animal should be moderately clothed and all the legs to the first joint be bandaged and thus endeavor to keep an equal temperature of the whole body.

Blisters, strong stimulating liniments and thick mustard paste are judicious, but the applications of a mild liniment composed of aqua-ammonia one part, spirits of turpentine two parts, alcohol four parts and olive oil sixteen parts, gently rubbed on the chest and a bandage of red flannel applied, or what is more convenient in our stables, the best English mustard four ounces to one quart of water, applied with moderate friction and then the flannel bandage applied, will act beneficially, and should simply be used to stimulate the chest walls and should not cause the animal great uneasiness, for the excitement following the application of strong mustards is frequently productive of unfavorable results.

Water or better gruels composed of oatmeal and water, containing one ounce of nitrate of potassæ and one drachm of chlorate of potassæ to each pailful, should be allowed to remain in the stall for the animal to drink at its pleasure. Nutritive foods and any green foods, if they can be obtained, should be allowed; soaked hay, and mashes composed of bran, cut hay and oats are often found acceptable, but the rule should be to allow the horse whatever he will eat.

During the second and third stages the treatment best adapted to our railroad horses is of a tonic and stimulating character. As a tonic there is nothing equal to quinine, and best administered in the form of a drench composed as follows: Sulphate of quinine,  $\frac{1}{2}$  drachm, alcohol,  $\frac{1}{4}$  ounce, sulphuric acid, aromatic,  $\frac{1}{2}$  drachm, water, 12 ounces, given night and morning, and as a stimulant the balls composed as follows:

Ammonia Carbonate, 2 ounces.  
Camphor Pulverized, 1 "  
Nux Vomica Pulv, 1 "  
Gentian Root Pulv, 3 "

Simple syrup, a sufficient quantity to make the mass adhere, and then divide it into six balls and wrap each in a piece of tissue paper. These balls should be given three times a day, and when the disease is approaching the point of crisis, which occurs from the ninth to the twelfth day, these stimulating balls should be given every four hours, and if the animal will drink freely, six ounces of brandy or one ounce of alcohol should be given in a pail of water.

True, there are other treatments. as for

which their adherents claim great success, but in the hands of the writer and experience of others who have had the care of surface railroad stables the above treatment has shown the best results.

The prognosis of pneumonia among railroad horses is as a rule favorable; still it should be guarded and a careful survey of the animal made before giving a prognosis.

Should the animal present a healthy, robust appearance and there be no indication of complications, there is then reason to expect with the above treatment a favorable result; but if the animal is advanced in age, not in strong condition, and presenting grave symptoms at first, a favorable prognosis should not be given.

### My Rights.

[The following letter will explain itself.—  
ED.]

#### TO THE HOLDERS OF WEALTH:

Your forefathers, once upon a time, declared unto the world that all men were equal and endowed with an inalienable right to life, liberty and the pursuit of happiness. So I came here where these rights were recognized and made the law of the land, and what did I find? A rapidly growing population, a mass of wealth never before accumulated in so short a time by any nation of the globe, all the paths of wealth, honor and power laid open a free and welcome highway to whomsoever might choose to tread therein, and in the highest posts that the nation can bestow I find men who were once the dwellers of the rudest kind of shanties. This seems well enough in the abstract to those who may stand on high and moral grounds; but a down-trodden and impoverished, ignorant peasant, what beauty could I see in the unequal distribution of this wealth?

I have seen the rich and idle living in consummate luxury at home, I have seen the poor starving in their garrets by my side, and why should I tolerate such things as these, where my tongue is loosened and I dare to speak my mind? All are free to pursue their chosen way to happiness. You choose yours by patient labor and accumulation, I choose mine by sudden flights to higher places than you can dare to tread. I leaped from the tongue-tied despotism of the world beyond the seas to where the freedom of speech is a God-given right. And as I've taken this step so far ahead of them that remain at home, I now declare that my right extends beyond the narrow pale that reason, such as yours, can grant, and take upon myself the duty of a redistribution of the world and all the works of man.

Have the air as free as you, you breathe and live by the very things that keep the life in me, and all the wealth and luxuries that you possess, although they may be the result of years of patient labor, they come from strict adherence to the laws of nature, and in the output of these laws I have rights, that I am bound to claim. It matters not to me what you may think, or how you may struggle in the net I'll weave about you. I know my

strength. I've got my agents in every house and home and shop, and if you turn so much as by the breadth of a single hair from the straight and narrow path laid down by me for your pursuance, I'll starve you to the very death; I'll cut you off from all mankind; I'll stop the passage of the food you need to keep the life within your body; I'll strip your family of the clothes they wear; I'll keep your friends from coming to give you succor in this time of sore distress; and when you lie gasping and panting in the agony of mind that I know I can produce, I'll dash the very cup of water that you lift to your lips to the ground, and leave you there to die. All this now lies within my power.

You ask that I shall work. I care no more for work. I have found that by subtle undermining of the minds of men I can make the very foundations of your boasted commonwealth to shake and totter, and as I stand outside and look upon the threatened ruin, I gloat upon my work, and when the crash shall come and they be buried in the ruins they have helped to make, I will not care, since down in the very dregs of all mankind I can find those who will gladly take their place.

My tools are fools and think I give them strength and make them friends when I send them into dangers greater than they ever knew before. Yet what of them? It gives employment to the mind, if such exists, and all men know that if the mind be full, the worry of the day is gone. My creatures will not work; I mean my confidential agents, the creatures that have taken on the externalities of men, as "hounds and greyhounds, mongrels, spaniels, curs, are clefted all by the name of dogs," but who are no more like men in truth, than white resembles black. These ministers of mine, whom I have taken to my very bosom, are the ones who haunt and live and keep alive the very dens of wickedness and crime, and when I sound the watchword, they come in swarms to tear and plunder and bring down to a level with themselves all that which you esteem so highly, and which I so utterly despise—because it is not mine.

Now in these straits what will you do? What can you do? How can you keep the wealth that you call yours? How can you even keep the life you have, unless I choose to grant the privilege? "Whom the gods would destroy, they first make mad," and in a moment of madness, you, or those like you, who have gone before, went out into the darkness of the world, and gathered here and there some fagots that the older world had cast aside, and with these fagots you purposed to build a cheerful fire upon your hearth, and show that world that what they so lightly laid aside you could use to give warmth and health and joy to all your house. But in the darkness in the midst of which you roped you picked a stick that was not what it seemed, and when you warmed it by your fire, it turned, and endowed with life, it struck its fangs into the infant "Liberty" that lay sleeping in the crib. It drove you with your wife out

into the world of storm, and then whirling through the house in the mad delight of its strength and power, it dashed the fire-brands, that ere now were logs of yule, here and there upon the floor. It fired the house, and as it was hemmed in on every side, and there could be no escape, it perished in the flames and left to you the duties of the reconstruction. You made this blunder and you must suffer for it.

It is not the home-brewed ale that causes you the trouble that you suffer from; but you know you find it in the foreign element, of which I stand the representative, and which delights to tear away all semblance to the haughty power by which it was surrounded.

I tell you now, and tell it to your face, that if you hope to gain control and put a check upon what you choose to call my mad excess, you must use prompt and stringent measures. I have caught the bit fast in my teeth. I'll have my run though both the rider and the beast of burden may perish in the end. It is a sort of wild intoxication that I feel, to know at first that in a little place I stir things up; then that across the length and breadth of the land my name is lisped with fear and dread; then like an eagle I swoop down upon a section of my adopted country and throttle Commerce in every way that she may turn, and when I have killed her here, or made her bow and worship at my throne, I'll turn my mind to the very seat of government itself, and with a myriad of my followers at my back, I'll climb the steps that you and such as you have held before. I'll pour out the coffers of the state and hold high carnival in feasts of human flesh and blood, and make the boasts that you have made be turned to wailing and let all the wide world of kings and despots laugh at your disgrace, and tremble when they look at me.

You have cared for me in my weakness, that I know. But as a child lets go the mother's hand and wanders through the world alone, when it can walk, so I discard the guiding care that you have taken till my strength was found, and go my way alone.

And now in parting let me say but one word more. If you are anxious for peace and quiet, let me have my way, yield to each demand that I may make, and though you may not see the reason in the right, you may perchance then see it in your fear. This will give a truce, and your life will not be sacrificed at first, but when I have no more to ask, and you no more to give, why then we'll call the shades of Robespierre and all his crew, and end the peace, and give you what I think you ought to have. For the

COMMUNE.

David Winter of Peabody has a model for a horse car of his own invention to run upon a single T rail instead of two flat street rails, and upon two wheels with anti-friction bearings under the center of the car. The car is held in position by four upright standards, two of which move on each side of a guide rail placed above the ground at a height of fifteen feet. It is claimed the telephone and electric light wires can run on the upper rail and the single T rail would obviate the necessity of street blockades by snow.

### Single vs. Duplicate Cable.

EDITORS STREET RAILWAY JOURNAL:—

The letter signed "D. J. Miller," in your last edition, in which he claims that the failure of the duplicate cable system in Kansas City was due to defective superintendence or negligence, calls for the following reply:—

*First objection*,—I have been connected with cable roads both in San Francisco and here for the past eight years, and have yet to see a cable road stop for even half a day on account of a stranded cable; such delays except on very rare occasions, last from ten to thirty minutes, as a reference to the records on cable roads will show.

The gripmen on the Tenth Avenue cable road are given credit for remarkable intelligence when it is stated they were not aware of a change of cables being made while running.

*Second objection*,—If Mr. Miller had taken the trouble to inquire on what portion of the road the duplicate cable was damaged in Kansas City, he would have saved himself from the awkward position of misrepresenting facts. The duplicate cable was not damaged in the curves, but was cut in those places where he states "it is almost impossible for them to interfere, and they never have come in contact with each other."

If the running cable would retain its normal line, viz. 2" from the other, side to side, they of course would not interfere, but the trouble is it will not, owing to the variation of the tension of the cable in use.

*Third objection*,—The question whether a moving cable is likely to retain more grit than one that is stationary I will leave for others to decide. My experience and the condition of the duplicate cable, although thoroughly oiled as compared with the running cable, proves the contrary.

*Fourth objection*,—The machinery should be inspected every night by the regular engineer in charge, and the cable by the regular splicer, who can be retained at reasonable wages. By proper management the repairs and care of cable will not cost much more than the wages of a splicer, whom you are obliged to retain with either single or duplicate cable system. When a cable strands the custom is to cut off the loose strand, tuck the end and go ahead. After shutting down at night make the necessary repairs. Some time ago we cut the old splice out of our cable, put in a new piece and made two splices in four and three quarter hours.

Since putting in the steel cable (the first used was Norway iron and did not last very long), the record of stoppages is as follows:—

Dec. 26.—At 10.40 P. M. a grip attached to a train, crossing the engine house, failed to release cable and threw it off main sheave; time lost forty minutes. In this case the running cable got in such a position that the duplicate cable could not have been operated.

Dec. 29.—Cable stranded 350 feet at 11 P. M. Time lost one hour.

January 16.—Cut out old splices, put in new piece of cable, made two splices and started one hour late Sunday morning.

February 26.—At 4.45 P. M. cable stranded 75 feet. Time lost 25 minutes.

The cable is in operation twenty hours out of the twenty-four. Any fair-minded man acquainted with cable roads, will admit that the above is a very good showing for a road that has only been in operation nine months.

The duplicate cable was not taken out until all reasonable efforts to make it a success had been tried, but it was found expensive and cumbersome and consequently abandoned.

The duplicate cable system may be made to work; but will it do so satisfactorily? And taking every thing into consideration, are its advantages over the single cable system such as to make it desirable? At present it looks as if the duplicate cable system, as patented by Mr. Miller, would follow the fate of his grip, about which he takes particular pains to say nothing.

In conclusion I will here state that I am interested in the successful construction and operation of cable roads, not in Mr. Miller's patents; and that I do not consider it just or right that elaborate and costly experiments should be made at other people's expense, in order to advance my own personal interests and be no material benefit to those who desire to make a profitable investment. EDW. J. LAWLESS,  
Supt. K. C. Cable R'y.

### Horse Clipping.

EDITORS OF STREET RAILWAY JOURNAL:—

There has been a great deal of sympathy wasted upon the sniffling of the horse by having the long hair clipped off and the almost naked skin exposed to the cold winter winds. I am aware that it is not customary to clip street car horses, but as it is sometimes done, I trust you will at least give this defense of the practice space. If a horse is obliged to stand in a cold unprotected barn where the wide open cracks let the winds and storms beat in, and the horse stands in his dirty stall without a blanket, it would be cruel to clip him. Neither would I clip a horse if he were to be turned out into the open fields whenever the ground was bare and obliged to support his life on the scanty nibblings that he could get from the dry dead grass.

But if a horse has the care that the ordinary street car horse receives, the subject appears in an entirely different light. The animal is removed from the surroundings that are natural to the brute creation in an untamed state and surrounded by what to them are the luxuries of civilization. Just as an explorer covers himself with furs and heavy clothing for a winter campaign in the arctic regions while his brother wears an alpaca coat in a New York office, so the horse who is sheltered, fed and cleaned in a warm stable does not need the heavy coat that would be supplied by nature for resisting the cold of less comfortable quarters. He is blanketed while standing to keep him

clean, and even when upon the street the carriage horse wears a back blanket, while the movement and exercise is sufficient to keep the limbs warm. In other words the horse is removed from the natural and is placed in artificial surroundings and his life must necessarily be modeled on this artificial basis. This then would provide for the proper care and comfort of the horse and at the same time his hair is free from the accumulation of dirt that it is sure to gather when it is long. Disease is less apt to be gathered and the whole animal is clearer and healthier, for it is a well known fact that hair has the peculiar property of retaining offensive odors and of carrying disease from one locality to another. Add to this the amount of labor saved in the grooming of the clipped over the unclipped animal and we can easily see the reason for the popularity of the custom among hostlers and stablemen. D.

### A New Alloy.

A new alloy\* that partakes of the nature and appearance of a brass, and also one that resembles nickel plate, has been recently brought out for which great claims are made. We are not aware of the exact proportions with which the metals are mixed or even what are used. Copper and tin, however, are the main ingredients. The alloy seems to have the properties of effectually resisting the action of the atmosphere and will not tarnish under ordinary conditions. We saw a dasher handle for a street car that had been hanging in a large stable, where it had been subjected to the action of ammoniacal vapors for three weeks, and its brightness was barely dimmed, and it was quickly restored by rubbing with a dry piece of chamois. It is claimed that acids have no effect on it, except those that can touch gold. It is made of various grades and colors and is intended for use in the manufacture of car trimmings, valves, journal bearings, and all other places where the ordinary brass is now in use, and is said to keep bright without the coating of shellac that is usually applied. The composition was invented by Mr. John I. Davis, from whom it takes its name.

\* E. C. White 531 W. 33rd street, New York, Manufacturer.

The Berlin City Railroad (elevated) has been in operation four years, crossing the city from east to west and being a thoroughfare for through and suburban trains as well as for purely city traffic. The purely city trains are 280 daily; the suburban 74, and the others 90, so that 444 trains are dispatched daily. It is a four track road on a solid masonry viaduct. On summer Sundays 72 extra trains are sometimes run, and as many as 562 have been dispatched in one day. (There have been more than 800 regularly on a double-track line of the New York Elevated.) The number of passengers on the Berlin road was 8,396,460 the first year, and 14,256,490 in 1884-85. The four New York Elevated roads carried 103,354,729, and of these 48,399,496 were carried by the Third Avenue line, which is about 8½ miles long. From 400 to 500 employees are engaged on the Berlin road and 54 locomotives are constantly in service.

### Twelve Hours Work and Two Dollars a Day.

The Knights of Labor have made some efforts in Jersey City to create dissatisfaction among the employees of the Jersey City and Bergen Railroad Company, and have so far succeeded as to cause a petition to be presented to the company asking for the same time and pay as is in vogue on the New York city roads. The following interview with Mr. C. B. Thurston, President of the road, is of general interest, and shows very clearly the futility of making one system of labor and pay apply to different companies, towns and classes of service in the railway industry. The new regime in New York has really caused many men to work more hours, and in this particular instance, as Mr. Thurston says, the majority of his men will have to do more work and many of them will receive less pay.

‘When the horse car strikes commenced in New York, I at once began making a personal investigation of the affairs of our road, to ascertain whether our employees were oppressed in any way. You see, we are peculiarly situated here in Jersey City—we have ‘rush’ trips in the morning and evening, while in the middle of the day there is very little travel. This state of affairs compels us to have our full force of drivers and conductors on duty during these ‘rush’ trips, and to have long ‘swings’ during the dull hours of the day. I found that on the Greenville line some of the drivers and conductors had excessive hours of duty, and that their ‘swings’ were too long. The Superintendent and myself have been hard at work for some time past arranging new timetables, so as to equalize the hours of labor. It is our earnest desire to arrange a timetable whereby the majority of drivers and conductors will not be on duty more than twelve hours a day, and in a few instances, thirteen. Of course, the men will have to take their turns at the thirteen hour days, but they will have longer ‘swings’ at noon. We are at work on a schedule to run our cars on five minutes time on the belt line during certain busy hours, and it will go into effect just as soon as we can get matters in shape. We wish to arrange our affairs so as to give both the public and our employees the greatest possible satisfaction. Our men knew that we were at work on a new time-table, and a few days ago some of the drivers and conductors handed a petition to the Superintendent, in which they stated that they knew the company was desirous of obtaining their views upon the matter, and requested us to give them ‘twelve successive hours of labor, with reasonable time for dinner, and two dollars a day.’ The wording of their petition shows that they knew the matter had been taken up by the officers of the company previous to the receipt of their petition. They did not make a demand, but merely a request to express their views. I have had no intimation of a threatened strike, nor do I believe that our men have any cause to talk of such a thing. The inter-

ests of the men are protected by the present management, and we don’t wish to impose any hardships upon any of our employees. Since I have had charge of the road the men have always felt free to come to me with their grievances, and I have always listened carefully and attentively to what they have had to say. I have always done everything in my power for my men, and all of them appear to be well satisfied. Some of them, however, have been tampered with by the ropers-in of the Knights of Labor and other outside elements for the evident purpose of getting them into their organizations, and handling some of their money. I don’t blame a workingman for seeking better wages and shorter hours of labor, but I think our men have been led into asking for the New York system under a misapprehension. So long as our men do their duty faithfully we don’t care how many labor or other organizations they belong to, but we don’t intend to allow any organization to interfere with our business. We have adopted a plan of graduated payment for conductors. The first three months a conductor receives \$1.75 a day; the next three, \$1.80; the next four, \$1.85; the next four, \$1.90, and the next four \$1.95. After eighteen months’ faithful service he receives \$2 a day from that time on. This rule only applies to new conductors. If any of them are receiving \$1.90 a day the rule does not affect them. This plan will make it their own interest to remain with us and serve us faithfully. We want to make it an object for our men to stay with us. We make promotions from the ranks, and I insist upon all our office help being residents of Jersey City. None of our drivers receive less than \$2 a day. In making the investigation of the hours of labor and pay of our men, I found that eleven of our drivers were getting \$2.25 a day, while the remainder were getting \$2 a day, or the same as the New York drivers are now receiving. I asked why some drivers received \$2 and others \$2.25 a day. I found that those who got \$2 a day on the belt line make eight round trips, while those who received \$2.25 make nine round trips. It takes thirty minutes to make the down trip on the belt line, and thirty-four minutes the up trip, so that the \$2 drivers, who make eight round trips, put in eight hours and thirty-two minutes actual labor, and the \$2.25 drivers, who make the nine round trips, put in nine hours and thirty-six minutes actual labor, with swings in the middle of the day. Now, by comparing these facts with what the men ask for in their petition, it is very evident that they don’t fully understand what they have asked for. Their request is for ‘twelve successive hours of labor, with reasonable time for dinner, and two dollars a day.’ That is what the New York men now get, which I don’t think is near as good as our present system. Now, if we would adopt the system the men ask us to, the company could get ten round trips from them with forty minutes for dinner, where we now get only eight and nine, while the \$2.25 drivers would get only a \$2

day, and the additional labor to all hands around. Their plan would really impose greater burdens upon them than at present. This is evidence to me that they don’t know what they are asking for. Any one familiar with horse railroading, knows that eight hours driving a car in New York is a greater physical strain than twelve hours in Jersey City. The New York driver is put to a constant strain every moment he is on his car; with one hand on the brake and the other tugging at the horse’s reins, he must be on the constant lookout, and the work is very severe. They are not provided with seats and are not allowed to sit down. The duties of our drivers are comparatively much easier. They do not have to endure near the strain and labor the drivers over the river do. Our drivers are provided with seats and can rest by sitting down whenever they desire. Our road is conceded to be one of the easiest on its men of any large city in the country. The pay is really better and the labor lighter than in New York. Then again, rent is lower, living cheaper, and many other advantages enjoyed in this city, not found in New York. However, we shall do all we possibly can to accommodate our employees and the public to the best advantage, and we trust our efforts will be appreciated.”

The Londoners who go to pieces badly on a fall of 5 or 6 inches of snow, are very much pleased with the working of the cable road they have; it was about the only mode of locomotion, except the underground, that was not interrupted during their late storm.

Iron asserts that they ran without difficulty and that the superintendent wished for more snow so that he could show what he could do, and that on Highgate Hill, grade 1 in 11, where teams of six horses could not pull four tons, the vehicles were attached to the cable cars and were drawn up without difficulty.

This is in effect the same experience had last winter in Chicago, until the shaft of their winding engine broke down. In spite of the intense cold, and drifts, said to have been six feet deep, the cable pulled the cars steadily through, until the four 24x48 inch cylinders twisted off the shaft of their winding drums. This year they have added two 30x60 inch cylinders and strengthened their shaft, proposing to pull their cars through anything that any blizzard may bring.

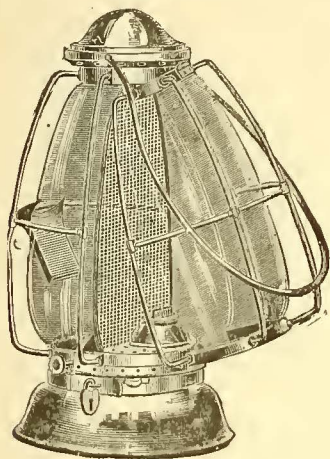
The difficulty experienced by street railways with a heavy snow storm, and the continual fight existing at all times regarding the use of salt, renders any suggestion for the lessening of the trouble of interest. In Vienna, which although far from being a model of cleanliness, there is a system in use for the removal of snow that is worth copying, as the rapidity with which the work is accomplished is truly remarkable.

Car horses are the best feed and most carefully looked after of all work horses, yet their average years of service are less than four,

### Combined Fare-Box and Lantern.

This invention consists of a combination of fare-box and lantern; \* portable and inexpensive. The prominent features are, above all, a lantern that may be used as such and a money box. The lantern proper occupies one-half of the device, and when looked at from that side resembles an ordinary conductors' lantern very closely. The lamp is placed on one side of a partition, dividing the upper portion in halves, and supplied with air through the perforations in the bottom upon which it stands. The globe is made in two pieces, the one on the lamp side being hung in a hinged frame that may be swung out, giving access to the lamp. The joint between the two halves of the globe is made tight by a strip of metal on either side, against which the glass is pressed.

The base is made large and with close bottom and sides, so that it may serve as a



money-box. This bottom is fastened to a band upon the upper framework by staples, and kept closed by a padlock. The fares are dropped into an opening on one side and slip through an oblong opening in the glass, dropping upon a tilting top of the money box. Here it is exposed to the full view of the conductor and passenger, as the vertical partition between the fare side and the lamp is made of wire gauze. The tilting bottom is provided with a rod and button, by which it may be inclined and the money dropped into the box. It is so arranged, however, that a spring keeps it shut, and if the lantern is upset there is no danger of the money being spilled.

The lamp is secured in its place by a spring catch, attached to the wire partition, and holds it so that there is no danger of its getting out of place.

The chute, by which the fare is deposited, may be made of glass and solid with the half-globe, or of metal and attached.

In the use of this combined fare box and lantern, the conductor receives an empty one at the office, and is provided with packages of money, as is now done with the drivers of the bob-tail car, to make change for the passengers, so that the latter may always be enabled to drop the exact fare into the chute. The money then lies in full view of both passenger and conductor,

until the latter tilts the bottom and drops it into the box. At the end of the trip the conductor delivers the whole lantern at the office and receives an empty one for the next trip. Among the advantages that are claimed for the device, is that the conductor is provided with a lantern upon the back platform for use in lighting passengers on and off the car.

### Car Ventilation.

EDITORS OF STREET RAILWAY JOURNAL:—

I am not a railroad man, nor am I even a stockholder in one. I am merely one of the great number of peaceable citizens that go to make up that indefinite mass called the "public." We are in the main good natured, we do not care to overthrow the established customs that have been sanctioned by time and usage, but we have our minds made up on certain topics, and to these opinions we will always cling, even when we know that we are wrong, and especially is this true in the care we exercise over our health. This is especially exemplified by our actions in a street car. We know that it is dangerous to sit in a draft, and the fear of a cold and perhaps the resulting consumption is always held before our eyes. But we do not know that the dangers of lung disease are equally as great by the use of foul air for breathing purposes; we do not seem to know that even the dangers of consumption are increased by a long ride in a close and crowded car, with the air reeking with the odors of steaming garments, and the mixture of foul and fetid breath that is sure to exist in every crowd of thirty persons; we do not know and do not care that disease and danger lurks in every fold of our neighbor's dress; and last of all, we do not seem to know that pure air is what our lungs are made to breathe.

What then should be done? If I fall from a platform through negligence of a company's servant, they must pay me for the injury that I may sustain. They make a clear unwritten contract to carry me in safety from point to point, then why may they not be compelled to execute their agreement? I own I am unreasonable. I'll close every ventilator that there may be in the roof, and force a spring to be used so that not a breath of air can enter at a shaking window joint. I close with a quick and vicious jerk the little slide where the conductor passes change in through the door; and as for doors, I will not tolerate their opening by so much as the breadth of a hair. I want a stove, and heat, and then with a party of stubborns like myself, I stay inside, and sweat and bake, and steam and suffocate.

But safety must be given, and these conditions are not safe. So the owners of the car are bound by the duty that they owe the public to ventilate these cars. They must force in air so that at least two cubic feet may be supplied to each occupant every three minutes. Now how must this be done? It must steal in so gently that the most delicate organism cannot in any part

of the car detect the slightest draft; no opening must be visible, and the air must come and pass away by secret channels; a hot fire must also be kept burning all the while, so that the temperature may be kept up to the present steeping point, and if a little harmless odor that resembles the present fetid one can be introduced the shock of freshness will not be quite so trying to our nerves.

Cannot some road adopt this plan, and thus by stealth compel us to breathe pure air? And then perhaps after a season or two of careful trial we may even come to look with favor on the change, and not regard the doors and windows as the innate enemies of our race. PUBLIC.

### The Street Railway Companies must Repair the Streets.

An important decision relating to the liabilities of street railway companies was handed down by Judge Paxson, of the Pennsylvania Supreme Court. The case is that of the City of Philadelphia vs. the Frankford and Southwark Passenger Railway Company. The defendant company was incorporated in 1854 with power to construct a passenger railway from a point north of Cherry Street to the extreme northern portion of the city. The Legislature subsequently passed a supplement to the act of incorporation, authorizing the company to extend its route south of Cherry Street provided the consent of the City Councils was first obtained. The city gave their consent on the condition that the company would comply with the terms of an ordinance regulating passenger railways, which ordinance provided that said companies should keep in repair the streets occupied by them. This the company consented to do, and filed a bond as security for the performance of its promise. In 1882 the Chief Commissioner of Highways notified the railway company to repair Berks Street, from Second to Howard. This the company refused to do, upon the ground that they were not liable for such repairs as the street was north of Cherry Street, and as their right to construct a railway thereon was given by the original act of incorporation. The city then repaved the street, at the cost of \$1,465, and then sued the company for this amount. The Supreme Court holds in affirming the judgment of the lower court, that under all these circumstances the defendant company was liable, and that the Passenger Railway Company must repay to the city the cost of the repairs.

A handsome horse, belonging to Henry A. Page, of the Valley road, in South Orange, betrayed symptoms of rabies Saturday night. The horse had been unmanageable for several days. Saturday evening he became violent, and the sight of a pail of water held to his nose threw him into convulsions. Henry A. Fenner, a veterinary surgeon, who was called, declared that the animal was suffering from rabies, and Mr. Page authorized him to kill him. The animal took a premium for style at the late horse show in New York, and was valued at \$2,500.

\* Benj. P. Ward, Rochester, N. Y.



### Street Railway Strikes.

We recently asked a number of the street railway companies "what in your opinion is the best way to prevent and cure strikes among street railway employes?" The number of answers we have received is very gratifying, but the diversity of views leads one to think that this important subject will need much honest and enlightened discussion before it is settled to the satisfaction of all concerned.

The following are some of the answers:

"Pay wages sufficient to attract intelligent men. Hire only such. Govern them wisely, firmly, but not harshly. Treat them as trusted servants, not as abject slaves. Protect them always when they are in the right. Condemn them without fear or favor when they are in the wrong. Show no partiality."

"Do justice to your employees of all grades and they will not strike."

"Pay them a sufficient compensation."

"To prevent strikes, give fair wages. If practicable have employees dependent. This could be effected by having a barrack or lodgings for the men, with rooms for those having families. By this plan the men would be always available. The single men could form a mess and live cheaper than any other way. Say two rooms to each married man. Of course the wages should be lower if free lodgings were given. The employees should be engaged for not less than a year, and re-engaged every year. The employee to give say a month's notice when he wishes to retire, and it to be well understood that dishonesty, misconduct or repeated breaches of the company's by-laws will be punished by instant dismissal, or by law in certain cases, where such a course could not be carried out. Rewards and promotions should be held out for long and faithful service, but forfeited by strike or misconduct. When there is a demand for labor, and the company is able to give an increase of wages, it would be well to do so. But when men are plentiful and wages low the company has as good a right to reduce wages as they had before to raise wages."

"To prevent strikes, in my opinion pay men a fair salary, and do not employ men belonging to labor organizations when known. Compel men to sign an agreement before entering the service that they will not do so. This will not prevent men banding themselves together nor will it prevent striking; but it will prevent any company from dropping completely into the hands of an organization such as the Knights of Labor. This is what we do here."

"Employ married men and pay them good wages, making it an object for them to keep their places."

"Fair wages and kind and respectful treatment."

"To treat them like men."

"Pay a fair price for hours worked."

"Pay good wages and reduce the hours to twelve or less."

"Employ as far as possible men with families and old residents of the city in which the road is operated. Employ only sober men, and encourage weekly savings of money."

"No method of preventing strikes, as generally men have but little gratitude and don't know when to stop asking if you give in to them all the time."

"Let them go, and hire others."

"Don't hire men that belong to any society."

"Pay up all indebtedness and then give the entire property to the employees."

"Discharge the men and stop running the railroad if violence is used by the strikers, until the civil authorities will fully protect the operations of the road."

"For the city, state, and general govern-

ment to show more backbone in dealing with mobs and riots."

"Never had any. Don't know."

The last man is fortunate, and the one before him is sensible. The man who wrote "let them go and hire others" has not experienced a genuine strike we judge. That is what the road wants most to do. The next last quotation above is the key to the whole question when the strike is really inaugurated. If the authorities would thoroughly and successfully keep the public peace, it would be comparatively easy to break strikes, but in many cases the authorities really encourage the strikers as in the Chicago strikes. We shall give our readers the views of many other street railway managers in our next issue but think our readers can find text for aggressive comment pro and con on this subject and we hope to hear from them in our columns.

### The Bench on Strikes.

In his charge to the Grand Jury at Napanee, Canada, March 15, Chief Justice Cameron made the following remarks in reference to the recent strike:—There is a street car company in Toronto which employs several hundred men, and it is said, (of course I am not familiar with the facts more than has appeared through the public press), that this company feel it in their interest that the people who work for them should not be associated with any labor association which interferes with the individual liberty of the men themselves, and so the company stipulated that no one belonging to such an organization could be employed by them, and it is said the men signed an agreement that they would not join any such an association. However, some of them thought well to do so and the result was that they were summarily dismissed by the railway company. Perhaps the company in dismissing them in the very summary manner they did, acted with a want of discretion, but at the same time they only acted within the right that the law gave them, because I presume there is nothing clearer to the mind of any man of common-sense than that every man, whether employer or employed, can make just such a bargain as he pleases, and any man who makes a bargain with another, according to our notion of what is right or wrong, is bound to carry that bargain out, unless it be a bargain for some improper or immoral purpose. There can be no question under the sun that a man has a right to say, "I will not work for another man unless that man will pay me certain wages," and he has a right to unite with a dozen or a thousand other men who say the same thing. That is their right, and if they stop there no one can say they violate the law; but unfortunately they do not stop there, and when they are exercising that undesirable right, they generally go beyond that limit and interfere with and infringe upon the rights of others, and then they do wrong and overstep their privilege, and that is the danger there is to the community in these organizations. In the city of Toronto the cars were stopped from running. A number of people gathered together, and I myself saw a car with several ladies in it forced off the track. It is discreditable to a city like Toronto that any outrage of this kind should occur in it.

It is said now, that an organization either exists or is about being formed in the United States by which capitalists are uniting for the purpose of protecting themselves against what they say are the unreasonable demands of these trade and labor unions. These organizations will exist throughout the length and breadth of the land, and, if a number of men strike in Chicago, immediately in Massachusetts mills will stop running and the employees be turned out. That is what capitalists say they have to do

in order to protect themselves against the unreasonable demands of labor. Every one admits that a man who works is entitled to be paid a fair day's wages. No one can dispute that the laborer's rights stand as high in every respect in the community as the employer's rights do. Both capital and labor have their rights, both should be coadjutors, both working toward the same end, the prosperity and advancement of the people at large; but when we find them in antagonism we find that, instead of acting in that harmonious way, they act in a manner that is injurious to the peace, good government, and best interests of the country.

It is very much to be regretted that we do find people forgetting themselves so much as to enter into these combinations with the effect of bringing about these bad results. Of course you will understand that no one should complain if a dozen men say they will not work for a particular man, but they should go and find work somewhere else. If that man can find other men to work for the wages he chooses to give them, surely it is the right of those men to go to work. Why should they be prevented from working? There can be no reason for it, and yet that prevention frequently takes place, and the result of it is anarchy, bloodshed sometimes.

For several weeks the Buffalo Express has waged a ceaseless and merciless warfare upon the street railway system of that city. The bitter and inexcusable personal abuse it has showered upon the managers and owners of the roads and their agents, plainly showed that its real object was either the gratification of personal spleen or malice. The unprejudiced criticism of the press upon questions of public interest and importance is both desirable and commendable. And the measures before the legislature affecting the Buffalo street railways and their patrons are deserving and worthy of careful and honest criticism and approval or condemnation as the Express may weigh their merits.

The officers of the road have made their returns to the state of their receipts and expenses as required by law. Their books unmistakably show that they can not afford the concessions demanded by the so-called Giese street car bill, and in order to make an argument in favor of the measure the express assumes the accounts are "doctored" so as to cover up profits. By a curious juggling of the report it leads its readers to suppose the company pays \$91,000 of interest \$39,000 of which it claims is unnecessary and is a clear profit to certain owners of the road. In point of fact the reports show the road pays only \$77,441.80, and it is a perfectly fair inference that its interest account is kept as low as possible. Such criticism and argument is not journalism; it is simply a sensational misrepresentation of facts to influence legislation that has no solid argument to sustain it. The voluminous arraignments by Editor Matthews of Solicitor Box, his personal character, habits and practices have nothing to do with the merits of the question. The only issue is can the road afford to carry twelve years old passengers for ten cents and five years old passengers for nothing. The desirability of such a service is not to be questioned (aside from the tendency it would have to largely increase the total of over grown five year olds.) If the Express can show by honest argument, facts and figures, that the demand on the road is not unreasonable, it ought to pass, but its treatment of the subject for the past six weeks is one of the strongest reasons for thinking it unwise and unjust.

The National Motor Company of Chicago has been incorporated, with a capital stock of \$250,000, to manufacture street railway motors.



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In the suit of the city against the Broadway & Seventh Avenue Railroad Company, to recover license fees for the cars used by the defendant corporation from 1875 to 1885, Judge Donohue, in the Supreme Court, March 17, directed the jury to find a verdict for the city for \$48,014.15.

Street railway securities have not escaped the effects of the recent labor difficulties and the market is in a kind of flurry. A number of roads have cut down the quarterly dividends from 1% to  $\frac{1}{2}$ % and some have passed the last entirely. Among the latter class is the Broadway line, and the fact is attributed to tactics rather than actual inability. Other roads have fluctuated because of the increase of expenses brought about by the concessions made to the strikers. The rioting has also made the stocks regarded as less secure, and in one case in New York, the market value has fallen off fifteen points. Another cause is the neglect to keep up the needed repairs in the past, which entails an increase this spring.

Railroad men, however, do not regard the matter as permanent and think that as soon as the present labor troubles are settled, the stocks will rise to their old values and the customary dividends be declared.

The multiplication of surface railroad facilities is a logical outgrowth of populous cities, and however reluctantly consented to at first by property owners, there is not a road now constructed in this city that the people would willingly spare. Even the "L" roads, that have put blinders on the second stories of many of the New York streets, are acceded to as a public necessity.

At the present moment facilities for getting up or down town are more or less convenient. The main thoroughfares are provided with surface or rapid transit at pleasure. The pressing need is the means of getting across town at convenient points, and of adequate branch roads to bring the east and west sides into quick and easy communication with the up and down town roads.

Whatever else may be the result of the recent street railway strikes in New York city and Brooklyn it is certain to produce in the minds of street railway officials the conviction that the labor question is a real and vital one and that it must be faced and grappled with as a reality and not as a

thing having an existence in mere talk. We believe there is also recognized the necessity of combination and united action on the part of the street railways. The folly of putting off until the evil day of a strike, a demand which is granted when brought up by the committee of a labor organization, is showing its results with roads in various parts of the country. Whatever varying positions may be maintained by the street railways with regard to the legitimacy of the labor organizations and the wisdom of their existence, one truth cannot be gainsaid and that is that no concession should be made at the hands of the strike which would not be granted by a peaceable interview.

THE CITY PASSENGER RAILWAY Co. controls most of the lines in Baltimore. As the cars here are not run all night, but at the latest 1 o'clock in the morning, the companies contended that they could not employ two sets of men but offered the men \$2.50 a day, an increase of fifty cents, if they would continue to work the sixteen and seventeen hours a day. This was refused. They began a contest in the Legislature. A bill was introduced to compel the companies to limit the hours of work to twelve. Street railway companies here have to pay annually nine per cent of their gross receipts as a tax for the support of Druid Hill Park. The City Passenger Railroad Company alone pays \$63,000 a year tax. All the companies stood together to fight the twelve hour bill, and had an amendment tacked on to it providing that twelve hours constitute a day's work, and that the park tax be abolished. But the bill passed the House without the amendment. Now the companies threaten that unless the Legislature relieve them of the park tax they will, if the twelve hour system is forced upon them, cut the men's wages down to \$1.50 a day. We learn that the struggle has had a depressing effect upon the shares of the Company. Its last report to us states that the City Passenger has now 160 cars and 1076 horses.

Almost every town or city having a street railway is just now being agitated more or less by the questions of the duties and remunerations of street railway employees. In many cases the men themselves are the very last to fall into line and ask to have their fancied wrongs redressed. The agitation is in nearly every instance started and in its first stages carried along entirely by the daily press, until it has by constant hammering created an honest but mistaken public sentiment that forces the men, in some if not a majority of cases, to an undesired strike. The truth of the statement made by a representative of this paper at the St. Louis Convention, that the *interference* of the press was largely responsible for the discontent among employees, has been proven many times in the past few months. One example of this is afforded by the Buffalo Express and the street railway employees of that city. In its criticisms of the railways it has made out the lot of the men to be so wretched and hard that one of our

representatives investigated matters to see how much foundation in fact the charges had. In talking with eight conductors he found two that had not read the Express, who expressed entire satisfaction with the management and their treatment. Those who had read the paper were more or less influenced by its comments. The policy of the road is not severe by any means. The net average hours of work of the men is 12.08 hours. They buy their men's uniforms giving them all the time wanted to pay for them. They furnish their coal at wholesale rates, allowing them all the time wanted to pay for it. Their intercourse with their men is on the whole pleasant and satisfactory, and it is only after the paper has hammered away for weeks that some of the men perhaps have become dissatisfied. Considering the very vigorous campaign the Express has waged in its self-imposed position of street railway employee's champion, its success in stirring up dissatisfaction has not been remarkable. For a paper of the ability of the Express to use its columns for the purpose of "shanghaiing" the employees of a corporation into a strike against their company is a sorry spectacle.

The fact that organized labor directed its fight against street railways in New York, conducted to the decisive victory obtained by the bread-winners. The public was on the side of the opponents of the street car monopolists. Why? Because of all corporations which thrive in a large city, the street railway is most addicted to taking everything and giving nothing. They impede traffic and revel in franchises for which they make little or no return to the city granting the same. A street car driver is endowed with the right to whistle anything and everything off of the track with the autoeracy of those who in olden times preceded royalty and shouted "Make way for the King." The street car lines pay big dividends and low wages. They do not require, in their operation, a *tithe of the brains needed* to conduct a big steel or iron works, and though manifestly a public convenience are too often arrogantly and audaciously a public nuisance. It is therefore natural to read that the New York crowd was "good-humored" while the mob was harassing the street car company; and as natural to find that nearly every one was glad when the overworked, underpaid drivers were victorious.—East End Bulletin, Pittsburg.

Fudge! The above contains seven positive statements only one of which unfortunately for the interests of street railways is true. The popular feeling during the first of the strike in New York was on the side of the drivers, but when the general tie up was ordered on all the roads in order to force a settlement of differences on the Dry Dock line and the Brooklyn lines, it was quite different. The half million of people who were deprived of their usual means of reaching business, on account of matters not in the most remote degree affecting the lines they patronize, as for instance all of upper New York and the West side of the town, had no manner of sympathy with the strikers and a continuation of the tie-up for two days would have created so much disgust in New York that the "Empire Asso." could never have successfully appealed to public sentiment again.

Street railways give a greater return to the public for the privileges granted them than any other corporations. Gas companies, telegraph, telephone, steam heating, water supply, pneumatic tube, and all other enterprises tear up and deface our streets and the portion of the public benefited by them is confined to the wealthy or well off portion of the community and they have to pay dearly for the advantages, as witness the elastic proportions of the gas bill, the messenger boy's service, the telephone monopoly, etc. Now the street railway not only has to pay its taxes but it keeps the pavement of the street in first-class condition; in fact streets that have tracks on them are the best in the city, and traffic will go through them in preference to any other thoroughfares. Then again all the people enjoy the privileges of the street car service, rich and poor alike, though in point of fact the poor people in larger proportion than the rich. The charges are universally low in every city in the country having street car service. Some years ago an effort was made to stop running street cars Sunday by the law and order league, and we remember that Henry Ward Beecher, from his Plymouth Pulpit, made a very strong and earnest appeal for the Sunday street car, on the ground that it is the poor man's carriage and convenience. The rich don't need them for they have their carriages but the middle and poorer classes do. Surely the street railway pays greater tribute to the public for its privilege than any other corporation.

They do not impede traffic. Rather they make it more free and regular as the Broadway road in New York has demonstrated. A good double track through a busy street makes a steady current up and down that carries everything along in a comfortable orderly manner. In the old days of omnibuses a lady could not cross Broadway below Bleecker, without a policeman on each side of her.

As to that whistle, did our Pittsburg friend ever think that it is the voice of thirty to sixty of the "dear public" in the car who in that manner very politely request that other portion of the "dear public" who are not in so much of a hurry as they are, to "turn out and let us go by." It is in no sense the autocratic note of the street railway company.

Street car lines unfortunately do not "pay big dividends and low wages." It is the rule and not the exception for them not to pay any dividend, for the first few years of their existence. The Third avenue line in New York, we are informed, paid no dividend for "eighteen years." In view of that does any one think their quarterly four per cent. is large? Not one company in ten, pays ten per cent. a year and not half the companies pay five per cent. on their capital stock and there is very little *water* in street railway stock as yet. It represents solid cash as a rule. The wages, as we showed in our columns recently, are more than thirty per cent. higher than any other field of the same class pays. It is a fact that when the four or five thousand drivers went out on the

recent strike, there was no possible work that they could do, provided they could all get work at once, that would yield them \$14.00 a week which they were getting. Nothing but skilled labor gets as much as \$12.00 a week, now, and much of that gets less.

As to the brains required, if our E. C. will carefully read the story of the working of a New York road in another column and then add the infinite amount of worry and fret incident to keeping the public in good humor and the expenses inside the receipts, and making "both ends meet" to say nothing of a dividend, he will find it will busily employ even a "steel or iron works brain." We doubt if a business can be found requiring more tact, energy, wealth of resources and availability, clear and unflinching judgment and prompt action in a thousand and one details that are never done but always recurring. The business not only has the proportions of the "steel or iron works" but an endless amount of aggravating detail the latter never is troubled with.

We notice in our columns of this issue the prospectus of the Kings Bridge Cable Railway Co. The officers and directors of the company are a sufficient indication of its corporate vitality.

Contrary to the usual method of procedure, the parties about to organize the company first went quietly to work and secured almost the requisite number of property owners' consents, as required by law. It was found, as is generally the case, that these people were anxious enough to have the road built, and the company now carries a solid real-estate influence at its back. A number of years since when horse car roads were being first mooted, it occurred to a shrewd but impecunious Jerseyman that it would be a good thing for him to become the happy possessor of one of these franchises which were being so liberally doled out by the legislature of that incorruptible State. So backed up by his friends, and bustling with influence, he appeared at Trenton and requested for himself the longest and busiest street of his city. Of course he got it. After which some absent minded assemblyman inadvertently asked where the money was to come from for horses and rails.

The old chap rose to the full dignity of the occasion and replied that as the profitability of the enterprise was uncertain, the company would start out in a correspondingly modest way, using clotheshorses and fence-rails, and develop improvements as the future might warrant. Many roads now in operation have not felt themselves warranted, even yet, in advancing much beyond this stage. The Kings Bridge people, however, believe that the largest economy is not to be found in "the public be damned!" principle, and it is their intention to make their road as attractive to the public as modern invention and tasteful appointments can make it. The duplicate system of cables and engines, which they will employ, is generally admitted to have its advantages. It is intended to build the road in the most substantial manner and equip it with rolling stock comparable with nothing east of San Francisco, the birth-place of cable roads. The somewhat cynical adjective "Western", which is frequently used to set off so-called "Eastern refinement", when applied to street railway rolling stock, may act as a boomerang against Eastern people

who may use it. Cable roads east of the Mississippi are thought by many critics to be especially remiss in this respect, and if the fine promises what this road makes are in the main carried out, and we have reason to think this will be the case, it will be a source of congratulation as tending to elevate the standard of comfort. The route which the road takes is such that it will open up to rapid settlement the remaining section of Manhattan Island, which is very much in need of such a road, and will, we think, prove to be a most valuable property.

#### Notes and Items.

##### Appleton, Wis.

THE APPLETON ELECTRIC STREET RAILWAY Co. is the name of the company referred to in Mr. Van Depoele's address. Cars are being specially constructed by the Pullmans for this road; and a large and convenient building is being built constructed for the utilization of the water power for running the Van Depoele motors.

##### Atlanta, Ga.

ATLANTA ST. RY. Co. will rebuild and pave about a mile of track this season.

THE METROPOLITAN STREET RAILWAY Co. are preparing to extend their line to Grant Park, also in other directions. They will be in the market for steel rails.

##### Ashtabula, O.

THE ASHTABULA STREET RAILWAY Co. will build about a mile of new track to open up a new picnic ground of forty acres they have just purchased. It is pleasantly located with frontage, dock, etc., on Lake Erie. J. N. Stewart, Esq., owns and manages the company.

##### Boston, Mass.

THE METROPOLITAN STREET RAILROAD Co. have got their shops nearly moved into their new quarters in the immense building they recently purchased of the N. E. Mechanics & Manufacturers Association, the foundry only remaining to be transferred. When they get thoroughly settled they will undoubtedly have the most commodious and complete shops for manufacturing and repair work of any street railway company in the world. The building will also afford ample storage room for their open cars in winter and box cars in summer. Their old shops at Tremont Crossing will be built over into much needed stable accommodations. We noticed on a recent visit six new box cars receiving their finishing touches, and they are at work on fifteen new open cars. A small army of painters were putting the spring coat on their open cars; as we counted, about eighty were being treated to new colors and varnish. Not many paint shops can handle so many at once.

The Metropolitan have built twenty box cars the past fall and winter in their shops at Tremont Crossing.

THE HIGHLAND STREET RAILWAY Co. are having two new open cars built at the works of J. M. Jones' Sons, West Troy, N. Y. They like all the Highland equipments will be first class in every respect containing all the latest improvements. This road has adopted the "Chaplin Roller Bearings," after a trial of several years, and it is put under all their new cars and replaces those in their older cars as fast as occasion warrants. The officers are warm in the praise of it as the manufacturers themselves.

THE MIDDLESEX RAILROAD Co. has raised the pay of its drivers and conductors from \$1.75 to \$2 per day, though no dissatisfaction had been expressed by the men. This company calls a day's work on a week day twelve hours and on a Sunday ten hours.

All the Boston companies now pay \$2 per day.

**Beaver Falls, Pa.**

THE BEAVER VALLEY STREET RAILWAY Co. has re-elected M. L. Knight President; J. F. Merriman, Secretary and Treasurer; and L. Richardson, Superintendent. The road has been doing well since starting, July 4, 1885. A contract for three additional cars has been placed with the John Stephenson Co., to be delivered May 1.

**Birmingham, Ala.**

THE BIRMINGHAM STREET RAILWAY Co. was granted right of way on nearly all the principal streets of the city several years ago, but has never laid tracks on a number of them, including Eighteenth street. March 17th. the City Council granted this street and several others to the Birmingham and Pratt Mines Street Railway Company. The management of the company put a squad of men to work as soon as the papers were signed and laid track all night. The next day they worked on one-end of Eighteenth street, and the hands of the old company on the other. On the 19th, the Mayor, to prevent a collision, stopped both. The old company shortly afterward filed a bill in the Chancery Court to enjoin the other.

**Bloomington, Ill.**

BLOOMINGTON & NORMAL HORSE RY Co., not hitherto reported in our directory, has 5½ miles of 4 foot 8½ inch track, 36 lb. rail, 10 cars, 60 horses. They built two miles of track last year. A. H. Moore is President and Proprietor, and Edward Sharp Secretary.

**Brooklyn, N. Y.**

THE ATLANTIC AVENUE R. R. Co. reports eight and one-fourth miles more track, fifty-three more cars, and 327 more horses than a year ago.

THE JAY AND SMITH STREET Co. raised the pay of its drivers and conductors to \$2.25 a day about a month ago, and have now reduced the hours of labor from thirteen to twelve, at the same time reducing wages to \$2. The men wanted the change.

The Rapid Transit Commission has decided upon the route for an elevated road along Atlantic Avenue from South Ferry to East New York, with a branch through Boerum place to Fulton street.

The ordinance requiring driver and conductors to pay a license of \$1 each after April 1, has become a law.

THE BROADWAY RAILWAY Co. and the Bushwick Railroad Co. have agreed to pay drivers and conductors \$2 per day of twelve hours including time for meals, and trippers \$1.50 per day of twelve consecutive hours.

**Cambridge, Mass.**

THE CAMBRIDGE RAILROAD Co.'s directors elected Franklin Perrin Treasurer March 15, in place of Fred T. Stevens. Mr. Perrin has been City Auditor of Cambridge.

The company have ordered fourteen new open eight seat cars from Brill & Co., Philadelphia, they will have to move a half mile of T rail track in Watertown from the side to the middle of the street by order of the town authorities. Cost of improvements about \$18,000.

President Raymond of the Charles River Street Railway Co., has returned from a fifty day trip to the West, where he looked over the different roads for new ideas. At a meeting of the employees of the company he showed them, from a frank exposition of the company's affairs, that it could not be expected to pay increased wages; and his remarks were warmly applauded by the men. Nine trips of an hour and ten minutes each, or ten hours and a half in all, constitute a day's work. President Raymond said that, in relation to the hours on the Porter Station, Cottage Farm and Webster avenue lines, the time would be so changed that while still running nine trips the day would be made shorter.

**Chicago, Ill.**

Edward L. Rung, a boy of eleven years recovered a verdict of \$10,000 against the Chicago West Division Railway Company at Chicago on the 26th. The boy jumped off a car just in time to be run over by a car coming from the opposite direction. His injuries were so serious that one leg was amputated.

The control of the North Chicago City Railroad Company has passed to a syndicate of Philadelphia capitalists, who were represented in the transactions by two Philadelphians, John Widener and John Elkins, and who are said to be the chief members of the syndicate. The negotiations were carried on by Charles T. Yerkes of Chicago, who represented the Philadelphians. There are 5,000 shares of stock, and 2,505 have been secured, the holdings of Jacob Rehm, 719 shares, and V. C. Turner and his relatives, 1,786 shares. The price paid was \$600 a share the transaction involving \$1,503,000, which was paid in cash. Mr. Yerkes has been elected President, and Mr. Rehm will retain his connection with the company for some time. Mr. Turner, who is one of the parties to the transfer, is defendant in a suit for \$500,000 damages for alleged failure to carry out a contract to sell his stock in the road to George Schneider, Frederick W. Peck, and Walter L. Peck. Mr. Turner claims that Schneider and the Pecks agreed to take the stock upon certain conditions which they failed to fulfill, and he therefore refused to make the transfer. The capital stock is \$500,000 and the present bonded debt \$1,249,000. At \$600 per share the property is worth \$3,000,000. The company employs between 600 and 700 men, owns eight combination barns and car houses, sixteen large structures, 350 cars, 1,765 horses, and about forty miles of track.

**Chester, Pa.**

THE CHESTER STREET RAILWAY Co. has 5½ miles of track, 47 lb. rail, 14 cars and sixty-six horses. Richard Peters, Jr., is President, E. Mitchell Cornell Secretary and Manager, and Samuel H. Seeds Treas.

**Cincinnati, O.**

THE WALNUT HILLS Lines' employees have accepted \$1.85 a day for twelve hours work, and those of the Consolidated Company \$2 a day for conductors and \$1.75 for drivers.

**Cleveland, O.**

THE PAINE AVENUE LINE is to be extended, making its whole length five and a half miles. The new turntable patented by Hathaway & Robinson is in successful operation at the stables of this company.

**Cleveland, O.**

THE EAST CLEVELAND R. R. Co. will make the following improvements this season: add two miles of new track; build a car house for thirty cars for the Garden street line; will build six new open cars, and purchase one hundred horses.

THE WOODLAND AND WEST SIDE ST. RY. Co. added twelve cars and thirty-five horses last year.

**Columbus, O.**

Drivers and conductors on all lines have received an increase of 20 cents a day.

**Covington, Ky.**

THE So. COVINGTON AND CINCINNATI ST. RY. Co. have elected J. C. Benton, Esq., Secretary, to succeed Mr. S. C. Bunton.

**Conception, Argentine Republic.**

A street railway is about to be opened in this growing city.

**Danville, Ill.**

THE CITIZENS' STREET RY. Co. have added a new car to their equipment.

**Dayton, O.**

THE THIRD STREET LINE and the Fifth Street line now pay \$2 a per day for sixteen hours' work.

THE DAYTON STREET RAILROAD now reports 24 cars and 80 horses and mules.

OAKWOOD ST. RY. Co. have just completed a new car shed to take the place of the one burned in January, and are adding five new palace cars to partly take the place of the seven burned. The new shed costs \$1500 and the new cars \$900.

**Duluth, Minn.**

DULUTH ST. RY. Co. intend adding eleven new cars this spring, also sixty mules, and building an addition to their barn and car house. In a few weeks they expect to lay three and a half miles of track. All the improvements will cost \$45,000.

**Decatur, Ill.**

THE CITIZENS STREET RAILWAY Co. will add eight mules and two or three cars to their stock. They are building a ball park at the western terminus of their road. Cost about \$3000.

**East Saginaw, Mich.**

THE STREET RAILWAY OF EAST SAGINAW, has been sold, possession to be given April 1st. We have no particulars of sale or who the purchaser was.

**Eric, Pa.**

THE ERIE CITY PASS. RY. Co., are about to build an extension of one and one-half miles, and will add three cars and twelve horses to their stock. Some additions to their stables will bring the total cost of their improvements to over \$12,000.

**Elkhart, Ind.**

CITIZENS' RY. Co. is a newly organized company, being the first street railway in Elkhart. About four miles of standard gauge are being built, with 30 lb. rail, six cars, and thirty horses; and the line is to be running by June 1st next. F. W. Miller is President, G. C. Johnson Vice-President, E. C. Bickel Secretary, and A. R. Burns Treasurer.

**Fort Smith, Ark.**

FORT SMITH ST. RY. Co. think of putting on two new cars at a cost of \$1,500.

**Galesburgh, Ill.**

THE COLLEGE CITY ST. RY. Co., will build a two mile extension and add five new cars and ten horses to their equipment at a cost of \$12,000.

**Gloucester, Mass.**

THE GLOUCESTER STREET RAILWAY Co. has been incorporated under the general laws, with the following directors: Henry Souther of Boston, Walter A. Jones, of Troy N. Y., F. W. Homans of Gloucester, David S. Presson of Gloucester, J. H. Lewis of Boston, Dr. George Morse of Gloucester, and Morris C. Fitch of Boston. The officers consist of Morris C. Fitch, President and Superintendent; Walter A. Jones, Vice-President; Francis W. Homans, Treasurer; and David S. Presson, Secretary. About seven miles of single track will be laid, running from the railroad station through Main, Prospect and Washington streets to Eastern Point, returning by two or three different routes. The "girder" system which is to be used is that of the Johnson Street Rail Company of Johnstown, Pa., and the T rail is from the Cambria Iron Company of Pennsylvania.

The cars are to be furnished by J. M. Jones & Sons of West Troy, N. Y. Six open cars and four box cars will be put on this summer, and eight more box cars will be ready for next winter. It is hoped to have cars running before hot weather. Gloucester has till now been the only city in Massachusetts without a street railway.

**Hannibal, Mo.**

THE HANNIBAL STREET RY. Co., are replacing sixteen pound Trail with thirty-six pound centre-bearing rail. Brownell & Wight, of St. Louis, Mo., are building their new summer car. Their improvements will cost about \$3000

**Haverhill, Mass.**

Over \$30,000 has already been subscribed for the new horse railroad, and its building is assured.

**Holyoke, Mass.**

THE HOLYOKE STREET RAILWAY Co., have bought the rails and are about to put down a two mile extension, costing about \$15,000.

**Hyde Park, Ill.**

THE SOUTH CHICAGO CITY RY. Co., will expend \$25,000 for two and one-half miles of track, six cars, ten horses, car barns, etc., this spring.

**Indianapolis, Ind.**

THE CITIZEN'S STREET RAILWAY Co., will make some improvements this season, contingent on the location of the Union Railroad Depot.

**Jamestown, N. J.**

The street railway company here reports a steadily increasing business, and that four new cars have been added to the equipment.

**Jersey City, N. J.**

THE JERSEY CITY AND BERGEN RAILROAD Co., purchased forty-six new horses recently. The animals were bred in Indiana and are first class railroaders. The company has ordered seven open cars for the Greenville line. The cars will be delivered in May and will be put on in June for the summer. A number of new close cars are also being built for the other lines. The rolling stock of the company is being constantly augmented and improved. It is understood that the Currie estate is ready to give the required dedication necessary for the company to build its Bayonne branch; and it is now expected that the branch will be completed and in running order by July 4.

**Kansas City, Mo.**

THE KANSAS CITY CABLE RAILWAY Co. stockholders will meet at Kansas City April 19 to authorize an increase of the capital stock from \$500,000 to \$700,000, and the shareholders of that date will be privileged to subscribe for two new shares at par for every five shares held. Rights will be worth about \$10. The money is wanted to complete and put in operation the Independence avenue extension (to be finished in ninety days from Feb. 25, and at a probable cost of \$100,000) and the balance to build the Ninth street extension and furnish equipment, etc., for an increasing business. The stock of the company is largely owned in Boston, where it is worth about 135.

This company has ordered a second lot of Brownell's improved grip cars from the Brownell & Wight Car Company, of St. Louis.

The managers of the elevated railroad are pushing their work, and, if not enjoined, will prosecute their project to a successful termination, and Kansas City, both the old and the new, the Missouri sister and the Kansas sister, will soon have the most intimate relations by means of the rapid transit afforded by the cable line and the elevated road.

The latter has contracted for cars, which will be beautiful, tasty and convenient. The cars will have the most comfortable seats, and will be supplied with the Eames vacuum brake. They will also be arranged so as to be heated by steam during the cold weather.

**La Crosse, Wis.**

A street car, horse, driver, and passengers, were precipitated over the La Crosse River bridge March 22, making a perpendicular fall of twelve feet. The horse was killed, the car crushed, and five passengers seriously injured.

**Lancaster, Pa.**

THE LANCASTER CITY STREET RAILWAY Co., contemplate an extension of new track.

**Lawrence, Kan.**

THE LAWRENCE TRANSPORTATION Co., will add one car, six horses and one-half mile of new track to their equipment this spring, at about \$4000 cost.

**Lawrence, Mass.**

THE MERRIMAC VALLEY HORSE R.R. Co., will relay a mile of track and add two new cars, at an expense of about \$5000.

**Lincoln, Neb.**

THE LINCOLN STREET RAILWAY Co., which has not hitherto appeared in our directory, reports six and a half miles of track, ten cars, and sixty horses. Frank L. Sheldon is President, and L. P. Young Superintendent.

CAPITAL CITY RY. Co. will extend its track three-quarters of a mile this season, add two cars and sixteen horses, and enlarge its barn therefor. They are fixing up a forty-acre park at the end of their track, with five and a half acres of lake, and will build a hase-hall fence, grand stand, etc. All their improvements will cost about \$7,000. This company has 5 miles of 4 foot 8½ inch gauge, 25 lb. rail, 8 cars, 64 horses. E. B. Durfee is President and Treasurer, and H. B. Durfee Secretary and Superintendent.

**Lockport, N. Y.**

A new road is on paper here, with a good prospect of developing into an accomplished fact in the near future.

**Long Island City, N. Y.**

THE STEINWAY AND HUNTERS POINT R.R. Co., will extend their track to Woodside; also to St. Michael's Cemetery, about three miles in all, at a cost of some \$18,000.

**Louisville, Ky.**

THE LOUISVILLE CITY RAILWAY Co., have added seventeen cars to their rolling stock the past season.

**Macon, Ga.**

MACON AND SUBURBAN ST. RY. Co. will build this season to East Macon, a mile long, across the Ocmulgee river, and to Southwest Macon, a mile long. Both these lines are extensions to the Belt Line, being to sections of Macon growing rapidly and composed chiefly of the industrial classes. Four open or excursion cars, adapted to this delightful climate, have been built or are building by the company.

**Milwaukee, Wis.**

THE MILWAUKEE CITY RAILWAY Co. contemplate building two miles of new track. They are relaying their present track with 45 lb. steel rail and paving with cobble stones. They will also put up four new buildings. The total expense for extensions and improvements will be over \$70,000.

**Mobile, Ala.**

THE CITY RAILROAD Co., whose organization we referred to last month, have closed the purchase of the shell road and bay shore summer resort Frascati, situated in a beautiful locality on Mobile Bay. They will at once institute such improvements as to render the place more attractive than ever, and it is anticipated that in due time arrangements will be made for a season of "summer night concerts" to take place in the pavilion. A grand stand is to be built with a capacity of 1500 persons.

**Montgomery, Ala.**

THE CAPITAL CITY STREET RAILWAY Co., to be run by electricity, referred to by Mr. Van Depoele, in his address, has six miles of track.

**Montreal, Canada.**

THE CITY PASSENGER Co. will build seven miles of track, twenty new cars, a stable, car house, etc., and purchase two hundred horses this season, at a cost of over \$150,000.

**Nashville, Tenn.**

THE NASHVILLE & EDGEFIELD RAILROAD have overhauled the track from end to end, replaced the old rails with better steel in many places, and laid the Johnson 38 lb. rail for half a mile where the travel was greatest, with an improved bridge rail like — laying the floor level with the top of the rail; which makes a very fine floor, the

Superintendent writing that he is better pleased with it every day. These improvements have cost \$20,000.

THE MCGAVOCK AND MOUNT VERNON HORSE RAILWAY Co. intend to double their track two and a quarter miles, using either Johnson 30 lb. rail or 43 lb. side bearing tramrail steel; also to build two new extensions of one mile each, and to add 14 cars, besides stables to accommodate 208 head of mules. About \$35,000 will cover the cost of these improvements. Superintendent Deaderick writes us that they have just bought out the Summer Street and West Nashville Street Railway (it was only on paper) and that they have 7½ miles of 5 feet track, with 16, 20, 28, and 32 lb. rail, 25 cars, and 140 horses and mules.

**Nashua, N. H.**

The stable for the new horse railroad is well under way, and track laying will be finished this spring.

**New Bedford, Mass.**

THE ACUSHNET HORSE RAILROAD Co. has made contracts to have its road equipped within sixty days for the substitution of electricity in place of horses as a motive power.

The Company will extend their road one mile. They are having built three new box cars expressly for electric motor service. Their improvements this season will go considerably above \$15,000.

**Niagara Falls, N. Y.**

THE NIAGARA FALLS & SUSPENSION BRIDGE RY. Co. will purchase two box cars and several horses this spring.

**Newburgh, N. Y.**

THE NEWBURGH STREET RAILROAD Co. has secured its franchise, and will be begun by the middle of April, or first of May at the latest. D. S. Haines, of Sandy Hill, is President. The company is trying to get the franchise for a road from Fishkill Landing, opposite Newburgh, to Matteawan and Glenham, Dutchess Co.

**Nevada, Mo.**

A correspondent at this place writes us: "We have no street railway yet. Our city granted a franchise to a party last spring, but our streets were not properly graded, and the city delayed so long that the party abandoned the project. We are anxious to grant a liberal franchise to any party who will build the road. It is very much needed. We have over 7000 inhabitants now, and are growing rapidly. From the depot to the western line of the city, a mile and a half, the street is very easy grade. Half a mile of this is graded and graveled, and the balance needs but little work to complete the grade. We have a party in correspondence with us now who we think will build it this summer. I think a road will pay handsomely."

**New Haven, Conn.**

THE FAIR HAVEN AND WESTVILLE R. R. Co. expect to build three miles of new track, also a new car house and stable, seven new cars and have about fifty more horses. The cost will be about \$75,000.

**New York, N. Y.**

THE EIGHTH AVENUE RAILWAY Co. lately requested from the employees a reduction of the wages of conductors and drivers from \$2.25 a day to \$2, on the ground that the rate was a higher one than paid by any other company, with the exception of the Broadway and Seventh Avenue Company. A meeting of the men was held and they decided to accede to the request.

THE HARLEM BRIDGE, MORRISANIA & FORDHAM STREET RAILROAD Co. laid tracks this winter for a branch road. This extension is called the Lincoln & Morris Avenue Street Railroad. Tracks were laid from Melrose avenue as far as the Southern Boulevard, leaving a block not completed, when the frost compelled the company to suspend operations in December. After

that the Southern Boulevard Street Railroad Company obtained consent to lay tracks along the boulevard and Third avenue to West Farms. The company expected to begin work March 24, but on the previous night the High Bridge Company nearly completed their line on the block of the Southern Boulevard running from Third avenue to Lincoln avenue, thus cutting off the Southern Boulevard cars from their intended starting point.

On the 23d March Andrews & Clooney commenced laying temporary track on 125th street to East river preparatory to the building of a cable road from North to East rivers on Manhattan avenue and 125th street.

THE SUBURBAN RAPID TRANSIT Co.'s line will be opened in June as far as 143d street, and work beyond will be prosecuted with a large force this summer.

THE TERMINAL UNDERGROUND RAILROAD Co. is incorporated with a capital of \$5,000,000. It is to pass from near the City Hall Park, under Chambers, Reade, Elm, Spring, Mulberry, Great Jones, Lafayette place, Astor place, Eighth and Ninth streets, Fourth avenue to Forty-second street, connecting with the Fourth avenue improvement; also a branch from the City Hall Park to the East river and to the South Ferry. This is not a new scheme, but is the consolidation of former companies' interests, having in view the continuance of the "Fourth avenue improvement" in a direct line to the City Hall Park.

Mayor Grace vetoed the Aldermanic resolutions granting franchises to the Houston, West street and Pavonia Ferry and the St. Nicholas avenue and Cross Town Railroad Companies.

A bill to repeal the charter of the Broadway surface road has been reported in the Senate and made the order for Tuesday, April 6.

The cars of the new Chambers street cross-town line began making regular trips March 17. They are of the "bob-tail" variety, but have two horses. They are painted maroon and white, and cross Broadway at intervals of about five minutes. Only six cars are yet in use, but others are in course of construction, and will be put on as soon as needed. The time from one end of the line to the other is fourteen minutes. The cars connect with the Erie Ferry at the foot of Chambers street, and with the Roosevelt and James Slip Ferries on the east side. The cars run west on Chambers street and east on Drane street.

The Jerome Park Railway service is furnished by the New York & Harlem Railroad Co.

THE CENTRAL CROSSTOWN R. R. Co. have elected George S. Hart President in place of John B. Slawson, deceased.

THE THIRD AVENUE RAILWAY Co. are having twenty additional cars built by Brill & Co., Philadelphia, after the designs of Mr. Robertson. The sash and panels are removable making an open car in summer and closed one in winter. They are for the new cable line of that company now building on 125th st.

THE NINTH AVENUE R. R. Co. have added one hundred and fifty horses and seven cars to their equipment the past season.

THE NEW YORK & HARLEM R. R. Co. have one hundred and sixty-eight more horses and seventeen more cars than were reported last season.

#### Ogdensburg, N. Y.

A friend writes us that a street railway is contemplated in this place.

#### Omaha, Neb.

Arrangements have been perfected for building a cable railway, a charter for which was obtained over a year ago. Work will begin in April and four miles of double

track will be built this season, to be in operation by November. The estimated cost is \$250,000.

#### Philadelphia, Pa.

THE TRACTION Co. has been authorized to extend its tracks uptown. One of the provisions of an ordinance already passed compelled the company, on getting such legislation from Councils, to reduce fares to five cents for a continuous ride. A section in the new ordinance repeals this.

A strike has thus far been averted, the men having decided to abide by the agreement of the Arbitration Committee and wait for the answer of the Board of Presidents.

#### Pittsburgh, Pa.

THE SECOND AVENUE PASSENGER RAILWAY Co. reports 3½ miles of 47 lb. rail, five foot 2½ inch gauge, eight cars and 60 horses. George Fawcett is President, James F. Fawcett Secretary, and W. J. Fawcett Treasurer.

#### Providence, R. I.

THE UNION R. R. Co. will put over \$75,000 into improvements this season including some new track, one or more buildings, and new cars and horses.

#### Quebec, Canada.

THE QUEBEC STREET RAILWAY Co. will if right of way is granted build one half mile on Valier street. They are relaying their old track with steel rails. They propose running two more cars.

#### Rapid City, Dak.

A new street railway is being built here, of which Fred T. Evans is President.

#### Rochester, N. Y.

ROCHESTER CITY & BRIGHTON R. R. Co. will this season build a new car house at the end of the North St. Paul street line, costing about \$20,000.

#### Saginaw, Mich.

THE CITY OF SAGINAW STREET RAILWAY Co. are building a guard rail across Loug Bridge. Cost \$1,000. They have received a new charter for thirty years.

#### Salem, Mass.

THE NAUMKEAG STREET RAILWAY Co. began March 15th to run cars to Webb Street.

#### Seneca Falls, N. Y.

THE SENECA FALLS AND WATERLOO RY. Co. will build an extension through this place to Cayuga Lake, distance threemiles, this season.

#### St. Catharines, Ont.

THE ST. CATHARINE'S, MERRILTON & THOROLD ST. RY. Co. now reports eight cars and thirty-two horses.

#### Springfield, Mo.

SPRINGFIELD R. R. Co., owing to the city improving the street, will change the bed of their track to conform with the new grade. They are repairing six cars, and will order one or two new cars. These improvements will cost altogether \$1200 or \$1500.

It is rumored that the new City Council will be asked for a charter to build a new road on Walnut street.

#### Sioux City, Ia.

SIoux CITY ST. RY. Co. will extend their line about two miles, are having made two new cars, will get two more during the summer, and will have to buy a car of mules, and are going to pave about a mile and a half; these improvements costing \$15,000 altogether.

#### Stillwater, Minn.

Gentlemen from this place have been studying up the street railway question with a view to a new road. We hear of them in Winona and other places.

#### St. Louis, Mo.

THE UNION DEPOT RAILWAY Co. has received a proposition to change the line to Park avenue to the electric system, at a cost of \$10,000. That would be for about

two miles, counting all the curves. In that case the blue, white and yellow cars would be taken by the electric motor to Park avenue, where they would be taken by horse power over the lines to Tower Grove, California avenue and the convent of the Sacred Heart, and Lafayette Park and the Gravois Road. The system will be more carefully investigated, as to durability, strength, etc., by an expert, and if it is reported upon satisfactorily, will probably be introduced in St. Louis at an early day.

The President of the Municipal Assembly has signed the bill for an electric railroad.

#### Stoneham, Mass.

THE STONEHAM STREET RAILWAY Co. will add two cars and six horses to their rolling and live stock this spring.

#### Syracuse, N. Y.

A correspondent writes us: "The street car craze has struck Syracuse. It is the remark of the citizens generally and noticed by the strangers stopping here that this city has the poorest accommodations on the street car lines of any city of its size in the country. As an individual line the Fifth Ward is excepted. If all the companies in the city would take the Fifth Ward as a pattern and remodel their present system to that pattern, and bring all their lines to one starting point, the city would then have a system of which its citizens might well be proud. The old companies do not see or else do not want to accommodate the wants of the people by extending their tracks on streets where they are needed, so new companies are forced to form to meet the wants of the people. Three new companies have lately been organized here. The Third Ward Railway Company have just been incorporated and organized, and intend laying about three miles of track, commencing at the Empire House in Salina street, running up West Genesee street, through the village of Geddes to the soda ash works. W. B. Cogswell is President, W. S. Wales Secretary and Treasurer. The necessary right of way from property holders has been obtained, and as soon as consent from the city is obtained work on the road will be commenced."

THE SEVENTH WARD RAILWAY Co. have been incorporated and intend laying track through the Seventh Ward to Oakwood Cemetery, commencing at the corner of Salina and Fayette streets.

THE SYRACUSE & ONONDAGA, W. B. Thompson Superintendent, contemplate extending their track, making a belt in a part of the city.

"THE GEDDES STREET RAILWAY Co." has been incorporated, and propose laying tracks in Geddes to connect with the Syracuse and Geddes road to run to the soda ash works. The company was formed hoping to head off or score the Third Ward Company.

THE CENTRAL CITY RAILWAY Co. have just added a new box car to their rolling stock similar to the Broadway (N. Y.) line's cars.

THE NEW BRIGHTON AND ONONDAGA VALLEY Co. intend to relay part of their road with heavier rail, and run oftener, and they may get another car, costing altogether from \$1000 to \$1500. They have now six horses.

#### Toledo, O.

THE METROPOLITAN STREET RAILWAY Co. built two miles of track late last fall, and do not contemplate any improvements during the spring and summer.

#### Toronto, Ont.

On the 13th, the street car employees resumed work, and the rioters arrested were fined from \$2 to \$30 and costs, the magistrate saying the peace of the city would be preserved at any cost, and mob law put down with a vigorous hand.

TORONTO STREET RAILWAY Co. reports

sixty miles of track, 160 cars and 750 horses, and that they are now finishing a new brick stable and car house, the former with a capacity of 300 horses and the latter with a capacity of 100 cars.

Utica, N. Y.

The Utica Belt Line Street Railway Co., which will soon be in active operation, has a capital stock of \$150,000.

Vicksburg, Miss.

In 1879 a charter was granted by the Legislature to a number of citizens of Vicksburg for the construction of street railroads in this city. A company was organized and a road built from the foot of China street on front levee to the lower steamboat landing. Trains are only run on this road during low water. Up to the present time no move has been made to construct street railways in the city proper. Some weeks ago a number of gentlemen applied to the Legislature and were granted another charter, which rumor said would soon be put in operation by lines being constructed throughout the city. This threatened the franchise of the old company, who commenced March 22, on Washington street, near Jackson, tearing up the Nicholson pavement and putting down rails. On the 23d, the Aldermen granted the new Hill City Railroad Company right of way throughout all the streets of the city, except Washington, that being the street that the Vicksburg Street Railroad commenced work on their old franchise.

Washington, D. C.

The Metropolitan Railroad Co., without solicitation of the drivers, on the 1st of March, agreed to reduce the hours of labor to twelve instead of sixteen on all the lines. The schedule of the F street line makes six trips a day's work; on the Ninth street line, nine trips; and on the short line, eight trips,—with an interval of an hour and three-quarters for dinner. The wages are \$2 per day. A committee of drivers tendered their thanks to the President and Directors in a set of resolutions.

We understand this company, among other improvements, will lay a mile and a half extension, build twelve new cars, buy fifty additional horses, build a new hay barn 120x80 feet, retimber and lay rail on one and one-quarter miles of old track, etc. They will spend over \$38,000 in this work.

Birmingham, Ala.

The Highland Avenue Railroad will build two miles of track and add two locomotives and two passenger cars to their equipment, making an outlay of about \$26,000.

The Birmingham and Pratt Mines Street Railway Co. have commenced operations. J. A. Van Hoose is President.

Wilmington, Del.

The Front and Union Street Railway Co., reports 6,870 feet of 5 foot 2 inch track, 7 cars and twenty mules. George W. Bush is President, Samuel A. Price Superintendent, and E. T. Taylor Treasurer. They propose making no improvements this season, owing to the uncertainty of the labor and material market.

Woburn, Mass.

The North Woburn Horse Railroad has 2 1/2 miles of track, 41 lb. rail, 4 foot 8 1/2 inch gauge, 4 cars and 5 horses.

Worcester, Mass.

The Citizens' Street Railway Co. has been formally organized, the stockholders having elected the following directors: G. M. Haffards and A. S. Tripp of Fall River, Charles B. Pratt, Hiram Fobes, Henry S. Pratt, N. S. Liscomb of Worcester, and Frank S. Stevens of Swansea. The directors organized with Hon. Charles B. Pratt as President, and F. W. Brigham, of Fall River, as Secretary and Treasurer. Six hundred shares were represented.

York, Pa.

A new road is contemplated in this place.

OFFICIAL LIST OF THE 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, cars; h, horses; mu, mules. Officers' addresses are the same postoffice as the company unless otherwise specified.

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

ALBANY, N. Y.—Water-villet Turnpike R.R. Co. 7 1/2 m, 26-45 lb r, 27 c, 143 h. Pres. Chas. Newman, Sec. & Treas. P. W. Way, Supt. M. C. Foster. The Albany Ry. 10 m, 4-8 1/2 g, 33-47 lb r, 61 c, 194 h. Pres. Supt. and Treas. John W. McNamara, Sec. Jas. H. Manning. Offices 3 & 5 N. Pearl St.

ALLENTOWN, PA.—Allentown Pass. R.R. Co. 3 1/2 m, 6 c, 22 h. Pres. Samuel Lewis, Treas. & Sec. Joseph E. Ballet, Supt. Russel A. Thayer.

ALTON, ILL.—Alton & Up. Alton Horse Ry. Co. ALTOONA, PA.—City Pass. Ry. Co. of Altoona. 3 1/2 m, 5-3 g, 43 lb r, 17 c, 38 h. Pres. John P. Levan, Sec. & Treas. L. B. Relfselder, Supt. Jobo J. Buch.

AMSTERDAM, N. Y.—Amsterdam St. Ry. Co. 1 1/2 m, 4-8 g, 25 lb r, 3 c, 10 h. Pres. Henry Herrick, Treas. David Cady, Sec. M. L. Stover. President's office 112 Front St., L. Island City, N. Y.

APPLETON, WIS.—Appleton Electric St. Ry. ASHTABULA, O.—Ashtabula City Ry. Co. 4 m, 4-8 1/2 g, 40 lb r, 9 c, 60 h. Owner & Prop. Jno. N. Stewart.

ATCHISON, KAN.—Atchison St. Ry. Co. 5 1/2 m, 4-8 1/2 g, 30-30 lb r, 19 c, 60 h. Pres. & Gen. Man. J. H. Beeson, Treas. H. M. Jackson, Sec. J. P. Adams. Gate City St. R.R. Co. 2 1/2 m, 4-8 1/2 g, 16 lb r, 7 c, 26 h. Pres. L. B. Nelson, V. Pres. L. DeGivie, Sec. & Treas. John Stephens, Solicitor, A. Remharat. Metropolitan St. R.R. Co.

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

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

ATLANTIC, N. J.—Atlantic City Ry. Co. AUBURN, N. Y.—Auburn & Owasco Lake R.R. Co. 1 1/2 m, 4-8 1/2 g, 28-30 lb r, 3c, 12 h. Pres. D. M. Osborne, Sec. & Treas. C. B. Koster, Supt. B. F. Andrews. East Genesee & Seward Ave. Ry. Co. 1 1/2 m, 4-8 1/2 g, 30 lb r, 6 c, 25 h. Pres. David M. Osborne, Sec. & Treas. C. B. Fosters, Supt. B. F. Andrews.

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

BABYLON, N. Y.—Babylon Horse R.R. Co. 1 1/2 m, —, lb r, 2 c, 3 h. Pres. W. F. Norton. BALTIMORE, MD.—Baltimore & Powhatan Ry. Co. 6 m, 5-4 1/2 g, 4 c, 17 h. Pres. & Treas. E. D. Freeman, Sec. R. B. Clark, Supt. I. M. Ketricik. Baltimore City Pass. Ry. Co. 40 m, 5-4 1/2 g, 46 & 47 lb r, 160 c, 1076 h. Pres. Oden Bowie, Treas. John Boglano, Sec. S. L. Bridge. Baltimore Union Pass. Ry. Co. Supt. T. C. Robbins. Baltimore & Catonsville Ry. Co. 6 m, 5-4 1/2 g, 35 lb r, 15 c, 51 h. Pres. J. C. Robbins, Supt. & Pur. Agt. G. W. Appleby. Office Pratt St. & Frederick Av. Baltimore & Halls Spring R.R. Co. Baltimore & Pimlico & Pikesville R.R. Co. Central Ry. Co. 5 1/2 m, 5-4 1/2 g, 40 lb r, 22 c, 180 h. Pres. Peter Thompson, Sec. & Treas. Walter Blakistone.

Citizen's Ry. Co. 20 m, 5-4 1/2 g, 46 lb r, 34 c, 360 h. Pres. Jos. S. Hagarty, Treas. Wm. S. Hammersley, Supt. C. C. Speed. Monumental City Ry. Co. North Baltimore Passenger Ry. Co. 11 m, 5-4 1/2 g, 45 lb r, 72 c, 400 h. Pres. Jas. L. McLane, Treas. Dan'l J. Foley, Sec. Thos. J. Wilson. People's Ry. Co. 5 1/2 m, 5-4 1/2 g, 42-45 lb r, 30 c, 200 h. Pres. R. E. Hamilton, Treas. Gustavus Ober, Sec., Supt. & Pur. Agt. Wm. A. House, Jr. Office, Fort Ave. & Johnson St. Soon move to Druid Hill Ave. York Road R.R. Co.

BATTLE CREEK, MICH.—Battle Creek Ry. Co. 5 m, 3-6 g, 28 lb r, 8 c, 18 h, 3 mu. Pres. Geo. Det-J. White, V. Pres. H. H. Brown, Sec. Chas. Thomas, Supt. John A. White, Gen. Man. J. W. Iahh. BAY CITY, MICH.—Bay City St. Ry. Co. 7 1/2 m, 4-8 1/2 g, 18 lb r, 13 c, 35 h. Pres. James Clements, Treas. Wm. Clements, Sec. Edgar A. Cooley. BEAVER FALLS, PA.—Beaver Valley St. Ry. Co. 3 1-10 m, 5 c, 21 h. Pres. M. L. Knight, Sec. & Treas. J. F. Merriman, Supt. of Construction, J. C. Whitla.

BELLARE, O.—Bellare St. R.R. Co. BELLEVILLE, ONT., CAN.—Belleville St. R.R. BERE, O.—Berea St. Ry. Co. 1 1/2 m, 3-6 g, 28 lb r, 2 c, 2 h. Pres. C. W. D. Miller, V. Pres. T. Chinchward, Sec. & Treas. A. H. Pomeroy, Supt. A. W. Bishop.

BINGHAMTON, N. Y.—Washington Street & State Asylum R.R. Co. 4 1/2 m, 4 g, 16-25 lb r, 13 c, 23 h. Pres. B. H. Meagley, V. Pres. Geo. Whitney, Sec. C. O. Root, Treas. F. E. Ross. Binghamton Central R.R. Co. 3 1/2 m, (2 1/2 laid), 3 g, 23 lb r, 6 c (not in operation). Pres. Geo. L. Crandall, V. Pres. Nelson Stow, Sec. & Supt. Chas. O. Root, Treas. H. J. Kneeland. Offices 63 Court St.

Binghamton & Port Dickinson R.R. Co. 5 m, 4-8 1/2 g, 20-30 lb r, — c, — h. Pres. Harvey Westcott, Sec. & Treas. G. M. Harris, Supt. N. L. Osborn. (Leased to Mr. Osborn). Offices 112 State St. Main, Court & Chenango St. R.R. 5 m, 4-8 g, 40 lb r, 10 c, 25 h. Supt. & Lessee, N. L. Osborn. Offices 83 Washington St.

BIRMINGHAM, ALA.—Birmingham St. Ry. Co. 5 1/2 m, 4-8 g, 16 lb r, 13 c, 40 m. Pres. Geo. L. Morris, Supt., Sec. & Treas. W. H. Morris. Highland Avenue R. R. 6 1/2 m, 4-8 1/2 g, 30 lb r, 9 c, 25 h. Pres. H. M. C. Idwell, Supt. W. J. Miller, Owners The Elyton Land Co.

Birmingham & Pratt Mines St. R. R. Pres. J. A. Van Hoose. BLOOMFIELD, N. J.—Newark & Bloomfield R. R.

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

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

BOONSBORO, IA.—Twin City & Des Moines River Motor St. Ry. Co. 3 m, 3-6 g, 2 motors, 3 c. Pres. & Supt. J. B. Hodges, Treas. A. B. Hodges, Sec. S. K. Huntsinger.

BOSTON, MASS.—Highland St. Ry. Co. 19 m, 4-8 1/2 g, 43 lb r, 187 c, 1000 h. Pres. Moody Merrill, Clerk R. B. Fairbairn, Treas. Samuel Little, Supt. J. E. Rugg. Lynn & Boston. 3 1/2 m, 4-8 1/2 g, 25-48 lb r, 114 c, 514 h. Pres. Amos F. Breed, Treas. & Sec. E. Francis Oliver, Supt. Edwin C. Foster.

Metropolitan R. R. Co. 80 m, 4-8 g, 50 lb r, 700 c, 3,600 h. Pres. C. A. Richards, Sec. H. R. Harding, Treas. Chas. Boardman. Office, 16 Kilby St. Middlesex R.R. Co. 26 m, 4-8 1/2 g, 50 lb r, 150 c, 700 h. Pres. Chas. E. Powers, Treas. J. H. Studley, Jr., Supt. John H. Studley. Address, 27 Tremont Row, So. Boston Ry. Co. 13 m, 4-8 1/2 g, 42-50-60 lb r, 193 c, 900 h. Pres. Chas. H. Hersey, V. Pres. Jas. C. Davis, Sec. & Treas. Wm. Reed, Supt. Daniel Coddige.

BRADFORD, PA.—Bradford & Kendall R.R. Co. 1 1/2 m, 4-8 1/2 g, 38 lb r, 3 c, 4 h. Pres. James Brodey, Sec. N. B. Parsons, Gen. Man. & Supt. Enos Parsons. BRENHAM, TEX.—Brenham St. Ry. Co. 2 m, 4 g, 20 lb r, 3 c, 22 mu. Pres. T. J. Pampell, Sec. John A. Randle, Treas. D. C. Giddings.

BRIDGEPORT, CONN.—The Bridgeport Horse R.R. Co. 5 m, 4-8 1/2 g, 42 lb r, 14 c, 70 h. Pres. Albert Eamer, Sec. & Treas. F. Hurd, Supt. B. F. Lashar.

BROCKTON, MASS.—Brockton St. Ry. Co. 11 1/2 m, 4-8 1/2 g, 35 lb r, 32 c, 150 h. Pres. W. W. Cross, Treas. Z. C. Kelth, Supt. H. B. Rogers.

BROOKLYN, N. Y.—The Atlantic Avenue R. R. Co. of Brooklyn. 3 1/2 m, (leased and owned). 4-8 1/2 g, 50-60 lb r, 297 c, 1139 b. Pres. William Richardson, Sec. W. J. Richardson, Treas. Newburg H. Frost. Office cor. Atlantic & Third Aves.

Broadway R.R. Co. 10 1-10 m, 4-8 1/2 g, 45-50-60 lb r, 166 c, 657 h. Pres. W. H. Husted, V. Pres. Edwin Beers, Sec. & Treas. Robert Sealey, Supt. Joshua Crandall. Office 21 Broadway, E. D.

Brooklyn Cross Town R.R. Co. 8 m, 4-8 1/2 g, 40-60 lb r, 72 c, 400 h. Pres. Henry W. Slocum, V. Pres. Ezra B. Tuttle, Sec. & Treas. John R. Connor, Supt. D. W. Sullivan. Offices 585 Manhattan Ave.

Bushwick R.R. Co. 20 m, 4-8 1/2 g, 45-50-60 lb r, 172 c, 600 h. Pres. Frank Cromwell, V. Pres. Wm. H. Husted, Treas. & Sec. S. D. Hollowell, Supt. Wm. M. Morrison. Office 22 Broadway, N. Y.

The Brooklyn Bushwick & Queens County R.R. 6 m, 4-8 1/2 g, 42-47 lb r, 41 c, 117 h. Pres. Richard H. Green, V. Pres. James W. Elwell, 59 South St. N. Y. Sec. John D. Elwell, Treas. Wm. W. Greene.

Brooklyn City R.R. Co. 44 m, 4-8 1/2 g, 60 lb r, 761 c, 3,045 h. Pres. William H. Hazzard, V. Pres. William M. Thomas, Sec. & Treas. Daniel F. Lewis, Asst. Sec. Francis E. Wrigley. Offices 8 & 10 Fulton St.

Brooklyn City & Newtown R.R. Co. 11 m, 4-8 1/2 g, 45-60 lb r, 125 c, 419 h. Pres. Louis Fitzgerald, N. Y. City, Sec. & Treas. H. A. Schuz, Supt. H. W. Bush. Office cor. DeKalb & Central Aves.

Calvary Cemetery, Greenpoint & Brooklyn Ry. Co. Coney Island and Brooklyn R.R. Co. 11 2-5 m, 45 lb r, 4-8 1/2 g, 103 c, 316 h. Pres. James Jourdan, Sec. Ed. F. Drayton, Supt. William Farrell. Office cor. Smith & Huntington Sts.

Coney Island, Sheepshead Bay & Ocean Avenue R. R. Co. Pres. A. A. McClemer, V. Pres. Daniel Mone, Sec. John McMahon, Sheepshead Bay, Treas. Horace Valkuly. Office 16 Red Hook Lane.

Crosstown Line, Hamilton Ferry to Bridge. Grand St. & Newtown R.R. Co. 8 1/2 m, 4-8 1/2 g, 45-50 lb r, 72 c, 250 h. Pres. Martin Joost, Sec. & Treas. Wm. E. Horwill, Supt. Walter G. Howey. Office 129 First St.

Grand Street, Prospect Park & Flatbush R.R. Co. 4 1/2 m, 4-8 1/2 g, 50 lb r, 75 c, 244 h. Pres. Louis Fitzgerald, 120 Broadway, N. Y., Sec. & Treas. Duncan B. Cannon, Supt. Jno. L. Helms. Offices Franklin Ave. and Prospect Place.

Greenpoint & Lorimer St. Prospect Park & Coney Island R.R. Co. 4 7-10 m, 45-50 lb r, 4-8 1/2 g, 69 c, 214 h. Pres. A. R. Culver, Treas. A. C. Washington, Sec. George H. Smith, Eng. Supt. R. Schermerhorn, Supt. Robert Attlesey. Offices Ninth Ave., 19th & 30th Sts. (leased to Atlantic Ave. R. R. Co.)

Prospect Park & Flatbush R.R. 1 1/2 m, 4-8 1/2 g, 34 lb r, 70 c, 360 h. Pres. Loftis Wood, Sec. & Treas. Sam'l Parkhill, Supt. Loftis Wood.

South Brooklyn Central R.R. Co. 7 m (4 1/2 m laid), 4 1/2 g, 60 lb r, 42 c, 192 h. Pres. Wm. Richardson, Sec. Wm. J. Richardson, Treas. N. H. Frost, Supt. James Ruddy.

The New Williamsburgh & Flatbush R. R. Co. 6 1/2 m, 4-8 1/2 g, 47-50 lb r, 74 c, 235 h. Pres. Geo. W. Van Allen, 54 Ann St., New York, Sec. W. B. Waltz, 34th St. & 9th Ave., New York, Treas. C. B. Cottrell, 8 Spruce St., N. Y. City, Supt. Chas. E. Harris, Nost-rand Ave. & Carroll St., Brooklyn.

The Union Railway Co. of the City of Brooklyn (not in operation). Van Brunt St. & Erie Basin R.R. Co. 1 1/2 m, 4-8 1/2 g, 45 lb r, 7 c, 24 h. Pres. John Cunningham, Sec. & Treas. Edmund Terry.

**BRUNSWICK, GA.**—Brunswick St. R.R. Co.  
**BUFFALO, ILL.**—See Mechanicsburg, Ill.  
**BUFFALO, N. Y.**—Buffalo St. R.R. Co. 17½ m, 4-8½ g, 50 lb r, 96 c, 510 h. Pres. Henry M. Watson, V. Pres. P. Pratt, Sec. S. S. Spaulding, Treas. W. H. Watson, Supt. Edward Edwards.  
 Buffalo East Side St. R.R. Co. 24.4-5 m, 4-8½ g, 42 lb r, 47 c, 218 h. Pres. S. S. Spaulding, V. Pres. Joseph Churchyard, Sec. H. M. Watson, Treas. W. H. Watson, Supt. Edward Edwards. Office 346 Main St.  
**BURLINGTON, IA.**—Burlington City R.R. Co. 2½ m, 4-8½ g, 22 lb r, 9 c, 30 h. Pres. John Patterson, Sec. & Man. C. T. Patterson.  
 Union St. Ry. Co. 8½ m, 4-8½ g, various r, 19 c, 85 h. Pres. Geo. E. Rust, Sec. & Supt. F. G. Jones.  
**CAIRO, ILL.**—Cairo St. Ry. Co. 2 m, 3-6 g, 25 lb r, 3 c, 9 h. Pres. J. A. Goldstine, V. Pres. H. Bloms, Supt. & Treas. Thos. Lewis, Sec. H. Schulze.  
**CAMBRIDGE, MASS.**—Cambridge R. R. Co. 51-59 m, 4-8½ g, 50 lb r, 255 c, 1,428 h. Pres. Prentiss Cummings, Treas. & Clerk Frauklin Perrin, Exec. Com. I. M. Spielman, P. Cummings, O. S. Brown, Clerk of Directors, O. S. Brown, Supt. Wm. A. Bancroft.  
 Charles River St. Ry. Co. 10.4-5 m, 2-8½ g, 50 lb r, 50 c, 330 h. Pres. Chas. E. Raymond, Corp. Clerk C. E. Harden, Treas. Daniel U. Chamberlain, Supt. John N. Akarman.  
**CAMDEN, N. J.**—Camden & Atlantic St. Ry. Camden Horse R.R. Co. 9 m, 5-1 g, 35-47 lb r, 26 c, 85 h. Pres. Thos. A. Wilson, Sec. Wilbur F. Rose, Treas. & Supt. Johu Hood.  
**CANTON, O.**—Canton St. R.R. Co. (new road.)  
**CAPE MAY, N. J.**—Cape May & Schellenger Landing Horse R.R.  
**CARTHAGE, MO.**  
**CEDAR RAPIDS, IA.**—Cedar Rapids & Marion St. Pass. Ry. Co.  
**CHAMPAIGN, ILL.**—Champaign R.R. Co. Urbana & Champaign St. R.R. Co. (See Urbana.)  
**CHARLESTON, S. C.**—Charleston City Ry. Co. 8½ m, 4-8½ g, 38-42 lb r, 22 c, 84 h. Pres. Jno. S. Riggs, Treas. Evau Edwards, Sec. Frauk Whelden, Supt. Jno. Mohlenhoff.  
 Enterprise R.R. Co. 12 m, 5 g, 42 lb r, 14 c, 51 h. Pres. A. P. Ravenel, Sec. & Treas. U. E. Hayne, Supt. T. W. Passallagere.  
 Middle Street Sullivan Island Ry. Co. 2 m, 6 c, 12 mu. Pres. B. Callaghan, Sec. & Treas. Frank F. Whilden, Supt. B. Buckley.  
**CHATTANOOGA, TENN.**—Chattanooga St. R. R. Co. 2½ m, 4-8½ g, 16-25 lb r, 8 c, 50 h. Pres. J. H. Warner, Sec. C. R. Gaskill, Supt. A. B. Wingfield.  
**CHESTER, PA.**—Chester St. Ry. Co. 5½ m, 5-2½ g, 47 lb r, 14 c, 66 h. Pres. Richard Peters, Jr., Treas. Sam'l H. Seeds, Sec. & Mauager, E. M. Cornell.  
**CHICAGO, ILL.**—Chicago City Ry. Co. 87 m, 4-8½ g, 45 lb r, 567 c, 1,416 h, cable doing work of 2,500 h. Pres. C. B. Holmes, Sec. H. H. Windsor, Treas. T. C. Pennington, Supt. C. B. Holmes.  
 Chicago West Division Ry. Co. 40 m, 4-8½ g, 40 lb r, 620 c, 3,425 h. Pres. J. R. Jones, Sec. George L. Webb, Supt. Jas. K. Lake.  
 Chicago & Hyde Park St. — m, — g, — lb r, — c, — h. Pres. Douglas S. Clarke.  
 North Chicago City Ry. Co. 35 m, 4-8½ g, 45 lb r, 316 c, 1,700 h. Pres. & Gen. Supt. V. C. Turur, V. Pres. Chas. T. Yerkes, Sec. & Treas. Hiram Crawford, Supt. of Track & Construction, Augustus W. Wright, Asst. Supt. Fred L. Thredy, Supt. Horse Dept. Robt. Atkins, Purch. Agt. John W. Roach, Master Mechanic J. Miller.  
**CHILlicothe, O.**—Chillicothe St. R.R. Co. 1½ m, 3 g, 16 lb r, 7 c, 10 h. Pres. E. P. Safford, Sec. A. E. Wenis, Treas. William Polanel, Supt. Ewel McMartin.  
**CINCINNATI, O.**—Cincinnati Inclined Planc Ry. Co. 3 m, 5-2½ g, 43 lb r, 24 c, 160 h. Pres. Geo. A. Smith, Sec. & Supt. James M. Doherty, Treas. Jos. S. Hill.  
 Cincinnati St. Ry. Co. Pres. Jno. Kilgour, V. Pres. Albert G. Clark, Treas. R. A. Dunlap, Sec. & Auditor, Jas. A. Collus, Supt. Jno. Harris, Pur. Agt. B. P. Haughtou.  
 Columbia & Cincinnati St. R.R. Co. 3½ m, 3 g, 35 lb r, 3 c, 6 dummy c. Pres. C. H. Kilgour, V. Pres. John Kilgour, Treas. B. P. Branman, Sec. A. H. Meler, Mt. Lookout, O. Supt. J. J. Heudersou, Mt. Lookout, O.  
 M. Adams & Eden Park Inellued R.R. Co. 3½ m, 5-2½ g, 42 lb r, 40 c, 320 h. Pres. & Treas. J. P. Kerper, Sec. J. R. Murdock, Supt. Chas. Whitteu.  
 So. Covington & Cincinnati. (See Covington, Ky.)  
**CLEVELAND, O.**—The Brooklyn St. R.R. Co. 8½ m, 4-8½ g, 52 lb r, 66 c, 375 h. Pres. Tom. L. Johnson, V. Pres. A. J. Moxham, Sec. J. B. Hoefgen, Treas. John McConnell, Supt. A. L. Johnson.  
 Broadway & Newburg St. R.R. Co. 6 m, 4-8½ g, 10 c, 160 h. Pres. & Supt. Joseph Stauley, V. Pres. Sam'l Andrews, Sec. & Treas. E. Fowler.  
 Superior St. R.R. Co. 15 m, 4-8½ g, 45 lb r, 46 c, 225 h. Pres. Frank De H. Robinson, V. Pres. John Koch, Sec. & Supt. M. S. Robison, Jr.  
 The East Cleveland R.R. Co. 20 m, 4-8½ g, 35-40 lb steel r, 163 c, 520 h, 1 electric motor. Pres. A. Everett, V. Pres. & M. C. B. Chas. Wason, Sec. & Treas. H. A. Everett, Supt. E. Duty. Offices, 1151 & 1158 Euclid Ave.  
 Woodland Avenue & West Side St. R.R. Co. 20 m, 4-8½ g, 45-15 lb r, 124 c, 55 h. Pres. M. A. Hanna, V. Pres. C. P. Emery, Sec. J. B. Hanna, Gen. Supt. George G. Mulhern.  
 South Side St. R.R. Co. 3½ m, 3 g, 40 lb r, 8 c, 60 h. Pres. Tom L. Johnson, Supt. A. L. Johnson, Sec. & Treas. J. B. Hoefgen.  
 St. Clair Street Ry. Co. — m — g, — lb r — c, — Pres. Chas Hathaway.  
 West Side R.R. Co.  
**CLINTON, IA.**—Lyons & Clinton Horse R.R. Co. (See Lyons.)  
**COLUMBUS, GA.**—Columbus St. R.R. Co. 3 m, 4-8½ g, 16 lb r, 6 c, 25 h. Pres. Cliff B. Grimes, Sec. L. G. Schnessler, Treas. N. N. Curtis, Supt. J. A. Ga-bourgh.  
**COLUMBUS, O.**—Columbus Consolidated St. R.R. Co. 19 m, 5-2 g, 30-16 lb r, 83 c, 350 h. Pres. A. Rodgers, V. Pres. H. T. Chittenden, Sec. & Treas. E. K. Stewart, Supt. J. H. Atherson.  
 Glenwood & Greenlawn St. R.R. Co. 4½ m, 3-6 g,

24 lb r, 9 c, 25 c. Pres. A. D. Rodgers, V. Pres. B. S. Brown, Sec. R. S. Rockley, Treas. S. S. Rickley, Supt. Jonas Wilcox.  
**CONCORD, N. H.**—Concord Horse R.R. Co. 8 m, 3 g, 30-33 lb r, 10 c, 14 h, 2 steam motors. Pres. Moses Humphrey, Treas. H. J. Crippin, Clerk E. C. Hoag.  
**CORTLAND, N. Y.**—Cortland & Homer Horse Ry. Co. 4 m (2½ laid), 4-8½ g, 25-30 lb r. Pres. Chas. H. Garrison, Troy, N. Y. Sec. J. M. Milne, Treas. S. E. Welch, Supt. S. E. Welch. (Leased to D. N. Miller.) Office 23 No. Mercer St.  
**COUNCIL BLUFFS, IA.**—Council Bluffs St. R.R. COVINGTON, KY.—So. Covington & Cincinnati St. Ry. Co. 17½ m, 5-2½ g, 43 lb r, 46 c, 296 h. Pres. E. F. Abbott, Sec. J. C. Benton, Treas. G. M. Abbott.  
**DALLAS, TEX.**—Dallas St. Ry. Co. 4½ m, 4-8½ g, 20-38 lb r, 12 c, 4 h, 72 mu. Pres. Wm. J. Keller, Sec. Harry Keller, Supt. C. E. Keller.  
 Commerce & Ervay St. R.R. 1½ m, 4-8½ g, 20 lb r, 5 c, 24 mu. Pres. A. C. Ardrey, Sec., Treas. & Man. H. W. Keller.  
**DANVILLE, ILL.**—Citizens' St. Ry. Co. 4 m, 4 g, 20 lb r, 8 c, 35 mu. Pres. Wm. P. Cannon, V. Pres. & Gen. Man. Wm. Stewart, Sec. & Treas. Adam R. Samuel.  
**DAVENPORT, IA.**—Davenport Central St. R.R. 2½ m, 4-8½ g, 20 lb r, 12 c, 36 h. Pres. James Grant, V. Pres. W. L. Allen, Treas. J. B. Fidler, Supt. B. Rumsey, Sec. O. S. McNeill.  
 Davenport City Ry. Co. H. Schuitger, Lessee.  
**DAYTON, KY.**—Newport & Dayton St. Ry. Co. 2 m, 5-2½ g, 44 lb r, 9 c, 36 h. Pres. & Supt. W. W. Bean.  
**DAYTON, O.**—Dayton St. R.R. Co. 7½ m, 4-8½ g, 44 lb r, 24 c, 80 h and mu. Pres. J. W. Stoddard, V. Pres. H. S. Williams, Sec. C. A. Craighead, Supt. A. W. Anderson.  
 Oakwood St. Ry. Co. 6 m, 4-8½ g, 38 lb r, 14 c, 56 h. Pres. Charles B. Clegg, Sec. H. V. Perrine.  
 The Wayne & Fifth St. R.R. Co. 3½ m, 4-8½ g, 34-38 lb r, 5 c, 30 h. Pres. Geo. M. Shaw, Sec. & Treas. Eugene Winchet, Supt. N. Routzahn.  
**DECATUR, ILL.**—Decatur Horse Ry. Co. Citizens' Street R.R. Co. 2 m, 4-8½ g, 20 lb r, 7 c, 47 h & mu. Pres. D. S. Shellabarger, Sec., Treas. & Supt. A. E. Kinney.  
**DENISON, TEX.**—Denison St. Ry. Co. 3 m 3-6 g, 16 lb r, 5 c, 22 mu. Pres. C. A. Waterhouse, Supt. S. A. Robinson.  
**DENVER, COL.**—Denver City Ry. Co. 16 m, 3-6 g, 16 lb r, 50 c, 250 h. Pres. Geo. H. Holt, 10 Wall St., New York City, Sec. G. D. L'huillier, 10 Wall St., New York City, Treas. & Man. G. E. Randolph.  
**DES MOINES, IA.**—Des Moines St. Ry. Co. 10 m, 3 g, 25-30-38-52 lb r, 18 c, 100 h. Pres. M. P. Turner, Sec. M. A. Turner.  
 Des Moines & Sebastopol St. Ry. Co.  
**DETROIT, MICH.**—Fort Wayne & Elmwood Ry. Co. 6 m, 4-8½ g, 45 lb r, 30 c, 180 h. Pres. H. B. Brown, V. Pres. Edward Kanter, Treas. George B. Pease, Sec. N. W. Goodwin, Supt. Geo. S. Hazard.  
 Detroit City Ry. 30 m, 4-8½ g, 40-43½ lb r, 130 c, 700 h. Includes Jefferson Ave. line, Woodward Ave. line, Michigan Ave. line, Gratiot Ave. line, Brush St. line, Cass Ave. line, Congress & Baker line. Pres. Sidney D. Miller, Treas. George Hendrie, Sec. James Heugh, Gen. Supt. Robert Bell, Mast. Mech. John Willis.  
 Grand River St. Ry. Co. 2½ m, 4-8½ g, 43 lb r, 13 c, 110 h. Pres. & Treas. Jos. Dalley, Sec. J. W. Dalley, Supt. C. M. Dalley.  
**DOVER, N. H.**—Dover Horse R.R. Co. 5 m, 3 g, 30 lb r, 4 c, 14 h. Directors, Z. S. Wallingford, Chas. H. Sawyer, Jas. E. Lothrop, C. W. Wiggin, Harrison Halsey, Frank Williams, Cyrus Littlefield, Treas. Harrison Raley.  
**DUBUQUE, IA.**—Dubuque St. R.R. 5 m, 4-8½ g, 21 c, 45 h. Pres. J. A. Rhonberg, Sec. & Treas. B. E. Linehan, Supt. J. J. Linchan.  
**DULUTH, MINN.**—Duluth St. Ry. Co. 5 m, 3-6 g, 33-51 lb r, 17 c, 90 h and mu. Pres. Sam'l Hill, V. Pres. Thos. Lowry, Sec. & Treas. A. S. Chase, Man. & Supt. T. W. Hoopes.  
**EAST OAKLAND, CAL.**—Oakland, Brooklyu & Fruitvale R.R. Co.  
**EAST SAGINAW, MICH.**—Street R. R. Co. of East Saginaw. — m, 4-8½ g, 30 lb r, 14 c, 35 h. Pres. & Supt. W. J. Barton, Sec. W. H. Hark, Treas. J. B. Peter.  
**EAST ST. LOUIS, ILL.**—East St. Louis St. R.R. Co.  
**EASTON, PA.**—The Easton & So. Easton Passenger Ry. Co. 1½ m, 5-2½ g, 45 lb r, 4 c, 20 h. Pres. H. A. Sage, Sec. & Treas. H. W. Cooley, Supt. Elisha Burwell, So. Easton.  
 The West End Passenger Ry. Co. 1½ m, 5-2½ g, 45 lb r, 6 c, 20 h. Pres. H. A. Sage, Sec. & Treas. H. W. Cooley, Supt. Samuel Berry.  
**EAU CLAIRE, WIS.**—Eau Claire City Ry. Co.  
**ELGIN, ILL.**—Elgin City Ry. Co. 2 c. Pres. Sec. Treas. Supt. & Owner, B. C. Payne.  
**ELIZABETH, N. J.**—Elizabeth & Newark Horse R.R. Co. 14 m, 5-2½ g, 4-10 g, 30 lb r, 24 c, 74 h. Pres. & Treas. Jacob Davis, Sec. & Supt. John F. Pritchard.  
**ELKHART, IND.**—Citizens' Ry. Co. 3½ m, 4-8½ g, 30 lb r, 6 c, 30 h. Pres. F. W. Miller, V. Pres. G. C. Johnson, Sec. E. C. Bickel, Treas. A. R. Burns.  
**ELMIRA, N. Y.**—The Elmira & Horseheads Ry. Co. 9-2.3 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. Korschner, Supt. Henry C. Slsbee. Officers, 212 E. Water St.  
**EL PASO, TEX.**—El Paso St. Ry. Co. 2½ m, 4-8½ g, 20 lb r, 8 c, 25 h. Pres. G. B. Zimpelman, V. Pres. A. Krockauer, Treas. F. Magoffice, Sec. & Supt. I. A. Tays.  
**EMPORIA, KAN.**—Emporia City Ry. Co. 3½ m, 5 g, 20 lb r, 6 c, 23 m. Pres. Van R. Holmes, Treas. A. F. Crowe, Sec. & Man. J. D. Holden.  
**ENTERPRISE, MISS.**—Enterprise St. Ry. Co. 1½ m, 3-6 g, 24 lb r, 2 c, 6 h. Pres. John Kampe, V. Pres. E. B. Gaston, Sec. & Treas. Jno. Gaston.  
**ERIE, PA.**—Erie City Passenger Ry. Co. 5½ m, 4-8½ g, 30-40-45 lb r, 20 c, 85 h. Pres. Wm. W. Reed, Treas. Wm. Spencer, Sec. W. A. Demorest, Supt. Jacob Berst.  
**EUREKA SPRINGS, ARK.**—Eureka Springs City Ry. Co.

**EVANSVILLE, IND.**—Evansville St. Ry. Co. 12 m, 4-8 g, 23 lb r, 31 c, 190 mu. Pres. John Gilbert, Sec. P. W. Raleigh, Treas. John Gilbert, Supt. W. Bahr.  
**FALL RIVER, MASS.**—Globe St. Ry. Co. 12 m, 4-8½ g, 40-46-47 lb r, 40 c, 160 h. Pres. Frank S. Stevens, Treas. P. W. Brightman, Sec. M. G. B. Swift, Supt. John H. Bowker, jr.  
**FORT SCOTT, KAN.**—Bourbon County St. Ry. Co. 1 m, 4 g, 22 lb r, 2 c, 4 m. Pres. Isaac Stadden, V. Pres. Benj. Files, Sec. Wm. Perry, Treas. J. H. Randolph.  
**FORT SMITH, ARK.**—Fort Smith St. Ry. Co. 2 m, 3-6 g, 16-28 lb r, 5 c, 16 h. Pres. Sam'l M. Loud, Sec. & Treas. Geo. T. Sparks.  
**FORT WAYNE, IND.**—Citizens' St. R.R. Co.  
**FORT WORTH, TEX.**—Fort Worth St. Ry. Co. 7½ m, 4 g, 25-38 lb r, 16 c, 73 m. Pres. K. M. Vanzandt, Treas. W. A. Hoffman, Acting Sec. & Gen. Man. S. Mims.  
**FRANKFORT, N. Y.**—Frankfort & Ilion Street Ry. Co. 2½ m, 5 g, 4 c. Pres. A. C. McGowan, Frankfort, Sec. D. Lewis, Ilion, Treas. P. Remington, Ilion, Supt. Fredk. Gates, Frankfort.  
**FREDONIA, N. Y.**—Dunkirk & Fredonia R.R. Co. 3½ m, 4-10 g, 25 lb r, 5 c, 8 h. Pres. Wm. M. McClus-try, Sec. & Treas. M. N. Fenner, Supt. Z. Elmer, Wheelock.  
**GAINSVILLE, FLA.**—Gainsville St. Ry  
**GAINSVILLE, TEX.**—Gainsville St. Ry. Co. 2½ m, 3-6 g, 17 lb r, 4 c, 12 h. Pres. C. N. Stevens, V. Pres. J. T. Harris, Sec. & Treas. F. R. Sherwood.  
**GALESBURG, ILL.**—College City St. Ry. Co. 3 m, 4-½ g, 18-20-48 lb r, 4 c, 16 h. Supt. Geo. S. Clayton.  
**GALVESTON, TEX.**—Galveston City R.R. Co. 18 m, 4-8½ g, 30 lb r, 68 c, 169 mu. Pres. Wm. H. Sinclair, Sec. & Treas. F. D. Merrit, Supt. M. J. Keenan. Gulf City St. Ry. & Real Estate Co.  
**GLOUCESTER, MASS.**—Gloucester City R.R. Gloucester St. Ry. Co. Pres. & Supt. Morris C. Fltch, V. Pres. Walter A. Jones, Treas. Francis W. Homans, Sec. David S. Presson.  
**GRAND RAPIDS, MICH.**—Street Ry. Co. of Grand Rapids, Mich. 13 m, 4-8½ g, 30-35 lb r, 21 c, 175 h. Pres. C. A. Otis, Cleveland, O., V. Pres. L. H. Withey, Grand Rapids, Treas. M. S. Crosby, Grand Rapids, Sec. J. M. Weston, Grand Rapids, Asst. Sec. Jas. Pickands, Cleveland, O.  
**GREEN CASTLE, IND.**—Green Castle City St. Ry. Co. 2 m, 4-8½ g, 23 lb r, 3 c, 12 h. Pres. & Supt. D. Rogers, Sec. James S. Nutt, Treas. Rudolph Rogers.  
**GREENVILLE, S. C.**—Greenville City Ry. Co. 1 m, 5 g. — lb r, 5 c, 20 h. Proprietors, Gilreath & Harris.  
**HAMILTON, O.**—The Hamilton St. Ry. Co. 4 m, 3 g, 28 lb r, 11 c, 12 h. Pres. James F. Griffin, Sec. O. V. Parrish, Treas. H. L. Morey, Supt. J. C. Bigelow.  
**HANNIPAL, 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.  
**HARRISBURG, PA.**—Harrisburg City Passenger Ry. Co. 5 m, 5-2½ g, 42-47 lb r, 26 c, 65 h. Pres. H. A. Kelker, V. Pres. Daniel Eply, Sec. John T. Ensminger, Treas. R. F. Kelker, Supt. S. B. Reed.  
**HARTFORD, CONN.**—Hartford & Wetherfield Horse R.R. Co. 12 m, 4-8½ g, 45 lb r, 49 c, 250 h. Pres. & Treas. E. S. Goodrich, Sec. Geo. Sexton.  
**HAVERTHILL, MASS.**—Haverhill & Groveland St. Ry. Co. 4½ m, 4-4½ g, 30 lb r, 12 c, 30 h. Pres. & Gen. Mau. Jas. D. White, Treas. John A. Colby, Haverhill St. Ry. Co.  
**HELENA, ARK.**—Helena St. Ry. Co.  
**HERKIMER, N. Y.**—Herkimer & Mohawk St. Ry. Co. 1½ m, 4-8½ g, 25 lb r, 3 c. Pres. J. M. Ansmen, Sec. Joab Small, Treas. H. D. Alexander.  
**HOBOKEN, N. J.**—North Hudson County Ry. Co. 15½ m, 4-7 g, 50-60 lb r, 116 c, 630 h. Pres. John H. Bonn, Sec. P. J. Mallory, Treas. Fredk. Mickel, Union, Supt. Nicholas Goetz, Union.  
**HOLYOKE, MASS.**—Holyoke St. Ry. Co. 2 m, 4-8½ g, 35 lb r, 8 c, 26 h. Pres. Wm. A. Chase, Treas. C. Fayette Smith, Supt. H. M. Smith.  
**HOT SPRINGS, ARK.**—Hot Springs R.R. Co. 3 m, 4 g, 25 lb r, 11 c, 30 h. Pres. S. W. Fordyce, Sec. C. E. Maurice, Supt. J. L. Butterfield.  
**HOUSTON, TEX.**—Houston City St. Ry. Co. 13 m, 4-8½ g, 20-30-40 lb r, 40 c, 118 m. Pres. Wm. H. Sinclair, Galveston, V. Pres. & Gen. Man. H. F. McGregor, Houston, Supt. Henry Friend, Houston, Sec. & Treas. F. J. DeMeritt, Galveston.  
**HUTCHINSON, KAN.**—Hutchinson St. Ry. Co.  
**ILION, N. Y.**—Frankfort & Ilion Ry. Co. 2½ m, 5 g, 25 lb r, 4 c, 6 h. Pres. A. C. McGowan, Sec. D. Lewis, Treas. F. Remington, Supt. Frederik Gates.  
**INDIANAPOLIS, IND.**—Citizens' St. Ry. Co. 35 m, 4-8½ g, 20-33-38-40-52 lb r, 70 c, 535 h. Pres. A. W. Johnson, Indianapolis, Treas. Tom L. Johnson, Cleveland, O., Sec. A. A. Anderson, Indianapolis, Man. W. T. Steele, Indianapolis, Auditor P. Wool-ridge, Louisville, Ky.  
**IRVINGTON, N. J.**—Newark & Irvington R.R. JACKSON, MICH.—Jackson City Ry. Co. — m, — g, — lb r, 11 c, 40 h. Pres. Hiram H. Smith, Treas. Samuel Hopewell, Gen. Supt. Henry H. Smith.  
**JACKSON, MISS.**—Jackson Street Ry. Co.  
**JACKSON, TENN.**—Jackson Street Ry. Co.  
**JACKSONVILLE, FLA.**—Pine St. R.R. Co. 2½ m, 5 g, 25 lb r, 4 c, 18 m. Owner & Gen. Man. G. H. Backinstae, Sec. & Treas. F. W. Backinstae.  
 Jacksonville St. Ry. Co. 2½ m, 5 g, 25 lb r, 10 c, 36 m. Pres. H. S. Haines, Savannah, Ga., V. Pres. & Sec. Geo. R. Foster, Treas. W. P. Hardee, Savannah, Ga., Supt. G. W. Haines.  
**JACKSONVILLE, ILL.**—Jacksonville Ry. Co.  
**JAMAICA, N. Y.**—Jamaica & Brooklyn R.R. Co. 10 m, 4-8½ g, 56-60 lb r, 29 c, 56 h. Pres. Aaron A. De-grauw, Sec. Martin J. Durea, Treas. Morris Fos-dick, Supt. Wm. M. Scott.  
**JAMESTOWN, N. Y.**—Jamestown St. Ry. Co. 3.67 m 4-8½ g, 30-42 lb r, 13 c, 15 h. Pres. R. N. Marvin, V. Pres. F. E. Gifford, Treas. A. N. Broadhead, Supt. G. E. Matby, Sec. & Atty. C. R. Lockwood.  
**JERSEY CITY, N. J.**—Jersey & Bergen R. R. Co. 21 m, 4-10 g, 60 lb r, 73 c, 494 h. Pres. Chas. B. Thurston, V. Pres. Wm. Keeney, Treas. C. B. Place, Sec. Warren E. Dennis, Newark, Supt. Thos. M. Sayre.



**JOHNSTOWN, N. Y.**—The Johnstown, Gloversville & Kingsboro Horse R.R. Co. 5½ m, 4-8½ g, 26 lb r, 6 c, 16 h. Pres. James Younglove, V. Pres. R. Fancher, Sec. & Treas., J. McLaren.

**JOHNSTOWN, PA.**—Johnstown Pass. R.R. Co. 7½ m, 5-3 g, 41-43 lb r, 13 c, 73 h. Pres. James McMillen, Sec. B. L. Yeagley, Treas. W. H. Rosenleet, Jr.

**JOLIET, ILL.**—Joliet City R.R. Co. 3½ m, 4-8½ g, 40 lb r, 16 c, 30 h. & mu. Owner, J. A. Henry, A. Bischenam, Cash. J. E. Henry.

**JOPLIN, MO.**—

**KALAMAZOO, MICH.**—Kalamazoo St. Ry. Co. 10 m, 4-8½ g, 35 lb r, 28 c, 80 h. Pres. Fred Bush, Sec. J. W. Boynton, Treas. P. H. Brown.

**KANSAS CITY, MO.**—Kansas City Cable Ry. Co. 2½ m, 4-8½ g, 45 lb r, 10 pass. cars, 10 dummy cars. Pres. Wm. J. Smith, Sec. W. H. Lucas, Eng. Robert Gillham. Supt. Edward J. Lawless.

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.

Jackson County Horse R.R. Co.

Kansas City & Rosedale St. Ry. Co.

Kansas City & Westport St. R.R. Co.

**KEOKUK, IA.**—Keokuk St. Ry. Co. 4 m, 4-8½ g, 27 lb r, 10 c, 42 h. Pres. Jas. H. Anderson, V. Pres. Jos. G. Anderson, Sec. R. James Anderson, Treas. & Supt. W. Z. Anderson.

**KINGSTON, ONT., CAN.**—Kingston St. R.R. Co. ¾ m, 3-6 g, 9 lb r, 10 c, 36 h. Pres. Robert Carson, Sec. & Treas. F. Sargent, Man. William Wilson.

**KNOXVILLE, TENN.**—Knoxville St. Ry. Co. 2 m, 4-8½ g, 22 lb r, 5 c, 2 hacks, 30 h. Pres. W. W. Woodruff, Sec. Treas. & Supt. T. L. Beaman.

**LACONIA, N. H.**—Laconia & Lake Village Horse R.R. 2¼ m, 3 g, 34 lb r, 5 c, 17 h. Pres. A. G. Folsom, Treas. Edmund Little, Man. Bela S. Kenniston.

**LA CROSSE, WIS.**—City Ry. Co. of La Crosse. 2¼ m, 4-9 g, 24 lb r, 5 c, 16 h, 3 mu. Pres. Geo. F. Gund, V. Pres. Jas. Vincent, Sec. Mills Tonetlotte, Treas. Fred Tillman, Supt. Geo. F. Smith.

La Crosse St. Ry. Co. Pres. B. E. Edwards, Treas. G. Van Steenyk, Sec. Mills Tourtellotte, Supt. Peter Valler.

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

**LAKE CITY, FLA.**—Lake City St. Ry. Co.

**LAMPASAS SPRINGS, TEX.**—Lampasas City Ry. Co. 3¼ m, 4-8½ g, 22 lb r, 6 c, 15 h. [Owned by Mrs. L. R. Snodgrass.] Gen. Man. Geo. M. Snodgrass.

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

Lancaster City St. Ry. Co.

**LARCHMONT, N. Y.**—Larchmont Manor Co. 1 m 4-8 g, 25 lb r, 2 c, 8 h. Pres. C. H. Murray, Treas. S. H. French, 38 East Fourteenth St., N. Y. City.

**LAWRENCE, KAN.**—Lawrence Transportation Co. 5 m, 4-1 g, 38 lb r, 7 c, 34 h. Pres. H. Tisdale, Sec. W. H. Bang.

**LAWRENCE, MASS.**—Merrimack Valley Horse R.R. Co. 5-4-5 m, 4-8½ g, 48 lb r, 20 c, 70 h. Pres. Wm. A. Russell, V. Pres. James Walton, Methuen, Clerk & Treas. James H. Eaton, Supt. A. N. Kimball, Lawrence.

**LEWISTON, ME.**—Lewiston & Auburn Horse R.R. Co. 7½ m, 4-8½ g, 32 lb r, 16 c, 45 h. Pres. Frank W. Dana, Lewiston, Clerk. H. C. Little, Lewiston, Treas. H. C. Packard, Auburn, Supt. E. P. Stinchfield, Auburn.

**LEXINGTON, KY.**—Lexington City Ry. Co. 5 m, 4-10 g, 30 lb r, 20 c, 85 h. Pres. John Cross, V. Pres. C. R. Dyer, Sec. & Supt. Bert. Cross.

**LEXINGTON, MO.**—Lexington St. Ry. Co.

**LIMA, O.**—Lima St. Ry. Co.

**LINCOLN, NEB.**—Capital City Ry. Co. 4m, 4-8-1 g, 25 lb r, 8 c, 64 h. Pres. & Treas. E. B. Durfee, Sec. & Supt. H. B. Durfee.

Lincoln St. Ry. Co. 6½ m, 10 c, 60 h. Pres. Frank L. Sheldon, Supt. L. P. Young.

**LITTLE ROCK, ARK.**—Little Rock St. Ry. Co. 4½ m, 5-10 g, 36 lb r, 9c, 80 mu. President T. J. Darragh, Sec. A. J. Thompson, Treas. C. F. Penzel, Supt. J. A. Garrett.

Citizens' St. Ry. Co. 4¼ m, 4-10 g, 20 lb r, 22 c, 80 h. Owned and operated by Little Rock Street Railway Co. Same officers.

**LOGANSPOUT, IND.**—Logansport Ry. Co. 2 m, 4 g, 28 lb r, 6 c, 29 mu. Pres. Frank G. Jaques, Sec. M. Jaques, Supt. Wm. P. Jaques, Office, Urbana, Ill.

**LONDON, CAN.**—London St. R.R. Co. 3 m, 4-8½ g, 30 lb r, 12 c, 30 h. Pres. V. Cronga, Sec. Jas. H. Flock, Supt. Henry Thos. Smith.

**LONG ISLAND CITY, N. Y.**—Stelway & Hunter's Point R.R. Co. 30½ m, 4-8½ g, 47 lb r, 65 c, 154 h. Pres. Wm. Stelway, Stelway Hall, N. Y. City. V. Pres. Henry A. Cassebeer, Jr., Stelway P. O., Long Island City, N. Y. Sec. & Treas. Chas. F. Trethar, Stelway Hall, N. Y. City. Supt. Chas. J. Campbell. Offices Stelway Hall, N. Y.

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

Long Island City & Newtown Ry. Co. 3 m, 4-8½ g, 45-55 lb r, 25 c, 60 h. Pres. Isaac Buchanan, N. Y. City, Sec. Geo. S. Crawford, Brooklyn, N. Y., Treas. Patrick J. Gleason, Supt. Michael Conway. Officers 112 Front St.

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

**LOS ANGELES, CAL.**—Boyle Heights R.R. Co. Central R.R. Co. and the Sixth & San Fernando St. R.R. Co. 7 m, 3-6 g, 16 lb r, 13 c. — h. Pres. E. T. Spencer, Sec. F. X. Palmer, Supt. J. A. Fairchild.

City R.R. of Los Angeles. 4½ m, 4-8½ g, 36 lb r, 9 c, 75 h. Pres. I. M. Hellman, V. Pres. W. J. Brodribb, Sec. John O. Wheeler, Supt. W. H. Hawks.

Los Angeles & Alliso Ave. St. R.R. Co.

Main St. & Agricultural Park R.R.

**LOUISVILLE, KY.**—Kentucky St. Ry. Co. 5 m, 5-2 g, — lb r, 22 c, — h. Pres. T. J. Minery, Sec. & Treas. Thos. Donigan.

Central Pass. R.R. Co. — m, — g, — lb r, — c, — h. Pres. —, V. Pres. Thos. J. Minery, Crescent Hill Ry. Co.

Louisville City Ry. Co. 63 m, 5 g, 58 lb r, 214 c, 1200 mu. Pres. Maj. Alexander Henry Davis, Syracuse, N. Y., V. Pres. St. John Boyle, Sec. & Treas. R. A. Watts, Supt. H. H. Little.

**LOWELL, MASS.**—Lowell Horse R.R. Co. 6 m, 8½ g, 28-47 lb r, 28 c, 100 h. Pres. Wm. E. Livingston, Gen. Man. J. A. Chase.

**LYNCHBURG, VA.**—Lynchburg St. R.R. Co. 2 m, 5-1 g, 26 lb r, 6 c, 31 h. Pres. Stephen Adams, Treas. John L. Adams, Supt. William M. Payne.

**LYONS, ILL.**—Clinton & Lyons Horse Ry. Co. 4½ m, 3-8 g, 19-30 lb r, 15 c, 40 h. Pres. D. Joyce, V. Pres. & Man. R. N. Rand.

**MACON, GA.**—Macon & Suburban St. R.R. Co. 5 m, 4-8½ g, 20 lb T r, 12 c, 60 h & mu. Pres. Jno. S. Bransford, Sec. & Supt. Jno. T. Voss. Office, 151 Second St.

**MADISON, IND.**—Madison St. Ry. Co. 2¼ m, 4 g, 15 lb r, 7 c, 8 h, 10 mu. Pres. Jacob Wendle, V. Pres. Peter F. Robenilus, Supt. & Treas. Chas. F. Tuttle.

**MADISON, WIS.**—Madison St. Ry. Co. 2¼ m, 3 g, 23 lb r, 6 c, 2 h. Pres. E. W. Keyes, V. Pres. Sec. & Treas. D. K. Tenney, Supt. G. W. Carse.

**MANCHESTER, N. H.**—Manchester Horse R.R. 5½ m, 3-¾ g, 27-34 lb r, 14 c, 55 h. Pres. S. N. Bell, Treas. Frederick Smyth, Clerk J. A. Weston, Supt. A. Q. Gage.

**MARSHALLTOWN, IA.**—3 m, 4 g, 25 lb r, 7 c, 20 h. Pres. B. T. Frederick, Treas. T. E. Foley, Sec. C. C. Gillman, Supt. A. E. Shorthill.

**MARYSVILLE, CAL.**—City Pass. R.R. Co. (No returns.)

**MAYSVILLE, KY.**—Maysville St. Ry. & T. Co. 3 m, 20 lb r, 4-8½ g, 6 c, 32 mu. Pres. L. W. Robertson, Sec. & Treas. W. S. Frank.

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

**MEMPHIS, TENN.**—Memphis City R.R. Co. 18 m, 5 g, 38-40 lb r, 66 c, 320 h. Pres. R. Dudley Frayser, V. Pres. Thos. Barrett, Supt. W. F. Shippey.

**MERIDIAN, MISS.**—Meridian St. Ry. Co. 1½ m, 4-8 g, 16 lb r, 3 c, 12 h. Pres. J. J. Shannon, V. Pres. J. L. Handley, Sec. R. M. Houston.

**MIDDLETOWN, O.**—Middletown & Madison St. Ry. Co.

**MILLERSVILLE, PA.**—Lancaster & Millersville St. R.R. Co.

**MILWAUKEE, WIS.**—Cream City R.R. Co. 8-1-6 m, 4-8½ g, 27-38 lb r, 74 c, 307 m, 2 h. Pres. Winfield Smith, V. Pres. Christian Preusser, Treas. Ferdinand Knehn, Sec. Wm. Dankoehler, Supt. H. J. C. Berg.

Milwaukee City Ry. Co. 30 m, 4-8½ g, 27 lb iron & 45 lb steel r, 80 c, 450 h. Pres. Peter McGeoch, Sec. & Treas. Geo. O. Wheatcroft.

West Side St. Ry. Co. Owner & Manager, Washington Becker, Supt. — McNaughton.

**MINNEAPOLIS, MINN.**—Minneapolis St. Ry. Co. 45 m, 3-6 g, 27-35-45 lb r, 146 c, 725 h and mu. Pres. Thos. Lowry, V. Pres. C. Morrissey, Treas. W. W. Herrick, Sec. & Supt. C. G. Goodrich.

**MOBILE, ALA.**—City R.R. Co. 17½ m, 5-2 g, 35 lb T r, 68 c, 240 h. Pres. Jno. Maguire, Sec. I. Strausse, Treas. Myer I. Goldsmith, Supt. A. Moog.

Dauphin & Lafayette St. Ry. Co. 2 m, 5-2½ g, 40 lb r, 9 c, 22 h. Pres. D. P. Bestor, V. Pres. G. Y. Overall, Sec. & Treas. James W. Gray, Pur. Agt. & Man. J. G. Robertson.

Mobile & Spring Hill R.R. Co. 8 m, 5-2½ g, 35 lb r, 15 c, 35 h, 1 dummy. Pres. Daniel McNeill, Sec. & Treas. C. F. Sheldon, Man. F. Ingate.

**MOHAWK, N. Y.**—Mohawk & Ilion R.R. Co. 1¼ m, 4-8½ g, 30 lb r, 4 c (contract for motive power). Pres. O. W. Bronson, V. Pres. John Brown, Sec. H. D. Alexander, Treas. R. M. Devendorf, Supt. O. W. Bronson.

**MOLINE, ILL.**—Moline Central St. Ry. Co. 1¼ m, — g, — lb r, 3 c, 11 h. Pres. S. W. Wheelock, V. Pres. M. Y. Cady, Sec. W. R. Moore, Treas. C. F. Hemenway.

Moline & Rock Island St. Ry. Co. 5 m, 4-8½ g, 20 lb r, 13 c, 41 h. Pres. J. Huntoon, Sec. I. M. Buford, Treas. C. Lyons, Supt. Wm. Gamble.

**MONTGOMERY, ALA.**—Capital City St. Ry. Co. Electric motor.

**MONTREAL, CAN.**—Montreal City Pass. Co. 21 m, 4-8½ g, — lb r, 76 c, 465 h. Pres. Jesse Joseph, V. Pres. Alex. Murray Sec. & Man. Ed. Lusher, Supt. T. H. Robillard.

**MOULTRIEVILLE, S. C.**—Middle St. & Sullivan's Landing Ry.

**MUSCATINE, IA.**—Muscatine City Ry. Co. 3½ m, 3-6 g, 21 lb r, 7 c, 19 b. Pres. Peter Musser, V. Pres. D. C. Richmond, Sec. T. R. Fitzgerald, Treas. S. M. Hughes, Supt. O. J. Chapman.

**MUSKOGON, MICH.**—Muskegon Ry. Co. 4½ m, 3-6 g, 20 lb r, 8 c, 26 h, 8 mu. Pres. F. A. Nims, V. Pres. Chas. Merriam, Boston, Mass., Sec. Thomas Munroe, Treas. G. R. Sherman, Supt. C. H. Newell.

**NASHUA, N. H.**—Nashua St. Ry. Co.

**NASHVILLE, TENN.**—Nashville & Edgefield R.R. Co. Fatherland Street Railway Co. North Edgefield and Nashville St. R.R. Co. one management. 5 m, 5 g, 16-20-32 lb r, 21 c, 100 mu Pres. Jno. P. White, Sec. & Treas. H. B. Stubblefield, Supt. Daingerfield Deaderick.

McGavock & Mt. Vernon Horse R.R. Co. 7½ m, 5 g, 16-20-28-32 lb r, 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 lb r, 10 c, 68 h. Pres. W. M. Duncan, Sec., Treas. & Supt. C. L. Fuller.

**NEW ALBANY, IND.**—New Albany St. Ry. Co. 6 m, 4-11½ g, 25 lb r, 15 c, 55 h. & mu. Pres. Geo. T. Vance, Treas. Letitia V. Vredenburg, Supt. & Pur. Agt. Wm. L. Timberlake.

**NEWARK, N. J.**—The Newark & Bloomfield St. R.R. Co. 7 m, 5-2½ g, 47 lb r, 22 c, 140 h. Pres. S. S. Battin, Sec. W. L. Mulford, Supt. H. F. Totteu.

Broad St. R.R.

**NEW BEDFORD, MASS.**—New Bedford & Fairhaven St. Ry. Co. 7½ m, 4-8½ g, 35-45-50 lb r, 428 c, 140 h. Pres. Warren Ladd, Treas. & Clerk, Andrew G. Pierce.

Acushnet St. R.R. Co., 6 m, 4-8½ g, 38 lb r, 29 c, 103 h. Pres. Chas. E. Cook, Sec. & Treas. A. P. Smith.

**NEWBURYPORT, MASS.**—Newburyport &

Amesbury Horse R.R. Co. 6-1-3 m, 12 c, 54 h. Pres. W. A. Johnson, Treas. N. H. Shepard, Sec. Geo. H. Stevens. Lessee. E. P. Shaw.

**NEW HAVEN, CONN.**—Fair Haven & Westville R.R. Co. 7 m, 4½ g, 42 lb r, 23 c, 150 h. Pres. H. B. Ives, Sec. & Treas. L. Candee, Supt. Walter A. Graham.

New Haven & Centreville Horse R.R. Co. 2½ m, 4-8½ g, 42 lb r, 4 c, 30 h. Trustee Cornelius Pierpont. State Street Horse R.R. Co. 2¼ m, 4-8 g, 43 lb r, 4 c, 40 h. Pres. C. A. Warren, Sec. & Treas. C. C. Blatchen. The Whitney Ave. Horse Ry. 2¼ m, 4-8½ g, 25 lb r, 3 c, 25 h. Pres. Geo. H. Watrous, Sec. George D. Watrous, Treas. Ell Whitney, Jr.

**NEW ORLEANS, LA.**—Canal & Claiborne St. R.R. Co. 13 m, 5-2½ g, 27 lb r, 40 c, 200 h. Pres. E. J. Hart, Sec. & Supt. Jos. H. DeGrange.

Crescent City R.R. Co. 26 m, 5-2½ g, 35-45 lb r, 90 c, 400 h. Pres. Frank Roder, Sec. & Treas. Jno. J. Juden, Supt. A. V. Smith.

New Orleans St. R.R. Co.

Orleans R.R. Co. — m, — g, — lb r, 22 c, 140 h. & mu. Pres. & Supt. H. Larque, Sec. & Treas. P. Cougot, Office, cor. White & Laharpe Sts.

St. Charles St. R.R. Co. 15 m, 5-2½ g, 25 lb r, 60 c, 366 m. Pres. & Supt. Alden McLellan, Sec. Vincent Riviere.

New Orleans & Carrollton R.R. Co. 8 m, 4-8½ g, 30-45 lb r, 65 c, 200 h, 19 engines. Pres. Wm. Benthuysen, Sec. Walter F. Crouch, Supt. C. V. Halle.

New Orleans City & Lake R.R. Co. 64 m, 5-2½ g, 46-40 lb r, 180 c, 39 coaches, dummy engines, 1050 mu. Pres. J. A. Walker, Sec. W. E. Leverich, Supt. F. Wintz.

**NEWPORT, KY.**—Newport St. R.R. Co.

**NEW YORK, N. Y.**—Ninth Ave. R.R. Co. 8 m, 4-8½ g, 60 lb r, 52 c, 530 h. Pres. W. H. Hays, Sec. & Treas. James Affleck, Supt. Heman B. Wilson. Offices, Ninth Ave., cor. 54th St.

Broadway & Seventh Ave. R.R. Co. 7 m, 4-8½ g, 47-60 lb r, 150 c, 1,350 b. Pres. James W. Foshay, Sec. & Treas. Thos. B. Kerr, Supt. Henry A. Newell. Office 761, Seventh Ave.

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. Carmack, Sec. & Treas. Milton L. Masson, Office 265 Ave. A.

Central Park North & East River R.R. Co. 14 m, 4-8½ g, 60 lb r, 162 c, 1,225 h. Pres. J. H. Scribner, V. Pres. C. D. Wyman, Sec. H. Scribner, Treas. J. L. Valentine, Supt. M. W. A. Harris. Office, Tenth Ave., 53d & 54th St.

Christopher & Tenth St. R.R. Co. 5 m, 4-5 g, 45 lb r, 47 c, 290 h. Pres. Jacob Sharp Treas. W. T. Hatch, Sec. & Supt. George W. Lynch. Office, 168 Christopher St.

Dry Dock, East Broadway & Battery R.R. Co. 11¼ m, 4-8½ g, 60 lb r, 187 c, 1,132 h. Pres. William White, Auditor E. T. Landon, Sec. & Treas. Richard Kelly, Supt. Fred F. White. Offices, 605 Grand St.

Eighth Ave. R.R. Co. 10 m, 4-8½ g, 60 lb r, 112 c, 1,155 h. Pres. W. H. Hays, Sec. & Treas. James Affleck, Supt. H. B. Wilson. Office, Eighth Ave., & 50th St.

Forty-Second Street & Grand Street Ferry R.R. Co. 5½ m, 8-4 g, 64 lb r, 50 c, 500 h. Pres. Chas. Curtis, Sec. & Treas. E. S. Allen, Supt. John M. Calhoun. Office, 653 W. 23d St.

Harlem Bridge, Morrisania & Fordham Ry. 4½ m, 4-8½ g, 45-60 lb r, 65 c, 233 h. Pres. Henry Spratley, V. Pres. Richard M. Hoe, Sec. & Treas. Wm. Caldwell. Office, North Third Ave. near 170 St.

Houston, West Street & Pavonia Ferry R.R. Co. 5 m, 4-8½ g, 60 lb r, 50 c, 400 h. Pres. Richard Kelly, Sec. & Treas. Daniel B. Hasbrook. Office, 415 E. 10 St.

Jerome Park R.R. 1 m, 4-8½ g, 50-56 lb r. Pres. Leonard M. Jerome, Sec. Fred A. Lovcraft, Treas. Theodore Moss. Office, cor. 5th Ave. & 23d St.

New York City St. Ry. Co. 10 m, [not in operation]. Pres. Loomis L. White, Sec. W. L. McCorkle, Treas. Wm. L. Skidmore.

New York & Harlem R.R. Co. 17½ m, 4-8½ g, 60-75 lb r, 161 c, 1,560 h. Pres. —, V. Pres. —, Sec. Cornelius Vanderbilt, Treas. Ed. V. W. Rossier, Supt. Alfred Skitt, Pur. Agt. P. S. Bemis.

Sixth Ave. R.R. Co. 4 m, 4-8½ g, 60 lb r, 127 c, 1296 h. Office, 756 Sixth Ave.

South Ferry Ry. Co. 1¼ m, 4-8½ g, 60 lb r, 13 c, 41 h. Pres. Henry Hart, Sec. Wm. N. Cohen, Treas. Albert J. Elias, Supt. Chas. H. Meeks. Office 20 Whitehall St.

The Second Ave. R.R. Co. 13 m, 4-8½ g, 60 lb r, 316 cars, 1750 h. Pres. W. Thorn, V. Pres. J. Wadsworth, Sec. & Treas. J. B. Underhill. Office Second Ave. cor. 96th St.

The Third Ave. R. R. Co. 16 m main line, 6½ m 10th Ave, cable line, 4 m 125th street cable line, 4-8½ g, 60 & 74 lb r, 318 c, 2150 h. Pres. Lewis Lyon, 739 Madison ave., V. Pres. Henry Hart, 110 Tribune Building, Sec. Alfred Lazarus, 436 W. 61st st., Treas. John Beaver, 211 E. 112th st., Supt. John H. Robertson, 307 E. 65th st.

Twenty-third St. R.R. Co. 7 m, 4-8½ g, 54 lb r, 102 c, 692 h. Pres. Jacob Sharp, Sec. Thos. H. McLean, Treas. Lewis May, Act-Supt. George Ferry. Office 621 West 23d St.

**NIAGARA FALLS, N. Y.**—Niagara Falls & Suspension Bridge Ry. Co. 2¼ m, 4-8½ g, 38-42 lb r, 8 c, 36 h. Pres. Benj. Flagler, Sec. W. J. Mackay, Treas. A. Schoellkopf.

**NORFOLK, VA.**—Nortolk & City R.R. Co. 3¼ m, 5-2 g, 44 lb r, 18 c, 65 h. Pres. John B. Whitehead Treas. H. C. Whitehead, Supt. E. W. Savage.

**NORTHAMPTON, MASS.**—Northampton St. Ry. Co. 3¼ m, 4-8½ g, 32 lb r, 7 c, 26 h. Pres. Oscar Edwards, Sec. M. H. Spaulding, Treas. & Sup. E. C. Clark.

**NORWALK, CONN.**—Norwalk Horse R.R. Co. 2 m, 4-10 g, — lb r, 7 c, 20 h. Pres. James W. Hyatt, V. Pres. & Sec. Edwin G. Hoyt, Sup. James W. Hyatt.

**NORWICH, CONN.**—Norwich Horse R.R. Co.

**OAKLAND, CAL.**—Alameda, Oakland & Piedmont R.R.

Berkley Villa R.R.

Broadway & Piedmont St. R.R. Co.

Fourteenth St. R.R. Co. 6 m, 5 g, 30-30 lb r, 6 c, — h. Pres. & Supt. Walter Blair, Sec. P. J. Van Loben. Oakland R.R. Co.

**OGDEN CITY, UTAH.**—Ogden City Ry. Co.

3 m, 4-8 1/2 g, 20 lb r, 4 c, 21 h. Pres. L. W. Shurtleff, Ogden City, V. P. & Supt. O. P. Arnold, Salt Lake City, Sec. & Treas. H. S. Young, Ogden City.

**OLEAN, N.Y.**—Olean St. Ry. Co. 1-1-10 m, 3-6 g, 25 lb r, 3 c, 8 h. Pres. M. B. Fobes, Sec. & Treas. M. W. Barse.

**OMAHA, NEB.**—Omaha Horse Ry. Co. 15 m, 4-8 1/2 g, 35 lb r, 40 c, 300 h. Pres. Frank Murphy, V. Pres. Guy C. Barton, Treas. W. W. Marsh, Supt. W. A. Smith.

**ONEIDA VILLAGE, N.Y.**—Oneida Ry. Co. 2 m, 4-8 1/2 g, 47 lb r, 3 c, 6 h. Pres. Jerome Hickox, Sec. & Treas. W. E. Northrup, Supt. Chas. Bonta.

**OSHKOSH, WIS.**—Oshkosh St. R.R. Co. 3 1/2 m, 4-8 1/2 g, 27 lb r, 9 c, 24 h. Pres. Leander Choate, V. Pres. F. Zentner, Sec. & Treas. J. Y. Hull, Supt. F. L. Thompson.

**OSWEGO, N.Y.**—Oswego St. Ry. Co. 2 m, 4-8 1/2 g, 45 lb r, 3 c, 23 h. Pres. Jas. F. Johnson, V. Pres. R. J. Oliphant, Sec. Haynes L. Hart, Treas. Robt. G. Post, Gen. Man. James O'Connor.

**OTTAWA, ONT.**—Ottawa City Passenger Ry. Co. 3 m, 4-8 1/2 g, 34 lb r, 1 c, 40 h. Pres. Thomas C. Keefe, V. Pres. R. Blackburn, Sec. James D. Traser.

**OTTUMWA, IA.**—Ottumwa St. R.R. Co. 2 m, 3-6 g, 27 lb r, 4 c, 24 h, 14 mu. Pres. J. M. Hedrick, Sec. & Treas. H. L. Hedrick, Supt. C. M. Hedrick.

Mineral Springs St. Ry. 1 m, 3 1/2 g, 16 lb T r, 1 c 4 h. Owner, L. E. Gray.

**PADUCAH, KY.**—Park R.R. Co.

**PARIS, TEX.**—Paris St. Ry. Co.

**PATERSON, N.J.**—Paterson & Passaic R.R. Co. 7 m, 4-10 g, 33 lb r, 19 c, 24 h. Pres. John N. Terlune, Treas. John L. Brown, Sec. W. S. Brown, Man. & Pur. Agt. Ambrose T. King, Supt. M. O. Rourke.

Paterson City R.R. Co. 6 1/2 m, 4-8 1/2 g, 35 lb r, 12 c, 51 h. Pres. Garrett Planten, Treas. Helmas Romaine, Sec. Albert A. Wilcox.

**PENSACOLA, FLA.**—Pensacola St. Ry. Co.

**PEORIA, ILL.**—Central City Horse Ry. Co. 4 1/2 m, 4-8 1/2 g, 40 lb r, 60 c, 135 h. Pres. H. R. Woodward, Sec. M. Pfeiffer, Treas. Elliot Callender, Supt. John Strong.

Fort Clark Horse Ry. Co.—m,—g,—lb r,—c,—h.— Pres. J. H. Hall.

Peoria Horse Ry. Co. 7 1/2 m, 4-8 1/2 g, 40 lb r, 63 c, 140 h. Pres. H. Woodward, Sec. M. Pfeiffer, Treas. H. N. Wheeler, Supt. John Strong.

**PETERSBURGH, VA.**—Petersburgh St. Ry. Co. 3 1/2 m, 4-8 1/2 g, 43 lb r, 9 c, 41 h. George Beadle, Prop.

**PHILADELPHIA, PA.**—Citizens Pass. Ry. Co. 10 1/2 m, 5-2 g, 45-47 lb r, 92 c, 420 h. Pres. John McCarthy, Sec. & Treas. John J. Adams, Supt. Sam'l Cline.

Frankford & Southwark Phila. City Pass. R.R. Co. 18 m, 5-2 g, 47 lb r, 102 c, 8 dummy c, 618 h. Pres. Alfred Smith, Sec. & Treas. Geo. S. Gandy, Supt. W. H. Janney.

Hestonville, Mantua & Fairmount Pass. R.R. Co. 20 m, 6-2 g, 43 lb r, 50 c, 480 h. Pres. Charles F. Lafferty, Sec. & Treas. W. C. Foster.

Lehigh Ave. Pass. Ry. Co. Pres. John Lamson, Sec. Chas. A. Porter, Treas. John L. Hill. (Track not laid.)

Lombard & South Sts. Pass. Ry. Co. —m,—g,—lb r,—c,—h.— Pres. John B. Parsons, Sec. & Treas. Francis Hazellhurst, Supt. Jno. M. Gaughen.

People's Pass. Ry. Co. 4 1/2 m, 5-2 g, 47 lb r, 125 c, 1,080 h. Pres. C. J. Harrah, V. Pres. C. J. Harrah, Jr., Sec. & Treas. Jno. C. Dessolet, Supt. Wm. Hagenswiler.

Philadelphia City Pass. Ry. Co. 7 m, 5-2 1/2 g, 47 lb r, —c,—h.— Pres. Wm. W. Colket, Sec. & Treas. T. W. Pannypacker. (Leased to Phila. Traction Co.)

Philadelphia Traction Co. 109 m, 5-2 1/2 g, 45-78 lb r, 594 c, 2,912 h. Pres. W. H. Kemble, V. Pres. P. A. B. Widener & W. L. Elkins, Treas. D. W. Dickson.

Philadelphia & Gray's Ferry Pass. R.R. Co. 10 1-3 m, 40 c, 200 h. Pres. Matthew Brooks, Treas. J. C. Dawes, Sec. J. Crawford Dawes, Supt. Patrick Lovett.

Ridge Avenue Pass. Ry. Co. 14 m, 5-2 g, 47 lb r, 55 c, 352 h. Pres. E. B. Edwards, V. Pres. John Lambert, Sec. & Treas. Wm. S. Blight, Supt. William Ingles.

Second & Third Sts. Pass. Ry. Co. 37 m, 116 c, 669h. Pres. Alexander M. Fox, Treas. William F. Miller, Sec. Charles D. Matlack, Supt. David W. Stevens.

Seventeenth & Ninetecuth Sts. Pass. Ry. Co. 7 1/2 m. Pres. Matthew S. Quay, Sec. & Treas. John B. Peddie. (Leased to Philada. Traction Co.)

Thirteenth & Fifteenth Sts. Pass. Ry. Co. 14 m, 5-2 g, 43 lb r, 73 c, 452 h. Pres. Thos. W. Ackley, Sec. & Treas. Thos. S. Harris, Supt. Wm. B. Cooper.

Union Pass. Ry. Co. 70 m, 348 c, 1,724 h. Pres. Wm. H. Kemble, Sec. & Treas. John B. Peddie, Supt. Jacob C. Petty. (Leased to Phila. Traction Co.)

West Philadelphia Pass. Ry. Co. 18 1/2 m, 122 c, 646 h. Pres. Peter A. B. Widener, Sec. & Treas. D. W. Dickson. (Leased by the Phila. Traction Co.)

**PHILLIPSBURGH, N.J.**—Phillipsburgh Horse Car Ry. Co. 2 1/2 m, 4-8 g, 25 lb r, 4 c, 13 h. Pres. Daniel Runkle, Sec. & Treas. James W. Long.

**PITTSBURGH, PA.**—Central Pass R.R. Co. 3 m, 16 c, 95 h. Pres. J. F. Clutey, Sec. F. L. Stephenson, Treas. E. R. Jones, Supt. R. G. Hebron.

Beaver Falls & New Brighton Ry. Co. (Citizens' Pass. Ry. Co.) 16 1/2 m, 5-2 g, 47 lb r, 40 c, 337 h. Pres. Jno. G. Holmes, Sec. C. M. Gormly, Supt. Murry Verner.

Federal St. & Pleasant Valley Pass. Ry. Co. 26 m, 5-2 1/2 g, 46-50 lb r, 20 c, 154 h. Pres. Wm. H. Creery, Sec. R. F. Ramsey, Treas. James Boyle, Supt. Wm. J. Crozier, Allegheny City.

People's Park Pass. Ry. Co. 2 m, 5-2 1/2 g, 45 lb r, 10 c, 75 h. Pres. Wm. McCreery, Sec. R. F. Ramsey, Treas. James Boyle, Supt. Wm. J. Crozier, Allegheny City.

Pittsburgh, Allegheny & Manchester Pass. Ry. Co. 5 m, 5-2 1/2 g, 46 lb r, 40 c, 275 h. Pres. Chas. Atwell, Sec. & Treas. Chas. Seibert, Supt. James C. Cotton, Manager J. P. Speer.

Pittsburgh, Oakland & East Liberty Pass. Ry. Co. 11 m, 5-4 1/2 g, 47 lb r, 32 c, 110 h, 61 mu. Pres. J. T. Jordan, Sec. John G. Traggardth, Treas. D. W. C. Biddell, Supt. H. M. Cherry.

Pittsburgh Union Pass. R.R. Co. 5 m, 5-2 1/2 g, 45 lb r, 29 c, 170 h. Pres. Chas. Atwell, Supt. James C. Cotton, Sec. & Treas. Chas. Seibert, Casb. Saml. C. Hunter.

Pittsburgh & Birmingham Pass. R.R. Co. 3 1/2 m, 5-

2 1/2 g, 48 lb r, 20 c, 170 b. Pres. W. W. Patrick, Sec. D. B. Agnew, Treas. John G. Holmes.

Pittsburgh & West End Pass. Ry. Co. 3 1/2 m, 5-2 g, 35 lb r, 13 c, 75 h. Pres. John C. Kelly, Sec. & Treas. Thomas S. Bigelow, Supt. William J. Burns.

Pittsburgh & Wilkesburg St. Ry. Co.

60th Avenue Pass. Ry. Co. 3 1/2 m, 5-2 1/2 g, 47 lb r, 8 c, 60 h. Pres. Geo. Fawcett, Sec. Jas. F. Fawcett, Treas. W. J. Fawcett.

South Side Pass. R.R. Co. 2 1/2 m, 5-2 1/2 g, 45 lb r, 12 c, 80 h. Pres. D. Z. Brickell, Sec. & Treas. W. T. Wallace, Supt. W. M. Rosborough.

Transverse Pass. Ry. Co. 6 1/2 m, 5-2 g, 52 lb r, 39 c, 243 h. Pres. C. L. Magee, V. Pres. C. E. Klopfer, Sec. & Treas. Wm. R. Ford, Supt. Miller Elliot.

**PITTSBURGH, PA.**—Pittsburgh St. R.R. Co. 1 1/2 m, 3 c, 5 h. Pres. Thomas Griffith, Treas. M. W. Morris, Sec. William Allen.

**PORT HURON, MICH.**—Port Huron St. Ry. Co. 6 1/2 m, 4-8 1/2 g, 7 c, 22 h. Pres. Jno. P. Sanborn, V. Pres. Frank A. Beard, Sec. Treas. & Man. J. R. Was-tell.

**PORTLAND, ME.**—Ocean St. R.R. Co.

Portland R.R. Co. 7 1/2 m, 4-8 1/2 g, 30-33 1/2 lb r, 34 c, 154 h. Pres. H. J. Libby, Treas. & Gen. Man. E. A. Newman, Supt. Geo. W. Soule.

**PORTLAND, ORE.**—Portland St. Ry. Co. 1 1/2 m, 3-6 g, 42 lb r, 9 c, 35 h. Pres. D. P. Thompson, Sec. & Supt. C. K. Harbaugh.

Multnomah St. Ry. Co. 2 1/2 m, 3-6 g, 30 lb r, 19 c, 65 h. Pres. A. N. King, Sec. E. A. King.

Transcontinental St. R.R. Co. 3 m double, 3-6 g, 15 c, 63 h. D. W. Wakefield, Sec., Tyler Woodward, Supt.

**PORTSMOUTH, O.**—Portsmouth St. R.R. Co. 2 m, 3-6 g, 18 lb r, 4 c, 10 h. Pres. James Skelton, Treas. Sec. & Supt. Enas Reed.

**POTTSTOWN, PA.**—People's Ry. Co. 9 1/2 m, 16 c, 66 h.

**POUGHKEEPSIE, N.Y.**—City R.R. of Pough-keepsie. 3 m, 4-8 1/2 g, 35-42 lb r, 11 c, 38 h. Pres. Geo. B. Adrance, V. Pres. & Treas. Hudson Taylor Sec. A. B. Smith, Supt. C. M. Davis. Office 491 Main St.

**PROVIDENCE, R. I.**—Union R.R. Co. 53 m, 4-8 1/2 g, 47-51 lb r, 230 c, 1,300 h. Pres. Jesse Metcalf, V. Pres. & Gen. Man. D. F. Longstreet, Sec. and Treas. C. A. Babcock.

**QUEBEC, CAN.**—Quebec St. Ry. Co. 3 m, 4-8 1/2 g, 55 lb r, 9 c, 40 h. Pres. Chas. St. Michel, Quebec, V. Pres. G. R. Renfrew, Quebec, Sec., Treas. & Supt. Samuel Moore.

Quebec R.I. Co. St. John St. R.R.

**QUINCY, ILL.**—Quincy Horse Ry. & Carrying Co. 6 m, 5 g, 71 lb r, 21 c, 118 mu. Pres. Lorenzo Bull, Sec. C. H. Bull, Supt. E. K. Stone.

**RACINE, WIS.**—Belle City St. Ry. Co. 1 m 4 g 30 lb r, 9 c—40 h. Pres. John T. Fish, Sec. & Treas. E. S. Dodge, Gen. Man. Geo. B. Hathaway.

**RAPID CITY, DAK.**—Rapid City St. Ry. Co. Pres. Fred T. Evans.

**READING, PA.**—Reading City Pass. Ry. Co. 2 1-5 m, 5-2 1/2 g, 45 lb r, 19 c, 41 h. Pres. B. F. Owen, V. Pres. Jas. L. Douglass, Sec. & Treas. H. A. Muhleberg, Supt. J. A. Riggs.

Perkiomen Ave. Pass. Co. 2 1-5 m, 5-2 1/2 g, 45 lb r, 14 c, 36 h. Pres. Chas. Brenesler, Sec. & Treas. Isaac Hlester, Supt. John B. Houpp.

**RED OAK, IA.**—Red Oak St. R.R. Co. 1 1/2 m, 4-2 1/2 g, flat r, 2 c, 2 h, 2 mu. Pres. J. W. Judkins, V. Pres. Geo. West, Sec. F. M. Byricket, Treas. & Supt. F. O. Judkins.

**RICHMOND, IND.**—Richmond City Ry. Co. 3 m, 3 g, 9 lb r, 10 c, 30 h. Pres. J. Y. Miller, V. Pres. Joseph Rathff, Treas. H. I. Miller, Supt. F. M. Francis-co.

**RICHMOND, ILL.**—Richmond St. R.R. Co.

**RICHMOND, VA.**—Richmond City Ry. Co. 7 m, 4-8 1/2 g, 90-10 lb r, 40 c, 180 h. Pres. J. H. Schoolcraft, Sec. & Treas. F. D. Mellen, Man. C. M. Baeton, Supt. Charles Sleders.

**ROCHESTER, N.Y.**—Rochester City & Brighton R.R. Co. 37 m, 4-8 1/2 g, 25-30-45 lb r, 142 c, 596 h. Pres. Patrick Barry, Sec. C. C. Woodworth, Treas. C. B. Woodworth, Supt. Thomas J. Brower.

Citizens' St. Ry. Co. Pres. Wm. H. Jones, Sec. & Treas. J. E. Pierpont, Supt. S. A. Green.

**ROCKFORD, ILL.**—Rockford St. Ry. Co. 6 2-5 m, 4-8 1/2 g, 20 lb r, 13 c, 82 h, 16 m. Pres. Anthony Illanes, V. Pres. L. Rhodes, Sec. Miss A. C. Arnold, Treas. E. Lyman, Supt. Fred. Haines.

**ROCK ISLAND, ILL.**—Rock Island & Milan St. Ry. Co. 7 m, 4-8 1/2 g, 20-30-42 lb r, 10 c, 7 h. Pres. & Supt. Bally Davenport, Sec. E. H. Hunt, Treas. J. F. Robinson, 2 m, with horses, 5 m, with motor.

**RONDOT, N.Y.**—Kingston City R.R. Co. 2 4-5 m, 4-8 1/2 g, 40 lb r, 10 c, 40 h. Pres. James G. Linds-ley, V. Pres. S. D. Coykendall, Sec. & Treas. John C. Romeyer, Supt. Wm. H. DeGarmo.

**SACRAMENTO, CAL.**—Sacramento City St. R.R. Co.

**SAGINAW, MICH.**—City of Saginaw St. R.R. Co. 2 1/2 m, 4-8 1/2 g, 42 lb r, 10 c, 50 h. Pres. David H. Jerome, V. Pres. Geo. F. Williams, Sec. & Treas. Geo. L. Burrows, Supt. Fred G. Benjamin.

**SALEM, MASS.**—Salem & Danvers St. Ry. Co. 6 m, 4-8 1/2 g, 35-47 lb r, 15 c, 45 h. Pres. Benj. W. Russell, Sec. G. A. Vickers, Treas. Geo. W. Williams, Supt. W. B. Furgurson, Asst. Supt. David N. Cook.

Naumkeag St. Ry. Co. —m,—4-8 1/2 g, 30-35-45 lb r, 50 c, 140 h. Pres. Chas. Odell, Clerk Joseph F. Hickey, Treas. Henry Wheatland, Supt. Willard B. Ferguson.

**SALT LAKE CITY, UTAH.**—Salt Lake City R.R. Co. 13 m, 4-8 1/2 g, 20 lb r, 20 c, 115 mu. Pres. John Taylor, Sec. David McKenzie, Treas. James Jack, Supt. Orson P. Arnold.

**SAN ANTONIO, TEX.**—San Antonio St. Ry. Co. 15 m, 4 g, 30 lb r, 35 c, 125 mu. Pres. A. Belknap, San Antonio, V. Pres. F. W. Pickard, N. Y. City, Treas. I. Withers, San Antonio, Sec. E. R. Norton, Supt. John Robb.

Prospect Hill St. Ry. Co.

**SANDUSKY, O.**—Sandusky St. Ry. Co. 2 m, —g,—lb r,—c,—h.— Pres. Chas. B. Ods, Sec. & Treas. A. C. Morse, Supt. Clark Rude.

**SAN FRANCISCO, CAL.**—California St. R.R. Co. Central R.R. Co. 6 m, 5 g, 45 lb r, 31 c, 290 h. Pres. Chas. Main, V. Pres. Jos. Roseberg, Treas. A. J. Gunnison, Sec. C. P. LeBreton, Supt. J. F. Clark.

Clay St. Hill R.R. Co. 1 m, 3-6 g, 30 lb r, 11 c, 12

dummy cars. Pres. Joseph Britton, V. Pres. James Moffit, Treas. Henry L. Davis, Sec. Chas. P. Campbell, Supt. Joseph Britton.

Clay St. Park & Ocean R.R. Co.

Market St. Cable Ry. Co. 10-9-10 m, 4-8 1/2 lb r, 137 c, 2 motors, 73 h. Pres. Lehard Stanford, V. Pres. Chas. F. Crocker, Treas. N. T. Smith, Sec. J. L. Willcutt.

North Beach & Mission R.R. Co. 8 m, 5 g, 46 c, 400 h. Pres. Jos. Rosenberg, Sec. H. W. Hathorne, Treas. Carl Ahfel, Supt. M. Skelly.

Omnibus R.R. & Cable Co. 8 1/2 m, 5 g, 35-45 lb r, 50 c, 364 h. Pres. Gustav Sutro, V. Pres. D. Callaghan, Sec. G. Ruegg, Supt. M. Martin.

Portrero & Bay View R.R. Co. 1 1/2 m, 5 g, 35 lb r, 20 c, 64 h. Pres. Leland Stanford, V. Pres. Chas. Crocker, Treas. N. T. Smith, Sec. J. L. Willcutt.

Sutter St. R.R. Co. 5 1/2 m, 4-11 g, 35-45 lb r, 30 c, 125 h. Pres. R. F. Morrow, Sec. A. K. Stevens, Treas. M. Schmitt, Supt. James McCord.

Telegraph Hill St. Ry. Co. 1,707 ft, 4-11 g, 36 lb r, 3 c, —h.— Pres. Gustav Sutro, V. Pres. E. O. Dem-icke, Sec. & Treas. C. J. Werner.

The City R.R. Co. 5 1/2 m, 5 g, 48 lb r, 73 c, 285 h. Pres. R. B. Woodward, V. Pres. Geo. E. Raum, Sec. M. E. Willis, Treas. J. H. Goodman, Supt. William Woodward.

**SAN JOSE, CAL.**—San Jose & Santa Clara R.R. Co.

First St. & San Pedro St. Depot R.R. Co. Market St. & Willow Glen R.R. Co. North Side R.R. Co. People's R.R. Co.

**SANTA BARBARA, CAL.**—Santa Barbara St. R.R. Co. 1 m, 3-6 g, 3 c, 8 mu. Pres. A. W. McPhail.

**SAUGATUCK, CONN.**—Westport & Saugatuck Horse R.R.

**SAVANNAH, GA.**—City & Suburban Ry. Co. 18 1/2 m, 5 g, 16-30 lb r, 49 c, 110 h, 3 engines. Pres. J. H. Johnson, Asst. J. W. Alley, Treas. E. Schmidt.

Coast Line R.R. Co. 7 m, 5 g, 30 lb r, 17 c, 37 h. Pres. Geo. Parsons, New York, Sec., Treas. & Gen. Man. R. E. Cobb, Savannah.

**SAYRE, PA.**—Sayre St. Ry. Co. Pres. Howard Elmer (organization not completed).

**SCRANTON, PA.**—People's St. Ry. Co. 9 1/2 m, 4-8 1/2 g, 25-52 lb r, 19 c, 70 h. Pres. Wm. Matthews, Sec. & Treas. J. C. Platt.

**SEARCY, ARK.**—Searcy & West Point R.R. Co. 8 m, 4-8 1/2 g, 20 lb r, 7 c, 6 mu. Pres. A. W. Yarnell, Sec. W. H. Lightle, Treas. Jasper Hicks.

**SEATTLE, W. T.**—Seattle St. Ry. Co. 3 1/2 m, 4-8 1/2 g, 35 lb r, 5 c, 20 h. Pres. F. H. Osgood, Sec. Geo. Kineaur.

**SEDALIA, MO.**—Sedalia St. Ry. Co. 2 1/2 m, 4-10 g, 22 lb r, 6 c, 25 h. Pres. Joseph D. Sicher, V. Pres. Louis Deutsch, Treas. F. H. Guenther, Sec. Chas. S. Conrad.

**SELMA, ALA.**—Selma St. R.R. 2 1/2 m, 18 lb r, 5 c, 8 h. Pres. E. Gilman, Sec. & Treas. J. H. Hollis, Supt. W. Bohla.

**SENECA FALLS, N.Y.**—Seneca Falls & Waterloo Ry. Co.

**SHERMAN, TEX.**—Sherman City R.R. Co.

**SHREVEPORT, LA.**—Shreveport City R.R. Co. 1 1/2 m, 4 1/2 g, 46 lb r, 6 c, 14 b. Pres. Peter Youere.

**SILVER CLIFF, COL.**—Silver Cliff St. R.R. Co.

**SIoux CITY, IA.**—Sioux City St. Ry. Co. 5 m, 4 g, —r, 8 c, 52 mu. Pres. Fred T. Evans, V. Pres. D. A. Magee, Sec. & Treas. Fred Evans, Jr.

**SOUTH CHICAGO, ILL.**—Chicago Horse & Dummy R.R. 6 m, 4-8 1/2 g, —lb r,—c,—h.— Pres. D. L. Huff, Treas. A. C. Calkins, Sec. E. H. Bliss. [Not in operation.]

South Chicago City Ry. Co. 4 c, 8 h. Pres. Andrew Rehm, Sec. & Supt. A. Krimbill, Treas. H. Shearrer.

**SOUTH PUEBLO, COL.**—Pueblo St. R.R. Co.

**SPRINGFIELD, ILL.**—Citizens' St. R.R. Co. 9 1/2 m, 3-6 g, 20-36 lb r, 23 c, 100 h. Pres. J. H. Schrick, Treas. Frank Reisch, Sec. Chas. F. Harman. Springfield City Ry. Co.

**SPRINGFIELD, MASS.**—Springfield St. Ry. Co. 4-8 1/2 g, 33-40 lb r, 28 c, 115 h. Pres. Jobu Olmstead, Auditor L. E. Ladd, Clerk Gideon Wells, Treas. A. E. Smith, Supt. F. E. King.

**SPRINGFIELD, MO.**—The People's Ry. Co. of Springfield, Mo. 3 1/2 m, 4-10 g, 33 lb r, 5 c, 30 h. Pres. J. C. Cravens, Sec. Benj. N. Massey, Treas. Chas. Sheppard, Supt. H. F. Denton.

Springfield R.R. Co. 2 m, 30-40 lb r, 4-8 1/2 g, 7 c, 19 h, 19 mu. Pres. C. W. Rogers, St. Louis, Sec. & Treas. B. F. Hobart, Supt. J. A. Stroughton, No. Springfield.

**SPRINGFIELD, O.**—Citizens' St. R.R. Co. 10 m, 4 g, 29 c, 135 h. Pres. D. W. Stroud, V. Pres. A. S. Bushnell, Treas. Rose Mitchell, Sec. F. S. Penfield, Supt. W. H. Hanford.

**STATEN ISLAND, N.Y.**—Staten Island Shore Ry. Co.

**ST. CATHARINE'S, ONT.**—St. Catharine's, Mer-riton & Thorold St. Ry. Co. 5 1/2 m, 4-8 1/2 g, 30 lb r, 3 c, 32 h. Pres. E. A. Smyth, Sec. S. R. Smyth, Supt. E. A. Smyth.

**ST. JOSEPH, MO.**—Citizens' St. R.R. Co. 3 m, 4-8 1/2 g, 28 lb r, 14 c, 52 mu. Pres. Richard E. Turner, Sec. & Treas. Arthur Kirkpatrick, Supt. John F. Merrlam.

Frederick Ave. Ry. Co. 1 1/2 m, 3 g, 16 lb r, 6 c, 16 h. Pres. Thomas E. Tootle, V. Pres. Winslow Judson, Sec. W. D. B. Motter, Treas. Thomas W. Evans, Supt. S. Rowen.

St. Joseph & Lake St. R.R. Co. Union Ry. Co.

**ST. LOUIS, MO.**—Baden & St. Louis R.R. Co. 3 1/2 m, 4-10 g, —lb r, 7 c, 21 h. Pres. George S. Case, V. Pres. William Z. Coleman, Supt. J. H. Archer.

Benron & Bellefontaine Ry. Co. 7 1/2 m, 4-10 g, 45 lb r, 29 c, 200 h. Pres. J. G. Chapman, V. Pres. Chas. Parsons, Sec. Robert McCulloch.

Cass Avenue & Fair Grounds Ry. Co. 8 m, 4-10 g, 33 lb r, 37 c, 299 h. Pres. W. R. Allen, V. Pres. Geo. W. Allen, Sec., Treas. & Supt. G. G. Gibson, Cashier O. H. Williams.

Citizens' Ry. Co. —m,—g,—lb r,—c,—h.— Pres. Julius S. Walsh. Jefferson Ave. Ry. Co.

Lindell Ry. Co. 13 1/2 m, —g,—r, 65 c, 475 h. Pres. John H. Maquon, V. Pres. John H. Lightner, Sec. & Treas. Geo. W. Baumhoff, Supt. Jos. C. Llewellyn. Northern Central.

Missouri R.R. Co. —m, —g, —lb r, —c, —h. Pres. P. C. Maffit.  
 Mound City R.R. Co.  
 Springfield Ry. Co. 2 m, 4-8½ g, 25-40 lb r, 7 c, 40 h. Pres. C. W. Rogers, Sec. & Treas. B. F. Hobart, Springfield, Supt. J. A. Stoughton, No. Springfield, Asst. Supt. Frank B. Smith, No. Springfield.  
 Southern Ry. Co. 7-4 5 m, 4-10 g, 35-52 lb r, 49 c, 250 h. Pres. E. R. Coleman, Sec. J. S. Minary, Man. W. L. Johnson.  
 St. Louis R.R. Co. and the People's R.R. One management, 11 m, 4-10 g, 38-44 lb r, 58 c, 275 h. Pres. Chas. Green, Sec. & Treas. John Mahoney, Supt. Patrick Shea.  
 Tower Grove & Lafette R.R.  
 Union Depot R.R. Co. —m, —g, —lb r, —c, —h. Pres. John Scullin.  
 Union R.R. Co.  
**STONEHAM, MASS.**—Stoneham St. R.R. Co. 2½ m, 4-8½ g, 33 lb r, 10 c, 28 h. Pres. A. V. Lynde, Metrose, Treas. & Clerk Lyman Dyke, Supt. John Hill.  
**ST. PAUL, MINN.**—St. Paul City Ry. Co. 25 m, 4-8½ g, 80 c, 150 h, 294 mu. Pres. Thos. Lowry, V. Pres. C. G. Goodrich, Sec. J. H. Randall, Treas. Clinton Morrison, Supt. A. L. Scott.  
**STILLWATER, N. Y.**—Stillwater & Mechanicsville St. Ry. Co. 4½ m, 4-8½ g, 25-30 lb r, 3 c, 6 h. Pres. S. Rowley, V. Pres. W. L. Denison, Sec. Edw. Wood, Treas. E. H. Smith.  
**STROUDSBURGH, PA.**—Stroudsburgh Passenger R.R. Co. 1-4 5 m, 4-8½ g, 28-30 lb r, 3 c, 9 h. Pres. & Treas. J. Lantz, Sec. Jacob Houser.  
**SYRACUSE, N. Y.**—Syracuse & Onondaga R.R. Co. 2-3 5 m, 4-8 g, 28-47 lb r, 9 c, 18 h. Pres. Peter Burns, Sec. & Treas. Lyman C. Smith, Supt. W. B. Thompson.  
 Central City Ry. Co. 2½ m, 4-8½ g, 40 lb r, 12 c, 37 h. Pres. Daniel Pratt, V. Pres. Jonathan C. Chase, Sec. & Treas. James Barnes, Supt. George Crampton, 4 Syracuse Savings Bank Building.  
 Fifth Ward R.R. Co. 2½ m, 4-8½ g, 35-56 lb r, 8 c, 30 h. Pres. P. B. Brayton, Sec. & Treas. O. C. Potter, Supt. Hugh Furnell. Office W. Washington St. Geddes St. Ry. Co.  
 Genesee & Water St. R.R. Co. and Fourth Ward R.R. Co. 4 m, 4-8½ g, 18-30 lb r, 10 c, 35 h. Pres. Robt. G. Wynkoop, Sec. & Treas. Geo. J. Gardner, Supt. W. J. Hart. Onondaga savings Bank Building  
 New Brighton & Onondaga Valley R.R. Co. 1½ m, 4-8 g, 16-35 lb r, 2 c, 6 h. 1 dummy. Pres. Matthias Britton, Sec. T. W. Meacham, Treas. J. H. Anderson, Supt. J. H. Anderson.  
 Seventh Ward Ry. Co.  
 Syracuse & Geddes Ry. Co. 2 m, 4-8½ g, 35-45 lb r, 10 c, 32 h. Pres. R. Nelson Gere, Sec. & Treas. Rassel A. Bonta, Supt. Wm. J. Hart.  
 Third Ward Ry. Co. Pres. W. B. Cogswell, Sec. & Treas. W. S. Wales.  
**TAUNTON, MASS.**—Taunton St. Ry. Co. 4½ m, 4-8 g, 14 c, 44 h.  
**TERRE HAUTE, IND.**—Terre Haute St. Ry. Co. 4½ m, 4-8½ g, 28 lb r, 16 c, 48 h. Pres. T. C. Buntin, V. Pres. Josephus Collett, Sec. John R. Hagen, Supt. John T. Shriver.  
**TEXARKANA, ARK.**—Texarkana St. Ry. Co.  
**TOLEDO, OHIO.**—Toledo Consolidated St. Ry. Co. 17 m, 4-8 g, 42 lb r, 37 c, 180 h. Pres. John E. Bailey, Sec. A. E. Lang.  
 Adams Street Ry. Co.  
 Metropolitan St. Ry. Co. 10 m, 3 g, 28-35 lb r, 31 c, 101 h. Pres. & Sec. Jno. J. Shipperd of Cleveland, Treas. H. E. Wells of Cleveland, Gen. Man. T. F. Shipperd, Supt. Jno. A. Watson.  
 Monroe Street R.R.  
 The Central Passenger R.R. Co. of Toledo, O. 8 m, 3 g, 27 lb r, 17 c, 70 h. Pres. F. E. Seagrave, Treas. & Man. A. R. Seagrave, Supt. Joseph Murphy.  
**TOPEKA, KAN.**—Topeka City Ry. Co. 9 m, 4 g, 25-48 lb r, 25 c, 90 h. Pres. Joab Muivaue, V. Pres. D. W. Stormont, Sec. & Treas. E. Wildes, Supt. Jesse Shaw.  
**TORONTO, CAN.**—Toronto St. Ry. Co. 60 m, 4-10½ g, 30 lb r, 160 c, 750 h. Pres. Frank Smith, Sec. James Gunn, Supt. John J. Franklin.  
**TRENTON, N. J.**—Trenton Horse R.R. Co. 1½ m, 5-2 g, 43-47 lb r, 10 c, 31 h. Pres. Gen. Lewis Perrine, Sec. & Treas. Lewis Perrine, Jr., Supt. Thomas Sillorris.  
 City Ry. Co. 3 m, 5-2 g, 45 lb r, 15 c, 69 h. Pres. Adam Extolr, V. Pres. W. H. Skinn, Sec. H. B. Howell, Treas. & Mang. Director Chas. J. Bramford.  
**TROY, N.Y.**—Cortland & Homer Horse R.R. Co. 4 m, 4-8½ g, 25-30 lb r, 2 c, —h. Pres. C. H. Garrison, Troy, V. Pres. E. A. Fish, Cortland, N.Y., Treas. Jas. M. Milen, Cortland, Sec. S. E. Welch, Cortland.  
 Troy & Albion Street Ry. Co. 3½ m, 4 g, 35-45 lb r, 9 c, 41 h. Pres. Thos. A. Knickerbocker, Sec. & Treas. Theo. E. Haslehurst, Supt. W. R. Bean.  
 Troy & Lansingburgh R.R. Co. 20½ m, 4-8½ g, 47 lb r, 91 c, 466 h. Pres. William Kemp, V. Pres. Charles Cleminshaw, Sec. & Treas. Joseph J. Hagen, Supt. Leander C. Brown. 295 River St.  
**URBANA, ILL.**—Urbana R.R.  
 Urbana & Champaign 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.  
**UTICA, N.Y.**—Utica, Clinton & Binghamton St. R.R. 7½ m, 4-8½ g, 43-56 lb r, 17 c, 82 h. Pres. Isaac Maynard, Sec. & Treas. Robt. S. Williams, Supt. Roger Rock.  
 The Utica & Mohawk R.R. Co. 2½ m, 4-8½ g, 25-40 lb r, 9 c, 5 h. Pres. Chas. W. Hutchinson, V. Pres. Nathan S. Haynes, Sec. Geo. M. Weaver, Treas. Joshua W. Church.  
 Utica Belt Line St. Ry. Co.  
**VAILSBURGH, N. J.**—Newark, So. Orange, Ferry St. & Hamburg Place R.R. Co.  
**VALEJO, CAL.**—Valejo St. Ry. Co.  
**VICKSBURG, MISS.**—Vicksburg St. Ry. Co.  
 Hill City R.R. Co.  
**VINCENNES, IND.**—Vincennes St. Ry. Co.  
**WACO, TEX.**—Waco St. Ry. Co. 5 m, 4-8 g, 14-18 lb r, 9 c, 44 h. Pres. E. Rotan, Sec. & Treas. W. R. Kellum, Supt. J. W. Sedbury.  
**WALTHAM, MASS.**—Waltham & Newton St. Ry. Co. 3½ m, 2-8½ g, 30 lb r, 7 c, 18 h. Pres. R. E. bbins, Sec. & Treas. Henry Bond.

**WASHINGTON, D.C.**—Capital, No. O. St. & So Washington R.R.  
 Anacostia & Potomac River Ry. Co. 3 m, 4-8 g, 37 lb r, 9 c, 24 h. Pres. H. A. Griswold, Sec. Edwarr Temple, Treas. T. E. Smithson.  
 Columbia R.R. Co. of the District of Columbia. 2½ m. —g, —lb r, 19 c, 56 h. Pres. H. A. Willard, Sec & Treas. Wm. H. Clayette, Supt. Thos. E. Benson.  
 Metropolitan R.R. Co. 2½ m, 4 8 g, 38 lb r, 90 c, 490 h. Pres. George W. Pearson, V. Pres. A. A. Wilson, Sec. & Treas. William W. Moore, Supt. L. W. Emmart  
 Washington & Georgetown R.R. Co. 10 m, 4-8½ g, 42 lb r, 167 c, 750 h. Pres. H. Hurt, Sec. & Treas. C. M. Kooner, Gen. Supt. C. C. Saller.  
**WATERFORD, N. Y.**—Waterford & Cohoes R.R. Co. 2 m, 4-8½ g, 45 lb r. Pres. Thos. Breslin, Sec. & Treas. C. C. Ormsby. (Leased by the Troy & Lansingburgh R.R. Co.)  
**WEST HURON, CONN.**—New Haven & West Haven R.R. Co.  
**WESTPORT, CONN.**—Westport & Saugatuck Horse R.R.  
**WHEELING, W. VA.**—Citizens Ry. Co. 10 m. 5-2½ g, 45 lb r, 20 c, 55 h. Pres. Dr. C. A. Wingelter, Sec. Van B. Hall, Supt. Michael Loftus.  
 Wheeling & Elm Grove R.R. 7 m, 4-8½ g, 30 lb r, 12 c, 4 Baldwin Motors. Pres. J. D. DuBois, Sec. E. J. Rutter, Supt. E. Hirsch.  
**WICHITA, KAN.**—Wichita City Ry. Co. 7½ m, 11 c, 60 mu, 4 h. Pres. B. H. Campbell, V. Pres., Treas. & Gen. Man. E. R. Powell, Sec. G. W. Laramer, Atty. E. C. Ruggles.  
**WILKESBARRE, PA.**—Wilkesbarre & Kingston Pass. R.R.

Wilkesbarre & Ashley Passenger R.R. Co.  
 Coalville Passenger R.R. 2½ m, 4-8½ g, 20-24 lb r, 4 c, 10 h. Pres. Chas. A. Miner, Sec. & Treas. George Loveland, Supt. Albert G. Orr.  
**WILLIAMSPORT, PA.**—Williamsport St. R.R. Co.  
**WILMINGTON, DEL.**—Front & Union St. Passenger Ry. Co. 1½ m, 5-2 g, —lb r, 7 c, 20 h. Pres. Geo. W. Bush, Supt. Sam'l A. Price, Treas. E. T. Taylor.  
 Wilmington City Ry. Co. 4½ m, 5-2½ g, 45 lb r, 20 c, 82 h. Pres. W. Canby, Sec. & Treas. John F. Miller, Supt. Wm. H. Burnett.  
**WINDSOR, CAN.**—Sandwich & Windsor Passenger R.R. Co.  
**WINNIPEG, MANITOBA, CAN.**—The Winnipeg St. Ry. Co. 5 m, 4-8½ g, 25 lb r, 13 c, 75 h. Pres. Duncan MacArthur, Sec. & Mangr. Albert W. Austin, Supt. Geo. A. Young.  
**WINONA, MINN.**—Winona City Ry. Co. 4 m, 2-6 g, 27 lb r, 10 c, 39 h. Pres. John A. Mathews, V. Pres. B. H. Langley, Sec. & Treas. C. H. Porter.  
**WOBURN, MASS.**—No. Woburn St. Ry. Co. 2½ m, 4 8 ½ g, 40 lb r, 5 c, 4 h. Pres. & Treas. J. R. Carter, Supt. Dexter Carter.  
**WORCESTER, MASS.**—Worcester St. Ry. Co. 5½ m, 4-8½ g, 45 lb r, 19 c, 100 h. Pres. Geo. H. Seelye N. Y. City, V. Pres. Nathan Seelye, N. Y. City, Treas. & Supt. Harry S. Seary, Worcester.  
**YOUNGSTOWN, O.**—Youngstown St. R.R. Co.  
**ZANESVILLE, O.**—Bellaire, Chillicothe & Canton Zanesville & McIntire St. Ry. Co. 3 m, 3-6 g, 38 lb r, 12 c, 54 m. 1 Pres. J. Bergen, Sec. W. C. Townsend reas. T. B. Townsend.

### Street Railway Stocks.

Corrected by H. L. GRANT, 145 Broadway, New York.

	Par.	Amount.	Period.	Rate.	Date.	Bid.	Asked.
Bleecker St. & Fulton Ferry...	100	900,000	J. & J.	¾	January, 1886	30	35
1st mort.	1,000	700,000	J. & J.	7	July, 1900	113	116
Broadway & 7th Ave.	100	2,100,000	Q.—J.	3	Qu. Feb, 1886	200	250
1st mort.	1,000	1,500,000	J. & D.	5	June, 1904	103	105
3d mort.	1,000	500,000	J. & J.	5	July, 1914	103	105
Broadway Surface, Guarant'd	1,000	1,500,000	J. & J.	5	July, 1924	103	106
Additional.	1,000	1,000,000	J. & J.	5	July, 1905	103	104
Brooklyn City—Stock.	10	2,000,000	Q.—F.	3½	February, 1886	205	212
1st mort.	1,000	800,000	J. & J.	5	January, 1902	103	108
Brooklyn Crosstown.	100	200,000	A. & O.	4	October, 1885	165	175
1st mort bonds.	1,000	400,000	J. & J.	7	January, 1888	105	112
Cent. Park, No. & East River.	100	1,500,000	Q.—J.	2	January, 1886	141½	143
Con. mort. bonds.	1,000	1,200,000	J. & D.	7	December, 1902	122	125
Christopher & Tenth.	100	650,000	F. & A.	2½	February, 1886	182	188
Bonds.	1,000	250,000	A. & O.	7	October, 1888	110	116
Central Crosstown.	100	600,000	Q.—J.	1½	January, 1886	160	165
1st mort.	1,000	250,000	M. & N.	6	November, 1922	114	115
Dry Dock, E. B'd'wy & Battery	100	1,200,000	Q.—F.	2	February, 1886	180	185
1st mort. consol.	500	1,900,000	J. & D.	7	June, 1893	114	116½
Scrp.	100	1,200,000	F. & A.	6	August, 1914	106	107½
42d & Grand St. Ferry.	100	748,000	Q.—F.	4	February, 1886	250	260
1st mort.	1,000	236,000	A. & O.	7	April, 1893	111	116
42d St., Manhat. & St. Nich. Av	100	2,500,000			1885	40	41½
1st mort.	1,000	1,200,000	M. & S.	5	March, 1910	110	112
2nd mort. in. bonds.	1,000	1,600,000	J. & J.	6	1915	60	65
Eighth Ave—Stock.	100	1,000,000	Q.—J.	2½	January, 1886	240	265
Scrp.	100	1,000,000	F. & A.	6	August, 1914	105	110
Hout., West St. & Pav. Ferry	100	250,000	Q.—F.	2	August, 1885	150	156
1st mort.	500	500,000	J. & J.	7	July, 1894	112	113
Second Ave.—Stock.	100	1,862,000	J. & J.	5	January, 1886	204	205
1st mort.		550,000	M. & N.	5	November, 1909	105	110
Consol.	1,000	1,050,000	M. & N.	7	May, 1888	106	108
Sixth Avenue.	100	1,500,000	Q.—F.	3	February, 1888	210	220
1st mort.	1,000	500,000	Q.—F.	7	July, 1890	112	116
Third Ave.—Stock.	100	2,000,000	J. & J.	4	February, 1886	315	325
1st mort.	1,000	2,000,000	J. & J.	7	January, 1890	110	112
23d St.—Stock.	100	600,000	F. & A.	4	November, 1885	250	260
1st mort.	1,000	250,000	M. & N.	2½	Feb, 1893	110	113
Ninth Avenue.	100	800,000	M. & S.	3	September, 1885	138	140
Chicago St. Ry.	100					299	325

### SPECIAL NOTICES.

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**Old Street Rails Purchased.**

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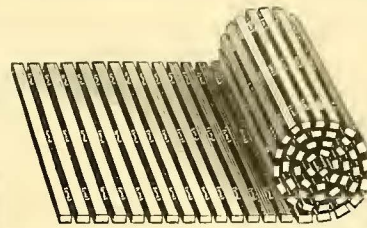
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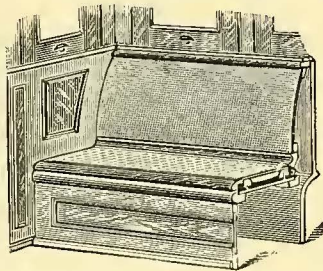
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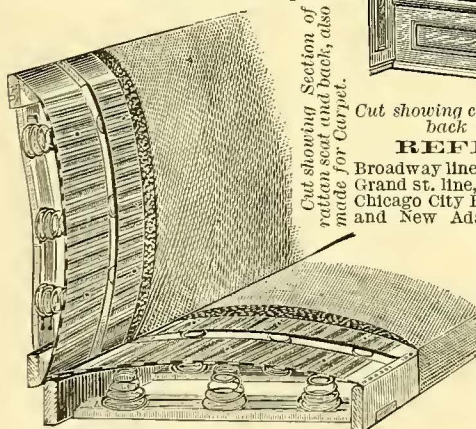
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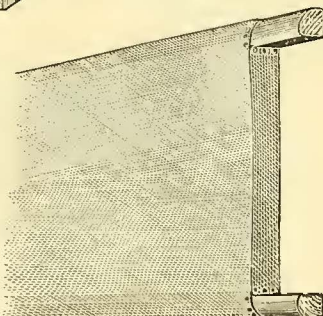
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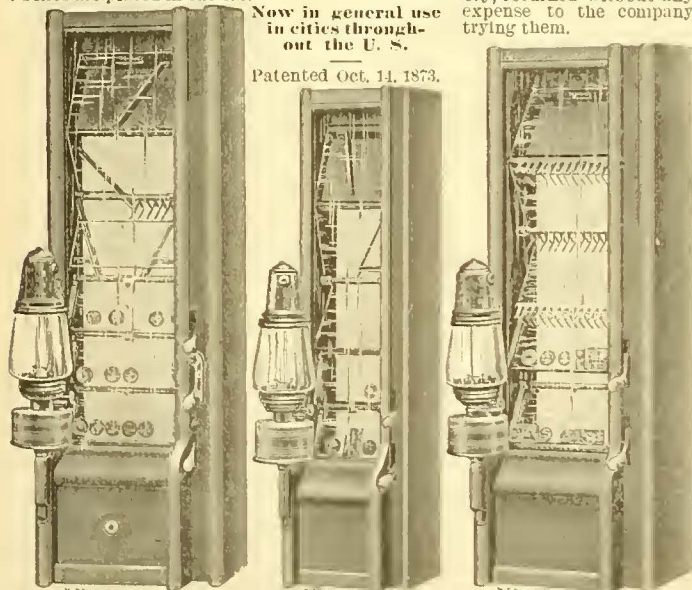
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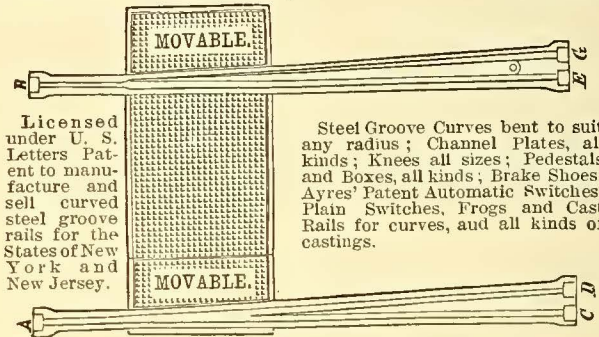
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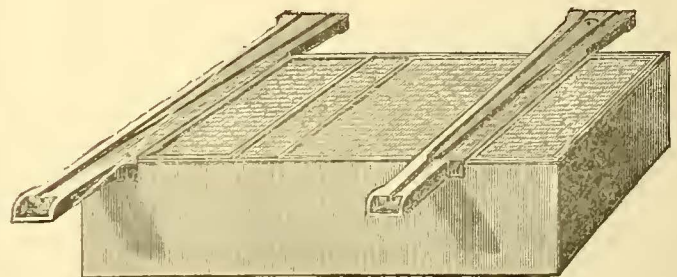
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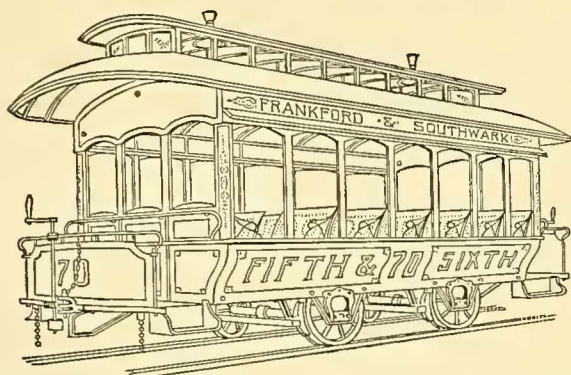
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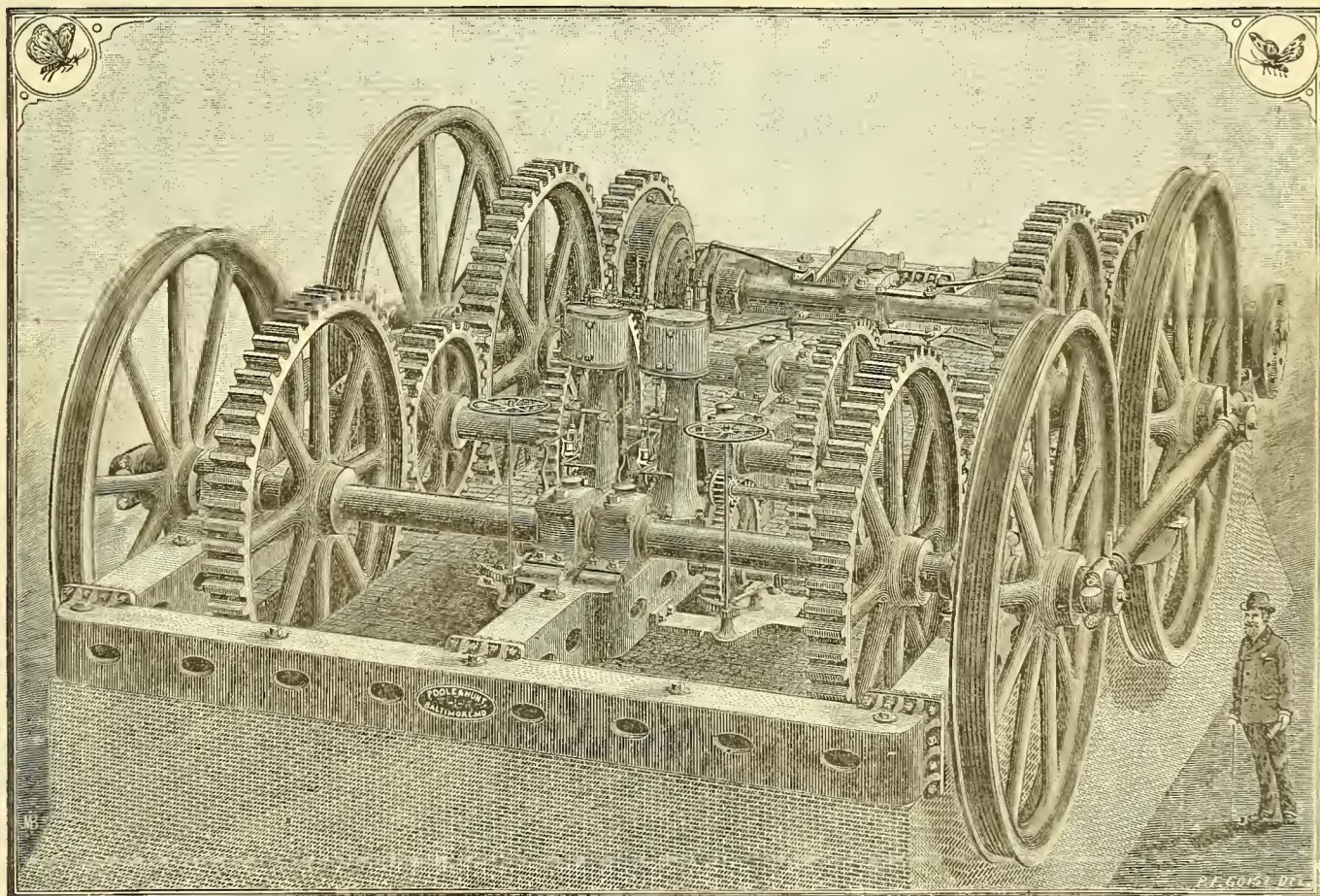
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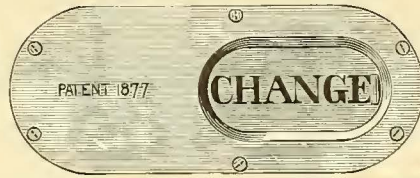
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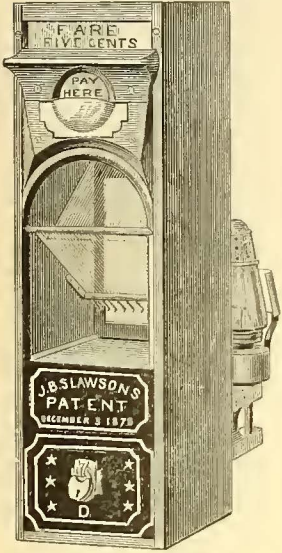
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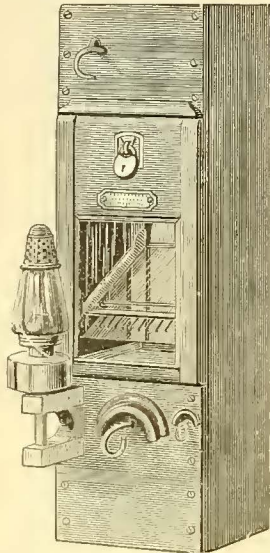


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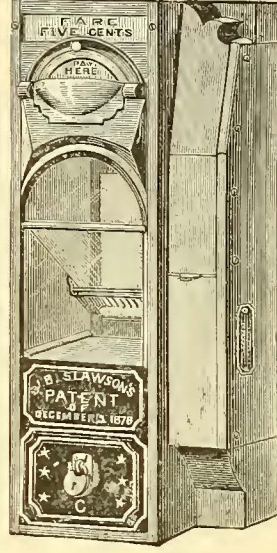
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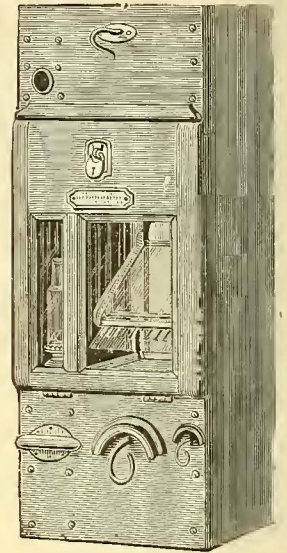
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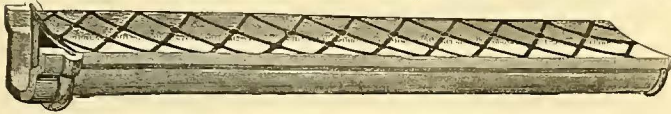
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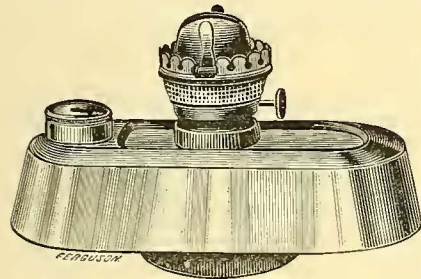
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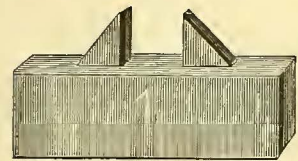
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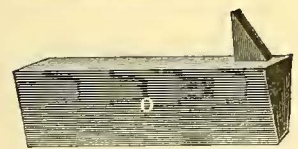


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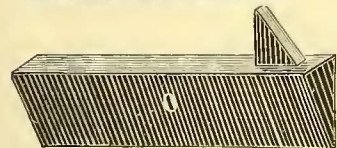
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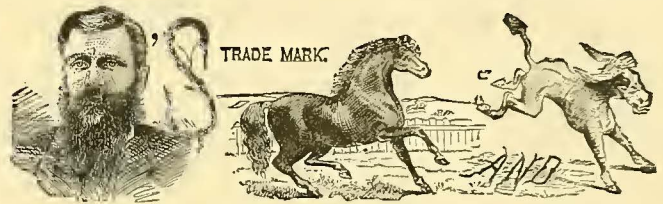
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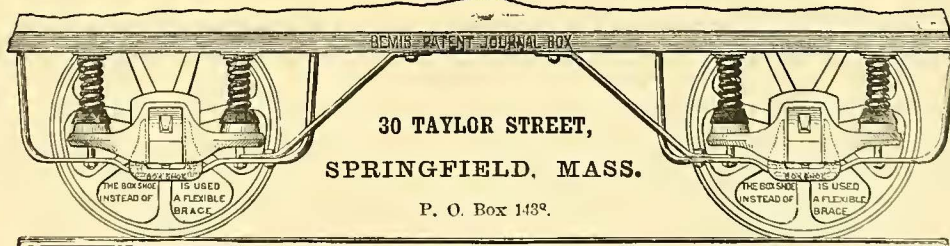
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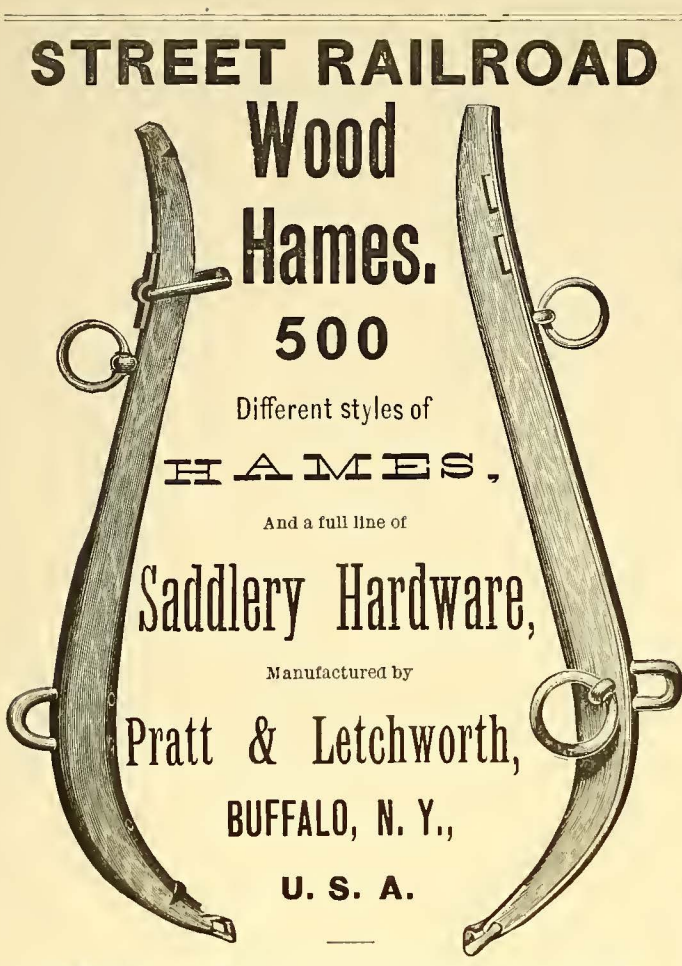
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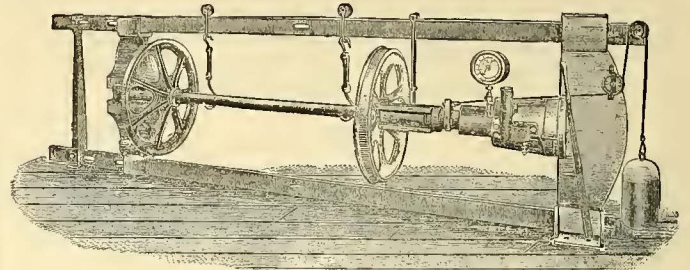
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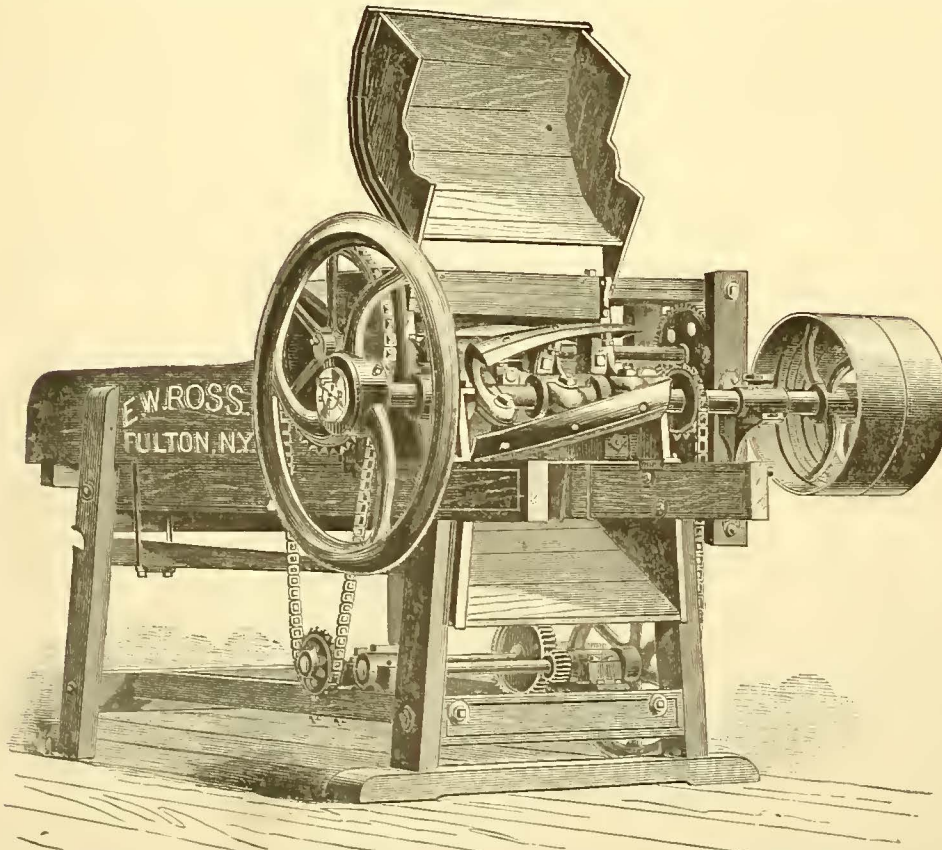
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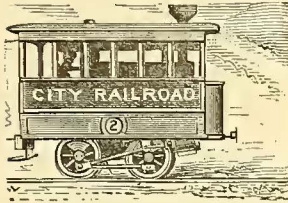
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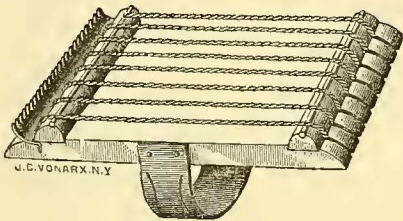
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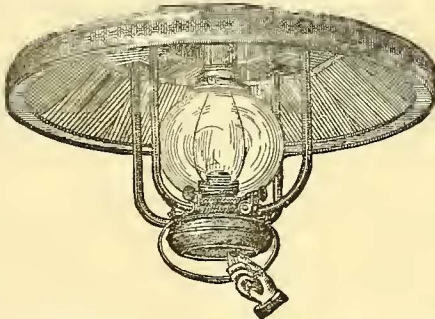
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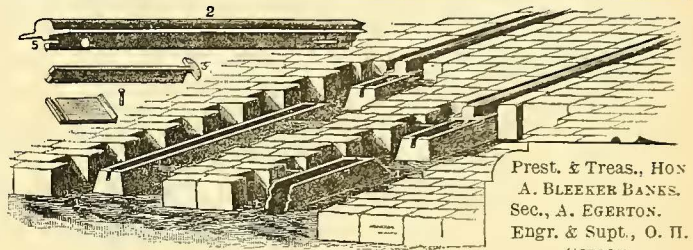


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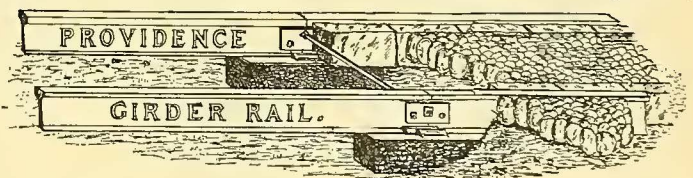
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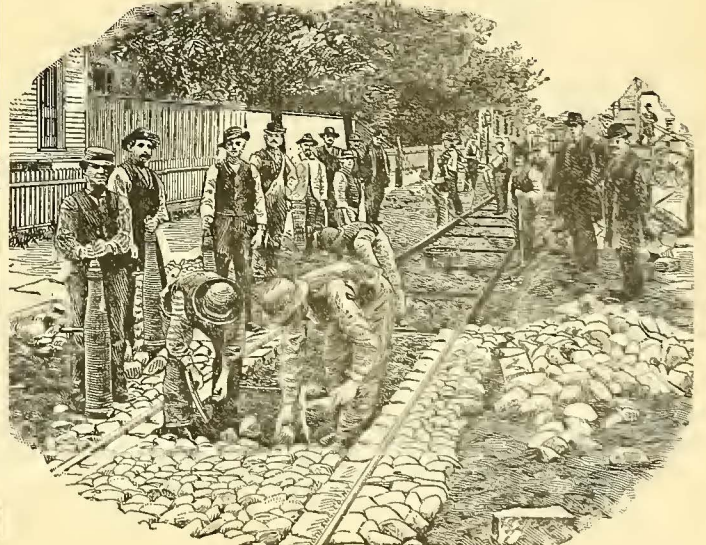
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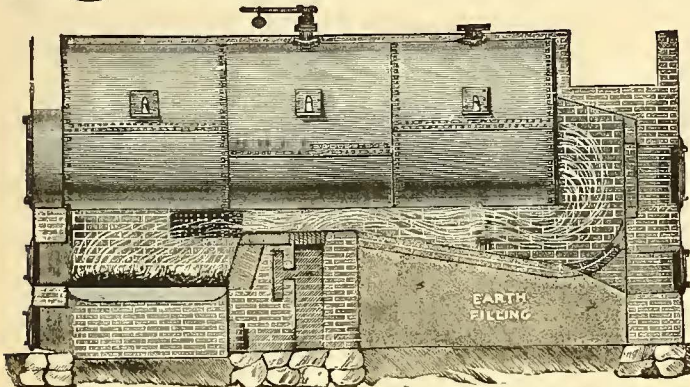
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# JARVIS ENGINEERING CO., Engineers & Contractors



FOR ERECTING STATIONS  
FOR  
ELECTRIC POWER AND CABLE RAILWAYS,  
USING

## Jarvis Patent Furnace

For Setting Steam Boilers to Burn Cheap Fuel, such as Wet Saw-dust, Coal Screenings or Slack Coal.

ALSO

## ARMINGTON AND SIMS ENGINES,

Belting direct to Power Dynamos without using Shafting

NO. 61 OLIVER STREET, BOSTON, MASS.

SEND FOR CIRCULAR.

## "PAY HERE."

### Fare Boxes and Change Receptacles for Street Cars.

#### OUR NEW FARE BOX NO. 3.

The following are some points of superiority in this box over others:

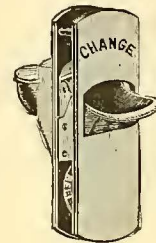
SIMPLICITY OF CONSTRUCTION, QUICKNESS AND CONVENIENCE OF CLEANING, SECURITY OF MONEY DRAWER, BEAUTY OF FINISH, and MUCH CHEAPER IN PRICE.

We have just added to this box a very valuable improvement, viz., a small mirror placed back of first slide or rest, which presents to driver's view the back side of fare as well as front, when resting on first rest. He can by this quickly detect any purloined or mutilated coin or ticket that may be split and put in box.

It often happens in all Fare Boxes, to the annoyance of driver and passenger, when several fares are resting on first slide one or more coins are liable to be behind a ticket, and the driver cannot see them, and quite often a passenger is "run up," when his fare is concealed behind the ticket, from the driver. This arrangement gives driver view of both sides of fare.

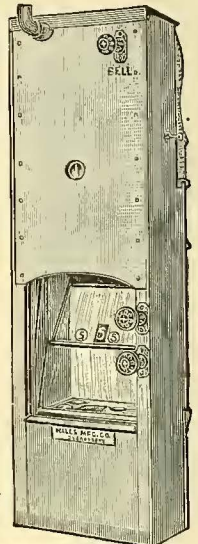


Box No. 3.  
Front or Passengers' View.



CHANGE RECEPTACLE.

The only satisfactory arrangement in use for making change with the driver.

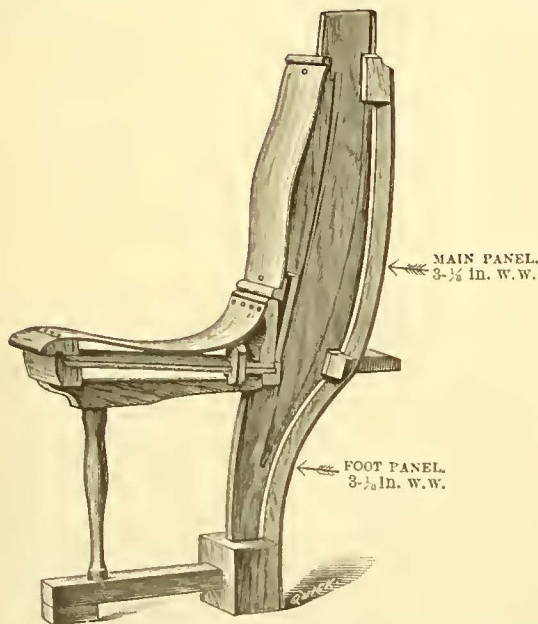


Box No. 3.  
Back or Driver's View.

Descriptive and illustrated circular on application. Get our prices before buying.

WALES MFG. CO., 76 & 78 E. Water St., Syracuse, N. Y.

# STREET CAR SEATS & BACKS.



## THREE-PLY CAR SIDES.

Having given our three ply white wood car sides a thorough trial for a number of years in our city street and railway lines, which test has left them as firm and good as the day they were put in, we unhesitatingly place these sides in the market as a superior article. They are composed of three white wood (or poplar) veneers, each 1/4 inch thick, the grain of the center layer running at right angles with the two outside layers. Hence they derive all the special and well-known advantages of glued up wood over single ply, namely:

- 1st. They are fully 75 per cent stronger, for they brace and stiffen the car.
- 2nd. They are lighter, being only 3-8 inch thick, and so do not add so much dead weight to the car.
- 3rd. They will not check or split by change of atmosphere.
- 4th. They will not split or crack when nailing into place, even though the nail be placed near the edge.
- 5th. Being laid over a form to suit the shape of the car frame or post they cannot buckle or twist, a feature which also adds strength to the car.

For repairing cars these sides have no equal. Our Three Ply Car Seats and Backs, so well known all over the world are now the most popular seat and back in the market, and recommend themselves especially for their *Lightness, Cleanliness, Healthfulness and Beauty*, as also their *Cheapness and Durability*. For they are indestructible by moths (the great enemy of 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 customer. 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.

# RICHARD VOSE,

13 Barclay Street, . New York,

PATENTEE AND MANUFACTURER OF

## Graduated Street Car Springs.

### RUBBER CONE.

Patented, April 15th, 1879.

ADAPTED TO THE

STEPHENSON,

BEMIS,

RANDALL,

HIGLEY,

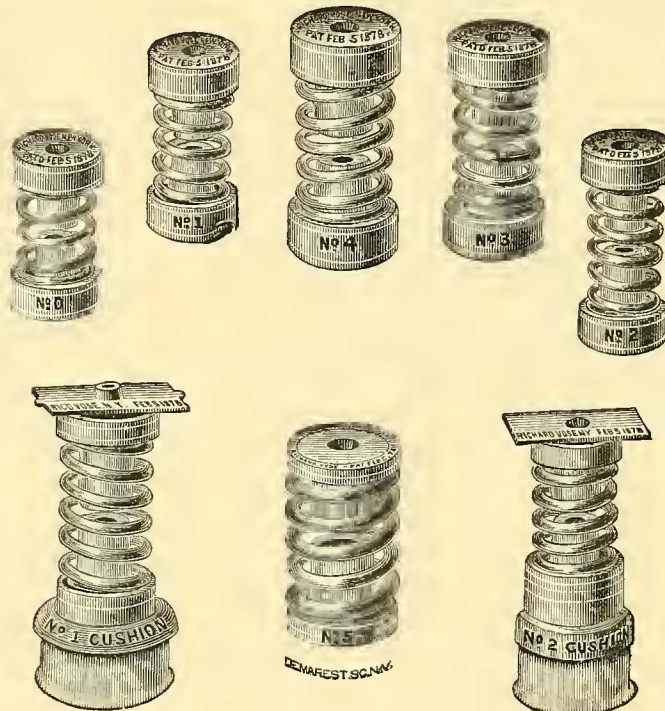
BRILL,

JONES,

BALTIMORE,

VOLK

And all other Boxes.



No. 0, for 10-ft. Light Cars.

No. 1, for 10-ft. Cars.

No. 2, for 12-ft. Cars.

No. 3, for 14-ft. Cars.

No. 4, for 16-ft. Cars.

No. 5, for 16-ft. Cars.  
(Single Pedestal.)

No. 1, Cushion, for 16-ft. Cars.

No. 2, Cushion, for 12 and 14-ft. Cars.

## TESTIMONIALS.

MIDDLESEX RAILROAD CO., BOSTON, MASS.

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

CHAS. E. POWERS, Prest.

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

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

V. C. TURNER, Prest.

B'DWAY & 7TH AVE. R.R. CO., NEW YORK CITY.

MR. RICHARD VOSE. Dear Sir,—We have 125 cars equipped with your Graduated Springs. They have given entire satisfaction. They are undoubtedly the best in the market. Very Resply.

J. W. FOSHAY, Prest.

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

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

Yours truly, A. N. DICKIE, Supt.

CHICAGO CITY RY. CO., CHICAGO, ILL.

RICHARD VOSE, Esq. Dear Sir,—Replying to your favor of a recent date I beg to say that we have been

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

C. B. HOLMES, Supt.

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

COL. RICHARD VOSE. Dear Sir,—We have used your Graduated Street Car Springs for several years and I need only say with such success that we continue to use them. Very Respy,

W. A. BANCROFT, Supt.

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

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

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

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

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

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

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

TO WHOM IT MAY CONCERN: We have used the Richard Vose Graduated Car Springs for several years, and are well pleased with them. Should be unwilling to change them for any other. All of our cars use these springs. Yours Respectfully,

J. A. CHASE, Treas.

DAYTON STREET R.R., DAYTON, O.

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

Yours Respectfully, A. W. ANDERSON, Supt.

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

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

Yours truly, N. W. GOODWIN, Secy.

DETROIT CITY RY., DETROIT, MICH.

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

Yours truly, GEO. HENDRIE, Treas.

ESTABLISHED 1857.

INCORPORATED 1875.

# BROWNELL & 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.

## EVERIT'S NEW STYLE CAR SASH.

No rattle of glass. No mortises. Less wood. Less weight. Less breakage of glass. Brass corners, giving greater firmness and durability. 84 square inches more light in each opening, giving better appearance to car. Also the best floor rack in use.

Address,

W. L. EVERIT,

NEW HAVEN, CT.

## AMERICAN SYSTEM TRACTION ROPE RAILWAY.

OPERATED BY INDEPENDENT DUPLICATE CABLES.

# CABLE ROADS.

D. J. MILLER, ENGINEER.

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NEW YORK.

## J. M. JONES' SONS,

AGENTS,

# Street Railway Car Builders

## WEST TROY,

NEW YORK.

## PENNSYLVANIA STEEL COMPANY,

MANUFACTURERS OF

# STEEL RAILS

Of T patterns, weighing from 16 to 76 lbs. per yard.  
CENTRE BEARING Street Patterns, 42 to 60 lbs. per  
yard, TRAM Street Patterns 45 to 47 lbs. per yard,  
and Street Patterns for STEAM ROADS.

WORKS AT

STEELTON, DAUPHIN CO., PENN.

NEW YORK OFFICE. - 160 Broadway.

Philadelphia Office 208 South Fourth St.

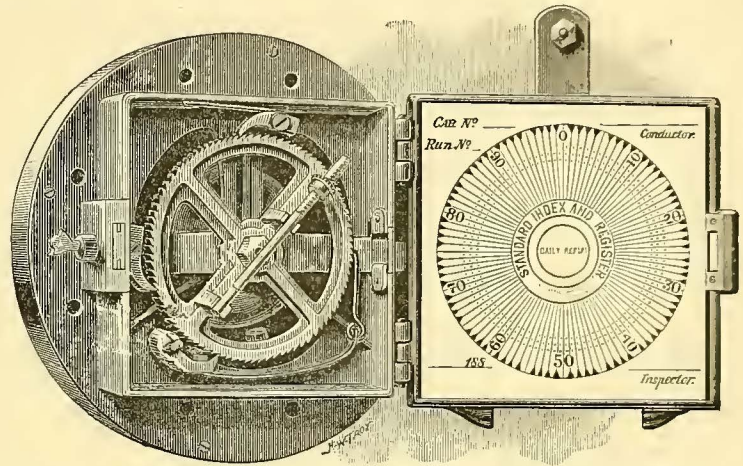
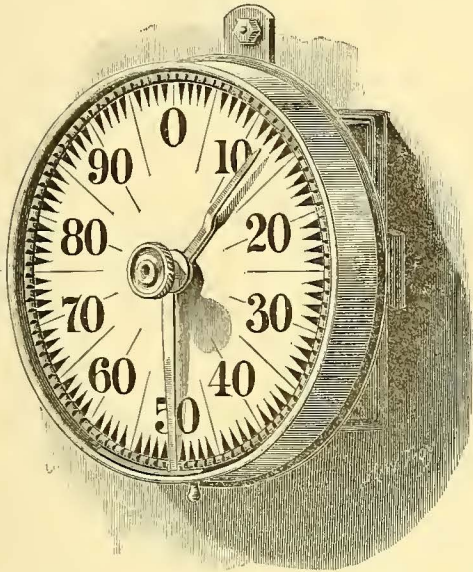
# THE STANDARD INDEX & REGISTER CO., NEW YORK,

SOLE LICENSEES AND MANUFACTURERS OF

# THE STANDARD INDEX AND REGISTER,

ADOPTED BY THE LEADING RAILROADS IN THE UNITED STATES,

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



The recent decision of the U. S. Circuit Court in our favor after three years of litigation in which the Standard was involved, justifies us in accepting orders from railway companies generally for our Registers, which are celebrated for simplicity, efficiency and infallibility as an indicating and recording register.

It will appear obvious upon inspection that the Standard Register is the only device that should be adopted by railway companies anxious to secure a correct report and record of trips made and fares collected, for the reason that, in addition to the visual dial and indicator, a permanent registration of each trip made, and the exact number of fares collected or passengers carried, is automatically made by mechanical means upon paper, by which the latter is punctured in a manner that prevents obliteration, and can be preserved in the office of the company for reference and comparison with fares turned in by the conductor, and for filing for future purposes.

## TESTIMONIALS.

### METROPOLITAN RAILROAD COMPANY.

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

BOSTON, March 9, 1883.

ELI BALDWIN, Esq., Prest. Standard Index & Register Co.,

New York, N. Y.,

Dear Sir,—In answer to your inquiry of March 8 I would most respectfully state, that after a trial of some months of the two hundred odd registers that you have placed in our cars, I feel that I do no more than exact justice to your company in giving you in the strongest and most unqualified manner my entire approval of them. They are in every way all that you claimed, and all that you promised me they would prove to be. In short, I like them. They answer my purpose completely, and I would not exchange or part with them for any other device of the kind I have yet seen.

Very respectfully yours, &c.,

C. A. RICHARDS,  
President Metropolitan Railroad Co.

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

OFFICE OF

THE METROPOLITAN RAILROAD COMPANY,  
No. 16 KILBY STREET,

BOSTON, March 23, 1886.

E. BALDWIN, Esq., Prest. Standard Index and Register Co.:

Dear Sir,—We have now in daily use four hundred and twenty-five of your registers. They have by repeated purchases come to this number. We like the registers very much, and have no fault to find with them. With an experience of four years we feel that we are justified in recommending them.

Very respectfully yours, &c.,

C. A. RICHARDS, President.

### CENTRAL PARK, NORTH & EAST RIVER RAILROAD COMPANY.

G. Hilton Scribner, Prest. C. Densmore Wyman, Vice Prest. J. L. Valentine,  
Secy. and Treas. W. N. A. Harris, Supt.

OFFICE, 10TH AVENUE, 53D AND 54TH STREETS,

NEW YORK, August 31, 1882.

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

and result they attain the object sought with accuracy and at the same time with a minimum liability to external tampering or dishonest manipulation.

Very respectfully,

C. DENSMORE WYMAN, Vice President.

### CENTRAL PARK, NORTH & EAST RIVER RAILROAD COMPANY.

G. Hilton Scribner, Prest. C. Densmore Wyman, Vice Prest. J. L. Valentine,  
Treas. Howard Scribner, Secy. W. N. A. Harris, Supt.

TENTH AVENUE, 53D AND 54TH STREET,

NEW YORK, March 24, 1886.

ELI BALDWIN, Esq., Prest. Standard Index & Register Co.,

138 Fulton Street, New York:

My Dear Sir,—We have used about 150 of your "Standard Index Registers" for the past five years and such use has demonstrated their entire utility and adaptation for the purposes intended in their construction. We are more than satisfied with them, finding that by reason of the simplicity of their construction they require hardly any repairs, while they are accurate and reliable and at the same time by virtue of the inside paper dial are free from the danger of being tampered with. In a word we are thoroughly satisfied with the Standard and it is but just to you that I should express this opinion to you.

Very sincerely yours,

C. DENSMORE WYMAN, Vice President.

OFFICE OF

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

NEW YORK, March 25, 1886.

ELI BALDWIN, Esq., Prest. Standard Index & Register Co.:

Dear Sir,—Concerning your inquiry as to the result of our experience in the use of the Standard Register furnished by your company and the satisfaction given I will state that after five years' test during which they have been in use on the cars of our roads, we have found them the embodiment of all that you have claimed, and I cheerfully endorse them as the best registers that we have ever seen, and have found them reliable and not easily put out of order. In short we would not be without them. The paper register or tablet upon which registrations are recorded of the number of passengers carried and trips made is an invaluable feature, producing as it does an infallible and indelible record of fares collected, serving as a check where a division of trust is questioned. We have upwards of two hundred of your Registers on the cars of our roads at the present time.

Very Truly Yours,

J. W. FOSHAY, President.

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

# The Goodenough System

OF

# HORSE-SHOEING.

---

*The Goodenough System of Horse-Shoeing, of which the GOODENOUGH HORSE-SHOE is the exponent, is an endeavor to take from the hand of unthinking and barbarous method, the important art of farriery.*

*In the correct use of the system and proper application of the shoe, the sole bars and frog of the horse's foot are never cut, the rasp and knife being applied only to the wall of the foot, and no fire is used in the fitting.*

*The shoe is very light and narrow (Army pattern), easily worked cold and allowing frog bearing, without which there can be no good horse-shoeing.*

## FROG PRESSURE

*is as important a factor to the health of the horse's foot as air is to the lungs or food to the stomach. It is the*

## KEY-STONE OF THE ARCH.

---

The advantages of the Goodenough System are, first and foremost, **SOUND HORSES**; Secondly, **CHEAP HORSE-SHOEING**.

*Horse railroads using the system in its entirety not only buy much less iron and pay for much less labor, but have also much more serviceable stock.*

*Said a horse railroad superintendent of now the largest road in the United States:*

*"We don't wear iron nowadays, we wear frogs and cobble stones; nature provides frogs and Boston finds cobble stones."*

*To those who desire to read further upon the subject we will send upon application free of cost our pamphlets entitled,*

**"HORSE-SHOEING," and "FACTS FOR HORSE-OWNERS."**

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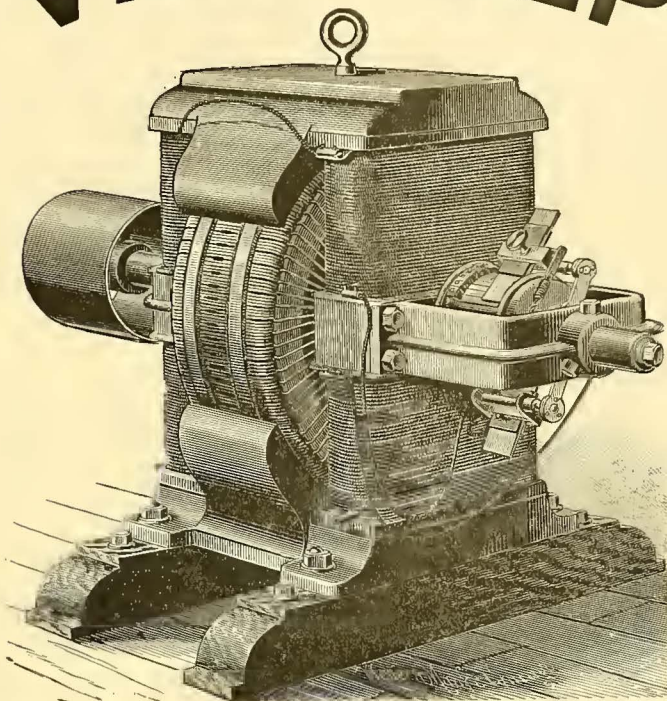
# THE GOODENOUGH COMPANY,

156 and 158 East Twenty-Fifth Street,

**NEW YORK.**



**THE VAN DEPOELE**



**RAILWAY SYSTEM.**

**The Van Depoele Electric Manufacturing Company,**

**203 VAN BUREN STREET, CHICAGO, ILL.,**

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

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

---

**We are not Selling Stock, but Doing Business.**

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

**Van Depoele Electric Manufg. Co.**

J. W. FOWLER, President.

THE

DAN'L F. LEWIS, Treasurer.

**LEWIS & FOWLER M'F'G CO.,**

P. O. BOX 102.

BROOKLYN, N. Y.

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**Manufacturers of and Dealers in**

**STREET**

**RAILWAY**

**SUPPLIES**

**Of Every Description.**

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**The Lewis & Fowler Manufg. Co.,**

**BROOKLYN, NEW YORK.**

J. W. FOWLER, President.

THE

DAN'L F. LEWIS, Treasurer.

# LEWIS & FOWLER M'F'G CO.

P. O. BOX 102.

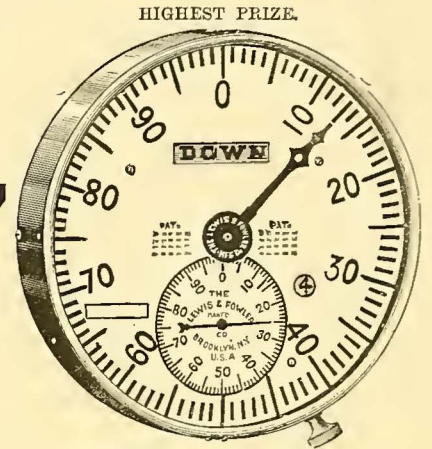
BROOKLYN, N. Y.

Patentees and Manufacturers of

IMPROVED

## "ALARM"

PASSENGER REGISTER.

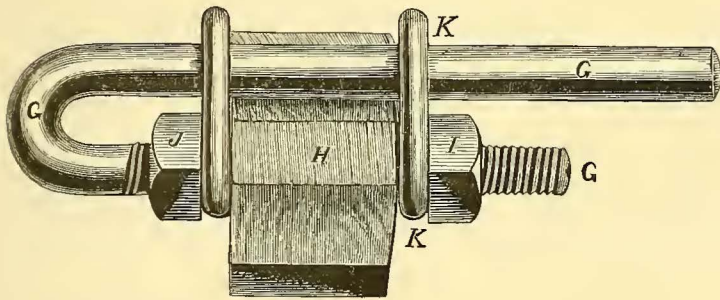


SILVER MEDAL, CHICAGO, 1883.

—SOLE AGENTS AND MANUFACTURERS—

### VAN TASSEL'S Patent Brake Rod

FOR STREET CARS.

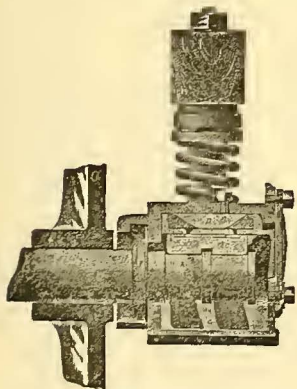


### SMALL'S Automatic Fare Collector.

FOR FARE BOX CARS.

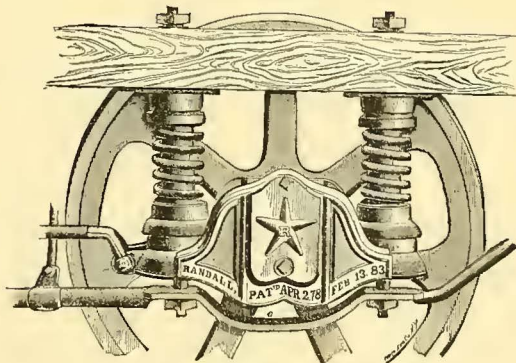


### "RANDALL'S" PATENT CAR AXLE AND BOX.



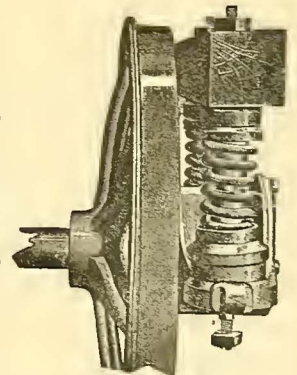
SECTIONAL VIEW.

DUST  
TIGHT.



FRONT VIEW.

ANTI-  
FRICTION



END VIEW.

Agents for ORIENTAL METAL for Street Car Journal Bearings

F. H. ANDREWS.

F. T. LERNED, Gen'l Agent.

B. A. CLOONEY.

R. G. MATTERN, Western Agent, Lakeside Building, Chicago.

## **ANDREWS & CLOONEY,**

Manufacturers and Contractors for Constructing Street Railways.

THE BUILDING OF

# **CABLE ROADS,**

AND FURNISHING MATERIALS FOR SAME, A SPECIALTY.

All kinds of Steel and Steel Grooved Rails,

Straight or Bent to any Radius.

Knees, Fishplates, Spikes, Bolts, &c., &c.

## **MACHINERY:**

Wheel Presses, Wheel Borers, Axle Lathes, Drills, &c.,

EITHER FOR STEAM OR HAND POWER.

Promptness and Reasonable Prices.

Send for Illustrated Catalogue.

F. H. ANDREWS.

F. T. LERNED, GEN'L AGT.

B. A. CLOONEY

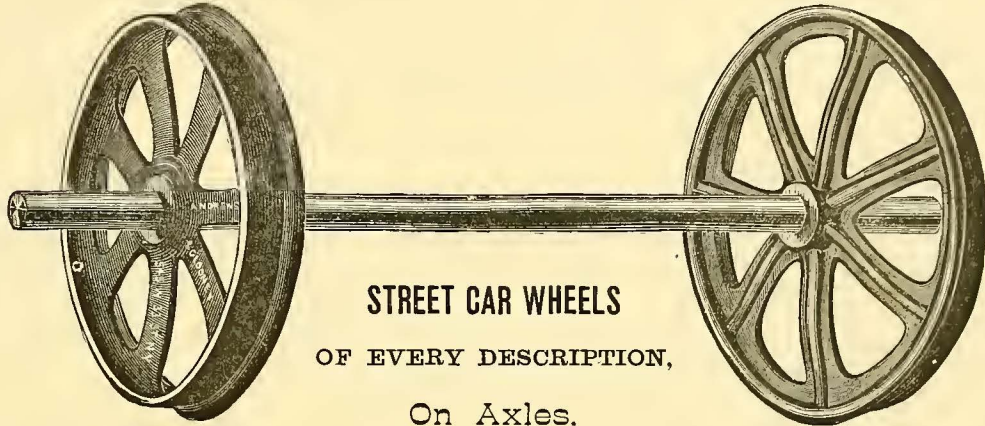
# ANDREWS & CLOONEY,

OFFICE :

545

W. 33d St.,

NEW YORK.



STREET CAR WHEELS  
OF EVERY DESCRIPTION,  
On Axles.

WORKS :

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West 33d St.,

AND

538 to 552

West 34th St.,

NEW YORK.

Manufacturers of

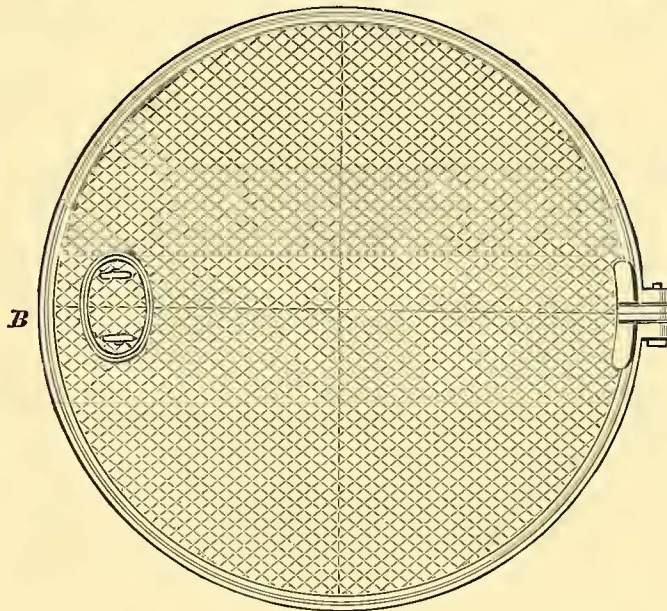
Elliptic, Spiral,

Volute, Car and

Engine

## SPRINGS

Of Every Description.



Street Railway Turn-table.

Car Wheels,  
Axles,  
Brake Shoes,  
Pedestals,  
Boxes,  
Brass Bearings  
AND  
Castings

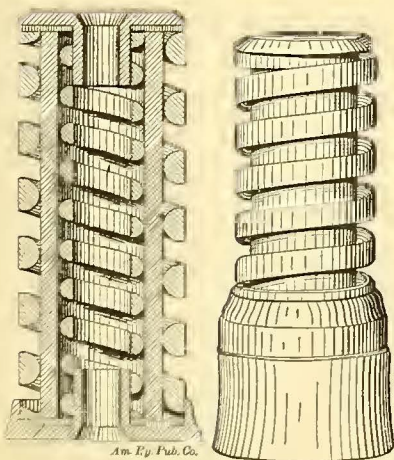
of all Descriptions where great  
Strength is Required.

ALSO

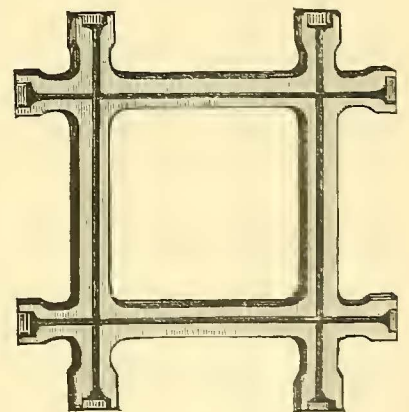
Sweepers, Snow Plows,  
Turn-Tables.

Track Work, Automatic  
Switches, Etc.

R. G. MATTERN, Western Agent,  
Lakeside Building, Chicago.



Improved Springs.



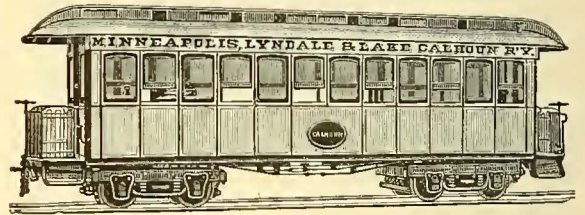
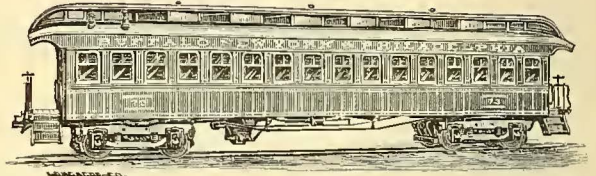
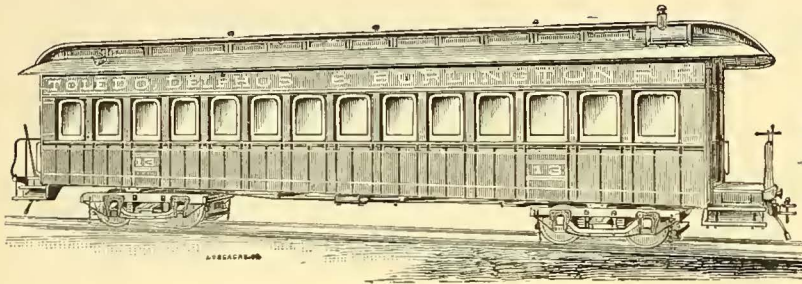
Street Railway Crossings.

# J. G. BRILL & CO.,

## PHILADELPHIA,

### BUILDERS OF

# RAILWAY & TRAMWAY CARS



Passenger Cars of all kinds.

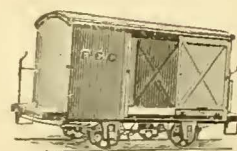
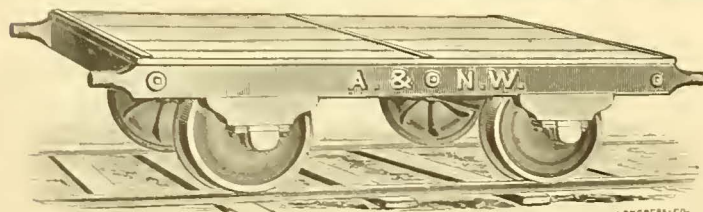
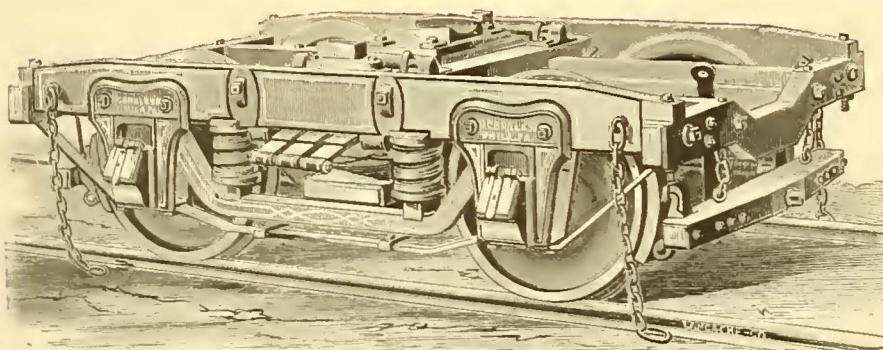
Light Cars for Suburban Roads.

Construction Cars,

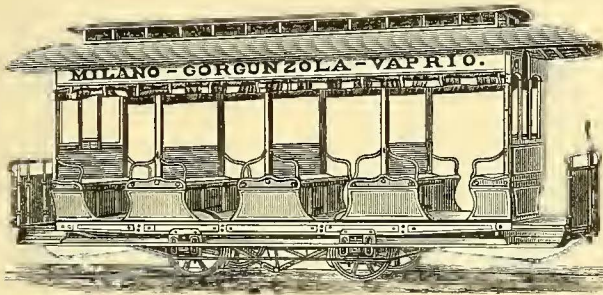
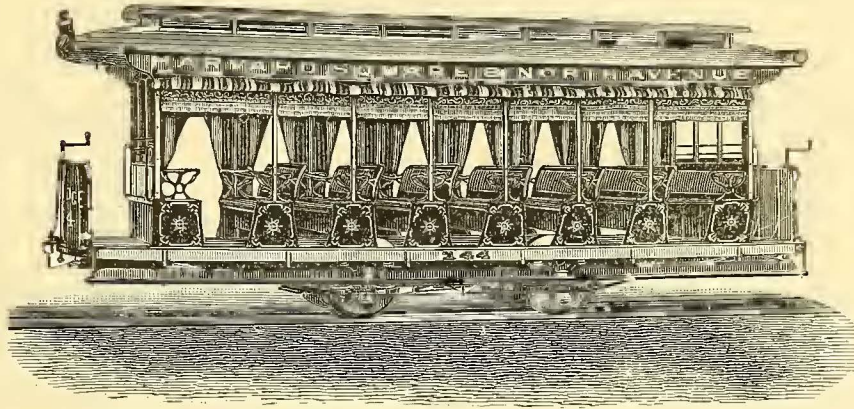
Power Hand Cars,

Small Merchandise Cars,

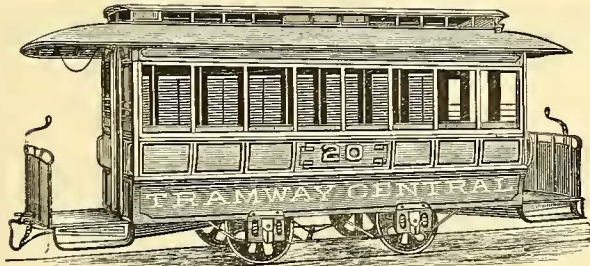
Cane Cars.



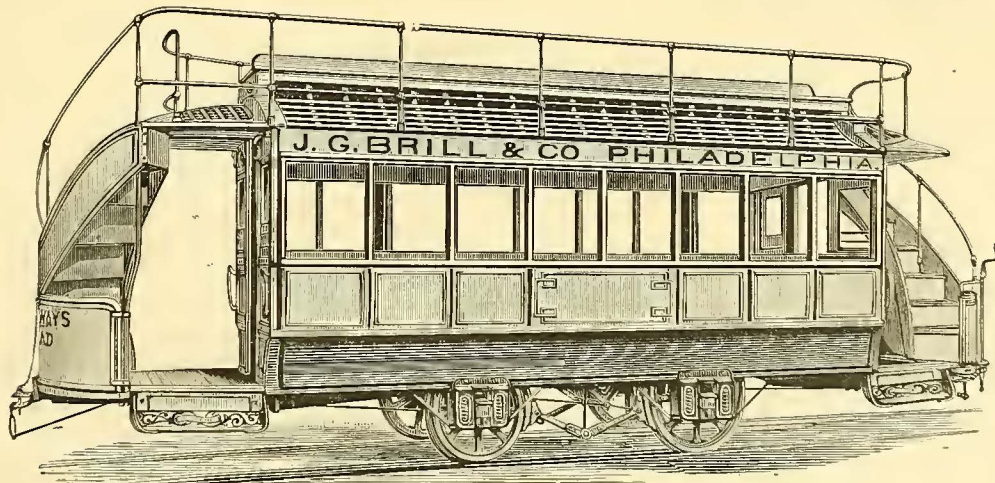
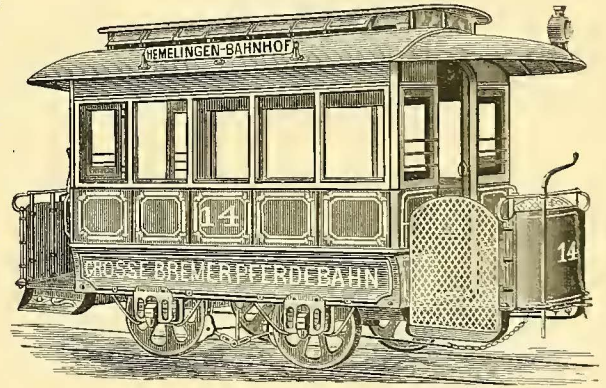
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GOLD MEDAL  
AT  
**CHICAGO**  
EXHIBITION  
OF  
1883.



GOLD MEDAL  
AT  
New Orleans  
Exhibition  
OF  
1885.



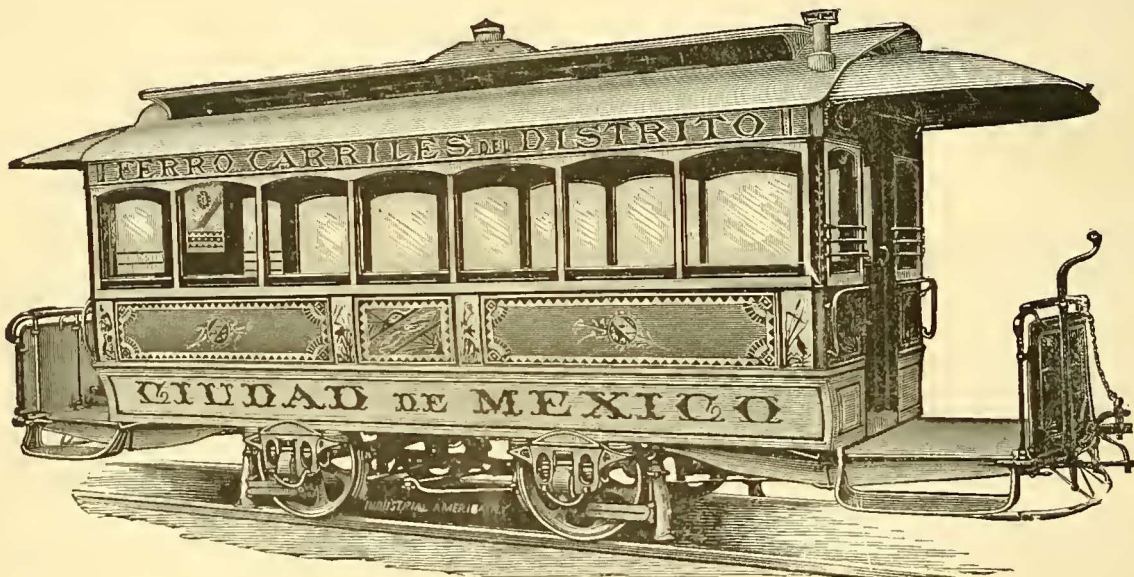
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(LIMITED),

**New York.**

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MEDAL OF FIRST CLASS, WORLD'S INDUSTRIAL COTTON EXPOSITION, NEW ORLEANS, 1885.



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ORDERS QUICKLY FILLED. CAREFUL ATTENTION TO SHIPMENTS.

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