

# THE STREET RAILWAY JOURNAL

VOL. III. { NEW YORK: }  
                  { 113 Liberty Street. }

JANUARY, 1887.

{ CHICAGO: } No. 3.  
                  { Lakeside Building. }

## William J. Richardson.

The subject of our present sketch, William James Richardson, was born in the city of Albany, N.Y., October 22, 1849, and is, therefore, in his thirty-eighth year. His early education was obtained in the experimental department of the State Normal school, at Albany, passing from the lowest to the highest class in that department. Leaving this school, he attended the Albany branch of the Bryant & Stratton series of business schools, until, in consequence of the election of his father, Mr. William Richardson, to the presidency of the Dry Dock, East Broadway and Battery Railroad Company, of New York, in the year 1864, he removed (with his parents) to New York City. He finished his business school education in the New York branch of Bryant and Stratton's, and entered the English importing hardware business when sixteen years of age.

For a year he worked at ten dollars a month, and at the end of two years and a half was receiving twenty-five dollars a month. Few there are, probably, who begin work in life receiving less compensation for an honest day's toil than he did.

In 1876, Mr. Richardson left his employers to assist his father in the railroad business in Brooklyn. Mr. Richardson, senior, having become the lessee, and to a large extent the proprietor, of the lines under the control of the Brook-

lyn & Jamaica Railway Company. After having been so engaged for a period of two years, and desiring to devote himself to further study, and being, for-

this institution, he became the superintendent of the Brooklyn, Carnarsie & Rockaway Beach Railroad and Steamboat Line, his father having become associated with another gentleman in leasing it. This position he filled for one year, until his father disposed of his interest in that line, when the son left the road and assisted him in connection with the business of running the lines of the Atlantic Avenue Railroad, then known as the Atlantic Avenue, East New York & Greenwood Railroad.

In May, 1872, the Atlantic Avenue Railroad Company of Brooklyn was organized, and became the successor of William Richardson, lessee, in the operation of the several street car lines under his control; and upon the organization of the said company, the subject of our sketch was elected secretary, which position he has held continuously ever since.

In 1873 he married Mary Carrington Raymond, the second daughter of John H. Raymond, LL. D., president of Vassar College, by whom he has become the happy father of six children, equally divided as to sex, all of whom are living but one. Mr. Richardson is a member of the Hanson Place Baptist Church, and is thoroughly active and prominent in

connection with its progressive work, being at the present time president of the Young People's Association. Upon the organization of the American Street Railway Association, in 1882, he was



Sincerely Yours,  
W. J. Richardson.



elected secretary and treasurer; and in the following year he was elected to similar offices in the Street Railway Association of the State of New York. To both of these offices in each Association he has since been annually re-elected.

Mr. Richardson has crossed the Atlantic Ocean three times, in 1870, 1883 and 1885; the first time traveling extensively on the European continent, specially interested in city passenger transportation. On his first visit to the land of his forefathers, through the kindness of Myles Fenton, Esq., then general manager of the Metropolitan Railway, of London, he was afforded special facilities for inspecting the underground system of transit in that great city.

Mr. Richardson ascribes his success in life to the care with which he attends to all

### The Tenth Avenue Cable Buildings.

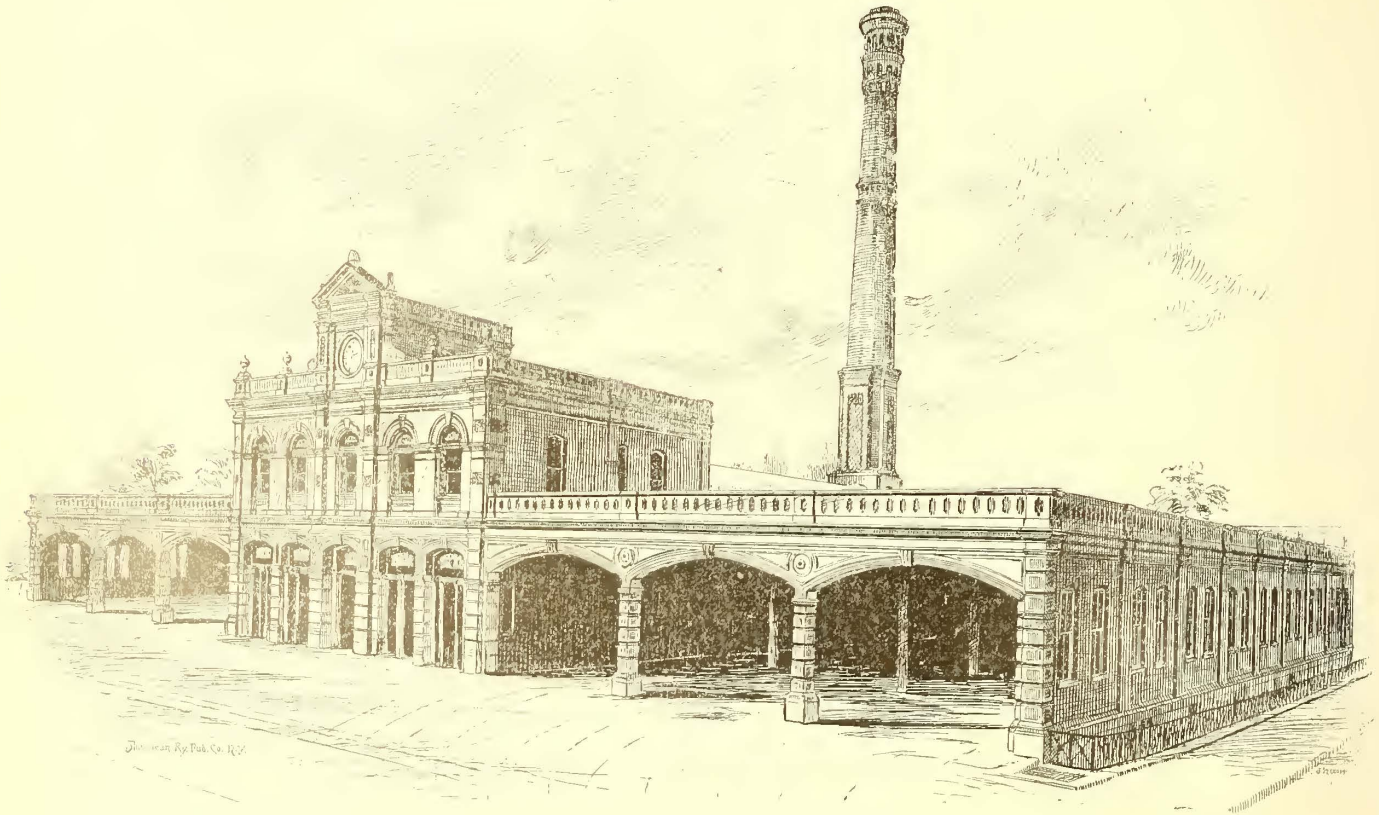
We have already published several illustrations in regard to the mechanism which is used in operating the cars on the Tenth Avenue Cable Line of New York. The illustrations referred to are those of the grip which was used, both originally and in a modified form, the hauling machinery and also the cars themselves. We are now enabled to present a perspective view of the building looked at from the south-west on the Tenth avenue front, also a plan showing the general arrangement of the machinery in the basement, and also another showing the tracks outside of the building, with the methods of leading off the duplicate cables, both for Tenth avenue and 125th street. It should be recollected, in

tower over the central portion where the offices are located.

Back of the office there is a small machine shop and carpenter shop where repairing of the road is done, and the space on either side shown in the arches is occupied for the storage of cars.

The stabling of what horses are used in the establishment is provided for in the basement, and the side opposite to that which our plan shows, for the use of driving machinery. These stables are fitted up with every appliance for the care of horses, but of course they are a small portion of the appliances of the building, as the main interest centers about the driving machinery.

The piers which were constructed for the front of the building are built with a con-



FRONT ELEVATION OF THE TENTH AVENUE CABLE RAILWAY BUILDING, NEW YORK CITY.

the details of his business. His offices require the handling of a great many papers, and he tries so to order his work as to permanently dispose of each one as it comes into his hands, so as to avoid multiplying work unnecessarily.

Very much of the success or failure of a man in life is dependent upon the woman he marries. The influence of a good wife cannot be overestimated; and in having one Mr. Richardson has great reason to congratulate himself on the wise choice he made in the selection of a wife. She has, in the fullest sense of the word, been a helpmate to him; and her judgment, whether followed or not by her husband, in matters concerning his business plans and welfare, about which he takes pleasure in advising with his wife, is invariably correct. Such a wife is a treasure and we are glad to know that her husband appreciates her.

this connection, that the engines placed in this building are used in driving a double cable on Tenth avenue, and also on 125th street.

The two cables, or rather the second cable, is not run at all times, but only used in cases of emergency, when one of them breaks, or is otherwise injured so as to render it necessary to put it out of service.

The Tenth avenue cable runs up Tenth avenue from 125th street to High Bridge, and the 125th street cable runs down Tenth avenue to 125th street, there separating and running cars east and west from North to East rivers.

The building which forms the subject of this article was designed by Mr. Paul F. Schoen, and erected under his supervision.

It is a brick structure, with pointed stone trimmings, one story high in all parts, except that it is two stories with a low clock

crete base 7 ft. square and 2 ft. thick, upon which is placed a foundation stone 5 ft. square and 12 in. thick, and on this is placed a concrete block 3 ft. square and 16 in. thick.

A concrete base, furthermore, is put down under all the walls, running back to a suitable depth and with a thickness of 16 in. This is composed of one part best approved cement, two parts sharp grit sand, and four parts of small machine broken stone thoroughly mixed and dumped in the trenches and well rammed down between the curbs, which were set to the proper thickness.

The base for the area wall on the Tenth avenue side is made 6 ft. wide, with the thickness which we have already indicated.

It may be mentioned also in this connection, that the floors of the basement and areas are also made of concrete cement, which is composed of the same ingredients



as the base but is only 5 in. thick, and has at the top, as finish, an inch thickness of best Portland cement, mixed in the proportion of one part sand to one part cement, and is finished perfectly smooth with just inclination enough to give it proper drainage. The highest level is 18 ft. 6 in. below the first story, and framed with a fall of 12 in. towards the opposite corner.

The foundation stones which are placed upon this bed of cement are of blue building stone with flat even surfaces, and are 10 in. thick for the area walls, while a thickness of 12 in. is given to the piers, as we have already stated. These stones for the

cement and two parts of sharp sand, and great care was taken that it should be mixed only as fast as it was used. All the walls and piers are well grouted on each course, so as to leave the walls a solid mass.

The fronts of the building are faced with the best quality of Trenton front bricks, laid in red mortar in the best possible manner, and was afterwards cleaned down with aqua fortis and oiled with raw linseed oil. The brick work is tied every six courses.

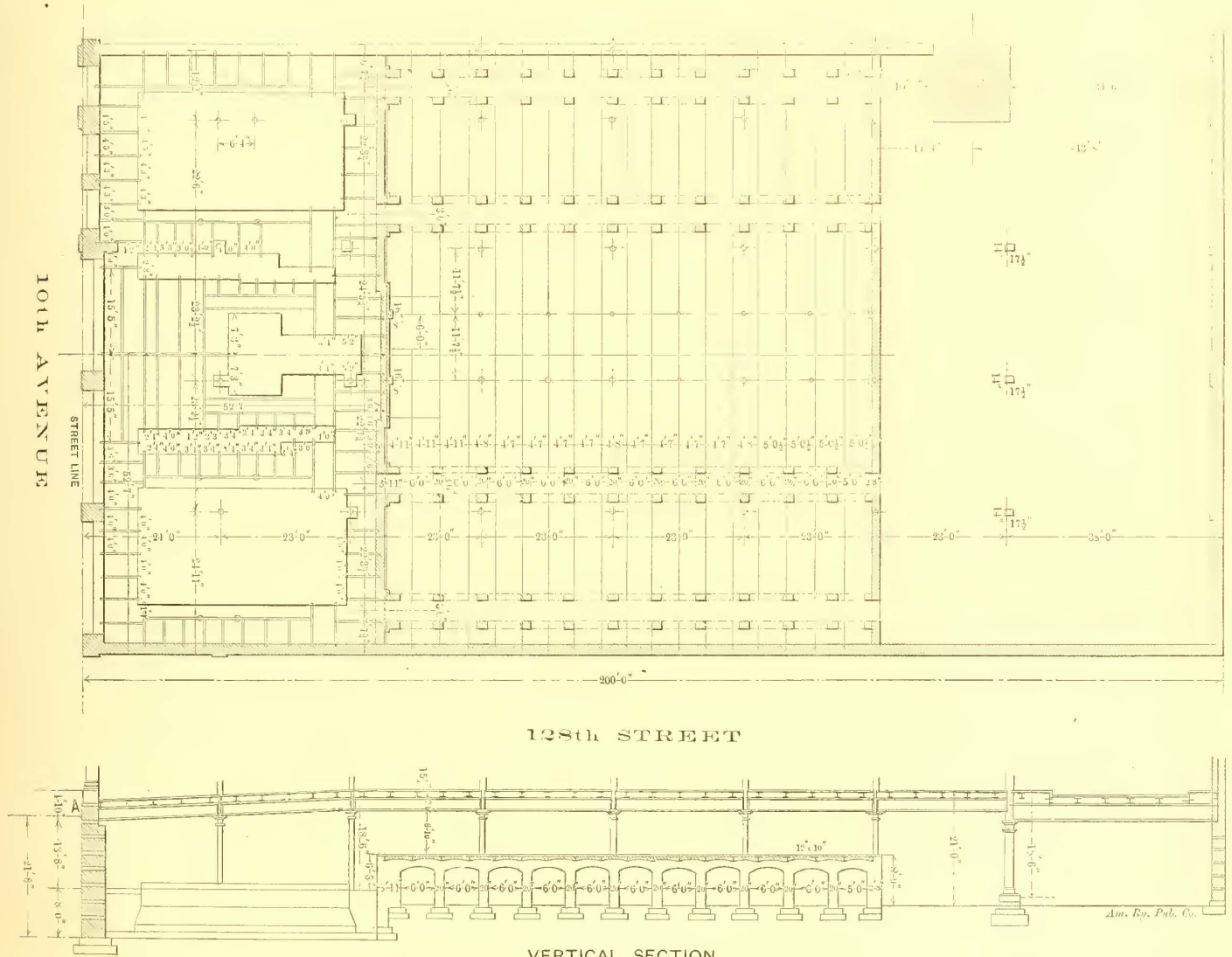
The front and interior of the building is handsomely trimmed with terra-cotta work of the best quality, and is laid in position in a firm and substantial manner.

In plastering the office buildings all the outside walls were prepared with 2 in. furring of porous terra-cotta tiles, and finished with hard finish, the ceilings also were finished in the same manner.

The rear walls of the basement are plastered on the outside with a heavy coat of hydraulic cement, against which the ground is damped.

This is to prevent the water coming in and rendering the lower steps damp.

All the floors and roof, except those of the office building and lantern of the main roof, are arched in between the iron beams with moulded brick and fitted to the



VERTICAL SECTION  
THE TENTH AVENUE CABLE BUILDINGS. FIG. 2.

piers are all in one piece; those for the sides filling the course to the full width, and are closely put together and flushed up with spawls and cement mortar, well bedded together.

All the area walls, and the retaining wall, are built of blue building stone, faced with selected and hammer dressed stone, laid in cement mortar and neatly pointed. They are well bonded and fitted; one bond stone is furnished for every six feet, and the cement mortar is composed of one part first-class cement and two parts sharp sand.

The brick work is laid up with a good quality of North river brick, laid in cement mortar composed of one part best approved

The windows and doors of the basement, and the first story on the street, are furnished with blue stone sills and lintels of proper width, and carefully tooled. The sills are cut with a wash and prepared for an 8 in. reveal.

The granite work for the bases of the columns in basement are 16 in. thick and 3 ft. square with hammer dressed beds and with tooled facing with a bevel.

The granite door sills and steps for the rear door of the office building, as well as the side doors, are made of solid granite blocks 8 in. thick.

The interior walls of the office building are built of hollow tile brick,

lower flange of iron beams. The five first courses are full 8 in. brick, and the center course of solid brick.

The roof is supported by cast iron columns spaced 23 feet apart from center to center, running from the Tenth Avenue front back to the end of the building, and 23 feet 2 in. between centers, running parallel to the Tenth Avenue line, except across the space occupied by the office building, where the spaces are 22 feet 6 in., 12 feet 2 in., and 22 feet 6 in.

Inasmuch as the front of the building is 199 feet 10 in. long, with a depth of 200 feet, this spacing, allowing for the thickness of the walls, will give seven rows of columns



running in a line parallel with the Tenth avenue front, and a row of eight perpendicular to that front.

There are 48 columns altogether instead of 56, which would naturally be expected, on account of the space which is occupied by the office being run up with brick walls and no columns of any kind being used there at all. These columns are made of the best quality of cast iron, and were carefully examined to see that they were all perfectly straight and free from blow holes, and that they were centrally cored. All the joinings of posts and columns were planed and turned true and smooth. All the iron work was given a good coat of metallic paint before it was set.

The inside columns, which support the riveted girders, carry wrought iron floor beams. These columns vary from 1 1-4 in. to 1 1-2 in. in thickness, according to the position in which they are placed, and in external diameter from 12 in. to 14 in.

The intermediate columns cross the front of the building, and at the rear of the shops were made square or of a rectilinear section.

ers, 4 in. square, cut dovetailed, and laid 16 in. apart, thoroughly bedded in the concrete floor.

The flooring is laid with 1 1-4 in. maple, 3 in. wide, grooved and tongued, and blind nailed to every sleeper.

The interior work of the office is finished throughout with cherry and is made of carefully selected stock which, so far as could be determined, is perfect in every respect. It is all hand made work. All the frame work is mortised and tenoned, the panels are backbeaded, and the joints are tongued and grooved, with the sections bolted together.

The three front doors and the other doors opening into the vestibule and main hall are sash doors, 2 1-2 in. thick, with fanlights.

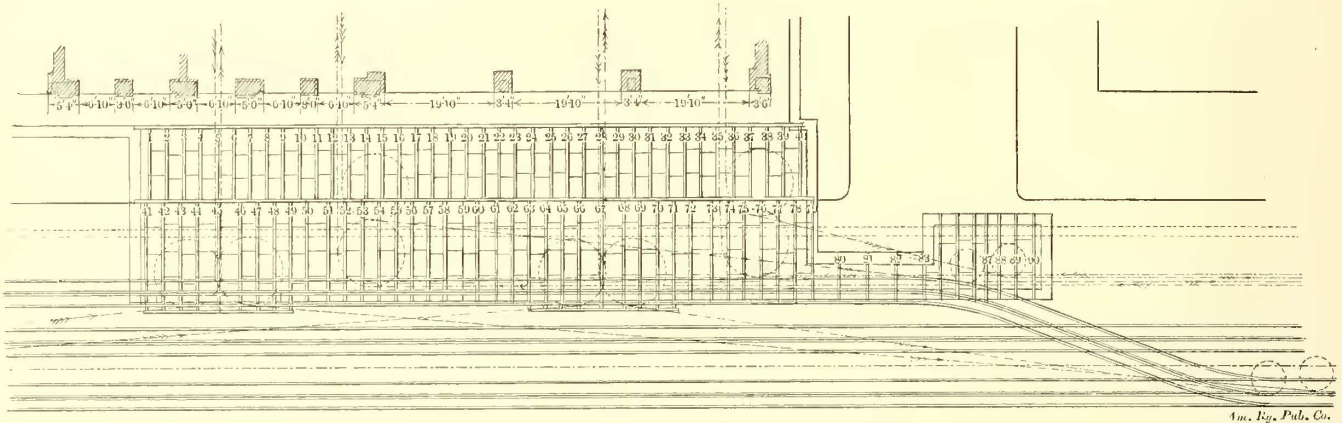
The inside folding doors are 2 in. thick, as are also the outside doors of the first story. All the doors are made of the best white pine, glued up in strips and veneered on both sides; the mouldings and panels are solid. The closet doors are paneled only on one side. All the area doors of the

the best engineers. All the closets were thoroughly trapped, and supplied with vent pipes to carry off noxious gases, and soil traps were used wherever it was considered necessary.

The iron which is used in the iron pipes is carefully examined to see that it is free from holes and other defects, of uniform thickness, and the pipes were coated with coal tar pitch applied hot before they were put into position. They were then firmly secured by wrought iron hooks and hangers. All the joints in the iron pipes were calked with picked oakum and molten lead, so that the joints are made impermeable to gases.

Where connections were made with iron pipe, it was done by means of copper or brass sleeves or ferrules, of the same size as the lead pipe, set into the hub of the branch of the iron pipe and calked in with lead. All the lead pipe connections are made by wiped joints.

The water pipes which are laid in exposed places were packed with mineral wool, or other substances which have the



THE TENTH AVENUE CABLE BUILDINGS FIG. 3

All the columns and posts have bed plates 4 in. wider all round than the posts, and 2 1-2 in. thick.

Where top plates are required, they are full depth of post or the bottom of girder, are carried and projected 6 in. beyond the supporting post and are 1 1-2 in. thick.

The windows throughout, with a few exceptions, have box frames of white pine, with 1 1-2 in. hanging stile, and 1 1-2 in. pulley stile, with 1 3-4 in. stop bead. The frame follows the line of the arches on the outside, but is finished square on the inside.

They further have 1 3-4 in. sashes carefully hung on brass axle pulleys with chains and fasteners. All the frames, except for the office building, are finished on the inside with 3 in. oak wall plate, grooved and tongued into the frames and flush with the brick work.

The frames were painted on the outside with metallic paint before they were set.

The windows in the office building are made of cherry, with box frames, and are finished in the same way as those we have already specified for the main building.

All the flooring for the office throughout, except the halls, is laid on chestnut sleep-

ers, double 2 1-2 in. batten doors of yellow pine, in narrow strips.

All the hardware which is used in the office building is of the finest quality of polished brass, or hard cast metal. This includes such items as knobs, escutcheons, butts, hinges, latches, etc.

The front of the first story, except the fanlights, is glazed with the best quality of French plate glass, and the entrance doors, vestibule and rear doors have glass with embossed line borders. All the fanlights of the front of the office building, and all borders, are glazed with ornamental colored cathedral glass.

The wainscotting for all the rooms and halls and staircase is paneled and moulded with a paneled frieze made of stiles, and rails 1 1-4 in. thick, with moulded caps and bases. The wainscotting in the second story rooms is 4 feet high. Picture moulds are placed in all the rooms. Screens for conductors' and waiting rooms correspond with the wainscotting, as also do the partitions on the second story.

The plumbing for the whole establishment is carried on in the most careful and workmanlike manner, and closest attention was paid to sanitary laws, as laid down by

effect of thoroughly protecting them from the action of cold.

There are three lead mains running into the building, and on each of these pipes there is fitted up a 2 in. Worthington water meter.

One of these leads runs to the boiler, one to the steam pump, and the other to the plumbing fixtures in the basement of the office.

This latter supplies cold water to all the plumbing fixtures as high as the Croton pressure will raise it.

The building is heated with steam taken from the boilers in the basement, and for this purpose 22 radiators of approved pattern are located in the building. They are all provided with neat caps and bases and furnished with perforated iron tops, all neatly finished in gold bronze. The main supply pipe to these radiators is 3 1-2 in. inside diameter, and is connected to the outlets of the boiler with suitable valves. This pipe is extended into the office, and gradually reduced to 3 in., 2 1-2 in., and 1 1-2 in. as the branches for risers and radiators are taken off. All these steam pipes are first covered with a layer of asbestos, then with best hair felt, and finally



wrapped with 10 oz. canvas, which is neatly sewed on, thus making the complete coating 1 1/4 in. thick.

Referring now to our engravings, as we have already said, the illustration on page 130 is that of the perspective view of the building from the southwest.

The columns which are shown in front as supporting the roof over the car storage portions, are made of granite blocks cut to a bearing and rough pointed on their exterior surfaces.

Fig. 2 shows the plan of one-half the building where the machinery is located. By careful examination of all the dimensions the main features of the building will be understood. This machinery is driven by two 28 by 48 in. engines built by William Wright of Newburg, N. Y.

All the arrangements have been made to

gines for overhauling the cable are placed in the blank spaces in the right and left of the engraving.

This machinery has already been fully illustrated in a previous number of the STREET RAILWAY JOURNAL.

The tightening arrangements for the cables, of which there are four, are placed in the long grooves or slots cut in the floor and outlined by the rows of column shown in the right and left of the engraving. The arrangements used for tightening are similar to those used for ordinary cable construction, where there is a movable carriage running on tracks carrying the tail sheave and drawn back by a system of weights and levers placed at the back end of the groove.

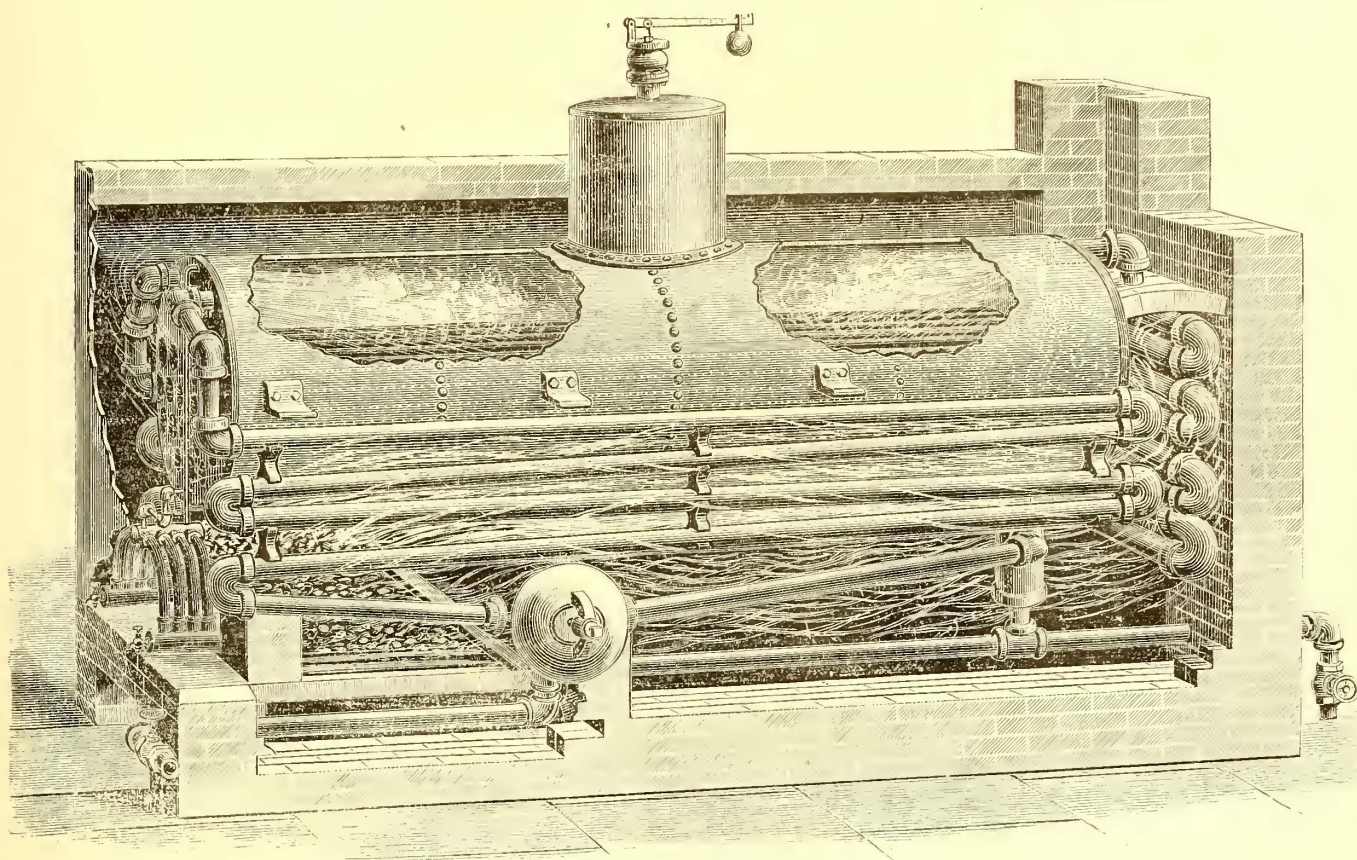
On the opposite side of the building from where the machinery is located, are placed

There is no reason why the building cannot be kept immaculately clean.

There is also ample room for the storage of what fodder and railroad supplies may be deemed necessary.

Back of the machinery room the boiler is located. This is equipped with four horizontal return tubular boilers, 5 1/2 in. diameter and 16 ft. long, shown in Fig. 4. The bottom plate of each boiler is in one sheet 7 ft. wide and 16 ft. long, so that the flame does not come in contact with any of the riveted joints except at the front and back, where the heads are placed. The upper half of the shell is in three plates with the steam dome in the center. This latter is 40 in. high and 3 ft. diameter with the man-hole on top, and two 4 in. steam nozzles.

All the horizontal and circular seams are doubled riveted. The heads are 5/8 in. thick



STEAD'S CIRCULATING GENERATOR IN TENTH AVENUE CABLE BUILDING. FIG. 4.

run these engines condensing, but owing to the lack of water, they are run at present as high pressure and the condensing apparatus is lying idle. This want of water is due to the fact that the building is situated at some distance from the North river, and all the water which is at present available is taken from the Croton water main, which is, of course, paid for by the thousand gallons and is too expensive to be used for condensing purposes. The engines are located in the drawing in the two long spaces near the center, one of which is nearly filled with dimension figures. The cylinder end of the engine stands towards the street, and the crank end runs in the blank space shown in the engraving and drives the main gears which are placed in the T shaped blank space in the center of the plan. The main drive gears and en-

gines for overhauling the cable are placed in the blank spaces in the right and left of the engraving.

The stables, of course, are very few in number. They accommodate about a dozen horses, although not more than six or seven are actually kept there. The floor is covered with concrete 5 in. thick as given in the specifications and so graded that it drains itself into the sewers. The flooring of the stables is the same, so that the whole of the room is made in one uniform manner, the stalls being placed in position after all the concrete work had been completed.

In order to avoid having the horses stand upon the hard pavement the stalls are furnished with movable slatted floors which can be taken up at will and washed out. When this washing is done the water of course drains itself naturally into the sewers and is thus disposed of.

with a hand hole in front near the bottom, so as to give access beneath the tubes for cleaning out. There are sixty 4 in. tubes in the boiler. The shell is of 3/4 in. steel and of the best quality. Each boiler was tested by hydraulic pressure of 160 lbs. before being put in position. They are set on an inclination of 2 in. dropping towards the back end. There is also a heavy flange riveted near the bottom at the back end, with a 6 in. pipe, which acts as a mud drum, having a 2 in. gate valve at the bottom to blow out sediment.

The boilers are set in pairs and, as we have already stated, are four in number. The brick setting is 28 in. thick throughout, and arched over the top of the boiler for escaping gases.

There is a 30 in. pipe on the top of the flue at the back end which is connected to



a 5 ft. flue running to the chimney. Each of these 30 in. flues runs into a 5 ft. flue, so that the boilers may be run together, or separately, if necessary. Each boiler has one of Stead's circulating generators attached to it. This attachment consists of a steel bridge wall 20 in. in diameter and 8 ft. long, acting as a water bridge wall, and taking the place of the ordinary brick wall.

It has, in addition to this, ten 3 in. pipes placed on each side of the brick work, which are 16 ft. long, placed between the boiler and brick work and round about the boiler door. They not only prevent the brick work from burning out, but add very materially to the heating properties of the boiler. They are put in an inclined position and coming out on the front of the bridge wall, pass back and forward on each side, by each of the side walls, and under the front end of the boiler above the water line. The bridge wall is further connected to the 6 in. mud drum by 3 in. pipes which, when the boiler is running, gives thorough circulation from the bottom of the boiler to the top. It is claimed that the circulation which is thus produced in the boiler carries the mud and scale and deposits into the mud drum where it can be thrown out from time to time.

With the ordinary rating, these boilers would not probably run more than 100 horse power, but with the data which we have at hand, we should judge that they are being worked at about 150 horse power. The boilers have now been running for about two years, and we are informed that they are as clean, practically, as when they were first put in, and that there have been no repairs, either to the boiler or brick work. Two of the boilers are now running the entire road, both from the Tenth Avenue and 125th Street lines, without any difficulty. When the road was first opened the fuel used was that of ordinary merchant bituminous coal, and was costing the company about \$24 a day for running the Tenth Avenue line alone. By repeated experiments and careful adjustment of grates, &c., it has been found that the boilers would generate all the steam necessary for running the Tenth Avenue line at a cost of about \$13 a day. Since the 125th street line has been added the coal consumption has, of course, been sent up some, but even now the whole fuel bill amounts to something less than \$20 a day.

It is the intention of the management, at an early day, to make careful tests of the actual cost of running the road, and we shall than hope to publish accurate data in regard to the matter.

It will be seen, however, when it is taken into consideration that the road is now running seventeen cars on its Tenth Avenue line, and this includes the whole from East river to Tenth avenue and up to High Bridge, and also running nine cars across 125th street from the North to East rivers, employing a force for its driving power of one chief engineer, three oilers, and three firemen, that the cost must be very much less than what would be required to maintain the horses and stable them

for twenty-six cars which are now run, especially if they hoped to maintain anything like the maximum speed of which they are capable, that of eight miles an hour.

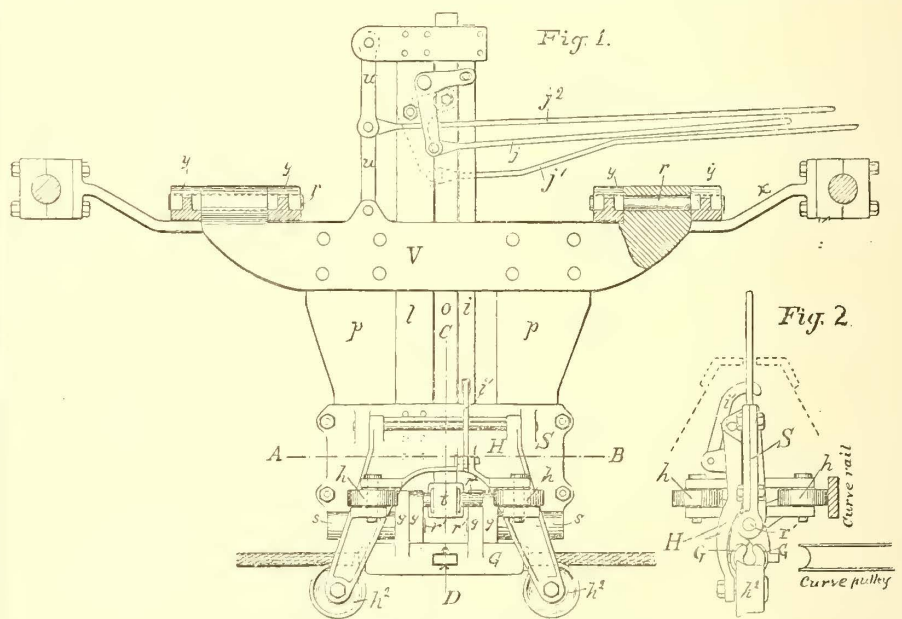
The engraving, Fig 3, gives the plan of the front of the building showing the arrangement of the cables under the sidewalk. The method of laying the duplicate cables will be readily seen from an examination of this plan. Each cable is led out by itself and has a separate trough to run in the building. The arrows show the direction that the cables take in running from and entering the building. The two cables that are shown coming out of the building and separating and then running up and down the street are the ones that run the cables on Tenth avenue, while those that run to the right together are the ones that run the 125th Street line. As we have already explained in a former issue only one of these duplicate cables is run at a time, the

The grip is hung from the axle, as in the drawing, but of course it may be hung from any part of the car desired. It is preferable, however, that the first named connections should be made, on account of it always holding the grip at uniform distances from the top of the rails, so that the deflection of the springs has no influence upon the grip, but the whole will run smoothly and evenly.

The cable is hung on the car, pivoted by the pins mark *r*, by which a slight lateral motion is allowed, and all bending and binding of the grip in turning corners will be entirely avoided.

The main plate, or what might be called the bed plate of the grip, marked *V*, has two thin metal plates, marked *p*, riveted to it.

These form guides, as it were, upon which the sleeve or carriage of the grip, marked *S*, will be raised or lowered. To this carriage is attached the gripping mechanism, and all the attachments by which



ANDERS' CABLE GRIP.

other being held for emergencies that may arise in the case of accident to its mate. The gearing in the building is so arranged that any single one or any possible combinations of two or more may be run without interfering in the slightest with those that it may be desired to keep at rest.

#### Anders' Cable Grip.

We illustrate in this connection a grip\* which has been devised for use on cable cars, by means of which a cable can be dropped and picked up at any point along the line, and which is especially adapted for use where two cable lines cross each other, and it is necessary for one train to drop the cable in order to allow the other to pass over. The drawing from which our engraving is made, shows the working details of the grip, and which, with the explanation we are enabled to give, will make it perfectly clear to any one interested in this matter.

\*David B. Anders, 2313 Ridge avenue, Philadelphia.

the cable is to be operated. The sleeve itself is raised and lowered by means of the upright bar, marked *l*, which is firmly riveted, not only to the sleeve, but to the cross-bar at the top of the engraving, which is raised and lowered by the action of the knee joint, marked *u*.

This knee joint, it will be seen, is operated by means of the lever marked *j* which simply pushes it backwards and forwards and allows the sleeve to fall by its own weight, and then raises it again by the action of the joint. The sleeve carries the parts marked *H*, which are so pivoted that the carrying rollers of the cable, marked *h*<sup>2</sup>, can be swung one side by means of a bar *i*, which is operated by a bell crank at the top of the device. As the bar *i* is moved, the wheels will be thrown in and out. The cable gripping device catches the cable at the sides, and not at the top and bottom, as is ordinarily the case, and this is clearly shown by the form of the jaws, marked *G*, in Fig. 2. These jaws are operated in turn by the bell crank shown at the top of the grip in dotted lines, and by means of the bar



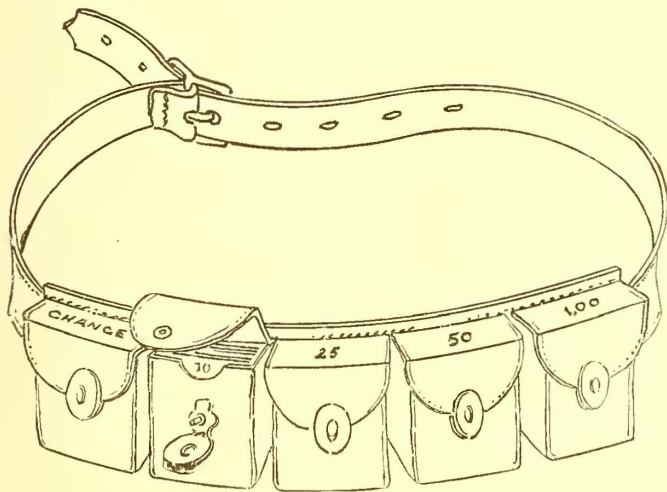
o running vertically to make the proper attachments.

To operate the grip and make it grasp with the cable which is running on sheaves below, the bar *i* is first raised, which swings the piece *H* one side, so that the spools, or carrying rollers, *h*<sup>2</sup>, will not interfere with the rope as it enters the jaws. The operating bar is then forced down and the jaws are opened. The lifting bar *l* is then lowered with the wheel and all the gripping mechanism until the jaws pass over the rope. By depressing the bar *l* at that point the spools are swung under the rope, and the whole is lifted again by means of the bar *l* and the knee joint. The spools are thus raised above the sheaves and the rope is carried with it. Then by raising the operating bar *o* the jaws are forced against the rope, imparting the motion to the car.

In order to stop the car it is only necessary to loosen the rope from the cable and apply brakes to the wheels of the car. Of course, in running down, or stopping upon a grade, the cable may be gripped to a greater or less extent, and the car held in one position by the friction of the cable as it passes through the jaws.

**Martin's Change Belt.**

The cut below shows an improved change belt\* which has recently been introduced. The belt is intended for the use of drivers who act also as conductors, and takes the place of the metal box, now in use, upon the dash board hand rail. As it



MARTIN'S CHANGE BELT.

is worn by the driver it does not require to be taken off and carried whenever he has occasion to leave the car. Nor can it become dented and insecure by any accident that may happen to the car. The belt is made of carefully selected russet leather and is hand sewed and riveted throughout. It contains five pockets, each with an independent and secure pocket, either with or without clasps. Four of the pockets are for change envelopes, the pocket for "10 cents" envelopes being somewhat larger than the others. The belt will hold ten dollars in change, divided in the usual

\*Rutus Martin & Co., 13 Park row, New York.

manner. The fifth pocket, on the right-hand side, is for the money change, and has an inner pocket of tin, giving additional security as well as facilitating the emptying of the money. The simplicity, lightness, durability and convenience of this belt commend it as desirable for the purposes for which it is intended.

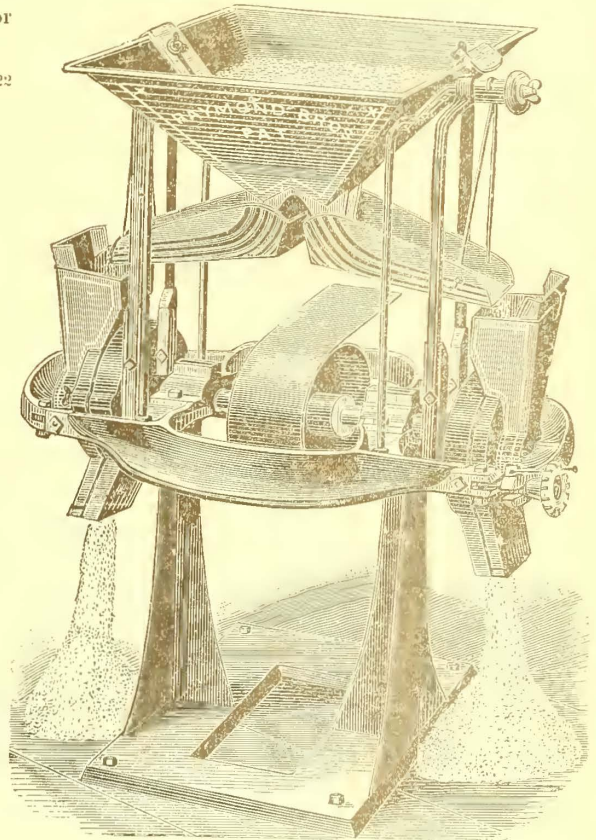
**The American Grinding Mill.**

The accompanying illustration represents a mill\* that has been especially designed for the use of those parties that have a large amount of grinding to do and steam power with which to do it. It has a capacity of about thirty-five to fifty bushels of good feed per hour.

It is built entirely of iron and steel and is very neatly designed as well as strong and durable. The burrs in this mill are of the very best hard iron and it is claimed, will grind from one to three thousand bushels before wearing out. They can then be very easily replaced at a slight cost.

Twenty-one sizes and styles of these mills are made, and adapted for use with steam, wind or water power.

\*Appleton Manufacturing Co., 22 S. Canal st., Chicago, Ill.



THE AMERICAN GRINDING MILL.

**Cable Splice.**

EDITOR STREET RAILWAY JOURNAL:

Owing to the many newspaper articles already published in your journal on the subject of "splices" and the different kinds of "splices," will Engineer Holmes, the President and Superintendent of the cable roads in Chicago, be kind enough to give us his experience during the five years of the operation of the cable roads in Chicago? And what system of splicing he is now using in the cables of his roads, which I learn is a successful method.

MANUFACTURER.

Hyde Park.

Wood, of Boston, Did It.

Here is a scene in a crowded Broadway car. Heavy swell, brown plaid suit; quiet, nerry-looking gent in corner. H. S. gently rubs his knee against fine-looking lady standing next to him. No notice taken. Then he steps on her toe, bound to make a mash. Lady can say nothing, but looks her annoyance. N. G. in the corner catches on, humps himself, and John Lawrence Sullivan himself never sent in a better rib-roaster. The H. S. with the upper portion of plaid suit and contents went through that car window, no doubt much to the relief of the lady and greatly to the delight of the passengers after the quiet, brown-eyed but lively gentleman had explained why he struck out. Let the World get up a fund for new glass for that Broadway car and hang the name of T. E. Wood, Boston, "striker," in red letters, on the outer wall. May he live long and prosper.

If you are a man you are doubtless wondering how could the company be expected to keep a double set of cars and drivers for rainy days and special hours. Well, it

is certainly a woman's view. And I don't see that it would be at all necessary to "double" the number of cars for special occasions; but the wants of the public are such as to absolutely require greater provision for them than exists at present. Perhaps by the time the five years are up our aldermen will have advanced far enough in the direction of serving the city to consider favorably the project of running the street railways themselves. Then we shall have the ideal state of things that prevails in Paris, where public transit is a pleasure, and not an experience equally composed of fear, horror, and disgust. In the meantime one would not wish one's bitterest enemy transmigrated at his decease into the quadrupedal muscle-motor of the Toronto Street Railway.—Toronto Globe.



### The London Railway System. III.

#### CRYSTAL PALACE RAILWAYS.

The lines from the Crystal Palace which serve all the suburbs on the south of London, present, especially on the Sydenham side, beautiful sites for residences and a country filled with verdure. The numerous festivals which are given at the Crystal Palace, summer and winter, draw a considerable number of visitors from all parts of the metropolis. On the days of large festivals, or special exhibitions, the crowd comes from localities in the neighborhood of London, drawn from those places by the low fares which are offered by the railroad companies. Besides the fairs at the Crystal Palace, its permanent exhibition of prominent industries and arts, the beauty of its gardens, and the panorama which one enjoys from its galleries draw thither, especially in summer, large crowds of visitors. In addition to the curious drawn thither from the city we must add the inhabitants of Balham, Streatham, Lower Norwood and Sydenham, who use the Metropolitan daily in the transaction of their business affairs. This active traffic is explained by the large number of roads which cross these localities.

The Crystal Palace and its environs are served, either directly, or by connections with four companies, the Brighton, the Chatham, the South Western and the South Eastern. The two first lines each follow different routes. The two latter are long and are less convenient to the public.

The Brighton has a heavy traffic between London Bridge and Victoria via the West End and Crystal Palace. The distance between them is sixteen miles and requires forty-five minutes for the passage. There are twenty-eight trains in each direction. The Crystal Palace is twenty-five miles from London Bridge, and thirty-four miles from Victoria.

At Clapham Junction, the Brighton connects, by means of the West London, with Kensington station (A. R.). This company, in connection with the South Western, has a short train service starting every half hour from the two terminals. The passage occupies eleven minutes.

From Kensington to Victoria and London Bridge, the Brighton is in connection with the Metropolitan lines of London as follows:

The North Western, which runs into Broad Street; the Great Western; the Metropolitan; the District, etc.

The eastern quarters are less effectually served under these connections with the Crystal Palace, but since the East London has run into Broad Street, travelers avoid the passage which they were formerly obliged to make in order to get access to the Brighton lines.

The fares are the same to the Crystal Palace, whether the start is made from London Bridge or Victoria, and they are not changed if the passenger enters the train between these two points. The fare is thirty cents for first class, twenty-four cents for second class, thirteen cents for thir-

class. Return trip tickets are sold, as upon all metropolitan lines, at a reduced rate.

The North Western and North London roads sell, at their respective stations, including those between Poplar and Kensington, first and second class tickets for the return trip, including the entrance fee into the Crystal Palace. The price of these tickets varies for the days on which they are good. On days when the admission fee is twenty-four cents, these tickets are sold at seventy-two cents first class, forty-eight second class. If we deduct from this the admission fee to the Crystal Palace, we see that the traveler can go from Finchley Road, for example, to the Crystal Palace and return, that is to say, twenty-eight miles, for twenty-four cents.

The Chatham road on its side, has a direct line from Victoria to the Crystal Palace via Brixton, the South London and the line which branches off from Peckham Rye to serve Nunhead, Honor Oak and Forest Hill. It runs above the Crystal Palace, while the Brighton runs below. It is generally known by the name of the Crystal Palace High Level Line.

Passengers coming from the city by way of Ludgate Hill to Brixton are obliged to change cars at the latter station, which is the point of departure for the trains running north. The South London and Crystal Palace Co. have constructed a branch line, which, starting from the main line, joins that of the Chatham near the Camberwell road.

The construction of this branch line permits direct trains, not only between the city, but also between the north of London and the Crystal Palace. The time of passage from Ludgate Hill to the Crystal Palace occupies thirty-five minutes, and that from Victoria to Crystal Palace forty-three minutes.

The South Western has communication with the Crystal Palace by connections at Wimbledon with the Brighton. This route is more expensive and longer than the one we have just quoted.

The South Eastern also takes passengers from Crystal Palace by way of Lower Sydenham, but they have to make a short passage on foot, which is objectionable to many visitors.

By the short line from Nunhead to Blackheath, the Chatham runs from the foot of Greenwich, which overlooks these localities.

Until the connection with Camberwell Road was made, the Chatham could not enter into any competition with the South Eastern, which had the advantage to taking its passengers into the City and West End without changing cars. This could not be done by the Chatham Road, as passengers from Ludgate Hill or Greenwich were required to make two changes. For Victoria station, the advantage lies with the Chatham, and in connection with the North Western and South Western, this company controls the movement of passengers between Greenwich and the West End. This movement is very important, regardless of the numerous omnibus lines which run from Greenwich to Victoria, and a

tramway has been opened upon one of the principal streets which connects these two streets and also carries many of the passengers.

The fare from Ludgate Hill and Victoria to the Crystal Palace by the way of Chatham, is the same as that from London Bridge and Victoria to this location by the way of Brighton road,

As a complement to the suburban service of London, the Brighton runs from London Bridge to Streatham Junction, a train service of sixty-two trains each way, by the way of Tulse Hill and Peckham Rye.

From Streatham Junction to Victoria there are only thirty-six trains a day. This line is far from offering the same conveniences as the Brighton.

#### CROYDON JUNCTION.

Croydon Junction is ten miles from London, and is one of the most frequented resorts of the provinces. It is, at the same time, an important connecting point of the Brighton system. It has five stations at short distances from each other.

From these different stations, with one exception, passengers going to London change cars according as they are going to London Bridge, Victoria or Kensington. The suburban service of the Brighton to Croydon, during the pleasant weather, is one of the most important of this company.

#### HERNE HILL.

Besides the local service, the Chatham has also numerous suburban trains to four stations placed about the London stations, namely: Herne Hill, Dulwich, Sydenham and Penge. Herne Hill holds a position in the Chatham system almost equal to that of Brighton. All the trains, whatever they are, stop there. Here the division of the local trains from those of the main line is made, part running to Ludgate Hill and the others to Victoria.

#### GREAT NORTHERN AND MIDLAND.

These two lines, which start at short distances from each other, cross the localities which formed, twenty-five years ago, the suburbs of the north of London, and which are to-day covered with houses. The ground is rough and hilly, so that the railroads only accommodate the lower quarters which are built upon the sides of the hills.

The Great Northern has in the London suburbs about 9½ miles of road and eight stations. 130 trains a day leave King's Cross station for these different places, one, running by the way of the North London, makes connections with the Great Northern and runs into Broad street, and thus the latter have a station in the city.

The Midland has about the same mileage in London as the Great Northern. The localities which are served in great part by the Great Northern, and in part by the North Western, are the same. This results from the similar position of the two lines. Its service includes 164 trains, serving ten stations. The greater part of the trains of the Midland and Great Northern run from Moorgate street and from the southern lines.

#### CHATHAM, MIDLAND AND GREAT NORTHERN.

The line from Victoria to Ludgate Hill connects with the Metropolitan at Farringdon street and at Aldersgate street, giving



common service between the Chatham, the Midland and the Great Northern.

The Midland station at Saint Pancras is not connected directly like that of the Great Northern at King's Cross with the Metropolitan.

The connection is made at Kentish Town, where all the passenger trains stop that enter and leave Saint-Pancras station.

The Midland trains, starting from Victoria or from Herne Hill, and those of the Great Northern running from Victoria only, cross London from the north to the south by the way of the Metropolitan.

The Chatham has a reciprocal agreement with these companies, and its trains run to King's Cross upon the Great Northern, and to Finchley Road upon the Midland. Besides these direct connections, which comprise a very limited number of trains, the communication between the Midland, the Chatham, and the Great Northern is accomplished by way of Farringdon street and Aldersgate street, where travelers leave the trains of these latter companies, running into Moorgate street.

This common service permits passengers coming from Dover and going beyond London to the north to cross the city by rail. In coming from Herne Hill to Ludgate Hill the following is the case. Trains will be found which carry by connection via Willesden Junction, or direct by way of the outgoing trains of the Midland and Great Northern.

The Chatham has, with these companies, the same arrangements for through tickets as with the North Western at Victoria station.

SOUTH WESTERN.

The South Western, whose starting point is Waterloo, has, so to speak, no local service, although Wandsworth and Putney can be considered as the outskirts of London; but the suburb served is one of those most frequented by Londoners. It comprises, besides this, a trip through the most charming and picturesque neighborhood of the metropolis. This part of the suburbs of the South Western is very similar to that on the west of Paris or parts towards Reuil, Bougival, Marly and Saint-Germain. The great parks and gardens which you will meet there, and the Thames, which flows there more quietly and is certainly purer than at London, and the air which we breathe has less smoke, all of which prove very attractive, and are features which are thoroughly appreciated by the inhabitants of the city and West End. It is not astonishing, then, that railroads should be multiplied in this direction, and that from all parts of London the Metropolitan should desire to have connection with them.

The South Western serves this suburb on both sides of the Thames.

There is a train service of forty-five trains a day in each direction from Waterloo to Wandsworth, Putney, Barnes, etc., and a movement of fifty-four trains to Hammersmith, Kew, etc.

The lines on the right and left bank of the river communicate with Richmond,

All suburban trains on the South Western, which have Waterloo as their point of departure or arrival, stop at Waux station, which is within the limits of London.

THE COMMON SERVICE OF THE CHATHAM AND SOUTH WESTERN.

By arrangement with the Chatham, the South Western runs a small number of trains to Ludgate Hill. Thus the service which goes to Kensington, Hammersmith, Kew, etc., starts alternately from Waterloo and Ludgate Hill. One connection, made a number of years ago, put the roads of the two companies in connection at Wandsworth Road.

Frequent communication is established, besides, between Ludgate Hill and Clapham Junction by a special service between these two points, putting trains of the West London, those of the Richmond line, and of the main line of the South Western in communication with the trains of the Metropolitan.

Finally, a connection is made several times a day between the main lines of the South Western, which starts from Wimbledon, and those starting from Ludgate Hill for the north.

The South Western, by means of its different connections, has a station in the city, that of Ludgate Hill. From its Waterloo station it connects with trains from Charing Cross to Cannon street, which takes passengers to the West End. In spite of the advantageous position, the South Western company found that the detour which they are obliged to make in order to get to Ludgate Hill is too long, and asked from Parliament a concession of an embranchment from Waterloo to Blackfriars.

GREAT WESTERN.

The original breadth of gauge adopted for the Great Western was about six feet eight inches. The principal line, having London as a point of departure, was built and accepted with these dimensions.

The inconvenience of this great breadth was not slow in making itself felt when it was found necessary to connect with the Metropolitan, which had a breadth of four feet four inches, and the most serious of all was the necessary transshipment at all points of connection with other lines, and the impossibility of taking in the trains of the Great Western or the cars of other companies.

Of all the solutions proposed by the promoter of the broad gauge, that of Mr. Brunel was the only one adopted, which was the addition of a third rail upon the road where the rolling stock of the Great Western was circulated. This arrangement, complicated and imperfect as it was, was applied to the Metropolitan and West London, and permitted the cars of the Great Western to run, as we have said, to Moorgate street and Victoria.

In order that there should be no delay at connection points with other lines, and in order that they might change cars, the company now decided to abandon its broad gauge and adopt the narrower.

At a general assembly, the directors announced to the stockholders that in the months of April or May of that year the

road would be changed so that it would be the same as that of its connecting lines.

This transformation remains historically in the records of railroad construction and is one of the most salient features in those of English roads.

At that time, the Eastern Counties road, which is today called the Great Eastern, had adopted the narrow gauge, but at the time when the change was made this line was far from having developed anything like the importance of the Great Western.

The most important metropolitan service of the Great Western is that from Moorgate street to Kensington and Hammersmith. Hammersmith, in 1834, was a village only remarkable for its great number of country seats. A service of trains ran every hour from Fleet street and Charing Cross, and put it in connection with the city. The population of Hammersmith today is engulfed in the metropolis, and is more than 22,000 inhabitants. To the carriages which ran from Fleet street numerous omnibus lines are the successors, which run every six minutes from the interior of London. In summer the steam cars run every fifteen minutes from London Bridge to Hammersmith.

To these means of transport three lines of railroads have been added, the South Western, running from Waterloo to Ludgate Hill, taking in at Kensington the passengers of the Metropolitan and the District; the Great Western, whose trains serve the line between Hammersmith and City Junction; and the North Western, which runs by way of the North and South Western Junction Railway.

These three lines give a movement of ten trains an hour.

The passage requires thirty-nine minutes from Moorgate street, forty minutes from Ludgate Hill and Waterloo, and forty-eight minutes from Broad street.

The fare, on the average, for the three lines, is seventeen cents for first class, thirteen and one-half cents for second class, and nine and one-half cents for third class.

The Great Western's service from Victoria has its trains run so that it connects with the main line from Southall, ten miles from Paddington, to those of the Chatham and Victoria, and those of the Brighton and South Western at Kensington (A. R.)

This completes the enumeration of the principal line of the Metropolitan and Suburban Railways. We have given those combinations of train service which are the most interesting to the public, and those which permit the passage over the greatest distances of London and its suburbs without imposing long stops at connecting stations. The experience of every day, and the opening of new lines, renders changes of course inevitable and they are taking place from time to time.

The public itself is furnished with time tables, both by the company and by Bradshaw, of those trains and service which we have not indicated here.

In a future issue we will speak of the fares and the service which are offered to workmen, and the speed at which the trains are run,



## French Tramways.

Judging from the official returns, tramways in France do not appear to offer any inducement to the investor. The current number of the Bulletin du Ministère des Travaux Publics gives very detailed and tabulated information upon these undertakings and the results of working during the three months ending with March of this year. The statistics deal with about 430 miles of tramways, the property of thirty-two different associations in all parts of France. From the tables referred to we learn that these lines cost in round numbers \$25,664,000, or an average of about \$61,468 a mile, of which \$27,584 were expended in works, and \$33,880 a mile on rolling stock, or an average of 45 per cent of the former and 55 per cent of the latter on the total outlay. These proportions do not represent individual cases, the variations being very wide.

PARTICULARS OF NINE PRINCIPAL TRAMWAYS IN FRANCE.

Roads.	Length Miles.	Cost per mile.		Percentage of total cost.		Gross Receipts.	Working Expenses.	Revenue on Capital per cent.
		Works.	Rolling Stock.	Works.	Rolling Stock.			
Marseilles.	14.4	\$41,000	\$57,000	42	58	\$ 64,600	\$ 67,278	- 1.64
Bordeaux.	24.4	21,800	3,725	85	15	102,414	64,856	+ 5.95
Cambray-Catillon.	15.5	21,500	5,275	80	20	5,614	3,872	+ .42
Lille.	27.0	28,700	24,000	54	46	54,907	50,916	+ .04
Valenciennes.	30.0	19,800	5,080	60	40	20,539	12,023	+ 1.13
Lyons.	25.8	39,600	26,800	75	25	106,673	82,086	+ 1.43
Seine. (a)	36.0	27,450	87,120	24	76	443,924	128,356	+ 1.52
" (b)	39.7	38,960	59,210	39	61	154,333	128,356	+ .63
" (c)	42.2	40,200	38,300	48	52	152,401	155,499	- .06

Thus on the Nimes tramways the works cost 90 per cent and the rolling stock 10 per cent; on some of the Seine lines the respective percentages were 24 and 76, and on the Lyons tramways \$724,800 were spent on works, and \$1,698,400 on stock, or percentages of 85 and 15. During the three months ending last March the gross receipts on the various lines amounted in round numbers to \$1,517,240, and the cost of working to \$1,369,840, leaving a net profit of \$137,400, or 52 per cent on the capital invested. The tabular statement given below shows the position of nine of the leading French companies at the date mentioned above.

The most unfavorable record is that of the Sevres-Versailles tramway, which cost \$157,680, and the working expenses of which are nearly double the receipts, making a deficit of 6.22 per cent on the capital invested. There are five different associations controlling the Seine tramways; those marked (a) in the preceding table are worked by the Paris Municipality; those marked (b) by the northern suburban Paris Tramways Company, and (c) by the southern suburban Paris Company. Besides these there is a system controlled by the General Omnibus Company and another by the Department of the Seine. None of these concerns are flourishing, the highest return being 1.52 per cent, and the lowest a deficit of 1.71 per cent. It is worth noticing that only four companies had made any reserve during the time under consideration for renewals, &c., the Bordeaux and three of the Paris companies. The Bordeaux

tramways system indeed is the only one that shows a favorable result, as it pays nearly six per cent on the capital, and indicates, both as regards first cost and working expenses, ample evidence of skill and economy. The range in construction and expenditure is very great, and is not to be accounted for by anything shown in the tables. Rolling stock on the Bordeaux lines only cost \$3,726 a mile; on the Marseilles line, \$57,112, while the works were \$21,780 per mile, as against \$41,140 in Marseilles, and nearly the same in Lyons and Paris. As concerns repairs also, the Bordeaux lines cost only \$1,119 for repairs during the first three months of the year, while those in Marseilles cost \$6,490, and in Paris from \$5,000 to \$15,450 in the same time, the mileage for Bordeaux being 24; for Marseilles, 14.4, and for Paris 36, 29.7, and 44.2 miles. Of course it is possible that those companies whose expenses for

repairs are so heavy may have been engaged on special renewals, and it is quite probable that in many cases receipts and expenditures may bear different proportions during the spring and summer months, but so far as the tables we have referred to indicate, there appears to be but one prosperous tramway undertaking in France.

## Cost of Feeding Horses.

EDITOR STREET RAILWAY JOURNAL :-

I saw in the October number of the STREET RAILWAY JOURNAL a statement of Superintendent Duty, of the East Cleveland R. R., on the cost of feeding horses. For the past six years I have had full charge of a road, and for the past four years have kept a record of the cost of feeding the horses. His report showed that it varied from 24½ cents down to 18½ cents on 550 horses. I have had only 39 horses for two years, and 40 horses for four years. The cost is 27, 26, 23 and 22 cents on this small number of horses. While his bran cost him \$10 and \$12 a ton, mine cost from \$18 to \$20 a ton, and his corn cost from 37 cents to 50 cents a bushel, mine cost from 45 to 73 cents a bushel, and hay costing from \$12 to \$15 per ton.

I offer this statement modestly, knowing of course that it is higher than what is obtained by the larger roads, but think that a crawling down so closely to the figures of a large road with this small number of horses, is nothing to be ashamed of.

C. M. DAVIS,  
Poughkeepsie City R. R. Co.

## The Birmingham Cable Tramway.

The construction of the cable tramway from Colmore Row to the borough boundary in Hockley is about to be commenced. In the early part of the summer Mr. E. Pritchard, M. I. C. E., who with Mr. Joseph Kincaid, M. I. C. E., of London, is engineer to the Central Tramways Company, paid a visit to America and inspected the various cable systems in operation in a number of transatlantic cities. The result of this visit was to convince him of the economical advantages of the cable principle, and to afford valuable information from an engineering point of view. In a number of particulars the construction of the line in Birmingham will differ from that which is to be seen elsewhere, and will be a marked improvement upon the cable tramway in Highgate Hill, London. The designs having been well thought out by the engineers, have received close examination at the hands of the Borough Surveyor and the Public Works Committee, and have now been finally approved. Tenders for material and labor in accordance with specifications have been invited, and the work upon the line commenced. The Tramway Company have also begun operations upon the land they have acquired in Whitmore street, Hockley, for the purpose of the erection of driving machinery and sheds for the accommodation of rolling stock. The financial conditions under which the work is to be undertaken have been the subject of prolonged negotiations between the directors of the Central Tramways Company and the municipal authorities. An agreement was arrived at which, while fair to the company, will secure the Corporation from loss. The latter are to be the constructors and proprietors of the line, and the company will be lessees. There will be two miles and five furlongs of single line, the cost of constructing which is estimated at from \$111,000 to \$125,000, or about \$46,000 per mile. The company have deposited \$12,000 per mile; and a sum to pay for taking up the cable rail if found useless or unremunerative, a contingency concerning which little fear is entertained. As the Central Tramways Company, through their engineers, possess special advantages, it has been arranged that they are to stand in the relation of contractors to the Corporation for the purpose of constructing the line. The Corporation will provide the stonework which will be supplied at cost price to the company, who will be paid for the work done as it progresses according to the Borough Surveyor's certificate. It is expected that the tramway will be ready for opening by May next. The line is to be laid upon the three feet six inch gauge, corresponding with that of the newer tramways throughout the town, and the rails for the car wheels will be of similar construction, with the narrow groove for the wheel flanges. In the middle of the line will be two flat rails placed side by side at such a distance from one another as to make a narrow slot over a chamber in the roadway, through which the cable runs



and by means of which the cars may be attached to the cable through the operation of a gripping appliance. In some of the existing tramways the cable chamber is practically a rectangular iron tube, but it is proposed to use instead of this a chamber or gutter of concrete about two feet six inches deep. At every four feet there will lie in this chamber a structure of wrought T iron called a "yoke," which will serve as a transverse sleeper to support both the outside rails and the slot rails. The latter will be attached by the tie-bars to the outer rails, so that the pressure of the stone sets of the roadway may not tend to push them together, and so close the slot. The structure of the yoke is something like the letter V, with an O lying in the angle, except that the arms of the V are more widely opened and curved instead of straight. In the cable chamber there will be, at intervals of thirty feet, cast iron or steel pulley wheels, revolving vertically, and affording support to the cable. These wheels, which are about thirteen inches in diameter, are made somewhat heavy, and lie upon bearings so as to run smoothly and without rattle. Wherever they occur there will be constructed by the side of the chamber a small manhole, through which a workman can reach the pulleys to grease them, or to lift one completely out and substitute another in case of injury. In order not to catch dirt and wet falling through the slot the pulleys and cable will run not immediately beneath but a little to one side of the opening.

The cable will form a circuit running up the center of one line, round a horizontal, or nearly horizontal, pulley at the town end, back to Hockley through the chamber of the other line, and through the driving machinery at the engine-house, and then back to the first line in an endless chain. For working the traffic it is proposed to use two vehicles, one called a "dummy," which has a gripper to hold on to the cable, and the other a passenger car, attached to the former by a coupling. In some tramways the "dummy" is used only for the driver or man controlling the gripper, but in the present instance it will probably be used to carry "outside" passengers, instead of their being placed on the top of the second car. With regard to the gripper, it may perhaps best be explained by supposing that the left hand were put down the slot, the fingers underneath the cable, and lifting it somewhat from the pulleys on which it runs, and the thumb pressing upon the top. By holding it loosely the cable would run through the hand, but by pressing down the thumb it would be held fast, and carry the hand along with it. Not only this, but where necessary an arrangement could be made whereby the cable could be lifted sideways entirely out of the grasp. The gripper is an iron arrangement very much on this principle. That which answers to the fingers is a piece of iron having two little wheels to lessen the friction; while that which answers to the thumb is another piece of iron, which by the action of a lever is pressed down tightly on the cable so as to

hold it fast. The working of this mechanism on a straight or nearly straight line looks pretty easy, but what will puzzle a good many people is how the cable is to be worked round a sharp corner like that at the top of Snow Hill, and how the cars are to be changed from the up to the down line. The line on this part is to be constructed over a subway, with iron girders to support the road, and instead of vertical pulleys 30 feet apart there will be a series of horizontal wheels or sheaves, with a flange on the lower side only. These are comparatively close together, and will have this effect—that as a car ascends Snow Hill and turns the corner, the cable, instead of being nearly beneath the slot, will be found running round these sheaves rather nearer to the center of the curve, and the gripper will pull it sideways from each sheave as it passes, and thus avoid striking the horizontal pulleys, as by lifting the cable it avoids striking the vertical pulleys in the straight portions. In order for the car to change from one line to the other an automatic arrangement will be made, just beyond the points, to release the cable from the gripper, and it will for a short distance be carried at a lower level in the chamber, round a large terminal pulley revolving in a pit, and then into the chamber of the return line, gradually rising until it reaches the level at which it will slip into the gripper of the car, which, from the point at which it previously lost the cable, will run by gravitation, but controlled by a brake over the points on to the departure line. The object of the subway is that the sheaves on the curve and the terminal pulley may be constantly examined and attended to.

The cable will be of about an inch in diameter, composed of six strands of crucible steel (seven wires to a strand) twisted round a Maitland center, and tested up to 80 tons to the square inch. For driving it there will be provided at Whitmore street two engines of three hundred horse-power each. These, however, will suffice to work another current of cable up Soho Hill to Handsworth, which may be expected to be constructed hereafter. Large horizontal wheels under the roadway near the brook will lead the cable into the engine-house, and it will there run round the driving pulleys, and also round some ingeniously-devised appliances for maintaining a uniform tension, and for presenting a stretch of slack in which repairing operations may be performed. The aid of electricity will be invoked to apprise the engineer of the breakage of any of the strands of the cable, so that he may know when to expect the damaged portion to pass through the engine-house. Upon an almost entirely hilly route, such as that between Colmore Row and Hockley, the traffic, if equal both ways, would be worked by a fraction over the power needed to move the weight of the cable. The inequalities of the traffic, however, at certain times of the day will necessitate a considerable reserve of driving power. The depot in Whitmore street occupies a site of about two acres, half of which will be covered with buildings. The

construction of the new line will enable the Wheeler street route to be opened for traffic. On that line steam engines will bring the cars to the junction with Constitutional Hill, where they will be taken on by the cable, and complete their journey to the middle of the town.—Birmingham Daily Post.

#### The Original Home of the Horse.

There is no doubt that the original home of the horse is not Europe, but Central Asia; for since the horse in its natural state depends upon grass for its nourishment and fleetness for its weapon, it could not in the beginning have thrived and multiplied in the thick, forest-grown territory of Europe. Much rather should its place of propagation be sought in those steppes where it still roams about in a wild state. Here, too, arose the first nation of riders of which we have historic knowledge, the Mougolians and the Turks, whose existence even at this day, is, as they were, combined with that of a horse. From these regions the horse spread in all directions, especially into the steppes of Southern and Southeastern Russia and into Thrace, until it finally found entrance in the other part of Europe, but not until after the immigration of the people. The assertion is at least strongly favored by the fact that the further a district of Europe is from these Asiatic steppes—i. e., from the original home of the horse—the later does the tamed horse seem to have made its historic appearance in it. The supposition is further confirmed by the fact that horse-raising among almost every tribe appears as an act derived from neighboring tribes in the East, and North-east. Even in Homer the ox appears exclusively as the draught-animal in land operation at home and in the field, while the horse was used for purposes of war only. Its employment for military operations was determined by swiftness alone. That the value of the horse must originally have depended on its fleetness can easily be inferred from the name, which is repeated in all the branches of the Indo-European language, and signifies nearly "hastening," "quick." The same fact is exemplified by the oldest poets, who, next to its courage, speak most of its swiftness.—Popular Science Monthly.

#### Clippings.

THE CONDUCTOR is a lady's man. He is always looking after the fare.

AN IRON SIDE BEARING RAIL is reported to average about fifteen years for a lifetime. Stringers last eight years.

A CORN arises from the wiring in of the horn against the sensitive parts within the hoof. We know from experience how uncomfortable it is to wear a tight shoe, and so it is the same with the horse.

THE HOOF, or horny box, is apparently the same to the horse as a shoe to man. Contraction of the hoof, may it be great or small, so, accordingly, does the horse experience his sufferings to the degree of contraction.





Monthly, \$1.00 per Year.

## American Railway Publishing Co.,

113 Liberty Street, Lakeside Building,  
New York. Chicago.

E. P. HARRIS, President,

J. H. MCGRAW, Secretary,

H. M. SWETLAND, Treasurer.

Chicago, LAKESIDE BUILDING, E. L. POWERS, North-western Manager.

Boston, Mass., 185 SUMMER STREET, H. M. SWETLAND, Manager.

Philadelphia, 119 So. FOURTH ST., J. H. MCGRAW, Manager.

We publish in another column a report of the expenses and investment of some of the larger of the French tramways. It will be interesting to street railroad men as affording a means of comparison of the work which is done in France with that which is accomplished in this country. It is generally supposed that street railroad stock is the most paying of any that the public can invest in, in large places; but we see that in Marseilles, Lyons, and Paris, the dividends are very small, and in two cases the expenses exceeded the income. This is due, in great part, to the fact that on French tramways the cars are never crowded and no one is allowed to enter unless there is a seat vacant; or, in case of gentlemen, there is standing room on the platform. There are, in many cases, four places on the rear platform where men are allowed to stand, and when a seat is vacant inside they take their turn in occupying it. The sign "Complete" hanging upon the outside of the car prevents people from entering, and this cuts down the income of the company; for it is, of course, impossible for a company to run a car the whole length of a long line when it will be filled only a small portion of that distance. It is undoubtedly this fact which cuts down the French income much below what would be ordinarily expected to be received in this country.

It is interesting to note, too, the high percentage which the rolling stock consumes in the actual investment of the road, in one case rating as high as seventy-six per cent for one of the Paris roads. This, although the line is a long one, is undoubtedly due to the fact that very many more cars must necessarily be run in order to keep up the system, which we have already indicated, of not admitting passengers when there are no seats.

### Arbitration.

Mr. Chauncey Depew in an address made at the opening exercises of the recent convention of the Brotherhood of Locomotive Engineers, made a strong point of the attitude that this association had taken, regarding their union with the

Knights of Labor, that had been so strenuously urged upon them. He said that they were so competent and so reasonable and had been so just in their deliberations that every other business was laid aside and every one else dismissed when they knocked at the door of the office of any railroad president in the country. And this was because they came there in the conscious strength of pursuing their business better than any one else could tell it them. Now, had they sent a cabinet maker or piano tuner to argue their case the door would be closed, not because the cabinet maker and piano tuner might not be very worthy and valuable members of the community, but because they knew nothing of the subject they come to talk about.

It is this same position that has been forced upon employers of other branches of labor, and especially of the street railway companies, whose men have allied themselves in common league with the butchers and bakers and candlestick makers, to say nothing of the bonds uniting them with the rough scuff and rag-tag and bobtail of all creation. And then under the incitement of these associates and led by them in many cases, a loud hue and cry is raised by the noble champions of labor if, perchance, a cigar roller is denied admission to the office of a railway president, where he has come to dictate the terms of wages and time under which a car driver is to work.

No wonder the roads have been obliged to shut down on this kind of nonsense and have it distinctly understood that they are not open to arbitration with outside organizations but will treat only with committees appointed by the employees from among themselves.

"Come, let us reason together," has come to mean, in the minds of the laborites, a long torrent of abuse on the part of the demagogues and a silent acquiescence on the part of the manager, and it is no wonder that under these peculiar circumstances managers have been compelled to close their doors on all committees that have been moved by this kind of impulse.

### Art of Advertising.

BY WM. H. BAILEY.

In looking about us and seeing the immense incomes derived from many inventions and patent rights, we are apt to think that the inventors are remarkable men, and that it is only necessary to study out or hit upon some new and ingenious device to secure a fortune. But when we realize the fact that almost every intelligent and thoughtful mechanic has one or more wonderful inventions in his mind, or on paper, or in a model, we see that it is not a very difficult matter to study out an ingenious and perhaps practical contrivance to accomplish almost any purpose in a mechanical line, and therefore the great problem to be solved in order to secure the fortune, is not so much how to invent a good thing as it is how to make the public see it and appreciate it, and get it into gen-

eral use. There are today thousands of inventions far better than those now in general use, for many purposes, lying dormant for want of capital or proper management on the part of the inventors to introduce them to the consuming public.

"Necessity is the mother of invention," and inventors are generally persons of very limited means, which are quickly expended; and in trying to obtain more capital with which to perfect and introduce their inventions, their patents become encumbered or "tied up" in some way and the business suspended. Or should sufficient capital become interested, the managers usually make a great mistake in thinking that the only way is to "push it" by employing salesmen or agents to travel and obtain personal interviews with buyers, and before they are hardly aware of it their expenses have enormously exceeded their returns and they become discouraged and virtually abandon the enterprise. An old note broker once said to the writer, "There are two reasons why a note will not sell on the market, one is because it is not known, and another is because it is known too much." So with new inventions; you may push them too hard by ambitious salesmen promising too much, and getting users to adopt them in place of other appliances nearly as good by causing them to expect too great a gain, and the result is you have disappointed your customers and made enemies of competitors whose appliances you have displaced while they were yet doing good work.

The policy of forcing a new invention into places where nothing of the kind is really needed, by misrepresentations and undue influence of personal solicitation, is not only very expensive but reacts by incurring the ill will of all competitors and causing them to unite against it.

The manager of every invention or specialty should bear in mind that although his field may be large it is already covered by other devices that are doing the work and answering the purpose and that no salesman can influence a sensible man to incur the expense of making a change so long as the old works well enough; consequently in nine cases out of ten if not ninety-nine out of a hundred, a salesman's call amounts to no more than a circular.

The better method and the one that has been proved by long experience of the most successful houses of this country to be the more economical, is to advertise constantly and attractively in such regular publications as reach the desired trade, and issue circulars only to dealers and others who may be able to directly influence trade, and to employ salesmen or agents sufficient only to call where it is learned through other sources that there is a chance for business, and not waste valuable time and expense in searching promiscuously over the whole field of possible purchasers.

In these days of cheap printing, every important branch of business has its trade papers devoted expressly to its interests and every subscriber who is paying for his paper will at least glance through it, if he



does not read it attentively, and it being a periodical visitor he will naturally, about the time he is expecting to want something in that line, examine its advertising columns to see if there is anything new or different from that he is already familiar with, whereas a circular or paper sent to him occasionally and free of expense will seldom be noticed or preserved for reference, unless it should arrive at the very moment when a purchase is under consideration; and I have known men to refer to advertisements, get the address and write for a circular, which they had just thrown into the waste basket under their desk.

The value of a paper as an advertising medium does not depend upon the number of copies issued but directly upon the number of actual paying subscribers in the trade which the advertiser desires to reach; and herein lies the gist of the whole business and accounts for the unsatisfactory returns for large sums of money annually expended by many advertisers who give out their contracts promiscuously without making a thorough investigation into the claims of solicitors.

"Don't buy a pig in the poke;" it is a comparatively easy matter to get a good looking paper and print off two or three thousand copies and send them to a list of names taken from a directory, and claim a wide circulation. But it takes years of time and thousands of dollars to get a large list of paying subscribers and to thoroughly establish a paper in the haunts of busy men so as to make it of much value to advertising patrons.

If a man desires an engine to give him forty horse power, he will not pay for it until he has had it proved to him that it will do the work and that those who make their advertising contracts on the same business principles are not constantly complaining that they have spent a great deal of money in advertising and don't know that they ever received any benefit from it.

The art of advertising consists not only in the selection of the best mediums but also in the preparation and setting of the matter so as to attract the eye and in furnishing for the reading columns brief and frequent items of news in which the name of the house is in some way connected.

Money properly expended in newspaper advertising is beyond question the most profitable investment a manufacturer can make, but no one should expect a hundred dollar contract to produce results equal to a fifteen hundred dollar salesman, as many do.

Working Expenses.

"You are one of the parties who are buying up street railroads, I understand."

"Yes."

"I have a pretty big interest in a road at Louisville, and would like to sell."

"Any other stockholders feel the same way?"

"Shouldn't wonder. It's a rare chance; horses are mighty cheap down there, and—"

"Never mind about the horses; what's the price of Aldermen?"—Exchange.

Notes and Items.

The Editors would consider it a favor if those who are interested in street railway matters will send in any items that may come to their notice of changes, extensions or improvements. These memoranda will be duly inserted under this heading, and the proper changes made in our Street Railway Directory.

Albany, N. Y.

THE ALBANY RAILWAY Co. is laying 3,000 feet of Gibbons' Metallic track.

Binghamton, N. Y.

THE BINGHAMTON CENTRAL R. R. Co. report that they have now laid three miles of track, which is one-half a mile addition to what they had at our last report. The name of Alonzo Everts as Vice President has been added to our list of officers.

Baltimore, Md.

THE PEOPLE'S RY. Co. report thirteen miles of track and thirty-eight cars, being an increase of two and one-half miles of track and eight cars over their last report.

Boston, Mass.

WILLIAM REED, the defaulting Treasurer of the South Boston Railroad, has been sentenced to seven years in the State Prison.

THE BOSTON CONSOLIDATED STREET RY. Co. have now 375 cars and 1800 horses. J. H. Studley is Superintendent, with an office at 16 City Square, Charlestown.

THE METROPOLITAN HORSE RAILWAY Co. of Boston are undetermined as to which is to be the method of driving their cars in the near future—the cable or the electric current.

THE BOSTON CONSOLIDATED STREET RAILWAY Co. has filed a charter in the Secretary of State's office, asking the Legislature for authority to construct, maintain and use railways in Brookline, Cambridge, Somerville and Chelsea. President Powers explains this petition by saying that it seems no more than just that his road should be given equal rights as those held by rival companies. There may be consolidation with roads running to Cambridge and Chelsea, but it is not contemplated at present. It is not probable, Mr. Powers says, that the Consolidated will adopt the cable system this year, 1886, though it may do so in 1887. He was of the opinion, however, that the use of an electric system was more probable than a cable. The cable system had not been thoroughly perfected, and unless something could be done to prevent the danger of breakage, which was at all times liable, cables could not be relied upon except by roads possessed of double tracks. The Dalt and Sprague motors, and perhaps some others, Mr Powers said, had shown good results, and upon the whole were far more likely to be adopted than the cable system or surface roads.—Ex.

THE METROPOLITAN STREET RAILWAY Co. have laid a petition before the Selectmen of Brookline for a permit to lay tracks in Brookline on Beacon street, from the line of Boston to the intersection of Beacon with Harvard street, and there to connect with the tracks on Harvard street with its junction on Washington street, and then to the tracks on Longwood avenue. President C. A. Richards appeared for the Metropol-

itan, and argued that the town would receive great advantages from having this method of communication with Boston, and that the present horse car accommodations were totally incompetent to do the work satisfactorily. He presented a petition advocating the location, containing 693 names. In opposition to Mr. Richards, Mr. John Panter appeared for the West End, which is desirous of appropriating the same location, and said his company had offered \$100,000 for the street franchise, and certainly ought to be given the preference by the Board. Mr. Richards also amended his petition with the consent of the Board, asking that he might operate his cars either by cable or electricity, as he might choose. The board have taken the two petitions under consideration, but no decision has yet been reached.

Brooklyn, N. Y.

PRESIDENT WILLIAM RICHARDSON is having the cable for the Park avenue road manufactured in Cleveland. He will put it to use as soon as it is completed.

BROOKLYN CITY RAILROAD Co. The resignation of President Wm. H. Hazard took effect on the first of December. The office has been offered to and accepted by Daniel F. Lewis, of the Lewis & Fowler Manufacturing Co., who has been Secretary and Treasurer of the Company.

CROSTOWN R. R. Co. The large cars which are put on in place of the short "juggers" are what are known as "three-quarter" cars, and are eighteen inches shorter than the ordinary cars. It is expected by the patrons of the route that conductors will be put on these cars, but the old system of cash box collection is still maintained.

THE BROOKLYN RAILWAY SUPPLY Co. report that they are furnishing sweepers as fast as they can turn them out. Among roads using them for the first time are those of Trenton, New Brunswick, Harrisburg, New Haven, Bridgeport, Schenectady, and as far south as Memphis, Tenn., where the progressive Superintendent, Mr. Semmes, will leave nothing undone for the comfort of his patrons. They have invented a new style of self feeding sand car that is a great improvement over any old style. The first one goes to President Parsons of the People's Line of Philadelphia. Boss & Walkaway snow scrapers are selling rapidly.

BROOKLYN ANNEX ST. RY. Work has begun on this road, formerly known as the East New York, Bay Side and Ozone Park Railroad. About a mile of track will be laid before Jan. 1st, and the road will be concluded as promptly as possible in the spring. The route is laid through the 26th ward of Brooklyn, which was formerly known as New Lots, and covers 8 miles of the most thickly settled streets of that territory. It is one of the most promising of the new roads on the list of those contemplated in Brooklyn. The officers are: President, F. M. Delano, New York; Vice President, H. H. Adams, Brooklyn; Treasurer, Philip Richardson, New York; Secre-



tary, M. C. Earle, Brooklyn. The Directors include the gentlemen just named, with the addition of H. L. Terrell, New York; Wm. J. Gaynor and Peter Sutter, Brooklyn. The temporary offices of the company are at 204 Montague street, Brooklyn, with Mr. Gaynor.

#### Buffalo, N. Y.

THE DISEASE KNOWN as "pink-eye" prevails among the horses in this city. The street railroad companies have eighty-seven horses sick.

THE LEIB LUBRICATING Co. are meeting with very decided success in the introduction of their Dux Lubricant. At a recent test made upon one of the most prominent New England railroads, the Master Car Builder sent in his report, showing the power required to start cars both on reverse curves and straight lines, that were oiled with the Dux Lubricant and ordinary black oil. In almost every instance the car oiled with the Dux Lubricant started more easily and the average of the whole number of tests, which was 43, showed a saving of 33½ per cent on the average over the car lubricated with oil, or that the latter required 50 per cent more power to start it than the car oiled with Dux Lubricant. The cars were in both cases equally loaded and over exactly the same track and at the same speed.

#### Charleston, S. C.

THE CHARLESTON CITY RY. Co. have now 110 horses instead of 115, and Evan Edwards has taken the duties of Secretary in addition to those of Treasurer, the transfer having been made of Assistant Treasurer Frank Whilden. John Mohlenhoff has been promoted to the position of Superintendent from that of foreman.

#### Chicago, Ill.

THE CHICAGO RY. Co. has also presented an ordinance for right to run on Dearborn street, and claim that they are entitled to the grant and that they will not be required to obtain the consent of property owners. The Dearborn street property owners think that they can control the legislation regarding the disposal of their thoroughfare, and even if the old south side company have a right to the road, they claim that it ought to be laid aside, and their interests looked to.

THE DEARBORN STREET RY. Co. have presented a petition to the city council asking permission to lay double tracks on Dearborn street from the river to Polk street. A majority of the property owners signed a petition for the road about a year ago. The Chicago Passenger Railway Co. have an ordinance before the city council asking for a right to occupy Dearborn street, but has failed to secure the signatures of a majority of the property owners, and no action has been taken.

#### Detroit, Mich.

THE GRAND RIVER STREET RY. Co. have now six and one-half miles of track laid, with a forty-five pound rail, are using fifteen cars hauled by 160 horses. This is an increase in every respect over their last report.

#### Evansville, Ind.

THE EVANSVILLE STREET RY. Co. have in-

creased their track by two miles, making fourteen miles, and are using fifty more mules than formerly, having now 240. W. S. Gilbert has succeeded P. W. Raleigh as Secretary and John Gilbert as Treasurer. The office is in the Merchant's National Bank building.

#### Freeport, Ill.

The new Freeport street railway is completed and thoroughly equipped for business. Hon. Jacob Krohn, President of the Second National Bank, is President of the company; F. C. Platt, of Waterloo, Iowa, Vice President; W. G. Barnes, Treasurer, and John B. Taylor, Secretary. George D. Clinger is Superintendent and General Manager. It is well constructed and furnished with rolling stock of first-class design and equipped with all the most recent improvements.

#### Gloucester, Mass.

THE GLOUCESTER CITY RAILROAD Co. report 4 miles of track laid down, 4 ft. 6 in. gauge, with 35 lb. rails, and have 1,090 horses. Morris C. Fletcher is President, Walter A. Jones Vice President, F. W. Homans Treasurer, D. G. Pearson Secretary. The office is on Railroad avenue.

#### Greenbush, N. Y.

THE NORTH & EAST GREENBUSH STREET RAILWAY Co. report 1½ miles of track laid with 4 ft. 8½ in. gauge, 4 cars, 12 horses. A. Blukerbank is President and Treasurer; J. Gascoigne is Superintendent.

#### Helena, Montana.

HELENA, MONTANA, has the distinction of having built the first street railroad in the territory. It commenced running three cars built by the Pullman Co., about two months ago, and two more of the same have recently been added. The standard gauge is used, and the 2½ miles of track is equipped with the Johnson girder rail of 38 lbs. to the yard. It is regarded by the inhabitants of the place as a great success, and 30 per cent premium has been offered for the stock. The officers of the road are C. W. Cannon, President; J. B. Wilson, Vice President; L. A. Walker, Secretary and Treasurer.

#### Ithaca, N. Y.

A meeting has been held to consider the advisability of modifying the Ithaca Street Railway franchise which has recently been passed. There are no objections to the changes asked with the exception of the matter of running the proposed road on unpaved streets. The Board seem to think that the railroad company ought to not only pave between the rails but also two feet on each side. This, however, they agreed to modify so that they simply be required to pave their roadway.

#### Jefferson, Ill.

TOWN OF JEFFERSON ST. RY. Co. It is said that this company is a bona fide enterprise, and that the capital stock of \$200,000 is all guaranteed. It is the intention of the company to begin the work of laying tracks early in the spring, although the routes have not yet been selected. There is no street railroad of any kind at Jefferson, and it is said there is great need of one.

#### Little Rock, Ark.

THE LITTLE ROCK STREET RAILWAY Co. have now 5 miles of track. F. C. Reed has succeeded A. J. Thompson as Secretary and C. F. Penzel as Treasurer.

#### Los Angeles, Cal.

THE MAIN STREET & AGRICULTURAL PARK RAILWAY Co. report 8 miles of track laid with 3 ft. 6 in. gauge, 16 lb. rails, 12 cars, 49 horses. Arthur C. Taylor is added to the list of officers as Secretary. The Farmers and Merchants Bank holds the office of Treasurer.

THE TEMPLE STREET CABLE RAILWAY report 1½ miles of track laid with 3 ft. 6 in. gauge, and 16 lb. rails. P. Beaudry has succeeded Walter S. Maxwell as President, and F. Woods is now Secretary of the company.

#### Meriden, Conn.

THE MERIDEN STREET RAILROAD Co. will be opened about January 15. Daniel F. Barber is Superintendent.

#### Milwaukee, Wis.

THE CREAM CITY RAILROAD Co. has 17 miles of track.

#### Moline, Ill.

THE MOLINE & ROCK ISLAND RAILROAD is now in running order, with 5 miles of track, 8 cars and 40 horses, and two steam motors weighing 11 tons each. Eugene Lewis is President and Treasurer pro tem, and James Cazatt Superintendent.

#### Muskegon, Mich.

WM. McLAUGHLIN has succeeded C. H. Newell as Superintendent of the Muskegon Street Railway Co.

#### Nashville, Tenn.

THE SOUTH NASHVILLE STREET R. R. Co. report that they are now using, in addition to their old style of rails, a 32 lb. girder rail, and they expect to build a branch road one mile long. Their office is on the corner of S. Franklin and Cherry streets.

#### Newburyport, Mass.

A NEW STREET RAILROAD is to be built early next spring, commencing at Plum Island, a noted summer resort near Newburyport, running across the Island to Fair street and Water street, in Newburyport. Its length will be a little more than four miles, the gauge 4 ft. 8 1-2 in. The capital stock is \$40,000 and the charter has already been granted. The officers of the company will be E. P. Shaw, President and General Manager, and Eben Sumner, Treasurer. This route will afford two ways of getting to the Plum Island hotel, as the Plum Island end commences at the river, where all the up river and Newburyport boats land their passengers. It will be in running order by June 1st, 1887.

#### New York.

THE EIGHTH AVENUE LINE is still looking towards electricity.

CHARLES B. MILLER has made F. Jordan, 200 Broadway, New York, state agent for the Magnolia Anti-Friction Metal.

THE STANDARD UNDERGROUND CABLE Co. are now laying the cables for the Western Union Telegraph Co. and for the New York Fire Department.

THE THIRD AVENUE company are discussing the project of cabling the Third avenue



line. This is probably due to the success which they have obtained on the One Hundred and Twenty-fifth street and Tenth avenue lines, of which they have the control.

James P. Coogan has presented a petition to the Board of Aldermen for the city's consent to build a new surface railroad from 151st street and Seventh avenue to 147th street and Sixth avenue, and thence to 129th street and Third avenue.

Messrs. Rufus Martin & Co. have sold twelve of their "Benton" fare registers to the Meriden Horse R. R. Co. They have also sold the same company the balance of the equipment supplies. They report increasing sales of their change belt, which is a good indication of its merits.

D. D. Conover, the old President of the Forty-second Street Railroad Company, is making an attempt to get a cross-town railroad through Wall street. He has a plan for a roundabout road that would take lawyers, brokers, and business men around to the doors of almost all the office buildings.

The following is the annual report of the Sixth Avenue Railroad in New York to the Railroad Commission: Gross earnings, \$839,403; operating expenses, \$594,009; other income, \$4,200; charges, \$85,663; dividends, 13 per cent, or \$195,000; deficit for year, \$31,069; surplus, September, 1885, \$67,592; surplus, September, 1886, \$36,523; cash, \$92,503; profit and loss surplus, \$36,523.

The Board of Aldermen granted a franchise to the Melrose & West Morrisania Railroad Company to run a railroad along a number of roads and avenues in the annexed district. The road is to be built with side-bearing rails, and at the end of ten years the company is to keep the streets clear of snow and ice. The railroad committee have also under consideration the petition of the Bentley-Knight Co. to construct a road connecting the Fulton, Cortlandt and Chambers street ferries.

THE ONE HUNDRED AND TWENTY-FIFTH STREET CABLE LINE was opened to the public on the morning of December 1st. It was not intended to open the line so early but after making a private trial of the road and getting everything in readiness, it was decided to begin at that time. The travel upon the road is quite heavy. There are nine cars which run entirely upon this street, besides seventeen which run to High Bridge. These latter cars run down Tenth avenue to One Hundred and Twenty-fifth street, and then eastward to the East river. This practically gives a service over One Hundred and Twenty-fifth street of twenty-six regular cars. The speed of the cable is eight miles an hour, and as the streets are clear the cars are run up to the maximum speed a good deal of the time. The fare on both lines is five cents.

Mayor Grace has vetoed the resolution of the Board of Aldermen granting franchise to the North & East River Railroad Co., which wishes to run an electric surface railway to connect with the various down town ferries. The objections are based upon the

ground that for more than 1,000 feet it is coincident with the Belt Line road, and also occupies more than 1,000 feet of the Ninth Avenue and Bleecker Street roads. He concludes his objections in this way:—

"In conclusion I desire to draw your attention to the fact that in order to operate this road upon the plan proposed it will be necessary to lay electrical conductors in the streets. It will be pertinent for you to inquire in your reconsideration of the matter as to the effect which the Act of 1884 and 1885 with reference to electrical subways may have upon this particular application. I will not, however, pursue that inquiry, as the objection already presented disposes of the matter so far as I am concerned."

THE TWENTY-EIGHTH AND TWENTY-NINTH STREETS RAILROAD Co., which has just secured its franchise over the Mayor's veto, was originally known as the Twenty-eighth and Thirtieth Streets Railroad Company. This secured its charter on April 24, 1884. The capital stock was 5,000 shares. The president was S. H. Hurd, the secretary and superintendent Frederick A. Bartlett, and the directors were Messrs. Hurd and Bartlett, E. N. Nichols, Nathan Seely, George H. Seely, W. H. Ritter and J. F. Harrison, the last named being the attorney of the corporation. The name of the company was changed to its present one on June 22, 1885, when the proposed route between First and Ninth avenues, in Thirtieth street, was laid out in Twenty-ninth street. The general scheme of the road is to utilize Twenty-eighth and Twenty-ninth streets to cross the city and to connect the Twenty-third, Thirty-fourth and Forty-second streets ferries. The president now is Jonathan H. Crane, secretary and treasurer of the Manhattan Brass Company, a large owner along the East River; the secretary is Mr. Bartlett, who has been active in promoting the road, and the treasurer is Mr. Harrison. The office of the company is in Temple Court. The directors are Jonathan A. Crane, Edward P. Beach, Samuel H. Hurd, Gilbert M. Speir, jr., Jared F. Harrison, New Rochelle; John W. Mercereau, Jr., and Frederick A. Bartlett.

According to the company's report to the Railroad Commissioners, the right of way cost \$708.30 and the company says it has acquired consents representing \$10,000,000. The total cost of the road as reported to the Commissioners up to September 1, 1885, was \$1,690.30, the balance of \$982 being set down as "cash realized."

A director of the company denied emphatically recently that anything had been paid to the Aldermen for the franchise. It was thought that last year they wanted "something," but this was refused and the franchise "had not cost a cent."

#### Norristown, Pa.

Owing to the delay in the construction of the street railway known as the Norristown Passenger R. R. Co., a committee has been appointed to go ahead with the organization of a separate company. The cost of building and equipment will be about

\$30,000. The projectors of the enterprise expect to begin work in the early spring. The par value of the shares will be \$25 each, and it has been decided that the fares shall be only five cents. It is said that those who are prominent in the enterprise are confident that it will pay. The entire length of the route will be between three and a half and four miles.

#### Quincy, Mass.

NEW STREET RAILWAY. W. L. Faxon, John C. Randall and C. A. Faxon of Quincy have filed with the Secretary of State a petition to the legislature for incorporation for the purpose of building a street railway in Quincy, to be operated by a motive power other than steam. The proposed route will connect the villages of West Quincy and Quincy Point with the center, covering about five miles. New York parties are ready to build the line and take a large amount of stock. The line would eventually run through Wollaston and Atlantic to Neponset, connecting at Field's Corner with the Dorchester avenue road and thence to Boston.

#### Richfield Springs, N. Y.

NEW ROAD. A meeting has been held in the office of the Hon. James S. Davenport, to take into consideration the subject of building a street railway from the village to the lake, a distance of about 1½ miles. D. C. Hadcock of Syracuse submitted a proposition to furnish the capital to build and equip the road complete, taking all the stock. It is probable that the road will be built.

#### Richmond, Va.

NEW ROUTES. Two propositions have recently been placed before the City Council, one from the Union Passenger Railway Co., asking for a permit to build a double track road from East 12th street to various streets beyond the grain elevator, another from the same point to the new reservoir, and agreeing that the road shall be completed and in running order eighteen months from the granting of the petition. The company is to operate these cars by the use of horses and mules, or if they choose at any time they have the privilege of adopting the cable or electric motor; locomotives will not be granted. The fares are to be five cents for passengers within the city, but if the passenger, without leaving the cars, shall return to any point nearer to that from which he started than a point from which he has passed a second fare shall be paid. The company also proposes to transport baggage, packages, mails and freight. They are to pay also 10 per cent of the net profits as taxes and assessments of the city. Mr. Pace's proposition is that of building a road encircling the city, reaching Libby and Church Hills, Chimborazo Park and Oakwood Cemetery. It is also proposed to embrace in this plan a connection with Manchester over a bridge which is to be built. It is proposed further to use dummy engines on which some system of electricity can be adopted.

#### St. Louis, Mo.

THE ENGINE HOUSE AND CAR BARN of the cable line of this city were destroyed by



fire recently. The engine, which cost \$70,000, was badly damaged. Forty-two cars were burned. The total loss is about \$75,000.

San Francisco, Cal.

**TIE-UP.** As the result of the refusal of the Geary Street Cable Railway Co. to grant its employees increased pay and reduced hours, a tie-up was ordered on the morning of December 12th and one hundred men went out. The company, however, ran several cars during the day with new hands.

Scranton, Pa.

**THE SCRANTON SUBURBAN RAILWAY CO.** has been opened. This is one of the first roads in the east which is run by electricity, the Van Depoele system being used. There are at present two cars upon the road, and one more has been ordered. On the afternoon of November 30th there was a trial trip at which several gentlemen who are interested in the promotion of the scheme, were present. The track was in the worst possible condition, being covered with snow and ice, which upon the heavy grades presented almost insuperable obstacles to the advance of a car, which is to be propelled with a motor, and depending for its progress upon the weight resting upon its wheels. The road is in some places quite steep, running up grades of 300 feet to the mile and turning sharp curves. The car ran over the whole length of the road without difficulty, and experienced only some very slight delays, where it was obliged to melt the snow to the rails by turning the wheels before advancing. On the return trip it was mostly down grade, the car running through the heavy slush which lay over the rails without any difficulty whatever, and all connected with the scheme have expressed themselves as satisfied with the results. We have received from the Secretary of the company a time table which took effect on December 13th. The cars run every twenty-five minutes, commencing early in the morning at 7.5 A. M., the last car leaving the Valley House on the up trip at 10.50 P. M. The time of running the cars varies during the day from five to thirty-five minutes.

Stamford, Conn.

**THE STAMFORD HORSE RAILROAD CO.** report 5½ miles of track, with a 4 ft. 8½ in. gauge, and are running 10 cars with 40 horses. F. M. Delano is President of the company, and Philip Richardson is Treasurer.

Stillwater, N. Y.

**VICE PRESIDENT W. L. DENISON** has succeeded S. Rowley as President of the Stillwater & Mechanicsville Railway Co. The vice presidency is now filled by Lyman Smith.

Toledo, O.

The arrangement now is for both the Consolidated and the Metropolitan street car lines to run cars to the new depot via Knapp street. There is a heavy fill on Knapp street, between Broadway and the depot, and the two companies have agreed to pay for that portion of the fill to be occupied by the tracks. The Metropolitan

company will pay two-thirds of this expense and the Consolidated company one-third. The division is thus made for the reason that the Metropolitan company will occupy three blocks of Knapp street, while the Consolidated company will occupy one block. There will no doubt be a double track from Broadway to the depot grounds. The two street car companies will meet with the city solicitor and the latter will draw an ordinance to govern all concerned. This will enable both lines to get their cars near the depot, and the people of almost the entire city can then get to and from the depot for a single fare of five cents. The new depot will thus be better accommodated with street railroads than was the old one.

Utica, N. Y.

**Deerfield Corners**, which is a suburb of Utica, N. Y., has for a number of years been occupied as a place of residence by clerks and mechanics, who come into the city every morning and return in the evening. During the fall and spring, and winter, the roads are very disagreeable, and at one time a stage was run between the bridge and corners. It is now, however, the intention of the head of the management of the turnpike, Mr. A. D. Barber of Utica, to construct a street railroad running out to the suburb.

Yonkers, N. Y.

**THE YONKERS RAILROAD CO.** is now being rapidly completed, and probably will be opened about the first of the month. Orders have been sent out that the road should be at once put in order for running the cars, and in order to do this it has been necessary to work night and day. The frost and snow have proved very obstinate and the pieces of earth, when excavated, are like so much stone. Switches are being laid and the stables are very nearly ready for occupancy. The road will be four and one-half miles long, laid to a 4 ft. 8½ in. gauge, with 42 and 48 lb. rails. At the opening of the road there will be about 10 cars and 45 horses. The officers are: President, D. N. Stanton; Assistant Treasurer, D. Perry Stanton, and Secretary, John F. Brennan. The capital stock is placed at \$200,000. This is high, of course, for the length of road we have indicated, but it is the intention of the company to extend their lines very materially, and they have the franchise for building about twenty miles of road in the place. It is their intention to add about one-half mile of track very soon, so there will be five miles in all. The offices of the company are at the stables on Main street, and the cars which they have just purchased were built by J. G. Brill & Co. of Philadelphia.

#### Softening Leather.

Mix boiled linseed oil, 1 pint; beeswax, 2 ounces; burgundy pitch, 1 ounce; turpentine, 2 ounces. Melt all the ingredients together over slow fire. The mixtures should be well rubbed into the leather on both sides, but principally on the flesh side.—Harness.

#### Bryden Forged Horse Shoes.

These shoes are forged into shape on heavy drop hammers, which does its work in the same way as a drop forge, by condensing the iron and adding very materially to its wearing qualities, so that it is claimed it is nearly equal to steel in its durability. We have no data of comparison in this matter, but from the strength and tenacity of drop forgings in general should think the claim might well be made.

The distinctive feature of this system of manufacture is that it produces a shoe calked or plain and ready for applying to the hoof. The crease is made low, the holes punched well in, and beveled so as to permit the nail head to be deeply driven in, thus reducing the strain on the nail, and insuring a permanently fastened shoe. As the foot bearing of the shoe is level it materially aids in the preservation of the hoof, and it is not necessary to heat the shoe in order to fit it. The shoes are not welded in any place, as the calks are forged on solid from the web.

The shoes have a good and substantial clip drawn up from metal driven outside the regular outlines of the shoe for the purpose; the outer edge of the clip, when drawn up, coincides with the outlines of the shoe and requires no cutting away of the hoof wall to let it in.

These shoes are at present used by the large street railways in New York, Philadelphia, Chicago, New Orleans, Buffalo, Washington and Brooklyn.

#### Can't Dismount from a Street Car.

Some philosopher—not Emerson or Carlyle, but one equally observant—has said that there are two things a woman cannot do; throw a stone without hitting some one behind her, and sharpen a lead pencil. To this list I think another might be added—she cannot leave a street car properly. Did you ever see her get out of one of those, especially the bobtail species, without wondering why she escapes serious injury? When she puts her foot on the platform (the size of it, the foot, not the platform, is, of course, material to the question,) she invariably turns her back to the horses and steps out in the opposite direction. She seems to have no ideas of the laws of propulsion or gravitation, and never stops to consider that if the underpaid driver, who also acts as cashier, ticket-seller and conductor, were to start his horses a moment too soon she would be pitched violently into the street. So far she has not met with an accident, but some day there will be a confused mass of striped stockings, disordered bangs and disarranged bustles on the cobble-stones, and when that time does come I can only echo the wish expressed in the last stanza of "John Gilpin" by saying, "May I be there to see."—Ex.

**CARBOLIC OINTMENT** is good to apply to running sores on a horse's leg, and is extensively used by veterinary surgeons.

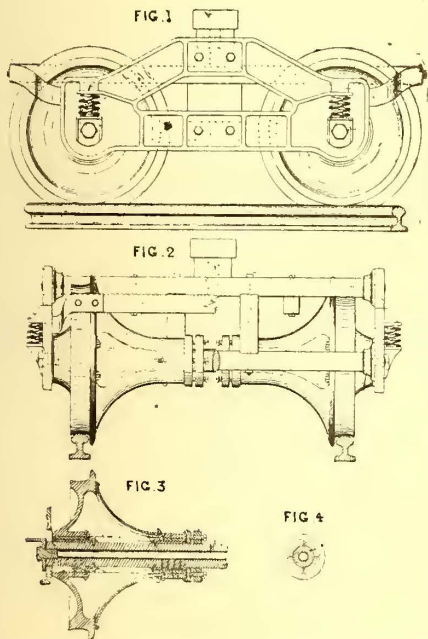


**White's Loose Wheel and Truck.**

The truck\* and wheel illustrated in this connection is one that is intended to do the work that is usually assigned to a loose wheel.

The truck frame has the sides made of cast steel, ribbed outside and inside, and having a head or socket that allows the cross timbers to fit tightly into it, where they are drawn up with bolts, and it is also so looped that there is space for the axle to work up and down according to the load. Over the space a bracket is cast on the side of the frame, and another bracket bolted to the end of the axle, with a cross between them to carry the car. The large bolt also serves to stop the ends of the hollow axle so that it will hold the oil.

The axle is made about 5 in. in diameter, with a 2 in. hole through it. It also has a hole in the center and top of the axle by which it may be filled. The wheels are made hollow, running from the center of



the axle out as far as may be needed to make the bearings from outside to inside as long as the diameter of the wheel, in other words, making them square, on the principle that a square cannot be cramped on the curve. Two wrought iron bands are also shrunk near the center of the axle and held fast in addition with set screws. There is one loose band with a lip on it which goes over the inside of the hub, and has set screws to go through the tight band, by which the wear is taken up. The wheels also have the novel feature of doors which can be opened and access given to the bearing and hub. These bearings are made in quarters, with a dovetail at one end and bolt at the other to secure them. The axle bearings are cut in halves and secured in the same way, so they can be taken out and replaced when worn. Oil holes are drilled through the bottom of the axle and the half sleeves that are around it, so that when the wheel is running it lubricates the axle, as illustrated in our Figure 3.

\*R. T. White, 148 High St., Boston, Mass.

The worn parts can thus be easily replaced. The wheel is also made in three parts, steel tire, outside and inside hubs. These latter are cast separately and bolted together with the tire between them, so that the tire, as well as the bearings, can be replaced when it is worn. The wheels will thus be seen to be independent and answer all the purposes of a loose wheel. We are not informed of the weight of the structure, or an estimate of its cost.

**International Railway Exposition at Paris.**

The prospectus of the grand Railway Exposition that is to be held in Paris in 1887 has been issued and we make the following extracts therefrom:

A grand celebration of the Semi-Centennial of Railways in France meets a necessity imposed upon us by our national prestige. England in 1885, the United States at Chicago, in 1883, Belgium in 1885, all celebrated the anniversary of that new science of railways that has so completely and effectually transformed the economic conditions of mankind in the space of half a century.

France could not refrain from rendering homage to the greatest scientific issue of our epoch. Obeying the impulse, we have attentively studied the question to find the surest means of realization.

There appeared to be certain indispensable elements necessary to the success of our International Exposition, such as government and press support, the interest of manufacturers, favorable co-operation of foreign countries, the concurrence of enlightened men and a board of directors devoted to the interests of the undertaking, and, moreover, carrying with it the necessary financial strength.

We are happy to be able to confidently state that we have secured the advantages of all the above elements, and have thereby been led to establish four main sections for the celebration of the semi-centennial:

1. International Exposition of Railway Appliances and Industries.
2. International Railway Congress for the Discussion of Tariffs, Safety, Comfort, etc., etc.
3. Official Ceremony of the Opening of the Line, Paris—St. Germain.
4. Unveiling of a Statue to Marc Seguin, and Railway Jubilee.

The above programme was definitely adopted by the Committee of Organization at Paris, July 17, 1886.

For a long time a special exhibition of railway appliances at Paris has been considered a necessity, the conclusion being further strengthened by the fact that much enthusiasm was expressed at the first exhibition of the kind, held at Darlington, England, in 1882, when the suggestion was made that such an exposition should be held in Paris.

Such an undertaking affords a most fertile field of study and experience, and good must result therefrom to all in any way connected with the science and working of railways, and also to the people at large.

At all the exhibitions held in all parts of the world since Darlington, the name of Paris has been unanimously received as a rendezvous for the railway world in the future.

It is also expected, and every effort will be made to secure such a result, that the Railway Exposition in 1887 will be a fitting prelude to the Universal Exhibition to be held at Paris in 1889, and that a broader interest will be manifested in such exhibits as pertain solely to railway interests than has hitherto been the case at universal exhibitions.

For the Committee of Organization:

President, Montaut, Ingénieur en Chef des Ponts et Chaussées, Député de Seine-et-Marne; Vice Presidents, Salvaire, Chef de Division à la Prefecture de la Seine, Olivier, Ancien Officier de Marine; Secretaries, Sautereau, Ingénieur Civil; Sincholle, Ingénieur des Arts et Manufactures.

The following circular has also been issued by Mr. John W. Weston, who has been appointed Commissioner General for the United States to the Exposition:

An International Exposition will be held in Paris, from May to October, 1887, when a Railway Jubilee will be solemnly celebrated.

This exposition will comprise the various industrial and professional branches connected with railways, such as: Engineering and Mechanics, Locomotives, Machinery, Passenger Coaches and Freight Cars, Hoisting and Wrecking Apparatus, Apparatus or Heating and Lighting, Apparatus for Intercommunication, Couplers and other Railway Appliances, Building, Furnishing and Conveyance Material, Metallurgical and Electrical Apparatus, etc.

At the same time an International Railway Congress will be held by delegates from Railway Companies, Chambers of Commerce, Scientific and Professional Societies for the discussion of important questions of Management, Exploitation, Maintenance, Rolling Stock, Security, Traffic, etc.

Manufacturers and all others interested in the United States are earnestly invited to co-operate in order to secure such an exhibit as will enhance their prospects of foreign trade, and at the same time display the unexampled progress of their country.

JOHN W. WESTON,  
Com'r General for the United States,  
230-236 La Salle street, Chicago.

OVER 1,000,000 PASSENGERS, it is said, have already been carried by the electric railways of the United States, and in Europe that number has been exceeded. The cost of electrical power thus applied is \$12 per day as against \$18 for horses, and the cost per passenger in 1885 was 83 cents as compared with \$1.55 in 1884.

Corn when fed to horses in too great quantities will produce a superabundance of fat, but no muscle. It also tends to overheating and may result in violent perspiring followed by the formation of scabs all over the body.



### Test of an Electric Railway at the R. I. Locomotive Works.

The Providence Journal says that upon the premises of the Rhode Island Locomotive Works there is laid a section of car track just one-teuth of a mile long, with curves and gradients. Here may, upon occasion, be seen the somewhat singular sight of what appears to be an ordinary horse car, minus the horse, running smoothly and noiselessly at a rapid rate of speed, without any apparent source of power. A man standing in the driver's position upon the front platform, with a turn of what upon the ordinary street car is the brake handle, stops the car, starts it, suddenly or gradually at will, and regulates its speed, from a snail's pace to a five-minute gait, as he chooses.

This is the practical test of the electric motor which, after a year of experimenting at the Locomotive Works, has been perfected by the engineers of the Bentley-Knight Company, of New York. They have made it especially to be applied to street cars and elevated railroads, and have already a number of contracts under way for its introduction in several cities.

The horse car is precisely like those that travel our streets, and, indeed, was purchased of the Union Railroad Company, to be fitted with the electric appliance. Between the axles and underneath the floor of the car is a little machine that occupies a space of 30 inches square by 10 deep. To this an electric current is conveyed from a conductor in a sort of underground conduit near the track—its position whether between the rails or to one side is immaterial—by means of a spring shoe or "plow" upon the card which bears upon the conducting rail with elastic pressure. This current is thus conveyed to the motor, which is nothing more than a sort of miniature dynamo. Now, it is a principle in electric physics—a principle of comparatively recent discovery and of great importance—that while a dynamo, operated by outside power, generates a current of electricity, that same current introduced into another dynamo will cause it to revolve and thus to generate power again. This principle of the "reversibility of the dynamo" is what renders possible the application of electricity to motive power, and is what is here employed. The current causes the motor to revolve, and the latter then communicates its motion to the axles of the car wheels through a system of gearing. This is the simple principle of the contrivance; but the perfection of the details has occupied many months of experimentation. The electric system in our streets would require but little change in existing appliances, the chief of which would be the underground electric conduit. This would be smaller than that required for cable roads, and much easier to keep clean, because there is no mechanism inside, and it can be easily and constantly swept out by appliances upon the cars themselves. The fact that any desired speed can be maintained, even so great as twelve miles an

hour on outlying districts if desired, permitting also slowing up in going around curves and in crowded streets, is another considerable advantage over the cable system.

The tests that have been given under the new motor so far seem to have been successful. The car has been run under the many conditions that would be required of it in actual street work in cities; it has been run loaded heavily with people—forty have ridden in it at one time, causing no diminution of the speed—it has been driven up steep grades and around sharp corners, started and stopped and run at slow speed, and apparently responded without failure to all such demands.

Of course, this, to the minds of directors of street railways, which are run to make money, is but the beginning of the demonstration that they would require. Economy is the most important element; and this is a much more difficult matter to determine. With reference to a comparison with locomotive engines, such as are used on elevated railroads, the engineers of the electric company give figures which seem to indicate a decided advantage on the side of electricity. Locomotives can develop a horse-power by the use of from six to sixteen pounds of coal per hour. But a stationary engine develops a horse-power from about two to two and one-half pounds of coal per hour at the outside. And of the power employed the electric motor wastes about fifty per cent, wherefore it can develop a horse-power from four pounds per hour. Furthermore, while every locomotive requires two men, one of whom is in the highest and most expensive class of skilled labor, two engineers and three firemen are sufficient for the one or two engines operating the electric plant of a street railway system of 200 cars. The drivers of the cars can be taken from the same grade of labor as at present. The wear and tear of a stationary engine is, of course, insignificant compared with that on a locomotive, and the simplicity and solidity of the motors make the wear and tear upon them of insignificant amount. A comparison with the expense of a horse railroad line is, of course, more difficult and more a matter of conjecture, and the results could perhaps be definitely determined only from the experience of both.

### Protection to Iron.

Experiments made under the direction of the administration of the Dutch State railroads with various paints on iron plates are reported to have proved that the redlead paints resist atmospheric influences much better than those of brown-red and iron oxides. The red-lead paints adhered closer to the metal and possessed greater elasticity than the others. It was also found that better results were obtained if, before the paints were applied, the plates were pickled instead of being merely scraped and brushed. The test plates were pickled in muriatic acid, washed with water, thoroughly dried and, while warm, carefully oiled. As iron

and steel are peculiarly liable to corrosion when in salt water, vessels made of them require special protection. This can be given by covering the metal with some alkaline or basic substance, or the oxide of some metal electro-positive to it. Caustic lime and soda are very efficient for this purpose, and act equally well when made into a paint with oil. But their efficiency is destroyed when they cease to be caustic or when they are saturated with carbonic acid, which they absorb freely from the air. Magnesia is equally efficient, and does not absorb carbonic acid. It therefore makes as good a material for a paint as could be desired, and, moreover, forms an excellent basis on which to lay an anti-fouling paint, which it protects from the galvanic action of the iron by insulating it, while it does not affect the anti-fouling qualities.—Ex.

### The Preservation of Wood by a Simplified Method of Injection.

The preservation of railway ties and telegraph poles having passed into the domain of absolute necessity, the Norwegians claim to have solved the problem by the use of a simple and economical method. A hole is bored with an auger about 30 inches above the ground, and it is given as great an inclination as possible down toward the center of the wood, the diameter being about one inch. This hole will contain from 100 to 150 grammes of powdered sulphate of copper. The hole is closed by a wooden plug, with a handle on the outside.

It will perhaps be difficult to explain or clearly demonstrate the action that takes place with this method of injection, since some natural crystals are formed. And by a very curious capillary action these crystals are worn out, if that expression can be used. Their volume continually diminishes, and at the end of three or four months the equivalent of what has disappeared must be added.

A GAS LOCOMOTIVE.—In Melbourne, Victoria, says the Journal of Commerce and Intercolonial Trade, a gas locomotive has been running for several months on one of the tramways, so far to the satisfaction of all concerned. The coal gas is carried in four copper containers, about 6 feet long by 16 inches in diameter, which, as the gas is compressed to about 15 atmospheres, hold 280 cubic feet, or sufficient for a run of 15 miles. In practice the gas has rarely been pressed to more than 100 lbs., as that gives an ample supply to run the locomotive and its car twice on its journey. The reservoirs or containers are refilled as required at the station, and the average consumption of gas per day of about eight trips, or 40 miles, is 729 cubic feet, which in London would cost about 44 cents. The locomotive weighs 4½ tons, and the car 35 cwt., an Otto gas engine being the motor.

We have received too late for insertion in this issue data from a Mexican consul, regarding the street railway system of the city of Mexico.



# 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.**—Watervliet Turnpike & R. R. Co. 15 m, 4-8 1/2 g, 26-45 lb r, 31 c, 150 h. Pres. Chas. Newman, V. Pres. C. B. Thillingast, Sec. & Treas. Cautine Tremper, Supt. Amos Free. Offices 1165 Broadway.

The Albany Ry. 14 m, 4-8 g, 51 c, 232 h, 33-47 lb r. Pres. Supt. and Treas. John W. McNamara, Sec. Jas. H. Manning. Offices 3 & 5 N. Pearl st.

**ALLEGHENY CITY, PA.**—Federal St. & Pleasant Valley Pass. Ry. 4.8 m, 5-2 g, 50 lb r, 22 c, 160 h and mu. Pres. Wm. McCreery, Sec. R. F. Ramsey, Supt. Wm. J. Crozier. Office, 129 Taggart st.

People's Park Pass. R. R. Co. 4.2 m, 5-2 g, 50 lb r, 10 c, 70 mu. Pres. Wm. McCreery, Sec. R. F. Ramsey, Supt. Wm. J. Crozier. Office, 129 Taggart st.

**ALLENTOWN, PA.**—Allentown Pass. R. R. Co. 3 1/2 m, 4-8 1/2 g, 19 lbs. r, 3 coaches, 22 h. Pres. Samuel Lewis, Treas. & Sec. Joseph E. Ballett. Supt. A. T. Brown. Office Hamilton st. Capital, \$45,000.

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

**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. Leased to Jas. R. Snell.

**ANN ARBOR, MICH.**—(See new roads.)

**APPLETON, WIS.**—Appleton Electric St. Ry. 1 1/2 m, 5 c. Pres. J. E. Harriman, V. Pres. N. B. Clark, Sec. T. W. Orblison, Treas. Jos. Koffend.

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

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

Gate City S. 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. DeGieve, 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.

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

**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, 4c, 13 h. Pres. D. M. Osborne, Sec. & Treas. C. B. Koster, Supt. B. F. Andrews.

East Genesee & Seward Ave. Ry. Co. 2 1/2 m, 4-8 1/2 g, 30 lb r, 6 c, 25 h. Pres. David M. Osborne, Sec. & Treas. C. B. Koster, Supt. B. F. Andrews.

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

**AURORA, ILL.**—Aurora City Ry. Co. 5 m, 4-8 1/2 g, 28 lb r, 7 c, 11 c, 30 mu. Pres. H. H. Evans, V. Pres. S. W. Thatcher, Sec. A. J. Hopkins, Treas. E. W. Trask, Supt. I. B. Chattie.

**BABYLON, N. Y.**—Babylon Horse R. R. Co. 1 1/2 m, 4-9 g, 40 lb r, 3 c, 3 h. Pres. W. F. Norton, Sec. Jos. M. Sammis, Treas. John R. Reid, Supt. David S. Sammis.

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

Baltimore City Pass. Ry. Co. 44 m, 151 c, 1051 h, 5-4 1/2 g, 46 & 47 lb r. Pres. Supt. Oden Bowle, Supt. car shops J. M. Biemldel, Supt. trucks, Boyer Cars. Treas. John Bolgiano, Sec. S. L. Bridge. Office cor. Calvert & Baltimore sts.

Baltimore Union Pass. Ry. Co. 16 m, 5-4 1/2 g, 47 lbs r, 61 c, 391 h. Pres. N. Perrin, Gen. Man. T. C. Robbins, Treas. E. P. D. Cross, Sec. Leon Fender, Asst. to Gen. Man. R. E. Robbins. Office cor. Huntington ave. & Oak st.

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 & Pimlico & Pikesville R. R. Co. Central Ry. Co. 11 1/2 m, 2 sweepers 182 h, 5-4 1/2 g, 40 lb r, 22c. Pres. Peter Thompson, Sec. & Treas. Walter Blackstone. Office cor. Preston st and Greenmount ave.

Citizens Ry. Co. 20 m, 5-4 1/2 g, 34 lbs. r, 42 c, 380 h. Pres. Jos. S. Hagarty, Sec. Wm. Hammersley, Supt. C. C. Speed, Treas. S. V. Keen.

Highlandtown & Point Breeze Ry. Co. City Div. 6 m, 5-8 g, 1b r, 15 c, 9.5 h. Pt. Breeze Div. 3 m, 1 10c, 4 c. Pres. Howard Munnikhuysen, Treas. Robt. D. Morrison, Gen. Man. M. A. McCormick.

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

People's Ry. Co. 13 m, 5-4 1/2 g, 47-45 lb r, 38 c, 200 h. Pres. T. Edw. Hambleton, Treas. Gustavus Ober, Sec., Supt. & Pur. Agt. Wm. A. House, jr. Office Duird 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. D. J. White, V. Pres. H. B. Brown, Sec. Chas. Thomas, Supt. John A. White, Gen. Man. J. W. Hahn.

**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.

**BEATRICE, NEB.**—Beatrice St. Ry. Co. 4 m, 4-8 1/2 g, 25 lb r, 4 c, 20 h. Pres. J. D. Kilpatrick, Supt. & Purchasing Agt. J. E. Smith.

**BEAVER FALLS, PA.**—Beaver Valley St. Ry. Co. 3 1/2 m, 5-2 1/2 g, 38 lb r, 3 c, 34 h. Pres. M. L. Knight, V. Pres. Col. J. Weyand, Sec. & Treas. J. F. Merrill, Supt. L. Richardson.

**BELLAIRE, G.**—Bellaire St. R. R. Co.

**BELLEVILLE, ONT., CAN.**—Belleville St. Ry. Co. 1 1/2 m, 3-6 g, 28 lb r, 5 c, 13 h. Pres. D. Lockwood, Sec. & Treas. Man. S. Lockwood.

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

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

**BINGHAMTON, N. Y.**—Washington Street & State Asylum R. R. Co. 4 1/2 m, 4 g, 16-35 lb r, 13 c, 23 h. Pres. R. H. Meagley, V. Pres. Geo. Whitney, Sec. Ira J. Magley, Treas. F. E. Ross, Supt. Wm. Whitney, Binghamton Central R. R. Co. 3 1/2 m (3 m. laid).

3 g, 28 lb r, 6 c, 8 h. Pres. Geo. L. Crandall, V. Pres. Anonzo Everts, Sec. Chas. O. Root, Treas. H. J. Kneeland, Supt. Nelson Stow. Offices 65 Court St. & Binghamton & Port Dickinson R. R. Co. 5 m, 4-8 1/2 g, 20-30 lb r, 10c, 23 h. Pres. Harvey Westcott, Sec. & Treas. G. M. Harris, Supt. N. L. Osborn. (Leased to Mr. Osborn). Offices 112 State st.

City Ry. Co. 1 m, 4 g, 25 lb r, 2 c, 5 h. Pres. & Man. R. H. Meagley, Supt. Wm. Whitney. Office, 216 Fort st.

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.

Park Ave. R. R. Co. 1 m, 4 g, 20 lb r. Pres. C. Ross, Treas. F. C. Ross, Sec. C. A. Matthews. Run in connection with the Wade St. R. R.

**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.

East Lake Land Co. (see New Roads.)

Highland Avenue R. R. 6 1/2 m, 4-8 1/2 g, 30 lb r, 5 c, 28 h. Pres. H. M. Caldwell, Man. W. J. Milner, Supt. J. M. Lens, Eng. H. Schoel. Owners, The Elyton Land Co.

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

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

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

**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. Ira B. Hodges, Sec. and Supt. A. B. Hodges.

Twin City & Des Moines River Motor St. Ry. Co. 6 m, 20 lbs. r, 3 g, 2 motors, 3 c. President & Supt. J. B. Hodges, Treas. A. B. Hodges, Sec. S. K. Huntsinger.

**BOSTON, MASS.**—Boston Consolidated St. Ry. Co. 5 1/2 m, 4-8 1/2 g, 45-50 lb r, 375 c, 1800 h. Pres. Chas. E. Powers, Treas. Sam'l Little, Ass. Treas. John H. Studley, Jr., Gen. Supt. Julius E. Rugg. Supt. J. H. Studley, 19 City Square, Charlestown; Capital, \$1,700,000. Office, Tremont row, cor. Pemberton sq.

Boston & Chelsea R. R. Co. Pres. W. W. Wheelton; Treas. and Clerk, John H. Studley. (Operated by the Boston Consolidated St. Ry. Co.)

Albany St. Freight Ry. Co. .33 m, 4-8 1/2 g, 90 lb r, no c, no h. Pres. Chas. L. Plerson, Treas. Geo. F. Child. Office, 439 Albany st.

Lynn & Boston, 37 m, 4-8 1/2 g, 25-48 lb r, 175 c, 748 h. Pres. Amos F. Breed, Treas. & Sec. E. Francis Oliver, Supt. Edwin C. Foster. Office, 214 Broadway, Chelsea, Mass., & 13 Tremont row.

Metropolitan R. R. Co. 83 m, 48 to 54 lb r, 687 c, 3543 h. Pres. C. A. Richards, Sec. Wm. P. Harvey, Treas. Chas. Boardman. Office, 16 Kilby st.

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

Somerville Horse R. R. Co. (Operated by the Boston Consolidated Street Ry. Co.) Pres. Sam'l E. Sewall, Treas. & Clerk, J. H. Studley, Jr. Office, 27 Tremont row.

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

**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. Geo. H. Moon, Gen. Man. & Supt. Enos Parsons. Capital, \$12,000.

**BRANTFORD, CAN.**

**BRENTHAM, TEX.**—Brenham St. R. R. Co. 2 m, 4 g, 20 lb r, 3 c, 18 mu. Pres. T. J. Pampell, V. Pres. F. Krentzlin, Sec. John A. Randle, Treas. D. C. Giddings. Man. E. B. Randle. Office, Gruber Bldg., North st.

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

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

**BROCKTON, MASS.**—Brockton St. Ry. Co. 11 1/2 m, 4-8 1/2 g, 35 lb r, 32 c, 140 h. Pres. W. W. Cross, Treas. C. R. Fillerbrown; Supt. H. B. Rogers, Office, Main st.

**BROOKLYN, N. Y.**—Annex St. Ry. Co. (See new roads.)

The Atlantic Avenue R. R. Co. of Brooklyn. 25 1/2 m, (leased and owned), 4-8 1/2 g, 50-60 lb r, 297 c, 1169 h. Pres. William Richardson, Sec. W. J. Richardson, Treas. Newbery H. Frost. Office cor. Atlantic & Thrd aves.

Broadway R. R. Co. 12 m, 4-8 1/2 g, 50-60 lb r, 199c, 750h. Pres. Edwin Beers, Sec. & Treas. Robert Sealey, Supt. Joshua Crandall. Office 21 Broadway, E. D.

Brooklyn Cross Town R. R. Co. 16 m, 4-8 1/2 g, 50-60 lb r, 72 c, 413 h. Pres. Henry W. Sloucm, V. Pres. Ezra B. Tuttle, Sec. M. Joust, Treas. John R. Connor, Supt. D. W. Sullivan. Offices 585 Manhattan ave.

Bushwick R. R. Co. 28 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. Hallowell, Supt. Wm. M. Morrison. Office 22 Broadway, N. Y.

The Brooklyn, Bushwick & Queens County I. R. 11 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. 87 m, 4-8 1/2 g, 45-60-64 lb r, 835 c, 18 dummies, 3,209 h. Pres. Daniel F. Lewis, V. Pres. Wm. M. Thomas, Sec. & Treas. ————

Asst. Sec. Francis E. Wrigley. Offices 8 & 10 Fulton st.

Brooklyn City & Newtown R. R. Co. 13 1/2 m, 4-8 1/2 g, 45-60 lb r, 128 c, 400 h. Pres. Col. John N. Partridge, Sec. & Treas. Duncan B. Cannon; Supt. John J. Helms. Office cor. DeKalb & Central aves.

Calvary Cemetery, Greenpoint & Brooklyn Ry. Co. Coney Island and Brooklyn R. R. Co. 18 3-5 in, 45 lb r, 4-8 1/2 g, 103 c, 344 h. Pres. James Jourdan, Sec. Ed. F. Drayton, Treas. John Williams, Supt. William Farrell. Office cor. Smith & Huntington sts.

Coney Island, Sheepshead Bay & Ocean Avenue R. R. Co. 2 1/2 m, 4-8 1/2 g, 4 c. Pres. A. A. McClernue, Pres. Daniel Mone, Sec. John McMahon, Sheepser, head Bay, Treas. Horace Valkulyh. Office 16 Red Hook Lane.

Crosstown Line, Hamilton Ferry to Bridge.

Grand St. & Newtown R. R. Co. 13 m, 4-8 1/2 g, 50-60 lb r, 72 c, 250 h. Pres. Martin Joost, Sec. & Treas. Wm. E. Horwill, Supt. Walter G. Howey. Office 374 Kent Ave.

Grand Street, Prospect Park & Flatbush R. R. Co. 11 1/2 m, 4-8 1/2 g, 50 lb r, 75 c, 220 h. Pres. Jno. L. Partridge, Sec. Duncan B. Cannon, Treas. Chas. Cretfeldt, Supt. Jno. L. Helms. Offices Franklin Ave. and Prospect Place.

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

Prospect Park & Coney Island R. R. Co. 25 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 Atlesey. Offices 16 Court st. (Leased to Atlantic Ave. R. R. Co.)

Prospect Park & Flatbush R. R. 3 m, 4-8 1/2 g, 34 lb r, 70 c, 360 h. Pres. Loftis Wood, Sec. & Treas. Sam'l Parkhill, Supt. Loftis Wood. Offices 45 Broadway.

South Brooklyn Central R. R. Co. 8 1/2 m, 4-8 1/2 g, 60 lb r, 42 c, 193 h. Pres. Wm. Richardson, Sec. Wm. J. Richardson, Treas. N. H. Frost, Supt. James Ruddy. Offices, Atlantic & 3d aves.

The New Williamsburgh & Flatbush R. R. Co. 17 1/2 m, 4-8 1/2 g, 47-50 lb r, 74 c, 255 h. Pres. Geo. W. Van Allen, 54 Ann St., New York, Sec. W. B. Waitt, 34th st. & 9th ave., New York, Treas. C. B. Cottrell, Spruce st., N. Y. City, Supt. Chas. E. Harris, Nostrand ave. & Carroll st., Brooklyn.

Union Ry. Co. (see new roads.)

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

**BRUNSWICK, GA.**—Brunswick St. R. R. Co.

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

**BUFFALO, N. Y.**—Buffalo St. R. R. Co. 17 1/2 m, 4-8 1/2 g, 50 lb r, 96 c, 511 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. 28-7-8 m, 4-8 1/2 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. 2 1/2 m, 4-8 1/2 g, 15-20 lb r, 9 c, 22 h. Pres. John Patterson, Sec. & Man. C. T. Patterson. Office 1401 Summer st.

Union St. Ry. Co. 8 1/2 m, 4-8 1/2 g, various r, 19 c, 85 h. Pres. Geo. E. Rust, Sec. & Supt. F. G. Jones.

**BURLINGTON, VT.**—Winooski & Burlington Horse Ry. Co. 3 1/2 m, 4-8 g, 25 lb r, 7 c, 24 h. Pres. W. A. Woodbury, V. Pres. F. C. Kennedy, Supt. K. B. Walker, Treas. L. E. Woodhouse, Clerk, G. W. Walls. Office, Winooski ave.

**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, 4-8 1/2 g, 50 lb r, 255 c, 1,428 h. Pres. Prentiss Cummings, Treas. & Clerk Franklin Perrin, Exec. Com. I. M. Spelman, P. Cummings, O. S. Brown, Clerk of Directors, O. S. Brown, Supt. Wm. A. Bancroft.

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

**CANTON, O.**—Canton St. Ry. Co. 4 1/2 m, 4 g, 28 lb r, 11 c, 58 h. Pres. & Treas. G. E. Cook, Sec. John F. Clark, Supt. O. S. Stanton. Office, 4 E. 7th st.

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

**CARTHAGE, MO.**

**CEDAR RAPIDS, IA.**—Cedar Rapids & Marlon Ry., 1 1/2 m, 4-8 1/2 g, 22-28-35 lb r, 11 c, 40 h. Pres. W. Greene, V. Pres. O. T. Richmond, Sec. N. B. Consigny, Treas. C. G. Greene, Supt. Wm. Elson. Office 11 N. Second st.

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

**CHATHAM, CAN.**

**CHARLESTON, S. C.**—Charleston City Ry. Co. 8 1/2 m, 4-8 1/2 g, 38 lb r, 32 c, 110 h, 1 mu. Pres. Jno. S. Riggs, Sec. and Treas. Evan Edwards, Asst.



Treas. Frank Whilden, Supt. Jno. Mohlenhoff. Office 2 Broad st. k  
Enterprise R.R. Co. 15 m, 5 g, 42 lb r, 29 pass. c, 10 freight c, 95 h. Pres. A. F. Ravenel, Sec. & Treas. U. E. Hayne, Supt. T. W. Passafalgue.  
Middle Street Sullivan Island Ry. Co. 2 1/2 m, 4-8 1/2 g, 20 lb T, 7 c, 14 mu. Pres. B. Callaghan, Sec. & Treas. Frank F. Whilden, Supt. B. Buckley. Office 2 Broad st.

CHATTANOOGA, TENN.—Chattanooga St. R. R. Co. 5 1/2 m, 4-8 1/2 g, 25-45 lb r, 12 c, 54 h. Pres. and Treas. J. H. Warner, Sec. C. R. Gaskill.  
CHESTER, PA.—Chester St. Ry. Co. 7 1/2 m, 5-2 1/2 g, 47 lb r, 14 c, 66 h. Pres. Richard Peters, Jr., Treas. Sam'l H. Seeds, Sec. & Manager E. M. Cornell.

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

Chicago West Division Ry. Co. 45 1/2 m, 4-8 1/2 g, 40 r, 68 c, 3,825 h. Pres. J. R. Jones, Sec. George L. Webb, Supt. De Witt C. Cregier. Office, 59 State st. Chicago & Hyde Park St. — m, — g, — lb r, — c, — h. Pres. Douglas S. Clarke.

Cross-town Pass. Ry. Co. (See New Roads.)  
North Chicago City R.R. Co. 45 m, 4-8 1/2 g, 45 lb r, 375 c, 1,800 h. Pres. & Gen. Supt. V. C. Turner, V. Pres. Chas. T. Yerkes, Sec. & Treas. Hiram Crawford, 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. 1 1/2 m, 3 g, 16 lb r, 7 c, 10 h. Pres. E. P. Safford, Sec. A. E. Wenis, Treas. William Polanel, Supt. Ewel McMartin.

CINCINNATI, O.—Cincinnati Inclined Plane Ry. Co. 6 1/2 m, 5-2 1/2 g, 43 lb r, 25 c, 140 h. Pres. Geo. A. Smith, Sec. & Supt. James M. Doherty, Tr. J. S. Hill. Cincinnati St. Ry. Co. 96 1/2 m, 5-2 g, 42-52 lb r, 250 c, 2,000 h. Pres. Jno. Kilgour, V. Pres. Albert G. Clark, Treas. R. A. Dunlap, Sec. & Auditor, Jas. A. Collins, Supt. Jno. Harris, Pur. Agt. B. F. Haughton. Office second floor of Apollo Building.  
Columbia & Cincinnati St. R.R. Co. 3 1/2 m, 3 g, 40 lb r, 3 c, 6 dummy c. Pres. & Auditor C. H. Kilgour, V. Pres. John Kilgour, Treas. & Sec. A. H. Meler, Mt. Lookout, O. Supt. J. J. Henderson, Mt. Lookout, O. Office Station C.

Mt. Adams & Eden Park Inclined R.R. Co. 3 1/2 m, 5-2 1/2 g, 42 lb r, 40 c, 320 h. Pres. & Treas. J. P. Kerper, Sec. J. R. Murdock, Supt. Chas. Whitten.  
So. Covington & Cincinnati. (See Covington, Ky.)

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

CLEVELAND, O.—The Brooklyn St. R.R. Co. 12 1/2 m, 4-8 1/2 g, 52 lb r, 70 c, 402 h. Pres. Tom. L. Johnson, V. Pres. A. J. Moxham, Sec. J. B. Hoegren, Treas. John McCounell, Supt. A. L. Johnson. Office 1,301 Pearl st.  
Broadway & Newburg St. R.R. Co. 11 1/4 m, 4-8 1/2 g, 43 lb r, 26 c, 165 h. Pres. Joseph Stanley, V. Pres. H. E. Andrews, Sec. & Treas. E. Fowler, Supt. J. J. Stanley. Office 1373 Broadway.  
Superior St. R.R. Co. 15 m, 4-8 1/2 g, 45 lb r, 46 c, 225 h. Pres. Frank De L. Robinson, V. Pres. John Koch, Sec., Treas. & Supt. M. S. Robinson, Jr.

The East Cleveland R.R. Co. 20 1/2 m, 4-8 1/2 g, 45 lb steel r, 110 c, 570 h. Pres. A. Everett, V. Pres. & M. C. B. Chas. Wason, Sec. & Treas. H. A. Everett, Supt. E. Duty. Offices, 1154 Euclid ave.  
Woodland Avenue & West Side St. R.R. Co. 40 m, 4-8 1/2 g, 43-45 lb r, 128 c, 605 h. Pres. M. A. Hanna, V. Pres. C. F. Emery, Sec. & Pur. Agt. J. B. Hanna, Gen. Supt. George G. Mulhern. Office, cor. Pearl and Detroit sts.

South Side St. R.R. Co. 3 1/2 m, 3 g, 40 lb r, 8 c, 60 h. Pres. Tom L. Johnson, Supt. A. L. Johnson, Sec. & Treas. J. B. Hoegren. Office 1301 Pearl st.  
St. Clair Street Ry. Co. — m—g,—lb r—c,—Pres. Chas Hathaway.

CLIFTON, CAN.—Niagara Falls, Westly Park and Clifton Tramway Co. 3 1/2 m, 4-8 1/2 g, 30 lb r, 8 c, 40 h. Pres. J. H. Mooney, 280 B'way, N.Y. Treas. John N. Hayward, 32 B'way, N.Y. Sec. John H. Babe, Niagara Falls, Ont.

CLINTON, IA.—Lyons & Clinton Horse R.R. Co. (See Lyons.)  
COLUMBIA, S. C.—Columbia St. Ry. 4 1/2 m, 4-8 1/2 g, 30 lb r, 6 c, 18 h. Pres. J. S. Pierson, New York, V. Pres. H. M. Pierson, New York, Treas. W. E. Lawton, New York, Sec. E. M. Cole, 32 Liberty st. New York, Capital, \$50,000.

COLUMBUS, GA.—Columbus St. R.R. Co. 3 m, 4-8 1/2 g, 16 lb r, 6 c, 25 h. Pres. Cliff B. Grimes, Sec. L. G. Schnessler, Treas. N. N. Curtis, Supt. J. A. Gaubourg.

COLUMBUS, O.—Columbus Consolidated St. R.R. Co. 19 m, 5-2 g, 30-52 lb r, 92 c, 350 h. Pres. A. Rodgers, V. Pres. H. T. Chittenden, Sec. & Treas. E. K. Stewart, Supt. J. H. Atcherson.  
Glenwood & Greenlawn St. R.R. Co. 4 1/2 m, 3-6 g, 24 lb r, 11 c, 19 h. Pres. A. D. Rodgers, V. Pres. B. S. Brown, Sec. R. R. Rickly, Treas. S. S. Rickly, Supt. Jonas Wilcox. Office S. High st.

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

CORTLAND, N. Y.—Cortland & Homer Horse Ry. Co. 4 m, 4-8 1/2 g, 25-30 lb r, 5 c, 15 h. Pres. Chas. H. Garrison, Troy, N. Y. V. Pres. E. Mudge, Sec. & Treas. G. F. Welch, Supt. B. B. Terry. Office 25 N. Main st.

COUNCIL BLUFFS, IA.—Council Bluffs St. R.R. Co. 17 1/2 m, 5-2 1/2 g, 43 lb r, 45 c, 296 h. Pres. E. F. Abbott, Sec. J. C. Benton, Treas. M. M. Abbott.

COVINGTON, KY.—So. Covington & Cincinnati St. Ry. Co. 17 1/2 m, 5-2 1/2 g, 43 lb r, 45 c, 296 h. Pres. E. F. Abbott, Sec. J. C. Benton, Treas. M. M. Abbott.

COVINGTON, GA.—W. C. Clark & Co. (see new roads.)  
DALLAS, TEX.—Dallas St. Ry. Co. 4 1/2 m, 4-8 1/2 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. 1 1/2 m, 4-8 1/2 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 1/2 m, 4-8 1/2 g, 20 lb r, 8 c, 41 m. Pres. Wm. P. Cannon, V. Pres. & Gen. Man. Wm. Stewart, Sec. & Treas. Adam R. Samuel.

DAVENPORT, IA.—Davenport Central St. Ry. Co. 3 m, 4-8 1/2 g, 20 lb r, 14 c, 24 h, 15 mu. Pres. Whit. M. Grant, V. Pres. W. L. Allen, Treas. J. B. Fidler, Supt. J. W. Howard, Sec. O. S. McNeil.  
Davenport City Ry. Co. 3 1/2 m, 4-8 1/2 g, — lb r, 14 c, 46 h. Pres. C. S. Watkins, Sec. and Treas. S. D. Bawden.  
DAYTON, KY.—Newport & Dayton St. Ry. Co. 2 m, 5-2 1/2 g, 44 lb r, 9 c, 36 h. Pres. & Supt. W. W. Bean.  
DAYTON, O.—Dayton St. R.R. Co. 7 1/2 m, 4-8 1/2 g, 44 lb r, 24 c, 80 h and mu. Pres. J. W. Stoddard, V. Pres. H. S. Williams, Sec. C. A. Craighead, Supt. A. W. Anderson.  
Fifth St. R.R. Co. 7 m, 4-8 1/2 g, 45 lb r, 18 c, 58 h. Pres. A. A. Thomas, Sec. D. B. Corwin, Treas. R. I. Cummin, Supt. J. M. B. Lewis. Office, 7 E. 3d st.  
Oakwood St. Ry. Co. 6 m, 4-8 1/2 g, 38 lb r, 14 c, 56 h. Pres. Charles B. Clegg, Sec. H. V. Perrine.  
The Wayne & Fifth St. R.R. Co. 3 1/2 m, 4-8 1/2 g, 38 lb r, 6 c, 30 h. Pres. Geo. M. Shaw, Sec. & Treas. Eugene Winchet, Supt. N. Rutzahn. Office, 29 Wayne st.

DECATUR, ILL.—Decatur Horse Ry. Co. Citizens' Street R.R. Co. 2 m, 4-8 1/2 g, 30 lb T, 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. Walterhouse, Supt. S. A. Robinson.  
DENVER, COL.—Denver City Ry. Co. 2 1/2 m, 3-6 g, 16 lb r, 14 c, 322 h. Pres. Geo. H. Holt, 10 Wall st. New York City, Sec. G. D. Lullier, 10 Wall st., New York City, Treas. & Man. G. E. Randolph.  
Denver Tramway Co. 4 m, 3-6 g, 16-18 lb r, 8 c. Run by electricity. Pres. Rodney Curtis, V. Pres. John J. Reichman, Sec. Wm. G. Evans.  
DES MOINES, IA.—Des Moines St. R.R. Co. 12 m, 3 g, 25-30-38-52 lb r, 18 c, 125 b. Pres. W. McCall, V. Pres. C. W. Rogg, Sec. F. A. Sherman, Treas. G. B. Hippee.  
Des Moines Broad Gauge St. Ry. Co. Pres. G. Van Ginkel, Sec. H. C. Teachout, Treas. John Weber.  
Capital City St. Ry. Co. 5 m, 4-8 1/2 g, 5 c, 30 h. G. Van Ginkel, Sec. H. C. Teachout, Treas. J. Weber.  
Des Moines & Seavastopol St. Ry. Co. (See Seavastopol, Ia.)

DETROIT, MICH.—Detroit Wayne & Elmwood Ry. Co. 9.1 m, 4-8 1/2 g, 45 lb r, 33 c, 212 h. Pres. H. B. Brown, V. Pres. Edward Kanter, Sec. N. W. Goodwin, Treas. E. S. Heineman, Supt. Geo. S. Hazard. Office, 129 Griswold st.  
Dix Electric Ry. Co. 2 1/2 m, 3 c, electric motors.  
Detroit City Ry. Co. 30 m, 4-8 1/2 g, 40-43 1/2 lb r, 130 c, 700 h. Includes Jefferson Ave. line, Woodward Ave. line, Michigan Ave. line, Gratiot Ave. line, Brush St. line, Cass Ave. line, Congress & Baker line. Pres. Sidney D. Miller, Treas. George Hendrie, Sec. James Heugh, Gen. Supt. Robert Bell, M. M. John Willis.  
Grand River St. Ry. Co. 6 1/2 m, 4-8 1/2 g, 45 lb r, 15 c, 160 h. Pres. & Treas. Jos. Dalley, Sec. J. W. Dalley, Supt. C. M. Dalley.  
Highland Park Ry. Co. 3 m, 4-8 1/2 g, 42 lb r for 1/2 m in city limits, outside 35 lb r, 2 c, electric motors. Pres. and Treas. Frank E. Snow, Sec. F. Woodruff. Capital, \$50,000. Office, 92 Griswold st.

DOVER, N. H.—Dover Horse R.R. Co. 5 m, 3 g, 30 lb r, 4 c, 14 h. Directors, Chas. H. Sawyer, Jas. E. Lothrop, V. Pres. G. W. Wiggins, Harrison Haley, Frank Williams, Treas. Harrison Haley.  
DUBUQUE, IA.—Dubuque St. R.R. 7 m, 4-8 1/2 g, 55 lb r, 21 c, 65 h. Pres. J. A. Rhonberg, Sec. & Treas. B. E. Linehan, Supt. J. J. Linehan. Office Couller ave.  
DULUTH, MINN.—Duluth St. Ry. Co. 5 1/2 m, 3-6 g, 32-45 lb r, 18 c, 92 mu. Pres. Sam'l Hill, V. Pres. T. P. Wilson, Sec. & Treas. A. S. Chase, Supt. T. W. Hoopes.  
EAST OAKLAND, CAL.—Oakland, Brooklyn & Fruitvale R.R. Co. 2 m, 5-6 g, 35 lb r, 4 c, 36 h. Pres. & Treas. H. Tubbs, Sec. W. C. Mason, Supt. Jas. Dixon, Pur. Agt. J. Reed. Office, 301 Central ave.  
EAST SAGINAW, MICH.—East Saginaw St. Ry. Co. — m, 4-8 1/2 g, 30 and 43 lb r, 23 c, 70 h. Pres. Walter A. Jones, Sec. and Treas. Chas. F. Shaw, Supt. A. Bartlett.  
EAST ST. LOUIS, ILL.—East St. Louis St. R.R. Co.  
EASTON, PA.—The Easton & So. Easton Passenger Ry. Co. 1 1/2 m, 5-2 1/2 g, 45 lb r, 4 c, 20 h. Pres. H. A. Sage, Sec. & Treas. H. W. Cooley, Supt. Elisha Burwell, So. Easton. Capital, \$29,562. Office, 343 Northampton st.  
The West End Passenger Ry. Co. 1 1/2 m, 5-2 1/2 g, 45 lb r, 6 c, 20 h. Pres. H. A. Sage, Sec. & Treas. H. W. Cooley, Supt. Samuel Berry.  
EAU CLAIRE, WIS.—Eau Claire St. Ry. Co. 4 m, 4-8 1/2 g, 27 lb r, 16 c, 70 h. Pres. A. G. Bradstreet, New York, V. Pres. Geo. B. Shaw, Eau Claire, Sec. & Treas. Weston Lewis, Gardner, Me.  
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, 5-2 1/2 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. 3 1/2 m, 4-8 1/2 g, 30 lb r, 6 c, 30 h. Pres. F. W. Miller, V. Pres. G. C. Johnson, Sec. E. C. Bickel, Treas. A. R. Burns.  
ELMIRA, N. Y.—The Elmira & Horseheads Ry. Co. 10 m, 4-8 1/2 g, 25-30-40 lb r, 18 c, 34 h. Pres. & Treas. George M. Diven, V. Pres. Geo. W. Hoffman, Sec. Wm. S. Kershner, Supt. Henry C. Silsbee. Officers, 212 E. Water st.  
EL PASO, TEX.—El Paso St. Ry. Co. 6 m, 4-8 1/2 g, 20-30 lb r, 18 c, 40 mu. Pres. B. H. Davis, Vice Pres. J. F. Croby, Treas. C. R. Morehead, Sec. & Supt. H. W. Marks. Offices, Seventh st.  
EMPORIA, KAN.—Emporia City Ry. Co. 3 1/2 m, 3-6 g, 20 lb r, 8 c, 24 h. Pres. Van R. Holmes, Treas. A. F. Crowe, Sec. & Man. J. D. Holden.  
ENTERPRISE, MISS.—Enterprise St. Ry. Co. 1 1/2 m, 3-6 g, 24 lb r, 2 c, 6 h. Pres. John Kampe, V. Pres. E. B. Gaston, Sec. & Treas. J. W. Gaston.  
ERIE, PA.—Erie City Passenger Ry. Co. 7 1/2 m, 4-8 1/2 g, 45 lb r, 30 c, 87 h. Pres. Wm. W. Reed, Treas.

Wm. Spencer, Sec. W. A. Demorest, Supt. Jacob Berst.

EVANSVILLE, IND.—Evansville St. Ry. Co. 14 m, 4-8 g, 28 lb r, 32 c, 240 mu. Pres. John Gilbert, Sec. & Treas. W. S. Gilbert. Office, Merchants National Bank.

FALL RIVER, MASS.—Globe St. Ry. Co. 12 m, 4-8 1/2 g, 40-46-47 lb r, 40 c, 160 h. Pres. Frank S. Stevens, Treas. F. W. Brightman, Sec. M. G. B. Swift, Supt. John H. Bowker, Jr.  
FAR ROCKAWAY, N. Y.—Village Ry. Co. 1 m 4-8 1/2 g, 47 lb r, 5 c, 10 h. Pres. C. A. Cbeever, Treas. D. L. Haight, Sec. J. S. Armbach, Supt. Rufus Martin.

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

FORT SMITH, ARK.—Fort Smith St. Ry. Co. 2 m, 3-6 g, 28 lb r, 5 c, 16 mu. Pres. Sam'l M. Loud, Sec. & Treas. Geo. T. Sparks.  
FORT WAYNE, IND.—Citizens' St. R.R. Co.  
FORT WORTH, TEX.—Fort Worth St. Ry. Co. 7 1/2 m, 4 g, 25-38 lb r, 16 c, 73 m. Pres. K. M. Vanzandt, Treas. W. A. Huffman, Acting Sec. & Gen. Man. S. Mims, Supt. J. T. Payne.  
FRANKFORT, N. Y.—Frankfort & Ilion Street Ry. Co. 2 1/2 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. 3 1/2 m, 4-10 g, 25 lb r, 5 c, 9 b. Pres. Wm. M. McKinstry, Sec. & Treas. M. N. Fenner, Supt. Z. Elmer Wheelock.  
FREEPORT, ILL.—Freeport St. Ry. Co. 4 1/2 m. Pres. Jacob Krohn, V. Pres. F. C. Platt, Sec. John B. Taylor, Treas. W. G. Barnes, Supt. & Gen. Man. G. D. Clinger.

FULTON, N. Y.—Fulton & Oswego Falls St. Ry. Co. 6,000 ft, 4 8/8 g, Gibbon's metallic stringer and r, 4 c, 12 h. Pres. J. Joseph Walker, Jr., V. Pres. N. N. Stranahan, Sec. and Treas. Chas. Lyman. Capital, \$15,000. Office, 15 Broad st., New York.  
GAINSVILLE, FLA.—Gainsville St. Ry. Co. 2 1/2 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. 5 m, 4-8 1/2 g, 18-20-38 lb r, 7 c, 20 h. Pres. L. W. Slayborn, V. Pres. A. S. Hoover, Supt. & Sec. Geo. S. Clayton.  
GALVESTON, TEX.—Galveston City R.R. Co. 25 m, 4-8 1/2 g, 30 lb r, 80 c, 225 mu. Pres. Wm. H. Sinclair, Sec. & Treas. T. J. DeMerritt, Supt. M. J. Keenan. Office, cor. Twenty-first & 1st sts.  
Gulf City St. Ry. & Real Estate Co. 15 m, 4 g, 20-30 lb r, 30 c, 90 mu. Pres. J. H. Burnett, Sec. & Treas. F. D. Allen.

GLENS FALLS, N. Y.—Glens Falls, Sandy Hill & Fort Edward St. R.R. Co. Pres. Henry Crandall, Sec. & Treas. T. S. Coolidge, Supt. Albert V. Brayton.  
GLOUCESTER, MASS.—Gloucester City R.R. 4 m 4 g, 35 lb r, 10 c, 90 h. Pres. Morris C. Fletcher, V. Pres. Walter A. Jones, Sec. D. G. Pearson, Treas. F. W. Homans. Office, Railroad ave.  
Gloucester St. Ry. Co. Pres. & Supt. Morris C. Fitch, V. Pres. Walter A. Jones, Treas. Francis W. Homans, Sec. David S. Presson.

GRAND RAPIDS, MICH.—Street Ry. Co. of Grand Rapids, Mich. 14 1/2 m, 4-8 1/2 g, 25-40 lb r, 29 c, 190 h. Pres. W. J. Hayes, Cleveland, O., V. Pres. L. H. Withey, Grand Rapids, Treas. C. G. Swensberg, Grand Rapids, Sec. I. M. Weston, Grand Rapids, Supt. A. Bevier, Grand Rapids. Office, cor. Washington & Indiana sts.

GREENBUSH, N. Y.—North & East Greenbush St. Ry. Co. 1 1/2 m, 4-8 1/2 g, 4 c, 12 h. Pres. & Treas. A. Bleekerbank, Supt. J. Gascoigne.  
GREEN CASTLE, IND.—Green Castle City St. Ry. Co. 2 m, 4-8 1/2 g, 23 lb r, 3 c, 12 h. Pres. & Supt. D. Rogers, Sec. James S. Nutt, Treas. Ralph Rogers.  
GREENVILLE, S. C.—Greenville City Ry. Co. 1 m 5 g, — lb r, 5 c, 20 h. Proprietors, Gilreath & Harris.

HALIFAX, N. S.—Halifax St. Ry. Co. (Lim.) 7 m, 4-8 1/2 g, 45-60 lbs. r, 15 c, 65 h. Pres. John Bothwell, Sec. & Treas. H. K. Adams, Supt. John C. Conlan. Offices, Room 39, Drexel Building, New York, and Halifax, N. S.  
HAMILTON, O.—The Hamilton St. Ry. Co. 4 m 3 g, 28 lb r, 11 c, 12 b. Pres. James F. Griffin, Sec. O. V. Parrish, Treas. H. L. Morey, Supt. J. C. Bigelow.

HANPIAT, MO.—Hannibal St. Ry. Co. 2 m 4-8 1/2 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, 5-2 1/2 g, 42-47 lb r, 26 c, 65 h. Pres. H. A. Kelker, V. Pres. Daniel Epply, Sec. John T. Ensminger, Treas. R. F. Kelker, Supt. S. B. Reed. Capital, \$62,500. Office, 27 South 2d st.

HARTFORD, CONN.—Hartford & Wethersfield Horse R.R. Co. 12 m, 4-8 1/2 g, 45 lb r, 49 c, 250 h. Pres. & Treas. E. S. Goodrich, Sec. Geo. Sexton.  
HAVERHILL, MASS.—Haverhill & Groveland St. Ry. Co. 13.7 m, 4-4 1/2 g, 30-35 lb r, 36 c, 131 h. Pres. Jackson B. Sweet, Treas. John A. Colby. Office 3 Water st.

HELENA, ARK.—Helena St. Ry. Co.  
HELENA, MON.—2 1/2 m, 4-8 1/2 g, 38 lb r, 5 c. Pres. C. W. Cannon, V. Pres. J. B. Wilson, Sec. & Treas. L. A. Walker.  
HERKIMER, N. Y.—Herkimer & Mohawk St. Ry. Co. 1 1/2 m, 4-8 1/2 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. 16 1/2 m, 4-7 g, 50-60 lb r, 116 c, 630 h. Pres. John H. Bonn, Sec. F. J. Mallory, Treas. Fredk. Mickel, Union, Supt. Nicolas Goetz, Union.  
HOLYOKE, MASS.—Holyoke St. Ry. Co. 3 1/2 m, 4-8 1/2 g, 35 lb r, 13 c, 45 h. Pres. Wm. A. Chase, Treas. C. Fayette Smith, Supt. H. M. Smith.

HOT SPRINGS, ARK.—Hot Springs R.R. Co. 3 m, 4 g, 25 lb r, 11 c, 30 h. Pres. S. W. Fordyce, Sec. C. E. Maurice, Supt. J. L. Butterfield.  
HOUSTON, TEX.—Houston City St. Ry. Co. 14

Wm. Spencer, Sec. W. A. Demorest, Supt. Jacob Berst.

EVANSVILLE, IND.—Evansville St. Ry. Co. 14 m, 4-8 g, 28 lb r, 32 c, 240 mu. Pres. John Gilbert, Sec. & Treas. W. S. Gilbert. Office, Merchants National Bank.

FALL RIVER, MASS.—Globe St. Ry. Co. 12 m, 4-8 1/2 g, 40-46-47 lb r, 40 c, 160 h. Pres. Frank S. Stevens, Treas. F. W. Brightman, Sec. M. G. B. Swift, Supt. John H. Bowker, Jr.  
FAR ROCKAWAY, N. Y.—Village Ry. Co. 1 m 4-8 1/2 g, 47 lb r, 5 c, 10 h. Pres. C. A. Cbeever, Treas. D. L. Haight, Sec. J. S. Armbach, Supt. Rufus Martin.

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

FORT SMITH, ARK.—Fort Smith St. Ry. Co. 2 m, 3-6 g, 28 lb r, 5 c, 16 mu. Pres. Sam'l M. Loud, Sec. & Treas. Geo. T. Sparks.  
FORT WAYNE, IND.—Citizens' St. R.R. Co.  
FORT WORTH, TEX.—Fort Worth St. Ry. Co. 7 1/2 m, 4 g, 25-38 lb r, 16 c, 73 m. Pres. K. M. Vanzandt, Treas. W. A. Huffman, Acting Sec. & Gen. Man. S. Mims, Supt. J. T. Payne.  
FRANKFORT, N. Y.—Frankfort & Ilion Street Ry. Co. 2 1/2 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. 3 1/2 m, 4-10 g, 25 lb r, 5 c, 9 b. Pres. Wm. M. McKinstry, Sec. & Treas. M. N. Fenner, Supt. Z. Elmer Wheelock.  
FREEPORT, ILL.—Freeport St. Ry. Co. 4 1/2 m. Pres. Jacob Krohn, V. Pres. F. C. Platt, Sec. John B. Taylor, Treas. W. G. Barnes, Supt. & Gen. Man. G. D. Clinger.

FULTON, N. Y.—Fulton & Oswego Falls St. Ry. Co. 6,000 ft, 4 8/8 g, Gibbon's metallic stringer and r, 4 c, 12 h. Pres. J. Joseph Walker, Jr., V. Pres. N. N. Stranahan, Sec. and Treas. Chas. Lyman. Capital, \$15,000. Office, 15 Broad st., New York.  
GAINSVILLE, FLA.—Gainsville St. Ry. Co. 2 1/2 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. 5 m, 4-8 1/2 g, 18-20-38 lb r, 7 c, 20 h. Pres. L. W. Slayborn, V. Pres. A. S. Hoover, Supt. & Sec. Geo. S. Clayton.  
GALVESTON, TEX.—Galveston City R.R. Co. 25 m, 4-8 1/2 g, 30 lb r, 80 c, 225 mu. Pres. Wm. H. Sinclair, Sec. & Treas. T. J. DeMerritt, Supt. M. J. Keenan. Office, cor. Twenty-first & 1st sts.  
Gulf City St. Ry. & Real Estate Co. 15 m, 4 g, 20-30 lb r, 30 c, 90 mu. Pres. J. H. Burnett, Sec. & Treas. F. D. Allen.

GLENS FALLS, N. Y.—Glens Falls, Sandy Hill & Fort Edward St. R.R. Co. Pres. Henry Crandall, Sec. & Treas. T. S. Coolidge, Supt. Albert V. Brayton.  
GLOUCESTER, MASS.—Gloucester City R.R. 4 m 4 g, 35 lb r, 10 c, 90 h. Pres. Morris C. Fletcher, V. Pres. Walter A. Jones, Sec. D. G. Pearson, Treas. F. W. Homans. Office, Railroad ave.  
Gloucester St. Ry. Co. Pres. & Supt. Morris C. Fitch, V. Pres. Walter A. Jones, Treas. Francis W. Homans, Sec. David S. Presson.



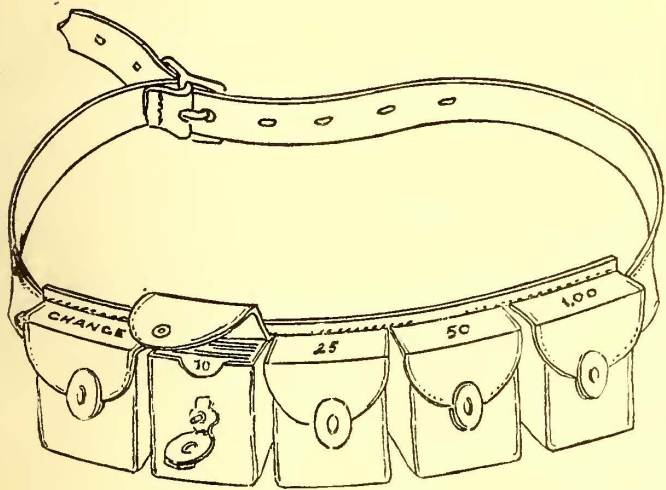
# RUFUS MARTIN & CO.,

13 Park Row, New York.

MANUFACTURERS OF AND DEALERS IN

## STREET RAILWAY SUPPLIES.

Martin's Imp'd Change Belt.



PATENT APPLIED FOR.

Price \$2.00 net each.

SINGLE & DOUBLE HARNESS, HALTERS, WHIPS  
& BLANKETS, BODY & DANDY BRUSHES,  
CURRY COMBS, SPONGES & CHAMOIS.

Harness Oils & Composition.

Lubricants, Oils & Greases.

Street Railway Stationery

OF EVERY VARIETY.

Card Signs and Change Envelopes.

Conductors' Badges, Numbers, etc.

**WHISTLES.**

Car Trimmings,

Brake Shoes,

Fare Boxes,

Wood Mattings,

Rubber Mattings

and Treads,

Registers,

Indicators,

and Punches.

Correspondence Solicited.

Send for Prices.



m, 4-8 1/2 g, 20-30-40 lb r, 40 c, 118 m. Pres. Wm. H. Sinclair, Galveston, V. Pres. & Gen. Man. H. F. MacGregor, Houston, Supt. Henry Freund, Houston, Sec. & Treas. E. H. Bailey.

**HUTCHINSON, KAN.**—Hutchinson St. Ry. Co. 2 m, 4-6 g, 20 lb r, 4 c, 24 h. Pres. A. L. Forsha, V. Pres. John Severance, Treas. S. W. Campbell, Sec. Fred. A. Forsha. Office, 5 North Main st.

**ILION, N. Y.**—Frankfort & Ilion St. Ry. Co. 2 1/2 m, 5 g, 25 lb r, 5 c, 6 h. Pres. A. C. McGowan, V. Pres. P. A. Skiff, Sec. John A. Giblin, Treas. J. L. McMillan, Supt. J. J. Hannans.

**INDIANAPOLIS, IND.**—Citizens' St. Ry. Co. 35 m, 4-8 1/2 g, 33-38-40-52 lb r, 70 c, 550 mu. Pres. A. W. Johnson, Indianapolis, Treas. Tom L. Johnson, Cleveland, O. Sec. A. A. Anderson, Indianapolis, Man. W. T. Steele, Indianapolis, Auditor P. Woolbridge, Louisville, Ky. Office 80 W. Louisiana st.

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

**JACKSON, MISS.**—Jackson City R.R. Co. 1 1/2 m, 5 g, 9 mu. Pres. P.W. Peoples, Sec. & Tr. J.R. Bradford.

**JACKSON, TENN.**—Jackson Street Ry. Co.

**JACKSONVILLE, FLA.**—Pine St. R.R. Co. 2 1/2 m, 5 g, 25 lb r, 4 c, 18 m. Pres. S. B. Hubbard, V. Pres. J. M. Schumacher, Treas. J. C. Greeley, Sec. & Man. H. S. Ely.

Jacksonville St. Ry. Co. 2 1/2 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. Supt. B. F. Sibert.

**JAMAICA, N. Y.**—Jamaica & Brooklyn R.R. Co. 10 m, 4-8 1/2 g, 56-60 lb r, 29 c, 56 h. Pres. Aaron A. DeGrauw, Sec. Martin J. Durea, Treas. Morris Fosdick, Supt. Wm. M. Scott.

**JAMESTOWN, N. Y.**—Jamestown St. Ry. Co. 4m, 4-8 1/2 g, 30-42 lb r, 13 c, 39 h. Pres. J. B. Ross, V. Pres. E. Gifford, Treas. A. N. Brodhead, Supt. G. E. Matby, Sec. & Atty. C. R. Lockwood.

**JERSEY CITY, N. J.**—Jersey & Bergen R.R. Co. 28 m, 4-10 g, 47-60 lb r, 80 c, 624 h. Pres. Chas. B. Thurston, V. Pres. Wm. Keeney, Treas. C. B. Place, Sec. Warren E. Dennis, Newark, Supt. Thos. M. Sarre. Office, 1 Exchange Place.

**JOHNSTOWN, N. Y.**—The Johnstown, Gloversville & Kingsboro Horse R.R. Co. 4 m, 4-8 1/2 g, 26 lb r, 6 c, 16 h. Pres. James Younglove, V. Pres. R. Fancher, Sec. & Treas. J. McLaren.

**JOHNSTOWN, PA.**—Johnstown Pass. R.R. Co. 7 1/2 m, 5-3 g, 41-43 lb r, 13 c, 76 h. Pres. James McMillen, Sec. B. L. Yeagley, Treas. W. H. Rosensleeter, Jr., Supt. D. J. Duncan. Capital, \$100,000.

**JOLIET, ILL.**—Joliet City Ry. Co. 3 1/2 m, 4-8 1/2 g, 30 lb Johnson T r, 16 c, 30 h. & mu. Prop. J. A. Henry, Supt. A. Bischman, Treas. J. Hulsizer.

**JOLIN, MO.**

**KALAMAZOO, MICH.**—Kalamazoo St. Ry. Co. 3 m, 4-8 g, 35 lb r, 30 c, 50 h. Pres. Fred Bush, V. Pres. Wm. Dewing, Sec. & Treas. R. S. Jackson, Man. J. W. Boynton. Office, 128 Main st.

**KANSAS CITY, MO.**—Kansas City Cable Ry. Co. 8 m, 4-8 g, 45 lb r, 75 c, 1 h, 10 dummy cars. Pres. Wm. J. Smith, Sec. W. H. Lucas, Eng. Robert Gillham, Supt. F. A. Tucker. Office, S. E. cor. Ninth & Washington sts.

Corrigau Consolidated St. Ry. Co. 20 m, 4-1 g, 30 lb r, 80 c, 350 h. Pres. Bernard Corrigau, Gen. Man. Thos. Corrigau, Sec. Jas. T. Kelley.

Grand Avenue Ry. Co. 6 m, 4-8 1/2 g, 40 lb r, 25 c, 145 h. Pres. C. F. Morse, V. Pres. and Gen. Man. W. H. Holmes, Engineers, Knight & Bention, Auditor, T. J. Fry, Supt. C. F. Holmes.

Kansas City Electric Ry. Co. 1 m, 4-8 1/2 g, heavy glider r, 8 c, 4 electric motors (Henry system). Pres. W. W. Kendall, V. Pres. Hugh L. McElroy, Sec. & Treas. Warren Watson. Office, 1139 E. 5th st. Capital, \$10,000.

Kansas City & Rosedale St. Ry. Co.

Metropolitan St. Ry. Co. 11 1/2 m, 4-4 8/8 g, 66 c, Pres. C. F. Morse, V. Pres. Geo. H. Nettleton, Sec. W. J. Ferry, Treas. A. W. Armour, Supt. E. J. Lawless, Engineers, Knight & Bention, Gen. Counsel Pratt, Baumbach & Ferry, Auditor & Cashier, R. J. McCarty. Capital \$1,250,000

**KEOKUK, IA.**—Keokuk St. Ry. Co. 4 m, 4-8 1/2 g, 27 lb steel r, 12 c, 40 h. Pres. Jas. H. Anderson, Sec. Wm. E. Anderson.

**KINGSTON, NT., CAN.**—Kingston St. R.R. Co. 1/2 m, 3-6 g, 9 lb r, 10 c, 36 h. Pres. Robert Carson, Sec. & Treas. E. Sargent, Man. William Wilson.

**KNOXVILLE, TENN.**—Knoxville St. R.L. Co. 2 m, 4-8 1/2 g, 22 lb r, 5 c, 2 hacks, 30 h. Pres. P. Chamberlain, Sec. Treas. Supt. T. L. Seaman.

Mabry Bell Ave. & Hardee St. Ry. Co. 4 m, 4-8 1/2 g, 4 c, 29 h. Pres. R. N. Hood, Sec. B. L. Smith, Supt. & Man. M. E. Thompson.

Market Sq. & Asylum St. Ry. Co. 2 m, 5 g, 22 lb r, 3 c, 18 h. Pres. Peter Kern, Sec. W. B. Henderson, Treas. W. H. Simmonds, Supt. L. O. Rogers. Office, 148 Gay st.

**LACONIA, N. H.**—Laconia & Lake Village Horse R.R. Co. 2 1/2 m, 3 g, 34 lb r, 5 c, 17 h. Pres. A. G. Folsom, Treas. Edmund Little, Man. Sela S. Kenniston.

**LA CROSSE, WIS.**—La Crosse City Ry. Co. 5 m, 4-8 1/2 g, 45 lb r, 15 c, 65 h. Pres. B. E. Edwards, V. Pres. Geo. P. Gund, Treas. Fred Tillman, Sec. Jas. T. Daggart, Supt. (North Division), Peter Valler, Supt. (South Division), Geo. F. Smith.

**LA FAYETTE, IND.**—Lafayette St. Ry. Co. 4-8 1/2 g, 35 lb r, 6 c, 38 h. Pres. F. B. Caldwell, La Fayette, Sec. & Treas. E. G. Jones, Decatur, Ill., Supt. F. Greer, La Fayette.

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

**LAMPASAS SPRINGS, TEX.**—Lampasas City Ry. Co. 3 1/2 m, 4-8 1/2 g, 22 lb r, 6 c, 15 h. Receiver, — Maddox.

**LANCASTER, PA.**—Lancaster & Millersville St. Ry. Co. — m, 4-8 1/2 g, 30 lb r, 4 c, 14 h. Pres. J. C. Hager, V. Pres. H. S. Shirk, Sec. & Treas. Chas. Dennes. Lancaster City St. Ry. Co. 1.1 m, 5-2 g, 38 lb r, 6 c, 4 h. Pres. W. D. Sprecher, Treas. J. H. Baumgardner, Sec. Thos. B. Cochrane, Man. J. B. Lang. Gen. Office, 129 North Queen st.

**LARCHMONT, N. Y.**—Larchmont Manor Co. 1 1/2 m, 4-8 g, 25 lb r, 2 c, 10 h. Pres. C. H. Murray, Sec. E.

E. Flint, Treas. T. H. French, 38 East Fourteenth st. N. Y. City, Supt. W. H. Campbell.

**LAWRENCE, KAN.**—Lawrence Transportation Co. 5 1/2 m, 4-1 g, 38 lb r, 8 c, 34 h. Pres. H. Tisdale, Sec. W. H. Bangs.

**LAWRENCE, MASS.**—Merrimack Valley Horse R.R. Co. 6 1/2 m, 4-8 1/2 g, 48 lb r, 20 c, 70 h. Pres. Wm. A. Russell, V. Pres. Jas. Walton, Methuen, Clerk & Treas. James H. Eaton, Supt. A. N. Kimball, Lawrence.

**LEWISTON, ME.**—Lewiston & Auburn Horse R.R. Co. 10 m, 4-8 1/2 g, 32 lb r, 20 c, 60 h. Pres. Frank W. Dana, Treas. Charles C. Corbett, Supt. J. E. Fairbanks, Clerk, H. C. Little.

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

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

**LIMA, O.**—Lima St. Ry. Co.

**LINCOLN, NEB.**—Capital City Ry. Co. 4m, 4 8 1-2 g, 25 lb r, 8 c, 64 h. Pres. & Treas. E. B. Durfee, Sec. & Supt. H. B. Durfee.

Lincoln St. Ry. Co. 8 m, 4-8 1/2 g, 13 c, 100 h. Pres. Frank L. Sheldon, Supt. L. P. Young.

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

Citizens' St. Ry. Co. 5 m, 4-10 g, 20-25 lb r, 22 c, 80 h. Owned and operated by Little Rock Street Railway Co. Same offices.

**LOCKPORT, N. Y.** (See New Roads.)

**LOGANSPORT, IND.**—Logansport Ry. Co. 2 m, 4g, 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. 5 m, 4-8 1/2 g, 30 lb r, 12 c, 30 h. Pres. V. Cronga, Sec. Jas. H. Flock, Supt. Henry Thos. Smith.

**LONG ISLAND CITY, N. Y.**—Steinway & Hunter's Point R.R. Co. 30 m, 4-8 1/2 g, 47 lb r, 68 c, 225 h. Pres. Wm. Steinway, Steinway Hall, N. Y. City, V. Pres. Henry A. Casseber, Jr., Steinway, V. Pres. Long Island City, N. Y. Sec. & Treas. Chas. F. Treihar, Steinway Hall, N. Y. City, Supt. Chas. J. Campbell. Offices Steinway 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. 4 1/2 m, 4-8 1/2 g, 45-55 lb r, 25 c, 60 h. Pres. Isaac Buchanan, N. Y. City, Sec. Geo. S. Crawford, Brooklyn, N. Y., Treas. Patrick J. Gleason, Supt. Michael Conway. Offices 112 Front st.

**LONGVIEW, TEX.**—Longview & Junction St. Ry. Co. 3 1/2 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. Fairhead. City & Central St. Ry. Co. 4 1/2 m, 3-6 & 4-8 g, — lb r, 2 g cars, 167 h. Pres. I. W. Hellman, Sec. Fred Harkness, Supt. Wm. Hawks.

Los Angeles & Aliso Ave. St. R.R. Co. Main St. & Agricultural Park Ry. Co. 8 m, 3-6 g, 16 lb r, 12 c, 49 h. Pres. W. J. Broderick, Sec. Arthur C. Taylor, Treas. The Farmers and Merchants' Bank, Supt. Wm. Hawks. Office, 6 Commercial st.

Second St. Cable Ry. Co. 6 c and 6 grip c. Pres. Jesse Garnell, Sec. & Man. Edw. A. Hall, Eng. and Supt. — Kibble.

Temple St. Cable Ry. Co. 1 1/2 m, 3-6 g, 16 lb r, 8 c. Pres. P. Beaudry, Sec. F. Woods, Supt. Col. A. H. Wands.

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

Central Pass. R.R. Co. 49 m, 5 g, 52 lb r, 150 c, 750 h, Pres. B. DuPont, V. Pres. Thos. J. Minery, Sec. T. C. Donigan. Office 18 Walnut st. Crescent Hill Ry. Co.

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

**LOWELL, MASS.**—Lowell Horse R.R. Co. 7.7 m, 4-8 1/2 g, 28-33 1/2 lb r, 33 c, 125 h. Pres. Wm. E. Livingston, Gen. Man. J. A. Chase.

Lowell & Dracut St. Ry. Co.

**LYNCHBURG, VA.**—Lynchburg St. R.R. Co. 2 1/2 m, 5-1 g, 20-26 lb r, 6 c, 31 h. Pres. & Treas. Stephen Adams, Supt. William W. Payne. Office 811 Main st.

**LYONS, IA.**—Clinton & Lyons Horse Ry. Co. 4 1/2 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. 10 m, 5 g, 20 lb T r, 20 c, 90 mu. Pres. John S. Bransford, Nashville, Tenn., Sec. and Supt. Jno. T. Voss, Office, Elm st.

**MADISON, IND.**—Madison St. Ry. Co. 2 1/2 m, 4 g, 15 lb r, 7 c, 8 h, 10 mu. Pres. Jacob Wendle, V. Pres. Peter F. Robenllus, Supt. & Treas. Chas. F. Tuttle.

**MADISON, WIS.**—Madison St. Ry. Co. 2 1/2 m, 3 g, 23 lb r, 8 c, 7 h, 24 mu. Pres. D. K. Tenney, Sec. and Treas. B. W. Jones, Supt. A. R. Kentzer.

**MANCHESTER, N. H.**—Manchester Horse R.R. Co. 7m, 3 g, 27-34 lb r, 14 c, 60 h. Pres. S. N. Bell, Treas. G. F. Smyth, Clerk J. A. Weston, Supt. A. G. Gage. Office Depot st.

**MANKATO, MINN.**—Mankato St. Ry. Co. 2m, 3-6g, 27 lb steel r, 3 c, 12 h. Pres. and Man. W. M. Farr, Sec. and Treas. John C. Noe, Capital, \$50,000; office 313 So Front street.

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

**MARYSVILLE, CAL.**—City Pass. R.R. Co.

**MAYSVILLE, KY.**—Maysville St. Ry. & T. Co. 3 m, 20 lb r, 4-8 1/2 g, 6 c, 32 mu. Pres. L. W. Robertson, Sec. & Treas. W. S. Frank.

**MECHANICSBURG, ILL.**—Mechanicsburg & Buffalo Ry. Co. 3 1/2 m, 3-10 g, 16 lb r, 3 c, 4 mu. Pres. J. N. Fullenweider, Treas. A. T. Thompson, Sec. H. Thompson.

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

**MERIDIAN, MISS.**—Meridian St. Ry. Co. 2 m, 4-8 g, 16 lb T r, 5 c, 17 mu, Pres. Geo. S. Covert, V. Pres.

and Sup. J. L. Händley, Treas. J. A. Kelly, Sec. R. M. Houston.

**MICHIGAN CITY, IND.**—Citizens' St. Ry. Co. 2 m, 4-8 1/2 g, 30 lb r, 4 c, 16 h. Pres. Wm. G. Knight, V. Pres. John Lyons, Sec. Jacob D. Henderson, Treas. Jerry H. Knight. Office West Washington st., South Bend, Ind.

**MIDDLETOWN, CONN.**—Middletown Horse R.R. Co. 2 m, 6c, 36 lb r, 74 c, 307 mu. Pres. John M. Douglas, Sec. & Treas. J. K. Guy, Supt. Joseph Lane. Office 166 Main st.

**MIDDLETOWN, O.**—Middletown Horse R.R. Co. Middletown & Madison St. R.R. Co. 2 m, 5 g, — r, 4 c, 8 h, Pres. F. Gunchel, Sec. and Treas. E. W. Gunchel.

**MILLERSVILLE, PA.**—Lancaster & Millersville St. R.R. Co. (See Lancaster, Pa.)

**MILWAUKEE, WIS.**—Cream City R.R. Co. 17 m, 4-8 1/2 g, 27-38 lb r, 74 c, 307 mu. Pres. Winfield Smith, V. Pres. Christian Preusser, Treas. Ferdinand Knehn, Sec. Wm. Damkoehler, Gen. Man. D. Atwood, Supt. H. J. C. Berg.

Milwaukee City Ry. Co. 30 m, 4-8 1/2 g, 27 lb iron & 45 lb steel r, 81 c, 410 h. Pres. Peter McGeoch, Sec. & Treas. Geo. O. Wheatcroft, Office 209 West Water st. West Side St. Ry. Co. Owner & Manager, Washington Becker, Supt. — McNaughton.

**MINNEAPOLIS, MINN.**—Minneapolis St. Ry. Co. 62 m, 3-6 g, 27-35-45 lb r, 186 c, 1050 h and mu. Pres. Thos. Lowry, V. Pres. C. Morrison, Treas. W. W. Herick, Sec. C. G. Goodrich, Supt. D. W. Sharp.

**MOBILE, ALA.**—City R.R. Co. 17 1/2 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 Ry. Co. 3 m, 5-2 1/2 g, 40 lb r, 9 c, 10 h, 12 m. Pres. D. P. Bestor, V. Pres. & Sec. G. Y. Overall, Treas. & Acting Sec. Jas. W. Gray, Pur. Agt. & Man. J. B. Robertson.

Mobile & Spring Hill R.R. Co. 8 m, 5-2 1/2 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. 1 1/2 m, 4-8 1/2 g, 30 lb r, 4 c (contract for motive power). Pres. O. W. Bronson, V. Pres. C. W. Carpenter, Sec. II. D. Alexander, Treas. R. M. Devendorf, Supt. O. W. Bronson.

**MOLINE, ILL.**—Moline Central St. Ry. Co. 2 1/2 m, 4-8 1/2 g, 30 lb r, 3 c, 10 h. Pres. F. H. Wessel, V. Pres. M. Y. Cady, Sec. W. R. Moore, Treas. C. F. Hemenway.

Moline & Rock Island St. Ry. Co. 5 m, 4-8 1/2 g, 20 lb r, 8 c, 40 h, 2 steam motors. Pres. & Treas. Eugene Lewis, Sec. I. M. Buford, Gen. Man. Geo. W. French, Supt. Jas. Cazatt.

**MONTGOMERY, ALA.**—Capital City Electric St. Ry. Co. 2 m, 2c. Electric motor. Pres. E. B. Joseph, Gen. Man. J. A. Gaboury, Treas. Thos. E. Hannon, Sec. Taylor Robert.

**MONTREAL, CAN.**—Montreal City Pass. Co. 21 m, 4-8 1/2 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. 2 1/2 m, 4-8 1/2 g, 20 lb r, 7c 4 h. Pres. B. Callahan, Treas. B. Buckley.

**MT. VERNON, N. Y.**—Mt. Vernon St. Ry. Co. Mount Vernon & East Chester R. R. Co. 3 1/2 m, — g, — r, 7 c, 30 h. Pres. Wm. A. Butler, V. Pres. Thos. Nichols, Sec. Jas. T. Byrne, Treas. Benj. L. Weltzheimer, office, 261 Broadway, N.Y.

**MUSCATINE, IA.**—Muscatine City Ry. Co. 3 1/2 m, 3-6 g, 21 lb r, 7 c, 24 h. & mu. Pres. Peter Musser, V. Pres. W. Hoffman, Sec. T. R. Fitzgerald, Treas. S. M. Hughes.

**MUSKEGON, MICH.**—Muskegon Ry. Co. 4 1/2 m, 1-6 g, 20 lb r, 8 c, 17 h, 9 mu. Pres. F. A. Nils, V. Pres. Chas. Merriam, Boston, Mass., Sec. Thos. Munroe, Treas. G. R. Sherman, Supt. Wm. McLaughlin.

**NASHUA, N. H.**—Nashua St. Ry. Co. 2 m, 3 g, 35 lb r, 5c, 32 h. Pres. John A. Spalding, Clerk, R. D. Barnes, Supt. Q. A. Woodward, Office, Kinsley st.

**NASHVILLE, TENN.**—Nashville & Edgeland R.R. Co. Fatherland Street Railway Co. North Edgeland 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. D. Deaderick. McGavock & Mt. Vernon Horse R.R. Co. 7 1/2 m, 5 g, 16-20-32 lb r, 25 c, 140 h & mu. Pres. John P. White, V. Pres. B. F. Wilson, Sec. & Treas. H. B. Stubblefield, Supt. Daingerfield Deaderick.

South Nashville St. R.R. Co. 1 1/2 m, 5 g, 16-20-32 lb r, 10 c, 68 h. Pres. W. M. Duncan, Sec., Treas. & Supt. C. L. Fuller, Office cor. So. Franklin and Cherry sts.

**NATICK, MASS.**—Natick & Cochituate St. Ry. Co. 3 m, 4-8 1/2 g, 35 lb r, 7 c, 17 h. Pres. Harrison Harwood, Supr. Geo. F. Keep, Clerk Frank Hayes.

**NEW ALBANY, IND.**—New Albany St. Ry. Co. 6 m, 4-11 1/2 g, 25 lb r, 15 c, 55 h. & mu. Pres. Geo. T. Vance, Treas. Letitia V. Vredenburg, Supt. & Pur. Agt. Wm. L. Timberlake. Office cor. Vincennes and Spring sts.

**NEWARK, N. J.**—Newark & Bloomfield St. R.R. Co. Consolidated with Essex Pass. Ry. Co. Essex Pass. R.R. 31 m, 5-2 1/2 g, 47 lb r, 107 c, 702 h. Pres. S. S. Battin, Sec. F. E. Kirke, Supt. H. F. Totten, Paymaster, W. L. Mulford. Office, 786 Broad st.

Newark & Irvington St. Ry. Co., 7 m, 5-2 1/2 g, 47 lb r, 28 c, 130 h, Pres. S. S. Battin, Sec. W. L. Mulford, Supt. H. F. Totten.

**NEW BEDFORD, MASS.**—New Bedford & Fairhaven St. Ry. Co. 7 1/2 m, 4-8 1/2 g, 35-45-50 lb r, 428 c, 149 Pres. Warren Ladd, Treas. & Clerk, A. G. Pierce. Acushnet St. R.R. Co. 6 m, 4-8 1/2 g, 35 lb r, 29 c, 103 h. Pres. Chas. E. Cook, Sec. & Treas. A. P. Smith.

**NEW BRUNSWICK, N. J.**—New Brunswick Horse R.R. Co. 4 m, 4-8 1/2 g, 40 lb r, 5 c, 20 h. Pres. F. M. Delano, Treas. Carroll Sprigg.

**NEWBURGH, N. Y.**—Newburgh St. R.R. Co. Pres. D. S. Haine, Sandy Hill.

**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, 4 1/2 g, 42 lb r, 23 c, 150 h. Pres. H. B. Ives, Sec. & Tr. L. Candee, Supt. Walter A. Graham



New Haven & Centreville Horse R.R. Co. 2 1/2 m, 4-8 1/2 g, 42 lb r, 4 c, 30 h. Trustee Cornelius Pierpont.  
 New Haven & West Haven R.R. Co. (See West Haven).  
 State Street Horse R.R. Co. 2 1/2 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. 2 1/2 m, 4-8 1/2 g, 25 lb r, 3 c, 25 h. Pres. Geo. H. Watrous, Sec. George D. Watrou, Treas. E. I. Whitney, Jr.  
**NEW MARIETTA, O.**—Kankaport R.R. Co.  
**NEW ORLEANS, LA.**—Canal & Claiborne St. R.R. Co. 13 m, 5-2 1/2 g, 37 lb r, 40 c, 200 h. Pres. E. J. Hart, Sec. & Supt. Jos. H. DeGrange.  
 Crescent City R.R. Co. 26 m, 5-2 1/2 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, 32 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, 5-2 1/2 g, 35 lb r, 60 c, 366m. Pres. & Supt. Aiden McLellan, Sec. V. Riviere.  
 New Orleans & Carrollton R.R. Co. 8 m, 4-8 1/2 g, 30-45 lb r, 65 c, 200 h, 19 engines. Pres. Wm. Benthuyson, Sec. Walter F. Crouch, Supt. C. V. Halle.  
 New Orleans City & Lake R.R. Co. 62 m, 5-2 1/2 g, 46 lb r, 300 c, 39 coaches, dummy engines, 800 mu. Pres. J. A. Walker, Sec. W. E. Leverich, Supt. F. Wintz.  
**NEWPORT, KY.**—Newport St. R.R. Co.  
**NEWTON, MASS.**—Newton St. Ry. Co. (See New Roads).  
**NEW YORK, N.Y.**—Ninth Ave. R.R. Co. 16 m, 4-8 1/2 g, 60 lb r, 52 c, 530 h. Pres. W. H. Hays, Sec. & Treas. James Affleck, Supt. Herman B. Wilson. Offices, Ninth Ave., cor. 54th st.  
 Broadway & Seventh Ave. R.R. Co. 16 m, 4-8 1/2 g, 47-60 lb r, 150 c, 1,350 h. Pres. Henry Thompson, Sec. & Treas. Thos. B. Kerr, Supt. Henry A. Newell. Office 761, Seventh Ave.  
 Central Crosstown R.R. Co. 5-22 m, 4-8 1/2 g, 52 lb r, 45 c, 241 h. Pres. Geo. S. Hart, V. Pres. A. Cammack, Sec. & Treas. Milton I. Masson, Office 365 Ave. A.  
 Central Park, North & East River R.R. Co. 19 m, 4-8 1/2 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.  
 Chambers St. & Grand St. Ferry R. R. Pres. H. Thompson.  
 Christopher & Tenth St. R.R. Co. 5 m, 4-8 g, 45 lb r, 47 c, 290 h. Pres. Jacob Sharp, Treas. W. T. Hatch, Sec. & Supt. G. W. Lynch. Office, 161 Christopher St.  
 Dry Dock, East Broadway & Battery R.R. Co. 18 1/2 m, 4-8 1/2 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. 20 m, 4-8 1/2 g, 60 lb r, 112 c, 1155 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. 10 1/2 m, 8-4 g, 64 lb r, 50 c, 500 h. Pres. Chas. Curtis, Sec. & Treas. E. S. Allen, Supt. John M. Calhoun. Office, 653 W. 42d st.  
 Forty-second St., Manhattanville and St. Nicholas Avenue Ry. Co. 18 1/2 m. Pres. Danl D. Conover, Sec. and Treas. John P. Roberts, Supt. Abram L. Smith. Offices 42d street and 7th aves.  
 Harlem Bridge, Morrisania & Fordham Ry. 16.37 m, 4-8 1/2 g, 45 lb r, 65 c, 311 h. Pres. and Supt. H. Spratley, V. Pres. Richard M. Hoe, Sec. & Treas. Wm. Candwell. Office, North Third Ave. near 170 st.  
 Houston, West Street & Pavyon Ferry R.R. Co. 11-2 3 m, 4-8 1/2 g, 60 lb r, 50 c, 450 h. Pres. Rich. Kelly, Sec. & Treas. Daniel B. Hasbrouck, Office, 415 E. 10 st.  
 Jerome Park R.R. 1-2 3 m, 4-8 1/2 g, 50-56 lb r. Pres. Leonard M. Jerome, Sec. Fred A. Lovecraft, Treas. Theodore Moss. Off. e. 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. 17 1/2 m, 4-8 1/2 g, 60-75 lb r, 161 c, 1,590 h. Pres. — V. Pres. — Sec. Cornelius Vanderbilt, Treas. Ed. V. W. Rossi, Supt. Alfred Skitt, Pur. Agt. P. S. Beins.  
 Sixth Ave. R.R. Co. 9 1/2 m, 4-8 1/2 g, 60 lb r, 127 c, 1296 h. Pres. Frank Curtis, Sec. and Treas. Henry S. Moore, Supt. Edw. E. Moore. Office, 755 6th Ave.  
 South Ferry Ry. Co. 1 1/2 m, 4-8 1/2 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.  
 St. Nicholas & Crosstown R. R. Co. (See New Roads).  
 The Second Ave. R.R. Co. 25 m, 4-8 1/2 g, 60 lb r, 316 90 c, 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, 6 1/2 m 10th Ave. cable line, 4 m 125th street cable line, 4-8 1/2 g, 60 & 74 lb r, 218 c, 2150 h. Pres. Lewis Lyon, 739 Madison Ave., V. Pres. Henry Hart, 110 Tribune Building, Sec. Alfred Lazarus, 136 W. 61st St., Treas. John Beaver, 211 E. 112th st., Supt. John H. Robertson, 307 E. 85th st.  
 Twenty-third St. R.R. Co. 14 m, 4-8 1/2 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. 3 1/2 m, 4-8 1/2 g, 38-42 lb r, 8 c, 36 h. Pres. Benj. Flagler, Sec. W. J. Mackay, Treas. A. Schoellkopf.  
**NORFOLK, VA.**—Norfolk & City R.R. Co. 3 1/2 m, 5-2 g, 44 lb r, 18 c, 65 h. Pres. John B. Whitehead, Treas. H. C. Whitehead, Supt. E. W. Savage.  
**NORTH ADAMS, MASS.**—Hoosic Valley St. Ry. Co. 6 m, 4-8 1/2 g, 40 lb r, 10 c, 29th, 2 steam motors. Pres. Wm. B. Baldwin, V. Pres. W. Cronkrite, Sec. & Treas. S. P. Proctor Thayer, Manager G. W. Lincoln.  
**NORTHAMPTON, MASS.**—Northampton St. Ry. Co. 3 1/2 m, 4-8 1/2 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. Edw. G. Hoyt, Sup. James W. Hyatt.  
**NORWICH, CONN.**—Norwich Horse R. R. Co.

**OAKLAND, CAL.**—Alameda, Oakland & Piedmont R.R.  
 Berkeley Villa R.R.  
 Broadway & Piedmont St. R.R. Co.  
 Fourteenth St. R.R. Co. 6 m, 5 g, 20-30 lb r, 6 c,— h. Pres. & Supt. Walter Blair, Sec. P. J. Van Lobe, Oakland R.R. Co.  
 Oakland, Brooklyn & Fruitvale R. R. Co. (See East Oakland).  
**OGDEN CITY, UTAH.**—Ogden City Ry. Co. 3 m, 4-8 1/2 g, 20 lb r, 4 c, 21 h. Pres. L. W. Shurtle, Ogden City, V. P. & Supt. O. P. Arnold, Salt Lake City, Sec. & Treas. H. S. Young, Ogden City.  
**OGDENSBURG, N. Y.**—Ogdenburg St. Ry. Co. 5 m, 4-8 1/2 g, 25 lb r, 66, 18 h. Pres. W. H. Daniels, Treas. W. A. Ezert, Sec. W. H. Daniels.  
**OLEAN, N. Y.**—Olean St. Ry. Co. 1 1/2 m, 3-6 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. Cable (see new roads).  
 Omaha Tramway Co.  
**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 1/2 m, 4-8 1/2 g, 45 lb r, 3 c, 23 h. Pres. Jas. F. Johnson, V. Pres. R. J. Olliphant, 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, 30 lb r, 9 c, 40 h. Pres. Thomas C. Keefe, V. Pres. R. Blackburn, Sec. James D. Fraser.  
 Ottawa St. Ry. Co.  
**OTTUMWA, IA.**—Ottumwa St. R.R. Co. 2 m, 3-6 27 lb r, 4 c, 2 h, 14 mu. Pres. J. M. Hedrick, Sec. & Treas. H. L. Hedrick, Supt. C. M. Hedrick.  
 Mineral Springs St. Ry. 1 m, 3 1/2 g, 16 lb T r, 1 c 4 h. Owner, L. E. Gray.  
**PALATKA, FLA.**—Palatka St. Ry. Co.  
**PARIS, TEX.**—Paris Ry. Co. 1 1/2 m, 4-8 1/2 g, 22 lb r, 2 pass. 4 ft c, 16 mu. Pres. I. M. Daniel, Sec. Geo. M. Daniel, Treas. D. J. Latimer, Supt. C. G. Caviness.  
**PATERSON, N. J.**—Paterson & Passaic R.R. Co. 7 m, 4-10 g, 33 lb r, 16 c, 24 h. Pres. John N. Terhune, Treas. John I. Brown, Sec. F. 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. A. Albert A. Wilcox.  
**PAWTUCKET, R. I.**—Pawtucket St. Ry. Co. 8 m, 5-4 lb r, 4 g, 24 c, 100 h. Pres. A. B. Chace, V. Pres. & Gen'l. Man. D. F. Longstreet, Treas. E. N. Littlefield. Office Broad st.  
**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.  
**PETERSBURG, VA.**—Petersburgh St. Ry. Co. 3 1/2 m, 4-8 1/2 g, 42 lb r, 9 c, 44 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. J. J. Adams, Sup. Sam'l Cline, Office, n w cor. 12th and Susquehanna ave. Capital, \$192,500.  
 Empire Pass. Ry. Co. 8 1/2 m, 5-2 g, 45 lb r, 32 c, 250 h. Pres. James McManes, Sec. and Treas. John I. Adams. Office, n w cor. 12th st. and Susquehanna av.  
 Frankford & Southwark Phila. City Pass. R.R. Co. 18 m, 5-2 g, 47 lb r, 102 c, 8 dummy c, 618 h. Pres. Henry Geiger, Sec. & Treas. Geo. S. Gandy, Supt. W. H. Janney. Capital, \$750,000.  
 Germantown Pass. Ry. Co. 29 1/2 m, 5-2 1/2 g, 47 lb r, Cars and horses, leased. Pres. Craig D. Ritchie, Treas. Lewis S. Renshaw, Sec. R. H. Parks. Office, n w cor. 10th and Chestnut sts.  
 Green & Coates R. R. Co. (leased to People's Pass. Ry. Co.) Pres. Moses A. Dropsie, Sec. & Treas. Lewis S. Renshaw. Office N. W. cor. 10th. and Chesnut sts.  
 Hestonville, Mantua & Fairmount Pass. R.R. Co. 20 m, 5-2 g, 43 lb r, 50 c, 480 h. Pres. Charles F. Lafferty, Sec. & Treas. W. C. Foster. Office, 4,300 Lancasterave.  
 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, 5-2 g, 43 lb r, 51 c, 278 h. Pres. John B. Parsons, Sec. & Treas. Francis Hazelhurst, Supt. Jno. M. Gaughen. Office, 2,509 South st.  
 People's Pass. Ry. Co. 44 m, 5-2g, 47 lb r, 125 c, 1,080 h. Pres. John B. Parsons, Sec. & Treas. Jno. C. Desales, Supt. Wm. Ilagenswiler.  
 Philadelphia City Pass. Ry. Co. 7 m, 5-2 1/2 g, 47 lb r, — c,— h. Pres. Wm. Colket, Sec. & Treas. T. W. Pennyacker. (leased to Phila. Traction Co.)  
 Philadelphia Traction Co. 109 m, 5-2 1/2 g, 45-78 lb r, 59-4 c, 2,942 h. Pres. W. H. Kemble, V. Pres. P. A. B. Widener & W. L. Elkins, Treas. D. W. Dickson. Office, n w cor. 41st and Flaverford sts.  
 Philadelphia & Darby Ry. Co. 6 1/2 m, 5-2 1/2 g, 42 lb r, road leased. Pres. C. L. Borie, Sec. and Treas. Wm. W. Colket. Office, 202 Walnut st. Leased to Phila. City Pass. Ry. Co.  
 Philadelphia & Gray's Ferry Pass. R.R. Co. 101-3 m, 40 c, 200 h. Pres. Matthew Brooks, Treas. J. C. Dawes, Sec. J. Crawford Dawes, Supt. Patrick Lovett. Office, 36th st. and Gray's Ferry Rd.  
 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. Wm. Ingers. Second & Third Sts. Pass. Ry. Co. 37 m, 116 c, 669 h. Pres. Alexander M. Fox, Treas. William F. Miller, Sec. Charles D. Matlack, Supt. David W. Stevens.  
 Seventeenth & Nineteenth 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. Betsy. (Leased to Phila. Traction Co.)  
 West Philadelphia Pass. Ry. Co. 18 1/2 m, 123 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, 35 lb r, 4 c, 13 h. Pres. Daniel Hunkle, Sec. & Treas. James W. Long.  
**PITTSBURGH, PA.**—Central Pass. R.R. Co. 3 m, 16 c, 95 h. Pres. J. F. Cluley, Sec. F. L. Stephenson, Treas. E. R. Jones, Supt. R. G. Heron.  
 Citizens' Pass. Ry. Co. 16 1/2 m, 5-2 1/2 g, 47 lb r, 40 c, 337 h. Pres. Jno. G. Holmes, Sec. C. M. Gormley, Supt. Murry Verner. Treas. Jas. J. Donnell, Capit'l, \$200,000.  
 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. McCreey, 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. Gordon, Sec. John G. Traggardh, Treas. A. W. Mellon, 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, Cash. Saml. C. Hunter.  
 Pittsburgh & Birmingham Pass. R.R. Co. 3 1/2 m, 5-2 1/2 g, 48 lb r, 20 c, 170 h. Pres. W. W. Patrick, Sec. D. F. 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.  
 Second 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. F. Klopfer, Sec. & Treas. Wm. R. Ford, Supt. Miller Elliot.  
 Wilkesburg & East Liberty Ry. Co. (See new roads).  
**PITTSFORD, PA.**—Pittston St. R.R. Co. 1 1/2 m, 3c, 5 h. Pres. Thomas Griffith, Treas. M. W. Morris, Sec. William Allen.  
**PLYMOUTH, MASS.**—Plymouth & Kingston St. R. R. Co. (See new roads).  
**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. Wastell.  
 Port Huron Electric St. Ry. Co. 4 m, 4 c.  
**PORTLAND, ME.**—Ocean St. R.R. Co.  
 Portland R.R. Co. 7 1/2 m, 4-8 1/2 g, 30-33-45 lb r, 34 c, 154 h. Pres. H. J. Libby, Treas. & Gen. Man. E. A. Newman, Supt. Geo. W. Soule.  
**PORTLAND, ORE.**—Portland St. Ry. Co. 2 m, 3-6 g, 25-42 lb r, 11 c, 40 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. Ry. Co. 7 m, 3-6 g, 38 lb r, 15 c, 65 h. Pres. Walter F. Burrell, 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.  
**POTTSVILLE, PA.**—People's Ry. Co. 9 1/2 m, 16c, 56h.  
**POUGHKEEPSIE, N. Y.**—City R.R. of Poughkeepsie, 4 m, 4-8 1/2 g, 35-42 lb r, 11 c, 38 h. Pres. Geo. B. Adrians, V. Pres. & Treas. Hudson Taylor, Sec. A. B. Smith, Supt. C. M. Davis. Office 491 Main St.  
**PROVIDENCE, R. I.**—Union R.R. Co. 5 1/2 m, 4-8 1/2 g, 47-54 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, 45 lb r, 9 c, 46 h. Pres. Chas. St. Michel, Quebec, V. Pres. G. R. Renfrew, Quebec, Sec. & Supt. Samuel Moore.  
 St. John St. Ry. Co. Lim. 1 1/2 m, 4-8 1/2 g, 35 lb r, 4 c, 23 h. Runs 4 buses out 4 m. from city limits.  
 Pres. Jos. W. Henry, V. Pres. A. Robertson, Sec. & Man. W. W. Martin.  
**QUINCY, ILL.**—Quincy Horse Ry. & Carrying Co. 6 m, 5 g, 71 lb r, 21 c, 118 mu. Pres. Lorenzo Bull, Sec. C. H. Bull, Supt. E. K. Stone.  
**RACINE, WIS.**—Belle City St. Ry. Co. 4 m, 4 g, 5 lb r, 9 c—40 h. Pres. John T. Fish, Sec. & Treas. E. S. Dodge, Gen. Man. Geo. B. Hathaway.  
**RALEIGH, N. C.**—Raleigh St. Ry. Co. 7 1/2 m, 4-8 1/2 g, 16 T steel, 6 c, 36 mu. Pres. Geo. M. Snodgrass, Sec. & Supt. J. F. Scott, Treas. R. T. Gray, Atty F. H. Busbee. Capital stock, \$25,000.  
**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, 44 h. Pres. B. F. Owen, V. Pres. Jas. L. Douglass, Sec. & Treas. H. A. Muhlberg, Supt. J. A. Riggs.  
 Perkiomen Ave. Pass. Co. 2-1-5 m, 5-2 1/2 g, 46 lb r, 13 c, 41 h. Pres. Chas. Breinseier, Sec. & Treas. Isaac Hlester, Supt. John B. Houp.  
**RED OAK, IA.**—Red Oak St. R.R. Co. 1 1/2 m, 4-2 1/2 g, flat r, 2c, 2h, 2 mu. Pres. J. W. Judkins, V. Pres. G. West, Sec. F. M. Byrket, Treas. & Supt. F. O. Judkins.  
**RICHMOND, IND.**—Richmond City Ry. Co. 3 m, 5 g, 9 lb r, 10 c, 30 h. Pres. J. Y. Miller, V. Pres. Jos. Ruliff, Treas. H. I. Miller, Supt. F. M. Francisco.  
**RICHMOND, ILL.**—Richmond St. R.R. Co.  
**RICHMOND, VA.**—Richmond City Ry. Co. 7 1/2 m, 4 8 1/2 g, 30-45 lb r, 40 c, 180 h. Pres. J. L. Schoolcraft,



Sec. & Treas. Walter Kidd, Man. C. M. Bolton, Supt. Charles Seiden.

Richmond & Manchester Ry. & Imp. Co., 2 1/2 m, 26 h, 4 c. Supt. B. R. Seiden.

Richmond Union Pass. Ry. Co. (See new roads.)

**ROCHESTER, N. Y.**—Rochester City & Brighton R.R. Co. 37 m, 4 8/8 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. W. 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, 30 lb r, 13 c, 52 h, 16 m. Pres. Anthony Haines, V. Pres. L. Rhodes, Sec. Miss A. C. Arnold, Treas. N. 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.

**RONDOUT, N. Y.**—Kingston City R. R. Co. 3 m, 4-8 1/2 g, 40 lb r, 10 c, 40 h. Pres. James G. Lindsley, V. Pres. S. D. Coykendall, Sec. & Treas. John C. Romeyee, Supt. Wm. H. DeGarmo.

**RUTLAND, VT.**—Rutland St. Ry. Co. 8 m, 4-8 1/2 g, 20 lb r, 8 c, 30 h. Pres. M. Quin, Sec. John N. Woodfin, Treas. A. H. Tuttle, Supt. M. McKeough.

**SACRAMENTO, CAL.**—Sacramento City Ry. Co. 12.1-horse and 10.2-horse c. Prop. R. S. Carey, Supt. Geo. W. Carey.

**SAGINAW, MICH.**—City of Saginaw St. R. R. Co. 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. 12 m, 4-8 1/2 g, 35-45 lb r, 24 c, 117 h. Pres. Benj. W. Russell, Sec. & Treas. G. A. Vickery, Asst. Supt. David N. Cooke.

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.

**SALINA, N. Y.**—Woodlawn & Butternut St. Ry. Co.

**SALT LAKE CITY, UTAH.**—Salt Lake City R.R. Co. 18 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, 38 c, 125 mu. Pres. A. Becknap, 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. 12 m, 5 g, 45 lb r, 31 c, 290 h, Pres. Chas. Main, V. Pres. S. C. Bigelow, Treas. A. J. Gunnison, Sec. C. V. LeBreton, Supt. J. F. Clark.

Clay St. Hill R. R. Co. 1 m, 3-6 g, 30 lb r, 1 c, 12 dummy cars. Pres. Joseph Britton, V. Pres. James Mottit, Treas. Henry L. Davis, Sec. Chas. P. Campbell, Supt. Joseph Britton.

Geary St. Park & Ocean R.R. Co. 9 1/2 m, (5 1/2 m cable, 4 1/2 m steam) 5 g, 45 lb r, 39 c. Pres. Daniel Meyer, V. Pres. R. F. Morrow, Treas. S. C. Bigelow, Supt. Johnson Reynolds, Sec. John N. Syme.

Market St. Cable Ry. Co. 12 1/2 m, 4-8 1/2 g, 37-38 lb r, 182 c, 2 motors, 82 h. Pres. Leland Stanford, V. Pres. Chas. F. Crocker, Treas. N. T. Smith, Sec. J. L. Willcutt, Supt. H. D. Morton, Office, Fourth and Townsend streets.

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

Ocean Beach Ry. Co. (operated by Market St. Cable Ry. Co.) 2 m. Pres. Leland Stanford, V. Pres. Chas. F. Crocker, Treas. N. T. Smith, Sec. J. L. Willcutt, Supt. H. D. Morton.

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. M. Martin.

Park & Ocean R.R. Co. 4.62 m, 35 and 40 lb r, 4-8 1/2 g, 7 dummy engines, 16 pass. c, flat and section c. Pres. Chas. F. Crocker, V. Pres. Timothy Hopkins, Treas. J. T. Smith, Sec. J. L. Willcutt, Supt. H. D. Morton.

Potrero & Bay View R.R. Co. 1 1/2 m, 5 g, 35 lb r, 10 c, 43 h. Pres. Leland Stanford, V. Pres. Chas. Crocker, Treas. N. T. Smith, Sec. J. L. Willcutt, Supt. H. O. Rogers.

Powell & Jackson St. R. R. Co. (see new roads.)

Sutter St. R.R. Co. 5 1/2 m, 4-11 g, 35-45 lb r, 40 c, 181 h. Pres. R. F. Morrow, Sec. A. K. Stevens, Treas. M. Schmitt, Supt. James McCord.

Telegraph Hill R.R. Co. 1,560 ft, 4-8 1/2 g, 45 lb r, 2 c, — h. Pres. Gustav Sutro, V. Pres. C. Kohler, Sec. & Supt. Chas. J. Werner.

The City R.R. Co. 11 m, 5 g, 45 lb r, 72 c, 280 h. Pres. R. B. Woodward, V. Pres. Geo. E. Raum, Sec. M. E. Willis, Treas. Jas. H. Goodman, Supt. William Woodward, Master Car Builder, Frank O. Landgram.

**SAN JOSE, CAL.**—San Jose & Santa Clara R.R. Co. 8 1/2 m, 4-8 and 3 g wide g, 40 lb r, narrow g, 20 lb r, 25 c, 75 h. Pres. S. A. Bishop, V. Pres. W. S. McMurry, Treas. Jacob Rich, Sec. E. M. Rosenthal, Man. Wm. Fitts, Office, 20 W. Santa Clara st.

First St. R. R. & Willow Glen R. R. 4 1/2 m, 3 g, 20 lbs. r, 6 c, 30 h. Jacob Rich, Sole Owner. Sec. E. M. Rosenthal, Office, 20 Santa Clara st.

First St. & San Pedro St. Depot R.R. Co.

North Side Horse R.R. Co. 2 1/2 m, 3 g, 16 lb r, 3 c, 10 h. Pres. & Man, Jacob Rich, Sec. E. M. Rosenthal, Treas. S. A. Bishop.

Willow Glen R.R. 7 1/2 m, 3 g, 20 lb r, 30 h. Sole owner Jacob Rich, Sec. E. M. Rosenthal, Office 20 W. Santa Clara st.

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

**SARINIA, CAN.**—Sarnia St. Ry. Co. 2 1/2 m, 4-8 g, 32 lb r, 2 c, 9 h. Pres. J. F. Lister, Sec. & Treas. Thos. Symington, Supt. Henry W. Mills.

**SAUGATUCK, CONN.**—Westport & Saugatuck Horse R.R. Co. (See Westport, Conn.)

**SAVANNAH, GA.**—City & Suburban Ry. Co. 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. (See new roads.)

**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.

Scranton Suburban Ry. Co. 2 1/2 m, 4-8 1/2 g, 52-40 lb r, 3 c, operated by electricity. Pres. Edward B. Sturges, Treas. T. F. Torrey, Sec. Geo. Sanderson.

**SEARCY, ARK.**—Searcy & West Point R.R. Co. 8 m, 4-8 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. Kinnear.

**SEDALLA, MO.**—Sedalla 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. Bohlla.

**SENECA FALLS, N. Y.**—Seneca Falls & Waterloo R.R. Co. 7 m, 4-8 1/2 g, 40 lb r, 4 c, dummies. Pres. & Treas. Geo. H. Stayner, Asst. C. H. Williams, V. Pres. & Gen. Man. Charles D. Haines, Supt. A. G. Haines, Sec. Henry S. Ives.

**SEVASTOPOL, IA.**—Des Moines & Sevastopol St. R.R. Co. 1 1/2 m, 4 g, 36 lb r, 2 c, 12 h. Pres. G. Van Ginkel, Sec. G. C. Van Ginkel, Treas. John Weber, Office, Main st.

**SHERMAN, TEX.**—Sherman City R.R. Co. 3 1/2 m, 5 g, 20 lb r, 7 c, 32 mu. Pres. C. W. Batsell, Treas. J. M. Batsell, Sec. C. W. Batsell, Jr.

**SHEREPORT, LA.**—Shreveport City R.R. Co. 1 1/2 m, 4-4 g, 46 lb r, 6 c, 14 h. Pres. Peter Youree.

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

**SILOUX 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 BEND, IND.**—South Bend Railway Co. 6 m, 4-8 1/2 g, 30 lb r, 17 c, 49 h. Pres. Jacob Woolverton, Treas. Lucius Clark, Sec. W. G. George, Office, 212 W Market st, Utica, N. Y.

South Bend and Mishawauka St. Ry. Co.

**SOUTH CHICAGO, ILL.**—Chicago Horse & Dummy R.R. 5 m, 4-8 1/2 g, — lb r, — c, — h. Pres. D. L. Huff, Treas. A. C. Calkins, Sec. E. R. Bliss. [Not in operation.]

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

**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, 29 c, 100 h. Pres. J. H. Schrick, Treas. Frank Reisch, Sec. Chas. F. Harman.

Springfield City Ry. Co. 7 m, 4-8 1/2 g, 90 mu. & h. Pres. A. L. Ide, Treas. Wm. Ridgely, Sec. Geo. Brinkerhoff.

**SPRINGFIELD, MASS.**—Springfield St. Ry. Co. 4-8 1/2 g, 33-40 lb r, 30 c, 120 h. Pres. John Olmstead, Auditor L. E. Ladd, Clerk Gideon Wells, Treas. A. E. Smith, Supt. F. E. King.

**SPRINGFIELD, MO.**—Citizens' Ry. Co. of Springfield and No Springfield, 5 1/2 m, 5-8 1/2 g and 4-10 g, 30, 33 and 40 lb r, 16 c, 70 h & mu. Pres. R. C. Kerens, V. Pres. B. F. Hobar, Sec. and Treas. A. M. Longwell, Supt. F. B. Smith, Ex-Com L. H. Murray, H. F. Denton, C. B. McAfee.

**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.

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

**ST. JOHN, N. B.**—St. John St. Ry. Co. 7 m, 4-8 1/2 g, 45-40 lb r, 15 c, 65 h. Pres. John R. Bothwell, Sec. & Treas. John J. Pyle, Office Room 39 Drexel Building, New York, and St. John, N. B.

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

Frederick Ave. Ry. Co. 1 1/2 m, 3 g, 16 lb r, 6 c, 16 h. Pres. Thos E. Tootle, V. Pres. Winslow Judson, Sec. W. D. B. Motter, Treas. Thos W. Ewins, Sup. S. Rowen, St. Joseph & Lake St. R.R. Co.

Union Ry. Co. — m, — g, 20, 30 and 52 lb r, 27 c, 110 h. Pres. Seymour Jenkins, Sec. & Treas. S. Steinacker, Supt. Harvey E. Lewis, Office, cor Highland and St. Joseph Avenues.

**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.

Benton & 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. & Treas. Robert McCulloch.

Cass Avenue & Fair Grounds Ry. Co. 8 1/2 m, 4-10 g, 38 lb r, 39 c, 255 h. Pres. W. R. Allen, V. Pres. Geo. W. Allen, Sec. & Treas. J. W. Wallace, Supt. G. G. Gibson, Cashier O. H. Williams.

Citizens' Ry. Co. — m, — g, — lb r, — c, — h. Pres. Julius S. Walsh, V. Pres. J. P. Helfenstine.

Forest Park, Laclede & Fourth St. Ry. Co. Pres. Chas. H. Turner, Sec. H. B. Davis.

Jefferson Ave. Ry. Co. Pres. John M. Gelkeson, Gen. Man. John Scullin, Sec. C. K. Dickson.

Lindell Ry. Co. 1 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. Liewellyn.

Northern Central.

Missouri R.R. Co. — m, — g, — lb r, — c, — h. Pres. P. C. Maffit, Sec. W. D. Henry.

Mound City R.R. Co. Pres. John Scullin, Sec. & Treas. C. M. Seaman, Supt. Jas. Sullivan.

People's Line, Pres. Chas. Green, Sec. John Mahoney, Supt. Patrick Shea.

Southern Ry. Co. 7-4-5 m, 4-10 g, 35-52 lb r, 49 c, 250 V. Pres. E. R. Coleman, Sec. J. S. Minary, Man. W. L. Johnson.

St. Louis R.R. Co. 11 m, 4-10 g, 38-44 lb r, 58 c, 375 h. Pres. C. Peper, Sec. & Treas. R. B. Jennings, Supt. Chas. Ischer.

St. Louis Cable & Western Ry. Co. Pres. M. A.

Downing, V. Pres. F. M. Colburn, Sec. & Treas. E. F. Claypool, Man. Geo. F. Brannan.

Tower Grove & Lafayette Ry. Pres. Chas. Green, Sec. John Mahoney, Supt. Patrick Shea.

John Depot R.R. Co. — m, — g, — lb r, — c, — h. Pres. John Scullin, V. Pres. & Treas. C. M. Seaman, Supt. Jas. H. Roach.

Union Ry., Sec. Pres. Julius S. Walsh, V. Pres. J. P. Helfenstine, Sec. & Treas. M. J. Moran, Supt. Michael Moran.

**ST. PAUL, MINN.**—St. Paul City Ry. Co. 37 m, 4-8 1/2 g, 45-52 lb r, 82c, 600 h. & mu. Pres. Thos. Lowry, V. Pres. C. G. Goodrich, Sec. A. Z. Levering, Treas. Clinton Morrison, Supt. A. L. Scott.

**ST. THOMAS, CAN.**

**STAMFORD, CONN.**—Stamford Horse R. R. Co. 5 1/2 m, 4-8 1/2 g, 10 c, 40 h. Pres. F. M. Delano, Treas. Philip Richardson.

**STONEHAM, MASS.**—Stoneham St. R. R. Co. 2 1/2 m, 4-8 1/2 g, 33 lb r, 10 c, 28 h. Pres. A. V. Lynde, Melrose, Treas. & Clerk Lyman Dyke, Supt. John Hill.

**STILLWATER, MINN.**—Stillwater St. Ry. Co.

**STILLWATER, N. Y.**—Stillwater & Mechanicsville St. Ry. Co. 4 1/2 m, 4-8 1/2 g, 25-30 lb r, 4 c, 6 h. Pres. W. L. Denison, V. Pres. Lyman Smith, Gen. Supt. Peter Van Veghten, Sec. & Treas. Edw. I. Wood.

**STROUDSBURG, PA.**—Stroudsburg Passenger R.R. Co. 1-4-5 m, 4-8 1/2 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, V. Pres. Chas. P. Clark, Sec. & Treas. Lyman C. Smith, Supt. W. B. Thompson.

Central City Ry. Co. 2 1/2 m, 4-8 1/2 g, 47 lb r, 12 c, 42 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. 2 1/2 m, 4-8 1/2 g, 35-56 lb r, 8 c, 30 h. Pres. P. B. Brayton, V. Pres. John D. Grey, Sec. & Treas. O. C. Potter, Supt. Hugh Purnell, Office W. Washington st.

Genesee & Water St. R.R. Co. and Fourth Ward R.R. Co. 4 m, 4-8 1/2 g, 18-30 lb r, 10 c, 35 h. Pres. Robt. G. Wynkoop, V. Pres. Wm. H. H. Smith, Sec. & Treas. Geo. J. Gardner, Supt. W. J. Hart.

Onondaga Savings Bank Building.

New Brighton & Onondaga Valley R.R. Co. 1 1/2 m, 4 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. Pres. E. F. Rice.

Syracuse & Geddes Ry. Co. 2 1/2 m, 4-8 1/2 g, 30-45 lb r, 8 c, 35 h. Pres. R. Nelson Gere, V. Pres. Chas. E. Hubbell, Sec. & Treas. Rasselas A. Bonta, Supt. Wm. J. Hart. Gen. Offices, 1 Onondaga Co. Bank Building, a Third Ward Ry. Co. Pres. W. B. Cogswell, Sec. & Treas. W. S. Wales.

**TAMPA, FLA.**—Tampa St. Ry. Co. Sec. Geo. T. Chamberlain.

**TAUNTON, MASS.**—Taunton St. Ry. Co. 4 m, 4-8 1/2 g, 14 c, 45 h. Pres. Wm. C. Lovering, Treas. Henry M. Lovering, Clerk, Orville A. Barker, Supt. Geo. C. Morse.

**TERRE HAUTE, IND.**—Terre Haute St. Ry. Co. 4 1/2 m, 4-8 1/2 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. 19 m, 4-8 g, 42 1/2 lb r, 50 c, 225 h. Pres. J. E. Bailey, Sec. A. E. Lang, Supt. John Gilmartin.

Adams Street Ry. Co.

Metropolitan St. Ry. Co. 10 m, 3 g, 28-35 lb r, 31 c, 101 h. Pres. & Sec. Jno. J. Shipherd of Cleveland, Treas. H. E. Wells of Cleveland, Gen. Man. T. F. Shipherd, 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 Mulvane, V. Pres. D. W. Stormont, Sec. & Treas. E. Wildes, Supt. Jesse Shaw.

**TORONTO, CAN.**—Toronto St. Ry. Co. 60 m, 4-10 1/2 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. 3 m, 5-2 g, 43-48 lb r, 10 c, 33 h. Pres. Gen. Lewis Perrine, Sec. & Treas. Lewis Perrine, Jr., Supt. Thomas S. Morris, City Ry. Co. 7 m, 5-2 1/2 g, 35 lb r, 19 c, 110 h & m. Pres. Adam Exton, V. Pres. W. H. Skirm, Sec. H. B. Howell, Treas. & Man. Director Chas. V. Bamford.

**TRINIDAD, COI.**—Trinidad St. R. R. Co. 1 1/2 m, 3-2 g, 14 lb r, 2 c, 8 mu. Pres. S. H. Jaffa, Treas. F. B. Collier, Sec. R. L. Wooten, Supt. H. E. Pearson.

**TROY, N. Y.**—Cortland & Homer Horse R. R. Co., 4 m, 4-8 1/2 g, 25-30 lb r, 2 c, — h. Pres. C. H. Garrison, Troy, V. Pres. E. A. Fish, Cortland, N. Y., Treas. Jas. M. Milen, Cortland, Sec. S. E. Welch, Cortland.

Troy & Albion Street Ry. Co. 3 1/2 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. 2 1/2 m, 4-8 1/2 g, 47 lb r, 91 c, 466 h. Pres. William Kemp, V. Pres. Charles Clemmishaw, Sec. & Treas. Joseph J. Hagen, Supt. L. C. Brown, Asst. Supt. C. H. Smith, 295 River st.

**URBANA, ILL.**—Urbana & Champaign St. Ry. Co. 2 m, 4-8 1/2 g, 33 lb r, 4 c, 20 h. Pres. Wm. Park, Sec. & Treas. Frank G. Jaques, Supt. W. Park.

**UTICA, N. Y.**—Utica, Clinton & Binghamton St. R.R. 12 m, 4-8 1/2 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. 3 1/2 m, 4-8 1/2 g, 25-04 lb r, 9 c, 5 h. Pres. Jas. F. Mann, Sec. Wm. E. Lewis, Treas. J. H. Sheehan.

Utica Belt St. Ry. Co. (See new roads.)

**VAILSBURG, 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 t.



Ry. Co. 3 1/2 m, 3-8 1/2 g, 30 lb r, 7 c, 18 h. Pres. R. E. Robbins, Sec. & Treas. Henry Bond.

WASHINGTON, D. C.—Capital, No. 0 St. & So. Washington R.R. 13 1/2 m, 4 8/8 g, 35 lb r, 45 c, 176 h. Pres. C. White, Sec. & Treas. W. E. Boughton, Supt. Andrew Glass.

Anacostia & Potomac River Ry. Co. 3 m, 4-8 g, 37 lb r, 9 c, 24 h. Pres. H. A. Griswold, Sec. Edward Temple, Treas. T. E. Smithson.

Columbia R.R. Co. of the District of Columbia. 2 1/2 m, —g, —lb r, 19 c, 66 h. Pres. H. A. Willard, Sec. & Treas. Wm. H. Clayette, Supt. Thos. E. Benson.

Metropolitan R.R. Co. 2 1/2 m, 4 8/8 g, 38 lb r, 90 c, 400 h. Pres. George W. Pearson, V. Pres. A. A. Wilson, Sec. & Treas. William W. Moore, Supt. L. W. Emmart

Washington & Georgetown R.R. Co. 20 m, 4-8 1/2 g, 42 lb r, 173 c, 860 h. Pres. H. Hurt, Sec. & Treas. C. M. Koonce, Gen. Supt. C. C. Saller.

WATERBURY, CONN.—Waterbury Horse R. R. Co. 5 1/2 m, 4-8 1/2 g, 40 lb r, 13 c, 60 h. Pres. D. S. Plume, Treas. & Sec. E. F. Turner.

WATERFORD, N. Y.—Waterford & Cohoes R.R. Co. 2 m, 4-8 1/2 g, 45 lb r. Pres. Thos. Breslin, Sec. & Treas. C. C. Ormsby. (Leased by the Troy & Lansingburgh R. R. Co.)

WATERLOO, IA.—Waterloo St. Ry. Co. 2 m, 3 g, 20 lb r, 2 c, 1 baggage wagon. 9 h. Pres. Lorán W. Reynolds, Sec. and Treas. J. H. Kuhn, Man. M. K. Kent.

WEST HAVEN, CONN.—New Haven & West Haven R.R. Co. 6 m, 4-8 1/2 g, 54 lb r, 24 c, 115 h. Pres. Geo. R. Kelsey, Supt. W. W. Ward, Treas. D. Trow bridge, Sec. Sam'l L. Smith.

WESTPORT, CONN.—Westport & Saugatuck Horse R. R. Co. 1 1/2 m, 4-8 1/2 g, 40 lb r, 3 c, 5 h. Pres. A. S. Hurlbutt, Sec. and Treas. B. L. Woodworth, Supt. E. S. Downe

WHEELING, W. VA.—Citizens Ry. Co. 10 m, 5-2 1/2 g, 45 lb r, 20 c, 55 h. Pres. Dr. C. A. Wingelter, Sec. Van B. Hall, Supt. Michael P. otus.

Wheeling & Elm Grove R.R. 7 m, 4-8 1/2 g, 30 lb r, 12 c, 4 Baldwin Motors. Pres. J. D. DuBois, Sec. E. J. Rutter, Supt. E. Hirsch.

WICHITA, KAN.—Wichita City Ry. Co. 7 1/2 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.—Ilkesbarre & Kingston Pass. R.R.

Coalville Passenger R.R. 2 1/2 m, 4-8 1/2 g, 20-34 lb r, 3 c, 10 h. Pres. Geo. W. Kirkendall, Supt. A. S. Orr, Sec. and Treas. Geo. Loveland. Capital, \$62,675.

WILLIAMSPORT, PA.—Williamsport St. R.R. Co.

WILMINGTON, DEL.—Front & Union St. Passenger Ry. Co. 1 1/2 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. 6 m, 5-2 1/2 g, 45 lb r, 19 c, 80 h. Pres. W. Canby, Sec. & Treas. John F. Miller, Supt. Wm. H. Burnett.

WINDSOR, CAN.—Sandwich & Windsor Passenger R.R. Co.

Windsor & Walkerville Electric Ry. Co. 2 m, 2 c.

WINFIELD, KAN.—Union St. Ry. Co. 2 1/2 m 4 g, 28 lb r, 2 c, 8 mu Pres — Shuler, V. Pres H E Shilman, Treas John D Pryor, Sec John A Eaton Capital, \$25,000

WINNIPEG, MANITOBA, CAN.—The Winnipeg St. Ry. Co. 5 m, 4-8 1/2 g, 35 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, 3-6 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. 2 1/2 m, 4 8/8 g, 40 lb r, 5 c, 4 h. Pres. & Treas. J. R. Carter, Supt. Dexter Carter.

WORCESTER, MASS.—Worcester St. Ry. Co. 7 1/2 m, 4-8 1/2 g, 43-45 lb r, 31 c, 151 h. Pres. Geo. H. Seeley, Sec. & Treas. H. S. Seeley, Supt. J. N. Akarman, Asst. Supt. J. B. Chapin.

Citizens' St. Ry. Co 7 1/2 m, 4-8 1/2 g, 45 lb r, 19 c, 100 h. Pres. Chas. B. Pratt, Sec. & Treas. H. S. Seeley, Supt. J. N. Akarman.

WYMORE, NEB.—Wymore and Blue Springs Ry. Co. 2 1/2 m, 3-6 g, 3 c, 8 h. Pres. E. P. Reynolds, Rock Island, Ill., V. Pres. I. H. Reynolds, Gen. Man. Ben Reynolds, Sec. Treas. and Acting Supt. E. P. Reynolds, Jr.

YOUNGSTOWN, O.—Youngstown St. R.R. Co.

ZANESVILLE, O.—Zanesville & McIntire St. Ry. Co. 3 m, 3-6 g, 38 lb r, 12 c, 54 h. Pres. J. Bergen, Sec. W. C. Townsend, Treas. T. B. Townsend.

NEW ROADS.

ANN ARBOR, MICH.—Ann Arbor St. Ry. Co. 4-8 1/2 g. Pres. Junius E. Beal, V. Pres. Edward Duffy, Sec. Zina P. King, Treas. Louis D. Taylor, Supt. Thomas J. Keech. Capital \$20,000. Office, 46 Main st.

BIRMINGHAM, ALA.—East Lake Land Co. 7 m, 4-8 1/2 g, 45 lb r, 4-8 c, motor power. Pres. Robt. Jennison, V. Pres. A. A. Clisby, Treas. T. B. Lyons, Sec. S. M. Hanby. Capital \$200,000. Work in progress, to be completed in January, 1887.

BROOKLYN, N. Y.—Annex St. Ry. Co. In progress, to be completed in spring of 1887. Pres. F. M. Delano, New York, V. Pres. H. H. Adams, Brooklyn. Treas. Philip Richardson, N. Y. Office, 204 Montague st., Brooklyn, N. Y. 1

Chicago, Ill. Co. of the City of Brooklyn.

CHICAGO, ILL.—The Crosstown Pass. Ry. Co. of Chicago, 30 m, 4-8 1-2 g, 45 lb r, 75 c, 500 to 800 h, Pres. John J. Currar, Treas. Geo. P. Bunker, Sec. James A. Taylor. Capital stock, \$1,000,000. Gen. office, room 18, No. 164 Washington St. Time of commencement of work undecided.

COVINGTON, GA.—W. C. Clark & Co. Incorporators and owners. 1 m, 20 or 30 lb r, 2 pass. c, 2 flat c, pass. cars for 1 h, 6 to 8 mu. or h. Work will be commenced by Nov. 1 or delayed until spring.

DANBURY, CONN.—Danbury St. Ry. Co. 4m,

be ween Danbury and Bethlehem. Work in progress.

KANSAS CITY, MO.—Grand Avenue Ry. Co. (For officers see Directory). Now constructing: 8 m, double track cable road.

LOCKPORT, N. Y.—Lockport, St. Ry. Co. (Work in progress.)

LONG ISLAND CITY, N. Y.—Riker Avenue & Sandford's Point R. R. Co. 2 m, 4-8 1/2 g, 47 lb steel r. Pres. J. H. Hempstead, Sec. Oscar R. Steins. Capital \$20,000. Work in progress; to be opened June 1, 1887. Office, 109 E. Fourteenth st., New York.

MERIDEN, CONN.—Meriden St. R. R. 4 1/2 m, 4-8 1/2 g, 35 lb r, 12 c, 56 h. Pres. G. R. Curtis, Sec. & Treas. Chas. L. Rockwell, Auditor, H. S. Wilcox, Man. John L. Billard. Supt. Dan'l F. Barker. To be opened about Jan. 15.

NEW BRITAIN, CONN.—New Britain Tramway Co., chartered by C. S. Lander. 3 1/2 m, Capital \$25,000.

NEW LONDON, CONN.—New London Horse Ry. Co. John Tebbetts, Incorporator.

NEWBURYPORT, MASS.— 4 m, 4-8 1/2 g. Pres. & Gen. Man. E. P. Shaw, Treas. Eben Sumner. Capital \$40,000. To be built early in the spring and opened June 1.

NEWTON, MASS.—Newton St. Ry. Co. 5 m, 4 8/8 g, 5 c. 5 electric motors, 35 lb r. Pres. Horace B. Parker, V. Pres. Lucius G. Pratt, Treas. Herbert G. Pratt. Capital stock, \$50,000. Present office, 87 Milk st. Boston, Mass. Work will be commenced and the road opened in the spring of 1887.

NEW YORK, N. Y.—St. Nicholas and Crosstown R. R. Co. (Incorporated and franchises partly granted.)

OMAHA, NEB.—Cable Tramway Co. of Omaha, 4 m, 4-8 1-2 g, 58 lb r, 10 c, each with grip; operated by cable. Pres. S. R. Johnson, V. Pres. L. B. Williams, Sec. and Treas. C. E. Yost, Chief Engineer Robert Gillham. Capital stock, \$300,000, General office, 215 South 13th st.

ORLANDO, FLA.—Orlando & Winter Park Ry. Co. 6 m, 4-8 1/2 g, steam motors Pres. R. J. Gillham, Sec. Geo. R. Newell, Treas. T. J. Beeks, Supt. & Eng. J. H. Abbott. Capital \$100,000. To be opened in Feb. 1887.

PEORIA, ILL.—East Bluff Horse R. R. Co. 1 1/2 m, 4-8 1/2 g, 30-40 lb r, 4 c, 24 h. Pres. N. Giles, Sec. H. R. Boureaud, Treas. M. E. Culver. Capital stock, \$11,000. Work in progress. Road to be opened Dec. 15, 1886.

PLYMOUTH, MASS.—Plymouth & Kingston St. R. R. Co. 2 1/2 m, 4 8/8 g, r undecided, 6 to 10 c, 10 to 12 h. Capital stock, \$25,000. Joseph D. Thuber and others incorporators. Work to be begun in spring of 1887.

PITTSBURG, PA.—Wilkinsburg and East Liberty Ry. Co. 3 m, 4 81-2 g, Johnson T rails, Pres. Ed. Jay Allen, Sec. and Treas. W. H. Allen. To use about 5 c and 20 h. Not decided when road will be opened. Capital stock, \$15,000. Present office, 517 Wood st.

RICHMOND, VA.—Richmond Un. Pass. Ry. Co. V. Hechler, Jr., and others incorporators. To be completed before May, 1888.

SAN FRANCISCO, CAL.—The Powell & Jackson St. R.R. Co. 11 m, 3-6 g. Pres. W. J. Adams, V. Pres. H. H. Lynch, Treas. W. H. Martin, Sec. G. H. Waggoner. Capital stock, \$2,000,000. Work in progress. Cable traction.

SYRACUSE, N. Y.—Butternut St. Ry. Co. 2m, To be built in the spring of 1887.

SAYRE, PA.—Sayre St. Ry. Co. Pres. Howard Elmer. No work done.

STAMFORD, CONN.—J. B. Curtis and W. W. Jillsbee, Incorporators.

UTICA, N. Y.—Utica Belt Line St. Ry. Co. 8 m, 15 c. Pres. Dr. C. Tefft, V. Pres. W. A. Jones, Sec. and Gen. Man. Isaac J. Griffith, Treas. Chas. W. Mather. To be opened about Dec. 1. Work now in progress.

WINSTED, CONN.—Geo. S. Rowe, Incorporator.

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

YONKERS, N. Y.—Yonkers R. R. Co. 4 1/2 m, 4-8 1/2 g, 42-48 lb r, 10 c, 45 h. Pres. D. N. Stanton, Sec. John F. Irenman, Asst. Treas. D. Perry Stanton. Capital \$200,000. Office, Main st. a To be opened early in Jan.

STREET RAILWAY STOCK QUOTATIONS.

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

Table with columns: New York Stocks, Par, Amount, Period, Rate, Date, Bid, Asked. Lists various street railway stocks and their market prices.

Phila. Street Railway Stock

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

Table with columns: Par, Period, Amount, Rate, Date, Bid, Asked. Lists Philadelphia street railway stocks and their market prices.



# Manufacturers and Dealers in Street Railway Supplies.

**AUTOMATIC SWITCHES.**  
M. M. White & Co., 531 W. 23d st. N. Y. ....160  
Frank H. Andrews, 545 W. 33d st. N. Y. ....186-187  
Wm. Wharton, Jr., & Co., Limited, Phila., Pa. .... 171

**AXLES.**  
F. W. Jesup & Co., 67 Liberty st., N. Y. ....165  
Lewis & Fowler Mfg. Co., Brooklyn, N. Y. ....178-179  
A. Whitney & Sons, Philadelphia, Pa. ....167  
Frank H. Andrews, 545 W. 33d st., N. Y. .... 186-187  
Wm. Wharton, Jr., & Co., Limited, Phila., Pa. ....171

**BEARINGS.**  
Frank H. Andrews, 545 W. 33d st., N. Y. .... 186-187  
John Stephenson Co., New York .....192  
Pugh & Russell, Stewart Building, New York ..162  
Edward C. White, 531 W. 33d st., New York .....159  
Lewis & Fowler Mfg. Co., Brooklyn, N.Y. ....178-179  
Chaplin Mfg. Co., Bridgeport, Conn. ....164  
Bemis Car Box Co., Springfield, Mass. ....170  
Wm. Wharton, Jr., & Co. Limited, Phila., Pa. ....171  
Chas. B. Miller, 2 1/2 Coenties slip, New York .... 166

**BOXES, JOURNAL.**  
A. Whitney & Sons, Philadelphia, Pa. ....167  
Lewis & Fowler, Brooklyn, N. Y. ....178-179  
Frank H. Andrews, 545 W. 33d st., N. Y. ....186-187  
Chaplin Mfg. Co., Bridgeport, Conn. ....164  
Bemis Car Box Co., Springfield, Mass. ....170  
Wm. Wharton, Jr., & Co. Limited, Phila., Pa. ....171  
Chas. B. Miller, 2 1/2 Coenties slip, New York ....166

**BRAKE RODS.**  
Lewis & Fowler, Brooklyn, N. Y. ....178-179  
Wm. Wharton, Jr., & Co., Limited, Phila., Pa. ....171  
Mordecai M. Wilson, Agent, Troy, N. Y. ....166

**BRAKE SHOES.**  
Frank H. Andrews, 545 W. 33d st., N. Y. ....186-187  
John Stephenson Co., New York .....192  
Wm. Wharton, Jr., & Co., Limited, Phila., Pa. ....171  
Lewis & Fowler, Brooklyn, N. Y. ....178-179

**CABLE GRIPS.**  
J. H. Gould, 9th and Market sts., Phila., Pa. ....172  
D. B. Anders, Philadelphia, Pa. ....177

**CARS, NEW**  
John Stephenson Co., New York .....192  
J. G. Brill & Co., Phila., Pa. ....190-191  
The Peigel Car Co., 108 Wall st., N. Y. ....167  
Brownell & Wight Car Co., St. Louis, Mo. ....173  
J. M. Jones' Sons, West Troy, N. Y. ....172  
Pullman's Palace Car Co., Chicago, Ill. ....189

**CARS, SECOND HAND.**  
Humphreys & Sayce, 1 Broadway, N. Y. ....156  
Brooklyn Railway Supply Co., 37 Walworth st., Brooklyn .....184

**CAR HEATERS.**  
The National Stove Co., 243 Water st., N. Y. ....175

**CAR STARTERS.**  
C. B. Broadwell, 169 Laurel st., New Orleans, La. ....160

**CAR LAMPS.**  
Geo. M. Clute, W. Troy, N. Y. ....166  
Josephine D. Smith, 350 & 352 Pearl st., N. Y. ....163  
Pugh & Russell, Stewart Building, New York .....162  
Lewis & Fowler, Brooklyn, N. Y. ....178-179

**CAR WHEELS.**  
A. Whitney & Sons, Philadelphia, Pa. ....167  
Lewis & Fowler, Brooklyn, N. Y. ....178-179  
Frank H. Andrews, 545 W. 33d st., N. Y. ....186-187  
Pugh & Russell, Stewart Building, New York .....162  
Wm. Wharton, Jr., & Co., Limited, Phila., Pa. ....171  
Way Foundry Co., 23d & Wood sts., Phila., Pa. ....169

**CAR WHEEL PRESSES.**  
Watson & Stillman, 204-210 E. 43d st., N. Y. ....166

**CAR SPRINGS.**  
Lewis & Fowler, Brooklyn, N. Y. ....178-179  
Frank H. Andrews, 545 W. 33d st., N. Y. ....186-187  
Richard Vose, 13 Barclay st., N. Y. ....182  
Pugh & Russell, Stewart Building, New York .....162  
The A. French Spring Co., Limited, Pittsburg, Pa., Pugh & Russell General Agents .....176

**CAR SEATS.**  
Hale & Kilburn Mfg. Co., 48 & 50 N. 6th st., Philadelphia, Pa. ....162  
Gardner & Co., 643 to 657 W. 48th st., N. Y. .... 161

**CAR SASH.**  
Ayers' Patent Sash Holder Co., Stewart Building, New York City .....165

**CAR CEILINGS.**  
Gardner & Co., 643 to 657 W. 48th st., N. Y. ....161  
Lewis & Fowler, Brooklyn, N. Y. ....178-179

**CASTINGS.**  
Bowler & Co., Cleveland, O. ....160  
F. W. Jesup & Co., 67 Liberty st., N. Y. ....165  
A. Whitney & Sons, Philadelphia, Pa. ....167  
Lewis & Fowler, Brooklyn, N. Y. ....178-179  
Frank H. Andrews, 545 W. 33d st., N. Y. ....186-187  
Wm. Wharton, Jr., & Co., Limited, Phila., Pa. .... 171  
Way Foundry Co., 23d & Wood sts., Phila., Pa. ....169

**CURVED RAILS.**  
Frank H. Andrews, 545 W. 33d st., N. Y. ....186-187  
Pugh & Russell, Stewart Building, New York .....162  
Wm. P. Craig, 95 Liberty st., N. Y. ....160  
Johnson Steel Rail Co., Johnstown, Pa. .... 188  
Wm. Wharton Jr., & Co., Limited, Phila., Pa. .... 171  
Lewis & Fowler, Brooklyn, N. Y. ....178-179

**CROSSINGS.**  
Frank H. Andrews, 545 W. 33d st., N. Y. ....186-187  
Johnston Frog and Switch Co., 307 Walnut st., Philadelphia, Pa. ....162  
Wm. Wharton, Jr., & Co. Limited, Phila., Pa. ....171  
Lewis & Fowler, Brooklyn, N. Y. ....178-179  
Bowler & Co., 10 to 24 Winter st., Cleveland, O. ....160

**CURVED RAILS—Pat. Steel Grooves.**  
Wm. Wharton Jr. & Co. Limited, Phila., Pa. ....171

**CHANNEL PLATES.**  
Frank H. Andrews, 545 W. 33d st., N. Y. .... 186-187  
Wm. P. Craig, 95 Liberty st., N. Y. ....160  
Wm. Wharton, Jr. & Co. Limited, Phila., Pa. ....171

**CABLE ROADS.**  
D. J. Miller, 234 Broadway, N. Y. ....165  
Frank H. Andrews, 545 W. 33d st., N. Y. ....186-187  
Poole & Hunt, Baltimore. ....170  
Wm. Wharton, Jr., & Co., Limited, Phila., Pa. ....171  
Johnston Frog and Switch Co., 307 Walnut st., Philadelphia, Pa. ....162  
Neftel & Oothout, 41 Liberty st. N. Y. City ....159  
J. H. Gould, 9th and Market sts., Phila., Pa. ....172  
John A. Roebling's Sons Co., 117 & 119 Liberty st., N. Y. ....175  
O. W. Meysenburg & Co., 185 Dearborn st., Chicago, Ill., and 204 N. 3d st., St. Louis, Mo. ....175

**ELECTRIC RAILWAYS.**  
Van Depoele Electric Manufg. Co. ....183

**FEED CULVERS.**  
Nordyke & Marmon Co., Indianapolis, Ind. .... 167  
Belle City Mfg. Co., Racine, Wis. ....159  
Appleton Mfg. Co., 22 So. Canal st., Chicago, Ill. ....167  
The H. C. Staver Implement Co., 38 40 So. Canal st., Chicago, Ill. ....159

**FEED MILLS.**  
Edward P. Aills & Co., Milwaukee, Wis. ....157  
Nordyke & Marmon Co., Indianapolis, Ind. .... 167  
Appleton Mfg. Co., 22 So. Canal st., Chicago, Ill. ....167  
The H. C. Staver Implement Co., 38-40 So. Canal st., Chicago, Ill. ....159

**FROGS.**  
Frank H. Andrews, 545 W. 33d st., N. Y. ....186-187  
Pugh & Russell, Stewart Building, New York .....162  
Wm. Wharton, Jr., & Co., Limited, Phila., Pa. ....171  
Way Foundry Co., 23d & Wood sts., Phila., Pa. ....169  
Johnston Frog and Switch Co., 307 Walnut st., Philadelphia, Pa. ....162  
Lewis & Fowler, Brooklyn, N. Y. ....178-179  
Bowler & Co., 10 to 24 Winter st., Cleveland, O. ....160

**WARE BOXES.**  
Wales Manuf. Co., 76 and 78 East Water st., Syracuse, N. Y. ....164  
Tom L. Johnson, Indianapolis, Ind. ....169  
Lewis & Fowler Mfg. Co., Brooklyn, N. Y. ....178-179  
J. B. Slawson, 16 W. 40th st., New York. ....168  
John Stephenson Co., New York .....192

**FARE ENVELOPES.**  
Morgan Envelope Co., Springfield, Mass. ....156  
Sam'l Raynor & Co., 117 William st., New York. ....175

**FARE REGISTERS, STATIONARY.**  
Lewis & Fowler Mfg. Co., Brooklyn, N. Y. ....178-179  
Standard Index and Register Co., 138 Fulton st., New York .....181  
Railway Register Mfg. Co., 1193 B'dy., N. Y. .... 180

**FARE COLLECTORS.**  
Lewis & Fowler Mfg. Co., Brooklyn, N. Y. ....178-179

**GUTTERS.**  
Bowler & Co., Cleveland, O. ....160  
Wm. Wharton, Jr., & Co., Limited, Phila., Pa. ....171

**GROOVED CURVES.**  
Humphreys & Sayce, 1 Broadway, N. Y. .... 156  
Frank H. Andrews, 545 W. 33d st., N. Y. ....186-187  
Pugh & Russell, Stewart Building, New York .....162  
Wm. P. Craig, 95 Liberty st., N. Y. ....160  
Johnson Steel Rail Co., Johnstown, Pa. ....188  
Wm. Wharton, Jr. & Co. Limited, Phila., Pa. ....171

**HARNESSES.**  
Charles E. Berry, Cambridge, Mass. ....164  
Rufus Martin & Co., 13 Park row, N. Y. ....149,167

**HYDRAULIC JACKS.**  
Watson & Stillman, 204-210 E. 43d st., N. Y. .... 166

**HORSE SHOES.**  
F. P. Burke, 860 Dorchester ave., South Boston 165  
F. P. Roberge, 1741 Broadway, N. Y. ....166  
Bryden Forged Horseshoe Co., Catsauqua, Pa. ....185

**HORSE NAILS.**  
Champion Horse Nail Co., Appleton, Wis. ....157  
Putnam Nail Co., Neponset P. O., Boston, Mass 163

**KNEES.**  
Frank H. Andrews, 545 West 33d st., N. Y. ....186-187  
Wm. P. Craig, 95 Liberty st., New York .....160  
Pugh & Russell, Stewart Building, New York .....162  
Wm. Wharton, Jr., & Co., Limited, Phila., Pa. ....171  
Johnston Frog and Switch Co., 307 Walnut st., Philadelphia, Pa. ....162  
Lewis & Fowler, Brooklyn, N. Y. ....178-179

**LUBRICANTS.**  
The Leib Lubricating Co., 196 Chicago st., Buffalo, N. Y. ....158  
Rufus Martin & Co., 13 Park row, N. Y. ....149,167

**METALLIC RAILWAY.**  
Wm. Wharton, Jr., & Co. Limited, Phila., Pa. .... 171  
Metallic Street Railway Supply Co., Albany N. Y. ....165  
Humphreys & Sayce, 1 Broadway, N. Y. ....156  
D. F. Longstreet, Providence, R. I. ....160

**MATTING.**  
Warneck & Toffler, 211 E. 22d st., N. Y. ....167  
Lynn & Pettit, 707 Market st., Phila. ....165  
Edward Beadle, 1193 Broadway, N. Y. ....175

**MOTORS.**  
Pole St. Car Motor System, 150 So. Fourth st., Philadelphia, Pa. ....174

**MOTORS—Elec ric.**  
Van Depoele Electric Mfg. Co., 203 Van Buren st., Chicago, Ill. ....163

**PEDESTALS.**  
John Stephenson Co., New York .....192  
Frank H. Andrews, 545 West 33d st., N. Y. ....186-187  
Wm. Wharton, Jr., & Co., Limited, Phila., Pa. .... 171

**PANELS.**  
Gardner & Co., 643 to 657 W. 48th st., N. Y. ....161

**RAILS.**  
Humphreys & Sayce, 1 Broadway, N. Y. ....156  
Pugh & Russell, Stewart Building, N. Y. ....162  
F. W. Jesup & Co., 67 Liberty st., N. Y. ....165

Pennsylvania Steel Co., 160 Broadway, N. Y. ....173  
Carnegie, Phipps & Co., Pittsburg, Pa. ....166  
Frank H. Andrews, 545 W. 33d st., N. Y. ....186-187  
Wm. P. Craig, 95 Liberty st., N. Y. ....160  
Johnson Steel Rail Co., Johnstown, Pa. ....188  
Wm. Wharton, Jr. & Co. Limited, Phila., Pa. ....171  
O. W. Meysenburg & Co., 185 Dearborn st., Chicago, Ill., and 204 N. 3d st., St. Louis, Mo. ....157  
Cambria Iron & Steel Works, 218 So. Fourth st., Philadelphia, Pa. ....157

**SAND BOXES.**  
Car Track Friction Appliance Co., 19 Tremont row, Boston, Mass. ....159

**STEEL RAILS.**  
Carnegie, Phipps & Co., Pittsburg, Pa. ....166  
Cambria Iron & Steel Works, 218 So. Fourth st., Philadelphia, Pa. ....157  
Humphreys & Sayce, 1 Broadway, N. Y. ....156  
F. W. Jesup & Co., 67 Liberty st., N. Y. ....165  
Wm. Wharton, Jr., & Co., Limited, Phila., Pa. ....171  
Johnson Steel Rail Co., Johnstown, Pa. ....188  
Johnston Frog and Switch Co., 307 Walnut st., Philadelphia, Pa. ....162  
O. W. Meysenburg & Co., 185 Dearborn st., Chicago, Ill., and 204 N. 3d st., St. Louis, Mo. ....157

**SEATS & SEAT SPRINGS.**  
Hale & Kilburn Manufg. Co. Philadelphia, Pa. ....162

**SWITCHES.**  
Wm. Wharton, Jr., & Co., 25th st. & Washington ave., Philadelphia, Pa. ....171  
Humphreys & Sayce, 1 Broadway, N. Y. ....156  
M. M. White & Co., 531 West 33rd st., N. Y. ....160  
Frank H. Andrews, 545 West 33rd st., N. Y. ....186-187  
Lewis & Fowler, Brooklyn, N. Y. ....178-179  
Johnson Steel Rail Co., Johnstown, Pa. ....188  
Johnston Frog and Switch Co., 307 Walnut st., Philadelphia, Pa. ....162  
Bowler & Co., 10 to 24 Winter st., Cleveland, O. ....160

**STREET RAILWAY BUILDERS.**  
Metallic St. Railway Supply Co., Albany, N. Y. ....165  
Wm. Wharton, Jr., & Co., Phila., Pa. ....171  
Delano & Richardson, 47 Broadway, N. Y. ....166  
Wm. P. Craig, 95 Liberty st., N. Y. ....160  
Frank H. Andrews, 545 West 33rd st., N. Y. ....186-187  
A. J. Hutchinson, 95 Liberty st., N. Y. ....165  
Neftel & Oothout, 41 Liberty st. N. Y. City ....159  
M. W. Conway, 487 Monroe st., Brooklyn, N. Y. ....159

**STREET RAILWAY SUPPLIES.**  
John Stephenson Co., New York .....192  
Humphreys & Sayce, 1 Broadway, N. Y. ....156  
Metallic St. Railway Supply Co., Albany, N. Y. ....165  
Pugh & Russell, Stewart Bldg., N. Y. ....162  
F. W. Jesup & Co., 67 Liberty st., N. Y. ....165  
Wm. P. Craig, 95 Liberty st., N. Y. ....160  
Lewis & Fowler, Brooklyn, N. Y. ....178-179  
Frank H. Andrews, 545 West 33rd st., N. Y. ....186-187  
Wm. Wharton, Jr., & Co., Limited, Phila., Pa. ....171  
Way Foundry Co., 23d & Wood sts., Phila., Pa. ....169  
Brooklyn Railway Supply Co., 37 Walworth st., Brooklyn .....184  
Fulton Foundry Co., 202 Merwin st. Cleveland, O. ....171  
M. W. Conway, 487 Monroe st. Brooklyn, N. Y. ....159  
Edward Beadle, 1193 Broadway, N. Y. City ....175  
Rufus Martin & Co., 13 Park row, N. Y. ....149,167  
O. W. Meysenburg & Co., 185 Dearborn st., Chicago, Ill., and 204 N. 3d st., St. Louis, Mo. ....157  
Cambria Iron & Steel Works, 218 So. Fourth st., Philadelphia, Pa. ....157

**STREET RAILWAY TOOLS.**  
Wm. Wharton Jr. & Co. Limited, Phila, Pa. ....171

**SNOW PLOWS.**  
Frank H. Andrews, 545 West 33rd st., N. Y. ....186-187  
Augustus Day, Detroit. ....168  
Brooklyn Railway Supply Co., 37 Walworth st., Brooklyn .....184

**TURNOUTS.**  
Wm. Wharton, Jr. & Co., 25th st. & Washington ave., Philadelphia, Pa. ....171  
Frank H. Andrews, 545 West 33rd st., N. Y. ....186-187  
Way Foundry Co., 23d & Wood sts., Phila., Pa. ....169  
Bowler & Co., 14 Winter st., Cleveland, O. ....160

**TURN TABLES.**  
Frank H. Andrews, 545 West 33rd st., N. Y. ....186-187  
Way Foundry Co., 23d & Wood sts., Phila., Pa. ....169  
Bowler & Co., 14 Winter st., Cleveland, O. ....160  
O. W. Meysenburg & Co., 185 Dearborn st., Chicago, Ill., and 204 N. 3d st., St. Louis, Mo. ....157

**TRACK CASTINGS.**  
Humphreys & Sayce, 1 Broadway, N. Y. ....156  
Frank H. Andrews, 545 West 33rd st., N. Y. ....186-187  
Wm. Wharton, Jr., & Co., Limited, Phila., Pa. ....171  
Augustus Day, Detroit. ....168  
Way Foundry Co., 23d & Wood sts., Phila., Pa. ....169  
Johnston Frog and Switch Co., 307 Walnut st., Philadelphia, Pa. ....162  
Bowler & Co., 14 Winter st., Cleveland, O. ....160  
Lewis & Fowler, Brooklyn, N. Y. ....178-179  
O. W. Meysenburg & Co., 185 Dearborn st., Chicago, Ill., and 204 N. 3d st., St. Louis, Mo. ....157

**TRACK SCRAPERS.**  
Frank H. Andrews, 545 W. 33d st., N. Y. ....186-187  
Brooklyn Railway Supply Co., 37 Walworth st., Brooklyn .....184

**VARNISHES.**  
John Babcock & Co., 2 Liberty sq., Boston Mass. ....157  
Parrott Varnish Co., Bridgeport, Conn. ....157

**WHEEL PRESSES.**  
Watson & Stillman, 204-210 E. 43d st., N. Y. ....166  
Wm. Wharton, Jr., & Co., Limited, Phila., Pa. ....171

**VETERINARY REMEDIES.**  
Lawrence, Williams & Co., Cleveland, O. ....157  
Wm. Somerville & Sons, 127 Erie st., Buffalo, ....159

**WHEELS.**  
Frank H. Andrews, 545 West 33rd st., N. Y. ....186-187  
Lewis & Fowler, Brooklyn, N. Y. ....178-179  
A. Whitney & Sons, Philadelphia, Pa. ....167  
Bowler & Co., 14 Winter st., Cleveland, O. ....160



# PERSONAL DIRECTORY OF STREET RAILWAY SUPPLY MEN.

	Page.		Page.
Allis, Edw. P. and Co., Milwaukee, Wis. Edw. P. Allis, Prop.; Edw. Reynolds, Supt.....	157	Gardner, Wm., Gardner and Co.....	161
Allyn, Chas. B., Pres. Brooklyn Railway Supply Co.....	184	Gibbon, T. H. Metallic St. Ry. Supply Co.....	165
Allyn, Jno., Sec. and Treas. Brooklyn Railway Supply Co.....	184	Glazier, H. A. Jarvis Engineering Co.....	173
Anders, D. B., 2,313 Ridge ave., Phila., Pa.....	177	Gould Cable System, J. H. Gould, 9th and Market sts., Philadelphia, Pa.....	172
Anderson, A. A., Tom. L. Johnson, Indianapolis, Ind.....	169	Grant, J. A. Sec. Jarvis Engineering Co.....	173
Andrews, Frank H., F. T. Lerner, General Agent, 545 West 33d st., N. Y.....	186,187	Gould, J. H. Gould cable system.....	172
Appleton Mfg. Co., 22 So. Canal st., Chicago, Ill.	167	Guibert, J. S. Richard Vose.....	182
Ayers Pat. Sash Holder Co., Stewart Bldg., New York.....	165	Hale and Kilburn Mfg. Co., Cheney Kilburn, Pres., H. S. Hale, Treas., J. Warren Hale, Sec., 48 and 50 N. Sixth st. Philadelphia Pa.....	162
Baldwin, A. L., Sec. and Treas. Standard Index and Register Co.....	181	Hale, H. S. Treas. Hale and Kilburn Mfg. Co.....	162
Baldwin, Eli, Pres. Standard Index & Register Co	181	Hale, J. Warren, Sec. Hale and Kilburn Mfg. Co.....	162
Beadle and Courtney, Edw. Beadle, Chas. Courtney, 1193 Broadway, N. Y.....	180	Harris, E. P. Gen. Man. ST. RY. JOURNAL.....	140
Beadle, Edw., Beadle and Courtney.....	157,180	Hewlett, Geo. B. Sec. and Treas. Bemis Car Box Co	170
Belle City Mfg. Co., Racine, Wis.....	157	Hoadley, Geo. M. Supt. The Bemis Car Box Co.....	170
Bemis, S. A., Pres. The Bemis Car Box Co.....	170	Holwell, A. K. Treas. Nurdyke and Marmon Co.....	167
Bemis Car Box Co., The. S. A. Bemis Pres.; Geo. B. Hewlett, Sec. and Treas.; Geo. M. Hoadley, Supt.; Chas. G. Stearns, Agent (20 Platt st., New York), Springfield, Mass.....	170	Humphreys and Sayce. 1 Broadway, N. Y.....	156
Berry, Chas. E., Cambridge, Mass.....	164	Hutchinson, A. J. 93 Liberty st. N. Y.....	165
Binns, D. W., V.-Pres. Brooklyn Ry. Supply Co.	184	Jarvis Engineering Co. K. M. Jarvis Pres., A. F. Upton, Treas. and G. Man., J. A. Grant, Sec., H. A. Glasier, (Chicago) Western Manager.....	173
Bowler and Co.....	160	Jarvis, K. M. Pres. Jarvis Engineering Co.....	173
Braden, Oliver, 119 So. 4th st., Philadelphia, Pa.	160	Jesup, F. W. and Co., 65 Liberty st., N. Y.....	165
Brill, G. M., J. G. Brill and Co.....	190,191	Johnston, Edw. H. Man. Johnston Railroad Frog and Switch Co.....	162
Brill, J. G. and Co. J. G. Brill, G. M. Brill, Jas. Rawle, Philadelphia, Pa.....	190,191	Johnson Steel St. Rall Co., Wm. Wharton, Jr., and Co., Ld., Pugh and Russell Agents, A. J. Moxham, Pres., Johnstown, Pa.....	188
Brill, J. G., J. G. Brill and Co.....	190,191	Johnson, Tom L.....	169
Broadwell, C. B., New Orleans, La.....	160	Johnston Railroad Frog and Switch Co., Jno. A. Emerick, Pres., Edw. H. Johnston, Man., Samuel Lees, Treas. Chester, Pa.....	162
Brooklyn Railway Supply Co. Chas. B. Allyn, Pres.; D. W. Binns, V.-Pres.; Jno. Allyn, Sec. and Treas.....	184	Jones, R. H., Pres. B. C. Pole Motor Co.....	174
Brownell and Wight Car Co. B. F. Brownell, Pres.; A. S. Partridge, Sec. and Treas. St. Louis, Mo.....	173	Jones' Sons, J. M. Walter A. Jones, — Jones	173
Brownell, B. F. Pres. Brownell and Wight Car Co.	173	Jones, Walter A. J. M. Jones' Sons.....	173
Bryden Forged Horse Shoe Works, Ld. Oliver Williams, Treas.; T. F. Frederick, Supt.; J. B. White, General Sales Mang. (288 Greenwich st. New York) Catasauqua, Pa.....	185	Kilburn, Cheney, Pres. Hale and Kilburn Mfg. Co	162
Burke, P. F. 360 Dorchester ave. So. Boston, Mass.	165	Knowlton, D. C., Boston, Mass., Pres. Chaplin Mfg. Co.....	164
Butler, W. T., Gen. Mgr. Car Track Friction Appliance Co., 19 Tremont row, Boston, Mass.....	159	Langdon, C. J. Sec. Fulton Foundry.....	171
Cambria Iron & Steel Works, 218 So. Fourth st., Philadelphia, Pa.....	157	Lawrence, Williams and Co., Cleveland, O.....	157
Carnegie, Phipps and Co., Pittsburg, Pa.....	166	Lees, Samuel, Treas. Johnston Railroad Frog and Switch Co., Chester, Pa.....	162
Carpenter, S. M. Prop. Fulton Foundry, Cleveland, O.....	171	Leib Lubricating Co., Buffalo, N. Y.....	158
Car Track Friction Appliance Co., W. T. Butler, Gen. Mgr., 19 Tremont row, Boston, Mass.....	159	Lerner, F. T. Gen. Agt. Frank H. Andrews.....	186,187
Champlon Horse Nail Co., Appleton, Wis.....	157	Lewis Danl. F. Treas. Lewis & Fowler Mfg. Co.....	178,179
Chaplin Mfg. Co., The, Bridgeport, Conn. D. C. Knowlton, Pres. Boston, Mass., W. C. Mead, Sec. and Treas., H. McKenzie, Supt.....	164	Lewis and Fowler Mfg. Co., J. W. Fowler, Pres., Danl F. Lewis, Treas., H. C. Simpson, Sec., E. Packer, L. E. Robert.....	178,179
Clute, Geo. M. West Troy, N. Y.....	166	Lynn and Pettit, 707 Market st., Philadelphia, Pa.....	165
Conway, M. W. 487 Monroe st., Brooklyn, N. Y.	159	Lynn, —, 707 Market st., Philadelphia, Pa.....	165
Courtney, Chas., Beadle and Courtney.....	157	McGraw, J. H., Sec. ST. RY. JOURNAL.....	140
Craig, Wm. P. 93 Liberty st., N. Y.....	160	McKenzie, H. Supt. Chaplin Mfg. Co.....	164
Day, Augustus, Detroit, Mich.....	168	Mallinckrodt Street Car Brake Co., St. Louis, Mo.	159
DeLamater, L. M. Sec. John Stephenson Co. Lim.	192	Marlin, Rufus and Co., 13 Park row, N. Y.....	149,167
Delano, F. M. 47 Broadway, N. Y.....	166	Marmon, D. W. Sec. Nurdyke and Marmon Co.....	167
Egerton, Alfred, Metallic St. Ry. Supply Co.....	165	Mead, W. C. Sec. and Treas. Chaplin Mfg. Co.....	164
Emerick, John A. Pres. Johnston Railroad Frog and Switch Co.....	162	Metallic St. Ry. Supply Co., Alfred Egerton, T. H. Gibbon, Albany, N. Y.....	165
Felgel Car Co., — Felgel, — Rogers, New Utrecht, N. Y., and 108 Wall st., N. Y.....	167	Masson, Milton I., Estate of J. B. Slawson.....	168
Fowler, Geo. L. Editor ST. RY. JOURNAL.....	140	Meysenburg, O. W., O. W. Meysenburg and Co.....	157
Fowler, J. W. Pres. Lewis and Fowler Mfg. Co.....	178,179	Meysenburg, O. W., and Co. O. W. Meysenburg, A. J. Soderer. 185 Dearborn st., Chicago, Ill., and 204 N. 3rd st., St. Louis, Mo.....	157
Frederick, T. F. Supt. Bryden Forged Horse Shoe Works.....	185	Miller, Chas. B. 2½ Coenties slip, New York City.....	166
French, A. Chairman The A. French Spring Co.	176	Miller, D. J., 234 Broadway, N. Y.....	165
French, J. E., Vice Chairman The A. French Spring Co.....	176	Morris, Geo. W., Gen. Mgr. The A. French Spring Co.....	176
French Spring Co., Lim., The A. A. French, Chairman; J. E. French, Vice Chairman; Geo. W. Morris, Gen. Mgr.; D. C. Noble, Secy. and Treas. Pittsburg, Pa.....	176	Moxham, A. J., Pres. Johnson Steel St. Rall Co.....	188
Fulton Foundry, S. M. Carpenter, Prop. C. J. Langdon, Sec., Cleveland, O.....	171	National Stove Co., J. R. Thomas, Treas., 243 Water st., N. Y.....	175
Gardner and Co. Wm. Gardner, John M. Gardner, Samuel H. Gardner, 643-657 W. 48th st.	161	Nettel and Oothout, 41 Liberty st., N. Y.....	159
Gardner, John M. Gardner and Co.....	161	Noble, D. C. Secy. and Treas. The A. French Spring Co.....	176
Gardner, Samuel H. Gardner and Co.....	161	Nurdyke, A. H., Pres. Nurdyke & Marmon Co.	167
		Nurdyke and Marmon Co., Indianapolis, Ind., A. H. Nurdyke, Pres.; D. W. Marmon, Sec.; A. K. Hollowell, Treas.....	167
		Packer, E., Lewis and Fowler Mfg. Co.....	178,179
		Parrott Varnish Co., Bridgeport, Conn.....	157
		Partridge, A. S., Sec. and Treas. Brownell and Wight Car Co.....	173
		Pennsylvania Steel Co., 160 Broadway, N. Y., and 208 So. 4th st., Philadelphia.....	173
		Pettit, —, 707 Market st., Philadelphia, Pa.....	165
		Pole, Benj. C., Engineer B. C. Pole Motor Co.....	174
		Pole Motor Co., The B. C. R. H. Jones, Pres., Benj. C. Pole Engineer, Jules Viennot Sec. and Treas. 150 So. Fourth st., Philadelphia.....	174
		Poole and Hunt, Baltimore, Md.....	170
		Post and Co., Cincinnati, O.....	161
		Powers, E. L., N. W. Mgr. ST. RY. JOURNAL.....	140
		Pugh and Russell, D. W. Pugh, J. S. Fugh, F. D. Russell, Stewart Building, N. Y., Adams Express Building, Chicago.....	162
		Pugh, D. W., Pugh and Russell.....	162
		Pugh, J. S., Pugh and Russell.....	162
		Pullman, Chas. E., Pullman's Palace Car Co.....	189
		Pullman's Palace Car Co. Chas. E. Pullman Mgr. St. Car Dept. Chicago, Ill., Pullman, Ill., and Detroit, Mich.....	189
		Putnam Nail Co., Neponset P. O., Boston.....	163
		Railway Register Manufacturing Co., James McCredie, Pres., Beadle and Courtney, 1193 Broadway, New York, General Agents; Buffalo, N. Y.....	180
		Rawle, James, J. G. Brill and Co.....	190,191
		Raynor, Samuel, and Co., 117 William st., N. Y.....	175
		Reynolds, Edward, Supt. E. P. Allis and Co.....	157
		Richardson, Philip, 47 Broadway, N. Y.....	166
		Roebbling's, Sons, John A. Trenton, N. J., 117-119 Liberty st., N. Y.....	175
		Roberge, F. P., 1,741 Broadway, N. Y.....	166
		Robert, L. E., Lewis and Fowler Mfg. Co.....	178,179
		Russell, F. D., Pugh and Russell.....	162
		Shippy, H. L., Manager N. Y. Warehouse Jno. A. Roebbling's Sons Co.....	175
		Simpson, H. C., Sec. Lewis and Fowler Mfg. Co.....	178,179
		Silver, John S. Richard Vose.....	182
		Silver, Wm. S. Richard Vose.....	182
		Slawson, J. B., Estate, Milton I. Masson, Agent, John Stephenson Co., Llm., Agents, 365 Avenue A, New York.....	168
		Sleeper, Joseph A., Pres. Van Depoele Electric Manufacturing Co.....	183
		Smith, Charles G., Josephine D. Smith.....	163
		Smith, Josephine D. Josephine D. Smith, Chas. G. Smith.....	163
		Somerville, Wm., and Sons, Buffalo, N. Y.....	159
		Soderer, A. J., O. W. Meysenburg and Co.....	157
		Standard Index and Register Co., Eli Baldwin, Pres.; W. S. Baldwin, Sec. and Treas.; A. L. Baldwin, C. B. Baldwin, representatives, 138 Fulton st., N. Y.....	181
		Staver Implement Co., The H. C., 38 and 40 So. Canal st., Chicago, Ill.....	159
		Stearns, Chas. G., 20 Platt st. N. Y. Agents, Bemis Car Box Co.....	170
		Stephenson, John, Pres. John Stephenson Co. Llm.	192
		Stephenson, John, Co., Llm., John Stephenson, Pres., L. M. De Lamater, Sec., Henry C. Valentine, Treas., 47 E. 27th st., N. Y. (Pugh and Russell General Representatives, which see.).....	192
		Stiles, A. K., Manager Van Depoele Electric Manufacturing Co.....	183
		STREET RAILWAY JOURNAL, E. P. Harris, General Manager; George L. Fowler, Editor; J. H. McGraw, Sec.; H. M. Swetland, Treas.; E. L. Powers, N. W. Manager.....	140
		Swetland, H. M., Treas. STREET RY. JOURNAL.....	140
		Thomas, J. R., National Stove Co.....	175
		Upton, A. F., Treas. and General Manager, Jarvis Engineering Co.....	173
		Valentine, Henry C., Treas. Jno. Stephenson Co. Ld.....	192
		Van Depoele, Chas. J., Electrician, Van Depoele Electric Mfg. Co.....	183
		Van Depoele Electric Mfg. Co., Jos. A. Sleeper, Pres.; A. K. Stiles, Mang.; W. A. Stiles, Treas. C. J. Van Depoele, Electrician, Chicago, Ill.....	183
		Viennot, Jules, Sec. and Treas. B. C. Pole Motor Co.....	174
		Vose, Richard, J. S. Guibert, Jno. S. Silver, Wm. S. Silver. 13 Barclay st. New York.....	182
		Wales Mfg. Co., W. S. Wales, Treas., Syracuse, N. Y.....	164
		Wales, W. S., Treas. Wales Mfg. Co.....	164
		Warneck and Toffler, 111 East 23d st. New York.....	167
		Watson and Stillman, 204-210 East 43d st. N. Y.....	166
		Way Foundry Co., Way, Rhodes and Blankley, 23d and Wood sts. Philadelphia, Pa.....	169
		Wharton, Wm., Jr. and Co. Ld.....	171
		White, E. C., 531 West 33d st. New York.....	159
		White, J. B., 288 Greenwich st., General Salesman Bryden Forged Horse Shoe Works, Ld.....	185
		White, M. M. and Co. 531 West 33d st.....	160
		Whitney, A. and Sons, Philadelphia, Pa.....	167
		Williams, Oliver, Treas. Bryden Forged Horse Shoe Works.....	185



### St. Louis Matters.

Received too late for classification under "Notes and Items."

Winter has arrived since I wrote to you, and I find the ice and snow just as cold and disagreeable as ever. Our street railroad friends get their share of it and it's a tolerably good share too. If it snows to the depth of an inch it mixes with the dirt and swells up like yeast until it covers everything; then when the railroad companies scrape it from their tracks they must carry it away. The mayor has just called the attention of the police to the matter, to see that the ordinance is complied with. Of course this is the way it is done in New York, and everybody has been there, especially when it snowed. We are not supposed to be behind you in anything if we can help it and can make the horse railroad people pay for it. The bill for the elevated road in St. Charles street passed our House of Delegates last week but it has to go through the Council yet and there is no doubt but it will receive its quietus there. The Missouri Railroad Company have received permission to change their motive power from horse to cable or electricity. The other ordinances mentioned in my last letter for new street railways stand about as they were. On the night of the 5th inst. the car house of the cable line went up in smoke; all the summer cars were destroyed and their grips and close cars except ten of each on the road at the time. The power house was not injured so there was comparatively speaking no stoppage of business except from lack of cars. Mr. Maffit of the Missouri line very kindly helped them out by giving them some of his cars to bridge over with. Messrs. Brill & Co. of Philadelphia, Brownell & Wight of St. Louis and others are rebuilding and making new cars for them to replace those lost and damaged, and in a short time the company expect to be better prepared than ever to handle their growing business. Rumor has it that a Boston syndicate has purchased the road and will take possession next March. Our good-looking friend Simpson, Secretary of the Lewis & Fowler Manufacturing Company, has captured the cable line with his stove; their cars, what they have left, are now being fitted with them. I suppose the other lines will have to follow suit, but I think a stove in a street car is a terrible nuisance; the air becomes vitiated as a rule, and if you are near the stove you are roasted and opened right up for a first class cold. If it is under the seat and you try to hold it down, which you can't, then you are made the laughing stock of the car, but it seems to me that is the only

place for it if it is at all practical and can be arranged so that a man won't burn his skin down. Simpson's friends will be sorry to hear that he has been laid up sick in bed at Barnum's Hotel, this city, for about a month. They need not all write at once. He is convalescent now.

I understand Mr. Maffit will place about ninety open cars on his lines next summer.

Mr. Walsh will place about thirty on his recent purchase and the cable folks will require about as many. Wishing you a merry Christmas, I remain yours, etc.,  
St. Louis.

### A Tramway in China.

At Hongkong a cable tramway is constructed from the town to the Peak, a range of very steep hills, on which are fine villa residences, and where the climate is more salubrious than near the harbor. The incline where they have to work is 4,800 feet long, and the line, which is partly single and partly double, is laid with 35 pound steel rails on steel sleepers. The gradients vary between 1 in 2 and 1 in 10, closely following the natural contour of the ground. The total height to which carriages have to be raised is 1,300 feet, and the ropes, of which one is the working rope and the other the safety rope, run on separate sets of friction rollers. The carriages are attached to each end of the ropes, and as one pair of carriages ascends the incline the other pair descends. Each car is to contain sixty passengers, the maximum load being 7½ tons at each end of the ropes. The working rope is passed over a pair of drums 8 feet in diameter, and the safety rope over one drum, the drums being fixed at the top of the incline and driven by two compound steam engines, 40 nominal horse power each. The speed of the cars is to be six miles an hour.

### Business Notes.

MAGNOLIA METAL—F. Jordan writes: CHAS. B. MILLER, Esq., 2½ Coenties Slip, City.

Dear Sir: I take pleasure in stating that during my connection with the Mobile & Ohio Railroad as Purchasing Agent, I ordered for trial a lot of your "Anti-friction Metal," which was thoroughly tested by the Master Mechanic, and it gave such satisfactory results that he ever afterwards made requisitions upon me from time to time for this metal, and pronounced it the best of the kind he ever used.

Yours very truly,  
F. JORDAN.

SUPR. DUTY of the East Cleveland road, speaking of the treatment of car horses, writes as follows:

CLEVELAND, Dec 1, 1886.

LAWRENCE, WILLIAMS & Co., Cleveland, Ohio.

Gentlemen:—In reply to your inquiry as to our opinion of Gombault's Caustic Balsam, we have been using it for three or four years in our stables. Have now 550 horses and have probably treated nearly or quite a hundred horses in the past year; using it for

all kinds of leg or shoulder lameness, strains, diphtheria, pink eye, etc., and must say that for any case where blistering is necessary we find it to be just what we need and to do what you claim for it and a perfectly safe remedy to use. We could not well do without it, and can freely recommend it to horsemen.

(Signed) EDWIN DUTY, Supt.  
East Cleveland R. R.

The above company have used over six dozen bottles during the past year and which speaks pretty plainly for itself as to what they think of it.

## SPECIAL NOTICES.

### Rates for Special Notices.

Advertisements of Street Railway Property "Wanted" or "For Sale," "Positions Wanted" or "Men Wanted," or similar matter inserted under this heading at 10 c. per line, eight words to a line.

WANTED—A capable man to manage a line of Street Railroad now in operation. Give reference, experience and extent of roads managed, and state salary expected. W. T. H., Care STREET RAILWAY JOURNAL, 113 Liberty st., New York.

FOR SALE.—Thirty-five second hand Toledo Heaters in good condition at \$10 each, f. o. b. in New York City. LEWIS & FOWLER MANUFACTURING Co., Brooklyn, N. Y.

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

WANTED—Second hand, reversible seats, open cars in good condition. Address, stating name of manufacturer, price, etc., GEO. W. HERSEY, S. R. & B., 57 Summer street, Boston, Mass.

WANTED—Position as Superintendent or Foreman with some good street railroad, by a thoroughly practical and experienced street railroad man who has had 15 years' experience in the business; can refer to some of the most prominent street railroad men of the country. Address: R. P. A., care STREET RY. JOURNAL, 113 Liberty st., New York.

WANTED—Position as Superintendent on a street railroad by an experienced man. N. Y. City references. Willing to go South or West. Parties wishing a good, steady man, and one able and willing to look sharp after all the minute details of a road, will please address Superintendent, care STREET RAILWAY JOURNAL, 113 Liberty st., New York.

SUPERINTENDENT.—Advertiser of ability and good managing capacity desires an engagement as superintendent of surface railroad; experienced in European and New York systems; would take full charge, including stables and treatment of sick horses if desirable; first-class references. Address MANAGER, care STREET RAILWAY JOURNAL, 113 Liberty street, New York.

## WANTED.

Second Hand One-Horse Street Cars in good condition.

HUMPHREYS & SAYCE,  
1 Broadway, New York.

## FOR SALE.

Steel Rails, T and Street Patterns, all weights; Spikes, Fishplates, Bolts, Wrought Iron Knees, Etc.

Light Steel T Rails always on hand. Old Rails taken in trade, or purchased for remanufacture.

HUMPHREYS & SAYCE,  
No. 1 Broadway, New York.

STREET RAILWAYS AND PAVING.  
**T. WILLIAM HARRIS,**  
Contracting Engineer for Public Works,  
Water and Gas Works, Sewerage, St. Railways & Paving.  
Headquarters at office of Arthur Hodges, Civil Engineer.  
19 EXCHANGE PLACE, BOSTON, MASS.



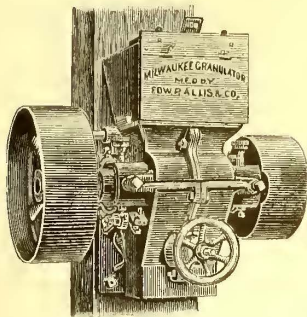
AMERICAN RAILWAY PUBLISHING CO.,

Lakeside Building, Chicago.

113 Liberty Street, New York.



**The Best Roller Feed Mill**  
ON THE MARKET.



"The Milwaukee Granulator."  
Simple,  
Durable,  
Cheap.

Just the thing for Street Railway  
Stables.

Write for Descriptive Circular, Prices, etc.

Edw. P. Allis & Co.

Reliance Works, Milwaukee, Wis.

Either Geared or Belt Driven.

**CAMBRIA STEEL**  
Street Rails

Address,

**CAMBRIA IRON CO.,**  
218 SO. FOURTH ST., PHILADELPHIA, PA.

**MORGAN ENVELOPE CO.,**

MANUFACTURERS OF

**FARE ENVELOPES,**

Springfield, Mass.



**Parrott Varnish Co.,**

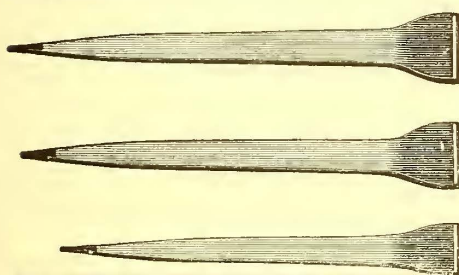
FINE COACH  
AND CAR **VARNISHES.**

Bridgeport, Conn., U.S.A.

**O. W. MEYSENBURG & CO.,**

**Street Ry. Track Material.**

204 No. Third St., St. Louis. 185 Dearborn St., Chicago.



**CHAMPION HORSE NAILS.**

Manufactured from very best SWEDISH METAL. Will not SPLIT. Are accurately pointed, tough, strong and hold the shoes. Soft enough to clinch readily; stiff enough to drive without bending. All nails uniform and perfect. They are used in thousands of shops with the best of satisfaction, and are especially liked by "floor-men" for their good reliable driving. Made in two patterns, "LARGE HEADS" and "CITY HEADS."

QUALITY GUARANTEED.

Nos. 4, 50c; 5, 28c; 6, 25c; 7, 23c; 8, 22c; 9, 21c; 10, 20c.

Champion Horse Nail Co., Appleton Wis.



**JOHN BABCOCK & CO**  
MANUFACTURERS OF  
**RAILWAY CAR VARNISHES**

2 LIBERTY SQUARE BOSTON MASS

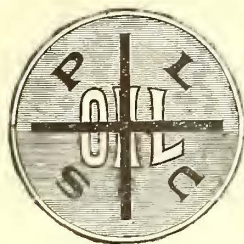
**For Lame and Strained Horses use Gombault's Caustic Balsam,**  
THE GREAT FRENCH VETERINARY REMEDY.

STREET CAR BARN SUPERINTENDENTS will find this to be a safe, speedy and reliable remedy for Curb, Splint, Sweeney, Poll Evil, Grease Heel, Capped Hock, Strained Tendons, Founder, Wind Puffs, Mange, Skin Diseases, Old Sores, Dropsical Affections, Inflammations, Throat Difficulties, Swellings or Ulcerations, Lameness from spavin, Ringbone and other bony tumors, and many other diseases or ailments of horses or mules. Will quickly remove all bunches or blemishes, without leaving any scar or other injurious effects. It can also be reduced with sweet or raw linseed oil, and used as a most valuable liniment for all kinds of simple lameness, strains, etc. IT SURPASSES ALL LINIMENTS, BLISTERING OR FIRING, NEVER LEAVES ANY SCAR OR BLEMISH, very rapid in its action, giving immediate beneficial results, and is as convenient to use as a liniment.

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

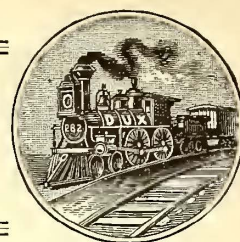
**LAWRENCE, WILLIAMS & CO., SOLE IMPORTERS, CLEVELAND, OHIO, U. S. A.**





Trade Mark Pat. Mar. 13, 1883.

# DUX LUBRICANT.



Trade Mark Pat. Mar. 13, 1883

## The Leading New Grease for Street Railways.

**The Best Lubricant for Street Railways known.** WILL RUN FOR ONE YEAR ON ONE PACKING. CARS WILL RUN EASIER PACKED WITH DUX, THAN WITH OIL AND WASTE. WHY? BECAUSE WE GIVE YOU A BETTER LUBRICANT. NO DRIP FROM CAR BOXES WHEN PACKED WITH DUX, AND, THEREFORE, KEEPS THE CAR BOXES AND TRUCKS CLEAN. **Try it and you will use no other Lubricant.**

### DUX FOR STREET RAILWAYS.

OFFICE BUFFALO STREET RAILROAD Co., BUFFALO, Sept. 12, 1883.

Leib Lubricating Co., Buffalo, N. Y.

GENTS:—Your Railroad Dux is the best lubricant we have ever used. In the points of endurance, cleanliness and easy running it more than sustains your guarantee. From present appearances a car-box well-filled will last six months or more, which would indicate considerable saving in cost over all other lubricants we have used. We also like Dux because it is easily applied, needs little care, and dispenses with the frequent inspections which consume much time and often are unsatisfactory.

Respectfully yours,  
EDWARD EDWARDS, Supt.

OFFICE OF CAMDEN HORSE RAILROAD Co., CAMDEN, N. J., May 25, 1885.

Leib Lubricating Co., 196 and 198 Chicago st., Buffalo.

GENTLEMEN—Please send this Company to the above address one barrel of "Wool Compound Dux Lubricant."

Your agent sent us sufficient to pack one car in September last, and that car has been running steadily six days in the week since September 15, 1884, making from 43 to 50 miles per day. The car referred to looks as if it would not require repacking for a year.

Yours Respectfully,  
JOHN HOOD, Supt., etc.

PITTSBURG, ALLEGHENY & MANCHESTER RY. Co., PITTSBURG, PA., Aug. 13, 1885.

Leib Lubricating Co.:

GENTLEMEN—We have used Dux Lubricant for the past nine months. It has given entire satisfaction; in fact, it is the best I have ever used. Think it fully as good as represented.

Yours Truly,  
J. C. COTTON, Supt.

FAULKNER MILLS.—F. J. HASTINGS & Co., MILLERS.

So. ACTON, MASS., Dec. 23, 1886.

Leib Lubricating Co., Buffalo, N. Y.

GENTS:—Your favor of the 17th inst. duly received. In reply we would say, that for several years we had much trouble and annoyance to find a lubricant for our heavy bearings that would stand, and tried various articles on the market without being satisfied, until a friend connected with a large manufacturing concern gave us a few pounds of the Dux Lubricant to try. It worked so much better than anything we had ever had that we ordered enough from you to give it further trial, and as a result have used it ever since, and can truly say it is the best lubricant we ever used. It will stand heat, gives off no drip and is economical, and we are very much pleased with it and do not hesitate to declare that it is our firm belief that there can be nothing ever made to equal it. Our experiment on wagons has been equally satisfactory; our first attempt being on a heavy wagon used every day, heavily loaded, ran 21 days when it went into the shop to be painted, and then was in a good condition to run longer. The only thing we regret is that we did not at once try and arrange to sell it in this locality, still one of our townsmen to whom we gave your address, Mr. Littlefield, has since obtained the agency, we learn, and we can obtain it through him.

Yours Truly,  
F. J. HASTINGS & Co.

NIAGARA FALLS PAPER MANUFACTURING Co., NIAGARA FALLS, Sept. 16, 1882.

To the Leib Lubricating Co., Buffalo, N. Y.

GENTLEMEN—We have been using your Dux Lubricating Compound in our mill for some weeks past, and so far, regard it superior to any lubricator we have ever used, in particular on bearings or trunnions that are constantly heated by the steam passing through them, such as the Cylinder Dryers and Revolving Boilers, etc. No drip as from oil.

Very respectfully,  
S. PETTEBONE, Treasurer.

MANUFACTURED BY

# THE LEIB LUBRICATING COMPANY

196 and 198 Chicago Street, Buffalo, N. Y.

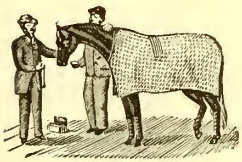


**NEFTEL & OOTHOUT,**  
**ENGINEERS & CONTRACTORS,**  
 41 Liberty Street, - - - - New York.

We make a specialty of street railway work, acting as engineers, or will contract for the construction of new lines. Repairs promptly executed on out of town work. Estimates for warehouse tramways promptly furnished.

**M. W. CONWAY,**  
**STEAM & STREET RAILWAY CONTRACTOR,**  
 AND DEALER IN  
**Railroad Materials.**  
 Estimates given. Curves and Switches laid at short notice. Office and Residence  
**487 Monroe Street, Brooklyn, N. Y.**

**THE CAR TRACK FRICTION APPLIANCE CO.,**  
 MANUFACTURERS OF  
**THE PAT. RELIABLE SAND BOXES,**  
 W. T. BUTLER, General Manager. **No. 19 Tremont Row, Boston.**  
 These boxes are guaranteed to distribute upon the rail SAND, SALT or GRAVEL, WET or DRY.



**WM. SOMERVILLE & SONS,**  
 CELEBRATED  
**ANTI-FEVER MEDICINE.**

The Anti-Fever Medicine has now been in use for over 30 years as a specific in all Diseases of an Inflammatory Character in Horses and Cattle. Anti-Fever Medicine is a Certain Cure for Chills and Fever, Sore Throat, Inflammation of Lungs, Coughs, Staggers, Inflammation of the Bowels, Spasmodic Colic, and Pleuro-Pneumonia in Cattle. This valuable Medicine is now used by the Principal Stables in the Country, by the U. S. and American Express Companies, and many of the Street Car Companies. Try one bottle and you will be convinced of its value in your stable. Sold by all Druggists. PRICE \$1 per bottle. Discount to the Trade. Address **Wm. Somerville & Sons, Buffalo Horse Infirmary, 127 Erie st. Buffalo, N.Y.** Mention this paper.

**The Belle City Feed and Ensilage Cutter.**

IS THE BEST FEED CUTTER. IS THE STRONGEST, MOST DURABLE, AND ON THE WHOLE IT IS THE BEST FEED CUTTER IN THE WORLD.

OUR TWO LARGEST SIZES HAVE SELF-FEEDING ARRANGEMENTS, AN ADVANTAGE NO OTHER CUTTER HAS.

THEY CAN BE FED WITH A PITCHFORK AND ARE GUARANTEED TO SUIT EVERY TIME. WRITE FOR CATALOGUE, PRICE LIST, ETC., TO

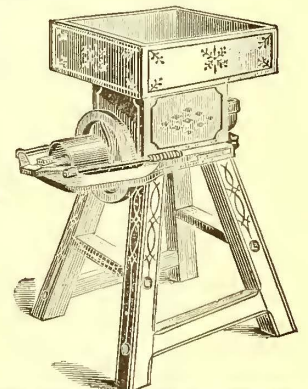
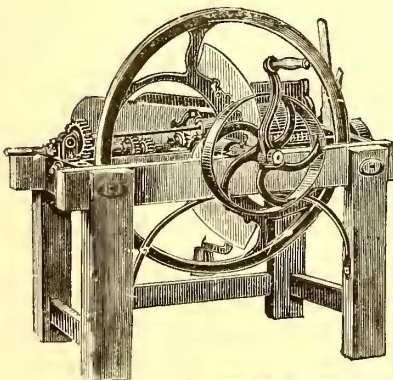
**THE BELLE CITY MANUFACTURING CO., Racine, Wis., U. S. A.**

**THE H. C. STAVEL IMPLEMENT COMPANY,**

38 & 40 SOUTH CANAL STREET, CHICAGO, ILL.

Manufacturers and Jobbers of

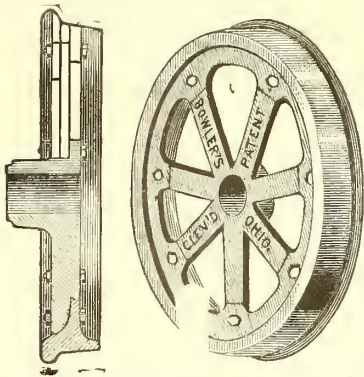
**FEED MILLS, FEED CUTTERS,**  
 HORSE POWERS, TREAD POWERS,  
 WOOD SAWS & CORN SHELLERS.



Send for Illustrated Catalogue and Prices.

**THE DAVIS METAL** for CAR JOURNAL BEARINGS  
 EDWARD C. WHITE, SOLE MANUFACTURER  
 531 WEST 33D STREET, NEW YORK.





# Cleveland Foundry,

Manufacturers of

Car and Locomotive Wheels either Chilled or Steel Tired; with or without axles. Street Railway Wheels, Turnouts and Turntables Patent Chilled Face RR. Frogs. Engine & Heavy Castings a Specialty.



**Graded Stable Cutter with Straight or Curved Cover**  
Descent 1/4 inch per foot. Pieces 5 feet lengths; short pieces furnished to suit any length. Spouts to connect with sewer.

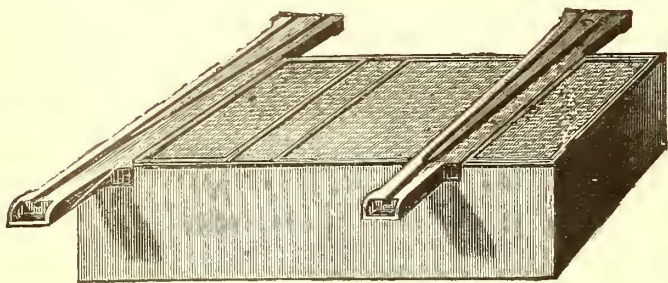
They control and make N. P. Bowler's Patent Street Railroad Wheel. The tire of this wheel is cast separately from the hub and spokes; the latter is made of soft strong iron, and is perfectly free from strain—therefore can be made much lighter and more durable. The tires and the spokes or center of the wheel are made perfectly interchangeable so that when the tire or rim is worn out another can be put in its place by any employee with no other tool than a common wrench.

**Bowler & Co.** 10 TO 24 Winter St. Cleveland, O.

**M. M. White & Co.,**

531 WEST 33d STREET,

NEW YORK.

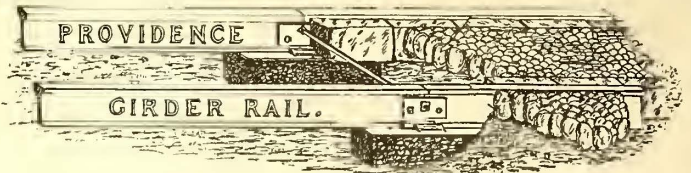


OWNERS AND BUILDERS OF  
**H. DOUGLASS'**

**Patent Automatic Switch**

FOR STREET RAILROADS.

FRANK H. ANDREWS, Sole Agent, 545 West 33d St., N.Y.

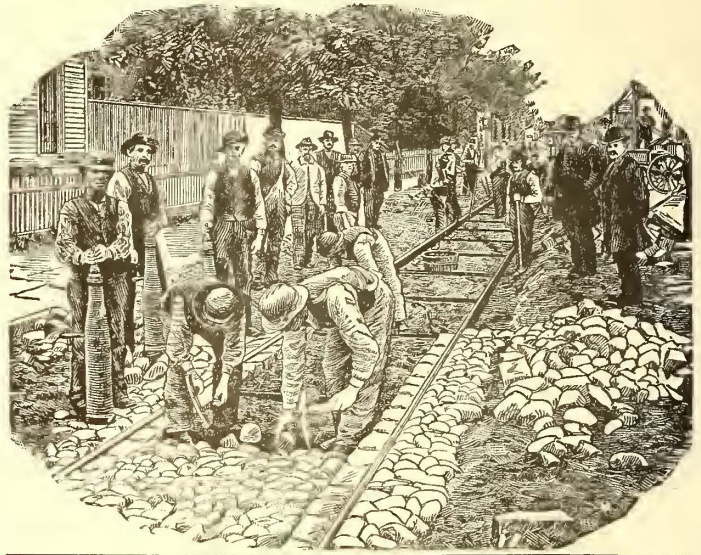


ALL IRON AND STEEL.

The most permanent and very best form of railroad construction for public streets. Fully endorsed by city and town authorities. Send for circular.

Prices furnished on application to

Wm. Wharton, Jr. & Co., Lim., Phila., Pa., General Agents.  
Or D. F. Longstreet, Providence, R. I.



**OLIVER BRADEN,**  
STEAM POWER

Book and Job Printer, Lithographer and Engraver.

P. S. Estimates furnished for all kinds of Wood Engraving and Electrotyping. Printing of Descriptive Circulars or Catalogues in the very best style.

Having had twenty years experience in the business I feel competent to attend to your wants. Address,

**OLIVER BRADEN, 119 So. Fourth St., Philadelphia, Pa.**

The "BROADWELL CAR STARTER," having been subjected to practical tests, is now placed on the market at a very low price.

**C. B. BROADWELL,**

169 Laurel Street, - New Orleans, La.

**WM. P. CRAIG,**  
**Street Railway Builder,**

and Dealer in Supplies.

Office 95 Liberty St., N. Y.

GROOVE RAIL FOR CURVE constantly on hand. Straight or Curved to any radius or length, at short notice.

CURVING MACHINES of Best Style and Make.

SPECIAL RATES given on AUTOMATIC SWITCHES, TURNABLES, TRACK CASTINGS, KNEES, JOINT PLATES, SPIKES and all other material for Railway Construction.

Having had over 25 years' practical experience in Street Railway Construction feel confident in saying to parties who contemplate building will find it to their interest to correspond with me before making contracts or ordering material.



JOS. KINSEY, Prest.

E. V. CHERRY, Vice-Prest.

OLIVER KINSEY, Secy.

# POST & CO., Cincinnati, O., U.S.A.

Manufacturers of and Dealers in

## Street Railway Supplies and Equipment.

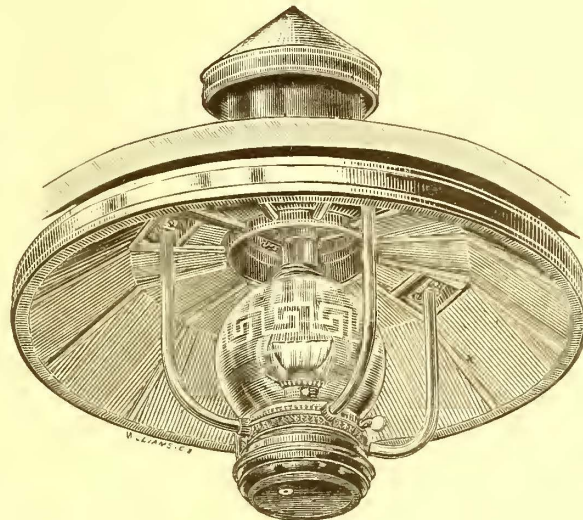
MANUFACTURERS OF

Center Lamps, all sizes.  
Globe Brass End Lamps,  
Tin Box Lamps,  
Cable Car Head Lamps,  
Office Lamps.

### CAR TRIMMINGS,

ALL STYLES.

Street Car Gongs,  
Journal Bearings,  
Deck Lights.



Center Car Lamp.

DEALERS IN

Burners, Chimneys,  
Wicks, Lenses,  
Globes, Etc.

### TRACK MATERIALS.

Spikes, Bolts,  
Rails, Shovels,  
Picks, etc., etc.

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

# STREET CAR SEATS & BACKS.

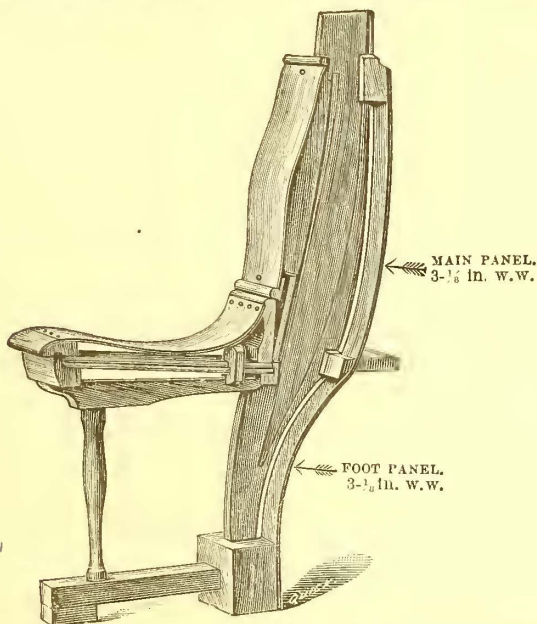
### THREE-PLY CAR SIDES.

Having given our three ply white wood car sides a thorough trial for a number of years in our city street and railway lines, which test has left them as firm and good as the day they were put in, we unhesitatingly place these sides in the market as a superior article. They are composed of three white wood (or poplar) veneers, each 1/8 inch thick, the grain of the center layer running at right angles with the two outside layers. Hence they derive all the special and well-known advantages of glued up wood over single ply, namely:

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

For repairing cars these sides have no equal.

Our Three Ply Car Seats and Backs, so well known all over the world, are now the most popular seat and back in the market, and recommend themselves especially for their *Lightness, Cleanliness, Healthfulness and Beauty*, as also their *Cheapness and Durability*. For they are indestructible by moths (the great enemy of upholstery), and will not harbor vermin or insects, or carry or communicate contagion or disease. Our trade in this line has grown in thirteen years to vast proportions, which in itself is a sufficient guarantee of their merits. They are made either perforated or plain to suit customers. Birch is the wood most generally used. Today fully one half the railroads in the country are using these seats and backs. We would also call attention to our *Veneer Ceiling* for cars. They are made either plain, perforated or decorated, and greatly add to the beauty of the car. For repairing cars they have no equal; for they are placed over the carlines and cover all the old paint and wood work. The woods generally used are Birch, Birdseye Maple, Oak and Mahogany.



## GARDNER & CO.

Manufacturers of Car Seats and Ceilings and Depot Seating,

OFFICE AND FACTORY: 643, 645, 647, 649, 651, 653, 655 and 657 West 48th St., New York.

Sample and Salesroom: 206 Canal St., cor. Mulberry.

Send for Catalogue.

Address all Communications to Office.



ESTABLISHED 1857.

INCORPORATED 1875.

# BROWNELL & WIGHT

## CAR COMPANY,

ST. LOUIS, MO.

BUILDERS OF

# Street Cars

OF EVERY STYLE AND SIZE,

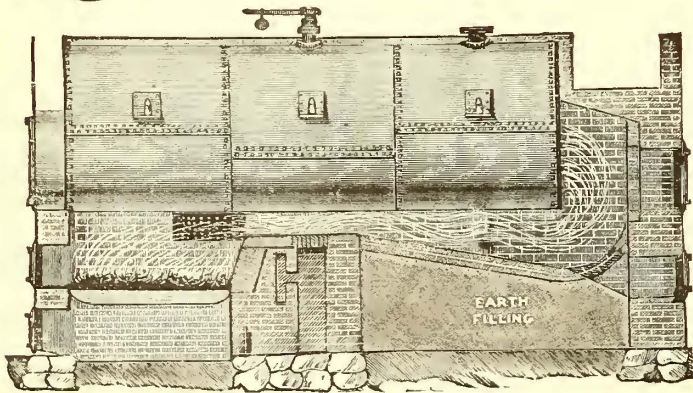
For Horse, Cable or Other Motive Power.

EXCLUSIVE MANUFACTURERS OF

## BROWNELL'S PATENT COMBINATION CARS

FOR SUMMER AND WINTER SERVICE.

## 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 Dynamoes without using Shafting.

NO. 61 OLIVER STREET, BOSTON, MASS.

SEND FOR CIRCULAR.

## 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

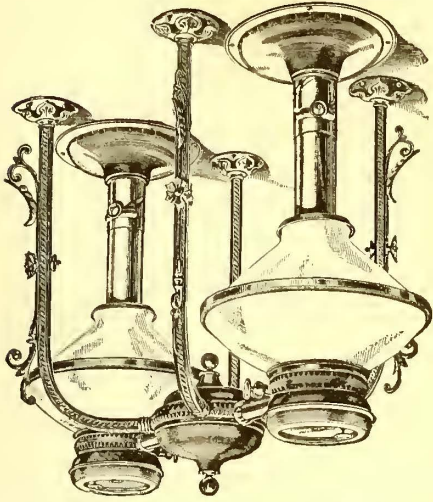
STEELTON, DAUPHIN CO., PENN.

NEW YORK OFFICE, - 160 Broadway.

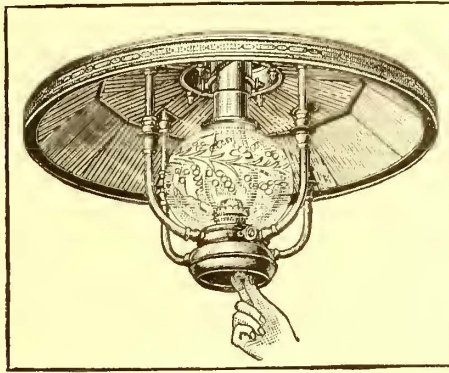
Philadelphia Office 208 South Fourth St.



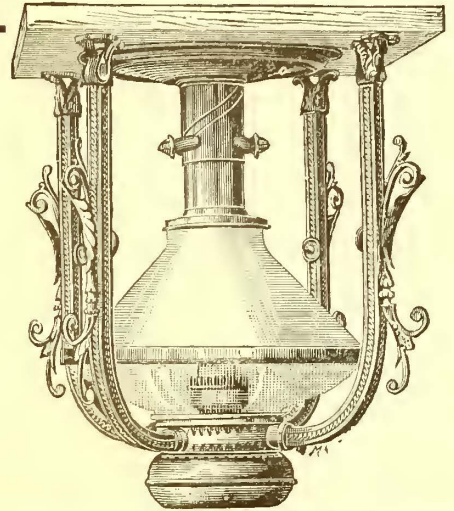
# JOSEPHINE D. SMITH, Successor to the late WILLARD H. SMITH, 350 & 352 Pearl Street, New York.



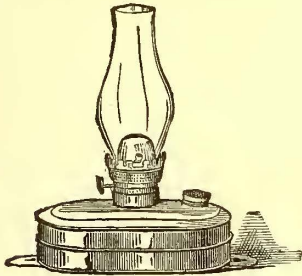
No. 10.—Two-light Car Lamp as used on Tenth Avenue (N.Y.) Cable road.



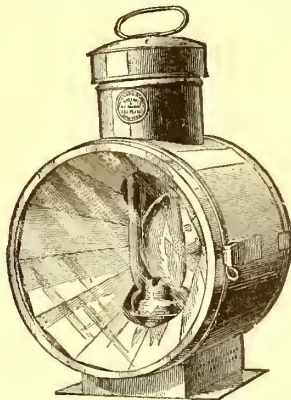
No. 14.—Center Car Lamp.



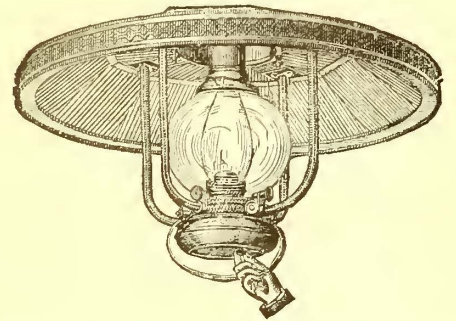
No. 8.—Center Car Lamp as used on Tenth Avenue (N. Y.) Cable road.



No. 3.—Box Lamp with drip cup.



Small Head Light for Grip Cars and Stages.



No. 1.—Center Car Lamp in general use throughout the United States and Canada.

All kinds of trimmings pertaining to car lamps.

**MANUFACTURER OF W. H. SMITH'S PATENT RAILROAD CENTER LAMPS AND REFLECTORS.**

# THE PUTNAM NAIL CO.

## LOOK WELL

TO YOUR

Highest  
Award at the

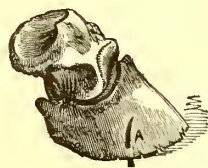
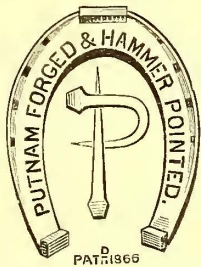


Fig. 1.

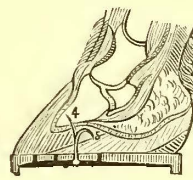
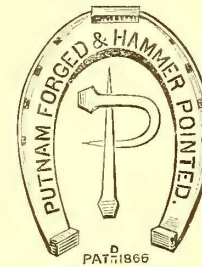


Fig. 2.



Centennial  
Exhibition.

# HORSES' FEET

These drawings show how many horses are made lame and permanently injured by the use of the COLD CUT and SHEARED-POINTED Nails. This process of manufacture produces lamination, causing the iron to form in layers, and when driven into the foot, the horny fibers of which the hoof is composed cause the nail to separate at the point, and one portion passes into the foot.

No. 4 represents one of these nails which was driven into the hoof and SLIVERED in driving, one thin blade passing into the quick or sensitive sole; No. 5 the THICK blade of the nail passed out of the wall of the hoof for clinching. After a few days the horse was returned lame, and upon the removal of the shoe, a nail similar to the above was broken off, leaving the sliver in the foot: LOCK-JAW ensued, from which the horse died. Upon dissecting the foot a portion of the nail was found to have penetrated through the coffin bone, as seen in Fig. 2, letter A, thus sacrificing the life of a valuable animal.

It requires but little observation and reflection, one would think, to arrive at the conclusion as to the kind of nails to be used in the horse's foot, whether a mangled piece of iron rendered DANGEROUS by the COLD ROLLING AND SHEARING process, or one made from the rod at a welding heat, where all the fibers remain intact and a perfect ONENESS maintained and being pointed by the hammer, rendering such an accident as slivering utterly impossible.

The foot is the MOST IMPORTANT member of the animal's body, to which the greatest care and attention should be directed; for when it becomes injured or

diseased, no matter how perfect the other parts may be, the horse's services are diminished or altogether lost. Hence the value of a horse depends upon the condition of his feet.

The horse at every step brings an immense power and weight to bear upon the foot. The hoof is a *thing of life* and yields to the pressure. The PUTNAM NAIL, being *forged* accommodates itself to the pressure of the hoof. It is far otherwise, however, with stiff rolled and cut nails. They remain rigid and their sheared edges are therefore pressed like sharp knives against the horny fiber. This is what causes the broken and rotten appearance so frequently seen in horses shod with cheap cut nails. Can a horse owner afford to attempt to save a few cents in price of nails and ruin his horse? surely not, for the old adage is true as ever

**"NO FOOT, NO HORSE."**

As the remedy lies with the owner of the horse, it is for him to prohibit any cold-rolled or sheared nails being used in his horse's feet.

The only Hot-Forged and Hammer-Pointed Horse-Shoe Nail in the World

that is not cut, clipped or sheared upon the point, and will not split in driving, is

**THE PUTNAM NAIL.**

Address for Circulars, etc.,

**THE PUTNAM NAIL CO., NEPONSET P. O., BOSTON, MASS.**



# "PAY HERE."

## Fare Boxes and Change Receptacles

### FOR STREET CARS.

#### OUR NEW FARE BOX NO. 3

Is pronounced by the many Street Car Companies using it to be the best.

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

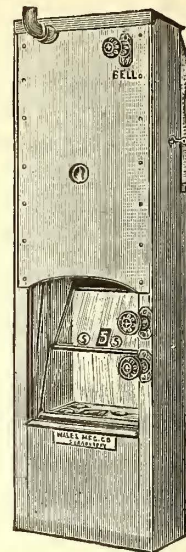
Simplicity of Construction, Quickness and Convenience of Cleaning, Security of Money Drawer, Beauty of Finish and Much Cheaper in Price.



CHANGE RECEPTACLE.

Descriptive and Illustrated Circular on application.

Examine the merits of this box and get our prices before buying.



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



Box No. 3. Front or Passengers' View.

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

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

## The Chaplin Roller Bearing Tramway CAR BOX AND GEAR.

LIGHT DRAFT EASY RIDING DURABLE  
POSITIVELY DUST PROOF AND OIL TIGHT

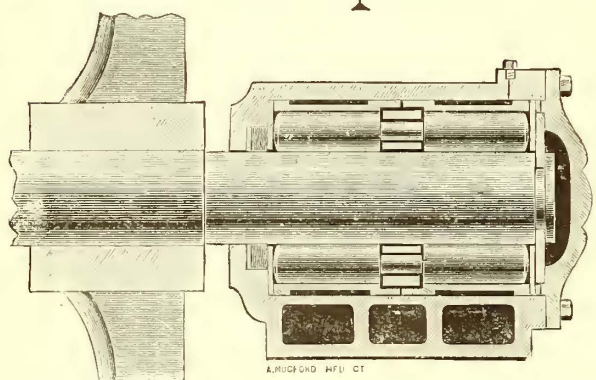
Boxes Hold Sufficient Oil for One Year. No Waste Used for Packing nor Babbitting for Boxes.

Overcomes Friction in Taking a Curve

SUPERINTENDENT'S OFFICE, HIGHLAND STREET RAILWAY, No. 827 SHAWMUT AVE., BOSTON, August 19, 1886.

CHAPLIN M'FG. CO., MESSRS:—In reply to your note I will say we have had a set of your Gear under car, "Gov. Rice," for the past four years and it has proved very acceptable, so much so that we have decided to put on 50 sets of your improved pattern. The wear on the journal is imperceptible, and it is beyond question the easiest running gear in the market. Respectfully, J. E. Rugg, Supt.

SEND FOR CATALOGUE.



**THE CHAPLIN MANUF. CO., Bridgeport, Conn.**

## Berry's Patent Hames and Regan Snap.

**CHARLES E. BERRY**  
CAMBRIDGE, MASS.  
MANUFACTURER OF  
PATENT HAMES for FIRE DEPARTMENTS, HORSE RAILROADS  
EXPRESS COMPANIES, CARRIAGES &c.  
FOR SWINGING HARNESSSES  
Send for my  
New Catalogue No. 5.

They have the advantage of easy adjustment. No buckles or straps are used. They can be applied in an instant, being fastened to the collar. The collar is divided and there is no strain upon the collar or the eyes of the horses. In case of accident the whole harness can be removed at once. They are adapted to the use of Fire Departments, Horse Railroads, Express Wagons, Teams and Light Carriages, and are in use in over one hundred cities and towns in the United States and Canada.

### REGAN PATENT SNAP.

They are made of the best gun metal and malleable iron, with a brass spring which is inclosed in a water-tight socket and made rust and dust proof. It is an impossibility for it to become detached. Write for illustrated catalogue and prices.  
**CHARLES E. BERRY, Cambridge, Mass.**



## Clark's Tramways.

TRAMWAYS THEIR CONSTRUCTION AND WORKING. Embracing a Comprehensive History of the System; with an exhaustive Analysis of the various Modes of Traction, including Horse-Power, Steam, Heated Water and Compressed Air; a Description of the Varieties of Rolling Stock; and ample Details of Cost and Working Expenses; the Progress recently made in Tramway Construction, &c., &c. By D. KINNEAR CLARK, M. Inst., C. E. With over 200 Wood Engravings, and 13 Folding Plates. Two Vols., large crown 8vo, 30s. cloth. Price \$12.

AMER. RAILWAY PUBLISHING CO.,  
113 LIBERTY ST., NEW YORK.

## F. W. JESUP & COMPANY, 67 LIBERTY ST., NEW YORK. STREET RAILWAY SUPPLIES OF EVERY DESCRIPTION.

Steel Rails, all patterns; Cars; Automatic Switches; Turntables; Curved Rails; Channel Plates; Frogs; Crossings and other Track Castings, Knees, &c.; Countersunk Spikes, specially adapted for Center-bearing Rails.

## A. J. HUTCHINSON, CONTRACTOR And PRACTICAL BUILDER of STREET RAILWAYS. Roads Relaid, Switches, Turnouts, Warehouse Tracks. Materials Furnished. ROOM 11, - 95 LIBERTY STREET, N. Y.

## Ayers' Anti Rattler,

FOR RAILROAD CAR WINDOWS.



The Best and Cheapest  
ANTI-RATTLER IN THE  
MARKET. ALSO,

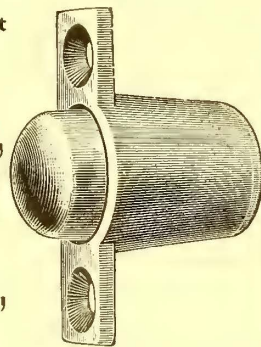
Ayers' Pat. Sash Holder,

FOR HOLDING CAR WINDOWS AT ANY  
HEIGHT.

Manufactured by the

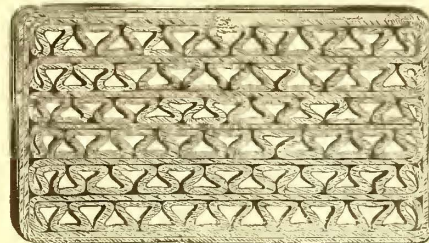
AYERS' PAT. SASH HOLDER CO.,

Room 242, Broadway & Chambers St.  
STEWART BUILDING, NEW YORK.

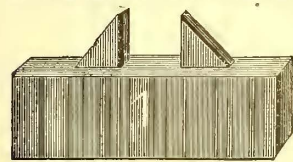


Send for Circulars.

## LYNN & PETTIT, MANUFACTURERS OF Machine Braided Cocoa Car Mats. 707 Market Street, Philadelphia.



A Sample  
Order  
Solicited.



## P. F. Burke,

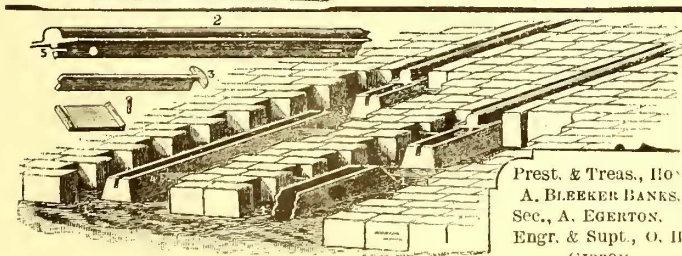
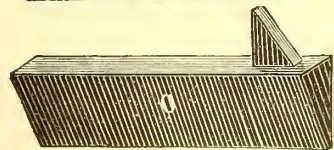
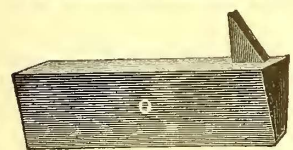
Successor to C. F. Dewick & Co. Manufacturer of

Patent Steel Toe-Calks.

Cold Iron Punching, Chain Links,  
Washers, etc.

360 DORCHESTER AVENUE,  
SO. BOSTON, MASS.

Send for Circulars.



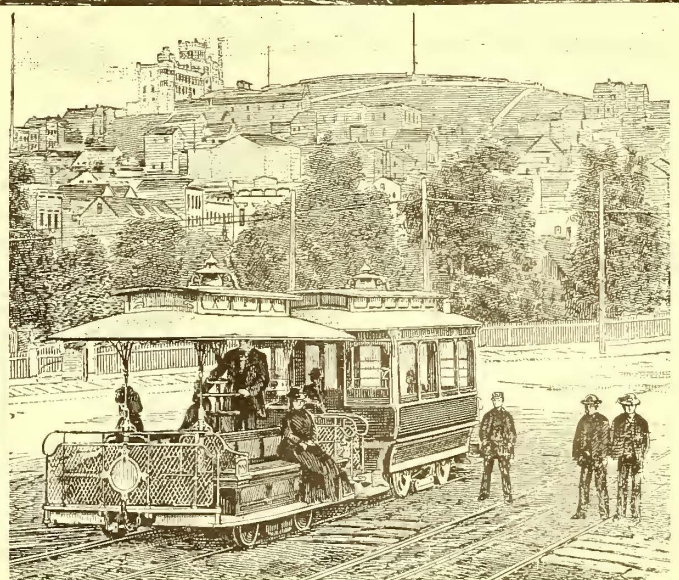
Pres. & Treas., H. A. BLEEKER BANKS.  
Sec., A. EGERTON.  
Engr. & Supt., O. H. GIBBON.

## The Metallic Street Railway Supply Co.

GIBBON'S PATENT.  
ALBANY, NEW YORK.

Cheapest, quickest laid and most durable track known. Dispenses with all timbers, butts, spikes, knees, &c. Estimates for building and relaying street railway tracks and full particulars sent on application.

N.Y. Office, 1 Broadway, Humphreys & Sayce, Contracting Agents.



## CABLE ROADS.

Am. System Traction Rope Railway, operated by Independent Duplicate Cable.

FULLY PROTECTED BY PATENTS IN THE FOLLOWING COUNTRIES.

- |                |                             |
|----------------|-----------------------------|
| UNITED STATES, | FRANCE,                     |
| ENGLAND,       | BELGIUM,                    |
| GERMANY,       | DENMARK,                    |
| AUSTRIA,       | VICTORIA, Australia,        |
| SPAIN,         | NEW SOUTH WALES, Australia. |
| ITALY,         |                             |

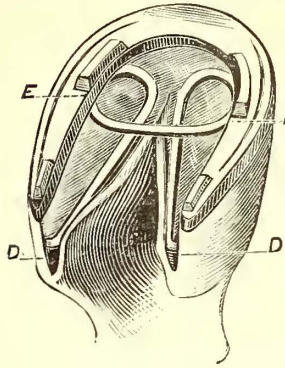
D. J. MILLER, ENGINEER,

234 BROADWAY,

NEW YORK.



**USE PROF. ROBERGE'S PATENT HOOF EXPANDER,**



**Which Cures Corns, Contraction, Quarter-Cracks, &c.**

It is the best invention for expanding a contracted foot, or keeping a sound foot in its natural shape.

It is used and approved by the leading horse owners of the New York Driving Park, such as

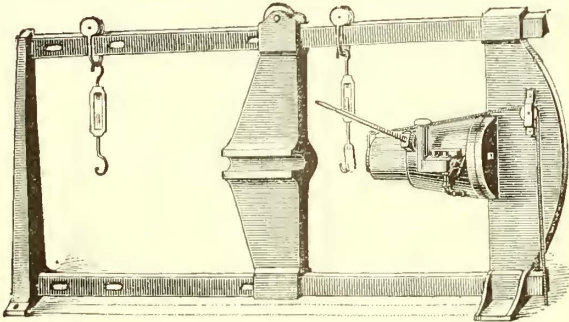
**Robert Bonner, Frank Work,** and hundreds of other gentlemen of repute. In ordering, send diagram of foot with price. Same will be forwarded free by mail.

**F. P. ROBERGE,**  
VETERINARY SURGEON,

1,741 BROADWAY, NEW YORK.

Liberal discount to the trade. They are kept by all first-class Horseshoers, Saddle and Hardware men.

**HAND POWER, LEVER AND HYDRAULIC PRESSES**



See page 197, July, 1885.

**Screw and Hydraulic Jacks.**  
**Watson & Stillman.**  
204 to 210 East 43d Street, N. Y.

**Wilson Brake Shaft.**

ENTIRELY NEW & NOVEL IN CONSTRUCTION.

POSITIVE AND SURE IN ACTION.

BRAKES SET WITHOUT COMPLETELY TURN-

ING THE HANDLE.

MADE ON THE PRINCIPLE OF A FRICTION

CLUTCH.

SIMPLE IN DESIGN.

Saves Room, Adds to Available Braking Power,  
and Gives the Driver the Best Possible

Control over the Car.

**Mordecai M. Wilson, Agent.**

TROY, N. Y.

**F. M. DELANO.**

47 Broadway, New York.

**PHILIP RICHARDSON.**

**Organizers, Promoters & Builders**  
OF  
**STREET RAILROADS.**

Dealers in Street Railroad Securities. Correspondence invited.

**STEEL STREET RAILS.**

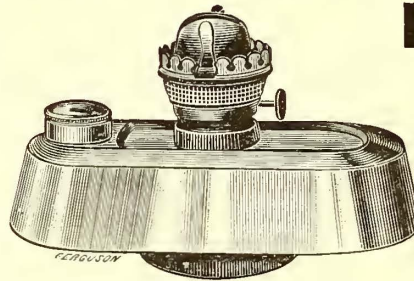
**CARNEGIE, PHIPPS & CO., LIMITED**

48 Fifth Ave., Pittsburgh, PA.

Section No. 17

46 lbs. per Yard

**Clute's Patent Double**  
**Bottomed**  
**Street Car**  
**LAMP,**



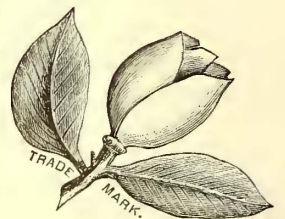
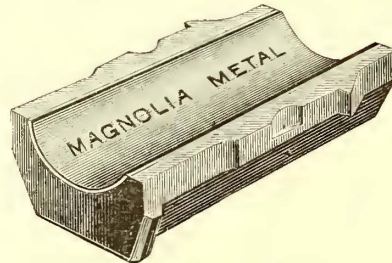
Is one that assures safety,  
durability, and is perfect  
in regard to leakage.

**GEORGE M. CLUTE,** Sole Manufacturer;

Also Dealer in Car Reflectors, Chimneys, Burners, Etc.

**WEST TROY, N. Y.**

**Magnolia Anti-Friction Metal.**



**Best Anti-Friction Compound Discovered**

FOR CAR, LOCOMOTIVE AND MACHINERY BEARINGS.

1. Prevents **HOT BOXES.**
2. Adapted to **HIGH** or **LOW** Speed Machinery.
3. It will stand the Heavy Work of **SUGAR, SAW, ROLLING** and **WIRE MILLS.**
4. Is the **ONLY** metal that protects and does not wear Journals.

See December number, pages 94 and 95, for Tests.

New York Depository, **E. S. GREELEY & CO.,**

**F. JORDAN,** 200 Broadway, State Agent, outside city.

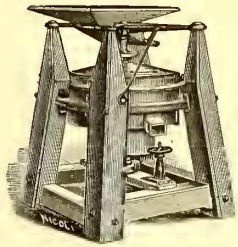
**CHARLES B. MILLER,** Manufacturer,

No. 2 1-2 Coenties Slip, New York.



# Portable Grinding Mill Manufactory.

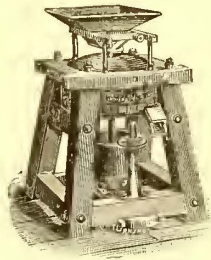
Established 1851.



Mills expressly adapted for use in  
**STREET CAR STABLES.**

41 different sizes and styles.

Portable Engines  
AND BOILER,  
TREAD AND  
SWEEP HORSE POWERS.

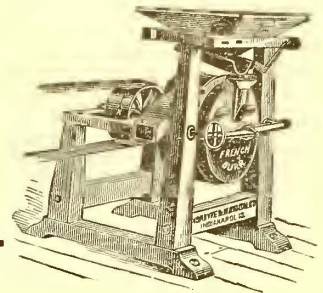


Feed Cutters,  
Corn and Cob Crushers,  
Corn Shellers,  
Roller Mills.

## Complete Outfits a Specialty.

Describe Wants and send for Illustrated

Price List and Circulars.



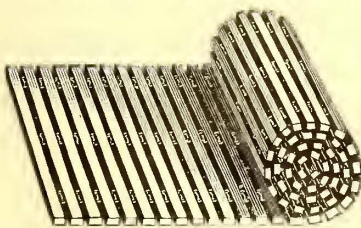
### Nordyke & Marmon Co., INDIANAPOLIS, IND.

#### RUFUS MARTIN & CO.,

13 PARK ROW, N. Y.

Manufacturers and Dealers in Every Variety of

## STREET RAILWAY SUPPLIES.



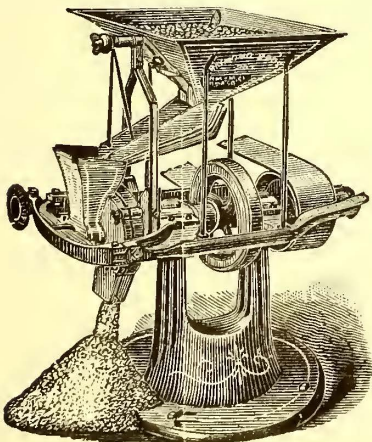
WARNECK & TOFFLER,  
211 East 22d St., New York,  
Sole Manufacturers and Patentees  
of the only

### "ROLLING WOOD MAT"

in the market. This matting, either  
in round, square or flat slats, is the  
most convenient one for horse cars, as  
it is a self cleaner and can easily be  
repaired.

Price, a running foot, 3 feet wide,  
only 70c. Orders respectfully solicited.

## THE OLD RELIABLE AMERICAN GRINDING MILLS.



21 Sizes and Styles.

20,000 in use.

Our Nos. 3, 4 and 5 Mills especially adapted for street car companies to be run with tread, sweep or overhead powers.

We also Manufacture

Tread Powers, Sweep Powers, Feed Cutters, Heating Boilers, Corn Shellers, etc.

Send for illustrated catalogue.

Appleton Manfg. Co.,

22 So. Canal Street,  
CHICAGO.

ESTABLISHED 1847.

#### A. WHITNEY & SONS,

## CAR WHEEL WORKS,

PHILADELPHIA, PENN.

## CAST CHILLED WHEELS,

AXLES AND BOXES

FOR EVERY KIND OF SERVICE.

### Street Railway Wheels of all Sizes.

Established 1856.

Incorporated 1883.

## The Feigel Car Co.,

BUILDERS OF

## Cars for Street Railways.

FACTORY

OFFICE

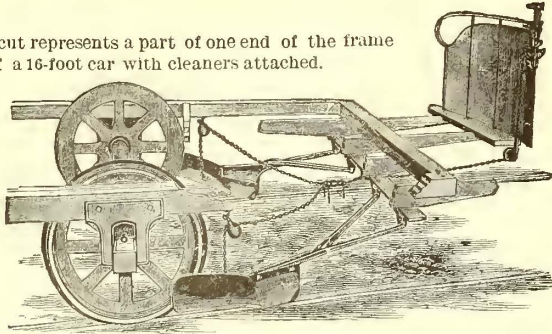
New Utrecht, N.Y.

No. 108 Wall Street, N.Y.



# DAY'S IMPROVED STREET RAILWAY TRACK CLEANERS.

The cut represents a part of one end of the frame work of a 16-foot car with cleaners attached.

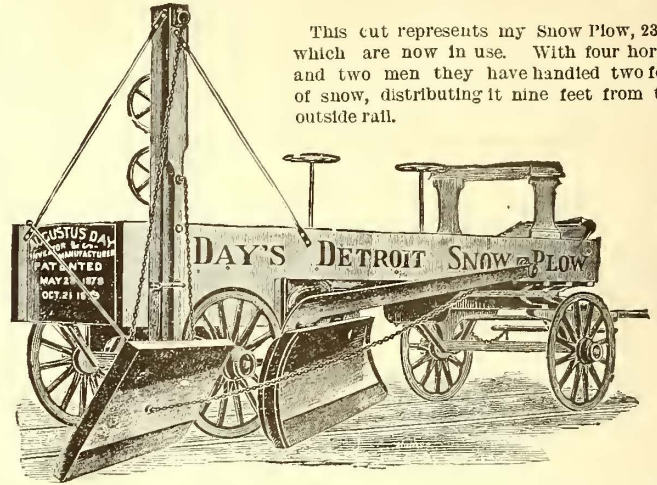


These Track Cleaners need no extended statement of their great superiority over all others invented. The fact of over three thousand pairs being now in use is sufficient evidence of their necessity and utility. Are adaptable to all kinds of rails and styles of cars. Clean Snow, Ice, Mud and Stones from the rail. The driver can raise or lower them instantly with one hand. To secure the largest benefit they should be attached to every car.

No estimate can be made of their advantage in saving of horseflesh hand labor, salt, and the making of time in stormy weather. Since their introduction new and valuable improvements have been made in their construction, mode of attachment, and convenience of handling. They are finished in a thorough, workmanlike manner of the best material obtainable, the design being to manufacture the most efficient article in preference to other considerations. Price includes right of use and is less than heretofore.

Reference is made to a few of the roads using these Cleaners.

Detroit City Ry., Detroit, Mich.	154	Pairs
Chicago City Ry., Chicago, Ill.	400	"
Rochester City & Brighton R. R., Rochester, N. Y.	100	"
Albany Ry., Albany, N. Y.	75	"
Lynn & Boston R. R., Boston, Mass.	68	"
Boston Highland Ry., Boston, Mass.	46	"
Grand Rapids Street Ry., Grand Rapids, Mich.	48	"
Norfolk Street Ry., Salem, Mass.	69	"
Bridgeport Horse Ry., Bridgeport, Conn.	40	"
Cream City Ry., Milwaukee, Wis.	40	"
Milwaukee City Ry., Milwaukee, Wis.	50	"
Buffalo Street Ry., Buffalo, N. Y.	32	"



This cut represents my Snow Plow, 23 of which are now in use. With four horses and two men they have handled two feet of snow, distributing it nine feet from the outside rail.

It is adapted to single or double track roads, adjustable where necessary; built in the most thorough and substantial manner of the best material. The Plow is not intended to supply the place of the small Track Cleaners, but be auxiliary to them. For execution in deep snow, ease, and convenience in handling, it surpasses all others in use. Orders should be given three months in advance.

Reference is made to the following roads that use them:—Detroit City Ry., Detroit, Mich. (Two plows.) Rochester City & Brighton R.R., Rochester, N. Y. (Two plows.) Cream City Ry., Milwaukee, Wis. West Side Street Ry., Milwaukee, Wis. Chicago City Ry., Chicago, Ill. (Three plows.) Grand Rapids Street Ry., Grand Rapids, Mich. Highland St. Ry., Boston, Mass. Buffalo St. Ry., Buffalo, N. Y. (Two plows.) Johnstown Pass. Ry., Johnstown, Pa. Minneapolis St. Ry., Minneapolis, Minn. (Two plows.) St. Paul St. Ry., St. Paul, Minn. (Two plows.) Kalamazoo St. Ry., Kalamazoo, Mich. Worcester St. Ry., Worcester, Mass. South Bend Ry., South Bend, Ind. Milwaukee City Ry., Milwaukee, Wis.

For Further Information and Price, Address:

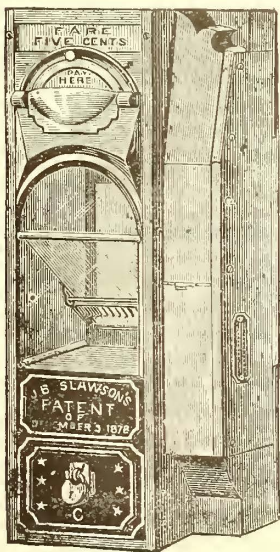
AUGUSTUS DAY, 76 State Street, cor. Park Place, - - - - - Detroit, Michigan, U. S. A.

# SLAWSON'S PATENT FARE BOXES

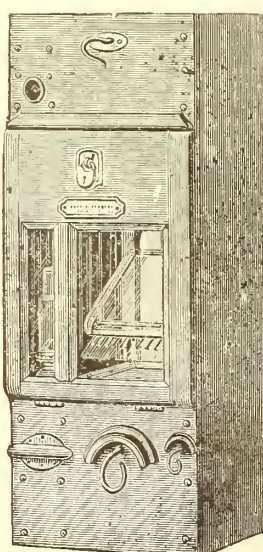
These Boxes are of the latest and most approved pattern, and contain a front door, by opening which all of the glass inside can be conveniently cleaned. This is a late patent, and is a very valuable improvement over the old method of taking the boxes apart for that purpose. They are well made and not liable to get out of order, cannot possibly be picked, and even if all the glass is broken no fare can be extracted from the drawer.

The late J. B. Slawson originated the "FARE BOX SYSTEM," and all of his Boxes, Change Gates and Drivers' Change Box are protected by several patents, and parties using them are not liable to claims for infringements, as may be the case with some boxes which are now being offered for sale.

These Boxes, etc., are now in use not only in the United States and Canada, but in Mexico, South America, Europe, Asia, Africa and Australia—in fact, nearly all places where street cars are used.



C. Front View.



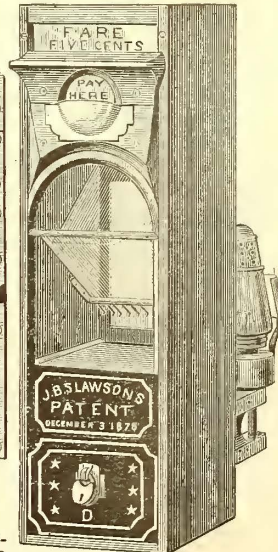
C. Back View.

Change Slide. Outside View.

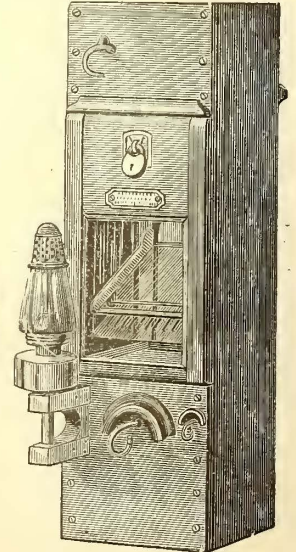


Change Gate. Outside View.

The prices have been greatly reduced, and are made to fit the times. Orders will be promptly filled by addressing,



D Front View.



D Rear View.

MILTON I. MASSON, Agent, 365 AVENUE A, NEW YORK.

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



**C**astings for Crossings, Frogs, Switches, Curves, Turnouts, &c. Joint Plates, all sizes of Knees, and Standard Castings always on hand.

H. B. WAY,  
WM. S. RHODES,  
J. B. BLANKLEY.

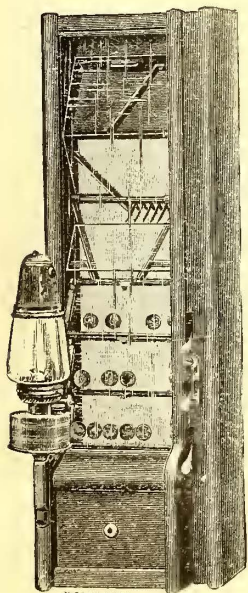
City Passenger Railway Iron Foundry,  
**THE WAY FOUNDRY COMPANY.**

Twenty-Third and Wood Streets,  
**Philadelphia, Pa.**

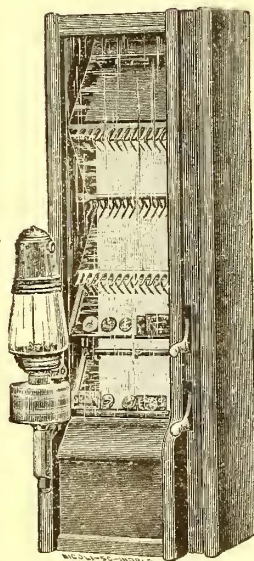
**C**ontracts taken and Estimates given for Construction of Street Railways and Supplying of all Materials used. Steel Crooved and Tram Rails Furnished at Special Rates.

# TOM L. JOHNSON'S IMPROVED FARE BOX.

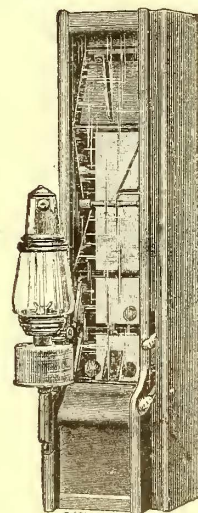
NOW IN GENERAL USE IN CITIES THROUGHOUT THE U. S.



BOX NO. 1.



BOX NO. 2.



CHARIOT PATTERN.

FARES CANNOT BE EXTRACTED OR BOXES  
ROBBED WITHOUT VIOLENCE.

SPECIAL SIZES BUILT TO ORDER.

ROADS EQUIPPED WITH BOXES ON TRIAL,  
AND IF NOT SATISFACTORY, RETURNED WITHOUT  
ANY EXPENSE TO THE COMPANY TRYING THEM.

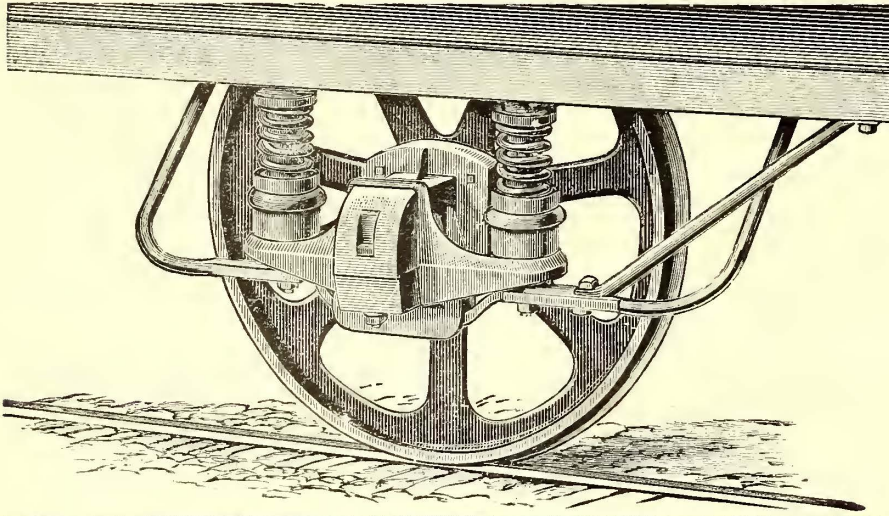
Patented Oct. 14, 1873.

## REDUCED PRICES.

Write for Descriptive Circular and Price List. Address all correspondence to  
**A. A. ANDERSON, INDIANAPOLIS, IND.**



# THE BEMIS CAR BOX COMPANY,



MANUFACTURERS OF

## The Bemis Patent

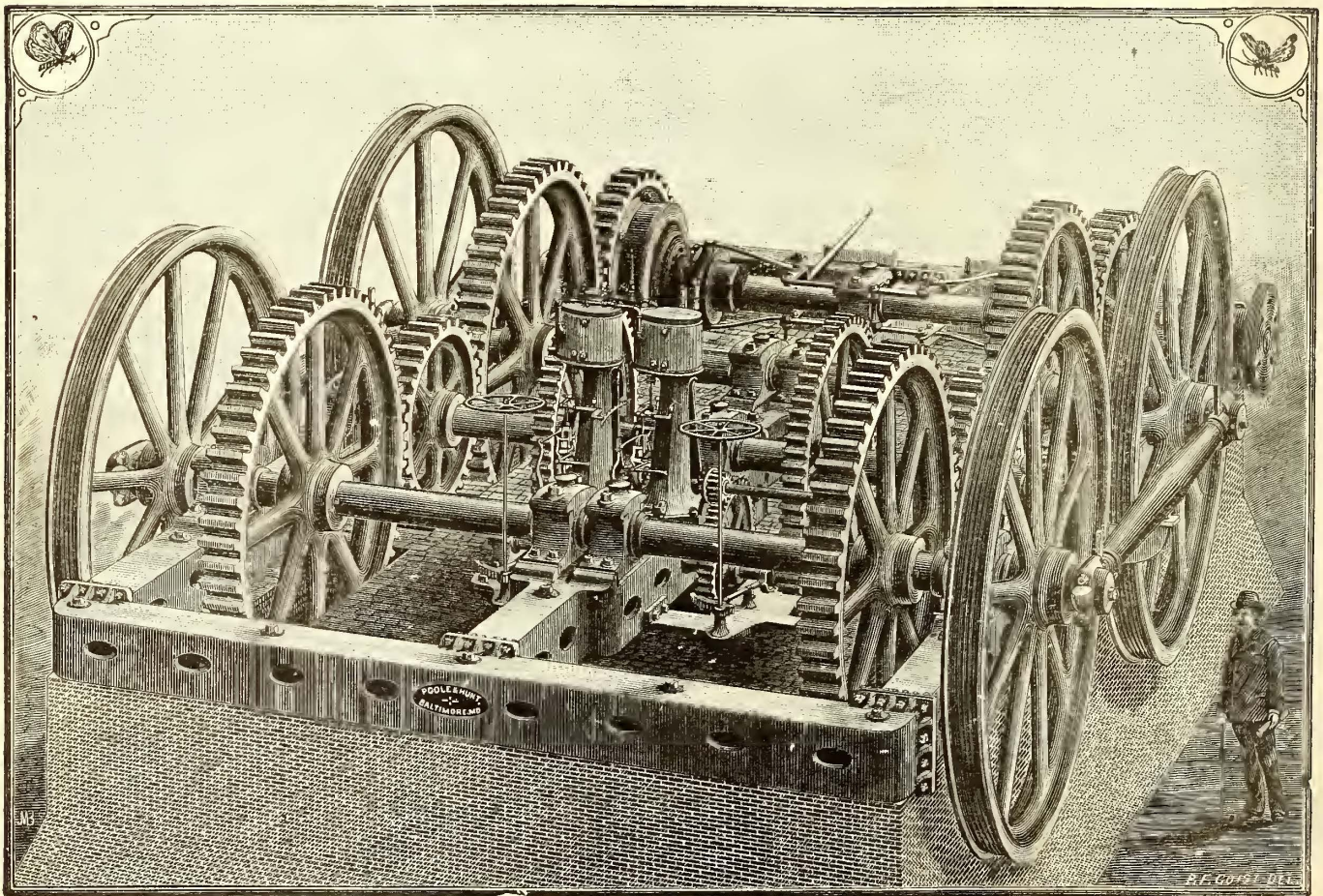
## Journal Box.

Light Draft, Easy Riding, Durable, Economical. Brasses are warranted for 10 years, and Journal for 20 years. Requires oiling or inspecting but once in 12 months. Boxes are positively dust proof.

227 Main St., Springfield, Mass.  
Opp. Depot,

# POOLE AND HUNT

Baltimore, Md.

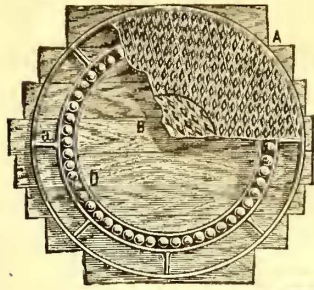


## Manufacturers of Cable Railway Plant

## Machine Moulded Gearing for Mills and Factories.

CORRESPONDENCE SOLICITED.



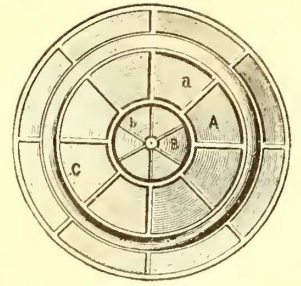


S. M. CARPENTER, Prop.

C. J. LANGEON, Secy.

# FULTON FOUNDRY,

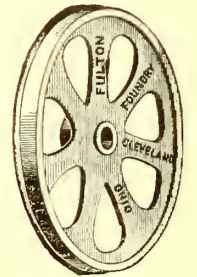
MANUFACTURERS OF



## STREET RAILWAY SUPPLIES, Carpenter's Patent Turn-tables and Transfer-tables,

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

Chilled curve rail, Turnouts, Switches, etc., etc. Blue prints and Bills Furnished on Application. Send for Illustrated Catalogue. Address,



# FULTON FOUNDRY,

202 MERWIN ST.

CLEVELAND, OHIO.

# WM. WHARTON Jr. & CO. Limited,

Engineers, Manufacturers & Contractors,

Twenty-Fifth Street and Washington Avenue,

PHILADELPHIA PA.

# CABLE RAILWAYS. GRIPS,

And All Appurtenances.

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







D. W. Pugh,

J. S. Pugh,

F. D. Russell.

# PUGH & RUSSELL, STREET CARS, RAILS, AND EVERY DESCRIPTION OF STREET RAILWAY SUPPLIES.

General Representatives of  
**THE JOHN STEPHENSON COMPANY, Limited,**  
NEW YORK.  
**STREET CARS.**

General Agents of  
**THE A. FRENCH SPRING COMPANY, Limited,**  
PITTSBURG, PA.  
**STREET CAR SPRINGS.**

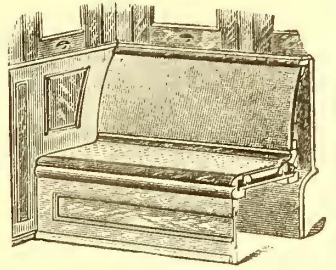
Agents for New York District, Indiana, Michigan and Ohio of  
**THE JOHNSON STEEL STREET RAIL COMPANY,**  
JOHNSTOWN, PA.

**NEW YORK,** CHICAGO,  
**STEWART BUILDING,** ADAMS EXPRESS BUILDING,  
Broadway, Reade and Chambers Sts. No. 185 Dearborn Street,  
P. O. Box 3524. Rooms 13 and 14.

## THE HALE & KILBURN MANFG. CO.,

Extensive makers of Patented  
**Street Car Seats**  
of every description.

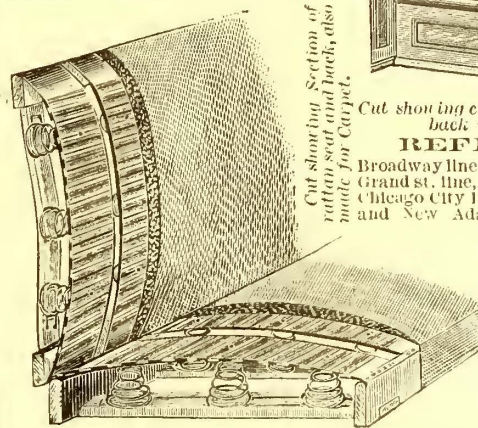
Our Patent Spring Seats covered with Rattan or Carpet are fast being adopted by the best railroads in the country. Seats for Steam Cars a Specialty. Owners and makers of all the Cobb patents



Cut showing car with rattan seat and back without springs.

**REFERENCES:**

Broadway line (Pullman cars) New York  
Grand st. line, 3d and 4th ave lines, NY  
Chicago City R.R. Chicago W. Div. line,  
and New Adams street line, Chicago;  
East Cleveland R. R. Co.  
and Woodland Ave. and  
West Side R. R. Co.  
Cleveland; Union Line,  
St. Louis; 2d & 3d St. R.  
R. Co., Frankford and  
Southwark R. R. Co.  
Union Line, Chestnut &  
Walnut R. R., Ridge Ave  
R. R., or any other road  
in Phila.; and 100 others  
elsewhere.



Cut showing Section of rattan seat and back, also made for Carpet.

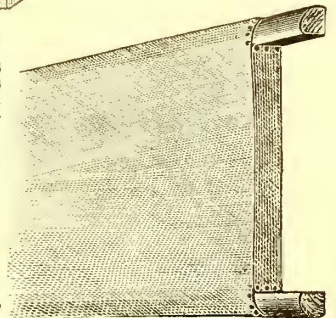
Many R. R. Co's use our Rattan Pat. Canvas Lined Seats for Summer and cover the same with carpet for Winter. This method of seating we recommend as durable and economical, for the reason both a Summer and Winter seat is obtained in one.

Estimates & Particulars cheerfully given (mention this paper), satisfaction guaranteed

**A TRIAL SOLICITED.**

OFFICES: 48 & 50 NO. SIXTH ST.,  
FACTORIES: 615 to 621 Filbert St.,

**PHILADELPHIA, PA.** Cut of section of cross for summer car.



JOHN A. EMERICK, President,

EDWARD H. JOHNSTON, General Manager,

SAMUEL LEES, Treasurer.

# Johnston Railroad Frog & Switch Co.

MANUFACTURERS OF

## Railway Switches, Stands, Frogs and Crossings.

ALL SUPPLIES FURNISHED APPERTAINING TO

# Steam & Street Railways.

Civil & Mechanical Engineers, Machinists & Contractors.

Blue Prints and Bills Furnished on Application. CORRESPONDENCE SOLICITED.

Works, Chester, Pa.

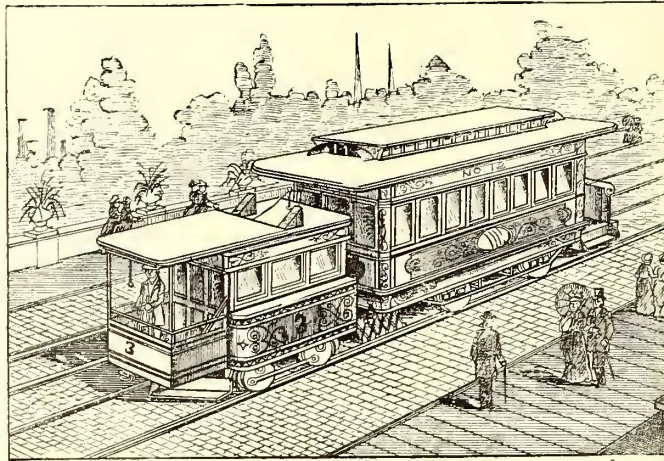
Office, 307 Walnut Street, Philadelphia.



# POLE STREET CAR

Differential Lever Car  
Starter, Runner & Brake.

Starts easily. Brakes as certainly and effectively as the air or steam brake.



Standard No. 3 Motor  
Is operated by a  
Specially Designed Low Pressure  
Condensing Engine  
of great power in small space and  
having no escapes on the street.

## MOTOR SYSTEM.

The system can be operated by compressed air and is so recommended where good all-the-year-round water power can be secured to compress the air. Can be operated by storage battery, electricity or soda, ammonia, and other motive powers.

Warranted to climb hills, start on hills, and when the track is so slippery that the driving wheels will slip round under the motor, we still guarantee the motors starting by a system of ground levers.

### WE ARE FULLY SECURED BY PATENTS.

We claim the only motor system capable of starting and going when the tracks are slippery, excepting only the cable motor. Ours is a cheaper outfit.

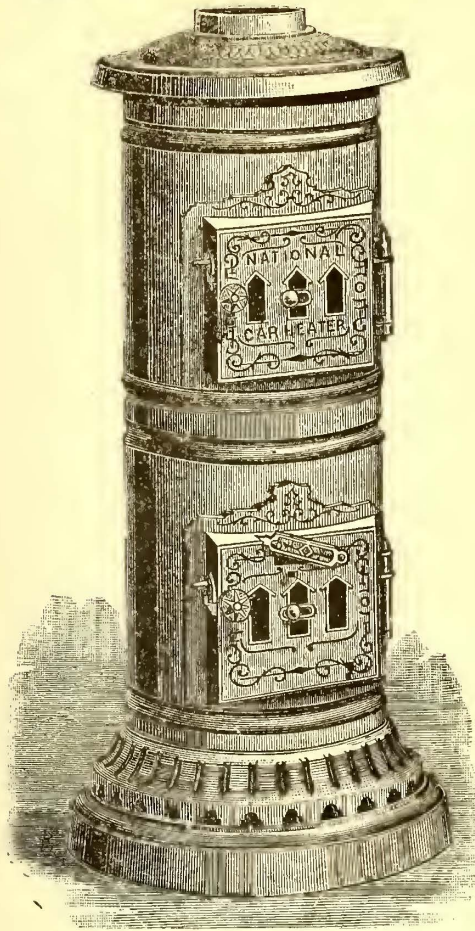
Correspondence solicited.

## Pole Street Car Motor System,

150 South Fourth Street, Philadelphia, Pa.



# THE NATIONAL CAR HEATER. IMPROVED.



FOR WARMING HORSE  
OR STREET RAIL-  
ROAD CARS.

It is brick lined, has  
rotating and dump-  
ing grate, and safety  
door catch.

These car heaters  
are in successful op-  
eration on all of the  
street railway lines  
in the city of Brook-  
lyn, New York, and  
on railroad lines in  
the United States and  
Canadas, and give  
entire satisfaction.

It is neat in ap-  
pearance, occupies  
but little space, is an  
ornament to a car,  
is not costly in price,  
nor expensive in its  
operation.

Sole Manufacturers,  
**NATIONAL  
Stove Co.,**  
243 Water St.,  
New York City.

**EDWARD BEADLE.**  
Sole Manufacturer of the  
"EUREKA FOLDING MAT."  
The most durable, easiest cleaned and  
repaired wood mat ever made. We would  
respectfully call the attention of Managers  
of Street Railways to our latest improved  
Reversible Folding Mat, made to fit any size  
car. Sample order solicited.  
1193 Broadway, New York.  
FACTORY, Cranford, N. J.

**American Journal**  
**RAILWAY APPLIANCES**  
**American Railway Pub. Co.**  
LAKESIDE BUILDING, CHICAGO. 113 LIBERTY ST., NEW YORK.

# ENVELOPES

For Railroad Companies and City Street Railways.

The subscribers are largely in the Envelope Manufacturing  
Business, making every kind used by Railroad and Express  
Companies, including the small size used by the City Railroads  
for charge or tickets, and printed in different colors for the var-  
ious denominations of 10 cents, 25 cents, 50 cents, and one dollar.  
All well made and gummed, and sold in any quantity. Samples  
sent when requested.

**SAMUEL RAYNOR & CO.,**  
117 William Street, New York.

# JOHN A. ROEBLING'S SONS CO.,

MANUFACTURERS OF

## Iron and Steel

PLOUGH STEEL  
ROPES.



FLAT  
ROPE.

# WIRE ROPE FOR STREET CABLE RAILWAYS.

SWITCH ROPES.

PLOUGH ROPES.

TELEGRAPH WIRE.

# JOHN A. ROEBLING'S SONS CO.,

Works: Trenton, N. J.

BRANCH OFFICES:

215 Lake Street, Chicago, Ill.  
14 Drumm Street, San Francisco, Cal.

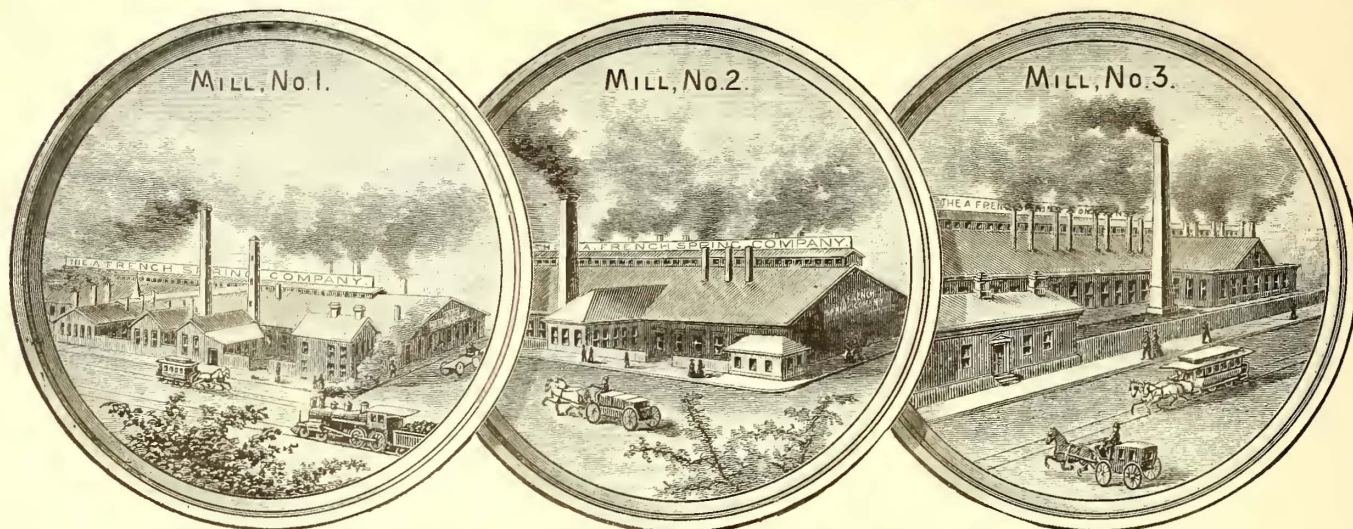
H. L. SHIPPY, Manager, New York Warehouse,

117 and 119 Liberty Street, New York.

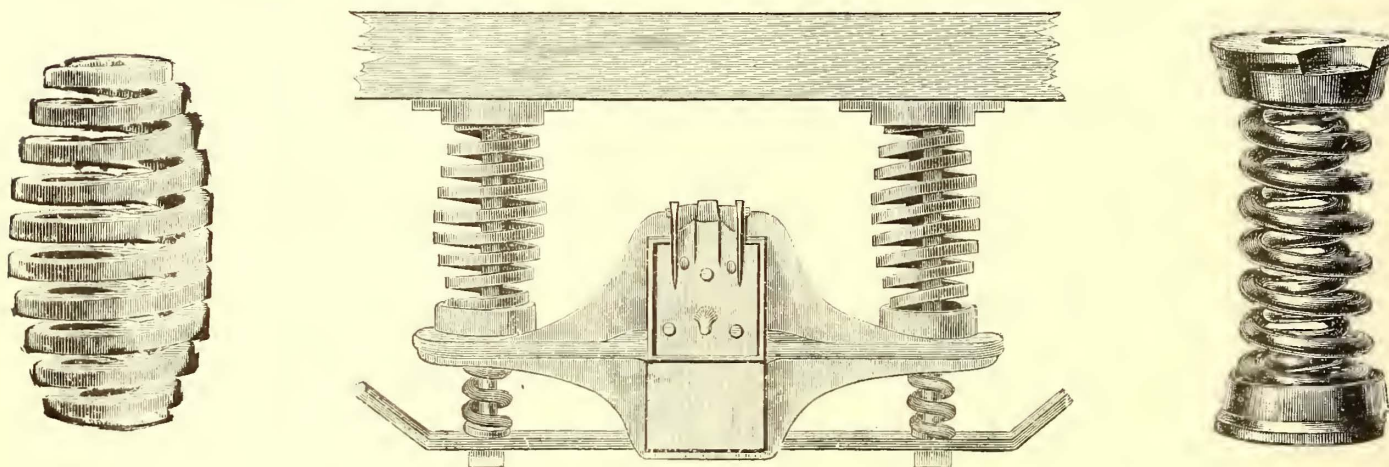


A. FRENCH, Chairman. J. E. FRENCH, Vice-Chairman. GEO. W. MORRIS, Gen. Man. D. C. NOBLE, Sec. & Treas.

# The A. French Spring Company, Limited,



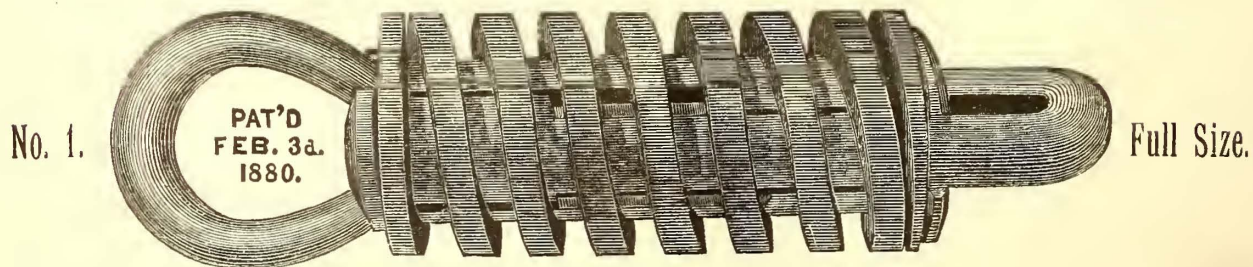
## PITTSBURG, PENNA.



Pat. Oct. 3, 1876; April 1, 1879.

SOLE MANUFACTURERS OF

### I. X. L. SPRING DRAFT OR TUG LINK.



Elliptic and spiral springs of all descriptions a specialty; also sole manufacturers of patent keg shaped springs for

## STREET RAILWAYS.

**PUGH & RUSSELL, General Agents,**

STREET RAILWAY DEPT.,

NEW YORK & CHICAGO.

**BRANCH OFFICES:**

BOSTON, NEW YORK, CHICAGO.



# ANDERS' CABLE RAILWAY GRIP

**Simple, Durable, Efficient.**

---

Cable may be dropped and picked up

**Without Leaving the Platform.**

The whole under the constant control of the gripman.

Most efficient device in existence for releasing and gripping cable in crossing other roads. Can be worked from either end of the car.

Mechanism Simple and not liable to get out of order.

The rope may be dropped at any time to a lower level than the path of the gripping device and again raised into the gripping jaws at the will of the gripman with perfect ease and safety.

**D. B. ANDERS,**

2318 Ridge Ave., - - - Philadelphia, Pa.

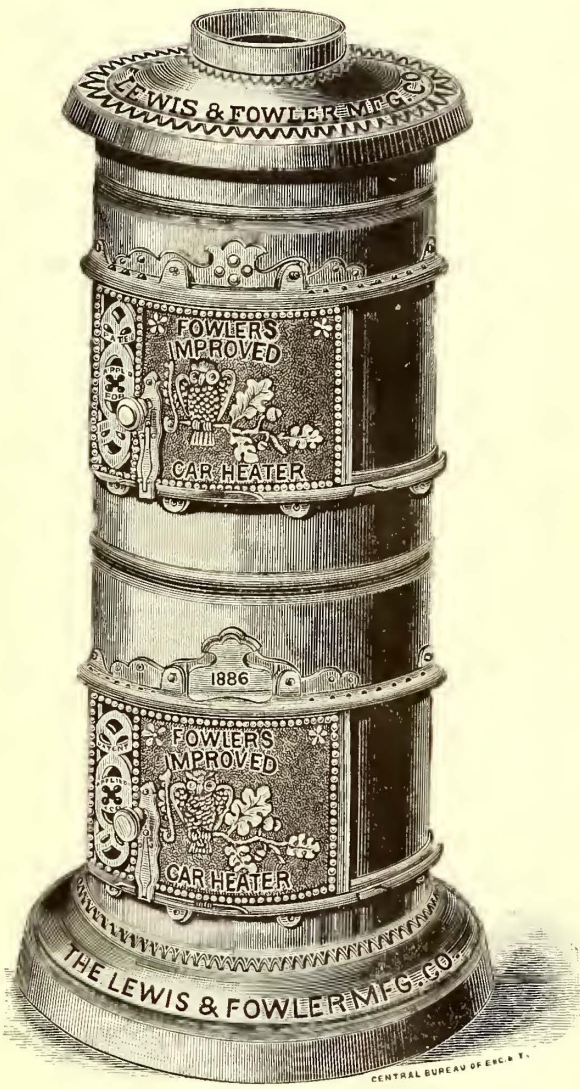


# THE LEWIS AND

27, 29, 31, 33 and 35

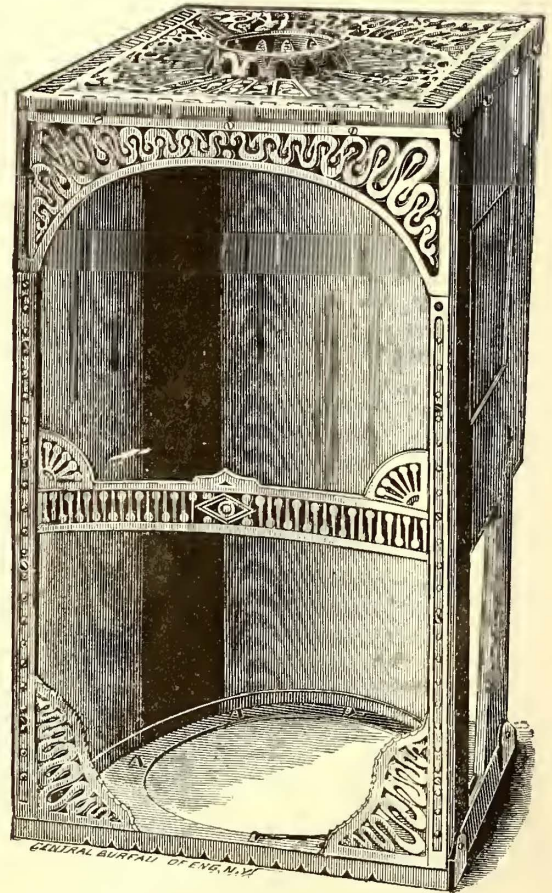
MANUFACTURERS OF

## Street Railway Supplies.



### Imp'd Car Stoves, Stove Boxes, & C.

Of Our Own Manufacture.



PATENTEES AND MANUFACTURERS OF THE

## Improved "Alarm" Passenger Register.

USED BY RAILWAY COMPANIES IN ALL PARTS OF THE COUNTRY.

KEPT IN REPAIR ONE YEAR FREE OF CHARGE.

Guaranteed the most Complete Machine in the U. S. for the purpose.



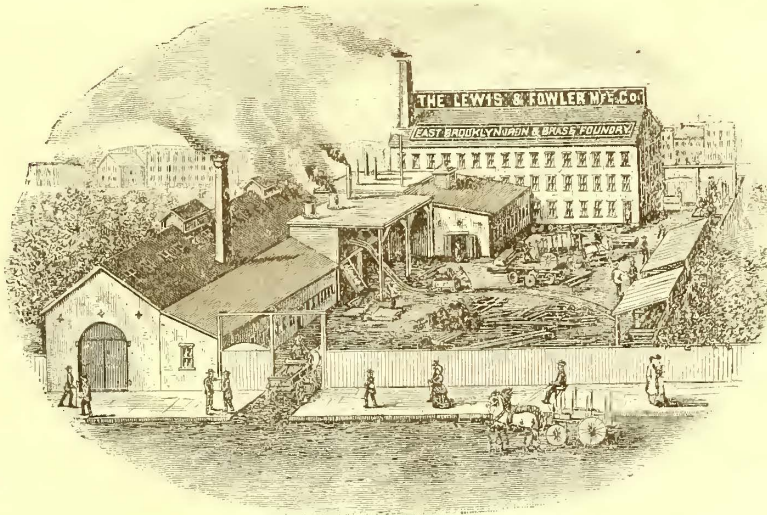
# FOWLER MFG Co.

Walworth St., Brooklyn, N.Y.

MANUFACTURERS OF MATERIALS FOR

## Street and Cable Railway Construction

KNEES  
 SPIKES  
 CHANNEL PLATES  
 FROGS  
 POINTS  
 TONGUESWITCHES  
 GROOVED RAILS  
 FOR CURVES  
 BENT ANY DE-  
 SIRED RADIUS



PEDESTALS  
 OIL BOXES  
 BRAKE SHOES  
 WHEELS & AXLES  
 BRASS BEARINGS  
 TURNTABLES  
 SNOW SWEEPERS  
 PLOWS  
 ETC. ETC. ETC.

### AUTOMATIC SWITCHES

AND

### RAILROAD CASTINGS

OF EVERY DESCRIPTION AND MOST APPROVED PATTERNS.

### FOWLER'S IMPROVED

### RANDALL BOX & RUNNING GEAR.

CATALOGUE FREE TO RAILROAD COMPANIES.



# RAILWAY REGISTER

## MANUFACTURING

MANUFACTURERS AND OWNERS OF THE Latest Designs, Improvements and Inventions in Registers, Indicators, Classifiers and Punches, for the Recording of Fares Collected on Street and Steam Railroads.



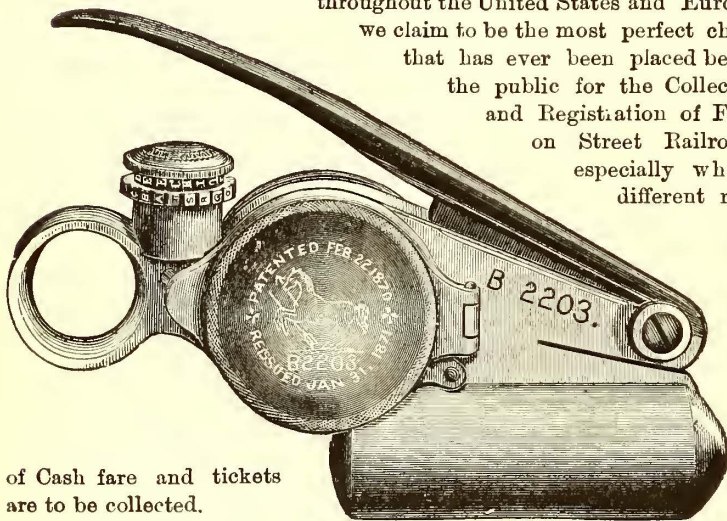
## COMPANY.

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

JAMES MCCREDIE, Pres., Buffalo, N. Y.

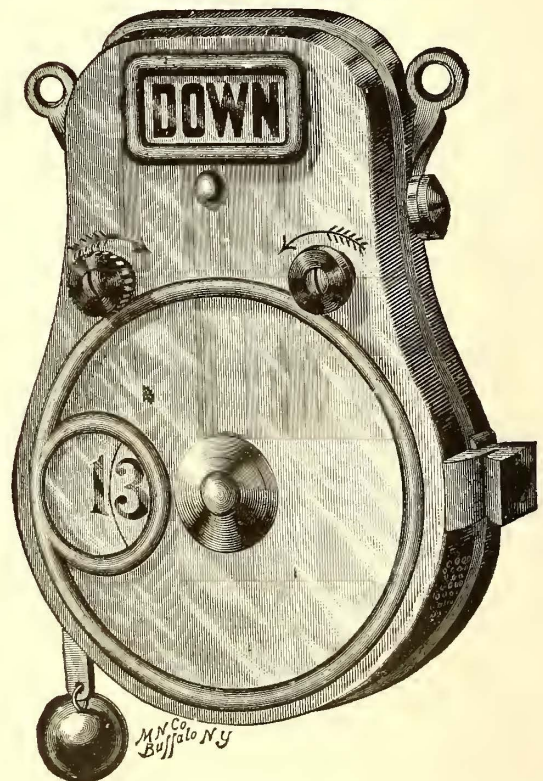
### The Alarm Registering Punch.

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



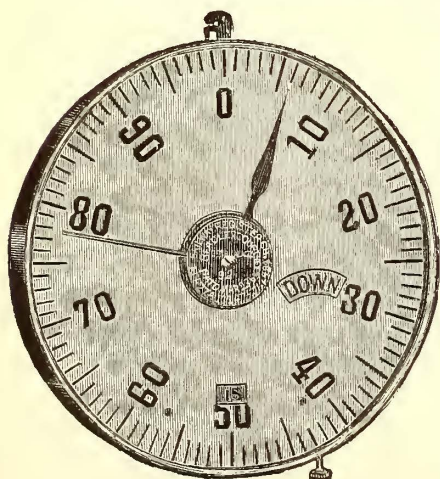
of Cash fare and tickets are to be collected.

### Benton Register.

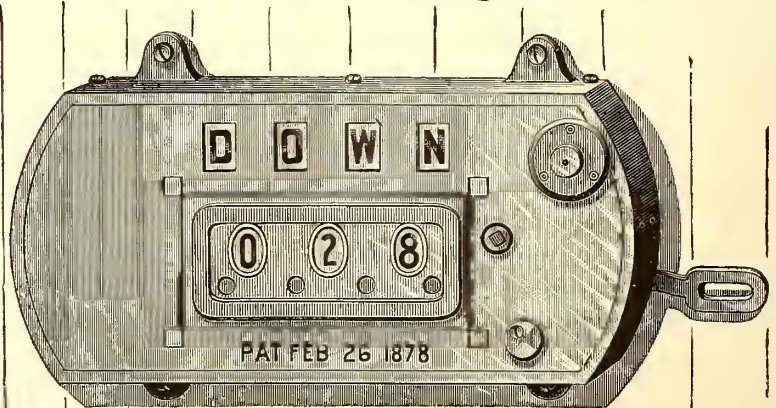


### The Monitor Register.

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



### The Pond Register.



BEADLE & COURTNEY, Gen'l Agents, 1193 BROADWAY, NEW YORK. Branch Office, 423 Walnut St, Ph'a



ELI BALDWIN, President.

WALTER S. BALDWIN, Secy. & Treas.

**THE**  
**STANDARD INDEX AND REGISTER COMPANY,**  
**138 FULTON STREET, NEW YORK,**

SOLE LICENSEES AND MANUFACTURERS OF THE

SIMPLE.

**IMPROVED**

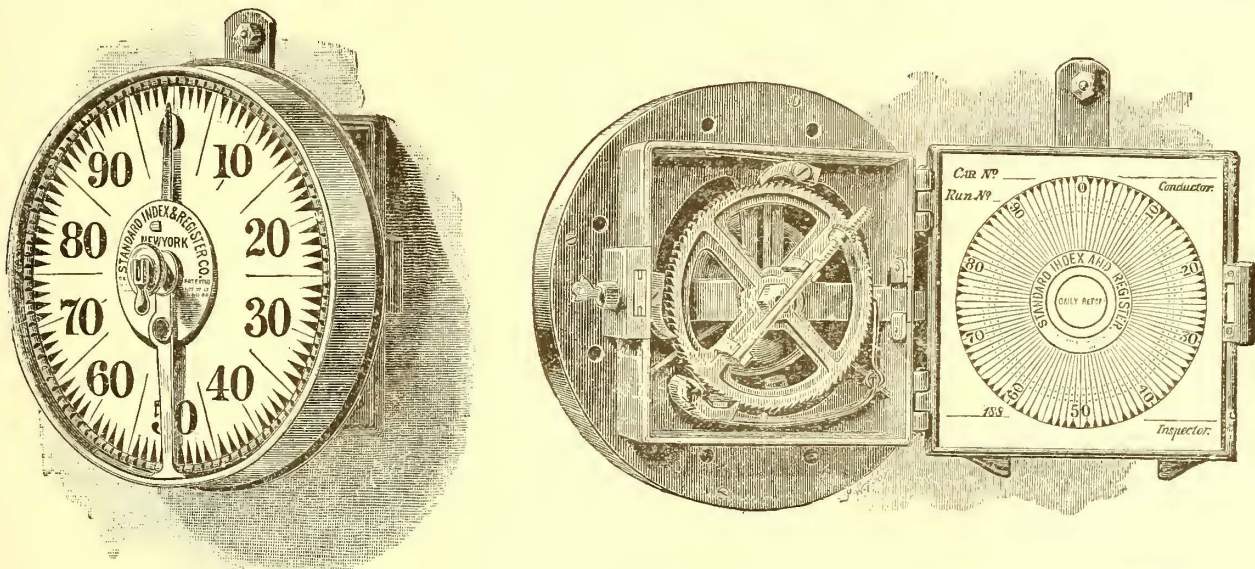
DURABLE.

**S T A N D A R D**

INFALLIBLE.

**INDEX & REGISTER.**

ECONOMICAL.



ADOPTED BY THE LEADING RAILROADS IN THE UNITED STATES.

Besides indicating upon its face, the fares as the alarm is rung, this register indelibly records them as well as the trips made upon a paper dial inside. This paper dial is removed at the end of the day and is a correct report of the fares registered each trip and the number of trips made, which cannot be altered or obliterated.

We therefore claim our system of registering fares to be the simplest and best, and it positively stops any collusion between employees.

Testimonials confirming this statement from roads on which the "Standard" has been used for the past five years will be furnished upon application.



# RICHARD VOSE,

13 Barclay Street, New York,

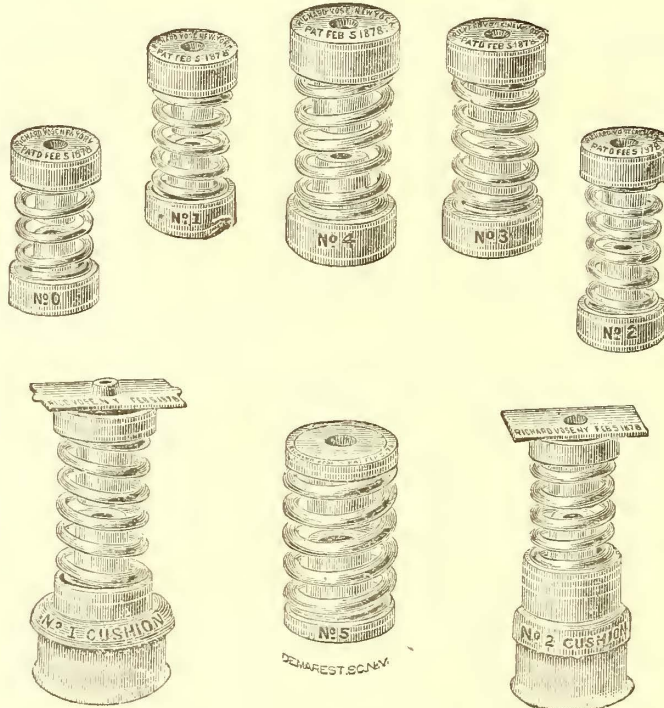
PATENTEE AND MANUFACTURER OF

## Graduated Street Car Springs.

### RUBBER CONE.

Patented, April 15th, 1879.

ADAPTED TO THE  
**STEPHENSON,**  
**BEMIS,**  
**RANDALL,**  
**HIGLEY,**  
**BRILL,**  
**JONES,**  
**BALTIMORE,**  
**VOLK,**  
**CHAPLIN,**  
**LACLEDE**  
 And all other Boxes.



No. 0, for 10-ft. Light Cars.  
 No. 1, for 10-ft. Cars.  
 No. 2, for 12-ft. Cars.  
 No. 3, for 14-ft. Cars.  
 No. 4, for 16-ft. Cars.  
 No. 5, for 16-ft. Cars.  
 (Single Pedestal.)  
 No. 1, Cushion, for 16-ft. Cars.  
 No. 2, Cushion, for 12 and 14-ft. Cars.

## TESTIMONIAL.

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 60 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 Resply,  
 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. We 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 Rich and 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.

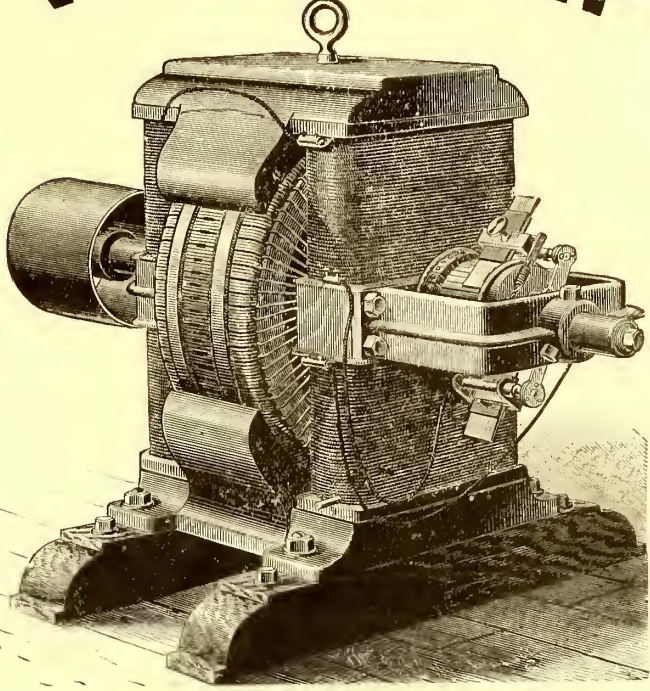
FT. WAYNE & ELMWOOD RY. CO., DETROIT, MICH.

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.



**THE VAN DEPOELE**  
  
**RAILWAY ELECTRIC SYSTEM.**

**The Van Depoele Electric Manufacturing Company**

**21 NORTH CLINTON 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.

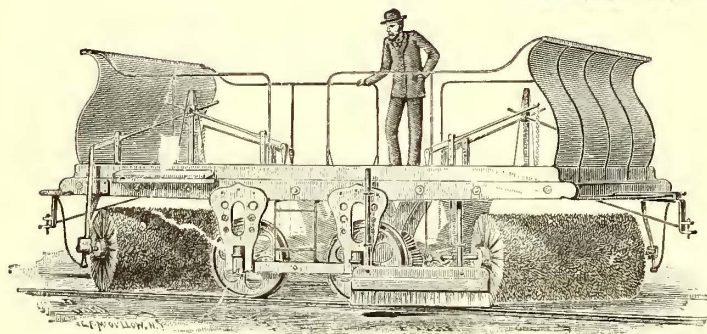
**Van Depoele Electric Manufg. Co.**



# THE BROOKLYN RAILWAY SUPPLY COMPANY,

37, 39 and 44 Walworth St., Brooklyn, N. Y.

U. S. A.



## RAILWAY SUPPLIES.

AGENTS FOR

### Carpenter's Patent Turn-tables and Transfer-tables.

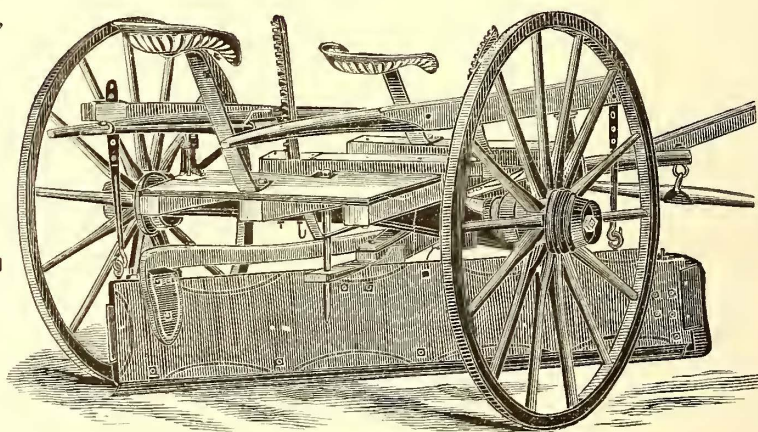
Simplest, Cheapest and Best in the World. Each Exhibited in Practical Operation.  
Write for Prices.

Agents for Maine, New Hampshire, Vermont,  
Massachusetts, Rhode Island, Connecticut,  
N. Y., Brooklyn and adjacent cities of the

### BOSS & WALKAWAY Snow Scrapers.

Price, \$100 & \$150.

Only Two Horse Power. Cheapest Practical  
Snow Plow in the World.



All kinds Track and Stable Tools: Picks, Shovels, Rammers, Bars, Mauls,  
Tongs, Bending Machines at the Lowest Prices.

### Latest Improved Snow Sweepers of our Own Manufacture.

Cylinder Brooms and many other improvements are patented. Rattan for refilling. Snow Plows. Sand  
Cars Exchanged. Sweepers of other makers refitted and sold cheap.

37, 39 and 44 Walworth St., Brooklyn, N. Y.



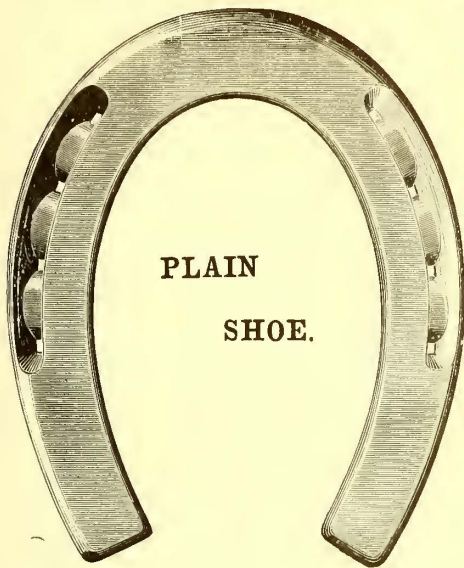
# THE BRYDEN FORGED HORSESHOE WORKS, Limited, CATASAUQUA, PENN.,

MANUFACTURERS OF

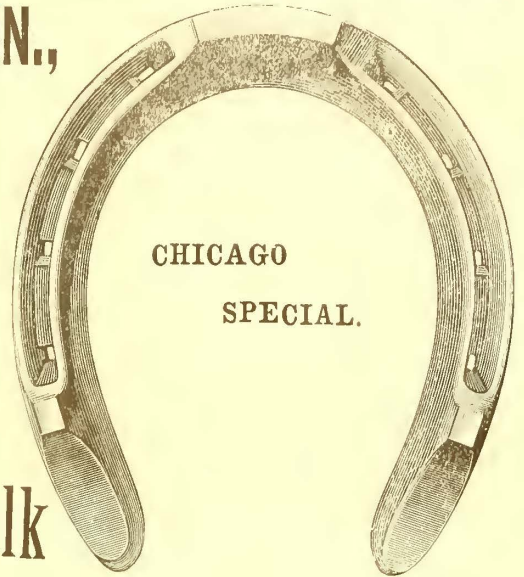
## THE BRYDEN

Forged Solid Calk

### HORSE & MULE SHOE.



PLAIN  
SHOE.



CHICAGO  
SPECIAL.

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

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

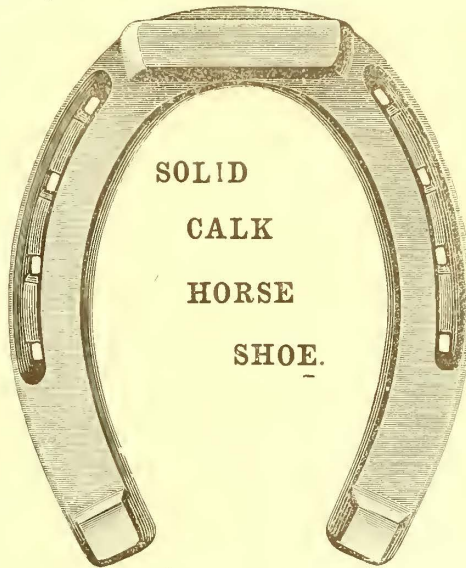
The crease is made low and the nail holes are punched well in and beveled to permit the nailhead to be well driven in, reducing the strain on the nails and insuring a firmly fastened shoe.

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

It is not necessary to heat the shoe in order to fit it.

There are no welds in the shoe to break, the calks being solid forged up from the web.

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

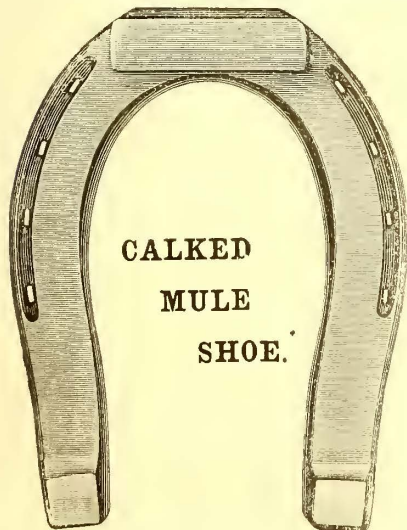


SOLID  
CALK  
HORSE  
SHOE.

The shoes have a good substantial clip drawn up from metal driven outside the regular outlines of the shoe for that purpose. The outer edge of the clip, when drawn up, coinciding with the outlines of the shoe, requires no robbing of the hoof wall to let in the clip.

Among the street railways using our shoes are, the Third Avenue R. R. Co., Eighth Avenue R. R. Co., Broadway & Seventh Avenue R. R. Co. of New York city; Bushwick R. R. Co., Brooklyn City and Newtown R. R. Co. of Brooklyn; Philadelphia Traction Co., Citizen's Passenger R. R. Co., Second & Third Street R. R. Co. of Philadelphia; Metropolitan R. R. Co. of Washington, D. C.; North Chicago R. R. Co., Chicago City R. R. Co., West Division R. R. Co. of Chicago, Ill.; New Orleans City & Lake R. R. Co. of New Orleans, La.

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

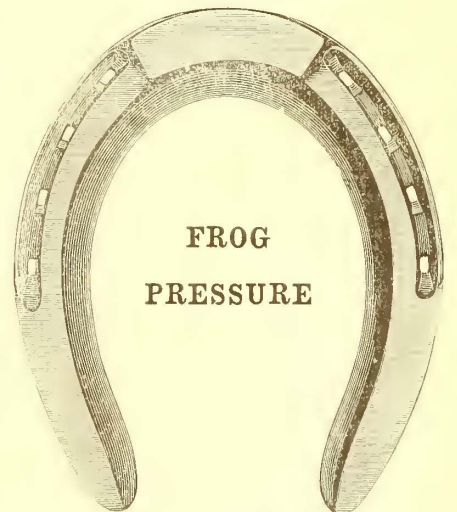


CALKED  
MULE  
SHOE.

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

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

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



FROG  
PRESSURE

**OUR CALKED MULE SHOE.** Just the thing for street railway and coal mining work; solid calks. Made in sizes No. 1 to No. 5 in iron or steel.

**J. B. WHITE, Manager Sales Department.**



# FRANK H. ANDREWS,

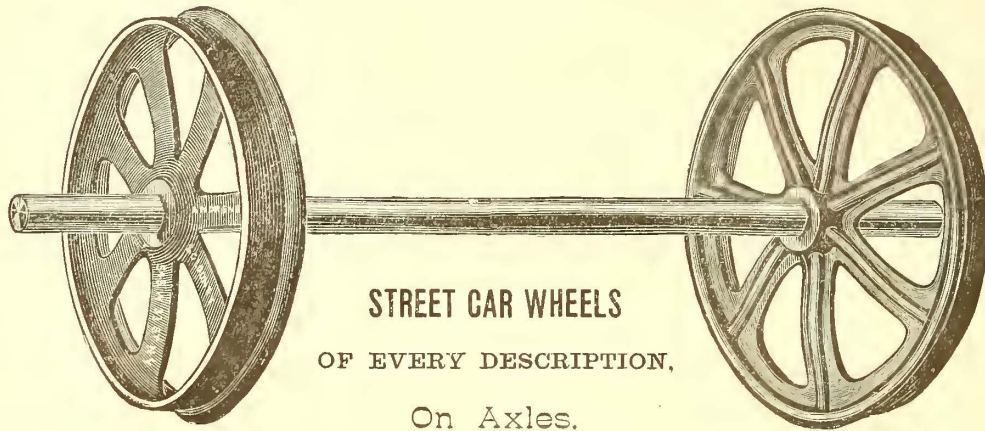
## F. T. LERNED, Gen'l Agent.

OFFICE :

545

W. 33d St.,

NEW YORK.



STREET CAR WHEELS  
OF EVERY DESCRIPTION,  
On Axles.

WORKS :

535 to 551

West 33d St.,

AND

538 to 552

West 34th St.,

NEW YORK.

Manufacturers of

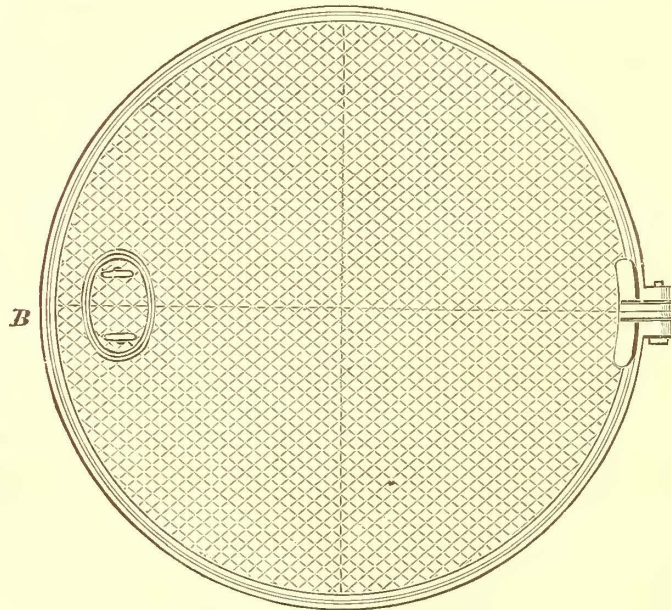
Elliptic, Spiral,

Volute, Car and

Engine

### SPRINGS

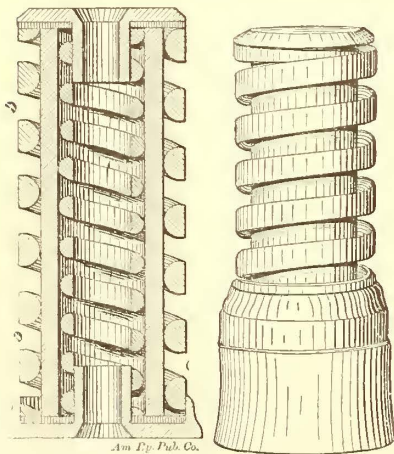
Of Every Description.



Street Railway Turn-table.

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

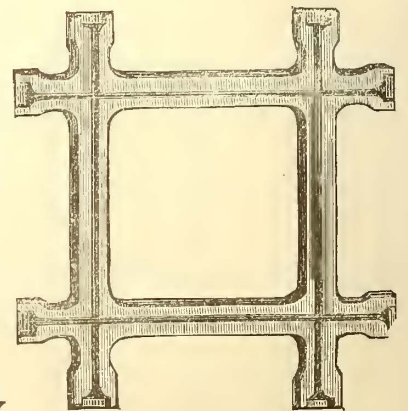
of all Descriptions where great  
Strength is Required.



Improved Springs.

ALSO:

Sweepers, Snow Plows,  
Turn-Tables,  
Track Work, Automatic  
Switches, Etc.



Street Railway Crossings.

REPRESENTED IN CALIFORNIA BY

## WM. B. ISAACS, 258 Market St. San Francisco.



# FRANK H. ANDREWS,

SUCCESSOR TO

## ANDREWS & CLOONEY,

F. T. LERNED, Gen'l Agent.

Manufacturers and Contractors for Constructing Street Railways.

THE BUILDING OF

# CABLE ROADS,

AND FURNISHING MATERIALS FOR SAME, A SPECIALTY.

All Kinds of Steel and Steel Grooved Rails,  
Straight or Bent to any Radius.

Knees, Fishplates, Spikes, Bolts, Etc., Etc.

## MACHINERY:

Wheel Presses, Wheel Borers, Axle Lathes, Drills, &c.,  
EITHER FOR STEAM OR HAND POWER.

Promptness and Reasonable Prices.

Send for Illustrated Catalogue.

Branch Offices:

BOSTON,  
37 Central Street.

ST. LOUIS,  
Southern Hotel.

CHICAGO,  
Lakeside Building.

Represented in California by WM. B. ISAACS, 258 Market St., San Francisco.



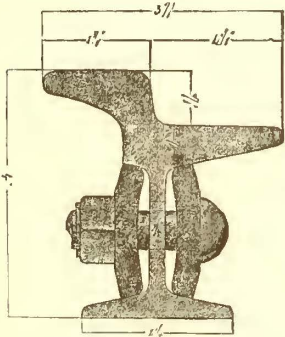
THE GIRDER SYSTEM OUR SPECIALTY.

THE

Johnson Steel Street Rail Company,

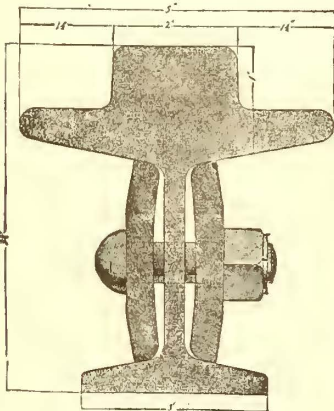
JOHNSTOWN, PA.

Section C. 38, No. 111.



Patented February 20, 1883.

Section E. 76, No. 117.



Patented January 29, 1884.

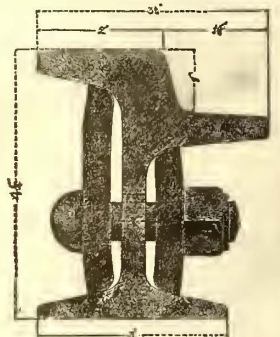
SIDE BEARING GIRDER RAILS

OR

CENTER BEARING GIRDER RAILS.

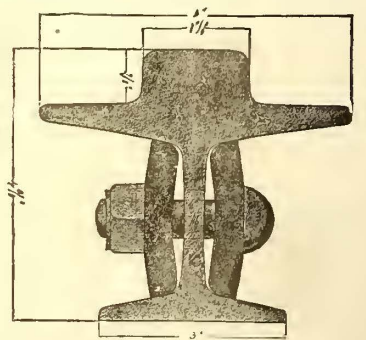
Large Assortment of different Weights and Sections.

Section D. 45, No. 11.



Patented November 27, 1883.

Section G. 58, No. 120.



Patented January 29, 1884.

Rolled Steel Switches, Frogs, Curve Crosses, Etc.

We Furnish Every Detail Wanted in Track Work.

Our customers are guaranteed against all suits for infringements on goods purchased from us and we further undertake to defend the patents covering the details of our Girder System.

To those contemplating the use of the Girder System, we offer, FREE OF COST, to survey their routes, and after consultation as to the best and most economical construction, to furnish full and complete estimates of cost of the completed work. Send for Illustrated Catalogues.

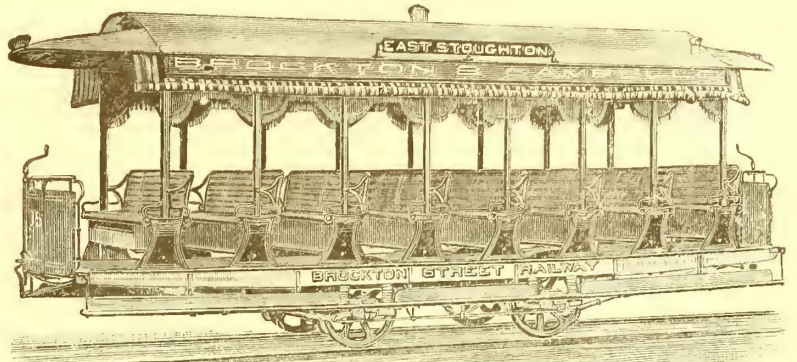
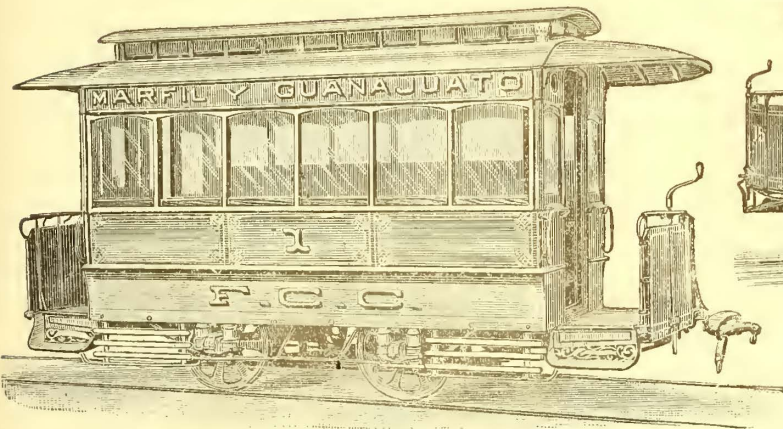


# J. G. BRILL & CO.,

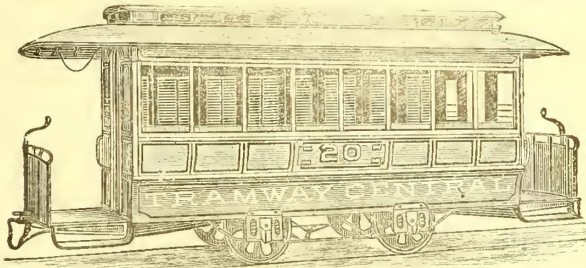
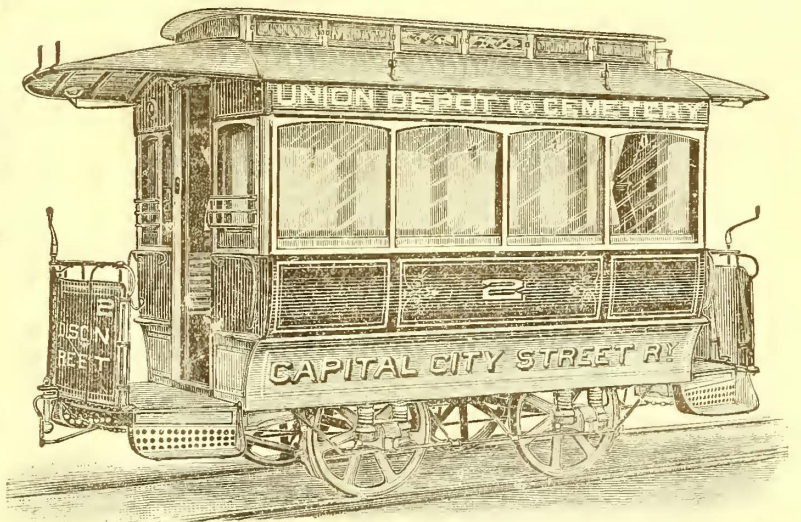
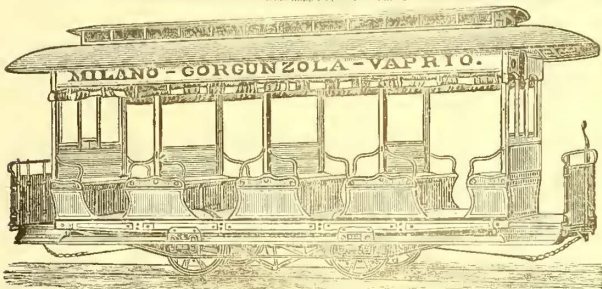
## PHILADELPHIA,

BUILDERS OF

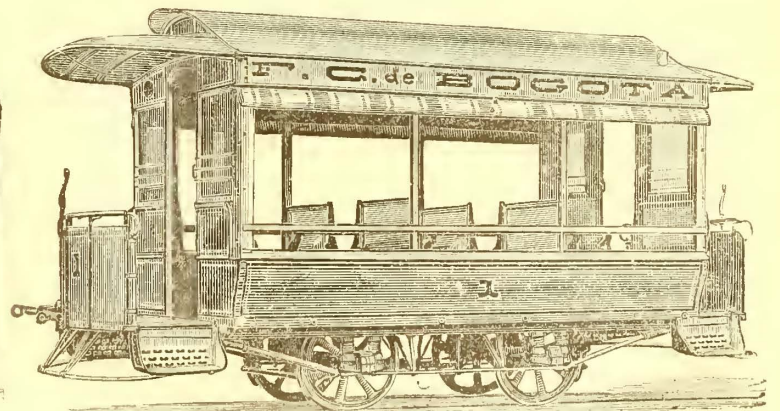
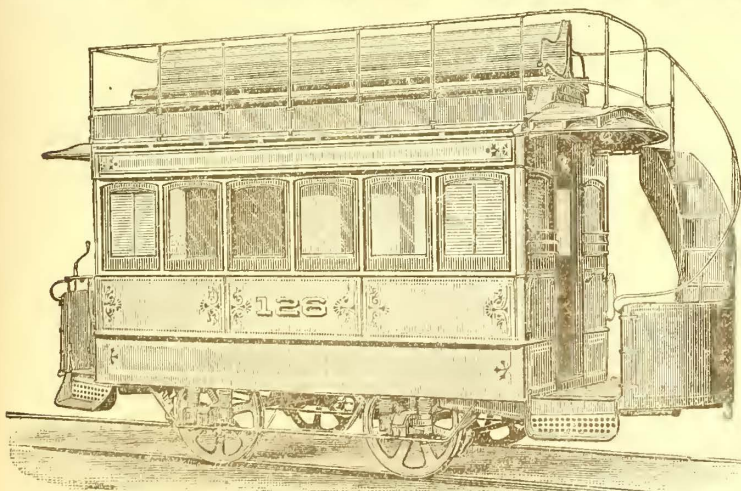
# Railway and Tramway Cars



Gold Medal at Chicago Exhibition  
OF  
1883.



Gold Medal at New Orleans Exhibition of 1885, for Best Open Cars.





# JOHN STEPHENSON COMPANY

(LIMITED),

**New York.**

## TRAMWAY CARS

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



**LIGHT ELEGANT, DURABLE.**

*Every Description.*

*Best Materials.*

*Minimum Prices.*

ORDERS QUICKLY FILLED. CAREFUL ATTENTION TO SHIPMENTS.

**All Climates Suited.**