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THE STREET RAILWAY JOURNAL

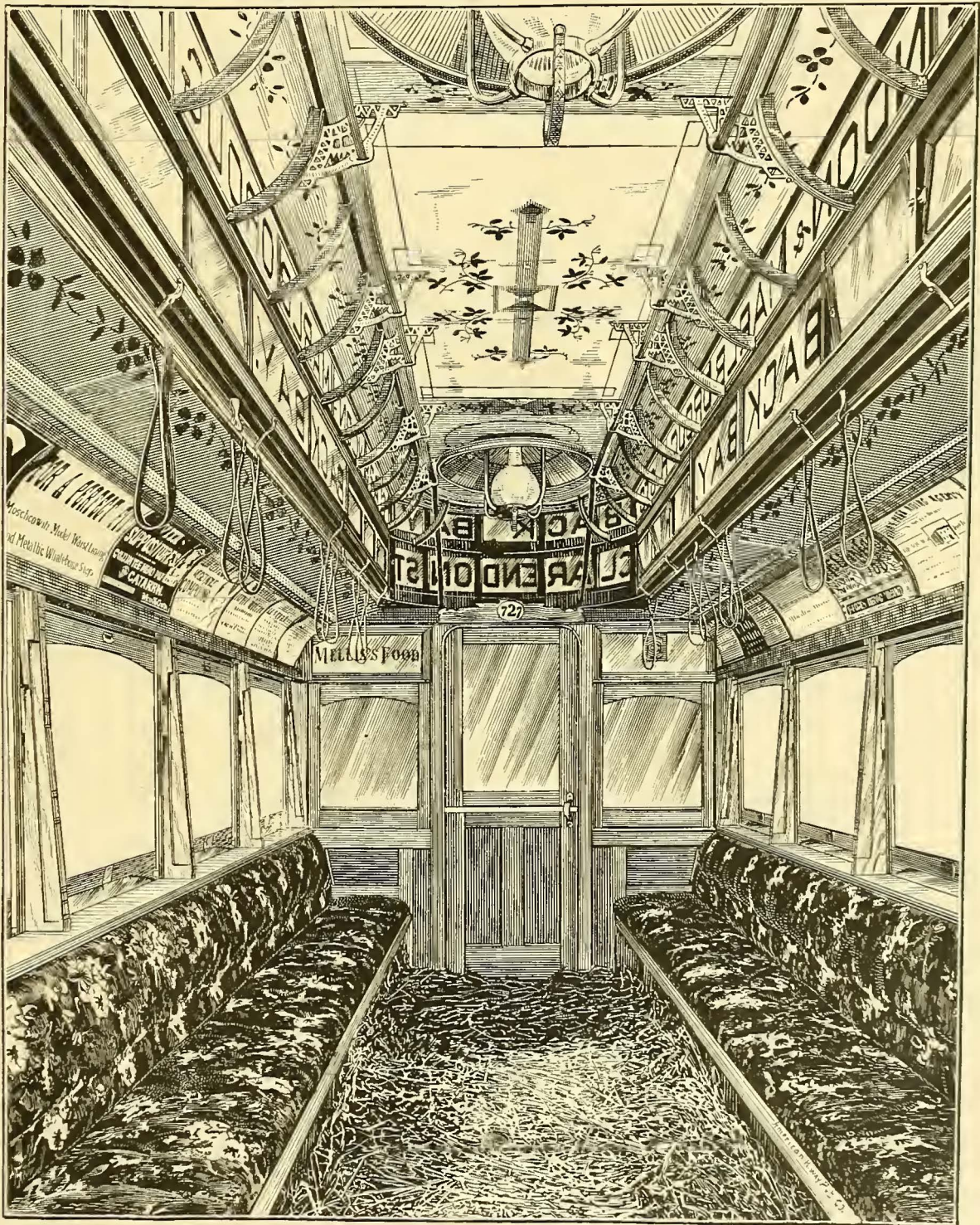
VOL. II.

NEW YORK: { 32 Liberty Street. }

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CHICAGO: { Lakeside Building. }

No. 8.



INTERIOR OF A CAR OF THE METROPOLITAN RAILROAD COMPANY, BOSTON, BUILT IN THEIR SHOPS FOR THE "BACK BAY" LINE.

A Boston "Back Bay" Car.

The accompanying illustration of the interior of a street car is from a photograph taken of a car belonging to the Metropolitan Street Ry. Co. of Boston and used upon their Back Bay line. These cars are patronized by the wealthier classes living on Commonwealth avenue and Beacon street and the company cater to their tastes and habits by putting cars upon that line that are somewhat superior in style and finish to the ordinary car. The company have been building their own cars for several years under the supervision of Mr. Randall. The car under consideration is of the closed pattern sixteen feet long in the body. The roof is the double deck pattern, and is supported by carlines springing from the plate to the bottom of the deck, then rising vertically to the top; here a cross carline is bolted fast to carry the deck roof. The roof is strengthened by a $\frac{1}{2}$ " truss rod dropping down into the car and running from end to end just above and outside of the handrail and would not be noticed except by an eye trained to look for peculiarities.

The ceiling is finished with a painted cotton lining and tastefully decorated. Mr. Randall regards this method of finishing as superior both in appearance and economy to the natural wood that is now so almost universally in use. He claims it is cheaper in first cost, more easily repaired and just as durable.

Street car advertising has, however, become so extensive a business for those who have household wares and ladies' knick-knacks to bring before the public, and at the same time affords so acceptable an income to many roads, that some improvement in the methods of exhibition was called for. The companies were unwilling to have their cars disfigured by signs miscellaneous in design and methods of application, so they have been in the habit of inserting them in small frames screwed to the sides of the car in the panels just above the windows, or to the carlines on the spring of the roof. This necessitates an expense on the part of the advertiser, not only of the card and space, but of a frame and glass in which to enclose it. To save this expense and at the same time maintain a neat interior appearance, Mr. Randall has designed a rack that carries these advertisements, and from which they may be readily removed.

The general appearance is clearly shown in our engraving. It consists simply of two pieces of moulding running the length of the car, and placed about ten inches or a foot apart. Each has a small groove on the side facing the other, and it is into this that the card is sprung. Its natural stiffness holds it in position, while it is held smooth and at an even curvature by a curved strip of three-ply veneer that runs the length of the car between the mouldings. This rack is universally used in Boston and is being rapidly and extensively introduced elsewhere.

The windows of these cars are large parlor car style, there being only five on each

side. This gives the car a light and elegant finish that more elaborate work in a different direction could not attain. In the winter these windows are firmly secured in position by a board that is screwed against the bottom, holding it fast against the window cleats and effectually keeping out the cold, and what is perhaps more desirable still, stopping all rattling of the sash, so that the car runs as quietly in that respect as the cars of a steam surface road.

The seats are handsomely upholstered with curled hair and covered with moquet, so that the easiest possible seat seems to be obtained. The floor, which is shown to be covered with straw, is made of maple or other hard wood and so shaped that no matting is required. Good sound wood is used. The boards are run through a moulding machine, where they are tongued and grooved on the edges, and one side is grooved to the depth of about three-quarters of an inch. The projecting tongues between the grooves are rounded on the crown, and the groove has a similar shape at the bottom. These boards are laid lengthwise of the car and form the whole flooring of the aisle. When cleaning becomes necessary it is a very easy matter to sweep or wash everything to the door, and the trouble and expense incurred in the use of mats is entirely avoided.

The running gear of the cars varies to a certain extent though usually it is of the flexible type. One little detail in connection with the brakes is perhaps worth mentioning: the foot plate that carries the lower end of the brake shaft is a casting large enough to afford a bearing for the dog at the same time and the whole is firmly bolted to the end beam. The dog is held by a bolt that is shouldered so that however tight it may be screwed up, the dog is always loose and free.

The painting of the cars is handsomely done, and a profusion of lettering covers not only the usual available spaces on the exterior, but also the lights of the double deck. This is, it seems, rendered necessary by the number of places to which every Boston car must go if it moves at all, for the changing names and directions of the streets bring a confusion to the head of the stranger that is distracting. So the car companies come to his relief to the full extent of their ability and cover their cars with a profusion of names of the places that they pass; their conductors *distinctly* call the names of the streets that they cross and then they do not even collect the fare until the passenger has ridden far enough to become reasonably well assured that he is upon the proper car. Indeed for the comfort and cleanliness of the cars, and the courtesy and spirit of accommodation of the employees, many managers might well study the methods of the Boston roads.

NAILS that have been under ground for 211 years have recently been dug up in Providence, R. I., and were found to be in good condition. This goes a long way toward establishing the durability of iron in this position.

The Allyn Sweeper.

We recently illustrated some of the details of the sweeper* (STREET RAILWAY JOURNAL, April, 1886,) of which we give a perspective view in this issue. The improvements referred to consisted of a journal box for carrying the sweeper bearings, the strengthened pedestal and the method of bracing for the auxiliary broom. The machine is thoroughly built throughout, the framing being made of dry white oak, with a flooring of matched yellow pine. The sills are made of 4" x 10" stuff, and it is impossible, we are told, to buy these sizes in the New York market, the firm therefore does its buying in Connecticut, and is obliged to carry a considerable stock of its oak timber on hand.

The running gear is proportioned to the work required to be done. The wheels are thirty inches in diameter, set upon 3 $\frac{1}{4}$ " axles, with journals 2 $\frac{3}{8}$ " x 5". The journal box fits snugly in the pedestal and carries the weight of the car through a stiff rubber spring. It has been found that it is desirable to put a spring of some kind under the car and yet one that is too easy hinders the proper action of the brooms.

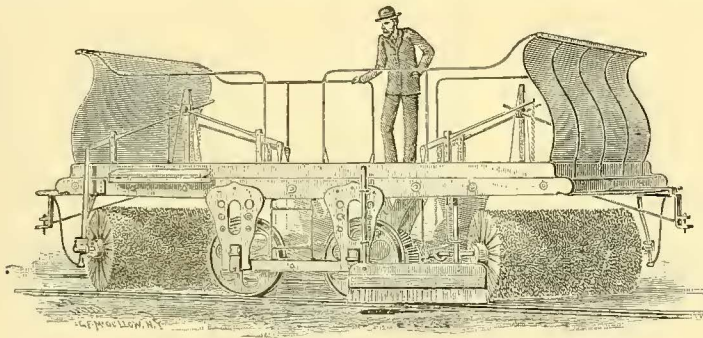
Near one end of the axle and yet between the wheels a strong bevel gear is keyed, that meshes in with a pinion with the ratio of two to one. This pinion is hung on a square shaft with bearings running in a frame that is bolted solid to the oak framing of the car. This frame drops down and straddling the bevel gear already referred to, has two cast circular lugs that surround the axle and in the ordinary positions of the car are concentric with it. Upon these lugs the auxiliary frame in which the pinion is hung is swung. By this arrangement the frame may be raised or lowered and the pinion always remain in full mesh with the gear. The inner end of the pinion shaft terminates in an ordinary eye into which another similar eye is welded, the latter being attached to the broom shaft. This forms a complete toggle joint between the broom and the pinion allowing of irregular motions on the part of either without any interference with the other's action.

The outer end of the broom shaft is carried by the improved journal box already referred to. This in turn slides up and down on the vertical shaft shown at the side of the car, and is moved and held in position by the levers shown over the platform in the engraving. These levers are coupled together at the center so that both ends of the broom are lifted at the same time and to the same extent so that it is always square with the truck. This does away with the difficulty experienced by one end wearing off before the other. The motion that can be given the broom vertically is sufficient so that when new it can be lifted several inches clear of the rails and yet brought down so that the rattans can be worn off to within six inches of the head.

The brooms are made of four pieces of white oak beveled to fit, turned to an outside diameter of nine inches, held together by iron bands, and drilled to receive twenty-

four rows of rattan canes. After the holes are drilled the pieces are placed in a bath of linseed oil and thoroughly soaked in order that they may be protected from the effects of the water and atmospheric action to which they will be subjected. The canes are then bent in at one hole and out at the next and held tight by a filling that is placed in the hole formed through the center between the strips that form this center. The outside diameter of the rattans when new is 38" and as they rotate in an opposite direction with twice the rapidity of the car wheels they scrape the street at a velocity of over ten miles an hour when the car is moving only four. As this is sufficient to throw the snow or dirt some distance from the car and cause it to be a nuisance to passers on the street, heavy canvas curtains are hung in front and at the sides. The front curtain hangs from a semi-circular brace that runs from one side of the frame to the other and out to the end of the drawbar. The side curtains are placed at those points where the brooms tend to throw the snow or dirt out.

Although there are two brooms, one being driven by each axle, and though placed at an angle of 45° with the center



of the car, and in such a position that they completely sweep the track, it has been thought advisable to place a leveler filled with rattan 42" long outside the brooms on each end so that the work of the rear broom is considerably lightened. It has been impossible to get one broom to sweep both rails so the leading broom cleans the left hand rail, while the leveler and the following broom clean the right. The brooms are 4' 8" long and the shafts are about 7' 6" over all.

The platform stands about 3' 10" from the rail and is mounted by a ladder from the oak pedestal braces. The platform is 16' 6" long over the end sills, and is railed on either side by a round iron railing. The dashers are of the cutter style, about breast high and affording an efficient brace for the driver, while at the same time they leave plenty of room for the feet underneath.

Two sizes of this sweeper are built, the larger being somewhat heavier than the one we have described, which weighs about 5500 pounds. One of the larger size is now being built for the Nostrand avenue line in Brooklyn and will be put into service the coming winter.

*Brooklyn Ry. Supply Co., 27 Walworth street, Brooklyn, New York.

The Van Depoele Electric System.

In our April issue we gave a paper read by Mr. Charles J. Van Depoele at the Baltimore Electrical Convention, in which he mentioned some roads he had built or was equipping with his system. Following are some press comments on the Montgomery, Ala., and St. Paul, Minn., roads that indicate practical success. It seems to be a universal opinion that the car horse must go, and the race is now mainly between cable and electric propulsion. The cable system has fully established its claim to merit and the day seems very near when electricity shall be as favorably recognized.

An Associated Press to the Times, Chicago, Friday, April 16, 1886, says: The cars of the Capital City Street Railway Company, Montgomery, Ala., commenced running today by electricity. The trips were regularly made and everything works perfectly.

The Montgomery Advertiser, Sunday, March 28, 1886, says: "At half past two o'clock this morning a car on the Court Street line of the Capital City Street Railway made the round trip by the electric motor system. The car went round the

curve at Court Square without a halt or hitch, and then on up the hill. The new roller chain was not received until eight o'clock last night. The engine and generating machinery were put in motion about eleven o'clock, but the car was not put on the track until one o'clock. The cog wheel that runs in connection was disordered by some dirt that lodged between the cogs: when that was finally removed the motor worked like a charm and the car ran over the track smoothly with a good load of passengers. Mr. Gaboury, the superintendent, informed the Advertiser reporter that the cars will be running regularly by the electric motor system this week. The system is a success.

"Some people think that in the electric motor system for street railways there is a possibility of danger to passengers.

"It is all a mistake," said a practical electrician to an Advertiser reporter yesterday afternoon. "In fact, there can be no danger in the electric motor system. You might receive the entire current of electricity that will operate the cars on the Court Street line and the shock would be comparatively light. There is really less danger in electric power than in steam power. If a car should jump the track no harm could result, because the motive power

ceases the moment the car wheels leave the rails. There are hundreds of people in Montgomery today who use electric light without a thought of danger, while in fact an electric light is a regular thunderbolt compared with the current sufficient to run a street car with the motors. There is more real danger, ten to one, in a Texas mule's heels than in all the electric motor system."

"The Capital City Street Railway will soon have their cars running by electricity, and there are probably very few people in Montgomery who will not risk a ride."

The Montgomery Advertiser of Friday, April 16, 1886, says: "The electric street railway is a success, that is settled. The cars on the Court Street line commenced running by the electric motor system at ten o'clock yesterday morning and continued through the day. Everything went smoothly, and the success of the enterprise has now been demonstrated beyond all question. This new feature of progress and enterprise, places Montgomery in the front, as it is the first city in the South to adopt the system of electric street railways. It all goes to show that Montgomery is advancing and growing and can't help it with such men as compose the Capital City Street Railway Company to do the pushing.

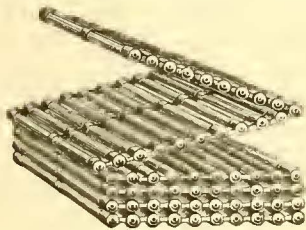
"The electric motor system is the invention of Mr. Charles Van Depoele, the celebrated and successful electrician and scientist, whose entire life has been a succession of studies and experiments in electricity and its application to light and power. Mr. Van Depoele has been in this city several weeks, and the work of putting the new system in operation was done under his personal supervision and direction. He said from the onset that it should be a success, and so it is. The company is well pleased with it and so is the public. During yesterday the cars were constantly crowded with passengers, many of whom took a ride on the lightning route, just because it is something new and novel. It is a big thing for Montgomery and sounds another loud note in the song of progress."

St. Paul Pioneer Press says: "The car was run up to Washington Avenue with only a few slight detentions caused by the partial disarrangement of some of the overhead wires. In the mean time the crowd of spectators increased until the sidewalks were literally filled from First to Fourth Street, while an open-air mass meeting was held at the corner of Washington Avenue. This motor was moved back and forth several times between Washington Avenue and First Street, the platform of the car being covered with spectators and with enterprising curiosity hunters hanging to every available projection. Here the electric motor remained, until the four o'clock train arrived from the lake. The latter went out on its regular time, and after it had reached Third Street, Mr. Van Depoele crossed Washington Avenue and started in pursuit. The rate of speed on the outgoing trip was about equal to that made by the regular train, the electric machinery passing the switch above Fourth Street without deten-

tion, and making the ascent at that point without apparent difficulty. As it passed out of sight toward the lake, the crowd of spectators dispersed, each having seen a car driven by electricity; a feat, which would have been considered utterly impracticable only a few years ago. That the electric motor will run at a fair rate of speed was satisfactorily demonstrated yesterday, and the Van Depoele Electric Manufacturing Company will now undertake to show that their motor can also overcome another obstacle in the shape of heavily laden passenger cars, and it is hoped that this important experiment will be fully as successful as that made yesterday afternoon. If the lighter grade of passenger cars can be (pulled) moved by electricity and in such a manner as to meet all reasonable demands, it is safe to predict that great changes will be witnessed in Minneapolis and St. Paul within the next year."

Eureka Folding Mat.

The engraving shows a new design of this mat* that possesses some points of superiority over those previously made. It is especially designed for street car use, and is made in sections so that it can be readily handled. Each mat consists, as ordinarily



made, of three sections each about one foot wide, and hinged so that the whole is readily folded together. The mat proper is composed of round hard-wood rods about 11-16 inch in diameter, and of a length but slightly less than the width of space to be covered. At the center the rods pass through and are held by a light casting that holds them accurately in position and prevents warping and springing. The ends are driven solidly into a light casting that has a small tongue cast in. This tongue cuts a groove in the rod and prevents it from turning. The castings are made of light malleable iron tinued.

The advantages are that it may be readily handled and when washed may be partially folded and stood on end to dry. Then too if any rod breaks or becomes worn out, it may be replaced by simply drawing a couple of $\frac{3}{4}$ inch nails, knocking off one end casting and driving a new rod in to replace the old one.

*Beadle & Courtney, Mfrs., 423 Walnut st., Philadelphia, Pa.

A New York daily says: Members and connections of the Vanderbilt family are said to be investing a good deal of money in the street railways of the smaller cities all over the country.

On the 19th Mr. Plunkitt's cable traction bill was finally killed in the House, by a vote of 52 to 51.

Street Railway Mortgages.

The following decision recently rendered in the Maryland Courts is kindly furnished us by Spencer C. Jones, Clerk of Courts. Our readers will find it of interest as it deals with a question now agitating the street railway circles of New York regarding the Broadway road.

J. DONALD CAMERON vs. JACOB TOME, TRUSTEE, ET AL.

The franchises and property of the People's Passenger Railway Company were sold under foreclosure proceedings instituted by the second mortgage bondholders.

The sale was made subject to a first mortgage by the company to Jacob Tome Trustee to secure the payment of the principal and interest of \$100,000 coupon bonds, and John W. Hall became the purchaser. Hall subsequently conveyed the property to the People's Railway Company, a new and distinct corporation.

The appellant is the holder of certain *interest coupons of the first mortgage bonds* of the face value of \$2,745; and these coupons he claims are entitled to the lien of the first mortgage upon the property of the People's Passenger Railway Company. The auditor and master to whom the papers were referred to state an account was, upon the proof submitted to him, of the opinion, that the coupons held by the appellant were not entitled to the lien of the first mortgage; and that they were acquired by the appellant under such circumstances, as to entitle him only to a claim against the company for money loaned.

This appeal is taken from a *pro forma* decree ratifying the report of the auditor and master.

In support of the lien now claimed by him, the appellant contends that the coupons were purchased by him from the first mortgage bondholders, and constitute therefore a part of the mortgage debt. The appellees on the other hand contend that the coupons were presented by the holders thereof at the company's office for payment in pursuance of a notice published by the company in the newspapers that they would upon such presentation be paid—that they were so paid by the proper officers of the company, and were accordingly delivered to him for retirement and cancellation, and not for assignment.

Is the appellant to be treated as a purchaser of the coupons in controversy? We think not. His own admissions, the admissions of the company, and the proof before the auditor and master are all against any such contention. Tome, the Trustee in the first mortgage in the cross bill filed by him, expressly charges, that the company being without means to pay the interest coupons falling due first of January 1883, its president made an arrangement with the appellant whereby the latter was to advance the money to William H. Patterson (the secretary of the company) to take up said coupons, and which were to be delivered to the appellant to be held by him as his property, until the company should be able to raise the money to pay the same. He

further charges that in pursuance of this arrangement an advertisement was published signed by W. H. Patterson as secretary of the company notifying the holders of the first mortgage bonds to present their coupons at the company's office for payment; and that certain bondholders in ignorance of the arrangement made with the appellant presented and delivered their coupons to Patterson the secretary as they supposed for retirement and cancellation, receiving from him the money therefor. The bill then charged that the whole arrangement was but a cloak to conceal the fact of a default having been made and to avoid the consequences thereof, and that it was in fraud of the rights of the first mortgage bondholders.

The answer of the company to the cross-bill of Tome admits the facts set forth in the bill, but denies that the arrangement was fraudulent. The answer of the appellant admits also the facts stated except that it denies all fraud, combination or improper motive in respect to the coupons, and alleges "that the money which was paid by the officers of the defendant company to the bondholders who delivered to them coupons due January first 1883, was the money of the said J. D. Cameron, advanced by him to the company, and the said coupons are now held by him under the arrangement stated in the bill."

In addition to these admissions on the part of the company and the appellant himself, the proof taken before the auditor and master shows beyond question, that the coupons were presented by the first mortgage bondholders at the company's office for payment, and that they were in fact paid by its secretary, and were delivered to him for retirement and cancellation. The Messrs. Hambleton in presenting \$660 of these coupons, notified the secretary of the company that they were presented for payment and cancellation by the company and not for sale, and that unless so paid by the company they would not be surrendered. To this Patterson replied "I am the secretary of the company, and advertised that I was paying the coupons which I am doing."

There is not a particle of proof to show that the holders of these coupons ever sold or agreed to sell them to the appellant, or that they were delivered to him with their knowledge or assent. They were due and it was the duty of the company to pay them. They constituted so long as they remained unpaid a part of the mortgage debt, and an accumulation of unpaid interest would necessarily affect the value of the security held by the first mortgage bondholders. They had therefore a direct interest in having them paid and extinguished. The appellant advanced it is true the money to pay them, but he was a large holder of the second mortgage bonds, and was anxious to avoid a default on the part of the company, which might lead to a foreclosure and sale of the property of the company by the first mortgage bondholders. Besides the agreement was one made between him and the company, and was unknown to the holders of the coupons,

when they presented them for payment. This being so, we take the law to be well settled, that as against bondholders who presented their coupons for payment and not for sale, and who had the right to assume that they were paid and extinguished, a person who advances the money to take them up under an undisclosed agreement with the company, that the coupons should be delivered to him uncanceled as security for his advances, is not entitled to an equal priority in the lien, or the proceeds of the mortgage by which the coupons are secured.

Union Trust Co. vs. Monticello & Port Jervis R. R., 63 N. Y., 313.

Haven vs. Grand Junction R. R., 109 Mass., 96. Ketchum vs. Duncan, 96 U. S., 662.

But admitting this be so, it is further contended, that the proceedings in this case show that the first mortgage bondholders whose coupons were taken up by the company and the money advanced by the appellant, have for a good and sufficient consideration, ratified the transaction as a purchase and have agreed that he should hold them as unpaid coupons under the first mortgage. This contention is we think equally unfounded. From the filing of the bill for foreclosure and sale by the second mortgage bondholders, to the sale made by the trustees under the final decree of the court, at each and every step of this protracted litigation, the lien now claimed by the appellant has been resisted and denied by the first mortgage bondholders. Prior to the passing of the final decree, the papers were referred to Daniel M. Thomas, Esq., Auditor and Master, to state an account of all the liens and encumbrances resting upon the property. In stating this account the auditor and master says "the coupons for \$2,745 falling due January 1st, 1883, and held by J. D. Cameron, have not been treated as entitled to the lien of the first mortgage of the company because the evidence shows they were paid and held by the said Cameron under circumstances which only entitle him to a claim against the company for money loaned."

This report was ratified by the court except that portion of it relating to the lien of the coupons held by the appellant, which question was reserved for further consideration, and the trustees were then directed to sell the franchises and property of the company, subject to the first mortgage made to Tome, Trustee, to secure the payment of the principal and interest of the \$100,000 coupon bonds. And when the property was offered for sale under this decree the trustees stated that in accordance with the terms of the decree reserving the question of Cameron's coupons for future determination, the purchaser would have the right to contest the lien of said coupons. There is nothing certainly to be found in these proceedings from which it can be inferred that the bondholders acknowledged these coupons to be a lien on the property. Nor is there anything to be found in the agreement between the appellant and the trustees under the first and

second mortgage. It is merely an agreement between all parties, that the lien claimed by Cameron shall be considered and determined by the court, unaffected in any manner by the charge of combination and fraud alleged in the cross-bill filed by Tome. In other words it was a withdrawal of the charge of fraud thus made. The deed from the trustees to Hall the purchaser conveys the property and franchises of the company subject to the first mortgage to Tome "to the amount of one hundred thousand dollars for the principal of said mortgage and of three thousand dollars of interest thereon due on the first day of January 1883, and of a like amount of interest due on the first day of July 1883." And so does the deed from Hall to the People's Railway Company. But these deeds convey in precise terms, the property as decreed by the court, *totidem verbis*, and by the decree the question as to the appellant's lien was expressly reserved for the further consideration of the court. So taking the deeds and decree together there is nothing to justify the inference that the parties thereto admitted the \$2,745 interest coupons of January 1st, 1885, now held by the appellant, were entitled to the lien of the first mortgage. In any aspect in which the case may be considered we are of opinion that these coupons are not a lien protected by the first mortgage.

Decree Affirmed.

Street Railway Practice.

The following is one man's street railway practice boiled down in answer to the blank we recently sent out: "To prevent strikes; do away as much as possible with union men. It cannot be disputed or denied any class of persons have as much right to organize and cooperate for their own protection, as well as corporations and individuals have to "pool" for the same purposes. The present system of labor unions however as they now exist is detrimental to both members and employers of such members as a rule. We pay our men ten to twelve and a half cents per hour. Out of thirty-one days, drivers work twenty-five, averaging \$44 for the time they put in. We employ boys for conductors, pay them by the month. Do not run our cars on the "swing system". Horses to weigh 900 to 1000 pounds and mules to weigh 700 to 800 pounds are about right for our purposes. Teams make twenty-one miles per day, rate of four miles per hour, and last about six or seven years on our road. We feed corn in the ear, cracked or whole (soaked first), bran, cut feed, oats, prairie hay (commonly called wild grass.) Hay, grain and bedding cost us \$8.00 per day for forty head of stock, nineteen mules and twenty-one horses.

The JOURNAL's coming is always looked forward to with much pleasure. Would like to see it a weekly.

"QUEEN CITY OF THE OZARKS."

IRON CAR WHEELS average about 40,000 miles while the life of the steel-tired is 200,000.

The Rider Compression Engine.

The engine* illustrated in this issue is one that has been in use for some time for pumping purposes for street railway barns, water tanks, manufactories, private houses, etc., where a light power and one that demands little attendance is required. It is especially adapted for use in these places on account of the possibility of running it without attention other than that necessary to keep up the fire. And though it is called a pumping engine, it can be used for driving hay cutters, etc., when desired as a very small supply of water is sufficient to keep it in operation.

All parts of the engine are made interchangeable, so that when any piece is worn out it may be replaced by ordering direct by number from the factory. Fig. 1. is a longitudinal section of the engine from which a correct idea of its action may be obtained.

The fire is built in the furnace, and the engine placed in any position. It will be noticed that there are two cranks on the main shaft placed quartering with each other and connected with two pistons of the same diameter. The one at the left of the engraving carries, by means of a suitable connecting rod, the compression piston C. This piston compresses the air in the cylinder in which it runs to about one-third its normal volume. When this point is reached the power piston which is over the furnace begins to ascend and the compressed air passes over through the regenerator pipe H down the jacketing of the power cylinder into the space above the furnace. As it reaches this point it becomes heated, expands by this influence and raises the power piston. When this reaches the top, the compression piston is rising and the air is forced back through the regenerator pipe H and into the cylinder where it is cooled by the water jacket E, and the same process repeated.

It will be noticed that this is a single acting engine; that the two pistons are rising and falling at the same time during a portion of each revolution. The question has therefore been asked why it is, since there is at all times free communication between the cylinders, that the upward pressure does not stop the engine with the two cranks at angles of forty-five degrees on either side of the upper center. The fact is, it does not stop there, and we take the liberty of offering an explanation of the reasons, and invite criticism from those who are interested.

We will suppose the compression piston to be at the lower extremity of its stroke. The natural tendency of the air that is expanding under the influence of the furnace heat and its own tension is to raise both pistons, and this continues until the power piston has reached the upper limits of its stroke. Meanwhile a stream of air has been passing from the power to the compression cylinder, where it is cooled. The result is that in the latter cylinder we have air of a denser quality than in the power cylinder while at the same time it may have the same tension.

As the power crank passes the center and

turns to come down the tendency of the air is to flow over to the compression cylinder for three reasons: the piston is rising giving more room for the air, the momentum of the power piston tends to force it in, and the current of hot air has a natural tendency to pass over to cooler quarters where actual condensation is taking place, and this last is the real reason why the engine does not stop near the upper centers.

From the time that the compression crank passes the upper center to that when the power crank passes the lower, or for one-quarter of a revolution, the engine is working under direct compression and resistance to both pistons, but during the remaining three-quarters of a revolution the air tends to drive the engine.

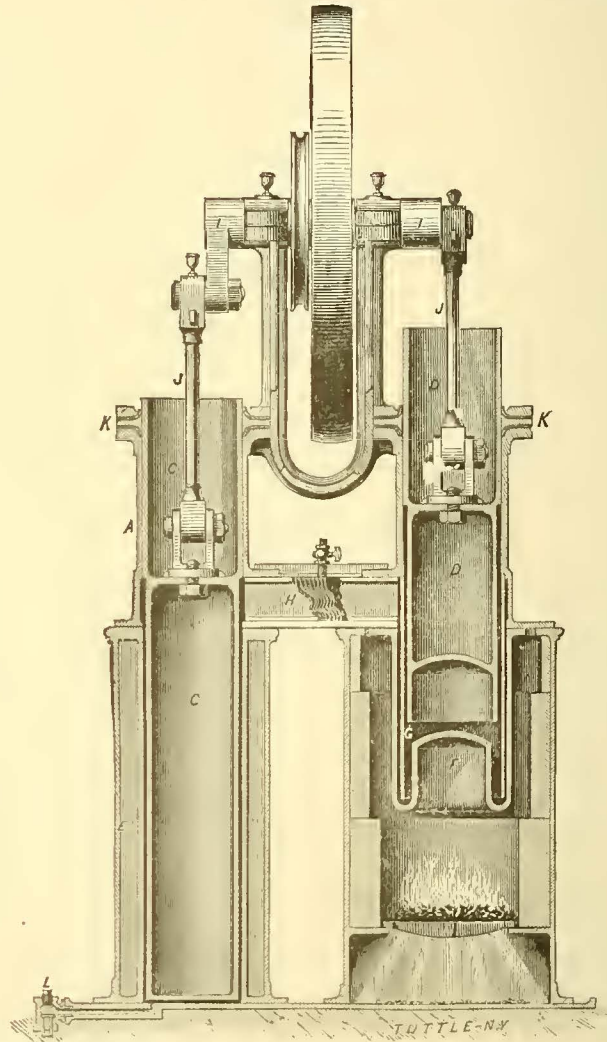
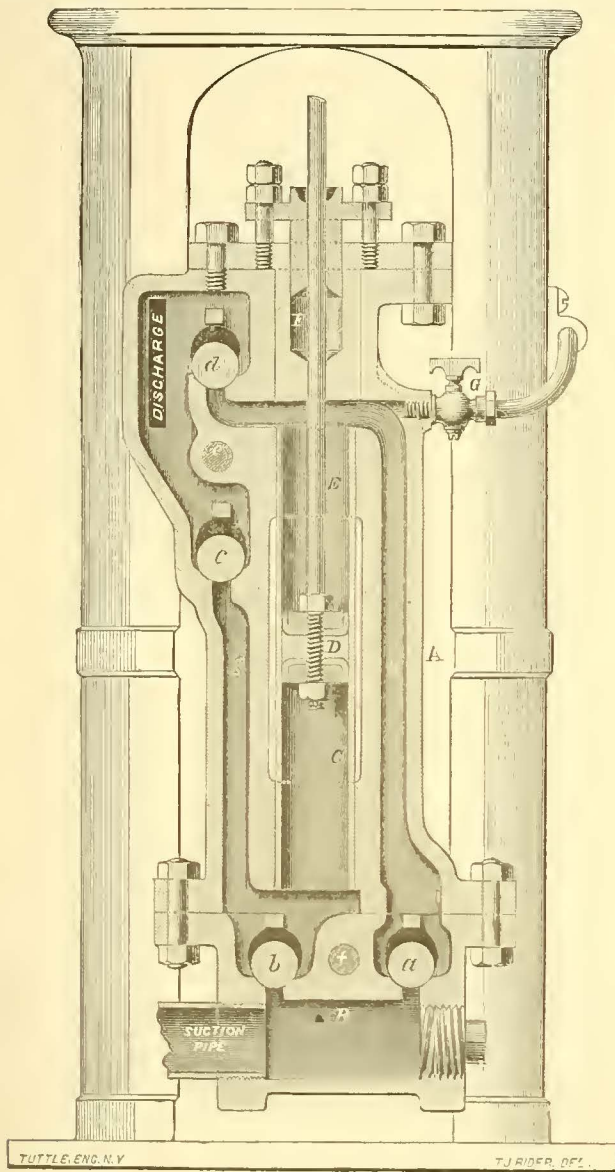
the key as shown. The main part of the rod is made of gas pipe screwed into the butts. The lower butt is solid with a half brass to receive the upward thrust of the pistons.

With the engine there is a pump that should be mentioned in this connection. It is shown in Fig. 2. It is a double acting piston pump and is so constructed that the valves are easily reached. These are of the solid ball pattern, will run for a long time before they need regrinding. The pump is bolted on the outside of the cooling jacket of the compression cylinder and delivers water to this jacket through the cock G. The action and construction of the pump is clearly shown by the engraving.

*Sayer & Co., Agents, 34 Dey st., New York.

eral Term of the Supreme Court to confirm this report, which was strenuously opposed by various parties in the interest of corporations and private individuals. The motion was submitted to Judges Davis, Brady and Daniels, who compose the General Term of the Supreme Court, in October last. Their decisions deny the motion. The opinion of the Court is by Judge Daniels, who reviews the history of the Cable Railway Company and refers to the objections as made by property-owners and others in the different streets in which it was proposed to construct the railway. In referring to William street Judge Daniels says that if cars were permitted to be run in that street, which is very narrow, it would practically render the street entirely useless for any other purpose.

Contiguous railways upon other streets east and west of William street already afford the means of transit to and from this portion of the city. Like objections are



THE RIDER COMPRESSION ENGINE.

Any leakage of air that may occur about the pistons or through the connections is supplied automatically by the small valve at L. The main frame work of the engine is of cast iron. The connecting rods have a solid strap bored out on the outer portion to form a seat for the crank-pin and with an oiler attached for lubrication. Below there is a recess for a brass which is held in position and adjusted by

The Cable Railway Co. in New York.

The General Term of the Supreme Court has decided against the construction of the Cable Railway, the franchise for which was recently granted by the Board of Aldermen. Three Commissioners appointed by the court recommended that the road should be constructed. The railway people, upon motion of its counsel, then asked the Gen-

erally applicable, the Judge says, to most of so much of Wallstreet as is included in route No. 1, to Liberty and Cortlandt streets and Maiden lane, and also the Chatham street route, the latter of which, he says, does not appear to be adopted to promote in any substantial degree the convenience of that part of the public having occasion to make use of this proposed route. The decision condemns double track cable roads, in the narrow down-town streets, but Judge Davis favors them in the up-town avenues.

Street Railway Patents.

Cable tension device, T. W. Burt, Mineola, New York.

Car motor and brake, J. F. Morell, Philadelphia, Pa., and D. Goff, Millville, N. J., assignors to National Car Starter Manufacturing Co., of New Jersey.

Fare register, J. W. Meaker, assignor to Railway Register Co., Chicago, Ill.

Horse-boot, S. Taylor, Chicago, Ill.

Electric railway system, F. J. Sprague, New York, N. Y., assignor to Sprague Electric Railway and Motor Co.

Street conduit for electric and cable railways, H. T. Clay, Philadelphia, Penn.

Conduit for electric and cable railways, E. E. Ries, assignor of one-half to A. H. Henderson, Baltimore, Maryland.

Safety collecting-box, O. Nielsen, Jersey City, N. J.

Street scraper and snow-plow, G. G. Gibson, St. Louis, Mo.

Car gong bell, J. Stephenson, New York, N. Y.

Harness buckle, G. P. Cramer and F. B. Langworthy, Indian Ford, Wis.

Harness buckle, S. U. Tarney, Auburn, Ind.

Harness, S. A. Prescott, Wilkinsville, Mass.

Harness breast collar or strap, A. J. Day, assignor of one-half to J. J. Parsons, Colebrook, N. H.

Hay-elevator, T. Temple, Hudson, Mich.

Hay-elevator and carrier, C. E. Hunt, N. B. Helm, and H. L. Ferris, Harvard, Ill.

Horseshoe, E. P. Rogers, Hyde Park, N. Y.

Horseshoeing-stand, F. E. Cherrier, Francistown, N. H., assignor of one-half to G. H. Bixby, Boston, Mass.

Electric railway, T. A. Edison, Menlo Park, N. J.

Traction rope railway, J. H. Robertson and J. Jonson; said Jonson assignor to L. Lyon, New York, N. Y.

Tramway, A. G. Bierbach, assignor of one-half to H. Riggs, Milwaukee, Wis.

Car-gong-bell, John Stephenson, New York, N. Y.

Car-brake, G. Fletcher, Brooklyn, N. Y.

Car-brake, C. M. Sturgis, assignor to himself, T. M. De Earheart, and A. O. Lane, Birmingham, Ala.

Car-coupling, W. H. Adams, J. D. Felthousen, and A. Lawtenslager, Albany, N. Y.

Car-coupling, A. D. Babcock, assignor to himself and E. A. Hubbell, Leon, N. Y.

Car-coupling, J. Bradley, Newark, N. J., assignor to Bradley Automatic Coupler Co., of the city of New York.

Car-coupling, R. H. Dowling, assignor of one-half to C. H. Follet, Newark, Ohio.

Car-coupling, T. P. Evans, Denver, Col.

Car-coupling, R. D. Giles, Detroit, Mich.

Car-coupling, P. McAleer, Altoona, and J. K. Johnston, Jefferson Co., assignors of one-third to S. Simon, Philadelphia, Pa.

Car-coupling, J. Myers and G. L. Morrison, Springfield, Ohio.

Car-coupling, T. L. Rivers, Montclair, assignor of one-half to E. W. Gobble, Newark, N. J.

Car-coupling, J. W. Thomason, Salado, Tex.

Car-coupling, F. Yeiser, Danville, Ky.

Manufacture of car-coupling links, C. W. Hodgetts, Detroit, Michigan.

Safety-door for railway car platforms, F. Lappin, Washington, Delaware, assignor to E. M. & G. W. Marter.

Platform-gate for railway cars, J. P. Harrison, Dauville, Virginia.

Railway ditching-machine, G. W. Dye, Washington, Iowa.

Locomotive exhaust-nozzle, H. M. Smith, St. Louis, Mo.

Motor attachment for locomotives, E. J. Strong, Laingsburg, Michigan.

Nut-lock, J. Hayes, Dover, New Hampshire.

Automatic railway switch and signal, E. Y. Knapp, assignor of one-half to G. W. B. Yocum, Arcata, Cal.

Automatic railway switch, W. A. Hicks and H. Wilson, Johnstown, Pa.

Railway-tie, S. DeMott, Frenchtown, New Jersey.

Elevated railway track and car, A. Speer, Passaic, New Jersey.

Sharp-arrester, J. D. Connell, New Orleans, La.

Sharp-arrester, J. H. Elward, assignor to E. G. Brown, receiver, Stillwater, Minn.

Spark extinguisher, J. J. Hecke, assignor of one-half to T. S. Jefferys, Yorkville, South Carolina.

Grip for cars for cable railways, T. Wright, Camden, New York.

Safety device for cable cars, R. Van Wageningen and L. Goddu, Winchester, Mass., assignor to Goddu Improvement Company, Portland, Maine.

Rail for street railways, F. V. Greeue, New York, N. Y.

Switch for electric railway, W. M. Schlesinger, Philadelphia, Pa.

Street washer, F. Chapman, Brooklyn, New York.

Cable car, C. Mousley, Philadelphia, Pa.

Grip for cable motor cars, H. B. Whitaker, Philadelphia, Pa.

Hame fastener, J. R. Kinsley, Cincinnati, Ohio.

Hame fastener, W. W. Pearce, Clanton, Alabama.

Metallic hame fastener, A. Z. Geer, Plymouth, Mich.

Traction device for cable railways, J. H. Pendleton, Brooklyn, assignor to himself, C. & A. H. Tiers, R. I. Gloan, L. Moss, New York, N. Y., and T. Nast, Morristown, N. J.

Melting Snow With Salt.

Science in speaking of the removal of snow from the streets says that melted snow exercises a destructive action upon the feet of horses, destroys the hoof, to say nothing of the attack which it makes upon the shoes and the nails by which it is fastened. It is the same with the foot wear of pedestrians, which gains nothing that can be regarded as a benefit by a splash in the mud and slush formed by the snow that has been melted with salt. This destructive influence of salt-melted snow is attributed to the formation of the hydrochlorate of

ammonia, resulting from the action of the chloride of sodium upon the ammonia which is always present in the snow.

The Lewis & Fowler Manufacturing Company's New Shops.

THE LEWIS & FOWLER M'FG Co. have recently moved to their new quarters at 27 to 35 Walworth street, Brooklyn, N. Y., and have now room to carry on their manufacturing without being cramped. The main building is a three story brick structure and contains the offices and machine shop. The heavy work is done upon the ground floor where there are the wheel presses and borers, lathes and other machinery. The second floor is devoted to the moderately heavy iron work, with a room for emery wheels and burnishers. The work for the fare register is done on the third floor, and the machinery consists of light lathes, drill presses and gear cutters. Back of the main building is the blacksmith shop and engine room, and back of this still are the foundries. The iron foundry is 50 feet by 125 feet with two cupolas and the ordinary facilities for handling the iron. The brass foundry consists of four furnaces with the necessary equipments. The yard in the rear affords ample facility for the storage of coal and iron and furnishes a spacious space for the erection of switches and other out of door work. Heats are taken in the foundries every day, the usual output of iron being from five to six tons. The machinery in the establishment is sufficient to do all the work connected with the supply trade, including brass car furnishings, such as bell straps, guides, door handles, trucks and catches, window buttons, sash pivots, bells and lamp holders, the castings for pedestals, housings and brakes, switches, frogs and crossovers, and indeed almost everything from the wheels to a lamp chimney that that may be required about a car. They have a powerful rail bender in the yard so that curves of any radius may be made, and in fact a railroad be completely equipped. To sum the whole subject up, their works are a model of perfection.

A continuation of the Second Avenue (N. Y.) elevated road, known as the Suburban Rapid Transit Railroad, was opened for passenger travel on the 17th. It starts from the Second Avenue northerly terminus and crosses the Harlem river on a handsome drawbridge at an elevation of thirty-two feet above high water mark. There is a four-track road in starting from the station, but above the freight yards of the Hudson River and Port Chester Railroad the lines diverge, and two tracks run into Jerome Park. Two other tracks run parallel with Third Avenue road to Fordham, and still another branch runs to West Farms and Bronx Park and then to Fordham.

It is said that 124,800 suburban dwellers go in and out of Boston daily, and that there is an increase from year to year of twenty per cent.



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A Superintendent sending his subscription to the STREET RAILWAY JOURNAL says: "Wish you could have some way to give me a pointer to keep cars from sliding on steep hills in winter time; we use any quantity of salt, but nevertheless they at times will get the start of us, especially with one horse. We use poles with our teams." Will some of our readers who have overcome the same trouble give their experience for the general information of our readers?

The Arcade Railroad Company has been very busy with its preparations since its bill was signed by the Governor; and its officers say that in sixty days the workmen will be plying their tools at the Battery, and that long before the four-year limit is reached the first section of the road to Forty-second street will be completed. On the other hand the officers of the District Railway Company say the bill is unconstitutional, and that it will cost the Arcade people \$3,000,000 for litigation as a starter.

Judge Parker of the Supreme Court at Albany, on the 15th, appointed John O'Brien, Chairman of the Democratic State Committee, Receiver of the Broadway Railway Company, in a suit brought to wind up the affairs of that corporation by the Attorney General. President Richmond has resigned, and his successor has not yet been appointed. Secretary and Treasurer Kerr does not recognize Mr. O'Brien as Receiver, and refuses to obey his orders. All of the directors but four have resigned; and these—Messrs. McLeau, Selmes, Pentz and Burt, have constituted themselves a Board of Trustees for the management of the road.

A correspondent in an exchange gives the following receipt for preserving ties: To one gallon of linseed oil add two pounds of resin and enough coal dust to make the mixture the consistency of thick paint. Use good and well-seasoned timber for ties, and submerge them for about one minute in a vat of the paint hot, then wipe them off and they are ready for use. Bore an auger hole in the tie and fill with the paint before driving the spike home. He guarantees that all ties treated in this manner will remain sound for twenty years; that fifty per

cent. will be good for thirty-five and twenty-five for fifty years. The principal objection to the method is the necessity of boring holes and filling with paint previous to spiking.

The following suggestive sentences are from the Free Press of Detroit, a city which has a street car strike: "Nearly all of the men taking the places of the striking car conductors and car drivers have been out of work for long periods of time—their families destitute, themselves hungry. They could not get work they say, unless they belonged to the Knights of Labor, and they could not join the Knights of Labor unless they were already employed. To these men the strike has proved a great boon, and their desperate desire to earn a subsistence is clearly proved by their holding on to their situations at the risk of their lives. Under what law or constitution or principle of free government they are to be deprived of labor which other men refuse, has not yet been pointed out."

The Amesbury Horse Railway Company was sued by E. G. Kelly, contractor, for \$9,154.04, which was the face of promissory notes, and which the company did not expect to pay because fifty per cent. of the par value of each share of its capital stock had not in fact been paid in; but the court has decided that a street railroad corporation which has duly filed the certificate required by the statute of 1871, chapter 381, Sec. 6, stating that the amount of its capital stock has been unconditionally subscribed for by responsible parties, and that fifty per cent. of the par value of each share thereof has been actually paid in cash, cannot escape liability for the payment of its debt for the building of its road, on the ground that the construction of its road was contracted for and commenced before this cash was paid or subscribed, so that an execution issues to the contractors if the notes are not paid.

The Railroad Commissioners, in response to the Senate resolution asking for an account of the earnings and expenditures of the Third Avenue Railroad Company for the past ten years, state, in their report to the Senate, that in October, 1853, the present company was chartered. The amount paid by the grantees for the road constructed to Sixty-first street is unknown, as no books containing the figures are in existence. The present company expended as the total cost of the road and equipment to 1885, \$4,704,716. The original stock was \$1,170,000; the total now was \$2,000,000, and the bonds, \$2,500,000. Interest at 6 and 7 per cent. was paid on the bonds. The dividends from 1856 to 1872 ranged from 6 to 12 per cent., and from 1872 to 1885 from 8½ to 20, except one year when a dividend of 25 per cent. was paid.

An experienced street railway man in a letter on other matters says:

"I think it a point worth mentioning in your Journal, that single tracks with turn-

outs is a poor investment. I have been maintaining for years that a road not worth double tracking is not worth building. Some of the many objectionable features are waiting on the turnouts, the injury to horses standing in cold weather. One branch of a Newark road, a single track route, had more sick horses than all the other four or five routes put together. The loss of short riders is another very important consideration, for people that can walk will not get on a car to ride a short distance if they are likely to be held on a switch. Cars can make better time on double track which is an important thing to the success of a railroad company. Many other things could be said in recommending double track, by railroad companies who have had to pay for this knowledge."

Union may be strength, but if the component parts of a body are so rigidly attached to each other that there is no flexibility it seems to be a pretty certain thing that this very union may be an actual source of weakness. Such seems to be to a certain extent the condition of the society known as the Knights of Labor. Their motto, "An injury to one is the concern of all," may be true, just as the location of each grain of sand controls the center of gravity of the universe; but it does not appear to the ordinary man as at all necessary that nothing should be moved for fear of disturbing that center. So when these Knights lock-out and tie-up, in a wholesale and regardless manner, ordering men to quit work who do not even know of the grievance, who want the money and are satisfied with their positions, simply because one or more are dissatisfied, it looks to the casual observer as though the time would come when the disinterested workman would refuse to be locked out and tied up, and teach the demagogues that they must run the association for the interest of the masses, and not be swayed by the clamor of a few malecontents.

It seems that the organization is degenerating into a despotism harsher than anything the workmen have been used to before. Two cases in point are that of the recent Brooklyn strike, where five roads were stopped, hundreds of men thrown out of work, and thousands of citizens inconvenienced, all because some stablemen on a sixth road were dissatisfied with concessions made. The other is that of Hall the discharged employee of the bankrupt Texas Pacific. For no other reason than that, the whole business of the southwest was paralyzed, thousands of dollars worth of property destroyed and a number of lives lost. Surely it seems that a monster tyrant had the workingmen by the throat, and that in their eagerness to overthrow capital they had jumped from the frying pan into the fire. But as a pendulum swings from one extreme to another before coming to a state of rest, so the workingman will probably swing from one extreme of subjugation to another before finally settling down in the stable position of fair and reasonable arbitration.

The Metropolitan Repair Shops.

The Metropolitan Street Railway of Boston have for a number of years been doing their own repairing and building in a small shop that was kept crowded to its utmost capacity and in a confusion of men, material and cars until it seemed a wonder that anything approaching neatness and order could come forth. They have, however, grappled the difficulty and pushed it so thoroughly to one side that it seems improbable that it can ever return. They have recently purchased the handsome brick and iron building on Huntington avenue, that has heretofore been used for fairs of the Mechanics Institute. We have no figures at hand giving the dimensions of the building in feet, but a slight account of the uses to which they have put it will convey some idea of the size.

The front portion of the ground floor has been left undisturbed, and the large hall with a seating capacity of three thousand may still be secured by any who are desirous of using it for entertainment purposes. Above it is a lecture room with a capacity of some thousand or more, but these are mere side issues and have nothing to do with the shops.

The main building is constructed with a main roof of iron, with a side span on each side. Under one side on the main floor there is a machine shop with lathes, drill, wheel borer and press, planer and plenty of floor room. Next to this shop is a driveway from the side into the main building and a stairway leading to the second floor. Beyond this driveway is the blacksmith shop where there is ample room for five forges, racks for the storage of iron, benches for vise work if required, and a floor of sufficient size to afford space for piling the implements and appliances that come in for repairs. Ventilation is obtained by the side lights that are placed in the rise of the main roof, and the room is at all times kept free and clear of smoke.

Next comes the engine and boilers. This engine runs a line shaft that extends down through the blacksmith shop and into the machine shop; it also runs the fan for the blacksmith forges and that used to supply air to the cupola of the foundry, as well as the shafting used in driving the wood working machinery on the second floor.

Contrary to the practice of the majority of steam railroads and forming almost the solitary exception to street railroads, the company do all of their own casting. They make everything that can be required about the cars and road in the shape of brass and iron; all of the fixtures that go for internal trimming, window catches, strap loops, and slides. The miscellaneous mass of cast iron work that is required about the cars and roadway all come from the company's foundry.

They buy their car wheels and that is all. When these car wheels become worn out they are melted and run into the shapes required. A grade of pig iron that will carry a large percentage of scrap is used and as very little machine work is required of any

of the output and on some of it none at all, this scrap can be utilized to the best advantage. Mr. Randall tells us that old car wheels make most lasting frogs and switches and that the chilled portions can be made to do the best of service. The switches and crossovers are required to stand no strains except that of ordinary wear of the running wheels and in this way a great saving is effected; for they practically secure their iron for the price they could get for their old wheels when selling them for scrap.

The foundry where this work is done is at the back of the building in a line with the shops already mentioned. The cupola stands at the end nearest the engine room, and the brass furnace is in the corner near at hand. It is built above the floor and the crucibles are lifted over the wall which is about three feet high. A small core oven completes the present equipment, although it is the intention to put a small elevator in to carry the iron up to the charging floor of the cupola, and a crane to handle heavy ladles full of iron.

The remainder of the ground floor is occupied by the storage tracks. The cars are run in at the back where a light transfer car carries them to the line of rails upon which they are to be stored. These run close together in parallel lines the entire length of the building, and afford room for storing three hundred open cars.

The second floor is an innovation in the building. It extends across the central span and is on a level with the old balcony. It gives however so much head room for the story below, that were it not for the depth of the iron girders supporting it, there would still be sufficient room for a floor between the two. On this upper floor, the light is clear and strong; the office occupies a small space in the center; the wood working machinery is placed on one side, and the remainder of the floor is used for painting, repairing and building. In spite of the large number of cars that must be kept in repair by these shops, those that are under the workmen's hands seem lost and scattered when distributed over this large floor space. But the superintendent and men are not disposed to grumble at this excess of room, after being subjected to the cramped quarters that have held them so long, and the company is to be congratulated upon the extensive facilities that have come into their possession for the economical and rapid execution of their work.

It is perhaps a little premature to mention these works, as it is only recently that they have been occupied, and improvements are still in course of introduction, while the litter left by what has already been done has not yet been cleared away, and, as Mr. Randall says, they are hardly in running order as yet.

It has been decided by the municipality of Paris to purchase the Tramways Companies of the North and South, at a cost of 14,000,000 francs; and 8,000,000 francs will be expended on repairs and additions to rolling stock.

Street Railway Pavement.

It would seem that the proper pavement to be laid between the rails of a street railway has not received the attention that it deserves. At a meeting of the Street Railway Association some time ago, a committee presented a report upon car starters in which they proved that it was not the strong hard pull exerted in starting a car that wore the horses out, as the muscles of the flanks were sound and in good condition after the horse was utterly unfit for the service required. But that it was the continual hammering upon the pavement, that destroyed the delicate tendons about the feet, rendering the animal unfit for the service required.

It is of course impossible to obviate the hammering so long as the horse is obliged to trot, but there is another element that is fully as detrimental as the hammer, which can to a certain extent be removed. If an examination of the stones of a pavement lying between the rails is made, it will be found that they are polished and rubbed smooth by the wear to which they are subjected, and whether they are cobble stones or square blocks the result is the same.

Then if pains are taken to watch the action of a horse's hoof upon the street when hauling a heavy truck or car it will be seen that except at exceedingly slow speeds there is a slip at every step. The foot is placed upon the ground and as the pulling strain is put upon it, it slips back until the toe or heel calk, usually the former, catches in the nearest interstice. It is this continued rubbing and slipping that wears the stone smooth and uses up the animal.

That this last assertion may be partly demonstrated, let any one consider whether a greater fatigue comes from the mere shock of contact between the foot and the ground or from the slip and stoppage when walking on slippery places. If then fatigue comes so quickly from this where the stoppage is always more or less gradual, what must it be in the case of an iron shod hoof that meets with no resistance whatever in the backward movement until it is suddenly brought to a standstill by the calks getting caught between the stones and that too when the movement is so quick that it takes considerable practice to be able to detect it at all?

The question then arises how to remove the difficulty. Cobble stones seem the hardest for the horses to travel over. By careful watching we have come to the conclusion that large cobble stones entail an amount of fatigue upon a horse that is trotting and pulling at the same time that amounts to actual cruelty. If the foot is carefully watched it will be found that in almost every case the toe calk will strike the rounded surface of the hard smooth stone and slip in a manner that is entirely dependent upon the relative positions of the surface, and is quite beyond the power of the horse to control. The most common slip is of course straight back over the crown of the cobble to the interstice between that and the next stone, but a side

motion is by no means uncommon, and cases where the foot will slip out and around a stone to the back will occur every few yards.

The tendons and cords are thus excessively strained and the car life of a horse will be proportionately short. Small stones are not so bad but the evil still exists with them.

The square blocks appear less objectionable; they offer a better foothold themselves, and the slip is always in one direction, but it is still there.

Upon wooden pavement the slip disappears to a great extent, and indeed is so slight that it is hardly appreciable. But here we are met by the insuperable objection of its wearing qualities. If any wood pavement were placed between the rails of some of the city roads that have a heavy traffic, it would not be a month before it would be all ditched out by the continual tread in one line and require relaying, so that for large roads it is practically out of the race.

Concrete aggravates the bad properties of stone in the insufficient foothold that it affords, so that it becomes necessary to make some adaptation of stone that will answer the purpose.

Some engineers have learned the secret of a necessary foothold and applied it on grades with good effect. On the up track the pavement will be composed of smaller stones, and instead of paving with a smooth surface, they are given a cant so that the whole presents a series of ridges as though the street were paved with triangular blocks with the apex up. This system affords a firm foothold for the horses, and makes the back slip very short. It is undesirable, however, that the plan should be carried out except on grades because of the disagreeable surface it presents to passing vehicles, and the bad footing it offers to horses except when traveling on a line with the rails.

It seems then that a combination of the inclined blocks and the smooth pavement is called for, and the partial solution at least of the difficulty is apparent. Pave the way with thin flat stones placed upon edge, say of a thickness of from one inch to not more than one and one-half inches. This will reduce the backward slip of the hoof to a minimum, and stop it before any great velocity is attained, and the strain upon the animal will be correspondingly diminished. It will give firm foothold for starting and lessen the liability of falling. The objection is that the first cost will be greater in every detail, for material, transportation and laying, and the wear will also be less; but when it is taken into consideration what it is intended that it shall do, it seems that it is at least a system of paving that is worthy of a careful trial.

STEEL will not weld as readily as wrought iron, and the reason seems to be in part that the latter has some cinder in its composition which forms a fusible alloy with the oxidized scale covering the surface of the iron.

Street Railway Taxes.

It is an almost universal belief among those not closely allied to the street railway business that these corporations pay nothing for the privileges they enjoy, of the use of the streets. The facts are that about the most heavily taxed corporations in our cities are the surface railways. The following statement kindly furnished us by the Frankford & Southwark road of Philadelphia is one of many that illustrate this.

1885 Receipts from all sources.....	\$575,092.49
“ Expenses.....	374,447.57
Taxes on Horses.....\$ 689.92	
“ “ Dividends.....	17,910.00
“ “ Capital Stock.....	16,950.00
“ “ Real Estate.....	2,723.41
“ “ Gross Receipts.....	4,384.59
Licenses.....	4,250.00
	46,907.92
Repairs to streets curb	
to curb.....	18,121.75
	\$65,029.69 or 11.03 per cent.

of our gross receipts go for taxes.

It will be noted every item the street railway pays taxes on is created by its inception. Other property may change hands and a man can accumulate large amounts of real estate, factories, mills, etc., but he does not add to the taxable property at all, in the proportion that the street railway does, because the majority of his property was there before him, and a source of revenue to the city whether he came or not. The street railway brings into the town, imports from other sections, or creates by growth and improvement, nineteen of every twenty dollars it pays its taxes upon. In the above instance excepting the item of real estate \$2,723.41, the entire remaining taxes amounting to \$62,306.28 is created by the birth and activity of the corporation itself.

As we understand the measure proposed by the Comptroller of N. Y. City for the franchise tax of the surface roads it would add another five per cent. to the above 11.03. What, with increase of taxes, arbitrary reductions of fare, restriction of dividends, outrageously unjust verdicts in personal injury and other damage suits, and the very modest requirements of the employees, it may be said by-and-by that corporations have no bodies as well as no souls.

The committee on horse railroads of the Massachusetts legislature are thoroughly convinced of the possibilities of electricity as a motive power for surface and elevated roads. The Enos system was very attractive. The nearness to the ground, the readiness in starting and stopping, the total absence of all vibration were found to be features peculiar to this system. The motion of the car is said to be easier than that of a sailboat, without the least rolling or swaying. The committee also witnessed a trial of the electric motors on the elevated in New York, and were much pleased with the results attained.

Two lines, together about three miles long, of the tramways of Brussels will soon be entirely worked by electricity. Ten cars are now in construction, and other lines will follow.

Obituary.

BENJ. A. CLOONEY, junior member of the firm of Andrews & Clooney, street railway supply manufacturers and contractors, died at his residence, this city, May 14. The deceased was born at Cold Springs on the Hudson in 1847. In early life he learned the business of a machinist at West Point Foundry. He moved to this city at his majority and obtained a position with the N. Y. Car Spring Co. After some time he formed a connection with F. H. Andrews and they succeeded to the business of the company. The business increased rapidly until in 1882 the firm of Andrews & Clooney purchased the Globe Iron Works where they have since carried on an extensive business.

He was twice elected Master of Atlas Lodge F. & A. M. Funeral services under Masonic auspices were held in the Temple on Sunday.

Mr. Clooney had been unable to take any active part in the business for some time, owing to continued ill health, and had but just returned from wintering in Florida.

The remains were taken to Cold Springs on Monday, the 17th, being accompanied by a committee from Atlas Lodge. He leaves a wife but no children.

Mr. F. H. Andrews will continue the business.

We are informed that the employees of the Charles River road struck for more wages, which was granted them. They then struck for a shorter time table, which was granted, the company raising the fare from five to six cents to save themselves from loss. The men then struck for their share of the sixth cent. This case illustrates two things; one is that the more concessions are made under the compulsion of a strike the more arrogant and unreasonable employees become. The other is that belief, founded in error, that increased returns for the result of a man's labor should cause his wages to be increased. It is a well known fact that in hard times when a business is not paying, help are not willing to take a reduction, and many extended and costly strikes have had no other cause. On what equitable ground can he ask for increase when the business does pay? The fact that he takes no chances in the matter of losses precludes him from asking for a greater portion of the profits. He sells his labor to his employer for the top price and the latter takes the chances of a profit or loss on it, largely contingent, in many cases, on the good faith of the laborer himself. Therefore he should have in justice all the extra profits of the transaction just as he would have to stand all of the losses if the thing tilted that way.

Alderman Jaehne, who has been on trial for bribery in the Broadway franchise vote, has been convicted and sentenced to nine years and ten months at Sing Sing. He was put to work in the laundry. Not much hope is entertained of his appeal to the higher courts being granted, and he will undoubtedly serve out his time.

The Law of Supply and Demand.

A correspondent takes issue with an article that appeared on page 113 of the February number that states the factors that decide the question of remuneration of employees, are the law of supply and demand. He says, "I make a protest against such a doctrine, for if this were so there would be no labor troubles. Employees could be bought and sold like fat cattle. In these times men have rights and duties to themselves and each other. I can buy a hog or a mule without consulting the animal but when we buy labor there must be a mutual understanding, etc."

Our friend is entirely off the track. He is talking about men. We were talking about what those men have to sell. If he had turned over the next page, the editorial "Employer and Employee" would have given him in its last paragraph the meat of his communication, which is that employees should be considered and treated well by employers. We entirely agree with him in this, but insist that so far as making the price of labor goes sentiment has nothing whatever to do with it. The lesson of all past time is that quantity and quality makes price in labor as it does in merchandise. All the spread eagle, sentimental gush about "men's rights and duties," "legitimate-by-divine-right king," "mutual dependence," "patriotism and love of country," etc., have nothing to do with the case.

In this day and generation we do not buy men as we would a mule or a hog, or hay or horses. Every man's individuality is his own and is not a matter of barter and sale among respectable people. Occasionally an alderman is said to find a customer but laborers and employers know nothing of such transactions. The laborer has nothing but his labor to sell. He takes it to the highest market and sells it for the highest price, just as he would his mule, his hog, his hay or his horse if he had one. It is simply a question of "how much will you give me for my eight, ten or twelve hours of work a day," and the answer is always governed by that unwritten law of supply and demand. If labor is scarce the price is higher. If plenty the price is lower. There is no call for sentiment by either party. The laborer would laugh at the suggestion that on account of fire, flood or other calamity to the company he ought to work for lower wages. He would look around and say, "You have got to have so many hundred men. The labor market is short and you will have to pay me my top price." On the other hand in what we call "hard times" when thousands of men are standing around idle ready to accept any work they can at any price, he would not expect or ask for high wages. Every man not born with a silver spoon in his mouth knows this. In my own trade twenty years ago twenty-five and thirty dollars a week was ordinary wages; now there are by the census almost five times as many engaged in it and an increase in production of only about one-fifth; the consequence is that supply and demand in this line of la-

bor has reduced wages to from eleven to eighteen dollars, and very few go above the latter figure.

But aside from this being a fact we contend that it is right. Supply and demand are the only elements that ought to enter into the question. Labor is the largest element in all productive industries. The man who estimates on the cost of his stores and warehouses, his blocks of apartments, hotels and houses for rent, sale and investment, in counting his expenditure finds this item of labor one of the first to be calculated. He naturally estimates it by the state of the labor market as he does his brick, stone, lime, lumber, hardware, etc. There is no call for sentiment. It is out of place. He says, "If I can get the work done on this block of houses for so many thousand dollars I can afford to build," and the condition of the labor market decides the question. The very fact that another factor entirely foreign to the philosophical solution of the question, has of late come up, the force of organized labor and a system of blackmail that is supported and kept in a semblance of good repute by newspaper twaddle and sentiment, we say this factor has put a false price upon labor and stopped new enterprises in the building and other lines in New York alone amounting to over eight millions of dollars, besides crippling to a large extent nearly every manufacturing industry in the country. The only periods of real prosperity in its industries this country has ever seen were when the question of wages for labor were decided by this law of supply and demand, and every riot and panic in manufacturing districts has been brought about by an effort to introduce some other issue to decide it.

In this connection the following from an address by Prof. R. H. Thurston, of Cornell University, is pertinent and sound doctrine.

"The simplest principles of political economy and social ethics cover this matter fully. Labor, like any other salable possession, will have a value determined accurately by the *great law of supply and demand*, and the interruption of traffic in labor, and at the same time the compulsory interruption of production, in the end only result in serious injury to both parties to the controversy and to the whole country as well.

"The principles involved in this matter are simple, the rights of both parties are obvious and distinct, and with fairness of intention and a real desire on both sides to correct and solve the problems presenting themselves, there should be no difficulty in making steady progress toward a just solution. As I have had occasion to assert on various occasions, and as I am sure all are willing to admit, the right of every man to buy or sell labor wherever and whenever he may choose and wherever and whenever he can make the best bargain is one of those rights which are natural and inalienable. The right of every man to engage in any vocation, or to enter into any department of honest industry, to train his children for any productive occupation, or to secure for

them any kind of employment, is an equally natural and inalienable right. The privilege of accumulating property to any extent and by any honorable and legitimate means, is also naturally and legally accorded to every citizen. It would seem obvious that one of the first claims of a citizen upon the State is that he shall be absolutely assured of these as constitutional rights. Any infraction of such rights and any attempted contravention of such privileges, whether by individuals, by legally constituted corporations or by associations unknown to the law, should be promptly dealt with, and so severely, whether the culprit be of high or low degree, that the offense shall not be likely to be repeated."

A pamphlet on the labor question recently published in Boston, says:

"We cannot change the fact that *the old and universal law of supply and demand* makes no exception in the case of labor, though we wish it were otherwise. If we cannot do away with the fact, it is wise to look it in the face. When there is a deficiency of wheat, cotton, lumber, labor, or money, the price of such commodity is bound to advance (naturally and without any forcing); and when there is an overplus of the same, the price will tend downwards. No combinations or corners can more than *locally* or temporarily arrest this process. Wherever there is a surplus of houses rents decline; or of money, the rate of interest. Water will seek a level. It may be temporarily dammed in spots, but the tendency remains. If we could have the choosing, we would like to except labor from these general laws, but it is not in the nature of things to do this. It applies with equal force to men who labor with their brains, and none can escape it. If in any city or town there is a surplus of merchants, lawyers, doctors, dentists, or brokers, all have to suffer to a greater or less extent."

This one question of wages decided on its merits, then comes the question of treatment, and we heartily agree with our correspondent as to the duty of the employer to his employees. He should obey the higher law. The relation of employer and employee is two-fold, and in their intercourse the employer who forgets his duty as man to man, and fails to recognize and encourage the self respect and manhood of his employee is a bully and braggart unworthy to have authority over his fellow men. That proper treatment is not the rule is perhaps a fact. The great amount of injustice done employees is deplorable. But sentimental gush will not right it and as the free and independent citizen of this country is not obliged to work for a brute unless he choose, and is free to quit at his pleasure, (unless he is a K. of L., in which case he sells his individual liberty and manhood) the question of greatest interest to him is wages. The sooner the two are separated and recognized as independent of each other the better for workmen and employers.

H. A. S

THE GERMAN RAILROAD UNION includes 40,066 miles of road.

Notes and Items.

Baltimore, Md.

The strike for twelve hours on the city roads was broken the twenty-second and all the lines are running regularly since that date.

Bellville, Ill.

CITIZENS' STREET RY. Co. have a mile and a quarter of track just completed, and will finish the building of four miles as fast as possible. Five cars are ready for the track, and a part of the road will be put in operation in about ten days. D. P. Alexander is President, H. A. Alexander Manager and Treasurer, and J. E. Thomas Secretary.

Boston, Mass.

It is reported in State street that three of the street railroads at least, the Metropolitan, Highland and Charles River, are agreed upon terms of consolidation under the law just passed by the Legislature.

THE BOSTON ELEVATED ROAD COMPANY, capital \$10,000,000, wants to build a belt line from the Lowell Station along Causeway street and Atlantic avenue to the Old Colony, and thence across to the Providence, and through Charles street back to the start; also lines to Dorchester, Roxbury, Brookline, Cambridge, Somerville, East Boston and South Boston. The company is to deposit \$1,000,000 of its capital stock for all liabilities. The road is authorized to lease, unite, consolidate, connect or make traffic arrangements with any surface or elevated railway, now or hereafter in operation in the counties of Suffolk, Middlesex, Essex or Norfolk. The maximum rate of fare is ten cents though special rates less than ten cents during certain hours may be made. The road is to pay Boston five per cent. of its net earnings to support and embellish the city parks.

Brooklyn, N. Y.

THE LEWIS & FOWLER MFG Co. exhibited one of the cars built for the St. Paul Railway Co. by the John Stephenson Company, and equipped with Small's Patent Automatic Street Car Fare Conveyor, at Union Square and Broadway, for two days, and a continuous stream of citizens examined the "Conveyor" and expressed their highest approval and desired to know why it was not used by the bobtail cars of New York. A gentleman from Australia examined it, and ordered the equipment of a system of street railroads he is President of in Sydney and Melbourne.

WM. WHARTON & Co. have delivered the curves and castings for the large new car house of the Flushing avenue line of the Brooklyn City Railway Co.

Buffalo, N. Y.

WM. WHARTON & Co. have shipped an order of frogs, crossings, switches and patent street curves to the Buffalo East Side Street Railway Co.

THE BUFFALO STREET RAILWAY employees on April 28th, presented, through a committee of themselves, (not an outside organization) the following grievances: 1. We would like you to so arrange your full trips and your swings that each man, on whatever line he may be employed, will average

through the week twelve hours per day, including swing and meal relief. 2. Thirty minutes or over for meals. 3. Men running extra cars will be paid from the time the car leaves the barn until it returns thereto. 4. Conductors to be paid \$2 per day; drivers \$1.80. 5. Extra time to be paid; conductors 25 cents per hour; drivers 20 cents per hour. 6. Drivers must receive their pay in full.

On the 6th, the company in answer to the list of grievances submitted the following: Nos. 1. and 2. Owing to the difference in the length of the roads it is impossible to arrange the hours of work so as to bring them exactly alike on each road, unless the men are changed from one time to another daily; but we have prepared a schedule which brings the working time of each line within twelve hours, and average for all lines eleven hours and 28 minutes. No. 3. Men running extra cars will be paid from the time the car leaves the barn until it returns thereto. No. 4. We find that our business does not warrant our paying conductors more than \$1.80, which we find by investigation to be more than is paid in Albany, Syracuse, Rochester, Cleveland, Detroit and other cities similarly situated. New drivers will be paid for the first three months \$1.50, and after that \$1.65 per day. No. 5. Running extra cars at night, after a regular day's work, will be paid at the rate of one-sixth of a regular day's pay for each trip. No. 6. Drivers will receive full pay on each pay day.

Our companies operate and maintain forty-five miles of track and carry ten millions of passengers a year, and receive an average fare of about 4 84-100 cents; about two and one-half millions of passengers are transferred free, while all the lines in New York City receive a five cent car fare, no half fares, no transfers, and only children under four years of age are carried free. The Sixth Avenue Company, for instance, operates four miles of double track or eight miles of single track, and carries eighteen millions of passengers, and other New York companies operate roads not much greater in length and carry from 18 to 36 millions of passengers, which makes it evident that they can better afford to pay their men two dollars, than the Buffalo companies one dollar and eighty cents per day, and you can readily see the injustice of compelling us to carry passengers, for less than they are carried in New York, where they have only about eight miles of track to maintain, against our road of forty-five miles.

The concessions above made will entail a considerable additional expense in operating the roads, and in case the legislation now sought shall be obtained these rates cannot be maintained unless the volume of traffic is largely increased.

The men after two days consultation decided to accept the ultimatum of the company. The level head of conductor Britt, head of the organization, is said to have prevented the threatened strike. The whole dissatisfaction was fomented by the meddlesome daily press.

Cambridge, Mass.

A public test of the Meigs elevated road is announced to take place in a few days.

THE CAMBRIDGE HORSE RAILWAY Co. raised the wages of its employees, and also the fare from five to six cents.

Clifton, Ontario.

A charter has been obtained for a street railway on the Canada side of Niagara Falls between the Falls and Clifton.

Cincinnati, Ohio.

THE CONSOLIDATED STREET R. R. Co. refusing to grant some unreasonable requests of their employees, their hostlers quit work on May 7th. The company called on the police for protection at their stables and announce that under no consideration will they take back any of the strikers.

Danversport, Mass.

An extension of tracks of the Salem & Danvers Horse Railroad from Danversport to Asbury Grove, via East Danvers and North Beverly, is projected. The proposed route would bring Danvers, Peabody and Lynn nearly two miles nearer to Asbury Grove than by any other route, and cut off the steam railway travel to this famous camp ground.

Detroit, Mich.

THE DETROIT CITY RAILWAY extends its track about 5000 feet this season.

AUGUSTUS DAY's street railway track sweeper is being put on many new cars by builders, and his sales are largely increased in the past year. This is his specialty and from small beginnings entirely on the merits of his invention he has built up his present extensive and profitable business.

Fall River, Mass.

THE GLOBE STREET RAILWAY Co. advances its employees' wages and at the same time reduces the fare from six to five cents.

Fitchburg, Mass.

THE FITCHBURG STREET RAILWAY Co. have been incorporated under the laws of Massachusetts, with H. A. Willis Pres., H. J. Wallace of Fitchburg, Vice Pres., and Eliab Barker, of Boston, Treas. Wesley N. Sargent, formerly of Chelsea, and for some time connected with the Lynn & Boston Street Railway, has been appointed Supt. The directors of the corporation are: H. A. Willis, H. C. Hartwell, H. J. Wallace, and Geo. H. Spencer, of Fitchburg, and A. H. Rodgers, E. Barker, and S. D. Lowrey, of Boston. The authorized capital is \$60,000, and the company will build at once 3.26 miles of road through the main streets of Fitchburg, extending to West Fitchburg.

Six cars have been ordered from J. M. Jones' car works, West Troy; two open, two box, and two one horse cars. The one horse cars are to be equipped with the Allen fare boxes, and on the other cars conductors will be run with some sort of a register that is not yet decided upon. All the cars will be equipped with Bemis patent car boxes and gear. The company will purchase twenty horses, and expect to have the road in full

operation by June 25th. They are laying what is known as the Brockton track, with ties only at the crossings and turnouts and connected and held in place by iron rods. Through the main streets cars will make trips every fifteen minutes, with hourly runs to West Fitchburg. The fare decided upon is fifty cents in Fitchburg proper. A new stable and car house will be built at once.

Jamestown, N. Y.

JAMESTOWN STREET RY. Co. report that they are just putting in about one mile of double track and a new switch.

Kansas City, Mo.

CHIEF ENGINEER WISE of the Ninth street cable company returned Wednesday from the east where he has been directing the work of constructing the material for the Troost avenue and East Ninth street lines. The material will commence arriving June 1, by which time work on both roads will be underway. Both will be constructed on Mr. Wise's system. The grading for the Ninth street extension will be commenced next week.

THE KANSAS CITY CABLE RAILWAY COMPANY has filed with the county court a petition for right of way for a dummy line five and three-quarter miles in length to connect with its Troost avenue cable line at the southern city limits. If the franchise is granted the extension will be completed simultaneously with the main line and with the union depot road will make an unbroken line of transportation over eight miles in length.

The company has declared its first dividend of five per cent., payable July 1, to stock of record June 15.

La Crosse, Wis.

The two companies in this place have consolidated under the title of La Crosse City Street Railway Co. with B. E. Edwards, Pres., G. F. Gund, Vice Pres., Fred Tillman, Treas., Jas. T. Daggart, Sec., Peter Valier, Supt. of North Division and Geo. F. Smith, Supt. of South Division. Next month they will repaint their old rolling stock, add two new cars and extend their track one and one-half miles using the Johnson T rail. Ten horses will be added to their live stock.

Macon, Ga.

THE MACON & SUBURBAN extends about one mile.

Michigan City, Mich.

Work on the new street railway is being rapidly pushed forward and cars will be running this month.

Middletown, Conn.

THE MIDDLETOWN HORSE RAILWAY Co., John M. Danford, Pres., J. K. Gny, Secy. and Treas., Joseph Lane Superintendent, began last September the operation of their two miles of track. They have an equipment of six box cars, 31 horses. Their new cars are built by Jones, and are equipped with the Bemis car box and gear. The Wells fare box is used on all the cars and four trips an hour are made the entire length of the town. Five cent fares.

Minneapolis, Minn.

THE MINNEAPOLIS STREET RAILWAY Co. are putting in several of Wm. Wharton & Co.'s turntables and automatic switches.

Montgomery, Ala.

THE CAPITAL CITY STREET RAILWAY have made a final contract for the equipping of their entire line with the Van Depoele Electric Railway system, and the name of their company has been changed to the Capital City Electric Street Railway. The Montgomery people are more than pleased with the preliminary test made by the Van Depoele Electric Manufacturing Company under the most trying circumstances, and are congratulating themselves on their enterprise in securing an electric equipment ahead of their less enterprising northern brethren.

Mt. Vernon, N. Y.

THE MT. VERNON STREET RAILWAY is open.

Newport, R. I.

It is reported that two very wealthy New Yorkers will refuse to build if the horse railroad is established. A remonstrance will be signed by many of the most prominent cottagers, who fear that the road will ultimately run down Bellevue avenue. Most of the permanent residents of the place, however, are in favor of the scheme.

It is not believed that cars will be running till next year. Despite the emphatic popular vote, the City Council delays designating streets, in the interest of cottagers.

New York City, N. Y.

Representatives of \$12,000,000 out of \$22,000,000 property along Wall street petitioned against the Fulton, Wall and Cortlandt Street Ferries Railway Company, expressing the opinion that Maiden Laue, Liberty, Wall, William, Pine and Cortlandt streets are too narrow for a double track road. On the 25th the application of the company to the General Term of the Supreme Court, for the appointment of Commissioners to determine whether the road should be built, was withdrawn.

J. M. JONES' SONS of West Troy, N. Y., use Josephine D. Smith's lamps exclusively on the cars built by them, they say, "for the reason they are the best in the market, the lamps continue to give our customers very good satisfaction, and we are yet to record the first complaint."

It is understood that Mr. O'Brien has entered into negotiations with the Fourth and Sixth avenue companies to make connections at Fourteenth street and run their cars to the Battery. Mr. O'Brien's inventory of the company's property, filed with the court, shows claims against the Pacific Bank for \$5,036, money deposited; against Jake Sharp for \$952,000 for 9,520 shares of stock; against the holders of 1,020 shares of stock subscribed for but not paid; against the Broadway and Seventh Avenue Railroad for \$95,200 as assignee and transfer by Sharp of the 9,520 shares of stock, and against the same road for accounting of money received or due from running five cars on the Broadway road. The other property consists of books,

furniture, &c., in the company's office and railway tracks on the latter, and mortgages held by William Hays and Francis A. Palmer as trustees.

Messrs. Humphreys & Sayce, New York, have just shipped rails and fastenings to the Macon (Ga.) and Suburban Railway, the City and Suburban of Savannah, Seattle Street Railway, Gulf Street Railway of Galveston and various others.

BEADLE & COURTNEY, 1193 Broadway, general agents Railway Register Manufacturing Co., have just completed an improvement on their folding floor for cars which consists of an end casting of tinned malleable iron with a rib in each apartment to prevent the dowel or cylinder from turning. The floor can be folded as heretofore and this addition not only makes it much stronger and more desirable but reversible as well.

North Adams, Mass.

THE NORTH ADAMS HORSE RAILWAY, running five miles to Adams along the Hoosac valley, is being surveyed and will cost \$10,000 a mile.

Pawtucket, R. I.

THE PAWTUCKET STREET RAILWAY Co. have just closed a contract with Wm. Wharton & Co., Phila., for rails and all other material for the entire construction of their railway. The line will be eight miles long, single track with twenty-six switches, twelve turntables and ten or twelve curves. The Providence girder rail, steel, seven inches deep, fifty-four pounds to the yard, will be used, laid on iron bases supported by concrete foundations, and held to gauge every 7½ feet by iron tie rods placed edgewise.

Peoria, Ill.

THE PEORIA HORSE RAILWAY Co. are building two miles of new road.

Philadelphia, Pa.

UNION PASSENGER RY. Co. are extending their track on 21st and 22d streets, and Montgomery and Susquehanna avenues. Wm. Wharton & Co. are the contractors.

THE CALLOW HILL STREET BRIDGE is to have the wood work of the upper deck rebuilt and a double track laid down by Wm. Wharton & Co.

WM. WHARTON & Co. are shipping frogs, crossings, switches, and patent street curves, to the Rochester City & Brighton R. R. Co., Union Depot R. R. Co. of St. Louis, Acushnet Street Railway Co. of New Bedford, New Bedford & Fairhaven Street R. R. Co., Chicago West Division Railway Co., North Chicago City Railway Co., Lynn & Boston Railroad Co., Chambers Street & Grand Street Ferry Railroad Co. of New York, People's Passenger Railway Co., Lombard & South Street Passenger Railway Co., Philadelphia Traction Co., Hestonville, Mantua & Fairmount Passenger Railway Co., of Philadelphia, Jamestown St. Railroad Co., as well as orders for many other places.

In order to accommodate their increasing business Messrs. Lynn & Co., manufacturers of cocoa car mats, are building a new

factory at Mount Holly, N. J. Their office and warehouses will remain as heretofore at 707 Market street, Philadelphia.

WAX, RHODES & BLANKLEY, proprietors of the Way Foundry, have removed their place of business from 13th and Hamilton streets, and are now pleasantly situated in more commodious quarters at 23rd and Wood streets, where they have better facilities for carrying on their rapidly increasing business. A new pattern shop is in process of erection. New machinery is being put in and in every way working capacity increased. They supply all materials used in the construction of street railways.

A tasty little pamphlet, containing "night line time tables" of the Philadelphia street railways, comes to us from Alfred Slocum & Co. printers. It is a very desirable reference book for the tardy "lodge man".

THE BLUE LINE of the Traction Company runs over Hancock street to Columbia avenue, to Franklin street, to Seventh street, to Market street, to Seventeenth street, to Chestnut street; thence along Chestnut street to Ninth street, to Spring Garden street, to Seventh street, to Thompson, to Front street, to Columbia avenue, to Howard street; thence to the Lehigh avenue depot.

Pittsburgh, Pa.

Over one hundred street car horses are said to be suffering from "the epizootic" that made such ravages a few years ago. No fatal cases are reported as yet.

Strikes were inaugurated May 31, on the Pittsburg, Oakland and East Liberty, and the Wylie avenue street car lines, because the twelve hour schedule had not been put in operation. The cars on both lines are "tied up." An effort will be made to resume.

Sherman, Texas.

C. W. BATSELL of the Sherman City Street Railway, writes us that he is now negotiating for material for one mile and a half of track; he thinks there will be considerable extensions in many roads in that state during spring and summer.

Staten Island.

THE STATEN ISLAND HORSE RAILWAY extends its track four miles this season.

St. Paul, Minn.

ST. PAUL CITY RAILWAY Co. are putting down twelve of Wm. Wharton & Co.'s standard turntables with improved self oiling and adjustable centers, also twelve automatic switches from the same firm.

St. Louis, Mo.

THE UNION STREET CAR LINE placed forty new one horse cars on its road last month. They were from the shops of the Brownell & Wight Car Company.

THE CABLE COMPANY have purchased the rails for five miles of their new narrow gauge road.

A measure is before the city government for a cable road on Broadway, to cost about \$140,000 a mile.

THE ST. LOUIS CABLE RY. Co. have just ordered one of the latest improved sweepers with grip attachment, made by the

Brooklyn Railway Supply Co., being the same pattern as that furnished the Kansas City Cable Railway Company.

San Francisco, Cal.

Elaborate programmes, circulars and lithographs received from the Market Street Railway show that their Golden Gate Park is "booming" with first class musical attractions.

Toronto, Canada.

A new strike of the conductors and drivers of the Toronto Street Railway Co., declared itself the 1st of May. It was based on the allegation that the company had broken faith with the men. When the strike of March ended, it was evident that the seeds of future trouble remained. The President of the company took the men back on the old conditions, one of which was that they were not to join any union; the men, partly misled, it would seem, by some aldermen, who had intervened in a more or less officious way, gave out that they went back without conditions. The present strike therefore proceeds on a misapprehension at best, and is, in fact, causeless and unsustainable on the ground on which it is put. This time the Mayor has promptly acted the part which his position at the head of the municipality exacts from him. The strike of March was accompanied by violence, which aimed to prevent the running of cars. He by proclamation, has promptly warned the turbulent element that no tolerance will be extended if this time; loiterers are notified to move on, and not repeat the obstruction of March. The strikers being forewarned, have behaved well, and there has been no attempt to obstruct the movement of the cars. There is no doubt that the police commissioners are determined to keep the peace, at all hazards, even if it should be necessary to call out the militia.

Utica, N. Y.

THE UTICA BELT LINE STREET RAILWAY Co. have acquired the requisite consent of the property owners on twenty of the twenty-three streets over its proposed route, and have applied for a franchise from the Common Council, agreeing to buy the same in open auction, to build the entire line in one year, to make the fare five cents or less, and run on fifteen minutes or less headway in the city proper, etc., etc.

THE UTICA & MOHAWK RAILROAD Co. was reorganized May 20th, with the following directors: James F. Mann, A. D. Barber, Wm. E. Lewis, John B. Wild, John H. Sheehan, Wm. Kerbau, John B. Wild, John H. Sheehan, Wm. E. Lewis, J. M. Childs, P. C. J. DeAngelis, Ward Hunt, Jr., T. R. Proctor, W. P. Fish, Charles G. Duffy, R. G. Hoerlein. The directors elected the following officers: James F. Mann, President; J. H. Sheehan, Treasurer; Wm. E. Lewis, Secretary.

Executive Committee—The officers ex-officio; A. D. Barber and John B. Wild.

The Executive Committee will at once take steps to place the road in good condition, and as far east as Jefferson street it will be placed in the center of the road.

Charles W. Hutchinson is no longer an

officer, director or stockholder in the company. The tearing up of the tracks two or three years ago, the litigation which grew out of the affair, and the disadvantage to East Utica and to the city by having the street car line virtually abandoned, these are too well known to need repetition. Affairs got into such a snarl that it was thought impossible to ever unravel them. Finally James F. Mann undertook to untie the gordian knot and he entered into contract to purchase the property. To fulfill this contract it was necessary to get the consent of the property owners on the street, and to get persons to take stock in the new company. As there was considerable feeling, and as many believed the affairs of the company were hopelessly entangled, this was no easy matter. But Mr. Mann had the requisite enterprise and push, and he arranged matters harmoniously after considerable time and labor. Best of all the suits in which the railroad company, the county and city were parties, have been dropped. Mr. Mann is to be congratulated on achieving this good result. When the road is once more in operation, and the day is not far distant, East Utica will continue to grow as rapidly as it did just after the factories were built, and the Driving Park will be easily accessible to thousands during the State fair, the Circuit races, and the numerous picnics that are sure to be held on it this summer.

Washington, D. C.

A boom in real estate has begun on the Anacostia since the talk of a cable road to connect it with the city.

Windsor, Ont.

THE VAN DEPOELE MANUFACTURING COMPANY have contracted and are now engaged upon the construction of an electric railway at Windsor, Ontario. The expectation is that the line will be carrying passengers on the 24th of May (the Queen's Birthday). When we consider the fact that the work was not commenced until the 20th of May, we think that it demonstrates the fact that electric railways have passed their experimental stage and taken their place among the substantial, permanent enterprises of the day.

Wymore, Neb.

WYMORE & BLUE SPRINGS RY. Co. will expend \$7,000.00 in additions to track equipment, livestock and stable facilities.

The Miller Grip.

EDITORS STREET RAILWAY JOURNAL:—

In your last issue in giving description of grip on page 252, you stated it was for the Kingsbridge Road. This was a mistake, as it was the one originally designed for and in use on the Tenth avenue road in this city.

D. J. MILLER.

MAHOGANY is being so extensively used for interior work of passenger cars that there is a considerable increase in the amount imported.

THE LIGHTING of cars by electricity in France is making very rapid strides ahead.

Guaranteeing Car Wheels.

The philosopher, as well as the owner in railroads, will find interesting matter for contemplation in the announcements of many of the car wheel manufacturers. The first may very reasonably be led to enquire why so much stress is laid upon the gross capacity and output of car wheel mills, and so little said concerning the far more important question concerning durability; while the railroad man will recall, with something like bitterness, that the "guarantee" which is printed in such large type in many of these announcements, did not prevent the breaking of a wheel and the consequent wrecking of a train which caused a loss to his road of many thousands of dollars.

Every intelligent human being engaged in car wheel making is aware of the fact, that the business is on the high road to demoralization by reason of the entrance into it of the bogus manufacturers and the sharper, and, further than this, he is aware that a "guarantee" for a car wheel is about as valuable as a guarantee would be for the safety of a balloon. It were poor consolation for railway owners, as they gaze upon a train piled up in an almost indistinguishable heap, that the broken wheel which caused the accident will be replaced by the manufacturer in accordance with his guarantee, and so far as the traveling public is concerned they would indeed be credulous mortals who should think to find security from disaster in the fact that the wheels of their train had been guaranteed not to break by them who made them.

The bogus wheel manufacturer is doing for the wheel industry what his prototype formerly did for iron rails, and unless some decided action is soon taken to keep up the standard of excellence in car wheel making a similar result is pretty sure, sooner or later, to happen. For it will be remembered that the bogus iron rail men, in the use of inferior material, so underbid the reputable manufacturer that he was eventually compelled to give up the contest. As a result good iron rails were hard to find, and railroad men got to be so suspicious of iron rails that finally there was no sale for them at all, notwithstanding the fact that many eminent authorities believed in the efficacy and reliability of iron for rails; the wiles of the bogus manufacturers made steel a necessity, and the honest makers began the manufacture of rails out of steel made by the pneumatic process.

This is the history of the rail business, and from present appearances it would not be a difficult matter to presage a similar ending to the present strife between the honest manufacturers of cast iron wheels with steel tread and the scalawags who boast of the quantity of wheels they turn out, and keep the facts as to the quality a secret unto themselves, and their partners and co-conspirators.

Already there is a growing demand for paper and steel-plate car wheels and a purchasing agent of one of the largest railroads in the country, whom we talked with re-

cently, says that suspicion of nearly all cast iron car wheels is the order of the day.

Right here we wish to say, that there is reason to suspect the quality of any cast-iron car wheel offered for less than eleven dollars net, for we have the most reliable authority for the assertion, that first-quality car wheels can not be made for less than this figure.

If any manufacturer can dispute this assertion, we would be glad to hear from him and will willingly accord him an opportunity to present whatever evidence he may have in rebuttal.

Notwithstanding that first-class wheels cannot be made for eleven dollars net, there are large quantities constantly being offered at eight dollars and nine dollars and even seven dollars. Of course a "guarantee" goes with these wheels and, as everybody knows, a "guarantee" is sure to add strength to a rotten car wheel.

This "guarantee" business, especially as applied to wheels of bad quality, is the shallowest of all impostures, and as a rule, though by no means in every case, its presence indicates the presence of wheels which are undeniably second-class.

Quite recently the purchasing agent of a great railroad testified before the Car-Builders' Club, that twenty-five per cent. of the cast iron wheels of a certain maker had failed utterly when put into practical use, and those supplied his company by several other supposed-to-be reputable makers had acquitted themselves scarcely any, if at all better.

We do not wish to have it inferred from what we have said in this article that good and reliable cast-iron car wheels are hard to find. This is not the case.—Railway News.

Street Railways on the Continent.

The street-railway service as managed on the continent of Europe would doubtless commend itself more favorably to the average traveler than either that of Great Britain or our own country. It must be admitted that in certain features and regulations appertaining to the continental service, the advantage lies on that side of the water.

It is not that the roads are better laid, manned, or equipped, or that transfer thereon is in any way more expeditious, for in these points the several countries mentioned are not far from being even.

To that widely known and popular character, the "casual observer," the feature of continental tramway travel which chiefly claims his admiration and approval is the entire absence of crowding in the cars; the law prohibiting the carrying of any number of passengers in a car exceeding that of the seats. In addition to this regulation, in favor of which much can be said, another distinctive custom common to nearly all countries of Europe, is the carrying of passengers on the car-roofs. This latter would certainly seem, where practicable, a plan in all respects advantageous, as it provides a first and second class rate of fare, gives a larger seating capacity, and

combines the advantages of both our summer and winter cars. As to the effect of two rates of fare on a company's receipts, the point would demand a thorough trial of both methods under precisely equal conditions, and a careful comparison of results. That, however, is a question which does not so directly affect the comfort of travelers, as the more personal one of accommodation.

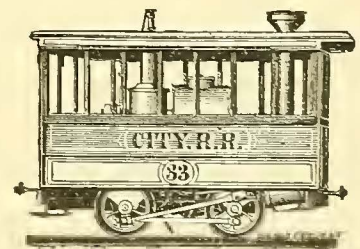
It must without doubt be granted that much is to be said in favor of a law compelling all tramway companies to provide a seat for every passenger, but it should be remembered that while such a law ensures a seat to each passenger in the car in which he is conveyed, it will at times follow that he will be without the means of conveyance at all, for at best the law can but prohibit a company from carrying in a car more passengers than it has seats. At such a time a would-be patron of the road is rather apt to resent his legal disability to stand up if he so wishes, and arrives at the conclusion that the law approximates too closely the paternal. It is true that the double deck character of the street car of Europe to a great extent obviates this objection, that is to say, proportionably; but it is by no means an unusual circumstance in Paris or Turin, to be compelled to wait while half a dozen cars pass before one is found with the sign "full" turned down. It is also probable that even with the use of the roof, the continental car, divided as it is into separate seat spaces, would fall short by a considerable number of the capacity of a crowded American car with the customary platform attachments.

The introduction of the roof system into the cities on this side would, however, be a considerable gain in comfort and convenience. New York unfortunately is past the point of that improvement, as the slight elevation of many portions of the elevated roads would render it impossible.

As to the landed virtue of the no-seat-no-ride plan, it would perhaps at least be worth the trial, could it be shown that the companies would increase their accommodation to an equal carrying capacity. Even then it is probable that the main result would be that those who now do not ride from inability to incorporate their persons into a solid mass of motionless humanity, would then perceive a revised and enlarged opportunity for enjoying erect transportation, of which they would promptly take advantage; for it may be fairly doubted if any free and enlightened American citizen would tamely submit to forcible deprivation of his cherished right and privilege to be uncomfortable.—R. R. Journal.

Light Locomotives.

The accompanying cut is one of light locomotives built for street railway service by H. K. Porter & Co., of Pittsburg, Pa.



Many companies having long suburban lines are finding it profitable to discard horses and use steam. Makers report an increase in orders for light locomotives for this service over previous years.

Single vs. Duplicate Cables.

EDITORS STREET RAILWAY JOURNAL:—

In reply to Mr. Miller's letter in your May issue—

If the writer will inquire of any of the managers of cable roads in San Francisco, he will find that my statement is correct, as I kept them myself when connected with the Sutter Street Railroad, also that it is the custom to cut off the loose strand, tuck the end, and start again. Is it likely that such a course would be adopted if, as Mr. Miller states, it would ruin the cable?

Take the following case. The running cable strands 500 feet, and catches in the conduit. Would Mr. Miller advocate running the duplicate cable while the other is in that position and condition? It is in just such a case when the duplicate cable is needed, it cannot be made use of.

I repeat that Mr. Miller's statements in your March issue were a misrepresentation of facts notwithstanding the information he may have received from any official connected with this road. Will Mr. Miller give the gentleman's name?

The duplicate cable was taken out in July, also the carrying pulleys for same, except in those places where the cable would not retain its normal line, when it was found necessary to place two pulleys in order to stop the cable from chafing on the edge of one. These pulleys are being replaced by others of different design, and more suitable for the work.

My experience with the duplicate cable was short, but quite sufficient to satisfy me, as well as many others, that it was good in theory, but not in practice.

Will Mr. Miller please state who inspects the cables on the 10th avenue cable road, and if repairs are necessary to be made, do they send to Chicago for a splicer? It is much better to have a splicer within immediate call, rather than depend upon the generosity of your neighbors for one.

It was no doubt surprising to Mr. Miller, that notwithstanding the steel cable was put in the beginning of October, we did not have a stop until the end of December. The public here have been no more inconvenienced under the single cable system, than have the public of New York, under the duplicate system. An engine should be stopped for several days in order to get a thorough inspection, but Mr. Miller cannot claim the credit for duplicate engines, as every cable road is provided with them, also with such portions of the machinery as may be necessary to keep in duplicate.

The Miller grip as illustrated in your April issue was thoroughly tested, and although several hundred dollars were expended endeavoring to improve it, it would not pull a train filled with passengers up a ten per cent. grade, while a grip kindly loaned me by Mr. Holmes, of the Chicago cable road, pulled six crowded cars up the same hill.

I do not, nor ever have claimed, that every new road must be the same as those in the west.

The sweeping assertion that the 10th av-

enue cable road is superior in every detail to other cable roads is not supported by facts. The slot rail is a trap for horses' shoes, and a guide for mud to fall in the conduit. The drainage system provides for carrying off the water, but leaves the mud in the tube when rain should flush it out.

This company will build several additional miles of cable road, the coming summer, and as a proof of the surpassing excellence of Mr. Miller's system it will be altogether abandoned. The road bed yokes, drainage system, carrying pulleys, switches, and curves will be changed, which does not look like acknowledging that the duplicate system is the only complete system of cable roads in existence.

When speaking of the excellence of the plant I was paying a deserved tribute to Mr. William Wright, of Newburg, N. Y., and Messrs. Poole & Hunt, of Baltimore, who constructed the engines and machinery.

EDWARD J. LAWLESS.

New Method of Laying Rails.

Laying a rail upon a longitudinal iron sleeper is urged as a feasible and economic thing in an article in English Iron. This sleeper is an inverted channel iron with sloping sides, width on the top 9.76 inches, depth 2.36 inches, width over flanges 12.6 inches, and length twenty-seven feet 10½ inches. These longitudinal sleepers are not directly connected, there being a clear space of one foot 7½ inches between the ends of consecutive sleepers, this space being under the joint of the rail. The rail joint is made with deep fishplates of a new pattern, which are so formed that when the joint is screwed up the pressure is entirely on the flanges of the rail, the web being untouched by the fishplates. The moment of resistance of the two plates is as great as that of the rail and sleeper together. As the fishplates project about two inches below the top of the sleeper, and there is only just clearance, any creeping of the rails on the sleepers is impossible. The rail is attached to the sleeper at nine points, three feet 5½ inches apart centers, by means of a screw bolt, binding plate and bent washer on each side of the rail. The cross-ties, of which there are three to each pair of sleepers, consist of a peculiarly-shaped angle or channel iron six feet seven inches long and four inches deep. At each end this is attached by three rivets to the vertical limb of an ordinary angle iron whose horizontal limb has two holes corresponding with the holes in the sleepers, and through which pass the bolts which hold down the binding plate and washer described above. This angle iron is riveted at an angle of one in twenty with the cross-tie, thus giving the necessary inward inclination of the rail. The ballast is levelled up to the top of the binding plate, and the form of the cross-tie and the clear space between the sleeper ends conduce to its good drainage. The advantages claimed for the system are as follows: There is only one pattern of sleeper, straight and uniformly holed. There is no jointing of the sleepers. The continuity is complete. The rail joint is suspended. The drainage of the ballast is assisted by the form of the cross-ties. The gauge and the curving of the rails are unchangeably preserved. The laying of the way is simply and quickly carried out.

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OFFICE ROOM to let in New York and Chicago to parties in the street railway supply line. Address "OFFICE," care STREET RY. JOURNAL, 32 Liberty St., New York.

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 Augustus Day, Detroit. 308
 Way Foundry Co., 23d & Wood Sts., Phila., Pa. 312
 Johnston Frog and Switch Co., 307 Walnut St., Philadelphia, Pa. 312

TRACK SCRAPERS.
 Andrews & Clooney, 545 W. 33d St., N. Y. 324-325
 Brooklyn Railway Supply Co., 37 Walworth St., Brooklyn. 315

VARNISHES.
 John Bahcock & Co., 2 Liberty sq., Boston Mass. 302
 Parrott Varnish Co., Bridgeport, Conn. 307

WHEEL PRESSES.
 Watson & Stillman, 471 S. Grand st., N. Y. 305
 Wm. Wharton, Jr., & Co., Limited, Phila., Pa. 314

WHEELS.
 Andrews & Clooney, 545 West 33rd st., N. Y. 324-325
 Lewis & Fowler, Brooklyn, N. Y. 322-323
 A. Whitney & Sons, Philadelphia Pa. 303

OFFICIAL LIST OF THE STREET RAILWAYS IN THE UNITED STATES & CANADA.

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

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

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

ALBANY, N. Y.—Watervliet Turnpike R.R. Co. 7 1/2 m, 26-45 lb r, 27 c, 143 h. Pres. Chas. Newman, Sec. & Treas. P. Way, Supt. M. C. Foster.

The Albany Ry. 10 m, 4-8 1/2 g, 33-47 lb r, 51 c, 194 h. Pres., Supt. and Treas. John W. McNamara, Sec. Jas. H. Manning. Offices 3 & 5 N. Pearl St.

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

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

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

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

ATCHISON, KAN.—Atchison St. Ry. Co. 5 1/2 m, 4-8 1/2 g, 20-30 lb r, 19 c, 60 h. Pres. & Gen. Man. J. H. Beeson, Treas. H. M. Jackson, Sec. J. P. Adams.

Gate City St. R.R. Co. 2 1/2 m, 4-8 1/2 g, 16 lb r, 7 c, 26 h. Pres. L. B. Nelson, V. Pres. L. DeGivie, Sec. & Treas. John Stephens, Solicitor, A. Remharth, Metropolitan St. R.R. Co.

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

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

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

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

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

BABYLON, N. Y.—Babylon Horse R.R. Co. 1 1/2 m, —g, —lb r, 2 c, 3 h. Pres. W. F. Norton.

BALTIMORE, MD.—Baltimore & Powhatan Ry. Co. 6 m, 5-4 1/2 g, 4 c, 17 h. Pres. & Treas. E. D. Freeman, Sec. R. B. Clark, Supt. I. M. Ketrick.

Baltimore City Pass. Ry. Co. 40 m, 5-4 1/2 g, 16 & 47 lb r, 16 c, 107 1/2 h. Pres. Oden Bowie, Treas. John Bolgiano, Sec. S. L. Bridge.

Baltimore Union Pass. Ry. Co. Supt. T. C. Robbins. Baltimore & Catonsville Ry. Co. 6 m, 5-4 1/2 g, 35 lb r, 15 c, 51 h. Pres. J. C. Robbins, Supt. & Pur. Agt. G. W. Appley. Office Pratt St. & Frederick Av.

Baltimore & Halls Spring R.R. Co. Baltimore & Pimlico & Pikesville R.R. Co. Central Ry. Co. 5 1/2 m, 5-4 1/2 g, 40lb r, 22c, 180 h Pres Peter Thompson, Sec. & Treas. Walter Blakistone.

Citizen's Ry. Co. 20 m, 5-4 1/2 g, 46 lb r, 34 c, 360 h. Pres. Jos. S. Hagarty, Treas. Wm. S. Hammersley, Supt. C. C. Speed.

Monumental City Ry. Co. North Baltimore Passenger Ry. Co. 11 m, 5-4 1/2 g, 45 lb r, 72 c, 400 h. Pres. Jas. L. McLane, Treas. Dun'J. Foley, Sec. Thos. J. Wilson.

People's Ry. Co. 5 1/2 m, 5-4 1/2 g, 42-45 lb r, 30 c, 200 h. Pres. R. E. Hamilton, Treas. Gustavus Ober, Sec., Supt. & Pur. Agt. Wm. A. House, Jr. Office, Fort Ave. & Johnson St. Soon move to Druid Hill Ave. York Road R.R. Co.

BATTLE CREEK, MICH.—Battle Creek Ry. Co. 5 m, 3-6 g, 28 lb r, 8 c, 18 h, 3 mu. Pres. Geo. Det-J. White, V. Pres. H. H. Brown, Sec. Chas. Thomas, Supt. John A. White, Gen. Man. J. W. 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.

BEAVER FALLS, PA.—Beaver Valley St. Ry. Co. 3-10 m, 5-2 1/2 g, 38 lb r, 8 c, 32 h. Pres. M. L. Knight, V. Pres. Col. J. Weyand, Sec. & Treas. J. F. Merri-man, Supt. L. Richardson.

BELLAIRE, O.—Bellaire St. R.R. Co. BELLEVILLE, ONT., CAN.—Belleville St. R.R. BELLEVILLE, ILL.—Citizen's St. Ry. Co. 1 1/2 m, 5 c. Pres. D. P. Alexander, Man. & Treas. H. A. Alexander, Sec. J. E. Thomas.

BEREA, O.—Berea St. Ry. Co. 1 1/2 m, 3-6 g, 28 lb r, 2 c, 2 h. Pres. C. W. D. Miller, V. Pres. T. Chinchward Sec. & Treas. A. H. Pomroy, Supt. A. W. Bishop.

BINGHAMTON, N. Y.—Washington Street & State Asylum R.R. Co. 4 1/2 m, 4 g, 16-25 lb r, 13 c, 23 h. Pres. R. H. Mcagley, V. Pres. Geo. Whitney, Sec. I. J. Mcagley, Treas. F. E. Ross.

Binghamton Central R.R. Co. 3 1/2 m (2 1/2 laid), 3 g, 28 lb r, 6 c (not in operation). Pres. Geo. L. Crandall, V. Pres. Nelson Stow, Sec. & Supt. Chas. O. Root, Treas. H. J. Kneeland. Offices 63 Court St.

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

Main, Court & Chenango St. R.R. 5 m, 4-8 g, 40 lb r, 10 c, 25 h. Supt. & Lessee, N. L. Osborn. Offices 83 Washington St.

BIRMINGHAM, ALA.—Birmingham St. Ry. Co. 5 1/2 m, 4-8 g, 16 lb r, 13 c, 40 m. Pres. Geo. L. Morris, Supt., Sec. & Treas. W. H. Morris.

Highland Avenue R.R. 6 1/2 m, 4-8 1/2 g, 30 lb r, 9 c, 25 h. Pres. H. M. Caldwell, Supt. W. J. Milner, Owners The Elyton Land Co.

Birmingham & Pratt Mines St. R.R. Pres. J. A. Van Hoose.

BLOOMFIELD, N. J.—Newark & Bloomfield R. R. Co.

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 & Boonshoro 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.

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

BOSTON, MASS.—Highland St. Ry. Co. 19 m, 4-8 1/2 g, 48 lb r, 187 c, 1000 h. Pres. Moody Merrill, Clerk R. B. Fairhair, Treas. Samuel Little, Supt. J. E. Rugg.

Lynn & Boston, 3 1/2 m, 4-8 1/2 g, 25-48 lb r, 114 c, 514 h. Pres. Amos F. Breed, Treas. & Sec. E. Francis Oliver, Supt. Edwin C. Foster.

Metropolitan R.R. Co. 80 m, 4-8 g, 50 lb r, 700 c, 3,600 h. Pres. C. A. Richards, Sec. H. R. Harding, Treas. Chas. Boardman, Office, 16 Kilby St.

Middlesex R.R. Co. 26 m, 4-8 1/2 g, 50 lb r, 150 c, 700 h. Pres. Chas. E. Powers, Treas. J. H. Studley, Jr., Supt. John H. Studley, Address, 27 Tremont Row, So. Boston Ry. Co. 13 m, 4-8 1/2 g, 42-50-60 lb r, 193 c, 900 h. Pres. Chas. H. Hersey, V. Pres. Jas. C. Davis, Sec. & Treas. Wm. Reed, Supt. Daniel Coolidge.

BRADFORD, PA.—Bradford & Kendall R.R. Co. 1 1/2 m, 4-8 1/2 g, 35 lb r, 3 c, 4 h. Pres. James Brodey, Sec. N. B. Parsons, Gen. Man. & Supt. Emos Parsons.

BRENHAM, TEX.—Brenham St. Ry. Co. 2 m, 4 g, 20 lb r, 3 c, 22 mu. Pres. T. J. Pampell, Sec. John A. Randle, Treas. D. C. Giddings.

BRIDGEPORT, CONN.—The Bridgeport Horse R.R. Co. 5 m, 4-8 1/2 g, 42 lb r, 16 c, 50 h. Pres. Albert Eamer, Sec. & Treas. F. Hurd, Supt. B. F. Lashar.

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

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

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

Brooklyn Cross Town R.R. Co. 8 m, 4-8 1/2 g, 40-60 lb r, 72 c, 400 h. Pres. Henry W. Siocum, V. Pres. Ezra B. Tuttle, Sec. & Treas. John R. Connor, Supt. D. W. Sullivan. Offices 555 Manhattan Ave.

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

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

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

Brooklyn City & Newtown R.R. Co. 11 m, 4-8 1/2 g, 45-60 lb r, 124 c, 419 h. Pres. Louis Fitzgerald, N. Y. City, Sec. & Treas. H. A. Schuz, Supt. H. W. Hush, Office cor. Dekalb & Central Aves.

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

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

Cross-town Line, Hamilton Ferry to Bridge. Grand St. & Newtown R.R. Co. 8 1/2 m, 4-8 1/2 g, 45-50 lb r, 72 c, 230 h. Pres. Martin Joo-t, Sec. & Treas. Wm. F. Horwill, Supt. Walter G. Howey. Office 129 First St.

Grand Street, Prospect Park & Flatbush R.R. Co. 4 1/2 m, 4-8 1/2 g, 50 lb r, 75 c, 244 h. Pres. Louis Fitzgerald, 129 Broadway, N. Y., Sec. & Treas. Duncan B. Cannon, Supt. Juo. L. Helms. Offices Franklin Ave. and Prospect Place.

Greenpoint & Lorimer St. Prospect Park & Coney Island R.R. Co. 4-7-10 m, 45-50 lb r, 4-8 1/2 g, 69 c, 214 h. Pres. A. R. Culver, Treas. A. C. Washington, Sec. George H. Smith, Eng. Supt. R. Schermernhorn, Supt. Robert Attlesley, Offices Ninth ave., 19th & 20th Sts. (Leased to Atlantic Ave. R.R. Co.)

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

South Brooklyn Central R.R. Co. 7 m (3 1/2 m laid), 4 1/2 g, 60 lb r, 42 c, 192 h. Pres. Wm. Richardson, Sec. Wm. J. Richardson, Treas. N. H. Frost, Supt. James Ruddy.

The New Williamsburgh & Flatbush R.R. Co. 6 1/2 m, 4-8 1/2 g, 47-50 lb r, 74 c, 255 h. Pres. Geo. W. Van Allen, 54 Ann St., New York, Sec. W. B. Walt, 34th St. & 9th Ave., New York, Treas. C. B. Cottrell, 8 Spruce St., N. Y. City, Supt. Chas. E. Harris, Nost-rand Ave. & Carroll St., Brooklyn.

The Union Railway Co. of the City of Brooklyn (not in operation).

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

BRUNSWICK, GA.—Brunswick St. R.R. Co. BUFFALO, ILL.—See Mechanicsburg, Ill.

BUFFALO, N. Y.—Buffalo St. R.R. Co. 17 1/2 m, 4-8 1/2 g, 50 lb r, 36 c, 510 h. Pres. Henry M. Watson, V. Pres. P. P. Pratt, Sec. S. S. Spaulding, Treas. W. H. Watson, Supt. Edward Edwards.

Buffalo East Side St. R.R. Co. 24-4-5 m, 4-8 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 546 Main St.

BURLINGTON, IA.—Burlington City R.R. Co. 2 1/2 m, 4-8 1/2 g, 22 lb r, 9 c, 30 h. Pres. John Patterson, Sec. & Man. C. T. Patterson.

Union St. Ry. Co. 8 1/2 m, 4-8 1/2 g, various r, 19 c, 55 h. Pres. Geo. E. Rust, Sec. & Supt. F. G. Jones.

CAIRO, ILL.—Cairo St. Ry. Co. 2 m, 3-6 g, 25 lb r, 3 c, 9 h. Pres. J. A. Goldstein, 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, 35 c, 1,428 h. Pres. Prentiss Cummings, Treas. & Clerk Franklin Perrin, Exec. Com. I. M. Spelman, P. Cummings, O. S. Brown, Clerk of Directors, S. Brown, Supt. Wm. A. Bancroft.

Charles River St. Ry. Co. 12.158 m, 4-8 1/2 g, 80 lb r, 60 c, 356 h. Pres. Chas. E. Raymond, Corp. Clerk C. E. Harden, Treas. Daniel U. Chamberlin, Supt. John N. Akarman.

CAMDEN, N. J.—Camden & Atlantic St. Ry. Camden Horse R.R. Co. 9 m, 5-1 g, 35-47 lb r, 26 c, 85 h. Pres. Thos. A. Wilson, Sec. Wilbur F. Rose, Treas. & Supt. John Hood.

CANTON, O.—Canton St. R.R. Co. (new road.) CAPE MAY, N. J.—Cape May & Scheelenger Landing Horse R. R.

CARTIAGE, MO.— CEDAR RAPIDS, IA.—Cedar Rapids & Marlon St. Pass. Ry. Co.

CHAMPAIGN, ILL.—Champaign R.R. Co. Urbana & Champaign St. R.R. Co. (See Urbana.) CHARLESTON, S. C.—Charleston City Ry. Co. 8 1/2 m, 4-8 1/2 g, 38-42 lb r, 22 c, 84 h. Pres. Jno. S. Riggs, Treas. Evron Edwards, Sec. Frank Whelden, Supt. Jno. Mohlenhoff.

Enterprise R.R. Co. 12 m, 5 g, 42 lb r, 14 c, 51 h. Pres. A. F. Ravenel, Sec. & Treas. U. E. Hayne, Supt. T. W. Passallagere.

Middle Street Sullivan Island Ry. Co. 2 m, 6 c, 12 mu. Pres. B. Callaghan, Sec. & Treas. Frank F. Whidden, Supt. B. Buckley.

CHATTANOOGA, TENN.—Chatanooga 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. 5 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. 87 m, 4-8 1/2 g, 45 lb r, 567 c, 1,416 h, cable doing work of 2,500 h. Pres. C. B. Holmes, Sec. H. H. Windsor, Treas. T. C. Pennington, Supt. C. B. Holmes.

Chicago West Division Ry. Co. 40 m, 4-8 1/2 g, 40 lb r, 620 c, 3,425 h. Pres. J. R. Jones, Sec. George L. Wehh, Supt. Jas. K. Lake.

Chicago & Hyde Park St. — m, —g, —lb r, —c, —h. Pres. Douglas S. Clarke.

North Chicago City Ry. Co. 35 m, 4-8 1/2 g, 45 lb r, 316 c, 1,700 h. Pres. & Gen Supt. V. C. Turner, V. Pres. Chas. T. Yerkes, Sec. & Treas. Hiram Crawford, Supt. of Track & Construction, Augustine W. Wright, Asst. Supt. Fred L. Threedy, Supt. Horse Dept. Robt. Atkins, Purch. Agt. John W. Roach, Master Mechanic J. Miller.

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

CINCINNATI, O.—Cincinnati Inclined Plane Ry. Co. 3 m, 5-2 1/2 g, 43 lb r, 24 c, 150 h. Pres. Geo. A. Smith, Sec. & Supt. James M. Doherty, Treas. Jos. S. Hill.

Cincinnati St. Ry. Co. Pres. Jno. Kilgour, V. Pres. Albert G. Clark, Treas. R. A. Dunlap, Sec. & Auditor, Jas. A. Collins, Supt. Jno. Harris, Pur. Agt. B. F. Baughton.

Columbia & Cincinnati St. R.R. Co. 3 1/2 m, 3 g, 35 lb r, 3 c, 6 dummy c. Pres. C. H. Kilgour, V. Pres. John Kilgour, Treas. B. F. Brannan, Sec. A. H. Meyer, Mt. Lookout, O. Supt. J. J. Henderson, Mt. Lookout, O.

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. Whitman.

So. Covington & Cincinnati. (See Covington, Ky.) CLEVELAND, O.—The Brooklyn St. R.R. Co. 8 1/2 m, 4-8 1/2 g, 52 lb r, 66 c, 375 h. Pres. Tom. L. Johnson, V. Pres. A. J. Moxham, Sec. J. B. Hoefgen, Treas. John McConnell, Supt. A. L. Johnson.

Broadway & Newburg St. R.R. Co. 6 m, 4-8 1/2 g, 10 c, 160 h. Pres. & Supt. Joseph Stanley, V. Pres. Sam'l Andrews, Sec. & Treas. E. Fowler.

Superior St. R.R. Co. 15 m, 4-8 1/2 g, 45 lb r, 46 c, 225 h. Pres. Frank De H. Robinson, V. Pres. John Koch, Sec. & Supt. M. S. Robinson, Jr.

The East Cleveland R.R. Co. 20 m, 4-8 1/2 g, 35-40 lb steel r, 103 c, 520 h, 1 electric motor. Pres. A. Everett, V-Pres. & M. C. H. Chas. Wason, Sec. & Treas. H. A. Everett, Supt. E. Duty. Offices, 1154 & 1158 Euclid Ave.

Woodland Avenue & West Side St. R.R. Co. 20 m, 4-8 1/2 g, 43-45 lb r, 124 c, 585 h. Pres. M. A. Hanna, V. Pres. C. F. Emery, Sec. J. B. Hanna, Gen. Supt. George G. Mulhern.

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. Hoefgen.

St. Clair Street Ry. Co.—m—g,—lbr—c,—Pres. Chas Hathaway.

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

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

COLUMBUS, O.—Columbus Consolidated St. R.R. Co. 19 m, 5-2 g, 20-46 lb r, 81 c, 350 h. Pres. A. Rodgers, V. Pres. H. T. Chittenden, Sec. & Treas. E. K. Stewart, Supt. J. H. Atcherson.

Greenwood & Greenlawn St. R.R. Co. 4 1/2 m, 3-6 g,

24 hr r, 9 c, 25 c. Pres. A. D. Rodgers, V. Pres. B. S. Brown, Sec. R. R. Rickly, Treas. S. S. Rickly, Supt. Jonas Wilcox.

CONCORD, N. H.—Concord Horse R.R. Co. 8 m, 3 g, 30-33 lb r, 10 c, 14 h, 2 steam motors. Pres. Moses Humphrey, Treas. H. J. Crispin, Clerk E. C. Hoag.

CORTLAND, N. Y.—Cortland & Homer Horse Ry. Co. 4 m (2 1/2 lald), 4-8 1/2 g, 25-30 lb r. Pres. Chas. H. Garrison, Troy, N. Y. Sec. J. M. Milne, Treas. S. E. Welch, Supt. S. E. Welch. (Leased to D. N. Miller.) Office 23 No. Mercer St.

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

DALLAS, TEX.—Dallas St. Ry. Co. 4 1/2 m, 4-8 1/2 g, 20-33 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, 6 c, 24 mu. Pres. A. C. Ardrey, Sec., Treas. & Man. H. W. Keller.

DANVILLE, ILL.—Citizens' St. Ry. Co. 4 m, 4 g, 20 lb r, 8 c, 35 mu. Pres. Wm. P. Cannon, V. Pres. & Gen. Man. Wm. Stewart, Sec. & Treas. Adam R. Samuel.

DAVENPORT, IA.—Davenport Central St. R.R. 2 1/2 m, 4-8 1/2 g, 20 lb r, 12 c, 36 h. Pres. James Grant, V. Pres. W. L. Allen, Treas. J. B. Fidler, Supt. B. Rumsey, Sec. O. S. McNeil.

Davenport City Ry. Co. H. Schuttger, Lessee. **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, 50 h and mu. Pres. J. W. Stoddard, V. Pres. H. S. Williams, Sec. C. A. Craighead, Supt. A. W. Anderson.

Oakwood St. Ry. Co. 6 m, 4-8 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, 34-38 lb r, 5 c, 30 h. Pres. Geo. M. Shaw, Sec. & Treas. Eugene Winchet, Supt. N. Routhahn.

DECATUR, ILL.—Decatur Horse Ry. Co. Citizens' Street R.R. Co. 2 m, 4-8 1/2 g, 20 lb r, 7 c, 47 h & mu. Pres. D. S. Shellabarger, Sec., Treas. & Supt. A. E. Kinney.

DENISON, TEX.—Denison St. Ry. Co. 3 m 3-6 g, 16 lb r, 5 c, 22 mu. Pres. C. A. Walterhouse, Supt. S. A. Robinson.

DENVER, COL.—Denver City Ry. Co. 16 m, 3-6 g, 16 lb r, 50 c, 250 h. Pres. Geo. H. Holt, 10 Wall St., New York City, Sec. G. D. Lullier, 10 Wall St., New York City, Treas. & Man. G. E. Randolph.

DES MOINES, IA.—Des Moines St. Ry. Co. 10 m, 3 g, 25-30-38-52 lb r, 18 c, 100 h. Pres. M. P. Turner, Sec. M. A. Turner.

Des Moines & Sebastopol St. Ry. Co. **DETROIT, MICH.**—Fort Wayne & Elmwood Ry. Co. 6 m, 4-8 1/2 g, 45 lb r, 30 c, 180 h. Pres. H. B. Brown, V. Pres. Edward Kanter, Treas. George B. Pease, Sec. N. W. Goodwin, Supt. Geo. S. Hazard.

Detroit City Ry. 30 m, 4-8 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, Mast. Mech. John Willis.

Grand River St. Ry. Co. 2 1/2 m, 4-8 1/2 g, 43 lb r, 13 c, 110 h. Pres. & Treas. Jos. Dalley, Sec. J. W. Dalley, Supt. C. M. Dalley.

DOVER, N. H.—Dover Horse R.R. Co. 5 m, 3 g, 30 lb r, 4 c, 14 h. Directors, Z. S. Wallingford, Chas. H. Sawyer, Jas. E. Lothrop, C. W. Wiggin, Harrison Haley, Frank Williams, Cyrus Littlefield, Treas. Harrison Haley.

DUBUQUE, IA.—Dubuque St. R.R. 5 m, 4-8 1/2 g, 21 c, 45 h. Pres. J. A. Rhonberg, Sec. & Treas. B. E. Linehan, Supt. J. J. Linehan.

DULUTH, MINN.—Duluth St. Ry. Co. 5 m, 3-6 g, 33-51 lb r, 17 c, 90 h and mu. Pres. Sam'l Hill, V. Pres. Thos. Lowry, Sec. & Treas. A. S. Chase, Man. & Supt. T. W. Hoopes.

EAST OAKLAND, CAL.—Oakland, Brooklyn & Fruitvale R.R. Co. **EAST SAGINAW, MICH.**—Street R. R. Co. of East Saginaw. — m, 4-8 1/2 g, 30 lb r, 14 c, 35 h. Pres. & Supt. W. J. Barton, Sec. W. H. Hark, Treas. J. B. Peter.

EAST ST. LOUIS, ILL.—East St. Louis St. R.R. Co. **EASTON, PA.**—The Easton & So. Easton Passenger Ry. Co. 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.

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 City Ry. Co. **ELGIN, ILL.**—Elgin City Ry. Co. 2 c. Pres. Sec. Treas. Supt. & Owner, B. C. Payne.

ELIZABETH, N. J.—Elizabeth & Newark Horse R.R. Co. 14 m, 5-2 1/2 g, 4-10 1/2 g, 30 lb r, 24 c, 74 h. Pres. & Treas. Jacob Davis, Sec. & Supt. John F. Pritchard.

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. 9-2-3 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. Sillsbee. Officers, 212 E. Water St.

EL PASO, TEX.—El Paso St. Ry. Co. 2 1/2 m, 4-8 1/2 g, 20 lb r, 8 c, 25 h. Pres. G. B. Zimpelman, V. Pres. A. Krockauer, Treas. F. Magoffice, Sec. & Supt. I. A. Tays.

EMPORIA, KAN.—Emporia City Ry. Co. 3 1/2 m, 5 g, 20 lb r, 6 c, 23 m. Pres. Van R. Holmes, Treas. A. F. Crowe, Sec. & Man. J. D. Holden.

ENTERPRISE, MISS.—Enterprise St. Ry. Co. 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. 5 1/2 m, 4-8 1/2 g, 30-40 45 lb r, 20 c, 85 h. Pres. Wm. W. Reed, Treas. Wm. Spencer, Sec. W. A. Demorest, Supt. Jacob Berst.

EUREKA SPRINGS, ARK.—Eureka Springs City Ry. Co.

EVANSVILLE, IND.—Evansville St. Ry. Co. 12 m, 4-8 g, 28 lb r, 31 c, 190 mu. Pres. John Gilbert, Sec. P. W. Raleigh, Treas. John Gilbert, Supt. W. Bahr.

FALL RIVER, MASS.—Globe St. Ry. Co. 12 m, 4-8 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. Bowler, Jr.

FORT SCOTT, KAN.—Bourbon County St. Ry. Co. 1 m, 4 g, 22 lb r, 2 c, 4 m. Pres. Isaac Hadden, V. Pres. Benj. Files, Sec. Wm. Perry, Treas. J. H. Randolph.

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

FORT WAYNE, IND.—Citizens' St. R.R. Co. **FORT WORTH, TEX.**—Fort Worth St. Ry. Co. 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, 8 h. Pres. Wm. M. McClinty, Sec. & Treas. M. N. Fenner, Supt. Z. Elmer, Wheelock.

GAINESVILLE, FLA.—Gainesville St. Ry. **GAINESVILLE, TEX.**—Gainesville 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. 3 m, 4 1/2 g, 18-20-48 lb r, 4 c, 16 h. Supt. Geo. S. Clayton. **GALVESTON, TEX.**—Galveston City R.R. Co. 18 m, 4-8 1/2 g, 30 lb r, 68 c, 169 mu. Pres. Wm. H. Sinclair, Sec. & Treas. F. D. Merritt, Supt. M. J. Keenan.

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.

GLOUCESTER, MASS.—Gloucester City R.R. Gloucester St. Ry. Co. Pres. & Supt. Morris C. Fitch, V. Pres. Walter A. Jones, Treas. Francis W. Homans, Sec. David S. Presson.

GRAND RAPIDS, MICH.—Street Ry. Co. of Grand Rapids, Mich. 14 1/2 m, 4-8 1/2 g, 25-40 lb r, 29 c, 190 h. Pres. C. A. Otis, 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.

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. Rudolph Rogers.

GREENVILLE, S.C.—Greenville City Ry. Co. 1 m 5 g, — lb r, 5 c, 20 h. Proprietors, Gilreath & Harris. **HAMILTON, O.**—The Hamilton St. Ry. Co. 4 m, 3 g, 28 lb r, 11 c, 12 h. Pres. James F. Griffin, Sec. O. V. Parrish, Treas. H. L. Morey, Supt. J. C. Bigelow.

HANNIBAL, 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'Herr.

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. Keiker, V. Pres. Daniel Eply, Sec. John T. Ensminger, Treas. R. F. Kelker, Supt. S. B. Reed.

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.

HAVERTHILL, MASS.—Haverhill & Groveland St. Ry. Co. 4 1/2 m, 4-4 1/2 g, 30 lb r, 12 c, 30 h. Pres. & Gen. Man. Jas. D. White, Treas. John A. Colby, Haverhill St. Ry. Co.

HELENA, ARK.—Helena St. Ry. Co. **HERKIMER, N. Y.**—Herkimer & Mohawk St. Ry. Co. 1 1/2 m, 4-8 1/2 g, 25 lb r, 3 c. Pres. J. M. Ansman, Sec. John 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. Michel, Union, Supt. Nicholas Goetz, Union.

HOLYOKE, MASS.—Holyoke St. Ry. Co. 2 m, 4-8 1/2 g, 35 lb r, 8 c, 26 h. Pres. Wm. A. Chase, Treas. C. Fayette Smith, Supt. H. M. Smith.

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

HOUSTON, TEX.—Houston City St. Ry. Co. 14 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. **ILION, N. Y.**—Frankfort & Ilion Ry. Co. 2 1/2 m, 5 g, 25 lb r, 4 c, 6 h. Pres. A. C. McGowan, Sec. D. Lewis, Treas. F. Remington, Supt. Frederick Gates.

INDIANAPOLIS, IND.—Citizens' St. Ry. Co. 35 m, 4-8 1/2 g, 20-33-38-40-52 lb r, 70 c, 535 h. Pres. A. W. Johnson, Indianapolis, Treas. Tom L. Johnson, Cleveland, O. Sec. A. A. Anderson, Indianapolis, Man. W. T. Steele, Indianapolis, Auditor P. Woolridge, Louisville, Ky.

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

JACKSON, MISS.—Jackson Street Ry. Co. **JACKSON, TENN.**—Jackson Street Ry. Co. **JACKSONVILLE, FLA.**—Pine St. R.R. Co. 2 1/2 m, 5 g, 25 lb r, 4 c, 18 m. Owner & Gen. Man. G. H. Backinsetae, Sec. & Treas. F. W. Backinsetae.

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. Degrau, Sec. Martin J. Durea, Treas. Morris Fostick, Supt. Wm. M. Scott.

JAMESTOWN, N. Y.—Jamestown St. Ry. Co. 3.67 m, 4-8 1/2 g, 30-42 lb r, 13 c, 15 h. Pres. R. N. Marvin, V. Pres. F. E. Gifford, Treas. A. N. Broadhead, Supt. G. E. Matthy, Sec. & Atty. C. R. Lockwood.

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

JOHNSTOWN, N. Y.—The Johnstown, Gloversville & Kingsboro Horse R.R. Co. 5 1/2 m, 4-8 1/2 g, 28 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, 73 h. Pres. James McMullen, Sec. B. L. Yeagley, Treas. W. H. Rosenleer, Jr.

JOLIET, ILL.—Joliet City R.R. Co. 3 1/2 m, 4-8 1/2 g, 40 lb r, 16 c, 20 h & mu. Owner, J. A. Henry, A. Blschan, Cash. J. E. Henry.

JOPLIN, MO. **KALAMAZOO, MICH.**—Kalamazoo St. Ry. Co. 10 m, 4-8 1/2 g, 35 lb r, 28 c, 80 h. Pres. Fred Bush, Sec. J. W. Boynton, Treas. P. H. Brown.

KANSAS CITY, MO.—Kansas City Cable Ry. Co. 2 1/2 m, 4-8 1/2 g, 45 lb r, 10 pass. cars, 10 dummy cars. Pres. Wm. J. Smith, Sec. W. H. Lucas, Eng. Robert Gillham, Supt. Edward J. Lawless.

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

Jackson County Horse R. R. Co. Kansas City & Rosedale St. Ry. Co. Kansas City & Westport St. R.R. Co. **KEOKUK, IA.**—Keokuk St. Ry. Co. 4 m, 4-8 1/2 g, 27 lb steel r, 12 c, 40h. Pres. Jas. H. Anderson, V. Pres. Jos. G. Anderson, Sec. R. James Anderson, Treas. & Supt. W. E. Anderson.

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

KNOXVILLE, TENN.—Knoxville St. R.R. Co. 2 m, 4-8 1/2 g, 22 lb r, 5 c, 2 hacks, 20 h. Pres. W. P. Chamberlain, Sec. Treas. & Supt. T. L. Beaman.

Mabry Bell Ave. & Hardee St. Ry. Co. Pres. R. N. Hood, Sec. B. L. Smith. Market Sq. & Asylum St. Ry. Co. Pres. Peter Kern, Sec. W. H. Simmonds.

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

LA CROSSE, WIS.—City Ry. Co. of La Crosse. 2 1/2 m, 4-9 g, 24 lb r, 5 c, 16 h, 3 mu. Pres. Geo. F. Gund, V. Pres. Jas. Vincent, Sec. Mills Tonetelotte, Treas. Fred Tillman, Supt. Geo. F. Smith.

La Crosse St. Ry. Co. Pres. B. E. Edwards, Treas. G. VanSteenyk, Sec. Mills Tourtelotte, Supt. Peter Valer.

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

LAKE CITY, FLA.—Lake City St. Ry. Co. **LAMPASAS SPRINGS, TEX.**—Lampasas City Ry. Co. 3 1/2 m, 4-8 1/2 g, 22 lb r, 6 c, 15 h. [Owned by Mrs. L. R. Snodgrass.] Gen. Man. Geo. M. Snodgrass.

LANCASTER, PA.—Lancaster & Millersville St. Ry. Co. — m, 4-8 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.

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

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

LAWRENCE, MASS.—Merrimack Valley Horse R.R. Co. 5-4-8 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. 7 1/2 m, 4-8 1/2 g, 32 lb r, 16 c, 45h. Pres. Frank W. Dana, Lewiston, Clerk, H. C. Little, Lewiston, Treas. H. C. Packard, Auburn, Supt. E. P. Stinchfield, Auburn.

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

LEXINGTON, MO.—Lexington St. Ry. Co. **LIMA, O.**—Lima St. Ry. Co. **LINCOLN, NEB.**—Capital City Ry. Co. 4 m, 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. 6 1/2 m, 10 c, 60 h. Pres. Frank L. Sheldon, Supt. L. P. Young.

LITTLE ROCK, ARK.—Little Rock St. Ry. Co. 4 1/2 m, 5-10 g, 36 lb r, 9 c, 50 mu. Pres. T. J. Darragh, Sec. A. J. Thompson, Treas. C. F. Penzel, Supt. J. A. Garrett.

Citizens' St. Ry. Co. 4 1/2 m, 4-10 g, 20 lb r, 22 c, 80 h. Owned and operated by Little Rock Street Railway Co. Same offices.

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

LONDON, CAN.—London St. R.R. Co. 3 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.—Stelway & Hunter's Point R.R. Co. 30 1/2 m, 4-8 1/2 g, 47 lb r, 65 c, 154 h. Pres. Wm. Stelway, Stelway Hall, N. Y. City, V. Pres. Henry A. Cassebeer, Jr., Stelway, P. O., Long Island City, N. Y. Sec. & Treas. Chas. F. Trehar, Stelway Hall, N. Y. City, Supt. Chas. J. Campbell, Offices Stelway Hall, N. Y.

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

Long Island City & Newtown Ry. Co. 3 m, 4-8 1/2 g, 45-55 lb r, 25 c, 60 h. Pres. Isaac Buchannan, N. Y. City, Sec. Geo. S. Crawford, Brooklyn, N. Y., Treas. Patrick J. Gleason, Supt. Michael Conway. Officers 112 Front St.

LONGVIEW, TEX.—Longview & Junction St. Ry. 2 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. Fairchild. City R.R. of Los Angeles. 4 1/2 m, 4-8 1/2 g, 36 lb r, 9 c, 75 h. Pres. I. M. Hellman, V. Pres. W. J. Brodlich, Sec. John O. Wheeler, Supt. W. H. Hawks. Los Angeles & Aliso Ave. St. R.R. Co. Main St. & Agricultural Park R.R. **LOUISVILLE, KY.**—Kentucky St. Ry. Co. 5 m, 5-2 g, — lb r, 22 c, — h. Pres. T. J. Minary, Sec. & Treas. Thos. Donigan. Central Pass. R.R. Co. — m, — g, — lb r, — c, — h, Pres. —, V. Pres. Thos. J. Minery, Crescent Hill Ry. Co. Louisville City Ry. Co. 63 m, 5 g, 58 lb r, 214 c, — mu. Pres. Maj. Alexander Henry Davis, Syracuse 1300

Y., V. Pres. St. John Boyle, Sec. & Treas. R. A. Watts. Supt. H. H. Littell.

LOWELL, MASS.—Lowell Horse R.R. Co. 6 m, 8½ g, 28-47 lb r, 25 c, 100 h. Pres. Wm. E. Livingston, Gen. Man. J. A. Chase.

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

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

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

MADISON, IND.—Madison St. Ry. Co. 2½ m, 4 g, 15 lb r, 7 c, 8 h, 10 mu. Pres. Jacob Wendle, V. Pres. Peter F. Robenluis, Supt. & Treas. Chas. F. Tuttle.

MADISON, WIS.—Madison St. Ry. Co. 2½ m, 3 g, 23 lb r, 6 c, 24 h. Pres. E. W. Keyes, V. Pres. Sec. & Treas. D. K. Tenney, Supt. C. W. Carse.

MANCHESTER, N. H.—Manchester Horse R.R. 5½ m, 3-½ g, 27-34 lb r, 14 c, 55 h. Pres. S. N. Bell, Treas. F. Smyth, Clerk J. A. Weston, Supt. A. Q. Gage.

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

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

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

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

MEMPHIS, TENN.—Memphis City R.R. Co. 18 m, 5 g, 28-40 lb r, 66 c, 320 h. Pres. R. Dudley Frayser, V. Pres. Thos. Barrett, Supt. W. F. Shippey.

MERIDIAN, MISS.—Meridian St. Ry. Co. 2 m, 4-8 g, 16 lb T r, 5 c, 11 mu. Pres. Geo. S. Conant, V. Pres. and Supt. J. L. Handley, Treas. J. A. Kelly, Sec. R. M. Houston.

MIDDLETOWN, O.—Middletown Horse R.R. Co. Pres. John M. Douglas, Sec. & Treas. Jas. K. Guy.

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

MILWAUKEE, WI.—Cream City R.R. Co. 8 1-6 m, 4-8½ g, 27-38 lb r, 74 c, 307 m, 2 h. Pres. Winfield Smith, V. Pres. Christian Freusser, Treas. Ferdinand Knech Sec. Wm. Dankoehler, Gen. Man. D. Atwood, Supt. H. J. C. Berg.

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

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. Herrick, Sec. C. G. Goodrich, Supt. D. W. Sharp.

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

Dauphin & Lafayette St. Ry. Co. 2 m, 5-2½ 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, 5-2½ g, 35 lb r, 15 c, 35 h, 1 dummy. Pres. Daniel McNeill, Sec. & Treas. C. F. Sheldon, Man. F. Ingate.

MOHAWK, N. Y.—Mohawk & Hlon R.R. Co. 1½ m, 4-8½ g, 30 lb r, 4 c (contract for motive power). Pres. O. W. Bronson, V. Pres. J. Brown, Sec. H. D. Alexander, Treas. R. M. Devendorf, Supt. O. W. Bronson.

MOLINE, ILL.—Moline Central St. Ry. Co. 1½ m, 4-8½ g, 30 lb r, 3 c, 10 h. Pres. S. H. Velle, V. Pres. P. H. Wessel, Sec. W. R. Moore, Treas. C. F. Hemeuway.

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

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

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

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

MUSCATINE, IA.—Muscatine Cit' Ry. Co. 3½ m, 3-6 g, 21 lb r, 7 c, 19 h. Pres. Peter Musser, V. Pres. D. C. Richman, Sec. T. R. Fitzgerald, Treas. S. M. Hughes, Supt. O. J. Chapman.

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

NASHUA, N. H.—Sherman St. Ry. Co.

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

McGavock & Mt. Vernon Horse R.R. Co. 7½ m, 5 g, 16-20 32-32 lb r, 25 c, 140 h & mu. Pres. John P. White, V. Pres. B. P. Wilson, Sec. & Treas. H. B. Stubblefield, Supt. Daingerfield Deaderick.

South Nashville St. R.R. Co. 4½ m, 5 g, 16-20 lb r, 10 c, 68 h. Pres. W. M. Duncan, Sec., Treas. & Supt. C. L. Fuller.

NATICK, MASS.—Natick & Cochituate St. Ry. 3 m, 4-8½ g, 35 lb r, 6 c, 17 h. Supt. Geo. F. Keep.

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

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

Broad St. R.R.

Newark & Irvington St. Ry. Co. 7 m, 5-2½ 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. 7½ m, 4-8½ g, 35-45 50 lb r, 28 c, 141 h. Pres. Warren Ladd, Treas. & Clerk, A. G. Pierce.

Acushnet St. R.R. Co., 6 m, 4-8½ g, 38 lb r, 29 c, 103

h. Pres. Chas. E. Cook, Sec. & Treas. A. P. Smith.

NEWBURGH, N. Y.—Newburgh St. R. R. Co. Pres. D. S. Haines, Sady 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, 4½ g, 42 lb r, 23 c, 150 h. Pres. H. B. Ives, Sec. & Treas. L. Candee, Supt. Walter A. Graham.

New Haven & Centreville Horse R.R. Co. 2½ m, 4-8½ g, 42 lb r, 4 c, 30 h. Trustee Cornelius Pieroni, State Street Horse R.R. Co. 2½ 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. 2½ m, 4-8½ g, 25 lb r, 3 c, 25 h. Pres. Geo. H. Watrous, Sec. George D. Watrous, Treas. Eli Whitney, jr.

NEW ORLEANS, LA.—Canal & Claiborne St. R.R. Co. 13 m, 5-2½ g, 37 lb r, 40 c, 200 b. Pres. E. J. Hart, Sec. & Supt. Jos. H. DeGrange.

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

New Orleans St. R.R. Co.

Orleans R.R. Co. — m, — g, — lb r, 32 c, 140 h. & mu. Pres. & Supt. H. L. Laroque, Sec. & Treas. P. Cougot, Office, cor. White & Laharpe Sts.

St. Charles St. R.R. Co. 15 m, 5-2½ g, 35 lb r, 60 c, 366 m. Pres. & Supt. Aiden McLellan, Sec. Vincent Riviere.

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

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

NEWPORT, KY.—Newport St. R.R. Co.

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

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

Central Crostown R.R. Co. 5-22 m, 4-8½ g, 52 lb r, 45 c, 241 b. Pres. Geo. S. Hart, V. Pres. A. Cammack, Sec. & Treas. Milton I. Masson, Office 365 Ave. A.

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

Christopher & Tenth St. R.R. Co. 5 m, 4-8 g, 45 lb r, 47 c, 290 h. Pres. Jacob Sharp, Treas. W. T. Hatch, Sec. & Supt. G. W. Lynch, Office, 168 Christopher St.

Dry Dock, East Broadway & Battery R.R. Co. 11½ m, 4-8½ g, 60 lb r, 187 c, 1,132 h. Pres. William White, Auditor E. T. Laddon, Sec. & Treas. Richard Kelly, Supt. Fred F. White, Offices, 605 Grand St.

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

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

Hadlem Bridge, Morrisania & Fordham Ry. 16.37 m, 4-8½ g, 45-60 lb r, 65 c, 3,181 h. Pres. and Supt. H. Sprately, Sec. Pres. Richard M. Hoo, Sec. & Treas. Wm. Caudwell, Office, North Third Ave. near 170 St.

Houston, West Street & Pavonia Ferry R.R. Co. 5 m, 4-8½ g, 60 lb r, 50 c, 450 h. Pres. Richard Kelly, Sec. & Treas. Daniel B. Hasbrouck, Office, 415 E. 10 St.

Jerome Park R.R. 1 m, 4-8½ g, 50-56 lb r. Pres. Leonard M. Jerome, Sec. Fred A. Lovcraft, Treas. Theodore Moss, Office, cor. 5th Ave. & 22d St.

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

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

84th Ave. R.R. Co. 4 m, 4-8½ g, 60 lb r, 127 c, 126 h. Office, 756 Sixth Ave.

South Ferry Ry. Co. 3 m, 4-8½ g, 60 lb r, 13 c, 41 h. Pres. Henry Hart, Sec. Wm. N. Cohen, Treas. Albert J. Elias, Supt. Chas. H. Meeks, Office 20 Whitehall St.

The Second Ave. R.R. Co. 13 m, 4-8½ g, 60 lb r, 316 9c, 1750 h. Pres. W. Thorm, V. Pres. J. Wadsworth, Sec. & Treas. J. B. Underhill. Office Second Ave. cor. 6th St.

The Third Ave. R. R. Co. 16 m main line, 6½ m 10th Ave. cable line, 1 m 125th street cable line, 4 8½ g, 60 & 74 lb r, 51 c, 2,150 h. Pres. Lewis Lyon, 739 Madison ave., V. Pres. Henry Hart, 110 Tribune Building, Sec. Alfred Lazarus, 136 W. 81st st., Treas. John Beaver, 211 E. 112th st., Supt. John H. Robertson, 307 E. 55th st.

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

NIAGARA FALLS, N. Y.—Niagara Falls & Suspension Bridge Ry. Co. 2½ m, 4-8½ g, 38-42 lb r, 8 c, 36 h. Pres. Benj. Flagler, Sec. W. J. Mackay, Treas. A. Schockkopf.

NORFOLK, VA.—Norfolk City R.R. Co. 3½ m, 5-2 g, 44 lb r, 18 c, 65 h. Pres. John B. Whitehead Treas. H. C. Whitehead, Supt. E. W. Savage.

NORTHAMPTON, MASS.—Northampton St. Ry. Co. 3½ m, 4-8½ g, 32 lb r, 7 c, 26 h. Pres. Oscar Edwards, Sec. M. H. Spaulding, Treas. & Sup. E. C. Clark.

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

NORWICH, CONN.—Norwich Horse R.R. Co.

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

Berkley Villa R.R.

Broadway & Piedmont St. R.R. Co.

Fortieth St. R.R. Co. 6 m, 5 g, 20-30 lb r, 6 c, — h. Pres. & Supt. Walter Blair, Sec. P. J. Van Loben.

Oakland R.R. Co.

OGDEN CITY, UTAH.—Ogden City Ry. Co.

3 m, 4-8½ g, 20 lb r, 4 c, 21 h. Pres. L. W. Shurtle, Ogden City, V. P. & Supt. O. P. Arnold, Salt La. City, Sec. & Treas. H. S. Young, Ogden City.

OLEAN, N. Y.—Olean St. Ry. Co. 1-11 10 m, 3-6 g, 25 lb r, 3 2, 8 h. Pres. M. B. Fobes, Sec. & Treas. M. W. Barse.

OMAHA, NEB.—Omaha Horse Ry. Co. 15 m, 4-8½ g, 35 lb r, 40 c, 300 h. Pres. Frank Murphy, V. Pres. Guy C. Barton, Treas. W. W. Marsh, Supt. W. A. Smith.

ONEIDA VILLAGE, N. Y.—Oneida Ry. Co. 2 m, 4-8½ 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. 3½ m, 4-8½ g, 27 lb r, 9 c, 24 h. Pres. Leander Choate, V. Pres. F. Zentner, Sec. & Treas. J. Y. Hull, Supt. F. L. Thompson.

OSWEGO, N. Y.—Oswego St. Ry. Co. 2 m, 4-8½ g, 45 lb r, 3 c, 23 h. Pres. Jas. F. Johnson, V. Pres. R. J. Ollphart, Sec. Haynes L. Hart, Treas. Robt. G. Post, Gen. Man. James O'Connor.

OTTAWA, ONT.—Ottawa City Passenger Ry. Co. 3 m, 4-8½ g, 30 lb r, 9 c, 40 h. Pres. Thomas C. Keefe, V. Pres. R. Blackburn, Sec. James D. Fraser.

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

Mineral Springs St. Ry. 1 m, 3½ g, 16 lb T r, 1 c 4 h. Owner, L. E. Gray.

PADUCAH, KY.—Park R.R. Co.

PARIS, TEX.—Paris St. Ry. Co.

PATERSON, N. J.—Paterson & Passaic R.R. Co. 7 m, 4-10 g, 33 lb r, 16 c, 24 h. Pres. John N. Terlune, Treas. John I. Brown, Sec. E. S. Brown, Man. & Pur. Agt. Ambrose T. King, Supt. M. O. Rourke.

Paterson City R.R. Co. 6½ m, 4-8½ g, 35 lb r, 12 c, 51 h. Pres. Garrett Plantau, Treas. Helmas Romalne, Sec. Albert A. Wilcox.

PENSACOLA, FLA.—Pensacola St. Ry. Co.

PEORIA, ILL.—Central City Horse Ry. Co. 4½ m, 4-8½ 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. 7½ m, 4-8½ g, 40 lb r, 63 c, 140 h. Pres. H. Woodward, Sec. M. Pfeiffer, Treas. H. N. Wheeler, Supt. John Strong.

PETERSBURGH, VA.—Petersburgh St. Ry. Co. 3½ m, 4-8½ g, 42 lb r, 9 c, 44 h. George Beadle, Prop.

PHILADELPHIA, PA.—Citizens Pass. Ry. Co. 10½ m, 5-2 g, 45 47 lb r, 92 c, 420 h. Pres. John McCarthy, Sec. & Treas. J. J. Adams, Supt. Sam'l Cline.

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

Hestonville, Mantua & Fairmount Pass. R.R. Co. 20 m, 5-2 g, 43 lb r, 60 c, 480 h. Pres. Charles F. Lafferty, Sec. & Treas. W. C. Foster.

Lehigh Ave. Pass. Ry. Co. Pres. John Lamon, 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, 275 h. Pres. John B. Parsons, Sec. & Treas. Francis Hanzelhurst Supt. Jno. M. Gaughen.

People's Pass. Ry. Co. 41 m, 5-2 g, 47 lb r, 125 c, 1,080 h. Pres. C. J. Harrah, V. Pres. C. J. Harrah, Jr., Sec. & Treas. Jno. C. Dessaleit, Supt. Wm. Hagenswiler.

Philadelphia City Pass. Ry. Co. 7 m, 5-2½ g, 47 lb r, — c, — h. Pres. Wm. W. Colket, Sec. & Treas. T. W. Pennypacker. (Leased to Phila. Tracton Co.)

Philadelphia Tracton Co. 109 m, 5-2½ g, 45-78 lb r, 594 c, 2,942 h. Pres. W. H. Kemble, V. Pres. P. A. B. Widener & W. L. Eldkins, Treas. D. W. Dickson.

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

Ridge Avenue Pass. Ry. Co. 14 m, 5-2 g, 47 lb r, 65 c, 352 h. Pres. E. B. Edwards, V. Pres. John Lambert, Sec. & Treas. Wm. S. Blight, Supt. Wm. Ingles.

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. 7½ m. Pres. Matthew S. Quay, Sec. & Treas. John B. Peddle. [Leased to Philada. Tracton Co.]

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

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

West Philadelphia Pass. Ry. Co. 18½ m, 122 c, 646 h. Pres. Peter A. B. Widener, Sec. & Treas. D. W. Dickson. (Leased by the Phila. Tracton Co.)

PHILLIPSBURGH, N. J.—Phillipsburgh Horse Car Ry. Co. 2½ m, 4-8 g, 35 lb r, 4 c, 13 h. Pres. Daniel Runkle, Sec. & Treas. James W. Long.

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

Beaver Falls & New Brighton Ry. Co.

Citizens' Pass. Ry. Co. 16½ m, 5-2½ g, 47 lb r, 40 c, 337 h. Pres. Jno. G. Holmes, Sec. C. M. Gormly, Supt. Murry Verner.

Federal St. & Pleasant Valley Pass. Ry. Co. 26 m, 5-2½ 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, 5-2½ g, 45 lb r, 10 c, 75 h. Pres. Wm. McCreery, Sec. R. F. Ramsey, Treas. James Boyle, Supt. Wm. J. Crozier, Allegheny City.

Pittsburgh, Allegheny & Manchester Pass. Ry. Co. 5 m, 5-2½ g, 46 lb r, 40 c, 275 h. Pres. Chas. Atwell, Sec. & Treas. Chas. Selbert, Supt. James C. Cotton.

Manager J. P. Spear.

Pittsburgh, Oakland & East Liberty Pass. Ry. Co. 11 m, 5-4½ 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, 5-2½ g, 45 lb r, 29 c, 170 h. Pres. Chas. Atwell, Supt. James C. Cotton, Sec. & Treas. Chas. Selbert, Cash. Saml. C. Hunter.

Pittsburgh & Birmingham Pass. R.R. Co. 3½ m, 5-2½ 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. Reilly, Sec. & Treas. Thomas S. Bigelow, Supt. William J. Burus.

Pittsburgh & Wilkinsburg 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. Klopier, Sec. & Treas. Wm. R. Ford, Supt. Miller Elliot.

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

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

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, 20 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. 3 m, 4-8 1/2 g, 35-42 lb r, 11 c, 38 h. Pres. Geo. B. Adrance V. Pres. & Treas. Hudson Taylor Sec. A. B. Smith, Supt. C. M. Davis. Office 491 Main St.

PROVIDENCE, R. I.—Union R.R. Co. 5 1/2 m, 4-8 1/2 g, 47-54 lb r, 230 c, 1,900 h. Pres. Jesse Metcalf, V. Pres. & Gen. Man. D. F. Longstreet, Sec. and Treas. C. A. Babcock.

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

Quebec R.R. Co. St. John St. Ry. Co. 1 1/2 m, 4-8 1/2 g, 35 lb r, 4 c, 23 h. 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. 1 m 4 g 30 lb r, 9 c—40 h. Pres. John T. Plish, Sec. & Treas. E. S. Dodge, Gen. Man. Geo. B. Hathaway.

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

READING, PA.—Reading City Pass. Ry. Co. 2-1 1/2 m, 5-2 1/2 g, 45 lb r, 19 c, 44 h. Pres. B. F. Owen, V. Pres. Jas. L. Douglas, Sec. & Treas. H. A. Muhlberg, Supt. J. A. Riggs.

Perkinston Ave. Pass. Co. 2-1 1/2 m, 5-2 1/2 g, 45 lb r, 14 c, 36 h. Pres. Chas. Brenesler, 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, 20 lb r, 2 mu. Pres. J. W. Judkins, V. Pres. G. West, Sec. F. M. Bytker, Treas. & Supt. F. O. Judkins.

RICHMOND, IND.—Richmond City Ry. Co. 3 m, 2 g, 9 lb r, 10 c, 30 h. Pres. J. Y. Miller, V. Pres. Jos. Rath, Treas. H. L. 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 Selden.

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

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

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

ROCKFORD, ILL.—Rockford St. Ry. Co. 6 2 1/2 m, 4-8 1/2 g, 20 lb r, 13 c, 52 h. 16 m. Pres. Anthony Halnes, V. Pres. L. Rhodes, Sec. Miss A. C. Arnold, Treas. N. E. Lyman, Supt. Fred. Halnes.

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. Baily Davenport, Sec. E. H. Hunt, Treas. J. F. Robbison, 2 m, with horses, 5 h, with motor.

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

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

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

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

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

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

SAN ANTONIO, TEX.—San Antonio St. Ry. Co. 15 m, 4 g, 30 lb r, 38 c, 125 mu. Pres. A. Belknap, San Antonio, V. Pres. F. W. Pickard, N. Y. City, Treas. I. Withers, San Antonio, Sec. E. R. Norton, Supt. John Robb.

Prospect Hill St. Ry. Co.

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

SAN FRANCISCO, CAL.—California St. R.R. Co. Central R. R. Co. 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. P. LeBreton, Supt. J. F. Clark, Clay St. Hill R.R. Co. 1 m, 2-6 g, 30 lb r, 11 c, 12

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

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

Market St. Cable Ry. Co. 10-9-10 g, 4-8 1/2 lb r, 127 c, 2 motors, 73 h. Pres. Leland Stanford, V. Pres. Chas. F. Crocker, Treas. N. T. Smith, Sec. J. L. Willcutt, Supt. H. D. Morton.

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

Omnibus R.R. & Cable Co. 5 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.

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

Sutter St. R.R. Co. 5 1/2 m, 4-11 g, 35-45 lb r, 40 c, 180 h. Pres. R. F. Morrow, Sec. A. K. Stevens, Treas. M. Schmitt, Supt. James McCord.

Telegraph Hill R.R. Co. 1,700 ft, 4-11 g, 36 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. Raun, Sec. M. E. Willis, Treas. Jas. H. Goodman, Supt. William Woodward.

SAN JOSE, CAL.—San Jose & Santa Clara R.R. Co. First St. & San Pedro St. Depot R.R. Co. Market St. & Willow Glen R.R. Co. North Side R.R. Co. People's R.R. Co.

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

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.

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.

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

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

SEARCY, ARK.—Searcy & West Point R.R. Co. 8 m, 4-8 1/2 g, 20 lb r, 7 c, 5 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. Klinebar.

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

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

SENECA FALLS, N.Y.—Seneca Falls & Waterloo Ry. Co. 7 m, 4-8 1/2 g, 40 lb r, 4 c, dummies.

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

SHREVEPORT, 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.

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

SOUTH CHICAGO, ILL.—Chicago Horse & Dummy R.R. 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. Krimbill, Treas. H. Shearrr.

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

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

Springfield City Ry. Co.

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

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

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

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

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

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

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

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. Evans, Supt. Rowen. St. Joseph & Lake St. R.R. Co. Union Ry. Co.

ST. LOUIS, MO.—Badeu & 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. 5 1/2 m, 4-10 g, 38 lb r, 39 c, 285 h. Pres. W. R. Allen, V. Pres. Geo. W. Allen, Sec. & Treas. J. W. Wallace, Supt. G. G. Gilson, Cashier O. H. Williams.

Citizen's 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. Baunhoff, Supt. Jos. C. Llewellyn.

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, 53 c, 375 h. Pres. C. Pepper, 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. Branham.

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

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

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

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

STILLWATER, N. Y.—Stillwater & Mechanicsville St. Ry. Co. 4 1/2 m, 4-8 1/2 g, 25-30 lb r, 3 c, 6 h. Pres. S. Rowley, V. Pres. W. L. Denison, Sec. Edw. I. Wood, Treas. E. H. Smith.

STROUDSBURGH, PA.—Stroudsburgh 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, Sec. & Treas. Lyman C. Smith, Supt. W. B. Thompson.

Central City Ry. Co. 2 1/2 m, 4-8 1/2 g, 40 lb r, 12 c, 37 h. Pres. Daniel Pratt, V. Pres. Jonathan C. Chase, Sec. & Treas. James Barnes, Supt. George Crampton.

4 Syracuse Savings Bank Building.

Fifth Ward R.R. Co. 2 1/2 m, 4-8 1/2 g, 35-56 lb r, 8 c, 30 h. Pres. P. B. Brayton, Sec. & Treas. O. C. Potter, Supt. Hugh Purnell. Office W. Washington St. Geddes St. Ry. Co.

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, Sec. & Treas. Geo. J. Gardner, Supt. W. J. Hart. Onondaga Savings Bank Building.

New Brighton & Onondaga Valley R.R. Co. 1 1/2 m, 4-8 g, 16-35 lb r, 2 c, 6 h. 5 dummies. Pres. Matthias Britton, Sec. T. W. Meacham, Treas. J. H. Anderson, Supt. J. H. Anderson.

Seventh Ward Ry. Co.

Syracuse & Geddes Ry. Co. 2 m, 4-8 1/2 g, 25-45 lb r, 10 c, 32 h. Pres. R. Nelson Gere, Sec. & Treas. Rasselas A. Bonta, Supt. Wm. J. Hart.

Third Ward Ry. Co. Pres. W. B. Cogswell, Sec. & Treas. W. S. Wales.

TAUNTON, MASS.—Taunton St. Ry. Co. 4 1/2 m, 4-8 g, 14 c, 44 h.

TERRER 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. 17 1/2 m, 4-8 g, 42 1/2 lb r, 41 c, 200 h. Pres. J. E. Bailey, Sec. A. E. Lang.

Adams Street Ry. Co.

Metropolitan St. Ry. Co. 10 m, 3 g, 28-35 lb r, 31 c, 101 h. Pres. & Sec. Jno. J. 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. Joah 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. 1 1/2 m, 5-2 g, 45-47 lb r, 10 c, 31 h. Pres. Gen. Lewis Perrine, Sec. & Treas. Lewis Perrine, Jr., Supt. Thomas Sillorin.

City Ry. Co. 7 m, 5-2 1/2 g, 35 lb r, 19 c, 110 h. Pres. Adam Exton, V. Pres. W. H. Skirm, Sec. H. B. Howell, Treas. & Mang. Director Chas. Y. Bamford.

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. Allen, Cortland, Sec. S. E. Welch, Cortland.

Troy & Alba 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. Haselehurst, 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 Clemmshaw, Sec. & Treas. Joseph J. Hagen, Supt. L. C. Brown, Asst. Supt. C. H. Smith. 295 River St.

URBANA, ILL.—Urbana R.R.

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. 7 1/2 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. 2 1/2 m, 4-8 1/2 g, 25-04 lb r, 9 c, 5 h. Pres. Chas. W. Hutchinsou, V. Pres. Nathan S. Haynes, Sec. Geo. M. Weaver, Treas. Joshua W. Church.

Utica Belt Line St. Ry. Co.

VALLSBURGH, N. J.—Newark, So. Orange, Ferry St. & Hamburg Place R.R. Co.

VALEJO, CAL.—Valejo St. Ry. Co.
VICKSBURG, MISS.—Vicksburg St. Ry. Co. Hill City R.R. Co.
VINCENNES, IND.—Vincennes St. Ry. Co.
WACO, TEX.—Waco St. Ry. Co. 5 m, 4-8 g, 14-18 lb r, 9 c, 44 h. Pres. E. Rotan, Sec. & Treas. W. R. Kellum, Supt. J. W. Sedbury.
WALTHAM, MASS.—Waltham & Newton St. Ry. Co. 3½ m, 2-8½ g, 30 lb r, 7 c, 18 h. Pres. R. E. Robbins, Sec. & Treas. Henry Bond.
WASHINGTON, D.C.—Capital, No. O. St. & So. Washington R.R. 13½ m, 4 8 g, 35 lb r, 45 c, 176 h. Pres. C. White, Sec. & Treas. W. E. Boughton, Supt. Andrew Glass.
 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. 2½ m, —g, —lbr, 19 c, 56 h. Pres. H. A. Willard, Sec. & Treas. Wm. H. Clayette, Supt. Thos. E. Benson.
 Metropolitan R.R. Co. 21½ m, 4 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, 4-8½ g, 42 lb r, 173 c, 860 h. Pres. H. Hurt, Sec. & Treas. C. M. Koonen, Gen. Supt. C. C. Saffer.
WATERFORD, N. Y.—Waterford & Cohoes R.R. Co. 2 m, 4-8½ g, 45 lb r. Pres. Thos. Breslin, Sec.

& Treas. C. C. Ormsby. (Leased by the Troy & Lansingburgh R.R. Co.)
WATERLOO, IA.—Waterloo St. Ry. Co.
WEST HURON, CONN.—New Haven & West Haven R.R. Co.
WESTPORT, CONN.—Westport & Saugatuck Horse R.R.
WHEELING, W. VA.—Citizens Ry. Co. 10 m, 5-2½ g, 45 lb r, 20 c, 55 h. Pres. Dr. C. A. Wingelter, Sec. Van B. Hall, Supt. Michael Loftus.
 Wheeling & Elm Grove R.R. 7 m, 4-8½ g, 30 lb r, 12 c, 4 Baldwin Motors. Pres. J. D. DuBois, Sec. E. J. Rutter, Supt. E. Hirsch.
WICHITA, KAN.—Wichita City Ry. Co. 7½ m, 11 c, 60 mu, 4 h. Pres. B. H. Campbell, V. Pres. Treas. & Gen. Man. E. R. Powell, Sec. G. W. Laramer, Atty. E. C. Ruggles.
WILKESBARRE, PA.—Wilkesbarre & Kingston Pass. R.R.
 Wilkesbarre & Ashley Passenger R.R. Co. Coalville Passenger R.R. 2½ m, 4-8½ g, 20-34 lb r, 4 c, 10 h. Pres. Chas. A. Miner, Sec. & Treas. George Loveland, Supt. Albert G. Orr.
WILLIAMSPORT, PA.—Williamsport St. R.R. Co.
WILMINGTON, DEL.—Front & Union St. Passenger Ry. Co. 1½ m, 5-2 g, —lb r, 7 c, 20 h. Pres. Geo. W. Bush, Supt. Sam'l A. Price, Treas. E. T. Taylor.

Wilmington City Ry. Co. 6 m, 5-2½ 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.
WINNIPEG, MANITOBA, CAN.—The Winnipeg St. Ry. Co. 5 m, 4-8½ 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. 2½ m, 4 8 g, 40 lb r, 5 c, 4 h. Pres. & Treas. J.R. Carter, Supt. Dexter Carter.
WORCESTER, MASS.—Worcester St. Ry. Co. 5½ m, 4-8½ g, 45 lb r, 19 c, 100 h. Pres. Geo. H. Seeley, N. Y. City, V. Pres. Nathan Seeley, N. Y. City, Treas. & Supt. Harry S. Searls, Worcester.
 Citizens' St. Ry. Co. Pres. Chas. B. Pratt, Sec. & Treas. F. W. Brigham.
YOUNGSTOWN, O.—Youngstown St. R.R. Co.
ZANESVILLE, O.—Bellair, Chillicothe & Canton Zanesville & McIntire St. Ry. Co. 3 m, 3-6 g, 38 lb r, 12 c, 54 m. Pres. J. Bergen, Sec. W. C. Townsend reas. T. B. Townsend.

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 In case of accident the whole harness can be removed at once. They are adopted 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.

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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 price.
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 For : Street : Railway : Companies.
 The subscribers beg leave to inform all purchasers of
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 that they are largely engaged in manufacturing
Envelopes of all Kinds,
 especially those used for
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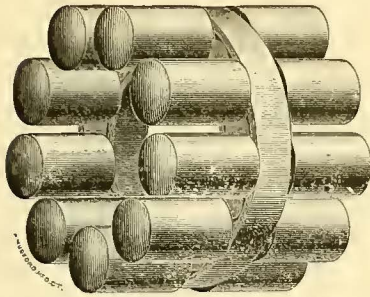
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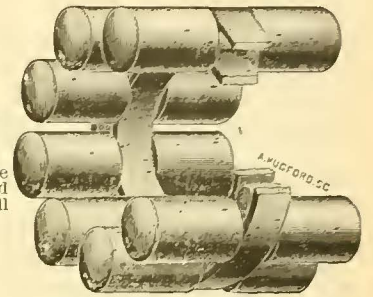
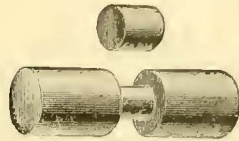
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These cuts show the style of Bearing used in our Car Boxes. Rolls are made of 1 1-16 hardened steel and are 7 in. long. They run with great ease and are durable. Are so housed as to protect them from dust, and the Box will hold sufficient oil for one year.

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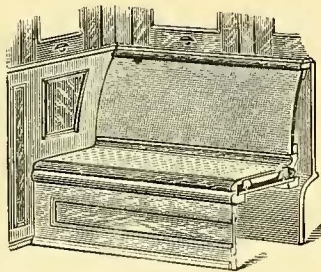
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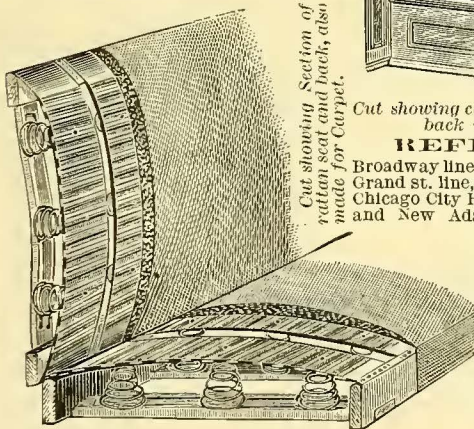
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R. Co., Frankford and
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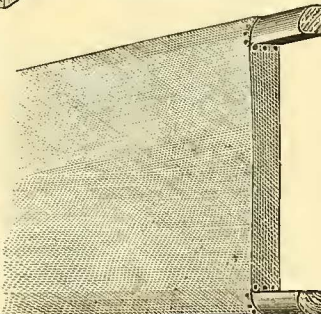
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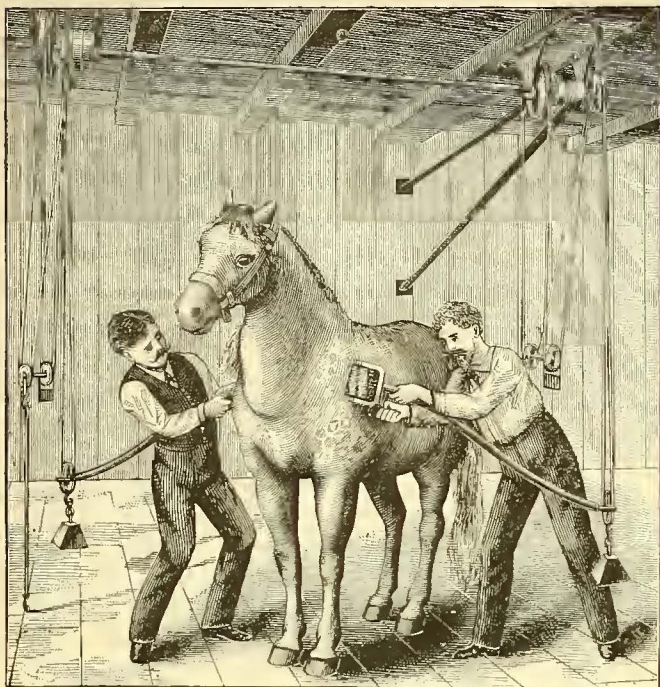
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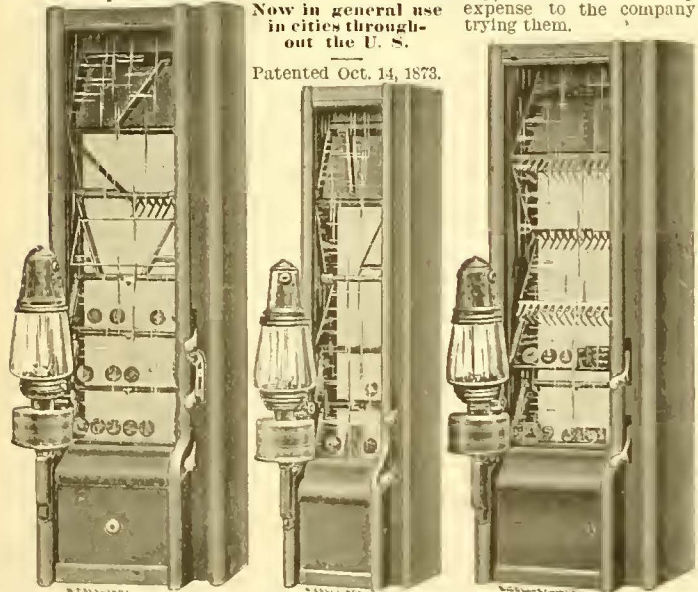
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Ornamental to any car. Reduction in price where 2 boxes are placed in one car. **TOM L. JOHNSON'S IMPROVED FARE BOX.** Roads equipped with boxes on trial, and if not satisfactory, returned without any expense to the company trying them.

Now in general use in cities throughout the U. S.

Patented Oct. 14, 1873.



BOX NO. 1.

CHARIOT PATTERN.

BOX NO. 2.

One of the principal merits of these Fare Boxes over all others, consists in the fact that the fares are not turned out of sight at once by the drivers, leaving nothing but the bare word and memory of the parties as evidence of the payment, thereby making it easy for deception to be practised, even though an officer is on the car, and is endeavoring to see that the driver is faithfully performing his duties. They are so constructed that the fares are kept in sight from one end of the road to the other, and at any point on the line an officer of the company, or indeed any other person, can tally passengers with the fares. The drops can easily carry from 75 to 80 fares, and can be counted without mistake, and counterfeit money can be easily detected. These boxes are very simple in construction, being cleared, when required, in five minutes, where as any other box takes a much longer time. The glass fronts and drops render them so transparent that a person sitting in the further end of car can readily count the fares and make the tally, without making himself conspicuous in the matter, if desirable. They are lighted from an outside lantern, (which is only on the car at night, and should be taken off during the day,) giving an excellent light, for the fares can be seen almost as plain as by day. When the box is put in a car it can not be taken out or tampered with, unless the keys are obtained from the office, and can not be robbed without violence. Special attention given to correspondence on the subject of street railway construction, equipment and operation. Address all correspondence to A. A. ANDERSON, with Tom L. Johnson, Indianapolis, Indiana.

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Different styles of

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And a full line of

Saddlery Hardware,

Manufactured by

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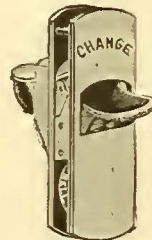
We have just added to this box a very valuable improvement, viz., a small mirror placed back of first slide or rest, which presents to driver's view the back side of fare as well as front, when resting on first rest. He can by this quickly detect any purious or mutilated coin or ticket that may be split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

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



Box No. 3.

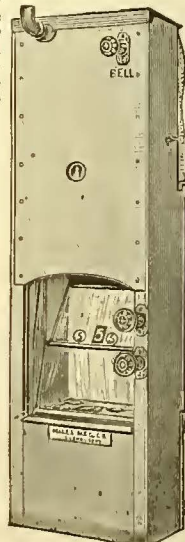
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CHANGE RECEPTACLE.

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

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OF EVERY DESCRIPTION.

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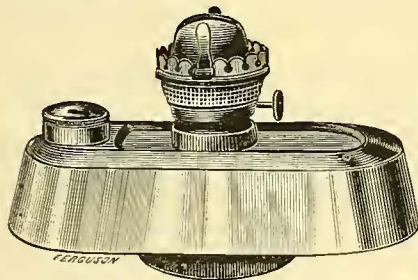
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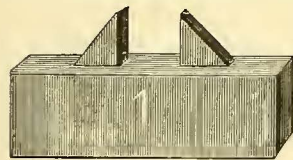
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DOUBLE-BOTTOM
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Is one that assures
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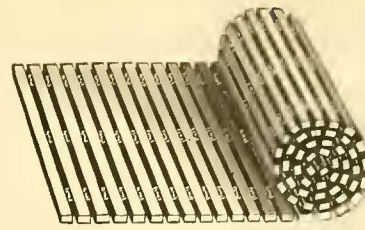
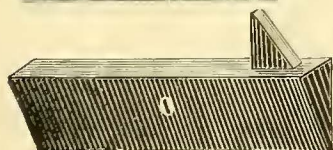
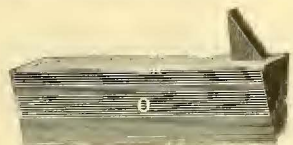
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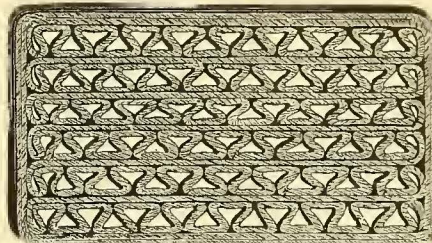
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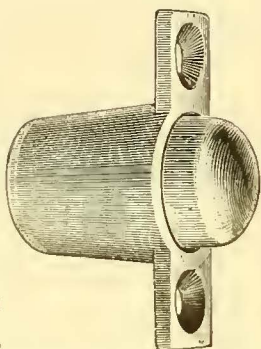
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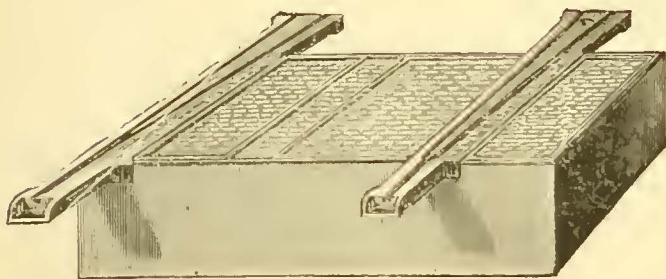


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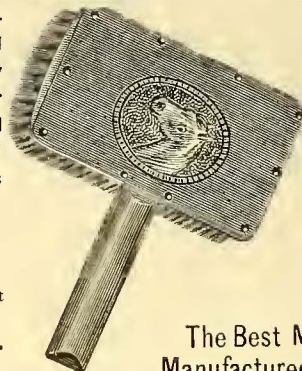


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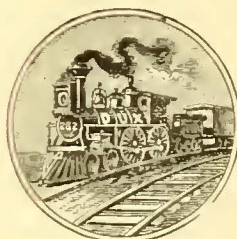
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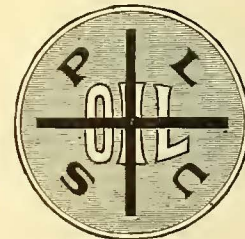
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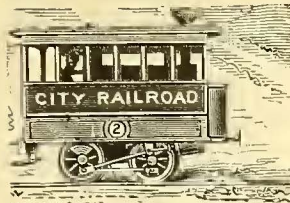
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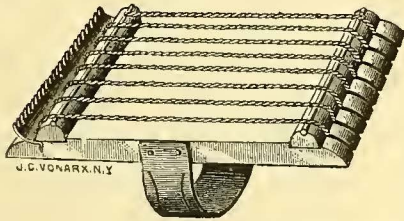
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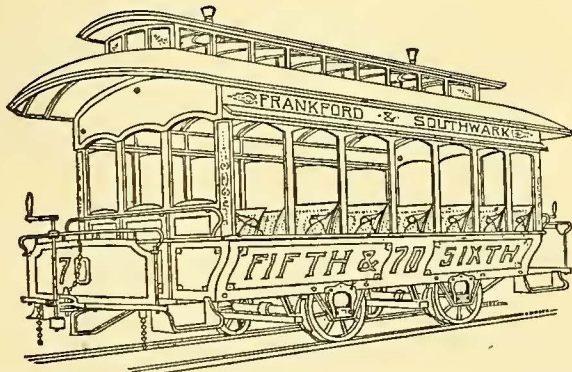
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46 lbs. per Yard

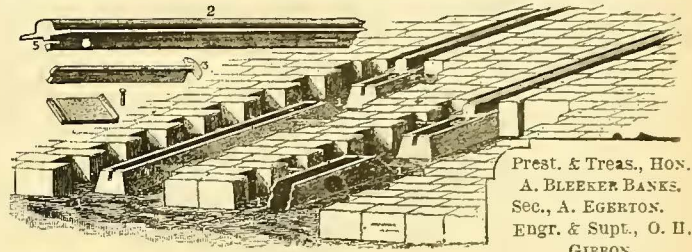


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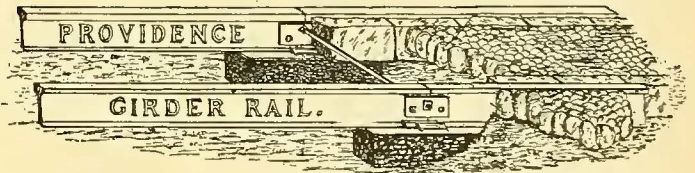
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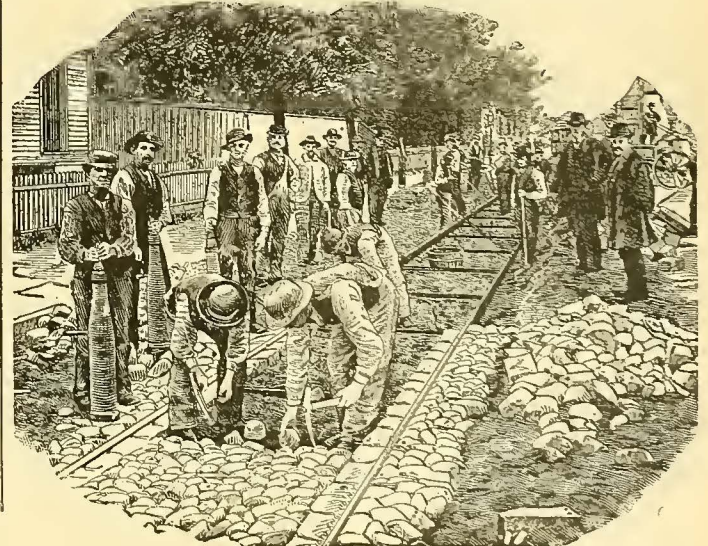
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The most permanent and very best form of railroad construction for public streets. Fully endorsed by city and town authorities. Send for circular.

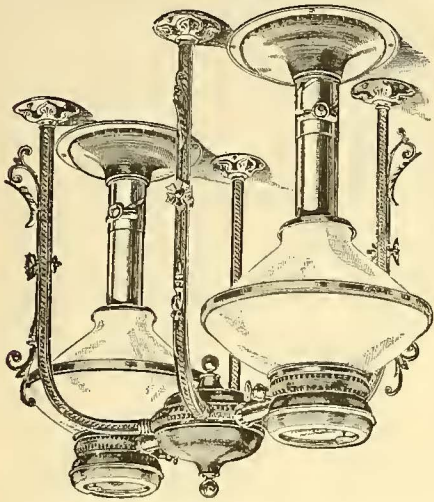
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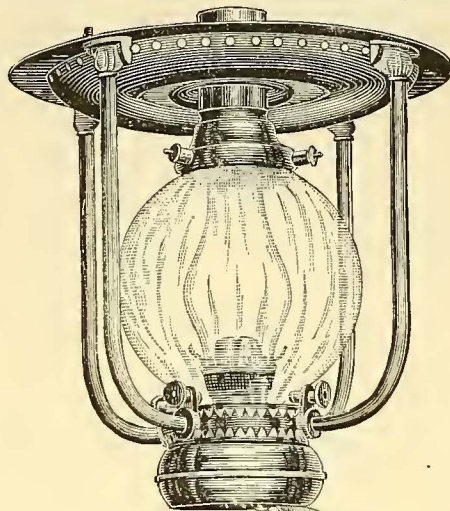
Or D. F. Longstreet, Providence, R. I.



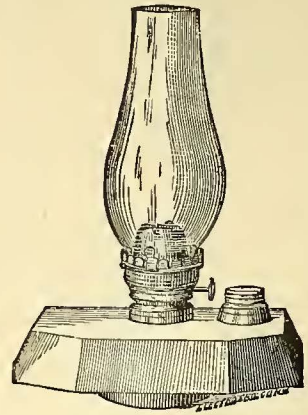
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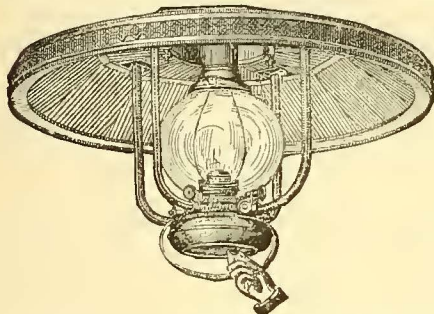
No. 10.
 Two-light Car Lamp as used on Tenth Avenue (N.Y.) Cable Road.



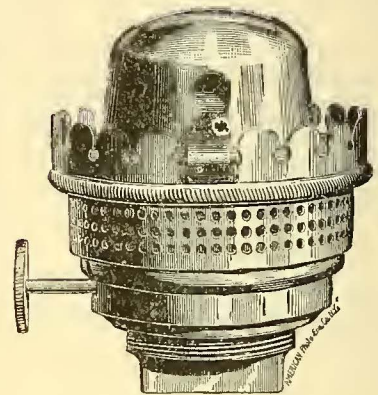
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 Center Car Lamp with 25 inch Corrugated Glass Reflector.



J. B. M. 2 Spring Burner.

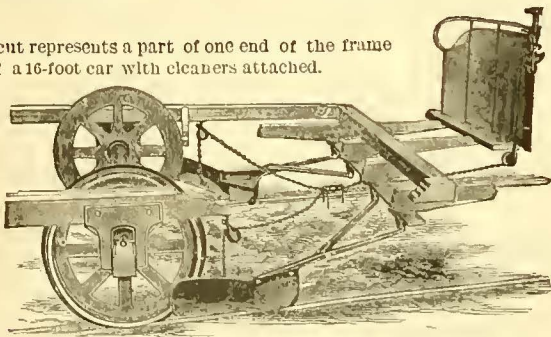
MANUFACTURER OF
 RAILROAD

CENTER LAMPS & REFLECTORS.

ALL KINDS OF TRIMMINGS PERTAINING
 TO CAR LAMPS.

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.



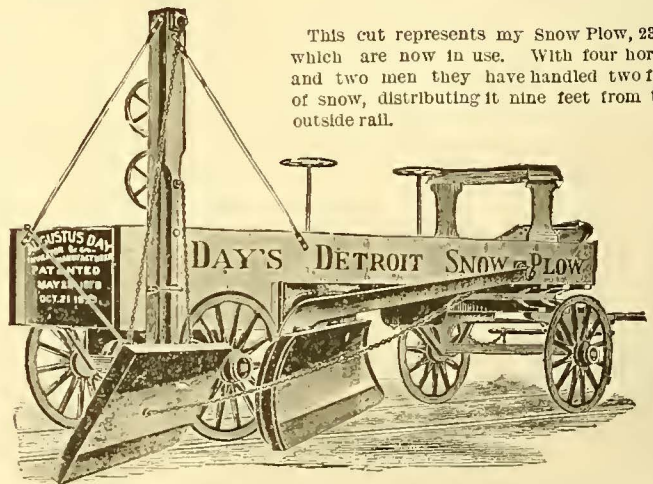
These Track Cleaners need no extended statement of their great superiority over all others invented. The fact of over three thousand pairs being now in use is sufficient evidence of their necessity and utility. Are adaptable to all kinds of rails and styles of cars. Clean Snow, Ice, Mud and Stones from 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
Chicago City Ry., Chicago, Ill.	400
Rochester City & Brighton R. R. Rochester, N. Y.	100
Albany Ry., Albany, N. Y.	75
Lyons & Boston R. R., Boston, Mass.	68
Boston Highland Ry., Boston, Mass.	46
Grand Rapids Street Ry.	48
Nauvoo 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.



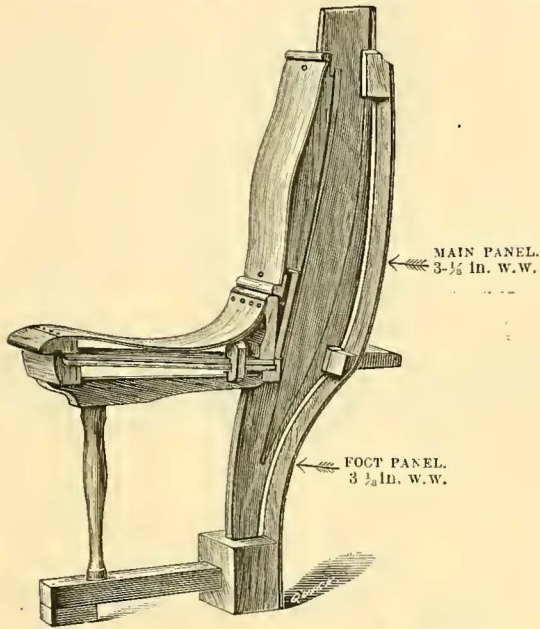
It is adapted to single or double track roads, adjustable where necessary; built in the most thorough and substantial manner of the best material. The Plow is not intended to supply the place of the small Track Cleaners, but be auxiliary to them. For execution in deep snow, ease, and convenience in handling, it surpasses all others in use. Orders should be given three month in advance.

Reference is made to the following roads that use them:—Detroit City Ry., Detroit, Mich. (Two plows.) Rochester City & Brighton R.R. Rochester, N. Y. (Two plows.) Cream City Ry., Milwaukee, Wis. West Side Street Ry., Milwaukee, Wis. Chicago City Ry., Chicago, Ill. (Three plows.) Grand Rapids Street Ry., Grand Rapids, Mich. Highland St. Ry., Boston, Mass. Buffalo St. Ry., Buffalo, N. Y. (Two plows.) Johnstown Pass. Ry., Johnstown, Pa. Minneapolis St. Ry., Minneapolis, Minn. (Two plows.) St. Paul St. Ry., St. Paul, Minn. (Two plows.) Kalamazoo St. Ry., Kalamazoo, Mich. Worcester St. Ry., Worcester, Mass. South Bend Ry., South Bend, Ind. Milwaukee City Ry., Milwaukee, Wis.

For Further Information and Price, Address:

AUGUSTUS DAY, 76 State Street, cor. Park Place, - - - - - Detroit, Michigan, U. S. A.

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, their 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 $\frac{1}{8}$ 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 upholstering), and will not harbor vermin or insects, or carry or communicate contagion or disease. Our trade in this line has grown in thirteen years to vast proportions, which in itself is a sufficient guarantee of their merits. They are made either perforated or plain to suit customer. Birch is the wood most generally used. Today fully one-half the railroads in the country are using these seats and backs. We would also call attention to our *Veneer Ceiling* for cars. They are made either plain, perforated or decorated, and greatly add to the beauty of the car. For repairing cars they have no equal; for they are placed over the carlines and cover all the old paint and wood work. The woods generally used are *Birch, Birdseye Maple, Oak and Mahogany*.

GARDNER & CO.

Manufacturers of Car Seats and Ceilings and Depot Seating,

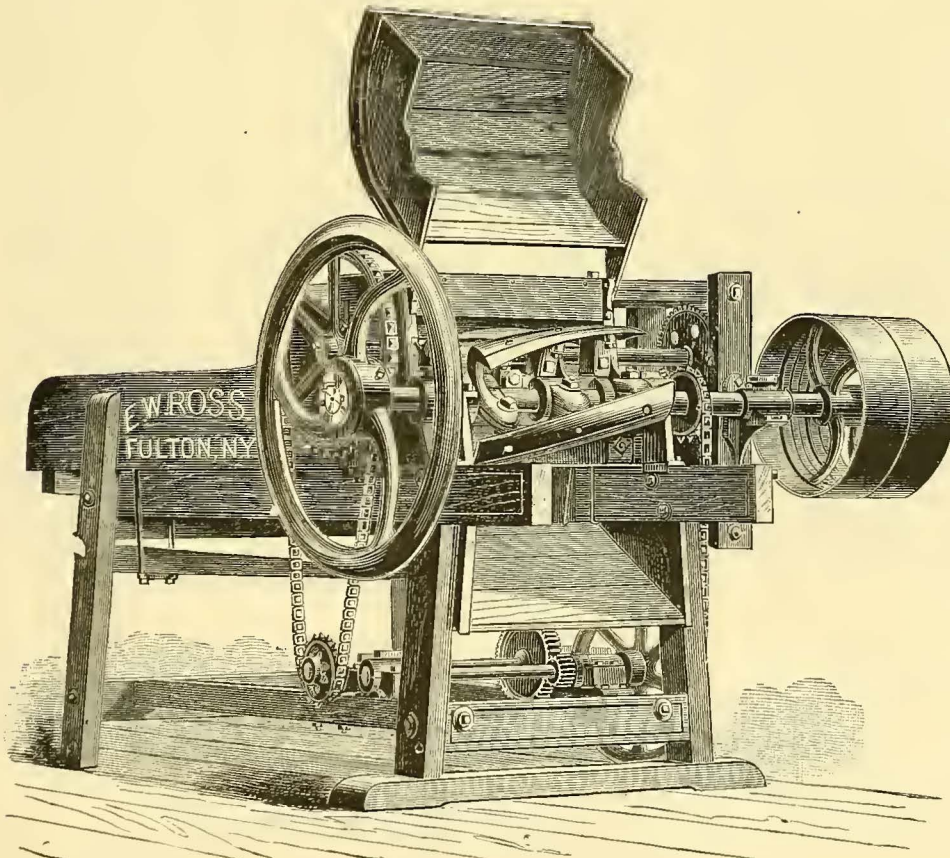
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Sample and Salesroom: 206 Canal St., cor. Mulberry.

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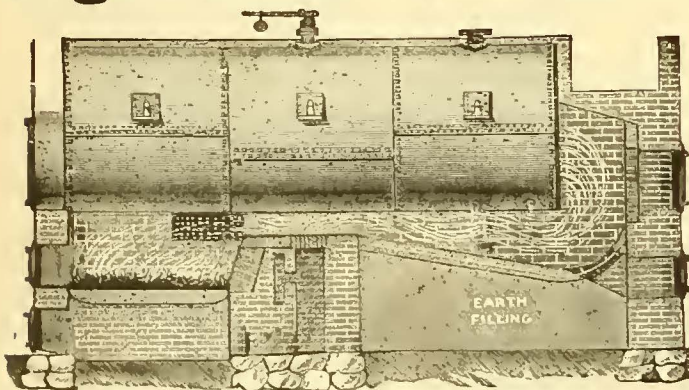
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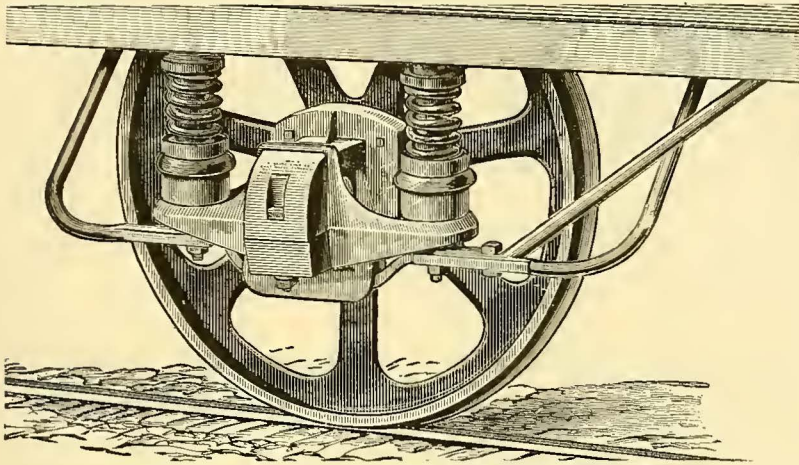
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Brasses are warranted
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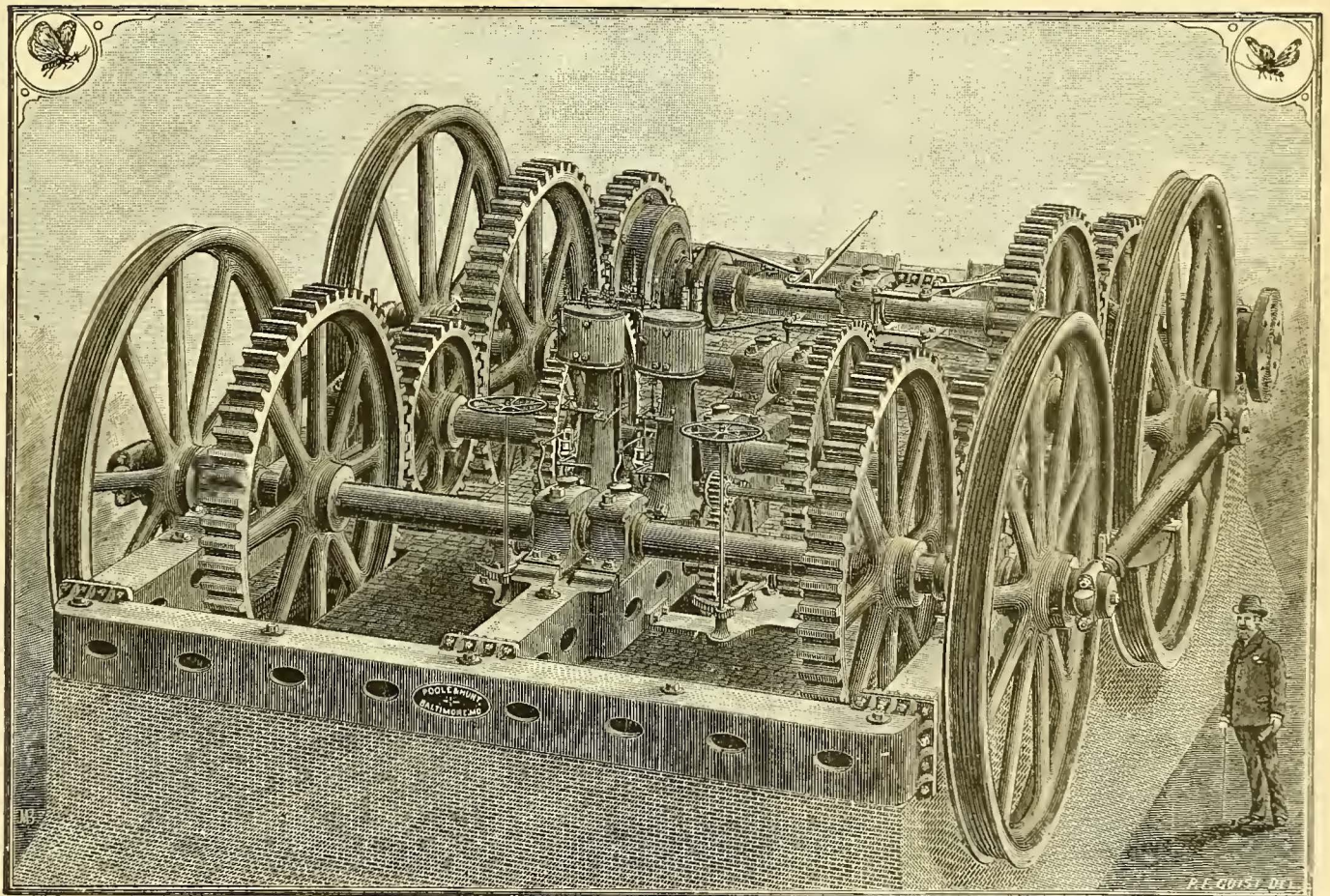
Requires oiling or inspect-
ing but once in 12 months.

Boxes are positively
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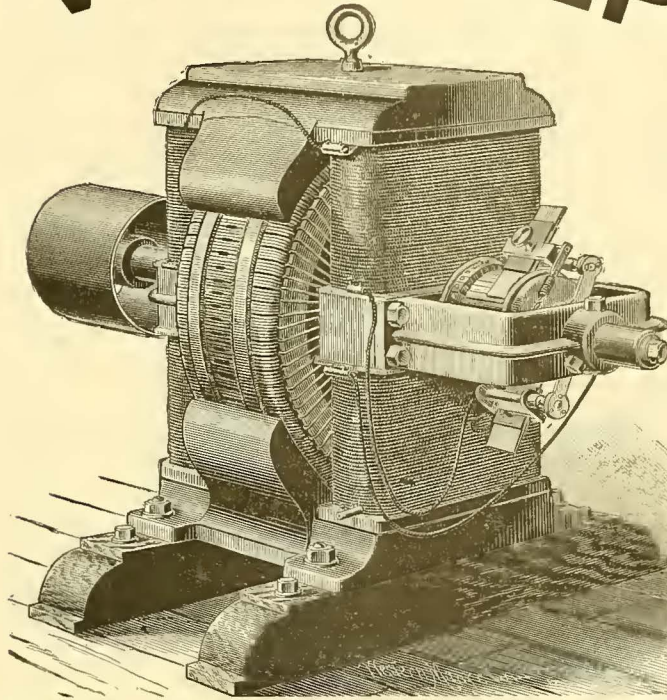
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supplying all materials used. Steel Grooved and Tram rails furnished at Special Rates. Street Railway Companies and purchasing agents in need of supplies will find it to their interest to correspond with us. Address,

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

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

We are not Selling Stock, but Doing Business.

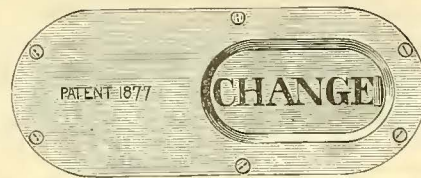
Would be pleased to furnish estimates to new companies or those desiring to extend lines or wanting more rapid transit.

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SLAWSON'S PATENT FARE BOXES

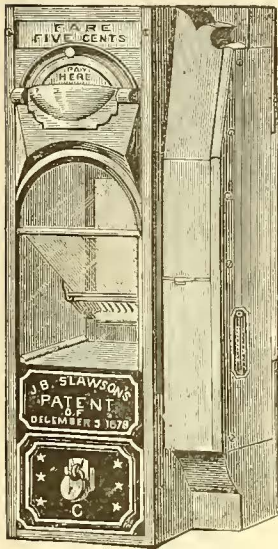
These Boxes are of the latest and most approved pattern, and contain a front door, by opening which all of the glass inside can be conveniently cleaned. This is a late patent, and is a very valuable improvement over the old method of taking the boxes apart for that purpose. They are well made and not 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,"

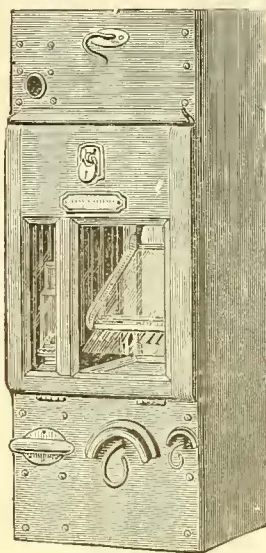


and all of his Boxes, Change Gates and Drivers' Change Box are protected by several patents, and parties using them are not liable to claims for infringements, as may be the case with some boxes which are now being offered for sale.

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.

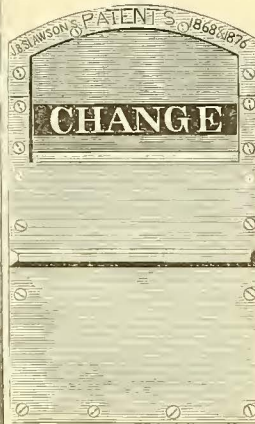


C. Front View.



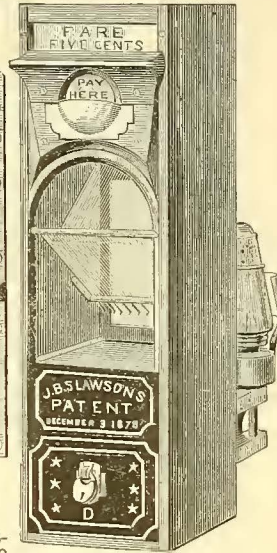
C. Back View.

Change Slide. Outside View.

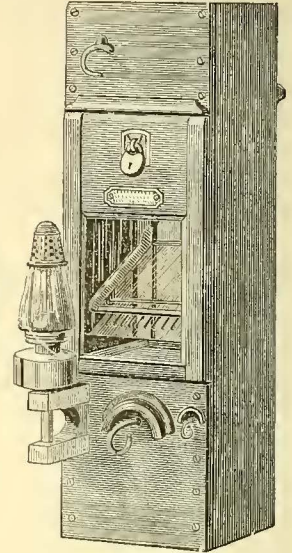


Change Gate. Outside View.

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.

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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.

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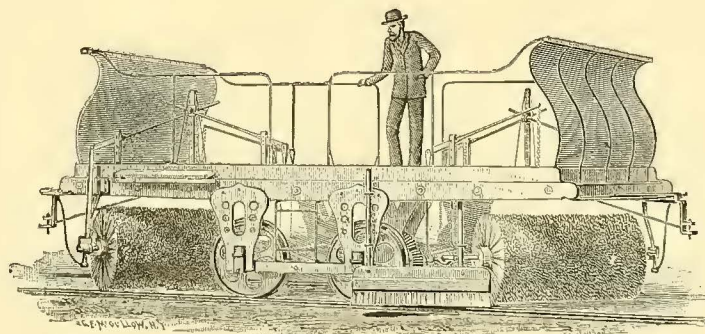
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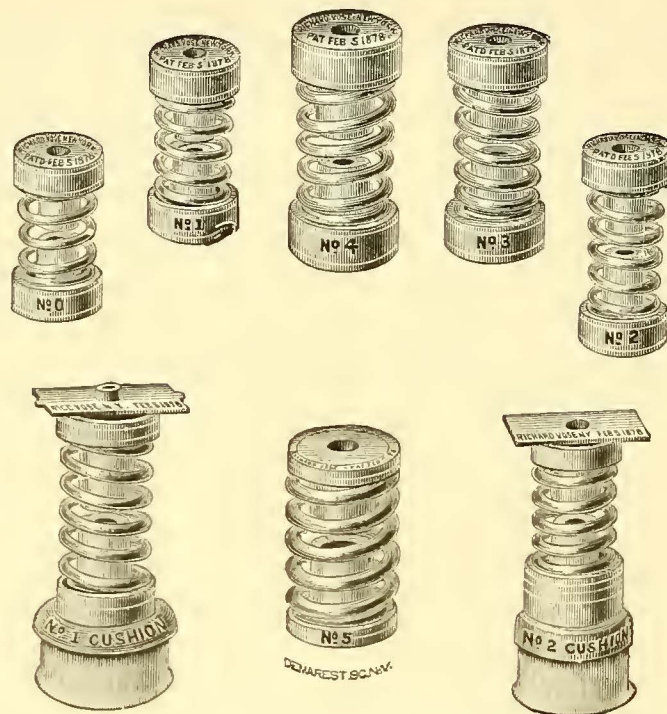
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Graduated Street Car Springs.

RUBBER CONE.

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 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.
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 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.

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 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.

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

DAYTON STREET R.R., DAYTON, O.
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 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.

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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.



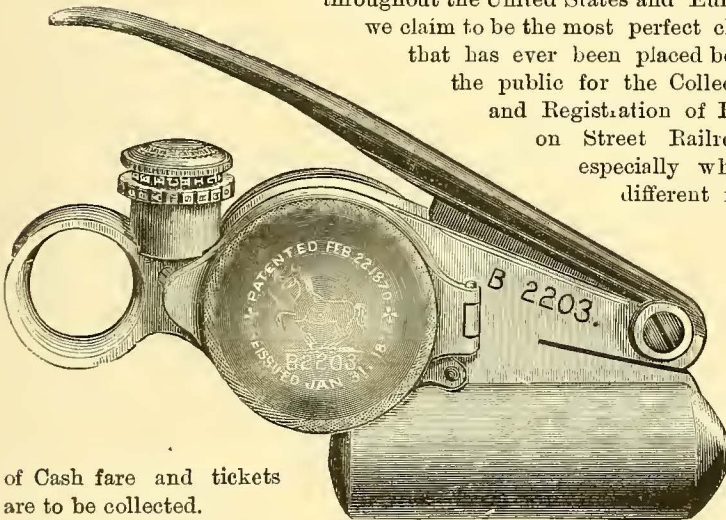
JAMES McCREDIE, Pres., Buffalo, N. Y.

COMPANY.

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

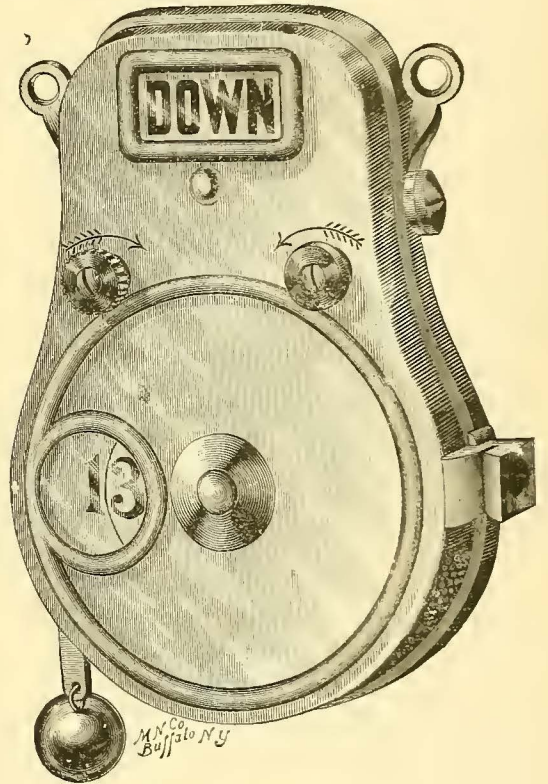
The Alarm Registering Punch.

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

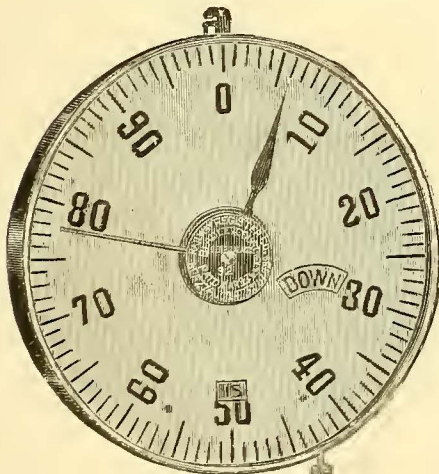


of Cash fare and tickets are to be collected.

Benton Register.

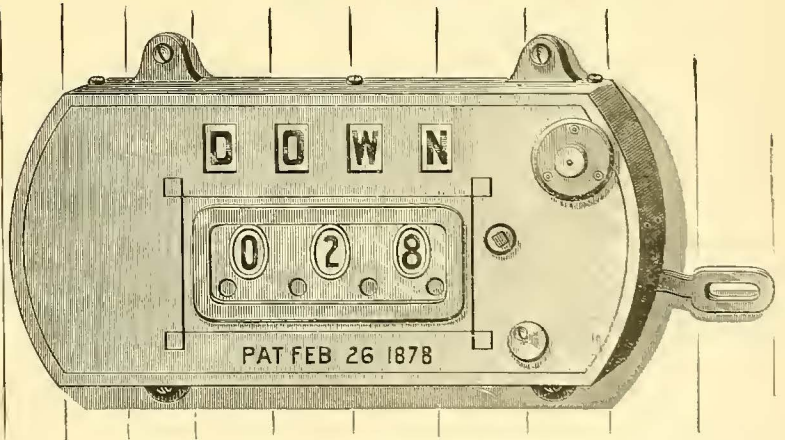


The Monitor Register.



Railway 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.



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The Goodenough System

OF

HORSE-SHOEING.

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

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

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

FROG PRESSURE

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

KEY-STONE OF THE ARCH.

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

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

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

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

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

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

THE GOODENOUGH COMPANY,

156 and 158 East Twenty-Fifth Street,

NEW YORK.

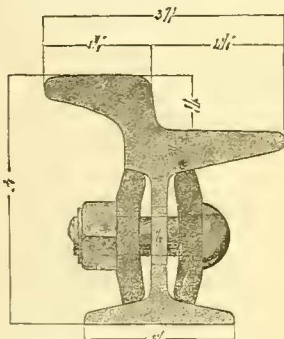
THE GIRDER SYSTEM OUR SPECIALTY.

THE

Johnson Steel Street Rail Company,

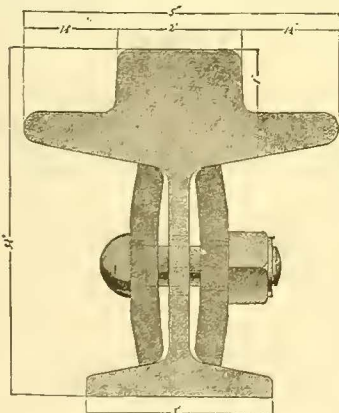
JOHNSTOWN, PA.

Section C. 38, No. 111.



Patented February 20, 1883.

Section E. 76, No. 117.



Patented January 29, 1884.

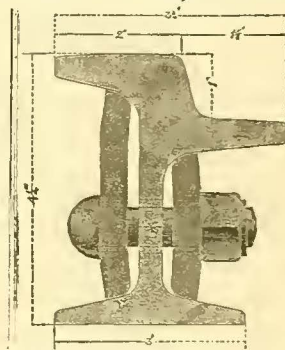
SIDE BEARING GIRDER RAILS

OR

CENTER BEARING GIRDER RAILS.

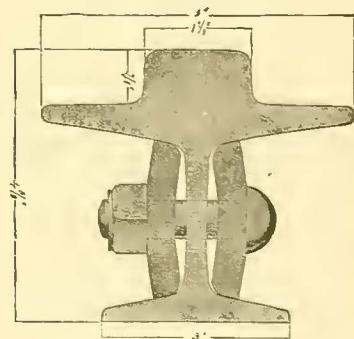
Large Assortment of different Weights and Sections.

Section D. 45, No. 119.



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.

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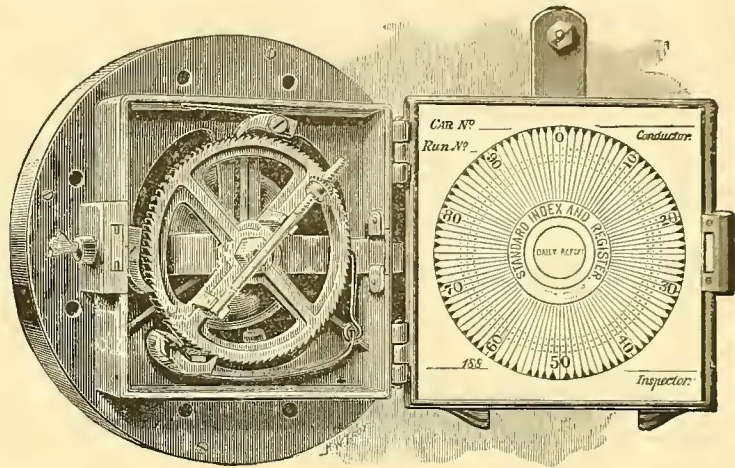
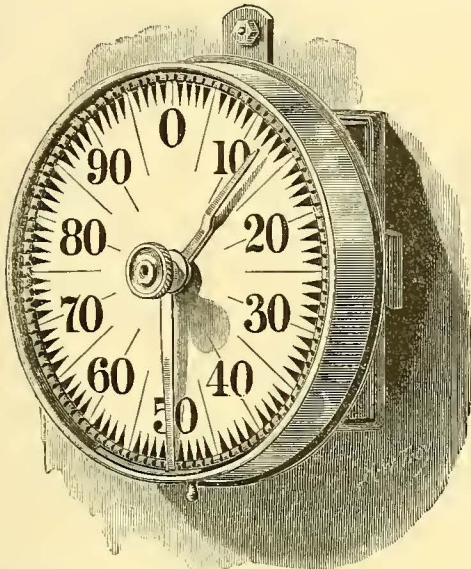
(Limited.)

WM. F. CARLETON, Manager, 293 Broadway, New York City.

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

ADOPTED BY THE LEADING RAILROADS IN THE UNITED STATES,

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



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

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

TESTIMONIALS.

METROPOLITAN RAILROAD COMPANY.

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

BOSTON, March 9, 1883.

ELI BALDWIN, Esq., Prest. Standard Index & Register Co.,
New York, N. Y.,

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

Very respectfully yours, &c.,
C. A. RICHARDS,
President Metropolitan Railroad Co.

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

OFFICE OF
THE METROPOLITAN RAILROAD COMPANY,
No. 16 KILBY STREET,

BOSTON, March 23, 1886.

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

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

Very respectfully yours, &c.,
C. A. RICHARDS, President.

CENTRAL PARK, NORTH & EAST RIVER RAILROAD COMPANY.

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

OFFICE, 10TH AVENUE, 530 AND 54TH STREETS,
NEW YORK, August 31, 1882.

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

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

Very respectfully,
C. DENSMORE WYMAN, Vice President.

CENTRAL PARK, NORTH & EAST RIVER RAILROAD COMPANY

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

TENTH AVENUE, 530 AND 54TH STREET,

NEW YORK, March 24, 1886.

ELI BALDWIN, Esq., Prest. Standard Index & Register Co.,
138 Ful on Street, New York :

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

Very sincerely yours,
C. DENSMORE WYMAN, Vice President.

OFFICE OF

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

NEW YORK, March 25, 1886.

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

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

Very Truly Yours,
J. W. FOSHAY, President.

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

J. W. FOWLER, President,

THE

DAN'L F. LEWIS, Treasurer.

LEWIS & FOWLER M'F'G CO.,

P. O. BOX 102.

BROOKLYN, N. Y.

Brooklyn, N. Y., April 1st, 1886.

To the Managers of Street Railway Companies :

GENTLEMEN : We take pleasure in announcing to our friends, patrons, and the trade generally, that we have this day taken possession of, and will hereafter occupy, the extensive works (at the above address) formerly occupied by the late James Binns, of this city.

The establishment has been prominently and favorably known for the past forty years as one of the largest furnishers of Railway Castings in the country, the good will of which we have secured, and will continue the business on an enlarged scale.

The machine shops are large and complete, and in connection therewith are iron, brass, and wheel foundries, all of which we shall operate, and we trust in a manner that we shall be prepared to place before the trade the only full line of Street Railway Supplies ever offered by any one establishment, and which will embrace everything pertaining to the construction, equipment and maintenance of a street railroad.

The only complete Catalogue of Street Railway Supplies ever published will shortly follow this, which we feel will be a very material aid to railway companies in making purchases of supplies.

A cordial invitation is hereby extended to all to visit our new works. An inspection of the same will be convincing that the facilities at our command will enable us to not only produce the goods referred to, but at first hands, and to sell the same at bottom figures.

We sincerely thank the trade for the earnest support given us in our business in the past, and will deeply appreciate any encouragement we may receive in the future in our extended and new undertaking.

Yours very truly,

The Lewis & Fowler Manfg. Co.

The Lewis & Fowler Manufg. Co.,

BROOKLYN, NEW YORK.

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Lewis and Fowler Man'f'g Co.,

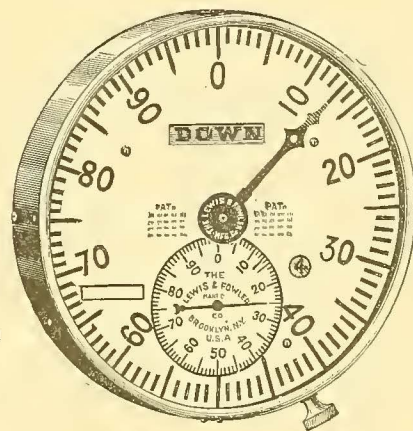
Office and Works:

27 to 35

31 to 37 & 32 to 40

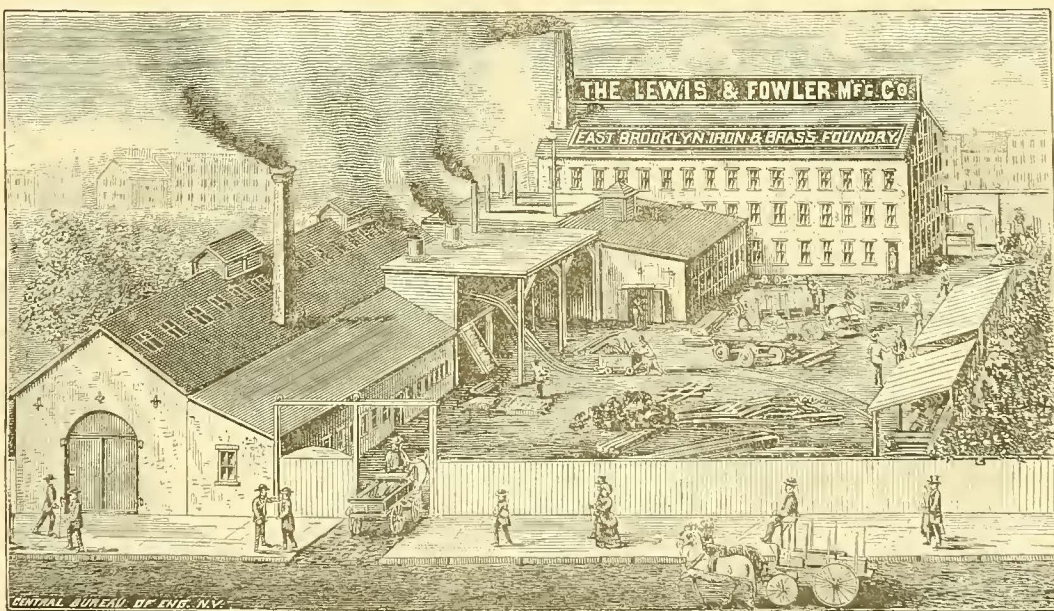
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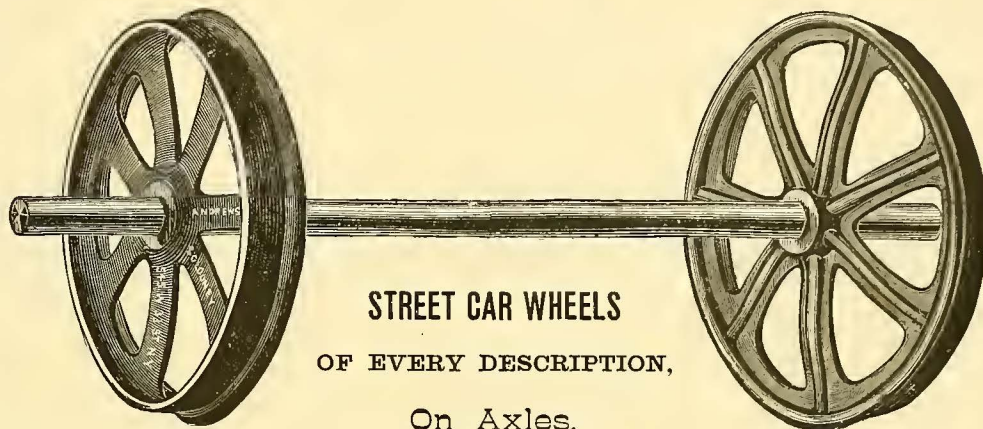
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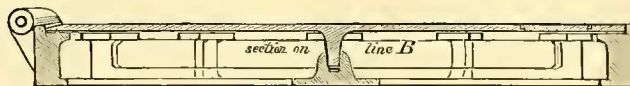
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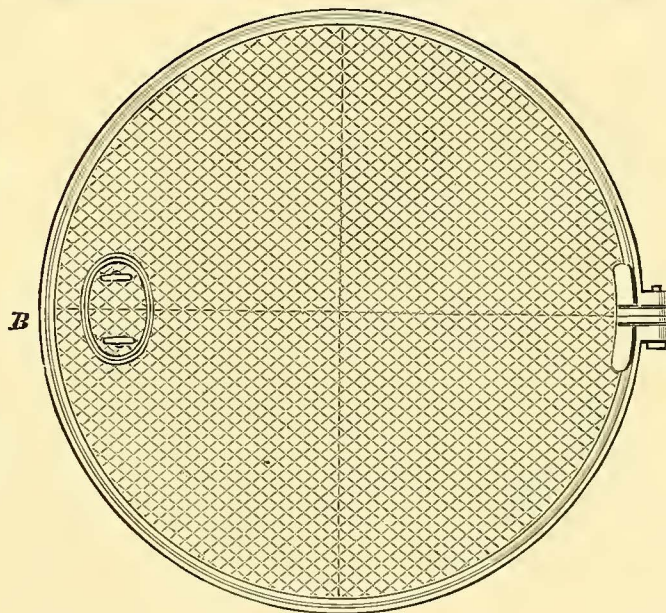
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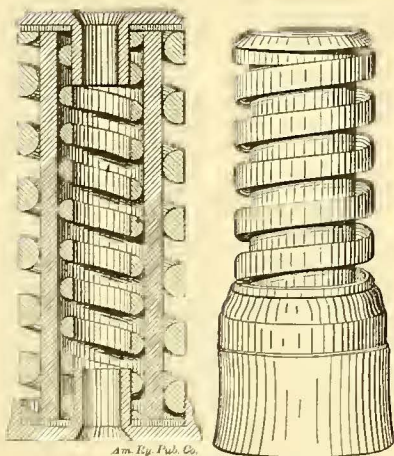


Street Railway Turn-table.

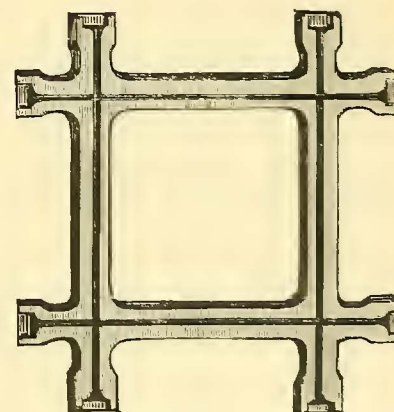
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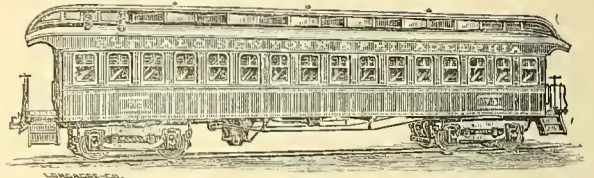
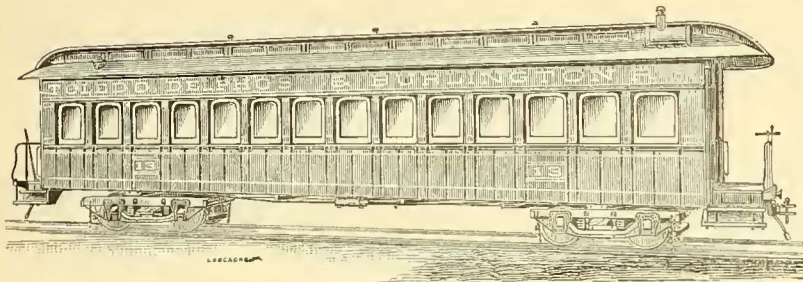
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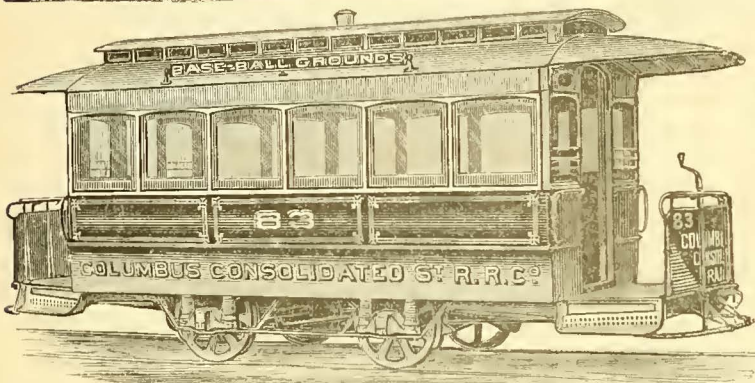
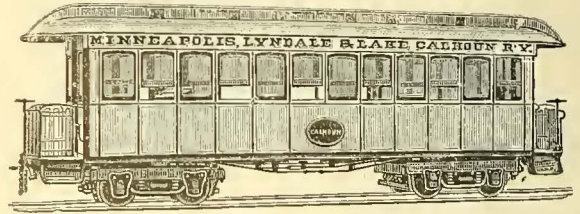
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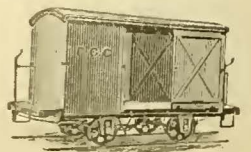
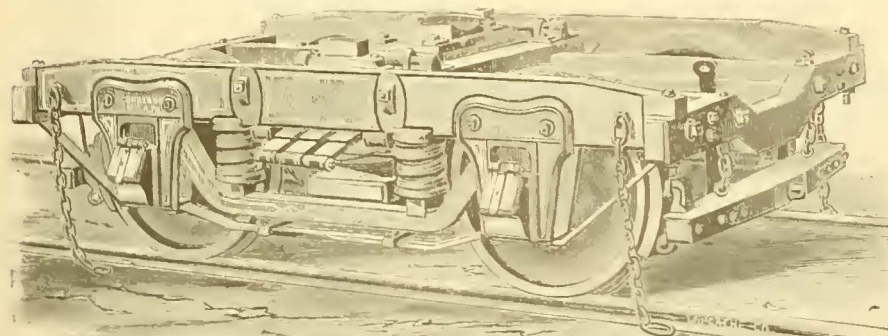
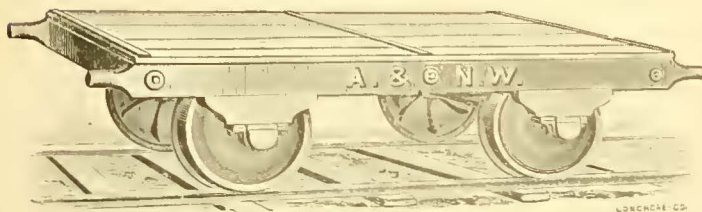
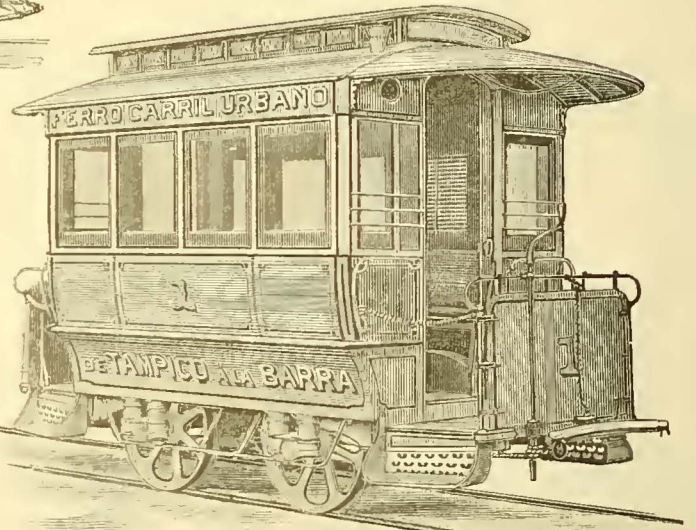


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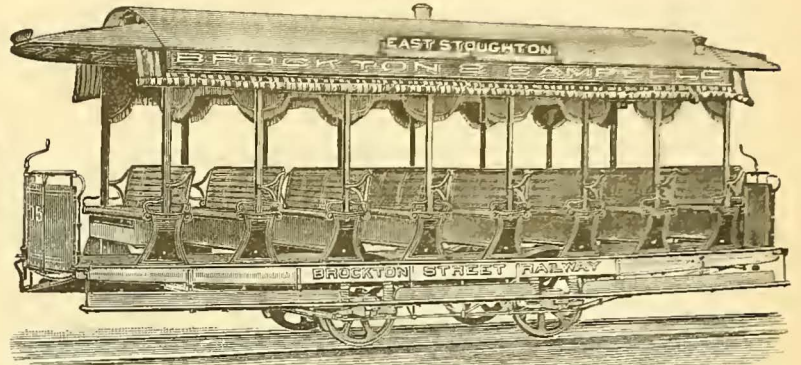
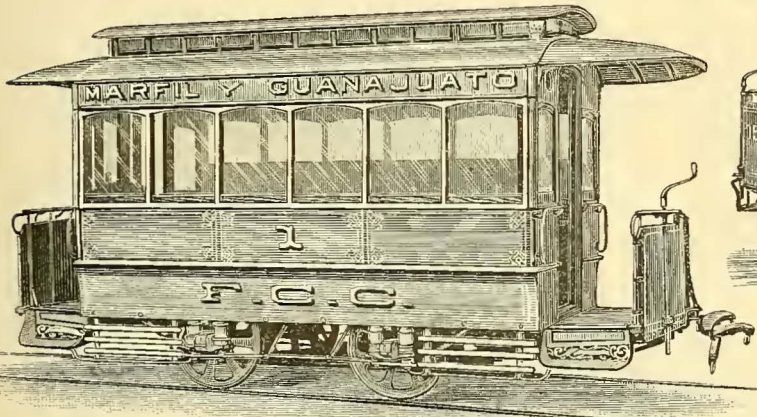


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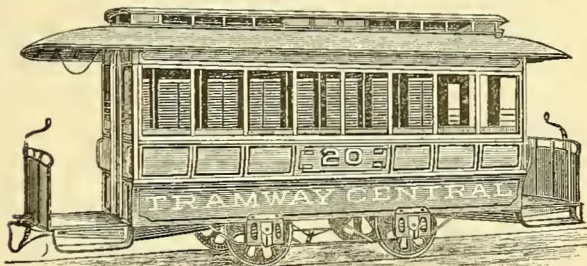
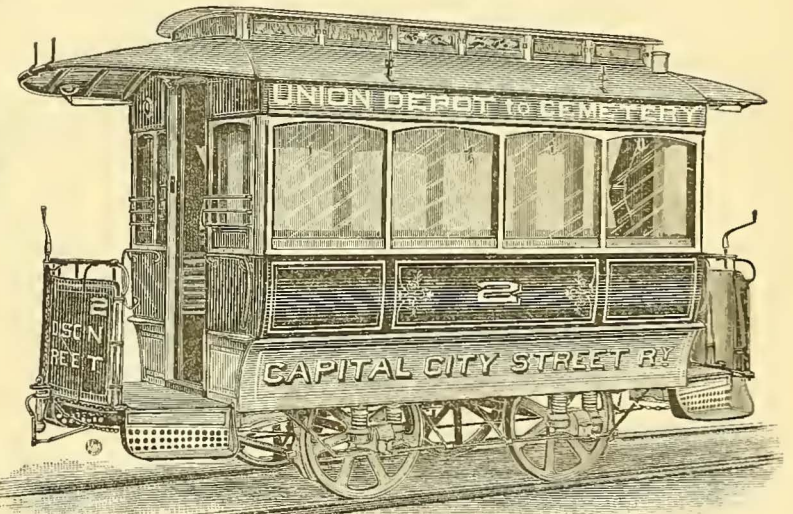
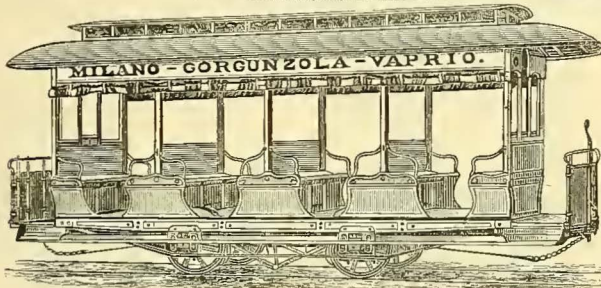
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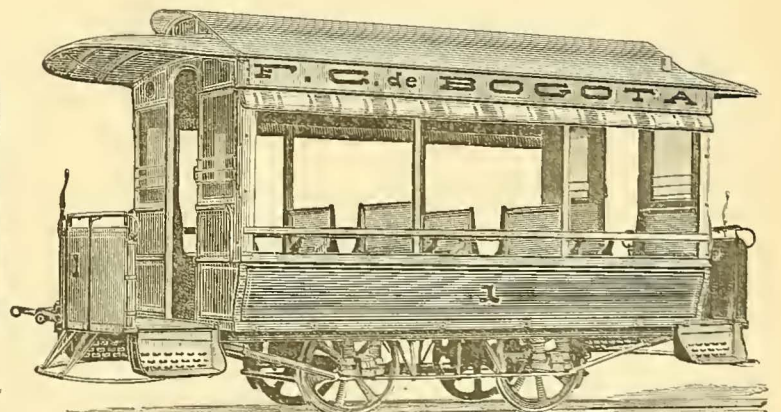
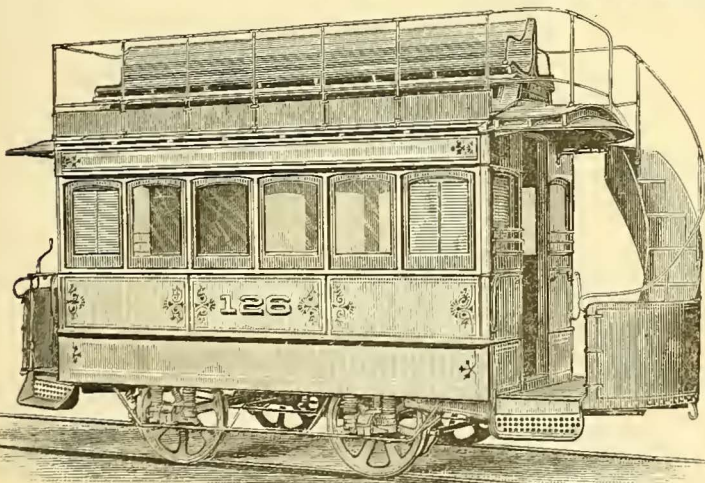
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