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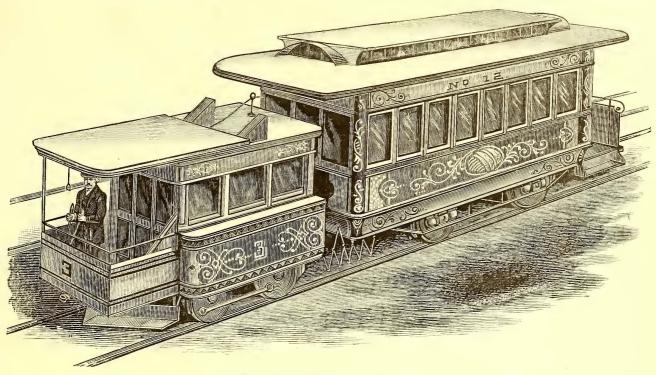
No. 4.

The Pole Street Car Motor.

The motor* and car starter system herewith illustrated is not complex, though it produces very important results. The motor and car starter can be used either separately or in conjunction with each other. The motor can be supplied with motive power from electricity, gas engine, compressed air or steam, the great feature of the motor being the system of traction,

The automatic foot action in this motor is a perfect stepaction, made so that there is a perfect rise and fall accurately placed on the ground, there held down, and the motor forced forward. This action is entirely different from the indefinite swing of a prop or strut to push forward a vehicle; for, if the said prop or strut should not eatch or hold against anything it would simply beat air; in this foot action the step is that of the front legs of the horse.

car called the "Differential Car Starter." This is also of peculiar construction, being a wheel within a wheel. There are no springs or cog-wheels in it. The back axle of the car rests upon two small wheels, these wheels run upon and in the flanges of two larger wheels, and are elevated four inches above the pavement, out of the way of sand. The draft is applied to two small friction wheels, which bear upon the large wheels near their top periphery, and thus is



THE POLE STREET CAR MOTOR.

which is adapted to operate the motor on the surface of the ground. When the well-known driving-wheel system fails to pull on a slippery rail, then the motor is provided with an automatic step or foot action. As a test, the driving wheels of the motor were locked, yet these great feet were able to push the engine along, breaking the cohesion of the driving wheels and forcing forward the motor without slipping the feet, showing at once that the feet were superior to driving wheels for traction purposes.

*B. C. Pole, 150 S. Fourth street, Philadelphia, Pa.

It may not be generally known that the front legs of a horse perform the hardest labor. The foot is not required to be in constant action, but only at grades and slippery places, the general running being done by the driving wheels, and being the same as in ordinary motors. All four wheels under this motor are drivers, and the whole force of the engine is thrown on to the driving wheels, or into the feet, or the force may be in both feet and drivers, at the discretion of the engineer.

In connection with the motor, an apparatus is attached underneath the passenger

obtained a twenty-eight inch leverage acting directly upon the small wheels upon which the axle of the car rests. This leverage comes into action whenever there is any resistance, such as starting a car loaded with passengers, going up grade, or running over a stone or other obstruction. This car starter is of great value for use with any kind of a motor, for it avoids the necessity of a very heavy motor depending upon cohesion, and when operated in the contrary direction is a brake.

No. 3 motor now built is supplied with power from a specially constructed engine.

This is a low pressure condensing engine, and has no escapes to the street. The whole is arranged to be noiseless, smokeless and have no dripping. These motors will shortly appear in the streets of Philadelphia.

Warming Street Cars.

For the past six weeks the Fourth and Eighth Street Railway management of Philadelphia, have been experimenting with a new apparatus* for warming their cars, and the invention has proved so successful that it will in all probability be adopted. The scheme is not to heat the

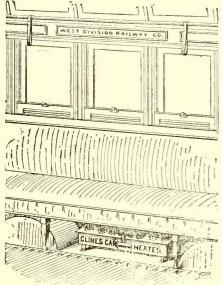
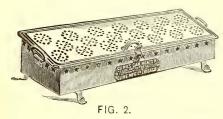


FIG 1.

cars to such an extent as to make the atmosphere detrimental to the health of the passengers, but to make the car comfortable. The heater is made from the very best galvanized iron, about 30 inches in length, 7 inches in height, 8 inches in width, having two sheet iron pans on the inside to receive the Aromatic Carbonic Composition Fuel. Each pan contains about two quarts of the fuel, which strongly resembles powdered coal; this amount will last from fifteen to eighteen hours without replenishing, unless the weather is ex-



tremely cold. The cost of warming the cars is regulated entirely by the temperature of the weather; an average temperature of fifty degrees can be obtained without any great cost. The heater requires but little attention, two boys being able to attend to two hundred cars without difficulty. The heater does not destroy the car, as there is no pipe nor any cutting to be done in use of it, being made any size to fit all cars, being placed on each side of the center of the car beneath the seats,

*Cline Manufacturing Co., 42 & 44 West Monroe street, Chicago, Ill.

and the fuel burns from the top downward. The heater is perforated to leave the cold air in on the side and the hot air out on the top, giving the passenger the same effect as a register in a room. The heater and fuel have been given a test and are claimed to have proven a success and we are informed it is adopted by the Chicago West Division Ry. Co., City Omnibus Co., of Chicago; The South Chicago City Ry. Co., of South Chicago; The People's Pass. Ry. Co., Philadelphia, Pa.; Pittsburgh & Birmingham Pass. Ry. Co., Pittsburgh, Pa., and many others.

Our illustrations show a car with heater in position as used by the Chicago West Division Ry. Co. Fig. 2 is a perspective



FIG. 3.

view of heater, and Fig. 3 a sectional view of heater cut through the center, showing the inner fire pan and its circulation of cold air going around same and passing out at the top through the perforated lid.

Street Railway Traffic in New York.

During the year ending September 30, 1886, there were carried on the street railways of New York city 325,427,015 p ssengers. We believe this is by far the greatest passenger traffic of any city in the world, although New York is not the largest city By way of comparison, the figures of 1885 are placed in a parallel column.

ROAD.	1885.	1886.
Broadway & Seventh Avenue	21,952,529	32,698,899
Central Cross Town	3,666,617	4.044,913
Central Park, North & East River	15.066,770	15,155,902
Christopher & Tenth Streets	4,316,777	5,209,426
Dry Dock, East Broadway & Bat.	17,419,852	17,154,601
Eighth Avenue	13,664,391	13,853,261
Forty-second & Grand St. Ferry	8,205,552	7,446.644
Harlem Bridge, M. & F	3,296,738	3,637.357
Houston, West St. & Pa. Ferry	4,352,704	4,592,634
New York & Harlem	15,972,361	18,201,236
Ninth Avenue	4,175,580	4,459,089
Second Avenue	19,367,370	21,059,707
Sixth Avenue	16,998,137	16,788,059
South Ferry (returns of 1884)	546,851	*550,000
Third Avenue	32,000,000	27,750,000
Twenty-third Street	10,311,145	12,697,914
Manhattan Elevated10	03,354,729	115,109,591
Forty-second St. & St. Nic	2,445,587	6,016,752

Total passenger traffic....297,116,690 325,427,015 *Estimated.

The Drunkard's Haven,

The president of a street railway sent a man to a town not very far away, with instructions to apply for a charter, in case the town looked as if it might support a railway

"Well," said the president, when the man returned, "did you see the town?"

'Yes, sir.'

"What do you think of it?"

"Rather a dead town; don't think a road would pay there."

Don't there seem to be enough people?" "Yes, quite a number of people.

"What, then, struck you as being so particularly bad?"

"Well, nearly all the men I saw were

standing on the corners, drunk.

"What? Standing around drunk? Why, you simpleton, don't you know they are waiting for a street railway to be built? If there were a road they would ride home. The street car is the haven of the drunken man. Standing around drunk! Hurry back and apply for the right of way."—Arkansas Traveler.

Timber versus Metallic Track.

EDITOR STREET RAILWAY JOURNAL:-

In October last year I wrote you a description of the metallic system, which brought out some advocates of the yellow pine stringers with chestnut and oak ties, and I am sorry to see that all contractors and managers of street railway property are not up with the advancement of the times, as I look at it.

The principal features of our system were designed to obviate some, if not all, of the defects that have hitherto constituted valid objections in the street railway construction, that is, valid objections as they seem to us, namely, the use of timber, spikes, bolts, and fish or joint plates, all of which seem to be a source of expense for repairs, and if they can be dispensed with will effect a great saving. It does not seem that it has been pointed out by any objector of the system, that the claims which are made for the metallic way in general have been confuted, namely:

That a railway track composed entirely of iron and steel has not longer life than one composed of timber cross ties and stringers.

That a system which has practically removed the use of spikes, joint plates, knees and timbers is not less expensive than a system using the same.

That a system which will lock the rails together and allow them to act individually in the space allowed for expansion, is not better than fish or joint plates, spikes or bolts, which cannot be tightened enough to give strength and yet slack enough to allow for expansion at one and the same time.

That a rail having a web member under the flange (the flange having a full bearing on the stringer), and the web member fastened in and to the stringer with web shaped keys driven into the mortices through the web of the rail and stringer, has not more vertical stiffness than a spike driven down vertically through the tram rail and timber stringer.

Finally, that a system composed of materials almost imperishable and of a simple design so that there is no difficulty whatever in construction, and which can be brought accurately to gauge, is not better than one where the material is perishable and requires frequent repairs.

It would be well for street railway managers, before deciding upon what they shall do in the construction of their road, to look into the opinions of eminent engineers who have adopted the systems which dispense with timber in whole or in part. The Johnson and Longstreet systems have dispensed with this for the simple reason that timber is an expensive article, and they would discard the timber cross ties and usc iron if it were not for the first cost. It seems, while these metallic tracks are obtaining such extensive application, that it would hardly be prudent for any manager to condemn them without first giving them careful consideration.

THOMAS H. GIBBON.

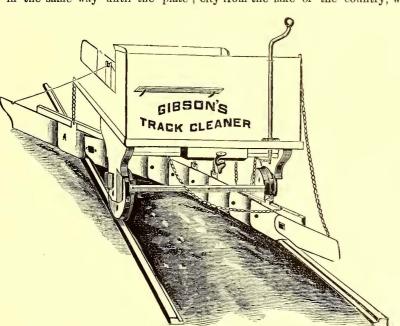
Albany, N. Y.

Gibson Track Cleaner.

We illustrate herewith a new attachment that can be placed upon any track scraper* and which possesses the advantage of being flexible and accommodating itself to the inequalities of road bed or street. It consists of a number of steel plates which overlap one another and are hinged together, the whole being suspended by chains running up through the platform and held in position by a suitable lever. This may be raised or lowered to suit any great inequality of the road, but in the main it may be trusted to drive along and adjust itself to any irregularities of the street. For an application to an ordinary scraper, the cleaner is arched and then faced with steel plates where it rides upon the rail, the arching being carried from one rail to the other so as to clear any great inequalities. Floating blades, as they are called, are then fastened to those in front and allowed to come down in contact. The plate that comes over the rail is cut away at the lower corner and bolted to the board immediately above the rail. This overlaps the next plate in order and is riveted loosely to it, the other plates following in the same way until the plate

Pavements.

In a discussion at a recent meeting of the Western Society of Engineers, Mr. C. B. Holmes of the Chicago City Railway Company said that his company has used wood extensively in paving its tracks, "and has used a large variety of it: pine, hemlock, cedar, maple, elm, gum wood and lignum vite. The gum wood was in round blocks. and in a short time wore into an oval shape like a saucer inverted, and became so objectionable for horses to travel on we had to take it out. None of the woods lasted for a satisfactory period, and all were very hard on horses. When frozen, the animals would strain all the cords and muscles to retain a foothold on the slippery pavement, and soon became disabled, many of them falling and breaking limbs or otherwise injuring them. In the summer time the case was butlittle better when the blocks were wet and 'greasy.' On State street, from Madison to Lake street, the company renewed the pavement regularly every six months, and sometimes it would last only four months; but in my estimation a much more serious objection to wood is the effect on health. Let any person come into the city from the lake or the country, where



THE GIBSON TRACK CLEANER.

that is bolted to the board over the opposite rail is reached.

This gives a flexible or floating blade between the two. There is a hole slotted in the plate over one rail which allows the blade to expand or contract, and to pass a horizontal line in dropping from a convex to a concave track, three inches below the top of the rail or three inches above it. The cleaner is the only part of the plow that it is necessary to purchase, as it can be attached to the scraper board of any ordinary plow.

*Glbson & Co., 330 Market street, St. Louis, Mo.

IF A HORSE rubs his mano and tail, wash the rubbed parts daily with soap and water and apply vasaline to the scalp. Occasionally use equal parts of bay rum and water.

air is pure, any warm morning in summer, just after a shower, and walk down any street which has been paved for six months with wood, and he can taste the bitter poison in the air which comes from the fermentation and decomposition of the fibers of the wood, saturated with the vilest of excrements and droppings from the horses, and the wind blows these germs of disease into the houses of the people, causing diphtheria and scarlet fever and kindred diseases, which prevail to such an alarming extent in a city paved with wood. Our experience, extending over a long term of years, condemns utterly all kinds of wood pavement, for the reasons given: Short lived, always out of repair, expensive and very unhealthy. My motto is, anything but wood.

"I would recommend a good substantial

granite block on a business street where heavy trucking is done and in all horse paths of street railways, and in residence streets a macadam foundation, with a good substantial dressing of from three to six inches of crushed granite rolled with a heavy roller, the heavier the better. This secures a clean, permanent, healthy, quiet pavement."

Another speaker speaking on the same topic and in connection with the use of brick pavements said:

"I have had no experience with brick pavements, and should favor round cedar blocks for such a street, having a light traffic. Such a pavement has been laid in Chicago for ninety-seven cents per square yard. It is cheap in first cost and durable under the above conditions. When the traffic is heavy it will last only a short time. It does not wear as well as pine blocks of average quality, and in the down town tracks of the North Chicago City Railway new pine block pavement was worn within six months, requiring repairs, and within eleven months an inch and a half had worn off, and the entire pavement had to be replaced.

"The durability of wooden pavements depends upon the amount of traffic, upon the soundness of the wood used, upon the season of year at which it is felled, upon the seasoning of the timber, upon the foundation, upon the care and thoroughness with which it is laid, and upon the condition in which the surface of the pavement is maintained.

"The sprinkling of the street has much to do with the durability of the wood pavement. I have seen adjacent pieces of pavement where part was thoroughly sprinkled several times daily, remain sound and free from decay at least three times as long as that unsprinkled. Cedar block pavement between the tracks of the North Chicago City Railway (not in horse paths) was comparatively sound at the expiration of ten years.

"The cedar block pavement, possessing the advantages of noiselessness, cheapness, and durability, would be my preference for a suburban street with light traffic; but the blocks should all be sound, well and thoroughly laid and rammed, and the pavement sprinkled and cleaned."

A short tram line about 230 yds. in length and formed like a horse-shoe has been laid down in a field not far from the Porte Maillot in Paris to demonstrate the system now in operation at Blackpool. It is, we believe, working successfully.

CLEANING CHAMOIS LEATHER. Chamois leather, so much used in the laboratory and experimental rooms, may be cleaned by rubbing into it plenty of soft soap, and then laying it for two hours in a weak solution of soda and warm water. At the end of this time rub it until it is quite clean, rinsing it in clean warm water, in which soda and yellow soap have been dissolved. It should then be wrung dry in a rough towel, pulled, and brushed. This process makes the leather soft and pliable.

To Prevent the Cracking of Varnished Surfaces.

BY M. W. STINES.*

One of the problems before this meeting of the association is the prevention of cracks in painted and varnished surfaces. The changeable conditions under which painting is done, the sudden and changeable variations of our climate, the uncertainty of a constant sameness in the production of paint stock, the wide difference in the views of painters, coupled with the diversi y of methods employed to arrive at the same results, be they good or bad, tend to make this one of the most important questions we now have to deal with. The theories advanced by scientists, who are not practical painters, are only useful to us in a few instances, and then only under conditions restricted by our facilities and, I may add, our [limited knowledge of the material employed.

We must, then, under existing circumstances, with the aid of such scientific thought as we can utilize, try to formulate a system based upon the common, every day requirements of the paint shop, that will, I hope, at no distant day, assist us in solving this problem.

I do not think that any argument of mine as to the cause of this cracking is called for, and I propose to only call your attention to a few points which may bring about causes to prevent it. The ablest writers on the mechanical arts tell us that such and such quantities of paint and varnish will cover a certain amount of surface, but are non-committal as to the duration of these substances. There is no authentic authority for believing that paint or varnish, or both together, will last for any certain length of time.

It is the common belief, founded upon the observation of those practically familiar with these substances, that certain kinds of oil and pigment mixed into a paint will last about so long, but there seems to be an uncertainty about these materials which makes it impossible to say how long.

Car painting seems to be in a measure an uncertainty. Our expectations seem to overreach the limit of life and permanency that is in the materials we are using. No matter how careful we are, or how much skill is used in the mixing of paints, they sometimes fail to meet our expectation, and in a short time they disappoint us in some particular way that we are unable to account for.

These peculiar cases of premature failure are not as common as they were a few years ago and it seems probable that as the standard of paint stock grows higher and the uniformity of doing work increases, we will in a few more years be able to increase the average durability of painting on cars.

In the past few years a decided progress has been made in what seems to me the most difficult and intricate part of car painting. I refer to the proper mixing and application of body paints. These paints are

not causing us any trouble and seem to be so well adapted to our purposes that we should be careful and move cautiously in making any changes from our present understanding of them. Now, if I recommend anything in this direction, it would be the painters' encouragement and active co-operation with the producers of good honest paint stock, and to give as long a time as possible and practicable for drying between the coatings, especially between the priming and the coats to follow; that, so far, as practicable, a uniformity in kind of pigment and vehicle of mixture should exist in the coatings between the priming and the varnish coat. Great care and judgment are required in the selection of the dryer. Those dryers that are the quickest and seem to the casual observer to be the best do not always prove so. The minimum amount of dryer in all paints used in car painting should be the rule.

For the past five or six years I have seen but little, scarcely any, trouble with paint cracking. Most of the trouble is now caused by varnish cracking. Years ago the painter took all the blame for all kinds of cracks, but now the difference between a paint and a varnish crack is so well defined that no fair minded person blames the painter for cracks in the varnish.

Why should the painter be to blame? Varnish is the only part of our stock that we do not mix or prepare in some manner. It is furnished to us by the varnish maker ready for use. In many instances his instructions are followed to the letter in its use but with no better success than when the painter exercises his own judgment. There may be some instances of disregard of the ordinary rules for using varnish, such as light, heat and cleanliness. When the advantages afforded us for using varnish are such as to be disadvantageous to its use, neither the user nor the maker is responsible for its failure.

The best judgment and skill of the varnish maker and painter have not yet provided a varnish that fully meets the expectation of the consumer. The painters have in some instances discarded the use of rubbing varnish and finish strictly with finishing varnish. The only difference in results that I can see is that at the end of four or five years the finishing is cracked deeper thau the rubbing. It is conceded by all that the work that runs the longest and wears the best, is that that has had the longest time to dry between the coats; but the time required for varnish to dry between coats to insure it against cracking is so long that it is practically out of the question in car painting to allow it that

I am inclined to believe that there are more coats of varnish put on in a week than there ought to be, and that a moderate coat will dry through more evenly and last longer than a heavy coat will. I do not believe that two coats of varnish are as good as three. It must be taken into account that you must revarnish at least once a year, and at the end of three or four years you have a very considerable film of varnish,

which is difficult—in most cases impossible -to keep from cracking. To avoid this accumulation, and lessen the tendency to crack, would it not be sensible to commence with two coats instead of three? At the end of ten or twelve months, when a car is run in to be revarnished, instead of using water on it, would it not be better to cut off the worn-out surface of the varnish with raw oil and pumice stone, and if you find that there is (which there most always is) a sufficient body of good varnish under the wornout portion that you have taken off, put the car into service again for six months longer without revarnishing, when the car is again cleaned, and if you find it necessary to revarnish, put on only one coat instead of two, as is usually done.

Instead of sending a car out with a high glossy surface, I am in favor of rubbing the finishing coats with oil and fine pumice stone to a satin luster. There seems to be something in the rubbing of varnish in this way that we do not appreciate as we ought to. The oil is the natural feeder and life-giver to the gum, the rubbing breaks down the pores connecting them together, making a more solid resisting surface to the weather than if left glossy. The possible advantages of this plan would be in removing as often as necessary the outside worn portion of the varnish, and presenting again for further service the inside or good portion. Instead of going over the car with fresh coats of varnish when not absolutely necessary it would prevent the piling up of varnish which will sooner or later crack. It economizes the use of material and makes it possible to repaint without burning off a solid surface of paint because the old varnish has cracked.

In the past ten years a decided improvement has been made in mixing a non-cracking paint. Our experience with varnish is the same to-day as it was twenty-five years ago. The nature of the elements it is made from may render futile any further efforts of the varnish maker to produce a non-cracking varnish. Now, the question seems to be this: Is it desirable that we should change our method of using varnish and m ke another effort for success?

The cracking of painted and varnished surfaces has been studied by many able and practical men, and many theories have been given as to the causes and remedies tried, but without arriving at any definite conclusions, at least in the case of some of the different appearances of cracks that we have to contend with. Yet there is no doubt in my mind that by practical observation and study on the part of the painter a remedy can and will be found for these troubles that we have to contend with in the painting of passenger cars.

For a number of years I have studied to overcome this trouble, and, I can say, with good success. In most cases it is necessary for all painters to study the natural properties of paints, oils and varnishes, their chemical action with one another, as also the proper proportions in mixing, for without these qualifications it must be all guesswork with the painter, and he cannot

^{*} Paper read at Master Car and Locomotive Painters' Convention.

expect to arrive at any measure of success in his painting.

To find the cause of each kind of cracking is to find a remedy; then let each look at the different kinds. It is not very difficult to find out those cracks caused by the use of poor materials, and in that case to apply the remedy; but there are other kinds of cracking that most car painters are troubled with that we want to find the remedy for, and I think, according to the suggestions given at our last convention in reference to the different tests, we may be benefited by them.

I have before me some twenty panels which I painted according to the different tests. These are painted in three different body colors now in use-some painted olive brown, some tuscan red, and others yellow. One-half of each of these panels is also varnished, leaving the other half of the board with the paint exposed. I also did the varnishing with different formulas-some having the first coat of varnish, rubbing and finished with two of finishing varnish. Others medium, with two of finishing, and still others with three coats of finishing varnish. Thus you will see at a glance this will show where the cracking first commences, either in the varnish or the painting. I regret that I am not able to be with you this year, and bring those panels with me for your inspection, although the nine or ten months' exposure has not been long enough to discern any material difference as yet, so that I shall keep them exposed for another year. Hence, at this time I can say but very little on the subject, but may state some of my observations and give some suggestions as to what may be some of the causes of cracking in the painted and varnished surfaces of our cars.

In our former conventions a great deal has been said in reference to elastic coats of paint. Now, the question is to determine what constitutes an elastic coat of paint, and here I believe lies one of the greatest causes of cracking. It requires good judgment to determine the exact quantity of oil, turpentine and japan, to mix, as on the one hand too much oil in our color coats is sure to cause mischief where varnish is used as a protection to paints.

I find, upon examination of the panels before me, that those done with the least oil are so far showing the best surfaces. The varnish on these panels, stands out more solid and brilliant, without as yet the sign of a crack, as does also the painted part, while those done with the most oil seem to have flattened the varnish surface. I have also three or four boards that I painted and varnished over three years ago.

The boards were painted after, or rather with the same formula, japan colors, as I painted my coaches. They have been exposed in all kinds of weather for over three years, and yet there is not the least sign of a orack. Of course the varnish has perished to a certain extent, but the paint is still as solid, to all appearances, as when first put on, and yet some of the coaches done with the same formula have cracked, more particularly at right angles with the panels,

while other coaches have not the appearance of a crack. I also notice that the large iron panels in center of cars, as well as iron battens and corner plates, are without any cracks, but stand just as solid when first painted, while the woodwork on the cars is cracked. True, in some cases the paint on the iron may flake off, but that is invariably owing to the presence of rust under the paint.

Now, perhaps you ask how do I account for this. Well, I invariably notice that these cracks start or commence at the battens, or joints and nailholes, and run nearly across the panel. I account for this in two ways. In the first place, we are apt to allow too much of an accumulation of paint and rough stuff along the edges of the battens and in the depressions caused by nails by not sand-papering and rubbing down close enough, this more particularly near the battens or joints of sheeting. Now, after the car has been exposed for awhile the battens warp, shrink and draw away from the panel thus breaking away from the paint and leaving an opening for the admission of moisture in any form to enter either under the battens or through the broken painted surface, thus undermining the whole structure of paint. You will also observe that the panels being well and firmly screwed or nailed to the studding under the battens, those same screws and nails causing dampness and rust, all has a tendency to destroy the life of the paint. Now, under these circumstances, the panels, held firmly to the study or frame of car, cannot readily give with the strain or sudden jar of the car, which, I think, would cause the paint and varnish to give way first at those places, when in the course of time, it extends across the panel or sheeting, as the case may be.

I have noticed-what I consider a remedy to some extent-that those coaches that were well primed under the battens and edges and backs of panels, as well as the face of frame and sills, were well painted and the battens put on with stiff white lead on the under side, well nailed, very seldom showed any cracks. This applies as well to sheeting. In the second place, if you observe your cars closely you will see that the perishing or cracking takes place 'first on the battens, where it comes in contact with the window sill, as also under the window sill, near the battens. You will see at a glance that this is caused by moisture or water that gets between the window stop and sash and then runs down behind the battens and back of panels, or through the top edge of panel, which is generally void of paint or anything to protect it from dampness. You can easily suggest a remedyhere. As I said before, cracks caused by poor material may be remedied at the will of the purchasing agent.

I have tried the method of having our standard body colors ground stiff in oil as well as in japan, and I have always found the best results in favor of japan colors. It seems to me unreasonable to put a slow hardening as well as a slow drying body of paint under a quick hardening body of varnish (rubbing, or even finish-

ing in some cases), and expect that there will be no cracking of either the varnish or paint unless days are allowed for each coat of paint to dry. On the other hand, if japan colors are used, after building up your foundation, if it is necessary, you can then use just what proportion of oil may be necessary in your japan colors, but I should say be very sparing of your oil in your finishing colors and allow a reasonable time to dry, discarding the use of rubbing varnish on the outside of coaches or over painted surfaces, and you will have reason to expect good results.

Veterinary Notes.

From Prof. Fair's replies to interrogatories in the Ohio Farmer, we clip the following recommendations which he makes for various illnesses of horse flesh.

In case of a bone spavin, he recommends that where blisters have been put on and done no good, the horse must be fired by a competent veterinary surgeon, and after that give it a long rest.

When a horse's appetite varies from good to bad and it does not digest its food properly, the first thing to be done is to examine its teeth and see that they are in proper condition to masticate the food. If this be not the case, the horse should be fed on ground corn, oats and bran, and given half an ounce of Fowler's solution of arsenic three times a day, and ten grains of quinine three times a day. If the treatment is continued for about three weeks, the horse will probably be very much improved.

For the disagreeable and difficult habit of cribbing, the following remedy is recommended:

The paddock or stall must be made perfectly smooth, and all edges upon which the horse can take hold be removed, so there will be no place upon which he can bite. The habit may be the result of indigestion or stomach trouble, or the younger horses may take the habit up from seeing the older horses cribbing, but if the horse is so placed there will be no opportunity for cribbing, and the desire to do so will probably eventually pass away.

New Cable System.

A Brooklyn engineer, says an exchange, has devised a new cable system for street cars. The difference between this cable system and others, consists principally in the method of catching the cable from the tube in which it is carried and in the grip. Instead of depending on the pressure of wheels, the cable is taken up between two long grips with movable dies set in their outer edge, thus giving a much greater grasping surface than a wheel. The cable runs through a covered tube tightly closed in the center by means of springs. cover is opened by projecting steel plates, fastened to the front and rear of the car, which shove each side of the cover aside for the purpose, so as to have an open space directly under the grip, through which space the grip descends and lifts the cable, and as the car passes on the sides of the cover spring together again and present a closed surface over which ordinary vehicles can be drawn as over the street.

Electric Street Cars. I.

BY T. C. MARTIN.*

The great question agitating street railway companies in this country at the present time is the use of some motive agency more economical and convenient than horses. It is no exaggeration to say that after about half a century of patient trial they have become profoundly dissatisfied with animal power and are ready to adopt any system that can establish its claim to their preference. Evidence of their feeling on the subject is seen in the fact that at the last convention of street railway men, the progress of electric motors was reported upon by a special committee whose optimistic statements were heard with pleasure. One of the most prominent members avowed that he regarded the promise of electricity as a motor with which to supersede horses as very encouraging. Another said: "All honor to those who are giving an hour or a dollar to the development of this important agent." A third thought it the duty of the convention to extend an earnest and cordial greeting to every man who was "trying to replace bad with good." These sentiments should. I think, encourage us, who with enthusiastic pride have seen the rapid increase in efficiency of the electric motor, and who, no matter what may be our predilection for particular systems, assert and know that—as a bottom and basic principle from which to start-electricity is more than equal to all the demands that may be made upon it in the special service of propelling street cars.

The struggle for supremacy in this field of occupation may fairly be said to have narrowed itself down to three competitors-the horse, the cable, and the electric motor. Steam used directly is, it seems to me, viewed with more and more disfavor as the years go by, and has within city limits come to be considered very much in the light of a nuisance. The lowest cost of operation per steam motor per day, in usual service, that I have seen quoted authoritatively is \$8.50 to \$7. But even if steam were cheap, there are grave objections on the score of noise, smell and dirt. The mere fact that steam locomotives have been in successful use 50 years, but are still denied employment on the streets, tells its own story as to public opinion. To some of us the banishment of steam even from the tracks of elevated roads seems a matter of but a few years. As for gas, soda and compressed air motors, I am not aware that they offer any points of superiority over steam for the specific purpose under discussion.

Coming to horses, we find that in spite of their universal use and their faithful performance of duty, they inspire a discontent anything but complimentary, yet hardly to be wondered at. The statistics of horse cars are important and interesting, and deserve our attention as covering the sphere within which the electric motor will

operate. There are, according to the latest returns available for this year, about 625 street railways of all kinds in the United States and Canada. Taking of these 408 horse roads giving full and trustworthy figures, I find that they run 17,331 cars and employ 85,888 horses. If at the same ratio we took all the horse roads, upward of 500, we should arrive at a result of not far short of 25,000 cars and 120,000 horses, a total that probably comes very near the actuality. Taking the other figures, which I have tested by three sources of information, it appears that all the horse car lines arc maintaining a proportion of at least five horses to each car. But that is inclusive, and making a reasonable allowance for the use of different cars for winter and summer, and for idle cars, as well as for "doubling up" in heavy snows, a result is shown of at least eight to ten horses per car. This is the proportion usually cited, and it is brought out on a special examination of the statistics for this city. Thus, the Broadway and Seventh avenue road has 121 cars and 1,350 horses, or not far short of 12 horses per car. The Central Park, North and East River road, with a total of 161 cars, has 1,223 horses, a broad average of 8 horses per car. The Eighth avenue road, with 112 cars, has 1,155 horses, or 10 per car. The Forty-second street and Grand street line has 50 cars and 485 horses, or 9 per car. The Sixth avenue line has 127 cars and 1,296 horses, or 10 per car. The New York and Harlem with 164 cars has 1,321 horses, or 9 per car. The Third avenue road, returning a total of 360 cars, has to keep up a force of nearly 2,200 horses. The large number of horses required is also to be learned from the fact, stated by Mr. Augustine W. Wright, that those on the North Chicago line, which is a favorable sample, work daily only two hours and seventeen minutes. Or to put it in another way, the 6,158 street car horses of Boston travel each about 10 miles a day only, or two hours' service.

The costliness of horses may be arrived at in yet other ways by the use of comparative figures. Mr. T. C. Robbins, of Baltimore, a street car expert, gives the average cost of a horse carper day at \$6.50. I have had the same figures given me for Brooklyn and Philadelphia, while Mr. C. B. Holmes, of the Chicago Cable Railway, who has had great experience with horse service, says that the expense per car-mile by the cable system is 10 to 11 cents, as compared with 20 to 25 cents per mile when employing horses. On a daily runper car of 50 miles, that would be at least \$12 per day with horsetraction, and half as much for cable. Moreover, there are the great extent of valuable land required for huge stables and the heavy depreciation of stock. Few occupations are more exhausting to horses than street car traction, and the average railroad life of a horse is but from three to five years. In other words, out of 100,-000 horses, at least 20,000 every year die or become useless for their work, and drag out the remainder of their existence in other occupations. "How are you getting

along with those old horses I sold you?" said the street railway president to Mr. Sexton, the undertaker. "Pretty well," was the reply. "I tried 'em first in the mourning coaches, but they were too slow for the ladies. Then I put 'em in the hearses, and I haven't heard any complaints from that quarter."

The cable has already made its way into use on a large number of street railways doing a heavy business, and is, it must frankly be admitted, a vast improvement on old methods. It has enabled those roads to handle a traffic that was utterly beyond their capacity before. It has accelerated speed, has lessened accidents, has given the streets a cleaner look, has, it would seem, cut down expense, and has certainly raised the value of property wherever put in. But I doubt seriously whether in view of the enormous first cost of the cable system and the excessive waste of power, it will make very rapid strides, especially when subjected to the rivalry of electric motors. At the recent street car convention, the new cable roads at Kansas City were presented for favorable notice, and as they were evidently considered good specimens, let us accept the figures. The Metropolitan road will cost \$50,000 per mile of single track, and I observe that it is claimed with regard to the Philadelphia system that the track there could now be duplicated at about the same cost. The Kansas City cable company gives some interesting results of a test of its engines and machinery, from which I gather that with a total of 159.7 h. p., no less than 119.06 h. p. was required for the cable machinery, leaving only 40.64 h. p. for cars and passengers. In other words, just 25 per cent was available for actual traffic. This waste will strike electricians familiar with the high efficiency of dynamos and their transmission of power as extraordinary. But it is confirmed by a statement from Mr. C. B. Holmes, of Chicago, who says that his cable railway required for ordinary operation, engines of 477 h. p.; that it took 389 h. p. to move the cable and machinery, and that 88 h. p., or only 181 per cent, was used for the propulsion of the cars at nine miles an hour. Mr. W. W. Hanscom, in a careful review of the conditions applying to cable lines in San Francisco, gives a total daily average percentage on the seven roads of 68 percent of power for moving the cable, and 32 per cent for the cars and passengers. Two miles of new double-track in San Francisco, fully equipped, have just cost

I do not know that these figures call for comment, as those presented later on in regard to electricity will serve for purposes of comparison. But they may be supplemented by one or two observations. It is evident that there is an objectionable rigidity in the cable system and that it has narrow limits of applicability. A cable road, of whatever kind, needs a very large patronage. Mr. P. A. B. Widener, well known in connection with Philadelphia street railways, said last year: "To

^{*}Read before the American Institute of Electrical Engineers, December 7, 1886,

muintain a cable road you must have a certain amount of business in order to be self supporting. It costs as much to run the cable for half a dozen cars as for half a hundred. Small roads, or feeders to the main line, are run more cheaply by horses.' It will be remembered that great trouble was experienced in Philadelphia in rendering the cable system there operative last year. The assertion is made by those who should know that 12 miles, costing between \$10,000 and \$50,000 a mile, required \$250,-000 in repairs and renovation inside the twelve months; but, as the Ledger put it philosophically at the time of the breakdowns: "It is claimed that the delays and other annoyances that have been experienced by the company have been slight in comparison with those met with in Chicago when the cable road there was in its infancy." We New Yorkers and Brooklynites are more familiar with the mishaps on the East River Bridge, and from the arguments made, here and elsewhere, against the cable roads, we have learned that the cables wear out quickly, besides being ceaselessly noisy and requiring a conduit that must have such a depth as to become an unhealthy drain or sewer.

We reach now, in the due course of our survey, the use of electricity as compared with horses or cables. You will, I believe, bear me out when I say that the confidence of electricians in the ability of electrical means to propel street cars is as strong as it could possibly be, and is, moreover, based on no small amount of work and experience. I might affirm that the general introduction of electric motors is now largely a question of coal bills. I might affirm that it has more and more resolved itself into a question of mechanics; and in both statements I should have your concurrence. I might broadly state that in Europe, where a large number of electric roads exist already, they are paying well and multiplying; and that such roads in this country had, some months ago, carried altogether over a million passengers, or a daily traffic of 3,000 passengers for a full running year, without any recorded injury to a single patron, while several new roads have of late gone into successful operation. But at the risk of covering much ground with which you are familiar I shall venture to give an outline of some of the methods by which electricity is applied to street-car service, as well as some of the data establishing its claim to superiority. I do not know of any point on which a fair comparison need be shirked; I do not know of any difficulty that can balk the infinite variety of our electric art, and as this society has never hitherto had the subject before it, I am encouraged to go a little into detail.

We have, in using electricity for street cars, the option of so many methods that the very flexibility of the application becomes a recommendation. We shall, perhaps, best spend our time in considering three or four of the leading methods, with incidental reference to the peculiarities of individual cases in each. I propose to

take the third-rail system, the overhead system, the conduit system and the storage system, and, without any intention of invidious discrimination, to pick out, for the exemplification of each, some of the roads and cars that have been running or can be seen and tested.

Let us begin with the third-rail system. The Daft road at Baltimore, now in its second year, has been so often described that full details here are not necessary, but it furnishes some interesting figures. The cost of electric power there against horsepower at \$6.50 per car has been \$4 per car per day, with an increase for the year of 83,986 passengers. Mr. T. C. Robbins reported as follows to the street car convention: "It was started on a purely commercial basis, as a purely commercial transaction, and has continued, and is now being extended, simply because it has proved its right to stay by the performance, which leaves little to be desired." The largest item in the expenses at Baltimore is coal at \$3.50 a ton. Another third-rail road, the Highland at Detroit, on which there are none of the grades and curves that rendered the Baltimore road expensive as to fuel, is in very successful operation. Like the Baltimore road, it has a wheel for making contact, but, unlike it, has the third rail neatly sunken between planks. It runs out of the city for three miles. The car in use is the same as those on Broadway, this city. Mr. Frank Fisher, whose motor is used, informs me that on a recent Sunday, on a thirteen hour schedule, the road carried 5,500 passengers. The coal consumption was a little over 400 lbs. The coalscreenings—costs \$1.25 a ton. The success has been so great as to lead to a development of matured plans for the increase of the service there and on a new local road to be begun in the spring.

You will agree with me, I think, that third-rail systems must be limited to a low electromotive force, and to suburban or rural districts. Even there they have a large opportunity.

(To be Continued.)

Room for All.

During the pleasant weather of the summer there is little or no complaint about the street transit, but when the weather becomes inclement the matter is looked at from quite a different standpoint. Passengersgrowl about the overpacked cars, about the bad air in them and about the inconvenience of having to ride two or three miles without a seat.

without a seat.

When chill November's surly blasts sweep round the corners, or they shiver in bleak December, while they are waiting for accommodations to reach their homes, they condemn the street conveyances, and wish they could be regulated here as they are in Europe, where everybody has plenty of room, and where a placard on the outside of an omnibus or tram-car announces that it will seat so many passengers, and that no more will be taken under any consideration.

This regulation is rigidly enforced. An American gentleman and lady last Summer stopped a "tram" in the city of Dublin, in which there was just one seat remaining. The conductor said that only one of them

could get in. The gentleman replied that he was willing to stand, but expostulated in vain. The official answered that he must follow his rules, and that he would lose his place if he carried one passenger who was not seated. They were therefore obliged to wait for the next car, where both readily found places. It was only a delay of a minute or so, but our American gentleman was somewhat angry because he was not allowed the liberty of treading on his neighbors' toes. Before he left Europe, however, he saw the value of the regulation which he was at first disposed to condemn.

This regulation has been adopted by the new coaches on Fifth avenue, New York, whereby every one who rides has a comfortable seat, and is not crowded or incommoded by his fellow-passengers. A similar one should be adopted here in both coaches and horse cars. Every one who pays five cents is entitled to a seat, and even if a passenger is willing to stand, he should not be allowed to do so to the inconvenience of his sitting neighbors. There should be a sufficient number of conveyances placed on each line to insure a seat for all, otherwise the privilege of running through the public thoroughfares should be denied.

It is high time that our people took some active measures to secure a reform in the conducting of street passenger traffic. They have submitted to innumerable discomforts through the greed of horse-car managers, who should be compelled to adopt the sensible methods that have long been followed in countries which are thought to be less progressive than our own.

Decency is against crowding people like cattle into a small vehicle, where ladies are brought disagreeably near men who are far from being gentlemen, and who take occasion to offer petty insults which they know cannot be resented. This and many other evils might be avoided in the horse cars, if every one was accommodated with a sitting space where crowding would be impossible, and the aisles were kept entirely clear for egress and ingress.—Mauufacturers' Gazette.

Before making the wholesale demands that seem so proper in the eyes of our cotemporary, two things should be carefully borne in mild. In the first place there is an entirely different state of affairs in this country from that which obtains abroad, and many more people patronize the street cars. In London and Paris the fares charged for carriage hire are so very low that almost every one can afford to ride in them, and to call a cab is an hourly occurrence with those who in this country of high fares, would not call one once in a year.

Again, the street travel by the poorer classes is very much less than in this country, simply because these people cannot afford to ride at any price. Therefore, with these two items to cut down the actual number of passengers that are carried, the street tramway companies can well be made to come down to the rule of giving every passenger a seat. How such a thing would be possible in this country, where every one rides in the street cars, we fail to see. An ordinary street will only afford room for two lines of rails, and when these are filled with a solid line of cars as they are in Brooklyn and Boston, and each car has more standing passengers than those that are seated, it seems impossible to seat all unless a large majority of those that now ride will consent to walk or hire a carriage.-EDS.

The Early Construction of Street Railways in Europe.

Before the adoption of what we know as the edge or T rail, plates of metal were bolted to the wood in the same way in which our side and center bearing rails are now spiked, in order to facilitate the passage of wagons which were used for transportation in the collieries of the north-east of England. These wooden stringers were placed along the roads on a level with the ground, and offered no obstacle to the passage of ordinary wagons. About 1767 they substituted bars of straight and cruciform cast iron, which had on one side a section in the form of the letter L. These bars were called trams or plate rails, and the roadway which was thus formed got its name of tramway, which is still preserved in England to this day. The arrangement of the tram was at first for the object of keeping the wheels of wagons in the path which it was desired they should follow, and has been reproduced since then in cases where the construction of some economical road has been promulgated which would admit of the circulation of ordinary vehicles, but it is very rarely employed at the present day, and only then in remote localities. After the cast iron plates had been in use for some time they were made of sufficient strength to carry a heavy vertical pressure; the tram wagons had a flange placed upon the wheels and the rails were made in what are known as the edge rail. Thus the wheels of the vehicles were kept in position upon the road. This new arrangement diminished the friction by avoiding the obstacles which were always produced in the groove of the tram by the dirt and all kinds of refuse which accumulated there. Nevertheless, the advantage of being upon the level of the road without hindering the circulation, caused these tramways to be entensively adopted where only a small capital was available and where it was desired to put an iron road upon a public highway without cutting off any part of it.

The French and English still hold to the name of tramway, while in America they are called street railroads. The English very frequently speak of them under the name of American tramway, because it is in this country that this method of transportation has received its greatest application. Passing over the plank roads which have been so extensively built in this country, and which were really nothing more than the reproduction in another form of the early tramways, the streets of the large cities of the United States may be said to be covered with a network of horse railways. It is here that the facility of communication is most thoroughly appreciated and is really one of the most powerful evidences of our civilization, and it is not astonishing then that street railways should have developed quite as rapidly as ordinary surface roads.

In Europe, the same state of affairs has not appeared, and the American system has not received the extensive application

which would have been expected, and the necessity of transportation has not been felt at all in the smaller cities and villages. In Turin and Milan, for example, they have put into their streets a system of way formed of granite blocks which the Italians designate by the name of *rotaje*, which may be literally translated as ruts.

The streets, according to their width, have one or two ways of this kind upon which the vehicles are drawn. The ease of draft is such that horses of moderate size really do the service of our heaviest draft horses, and upon certain lines there is an omnibus service in which omnibuses holding from twelve to fourteen passengers are drawn by a very small horse, which gives the ridiculous figures which we see in illustrations of foreign methods of passenger street transportation.

The street railways in France date from 1853. The first line of this kind was established by M. Loubat, who had lived in America for a long time and was familiar with the great service which the system had rendered in the cities where he had lived. The first installment was made in the Place de la Concorde at Passy. This street railway was afterwards run as far as Versailles on one side and to the round point of Boulogne on the other; that from Reuil to Port-Marly had a length of about three and a half miles and was constructed at almost the same time.

In 1870 London, which had already formally incorporated and established its subterranean railways, and was covered in every direction by these lines, had still no street railways, and it was only after a long period of waiting that street railways seem to have been taken into the public favor they are to-day. The first road built in London paid from about seven to ten per cent, a kind of delicacy that was relished exceedingly by English speculators and which drew their attention very strongly to these iron roads. Companies were then formed in all parts of England to found, not only in Great Britain but upon the continent, the tramways of the peculiar kind which are there used. It is to the initiative of the English that Brussels, Madrid, etc., got their street railways, and to the enterprising English, who addressed themselves to the French municipal councils and sought to introduce into France a movement in favor of tramways which were similar to those which had been produced for two years previously in England. This reaction in favor of American street railways is more easily explained with the English than with the French. The English had found, a little late to be sure, that the receipts upon their railways were not in proportion to their cost, and that an average expense of \$60,000 per mile was a figure that was altogether too high to warrant the construction of very many new roads, and it was necessary to adopt some more economical construction and exploitation. Several engineers of merit, among whom we cite M. Page, were prominent in the formation of companies who proposed to utilize the ordinary streets by running rails

upon them. One of them, the Tram Railway Co. of Great Britain, said to the public in one of their prospectuses:

"We have offered to the principal railway companies to increase their traffic by establishing tramways in connection with them, and these offers have been favorably received, the companies having appreciated that we were co-operators with them and not competitors." And this has been the true rule of the tramway construction in France as well as in England. This has extended to what are known as the provincial towns and they have been used as feeders to the great railway lines rather than as being rivals to the different points. This will be understood by a consultation of what we have already written in regard to the suburban traffic of London, where the railroad lines run from the center of the City out and deliver passengers in almost all the suburbs in every direction from London. The same may be said pract cally of almost all street railways which run in the same direction, just as the Third Avenue elevated road and the surface road may in one sense be considered rivals, but which in reality are serving their own purposes entirely distinct, and one may be made contributory to the other. In multiplying the local railroad interest in France, which hasfrequently been a source of objection to passengers and shippers upon the main lines, connections of this kind have been of the greatest advantage, and it has followed that in spite of the actual mistakes which were made in the first place, France has had an economical system of street tramways developed which will pay a suitable interest upon the capital invested. A great many roads of this kind have been built and the results were most encouraging to the promotors.

M. Nordling, in a letter written many vears ago to the President of the Society of Civil Engineers of Paris, cited an example of a small line which cost about \$7,000 per mile and which, in spite of the annual movement of 20,000 passengers and 15,000 tons of merchandise, could hardly cover its expenses. Now the figure of \$7,-000 per mile is very low as compared with \$17,000, which several lines have cost. With the competition upon the Seine, and with the proportional reduction is fares according to the distance traversed upon the roads of the main companies which are not applicable to the distance traveled upon this or that street line which enters into competition with them, the department of street railways cannot, except in rare exceptions, count upon traffic which will justify an expense of more than \$10,000 or \$12,500 per mile as the outside limit of their expense for exploitation. There are a number of roads of local interest which been built in order to complete the Page system, but which have met with almost insuperable obstacles in the course of their construction by being called upon to purchase certain other lines which have already been built and which, although they were . thus able to cut down the expense of their establishment, have in the first place found

considerable difficulty in getting the right of way the same as they have in this country. But the system is now thoroughly established, and although it does not receive the same favor as in this country, still at the same time the French tramways are growing and it is hoped by their owners that in time they will pay a suitable dividend, although it will be seen by a report on French tramways which we published in a recent issue, that many of them are not what would be called a good investment in this country.

Some Curious Systems of Street Railway Construction.

In addition to our regular line of construction, with rails spiked upon the top of iron girder rails, which are now coming into extensive use throughout this country, there have been some curious methods of street railway construction by European inventors, which are novel, and would be looked upon as decidedly outre in their modification of the street railway traffic. The invention was originally designed in order to take up as little room as possible upon the street. Of these different systems which were proposed some fifteen ortwenty years ago, there are three which especially claim our attention. They are known as the Larmanjeat, the Goudal and Saint Pierre system in France, and the Page system in England. In the Larmanieat system, Jules Morandiere says in his report on railways of local interest, that the way itself is composed of a light iron rail supported by small cross ties. The cars are furnished with wheels placed in the center line of the vehicle, which is held in equilibrium about the same way that a velocipede wheel is held. In addition to this. in order that the stability of the car may be thoroughly assured it has also on its center an axis at right angles to its longitudinal center line, this axis being furnished with two wheels which roll upon the surface of the street in the same way as those of ordinary carriages.

The springs by which this action are held in position are very flexible and the inequalities of the ground do not cause the car to be thrown about in the way in which it would be if the springs were stiffer. These springs are so arranged that two-thirds or three-fourths of the total weight of the car is carried upon the center of the rail. The drive wheels are further mounted upon a pivot, and are kept from turning too far by bars placed along the center of the car.

The result of this double arrangement is that the cars pass curves of very short radius with great ease and thus the radii can be brought down as close as 15 feet. The system is also intended to use, not only horses, but in case it is so desired, locomotives may be used to haul the cars. The locomotive is the same as the ordinary engine with the exception that the two wheels which support the center line of the machine are placed, one before, and the other behind the pair of driving wheels. Almost

the whole weight is carried by this last, the others serving simply to guide the machine and keep it from wandering outside the track. The locomotive derives its driving power from adherance to the surface of the street, or rather to wooden stringers which are placed outside the rails when this system is used, and the inventor, M. Larmanjeat, thought in this way he would obtain better adhesion than he would if he used iron rail. The rail projects only a little above the surface of the street, say three-fourths of an inch, and can be easily repaired and replaced without great expense.

In fact, the projection is so slight it can be considered almost nothing. The road can, of course, be put upon one side of the street or run through a very narrow one. That is, it does not exclusively occupy that part which is devoted to its use, but can be used by trucks or vehicles the same as our ordinary street rails can be now used.

An experimental road was constructed after the invention was first brought out between Rainey and Montfermeil, which were the two termini of the road, where the rails occupied not more than 1, $1\frac{1}{2}$ or 2 in. width of the street and curves were down to a radius of about 16 ft.

The road demonstrated the possibility of its construction and that is about all. In spite of the great advantages of such slight occupation of the street it is considered even by its promoters as inadmissible except where necessary to run through a very narrow street and where curves of a very short radius must be used. The cost of the roads would, of course, be comparatively slight, and we give below a table of expenses as it was prepared by the inventor at the time. This includes a road capable of carrying 80 or 100 passengers a day, and some 40 tons freight. It will be remembered that at the time this was brought out, French railways were in their infancy and that the idea of heavy passenger traffic was hardly dreamed of, and it must also be borne in mind that the items of stations and stopping places are important features in France, while in this country they have never been introduced and are not used.

10 miles of track,	\$39,000.
Stations, etc	800.
2 Locomotives, 5 tons each,	8,000.
3 Passenger cars,	2,700.
2 Vans,	1,200.
3 Freight cars,	1,500.
Tools and Implements,	2,200.
-	
Total,	\$55,400.

or \$5,540 per mile, including roadway and equipment.

The Goudal and Saint-Pierre system is simply a reciprocal of the Fell system, which is itself a correct reproduction of the invention of Seguier. The tram railway of Page is composed of blocks of stone upon the upper face of which are placed stringers of wood or iron and upon which the cars are run. The width from 4 in. to 4½ in. is given a roughened surface. The

stringers were roughened by the inventor under the supposition that the locomotive would adhere better with a rough surface than where it was smooth, and heavier trains could be hauled over heavier grades. At the extreme edge of his plates M. Page placed rails of about 14 in. in width and in. thick, upon which cars are hauled as in the ordinary system. Independent of its driver wheels which bear upon the rails, the locomotives are provided with vertical or diagonal wheels which come in contact with the rails and keep them upon the track. M. Page gave his engine the form of an ordinary car, it is said, by a combination which has not been clearly explained.

He overcame the difficulty which arose from the noise of escaping steam and smoke.

Finally he used a brake of his own invention which was very powerful and prevented any recoil of the engine in ascending heavy grades and regulated the speed in descending in such a manner that alldanger of too great accelerations of speed was overcome. The system never got beyond that of a model and the company which was formed to exploit it was dissolved without accomplishing anything. The peculiarity of the two systems is that they intended to haul their cars with a locomotive and that they took their adherance from the outside of the rails.

Besides these, there have been numerous attempts in the same direction. The idea was to diminish the friction of the wheels of the cars by making them run upon rails, and to increase the adherance of the locomotive drivers by running them over the surface of the streets which were rougher and offered more resistance than ordinary rails. This is a problem which a great many inventors have sought to solve, while they have not been familiar with ordinary exploitations, and the solution is yet to be found, and unless we are much mistaken it would be wiser to adhere to the old system of ordinary rails, which is simplicity itself, and which has served us well for the extension of traffic. It is possible, as we well know, that a street railroad could be laid in such a way as not to hinder circulation of tracks and vehicles, either by placing the track entirely to one side and thus isolating it from the street which it is supposed to occupy or by laying the rails as we do so there will be no interruption to the passage of the car. It will be seen that street railway construction may be resolved into two distinct systems, one of which comprises those which use animal, cable or electric traction and has a low rail running close to the ground, and those using locomotive traction and the T rail which is more or less elevated, and causes a corresponding obstruction in the street.

Matters for Street Railway Journal reading columns or "Special Notices" should reach us by the 15th of February for the March issue, and alterations in advertisements a day earlier.

Haines Brothers.

We give on this page the portraits of a firm of railway contractors and promoters who are attracting considerable attention at present from their energetic



DAVID S. HAINES.

methods in developing new street railway enterprises. A brief resume of their method may be stated as follows: After a careful investigation as to the needs and probable business which a street railway would obtain in a smaller town, they proceed to procure a franchise in their own names; supply all the capital necessary for the construction and equipment of the road; superintend its construction (as one of their members is a practical engineer,) and open and operate the road. After the road has once been put in successful operation, they sometimes continue to manageit themselves, or sell it to outside parties. In this way, they have furnished many of our smaller cities with street railway facilities. The last effort of the kind, of which we have any information, is the road at Newburgh, N. Y., which was opened early in the winter. It will be seen that such operations as this require considerable skill, not only in estimating the probable traffic which will result from the construction of the road, but also in obtaining franchise and managing the road, after it is once in operation.

Perhaps there is no like instance in the



ELMER T. HAINES

world where five brothers are engaged together in the railway business. In fact it would be difficult to find many firms in the whole country that consist of so many brothers. In this combination especially lies the great strength of the Haines Bros. The railways they have built number

score, while they have been interested financially in a score more. It was only during the last two or three years that they have become widely known to the railway world, as their identity heretofore has been covered by construction companies. Heretofore, they have never built roads other than those they control.

The five Haines brothers, as their pictures show, are but young men. David S., the eldest, is but thirty-seven years of age. John D., who comes next, is thirty-four. Charles D. is twenty-nine. Elmer T. is but twenty-six, and Andrew G., the youngest, is only twenty-three years old. The boys were born on a farmin Albany county, this State. Their father, David T. Haines, was afterwards a manufacturer of and dealer in shoes, having stores at Coxsackie and Little Falls. He died four years ago, at Sandy Hill, N. Y., where the mother of the boys still lives.

Some seven or eight years ago some of the Haines brothers had valuable interests in some telephone enterprises, but it was Charles D. who was the pioneer of the

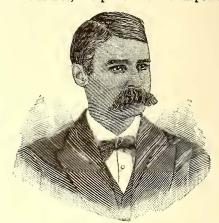


CHARLES D HAINES.

family in the street railroad business. All of the brothers are good telegraph operators, and at fourteen Charles D. w satelegraph operator at Hudson, N. Y., at the Hudson River Railroad station there. He subsequently went to Boston, where he became an assistant train dispatcher for the Eastern Railroad, which runs from Boston up into Maine. At the age of twentyone he was connected with a railway in New Jersey. In 1877 or 1878, about the time of the commencement of the elevated railways in New York, he had begun to give attention to street railways in cities. His brothers became interested one by one, and since 1880 the Haineses have generally turned their efforts in that direction, making it a business to project, build, buy and sell street railroads and secure and deal in their franchises. During the comparatively few years that have elapsed since 1880 they have constructed and put in operation several small steam roads and various horse car lines, notably at Burlington, Vt., North Adams, Mass., and Seneca Falls, N. Y. They can truly say that they have never had an unsuccessful road.

Andrew G. Haines, the youngest of the five, was in 1883 one of the most influential American citizens in the Republic of

Mexico. Being the owner of telephone interests in several Mexican States, with his headquarters in the City of Oxaca (President Diaz's State), the government not only gave him exclusive concessions and subsidies, but placed at his disposal,



JOHN D. HAINES.

free of any expense, 200 workmen to build his line. On its completion he was honored by one of the grandest celebrations ever given in the State. The official journal of the government devoted two pages of its space to the celebration. It said: "At 2.30 P. M. of the 4th of August were assembled the Governor of the State, together with municipalities of the various towns through which the line passes and the committee representing the President of the Republic. Speeches were made by the representives of the President, the Governor of the State, and responded to in return. The greatest enthusiasm prevailed and the festivities continued the entire day, concluding with a grand ball, lasting until an early hour the next morning."

With energy and ability, a thorough knowledge of the business, and the utmost confidence in one another, their success came slow but sure. The Syracuse Herald says: "They manifest good judgment and a desire to keep perfect faith with the public." Perhaps their success is somewhat due to this. To this the Water-



ANDREW G HAINES.

loo Observer adds: "And a set of very enterprising managers and acknowledged gentlemen."

They have made a great reputation of not only doing their work well, but some of their roads are claimed to be built in the "quickest time on record."

They employ first-class engineers and their foremen are not only selected men, but understand what their employees desire and expect. The work for the morrow and what must be accomplished is laid out the night before, and a Haines is always on hand and at the head of the work, "everything being done under thei special supervision." What they undertake to do they will not fail to accomplish, the Rutland Herald saying that "they accomplish what few men would undertake to do." It was not until Nov. 23 that the Haines Brothers entered Newburgh to build their road, and a week or so later when they commenced the construction, yet with frost two feet deep the road was completed and opened to the public on Dec. 23.

While they have five offices, the principal one is at 55 Broadway, New York, the place John D. and Charles D. make their headquarters, and it is here they transact general business, but more especially that of buying franchises and roads, equipment, etc. Railway officials from different sections of the country are often seen here.

They appear to be familiar with not only the roads already built but the prospective, and to receive a poor report or opinion from the Haines Bros. as to the relative merits of a proposed road is enough to satisfy a great many railroad people in New York.

The future of the Haines Bros. in the railroad business could be easily foreseen if it was not for the sad sequel of their history, for the elder is not yet forty. While constructing the Newburgh road, John D. Haines contracted a severe cold, and now has been confined to his bed for over six weeks. His illness is causing anxiety to his brothers.

New Publications.

Adams & Westlake Mfg. Co., Chicago, Advertising Memorandum Book.

Frank H. Andrews issues an elegant steel engraved calender and will soon put out a catalogue to match.

The Electric Motor and its Applications, by Thomas Cummerford Martin and Joseph Wetzler. New York, W. J. Johnston, 168 Potter Building. 1887.

The Johnson Improved Fare Box Co. send us a novel advertisement in the form of a draft drawn at the Bank of Prosperity on "Goodness of Fortune" for 365 Happy Davs.

The Lewis & Fowler Mfg. Co., Brooklyn, have issued we believe the finest catalogue of street railway appliances and supplies ever published. It contains nearly everything from a horse nail to a car.

The Van Depoele System of Electric Railways is the title of a pamphlet of 40 pages issued by the Van Depoele Electric Manufacturing Co., of Chicago, giving a full history and description of their system. It contains illustrations of their new independent street car motor and locomotive car, beside full details of their various appliances.

CORRESPONDENCE.

Broad Gauge Line,

EDITORS STREET RAILWAY JOURNAL:-

I should be glad to hear from some of your readers why a four foot distance between tracks is not as good as seven. I notice at the Fulton ferry in Brooklyn, the distance is four feet, that near City Hall, Brooklyn, only 3 ft. 6 in., while in some of the most crowded streets in New York, it is seven feet. In my judgment the broad distance very materially increases the number of blockades and delays, and certainly makes a large surface of street to be kept in order by the company. What advantage is there to compensate?

J. D. T.

We should like the opinion of some of our broad distance people on this sub ject.—EDS.

Truck Poles.

EDITORS STREET RAILWAY JOURNAL:-

I desire to call attention to what appears to me to be an unmitigated nuisance in New York, and that is the unreasonably long poles used on many of the wagons and trucks. These unreasonably long things require more room for turning, very frequently strike carriages, add materially to the liability to blockades, sometimes injure people on the platforms of street cars and very frequently break holes into the sides of cars. Driving down West street with a friend from a distant city he expressed surprise that such a useless nuisance should be allowed in the crowded streets of the metropolis. He had good reason to complain, as he missed the train on the Pennsylvania solely on account of the drivers refusing to risk a punch from one of these long poles pointing dangerously near our course.

New York.

We can see no reason why neck yokes would not dispense with long poles and mistrust it is simply a case where the street railway companies' ox is gored more than that of the public.—EDS.

Precautions to be Taken in Putting in Metallic Ties.

A work recently published in Germany calls attention to the care which must be taken in the putting in of ballast when metallic cross ties are used. In certain places where, in spite of the mediocre quality of the ballast, wooden ties have been kept in a perfectly satisfactory condition, iron ties have given very poor results.

The humidity of the soil is drawn up from below, and seems to convert the ballast into a kind of mud. It is necessary, then, to attribute this to the fact that the metallic tie bends more than the wooden one, consequently the total effect of the rigidity of the rail upon the iron tie causes the latter to participate completely in what bending occurs in the rail itself, while with the wooden tie the play below the flange of the rail and the compressibil- public use at Schwabrig, Bavaria.

ity of the wood tends to diminish this bending of the tie. Besides this, the hollow form of the metallic tie favors the formation of a space deprived of air, which causes the apparent drawing up of moist-

Finally, the bottom of the wooden tie is imbedded in the ballast more deeply than theiron one. The conversion of ballast into mud in consequence of the employment of iron ties, upon certain lines, has hindered their general introduction; while the want of success has been attributed to the bad quality and inferiority of the ballast itself. Finally, the ballast should fulfill two conditions. First it should be tamped into a solid mass which is susceptible of resisting great transverse deflections, second it should be as permeable as possible. These two conditions are best insured when broken stone is employed in the place of gravel, sand, etc.

Mexican Street Railways.

We have received the following report for 1885 from Señor Alas, the Mexican consul at Chicago, in regard to the amount of freight and passengers carried upon the passenger railways of the city.

As the report is very full and explains itself, there is really nothing more to be said in connection with it, except to call attention to the fact of the great difference that exists between the first and second class service. It will be seen that in the suburban service there were four times as many passengers carried second class as first class, and in the city there were actually more carried than in both the first and second class on the suburban service. The amount of freight csrried was very small, being somewhat less than 32,000 tons. The report for 1885 shows that the ratio between the first and second class suburban service was about the same, whereas the city service dropped off about eight per cent, cutting down the gross income in the same proportion.

Report of the Passengers and Freight carried on the Street Railways of the Federal District of the City of of Mexico during the years 1884 and 1885:

Suburban service.	1884. Tons ft.	Pass.	Gross inc.
First class. Second class. City service.		$3,778,854 \ 5,197,777$	717,264.90
Funeral ser. and trans'n of small things on pas. trains. Freight.	31,848		89,288.99 25,018.70
Total	31,848	9,926,621	831,572.59
Gulanda a sanda	1885. Tons ft.	Pass.	Gross inc.
Suburban service. First class. Second class. City service. Funeral ser. and trans'n of small		949,661 3,683,302 4,754,788	690,457.87
trans n of sman things on pas. trains. Freight.	22,821		45,443.93 17,979.55
Total	22.824	9,407,751	753,881.35

City lines in operation, 166 kil. 619 met., until Sept. 18, 1886.

An electric railway has been opened for



Monthly, \$1.00 per Year.

American Railway Publishing Co.,

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

New York.
E. P. HARRIS, President.

IS, President.

J. H. McGRAW, Secretary. H. M. SWETLAND, Treasurer.

Chicago, Lakeside Building, E. L. Powers, Northwestern Manager; WM. H. Bailey, Southwestern Manager.

Boston, Mass., 185 Summer Street, H. M. Swet-LAND, Manager.

Philadelphia, 119 So. FOURTH St., J. H. McGraw, Manager.

That so much interest is felt in electricity as a motive power, is due not only to the wonderful results shown in its application in other directions and to the cheapness of plant but to the mystery surrounding the behavior of the strange agent.

Appointments are frequently made by railroad officials on what seem to be personal grounds, when the fact is the appointing officer is merely choosing a man insympathy with his own policy and thereby fitted to help to carry it out.

Present indications point to a greater increase in the mileage and equipment of street railways during 1887 than any previous year in the history of the country. Orders are never very brisk at the dividend period of the year, but it stands manufacturers in hand to be ready for a good trade in the early Spring.

Is your name in one of the STREET RAILway Journal's directories? If not, why not? If you are an officer of a street railroad, your name should be in the street railroad directory, and if it is not, please write us that we may supply the omission. If you are in the supply business, it should be in our personal directory of supply men.

A curious anomaly exists in regard to the franchise of the Broadway road in New York, in that, although the corporate charter has been constitutionally repealed, the bondholders still have a lien upon the franchise that was bought from the boodle aldermen. It will be interesting to note the methods that will be employed by the lawyers to support these claims. But law is a very flexible material when skillfully handled.

"I began at the bottom," said Chauncey M. Depew, the President of one of the greatest railroad systems in the world. Not only have nearly all great railroad men begun at the bottom, but they have started without influence and made their way up step by step by honest hard work. There was a time in the life of each of our successful managers when he felt glad of the chance to do rough work, but the secret is that he saw in his work the need of brains as well as muscle.

Strikes are coming to the front again. It seems as though the organizers picked out the times when it was hardest for the working man, not so much on account of low wages as the difficulty of getting work. Sometime, perhaps, the striker will learn that his organizer is not altogether a disinterested party, and that his bread and butter depends on keeping the sweat from appearing on his neighbor's brow. This may look generous, but is it?

Interest in the motive power question, which has been specially active for the past year, does not wane and is not likely to until something like a solution of the problem is reached. The coming motor may not soon be determined upon, but the results thus far attained by inventive genius are likely to be pretty thoroughly tested. Even among small companies, the road that is built and equipped to-day without some doubt as to the wisdom of using horses for power is the exception.

It would be interesting to know just what saving could be effected by the careful and judicious handling of a team, over the careless, injudicious driving so common on some of our horse railroads. If accurate figures could be had the actual saving in feed for a given amount of work would probably be surprising to most street railway managers, to say nothing of the saving on the life of the horse. We should be glad to hear from some of the readers of the Street Railway Journal on this matter.

Referring to the labor question, Gov. Rusa, among other sensible things in his message, says:

"When a person employs himself and works on his own premises and on his own material with his own tools, the product of his labor is all his own, to do with as he sees fit. * * * * But where one person engages to work for another on another's premises and material and with another's tools or machinery, it is equally clear that the product belongs to the employer. The workman's claim ends with the receipt of his stipulated wages."

Certainly, and having agreed upon certain wages and received them, it is difficult to see what there is to arbitrate, as Governor Hill of New York, or Mayor Harrison of Chicago, are wont to advise doing.

Arbitration is without doubt the best possible way to settle a dispute as to the construction of an agreement or any similar question, but we have yet to see it successfully applied in fixing the price of labor or other commodities bought and sold in the open market.

International Exposition of Railway Appliances.

We wish to call attention to the action of the International Railway Exposition which is to be held in Paris, France, during the summer of 1887. The management of the exposition is under the charge of the leading officials of the French Gov-

ernment and cannot fail to be of great interest to the railroad officials of this country, and particularly so to those who are interested in the manufacture of railway supplies. During the next few years there is to be a strong struggle for supremacy in the new countries of South Africa and Australia as well as for those roads which surely will be built in China and the colonies of the great European nations. China and Brazil have already appointed commissioners to examine into the exhibits which will appear at Paris, and the English railroads have also made application to exhibit the workings of the English system in all of its details. Although the English railroads have less interest in this matter than our own railroads, they are naturally interested in it for two reasons; one to support the value of their own stock which is in the hands of foreign holders, and the other to encourage manufacturers of railway supplies which yield them so large a revenue in coming to and from their seaport towns. In this it will be well for our American roads to learn a lesson. There is hardly a large line if there is one, in this country, which does not have a large number of French or English stock and bondholders. These men are naturally interested in the condition and management of the roads of which they are part owners, and will look at anything the roads may exhibit at the Paris Exposition in the line of personal ownership, and if the exhibit is worthy of the road it will certainly tend to make these bond and stockholders better satisfied with the stocks they own and therefore enhance the value and ease of the management of our home roads. The American manufacturers are, of course, more intimately interested in the matter than the railroads themselves, and it certainly behooves them to be well represented if they expect to keep up the competition which they ought to keep for the foreign trade, especially that of the South American countries.

Crowding the Cars.

We are not anglomaniacs nor are we filled with an excess of love and admiration for La Belle France, but it would be delightful to have some of their methods adopted in this country. A recent writer tells us that there is no crowding in European cars. Think of it! To ride home in comfort at night after a hard day's work, with plenty of elbow room, and no one crowding against the knees, and pushing your paper into your face. No straps to swing from and no necessity of swinging The air pure and free, and no one discontented or hungrily longing for your seat. Surely it would be worth the while to live in London for nothing else than to go home in the cars.

But let us see how the system would work in New York. Take the Brooklyn Bridge for example, with trains running under as short headway as they can be switched and unloaded. The cars seat say fifty, although in reality it is some five or six less. They accommodate in the rush

trip service between a quarter of five and half past six in the evening about one hun-Therefore if dred standing passengers. each of these one hundred standers were to wait until there were seats they would fill the two following trains. This would result in the consumption of three times the time now occupied in the transportation of the passengers that take these cars between the hours mentioned. And, if we were to adopt the European system in all of its rigor, the man who now reaches his Brooklyn boarding place at 6.45 would then arrive just in time to go to bed at 10.15. He had better swim the river.

The same estimate will apply to the street cars and elevated roads, and it therefore seems more humane to suffer a little crowding than to hold those who come behind us at such a disadvantage.

Annual Report of the Metropolitan Railroad, Boston.

President C. A. Richards of this road, makes a very interesting and clear report, the financial part of which we print elsewhere with the Treasurer's report. He calls attention to three important events which have occurred during the last year, viz: An issue of 10,000 more shares of capital stock; an important increase of wages paid to men, and loss by fire of the Huntington avenue car shops.

The number of miles run has been for the year 1886, 7,027,153, against 6,909,589 in 1885, and 3,677,000 in 1876, showing an increase during the past year over 1885, of 117,564, or about 1½ per cent, and over 1876 of 3,360,153, or about 48 per cent.

The number of passengers carried has been for the year 1 86, 40,232,722, against 1885, 37,395,655 and 21,965,541 in 1876, being an increase during the past year over 1885 of 2,837,057, or about 7 per cent, and 1876 of 18,267,181, or about 45 per cent.

We have not figures at hand to show the increase in length of track compared with the above increase in miles run and passengers carried. The additional expense incurred by increasing the wages of the conductors and drivers to \$2 per day, and making a corresponding increase in the wages of the other operatives, was about 15 per cent, and the additional expense incurred by the advance of wages to conductors and drivers alone per year, ten months of which were in force during the fiscal year, was estimated at something over \$100,000. In this connection the report calls attention to the more cheerful, faithful, and efficient service secured as the result of compliance with the request of their help.

Mr. Richards makes some very interesting remarks on the subject of motive power. He concludes that the cable system is impracticable in their city owing to its peculiar topography, but refers to the independent or storage electric system as the coming motor. Further reference will be made to this and other interesting points in the report in a later number of the Journal.

Personal.

JNO. D. HAINES, of Haines Bros., is dangerously ill.

Mr. T. WILLIAM HARRIS of Boston has been South,

Mr. Julius S. Walsh has returned to St. Louis from New York.

Col. RICHARD Vose, the veteran car spring man, is 51 years of age.

W. W. Marsh, of the Omaha street railroad, has returned from his trip East.

D. J. MILLER, the cable road engineer, has just returned from a trip through the West.

Mr. Walter Jones, of West Troy, and Mr. Frank De H. Robinson, were in town a few days ago.

Mr. WILLIAM P. WILLIAMS, of the National Car Spring Co., has just returned to Chicago from a trip East.

Gen. A. K. STILES and W. H. GILLETT of the Van Depoele Electric Company are stopping at the Astor House.

Col. Thomas Lowry has been through Palestine and Egypt, and when last heard from was, with a party, going down the Nile.

Jas. Rawle, Esq., of J. E. Brill & Co. was seen on the streets of New York this week, looking after their interests in the street car line.

Mr. John S. Silver, of the National Car Spring Co., will soon make an extended trip through the South and West, being gone two or three months.

Mr. CHARLES HATHAWAY of Clevelaud, who is snipe shooting in the South, w ile crossing a river on the ice, fell through. His gun saved him from going under, but he lost his snipe.

Mr. CHARLES G. STEARNS, of the Bemis Car Box Co., has just returned from an extended trip through the West. He has seen plenty of weather with the mercury 30 degrees below zero.

C. A. RICHARDS of Boston and Wm. Wharton, Jr., of Philadelphia, it is understood, have with other capitalists formed a company for the introduction of a new storage electric street railway motor.

F. T. Lerned, of the house of Frank H. Andrews, intends to spend most of his time for the coming year in and about the home office. Mr. L. has been on the road about twenty years and probably is not sorry the growing business of Mr. Andrews requires him in and about New York.

John Stephenson, the veteran street car builder, though in his 78th year, is apparently as active mentally and physically as ever. From North of Ireland ancestry he inherited a good constitution, which by the practice of temperance in the broadest sense of the word has been remarkably well preserved. Since he began the street railway business in 1831, he has witnessed great changes in this now very important industry, and if his days are prolonged, as his present condition promises, he will doubtless see greater developments in the next decade both as to the extent of the industry and its methods and appearances than during any similar period in the past half century.

Notes and Items.

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

Allegbeny City, Pa.

THE ALLEGHENY RAPID TRANSIT RY. Co. has asked for the right of way over the following route: Commencing at the North Side bridge, along Sandusky street to Park way, along Park way to Arch street, along Arch street to Davis alley, along Davis alley to Webster street (with a single track along Davis alley returning along Geyer alley to Arch street), along Webster street to Taylor avenue, along Taylor avenue to Irwin avenue, along Irwin avenue to Pennsylvania avenue, along Pennsylvania avenue to Bidwell street, along Bidwell street to Allegheny avenue, along Allegheny avenue to Juniati street, along Juniati street to Chartiers street, along Chartiers street to California avenue. The ordinance mentions horses as the motive power. The company agree to build the road to Jackson street inside of six months.

Bar Harbor, Me.

A CHARTER has been applied for by E. T. Gile of Auburn and associates for a horse railroad to run from Bar Harbor to Eagle Lake, a distance of about two and a half miles. It is on the route from the hotels and business portion to the summit of Green Mountain, the Green Mountain railway running from the oppositeside of Eagle Lake to the summit of the mountain. If they get the charter they will begin to build early in the spring. The distance from Bar Harbor to Eagle Lake is now run in connection with the railroad by a line of omnibus teams.

Boston, Mass.

THE METROPOLITAN R. R. Co. has been investigating the electric system.

THE WEST END ST. Ry. Co. has been organized. Messrs. Henry M. Whitney, G. T. W. Braman, Ezra H. Baker, Asa P. Potter, Isaac T. Burr, Eben D. Jordan, and Jonas H. French are among the incorporators. It has not as yet been decided whether it is to be an electric, a cable or a horse railway. It has received permission from the local authorities to lay tracks in Boston and Brookline. The route is as follows: To begin at and connect with the tracks of the Metropolitan Railroad Co. at the junction of Marlboro street with West Chester park, and extend through West Chester park to Beacon street, and thence through Beacon street to the boundary line of the city of Boston and the town of Brookline at St. Mary's street; also beginning at the boundary line of the city of Boston and the town of Brookline where said line crosses Beacon street, near the Chestnut Hill reservoir, and extending thence through Beacon street to its intersection with Chestnut Hill avenue; also beginning where the boundary line of Boston crosses Washington street in ward 25, and extending through Washington street to its intersection with Cambridge street, and there to connect with the rails of the Cambridge Railway Co. Work will begin in the spring. OUR BOSTON LETTER.

It did seem a little out of place to see our cars in charge of policemen instead of our usually very polite and attentive conductors, yet they managed to open the way through the crowd of strikers at Cornhill much quicker than our regular drivers and conductors usually get a car through one of our ordinary blockades, and now all is quiet along Cornhill, with an exceptional shout from some of the elevated road projectors. Long since we expected to rise above snow, slush, and blockades and gaze into the second and third story windows of our neighbors and competitors as we were being "steamed" or "electrified" to our suburban home, but recent additions to our street railway equipment, in the way of palatial cars and thoroughbred horses, four in hand, have added so much to the enjoyment of our homeward trip, that we hesitate to relinquish the latter for the former.

NEW SNOW SHOVEL.

The recent snow storms have been hailed with pleasure by only one street railway man in Boston. Last winter Brother Randall evolved a snow shovel to scoop up a load of snow with team at full speed. But before the machine was completed gentle spring came in and took away the snow. The machine stood in majestic proportions until the burning of the Metropolitan shops last summer, when combustion restored it to its original elements. Our recent snow storm will furnish the long delayed opportunity to test the new "Mogul."

Boston comes to the front with more new devices for improvement of the street railway service than any other city on the continent. Among the latest are Pearson's motor for street cars. Steam, but no smoke. Power, but no noise. One advantage, all our inventions have got beyond the car starter period, and are now soaring among electric motors or cable or elevated roads. But the loose wheel man is here and the millennium is postponed. Just whether our city is to be blessed with cable or elevated roads, or one grand consolidation of horse railways, I am unable to state at present writing, but I am watching the barometer and will note the changes.

"SWITCH,"

Boston, Mass., Jan. 17, 1887.

Brunswick, Ga.

A New Street Railway is projected in this town.

Baltimore, Md.

THE CENTRAL RY. Co.'s office is now at the corner of Preston and Constitution streets.

Brockton, Mass.

THE BROCKTON ST. Ry. Co. now has 130 horses.

Brooklyn, N. Y .

THE NEW CABLE ROAD on Park avenue will be in operation early in February.

ATLANTIC AVENUE R. R. Co. President Richardson has already obtained the consent of nearly all the property owners to Bloms.

lay a cable on Fifth avenue. He says that the days of horses on street railroads are numbered.

BROOKLYN CITY R. R. Co. The following officers were elected on the 11th: President, Daniel F. Lewis; Vice President, William M. Thomas; Treasurer, Cromwell Hedden. The election of a Secretary was postponed.

The Brooklyn Railway Supply Co. report that orders for sweepers have fallen off within the last week or two, and they are now able to execute orders with great dispatch for sweepers, sand cars or salt cars. There are many inquiries for Boss & Walkaway Snow Scrapers and trade is fair. They are contemplating further additions to their facilities for manufacturing.

THE DE KALB AVENUE LINE, through President Partridge, has made a permanent arrangement with its men that is thought to be very satisfactory to them. No change is to be made on either side on less than thirty days' notice. The arrangement is not binding in law but is to stand as a pledge to the public between the company and its employees.

The Bridge Grip has been decided by the Commission that was appointed for the purpose as being the best one that has yet been devised. It has met with something over 300 competitors, and carried the day in the minds of all the Commissioners. Any one who has examined this grip, as we illustrated it in a former number, will see that it is not only very ingenious, but specially adapted for the purpose for which it is designed, and in its work it has to meet with conditions which do not readily appear in ordinary cable work, and which other inventors have not taken into consideration.

Cambridge, Mass.

The reduction in fares upon cars of the Cambridge Railroad, which, it is understood, went into effect on January 1, applies only to way fares in Cambridge and Somerville proper. The fare between Boston and those cities is to remain at six cents. In Board of Aldermen the order adopted a few weeks ago authorizing the Mayor to petition the Legislature for the enactment of a law by which the company would be compelled to reduce its fares between Cambridge and Boston to five cents, came back from the Common Council amended, "or any two points in the city of Cambridge." The order as amended was adopted.

Cincinnati, O.

THE CRESCENT HILL RY. Co. has 3 miles of track, which is leased and operated by the Central Passenger R. R. Co.

The Cincinnati St. Ry. Co. write us that among their contemplated improvements are the building of the Vine street cable railway, about 6 miles long, and the introduction of electric motors on the Avondale road, 6 1-2 miles, and the Price Hill line, about 3 miles.

Cairo, Ill.

THE CAIRO ST. RY. Co. reports C. V. Neff as Vice President, in place of H. Bloms.

Chicago, Ill.

THE VAN DEPOELE ELECTRIC RAILWAY Co. is busy and reports very active inquiry from street railroads and proposed roads in all parts of the country.

OUR CHICAGO LETTER.

The great metropolis of the West is rapidly growing, and, like most of the other growing cities and towns of the Northern States, is growing faster in a southerly direction than any other, and to keep pace with this growth the street railways are constantly stretching out their iron fingers to gather in the nickels of the residents. The Chicago City Railway, running south, carried four and three-quarter millions more passengers last year than the year before. And not only Chicago but hundreds of other cities and large towns of the West are increasing in population and spreading out so as to require additional street railway. accommodation. It is therefore evident that the building and equipping of street railways must be an active, increasing business for many years to come. But

THE GREAT QUESTION

that presents itself to all promoters of these enterprises at the present time is, What will be the most convenient, reliable and economical motive power? Of course much depends upon the locality and facilities. The old horse car will undoubtedly be considered the most reliable in many places, but in the crowded streets of large cities something more rapid and efficient and if possible more economical is desired.

THE CHICAGO CITY RAILWAY CO., which operates cable and horse cars, finds the former far superior in accommodating the public and much less expensive to operate, but of course the cost of construction greatly exceeded that of the horse car lines.

A new device for a cable road owned by

RASMUSSEN CABLE CO.,

a new company of which H. W. McNeill is Manager, has been in experimental operation on the West Division Railway near Garfield Park for several months, which promises to reduce the cost of cable construction very materially, and it is claimed by its inventors that it will also save a large percentage of the cost of maintenance. This cable is of novel construction, having buttons or collars around it at short intervals that interlock with the teeth of a sprocket wheel attached to the car and extending down through the slotted track.

Chicago electricians are giving their attention to the subject of propelling cars by electricity, and

THE VAN DEPOELE CO.

have a large factory busily employed in the manufacture of apparatus for street railways, of which several are already in successful operation by their system, and an elevated road for rapid transit to a suburb of this city is contemplated.

MR. BENSON BIDWELL,

the well-known electrician, has organized a company composed of practical and influential gentlemen here, and is exhibiting his system for street railways with which he proposes to not only propel cars up the steepest grades and over draw-bridges, but also light and warm the cars and light the streets through which they pass, with the same current of electricity. There is also an intelligent and cautious inventor engaged in perfecting a light and powerful stem motor for street cars, using oil for fuel.

THE CHICAGO CITY RAILWAY CO.

have this season adopted a car warmer devised and constructed by Mr. Holmes and his assistants at the shops of the company, which answers the purpose admirably, when properly cared for by the conductors, by taking the chill out of the atmosphere without making it too warm for passengers with heavy wraps on. This apparatus consists of a small coal burner let into the floor of the car under the scat with a small pipe extending up through the roof. It is a mystery to everybody why the other companies do not warm their cars iu some way when it can be done at a trifling expense that would certainly be reimbursed by increased patronage. Being compelled to ride several miles in close, chilly cars is a prolific cause of discomfort and disease.

The West Division Co. have recently equipped their Madison street line with fine new palace cars built at their own shops, where some of the finest work in this country is done, under the direction of their Master Mechanic, Mr. B. McDevitt.

THE PULLMAN PALACE CAR CO. are at work on new and elegant designs for street cars soon to be built by them, which like all the products of this company, will contribute to the comfort of the traveling public wherever used.

Considering all of the new inventions and improvements that are being developed and tested here, it would not be surprising if Chicago should have the honor of building the perfected street railway of the future.

W. H. B.

Office of Street Railway Journal, 63 Lakeside Building, Chicago, Ill., Jan. 15, 1887.

Detroit, Mich.

Augustus Day reports that his range of sales of track cleaners has been from Portland, Me., to Portland, Oregon, and from Winnipeg, Manitoba, to Montgomery, Ala., and that recently he has shipped four pair to Australia.

Galveston, Texas.

THE GULF CITY ST. RY. & REAL ESTATE Co. are now finishing up their new car sheds and stables. They contemplate building this summer. P. S. Wren is now Secretary.

Hastings, Neb.

Application has been made to the City Council by a local company for the right of way for a new street railway. There is very little opposition, and the company will probably have two miles in operation within a year.

Lockport, N. Y.

T. WILLIAM HARRIS, 19 Exchange place, Boston, Mass., contracting engineer, has just completed the Lockport road, and it is

in operation. They have 3 1-2 miles of track, 4 ft. 81-2 in. gauge, and operate 8 Brill, cars, with 30 horses. The company isstyled the "Lockport Street Railway Co." The citizens showed their appreciation and good will in the matter by a public demonstration at the opening, where it was declared they would pay with a hearty good will the 5 cent fare and save shoe leather by so doing. The road centers at the Hodge Opera House, branching out on the four principal streets. The cars are all that could be desired in design and workmanship. They have a a new patent brake, the Brill gear and the reversible sign board. The drivers wear the new change belt made by Rufus Martin & Co., of New York. The Presideut of the road is John Hodge of Merchant's Gargling Oil fame; and A. S. Beverly is Vice President.

Lowell, Mass.

The Lowell & Dracut St. Ry. Co. has been authorized by the City Council to extend its tracks from Rogers street through Lawrence street to the Boston & Maine Railroad and from Rogers street near the park entrance through High street to East Merrimac street, and from Bridge street through Paige and John street to Merrimac street.

Memphis, Tenn.

THE UNION ST. Ry. Co. has applied for a charter, to build through Main, Beal, Vance, Poplar, Lauderdale and other streets. The incorporators are George Arnold, M. C. Pearce, Napoleon Hill, George Gillham, Sam Tate, Jr., W. D. Bethel and R. B. Snowden. The incorporators are the owners of the Citizens' Street Railway, and this is alleged to be another move looking to the forefeiture of the charter of the Memphis City Railway, which comes up for hearing soon. On the other hand, it is stated that a consolidation of the two street car companies at present running throughout the city has been perfected, but neither of their charters provide for purchasing other lines. Hence a new charter was necessary which will permit of such purchase, and the one applied for will answer the purpose, and the Union Street Railway Co. will become the possessor of both lines now in opera-

New Bedford, Mass.

The New Bedford & Fairhaven T. Ry. Co. have increased their mileage from $7\frac{1}{2}$ to 9.78, and their stock from 140 to 161 horses.

THE ACUSHNET ST. R. R. Co. have increased their mileage from 6 to 8 cars from 29 to 38, and horses from 103 to 153. Charles E. Cook is President and Superintendent.

New Britain, Conn.

THE NEW BRITAIN TRAMWAY Co. reports Lorin F. Judd as President.

Newburgh, N. Y.

The Newburgh St. Ry. Co. wes opened December 23d, with fireworks, illuminations, cannon firing and speech making. Ground was broken November 22d. The line is from West Newburgh to the Erie,

with a branch to Washington's Headquarters; and in the spring will be extended through Water street to Liberty and through the settled parts of the city to Broadway. The officers are: President, Charles D. Haines; Vice President, Andrew G. Haines; Secretary and Treasurer, George W. Stetson; Geueral Manager, Elmer T. Haines.

New Haven, Conn.

THE WHITNEY AVENUE RY. Co. is leased to J. A. Davis.

THE FAIR HAVEN & WESTVILLE R. R. Co. now has 10 miles of track, instead o 7 as in their last report; 28 cars, instead of 23; and 210 horses, instead of 150. The office of the company is at 736 Chapel street.

New Orleans, La.

THE NEW ORLEANS CITY & LAKE R. R. Co. now has 60 miles of track.

The Orleans R. R. Co. now has 155 horses instead of 140. It has $9\frac{1}{2}$ miles of track, of 5 ft. $2\frac{1}{2}$ in. gauge, 35 lb rail.

Newton, Mass.

THE NEWTON ST. R. R. Co., lately organized, write that they are waiting for the Board of Aldermen to approve their location.

New York.

THE SIXTH AVENUE R. R. Co. now has 109 cars and 1250 horses.

The Dry Dock, East Broadway & Battery now has $18\frac{1}{2}$ miles of track, 185 cars and 1102 horses.

The Houston, West St. & Pavonia Ferry R. R. Co. reports Henry Thompson as President, in place of Richard Kelly.

THE HARLEM BRIDGE, MORRISANIA & FORDHAM Rv. Co. report William Remsen Vice President in place of Richard M. Hoe.

THE NORTH & EAST RIVER R. R. Co.'s franchise was granted by the Board of Aldermen December 30, the resolution passing over the Mayor's veto by a unanimous vote. The company will build a line connecting Fulton, Chambers and Cortlandt street ferries.

THE JOHN STEPHENSON Co., LIMITED, are building some new street cars for Kimberley, South Africa, a growing and thriving town about 800 miles in the interior. They are also now building cars for Newark, Knoxville, Tenn., Nashville, Jacksonville, Omaha, Lowell, Chattanooga, California at different points, Birmingham, Ala., Macon, Ga. They are now shipping to Ecuador and Mexico. A letter recently received from the President of a railway company ordering cars, is accompanied by the following voluntary testimonal: "I am going to give you a little compliment in regard to your cars. While visiting eastward for the past two months, I was on the cars of the different lines, also the various lines in the city of Chicago. I have just returned from St. Louis, and have passed over the different lines there. I have questioned drivers and conductors to the number of three hundred or more in New York, Chicago, and St. Louis, as to the best make, most serviceable, and light running street cars, and without a single exception, they all said 'John Stephenson's cars by all means are

the best;' and all the drivers mention in particular about your having the best brake. I think the above speaks well for your work, and it is for this reason that in future we will want you to make all our cars."

EDWARD BEADLE has on his books orders for the Eureka folding mat from the leading street car builders.

Frank H. Andrews has among his orders for wheels 800 for Australia, 450 for Rio, a number for London and other points abroad. His spring works are busier than at any time for the past two years. He reports a good outlook for 1887.

THE THIRD AVENUE R. R. Co.'s directors have rescinded the resolution, adopted during the strike, that none of the strikers should ever be employed on the road. The committee of five directors who have been considering the question of a change of mo. tive power are understood to have decided in favor of the cable system, which has worked very satisfactorily on the company's One Hundred and Twenty-fifth street line. Vice President Hart says the change will certainly be made, and that it will cost between \$1,090,000 and \$2,000,-000. He says that the company will not be able to resume the payment of dividends next month.

THE NEW YORK & HARLEM R. R. Co. (Fourth avenue) has now 172 cars, an increase of 11, and 1570 horses, an increase of 10. The list of officers has been reorganized since Mr. William H. Vanderbilt's death as follows: President, Cornelius Vanderbilt; Vice President, C. C. Clarke; Secretary and Treasurer, E. V. W. Rossiter; Superintendent, Alfred Skitt. The office of the company is in the Grand Central Depot. The Sun says: "We learn that the Madison Square Garden property, recently sold for \$1,000,000 by the Harlem Railroad Co., is not covered by the company's first mortgage, and that the proceeds are, therefore, at the company's disposal. The \$400,000 cash received on the sale has been applied to the extinguishment of the floating debt incurred for the new stables, cars, and other improvements of the city line, and the remaining \$600,000, together with \$600,000 to be received on the consummation of a contract made for the sale of a block on Thirty-fourth street, will be reserved as a fund for the construction of a cable apparatus for the city lines, should the investigation of the cable system in other cities, which the Harlem Co. is now making, result in demonstrating its availability. Should the cable system be finally rejected, the whole \$1,200,000 will be divided among the stockholders. We hear also that the earnings of the city line, though somewhat diminished by the competition of the five-cent fares on the elevated roads, are sufficient to justify a continuance of the two per cent annual dividends heretofore paid on the stock." Superintendent Skitt has signed an agreement for one year with the Executive Committee of the Empire Protective Associa-

THE BROADWAY & SEVENTH AVENUE R. R.

Co. reports an increase in cars from 150 to 227, and in horses from 1350 to 2240. Thomas F. Ryan is Secretary and Treasurer. This company has finally passed into the hands of the Philadelphia syndicate, the price paid being \$285 per share for 5,000 shares and \$300 per share for 5,000 shares. The new management say they will make the road a model of its kind. Niagara Falls, N. Y.

THE NIAGARA FALLS & SUSPENSION BRIDGE Rv. Co. have now 10 cars and 40 horses, and have ordered 2 more cars.

Norfolk, Va.

THE NORFOLK CITY R. R. Co. has 20 cars and 67 horses. H. C. Whitehead is Secretary as well as Treasurer.

Oakland, Cal.

THE BROOKLYN & FRUITVALE R. R., not hitherto reported in our Directory, has 2 1-4 miles of track, 5 cars and 18 horses. E. C. Sessions is President and W. W. Gill, Secretary.

THE FOURTEENTH ST. R. R. Co. has built 2 miles of track since August, and contemplates building another half mile in the near future. It has now 8 miles of track instead of 6, 10 cars and 46 horses. The President writes us that the company "has properly speaking a system of roads, including Market street and Adeline street, transferring at crossings."

Omaha, Neb.

THE OMAHA HORSE RY. Co. increases from 14 to 18 miles, from 40 to 45 cars, and from 300 to 350 horses. It has 30, 35 and 40 lb. rail.

THE CABLE TRAMWAY Co. OF OMAHA have contracted for four miles single track road in addition to the one mile laid the past season. They are building as good as the best. They have their material on hand to complete the road by July 1. The gauge is 4 ft. 8½ in., and the weight of rail per yard 58½ lbs. S. R. Johnson is President; S. B. Williams, Vice President, C. E. Yost, Secretary and Treasurer, and Robert Gillham, Chief Engineer. The office is at 103 So. Thirteenth street.

Paris, France.

METROPOLITAN RAILWAYS. The Railway Commission has had a conference with M. Millaud, Minister of Public Works, upon the question of metropolitan railways. He has declared that he considers this as a necessary public improvement, and will accept, in principle, the project of his predecessor. From a financial standpoint it is pronounced by the Department of Public Works to be necessary to be carried on in a democratic spirit. In this case, where there will be no chance of litigation, M. Millaud has added that it would be advisable to limit the guaranteed capital. The estimated expense is put at \$44,000,000, but this sum may be increased by a figure which has not yet been determined upon. Paris, Tex.

Paris Ry. Co. Mr. D. F. Latimer, who with Capt. J. M. Daniel owned all the stock of the company, recently bought Capt. Daniel's interest. The company will commence work on the North Main street and Grand avenue extensions as early in the

spring as practicable and push them forward to completion, laying light flat rails. The present line is about $2\frac{3}{4}$ miles long, and the extensions will add about as much more. It is 4 ft. $8\frac{1}{4}$ in. gauge, 22 lb. T rails, with 3 passenger and 4 flat cars, and 11 mules. The company has organized as follows: President, D. F. Latimer; Treasurer, W. D. Latimer; Secretary and Superintendent, C. G. Caviness. Mr. Latimer desires information on the price of rails, both steel and iron, of light weights, say 30 to 36 lbs. Peoria, III.

THE PEORIA HORSE Rv. Co. will build a mile of track this year in addition to their present 6 miles. Gauge, 4ft. 8½ in.; 40 and 60 lb. rail; 14 cars; 60 horses and mules. E. Callender is now Secretary and Treasurer.

THE CENTRAL CITY HORSE Ry. Co. report 40 cars and 90 horses and that their length of track is 9 miles. E. Callender is now Secretary as well as Treasurer. The company expects to build about a mile of track this year.

THE CENTRAL HORSE & CABLE R. R. Co. has 3 miles of track, 4 ft. 8½ in. gauge, 30 and 40 lb. rail, 9 cars and 22 horses. H. R. Woodward is President and General Manager, Joseph Elder Secretary, E. Callender Treasurer and John Strong Superintendent.

The East Bluff Peoria Horse R. R. Co. has one mile of track completed and will build 2½ more in the spring. Gauge, 4 ft. 8½ in.; 30 lb. steel rail; 32 mules; 9 cars. H. R. Woodward is President and General Manager, E. Callender Secretary and Treasurer, and John Strong Super-intendent.

Philadelphia, Pa.

THE WEST PHILADELPHIA PASS. Ry. Co. has a gauge of 5 ft. $2\frac{1}{2}$ in., 47 lb. rail, 112 horses. James T. Gorman, Superintendent.

THE RIDGE AVENUE RY. Co. now have 15 miles of track, of 5 ft. 2 in. gauge, 63 cars and 350 horses. William Myers is Superintendent.

THE PHILADELPHIA TRACTION Co. increase their number of horses from 2,042 to 2,608. All their rail is 47 lbs. D. W. Dickson is Secretary and Treasurer.

THE PHILADELPHIA CITY PASS. Ry. Co, report 132 cars and 708 horses. Part of their rail is 47 lbs. to the yard and part of it 78 lbs. The road is leased to the West Philadelphia Passenger Railway Co.

THE HALE & KILBURN MFG. Co. report business good in their car department. They are working full force and full time to keep up with their orders. They are equipping the cars of the Dry Dock Railway of New York, with their patent spring edge seat, like those used in the Pullman cars on Broadway.

OUR PHILADELPHIA LETTER.

There are no strikes of any importance here at present to make trouble for our street railway men. The street railway officials seem prompted by a spirit of fairness to do the right thing by their employees and so we are running along smoothly. By the way, the good old Quaker City has

many elements of fairness and generosity which might be copied in many cases to advantage, although her street railway men still maintain that our citizens must pay the six cent fare for "all the way down," and right here I would add that your correspondent has often thought how handy it would be if all the roads would follow the example of the Ridge avenue road and sell five tickets for the even quarter.

SNOW PLOWS AND CABLES.

The snow plow has come in for its share of usefulness, as "earth's white robe," as is its wont, has not forgotten to visit us, but the tracks generally have been kept in good condition and travel has been but little impeded. The cable is doing good work and there have been but very few occasions when a tie-up for repairs was necessary. Our roads have in progress many and needed improvements which might be of interest to your readers, which I will take pleasure in mentioning in the next issue of the JOURNAL.

MESSRS. BRILL & CO.

Our car builders, Messrs. Brill & Co., are busy. They report business good and are putting in full time to keep up with their orders. They are building a large lot for new roads in South America, many of which are new in design and are novelties in the street car line.

NEW MOTORS, CABLES AND GRIPS.

The Quaker City is said to be slow but I want to say that our street railway men are generally alive to improvements, nor are our inventors in this direction behind the times. Among the latter might be mentioned the Pole Motor system constructed by Engineer B. C. Pole, which is worthy of notice, the Gould Cable system, and the new grip for cable roads patented by D. B. Anders. Of the awe inspiring Keeley motor, the sphinx of America, at present we will not write. There are many things in progress here which we hope to mention soon, which will be of much interest to your readers, and will show you that the staid old Quaker City still lives.

Pittsburg, Pa.

THE PITTSBURG & BIRMINGHAM PASS. R. R. Co. now has 177 horses. Its rail is 45 and 47 lbs. to the yard.

THE SECOND AVENUE PASS. RY. Co. has 5 miles of track and 40 horses.

Paterson, N. J.

THE PATERSON CITY Ry. Co. has now 81 miles of track, 10 cars and 40 horses. M. Pettigrew is Superintendent.

THE PATERSON & PASSAIC R. R. Co. reports 28 cars. A. T. King is Assistant Superintendent.

Richfield Springs, N. Y.

THE RICHFIELD SPRINGS & CANADARAGO LAKE SURFACE R. R. Co. is being organized, to build a road between the places named. Several of the leading spirits of this summer resort are interested. The road will be about a mile long and the capital stock of the company will be \$15,500. D. C. Haycock of Syracuse is the chief mover in the enterprise.

Richmond, Ind.

THE RICHMOND CITY Ry. Co. has been purchased by Mr. J. C. Shaffer of Chicago, to whom the city grants an exclusive franchise fortwenty-two years. The entire 'bus and transportation lines have also been purchased by Mr. Shaffer. Two or three miles of new road will be built the coming year, and many other improvements are contemplated by the enterprising proprietor. The officers are: President, J. C. Shaffer; Vice President, Joseph Rutliff; Treasurer, H. I. Miller; Superintendent, F. M. Francisco.

Richmond, Va.

THE RICHMOND & MANCHESTER RY. Co. reports 31 miles of track, 4 ft. 81 in. gauge, 38 lb. rail, 5 cars and 26 horses. J. E. Taylor is President, J. Bryan, Vice President, Jackson Brandt, Secretary and Treasurer, and B. R. Selden, Superintendent.

THE RICHMOND CITY RY. Co. has now 42 cars and 185 horses.

Rapid City, Dak.

RAPID CITY ST. Ry. Co. has 11 miles of track, of 4 ft. gauge, 30 lb. rails, 2 cars, 4

RUTLAND ST. Ry. Co. talk of using motors on part of their road and of buying some open cars.

Rock Island, Ill.

ROCK ISLAND & MILAN ST. RY. Co. has 51 miles of track, 8 passenger cars, 6 freight cars, 7 horses, 2 motors.

Rome, N. Y.

Mr. D. C. HADCOCK of Syracuse contemplates building on Dominick street, between the locomotive works and a point west of Wood Creek, with a loop on James street to the railroad depot. It is thought that a capital stock of about \$30,000 will be required.

Rossville, Tenn.

A NEW STREET RAILWAY will be built here the coming spring.

Steelton, Pa.

A STREET RAILWAY is contemplated at this place.

San Antonio, Tex.

THE SAN ANTONIO ST. R. R. Co. has increased from 15 to 16 miles, 38 to 41 cars, and 125 to 145 mules.

Springfield, Mass.

THE SPRINGFIELD ST. Ry. Co. has 91/2 miles of track, with 30 lb. rail. It has increased its number of cars from 30 to 39 and of horses from 120 to 158.

THE BEMIS CAR Box Co. have just booked a nice order for a Pittsburg road.

Stonekam, Mass.

THE STONEHAM ST. R. R. Co. reports 11 cars and 30 horses. The officers are now as follows: President, A. F. Breed; Treasurer, F. H. Monks; Superintendent, G. F. Jones.

St. Catharine's, Ont.

St. Catharine's, Merrilton & Thor-OLD St. Ry. Co. are thinking of adopting some form of electric motors. A. P. Friesman is now Secretary.

Sandusky, O.

THE SANDUSKY ST. Ry. Co., not hitherto reported in full, has 4 miles of track, 4 ft. 8½ in. gauge, 32 lb. rail, 7 cars, 28 horses.

Charles V. Olds is President, A. C. Moss, Secretary and Treasurer, and Clark Rude, Superintendent.

St. Louis, Mo.

THE UNION RY. Co. has 8 miles of track, of 4 ft. 10 in. gauge, 52 lb. rail, 40 cars and 290 horses. The officers are: President, Julius S. Walsh; Vice President, J. P. Helfenstein; Secretary and Treasurer, C. N. Duffy; Superintendent, Michael Moran.

FOREST PARK, LAOLEDE & FOURTH ST. Ry. Co., not hitherto reported in full, has 51 miles of track, of 4 ft. 10 in. gauge; 44 lbs. to the yard, 20 cars and 190 horses. Officers: President, C. H. Turner; Secretary, H. B. Davis; Manager, P. C. Maffitt.

THE CASS AVENUE & FAIR GROUNDS RY. Co. has 69 lb. rail, 4 ft. $9\frac{1}{2}$ in. gauge, $8\frac{1}{2}$ miles, 34 cars and 278 horses. Officers, Julius S. Walsh; Vice President, James Campbell; Secretary, Edward Walsh, Jr.; Superintendent, M, J. Walsh.

LINDELL Ry. Co.'s line is of 4 ft. 10 in. gauge, 45 lb. rail, and they have 75 cars and 407 horses.

BENTON BELLEFONTAINE Ry. Co. has now 8 miles of track, laid with 52 lb. rail, and has 30 cars and 230 horses. Charles Parsons is now President.

BRODERICK & BASCOM have taken the contract for supplying the Mt. Auburn Cable Railroad Co. a cable 11 in. diameter, which is to weigh 21 lbs. to the foot, and is to be adapted to four miles of double track. The cable is to be taken up the hill in two sections. The company has a force of 100 men employed in grading Highland avenue and at work on the engine house. The plant has a sixteen foot basement, and the walls are completed to the top. It is very likely that the house will be made two stories high with a pitched roof on top of the basement. The company are simply waiting for some slot iron to be delivered before they commence tearing up the streets. and this is expected at any time.

OUR ST. LOUIS LETTER.

The ordinance compelling street railways to carry away the snow they pile upon the side of their tracks was not intended to be carried out strictly, so one of the members of the City Council informed your correspondent. The intention was, he said, to make them shove it or smooth it down so that there would be sufficient room for vehicles to pass back and forth along side of the tracks without being upset on the banks.

The winter so far has been very severe, the mercury at one time running away down to 17° below zero, and there has been any amount of snow. The street railroads have had a hard time of it. Their salt cars have been distributing dividends every day for the last two or three weeks, but the winter don't last long, and I suppose they are not sorry.

Street railway matters promise to be very active here during the coming spring and summer. There are a number of bills before the Council for new roads, amongst them three or four for elevated roads, but it is doubtful if any of them pass.

The managers are all looking for a new motor to take the place of horseflesh. All the lines, as I have stated in a former letter, have asked the Council for permission to change their motive power. One line has already received permission and others are following, and no doubt before next fall we will have twenty or thirty additional miles of road operated by cable.

Mr. Scullin, the owner of the Union Depot lines, says he will put about seventy open cars on next summer, which in point of elegance and comfort will be second to none in the country. This is the kind of cars we run now, but it would have been an awful lie to say that a few years ago.

St. Louis.

San Francisco, Cal.

NORTH BEACH & MISSION R. R. Co. has 50 2-horse and 14 1-horse cars. Albert Meyer is President, instead of Carl Ahpel.

Telegraph Hill R. R. Co. have suspended operations owing to lack of business. The cables have been taken up and stored away.

Omnibus R. R. & Cable Co. write us that they expect to change their entire system to cable in the spring. They have 18 miles of 5 ft. track, 40 and 45 lb. rail, 60 cars, 390 horses. D. Stein is now Vice President, in place of D. Callaghan.

California St. Cable R. R. Co., not hitherto reported in full in our Directory, has 7 miles of track, 3 ft. 6 in. gauge, 27 cars, 25 dummies and 4 horses. Chas. Mayne is President, Robert White, Vice President, A. Borel, Treasurer, T. W. Hinchman, Secretary, and J. W. Harris Superintendent.

Scranton, Pa.

THE VAN DEPOELE SYSTEM of electric propulsion of street cars has met with such great success in the Scranton Suburban Street Ry., recently opened, that four more cars have been ordered and will be supplied at once.

Syracuse, N. Y.

SEVENTH WARD Ry. Co. reports R. Purnell as Superintendent.

Taunton, Mass.

Taunton City St. Rv. Co. are contemplating extending their tracks for a mile the coming spring, to accommodate certain suburban places that are not now reached by them. There is also a plan on foot to extend the line by another company three miles beyond the City Hall, to accommodate the suburbs in that direction. This, however, has not materialized as yet, and is only a subject for discussion, although the promoters of the scheme say they have plenty of money behind them and intend to push the matter to its completion.

Trinidad, Col.

Trinidad St. Rv. Co. expect to add $\frac{1}{2}$ mile of track the coming season, with the stock necessary to operate it.

Tientsin, China.

THE FRENCH TRAMWAY which was laid down at the Bund some months ago has been extended through the streets to the

plains at the south of the settlement and around the public garden.

Troy, N. Y.

THE TROY & ALBIA HORSE R. R. Co. has 3.33 miles of track, of 4 ft. 8½ in. gauge, 10 cars and 41 horses.

Troy & Lansingburgh R. R. Co. now has 95 cars and 420 horses.

Texarkana, Ark.

TEXARKANA ST. Rv. Co. will commence work soon. The officers are: President, N. W. Bechtel; Vice President, E. N. Maxwell; Secretary and Treasurer, Thomas Orr; Superintendent, B. M. Foreman. Williamsport, Pa.

Williamsport Pass. Ry. Co., not hitherto reported, has $3\frac{1}{2}$ miles of track, of 4 ft. $8\frac{1}{2}$ in. gauge, 36 lb. center bearing rail, 7 1-horse cars, 26 horses. They contemplate adding two more cars. The officers are: President, Robert P. Allen; Vice President, Henry C. Parsons; Secretary, R. J. C. Walker; Treasurer and General Manager, S. A. Filbert.

Winnipeg, Manitoba, Can.

THE WINNIPEG St. Ry. Co. has 15 cars, 15 sleighs, 100 horses. James Austin is President.

Waco, Tex.

THE WACO St. Ry. Co, increases from 9 cars to 15 and and from 44 horses to 55.
Wichita, Kau.

The Wichita City Ry. Co. increases from 14 cars to 26 and from 60 horses and mules to 135. During the current year the company expects to build four miles of track and two bards.

Waterloo, Ia.

THE WATERLOO ST. Ry. Co. has changed hands. The present officers are: President, W. H. Hartman; Vice President and Superintendent, J. A. Foye; Secretary and Treasurer, T. N. Kellogg.

Washington, D. C.

METROPOLITAN R. R. Co. increases from 90 cars to 110 and from 400 horses to 445. William J. Wilson is now Secretary and Treasurer, in place of William W. Moore.

The Anacostia & Potomac River Ry. Cc. reports J. B. Pitcher as Secretary and Treasurer, which is the only change since its last report.

Wheeling, W. Va.

The Wheeling & Elm Grove R. R. has 4 ft. $8\frac{1}{2}$ in. gauge, 7 miles of track. C. Hirsch is Superintendent.

Wilmington, Del.

THE WILMINGTON CITY RY. Co. now has 20 cars.

Winona, Minn.

Winona City Ry. Co. B. H. Langley, formerly Vice President, is now President. L. Marion is Superintendent.

Waterford, N. Y.

The Waterford & Cohoes R. R. Co. reports E. A. Bradley as Superintendent.
Wattham, Mass.

The Waltham & Newton St. Ry. Co. reports 3.4 miles of track, with 30 horses. York, Pa.

THE WYMORE & BLUE SPRINGS RY. Co. reports W. H. Lannius as President.
Zauesville, Pa.

THE ZANESVILLE & McINTIRE St. Ry. Co. reports that F. M. Townsend is now President, and that they have 51 horses and mules.

Financial Report of Metropolitan Railroad of Boston.

During the year ending Nov. 30, 1886, the income has been as follows:—

From passengers	\$1,976,666.12
From other roads, as tolls or rent for	
use of road	35,235.23
From other sources	20,449.45
Total earnings	\$2,032,350.80
The total expenses have been	1,767,3-4.52
No.	2244 - 42 22
Net earnings.	\$264,966.38
From which dividends have been paid	120,000.00
Cumplus compined for woon	2111 000 20
Surplus earnings for year	\$144,966,28

Surplus earnings for year	\$144,966,28
The details of the above expens	se account
areas follows, as given by the Tr	easurer:—
By repairs of road-bed and tracks	\$66,873.91
By repairs of cars and other vehicles, harnesses, and horse-shoeing	180,346.97
By repairs of buildings. By keeping good the stock of horses. By wages of persons employed. By provender. By taxes (state and city).	36,895.54
By keeping good the stock of horses	60.814.00
By wages of persons employed	875,785.93
By provender	284,640.34
By taxes (state and city)	35,536.13
By rents and tolls paid other com	6 938.74 12,331.89
By insurance By damages for injuries to persons and	
property By interest By general salaries By oil, fluid, and gas	32,551.25 79,212.66
By interest	79,212.66
By general salaries	30,666.64
By enow expenses	3,466.31
By snow expenses. By rents of offices and stations.	27,013 38 8,892 65
By legal expenses.	4,651.54
By legal expenses By water taxes. By printing (tickets, etc.) and stat'y.	3.872.95
By printing (tickets, etc.) and stat'y	2,128.68
By coal for offices and stations	1,904.92
By veterinary medicines	403.84
By in pection By advertising	1,377.80 172.65
By telephones	720 00
By telephones. By railroad commissioners.	1,283,13
By miscellaneous expenses	8,902.67
Total expenses	\$1,767,384.52
Total expenses	120,000.00
By dividends	144,966.28
	20 (00 050 00
	\$2,032,350.80
ASSETS.	
	21 240 500 04
Road	\$1,643,530 84 1,491,160.20
687 cars	426, 191, 55
3,543 horses	419.040.00
General equipment	115,885.25
3,543 horses General equipment Hay, straw, and grain	28,619.94
1 TICKELS OF OTHER TORUS	148.60
Notes receivable New repair shop not completed	$\frac{150,000.00}{26,787.11}$
New track, Harrison avenue and East	20,707.11
Boston, not completed	28,484.04
Sundries Cash	30 222.69
Cash	28,203.11
	\$4,388,273.33
LIABILITIES.	
Capital stock\$2,600,000.00	
Capital 800Ck	
Bonds, 5's, 1903	
Bonds, 5's, 1903. 500,000.00 Bonds, 6's, 1897. 500,000.00	
Bonds, 5's, 1903	
Bonds, 5's, 1903. 500'000.00 Bonds, 6's, 1897. 500,000.00 Guild estate notes. 207,442.12 Hunt'n av. notes. 250,000.00	
Bonds, 5'8, 1903. 500,000.00 Bonds, 6'8, 1897. 500,000.00 Gulld estate notes. 207,442.12 Hunt'n av. notes. 250,000.00 Outstanding tickets. 31,523.40	
Bonds, 5'8, 1903. 500/000.00 Bonds, 6'8, 1897. 500,000.00 Guild estate notes. 207,442.12 Hunt'n av. notes. 250,000.00 Outstanding tickets 31,524.35 Coupons unpaid. 415.00	
Bonds, 5'8, 1903. 500,000.00 Bonds, 6'8, 1897. 500,000.00 Guild estate notes. 207,442.12 Hunt'n av. notes. 250,000.00 Outstanding tickets. 31,524.35 Coupons unpaid. 415.00	3,555,702.25

Cable Railways.

Excess over liabilities...... \$832.571.08

BY WM. H. SEARLES.*

The use of cables for moving cars upon inclined planes is an old device, but it is only within a few years that cables have been applied to hauling passenger cars on our street railroads. On inclined planes there are usually two cars or trains at a time, the one ascending as the other descends; and the direction of the motion of the engine and cable is reversed at each trip. But on a cable road, the cable is endless and is constantly driven in the same direction on a circuit, while an indefinite number of cars may be attached to it on a double track road.

The cable road system was first intro-

^{*}From a paper read before Civil Engineers' Cluip of Cleveland.

duced upon the Clay street hill of San Francisco, by Gen. Doubleday, Captain Ogden and Mr. A. S. Hallidie. The latter gentleman took out patents for various mechanical appliances used in connection with cable traction, and the present system is generally known by his name. It would seem as though the first intention was merely a modification of the old incline system, for the Clay street road, though only one mile in length, has a rise of 307 feet, and the steepest grade is at the rate of 16½ feet per 100 or 858 feet per mile. The cable has a speed of six miles per hour, running 17½ hours a day. Notwithstand-

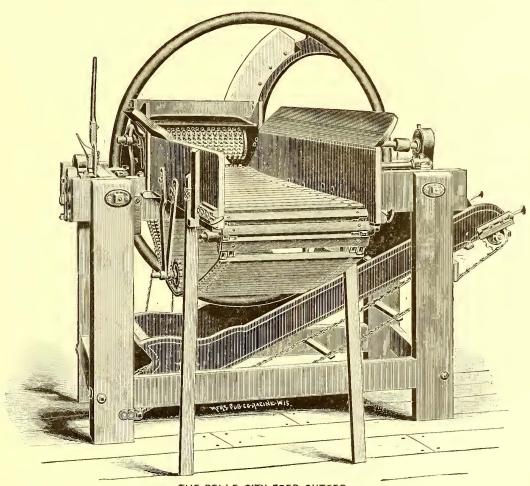
more under construction. Another company is preparing to operate several lines on the north side of the city.

In Kansas City one company has been operating three miles of line for several years by cable, and has extended the line one and a half miles the present year. Another company is now building a line to be about three miles long.

In St. Louis, the St. Louis Cable & Western Railroad Co. began running a cable road three and a quarter miles long in April, 1886, and another company has a project for a cable road.

In Cincinnati the Mt. Adams & Eden

machines of this kind. The chain feed runs through the entire length of the feed box, taking all matter which is throwninto it up to the feed rolls, by which it is then carried on to the knives. By this it is not to be understood that all fodder cutters of this kind are not self-feeding without this chain feed, for it is claimed that they will all take the feed through after it is once started in the rolls, but the object of this is to carry everything into the rails when once thrown into the trough, regardless as to whether it is pushed up to it by the haud or not. Sometimes when the feed is thrown into the trough there will be a break



THE BELLE CITY FEED CUTTER.

ing the novelty of the plant and method of operation, the road was worked very successfully, and did great credit to the inventors and managers. The road began business in August, 1873, but it was three years later before another company ventured to adopt the system. This was the Sutter Street Railroad Company, which placed a cable on three miles of its line and has operated it ever since with marked advantage over the old system.

It was soon found that the cable system was as applicable to level roads as to steep inclines. There are now eight cable roads in San Francisco, aggregating 43 miles of double track, all built on the Hallidie system.

In 1882 the same system was adopted in Chicago by the Chicago City Railway Company, which now has over 20 miles in very successful operation and five miles Park Railroad Co. has been operating a mile and a half of cable road for a year or more and will soon have three miles running.

Philadelphia has two lines of cable road, one of which is not running, owing to faulty construction; the other is operated successfully.

New York has one cable road, extending north in Tenth avenue from 125th street, about three miles, and through 125th street to the Harlem River, about two miles. The line is the property of the Third Avenue Railroad Co.

Belle City Feed Cutter.

The illustration* shows a new device of chain feed attachment which has recently been put upon these feed cutters. It is being used upon some of the large power

*Belle City Manufacturing Co., Racine, Wis.

in the feeding and it will be necessary to push it up by hand in ordinary cases, but with this chain feed attachment the danger of crushing the fingers or getting them cut in the rollers or knivesis necessarily obviated, as the feed is carried on with this chain feed. It will be seen then that by putting this device to the larger cutters it will be a help to the operator, as the cutter is always kept even full by the moving chain. It also enables the operator to feed his machine with a pitchfork.

Business Notes.

EDW. BEADLE'S EUREKA FOLDING MAT possesses the advantage of being easily repaired. With the repairs made by the company using them, the manufacturers supplying duplicate parts, the mat should last nearly or quite during the life of a car.

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, mfles; g, gauge; lbr, pounds raft to the yard; c, cars; h, hoises; mu, mules. Officers' addresses are the same postoffice as the company unless otherwise specified.

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

AKRON, O.—Akron St. Ry, & Herdic Co. 2½ m, 66, 31 h. Pres, 1ra M. Miller, V. Pres, James Christy, Treas. B. J. Dodge, Sec. F. M. Atterhoit, Supt. John T. Mettin.

ALBANY, N. Y.—Watervillet Turnpike & R. R. Co. 15 m, 48½ g, 20-45 lh. r, 31 c, 145 h. V. Pres. C. B. Tillinghasi, Sec. & Treas. Cantine Tremper, Supt. Amos Free. Offices, 1163 Broadway. D

The Albany Ry. 14 m, 48 g, 54 c, 232 h. 33-47 lb r. Pres., Supt. and Treas. John W. McNamara. V. Pres, Robt. C. Pruyn, Sec. Jas. II. Manning, Cashfee Wm. W. Dennin, Asst. Supt. Edgar S. Fassett, Accountant, J. Murphy. Offices 64 g. 81. Pear. 462. ant Valley Pass. Ry, 14 m, 48 g, 54 c, 232 h. 33-47 lb r. Pres., Supt. and Treas. John W. McNamara. V. Pres, Robt. C. Pruyn, Sec. Jas. II. Manning, Cashfee Wm. W. Dennin, Asst. Supt. Edgar S. Fassett, Accountant, J. Wurphy. Offices 64 g. 81. Pear. 462. ant Valley Pass. Ry. 14 m, 62 g, 60 lb r, 19 c, 70 mu. Pres. Wm. McCreerty, Sec. R. F. Ramsey, Supt. Wm. J. Crozler. Office, 129 Taggart st. A popples Park Pass. R. R. Co. 4.2 m, 5-2 g, 50 lb r, 19 c, 70 mu. Pres. Wm. McCreerty, Sec. R. F. Ramsey, Supt. Wm. J. Crozler. Office, 129 Taggart st. A LLENYOWN, PA.—Allentown Pass. R. R. Co. 3½ m, 4-8½ g, 19 lbs. r. 3 coaches, 22 h. Pres. Samuel Lewis, Treas. & Sec. Joseph E. Balliet. Supt. A. T. Brown. Office Hamilton st. Capital, \$45,260. ALTONA, HLL.—Alton & Up. Alton Horse Ry. Co. ALTOONA, PA.—City Pass. Ry. Co. of Altoona, P. Levan, Sec. & Treas. L. B. Relisnelder, Supt. John J. Buch. Capital, \$45,800. a Amsterdam St. Ry. Co. 12 m, 4-89, g, 10 hp. 19 c, 50 hp. 19 c, 50

D. Freeman, Sec. R. B. Clark, Supt. I. M. Retrick. Office 406 Laurens st.

Baltimore City Pass, Ry. Co. 44 m, 151 c, 1051 h.
5-4½ g, 46 & 47 ib r. Pres. & Supt. Oden Bowle,
Supt. car shops J. M. Blemdell, Supt. trucks, Boyer
Parks. Treas John Bolgiano, Sec. S. L. Bridge. Office
cor. Calvert & Battimore sts.

Baltimore Union Pass. Ry. Co. 16 m, 5-4½ g, 47 ib.
r, 61 c, 39 ib. Pres. N. Perrin. Gen. Man. T. C. Robbins, Treas. E. P. D. Cross, Sec. Leon Fender, Ass't.
to Gen. Man. R. E. Robbins. Office cor. Huntington
ave. & Oak st.

Baltimore & Catonsville Ry. Co. 6 m, 5-4½ g, 35 ib
r, 15c, 51 h. Pres. J. C. Robbins, Supt. & Pur. Agt.
G. W. Appleby. Office Pratt st. & Frederick av.
Baltimore & Pimlico & Pikesville R.R. Co.
Central Ry. Co. 11½ m, 2 sweepers 183 h, 5-4½ g,
40lb r, 22c. Pres. Peter Thompson, Sec. & Treas.
Walter Blaktstone. Office cor Preston and Constitution sts. b.

Walter Blakistone. Office cor Fiesdon and tion sts. b. Citizen's Ry. Co. 20 m, 5-4½ g, 34 lbs, r, 42 c, 380 h. Pres, Jos. S. Hagarty, Sec. Wm. Hammersiey, Supt. C. C. Speed, Treas. S. V. Keen. Highlandtown & Point Breeze Ry. Co. City Div. 6 m, 5-8 g, — lb r, 15 c, 9 th. Pt. Breeze Div. 3 m, 1 loco, 4 c. Pres. Howard Munnikhuysen, Treas. Robt. D. Morrison, Gen. Man. M. A. McCormick. North Baltimore Passenger Ry. Co. 21 m, 5-4½ g,

THE STREET RAILWAY JOURNAL.

45 lb. r, 72 c, 400 h. Pres. Jas. L. McLane, Treas. Dan'l J. Foley, Sec. Thos. J. Wilson.

1 People's Ry. Co. 13 m, 54½ g, 47-45 lb r, 38 c, 200 h. Pres. T Edw. Hambleton, Treas. Gustavus Ober, Sec., Supt. & Pur. Agt. Wm. A. House, jr. Office Druid Hill ave.

5 m, 3-6 g, 28 lb r, 8 c, 18 h, 3 mu. Pres. Geo. D. 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. 7½ m, 4-8½ g, 18 lb r, 13 c, 35 h. Pres. James Clements, Treas. Wm. Clements, Sec. Edgar A. Cooley.

BEATRICE, NEB.—Beatrice 8t. Ry. Co. 4 m, 4-8½ g, 25 lb. r, 4 c, 20 h. Pres. J. D. Kilpatrick, Supt. & Purchasing Agt. J. E. Smith.

BEAVER FALLS, PA.—Beaver Valley St. Ry. Co. 3½ m, 5-2½ g, 38 lb r, ic, 34 h. Pres. M. L. Knight, V. Pres. Coi. J. Weyand, Sec. & Treas. J. F. Merriman, Supt. L. Richardson.

BELLAIRE, O.—Bellaire St. R.R. Co.

BELLEVILLE, ONT., CAN.—Belleville St. Ry. Co. 1½ m, 3-6 g, 25 lb. r, 5 c, 13 h Pres. D. Lockwood, Sec., Treas. & Man. S. Lockwood.

BELLVILLE, ILL.—Citizen's St. Ry. Co. 4½ m, 4-8½ g, 16 lb r, 7 c, 20 h. Pres. D. P. Alexander, Man. & Treas. H. A. Alexander, Sec. J. E. Thomas. Office N. E. cor. Main and High sts.

BEREA, O.—Berea St. R. R. Co. 1½ m, 3-6 g, 25 lb r, 2c, 4h. Pres. C. W. D. Miller, V. Pres, T. Chinchward, Sec. & Treas. F. I. Pomerony, Supt. A. W. Bishop.

BINGHAMTON, N. Y.—Washington Street & State Asylum R.R. Co. 4½ m. 4g, 16-35 lb r, 13 c, 23 h. Pres. R. H. Meagley, V. Pres. Geo. Whitney, Sec. Ira J. Magley, Treas. F. E. Ross, Supt. Wm. Whitney, Binghamton Central R.R. Co. 3½ m (3 m, iald,) 3 g, 28 lb r, 6 c, 8 h. Pres. Geo. L. Crandail, V.-Pres. Alonzo Evarts, Sec. Chas. O. Root, Treas. H. J. Kneeland, Supt. Nelson Stow. Offices 65 Court St. d. Binghamton & Port Dickinson R.R. Co. 5 m, 4-8½, 20-30 lb r, 10 c, 25 h. Pres. Geo. L. Crandail, V.-Pres. Glo. Supt. Sec. & Treas. G. M. Harris, Supt. N. L. Osborn. (Leased to Mr. Osborn). Offices 112 State st.

City Ry. Co. 1 m, 4 g, 25 lb r, 2 c, 5 h. Pres

Highland Avenue R. R. 6½ m, 48½ g, 30 lb r, 5 c, 28 h. Pres. H. M. Caldwell, Man. W. J. Milner, Supt. J. M. Lens, Eng. H. Schoel. Owners, The Elyton Land Co.
Birmingham & Pratt Mines St. Ry. Co. 5 m, 4-8½ g, 16 lb r, 6 c, 30 h. Pres. and Gen. Man. J. A. Van Hoose, Sec. & Treas. Wm. Berney.

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

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

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

BOSTON, MASS. —Boston Consolidated St. Ry. Co. 51½ m, 4-8½ g, 48-50 lb r, 375 c, 1800 h. Pres. Chas. E. Powers, Treas. Sam'l Little, Ass. Treas. John H. Studley, Jr., Gen. Supt. Julius E. Rugg. Supt. J. H. Studley, 19 City Square, Charlestown: Capital, \$1,700,000. Office, Tremont row, cor. Pemberton Sq. k
Boston & Chelsea R. R. Co., Pres. W. W. Wheuldon; Treas, and Clerk, John H. Studley. (Operated bythe Boston Consolidated St. Ry. Co.)

Albany St. Freight Ry. Co. . 33 m, 4-8½ g, 90 lb r, no c, no h. Pres. Chas. L. Plerson, Treas, Geo. F. Chilld. Office, 439 Albany st.

Lynn & Boston. 37 m, 4-8½ g, 25-48 lb r, 175 c, 748 h. Pres. Amos F. Breed, Treas. & Sec. E. Francis Oliver, Supt. Edwin C. Foster. Office, 214 Broadway, Chelsea, Mass., & 13 Tremont row.

Metropolitan R. R. Co. 83 m, 48 to 54 lb r, 687 c, 2843 h. Pres. Chas. B. Perse, Chas. L. Plerson, Treas, Geo. F. Chilld. Office, 439 Albany st.

So. Boston Ry. Co. 16 m, 4-8½ g, 50 lb r, 199 c, 970 h. Pres. Chas. H. Hersey, V. Pres. Exra H. Baker; Sec. & Treas. Wm. Reed, Supt. Daniel Coolidge. Office, 715 Broadway, So. Boston.

Somerville Horse R. R. Co. (Operated by the Boston Consolidated Street Ry. Co.) Pres. Sam'l E. Sewall, Treas. & Clerk, E. Francis Oliver,

Beardslev.
BROCKTON, MASS.—Brockton St. Ry. Co. 11½
m, 4-8½ g, 35 lb. r, 32 c, 130 h. Pres. W. W. Cross,
Treas. C. R. Fillebrown, Supt. H.B. Rogers. Office,
Main st. j

BROOKLYN, N. Y .- Annex St. Ry. Co. (See new

BROOKLYN, N. Y.—ABBEA St. Ry. Co. 1808 Revoads.)

The Atlantic Avenue R. R. Co. of Brooklyn. 28% m, deased and owned). 4-8½ g, 50-60 lbr, 297 c, 1169 h. Pres. William Richardson, sec. W. J. Richardson, Treas. Newbery H. Frost. Office cor. Atlantic & Third aves.

Broadway R.R. Co. 12 m, 4-8½ g, 50-60 lb r, 199c, 750 h. Pres. Edwin Beers, Sec. & Treas. Robert Sealey, Supt. Joshua Crandall. Office 21 Broadway, E. D.

199c, 750h. Pres. Edwin Beers, Sec. & Treas. Robert Esaley, Supt. Joshua Crandall. Office 21 Broadway, E. D.

Brooklyn Cross Town R.R. Co. 16 m, 4-8½ g, 50-60 lb r, 72 c, 413 h. Pres. Henry W. Slocum, V. Pres. Ezra B. Tuttle, Sec. M. Joust, Treas. John R. Connor, Supt. D. W. Sullivan. Office 585 Manhatatan ave. Bushwick R.R. Co. 28 m, 4-8½ g, 45-50-60 lb r, 172 c, 600 h. Pres. Frank Cromwell, V. Pres. Wm. H. Husted, Treas. & Sec. S. D. Hallowell, Supt. Wm. M. Morrison. Office 22 Broadway, N. Y.

The Brooklyn, Bushwick & Queens County F.R. 11 m, 4-8½ g, 42-47 lb r, 41 c, 117 h. Pres. Richard H. Green, V. Pres. James W. Elwell, 59 South st. N. Y. Sec. John D. Elwell, Treas. Wm. W. Greene.

Brooklyn City R.R. Co. 87 m, 4-8½ g, 45-60-64 lb r, 835 c, 18 dummles, 3,209 h. Pres. Daniel F. Lewis, V. Pres. Wm. M. Thomas, Sec. Ast. Sec. Francis E. Wrigley, Treas. Cromwell Hedden. Offices 8 & 10 Fulton st.

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

Calvary Cemetery, Greenpoint & Brooklyn Ry. Co. Coney Island and Brooklyn R.R. Co. 18 3-5 m, 45 lb r, 4-8½ g, 103 c, 344 h. Pres. James Jourdan, Sec. Ed. F. Drayton, Treas. John Williams, Supt. William Farrell. Office cor. Smith & Huntington sts. Coney Island, Sheepshead Bay & Ocean Avenue R. R. Co. 23½ m, 4-8½ g, 4c. Pres. A. A. McClemer, V. Pres. Daniel Mone, Sec. John McMahon, Sheepshead Bay, Treas. Horace Valkulyh. Office 16 fed Hook Lane.

Crosstown Line, Hamilton Ferry to Bridge.

Grand St. & Newtown R.R. Co. 13¼ m, 4-8½ g, 50-60 lb r, 72 c, 250 h. Pres. Martin Joost, Sec. & Treas. Wm. E. Horwill, Supt. Water G. Howey. Office 394 Kent ave.

Grand Street, Prospect Park & Flatbush R.R. Co. 11½ m, 4-8½ g, 50 lb r, 75 c, 220 h. Pres. Jnn. L.

Wm. E. Horwill, Supt. Waiter G. Howey. Office 344 Kent ave. 1
Grand Street, Prospect Park & Flatbush R.R. Co. 11½ m, 4-8½ g, 50 lb r, 75 c, 220 h. Pres. Jno. L. Partridge, Sec. Duncan B. Cannon, Treas. Chas. Crelfelds, Supt. Jno. L. Heins. Offices Franklin Ave. and Prospect Place.
Greenpoint & Lorimer St. R. R. Co. 5½ m, 4-8½ g, 50 lb r, 36 c, 183 h. Pres. Geo. W. Van Ailen, Sec. Wm. B. Wait, Treas. C. B. Cottrell, Supt. Chas. E. Harris. Office, cor. Nostrand and Park aves.
Prospect Park & Coney Island R. R. Co. 25 m, 45-50 lb r, 4-8½ g, 69 c, 214 h. Pres. A. R. Culver Treas. A. C. Washington, Sec. George H. Smith, Eng. Supt. R. Schermerhorn, Supt. Robert Attlesey. Offices 16 Court St. (Leased to Atlantic Ave. R. R. Co).

Offices to Court St. (Leased to Atlantic Ave. R. R. Co).
Prospect Park & Flatbush R.R. 3 m, 4-8½ g, 34 lb r. 70 c, 360 h. Pres. Lottls Wood, Sec. & Treas.
Sam'l Parkhill, Supt. Loftls Wood. Offices 45 Broad-

br. 70 c, 300 h. Pres. Lottls Wood, Sec. & Treas. Sam'l Parkhill, Supt. Lottls Wood. Offices 45 Broadway.

South Brooklyn Central R.R. Co. 8½ m, 4 8½ g, 60 lb r, 42 c, 193 h. Pres. Wm. Richardson, Sec. Wm. J. Richardson, Treas. N. H. Frost, Supt. James Ruddy. Offices, Atlantic & 3d aves.

The New Williamsburgh & Flatbush R. R. Co. 17½ m, 4-8½ g, 47-50 lb r, 74 c, 255 h. Pres. Geo. W. Van Allen, 54 Ann st., New York, Sec. W. B. Waltt, 34th st. & 9th ave., New York, Treas. C. B. Cottrell, 8 Spruce st., N. Y. City, Supt. Chas. E. Harris, Nostrand ave. & Carroll st., Brooklyn.

Union Ry. Co. (See new roads.)

Van Brunt St. & Erie Basin R.R. Co. 3 m, 4-8½ g, 45 lb r, 7 c, 24 h. Pres. John Cunningham, Sec. & Treas. Edmund Terry. Offices, 264 Van Brunt st. BRUNSWICK, GA.—Brunswick St. R.R. Co. BUFFALO, ILL.—See Mechanicsburg, Ill. BUFFALO, ILL.—See Mechanicsburg, Ill. BUFFALO, N. Y.—Buffalo St. R.R. Co. 17½ m, 4-8½ g, 50 lb r, 96 c, 51 h. Pres. Henry M. Watson, V. Pres. P. P. Pratt, Sec. S. Spaulding, Treas. W. H. Watson, Supt. Edward Edwards.

Buffalo East Side St. R.R. Co. 28 7-8 m, 4-8½ g, 42 lb r, 47 c, 218 h. Pres. S. S. Spaulding, Treas. W. H. Watson, Supt. Edward Edwards.

Buffalo East Side St. R.R. Co. 28 7-8 m, 4-8½ g, 42 lb r, 47 c, 218 h. Pres. S. S. Spaulding, Treas. W. H. Watson, Supt. Edward Edwards.

Buffalo East Side St. R.R. Co. 28 7-8 m, 4-8½ g, 42 lb r, 47 c, 218 h. Pres. S. S. Spaulding, V. Pres. Joseph Churchyard, Sec. H. M. Watson, Treas. W. H. Watson, Supt. Edward Edwards. Office 346 Main st. BURLINGTON, IA.—Burlington City R.R. Co. 24 m, 4-8½ g, 15-20 lh r, 9 c, 22 h. Pres. Jonn Patterson, Sec. & Man. C. T. Patterson. Office 1401 Summer st.

BURLINGTON, 1A.—Burington City R.R. Co. 24 m, 4.8 kg, g. 15-20 lh, r. 9c, 22 h. Pres. John Patterson, Sec. & Man. C. T. Patterson. Office 1401 Summer st.
Union St. Ry. Co. 8 m, 4.8 m, 4.8 m, g. various r, 19 c, 85 h. Pres. Geo. E. Rust, Sec. & Supt. F. G. Jones.
BURLINGTON, VT.—Winooski & Burlington Horse Ry. Co. 3 m, 4.8 g, 25 lbr, 7 c, 24 h. Pres.
W. A. Woodbury, V. Pres., F. C. Kennedy, Supt, K. B. Walker, Treas. L. E. Woodhouse, Clerk, G. W. Walls. Office, Winooski ave.
CAIRO, ILL.—Cafro St. Ry. Co. 2 m, 3-6 g, 25 lbr, 4 c, 12 h. Pres. J. A. Goldstine, V-Pres. C.V. Neff, Supt, & Treas. Thos. Lewis, Sec. H. Schulve. 2
CAMBRIDGE, MASS.—Cambridge R. R. Co.51-59 m, 4-8 m, g, 50 lb r, 255 c, 1,428 h. Pres. Prentiss Cummings, Treas. & Clerk Franklin Perrin, Exec. Com. I. M. Spelman, P. Cummings, O. S. Brown, Clerk of Directors, O. S. Brown, Supt. Wm. A. Bancroft.
CAMDEN, N. J.—Camden & Atlantic St. Ry. Camden Horse R. R. Co. 9 m, 5-1 g, 35-52 lb r, 26 c, 85 h. Pres. Thos. A. Wilson, Sec. Witbur F. Rose, Treas. & Supt. John Hood. Office 1125 Newton ave. CANTON, O.—Canton St. Ry. Co. 4 m, m, 4g, 28 lbr, 11 c, 58 h. Pres. & Treas. G. E. Cook, Sec. John F. Clark, Supt. O. S. Stanton. Office, 4 E. 7th st. CAPE MAY, N. J.—Cape May & Schellenger Landing Horse R. R.
CARTHAGE, MO.—
CEDAR RAPIDS, 1A.—Cedar Rapids & Marion Ry., 134 m, 48 m, 29, 22-28-35 lbr, 11 c, 40 h. Pres. W. Greene, V.-Pres. O. T. Richmond, Sec. N. B. Consigny, Treas. C. G. Greene, Supt. Wm. Elson. Office 11 N. Second st.
CHAMPAIGN, II.L.—Champaign R.R. Co. Urbana & Champaign St. R.R. Co. (See Urbana.) CHATHAM, CAN.
CHARLESTON, S. C.—Charleston City Ry.

HAINES BROS., STEAM & STREET RAILWAYS,

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PUBLIC BENEFACTORS.—Burlington Free Press and Times.

ACCOMPLISHING WHAT FEW MEN WOULD UNDERTAKE TO DO.—Rutland Herald.

THEIR REPUTATION AS BUILDERS OF STREET AND SHORT LINE RAILWAYS HAS BECOME NATIONAL.—New York World.

THEIR WORK IS A GREAT TRIUMPH OF CONSTRUCTIVE GENIUS AND FINANCIAL SKILL.

—Syracuse Herald.

THEY NOT ONLY MAKE HAY WHILE THE SUN SHINES, BUT THEY SEEM TO BUILD RAIL-ROADS AFTER THE ORB OF DAY GOES TO SLEEP IN THE WEST.—Newburg News.

THESE GENTLEMEN, AS THEIR WORK AND HISTORY SHOW, ARE THE MOST EMINENT IN THE UNITED STATES ENGAGED IN THEIR PURSUIT.—Newburg Journal.

Co. 8 ½m, 4-8½ g, 38 lb r, 32 c, 110 h. 1 mu. Pres, Jno. S.Riggs, Sec. and Treas. Evan Edwards, Asst Treas. Frank Whilden, Supt. Jno. Mohlenhoff. Glice 2 Broad st. k
Enterprise R.R. Co. 15 m, 5 g, 42 lb r, 29 pass. c, 10 freight c, 95 h. Pres. A. F. Ravenel, Sec. & Treas. U. E. Ilayne, Su, 4, 5. W. Passallalgue.
Middle Street Sullvan Island Ry. Co. 2½ m, 4-8½ g, 20 lb T r, 7 c, 14 mu. Pres. B. Callaghan, Sec. & Treas. Frank F. Whilden, Supt. B. Buckley. Office 2 Broad st.

Treas. Frank F. Whilden, Supt. D. Bucard.
Broad St.
CHATTANOOGA, TENN.—Chattanooga St. R.
R. Co. 5½ m., 4-8½ g., 25-45 lo r, 12 c, 54 h. Pres. and
Treas. J. H. Warner, Sec., C. R. Gaskill.
CHESTER, PA.—Chester St. Ry. Co. 7½ m, 5-2½
g, 47 lo r, 14 c, 66 h. Pres. Richard Peters, Jr., Treas.
Sam'l H. Seeds, Sec. & Manager E. M. Cornell.
CHICAGO, ILL.—Chlcago City Ry. Co. 90 m, 48½ g, 45-63 lb r, 697 c, 1,690 h, cable doing work of 2,500
h. Pres. C. B. Holmes, Sec. H. H. Windsor, Treas.
T. C Pennington, Supt. C. B. Holmes. Office 2,020
State St.

State st. Chicago West Division Ry. Co. 45½ m, 4-8½ g, 40 (c), 68s c, 3, 325 h. Pres. J. R. Jones, Sec. George L. Webb, Supt. De Witt C. Cregier. Office, 59 State st. Chicago & Hyde Park St. — m, — g, — lb r, — c, — h. Pres. Douglas S. Clarke. Crosstown Pass. Ry. Co. (See New Roads.) North Chicago City R.R. Co. 45 m, 4-8½ g, 45 lb r, 375 c, 1,800 h. Pres. & Gen. Supt. V. C. Turner, V. Pres. Chas. T. Yerkes, Sec. & Treas. Hiram Crawford, Asst. Supt. Fred L. Threedy, Supt. Horse Dept. Robt. Atkins, Purch. Agt. John W. Roach, Master Mechanic J. Miller.

CHILLICOTIIE, O.—Chillicothe St. R.R. Co. 13 m, 3 g, 16 lb r, 7 c, 10 h. Pres. E. P. Safford, Sec. A. E. Wenls, Treas. William Polanet, Supt. Evel McMartin.

Sec. A. E. Wenis, Treas. William Polanel, Supt. Ewel McMartin.

CINCINNATI, O.—Cincinnati Inclined Plane Ry.

Co. 6½ m, 5-9½ g, 43 lb r, 25 c, 140 h. Pres. Gco. A. Smith, Sec. & Supt. James M. Doherty, Tr. J. S. Ilill.

Cincinnati St. Ry. Co. 96m, 5-2 g, 42-52 lb 1, 250 c, 2,000 h. Pres. Jno. Kilgour, V. Pres. Albert G. Clark, Treas. R. A. Duniap, Sec. & Auditor, Jas. A. Collins, Supt. Jno. Harris, Pur. Agt. B. F. Haughton. Office second floor of Apolio Bullding.

Columbia & Cincinnati St. R.R. Co. 3½ m, 3 g, 40 lb r, 6 c, 3 dummy e. Pres. & Auditor C. Il. Kilgour, V. Pres. John Kilgour, Treas. & Sec. A. Il. Meier, Mt. Lookout, O. Office Station C. a.

Mt. Adams & Eden Park Inclined R.R. Co. 3½ m, 5-2½ g, 42 lb r, 40 c, 3 20 h. Pres. & Treas. J. P. Kerper, Sec. J. R. Murdock, Supt. Chas. Whitten.

So. Covington & Cincinnati. (Sec Covington, Ky.) CLARKSVILLE, TENN.—Clarksville St. Ry.

Co. 2 m, 4-8½ g, 16 lb Tr. 4, c, 16 mu. Pres. John F. Shelton, Sec. & Treas. John W. Faxon. Capital, \$6,250. Office, Farmers' & Merchants' Nat. Bank.

CLEVELAND, O.—The Brooklyn St. R.R. Co. 12½ m, 4-8½ g, 52 lb r, 70 c, 402 h. Pres. Tom. L. Johnson, V. Pres. A. J. Moxham, Sec. J. B. Hoefgen, Treas. John McConneil, Supt. A. L. Johnson. Office 1,301 Pearl st.

Broadway & Newburg St. R.R. Co. 11.4 m, 4-8½ g, Broadway & Newburg St. R.R. Co. 11.4 m, 4-8½ g, Broadway & Newburg St. R.R. Co. 11.4 m, 4-8½ g, Broadway & Newburg St. R.R. Co. 11.4 m, 4-8½ g, Broadway & Newburg St. R.R. Co. 11.4 m, 4-8½ g, Broadway & Newburg St. R.R. Co. 11.4 m, 4-8½ g, Broadway & Newburg St. R.R. Co. 11.4 m, 4-8½ g, Broadway & Newburg St. R.R. Co. 11.4 m, 4-8½ g, Broadway & Newburg St. R.R. Co. 11.4 m, 4-8½ g, Broadway & Newburg St. R.R. Co. 11.4 m, 4-8½ g, Broadway & Newburg St. R.R. Co. 11.4 m, 4-8½ g, Broadway & Newburg St. R.R. Co. 11.4 m, 4-8½ g, Broadway & Newburg St. R.R. Co. 11.4 m, 4-8½ g, Broadway & Newburg St. R.R. Co. 11.4 m, 4-8½ g, Broadway & Newburg St. R.R. Co. 11.4 m, 4-8½ g, Broadway & Newburg St. R.R. Co. 11.4 m, 4-8½ g, Broadway & Newburg

John McConneit, Supt. A. L. Johnson. Office 1,301 Pearl st.
Broadway & Newburg St. R.R. Co. 11.4 m, 4-8½ g, 43 lb r, 26 c, 165 h. Pres. Joseph Stanley, V. Pres.
H. E. Andrews, Sec. & Treas. E. Fowler, Supt. J. J. Stanley. Office 1373 Broadway.
Superlor St. R.R. Co. 15 m, 4-8½ g, 45 lb r, 46 c, 225 h. Pres. Frank De H. Roblson, V. Pres. John Koch, Sec., Treas. & Supt. M. S. Roblson, Jr.
The East Cleveland R.R. Co. 20½ m, 4-8½ g, 45 lb steel r, 110 c, 570 h. Pres. A. Everett, V-Pres. & M. C. B. Chas. Wason, Sec. & Treas. H. A. Everett, Supt. E. Duty. Offices, 1154 Euclid ave.
Woodland Avenue & West Side St. R.R. Co. 40 m, 4-8½ g, 43-45 lb r, 128 c, 605 h. Pres. M. A. Hanna, V. Pres. C. F. Emery, Sec. & Pur. Act. J. B. Hanna, Gen. Supt. George G. Mulhern. Office, cor. Pearl and Detroit sts.
South Side St. R. R. Co. 3½ m, 3 g, 40 lb r, 8 c, 60 h. Pres. Tom L. Johnson, Supt. A. L. Johnson, Sec. & Treas. J. B. Hoefgen. Office 1301 Pearl st. 2 St. Clair Street Ry. Co.—m—g,—lbr—c,—Pres. Chas Hathaway.

CLIPTON, CAN.—Niagara Falls, Wesly Park and Clifton Tramway Co. 3½ m, 4.8½ g, 30 lb r, 8 c, 46 h. Pres. J. H. Mooney, 280 B'way, N. Y. Treas. John N. Ilayward, 52 B'way, N.Y. Sec. John H. Bache, Niagara Falls, Ont. CLINTON, IA.—Lyons & Clinton Horse R.R. Co. (See Lyons.)

(See Lyons.)

COLUMBIA, S. C.—Columbia St. Ry. 4½ m, 48½ g, 301b r, 6 c, 18 h. Pres. J. S. Pierson, New York, V. Pres. H. M. Pierson, New York, Treas. W. E. Lawton, New York, Sec. E. M. Cole, 32 Liberty St. New York, Capital, \$50,000.

COLUMBUS, GA.—Columbus St. R.R. Co. 3 m, 4-8½ g, 16 lb r, 6 c, 25 h. Pres. Cliff B. Grimes, Sec. L. G. Schnessler, Treas. N. N. Curtis, Supt. J. A. Gabourgh.

L. G. Schnessier, Treas. N. N. Curtis, Supt. J. A. Gabourgh.

COLUMBUS, O.—Columbus Consolidated St. R.R.
CO. 19 m, 5-2 g, 30-52 lb r, 92 c, 350 h. Pres. A. Rodgers, V. Pres. H. T. Chittenden, Sec. & Treas. E. K.
Stewart, Supt. J. H. Atcherson.
Glenwood & Greenlawn St. R.R. Co. 4½ m, 3-6 g,
44 lb r, 11 c, 19 h. Pres. A. D. Rodgers, V. Pres. B. S.
Brown, Sec. R. R. Rickly, Treas. S. S. Rickly, Supt.
Jonas Willcox. Office 9 S. High st.

CONCORD, N. H.—Concord Horse R. R. Co. 7½
m, 3 g,34 lb r, 9 c, 15 h, 2 steam motors. Pres. & Supt.
Moses Humphrey, Treas. H. J. Crippin, Clerk E. C.
Hoag.

Hoag.

CORTLAND, N. Y.—Cortiand & Homer Horse R.R.
CO. 4 m, 4-8½ g, 25-301b r, 5 c, 15 h, Pres. Chas. H. Garrison, Troy, N. Y. V. Pres. E. Mudge, Sec. & Treas.
S. E. Welch, Supt. B. B. Terry. Office 25 N. Main st.
COUNCIL BLUFFS, IA.—Council Bluffs St. R.R.
COVINGTON, KY.—So. Covington & Cincinnat
St. Ry. Co. 17½ m, 5-2½ g, 43 lb r, 46 c, 296 h. Pres.
E. F. Abbott, Sec. J. C. Benton, Treas. G. M. Abbott.
COVINGTON, GA.—W. C. Clark & Co. (see new
roads.)

COVINGTON, GA.—W. C. Clark & Co. (see new roads.)

DALLAS, TEX.—Dallas St. Ry. Co. 4½ m, 4-8½ g, 20-38 lb r, 12 c, 4 h, 72 mu. Pres. Wm. J. Keller, Sec. Harry Keller, Supt. C. E. Keller.

Commerce & Ervay St. R.R. 1½ m, 4-8½ g, 20 lb r, 5 c, 24 mu. Pres. A. C. Ardrey, Sec., Trea. & Man. H. W. Keller.

DANVILLE, ILL.—Citizens' St. Ry. Co. 4½ m, 4 g, 20 lb r, 8 c, 41 m. Pres. Wm. P. Cannon, V. Pres. & Gen. Man. Wm. Stewart, Sec. & Treas. Adam R.

ä Gen. Man. Wm. Stewart, Sec. & Treas. Adam R. Samuel.

DAVENPORT, IA.—Davenport Central St. Ry. Co. 2 m, 4-8½ g, 201b r, 14 c, 21 h, 15 mu. Pres. Whit. M. Grant v. Pres. W. L. Allen, Treas. J. B. Fidler, Su pt. J. W. Howard, Sec. O. S. McNell.

Davenport City Ry. Co. 3½ m, 4-8½ g, — lb r, 14 c, 46 h. Pres. C. S. Watkins, Sec. and Treas. S. D. Bawden.

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

DAYTON, O.—Dayton St. R.R. Co. 7½ m, 4-8½ g, 44 lb r, 24 c, 80 h and mu. Pres. J. W. Stoddard, V. Pres. H. S. Williams, Sec. C. A. Cralghead, Supt. A. W. Anderson.

Fifth St. R. R. Co. 7 m, 4-8½ g, 45 lb r, 18 c, 58 h. Pres. A. A. Thomas, Sec. D. B. Corwin, Treas. R. I. Cummin, Supt. J. M, B. Lewis. Office, 7 E. 3d st. Oakwood St. Ry. Co. 6 m, 4-8½ g, 38 lb r, 14 c, 56 h. Pres. Charles B. Clegg, Sec. H. V. Perrine.

The Wayne & Fifth St. R. R. Co. 3½ m, 4-8½ g, 38 lb r, 6 c, 30 h. Pres. Geo. M. Shaw, Sec. & Treas. Eugene Winchet, Supt. N. Routzahn. Office, 29 Wayne st.

DECATUR, ILL.—Decatur Horse Ry. Co. Citizens! Street R. P. Co. 2 m A 8 20 m, 20 lb T. 7 a c. Citizens! Street R. P. Co. 2 m A 8 20 m, 20 lb T. 7 a c. Citizens! Street R. P. Co. 2 m A 8 20 m, 20 lb T. 7 a c. Citizens! Street R. P. Co. 2 m A 8 20 m, 20 lb T. 7 a c. Citizens! Street R. P. Co. 2 m A 8 20 m, 20 lb T. 7 a c. Citizens! Street R. P. Co. 2 m A 8 20 m, 20 lb T. 7 a c. Citizens! Street R. P. Co. 2 m A 8 20 m, 20 lb T. 7 a c. Citizens! Street R. P. Co. 2 m A 8 20 m, 20 lb T. 7 a c. Citizens! Street R. P. Co. 2 m A 8 20 m, 20 lb T. 7 a c. Citizens! Street R. P. Co. 2 m A 8 20 m, 20 lb T. 7 a c. Citizens! Street R. P. Co. 2 m A 8 20 m, 20 lb T. 7 a c. Citizens! Street R. P. Co. 2 m A 8 20 m, 20 lb T. 7 a c. Citizens! Street R. P. Co. 2 m A 8 20 m, 20 lb T. 7 a c. Citizens! Street R. P. Co. 2 m A 8 20 m, 20 lb T. 7 a c. Citizens! Street R. P. Co. 2 m A 8 20 lb T. 7 a c. Citizens! Street R. P. Co. 2 m A 8 20 lb T. 7 a c. Co. Streets R. Co. 2 m A 8 20 lb T. 7 a c. Co. Streets R. Co. 2 m A 8 20 lb

Eugene Winchet, Supt. N. Routzahn. Office, 29
Wayne st.

DECATUR, ILL.—Decatur Horse Ry. Co.
Citizens' Street R. R. Co. 2 m, 48½ g, 20 lb Tr, 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. 24m, 3-6
g, 16 lb r, 64 c, 332 h. Pres. Geo. H. Holt, 10 Wall st.,
New York City, Sec. G. D. L'uullier, 10 Wall st., New
York City, Treas. & Man. G. E. Randolph.
Denver Tramway Co. 4 m, 3-6 g, 16-18 lb r, 2c. Run
by electricity. Pres. Rodney Curtis,
V. Pres. John
J. Riechman, Sec. Wm. G. Evans.

DES MOINES, IA.—Des Moines St. R. R. Co.
12 m, 3 g, 25-30-38-52 lb r, 18 c, 125 h. Pres. W. McCalh, V.—Pres. C. W. Rogg, Sec. F. A. Sherman, Treas.
G. B. Hippee.

Dee Moines Broad Gauge St. Ry. Co.
Pres. G. Van
Glinkel, Sec. H. C. Teachout, Treas. John Weber.
Capital City St. Ry. Co. 5 m, 4-8½ g, 6 c, 30 h.
G. Van Ginkel, Sec. H. C. Teachout, Treas. J. Weber.
Des Moines & Sevastopol St. Ry. Co. (See Sevastopol, 1a).

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

DETROIT, MICH.—Fort Wayne & Elmwood Ry. Co. 9.1 m, 48½ g, 45 lb r, 33 c, 212 h. Pres. H. B. Brown, V. Pres. Edward Kanter, Sec. N. W. Goodwin, Treas. E. S. Helneman, Supt. Geo. S. Ilazard. Office, 129 Griswold St. Dix Electric Ry. Co. 2½ m, 3 c, electric motors. Detroit City Ry. 30 m, 4-8½ g, 40-43½ lb r, 130 c, 700 h. Includes Jefferson Ave. line, Woodward Ave. line, Michigan Ave. line, Gratiot Ave. line, Brush St. line, Cass Ave. line, Congress & Baker line. Pres. Sidney D. Miller, Treas. George Hendrie, Sec. James Heugh, Gen. Supt. Robert Bell, M. M. John Willis. Grand River St. Ry. Co. 63 m, 4-8½ g, 45 lbr, 15 c, 160 h. Pres. & Treas. Jos. Dailey, Sec. J. W. Dailey, Supt. C. M. Dailey. e. Highland Park Ry. Co. 3 m, 4-8½ g, 42 lb r for ½ m in citv limits, outside 35 lb Tr, 2 c, electric motors. Pres. and Treas. Frank E. Snow, Sec. F. Woodruff. Capita, \$50,000. Office, 92 Griswold st.

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

DUBUQUE, IA.—Dubuque St. R.R. 7 m, 4-8½ g, 51 lbr, 21 c, 65 h. Pres. J. A. Rhonberg, Sec. & Treas. B. E. Linehan, Supt. J. J. Linehan. Office Couller ave.

ave,
DULUTH, MINN.—Duluth St. Ry. Co. 5½ m, 3-6
g, 32-45 lb r, 18 c, 92 mu. Pres. Sam'l Hill, V. Pres.
T. P. Wilson, Sec. & Treas. A. S. Chase, Supt. T. W.

Hoopes.

EAST OAKLAND, CAL.—Oakland, Brooklyn & Fruitvale R.R. Co. 2 m, 5-6 g, 35 lb r, 4 c, 56 h. Pres, & Treas. H. Tubbs, Sec. W. C. Mason, Supt. Jas. Dixon, Pur. Agt. J. Reed. Office, 301 Central ave.

EAST SAGINAW, MICH.—East Saginaw St. Ry. Co. — m, 4-8½ g, 30 and 43 lb r, 23 c, 70 h. Pres. Walter A. Jones, Sec. and Treas. Chas. F. Shaw, Supt. A. Bartlett.

Supt. A. Bartlett. EAST ST. LOUIS, ILL.—East St. Louis St. R.R.

Supt. A. Bartlett.

EAST ST. LOUIS, ILL.—East St. Louis St. R.R. Co.

EASTON, PA.—The Easton & So. Easton Passenger Ry. Co. 1½ m, 5-2½ g, 45 lb r, 4 c, 20 h. Pres. H. A. Sage, Sec. & Treas. II. W. Cooley. Supt. Elisha Burwell, So. Easton. Capital, \$29,562. Office, 318 Northampton st.

The West End Passenger Ry. Co. 1½ m, 5-2½ g, 45 lb r, 6 c, 20 h. Pres. H. A. Sage, Sec. & Treas. H. W. Cooley. Supt. Samuel Berry.

EAU CLAIR, WIS.—Eau Clair St. Ry. Co. 4 m, 4-8½ g, 27 lb r, 16 c, 70 h. Pres. A. G. Bradstreet, New York, V.-Pres. Geo. B. Shaw, Eau Clair, Sec. & Treas. Weston Lewis, Gardiner, Me.

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

ELIZABETH, N. J.—Elizabeth & Newark Horse R.R. Co. 14 m, 5-2½, 4-10½ g, 30 lb r, 24 c, 74 h. Pres. & Treas. Jacob Davis, Sec. & Supt. John F. Pritchard.

ELKHART, IND.—Citizens' Ry. Co. 3½ m, 4-8½ g, 30 lb r, 6 c. 30 h. Pres. F. W. Miller. V. Pres. G. C. Johnson, Sec. E. C. Bickel, Treas. A. R. Burns.

ELMIRA, N. Y.—The Elmira & Horseheads Ry. Co. 10 m, 4-8½ g, 25-30-40 lb r, 18 c, 34 h. Pres. & Treas. George M. Diven, V. Pres. Geo. W. Hoffman, Sec. Wm. S. Kershner, Supt. Henry C. Silsbee. Officers 212 E. Water st. & Ell PASO, TEX.—El Paso St. Ry. Co. 6 m, 4-8½ g, 20-30 lb r, 18 c, 40 mu. Pres. B. H. Davis, Vice Pres. J. F. Crosby, Treas. C. R. Morehead, Sec. & Supt. H. W. Marks. Offices, Seventh st.

ENTERPRISE, MISS.—Enterprise St. Ry. Co. 1½ m, 3-6 g, 20 lb r, 2 c, 6 h. Pres. Van R. Holmes, Treas. A. F. Crowe, Sec. & Man. J. D. Holden.

ENTERPRISE, MISS.—Enterprise St. Ry. Co. 1½ m, 3-6 g, 20 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. 7½ m,

4-8% g, 45 lb r, 20 c, 87 h. Pres. Wm. W. Reed, Treas. Wm. Spencer, Sec. W. A. Demorest, Supt. Jacob

48½ g, 45 lb 1, 20 c, 87 h. Pres. Wm. W. Reed, Treas. Wm. Spencer, Sec. W. A. Demorest, Supt. Jacob Berst.

EVANSVILLE, IND.—Evansville St. Ry. Co. 14 m, 48 g, 28 lb 1, 32 c, 240 mu. Pres. John Gilbert, Sec. & Treas. W. S. Gilbert. Office, Merchants National Bank. a

FALL RIVER, MASS.—Globe St. Ry. Co. 12 m, 4-8½ g, 40-46-47 lb 1, 40 c, 160 h. Pres. Frank S. Stevens, Treas. F. W. Brightman, Sec. M. G. B. Swift, Supt. John H. Bowker, It.

FAR ROCKAWAY, N. Y.—Village Ry. Co. 1 m 4-8½ g, 47 lb 1, 5 c, 10 h. Pres. C. A. Cheever, Treas. D. L. Halght, Sec. J. S. Auerbach, Supt. Rutus Martin. Office, 13 Park row, New York. 10

FITCHBURG, MASS.—Fitchburg St. Ry. Co. 3½ m, 4-8½ g, 6 c, 31 h. Pres. H. A. Willis, V. Pres. H. J. Wallace, 1 reas. B. F. Wallis, Sec. H. C. Hartwell, Supt. Wesley W. Sargent.

FORT SCOTT, KAN.—Bourbon County St. Ry. Co. 1 m, 4 g, 32 lb 1, 2 c, 4 m. Pres. Isaac stadden, V. Pres. Benj. Files, Sec. Wm. Perry, Treas. J. H. Randolph.

FORT SNITH, ARK.—Fort Smith St. Ry. Co. 2 m, 3-6 g, 28 lb 1, 5 c, 16 mu. Pres. Sam'l M. Loud, Sec. & Treas. Geo. T. Sparks. h

FORT WORTH, TEX.—Fort Worth St. Ry. Co. 7½ m, 4 g, 25-38 lb 1, 16 c, 73 m. Pres. K. M. Vanzandt, Treas. W. A. Huffman, Acting Sec. & Gen. Man. S. Mins, Supt. J. T. Payne.

FRANKFORT, N. Y.—Frankfort & Illon Street Ry. Co. 2½ m, 5 g, 4 c. Pres. A. C. McGowan, Frankfort, Sec. D. Lewis, Illon, Treas. P. Remington, Illon, Supt. Fredk. Gates, Frankfort.

FREDONIA, N. Y.—Dunkirk & Fredonia R.R.Co. 3½ m, 4-10 g, 25 lb 1, 5 c, 9 h. Pres. Wm. M. McKinstry, Sec. & Treas. M. N. Fenner, Supt. Z. Elmer Wheelock.

FREEONIA, N. Y.—Dunkirk & Fredonia R.R.Co. 3½ m, 4-10 g, 25 lb 1, 5 c, 9 h. Pres. Wm. M. McKinstry, Sec. & Treas. M. N. Fenner, Supt. Z. Elmer Wheelock.

FREEONIA, N. Y.—Dunkirk & Fredonia R.R.Co. 3½ m, 4-10 g, 25 lb 1, 5 c, 9 h. Pres. Wm. M. McKinstry, Sec. & Treas. M. N. Fenner, Supt. Z. Elmer Wheelock.

FREEPORT, ILL.—Freeport St. Ry. Co. 4½ m. res. Jacob Krohn, V.-Pres. F. C. Platt, Sec. John B. aylor, Treas. W. G. Barnes, Supt. & Gen. Man. G. . Clinger.

Taylor, Treas. W. G. Barnes, Supt. & Gen. Man. G. D. Clinger. 1

FULTON, N. Y.—Fulton & Oswego FallsSt. Ry Co. 6,000 tt, 48% g, Glbbon's metallic stringer and r, 4 c, 12 h. Pres. J Oseph Walker, Jr., V. Pres. N. N. Stranahan, Sec. and Treas. Chas. Lyman. Capital, \$15,000. Office, 15 Broad st., New York.

GAINSVILLE, FLA.—Gainsville St. Ry. GAINSVILLE, TEX.—Gainsville St. Ry. Co. 2% M, 3-6 g, 17 lbr, 4 c, 12 h. Pres. C. N. Stevens, V. Pres. J. T. Harris, Sec. & Treas. F. R. Sherwood.

GALESBURG, ILL.—College City St. Ry. Co. 5 m, 4-8% g, 18-20-38 lb r, 7 c, 20 h. Pres. L. W. Sanborn, V.-Pres. A. S. Hoover, Supt. & Sec. Geo. S. Clayton.

m, 4-8% g, 18-20-38 lb r, 7 c, 20 h. Pres. L. W. Sanborn, V.-Pres. A. S. Hoover, Supt. & Sec. Geo. S. Clayton.

GALVESTON, TEX.—Galveston City R.R. Co. 25 m, 4-8% g, 30 lb r, 80 c, 225 mu. Pres. Wm. H. Sinclair, Sec. & Treas. T. J. DeMerritt, Supt. M. J. Kecnan. Office, cor. Twenty-first & I sts.

Guif City St. Ry. & Real Estate Co. 13½ m, 4 g, 25-30 lb r, 32 c, 81 mu. Pres. J. H. Burnett, Sec. P. S. Wren, Treas. F. D. Allen. Office P. O. st., bet. 22d & 23d. J GLENS FAILS, N. Y.—Glens Falls, Sandy IIII. & Fort Edward St. R. R. Co. Pres. Henry Crandall. Sec. & Treas. T. S. Coolldge, Supt. Albert V. Brayton, GLOUCESTER, MASS.—Gloucester City R. R. 4 m 4 6g, 35 lb r, 10, c, 93 h. Pres. Morris C. Fletcher, V.-Pres. Walter A. Jones, Sec. D. G. Pearson, Tres. F. W. Homans. Office, Railroad ave. & Gloucester St. Ry. Co. Pres. & Supt. Morris C. Fletcher, V.-Pres. Walter A. Jones, Treas. Francis W Homans, Sec. David S. Presson.

GRAND RAPIDS, MICH.—Street Ry. Co. of Grand Rapids, Mel. 14½ m, 4-8½ g, 25-40 lb r, 29 c, 190 h. Pres. W. J. Hayes, Cleveland, O., V. Pres. L. Withey, Grand Rapids, Treas. C. G. Swensberg, Grand Rapids, Sec I. M. Weston, Grand Rapids, Supt. A. Bevier, Grand Rapids, Office, cor. Washington & Indiana sts.

GREENBUSH, N. Y.—North & East Greenbush St. Ry. Co. 1½ m, 4-8½ g, 4 c, 12 h. Pres. & Supt. D. Rogers, Sec. James S. Nutt, Treas. Ralph Rogers. A. Bleekerbanks, Supt. J. Gascolgne. 1

GREEN CASTLE, IND.—Green Castle City St. Ry. Co. 2 m, 4-8½ g, 23 lb r, 3 c, 12 h. Pres. & Supt. D. Rogers, Sec. James S. Nutt, Treas. Ralph Rogers. GREENVILLE, S.C.—Greenville City Ry. Co. J m 5 g. — lb r, 5 c, 20 h. Proprietors, Gilreath & Harris. HALLFAX, N. S.—Hallfax St Ry. Co. (Lim.) 7 m, 4-8½ g, 45-60 lbs. r, 15 c, 65 h. Pres. John Bothwell, Sec. & Treas. H. K. Adams. Supt. John C. Conlan. Offices, Room 39, Drexel Bullding, New York, and Hallfax, N. S.

HAMILTON, G.—The Hamilton St. Ry. Co. 4 m 3 g, 28 lb r, 11 c, 12 h. Pres. James F. Griffin, Sec. O

4-8½ g, 45-60 lbs. r, 15 c, 65 n, Pres. John C. Conlan. Offices, Room 39, Drexel Bullding, New York, and Halifax, N. S.

HAMILTON, G.—The Hamilton St. Ry. Co. 4 m 3 g, 28 lb r, 11 c, 12 h. Pres. James F. Grlifin, Sec. O V. Parrish, Treas. H. L. Morev, Supt. J. C. Bigelow. HANNIP 'L., MO.—Hannibal St. Ry. Co. 2 m 4-8½ g, 36 lb r, 6 c, 22 h. Pres. & Supt. M. Doyle Sec. & Treas. James O'Hern.

HARRISBURG, PA.—Harrisburg City Passenger Ry. Co. 5 m, 5-2½ g, 42-47 lb r, 26 c, 65 h, Pres. H. A. Kelker, V. Pres. Daniel Epply. Sec. John T. Ensminger, Treas. R. F. Kelker, Supt. S. B. Reed. Capital, \$62,500. Office. 27 South 2d st.

HARTFORD, CONN.—Hartford & Wethersfield Horse R.R. Co. 12 m, 4-8½ g, 45 lb r, 49 c, 250 h. Pres. & Treas. E. S. Goodrich, Sec. Geo. Sexton.

HAVERIHILL, MASS.—Haverhill & Groveland St. Ry. Co. 13.7 m, 4-4½ g, 30-35 lb r, 36 c, 131 h. Pres. Jackson B. Sweet, Treas. John A. Colby. Office 3 Water st.

HELENA, MON.—2½ m, 4-8½ g, 38 lb r, 5 c. Pres. C. W. Cannon, V.-Pres, J. B. Wilson, Sec. & Treas. L. A. Walker.

HERKINHER, N. Y.—Herkimer & Mohawk St. Ry. Co. 1½ m, 4-8½ g, 25 lb r, 3 c. Pres. J. M. Ansmen, Sec. Joab Small, Treas. H. D. Alexander.

HOBOKEN, N. J.—North Hudson County Ry. Co. 16½ m, 4-7 g, 50-60 lb r, 116 c, 630 h. Pres. John H. Bonn, Sec. F. J. Mallory, Treas. Fredk. Mickel, Union, Supt. Nicholas Goetz, Union.

HOLYOKE, MASS.—Holyoke St. Ry. Co. 3½ m, 4-8½ g, 35 lb r, 13 c, 45 h. Pres. Wm. A. Chase, Treas. C. Fayette Smith, Supt. H. M. Smith.

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

m. Fres. H. S. Halnes, Savannah, Ga., V. Pres. & Sec. Geo. R. Foster, Treas. W. P. Hardee, Savannah, Ga., Supt. G. W. Halnes.

JACKSONVILLE, ILL.—Jacksonville Ry. Co. Supt. B. F. Sibert.

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

JAMESTOWN, N. Y.—Jamestown St. Ry. Co. 4m. 4-8½ g, 30-42 lb r, 13 c, 39 h. Pres. J. B. Ross, V. Pres. F. E. Gifford, Treas. A. N. Broadhead. Supt. G. E. Mattby, Sec. & Atty. C. R. Lockwood.

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

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

JOHNSTOWN, P.A.—Johnstown Pass. R.R. Co. 7½ m, 5-3 g, 41-43 lb r, 13 c, 76 h. Pres. James McMillen, Sec. B. L. Yeagley, Treas. W. H. Rosensleet, Jr., Supt. D. J. Duucan. Capital. \$100,000.

JOLIET, H.L.—Jollet City Ry. Co. 3½ m, 4-8½ g, 30 lb Johnson Tr, 16 c, 30 h. & mu. Prop. J. A. Henry, Supt. A. Bischman, Treas. J. Hulsizer.

JOPLIN, MO.—

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

KANSAN CITY, MO.—Kansas City Cable Ry. Co. 8 m, 4-8 g, 45 lb r, 75 c, 1 h, 10 dummy cars. Pres. Wm. J. Smith, Sec. W. H. Lucas, Eng. Robert Gillham. Supt. F. A. Tucker. Office, S. Corrigan Consolidated St. Ry. Co. 20 m, 4-1 g, 36 lb r, 80 c, 350 h. Pres. Bernard Corrigan, Gen. Man. Thos. Corrigan. Sec. Jas. T. Kelley.

Grund Avenue Ry. Co. 6 m, 4-8½ g, 40 lb r, 25 c, 145 h. Pre. C. F. Morse, V. Pres. and Gen. Man. W. H. Holmes, Englineers, Knight & Bentleon, Auditor, T. J. Fry, Supt. C. F. Holmes.

Kansas City & Rosedale St. Ry. Co.

Melropolitan St. Ry. Co.

Gapital. \$10,000.

Kansas Citv & Rosedale St. Ry. Co.
Metropolitan St. Ry. Co. 11½ m, 4-4-8½ g, 66 c,
Pres. C. F. Morse, V. Pres. Geo. H. Nettleton, Sec.
W. J. Ferry, Treas. A. W. Armour, Supt. E. J. Laweless, Engineers. Knight & Benticon, Gen. Counsel
Pratt, Baumback & Ferry, Auditor & Cashler, R. J.
McCarty, Capital \$1,250,000

KEOKUK, IA.—Keokuk St. Ry. Co. 4 m, 4-8½ g,
27 lb steel r, 12 c, 40h. Pres. Jas. H. Anderson, Sec.
Wm. E. Anderson,
KINGSTON, NT., CAN.—Kingston St. R.R.
Co. ½ m, 3-6 g, 9 lb r, 10 c, 36 h. Pres. Robert Carson, Sec. & Treas. F. Sargent, Man. William Wilson,
KNOXYILLE, TENN.—Knoxville St. R.R. Co. 2
m, 4-8½ g, 22 lb r, 5 c, 2 hacks, 30 h. Pres. V. P.
Chamberlain, Sec., Treas. Supt. T. L. Seaman.
Mabry Bell Avc. & Hardee St. Ry. Co. 4 m, 4 8½ g,
4 c, 29 h. Pres. B. N. Hood, Sec. B. L. Smith, Supt. &
M. D. M. F. Thompson.
Market Sq. & Asylum St. Ry. Co. 2 m, 5 g, 32 lb r,
3 c, 18 h. Pres. Peter Kern. Sec. W. B. Henderson,
Treas. W. H. Simmonds, Supt. L. O. Rogers. Office,
148 Gay St.
L. ACONIA, N. H.—Laconia & Lake Village Horse

Très. W. H. Simmonds, Supt. L. O. Rogers. Office, 148 Gay st.

1.ACONIA, N. II.—Laconia & Lake Village Horse R. R. 2½ m, 3 g, 34 lbr, 5 c, 17h. Pres. A. G. Folsom, Treas. Edmund Little, Man. Sela S. Kenniston.

1.A CROSSE, WIS.—La Crosse City Ry. Co. 5 m, 48½ g, 45 lb r, 15 c, 65 h. Pres. B. E. Edwards, V. Pres. Geo. F. Gund, Treas. Fred Tillman, Sec. Jas. T. Daggart, Supt. (North Division), Peter Valier, Supt. (South Division), Geo. F. Smith.

1.AFAYETTE, IND.—LaFayette St. Ry. 2½ m, 48½ g, 35 lb r, 6 c, 38 h. Pres F. B. Caldwell, La Fayette, Sec. & Treas. E. G. Jones, Decatur, Ill., Supt. F. Greer, La Fayette.

1.AKE CITY, FLA.—Lake City St. Ry. Co.

etfe, Sec. & Treas. E. G. Jones, Decatur, III., Supt. F. Greer, LaPayette,
LAKE CITY, FLA.—Lake City St. Ry. Co.
LAMPASAS SPRINGS, TEX.—Lampasas City Ry. Co. 3½ m, 48½ g, 22 lb r, 6 c, 15 h. Receiver, —
Maddox.
LANCASTER. PA.—Lancaster & Millersville St.
Ry. Co.—m, 48½ g, 30 lb r, 4c, 14 h. Pres. J C. Hager.
V. Pres. H. S. Shirk, Scc. & Treas. Chas. Dennes.
Lancaster City St. Ry. Co. 1.1 m, 5-2 g, 38 lb r, 6c, 4 h. Pres. W. D. Sprecher, Treas. J. H. Baumgarder, Sec. Thos. B. Cochrane, Man. J. B. Lang. Gen.
Office, 129 North Queen st.
LARCHMONT, N. Y.—Larchmont Manor Co. 1½

m, 4-8 g, 25 lb r, 2 c, 10 h. Pres. C. H. Murray, Sec. E. E. Flint, Treas. T. H. French, 38 East Fourteenth st. N. Y. City, Supt. W. H. Campbell.

I.AWRENCE, KAN.—Lawrence Transportation Co. 5½ m, 4-1 g, 38 lb r, 8 c, 34 h. Pres. II. Tisdale, Sec. W. H. Bangs.

LAWRENCE, MASS.—Merrimack Valley Horse R.R. Co. 6¾ m, 4-8½ g, 48 lb r, 20 c, 70 h. Pres. Wm. A. Russell, V. Pres. Jas Watton, Methuen, Clerk & Treas James II. Eaton, Supt. A. N. Kinbali, Lawrence.

I.EWISTON, ME.—Lewiston & Auburn Horse R.R. Co. 10 m, 4-3½ g, 32 lb r, 20 c, 60 h. Pres. Frank W. Dana, Treas. Charles C. Corbett, Supt. J. E. Falrbanks, Clerk, H. C. Little.

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

m, 4-10 g, 20 lb r, 20 c, 85 h. Fres. & Treas. R. B. Betcalfe, V. Pres., Man. & Sec. Albert Cross, Supt. Bert. Cross.

LEXINGTON, MO.—Lexington St. Ry. Co.

LIMA, O.—Lima St. Ry. Co.

LIMA, O.—Lima St. Ry. Co.

g, 25 lb r, 8 c, 64 h. Pres. & Treas. E. B. Durfee, Sec. & Supt. II. B. Durfeee.

Lincoln St. Ry. Co. 8 m, 4-8½ g, 13 c, 100 h. Pres. Frank L. Sheldon, Supt. L. P. Young.

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

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

Co. Same offices.

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

LOCKPORT, N. P. Jaques. Office, Urbana, III.

LONDON, CAN.—London St. R.R. Co. 5 m, 4-8½ g, 30 lb r, 12 c, 30 h. Pres. V. Cronyn, Sec. Jas. II.

LONG ISLAND CITY, N. Y.—Stelnway, & Hunter's Point R. R. Co. 30 m, 4-8½ g, 47 lb r, 68 c, 225 h. Pres. Wm. Stelnway, Stelnway Hall, N. Y. City. V. Pres. Henry A. Cassebeer, Jr.., Stelnway, B. Chong Island City, N. Y. Sec. Treas. Chas. F. Trethar, Stelnway Hall, N. Y. City. Supt. Chas. J. Campbell. Offices Stelnway 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. 4½ m, 4-8½ g, 45-55 lb r, 25 c, 60 h. Pres. Isaaca Buchannan, N. Y. City, Sec. Geo. S. Crawford, Brooklyn, N. Y., Treas. Patrick J. Gleason, Supt. Michael Conway. Offices 112 Front St.

LONG Fig. 25 c, 24 h. Pres. F. E. Pres. T. Pambent. Sec.

Long Island City & Newtown Ry. Co. 4½ m, 4-8½ 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. Offices 112 Front st.

LONGVIEW, TEX.—Longview & Junction St. Ry. 3m, 3-6g, 2c, 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. Falmer, Supt. J. A. Fairchild. City & Central St. Ry. Co. 4½ m, 3-6 & 4-8 g, — lb r, 2g cars, 167 h. Pres. I. W. Hellman, Sec. Fred Harkness, Supt. Wu. Hawks.

Los Angeles & Also Ave. St. R.R. Co. Main St. & Agricultural Park Ry. Co. 8 m, 3-6, g, 16 lb r, 12 c, 49 h. Pres. W. J. Broderick, Sec. Arthur C. Taylor, Treas. The Farmers and Merchants' Bank, Supt. Wm Hawks. Office, 6 Commercial st. g Second St. Cable Ry. Co. 6 c and 6 grip c. Pres. Jesse Garnell, Sec. & Man. Edw. A. Hall, Eng. and Supt. ——Kibble.

Temple. St. Cable Ry. Co. 1½ m, 3-6 g, 16 lb r, 8 c. Pres. P. Beaudry, Sec. F. Woods, Supt. Col. A. H. Wands k

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

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

Crescent Hill Ry. Co. 3 m, 5 g, 52 lb r, 150 c, 750 h, Pres. B Dupont, V. Pres. Thos. J. Minery. Sec. T. C. Donnigan. Office 18 Walnut st.

Crescent Hill Ry. Co. 3 m, 5 g, 52 lb r, 150 c, 750 h, Pres. B Jank. Alexander Henry Davis, Syracuse, n y., V. Pres. St. John Boyle, Sec. & Treas. R. A. Watts, Supt. H. H. Littell.

LOWELL, MASS.—Lowell Horse R.R. Co. 14 m, 5-8 g, 52 lb r, 16 c, 31 h, Pres. Wm. E. Living-ston, Gen. Man. J. A. Chase.

Lowell & Dracut St. Ry. Co.

Lynchbulke City Ry. Co. 60 h. Pres. D. Joyce, V. Pres. & Man. R. N. Rand.

MACON, GA.—Macon & Suburban St. R.R. Co. 14 m, 5-8 g, 20-26 lb r, 6c, 31 h, Pres. & Treas. Step

J. N. Fullenweider, Treas. A. T. Thompson, Sec. H. Thompson.
MEMP4118, TENN,—M mphis City R.R.Co. 18 m, 5 g, 33-40 lb r, 80 c, 320 h. Pres. R. Dudley Frayser, V. Pres. Thos. Barrett, Sec. James Frost, Treas. S. P. Read Jr. Supt. W. F. Shippey. Office 474 Main st.

MERIDIAN, MISS.—Meridian St. Ry. Co. 2 m, 4-8 g, 16 lb T r, 5 c, 17 mu, Pres. Gco.S. Covert, V. Pres. and Sup. J. L. Handley, Treas. J.A. Kelly, Scc. R. M.

Ilouston.

AllCHIGAN CITY, IND.—Citizens' St. Ry.
Co 2 m, 4-8½ g. 30 lb. r. 4 c, 16 h. Pres. Wm. G.
Knight, V-Pres. John Lyons, Sec. Jacob D. Henderon, Treas. Jerry Il. Knight. Office West Washington st., South Bend, 1nd.

ton st., South Bend, Ind.

MIDDLETOWN, CONN.—Middletown Horse
R.R. Co. 2 m, 6c, 36 lb.r, 30 lb. Pres. John M. Donglas,
Sec. & Treas. J. K. Guy, Supt. Joseph Lane. Office

166 Main st.

MIDDLETOWN, O.—Middletown Horse R.R.Co.
Middletown & Madison St. R.R. Co. 2 m, 5 9 g,—r, 4
c, 8 h, Pres. F. Gunchel, Sec. and Treas, E. W. Gun-

e, 8 h, Pres. F. Gunchel, Sec. and Treas, E. W. Gunchel.

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

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

m, 4-8½ g, 27-38 lb r, 74 c, 307 mu. Pres. Winfield
Smith, V. Pres. Christian Preusser, Treas. Ferdinand
Knehn, Sec. Wm. Damkoehler, Gen. Man. D. Atwood,
Supt. H. J. C. Berg. b

Milwaukee City Ry. Co. 30 m, 4-8½ g, 27 lb iron &
4s lb steel r, 81 c, 410 h. Pres. Peter Mcc. eoch, Sec. &
Treas. Geo. O. Wheatcroft. Office 299 West Water st.
West Side St. Ry. Co. Owner & Manager, WashIngton Becker, Supt. — McNaughton.

MINNEAPOLIS, MINN.—Minneapolis St. Ry. Co.
52 m, 3-6 g, 27-35-45 lb r, 185 c, 1050 h and mu. Pres.
Thos. Lowry, V. Pres. C. Morrison, Treas. W. W.
Herrick. Sec. C. G. Goodrich, Supt. D. W. Sharp. 1

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

MOILAWK, N. Y.—Mohawk & Illon R.R. Co.
134 m, 4-8½ g, 30 lb r, 4 c (contract for motive power).
Pres. O.W. Bronson, V. Pres. C. W. Carpenter, Sec. H.
D. Alexander, Treas. R. M. Devendorff, Supt. O. W.
Bronson.

MOLINE, ILL.—Moline Central St. Ry. Co. 24/ m, 4-8/2 g, 30 lb r, 3 c, 10 h. Pres. P. II. Wessel, V. Pres. M. Y. Cady, Sec. W. R. Moore, Treas. C. F.

m, 4-5% g, 50 101, 3, 10 h. Fes. I. h. Wessel, V. Fress. M. Y. Cady, Sec. W. R. Moore, Treas. C. F. Hemenway.

Moline & Rock Island St. Ry. Co. 5 m, 4-8½ g, 20 lb r, 8 c, 40 h, 2 steam motors. Pres. & Treas. Eugene Lewis, Sec. I. M. Buford, Gen. Man. Geo. W. French, Supt. Jas. Cazatt.

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

MONTREAL, CAN.—Montreal City Pass. Co. 21 m, 4-8½ g, —1b r, 76 c, 465 h. Pres. Jesse Joseph, V. Pres. Alex. Murray Sec. & Man. Ed. Lusher, Supt. T. II. Robillard.

MOULTRIEVILLE, S. C.—Middle St. & Sullivan's Landing Ry. 2½ m, 4-8½ g, 20 lb r, 7c 4 h. Pres. B. Callahan, Treas. B. Buckley.

MT. VEINON. N. Y.—Mt. Vernon St. Ry. Co. Mount Vernon & East Chester R. R. Co. 3½ m, —g, —r, 7c, 30 h. Pres. Wm. A. Buuler, V. Pres. Thos. Nichols, Sec. Jas. T. Byrne, Treas. Benj. L. Wetthelmer; office, 261 Broadway, N. Y.

MUSCATINE, IA.—Muscatine Clt. Ry. Co. 3½ n, 3-6 g, 21 lb r, 7c, 34 h. & mu. Pres. Peter Musser, V-Pres. W. Hoffman, Sec, T. R. Fitzgerald, Treas. S. M. Hughes. k.

MUSKEGON, MICH.—Muskegon Ry. Co. 4½ m, 4-6g, 20 lb r. 8c, 17 h, 9 mu. Pres. F. A. Nims. V.

S. M. Hughes. k
MUSKEGON, MICH.—Muskegon Ry. Co. 43 m.
1-6g, 20 lb r, 8 c, 17 h, 9 mu. Pres. F. A. Nims, V.
Pres. Chas. Merriam. Boston, Mass. Sec. Thomas
Munroe, Treas. G. R. Sherman, Supt. Wm. McLaughlin. a

Munroe, Treas. G. R. Sherman, Supt. Wm. McLaughlin. a

NASHUA, N. H.—Nashua St. Ry. Co. 2 m, 3 g, 35
lor, 5c, 22 h. Pres, John A. Spaiding, Clerk, R. D.
Barnes, Supt. Q. A. Woodward. Office, Kinsley st.
NASHVILLE, TENN.—Nashville & Edgefield
R.R. Co. Fatherland Street Railway Co. North Edgefield and Nashville St. R.R. Co., one management.
5 m, 5 g, 16-20-32 lbr, 21 c, 100 mt. Pres. Jno. P. White,
Sec. & Treas. H. B. Stu-blefield, Supt. D. Deaderick.
McGavock & Mt. Vernon Horse R.R. Co. 7½ m. b g,
16-20-23-32 lbr, 25 c, 140 h & mu. Pres. John P White,
V. Pres. B. F. Wilson, Sec. & Treas. H. B. Stubblefield, Supt. Daingerfield Deaderick.
South Nashville St. R. R. Co. 4½ m, 5 g, 16-20-32 lb
r, 10 c, 68 h. Pres. W. M. Duncan, Sec., Treas. & Supt.
C. L. Fuller. Office cor. So. Franklin and Cherry sis. i
NATICK, MASS.—Natlek & Cochituate St. Ry.
3 m, 48½ g, 35 lb r, 7 c, 17 h. Pres. Harrison Harwood, Supt. Geo. F. Keep, Clerk Frank Hayes.
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. Letitla V. Vredenburgh, Supt. & Pur.
Agt. Wm. L. Timberlake. Office cor. Vincennes and
Spring sts.
NEWARK. N. J.—Newark & Eloomfield. St.

Smith.

Smith. f

NEW BRITAIN, CONN.—New Britain Tramway
CO. 3½ m. Pres. Lorin F. Judd. Capital \$25,000. 2

NEW BRUNSWICK, N. J.—New Brunswick
Horse R.R. 4 m, 4-8½ g, 40 lbr, 5 c, 20 h. Pres. F.
M. Delano, Treas. Carroll Sprigg.

NEWBURGH, N. Y.—Newburgh St. Ry. Co.
Pres. Chas. D. Halnes, V.-Pres. Andrew G. Halnes

Sec. & Treas. Geo. W. Stetson, Gen. Man. Elmer T. Haines.

NEWBURYPORT, MASS.—Newburyport & Amesbury Horse R.R. Co. 61-3 m, 12 c, 54 h. Pres. W. A. Johnson, Treas. N. H. Sbepard, Sec. Geo. H. Stevens. Lessee, E. P. Shaw.

Stevens, Lessee, E. P. Shaw.

NEW EDINBURGII, CAN.—Ottawa City Pass.
Ry. Co.

NEW HAVEN, CONN.—Fair Haven & Westville.
R.R. Co. 10 m, 4½ g, 42 & 50 lb r, 28 c, 210 h. Pres.
H. B. Ives, Sec. & Treas. L. Candee, Supt. Walter A.
Graham. Office 736 Chapel st. 2

New Haven & Centreville Horse R.R. Co. 2½ m,
48½ g, 42 lb r, 8 c, 42 h. Trustee Cornelius Plerpont.
Office, 1 Broadway. 2

New Haven & West Haven R.R. Co. (See West Haven)

Office, 1 Broadway. 2
New Haven & West Haven R.R. Co. (See West Haven).
State Street Horse R.R. Co. 2½ m, 48½ g, 43 lb r, 6 c, 40 h. Pres. C. A. Warren, Sec. & Treas. C. C. Blatchley. Office 16 Exchange Bldg. 2
Whitney Ave. Ry. Co. 2½ m, 48½ g, 25 lb r, 3 c, 20 h. Pres. Geo. H. Watrous, Sec. George D. Watrous, Treas. Eli Whitney, Jr., Lessee J. A. Davis. A NEW MARLBORO, O.—Kankapot R.R. Co. NEW ORLEANS, LA.—Canal & Claiborne St. R.R. Co. 13 m, 5-2½ g, 37 lb r, 40 c, 200 h. Pres. E. J. Hart, Sec. & Supt. Jos H. DeGrange. a Crescent City R.R. Co. 26 m, 5-2½ g, 35-45 lb r, 90 c, 400 h. Pres. Frank Roder, Sec. & Treas. Jno. J. Juden, Supt. A. V. Smith.
Orleans R.R. Co. 9½ m, 5-2½ g, 35 lb r, 32 c, 155 h. & mu. Pres. & Supt. H. Larquie, Sec. & Treas. P. Cougot. Office, cor. White & Laharpe Sts. St. Charles St. R.R. Co. 15 m, 5-2½ g, 35 lb r, 61 c, 366m. Pres. & Supt. Alden McLellan, Sec. V. Riviere. Operates 3 lines. Office cor. Carondelet & 88th sts. a New Orleans & Carrollton R.R. Co. 8 m, 4-8½ g, 35-45 lb r, 65 c, 200 h, 19 engines. Pres. Wm. Bentbuysen, Sec. Walter F. Crouch, Supt. C. V. Ilaile. New Orleans City & Lake R.R. Co. 60 m, 5-2½ g, 61 lb r. Pres. J. A. Walker, Sec. W. E. Leverich, Supt. F. Wintz. Office, 102 Canal st. 2
NEW PORT. KY.—Newport St. R.R. Co. (See New Roads.) a NEW YORK, N.Y.—Ninth Ave. R.R. Co. 16 m, 200 k, 200 k, 19 c por W. W. H. Ays. Sec. & NEW YORK, N.Y.—Ninth Ave. R.R. Co. 16 m, 200 k, 200 k, 19 c por W. W. H. Ays. Sec. & NEW YORK, N.Y.—Ninth Ave. R.R. Co. 16 m, 200 k, 200 k,

NEWPORT. KY.—Newport St. R.R. Co.
NEW ROCHELLE, N. Y.
NEWTON, MASS.—Newton St. R. R. Co. (See
New Roads.)

a NEW YORK, N.Y.—Minth Ave. R.R. Co. 16 m,
4-8½ g, 60 lb r, 52 c, 530 h. Pres. W. H. Hays, Sec. &
Treas. James Affieck, Supt. Heman B. Wilson. Offices, Ninth Ave., cor. 54th St.
Broadway & Seventh Ave. R.R. Co. 16 m, 4-8½ g,
47-60 lb r, 227 c, 2240 h. Pres. Henry Thompson, Sec.
& Treas. Thos. F. Ryan, Supt. Henry A. Newell.
Office 761 Seventh ave.
f Central Crosstown R.R. Co. 5-22m, 4-8½ g, 52 lb r,
45c, 241 h. Pres. Geo. S. Hart, V. Pres. A. Cammack,
Sec. & Treas. Milton I. Masson, Office 365 Ave. A.
Central Park, North & East River R.R. Co. 19 m,
4-5½ g, 60 lb r, 162 c, 1,225 h. Pres. J. H. Scrbiner,
V. Pres. C. D. Wyman, Sec. H. Scrliber, Treas. J. L.
Valentine, Supt. M. W. A. Harris. Office, Tenth
Ave., 53d. & 54th. st.
Chambers St. & Grand St. Ferry R. R. Pres. H.
Thompson.
Christopher & Tenth St. R.R. Co. 5 m, 4-8 g, 45 lb
r, 47 c, 290 b. Pres. Jacob Sharp, Treas. W. T. Hatch,
Sec. & Supt. G. W. Lynch. Office, 168 Christopher st.
Dry Dock, East Broadway & Battery R.R. Co. 18½
m, 4-8½ g, 60 lb r, 185 c, 1102 h. Pres. William White,
Auditor E. T. Landon, Sec. & Treas. Richard Kelly,
Supt. Fred F. White. Offices, 605 Grand st. a
Eighth Ave. R.R. Co. 20 m, 4-8½ g, 60 lb r, 112 c,
1155 h. Pres. W. H. Hays, Sec. & Treas. James Affleck,
Supt. H. B. Wilson. Office, Eighth Ave. & 560th st.
Forty-second Street & Grand Street Ferry R.R. Co.
10½ m, 8-4 g, 64 lb r, 50 c, 500 h. Pres. Chas. Curtis,
Sec. & Treas. E. S. Allen, Supt. John M. Calboun.
Office, 653 W. 42d st.
Forty-second Street & Grand Street Ferry R.R. Co.
10½ m, 8-4 g, 64 lb r, 50 c, 500 h. Pres. Chas. Curtis,
Sec. & Treas. E. S. Allen, Supt. John M. Calboun.
Office, 653 W. 42d st.
Forty-second Street & Grand Street Ferry R.R. Co.
10½ m, 8-4 g, 64 lb r, 50 c, 500 h. Pres. Chas.
Curtis, Sec. & Treas. Daniel B. Hasbrouck. Of102-3 m, 8-4 g, 60 lb r, 50 c, 450 h. Pres. Henry
Thompson, Sec. & Treas. Daniel B. Hasbrouck. Of102-3 m, 8-8 g, 60 lb r, 65 c

St. Nicholas & Closses.

Roads.)
The Second Ave. R.R. Co. 28 m, 48% g, 60 lb r, 316
9cars, 1750 h. Pres. W. Thorn, V Pres. J. Wadsworth,
Sec. & Treas. J. B. Underhill. Office Second Ave. cor.

Sec. & Treas. J. B. Underhill. Office Second Ave. cor. 96th st.
The Third Ave. R. R. Co. 28% m, 4-8% g, 60 lb r, 360 c, 2100 h. Pres. Lewis Lyon, 739 Madison ave., Sec. Alfred "Lazarus, 436 W. 61st st., Treas, John Beaver, 211 E. 112th st., Supt. John H. Robertson, 307 E. 65th st. k

Twenty-third St. R.R. Co.14 m, 4 8½ g, 54 lbr, 102 c, 692 b. Pres. Jacob Sharp, Sec. Thos. H. McLean, Treas. Lewis May, Act-Supt. George Ferry. Office 621 West 23d st.

Treas. Lewis May, Act-Supt. George Ferry. Office 621 West 23d St.

NIAGARA FALLS, N. Y.—Nlagara Falls & Suspension Bridge Ry. Co. 3½ m. 4-8½ g, 38-42 lb r, 10 c, 40 h. Pres. Benj. Flagler, Sec. W. J. Mackay, Man. & Treas. A. Schoellkopt. j

NORFOLK, VA.—Norfolk City R. R. Co. 3½ m 5-2 g, 43 lb r, 20 c, 67 h. Pres. John B. Whitehead

Sec. & Treas. H. C. Whitehead, Supt. E. W. Savage. b. NORTH ADAMS, MASS.—Hoosac Valley St. Ry. Co. 6 m, 4-8½g, 40 lb. r, 10 c, 29 h, 2 steam motors. Pres. Wm. B. Baldwin, V-Pres. W. Cronkhite. Sec. & Treas. S. Proctor Thayer, Manager G. W. Lincoln. 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.

Clark.

NORWALK, CONN.—Norwalk Horse Ry. *Co. 13/4 m, 4-10 g, 42/1b r, 7c, 19 h. Pres. & Supt. James W. Hyatt, Sec. Edwin G. Hoyt. j.

NORWICH, CONN.—Norwich Horse R.R. Co. OAKLAND, CAL.—Alameda, Oakland & Pledmont R.R.

Berkley Villa R.R.

Broadway & Pledmont St. R.R. Co.

Brooklyn & Fruit Vale R. R. 2½ m, 5 c, 18 b. Pres. E. C. Sessions, Sec. W. W. Gill. 2

Fourteenth St. R.R. Co. 8 m. 5 g, 23-40 lb r, 10 c, 46 h. Pres. & Supt. Walter Blair, Sec. P. J. Van Lobez, Office, 524 14th St. 1

Oakland R.R. Co. Oakland, Brooklyn & FruitvaleR. R. Co. (See East Oakland.)

Oakland R.R. Co.
Oakland, Brooklyn & Fruitvaler. R. Co. (See East Oakland.)
OGDEN CITY, UTAH.—Ogden City Ry. Co. 3m, 48½ g, 20 lb r, 4 c, 21 h. Pres. L. W. Shurtle, Ogden City, V. P. & Supt. O. P. Arnold, Salt Lake City, Sec. & Treas. H. S. Young, Ogden City.
OGDENSBURG, N. Y.—Ogdensburg St. Ry. Co. 5m. 4-8½ g, 25 lb r, 6c, 18 h. Pres. W. H. Danlels, Treas. W. A. Egert, Sec. W. H. Danlels.
OLEAN, N. Y.—Olean St. Ry. Co. 1½ m, 3-6 g, 52 lb r, 3 c, 7 h. Pres. & Supt. M. B. Fobes, Sec. & Treas. M. W. Barse, Asst. Sec. John Fobes. Office, Union st. i OMAHA, NEB.—Omaba Horse Ry. Co. 18 m, 4-8½ g, 30, 35 & 40 lb r, 40 c, 350 h. Pres. Frank Murphy, V. Pres. Guy C. Barton, Sec. J. E. Wilber, Treas. W. W. Marsh, Supt. W. A. Smlth. Office 1504 Farmam st. e Cable Ry. Co. of Omaha. 1 m, 4-8½ g, 58½ lb r. Pres. S. R. Jobnson, V. Pres. L. B. Williams, Sec. & Treas. C. E. Yost, Cbf. Eng. Robt. Gillham. Office, 103 So. 13th st. (see new roads.) a ONEIDA VILLAGE, N. Y.—Oneida Ry. Co. 2 m, 4-8½ g, 47 lb r, 3 c, 6 h. Pres. Jerome Hickox, OSHKOSH, WIS.—Oshkosh St. R. Co. 3½ m, 4-8½ g, 27 lb r, 9 c, 24 h. Pres. Leander Choade, V. Pres. F. Zentner, Sec. & Treas. J. Y. Hull, Sup. F. L. Thompson.
OSWEGO, N.Y.—Oswego St. Ry. Co. 2½ m, 4-8½

48% g, 27 lb r, 9 c, 24 h. Pres. Leander Choate, V. Pres. F. Zentner, Sec. & Treas. J. Y. Hull, Sup. F. L. Thompson.

OSWEGO, N.Y.—Oswego St. Ry. Co. 2½ m, 4-8½ g, 45 lb r, 3 c, 23 h. Pres. Jas. F. Johnson, V. Pres. R. J. Olipbant, Sec. Haynes L. Hart, Treas. Robt. G. Post, Gen. Man. James O'Connor.

OTTAWA, ONT.—Ottawa City Passenger Ry.Co. 5 m, 4-8½ g, 30 lb r, 9 c, 40 h. Pres. Thomas C. Keefer, V. Pres. R. Blackburn, Sec. James D. Fraser. h. Ottawa St. Ry. Co.

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 Tr, 1 c 4 h. Owner, L. E. Gray.

PALATKA, FLA.—Palatka St. Ry. Co.

PAKIS, TEX.—Parls Ry. Co. 2½ m, 4-8½ g, 22 lb. Tr, 3 pass. 4 tc, 11 mu. Pres. D. F. Latimer, Sec. Supt. C. G. Caviness, Treas. W. D. Latimer. a

PATERSON, N. J.—Paterson & Passaic R.R. Co. 7 m, 4-10 g, 33 lb r, 16 c, 28 h. Pres. Jobn N. Terhune, Treas. John J. Brown, Sec. E. S. Brown, Supt. M. O'Rourke, Asst. Supt. A. T. King. 2

Paterson City Ry. Co. 8½ m, 4-8½ g, 35 lb r, 10 c, 40 b. Pres. Garrett Planten, Treas. H. Romaine, Sec. Albert A. Wilcox, Supt. M. Pettigrew. 4

PAWTUCK ET, R. I.—Pawtucket St. Ry. Co. 8 m, 54 lb r, 4 g, 24 c, 100 h. Pres. A. B. Chace, V-Pres. Gen'l Man. D. F. Longstreet, Treas. E. N. Littlefield. Office Broad st.

PEORIA, LLL.—Central City Horse Ry. Co. 10

PENSACOLA, FLA.-Pensacola St. Ry. Co.

field. Office Broad St.

PENSACOLA, FLA.—Pensacola St. Ry. Co.

PEORIA, ILL.—Central City Horse Ry. Co. 10

m, 4-8½ g, 40 & 60 lbr, 40 c, 90 h. Pres. & Gen. Man.

H. R. Woodward, isc. & Treas. E. Callender, Supt.

John Strong. Office 2011 N. Adams st. j

Central Horse & Cable R. R. Co. 3 m, 4-8½ g, 30 &
40 lbr, 9 c, 22 h. Pres. & Gen. Man. H. R. Woodward,
Sec. Jos. Elder, Treas. E. Callender, Supt. John

Strong. Office, 2011 N. Adams st.

East Bluff Peoria Horse R. R. Co. 1 m, 4-8½ g, 30

10 steel r, 9 c, 32 mu. Pres. & Gen. Man. H. R. Woodward,
Sec. & Treas. E. Callender, Supt. John Strong.

Office, 2011 N. Adams st.

Fort Clark Horse Ry. Co.—m,—g,—lb r,—c,—h.—

Pres. J. H. Hall.

Peoria Horse Ry. Co. 6 m, 4-8½ g, 40-60 lb r, 14 c
50 b. & mu. Pres. & Gen. Man. H. R. Woodward,
Sec. & Treas. E. Callender, Supt. John Strong.

PETERSBURGH, VA.—Petersburgh St. Ry. Co.

3¼ m, 4-8½ g, 42 lb r, 9 c, 44 h. George Beadle, Prop.

PHILADELPHIA, PA.—Cttzens Pass. Ry. Co.
Clow m, 5-2 g, 45 at lb r, 92 c, 420 h. Pres. John McCarthy, Sec. & Treas. J. J. Adams, Sup. Sam'l Cline,
Office, n w cor. 12tb and Susquehanna ave. Capital,
\$192,500.

Empire Pass. Ry. Co. 8½ m, 5-2 g, 45 lb r, 32 c, 250
h, Pres. James McManes, Sec. and Treas. John 1.

Office, I w cor. Izoband Susquenama ave. Capital, \$192,500.

Empire Pass. Ry. Co. 8½ m, 5-2 g, 45 lb r, 32 c, 250 h, Pres. James McManes, Sec. and Treas. John I. Adams. Office, I w cor. 12tb st. and Susquehanna av. Frankford & Southwark Phila, City Pass. R.R. Co. 18 m, 5-2 g, 47 lb r, 102 c, 8 dummy c, 618 h. Pres. Henry Geiger, Sec. & Treas. Geo. S. Gandy, Supt. W. H. Janney. Capital, \$750,000.

Germantown Pass. Ry. Co. 29½ m, 5-2½ g, 47 lb r, Cars and horses, leased. Pres. Craig D. Ritchle, Treas. Lewis S. Renshaw. Sec. R. H. Parks. Office, I w cor. 10th and Chestnut sts. Green & Coates R. R. Co. (Leased to People's Pass. Ry. Co.) Pres. Moses A. Dropsie, Sec. & Treas. Lewis S. Renshaw. Office N. W. cor. 10th. and Chestnut sts.

Sts. Hestonville, Mantua & Fairmount Pass. R.R. Co. 20 m, 5-2 g, 43 lb r, 50 c, 480 h. Pres. Charles F. Lafferty, Sec. & Treas. W. C. Foster. Office, 4,300 Lancas-

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, 278 h. Pres. John B. Parsons, Sec. & Treas.

Francis Hazelburst, Supt. Jno. M. Gaughen. Office, 2,509 South St.
People's Pass. Ry. Co. 44 m,5-2g, 47 lb r, 125 c, 1,080 h. Pres. John B Parsons, Sec. & Treas. Jno. C. Dessalet, Supt. Wm. Hagenswiler.
Philadelphia City Pass. Ry. Co. 7 m, 5-2½ g, 47 & 78 lb r, 132 c, 708 h. Pres. Wm. W. Colket, Sec. & Treas. T. W. Pennypacker. (Leased to W. Phila. Pass. Ry. Co.) b
Philadelphia Traction Co. 109 m, 5-2½ g, 47 lb r, 594 c, 2608 h. Pres. W. H. Kemble, V. Pres. P. A. B. Widener & W. L. Elkins, Sec. & Treas. D. W. Dickson. Office, n w cor. 41st and Haverford sts. 6
Philadelphia & Darby Ry. Co. 6½ m, 5-2½ g, 42 lb r, road leased. Pres. C. L. Borie, Sec. and Treas. Wm. W. Colket. Office, 202 Walnut pl. Leased to Phila. Clty Pass. Ry. Co.
Philadelphia & Gray's Ferry Pass. R.R. Co. 10 1-3 m, 40 c, 200 h. Pres. Matthew Brooks, Treas. J. C. Dawes. Sec. J. Crawford Dawes, Supt. Patrick Lovett. Office, 36th st. and Gray's Ferry Rd.
Ridge Avenue Ry. Co. 15 m, 5-1 g, 47 lb r, 63 c, 350 h. Pres. E. B. Edwards, Sec. & Treas. Wm. S. Blight, Supt. Wm. Myers a 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. Heased to Philada. Traction Co.]
Thirteenth & Fitteenth 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. Peddle. Heased to Philada. Traction Co.]
West Philadelphia Pass. Ry. Co. 18½ m, 5-2½ g, 47 lb r, 122 c, 112 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. Thos. S. Harris, Supt. Wm. B. Cooper. Union Pass. Ry. Co. 70 m, 348 c, 1,724 h. Pres. Thos. S. Harris, Supt. Ry. Co. 18½ m, 5-2½ g, 47 lb r, 40 c, 71 lb r, 122 c, 112 h. Pres. Peter A. B. Widener, Sec. & Treas. D. W. Dickson, Sup

Treas. James Boyle, Supt. Wm. J. Crozler, Allegheny City.
Pittsburgh, Allegheny & Manchester Pass. Ry. Co. 5 m. 5-2½ g, 46 lb r, 40 c. 275 b. Pres. Chas. Atwell, Sec. & Treas. Chas. Selbert, Supt. James C. Cotton. Manager J. P. Speer.
Pittsburgh, Oakland & East Liberty Pass. Ry. Co. 11 m, 5-4½ 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 & Birmingbam Pass. R.R. Co. 3½ m, 5-Pittsburgh & Birmingbam Pass. R.R. Co. 3½ m, 5-

Cotton, Sec. & Treas. Chas. Selbert, Cash. Saml. C. Hunter.
Pittsburgh & Birmingbam Pass. R.R. Co. 3½ m, 5-2½ g, 45-47 lb r, 20 c, 177 b. Pres. W. W. Patrick, Sec. C. B. Agnew, Treas. Jobn G. Holmes. & Pittsburgh & West End Pass. Ry. Co. 3½ m, 5-2 g. 35 lb r, 13 c, 75 h. Pres. Jobn C. Reilly, Scc. & Treas. Thomas S. Bigelow, Supt. William J. Burns.
Pittsburgh & Wilkinsburg St. Ry. Co. Second Avenue Pass. Ry. Co. 5 m, 5-2 g, 47 lb r, 8c, 40 h. Pres. Geo. Fawcett, Sec. Jas. F. Fawcett, Treas W. J. Fawcett. Office, 2d ave. a South Side Pass. R.R. Co. 2½ m, 5-2½ g, 45 lb r, 12 c, 80 b. Pres. D. Z. Brickell, Sec. & Treas. W. T. Wallace, Supt. W. M. Rosborough.
Transverse Pass. Ry. Co. 6½ m, 5-2 g, 52 lb r, 39 c, 243 h. Pres. C. L. Magee, V. Pres. C. F. Klopfer, Sec. & Treas. Win. R. Ford, Supt. Miller Elliot.
Wilkinsburg & East Liberty Ry. Co. (See new roads.)

& Treas. Wia. R. Ford, Supt. Miller Elliot.

Wilkinsburg & East Liberty Ry. Co. (See new roads.)

PITTSTON, PA.—Pittston St. R.R. Co. 1½ m, 3c, 5 h. Pres. Thomas Griffith, Treas. M. W. Morris, Sec. William Allen.

PLYMOUTH, MASS.—Plymouth & Kingston St. R. R. Co. (See new roads.)

PORT HURON, MICH.—Port Huron St. Ry. Co. 6½ m, 4-8½ g, 7 c, 2½ h. Pres. Jno. P. Sanborn, V. Pres. Frank A. Beard, Sec. Treas. & Man. J. R. Wastell.

Port Huron Electric St. Ry. Co. 4 m, 4 c. PORTI.AND, ME.—Ocean St. R.R. Co.

Portland R.R. Co. 7½ m, 4-8½ g, 30-33-45 lb r, 34 c, 154 h. Pres. H. J. Libby, Treas. & Gen. Man. E. A. Newman, Supt. Geo. W. Soule.

PORTIAND, ORE.—Portland St. Ry. Co. 2 m, 3-6 g, 25-42lb r, 11 c, 40 h. Pres. D. P. Thompson, Sec & Supt. C. K. Harbaugh.

Multnomah St. Ry. Co. 2½ m, 3-6 g, 30 lb r, 19 c, 65 b. Pres. A. N. King, Sec. E. A. King.

Transcontinental St. Ry. Co. 7 m, 3-6 g, 38 lbr, 15 c, 65 h. Prest. Walter F. Burrell, D. W. Wakefield, Sec. Tyler Woodward, Supt.

PORTISMOUTH, 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'SR, Co. 9½ m, 16c, 56h.

POUGHKEEPSIE, N. Y.—City R. R. Co. 4 m, 4-8½ g, 35-42 lb r, 11 c, 39 h. Pres. Geo. B. Adriance V. Pres. & Treas. Hudson Taylor, Sec. A. B. Smith, Supt. C. M. Davis. Office 491 Main st. f. PROVIDENCE, R. I.—Union R.R. Co. 53 m, 4-8½ g, 47-54 lb r, 230 c, 1,300 b. Pres. Jesse Metcaif, V. Pres. & Gen. Man. D. F. Longstreet, Sec. and Treas. C. A. Babcock.

QUEBEC, CAN.—Quebec St. Ry. Co. 3 m, 4-8½ g, 45-16 r, 90 c, 46 h. Pres. Chas. St. Michel, Quebec, V. Pres. G. R. Renfrew, Quebec, Sec., Treas. & Supt. Samuel Moore.

St. John St. Ry. Co. Lim, 1½ m, 4-8½ g, 35 lb r, 4 c, 23 h. Runs 4 'buses out 4 m. from city limits.

Pres. Jos. W. Henry, V. Pres. A. Robertson, Sec. & Man. W. W. Martin.

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

RACINE, WIS.—Belle Cly St. Ry. Co. 4 m, 4 g, 30 lhr, 9 c, 40 h. Pres. John T. Fish, Sec. & Treas. J. C. Dodge, Gen. Man. Geo. B. Hathaway. Office, 716 Park ave.

RALEIGH. N. C.—Raleigh St. Ry. Co. 7½ m, 48½ g, 16 T Steelr, 6 c, 36 mu. Pres. Geo. M. Snodgrass, Sec. & Supt. J. F. Scott, Treas. R. T. Gray, Atty. F. H. Busbee. Capital stock, \$25,000.

RAPID CITY. DAK.—Rapid City St. Ry. Co. ½ m, 4 g, lbr, 2 c, 4 h. Pres. Fred. T. Evans, Sec. & Treas. G. Schnasse.

READING, PA.—Reading City Pass. Ry. Co. 21-5 m, 5-2½ g, 46 lbr, 19 c, 44 h. Pres. B. F. Owen, V. Pres. Jas. L. Douglass, Sec. & Treas. H. A. Muhlenberg, Supt. J. A. Riggs.

Perklomen Ave. Pass. Co. 21-5 m, 5-2½ g, 46 lbr, 13 c, 44 h. Pres. Chas. Brenelser, Sec. & Treas. Isaac Hiester, Supt. John B. Houp.

RED OAK, IA.—Red Oak St. R. R. Co. 1½ m, 4-2½ g, flat T, 2c, 21, 2 mu. Pres. J.W. Judkins, V. Pres. G. West, Sec. F. M. Byriket, Treas. & Supt. F. O. Judkins. RICHIMOND, IND.—Richmond City Ry. Co. 3 m, 8 g, 9 lbr, 10 c, 30 h. Pres. J. C. Shaffer, V. Pres. Jos. RICHMOND, ILL.—Richmond City Ry. Co. 7½ m. 48½ g, 30-40 lbr, 42 c, 185 h. Pres. J. L. Schooleraft, Treas. Walter Kidd, Man. C. M. Bolton, Supt. Charles Selden.

Richmond & Manchester Ry. Co. 3½ m, 4-8½ g, 38 lbr, 5 c, 26 h. Pres. J. E. Taylor, V. Pres. J. Bryan.

RICHMOND, VA.—Richmond City Ry. Co. 7½ m. 4 8½ g. 30-40 lb r. 42 c. 185 h. Pres. J. L. Schooleraft, Treas. Walter Kidd, Man. C. M. Bolton, Supt. Charles Selden. a. Richmond & Manchester Ry. Co. 3½ m., 4-8½ g. 38 lb r. 5 c. 26 h. Pres. J. E. Taylor, V. Pres. J. Bryan, Sec. & Treas. Jackson Brandt, Supt. B. R. Selden. a. Richmond Union Pass. Ry. Co. (See new roads.) ROCHESTER, N. Y.—Rochester City & Brighton R.R. Co. 37 m. 4-8½ 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. Plerpont, Supt. Sh. A. Green.

ROCKFORD, ILL.—Rockford St. Ry. Co. 62-5 m. 4-8½ g. 30 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. 5½ m. 4-8½ g. 20-30-42 lb r. 8 pass c. 6 ft. c. 7 h. 2 motors. Pres. & Supt. Bally Davenport, Sec. E. H. Hurst, Treas. J. F. Robinson. 2

RONDOUT, N. Y.—Kingston City R. R. Co. 3 m. 4-8½ g. 40 lb r. 10 c. 40 h. Pres. James G. Lindsley, V. Pres. S. D. Coykendoll, Sec. & Treas. John C. Romeyee, Supt. Wm. II. DeGarmo.

RUTLAND, VT.—Rutland St. Ry. Co. 8 m., 4-8½ g. 30 lb r., 8 c., 30 h. Pres. M. Quin, Sec. John N. Woodfin, Treas. A. H. Tuttle, Supt. M. McKeogh. Office, 7½ Center st. g. SACRAMENTO. CAL.—Sacramento City Ry. Co. 12 l-horse and 10 2-norse c. Prop. R. S. Carey, Supt. Geo. W. Carey.

SAGINAW, MICH.—City of Saginaw St. R. R. Co. 2½ m., 4-8½ g., 42 lb r., 10 c., 50 h. Pres. David H. Jerome, V. Pres. Geo. F. Williams, Sec. & Treas. Geo. L. Burrows, Supt. Fred G. Benjamin.

SALEM, MASS.—Salem & Danvers St. Ry. Co. 12 m., 4-8½ g., 35-45 lb r., 24 c., 117 h. Pres. Benj. W. Russell, Sec. & Treas. Geo. L. Burrows, Supt. Fred G. Benjamin.

SALEM, MASS.—Salem & Danvers St. Ry. Co. 12 m., 4-8½ g., 35-45 lb r., 24 c., 117 h. Pres. Benj. W. Russell, Sec. & Treas. Go. L. Vickery, Asst. Supt. David N. Cooke.

Naumkeag St. Ry. Co. — m., 4-8½ g., 30-35-45

c, 140 h. Pres. Chas. Odell, Clerk Joseph F. Hickey, Treas. Henry Wheatland, Supt. Willard B. Ferguson. SALINA, N. Y.—Woodlawn and Butternut St. Ry.Co.

SALINA, N. Y.—Woodlawn and Butternut St. Ry.Co.

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SALT LAKE CITY, UTAH.—Salt Lake City R.R Co. 13 m, 48½ g, 20 lh r, 16 c, 106 mu. Pres. John Taylor, Sec. David McKenzie, Treas. James Jack, Supt. Orson P. Arnold. d

SAN ANTONIO, TEX.—San Antonio St. Ry. Co.

16 m, 4 g, 38 lb r, 41 c, 145 mu. Pres. A. Belknap, San Antonio, V. Pres. F. W. Pickard, N. Y. City, Treas. J. Withers, San Antonio, Sec. E. R. Norton, Supt John Robb. 2

Prospect Illi St. Ry. Co.

SANDUSKY, O.—Sandusky St. Ry. Co. 4 m, 4-8½ g, 32 lb r, 7 c, 28 h. Pres. Chas. V. Olds, Sec. & Treas. A. C. Moss, Supt. Clark Rude. a

SAN FRANCISCO, CAL.—California Street Cable R. R. Co. 7 m, 3-6 g, 27 c, 25 dummles, 4 h. Pres. Chas. Mayne, V. Pres. Robt. Watt, Sec. T. W. Hinchman, Treas. A. Borel, Supt. J. W. Harris. Office, 1435 California st. f

Central R. R. Co. 12 m, 5 g, 45 lb r, 31 c, 290 h, Pres. Chas. Main, V. Pres. S. C. Blgelow, Treas. A. J. Gunnlson, Sec. C. V. LeBreton, Supt. J. F. Clark. Clay St. Hill R. R. Co. 2 m. 3-6 g, 30 lb r, 11 c, 12 dummy cars. Pres. Joseph Britton, V. Pres. Chas. Mayne, Press. Joseph Britton, V. Pres. Chas. Mayne, Treas. Henry L. Davis, Sec. Chas. P. Campbell. Office, sw cor. Clay & Leavenworth sts. h

Geary St. Park & Ocean R.R. Co. 9½ m, (5¼ m cable, 4½ m steam) 5 g, 45 lb r, 39 c. Pres. Daniel Meyer, V Pres. R. F. Morrow, Treas. S. C. Bigelow, Supt. Johnson Reynolds, Sec. John N. Syme.

Market St. Cable Ry. Co. 12¼ m, 4-8½ g, 37-38 lb r. 182 c, 2 motors, 82 h. Pres. Leland Stanford, V Pres. Chas. F. Crocker, Treas. N. T. Smith, Sec. J. L. Willcutt, Supt. H. D. Morton. Office, Fourth and Townsend streets.

North Beach & Mission R. R. Co. 16 m, 5 g, 41b r, 60 c, 390 h. Pres. Gustav Surro, V. Pres. Albert Meyer, Sec. H. W. Hathorne, Treas. N. T. Smith, Sec. J. L. Willcutt, Supt. H. D. Morton.

Omnibus R. R. & Cable Co. 18 m,

Potrero & Bay View R.R. Co. 1½ m, 5 g, 35 lb r, 10 c, 43 h. Pres. Leland Stanford, V. Pres. Chas.

Crocker, Treas. N. T. Smith, Sec. J. L. Willcutt, Supt. II. O. Rogers.
Powell & Jackson St. R. R. Co. (see new roads.)
Sutter St. R.R. Co. 5½ m, 4-11 g, 35-45 lb r, 40 c, 180 h. Pres. R. F. Morrow, Soc. A. K. Stevens, Treas. M. Schmitt, Supt. James McCord.
Telegraph Hill R.R. Co. 1,560 ft, 4-8½ g, 45 lb r, 2 c, —h. Pres. Gustave Sutro, V. Pres. C. Kohler. Soc. & Supt. Class. J. Werner. Suspended operations. Cable taken up and stored away.
The City R.R. Co. 11 m, 5 g, 45 lb r, 72 c, 280 h. Pres. R. B. Woodward, V. Pres. Geo. E. Raum, Soc. M. E. Wills, Treas. Jas. II. Goodman, Supt. William Woodward, Master Car Builder, Frank O. Landgram. SAN.1045, 24. Sal. 10 ld. Landgram. SAN.1045, C. C. 5½ m, 4-8 and 3 g wide g, 40 lb r, narrow g, 20 lb r, 25 c, 75 h. Pres. S. A. Bishop, V. Pres. W. S. McMutry, Treas. Jacob Rich, Sec. E. M. Rosenthal. Mine. Fitts. Oilice, 20 W. Santa Clara st. First St. R. R. & Willow Glen R. R. 4½ in, 3 g, 20 lb. s. r, 6 c, 30 h. Jacob Rich, Sec. E. M. Rosenthal. Oilice, 20 Santa Clara st.
First St. & San Pedro St. Depot R.R. Co. North Side Horse R.R. Co. 2½ m, 3 g, 16 lb r, 3 c, 10 h. Pres. & Man, Jacob Rich, Sec. E. M. Rosenthal. Treas. S. A. Bishop.
Willow Glen R.R. 7½ m, 3 g, 20 lb r, 8 c, 30 h. Sole owner Jacob Rich, Sec. E. M. Rosenthal. Santa Barbara St. R.R. Co. 1 m, 3-6 g, 3 c, 8 mu. Pres. A. W. McPhall. SANTA BARBARA, CAL.—Santa Barbara St. R.R. Co. 1 m, 3-6 g, 3 c, 8 mu. Pres. A. W. McPhall. SANNA, CAN.—Sarnia St. Ry. Co. 5m, 4-8 g, 22 lb r, 2 c, 9 h. Pres. J. F. Lester, Sec. & Treas. Thos. Swinington, Supt. Henry W. Mills: Office, Canadian llo k. c.
SANTA BARBARA, CAL.—Santa Barbara St. R.R. Co. 1 m, 3-6 g, 3 c, 8 mu. Pres. A. W. McPhall. SANNANAII, GA.—City & Suburban Ry. Co. 18½ m, 45 g, 52-40 lb r, 3 c, 9 h. Pres. J. F. Lester, Sec. & Treas. Thos. Swinington, Supt. Henry W. Mills: Office, Canadian llo k. c.
SANTA BARBARA, CR. Co. 7 m, 5 g, 30 lb r, 17 c, 37 h. Pres. Geo. Parsons, New York, Sec., Treas. & Gen. Man. Charles D. Huller, Sec. Chreas. Sec. Ren. Sec. Co. 1 m, 5 g, 30

hearrer.

SOUTH PUEBLO, COL.—Pueblo St. R.R. Co.
SPRINGFIELD, HLL.—Chilzens' St. R. R. Co.
½ m, 3 6 g, 20-36 lb r, 20 c, 100 h. Pres. J. H. Schrick,
reas. Frank Relsch, Sec. Chas. F. Harman.
Springfield City Ry. Co. 7 m, 4-8½ g, 90 mu. & h.
res. A. L. Ide, Treas. Wm. Ridgely, Sec. Geo. Brinkchoof

Springheid City Ry. Co. 7 m, 4-8½ g, 30 mt. a. m. Press. A. L. Ide, Treas, Wm. Ridgely, Sec. Geo. Brinkerhoof.

SPRINGFIELD, MASS.—Springfield St. Ry. Co. 9½ m, 4-8½ g, 35 lb r, 39 c, 158 h. Pres. John Olmsted, Auditor I. E. Ladd, Clerk Gideon Wells, Treas. A. E. Smith, Supt. F. E. King. Office, 1 Main st. a

SPRINGFIELD, MO.—Citizens' Ry Co. of Springfield and No Springfield, 5½ m, 5-8½ and 4-10 g, 30, 33 and 40 lb r, 16 c, 70 h & mu. Pres R C Kerens, V Pres B F Hobart, Sec and Treas A M Longwell, Supt. F B Smith, Ex-Com L II Murray, H F Denton. C B McAfee.

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

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

ST. CATHARINE'S, ONT.—St. Catharine's, Merrition & Thorold St. Ry. Co. 5½ m, 4-8½ g, 30 lb r, 8 c, 33 h. Pres. E. A. Smyth, Sec. A. P. Friesman, Supt. E. A. Smyth.

ST. JOHN. N. B.—St. John St. Ry. Co. 7 m, 4-8½ g, 45-60 lb r, 15 c, 65 h. Pres. John R. Bothwell, Nose York, and St. John, N. B.

ST. JOSEPH, MO.—Citizens' St. R.R. Co. 3 m, 4-8½ g, 28 lh r 14 c, 56 mu. Pres. Richard E. Turner, Sec. & Treas., Arthur Kirkpatrick, Supt. John F. Merriam.

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Frederick Ave. Ry. Co. 1½ m. 3 g. 16 lb r. 6 c. 16 h. Pres. Thos E. Tootle, V. Pres. Winslow Judson, Sec. W.D.B. Motter, Treas, Thos W. Evins, Sup. S. Rowen. St. Joseph & Lake St. R.R. Co. Union Ry. Co. — m. — g. 20, 30 and 52 lb r. 27 c. 110 h. Pres. Seymour Jenkins, Sec & Treas S Steinacker, Supt Harvey E Lewis. Office, cor Highland and St. Joseph Avenues.

ST. LOUIS, MO.—Baden & St. Louis R.R. Co. 3½ m, 4-10 g, — lb r, 7 c, 21 h. Pres. George S. Case, V. Pres. William Z. Colcman, Supt. J. II. Archer. Benton Bellefontalne ky. Co. 8m, 4-10 g, 52 lb r, 30 c, 230 h. Pres. Chas. Parsons, V. Pres., Sec., Treas. & Supt. Robert McCulloch. Office, 4238 N. 20th St. d. Cass Avenue & Fair Grounds Ry. Co. 8½ m, 4-9½ g, 69 lb r, 34c, 278 h. Pres. Jolus S. Walsh, V. Pres. Jos. Campbell, Sec. Edw. Walsh, Jr., Supt. M. J. Moran. Office, 2900 Cass ave. c. Cttzen'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. 5½ m, 4-10g, 44 lb r, 20 c, 190 h. Pres. C. H. Turner, Sec. II. B. Davls, Man. P. C. Maffit. 2 Jefferson Ave. Ry. Co. Pres. John M. Gelkeson, Gen. Man. John Scullin, Sec. C. K. Dickson. Lindell Ry. Co. 13½ m, 4-10 g, 45 lb r, 75 c, 407 h. Pres. John H. Maxon, Sec. & Treas. Geo. W. Baumhoff, Office, 2207 Washington ave. c. Northern Central, Missouri R.R. Co. —n. —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 Manoney, 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. 1 m, 4-10 g, 38-44 lb r, 56 c, 375 h. Pres. C. Peper, Sec. & Treas. R. B. Jennings, Supt. Chas. Isoher. Sci. John Manoney, Supt. Patrick Shea.

Union Pepot R.R. Co. —m. —g.—lb r, —c, —h. Pres. John Scullin, V. Pres. F. M. Colburn, Sec. & Treas. E. F. Claypool, Man. Geo. F. Branham. Tower Grove & Lafayette Ry. Pres. Chas. Green, Sec. Jo

Supt. Peter Van Veghten, Sec. & Treas. Edw. I. Wood. k
STROUDSBURGH, PA.—Stroudsburgh Passenger R.R. Co. 14-5 m, 4-8½ g, 28-30 lb r, 3 c, 9 h. Pres. & Treas. J. Lantz, Sec. Jacob Houser.
SYRACUSE, N. Y.—Syracuse & Onondaga R.R. Co. 23-5 m, 4-8 g, 28-47 lb r, 9 c, 18 h. Pres. Peter Burns, V. Pres. Chas. P. Clark, Sec. & Treas. Lyman C. Smith, Supt. W. B. Thompson.
Central City Ry. Co. 2½ m, 4-8½ g, 47 lb r, 12 c, 42 h. Pres. Daniel Pratt, V. Pres. Jonathan C. Chase, Sec. & Treas. James Barnes, Supt. George Crampton 4 Syracuse Savings Bank Building.
Fifth Ward R.R. Co. 2½ m, 4-8½ g, 35-56 lb r, 8 c, 30 h. Pres. P. B. Brayton, V. Pres. John D. Grey, Sec. & Treas. O. C. Potter, Supt. Hugh Purnell. Office W. Washington st.
Genesee & Water St. R.R. Co. and Fourth Ward R.R. Co. 4 m, 4-8½ g, 18-30 lb r, 10 c, 35 h. Pres. Robt. G. Wynkoop, V. Pres. Wm. H. H. Smith, Sec. & Treas. Geo. J. Gardner, Supt. W. J. Hart. Onondaga Savings Bank Building.
New Brighton & Onondaga Valley R.R. Co. 1½ m, 4-8g, 16-35 lb r, 2 c, 6 h. i dummy. Pres. Matthias Britton, Sec. T. W. Meacham, Treas. J. H. Anderson, Supt. J. H. Anderson, Seventh Ward Ry. Co. Pres. E. F. Rice, Supt. R. Purnell.
Syracuse & Geddes Ry. Co. 2½ m, 4-8½ g, 30-45 lb r.

Purnell. 2
Syracuse & Geddes Ry. Co. 2½ m, 4 8½ g, 30-45 lb r, sc, 35 h. Pres. R. Nelson Gere, Sec. & Treas. Rasselas A. Bonta, Supt. Wm. J. Hart. Gen. offices, 10 nondaga Co. Savings Bank Bullding.

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

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

TAUNTON, MASS.—Taunton St. Ry. Co. 4 m, 48½ g, 14 c, 45 h. Pres. Wm. C. Lovering, Treas. Ilenry M. Lovering, Clerk, Orville A. Barker, Supt. Geo. C. Morse.

Ilenry M. Lovering, Clerk, Orville A. Barker, Supt. Geo. C. Morse.

TERRE 11AUTE, IND.—Terre Haute St. Ry. Co. 4½ m, 4-8½ g, 28 lb r, 16 c, 48 h. Pres. T. C. Buntin, V. Pres. Josephus Collett, Sec. John R. Hagen, Supt. John T. Shriver.

TOLEDO, OHIO.—Toledo Consolidated St. Ry. Co. 19 m, 4-8 g, 42½ lb r, 50 c, 225 h. Pres. J. E. Balley, Sec. A. E. Lang. Supt. John Gilmartin. Adams Street Ry. Co.

Metropolitan St. Ry. Co. 10 m, 3 g, 28-35 lb r, 31 c, 101 h. Pres. & Sec. Jno. J. Shipherd of Cleveland, Treas. H. E. Wells of Cleveland, Gen. Man. T. F. Shipherd Supt. Jno. A. Watson.

Monroe street R.R.

The Central Passenger R.R. Co. of Toledo, O. 8 m, 2g, 27 lb r, 17 c, 70 h. Pres. F. E. Seagrave, Treas. & Man. A. R. Seagrave, Supt. Joseph Murphy, TOPEKA, KAN.—Topeka City Ry. Co. 9 m, 4 g, 25-48 lb r, 25 c, 90 h. Pres. Joab Mulvane, V. Pres. D.W. Stormont. Sec. & Treas. E. Wildes, Supt. Jesse Shaw TORONTO, CAN.—Toronto St. Ry. Co. 60 m,

4-10% g, 30lb r, 160 c, 750 h. Pres. Frank Smith, Sec James Gunn, Supt. John J. Franklin.

TRENTON, N. J.—Trenton Horse R. R. Co. 3
m,5-2 g, 34-84 br, 10 c, 33 h. Pres. Gen. Lewis Perrine, Sec. & Treas. Lewis Perrine, Jr., Supt. Thomas S Morris
City Ry. Co. 7 m, 5-2% g, 33 br, 19 c, 110 h&m. Pres. dam Exton, V. Pres. W. II. Skirm, Sec. II. B. Howell, Treas. & Mang. Director Chas. Y. Bamtord.

TRINIDAD, COL.—Trinldad St. Ry. Co. 1½ m, 3-2 g, 14 lb r, 2 c, 8 mu. Pres. S. H. Jaffa, Treas. T. B. Colller, Sec. R. L. Wootton, Supt. R. L. Pearson. c

TROY, N.Y.—Cortland & Homer Horse R.R. Co., 4 m, 48½ g, 25.30 lb r, 2 c, —h. Pres. C. H. Garrison, Troy, V. Pres. E. A. Fish, Cortland, N.Y., Treas. Jas. M. Milen, Cortland, Sec. S. E. Welch, Cortland. Troy & Albia Horse R. R. Co. 3,33 m, 48½ g, 35.45 lb r, 10 c, 41 h. Pres. Thos. A. Knickerbacker, Sec. & Treas. Theo. E. Hastehurst, Supt. W, R. Bean. Office 11 First st. a

Treas. Theo. E. Hasiendrist, Supt. W. R. Scan. Cinc.
11 First st. a
Troy & Lansingburgh R.R. Co. 21½ m, 4-8½ g, 45 lb
r, 95 c, 420 h. Pres. William Kemp, V. Pres. Charles
Cleminshaw, Sec. & Treas. Joseph J. Hagen, Asst.
Supts. L. C. Brown, and C. H. Smith. 205 River st. a

URBANA, ILL.—Urbana & Champaign St. Ry. Co. 2 m, 4-8½ g, 33 ib r, 4 c, 20 h. Pres. Wm. Park, Sec. & Treas. Frank G. Jaques, Supt. W. Park. 1

Sec. & Treas. Frank G. Jaques, Supt. W. Park. 1
UTICA, N.Y.—Utlea, Clinton & Binghamton St.
R.R. 12 m, 4-8½ g, 43-56 ib r, 17 c, 82 h. Pres,
Isaac Maynard, Sec. & Treas. Robt. S. Williams, Supt.
Roger Rock.
The Utlea & Mohawk R.R. Co. 3¾ m, 4-8½ g, 25-04
lb r, 9 c, 5 h. Pres. Jas. F. Mann, Scc. Wm. E.
Lewis, Treas. J. II, Sheehan.
Utlea Belt St. Ry. Co. (See new roads.)
VAILSBURGH, N. J.—Newark, So. Orange
Ferry St. & Hamburg Place R.R. Co.

VALEJO, CAL.—Valejo St. Ry. Co.

VICKSBURG, MISS.—Vicksburg St. Ry. Co. Hill City R.R. Co.

VINCENNES, IND .- Vincennes St. Ry. Co.

WACO, TEX.—Waco St. Ry. Co. 5 m, 4-8½ g, 18 & 20 lb r, 15 c, 55 h. Pres. E. Rotan, Sec. & Treas. W. R. Kellum, Supt. J. W. Sedbury. *j*

W. A. Kenum, Supt. J. W. Sedbury.

WALTHAM, MASS.—Waltham & Newton St.
Ry, Co. 3.4 m, 3-8½ g, 36 lb r, 7 c, 20 h. Pres. R. E.
Robbins, Treas. & Supt. Henry Bond.

WASHINGTON, D. C.—Capital, No. O St. & So.
Washington R.R. 13½ m, 48 g, 35 lb r, 45 c, 176 h.
Pres. C. White, Sec. & Treas. W. E. Boughton, Supt.
Angerstle & Potomore Picture.

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. II. A. Griswold, Sec. & Treas. J. B. Pitcher. Office, Anacostia, D. C. f. Columbia R.R. Co. of the District of Columbia. 2% m, —g, —lb r, 19 c, 56 h. Pres. II. A. Willard, Sec. & Treas. Wm. H Clayette, Supt. Thos. E. Benson.

Metropolitan R.R. Co. 19.44 m, 4-8 g, 38 lbr, 110 c, 445 h. Pres. George W. Pearson, V. Pres. A. A. Wilson, Sec. & Treas. Wm. J. Wilson, Supt. L. W. Emmart Office 2411 P st, N. W. f. Washington & Georgetown R.R. Co. 20 m, 4-8% g, 42 lb r, 173 c, 850 h. Pres. II. Hurt, Sec. & Treas. C. M. Koones, Gen. Supt. C. C. Sailer. a.

WATERBURY, CONN.—Waterbury Horse R. R. Co. 5½ m, 4-8% g, 40 lb. r, 13 c. 60 h. Pres. D. S. Plume, Treas. & Sec. E. F. Turner.

WATERFORD, N. Y.—Waterford & Cohoes R.

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.) Supt. E. A. Bradley. 2 WATERLOO, IA.—Waterloo St. Ry. Co. 2 m, 3 g, 20 lb r, 2 c, 1 baggage wagon, 9 h. Pres. W. ll. Hartman, V. Pres. & Supt. J. A. Foye, Sec. & Freas. T. N. Kellogg. 2

WEST HAVEN, CONN.—New Haven & West Haven R.R. Co. 6 m, 4.8% g, 54 lbr, 24c, 115 h. Pres. Geo. R. Kelsey, Supt. W. W. Ward, Treas. D. Trow bridge, Sec. Sam'l L. Smith.

WESTPORT, CONN.—Westport & Saugatuck Horse R. R. Co. 13/2 m, 4-8/2 g, 40 lb r, 3 e, 5 h. Pres. A. S. Hurlbutt, Sec and Treas B L Woodworth, Supt E S Downey. c

WHEELING, W. VA.—Citizens Ry. Co. 10 m, 5-2½ g, 45 lb r, 20 c, 55 h. Pres. Dr. C. A. Wingeiter. Scc. Van B. Hall, Supt. Michael Lottus.

Sec. van B. Hall, Supt. Mehael I. Ottus.
Wheeling & Eim Grove R.R. 7 m, 4-8½ [g, 30 lb r, 12 c, 4 Baldwin Motors. Pres. J. D. DuBols, Sec. E. J. Rutter, Supt. C. Hirsch. Office, 16th st. a
WICHITA, KAN.—Wichita City Ry. Co. 14 m. 2-6 g, 16 lb r, 26 c, 135 h & mt. Pres. B. H. Campbell, V. Pres., Treas. & Gen. Man. E. R. Powell, Sec. G. W. Laramer, Atty. E. C. Ruggles. Office, 436 N. Main st. k

WILKESBARRE, PA.—Wilkesbarre & Kingston Pass. R.R.

Coalville Passenger R.R. 2½ m, 4-8½ g, 20-34 lb r, 3 c. 10 h. Pres. Geo. W. Kirkendall, Supt. A. S. Orr, Sec and Treas Geo Loveland. Capital, \$62,675.

WILLIAMSPORT, PA.—Williamsport Pass. Ry. Co. 3½ m, 4-8½ g, 36 lb center bearing r, 7 one h c, 26 h. Pres. Robt. P. Allen, V. Pres. Henry C. Parsons, Sec, R. J. C. Walker, Treas. and Gen. Man. S. A. Filbert. Office, 907 W. 4th st. a and J

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.

Wiimington City Ry. Co. 6 m, 5-2% g, 45 lb r, 20 c, 80 h. Pres. W. Canby, Sec. & Treas. John F. Miller, Supt. Wm. H. Burnett. Office, Delaware ave. & Dupont St. f

WINDSOR, CAN.-Sandwich & Windsor Passener R.R. Co. Windsor & Walkerville Electric Ry. Co. 2 m, 2 c.

WINFIELD, KAN.—Union St Ry Co 2½m 4 g, 28 lbr, 2c, 8 mu Pres — Shuler, V Pres H E Silliman, Treas John D Pryor, Sec John A Eaton Capital, \$25,000

WINNIPEG, MANITOBA, CAN.—The Winnipeg St. Ry. Co. 5 m, half single, half double, 4-8½ g, 35 hr, 15 c, 15 sleighs, 100 h. Pres. Jas. Austin, Sec. & Mangr. Albert W. Austin, Supt. Geo. A. Young. 2

WINONA, MINN.—Winona City Ry. Co. 4 m, 3-6 g, 27 lb r, 10 c, 39 h. Pres. B. H. Langley, Sec. & Treas. C. H. Porter, Supt. L. Marion. f

WOBURN. MASS.—No. Woburn St. Ry. Co. 2% m, 48 %g, 40 lb. r. 5 c, 4 h. Pres. & Treas. J. R. Carter, Supt. Dexter Carter.

WORCESTER, MASS.—Worcester St. Ry. Co. 7½ m, 4-8½ g, 43-45 lb r, 31 c, 151 h. Pres. Geo. II. Seeley, Sec. & Treas. II. S. Seeley, Sup't. J. N. Akarman, Ass't. Supt. J. B. Chapin.

Citizens' St. Ry. Co 7¼ m, 4-8½g, 45 lb. r. 19 c. 100 h. res. Chas. B. Pratt, Sec. &Treas. H. S. Seeley, Supt. N. Akarman.

WYMORE, NEB.—Wymore and Blue Springs Ry Co. 234 m, 3-6 g, 3 c, 8 h. Pres. E.P. Reynolds, Rock Island, Ill., V. Pres. I. H. Reynolds, Gen. Man. Ben-Reynolds, Sec. Treas. and Acting Supt. E. P. Reynolds, Jr.

YORK, PA.-Pres. W. H. Lannius.

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

ZANESVILLE, O.—Zanesville & McIntire St. Ry. o. 3 m, 3-6 g, 38 lb r, 12 c, 51 h & mu. Pres. F. M. ownsend, Sec. W. C. Townsend, Treas. O. H. Townsend, Sec. W. C. Townsend, Treas. O. H. Townsend, Sec. W. C. Townsend, Treas. O. H. Townsend, Treas. O. H.

NEW ROADS.

ALLEGHENY CITY, PA .- Allegheny Rapid Rransit Rv. Co.

ANN ARBOR, MICH.—Ann Arbor St. Ry Co-4-8½ g. Pres. Junius E. Beal, V. Pres. Edward Duffy. Sec. Zina P. King, Treas. Louis D. Taylor, Supt. Thomas J. Keech. Capital \$20,000. Office, 46 Main st.

BIRMINGHAM. ALA.—East Lake Land Co. 7 m. 4-8½ g, 45 lb r, 4-8 c, motor power. Pres. Robt. Jennison, V.-Pres. A. A. Clisby, Treas. T. B. Lyons, Sec. S. M. Hanby. Capital \$200,000. Work in progress, to be completed in January, 1857.

BOSTON, MASS.—West End St. Ry. Co. H. M. Vhitney, Asa P. Potter, Eben D. Jordan and others incorporators.

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

Union Ry. Co. of the City of Brooklyn.

BRUNSWICK, GA.

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

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

DANBURY, CONN.—Danbury St. Ry, Co. 4m, be ween Danbury and Bethlehem. Work in progress.

HASTINGS, NEB.—Hastings St. Ry. Co. Application made for right of way. Will be 2 m. long.

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

LOCKPORT, N. Y.—Lockport St. Ry. Co. $3\frac{14}{2}$ m, $4\cdot2\frac{14}{2}$ g, 8 c, 30 h. Pres. John Hodge, V. Pres. A. S. Beveriy.

LONG ISLAND CITY, N. Y.—Riker Avenue & Sandford's Point R. R. Co. 2 m, 4-8½ g, 47 lb steel r. Pres. J. H. Hemptead, Sec. Oscar R. Steins. Capital \$20,000. Work in progress; to be opened June 1, 1887. Office, 109 E. Fourteenth st., New York.

MEMPHIS, TENN:-Union St. Ry. Co.

MERIDEN, CONN.—Meriden St. R. R. 4% m, 4-8% g, 35 lb r, 12 c, 56 h. Pres. G. R. Curtis, Sec. & Treas. Chas. L. Rockwell, Supt. Dan'l F. Barker. To be opened about Feb. 1.

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

NEWBURYPORT, MASS.

4-8½ g. Pres. & Gen. Man. E. P. Shaw, Treas. Eben Sumner. Capital \$40,000. To be bullt early in the spring and opened June 1.

NEWTON, MASS.—Newton St. R. R. Co. 5 m, 4 8½ g, 5 c. 5 electric motors, 35 lb r. Pres. Horace B. Parker, V. Pres. Lucius G. Pratt, Treas. Herbert C. Pratt. Capital stock, \$50,000. Office, Newton-ville, Work will be commenced and the road opened in the error of 1925. in the spring of 1887.

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

North & East River R. R. Co. Franchises granted.

OMAHA, NEB.—Cable Tramway Co. of Omaha, 4 m, 4-8 1-2 g, 58% lb r, 10 c, each with grip; operated by cable. Pres. S. R. Johnson, V. Pres, L. B. Willams, Sec. and Treas. C. E. Yost, Chief Engineer Robert Gillham, Capital stock, \$300,000, General office, 103 South 13th st.

OR LANDO, FLA.—Orlando & Winter Park Ry. Co. 6 m, 4-8½ g, steam motors Pres. R. J. Gillham, Sec. Oeo. R. Newell, Treas. T. J. Beeks, Supt. & Eng. J. H. Abbott. Capital \$100,000. To be opened in Feb. 1887.

PEORIA, II.I.—East Bluff Horse R. R. Co. 136 m, 4-836 g, 30-40 lb r, 4 c, 24 h. Pres. N. Glles, Sec. R. R. Boureaud, Treas. M. E. Culver. Capital stock, \$11,000. Work in progress. Road to be opened Dec.

PLYMOUTH, MASS.—Plymouth & Kingston St. R.R. Co. 2½ m. 48% g, rundecided, 6 to 10 c, 10 to 12 h. Capital stock, \$25,000. Joseph D. Thurber and others incorporators. Work to be begun in spring of 1887.

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

RICHFIELD SPRINGS, N. Y.-Richfield Springs & Canadarago Lake Surface R. R. 1 m. D. C. Hadcock of Syracuse organizer. Capital \$15.500.

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

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

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

SCRANTON, PA .- The Nayaug Crosstown R.R. Co. Pres. G. Clark, V. Pres. H. C. Dowd, Sec. T. C. Snow, Treas. B. E. Leonard.

STAMFORD, CONN .- J. B. Curtis and W. W Jillisbee, Incorporators.

SVRACUSE, N. Y.-Butternut St. Rv. Co. 2m. To be built in the spring of 1887.

TEXARKANA, ARK.—Texarkana St. Ry. Co. Pres. N. W. Bechtei, V. Pres. E. N. Maxwell, Sec. & Treas. Thos. Orr, Supt. B. M. Foreman. Will commence work soon. 2

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

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

YONKERS, N. Y.-Yonkers R. R. Co. 41/2 m. 4-81/2 g, 42-48 lb r, 10 c, 45 h. Pres. D. N. Stanton, Sec. John F. Brennan, Asst. Treas. D. Perry Stanton. Capital \$200,000. Office, Main st. a To be opened early in Jan.

TO STREET RAILWAY OFFICIALS.

We wish to call attention to the great number of corrections which have been made in the "Street Railway Directory," within the last few months, and urge officials to carefully examine the reports of their roads as they therein appear, and send us any corrections or changes which may be necessary in order to make them perfectly correct.

Notes and Items.

Received too late for elassification.

Brooklyn, N. Y.

THE CONEY ISLAND & BROOKLYN R. R. Co.'s directors have decided to adopt the electric motor system on their road next summer.

THE BROOKLYN CITY R. R. Co., through President Lewis, has signed an agreement with the Executive Committee of the Empire Protective Association upon which the employees will work throughout the year.

THE ATLANTIC AVENUE R. R. Co. has leased the cable road now building along Park avenue from Evorgreens Cemetery to Fulton Ferry to Tom L. Johnson of Cleveland and Alexis Du Pont of Wilmington, Del. The consideration is 14 per cent of the gross receipts, and the annual rental is not to be less than \$15,000. The leaso has been assigned to the Brooklyn Cable Co. for \$1 and other good and valuable considerations, and along with the assignment there is a mortgage by the cable company to the Central Trust Co. of New York for \$800,000. It is expected that the new road will be in full operation before the end of this year. The company has a capital of \$1,000,000.

Charlotte, N. C.

THE CHARLOTTE ST. Ry. Co. has about two miles of track in operation at present. F. W. Dixon, Manager, promises to have the road completed and four cars running in about four weeks.

Lockport, N. Y.

THE LOCKPORT ST. R. R. Co.'s drivers a few days since struck for full pay. They had contracted for \$1.30 per day. The road has been in operation only since January 1.

Louisville, Ky.

THE LOUISVILLE CITY RY. will soon put a lot of new cars on Chestnut street. They will be of the same palace car pattern as those now on the line. They are being built by the Brownell & Wight Car Co., St. Louis.

Meriden, Conn.

THE NEW ROAD here will open on February 1st, and will run cars on ten minutes headway on allits branches. Messrs. Rufus Martin & Co. are managing the road for tho first few weeks.

Minneapolis, Minn.

THE MINNEAPOLIS ST. Ry. Co. have during the past year laid five miles new track in the city. The Fourth avenue line was extended from Twenty-ninth to Thirtysecond street on Stevens avenue. The Plymouth avenue line has been double tracked on Second avenue North. The gap from the Scandia bank on Cedar avenue to Franklin avenue has been closed and cars are now running through on Cedar avenue, instead of via the Adams School. The most important extension was made on the University line running into Elwell's addition. There is a probability that next season will see cars running south toward the lake on Dupont avenue, although the company is non-committal. It is presumed that this will constitute the principal extension of the coming year if it is carried out. There will doubtless be improvements made, however, in connecting with outside points on present lines. The Washington avenue North extension is also likely to be made. The company have 773 horses and 226 mules. 350 men are employed.—Minneapolis Tribune.

New York, N. Y.

THE CONNOLLY MOTOR Co., proprietors of a new naphtha gas street car motor, recently made a preliminary test, which we understand was very satisfactory in its results. We hope to give full particulars of the motor in our next issue.

Messrs. Rufus Martin & Co. have added to their business a department for stable supplies, in which will be found a complete line of everything needed in a stable, from a curry-comb to a shove-broom. They have sold the Stamford Horse R. R. Co. their entire equipment.

HUMPHREYS & SAYCE, speaking of the steel

rail trade, say the product of home mills is practically sold up to next July, and that, excepting at points near by the mills, they do not think home producers can compete with those across the water. The firm have bought largely of foreign rails. They recently furnished the rails for the Newburgh Street Railway, the Orlando, Fla., and Stamford, Conn., roads, and are now shipping for the Macon & Suburban, Macon, Ga.

Scranton, Pa.

THE NAYAUG CROSSTOWN R.R. Co. was organized in December. Officers: President, G. Clark; Vice President, H. C. Dowd; Secretary, T. C. Snow; Treasurer, B. E. Leonard. They are to build 5 miles, and will probably use electricity as a motive power.

Stamford, Conn.

THE NEW ROAD here was opened on the 25th inst. and is now running six cars. A. H. Lombard is Superintendent.

St. Louis, Mo.

THE BROWNELL & WIGHT CAR Co. have secured the order for the new cars of the Grand Avenue Railway (cable line) of Kansas City. These cars will be about 30 feet long, and in pattern like those now in use in San Francisco, that is, a combined open and close car. They will have a set of four wheel trucks at each end to facilitate passing around curves. It is the intention to have these cars the finest in the country. The B. & W. Co. are also building 25 cars for the Mound City Railway, of St. Louis.

Business Notes.

Mr. Charles B. Miller, Proprietor of the Magnolia Anti-Friction Metal, has re-ceived a letter from Mr. L. Pfingst, Master Car Builder of the Third Avenue surface road, to the effect that he has taken out some metal bearings which were placed under car No. 85 and finds that the bearings of the Magnolia metal are as sound as when put in, while theother was entirely gone. We have seen these bearings, and the Anti-Friction metal certainly shows remarkable wearing qualities.

DIRECTOR

OF

MANUFACTURERS AND DEALERS IN STREET RAILWAY SUPPLIES.

AUTOMATIC SWITCHES. Page.

F. W. Jesup & Co., 67 Liberty st., N. Y. 227 Lewis & Fowler Mfg. Co., Brooklyn, N. Y. 244-245 A. Whitney & Sons, Philadelphia, Pa. 230 Frank H. Andrews, 545 W. 330 st., It. Y. 233-239 Wm. Wharton, Jr., & Co., Limited, Phila., Pa. 236

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BRAKES.

Mailincrodt St. Car Brake Co., 8 So. Fourth st., St. Louis, Mo.....

BRAKE RODS.

BRAKE SHOES.

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CABLE GRIPS.

J. H. Gould, 9th and Market sts., Phila., Pa. . . . 237 D. B. Anders, 2313 Ridge ave., Philadelphia, Pa. 243

Philadelphia, Pa.

Notetel & Oothout, 41 Liberty St. N. Y. City. 225

DIRECTORY OF MANUFACTURERS AND DEALERS IN STREET RAILWAY SUPPLIES. - Continued.

## Poils St. Car Motor System, 150 So. Fourth st., 241 Philadelphia, Pa 236 ## CROSSINGS. ## Frank H. Andrews, 545 W. 33d st., N. Y. 238-239 ## Johnston Frog and Switch Co., 307 Walnut st., Philadelphia, Pa 240 ## Wm. Wharton, Jr., & Co. Limited, Phila., Pa., 236 ## Lewis & Fowler, Brooklyn, N. Y 244-245 ## Bowler & Co., 10 to 24 Winter st., Cleveland, O 226 ## CHANNEL PLATES. ## Channel Plates ## Co., 10 to 24 Winter st., Cleveland, O 226 ## Wm. Wharton, Jr. & Co. Limited, Phila., Pa 236 ## Wm. Wharton, Jr. & Co. Limited, Phila., Pa 236 ## Wm. Wharton, Jr. & Co., Limited, Phila., Pa 236 ## Wm. Wharton, Jr. & Co., Limited, Phila., Pa 236 ## Wm. Wharton, Jr. & Co., Edito 657 W. 48th st., N. Y 227 ## Cardinary Co., 24 So. Canal st., Chicago, Ill 230 ## Rins Electric Manuage Co., 249 ## PEED CUTTERS. ## Nordyke & Marmon Co., Indianapolis, Ind 230 ## Rins Electric Wing. Co., Racine, Wis 225 ## Appleton Mig. Co., 28 So. Canal st., Chicago, Ill 225 ## Appleton Mig. Co., Sa So So. Canal st., Chicago, Ill 235 ## Nordyke & Marmon Co., Indianapolis, Ind 230 ## Nordyke & Marmon Co., Indianapolis, Ind 230 ## Nordyke & Marmon Co., Indianapolis, Ind 230 ## Rins Electric Wing. Co., Sa So So. Canal st., Chicago, Ill 235 ## Appleton Mig. Co., 28 So. Canal st., Chicago, Ill 235 ## Appleton Mig. Co., Sa So So. Canal st., Chicago, Ill 235 ## Appleton Mig. Co., Sa So So. Canal st., Chicago, Ill 235 ## Nordyke & Marmon Co., Indianapolis, Ind 230 ## Nordyke & Marmon Co., Indianapolis, Ind 230 ## Appleton Mig. Co., 28 So. Canal st., Chicago, Ill 235 ## Appleton Mig. Co., 28 So. Canal st., Chicago, Ill 235 ## Appleton Mig. Co., 28 So. Canal st., Chicago, Ill 235 ## Appleton Mig. Co., 28 So. Canal st., Chicago, Ill 235 ## Appleton Mig. Co., 28 So. Canal st., Chicago, Ill 235 ## Appleton Mig. Co., 28 So. Canal st., Chicago, Ill 235 ## Appleton Mig. Co., 28 So. Canal st., Chicago, Ill 235 ## Appleton Mig. Co	DIRECTORT OF MANOTACTO	TENS AND DEALERS IN STREET HAI	LWAT SUTTEILS.—Continued.
## 1. A. Sarwon, 20 Art. A. Nov York. 2. S. J. Dall, 180. No. 10.11 E 17 1940 C 180. 2. S. J. Dall, 180. No. 10.11 E 17 1940	J. H. Gould, 9th and Market sts., Phila., Pa237 O. W. Meysenburg & Co., 185 Dearborn st., Chi-	Wolon Monut Co. Mr. and Wo Fact Water St	Johnson Steel Rail Co. Johnstown Pa 948
Source Service Other Services (1998) Other	Broderick & Bascom Rone Co., 704-706 N. Main	John Stephenson Co., New Tork	cago, III., and 204 N. 3d st., St. Louis, Mo223 SEATS & SEAT SPRINGS.
## Property Care Co., 168 Vol. 18. N. Y. 19. 19. 19. 19. 19. 19. 19. 19. 19. 19	St., N. I240		SWITCHES.
CARS SHOOND HAND. GREAT STATETISS. GROWN CHILD. GREAT STATETISS. GREAT WAS SHOOND CHILD. HINDRIPS SANNEL BROADWAY, N. Y	J. G. Brill & Co., Phila., Pa	Lewis & Fowler Mfg. Co., Brooklyn. N.Y244-245 Standard Index and Register Co, 138 Fulton st. New York	Humphreys & Sayce, 1 Broadway, N. Y
CAR STAITERS. CAR LABIES. CAR LABIES. CAR LABIES. CAR PROPERTY. N. Y	Humphreys & Sayce, 1 Broadway, N. Y222	Lewis & Fowler Mfg. Co., Brooklyn, N. Y244-245 GUTTERS.	Johnston Frog and Switch Co., 307 Walnut st., Philadelphia, Pa
CARL ALARIES OAR CHARLES OAR STORY, N. Y	CAR STARTERS.		Metallic St. Railway Supply Co., Albany, N. Y. 227
AM WHEEL P. R. SEPONDER, P. M. 1944, P. M.	CAR LAMPS. Geo. M. Clute, W. Troy, N. Y	Pugh & Russell, Stewart Bullding, New York229 Wm. P. Craig, 95 Liberty st., N. Y	Wm. P. Crarg, 95 Liberty St., N. Y
## HANDERS R. A. MARTING JACKS. ## WIN WARDOR & SUBBARD, 264-016 ## WIN WARDOR & SUBBARD, 264-016 ## WARDOR & SUBBARD, 264-		Charles E. Berry, Cambridge, Mass 233	T. Wm. Harris, 19 Exchange place, Boston,
CAR SASI. Agree Fatent Sash Holder Co., 520 to 57 V. 45th st., N. 7. 252 CAR SASI. Agree Fatent Sash Holder Co., 520 to 57 V. 45th st., N. 7. 252 CAR SASI. CAR CHILING. CAR CHILING. CAR CHILING. CAR CHILING. CAR CHILING. CAR CHILING. CAR SID. CAR SASI. Agree Fatent Sash Holder Co., 520 to 57 V. 45th st., N. 7. 252 CAR SASI. CAR CHILING. CAR CHILING	Pugh & Russell, Stewart Building, New York229 Wm. Wharton, Jr., & Co., Limited, Phila., Pa236	HYDRAULIC JACKS.	STREET RAILWAY SUPPLIES. John Stephenson Co., New York
CAR SASI. Agree Fatent Sash Holder Co., 520 to 57 V. 45th st., N. 7. 252 CAR SASI. Agree Fatent Sash Holder Co., 520 to 57 V. 45th st., N. 7. 252 CAR SASI. CAR CHILING. CAR CHILING. CAR CHILING. CAR CHILING. CAR CHILING. CAR CHILING. CAR SID. CAR SASI. Agree Fatent Sash Holder Co., 520 to 57 V. 45th st., N. 7. 252 CAR SASI. CAR CHILING. CAR CHILING	Watson & Stillman, 204-210 E. 43d st., N.Y.,228	P. F. Burke, 860 Dorchester ave., South Boston 227 F. P. Roberge, 1741 Broadway, N. Y	Pugh & Russell, Stewart Bldg., N. Y. 229 F. W. Jesup & Co., 67 Liberty st., N. Y. 227 Wm. P. Craig, 95 Liberty st., N. Y. 226 Lewis & Fowler, Brooklyn, N. Y. 244-245 Frank H. Andrews, 545 West 33rd st., N. Y. 238-939
## Pank H. Andrews, 549 West 33d st., N. 7.38-299 Gardner & Co., 648 to 67 W. 48th st., N.Y. 297 GAR SASH. Ayers Patent Sash Holder Co., Stewart Building, New York City. CAR CRILINGS. GARTHER S. CAR CRILINGS. CASTINGS. P. W. 48sup & Co., 64 to 657 W. 48th st., N.Y. 297 Lewis & Fowler, Brooklyn, N. Y. 294 A. Whitang & Soon, Philadelphia, Pa. 296 F. W. 48sup & Co., 64 therity st., N. Y. 297 Lewis & Fowler, Brooklyn, N. Y. 294 Wh. W. Warton, J. F., & Co., Limited, Phila, Pa. 298 Wh. W. Warton, J. F., & Co., Limited, Phila, Pa. 298 Wh. W. Warton, J. F., & Co., Limited, Phila, Pa. 298 Wh. W. Warton, J. F., & Co., Limited, Phila, Pa. 298 Wh. W. Warton, J. F., & Co., Limited, Phila, Pa. 298 Wh. W. Warton, J. F., & Co., Limited, Phila, Pa. 298 Wh. W. Warton, J. F., & Co., Limited, Phila, Pa. 298 Wh. W. Warton, J. F., & Co., Limited, Phila, Pa. 298 Wh. W. Warton, J. F., & Co., Limited, Phila, Pa. 298 Wh. W. Warton, J. F., & Co., Limited, Phila, Pa. 298 Wh. W. Warton, J. F., & Co., Limited, Phila, Pa. 298 Wh. W. Warton, J. F., & Co., Limited, Phila, Pa. 298 Wh. W. Warton, J. F., & Co., Limited, Phila, Pa. 298 Wh. W. Warton, J. F., & Co., Limited, Phila, Pa. 298 CHYNER B. C. C., 1988 CHYNER C. C. 1988 CHYNER	Lewis & Fowler, Brooklyn, N. Y	Champion Horse Nati Co., Appleton, Wis223	Wm. Wharton, Jr., & Co., Limited, Phila., Pa236 Way Foundry Co., 23d & Wood sts., Phila., Pa241 Brooklyn Raliway Suppiy Co., 37 Walworth st., Brooklyn
CAR CELLINGS. Gardner & Co., 615 to 637 W, 48th st., N.Y	CAR SEATS. Hale & Kiburn Mfg. Co., 48 & 50 N. 6th st., Philadelphia, Pa	Frank H. Andrews, 545 West 33d st., N. Y.238-239 Wm. P. Craig, 95 Liberty st., New York	M. W. Collway, 387 Monroe St. Brooklyn, N.Y. 225 Edward Beadle, 1193 Broadway, N. Y. City 222 Rufus Martin & Co., 15 Park row, N. Y. 230 O. W. Meysenburg & Co., 185 Dearborn st., Chi-
CAR CELLINGS. Gardner & Co., 63 to 657 W, 48th st., N.Y. 227 Lewis & Fowler, Brooklyn, N. Y. 34445 CASTINGS. Bowler & Co., 63 to 657 W, 48th st., N.Y. 244 A Whitter's Soon, Finlanderly st., N.Y. 244 Brank H. Andrews, 545 W, 33d st., N.Y. 282 Way Foundry Co., 23d & Wood sts., Phila, Pa., 245 CHEVED RAILS. Frank H. Andrews, 545 W, 33d st., N.Y. 282 Win. Wharton Jr. & Co. Limited, Phila, Pa., 236 Lewis & Fowler, Brooklyn, N.Y. 244 Bowler & Co., 10 to 2 winter st., Cleveland, 0.226 CHANNEL PLATES. Frank H. Andrews, 545 W, 33d st., N.Y. 282 Wan. Portons, 90 liberty st., N.Y. 282 Win. Portons, 90 liberty st., N.Y. 282 Win. Wharton, Jr. & Co. Limited, Phila, Pa., 236 Lewis & Fowler, Brooklyn, N.Y. 2445 Bowler & Co., 10 to 2 winter st., Cleveland, 0.226 CHANNEL PLATES. Frank H. Andrews, 545 W, 33d st., N.Y. 282 Win. Depose Electric Manuag, Co. 246 Freid CHAILS Samples, Co., 160, 111 Freid CHAILS, Pal. Steep Samples, 111 Freid CHAILS, Pal. Steep Samples, 111 Freid CHAILS, Pal. Steep Samples, 112 Frank H. Andrews, 545 W, 33d st., N.Y. 282 Win. Wharton, Jr., & Co. Limited, Phila, Pa., 236 Lewis & Fowler, Brooklyn, N.Y. 284 Bowler & Co., 10 to 2 winter st., Cleveland, 0.226 Win. Wharton, Jr., & Co., Limited, Phila, Pa., 236 Win. Wharton, Jr., & Co., Limited, Phila, Pa., 236 Win. Portons, 91 Brooklyn, N.Y. 282 Win. Portons, 92 Brooklyn, N.Y. 282 Win. Portons, 93 Control of the Samples Sa	CAR SASH. Avers' Patent Sash Holder Co., Stewart Build-	Wm. Wharton, Jr., & Co., Limited, Phila., Pa 236 Johnston Frog and Switch Co., 307 Walnut St., Philadelphia, Pa	cago. Ill., and 204 N. 3d st., St. Louis, Mo223 Cambria Iron & Steel Works, 218 So. Fourth st., Philadelphia, Pa
CASTINGS. Converting Co. Convertin	Gardner & Co., 643 to 657 W. 48th st., N.Y227	LUBRICANTS. The Leib Lubricating Co., 196 Chicago st., Buffalo, N. Y. 224 Butus Martin & Co., 13 Park row, N. Y. 230	STREET RAILWAY TOOLS.
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STREET RAILWAY STOCK QUOTATIONS.

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

New York Stocks.	Par.	Amount.	Period.	Rate.	Date.		Bid.	Asked
Bleecker St. & Fulton Ferry	100	\$900,000	J. & J.	3/1	January,	1886	28	30
1st mort	1,000	700,00	J. & J.	7	July,	1900	115	118
Broadway & Seventh avenue	100	2,100,000	QJ.	2	January,	1886	225	240
1st mort	1,000	1,500,000	J. & D.	5	June,	1904	103	106
2d mort	1,000	500,000	J. & J.	5	July,	1914	103	106
Broadway Surface Guaranteed	1,000	1,500,000	J. & J.	5	July.	1924		100
Additional	1,000	1,000,000	J. & J.	5	July,	1905		100
Brooklyn Clty-Stock	10	2,000,000	QF.	2		1886	180	190
1st mort	1,000	800,000	J. & J.	5	January,	1886	106	110
Brooklyn Crosstown	100	200,000	A. & O.	4	October,	1886	165	170
1st mort bonds	1,000	400,000	J. & J.	7	January,	1887	105	109
Central Park North and East river.	100	1,800,000	QJ.	2	January,	1887		118
Con, mort, bonds	1,000	1,200,000	J. & D.	7	December,	1902	118	120
Christopher & Tenth	100	650,000	F. & A.	11%	February,	1887	120	121
Bonds	1,000	250,000	A. & O.	7	October,	1898	110	116
Central Crosstown	100	600,000	QF.	13/4	January,	1887	160	165
1st mort	1,000	250,000	M. & N.	6	November,	1902	118	125
Dry Dock, East B'way & Battery	100	1,200,000	Q.—F.	2	February,	1887	2000000	160
1st mort consol	500	1,900,000	J. & D.	7	June,	1893	109	112
Scrip	100	1,200,000	F. & A.	6	August,	1914	105	107
42d & Grand St. Ferry	100	748,000	QF.	3	August,	1886	220	225
1st mort	1,000	236,000	A. & O.	7	April,	1893	110	112
42d St., Manhattan & St. Nich. av	100	2,500,000					34	35
1st mort	1,000	1,200,000	M & S.	5		1910	107	1081
2d mort, In. bonds	1,000	1,200,000	J. & J.	6		1915	44	46
Eighth Avenue—Stock	100	1,600,000	QJ.	2	January,	1887	180	200
Scrip	100	1,000,000	F. & A.	6	August,	1914	105	110
Houston, West St. & Pavonia Ferry	100	1,000,000	Q -F.	2	August,	1885	I25	135
1st mort	500	250,000	J. & J.	7	July,	1894	110	111
Second Avenue—Stock	100	500,000	J. & J.		January,	1887		180
1st mort		1,862,000	M. & N.		November,	1905	106	107
Consol	1,000	550,000	M. & N.		May,	1889	103	
Sixth Avenue	100	1,050,000	M. & S.	3	Februar y,	1887	185	195
1st mort	1,000	500,000	J. & J.	7	July,	1890	110	112
Third Avenue-Stock	100	2,000,000	Q.—F.	3	February,	1886	210	220
1st mort	1,000	2,000,000	J. & J.	7	January,	1890	110	112
23d St.—Stock	100	600,000	F. & A.	5	February,	1887	240	250
1st mort	1,000	250,000	M. & N.	7	May,	1893	110	113
Ninth Avenue	100	800,000		3	September,	1885	90	100
Chicago St. Railway	100					1	299	325

Phila. Street Railway Stocks

Corrected by Robert Glendinning & Co., 303 Chestnut street, Philadelphia, Pa.

			,		v, r maderp	22100, 2 001	
	Par.	Period.	Amount.	Rate.	Date.	Bid.	Asked.
Citizens	50	Q.—J.	\$500,000				
Continental	50	J. & J.	1,000,000	1 1			130
Frankford & Southwark	50	QJ.	750,000			1 1	310
Germantown	50	QJ.	1,500,000	1		97	100
Green & Coates	50	QJ.	500,000			120	1201
Hestonville	50		2,050,000	1 1		30	31
Lombard & South	25		500,000	1 1			96
People's	25		1,500,000			40	1.50.5
Philadelphia City	50	J. & J.	1,000,000	1		137%	
Philadelphia & Gray's Ferry	50	J. & J.	617,500			/2	
Philadelphia Traction	50		5,000,000			70	76%
Ridge Avenue	50	J. & Q.	750,000			2221/2	, 4
Second & Third	50	QJ.	1,060,200			200	
Seventeenth & Nineteenth	50	J. & J.	500,000				
Thirteenth & Fifteenth	50	J. & J.	1,000,000			143	145
Union	50	J. & J.	1,250,000			185	
West Philadelphia	50	J. & J.	750,000				200

OF THE



Eureka Folding Mat.

The Most Durable, Easiest Cleaned and Repaired Wood Mat ever made,

I would respectfully cali the attention of Managers of Street Railways to my latest improved Reversible Folding Mat, made to fit any size car. Sample order solicited.

1193 Broadway, New York.

FACTORY-CRANFORD, N. J.

Second Hand One-Horse Street Cars HAH good condition.

SPECIAL NOTICES.

Rates for Special Notices.

Advertisements of Street Railway Property "Wanted" or "For Sale," "Positions Wanted" or "Men Wanted," or similar matter inserted under this heading at 10 c. per line, eight words to a line.

POR SALE,—65 second-hand, 10 foot one-horse cars; 52 built by Stephenson, 13 by Brill. Ali in first-class order. No reasonable offer refused. Lewis & Fowler Mfg. Co., 27 Walworth st., Brooklyn, N. Y.

WANTED—Capitalist to invest money in the best Cable Grip yet invented. First-class inducements and best of references. Reliable, care STREET RAILWAY JOURNAL.

WANTED—Second hand, reversible seats, open cars in good condition. Address, stating name of manufacturer, price, etc., Geo. W. Hersey, S. R. & B., 87 Summer street, Boston, Mass.

WANTED—Position as Superintendent or Foreman with some good street railroad, by a thoroughly practical and experienced street railroad man who has had 15 years' experience in the business; can refer to some of the most prominent street railroad men of the country. Address R. P. A., care STREET RY. JOURNAL, 113 Liberty st., New York.

ANTED—Position as Superintendent on a street ratiroad by an experienced man. N. Y. City references. Willing to go South or West. Parties Wishing a good, steady man, and one able and willing to look sharp after all the minute details of a road, will please address Superintendent, care STREET RAILWAY JOURNAL, 113 Liberty st., New York.

SUPERINTENDENT.—Advertiser of ability and GUPERINTENDENT.—Advertiser of ability and good managing capacity desires an engagement as superintendent of surface rallroad; experienced in European and New York systems; would take full charge, including stables and treatment of sick horses if desirable; first-class references. Address MANAGER, care STREET RAILWAY JOURNAL, 113 Liberty sticet, New York.

erty street, New York.

FOR SALE CHEAP.—One Iron Planer, 58"× 46"× 18", good for heavy work; in good order; will sell cheap. One 600 lb. Ferris & Miles Steam Hammer, \$300.00. One 5" Cutting-off and Centering Machine. One Double-Head Bolt Cutter (National), cuts to 1½", in very good order. One Single-Head Bolt Cutter. One Double-Head, horizontal, bar-tron shear, cuts to 1½" square, cuts up more iron than any other make. Two Iron Shapers, 10" and 14", good order. Lathes, Drills, Planers, etc., new and second-hand. Parties wanting machinery please address us before purchasing. One 12 II. P. Nagle Engine, horizontal, with one 15 II. P. upright steel boiler, complete, used four weeks and good as new. Manager for the Star Tool Co., Lathes, etc.; Grant Corundum Wheel Co.: Diamond Emery Wheel and Machine Co. Chicago Agent for the Acme Kerosene Engine, very good for light power, boats, etc. Send for circulars. W. II. ROBERTSON, Machinery Dealer, 48 So. Canal st., Chicago, III.

WANTED, \$10,000 four or five years at 6%. Security, First Mortgage on Street Kallway with \$20,000 paid up capital, earning 8% on same, and on the extension of the road for which the loan is required; or would sell half interest. Closest invisigation will show it to be a first-class, entirely solid, investment. Address L. F. D., STREET RAILWAY JOURNAL, 113 Liberty street, New York.

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THE GREAT FRENCH VETERINARY REMEDY.

STREET CAR BARN SUPERINTENDENTS will find this to be a safe, speedy and reliable remedy for Curb, Splint, Sweeney, Poil Evil, Grease Heel, Capped Hock, Strained Tendons, Founder, Wind Puffs, Mange, skin Diseases, Old Sores, Dropsical Affections, Inflammations, Throat Difficulties, Swellings or Ulcerations, Lameness from Spavin, Ringbone and other bony tumors, and many other diseases or aliments of horses or mules. Will quickly remove all bunches or biemishes, without leaving any scar or other injurious effects. It can also be reduced with sweet or raw finseed oil, and used as a most valuable limiment for all kinds of simple lameness, strains, etc. It surpasses all limiments of Firing, Never Leaves any scar or Blemish, very rapid in its action, giving immediate beneficial results, and is as convenient to use as a limiment.

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

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The Best Roller Feed

ON THE MARKET.



"The Milwaukee Granulator." Simple,

Durable,

Cheap.

Just the thing for Street Railway Stables.

Write for Descriptive Circular, Prices, etc.

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Reliance Works, Milwankee, Wis.

Gold ens,

BY SENDING US A SAMPLE OF YOUR HANDWRITING WE CAN SEND YOU A PEN THAT WILL SUIT YOUR HAND.

ALLEN & SKIFF, Stewart Bldg., N. Y.

O. W. MEYSENBURG & CO., Street Ry. Track Material.

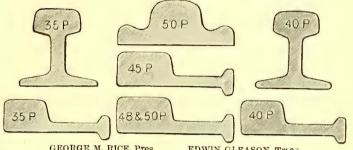
204 No. Third St., St. Louis. 185 Dearborn St., Chicago.

CAMBRIA Rails 1 Street

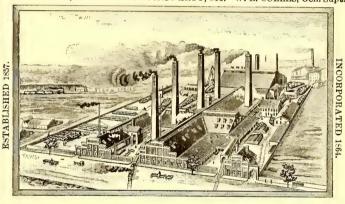
Address,

CAMBRIA IRON CO., 218 SO. FOURTH ST., PHILADELPHIA, PA.

WORCESTER STEEL WORKS, Formerly WASHBURN IRON CO., Manufrs. of Bessemer Steel

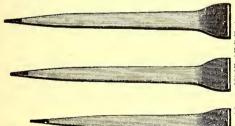


GEORGE M. RICE, Pres. EDWIN GLEASON. Tr(as, SAM'L D. NYE, Man. M. J. P. McCAFFERTY, Sec. W. E. COLLES, Gen. Supt.



Works, opp. Union Pass. Station, on Bloomingdale Road, WORCESTER, MASS.

Two minutes' walk from the station. Address all communications to WORCESTER STEEL WORKS.



CHAMPION HORSE NAILS.

Manufactured from very best Swedish Metal. Will not split. Are accurately pointed, tough, strong and hold the shoes. Soft enough to clinch readily; stiff enough to drive without bending. All nails uniform and perfect. They are used in thousands of shops with the best of satisfaction, and are especially liked by "floor-men" for their good reliable driving. Made in two patterns, "Large heads" and "CITY HEADS."

QUALITY GUARANTEED.

Nos. 4, 50c; 5, 28c; 6, 25c; 7, 23c; 8, 22c; 9, 21c; 10, 20c.

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The Leading New Grease for Street Railways. Trade Mark Pat. Mar. 13, 1883

The Best Lubricant for Street Railways Known.

Will run for One Year on One Packing. Cars will run easier packed with Dux, than with oil and waste. Why? Because we give you a better lubricant. No drip from Car Boxes when packed with Dux, and, therefore, keeps the car boxes and trucks clean.

Try it and you will use no other Lubricant.

DUX FOR STREET RAILWAYS.

PITTSBURG, ALLEGHENY & MANCHESTER RY. Co., PITTSBURG, PA., Aug. 13, 1885.

Leib Lubricating Co.:

GENTLEMEN—We have used Dux Lubricant for the past nine months. It has given entire satisfaction; in fact, it is the best I have ever used. Think it fully as good as represented.

Yours Truly,
J. C. Cotton, Supt.

Office of Camden Horse Railroad Co., Camden, N. J., Dec. 14, 1886. Leib Lubricating Co., 196 and 198 Chicago st., Buffalo. We have used your "Dux Lubricant" for about two years and regard it as the best and cheapest lubricant ever used by this company.

OFFICE OF ACUSHNET STREET RAILWAY Co., NEW BEDFORD, MASS., Dec. 11, 1886.

OFFICE OF ACUSHNET STREET KAILWAL CO., ALSO THE Leib Lubricating Co., Buffalo, N. Y.:

DEAR SIR—We have used several packages of your "Dux" and like it very much. We can recommend it to any one using axle grease.

Yours very truly,

A. P. SMITH, Treas.

Byron Weston, First-Class Ledger and Record Paper,

Dalton, Mass., Oct. 15, 1886.

Leib Lubricating Co., Buffalo, N. Y.:

Gentlemen—Yours of the 13th inst received. In reply; we like your Dux

Lubricating Compound very much, and when this is used up that we have on hand shall order more. I find on heavy bearings where no other oil or grease would cool it yours did the work.

Yours truly,
HARRY W. HITT, Supt.

FAULENER MILLS .- F. J. HASTINGS & Co., MILLERS.

FAULENER MILLS.—F. 8. Hashada So. Acton, Mass., Dec. 23, 1886.

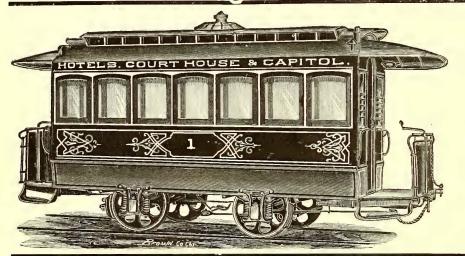
Leib Lubricating Co., Buffalo, N. Y.

Gents:—Your favor of the 17th inst. duly received. In reply we would say, that for several years we had much trouble and annoyance to find a lubricant for our heavy bearings that would stand, and tried various articles on the market without being satisfied, until a friend connected with a large manufacturing concern gave us a few pounds of the Dux Lubricant to try. It worked so much better than anything we had ever had that we ordered enough from you to give it further trial, and as a result have used it ever since, and can truly say it is the best lubricant we ever used. It will stand heat, gives off no drip and is economical, and we are very much pleased with it and do not hesitate to declare that it is our firm belief that there can be nothing ever made to equal it. Our experience on wagons has been equally satisfactory; our first attempt being on a heavy wagon used every day, heavily loaded, ran 21 days when it went into the shop to be painted, and then was in a good condition to run longer. The only thing we regret is that we did not at once try and arrange to sell it in this locality, still one of our townsmen to whom we gave your address, Mr. Littlefield, has since obtained the agency, we learn, and we can obtain it through him. Yours Truly,

F. J. Hastings & Co.

MANUFACTURED BY

The Leib Lubricating Co., 196 & 198 Chicago St., Buffalo, N.Y.



ROBINSON &

WATERLOO, IOWA,

Manufacturers of all kinds of

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Also builders of all kinds of

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ENGINEERS & CONTRACTORS,

41 Liberty Street, - - - New York.

We make a specialty of street railway work, acting as engineers, or will contract for the construction of new lines. Repairs promptly executed on out of town work. Estimates for warehouse tramways promptly furnished.

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W. T. BUTLER, General Manager.

No. 19 Tremont Row, Boston.

These boxes are guaranteed to distribute upon the rail SAND, SALT or GRAVEL, WET or DRY.



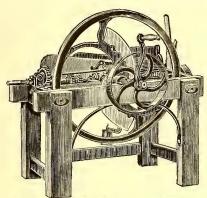
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ANTI-FEVER

The Anti-fever Medicine has now been in use for over 30 years as a specific in all Diseases of an Inflammatory Character in Horses and Cattle. Anti-fever Medicine is a Certain Cure for Chills and Fever, Sore Throat, Inflammation of Lungs, Coughs, Staggers, Inflammation of the Bowels, Spasmodic Colic, and Pleuro-Pneumonia in Cattle. This valuable Medicine is now used by the Principal Stables in the Country, by the U.S. and American Express Companies, and many of the Street Car Companies. Try one bottle and you will be convinced of its value in your stable. Sold by all Druggists. PRICE \$1 per bottle. Discount to the Trade. Address Wm. Somerville & Sons, Buffalo Horse Infirmary, 127 Erie st. Buffalo, N.Y.

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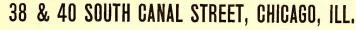


- IS THE BEST FEED CUTTER. IS THE STRONGEST, MOST DUR-ABLE, AND ON THE WHOLE IT IS THE BEST FEED CUTTER IN THE WORLD.
- OUR TWO LARGEST SIZES HAVE SELF-FEEDING ARRANGE-MENTS, AN ADVANTAGE NO OTHER CUTTER HAS.
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MILLS, CUTTERS. FEED

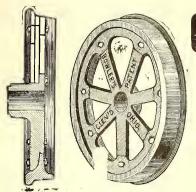
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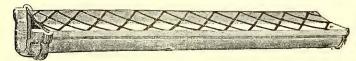
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Manufacturers of

Car and Locomotive Wheels either Chilled or Steel Tired; with or without axles. Street Railway Wheels; Turnouts and Turntables Patent Chilled Face RR. Frogs. Engine & Heavy Castings a Specialty.



Graded Stable Cutter with Straight or Curved Cover Descent 1/4 inch per foot. Pleces 5 feet lengths; short pleces furnished to suit any length. Spouts to connect with sewer.

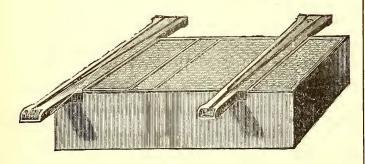
They control and make N. P. Bowler's Patent Street Railroad Wheel. The tire of this wheel is cast separately from the hub and spokes; the latter is made of soft strong iron, and is perfectly free from strain—therefore can be made much lighter and more durable. The tires and the spokes or center of the wheel are made perfectly interchangeable so that when the tire or rim is worn out another can be put in its place by any employee with no other tool than a common wrench.

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M. M. White & Co.,

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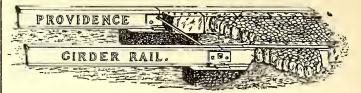
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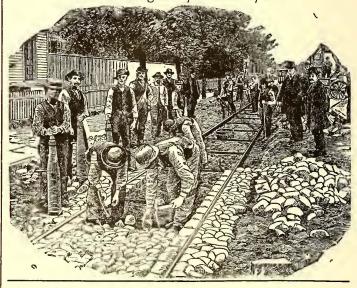


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Book and Job Printer, Lithographer and Engraver.

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The "BROADWELL CAR STARTER,"

having been subjected to practical tests, is now placed on the market at a very low price.

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and Dealer in Supplies.

Office 95 Liberty St., N. Y.

GROOVE RAIL FOR CURVE constantly on hand, Straight or Curved to any radius or length, at short notice.

CURVING MACHINES of Best Style and Make.

SPECIAL RATES given on AUTOMATIC SWITCHES, TURNTABLES, SPIKES and all other material for Railway Construction.

Having bad over 25 years' practical experience in Street Railway Construction feel confident in saying to parties who contemplate building will find it to their interest to correspond with me before making contracts or ordering material.

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W. JESUP & COMPY., 67 LIBERTY ST., NEW YORK,

Railway

OF EVERY DESCRIPTION.

Steel Rails, all patterns; Cars; Automatic Switches; Turntables; Curved Rails; Channel Plates; Frogs; Crossings and other Track Castlings, Knees, &c. Countersunk Spikes, specially adapted for Center-bearing Rails.

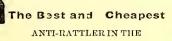
A.J. HUTCHINSON, CONTRACTOR

And PRACTICAL BUILDER of STREET RAILWAYS.

Roads Relaid, Switches, Turnouts, Warehouse Tracks. Materials Furnished. 95 LIBERTY STREET, N. Y.

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FOR RAILROAD CAR WINDOWS.



MARKET. ALSO, Ayers' Pat. Sash Holder,

FOR HOLDING CAR WINDOWS AT ANY неіспт.

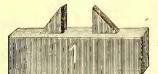
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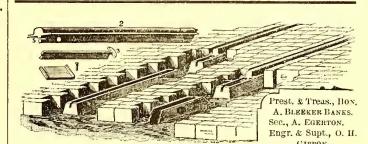
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Gold Iron Punching, Chain Links, Washers, etc.

360 DORCHESTER AVENUE, SO. BOSTON, MASS.

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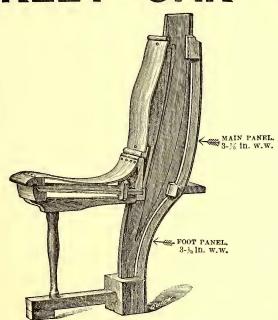
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ALBANY, NEW YORK.

Cheapest, quickest laid and most durable track known. Dispenses with all timbers, butts, spikes, knees, &c. Estimates for building and relaying street railway tracks and full particulars sent on application.

N.Y. Office, 1 Broadway, Humphreys & Sayce, Contracting Agents.



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Having given our three ply white wood car sides a thorough trial for a number of years in our city street and railway lines, which test has left them as firm and good as the day they were put in, we unhesitatingty place these sides in the market as a superior article. They are composed of three white wood (or poplar) veneers, each ½ inch thick, the grain of the center layer running at right angles with the two outside layers. Hence they derive all the special and well-known advantages of glued up wood over single ply, namely:

1st. They are fully 75 per cent stronger, for they brace and stiffen the car.

2nd. They are lighter, being only 3-8 inch thick, and so do not add so much dead weight to the car.

3rd. They will not check or split by change of atmosphere.

They will not split or crack when nailing into place, even though the nail be placed near the edge.

. Being laid over a form to suit the shape of the car frame or post they cannot buckle or twist, a feature which also adds strength to the

For repairing ears 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 earry or communicate contagion or disease. Our trade in this line has grown in thirteen years to vast proportions, which in itself is a sufficient guarantee of their merits. They are made either perforated or plain to suit customers. Birch is the wood most generally used. Today fully one-half the railroads in the courty 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 ear. 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, Ouk and Mahogany.

Manufacturers of Car Seats and Ceilings and Depot Seating,

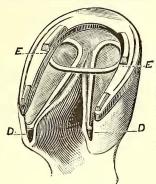
OFFICE AND FACTORY: 643, 645, 647, 649, 651, 653, 655 and 657 West 48th St., New York.

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

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USE PROF. ROBERGE'S PATENT HOOF EXPANDER.



Which Cures Corns, Contraction, Quarter-Cracks, &c.

It is the best invention for expanding a contracted foot, or keeping a sound foot in its natural shape.

It is used and approved by the leading horse owners of the New York Driving Park, such as

Robert Bonner, Frank Work,

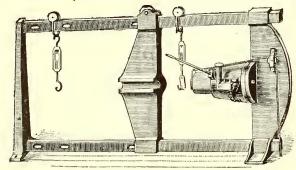
and hundreds of other gentlemen of repute, In ordering, send diagram of foot, with price. Same will be forwarded free by mail.

F. P. ROBERCE, VETERINARY SURGEON,

1,741 BROADWAY, NEW YORK.

Liberal discount to the trade. They are kept by all first-class Horseshoers Saddle and Hardware men.

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See page 197, July, 1885.

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Watson & Stillman.
204 to 210 East 43d Street, N. Y.

Wilson Brake Shaft.

ENTIRELY NEW & NOVEL IN CONSTRUCTION.

POSITIVE AND SURE IN ACTION.

BRAKES SET WITHOUT COMPLETELY TURN-ING THE HANDLE.

MADE ON THE PRINCIPLE OF A FRICTION CLUTCH.

SIMPLE IN DESIGN.

Saves Room, Adds to Available Braking Power, and Gives the Driver the Best Possible Control over the Car.

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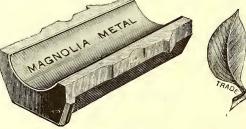


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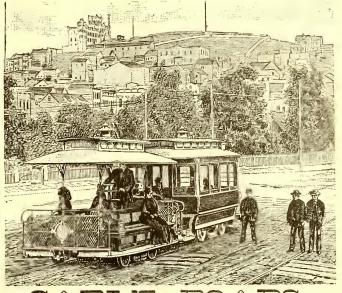
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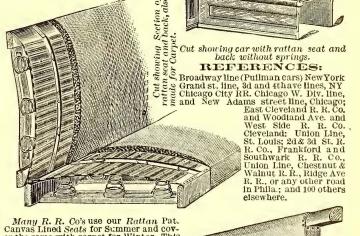
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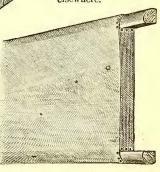
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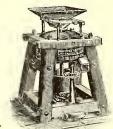
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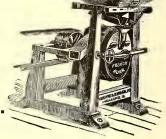


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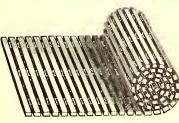
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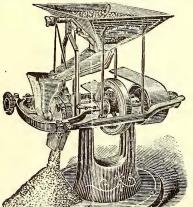
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in the market. This matting, either in round, square or flat slats, is the most convenient one for horse cars, as it is a self cleaner and can easily be repaired.

Price, a running foot, 3 feet wide, only 70c. Orders respectfully solicited.

THE OLD RELIABLE AMERICAN GRINDING MILLS.



21 Sizes and Styles. 20,000 in use.

Our Nos. 3, 4 and 5 Mills especially adapted for street car companies to be run with tread, sweep or overhead powers.

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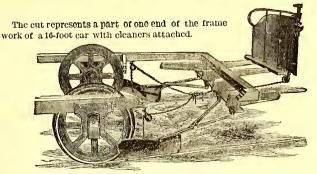
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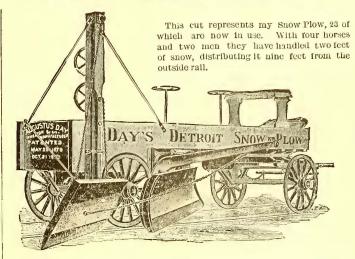
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Street Railway Wheels of all Sizes,

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It is adapted to single or double track roads, adjustable where necessary; built in the most thorough and substantial manner of the best materetal. The Plow is not intended to supply the place of the small Track Cleanrs, but be auxiliary to them. For execution in deep snow, case, and convenience inhandling, 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 (Tiy & 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.) Kalamazo Ost Ry., Kalamazo. Mich. Worcester St. Ry., Worcester, Mass. South Bend Ry., South Bend, Ind. Milwaukee City Ry., Milwaukee, Wis,

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SLAWSON'S PATENT FARE B

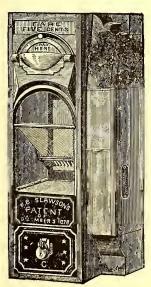
These Boxes are of the latest and most approved pattern, and contain a front door, by opening which all of the glass inside can be conveniently cleaned. This is a late patent, and is a very valuable improvement over the old method of taking the boxes apart for that purpose. They are well made and not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

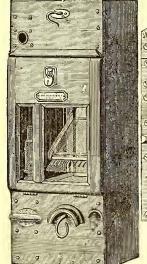
The late J. B. Slawson originated the "FARE Box Sys-



TEM," and all of his Boxes, Change Gates and Drivers' Change Box are protected by several patents, and parties using them are not liable to claims for intringements, 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.

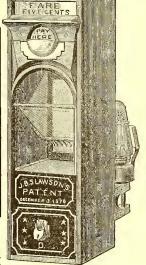




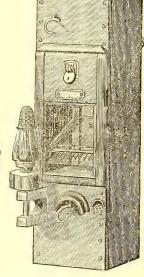


View.

The prices have been greatly reduced, and are made to fit the times. Orders will be promptly filled by addressing,



D Front View.

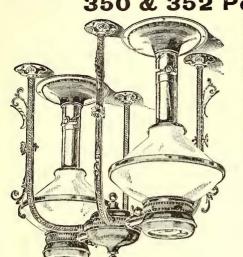


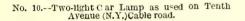
D Rear View.

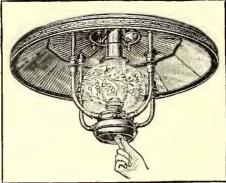
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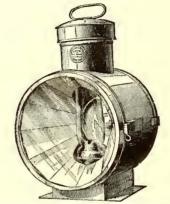
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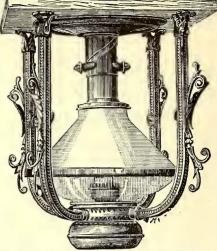




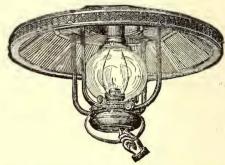
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Small Head Light for Grip Cars and Stages.



No. 8.—Center Car Lamp as used on Tenth Avenue (N. Y.) Cable road.



All kinds of trimmings pertaining to car lamps, No. 1.—Center Car Lamp in general use throughout the United States and Canada.

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Fig. 2.



Centennial Exhibition.

These drawings show how many horses are made lame and permanently injured by the use of the cold cut and sheared-pointed nails. This process of manufacture produces lamination, causing the iron to form in layers, and when driven into the foot, the horny fibers of which the hoof is composed cause the nail to separate at the point, and one portion passes into the foot.

No. 4 represents one of these nails which was driven into the hoof and slivers in driving, one thin blade passing into the quick or sensitive sole; No. 5 the thick blade of the nail passed out of the wall of the hoof or clinching. After a few days the horse was returned lame, and upon the removal of the shoe, a nail similar to the above was broken off, leaving the sliver in the foot: lock-law ensued, from which the horse died. Upon dissecting the foot a portion of the nail was found to have penetrated through the coffin bone, as seen in Fig. 2, letter A, thus sacrificing the life of a valuable animal.

It requires but little observation and reflection, one would think, to arrive at the conclusion as to the kind of nails to be used in the horse's foot, whether a mangled pieceof iron rendered DANGEROUS by the Coln Rolling ann Shearing process, or one made from the rod at a welding heat, where all the fibers remain intact and a perfect onenses maintained and being pointed by the hammer, rendering such an accident as slivering utterly impossible.

The foot is the most important member of the animal's body, to which the greatest care and attention should be directed; for when it becomes injured or

diseased, no matter how perfect the other parts may be, the horse's services are diminished or altogether lost. Hence the value of a horse depends upon the condition of his feet.

The horse at every step brings an immense power and weight to bear upon the foot. The hoof is a thing of life and yields to the pressure. The PUTNAM NAIL being forged accommodates itself to the pressure of the hoof. It is far otherwise, however, with stiff rolled and cut nails. They remain rigid and their sheared edges are therefore pressed like sharp knives against the horny fiber. This is what causes the broken and rotten appearance so frequently seen in horses shod with cheap cut nails. Can a horse owner afford to attempt to save a few cents in price of nails and ruin his horse? Surely not, for the old adage is true as ever,

"NO FOOT, NO HORSE."

As the remedy lies with the owner of the horse, it is for him to prohibit any cold-rolled or sheared nails being used in his horse's feet.

The only Hot-Forged and Hammer-Pointed Horse-Shoe Nail in the

The only Hot-Forged and Hammer-Pointed Horse-Shoe Nail in the World

that is not cut, clipped or sheared upon the point, and will not split in driving, is THE PUTNAM NAIL.

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OUR NEW FARE BOX NO. 3

Is pronounced by the many Street Car Companies using it to be the best.

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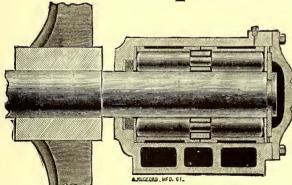
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Roller Bearing Iramway



EASY RIDING POSITIVELY DUST PROOF AND OIL TIGHT

Boxes Hold Sufficient Oil for One Year. No Wa for Packing nor Babbitting for Boxes. No Waste Used Overcomes Friction in Taking a Curve.

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CHAPLIN M'F'G CO., MESSRS.:—In reply to your note I will say we have had a set of your
Gear under car, "Gov. Rice." for the past four years and it has proved very acceptable, so
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journal is imperceptible, and it is beyond question the easiest running gear in the market.
Respectfully, J. E. Rugg, Sup't. SEND FOR CATALOGUE.



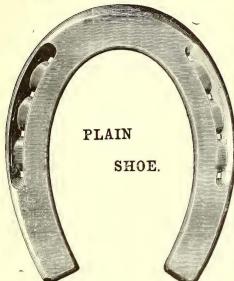
They have the advantage of easy adjustment. No buckles of straps are used. They can be applied in an instant, being fastened to the collar. The collar is divided and there is no strain upon the collar or the eyes of the horses.

In case of accident the whole harness can be removed at once. They are adapted to the use of Fire Departments, Horse Railroads, Express Wagons, Teams and Light Carriages, and are in use in over one h undred cities and towns in the United States and Canada.

They are made of the bestgun metal and malicable iron, with a brass spring which is inclosed in a water-tight socket and made rust and dust proof. It is an impossibility for it to become detached. Write for illustrated catalogue and prices.

CHARLES E. BERRY, Cambridge, Mass.

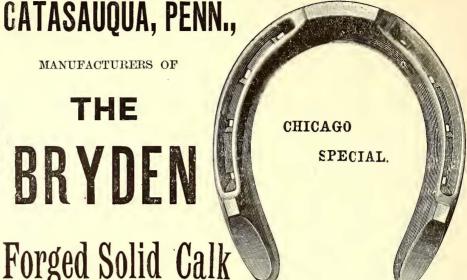
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THE BRYDEN

MANUFACTURERS OF

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

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

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

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

It is not ne essary to heat the shoe in order to fit it.

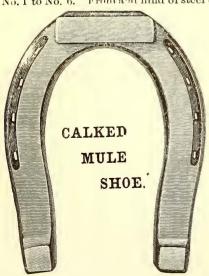
There are no welds in the shoe to break, the calks being solid forged up from the

The shoes have a good substantial clip drawn up from metal driven outside the regular outlines of the shoe for that purpose. The outer edge of the clip, when drawn up, coinciding with the outlines of the shoe, requires no robbing of the hoof wall to let in the clip.

Among the street railways using our shoes arc, the Third Avenue R. R. Co., Eighth Avenue R. R. Co., Broadway & Seventh Avenue R. R. Co. of New York city; Bushwick R. R. Co. of Brooklyn City and Newtown R. R. Co. of Brooklyn; Philadelphia Traction Co., Citizen's Passenger R. R. Co., Second & Third Street R. R. Co. of Philadelphia; Metropolitan R. R. Co. of Washington, D. C.; North Chicago R. R. Co., Chicago City R. R. Co., West Division R. R. Co. of Chicago, Ill.; New Orleans City & Lake R. R. Co. of New Orleans, La.

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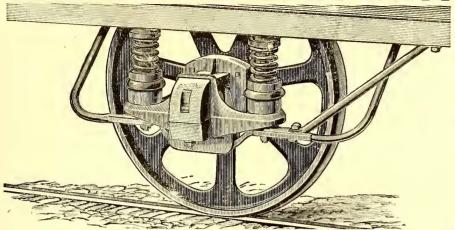
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The Bemis Patent Journal Box.

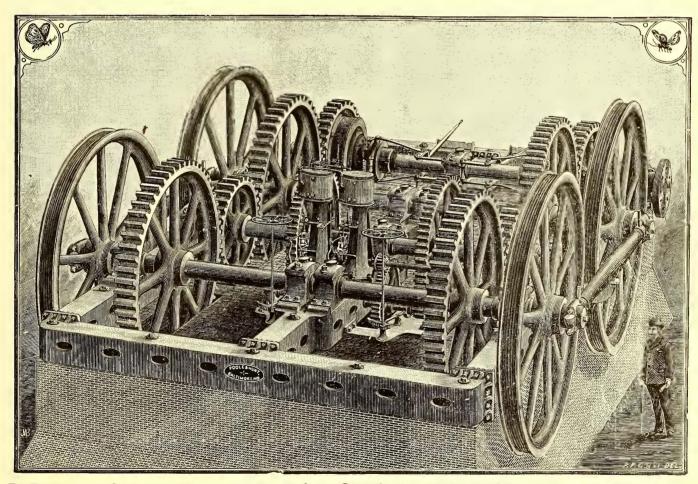
Light Draft, Easy Riding, Durable, Economical. Brasses are warranted for 10 years, and Journal for 20 years. Requires oiling or inspecting but once in 12 months. Boxes are positively dust proof.

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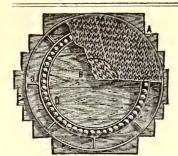
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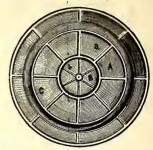


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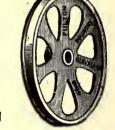
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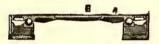
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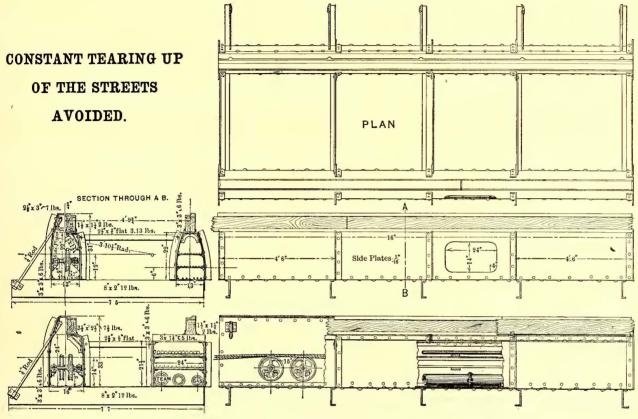
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STREET RAILWAY CONSTRUCTION.

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

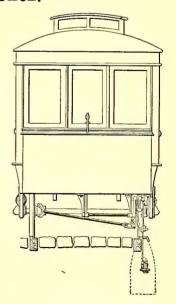
THE RAILS ARE TIED TOGETHER AT THE SURFACE.

The construction of the grip is the simplest known.

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

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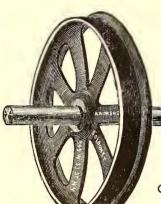
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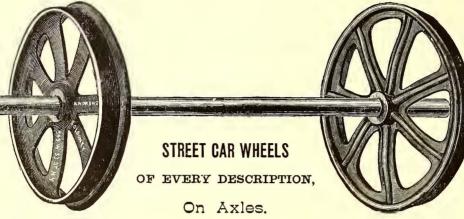
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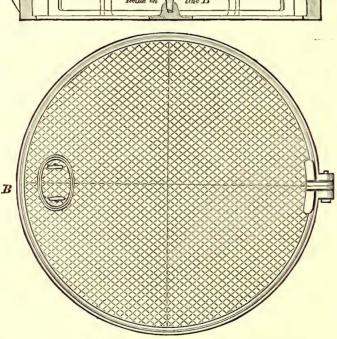
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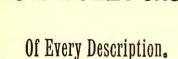
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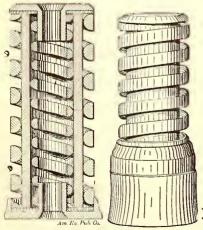
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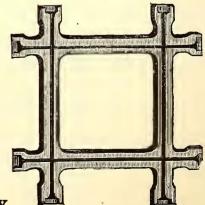


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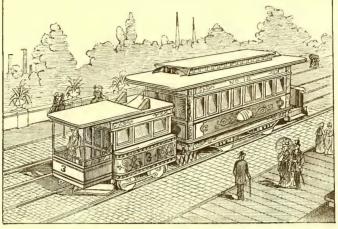
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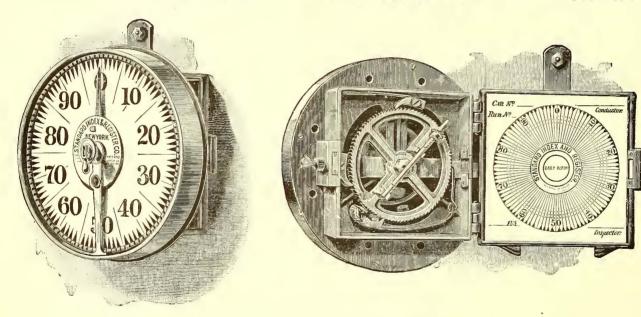
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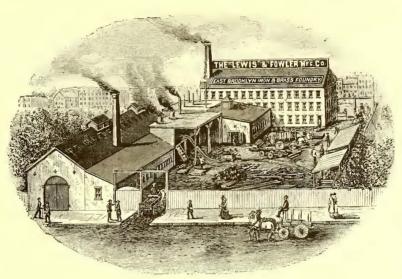
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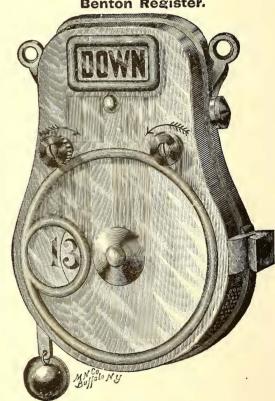
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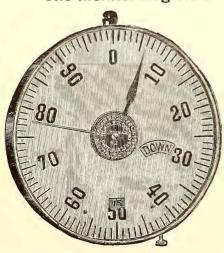
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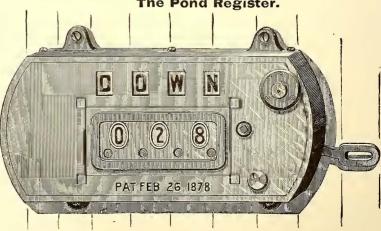
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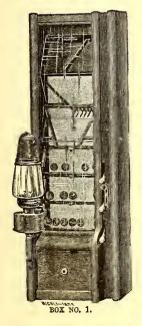
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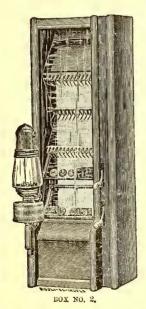
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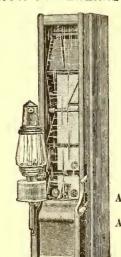
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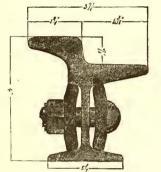
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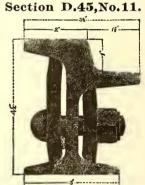
Section C. 38, No. 111.



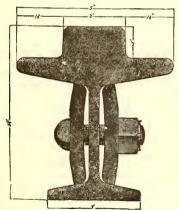
Patented February 20, 1883. 76, No. 117. Section E.

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OR



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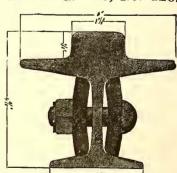


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Large Assortment of different Weights and Sections.

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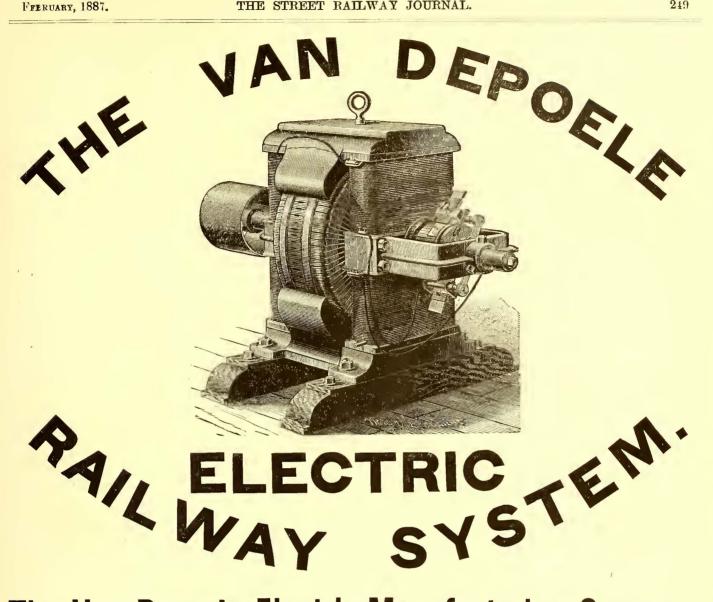
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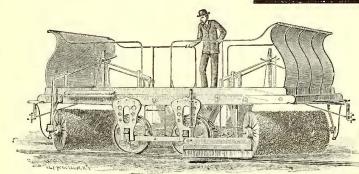
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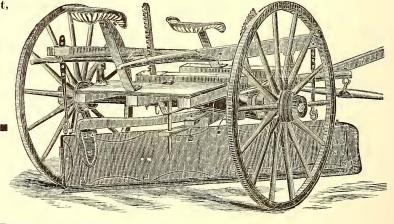
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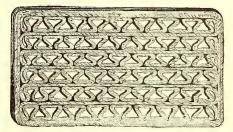
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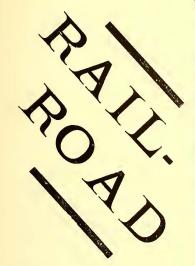
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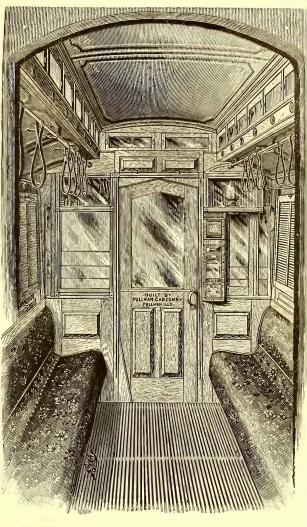
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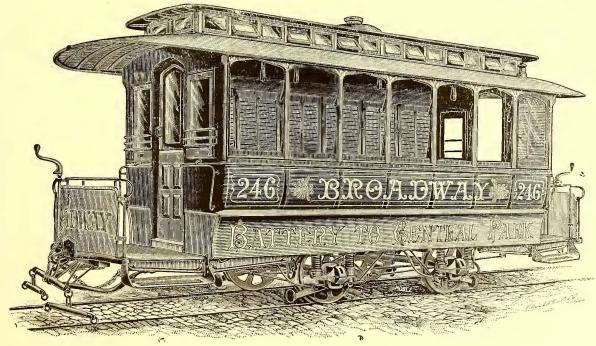
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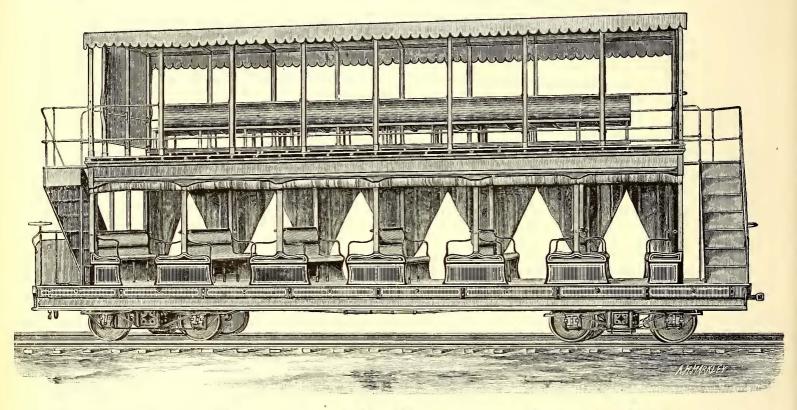
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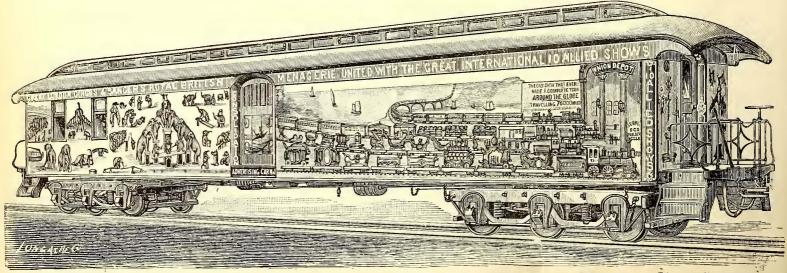
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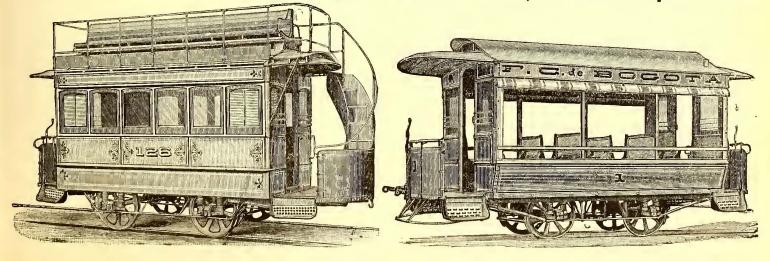
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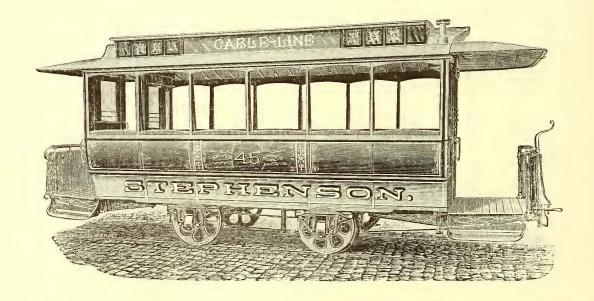
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