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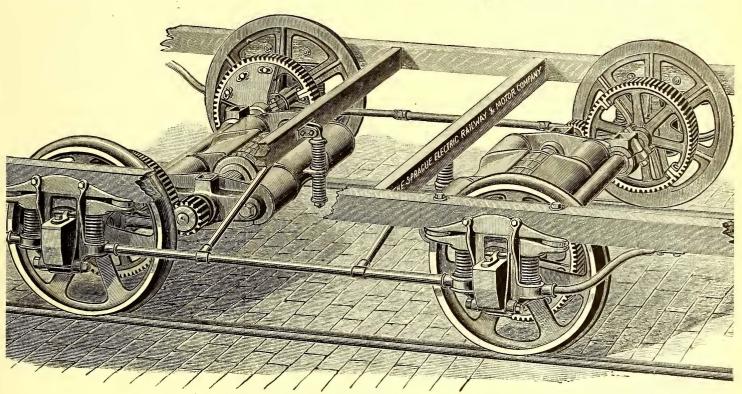
{ CHICAGO: Lakeside Building.} No. 8.

The Sprague Electric Motor.

But few persons have a thorough knowledge of the magnitude of the electric railway business in this country and in Europe. Still fewer have a knowledge of what is expected of electricity in the near future, but those who are in a position to know the capabilities of the applied science, the art of electricity, feel that impor-

without considering questions of necessary harmony between the steam and electrical plant. Like the first efforts with the steam engine on what is now the great Baltimore & Ohio road, these arrangements give better results than anything that preceded them, but are yet crude.

There is indeed a striking analogy between the first steam locomotive and some of the still existing types of electric railway this article will show to the reader a perfect motor and motor attachment for street cars. This shows that the days of crude complexity are already past, and when it is stated that the Sprague Electric Railway and Motor Company, whose motor is seen in the illustration, has just closed a short time contract for completely equipping a forty-car, thirteen-mile system for the city of Richmond, Va., it will be understood that



THE SPHAGUE ELECTRIC MOTOR FOR STREET CARS.

tant changes will be wrought in the field to which the Street Railway Journal is dedicated. In many cases this will result in the disappearance of the faithful horse from the busy streets where he has so long labored, a better service for the millions of patrons of the street car, larger profits for the investors in such property, and finally, no doubt, a reduction in the average fare throughout the world.

It is true that many of the roads which have been put in thus far have been short lines on which two or three cars run with power supplied from some plant already established for mill or other purposes, motors. The first train on the B. & O. was drawn by a stationary engine placed on a platform car; from its fly-wheel belts were connected with a pulley mounted on a shaft. So we see electric railways to-day, having a motor fixed on the front platform of a car, the power being taken down by sprocket wheels, or perhaps a complicated system of gearing. Fortunately the period between infancy and substantial growth of the electric street railway is much shorter than was the corresponding period for the steam-propelled trains on the great highways.

A glance at the cut which accompanies

genuine progress is being made, and results are reached that will change the entire equipment of the service.

It will be seen from the illustration that the motor is under the car, thus occupying no space needed for passengers. It is swung between the axle and a thwart-piece, and the interposition of a single pinion working in a gear gives revolution to the car wheel. There being one gear engaged at each end of the armature shaft, opportunity is offered to make one of these fixed, the other adjustable. This permits a perfect meshing, from the first moment of revolution. The hanging springs which sup-

port the motor permit instant relief from any unusual strain, thus ensuring easy action on the teeth.

The motor delivers 7½ H. P. on its armature shaft; there being one of these on each axle, it is apparent that provision is made for all cases requiring much more than the usual amount of power. Thus one difficulty often urged against this method of propulsion-namely, want of sufficient adhesion under all conditions-is met by having independently driven axles. In an experiment bearing on this point, a snow-.covered, very slippery track was completely cleaned by the rotation of the forward wheels, while the rear wheels took hold of the track and propelled the car.

The control of these motors will be effected by a simple lever movement on the platform which will perfectly regulate the movement of the car, even to reversibility. These machines have been constructed with a regard to the highest efficiency, considered simply as electrical apparatus for the conversion of power, but moreover it is to be specially remarked that the whole problem has been studied with a view to perfect mechanical arrangement. That this matter of electric propulsion is one of mechanical as well as electrical engineering, seems to have been but slightly appreciated in some existing examples.

Thus far we have examined only the recovering element of the whole apparatus. There remain two other elements-that for distribution and that for generation. The three general methods of distribution are, by overhead wire, by underground wire (conduit) and by storage batteries. The first method will doubtless be used in preference over the second whenever municipal authorities permit. The third stands alone and may, by improvement of methods, supplant both of the wire systems. Already it has established itself in several places, and in connection with the Sprague motor, experiments are now being made by parties foremost in the storage business, looking to further improvements.

In the Richmond work, the overhead system wil be used. But in its use no precaution will be omitted to guard against the dangers to which this system is liable. Not depending wholly on the rails for return circuit, a wire will be laid near one rail and connected at intervals with the rail, both being well grounded at several points along the line. Overhead, the main conductor will be carried near the poles, while the trolley wires will be hung as nearly as possible over the car, from side brackets or across-the-street wires, being connected at proper intervals with the main conductor. By this means an accident to one part of the line is localized, unless such accident break both the main and trolley wires.

Many points bearing on both the stability and economy of the line have received thorough attention from the Sprague company, and they feel confident that the system soon to be seen in operation in Richmond and other places in which they I took the first street car to Lookout

have contracts, will be an overwhelming argument to convince the most doubting Thomas of the success of their work.

The generating plant consists of the steam power and the dynamo machines. These will be such as will supply an unfailing power sufficient to move a much greater load than will ever come upon it. High speed, automatic engines will be belted directly to the dynamos, without any intermediate, power-consuming shafting; the boilers will be supplied with the Jarvis furnace, permitting the burning of the cheapest fuels-screenings, coke, even sawdust; the dynamos will be of a type which in many instances have supplied current continuously for more than seven years, equipped with ampère and volt metersall to be set up under the supervision of one of the most competent steam engineers of the country, who has had charge of more than than one hundred electrical installa-

The Sprague company feel sure, from the amount of work they now have on hand and the interest taken by those in the street-car business, that an enormous increase is one of the things of the very near future.

Glimpse of the "New South."

At New Orleans I spent a very pleasant week, finding her well provided with intramural transportation, both steam and animal power. The most interesting things noticed were the cotton compressing and handling, and the manual training classes of the fine Tulane high school. The latter, due to the well directed ante mortem philanthropy of the late local merchant prince whose name it bears, and under the efficient superintendence of Professor Otway, the father of this, the coming American education, who came from Boston and has graduates of the Technological Institute for assistants, was the most hopeful and progressive feature of your correspondent's investigations in the "New South."

At Mobile I was the guest of Colonel Jasper S. Knight, to whom I had a letter of introduction from a mutual friend who is Superintendent of telephone in Merida. Colonel Knight is one of the merchant princes of Mobile and an active member of the party which has been working up the magnificent terminal facilities afforded by this fine bay.

At Birmingham everything was "boiling" and the street fakir competed with the real estate agent in enthusiasm. Birmingham lies relatively to Mobile as Pittsburg does to New York, and if, as I believe, the future of this region as a coal, iron and timber producing region is assured. Mobile is the natural port for export trade.

A little below on the L. & N. we crossed a logging railway on track of pine logs some eight inches in diameter, the locomotive, which was built in Richmond, they said, having concave tires, like the sheaves of a pulley block. A short day on the cars brought us to Chattanooga.

Mountain, leaving everything, breakfast included, for the chance of "renewing my youth" by a sight of the wonderful panorama commanded by this historic mountain, which though little more than 2,000 feet high, yet in this valley country looms up in an individual grandeur unrivalled by peaks of many times its height in a mountain country like Mexico. I found the workmen making the first trial test of the new cable road which connects at the summit with the little rail way running back along the crest to Sommerville, a watering place of local fame some four miles back, and well remembered by the veterans of the Army of the Cumberland. The total length of the cable road, which skirts the plateau where Hooker "fought above the clouds," as the war poets put it, is some three-fourths of a mile and the elevation a little less than one-fourth of a mile, so that the gradient averages nearly one in three, sometimes on curves of moderate radius. This is a double track road with only three rails-an engineering feat I do not remember to have heard of, and, like most good things, very simple. There are two cars, and the stationary engine at the foot of slope is reversible.

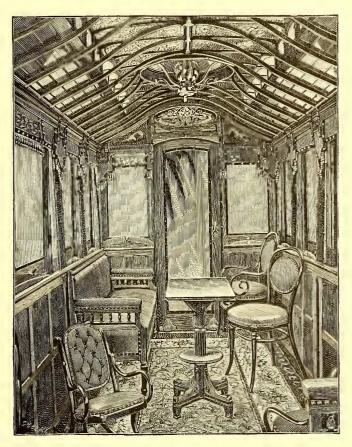
There are no grips, the cars being firmly fastened to the cable, which is inch wire running on idler wheels supported by brackets bolted to the rails. At the curves these idlers are inclined against the cable, i. e., radially to the curve. The man in . charge of car signals to the engineer by tapping a wire carried at a convenient height between the rails and running into the engine room. The cars being separated by the whole length of the road have to meet at a middle point. Here for a few yards only are four tracks with automatic switches or turnouts, so that by a little thought the cost of one rail is saved for the entire length of the road. The brakes go to and grip the rail, and occupy the entire clear space between wheels. The wheel centers are long, probably 9 feet, allowing for a long and effective brake. I regret much that I did not take any measures or memorandums.

A few days later I was in Baltimore. Here I visited the Baltimore Car Wheel Co. at their central and handsome location. Fulton Junction. Mr. W. S. G. Baker, the genial and enterprising head of the concern, was my guide through the busy shops, having furnished the inventions and mechanical ideas on which their prosperous business rests. He is making some important improvements in car gear, which is their specialty, and reports a large and growing demand for their suspended gear, pedestals resting on lower end of a link which has at the top a recess in the top of box to rest in, giving a free lateral motion to the axle. This improvement had much to do with the success of the Chicago cable roads, as I remember; they early adopted it and were enabled with great economy of tractile power to use 9 ft. wheel centers on curves of very short radius, as made necessary by narrow S. J. M.

The Stephenson Palace Street Car.

About ten years ago the idea was agitated of doubling tramway tracks on our avenue lines, reserving the two central tracks for express cars and using the side

cars of the Broadway line, and was finished in a very handsome manner; but the difficulty of doubling the tracks and the lack of popularity with same experimental cars caused the abandonment of the plan.



INTERIOR

ness will show poor stock quicker than a street car harness. Having had large experience in this, the designer is able to give our readers the one giving the best satisfaction, and readily being adopted by those using a more complicated harness. This, also, will answer the purpose of a good plow harness. The trimmings used are X silver, or Japan, and occasionally solid brass, with close plate bit, and hames, but this adds quite an expense.

Bridle.—3 in. patent leather blinds, with fancy patent leather, or harness leather front. Nose piece sewed in cheek, with a stitched winker brace. Nickel rosettes.
Collar and Hames.—Irish collar, tick

lined, high top, red, Concord hames, with flat iron back, $\frac{7}{8} \times 3-16$ iron, with No. 5, open bell, fastened to hame strap.

Traces.—6 ft. long to the chain, 11 in. two solid pieces, with 36 in. chain.

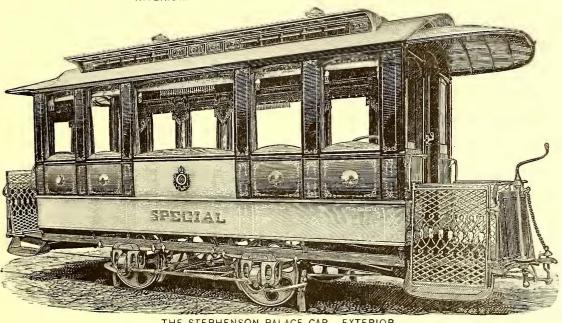
Back Pad.—Single, 3 in. wide, with billet to buckle around the trace.

Belly Band. - Folded, and buokled on both sides, billet fastened to the trace buckle in belly band.

Lines.--1 in. and 13 feet long, buckle billet -Harness.

Peckham Cushioned Wheel.

This new design of wheel, which was illustrated in the March number of the STREET RAILWAY JOURNAL, is meeting with satisfactory success. The design of the wheel is to obviate the expense of renewing when the tread becomes worn as in the ordinary wheel, and saves reboring. It is also intended to add to the ease of run-



THE STEPHENSON PALACE CAR. EXTERIOR.

tracks for shorter or way travel, the express cars to make but few stops and the cars to be made and finished in most elegant style. In these cars the fare was to be ten cents for any distance. During deliberation of the question a "palace car" was constructed by the John Stephenson Co., Limited, a cut of which we are now permitted to present to our readers. This car had sashes of extreme height, and is the style of the new

Street Railroad Harness.

This harness must be made from No. 1 stock, and traces should be taken from a selection of the backs. The lines, also, should be perfect stock. No harness maker can gain a reputation by using inferior stock, but can do so if special attention is given to the cutting, and see that the best part of the hide is used. No harning the car as well as to make less noise. It has been thoroughly tested, and so far as we are able to learn comes up to the high standard claimed for it by its manufacturers. Two cars have recently been equipped with these wheels on the Houston, West Street & Pavonia Ferry road in New York. The report from this company is in every way favorable. It is more economically maintained than the ordinary wheel, and is less noisy in crossing streets, turning curves and passing turnouts and frogs. The writer recently had occasion to ride on these cars, and, questioning the men in charge, in every instance obtained replies favorable to the wheel.

Car Decorations.

ORIGINAL DESIGNS BY E. W. SELKIRK.

We present herewith a set of designs for street car decoration drawn and engraved for the STREET RAILWAY JOURNAL.

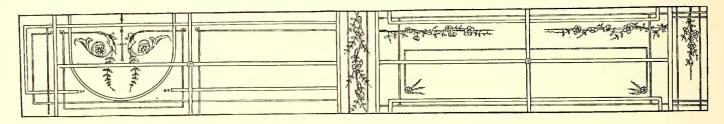
Fig. 1 is a double ceiling design for clearstory and sides of ceiling. Each figure represents two distinct designs, any combinacolors in the ornament if stenciled can be blended together. For instance, the leaf at the butt or end of the stem will be say near then atural color of the wood, or green with white and umber. Place some darker shade and then work lighter to the end of the leaf.

Fig. 2 represents a top corner ornament and stripe for the main panel for the exterior of the car. Of course the striping may be modified, making it more or less elaborate according to taste. Fig. 2 also includes the end of the outside of a main panel, which may be used as indicated in the reduced sketch. This may be used double, placing a complete design at either end and the figures in the center between

table and holding the straight edge in place by means of pieces of iron for weights. The striping or edging of the stripe being done and dry, then take some transparent shade a little darker than what was recommended for the ceiling and fill in with fine lines. This is superior to drawing broad lines first and then edging with fine lines, as will be found after trial. The color used in edging ornament can also be used in this.

The Twelve Hour Bill.

One of the labor bills passed last winter in the New Jersey Legislature is about to



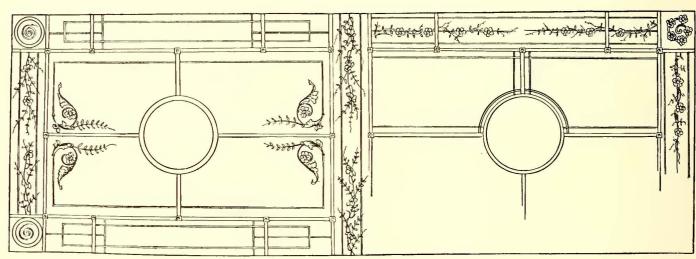


FIG. 1. DOUBLE CEILING DESIGN FOR CAR DECORATION.

tion of which will harmonize. A plain field and ornamental corners may be used in the center, while the side has ornamental field and plain corners, or vice versa. It will be noticed that the double lines are bands, while the circles indicate lamp centers. As to the coloring and treatment or the striping and ornaments in the ceiling design, the paneling will probably be of either birch, ash or oak, or at least some light colored wood. For color there can be used all colors that will work in a transparent state, mixed with gold size and varnish that does not leave a sediment, such as verdigris, carmine, ochre, Prussian and ultramarine blue, lakes of all kinds, etc., the idea being to allow the shade of the wood or background to show through all colors except edging colors, which can be of black, Tuscan or any opaque color. Indeed it can be of any color that suits the taste, and will be heavier and in contrast to the colors or shades in the ornament, which will of course harmonize, and the

the two designs. Stripes may be in single line, or one broad line edged, or otherwise modified to suit the taste.

Fig. 3 is the top and bottom ornament for a main panel with figures, the plain stripe to be extended to the end of the design, which of course may be of any desired length. A nice treatment for the main panel ornament is to make the flowers of alternate gold and nickel leaf, one stripe of color and one of gold ornament all gold, then place the stencil over the gold and with stencil brushes say with five different transparent lakes blend out flowers and leaves in the ornament, then edg and cross shade up all with some darker color.

The cross shading can also be done very nicely and satisfactorily with a stencil which must be cut to a nicety, leaving only striping edges and outside edges to be done by hand. The striping can be done with either sword, pencil or fitch, preferably the former, as it can be handled more rapidly, laying the panel face up on the

be put to actual test. It is the act which affects city railways, and in accordance with the mandate of the law, the Jersey City & Bergen Street Railway Co. have begun to make their rules to conform with its provisions. The result, as any one can plainly see, will be that in many cases car conductors and drivers will be prohibited from working when there is work that they wish to do. The mischief in the act lies mainly, it would appear, in its "twelve consecutive hours" clause. For example, a conductor who gets the early morning run of, say four hours, and then has what is called a swing, until night, will be unable to accept that night's work because it would fall in time beyond the twelve consecutive hours. Suppose he "knocks off" at 8 A. M., and has until 4 P. M. before going on duty again. At that hour twelve consecutive hours will have passed, and the law forbids him to work. This will be sufficient for prefatory purposes. The following copies of documents will explain the rest.

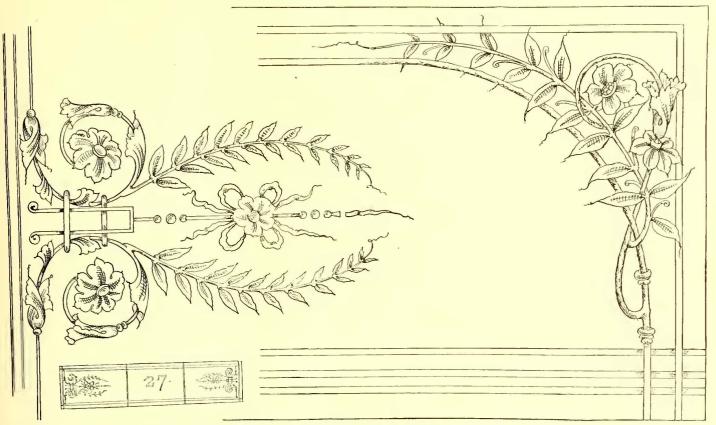


FIG. 2. TOP CORNER ORNAMENT AND END OF MAIN PANEL FOR EXTERIOR OF CAR.

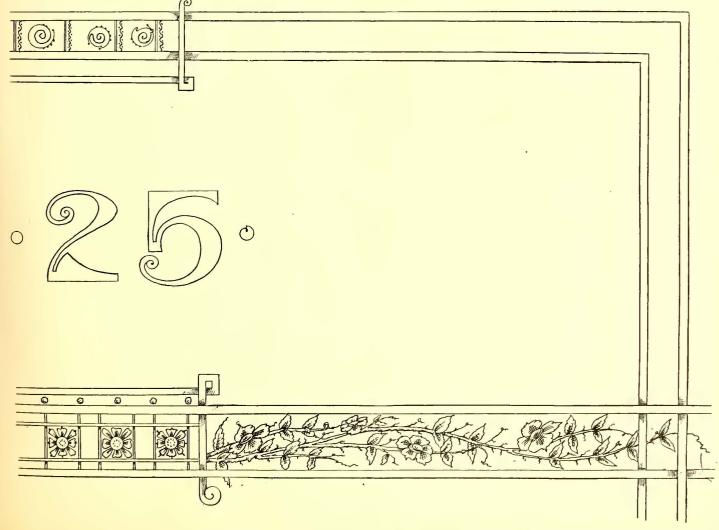


FIG. 3. TOP AND BOTTOM ORNAMENT AND FIGURES FOR MAIN PANEL.

STATE OF NEW JERSEY.

An act to regulate the hours of labor of employees of surface and elevated railroad companies.

1. Be it enacted by the Senate and General Assembly of the State of New Jersey, That twelve hours' labor to be performed within twelve consecutive hours, with reasonable time for meals, not less than half an hour for each, shall constitute a day's labor in the operation of all cable, traction and horse car, street surface railroads, and of all cable, traction and steam elevated railroads, owned or operated by corporations incorporated under the laws of this State, for the employees of such corporations in operating such railroads.

2. And be it enacted, That it shall be a misdemeanor for any officer or agent of any such corporation to exact from any of such employees more than twelve hours' labor within the twenty-four hours of the natural day, and within twelve consecutive hours therein; as in the first section provided; provided, however, that in case of accident or unexpected contingency demanding more than usual service of such corporation to the public, or from such employees to the corporation, extra labor may be permitted and exacted for extra compensation.

3. And be it enacted, That it is the true intent and purpose of this act to limit the usual hours of labor of employees of railroad corporations as aforesaid to twelve hours' actual work a day, to be performed within a period of twelve consecutive hours as aforesaid, whether such employees be employed by the trip or trips, the job, the hour, the day, the week, the month, or in any other manner.

4. And be it enacted, That all acts and parts of acts inconsistent herewith be and the same are hereby repealed. And this act shall take effect on the fifteenth day of May next after its passage.

Approved April 8, 1887.

STATE OF NEW JERSEY, ? DEPARTMENT OF STATE.

I, Henry C. Kelsey, Secretary of State of the State of New Jersey, do hereby certify that the foregoing is a true copy of an act passed by the Legislature of this State, and approved by the Governor the eighth day of April, A. D. 1887, as taken from and compared with the original, now on file in my office.



In testimony whereof, I have herewith set my hand and affixed my official seal, at Trenton, this nineteenth day of April, one thousand eight hundred and eighty-

HENRY C. KELSEY, Secretary of State.

In connection with this law the Jersey City & Bergen Horse Railroad Co. have issued the following order in relation to the adaptation of their schedules to the new conditions.

> OFFICE JERSEY CITY & BERGEN HORSE RAILROAD COMPANY. JERSEY CITY, May 6, 1887.

Mr. Thomas M. Sayre, Superintendent: DEAR SIR:-I enclose copy of an act

passed at the last meeting of the Legislature, and approved April 8, 1887, entitled "An act to regulate the hours of labor of employees of surface and elevated railroad companies."

As this act will take effect on the 16th day of May, it will be necessary for you to consider it carefully and arrange time schedule so as strictly to conform to the requirements of the act.

You will notice that not only drivers, conductors, stablemen and trackmen, but any and every employee of the company is embraced in the scope of this act.

As this law is highly penal, it is important that you should comply strictly with its letter and spirit, even though it may unfortunately result in lessening the wages of some of the employees.

Please report to me what changes you may find necessary to make from our present system. I scarcely think that there are many such, as this subject has always received consideration, and it was taken up a year or so ago with the very intent of meeting the question, as far as the actual hours of labor are concerned, and before the law was even suggested.

A street railroad run to accommodate the officers and employees would soon be "run in the ground."

The primary object should be to accommodate the public as far as it can be done, without material injury to the shareholders, but always within the law. And the study of the managing officers should be how best to accomplish it without imposing unnecessary burdens upon the employees.

As far as possible you will continue to employ the labor by the day's pay, but where that is impracticable, you will pay by the trip or hour.

A conductor or driver running an early trip cannot take a car in the afternoon or evening if his quitting time would be more than twelve hours from when he commenced labor; no matter how few the actual hours of labor that are embraced in the twelve consecutive hours.

C. B. THURSTON, President.

Chicago City Railway Co.

The marvelous growth of Chicago is well illustrated by a glance at the accompanying map of the Chicago City Railway system. Laying the first street railway in Chicago in 1859, it has steadily kept pace with the city's growth, until from its small beginning it has stretched out a gigantic network of lines, that penetrate every portion of the South Division of the city-26 miles operated by cable and 64 miles by horses, making in all 90 miles of track, to which may be added the 9 miles of cable track and 21 of horse lines now under actual construction, which will give a grand total under operation, Jan. 1, 1888, of 35 miles of cable road and 85 of horse lines, in all 120 miles.

Since January 1, 1884, the company has doubled its mileage and nearly trebled its car equipment service.

years, it was running 60 bob-tail cars and using 400 horses and mules. To-day its equipment for summer and winter use numbers over 800 cars and 1,700 horses, with six cables doing the work of more tlan 3,000 horses.

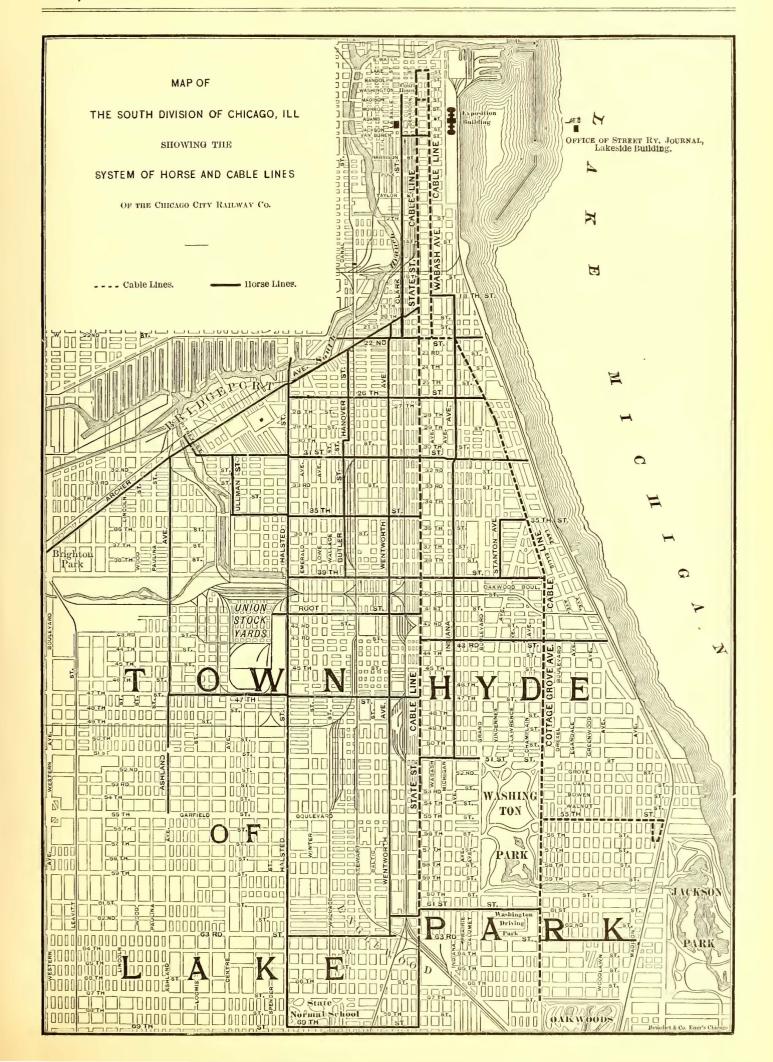
The old-fashioned, much abused bob has been driven out by elegant palace cars, 28 feet long, brightly lighted, comfortably warmed in winter, seating 32 passengers; and the mule is no longer seen in the land. The passenger now rides in comfort ten miles in the same time he formerly spent none too comfortably going there.

In 1859 one man made all repairs. In 1869 six men composed the entire force of carpenters, painters and repairers, and employed their spare time as general utility men. To-day a fine two-story brick shop, covering half an entire block, employs 200 skilled mechanics, engaged in repairing old and building new cars. This company builds all its cars, which are sightly and well built. The shop is divided into commodious departments for wood and ironworking machinery, plumbing, tinsmith shop, upholstering, foundry, wagon repairs, forge room, etc., and is one of the most complete in the country. During the past three months, in addition to the usual repairs, the shop has turned out new cars at the rate of two cars every three working days. All these go into service as fast as completed.

The event of the year, however, is the construction of the new cable line on Cottage Grove avenue, an extension of the present line on that street, which will run from Thirty-ninth street to Sixty-seventh street, and east on Fifty-fifth street to Jackson Park. South of Forty-seventh street, the line traverses a district of the very finest residence property, but which has hitherto lain dormant and absolutely unsettled for want of any suitable facilities in the way of trnnsportation. Now that the cable is about to traverse the heart of this territory, it has sprung into life as if by magic, and within the past five months corner lots along the line have advanced \$50 per front foot; and on cross and contiguous streets for several blocks either way, property has felt the stimulating influence and advanced in value proportionately.

Seldom in the history of street railways has any company ventured to construct even a line operated by horses out into so sparcely settled a district; but the Chicago City Railway Co., with no uncertain faith in its cables, have boldly invaded these fair but vacant prairies, and already have caused to spring into existence buildings and homeson every side, and the closing months of the present year will witness the opening of the line to travel, and mark also the transformation scene that is converting pleasant meadows into a city of comfortable, modern and sightly homes.

The fact that the company are using precisely the same construction, with a few slight improvements, as that on their present cable lines, shows that the experience of the management has satisfied them that When the road had been in operation ten it is the best. The line will be paved



throughout the entire nine miles with granite, and will cost \$1,000,000.

The power station now building is located at the corner of Cottage Grove avenue and Fifty-fifth street, where the line to Jackson Park intersects. The company will sell commutation tickets of 20 rides for a dollar, good for the entire nine miles ride.

One of the most appreciated advantages afforded by the company, is its system of transfers, by means of which a passenger can go from almost any point in the South Division of the city to any other point, on the payment of one fare. The old style of transfer ticket good for use any time during an entire day, is open to great abuse and fraud. The limited ticket, or slip, as it is called, must be used within "60 minutes from the hour punched in margin," and also must be presented at the point of connection with the line on which the passenger received it.

In January, 1886, when the slip was put in use, only 12,000 a day were used. Now the plan has grown so much in favor that over 60,000 are used daily, which represents about half that number of passengers—each one taking a transfer going and returning. The sample below is the form of

P.M.	1 2 3 4 5 6 7 8 9 10 1 1 12
Void unless used on	CHICAGO CITY RAILWAY CO. Cott. Gro.
	NORTH OR SOUTH FROM 31ST ST. Ind. Av.
	This slip will not be honored unless presented at cor. of 31st St. and street punched, within 60 minutes
	from hour punched in margin; for continuous trip only. NOT GOOD ON STOCK YARDS CAR.
as Indicated	Turn 6 B Holms, Supt. Butler St. Halsted St.
hereon.	
A. M.	2 3 4 5 6 7 8 9 10 11 12

transfer used by the conductors on the Thirty-first street cross-town line, by which they can transfer a passenger to any of the intersecting lines that cross it north and south. No transfer is issued on a transfer; a fare entitles the passenger to but one transfer. The dates are printed in the blank space indicated above.

Concerning Concrete.

Samples of concrete taken from the Chicago City road show that in breaking out in nearly every instance the stone itself is broken before the cement will let go. The cement used is the best Portland, which has been furnished by the Empire Warehouse Company of Chicago for the two Chicago roads, the four Kansas City roads, the Omaha road, and will be furnished for the new Citizens' (Walsh's) Cable line of St. Louis.

We notice a sample composed of six (6) parts rock, four (4) parts sand, and one (1) part cement, mixed with Caldwell's patent mixer (Chicago) which has the effect to thoroughly dust every particle of stone before water is applied, making a most perfect bond. The Chicago City road reports having saved thousands of dollars by the use of this machine, with which in a single day during the past season they laid 920 feet of single track. Mr. Yerkes of the North Chicago reports that he is now laying 600 feet per day with a 30-foot machine.

Traction Rope Railways.

BY D. J. MILLER.*

In the fall of 1882, I had the pleasure of presenting to this Society a brief description of the Chicago cable roads, and in said description advocated the introduction of duplicate cables, considering duplication of the motive power of vital importance to the perfection of this system of traction. Since then I have been able to carry my theory into practice to a certain extent, and have had the satisfaction of demonstrating the feasibility of what was at that time an untried plan.

Four years ago there were, in the United States, $36\frac{1}{4}$ miles of cable road in operation and under construction. January 1, 1887, there were 116 miles additional in operation and under construction, making a total of $152\frac{1}{4}$ miles, and from present indications it is fair to assume that at least 100 miles will be added to the above figure during the ensuing year.

While some of the later roads contain valuable improvements, there are others the designs and workmanship of which could not well be worse. Within the last year or two, many unscrupulous speculators have manifested a decided interest and activity in cable work, attempting, especially of late, to palm off on the public what they are pleased to designate as some particular system of cable traction, the so-called system in reality containing not one element requisite to a good road; but this method of propulsion has grown in popularity so rapidly that many capitalists willingly invest in cable roads regardless of their merits or demerits. We have known of millions being expended in constructing lines which, when finished, were inferior to animal traction, so far as service to the public was concerned, and from a financial standpoint also, the horse road would be preferable. Nevertheless we do not know of one in operation not paying a fair interest on the first cost.

Unless investors exercise extreme caution, and closely investigate before absolutely committing themselves to any plans or schemes submitted for approval, the increasing number of inferior roads, together with bad management in operation, will result in arousing general indignation, and public sentiment will eventually bear strongly against their further extension and greatly interfere with future progress in this direction.

A street railway, under the cable system, becomes a colossal machine, and its efficiency is unquestionable, provided the component parts are properly arranged and cared for, but with disinterested and careless or ignorant attendance, demoralization and destruction must surely follow in the course of events.

The serviceableness of a road, no matter how meritorious the system, can and will be materially affected by mismanagement, which fact cannot be too forcibly impressed on stockholders, as in this case it means smaller dividends and costly repairs.

We find records of patents, both foreign and American, long since expired, the drawings and specifications of which cover the same ground that inventors of later date have endeavored to secure by letters patent. For instance, in an English patent granted in 1845, a tube between the rails is illustrated with slot in center and a rope to draw the car. The gripper was provided with movable parts for grasping the cable, and had wheels intended to move on rails or guides in the conduit.

The principles demonstrated in the above mentioned patent are carried out in the roads of to-day.

To show the development forty years ago in cable traction, we give a few extracts from a description of the London & Blackhall Railway, published in 1852, a copy of which was kindly furnished us by Gen. Charles Fitzsimmons.

"A pair of powerful marine engines were erected at each end of the line, to which the drums for winding up the rope were connected by friction clutches. The drums were of cast iron, each 23 ft. in diameter, and their circumference revolved on an average of 26 miles per hour. The rope was 53 in. in circumference, and being upward of 6 miles in length, weighed about 40 tons, and was sufficiently long to reach from one end of the line to the other, when somewhat more than one-half the rope was wound upon one of the drums. The cable was supported along the line by cast iron wheels or sheaves, 3 ft. in diameter and 71 in. in width, which not only prevented the rope from trailing upon the ground, but also guided it around the curved portions of the line. The carriages were connected to the rope in such a manner that they could be instantly released without stopping the motion of the rope, and again connected if required."

In the foregoing we find the following points of interest: First, the cars could be detached from and again attached to the rope while the latter was in motion. Second, the cable moved at the rate of twenty-six miles per hour. Third, the winding drums were of sufficient capacity to store three miles of 1 7-8 in. rope, weighing twenty tons. Fourth, these drums were connected to the engines by friction clutches.

As copies of foreign patents were not formerly filed in the United States Patent Office, it is probable that Gardner was not cognizant of the existence of a similar English patent, when he obtained the American patent in 1858, on the conduit and slot for traction rope railways.

In 1869 a patent was issued to Gen. G. T. Beauregard covering some minor details, but the drawings represented a grip having jaws that could close on a moving cable, and the friction caused by this contact would start the car as easily as might be desired. In this design the cable was above the

Gardner's specifications refer to a grip (calling it a catch) connected to the car, projecting through the slot, and engaging

^{*}Paper read before the Western Society of Engineers.

with the cable in the conduit, and these inventions embodied the rudimental principles of the present system of traction rope railways. Forty-five patents on traction were issued in the United States prior to 1872. Of this number, four were granted to Mr. A. S. Hallidie of San Francisco, on running and carrying ropes, but were not applicable to the propulsion of street cars.

In 1872 Mr. Hallidie obtained his first patent on the grip, the drawings of which illustrated a vertical shank intended to extend from the floor of the car, through the slot and into the conduit, with wheels or jaws on the lower end for gripping the cable, but the principal points were not covered in the patent.

In constructing the first cable road, Clay street hill, San Francisco, the Gardner tube, and above described principles of the Hallidie grip, together with the Beauregard grip jaw, were adopted, with modifications and improvements.

The second road constructed was on Sutter street, San Francisco, and this differed somewhat in detail from the line on Clay street hill. The general arrangement of the grip was considered so satisfactory that it was afterwards adopted on nearly every road in San Francisco, and this grip, with other improvements, was designed by Mr. Asa E. Hovey, the engineer of the road, who has for the past six years been connected with the Chicago roads.

To San Francisco belongs the credit of operating the first street surface cable road; yet Philadelphia, by the invention of Gardner, must be accredited with the tube or conduit. But beyond question the undertaking in Chicago was attended with the greatest risk, as it had always been supposed that such a road could not be successfully operated in a cold climate.

To Mr. Holmes we must concede great foresight, and to him the cable road owes advancement and superiority of construction as well. When the Chicago roads were projected, there were but sixteen miles of cable road in operation in the world, and during the year 1881, the lines constructed in the above-mentioned city were on a larger scale, and more improved in detail, than anything of the kind previously built.

From the beginning the evolution has been gradual, until we now have a system destined, doubtless, to entirely supersede animal traction, wherever the traffic will guarantee the necessary outlay.

While single rope roads can be, and are operated successfully, they are nevertheless not entirely satisfactory, owing to the frequent stoppage for repairs, whereby the public is greatly discommoded, not to mention the money loss of the railroad company, and to overcome this acknowledged defect we have duplicated the motive power throughout. All machinery must be especially designed for its work, and no detail neglected, as the operating expense of motive power is governed almost entirely by its arrangement, as is also the continuous running of the cars.

Machinery and cables cannot give as good service in constant use as when the necessary time can be devoted to inspection and repairs; and on single rope roads, the two or three hours available in the morning are not sufficient to thoroughly inspect the cable alone; while with the duplicate cables all cars can, at any time, be transferred to the second rope without interruption to traffic.

Considering the success of the duplicate system, and the great advantages secured by its adoption, we feel justified in giving a description of some of the principal details, showing how the ropes are worked independently.

At the point where the cable is first car-

movement and weight of the grip, and in turn tilts the sheave. The grip then passes, the sheave resumes its former position and the cable is laid between the grip jaws. Machinery thus operated weighs several hundred pounds, and to manipulate it with safety every two or three minutes the year round, while the cable is moving 8 or 10 miles per hour, necessitates close calculation. To allow one second of time for the performance of the operation above described, a run of from 10 to 12 feet is indispensable, and for this reason the horizontal levers are about 10 feet long, for if the work were performed with 2 or 3-foot movement of the car, the contact of any metal bar with the grip would be as destructive

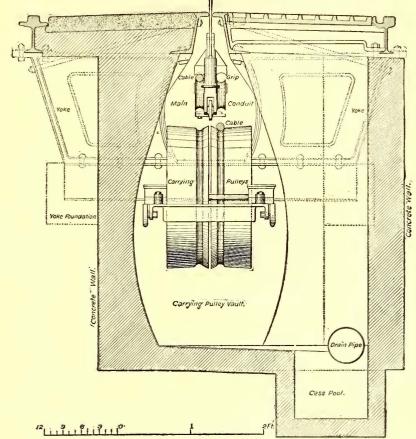


FIG. 1. CARRYING PULLEY VAULT.

ried into the conduit, sheaves four feet in diameter (called elevating sheaves) are used to elevate the rope to a line where it may be received into the gripper. On single rope roads these sheaves are set on the line of slot, and grip guided around said elevating sheaves, then brought to where cable is received by a very sharp reverse curve inslot and track rails, making an offset in the slot of four and one-half inches in a length of less than five feet. As these short reverse curves are troublesome, I abandon them, placing the sheave in a frame having trunnions at the ends on which the wheel tilts.

This tilting is accomplished by a horizontal lever moving in a vertical plane, and is operated by the grip as the car passes. The normal line of the elevating sheave is in the line of the travel of the grip, and as the car approaches the grip rides on a horizontal lever, which is depressed by the

as blows from a sledge hammer. The cable having been thus received into the gripper at the starting point, is carried to the end of the line, passing freely through the grip jaws in bringing cars to a standstill. Reference will be made to the grip later on.

CONDUIT, PULLEY VAULTS AND DRAINAGE.

Complete drainage must be provided for conduit and vaults. In our experience the *débris* from the street passes through the slot, obstructing the free flow of water, and where carrying pulleys are placed in the main conduit water collects about the wheel. While this is objectionable in summer, it works untold damage to cable and wheels in severe winter weather. I have known of instances where a majority of the wheels have been totally ruined by an attempt to start and run the road after a short stoppage on a cold day. The wheels

being stationary, the moving rope soon made sad havoc.

Where carrying pulleys are placed in main conduit, the wheels are necessarily small, conduit deep, and first cost of construction excessive. To avoid these objectionable features I introduced carrying pulley vaults (see Fig. 1), at intervals of 35 feet, giving ample space for pulleys of desired diameter, and also for the admission of a man having charge of said pulleys.

In excavating for structural work, a sewer pipe is laid beneath the main conduit, from one pulley vault to the other, and the grade may be independent of that of the street. Outlets are provided where

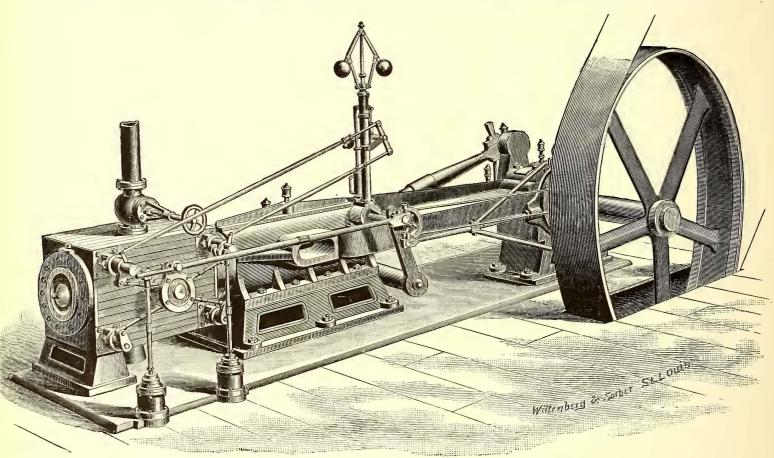
The Citizens' Cable Road of St. Louis.

CORLISS ENGINE.

The contract for building the six miles of double track cable road for the Citizens' road of St. Louis has been let to O. W. Meysenburg & Co., and by them sublet to different companies. The California system is used. The iron work is made and the construction done by St. Louis parties. The Portland cement is to be furnished by the Empire Warehouse of Chicago, who have furnished cement for the cable roads of Chicago, Kansas City and Omaha. Power to propel the cables and cars is furnished

clearance. An iron jacket lined with asbestos surrounds each cylinder, forming a non-conducting material which very materially reduces the amount of cylinder condensation. A decided improvement has been made in the dashpot, which now gives a large and well lubricated sliding surface, the supply of air being regulated by a hand-screw, the whole being entirely enveloped by a cast cover which keeps out the dust and confines and muffles the air so it works almost noiseless.

THERE WAS A NOVEL SUIT for damages brought against the Dry Dock, East Broadway & Battery Railroad recently. The



CORLISS ENGINE FOR THE CITIZENS' CABLE HOAD OF ST. LOUIS, MO.

necessary, and are connected with street sewer if possible.

This system of drainage allows the unobstructed passage of water from the main conduit into the vaults, thence to the city sewers, thus securing perfect drainage for the entire road.

By adoption of the above-mentioned vaults, we are enabled to reduce the size of the main conduit to a depth of two feet and a width of 15 in. at largest section. thereby materially reducing the first cost of construction.

The slot rail used allows the grip to be carried nearer the street surface than in any other system, and is formed with oval corners, preventing the fastening of horses' shoes which are endangered by sharp cornered rails.

(To be Continued.)

Passengers are not allowed on Rio Janeiro cars unless they wear collars.

by two 500 H. P. Corliss engines built by Smith, Beggs & Rankin of St. Louis.

These engines are deserving of special mention. They have cylinders 30x60, and represent a leading type of the Corliss engine. The builders, among other improvements made in the regular Corliss type, have designed the frame with special attention to the lines of strain, and material has been placed where it is most needed to insure strength, using a wide spaced support directly beneath the slides securely bolted down, while the back support of the engine is left free to expand when heated. The piston rod, crauk pin, cross-head and pins of the valve gear are made of steel, and the cylinder heads and other parts are carefully scraped to make good steam The governor has an automatic joints. safety device attached, which, in case of the breaking of the governor belt, prevents the engine from running away. The exhaust valves are designed to give minimum plaintiff swore that as she was leaving the car it suddenly started and she was thrown violently to the ground, sustaining such injuries that she was confined to the house for six weeks. For this she asked \$5,000 damages. The testimony developed the fact that during the six weeks of confinement to the house she was engaged to be married, but whether it was the direct result of the accident could not be determined. But at any rate she became engaged on the night of the accident, and was only deterred from going upon the street by the black appearance of her eye. It was thought by the jury that these injuries would not warrant the damages claimed, even though a marriage was the res lt, so that the verdict was given for the defendant.

Nothing Demonstrates more the prosperity of a town and the enterprise of its citizens than their desire to have a street railway.

Electric Railroads of the United States.

Horse service for street railroads has been found utterly inadequate. Out of 120,000 horses on street car lines, from 20,-000 to 25,000 become practically useless every year and are sold for a song. Attendance is costly, and as to the noisome stables, it has been well said that the motive power of the New York Central could be comfortably iustalled in the barns of some of the New York City street railways. Moreover, in extreme hot and cold weather, the efficiency of the horse is at its lowest, though it should then be at its highest; and any abnormal demand for transportation results in terrible cruelty to the drivers and their teams, in suffering and annoyance on the part of passengers, or in absolute cessation of traffic with loss to the management. Besides, there is always the liability to an epizooty, and to a strike, when for days together the horses "eat their heads off."

Steam within city limits is less and less in favor as a remedy for this state of things, but the cable road has been found to offer many points of advantage on large and busy roads. But the first cost of a good cable system is extremely heavy; the line is, unfortunately, a unit; the cable runs with difficulty on sharp curves; the ponderous cable must be run at all timesitself consuming some 75 per cent of the total motive power-whether 5 cars or 50 are attached; when the road is built it cannot well be extended, and a steadily large traffic is necessary to meet expenses. These and other objections have tended to check the use of a method that is, without question, an immense improvement upon horse locomotion.

With electricity there is a remarkable flexibility of application and range of choice as to method. The car can carry its own power in storage batteries; the current conductors may be put out of sight in conduits; a third rail can be placed on any existing track; or the car may depend for current upon an overhead wire with contact trolley or brush; and all of these can be used together, if necessary, on one road. I have been on street railways where each of these plans is exemplified and have found all practicable and operative. The motor can be put anywhere, even on the roof, and can be geared up in a dozen different ways. The average recovery of power is easily 60 to 65 per cent, and in every case the current required is exactly proportionate, at the minute, to the work being done. A first-class horse car costing \$1,200 will, with an electric motor, cost from \$2,000 to \$2,250, but the horse car road has from 6 to 12 horses per car, costing \$125 to \$150 apiece. The cost of the electric conductors is more than offset by the wear and tear of a horse track. The central station electric plant will, in many cases, be more than paid for by the economy in real estate, and it can be put anywhere along the line or near it. It can also, as it does now, supply electric light and power for general purposes.

Coming to the work actually done, it will be best to speak of the performances of the various motor companies, seriatim. The Daft Electric Light Co., of this city, has now had running at Baltimore for about two years a road using the third rail system, but now adopting the overhead wire. With an annual increase of passongers of over 75,000, the cost of electric power per car per day has been \$4, as compared with the former cost for horses of \$6.50 per car per day. The speed has been increased from 4 miles per hour with horses to 8 miles with motors. This road is 2 miles long, with grades up to 350 ft. per mile, and undulating throughout. The road has 3 motor cars and 3 passenger cars Another road built on the Daft system is now in operation at Los Angeles, Cal., using the overhead wire. It runs 3 miles and is to be 2 miles longer. It has 4 motors and 4 cars, each of which has a carrying capacity of 40 persons, but has often carried twice that number. The road carried 14,982 passengers during February, and has taken as many as 1,500 in a single afternoon. The speed maintained is usually from 10 to 12 miles an hour. The Daft overhead system is also being employed on the Orange, N. J., Crosstown Railroad, where one motor car has been placed on the completed section of track. Another Daft road is being built at Pittsburg, by the Safety Electric Railway and Power Co., of New York. It is to cost \$120,000, will have both overhead and conduit conductors, presents the slight difficulty of a 14 per cent grade, and will go into operation this summer with 5 motor cars. The Daft system is also under contract for Mansfield, O., and Ithaca, N. Y.

The Van Depoele Electric Manufacturing Co., of Chicago, has a number of electric street railways in operation, presenting some novel features. The road of the Port Huron, Mich., Electric Street Railway Co. has 3 miles of track, one 15 H. P. motor running 3 cars, and two 10 H. P. motors, each running an independent car. The road crosses a swing bridge, but the overhead wire is so arranged that while the circuit is not broken when the bridge is open, the contact for the car is remade automatically as the bridge closes. The road is undergoing an increase of rolling stock. At Windsor, Ont .- a suburb of Detroita short road with 2 cars ruus along the bank of the Detroit River. At Detroit is a road 13 miles long, with one motor car which, with its train, has traveled at the rate of over 25 miles an hour. The service is being increased. At Appleton, Wis., the Appleton street railway put the VanDepoele system in operation last year. The motive power is obtained from a 60 H. P. dynamo driven by a water wheel, and a double overhead conductor is in use. The initial rolling stock consisted of 5 cars with motors, but the plant is growing very rapidly. The road is 41 miles long, including 9 per cent. grades, some on sharp curves. The total cost for power for the 5-car service figures out at \$1.50 per car per day.

At Scranton, Pa., the Scranton Sub-

urban Railway Co. has over 2 miles of Van Depoele road running with great success. The rolling stock was 3 cars at the start, but is being largely increased. Overhead conductors are used, with little contact trolleys. Speed ranges from 6 to 15 miles an hour. Grades are up to 6 per cent. As on the Appleton road, handsome Pullman cars are in use. The power is furnished by the electric light station, where a 60 H. P. dynamo is installed. The total charge for power is \$9 per day of 16 to 17 hours, but as the dynamo can easily operate from 8 to 10 cars, the item of \$3 per day per car is excessive. It will, in almost every case of electric railways with current conductors, be safe to estimate from \$2.50 to \$3 per day per car as the total cost of power, that being a liberal basis of calculation.

At Montgomery, Ala., the Van Depoele system was tried on a road $1\frac{1}{2}$ miles long, and is now being applied to the whole network, with overhead conductors throughout. The total length of track thus equipped is over 11 miles, consisting of a main trunk owners with four branches. Brill cars are to be used, with 18 motors. One of the owners told me recently that he had found a saving with electricity of from 30 to 40 per cent, and he expected much better results over the whole system.

The Van Depoele Co. has contracts now being executed for roads at Lima, O., and Binghamton, N. Y. The latter road, 4½ miles long, will be equipped with 3 cars with 10 H. P. motors, 4 cars with 15 H. P. motors and 1 car with a 20 H. P. motor. The Lima road is 3 miles long and will have 6 cars.

The Denver, Col., Tramway Co. has 3½ miles of road equipped with the Short-Nesmith system, and has 7 cars in operation, making an average speed of 6 miles an hour. The conduit in use has a 5-in. slot. The track crosses five steam railway tracks, eight horse-car tracks and a bridge 200 ft. long. The current lights the car and rings the gongs.

At Detroit, Mich., the Detroit Electrical Works are operating on the Highland Park road 2 cars, 13 hours per day, using not to exceed 900 lbs. of coal, at \$1.60 a ton, bringing the cost of fuel somewhat under 80 cents, or 40 cents per day per car. The Fisher system is in use. A speed is maintained of about 15 miles an hour with a load of 30 passengers to the car. The motors, weighing 1,100 lbs., are suspended between the trucks. The road is three miles iu length, but is now being extended half a mile further. It is operated by two engineers and a motor man, who also acts as conductor, for each car. A simple conduit system is in use, a light rail, over which a phosphor-bronze contact wheel travels, being sunken between the rails under grooved planks. The system is now to be applied in Pittsburg, where it is under contract for a road about one mile long, beginning with 2 cars.

The Henry Electric Railway Co., Kansas City, has equipped with overhead conductor a double track road starting from East Fifth street, and proposes to run two-

car trains on it. The same company reports that it is also equipping a 9 mile road in the suburbs of San Diego, Cal., where very high speed will be attained.

The Union Electric Co., of Philadelphia, has a 2-mile road on the Schlesinger system, with conduit, on Ridge avenue, Philadelphia. Just at present, however, the company is busy on the construction of mining roads. It is now executing a contract for a large mining company, the road, wholly in the mine, being 6,000 ft. long. The electric locomotive will haul from 15 to 20 loaded cars. Similar equipment is being contracted for on two other mine roads, and in one of these cases, by the way, an electric power transmission of 400 H. P. over three-quarters of a mile is contemplated.

The Sprague Electric Railway and Motor Co., of New York, has built a road for the East Boston Sugar Refinery Co., running from the water front up into the refinery, to convey sugar in bulk. An overhead conductor is used, with contact trolley and flexible connector. The cars will have a carrying capacity of $4\frac{1}{2}$ tons each. The dynamo supplying current for the road during the day will feed incandescent lamps at night. The Sprague system has also been adopted by the Union Street Railroad, of St. Joseph, Mo. At least 20 cars will constitute the preliminary equipment; current from the electric mains will also light the cars, and speed up to 12 miles an hour is to be reached. The Sprague Co. has also been making some important tests with storage batteries on street cars, with remarkably good results, under the supervision of one of the best known firms of street railway engineers in the world. One such car has been ordered for a Boston road, and though the experiments have but recently been finished, the company has had applications from well nigh a hundred roads for estimates looking to the use of the storage system. A very large number of estimates have also been requested and made for roads with the direct current system, using overhead conductors or shallow conduits. I have had an opportunity of looking through the estimates and find them to cover roads all over the Union, sometimes two or three in one city.

The Bentley-Knight Electric Railway Co.'s conduit system is to be used in New York City by the North and East River Railway Co., whose tracks will run through Fulton street, across the city, to Wall and Pavonia ferries. The Bentley-Knight system, which has been specially worked out with a view to use in large cities, was demonstrated first on a road in Cleveland, O., and is now to be seen on a track at the Rhode Island Locomotive Works, Proviidence. Its introduction into New York renders its details very interesting, but they cannot all be given. The nature of the thoroughfare and the heavy traffic on it calls for the best construction; the grades run up to 1 in 10. The conduit to be used is only 13½ inches deep and 25½ inches wide, over all, and the contact plows are so devised that in any case of necessity they

can be pulled clean out of the slot at a second's notice. The road will go into operation with 20 motor cars, and the work of preparation is now going on busily, all the contracts having been made. As the franchise expressly stipulates the use of this system, there is no reason to doubt that it will go into operation this summer, probably by August 1.

The Bentley-Knight Co. has also closed a contract this month with the Observatory Hill Passenger Railway Co., Allegheny City, Pa., and hopes to fill it by the end of July. In this road it supplies about 1,200 ft. of double track conduit, and about the same length of single track conduit; and then the conductors go overhead and run out some three miles in the suburbs. As soon as the conduit proves satisfactory, this road will be extended across tle river into Pittsburg. It is a really tough job, as there is a maximum grade of 10 per cent to climb, carrying a full load, Broadway cars, at a rate on that stretch of not less than 4 miles an hour.

I ought not to omit mention here of the fact that this is the system in view for the New York Underground Railway, which, if the plans are carried out, will be a magnificent piece of engineering all around. The motors intended for this are of 400 H. P., capable of making 50 miles an hour, and weighing 48,000 lbs.

The Julien Electric Co., of New York, has made a demonstration with its storage battery and motor on the Eighth Avenue road in this city. I have, myself, had the pleasure of trying the car, which was very smooth, steady and rapid in operation. The system is now also being tried in St. Louis, and bids fair to be adopted in a great many places. With the storage batteries of the Electrical Accumulator Co. of New York, driving such motors as the Sprague, some excellent results have also been attained. As far as can now be learned, running street cars by electric storage will not cost more than \$4 to \$5 per day, on regular city schedule and traffic, as compared with \$6.50 to \$7.50 for horses. The cost of the cells is still high, but comes within the cost of horses-from 6 to 12 per car-and will, in my opinion, be materially reduced by improvements in the batteries inside of a twelvemonth. With the storage system no conductors or conduits are needed.

There are some new systems awaiting trial, such as the Ries, Bidwell, Edgerton, Field and others, embodying some very notable points of excellence, but it would take too much space to discuss them now, as it would the experiments made, and yet to be made, on the New York elevated roads, or the various roads shown at exhibitions and other like resorts during the last four or five years, and having to their credit about 500,000 passengers carried in safety and comfort. I must also pass by such special systems, dependent on electricity, as the Enos suspended car road, which is to be adopted as Los Angeles, Cal., and the Chandler aerial transportation road. I must close simply with an enumeration of the roads and places about to adopt electricity.

At Ansonia, Conn., an electric road 31 miles long, from Derby to Birmingham and Ansonia, using overhead wire, has been contracted for. It will be used for both freight and passengers, and power to drive the dynamo will be taken from the Housatonic dam. At Newton, Mass., a road is to be built by a company already formed; one is proposed for Worcester, Mass. At Brookline, Mass., two will soon be in operation, and one each is in view at Bangor and Biddeford, Me. Two roads are contemplated in Brooklyn, one at Coney Island, and one at Rockaway. Pelham Park, N. Y., is to have a road this summer, and Asbury Park, N. J., is advertising for bids on another. Franchises are asked for a road in Jersey City and Bayonne; and Plainfield, N. J., is also wanting a road. In Pennsylvania, Scranton with one successful road is to have another, and probably two. A road is to be built from Carbondale to Jermyn, 4 miles. In Reading, the Perkiomen Avenue Company proposes to adopt electricity. Harrisburg is to have a road, and it looks as though before the end of the year Pittsburg will have half a dozen. Down South steps have been taken to construct new electric roads, or adopt the system on old roads in Jacksonville, Fla.; Pensacola, Fla.; Birmingham, Ala.; Selma, Ala.; Atlanta, Ga.; and Fort Smith, Ark. Among roads spoken of in Ohio are several at Cincinnati, Cleveland, Tiffin and other places. Wichita, Kan., is proposing to adopt electricity for its street cars. Lincoln, Neb., has formed a company to operate an electric railway from the business part of the town to the stock yards. In San Francisco a road is to be built on Fillmore street hill, and roads are also wanted at San Jose and Riverside, San Bernardino county. If I were at liberty to do so, I could add to the above list about fifty names of places where, from present indications and movements, it is safe to say that electric roads will be running within a year.

The electric railway to-day is by no means the thing it should be. Opportunities for improvement can be seen in almost every detail. But this revolution—or evolution—on the street railways of the country has begun, and will work itself out in a perfected development. When Peter Cooper raced his steam locomotive against two fast horses, he was wounded in the hand by an accident, and the team won. But I believe the street railway is now admitted to be a success, and such a success the electric railway is also destined to be.—T. C. Martin, in Railroad Gazette.

THE NEW YORK TIMES, in discussing the matter of street railways and their traffic in that city, says that new roads make new business; that the addition of another line does not mean the division of old business, but the addition of new. It also says that the time has come when New York City imperatively demands increased facilities, and these can only be secured by the construction of a system of underground lines.

The Requirements of the Street Railway Motor.

A correspondent writes asking what is the demand for a street car motor and what would be the essentials required to make it a success.

As to the demand for such a motor, there is abundant evidence in the universal interest that all street railway men of the country are taking in the agitation that is now current in regard to the efficiency of the electric devices that are presented to them. It can truthfully be said that the whole fraternity are heartily sick of horses and are more than ready to welcome an improvement that will rid them of the motive power that they have been compelled to use for so long a time.

That this fact has been recognized by inventors for a long time is witnessed by the innumerable inventions that have been produced to overcome the objections that have been raised to horse traction.

Thus far, however, none of them have succeeded in forcing themselves into general use, because they have failed in fulfilling all of the requirements of the service for which they have been designed; or because they are still too young to have lived the time required, to fully demonstrate their value.

And these requirements? They are numerous and rigid in their demands: the successful motor must not be so heavy that it will require a heavier rail or roadway than is now in use, nor must it even be so heavy that it can do any damage to the road as it is now constructed. Therefore, if it is intended that it shall be used as an independent motor locomotive, it must be so light that it cannot in any way injure the track and at the same time be heavy enough to possess sufficient tractive power to haul its train, of whatever weight the latter may be, on any grade of the road regardless of the condition of the track. If it is a motor that is intended to be placed on the car itself, it must have the same qualities of lightness, but must be strong enough to do its work under all conditions; the requisite adhesion being supplied by the weight of the car itself.

When the weight has been cut down and the strength furnished, it must be simplified in construction, so that it will require no great skill in the attendants who are to have the charge of it. Street railways in small places are not rich enough to pay for skilled workmen to look after the motors that they are to use for driving their cars. They cannot afford to use a machine that is liable to get out of order unless the driver is a trained engineer, for the street-car driver must be a cheap man, which means unskilled.

Finally, when all this has been done, the crucial test of operating expenses must be applied. These must be shown to be less than the same amount of power will cost, though small in amount, when furnished by the use of horses. For, unless this can be done, there is no use for the inventor to waste his time in working up his in-

vention. The street railway companies find that they can obtain a speed of from six to eight or, at times, even ten miles an hour, and though the first figure may prevail the public will be satisfied and would not be willing to pay the extra fares that would have to be charged were a more expensive motive power used.

The absolute requisites of the successful street railway motor may then be summed up as light weight, simplicity of construction, ease of operation, cheapness in first cost, non-liability to get out of order, and a saving in operating expenses.

In addition to these absolute essentials, there will be others imposed by the local authorities where the motor is offered for use. They will insist that it shall not emit disagreeable or dangerous gases or smoke; that it shall not have an appearance that will be likely to frighten, in any way, the horse that has always lived in the quietest of rural districts; that it shall be noiseless and shall possess an hundred and one essentials that have never occurred to any inventor, and which no one but a petty local magnate could possibly think of.

Employees' Savings Deposit System.

Some of the street railways of the larger cities are doing much to promote good feeling and mutual respect between the management and the employee, and perhaps none more than the Chicago City Railway. President Holmes is a firm believer in the advantage alike to men and corporation of encouraging habits of economy and thrift. Few realize to what large aggregates small savings grow, and many men, while not perhaps extravagant in their expenditures, still allow their wages to slip away month by month. The money may not be misspent, but it is not best spent, ror saved.

About ten years ago this company inaugurated in a small way a savings department, open to all employees of the road, where deposits from five dollars up might be made. A certificate of deposit is issued for the amount, payable to the depositor on demand and surrender of the certificate. No long system of red tape keeps the depositor waiting for his money. When he wants it, he comes in and cashes his certificates without previous notice or loss of time. On these deposits four per cent interest is paid the men, and they prefer it to bank and other savings deposits. In ten years the total amount so held in trust by the company has grown from a few hundreds to more than one hundred thousand dollars, representing employees in every department of the extensive service of fifteen hundred men. Many who were encouraged to deposit five dollars a month for a little while, and who did so as much for the novelty of the scheme as for any other reason, soon found their bank account assuming handsome proportions, and thus encouraged began a system of careful economy, which has resulted in a large number saving enough to secure comfortable homes. A majority of the many employees thus comfortably situated | Citizen.

owe their success to the habits of economy which are the direct outgrowth of the deposit system.

In addition to this, the same company secure for all their employees reduced rates for fuel, and during the past winter the saving has been as high as two dollars and a half per ton on coal, a matter of no small moment.

And these considerations, which bring to the men the evidence of the company's interest in them, are appreciated, and they in return serve the interests of the corporation with a faithfulness not represented by so much per trip or day.

Personals.

Mr. A. F. UPTON is in the South.

Mr. Edward Beadle has just returned from a trip West.

Mr. C. B. FAIRCHILD, Manager of the Twin Cable system, is in the West.

Among Recent Callers at this office were Mr. Edward Beadle and Mr. D. J. Miller.

Mr. A. K. STILES is spending a large portion of his time in New York and vicinity.

Prince Leopold with his attendants recently visited the Chicago City Railway.

Mr. D. W. Guernsey, of St. Louis, representing the Sprague Co., is making a trip East.

Mr. Charles D. Haines is in Ithaca looking after the interests of the new road.

Mr. E. B. Palmer, of Chicago, representing the Van Depoele Co., is in New York.

Mr. James H. Slade, of the Eames Vacuum Brake Co., recently returned from a trip to Cuba.

Mr. H. M. HAWKSWORTH, Treasurer of the Daft Co., we are glad to note, has recovered from his recent illness.

Mr. John A. Brill, General Agent of the J. G. Brill Co., is seen in New York, looking after the interests of the company.

Mr. John W. Aldrich, Foreman of the Newburgh Street Railway Co., has resigned to take a like position with the Haines Bros. at Cayuga Lake.

Mr. George L. Fowler, Mechanical Editor of the Street Railway Journal, sailed for Europe Saturday, May 14, to attend the Railway Exposition at Paris.

Mr. F. J. Sprague, Manager of the Sprague Electric Co., has recently returned from a trip South. At Annapolis he met his former classmates of the Naval School.

Mr. J. L. Windsor, formerly with the Chicago City Railway Co., has gone to Auburn, N. Y., where he assumes the position of Superintendent of the Auburn City Railway.

A MEXICAN CONDUCTOR always wears two pistols conspicuously displayed.

THE EMPRESS OF AUSTRIA recently walked eighteen miles in one day. The street drivers were on strike, probably.—Lowell Citizen.



American Railway Publishing Co.,

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

E. P. HARRIS, President.

J. H. McGRAW, Secretary.

H. M. SWETLAND, Trensurer.

E. L. Powers, Northwestern Manager.

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New Advertisements.

THE STREET RAILWAY JOURNAL is the recognized medium of communication between manufacturers and the street railways of this country. Its Directory of STREET RAILWAY APPLIANCES is the most complete published in any form, and is constantly referred to by the purchasing officials of hundreds of street railways.

THE BEMIS CAR BOX CO. gives a long list of street railways that use their car box.

THE PECKHAM CAR WHEEL Co. sets forth the advantages of its elastic street car wheel.

HORACE A. KEEFER & Co. advertise Price's Improved Fare Box and other specialties.

T. L. BEAMAN gives a cut of his new fare box.

THE EMPIRE WAREHOUSE Co. publish names of companies using their brands of Portland cement.

THE KUHLMANN CAR Co., builders of street railway ears, have a new advertisement.

THE NEW YORK RAILWAY SUPPLY CO. advertise rails, equipment, etc.

THE CHICAGO WOOD FINISHING CO. call attention

THE CHICAGO WOOD FINISHING Co. call attention to their business in wood fillers, stains, etc.

J. C. Saxton announces an anti-cribbing oil.

H. W. CALDWELL shows the advantages of his concrete and mortar mixer for cable railway construction, etc.

For page of advertisements see directories, which in this issue are in the center of the paper, where it opens naturally, from the way in which it is bound. St. Louis has one cable road running, one contracted to build, another sure to be built and a fourth probable. For the improvements in this direction the present capital stock and bonded debt of three companies will be increased \$3,700,000. Other improvements are quite certain to be made, and the improvements determined upon this year in that city will probably require \$5,000,000 capital.

THE STREET RAILWAY JOURNAL took occasion, some two years since, to express its sympathy for the street railway employees whom the New York State Legislature endeavored to compel to sell only a limited number of hours of their services each day. New Jersey has now passed a law limiting the number of hours to twelve, during which a man may hold himself in readiness to sell his services to a street railway company.

This law not only limits the day's work to twelve hours, but further makes the restriction, that those twelve hours must be consecutive hours, as may be seen by the text of the law printed elsewhere. For instance, he cannot work from six to nine in the morning and again from five to seven in the evening of the same day, though he may receive a full day's wages for same or even more.

The gross injustice, to the laborer, of such restrictions on the sale of his time and strength, is only too obvious. And further, unless an increase of wages per hour or per trip be made above the old rate, the effect of this law will be to reduce the number of available men for street railway work by driving them into other occupations where less restrictions are imposed

Encouraging (?) Cable Roads.

Mayor Hewitt of New York City, having been informed that street railway companies by adopting the cable system would save two cents on each passenger, at once writes to Albany in accordance with a vote of the Board of Estimate and Apportionment urging the imposition of a tax of one cent per passenger on all roads adopting the cable.

As to the saving of two cents per passenger, of course every practical street railway man knew this to be bosh. That there may be street railways in New York and Brooklyn, judging from the increased patronage following the adoption of the cable in other cities, that could save more than two cents per passenger by the use of that system, is quite possible, but there are others which would lose by its adoption; and in any case there are chances to take on very large investments. But be the profits what they may it is hard to see what claim the city has upon them.

A measure of this sort might be called a law to prevent the adoption of improved facilities for city passenger transportation. A piece of demagoguery aimed at what are called "monopolies" by that contemptible jaundiced spirit which always regards success with bitterness and failure with pitying contempt. A manifestation of that spirit which considers all money extorted from a street railway as net gain, disregarding the principles of common justice and assuming that the roads draw their revenues from the public and unlike other legitimate businesses render no equivalent therefor.

It says in effect any company which has audacity to invest \$2,000,000 in a cable road with the intent to sell for five cents eight mile per hour rides instead of four mile per hour rides, shall be deemed an enemy to the public welfare and shall pay therefor a fine equal to twenty per cent of its gross receipts. Why, if the street railways were treated with the same good sense frequently accorded to other though less beneficial enterprises, a subsidy would be granted instead of a fine imposed for establishment of fast and efficient facilities for city transportation.

When we look at the prosperity of those localities where street railways have been encouraged and consider the immense development in cities which have sought to promote cable roads, the utter stupidity of the principle involved in the measure is very conspicuous.

Clean Stables.

Cleanliness is a matter that does not receive sufficient attention from the foremen of the smaller street railway stables, especially those that are located in what might be called a country town. In a large city where every inch of space has to be utilized, and horses have to be stabled in the fourth story, the sanitary arrangements of the stables are usually of a high order. If this were not the case, it would be but a short time before there would be an epidemic of disease that would terribly deplete the stock. Managers and foremen are well aware of this, and the result is, that the horses have clean, well-lighted and well-ventilated stables.

In the country, on the other hand, where land is comparatively cheap and the whole stable and car shed is upon the level of the street, there is often a lamentable lack of common sense shown in the arrangements.

The stall will be located at the back, where there can be no circulation of air except through the one back opening that is always banked up with rotting manure. The animals stand in this rank atmosphere many hours a day, and become so thoroughly impregnated with the odors that exist and their eyes become so accustomed to the darkness that the time that they are in service does not suffice to give them the air they require and the eye is pained and weakened by the dazzling of the unaccustomed light.

There is positively no excuse for this state of affairs and in places where there is an abundance of fresh air and the floor space of the stable need not be restricted in any way, it is disgraceful that the builders of street railway barns do not use a little more judgment and give to the horses an abundance of the light and air with which they are surrounded.

This is not a matter concerning only the comfort of the horses, but it has a direct connection with the pockets of the owners. A horse has lungs constructed on the same principle as those of a man, and though he may be able to endure more he is nevertheless affected by the same influences. Therefore to put a horse in a dimly lighted, ill ventilated and altogether nasty stall, simply means that that horse will wear out before his time and will have to be replaced by another, which, since horses cost money, means that the dividends will fall short of what they might have been, and the owners are paying dearly for their own senseless-

Training for Conductors and Drivers.

The advantages of a thorough training for conductors and drivers are much more fully recognized than formerly, but that street railway service still admits of vast improvement in this direction goes without saying. The marked contrast in the manner in which different drivers handle a train and different conductors manage a car is obvious, but officials are too apt to regard this as wholly due to natural fitness or unfitness. Of course natural qualifications, education, etc., have much to do with success in this, as in any field of labor, but that the basiness is a fine art is too generally ignored, and the positions are filled by men who neither answer nor recognize the requirements.

There are men who, having what might be called "horse sense," handle a team in such a way as to get the maximum amount of work with the minimum amount of wear of nerve and muscle, which of course means economy in dollars and cents. To do this and at the same time move the car with promptness, speed and safety, only requires thorough training with insistance upon its being done.

The dead and alive way in which some drivers mope through a trip regardless of economy in horseflesh or the accommodation of patrons, only needs to be supplemented by a conductor of the same stamp to make a road thoroughly unpopular and usually unprofitable. While there are conductors and drivers who seem to have been born for the business, it is too much to expect that without careful training employees can discharge with promptness, tact, courtesy and satisfaction to all, duties so many-sided and important. Again it is often thought that anybody can run a car, but we venture to say that the employment of "good stuff," like for instance the conductors in Providence, R. I., and on various other roads we could mention, is uniformly found to be profitable, though of course it costs more money.

A ride over the Chicago City road will convince the observer that the success of that great system is due not alone to the speed of the cable but to the promptness, tact and skill of conductors, drivers and gripmen. To stop and start at exactly the right moment, to lose not an instant unnecessarily in coupling on cars at junction | are many other parts of car framing where |

points, and withal to be courteous and accommodating, not only means to get there on time but to inspire the passengers with confidence in the ability and disposition of the road to render the best and most satisfactory service possible. To the passenger the conductor stands for the company. He is its visible representative, and his prompt movement and pleasant word expresses to the patron the company's resources and good will.

We know of no better way of bringing about an improvement in this direction than that practiced by the Metropolitan road of Boston, the holding of regular weekly meetings of employees for instructions from their superiors and mutual interchange of suggestions. It is much better for employees to spend their time learning and discussing how they can earn more money for their company than in scheming to get more which they do not earn. At the same time, pride in and devotion to this art should result in increased earnings both to company and men.

Street Car Improvements.

BY W. E. PARTRIDGE.

The improvements of street cars during the last dozen years have been most re markable in variety and number. The rider of the present day can scarcely realize how numerous they are or how radical in character until he enters some old car and compares the convenience of the two. Improvements, however, have not been confined entirely to convenient things. There are radical changes in structure, and in functions of various parts. One of the first thoughts which occurs to one when studying the subject is that the adoption of so many devices, and the changing of the structure in so many ways, must end in making a car so heavy and so full of new things that a single team will no longer be able to haul it. We find, upon examining the weights of cars now in use, that improvements need add very little to the total weight. Differences in methods of construction and general plan will prove much more serious matters than all the inventions and appliances that are likely to be put upon a car. As an example of this, we find that 14-foot cars from certain Western factories weigh 5,600 lbs. and upwards, while similar Eastern cars, we think of Stephenson build, turned the scale at 3,650 lbs. This latter figure is not materially heavier than a first-class car of the olden time.

It is not difficult to see how this result is obtained. In going through one of the latest and best street cars, we find metal straps on the wood-work in various places, neatly polished, etc., and the first impression is that these are additions, but the straps around the heads of the doors, for example, while they add to the weight of the metal work, very materially diminish the size of the scantling necessary to make the joints in the door frame secure. There

the addition of metal to the frame has reduced the quantity of wood, strengthened the joint, and while considerably increasing the resisting power of the structure, has in no way added to the total weight. Numerous brackets in various forms of roof come under this class, and as a whole, the raised roof, in spite of its windows and greater weight, is probably stronger and stiffer any way than the short monitor deck which was formerly put into most passenger cars.

The most radical departure which has been made within fifteen years in the details of street car construction, is to be found in the method of hanging. When street cars were first built the journal boxes were planed and fitted to the jaws with as much accuracy as the slides of an ordinary steam engine. The jaws, or pedestals, were braced to each other and to the body of the car with as much rigidity as it was possible to attain. How much this system of bracing weighed it is difficult to estimate, but in the latest forms it was equivalent to many feet of inch iron. As railroading progressed, the habit of making perfectly tight fits between the jaws and pedestals was abandoned, and the castings were put together after having the fins clipped off and being subjected to the roughest kind of file dressing. The bracing, until within a few years, has held its own, and as the result, every lateral irregularity in the track was ultimately transferred to the passenger in the shape of a sidewise shock.

Now, however, in the best work all that has been done away with. Not only do the cars literally float on the wheels, but the whole heavy and complex system of double bracing and diagonal stays has been abolished. This must make a saving in the weight of the car equal to several passengers. Now the jaw is perfectly free to move lengthwise of the box, and the box is held in place only so far as backward and forward motions are concerned. In the Stephenson car the body rests upon four pairs of rubber balls which permit it to move in every direction with perf ct freedom. Within limits, the car is as free as though it floated upon water. To those who remember the pitching, tossing and vicious side motion of a street car of the olden time on a rough track, the modern street car seems to be a new method of transportation altogether. A more radical change in the ideas of what is mechanically past can hardly be found in the history of the arts. The revolution has taken place so quickly and so quietly that it is hardly possible to realize that any one ever believed in the old principles. Practically the removal of so much weight from beneath the car has left a margin sufficient to make up for all the improvements which have been put into the upper portion of our cars, or which are likely to be.

The iron brake beam, with solid brake head and shoe, is a decided improvement over the old wooden beam with its fastening brake head and brake shoe. The relative weights of the two constructions we have not at hand. Probably, however, the iron one, in ordinary weather, weighs about the same as that of wood, the heavy attachments for two heads making up for the differences in actual weight of the beams. If we consider the weight of the mud, or snow and ice, which the old-fashioned brake gear accumulated, it is tolerably safe to say that the general opinion is right in thinking the iron beam lightest. Most roads that have used these beams give them preference on the score of carrying enough less dirt to more than balance the difference in weight.

Another large class of improvements does actually add to the weight of the car, yet the increase of strength and of safety which results is so great as to amply compensate for this. The safety draw-bar, with its thick round lip turned over so as to present a larger surface to the team, belongs to this class. This, with the arrangement of a safety pin, may increase the total weight of the draw gear five or six pounds. In case, however, of a team falling the horses are not injured if they are struck by the car, while with the old style very serious damage was frequently done, and teams were even lost through such injury. The filled bunter hanger weighs perhaps four pounds per car more than the old style, but it prevents the breakage of hangers which took place when cars were shifted in the stables and came in violent contact with each other. It also adds strength to what was formerly a very weak point and which gave much trouble. The horse guard itself is an addition to the weight of the car, but the great saving of animals certainly more than compensates for the few pounds of weight which have to be added.

The dash-cap of metal is certainly heavier than the old dash-cap of wood, and that was much heavier than the dash-rail without a cap, but the advantages in comfort to passengers justify the use of the cap, and the fact that the cap is not likely to be injured by teams driving up behind makes the metallic more desirable than the wooden cap.

A whole chapter might be written on the changes which have taken place in horsecar hardware, such as the brake handle, door locks, body rails, catches, window lifts, knobs, hooks and hinges. The tendency is toward greater beauty, but the beauty has been a result and not at all an object. The later forms of body rails can be seen at a considerable distance as the car approaches the passenger along the track. These rails are not only more easily applied than the old ones, safer for passengers, but are entirely free from all the disagreeable features which rendered some of the horse cars in New York City a terror to the man who had to get on one of them while in motion. Notably the cars of the old Broadway & University Place line had their body rails so arranged that it was almost impossible for a man to spring on one of them in a hurry without taking the skin from his knuckles on one of the nuts. Not only has this danger been entirely removed in more modern

styles of rails, but we notice in the Stephenson latest pattern that the nuts are sunk into the arms in such a way as to be practically flush. These arms are bent so a box wrench can be used for screwing them up, thus making them not only better for the passenger but for the manufacturer also. Door handles have also been arranged and simplified in their outline, while at the same time they are much easier to the hand. Locks have been greatly simplified, and door handles are now universally arranged, or should be at least, so that the door will stay open or shut under all circumstances, and avoid the nuisance of creeping doors, which was one of the things dreaded by every street car traveler a dozen years ago. On cars to be run without conductors a number of improvements in door turning have been made, and to find a door sticking or working according to the old-fashioned rules is now inexcusable. The handle should be balanced, and the door can be arranged in such a way as to give the utmost size to the end glass without interfering either with the door or the window itself.

The metallic stile is one of the improvements that seems likely to work its way into use everywhere. This not only materially increases the stiffness of the window sash, but it allows the use of a larger size of glass than would be possible with the sash made only of wood. Slight modifications of the window frame enable the glass to be made very nearly the full size of the opening, while rubber packing and rubber cushions are inserted in such a way that the old-fashioned rattling windows which gave a small hurricane of cold air on the back of one's neck are things of the past. Window springs prevent the intolerable racket of the olden days, while rendering the upper part of the window much closer.

Better means of communication between the passengers and conductor ought to be provided. There are many systems in use, but all of them lack in some respects, and none appear to possess such superior merit as to force their way into general use.

In New York City the Board of Health has tabooed the use of cushions, but instead of producing discomfort, this has resulted in the substitution of a hard seat covered with plush, Brussels or Wilton carpeting. These seats are decidedly more comfortable than the old, and it is a question whether a cushioned seat would be desirable, even though no sanitary objections to it existed.

In the matter of lighting, the Stephenson new lamp and lantern deserves a word of mention. The principle is to make the lantern or case enclosing the lamp without any communication with the interior of the car except when the door is opened. The supply of air for the support of combustion comes through a series of small holes in the panel just under the signal light. The closed bottom of the lantern reduces the danger from oil, and, by bringing sufficient air in behind the reflectors, glass can be successfully used in

place of tin. This results in a material increase in the amount of light, a diminution of the smoke and smell nuisance, and the ability to use a much larger oil fount. The door remains up after it is lifted and catches when dropped, points which the lamp man will appreciate more perhaps than the traveling public.

It would hardly be possible to speak of improvements in cars without mentioning the subject of heating. In doing so, however, it will be difficult to speak without encountering prejudices on all sides. The first statement to be made is one which almost every one who does not run heated cars will be ready to contest to the utmost. It is this. There are no objections whatever to heating cars in the winter time, and the heated horse car ought to be considered a necessity on every northern line. The methods of heating are very numerous. Long personal experience inclines to the upright stove, which takes the place of a little less than one seat. Stoves under car seats have been used on several lines in New York City, and have been found by most passengers who had personal contact with them an unmitigated and unbearable nuisance. Stoves under the cars seem to be equally unpopular. The acetate of soda method, which was very promising, appears to lack a means of regulation. Various patent stoves that have been introduced from time to time have been holding their own to some extent, but reports in regard to them are too contradictory to entitle them to much consideration. The most notable feature in regard to the heating of street cars and omnibuses is that it was introduced at least twenty-seven years ago, and so far as we know has never been abandoned permanently in any case where it has once been adopted. That street car heating will be generally introduced wherever the climate is cold enough to demand it, may be regarded as certain. A warm car in a cold day is a powerful inducement to ride, and as such deserves the consideration of street railway managers.

As a whole, the direction of improvements seems to be in that of greater convenience to the passenger, greater strength and lightness in construction, and comfort for all concerned, whether driver, passenger, conductor or horses. While some roads pay great attention to the decoration and ornamentation of their cars, the general tendency seems to be to have the car made more beautiful by having it made more appropriate. The idea of elaborate carving, raised work, or in fact anything except flat panels, is not one which recommends itself to a person who believes in the fitness of things. The accumulation of dust, the difficulty of properly cleaning the interior of the car, and the extra cost and care necessary in painting, varnishing and repairing, makes the style in use by many makers exceedingly undesirable. Color harmony can be made to give the street car all the decoration it needs without resorting to devices which are essentially unsuitable for the work the car has to perform.

Notes and Items.

For addit onal Notes and Items see page 513.

Allegheny, Pa.

ALLEGHENY RAPID TRANSIT Co. ask for a right of way from the Northside bridge to California avenue.

An ELECTRIC RAILWAY, 3\frac{3}{4} miles long, to cost \$225,000, is contemplated here. O. P. Scaife of Pittsburg is interested.

OBSERVATORY HILL PASS. Ry. Co. asks for a right of way along the Perrysville plank road, with the right to erect an overhead conductor for an electric current for motors. They also ask for the right of way from Federal and Ohio streets along Federal to Lacock street, to Sandusky street, to the Northside bridge, with right to lay an underground conductor for an electric current.

Asbury Park, N. J.

THE NEW ROAD here, it has been decided, will be an electric railroad, and tenders for its construction have been invited.

Asheville, N. C.

A COMPANY has been formed to build a street railway at this place, which will be operated by a dummy engine.

Atchison, Kan.

J. H. Breson, President of the Atchison St. Ry. Co., is making improvements. He will relay 2 miles of track, and has ordered several new cars.

Atlanta, Ga.

GATE CITY St. R. R. Co. has 7 cars, 28 mules, 16 and 60 lb. rail.

A NEW COMPANY has been formed by J. Haas, W. A. Hemphill and Hoke Smith to build a street railway at Atlanta.

METROPOLITAN ST. R. R. Co., whose decision to change to electricity we reported last month, will likely adopt the Van Depoele system.

Babylon, N. Y.

Babylon St. Rv. Co. has 1.53 miles track, of 4 ft. 9 in. gauge, 3 cars, 3 horses. Washington F. Norton is President, Joseph F. Sammis Secretary, John R. Reed Treasurer and David S. S. Sammis Superintendent.

Baltimore, Md.

Baltimore, Catonsville & Elliott Mills Pass. Rv. Co. reports 15 cars and 42 horses. T. C. Robbins is President, W. W. Orendorf Secretary, and E. P. D. Cross Treasurer.

CITIZEN'S Rv. Co. has 47 lb. rail, and increases from 380 to 400 horses. It reports 36 cars now. James S. Hagarty is President, Joseph Balzino Treasurer, C. C. Speed Superintendent and Purchasing Agent and William V. Hammersley Cashier. Beatrice, Neb.

BEATRICE St. Rv. Co. increases from 20 horses to 28, and reports 4 miles of track, with 25 lb. rail.

Bellevne, Pa.

ELECTRIC ELEVATOR AND RAILBOAD. Work has commenced on this new enterprise. The elevator will be run to a height of 90 ft. From there the plane will be run back half a mile, terminating in the center of

Bellevue borough. This is some five miles down the river from Pittsburg.

Beloit, Kan.

Beloit City St. Ry. Co. has been incorporated by C. J. Brown and others, with a capital stock of \$75,000.

Binghamton, N. Y.

THE ELECTRIC RAILROAD is putting in a 12 by 12 Ball engine.

Birmingham, Ala.

East Lake Land Co.'s line from Birmingham, which we transfer this month from our New Roads to the regular directory, has 7 miles of track, of 4 ft. 8½ in. gauge, 40 lb. rail, 6 cars and 4 motors. The officers are: President, Robert Jemison; Vice President, A. A. Clisby; Secretary and Treasurer, S. M. Hanby.

Boston, Mass.

Lynn & Boston R. R. Co. increases since its last report to 42 1-6 miles of track, of 28 to 48 lb. rail.

A Hearing was given at the Massachusetts State House, Boston, by the Committee on Street Railways, on the proposed use of the Enos suspended car system, with Daft electric motors, on a road between Jamaica Plain and Boston Common.

Locations in Somerville. The Consolidated and the Cambridge roads are each trying to get a location on Highland avenue. In behalf of the latter it was urged that a track is to be laid on North Charles street, in Boston, which will shorten the route to Park square by way of East Cambridge and Bridge street. President Powers of the Consolidated road said that his is the only company in the State that has a right to lay a cable road.

ELECTRICAL EXPERIMENTS. Members of the West End Land Co. called upon officials of the Cambridge Electric Light Co. to make arrangements for an experiment with an electric car over the Main street tracks of the Cambridge Railroad Co. It was finally arranged that the latter company would furnish electricity for an experiment, which is to take place at an early date. Storage batteries are looked upon very favorably by the West End people.

The Cambridge R. R. Co. asked permission of the Cambridge Aldermen to lay an additional track on Brattle street from Harvard square to the Mount Auburn bridge, promising to run more cars in case the petition should be granted. Several remonstrants urged that, if the location should be allowed, the flat rail should be made obligatory. Henry M. Whitney, of the West End Land Co., said he favored the English rail. In regard to motive power, he said that electricity and the cable system were under consideration. A third track on Main street, from Columbia street to Central square, is also asked for.

The "Horse" Railroad Companies in Massachusetts were chartered as street railway companies, no reservation being made as to the motive power. At the time of the formation of the earlier corporations, electricity was not expected to accomplish very much, but many hoped that some form of steam locomotive would be brought

out. To remove any doubts, a bill has been presented to the Legislature, granting the right for any railroad company to operate its trains and cars by electricity, using any system approved by the Board of Railroad Commissioners. Rights to place poles for overhead wire systems may be granted by the authorities of respective cities and towns.

THE CONSOLIDATION. The directors of the Metropolitan, South Boston and Cambridge street railways met April 28 and voted to consolidate with the West End Street Railway Company under the management of Henry M. Whitney. The conditions of the exchange of securities are virtually the same with each of the above roads, being 21 shares of West End Street Railway 5 per cent preferred stock or \$125 a share in cash, at the option of the holders. There will be an issue of common stock to be held by the West End Railway Co. upon which no dividend will be paid until the dividends which are to be accumulated are paid. The plan will give to the holders of stock in the present roads a larger dividend than they have ever received. The earnings at present will warrant the payment of 5 per cent upon the preferred stock, and as large savings can be made in the running expenses, there will be a margin of profit for the West End company. The bill now before the Legislature authorizing the West End Railway Co. to tunnel Boston Common and adjacent streets will probably fail of enactment this year.

Brooklyn, N. Y.

BROOKLYN CROSS TOWN R. R. Co. will put on large cars June 1. They have increased their number of horses since the last report from 413 to 430.

THE CONDUCTORS on Brooklyn railroads complain that they are required to ring up the fares as soon as passengers enter the car, thus imposing more responsibility on the conductor than is the case with New York railroads, where the ringing up comes after collecting.

BROOKLYN CITY R. R. Co. The Brooklyn, Bath & West End R. R. Co. tore up the tracks of the City company at Third avenue and Thirty-sixth street May 13, and by substituting cross rails made a connection with the new Thirty-fourth street ferry. As soon as the tracks were laid an engine and car were run across.

Van Brunt St. & Erie Basin R. R. Co. A toddling infant was sent into the streets in charge of a ten-year-old child, and was hurt by the cars of this company. The defense claimed that there was negligence in sending the infant into the streets in such custody. But judgment was given for \$4,000 damages, and this is now affirmed by the Court of Appeals.

CALVARY CEMETERY, GREENPOINT & BROOKLYN R. R. will extend their road in June. This company, which has not here-tofore reported in full in our Directory, has 6 miles of 4 ft. 8½ in. track, of 50 lb. rail, with 10 cars and 30 horses. The officers are: President, James B. McKewan; Secre-

tary and Treasurer, John R. Conover; Superintendent, D. W. Sullivan. Office, 585 Manhattan avenue.

GRAND ST., PROSPECT PARK & FLATBUSH R. R. Co., better known as the Franklin avenue line, has been bought in under foreclosure proceedings brought by the holders of the second mortgage. There were three mortgages, each for \$200,000, upon the property. Henry C. Deming bought the property for \$105,500, subject to the first mortgage and accrued interest. He acted for a syndicate of the bondholders.

THE NEW ROAD being built by the syndicate of Brooklyn capitalists who recently purchased the Calvary Cemetery road will run from Ash street through Oakland street, Van Cott avenue, Driggs street, Union avenue, Broadway, Throop avenue, to Park avenue. The work of construction is well under way, and will be pushed forward as rapidly as possible. The road will be run in connection with the Cemetery road, and passengers will be transferred between the two lines at the corner of Greenpoint avenue and Oakland street. Officers: President, John McKewen; Secretary, Michael Just; Treasurer, John R. Connor; Manager, D. W. Sullivan.

THE PARK AVENUE R. R., which has been recently equipped with a cable, has now been in operation for some time. The cable is what is known as the Johnson system, and consists of two cables joined together at intervals of about 10 inches. Between the cables a sprocket wheel is dropped from the car and held in position by a brake. As the brake is slackened off the wheel is allowed to revolve and the car brought to a standstill. As the brake is tightened the wheel is stopped and the motion of the cable communicated to the car. The cars are run over about one and onehalf miles of track by the cable, and on reaching the city end of the line the sprocket wheel is raised out of the slot and the car hauled another mile and a half by horses. The road is in successful operation and the cars are easily and readily controlled.

Buffalo, N. Y.

Buffalo St. R. R. Co. increases from 96 cars to 109 and from 510 horses to 615, and now reports 15½ miles of track.

BUFFALO EAST SIDE ST. RY. Co. reports an increase in cars from 47 to 59, in horses from 218 to 301, and in miles of track from $28\frac{7}{8}$ to 31. Their rail is 50 lb. to the yard.

A New Line is projected here, in which J. D. Hardy is interested.

Cedarlinrst, N. Y.

THE CEDARHURST R. R. at Woodsburgh. L. I., a branch of the Long Island system, on which a horse car is operated, contemplate an extension to the Isle of Wight. Rufus Martin, at 13 Park row, has particu-

Charlotte, N. C.

CHARLOTTE ST. Ry. Co. has 21 miles now in operation, and when completed will have 5 miles. The road is of 4 ft. 81 in.

gauge, 16 lbs. to the yard, with 4 cars and 20 mules. Capital stock, \$20,000. President, W. J. Rushton; Secretary and Treasurer, E. K. P. Osborne; Superintendent, F. W. Dixon.

Chattanooga, Tenn.

CITY St. Ry. Co. has been organized by John T. Williamson and others.

Chicago, III.

CHICAGO CITY Ry. Co. are just completing their 30 new open cars and beginning 130 closed cars. All are equipped with the Vose spring.

OUR CHICAGO LETTER.

President Yerkes, of the North Chicago Railway, hopes to have his new cable in operation about Oct. 1st. In order to accomplish this a small army of men is kept busy. Work on the south side is carried on day and night, the men working by electric light. This company has also some twelve miles of horse car line under construction, beside the twelve miles of cable, which when completed will have increased the mileage of the entire system some forty per cent during the year. The new horse car tracks comprise lines in North avenue, Division street, Market street, Kinzie street, La Salle street and Dearborn street. 'The main power station, located on Clark street between Elm and Maple, comprises four engines of 500 H. P. each, and will operate the main lines in the north side. The smaller station, located at the corner of Illinois and La Salle streets, consists of two engines of 350 H. P. each, and will operate the tunnel end, with the La Salle street loop. The Johnson girder rail is used on the cable lines, and on the horse car lines both the Johnson and Wharton rails. A stable 150 ft. by 120 ft. is being constructed on Clark street.

The West Division Railway have recently turned out from their shops 20 new open cars of very handsome design. They are painted a pure white, and the decorations are artistic. Stained glass windows are used at the ends of the cars, the curtains at the sides being fastened in an original manner. The seats are made from different kinds of hard wood, and on the whole the cars present an elegant appearance.

The City Railway are pushing the construction of their new lines as fast as possible. The State street extension is now in operation from Thirty-ninth street to Sixtieth street.

Cleveland, Q.

KUHLMANN BROS., whose hard-wood interior work has been well and favorably known for some twenty years, have added to their business the building of street cars. They have been for some years supplying parts of cars to be used in construction.

Columbus, O.

GLENWOOD & GREENLAWN ST. R. R. Co. has 4 cars and 19 horses,

Columbus, Miss.

THE NEW COMPANY here is called the City R. R. Co. of Columbus. The capital stock, \$20,000, is all taken, and the road will be built at once. The directors are R. W. Banks, E. T. Sykes and G. W. Cox, of I track, 45 lb. rail, 6 cars and 32 horses. H.

whom the first named is President and the second Secretary and Treasurer.

Concord, N. II.

An Electrical Motor has been successfully tried on the street railway here.

Conneil Bluffs, Ia.

COUNCIL BLUFFS ST. Ry. The officers of this road are: President, S. R. Callaway; Secretary and Treasurer, George R. Hall; Superintendent, William H. Burns. Office, 506 First avenue. The company has 4 miles of 4 ft. 8½ in. track, 27 lb. rail, 10 cars, 32 horses. The road has not hitherto been reported in full in our Directory.

Crookston, Minn.

CROOKSTON ST. Ry. Co. has been organized, and it is expected that the line will be built this year. Capital stock, \$100,000. J. E. Sawyer and others, incorporators.

Dallas, Tex. DALLAS CONSOLIDATED ST. RY. Co. is the name of a consolidation under one management which has been made of all the street railway companies in the city. It has 13 miles of track, of 4 ft. 81 in. gauge, 20 to 38 lb. rail, and 5 to 6 miles more will be built this year. The owners and directors for the first year are J. E. Henderson, W. H. Flipper, J. E. Scheresder, T. J. Oliver, W. H. Gaston, J. N. Simpson and J. T. Freyvant, Jr. J. E. Henderson is President; W. C. Connors, Secretary. Capital stock, \$300,000. Authorized capital, \$500,000. Dalton, Ga.

DALTON ST. Ry. Co. organized, and the Board of Directors, of which T. R. Jones is Secretary, were instructed to build, and at once invited bids for furnishing iron, cars, etc.

Danville, Ill.

CITIZENS' ST. Ry. Co. has 8 cars and 41 mules. William P. Cannon is President, and Adam R. Samuel Secretary and Treasurer.

Dayton, O.

DAYTON ST. R. R. Co. report 95 horses, an increase of 15, and will probably have a few more. They have 25 cars. John W. Stoddard has sold his interest in the company and resigned as President, and C. J. Ferneding has been elected in his stead. G. W. Rogers is the new Vice President. C. A. Craighead continues as Secretary and A. W. Anderson as Superintendent.

Denver, Col.

DENVER CABLE Ry. Co. has been incorporated by James McCord and others. Capital stock, \$500,000.

Derby, Conn.

ELECTRIC RAILROAD. A company has been organized to build an electric railroad on the Van Depoele system from Derby, Conn., to Birmingham and Ansonia, a distance of 31 miles.

Des Moines, Ia.

DES MOINES & SEVASTOPOL ST. RY. Co. will build a brick barn, 50 by 60 ft. They have 2 miles of track, of 4 ft. gauge, 20 lb. rail, 3 cars, 10 horses. The road is clear of debt.

CAPITAL CITY ST. Ry. Co. intend to build 7 miles this year and add 10 cars. They report an increase to 7 miles of 4 ft. 81 in.

E. Teachout is Secretary of this company. Duluth, Minn.

MINNESOTA POINT ST. Ry. Co. has been incorporated, with a capital stock of \$100,-000. Reginald W. Petre is one of the incorporators.

DULUTH HIGHLAND CABLE Ry. Co. The capital stock of this company, to whose plans we referred last month, is \$200,000. H. W. Bradley and William W. Billson of Duluth and J. A. Willard of Mankato are interested.

East St. Louis, Mo.

EAST ST. LOUIS MOTOR Ry. has been incorporated, to build and operate a street railway, by H. S. Sexton, Henry O'Hara and William H. Hill. Capital stock, \$200,-000.

Erie, Pa.

ERIE CITY PASS. Ry. Co. reports 30, 40 and 45 lb. rail. They have now 81 miles of track, 20 cars and 85 horses. J. L. Sternberg is now Secretary.

Evensville, Ind.

EVANSVILLE ST. Ry. Co. The only change in officers is that T. I. Gist is now Superintendent, in place of William Bahr. This company has 200 mules.

Flushing, N. Y.

A COMMITTEE from the Board of Village Trustees, consisting of George Pople, R. S. Tucker and R. S. Bowne, have just returned from Scranton, Pa., where they have been examining the electric railroad, previous to considering the application of the company who desire to build a similar road at Flushing. They report themselves well satisfied.

Forrestville, Ga.

A New Company is forming here, in which A. W. Ledbetter is prominently interested. Forth Smith, Ark.

THE Two New Companies that have been chartered here are called the Belt Line St. R. R. Co. and the Sulphur Springs Ry. Co.

Gainesville, Fla.

GAINESVILLE CITY & SUBURBAN RY. Co. General Manager R. L. Robb writes that they are just starting, and will build about 6 miles of track. Motive power undecided. Gauge, 4 ft. 81 in. Weight of rail, probably 20 or 24 lbs. W. H. Robertson is President.

Galesburg, Ill.

College City St. Ry. has 51 miles of track, 9 cars, 24 horses. A. Matteson is Treasurer.

Galveston, Tex.

GALVESTON CITY R. R. Co. has 79 cars and 218 mules.

Grand Island, Neb.

THE STREET RAILWAY COMPANY will build 5 miles of track and have ordered 8 new cars. The material for the construction of the road has been ordered.

Grand Forks, Dak.

A Franchise for a street railway was granted to Secretary of State McCormack, of Bismarck, on his recent visit to Grand Forks. The movement is backed by Duluth and New York capitalists.

Green Castle, Ind.

to 21 miles, of 4 ft. 81 in. gauge, 23 lb. rail, 3 cars and 14 horses. E. W. Rogers is General Manager.

Greenville, Ala.

A STREET RAILWAY is to be built here by J. T. Perry.

Hannibal, Mo.

HANNIBAL ST. Ry. Co. Superintendent O'Hern writes us that they will lay 1 mile of double track this spring.

Harrisburg, Pa.

ELECTRIC RAILROAD. A street railroad is to be built from Harrisburg to Steelton, Pa., a distance of 3½ miles. It will be built on the Van Depoele electric system, like the one in operation in Scranton.

Hartford, Conn.

HARTFORD & WETHERSFIELD HORSE R. R. Co. increases from 40 cars to 53 and from 250 horses to 259. E. S. Goodrich is President and Daniel R. Howe Secretary.

Hastings, Neb.

HASTINGS ST. Ry. Co., a new organization here, will build 3 miles of track, and have ordered 5 new cars.

Hoboken, N. J.

NORTH HUDSON COUNTY Ry. Co. reports 25 miles of track, and increases to 635 horses.

Holden, Mo.

A FRANCHISE has been granted by the City Council to William Steele, J. S. Johnson, John T. Bruce, J. N. McDonald and Thomas C. Carter. The line will begin on Second street, run south on Olive to Fourteenth, east to Main, north to Second and west to the starting point. At Fourteenth it will go to the Fair Grounds if the Association settles positively on its present location. The company is said to have ample means to build the line, and announce that work will begin at once.

Holyoke, Mass.

HOLYOKE St. Ry. Co. increases from 13 cars to 15 and from 45 horses to 55.

Hntchinson, Kan.

HUTCHINSON ST. Ry. Co. makes a few changes in its report. It has now 21 miles of track, of 4 ft. 4 in. gauge, 20 lb. rail, 6 cars, 18 horses.

Ilion, N. Y.

FRANKFORT & ILION St. R. R. Co. reports 33 miles of track, with 5 cars and 5 horses. John A. Giblin is Secretary and Treasurer. Jamestown, N. Y.

JAMESTOWN ST. Ry. Co. has 4.34 miles of 4 ft. 81 in. track, 30 and 42 lb. rail, 13 cars, 40 horses. Officers: President, James B. Ross; Vice President, L. B. Warner; Secretary, F. E. Gifford; Treasurer, A. N. Broadhead; Superintendent, G. E. Maltby. Jacksonville, Fla.

PINE ST. Ry. Co. proposes to adopt electricity.

JACKSONVILLE ST. RY. Co. has acquired by purchase the track and franchise of the Suburban St. Ry. Co. They are moving the track from Ocean street to Newnan street and changing the track from a narrow to standard gauge. This will give this company control of all the street railways except that of the Springfield company, and gives them three branch lines besides GREEN CASTLE CITY St. Ry. Co. increases | the main line from Fairfield and East Jack-

sonville on the east to Riverside on the southwest, namely, the La Villa, Hansontown and Oakland branches, giving them a track altogether of about ten miles in length. There were no street railways in Jacksonville six years ago.

Jersey City, N. J.

PAVONIA FERRY ST. R. R. J. H. Small is Manager of this company.

JERSEY CITY & BERGEN R. R. Co. The only change is an increase in horses to 630.

THE NEW LAW enforcing twelve consecutive hours' work per day for street railway employees went into effect on Sunday. The result was a corresponding reduction in wages in many cases and the employment of more "extra" men.

Johnstown, N. Y.

Johnstown, Gloversville & Kingsboro Horse R. R. Co. reports 6 cars and 18 horses. Henry Slotter is President.

Johnstown, Pa.

Johnstown Pass. Ry. Co. has 15 cars and 74 horses. W. H. Rosensteel is Treasurer. Junction City, Kan.

JUNCTION CITY & FORT RILEY ST. RY. Co. A length of track of 7 miles is contemplated. The method of propulsion has not been decided upon. They must obtain franchises from the city, the county and from Congress. Capital, \$50,000. President B. Rockwell; Vice President, G. E. Harvey; Secretary and Treasurer, C. G. Thurston. Kalamazoo, Mich.

KALAMAZOO ST. Ry. Co. increases to 81-6 miles of track. E. M. Irish is President, Dr. Chase Vice President, J. W. Bounton Manager, Arthur Ellithorp Secretary and Treasurer, and William Shakespeare Auditor.

Kansas City, Mo.

KANSAS CITY ELECTRIC RY. Co. A second Ball engine is being added.

THE EXTENSIONS to which we have referred are being pushed rapidly. In the new schemes noiseless motors are favored by many in preference to the cable.

METROPOLITAN ST. Ry. Co. has 25 miles of track, of 4 ft. $8\frac{1}{2}$ in. gauge, 56 lb. rail, 126 cars and 475 horses. R. J. McCarty is now Secretary and Auditor.

KANSAS CITY CABLE RY. Co. reports 12 miles of track, of 4 ft. 81 in. gauge, 45 and 56 lb. rail, 26 grip cars and 39 passenger cars. Philip A. Chase is Vice President of this company. The company has let contracts for a \$35,000 elevated depot, to be built at the western terminus of the Ninth street line, between the present depot and the elevated railway depot.

Knoxville, Tenn.

FOUNTAIN HEAD R. R. Co. has been incorporated by F. A. R. Scott, J. White, J. H. Cruze, J. C. Neily and S. H. George to build a dummy railroad.

Lawrence, Kan.

LAWRENCE TRANSPORTATION Co. have bought a lot of land on which they will build a stable and car house. They have now 36 horses. President, H. Tisdale; Secretary, W. N. Bangs; Superintendent, George Fricker.

Lake City, Fla.

THE RIGHT OF WAY for a street railway here is held by H. S. Haines, General Manager of the Savannah, Florida & Western Railway and all the Plant system in Florida.

Lawrence, Mass.

MERRIMACK VALLEY HORSE R. R. Co. increases to 22 cars and 87 horses.

Lewiston, Me.

LEWISTON & AUBURN HORSE R, R. Co. The only change is that C. C. Corbett is now Clerk as well as Treasurer.

Lincoln, Neb.

AN ELECTRIC MOTOR COMPANY has been organized, with a capital stock of \$100,000, to build from the business part of the city to the stockyards.

Los Angeles, Cal.

THE FOLLOWING PARTICULARS of the lines at Los Angeles are sent us by a valued correspondent:-

East & West Los Angeles Co. has 7 miles, 20 cars, 80 horses. President and General Manager, J. F. Crank; Secretary, Fred Harkness; Superintendent, W. Hawks.

TEMPLE St. CABLE Ry. Co. has 13 miles, 3 ft. 6 in. gauge, 6 cars, 6 grip cars. President, P. Beaudry; Secretary and Manager, F. W. Woods; Superintendent, J. Fowler.

Main St. & Agricultural Park Co. has 8 miles, 3 ft. 6 in. gauge, 15 cars, 60 horses. President, W. J. Broderick; Secretary, A. C. Taylor; Superintendent, E. M. Lorricke.

CITY Ry. Co. has 8 miles, 4 ft. $8\frac{1}{2}$ in. gauge, 36 cars, 180 horses. President, I. W. Hellman; General Manager, J. F. Crank; Secretary, Fred Harkness; Superintendent, W. Hawks.

CENTRAL & BOYLE HEIGHTS Co. has 61 miles, of 3 ft. 6 in. gauge, 26 cars, 110 horses. President, E. F. Spence; General Manager, J. F. Crank; Secretary, Fred Harkness; Superintendent, W. Hawks.

Los Angeles Electric Ry. Co. uses the Daft system of overhead wires, and has 5 miles, of 4 ft. 8 in. gauge, and 4 cars. George H. Bonebrake is President, C. H. Howland Secretary and Manager, and A. H. Hayward Constructing Engineer.

SECOND St. CABLE Ry. Co. has 11 miles of cable and 11 miles steam motor extension, 3 ft. 6 in. gauge, 8 cars, 6 grip cars, 2 motors. President and Treasurer, James McLoughlin; Secretary and Superintendent, H. W. Davis; Assistant Superintendent and Master Mechanic, E. H. Hutchin-

Long Island City, N. Y.

STEINWAY & HUNTER'S POINT R. R. Co. The only change is that W. H. Delahanty is now Superintendent.

Louisville, Ky.

KENTUCKY St. R. R. Co. has 5 miles of track, of 5 ft. gauge, 52 lb. rail.

CENTRAL PASS. R. R. Co. The officers of this road are: President, B: du Pont; Vice President and Manager, T. J. Minary; Secretary, T. C. Donigan. An increase from 49 to 51 miles of track is reported, from 150 cars to 156, and from 750 horses to 800.

Louisville City Ry. Co. has completed the extension of its tracks on Broadway from Twelfth to Twenty-first street, on Jefferson from Twelfth to Twenty-sixth, laying double track, and on Thirteenth from Main to Jefferson, using the Johnson steel girder rail, 581 lb. This enterprising company has put down some 700 tons of rail during the past year. Several new brick stables and car houses are also being built.

Lynchburg, Va.

LYNCHBURG St. Ry. Co. have nearly completed another mile of track in addition to their present 2½ miles. They have now 6 cars and 32 horses.

Lyons, Ia.

CLINTON & LYONS HORSE RY, Co. The revised list of officers is as follows: President, D. Joyce; Secretary, W. T. Joyce; Superintendent, Frank Crapser.

Mansfield, O.

MANSFIELD ELECTRIC ST. RY. Co. has been incorporated; capital stock, \$75,000. Neftel & Oothout of New York are now building the road. Four and a half miles will be ready for operation by the 1st of July, with five cars. The officers are: President, Edward Oothout; Vice President, Huntington Brown; Secretary, M. Van Rensselaer, Jr.; Treasurer, C. E. McBride; Engineer, Knight Neftel; General Manager, William G. Root. The Daft system has been adopted for the electrical part of the work. Extensions will be built during the summer.

Maryville, Tenn.

A Company has been formed here, with a capital of \$5,000, to build a street railway, Among those interested are Dr. John P. Blankenship, Rev. P. M. Bartlett, W. T. Parham, G. S. W. McCampbell, Joe Burger and Will A. McTeer.

Maysville, Ky.

MAYSVILLE ST. R. R. & TRANSFER Co. have just finished 1 mile of road to the cemetery, and now report 31 miles and 7 cars. L. W. Robertson is President, W. S. Frank Secretary, Treasurer and Superintendent.

Memphis, Tenn.

Union R. R. Co. has 14 miles, 38 cars, and 200 horses and mules.

Meriden, Conn.

MERIDEN HORSE R. R. Co. This new company is having a steadily increasing business, and reports 15 cars and 100 horses now, against 12 cars and 80 horses.

Milwankee, Wis.

A Project is on foot to construct a cable road from the lake front at Milwaukee, across the city and out to the village of Wauwautosa. The latter village is rapidly becoming a suburban residence center for business men of the city. Opposition in the City Council is expected to a franchise

MILWAUKEE CITY Ry. Co. asks for the extension of the Walnut street line. present terminus is at Sixteenth street. It is desired to pave the western portion of Walnut street, and the purpose in introducing the ordinance is to have the tracks laid at the time the streets are torn up in | double. They have now 15 miles, of 5 ft.

putting down the new paving. The extension is to be as far as Twentieth street.

West Side St. Ry. Co. asks for an extension from the intersection of Twelfth and State streets westward to the city limits. It will parallel the Wells street line and at western end of State street will connect with the Milwaukee & Watertown road. They also ask to locate a line from the intersection of State and Eleventh streets, running thence east to Eighth, south on Eighth to Cedar and east on Cedar to Fifth, where connection is formed with the Fifth street branch of the Grand avenue and Wisconsin street lines.

Minueapolis, Minn.

MINNEAPOLIS ST. Ry. Co. Cars on the Fourth avenue line have stopped running beyond Twenty-fourth street, the ten-minute trains of the motor line accommodating residents of this district better than the horse-car line. The same line has been extended up Sixth avenue N. The Franklin avenue line will run to Fourth avenue S., to Twenty-seventh street, to Hennepin avenue, making a cross route of great usefulness. This will shut out the proposed Burgess road. The line running north on Washington avenue to Thirty-second avenue is also a positive thing for the summer. The motor extension to the Washburn home is not fully developed, but it is about determined upon. The company is building 12 new open cars for use this summer. A smoke consumer is to be put on each engine, and guards will be put on all trains to prevent accidents under the trains.

Moline, Ill.

MOLINE CENTRAL ST. Ry. Co. reports 11/2 miles of track.

Nashville, Tenn.

LAKE R. R. Co. has been organized by John Lellyet, John McEwen, L. A. Robinson and others.

MANSFIELD & UNIVERSITY St. R. R. Co. has been incorporated, and will build a line of about a mile and a half, at an estimated cost of \$10,000.

WEST NASHVILLE PASS. RY. Co. Among the incorporators of this new company, to which we referred last month, are S. W. Steel, Volney James, George K. Whitworth, E. T. Noel, L. H. Davis and J. H. Moore.

NORTH NASHVILLE ST. Ry. Co. is a new organization, of which the incorporators are J. G. Jones, Theo. Selfred, A. W. Wills, Robert L. Morris, John Ruhm, Jr., G. P. Thurston, George March and S. P. Claybrooke.

Natchez, Miss.

NATCHEZ ST. Ry., controlled by Thomas Reber, will be extended 11 miles at once, and an effort is being made, which will probably succeed, to extend it some four miles further. If this is done the road will be in strong hands.

Newark, N. J.

NEWARK & So. ORANGE, FERRY St. & HAMBURG PLACE R. R. Co. are busy laying track, making all of their Newark route 2½ in. gauge, 45 lb. rail, 49 cars, 300 horses. Officers: President, John Radel; Secretary, Andrew Radel; Treasurer, Joseph Criqui. New Bedford, Mass.

Consolidation. The two street railway companies at this place—the New Bedford & Fairhaven St. Ry. Co. and the Acushnet St. Ry. Co.—have consolidated, under the name of the Union St. Ry. Co. The new company has a capital of \$260,000. Directors: Jonathan Bourne, President Merchants' Bank; William W. Crapo, Presiident Mechanics' Bank; J. A. Beauvais, President Citizens' Bank; Andrew G. Peirce, President Wamsutta Mills; Weston Howland, Collector of Customs; Charles E, Cook; Abbott P. Smith; Charles H. Gifford; Simuel C. Hart. Treasurer, A. G. Peirce; Clerk, Abbott P. Smith; Auditor, George R. Phillips; Attorneys, Crapo, Clifford & Clifford. The combined resources of the two companies give 17.78 miles, of 4 ft. 81 in. gauge, 35, 38, 45 and 50 lb. rail, 84 cars and 311 horses.

New Brunswick, N. J.

It is Reported that the street railway will be run by electricity instead of by horses.

Newburgh, N. Y.

NEWBURGH ST. Ry. Co. John W. Aldrich, Foreman of this road, has resigned and accepted a like position with the Haines Bros., at Cayuga Lake.

New Orleans, La.

CRESCENT CITY R. R. Co. W. J. Behan is now President of this company.

Test of Fireless Engine. A trial trip, which was witnessed by prominent engineers and others, was recently made on the Carrollton road. The distance to Carrollton, 3‡ miles, was made in 13 minutes and the return trip in 11 minutes. The working of the machine was in every way satisfactory. The car was stopped and started far more gently than is usual with cars drawn by horses or mules or dummy engines. The strongest claims for the new motor are on the score of economy.

New Rochelle, N. Y.

NEW ROCHELLE & PELHAM R. R. The only change is that Thomas E. Crimmins is now Treasurer.

New York, N. Y.

SECOND AVE. R. R. Co. Net income for the quarter ending March 31 was \$4,851, against \$15,490 last year.

East & West Ferries R. R. Co. has been incorporated by Charles W. Hough and others. Capital stock, \$50,000.

Rufus Martin & Co. state that their new change belt (No. 3), which was mentioned in our last issue, is meeting with success. They are already in use on over fifty street railways.

THE FRANCHISES of the Twenty-eighth and Twenty-ninth streets and the North and East rivers surface ralroads were not sold April 28, owing to informalities, and the sale has been postponed to May 31.

New York & Harlem R. R. Co. The Fourth avenue line reports gross earnings of \$225,666 for the quarter ending March 31, against \$225,143 last year; gross income

of \$73,745, against \$85,178; and net income of \$61,795, against \$70,378.

Broadway & Seventh Ave. R. R. Co. The first colored man to get a job as conductor on a horse car in New York is working on the Broadway line. He runs a night car. This company reports gross earnings of \$387,656 for the quarter ending March 31, against \$375,166 for the same time last year; gross income of \$120,582, against \$77,742; and net income of \$22,135, against \$9.077.

ELECTRIC R. R. Co. At a meeting of the company, May 2, the following directors were elected: Frederick F. Thompson, Cyrus W. Field, Edward H. Johuson, R. E. Deyo, C. H. Coster, Spencer Trask, Stephen D. Field, Charles Dimon and F. S. Hastings. The company is making improvements in its motor and will probably be ready to have a trial in a few weeks on the Thirty-fourth street branch of the Third Avenue Elevated Railroad.

Sanding Car Tracks. Mayor Hewitt issued a letter to the Superintendents of the various surface railroad companies telling them that the practice of sanding their tracks "must cease." A few days later it was discovered by his advisers that a suit is pending between the railroad companies and the city on this subject, and an injunction is in force restraining the city authorities from interfering. If the Mayor arrests the sand sprinklers he is liable to be himself arrested for contempt of court.

The Cable Bill. The bill which has passed the Legislature permits any street railway company in cities of 500,000 or more inhabitants to substitute cables or electricity for horses. Before the Board of Estimate and Apportionment, Mayor Hewitt said he had been informed that the companies, by adopting the cable system, would save two cents on every passenger; and, in accordance with a vote of the Board, the Mayor wrote a letter to Albany the next day urging the imposition upon all cable companies of one cent for each fare, for the benefit of the municipal treasury.

THIRD AVENUE R. R. Co. The buildings and land at the southwest corner of Thirtyfourth street and Third avenue, owned by this company, and used as a depot for its Grand Central branch, were sold at auction April 28 for \$240,000. The Aldermen want to know whether Commissioner Newton has the right to give a permit to the Third Avenue Co. to lay a track in 129th street from Third avenue to Madison avenue. It is reported that English capitalists have been making inquiries touching the road, with a view to the speedy completion of the cable line. The net income for the quarter ending March 31 was \$3,213, against \$41,791 for the same period in 1886.

New Haven, Conn.

FAIR HAVEN & WESTVILLE R. R. Co. have adopted the Lewis & Fowler register.

North Adams, Mass.

HOOSAC VALLEY ST. Ry. Co. reports 10 cars and 28 horses.

Oakland, Cal.

OAKLAND R. R. Co. has 8 miles of track,

of 3 ft. gauge, 60 lb. rail, 9 cars, 83 horses. President, Hon. James G. Fair; Secretary, Charles S. Neal; Superintendent, George Y. Loring.

OAKLAND CABLE RY. Co. reports 5 miles of track, of 3 ft. gauge, 40 lb. iron rail, 10 cars. The officers are: President, Hon. James G. Fair; Secretary and Treasurer, Charles S. Neal; Superintendent, George Y. Loring.

Ogdensburg, N. Y.

Ogdensburg St. Ry. Co. increases to 22 horses. Officers: President, W. H. Daniels; Secretary, E. A. Newell; Treasurer, A. E. Smith.

Omaha, Ncb.

OMAHA MOTOR Ry. Co. has filed articles of incorporation. It organizes with \$500,-000 capital, \$250,000 to be subscribed and \$50,000 to be paid in before commencement of business. It proposes to construct lines in the cities of Omaha, Florence, town of Millard in Douglas county; Plattsmouth and Factoryville in Cass county; Fremont in Dodge county; Papillion and Bellevue. Sarpy county; Nebraska City, Otoe county; and on the county road west of Kensington, in the county of Douglas. The same corporation also affirms its right to operate street railroads in Omaha and designates all of the business streets in the city as its right of way, except Farnam, Sixteenth, Tenth, Capitol avenue. The incorporators are Samuel D. Mercer, Clifton E. Mayne. Charles B. Brown, Herbert J. Davis, Samuel S. Curtis, E. L. Stone.

NEW LINE TO THE ASYLUM. Ex-Gov. Dawes, Senator S. W. Burnham, J. M. Hoffman, John H. McClay and J. E. Baum are the projectors of a new street railway line that they propose building in the southern part of the city to reach the asylum and penitentiary, and to furnish rapid connection with numerous additions that they own in that suburban district.

So. OMAHA ST. RY. Co. has filed articles of incorporation. Capital stock, \$250,000, with power to increase to \$500,000. It proposes to build and operate a street railway over the streets of South Omaha by horse, motor, electric or cable power. The first board of directors consist of D. Anderson, Belthas Jetter, C. M. Hunt, H. C. Bostwick, M. J. De Graff, J. F. Ritchhart, A. Gary, Peter Cockrell and C. C. Van Kuran. The line is to run from Twenty-first street at Armour, along Twenty-first, Wyman, Bellevue avenue, to the corporation limits, together with a number of branches.

Oswego, N. Y.

Oswego St. Ry. Co. held its annual election on the 25th of April, and the next day the directors chose the following officers, being changes from last year: President, R. J. Oliphant; Vice President, H. D. Mc-Caffrey; Secretary and Treasurer, Albert Himes; Superintendent, William S. Turner. The company reports $2\frac{1}{2}$ miles of track, 5 cars and 25 horses.

Pawtneket, R. I.

PAWTUCKET ST. Rv. Co. has received permission to lay rails for a single track, with suitable turnouts, in Central Falls on Mill

street, from Cross street to Charles street, thence on Charles street to High street, to Foundry street for a terminus.

Pelham, N. Y.

THE NEW HORSE RAILWAY from Bartow to City Island, in which William P. Craig is interested, is completed' and cars were run over it for the first time May 17.

AN ELECTRIC RAILWAY is in contemplation at Pelham Park.

Philadelphia, Pa.

Lombard & South Sts. Pass. Ry. Co. has extended its Thirty-eighth and Fortieth streets line to Fortieth and Girard avenue to make transfer connections with the Girard avenue cars, thus increasing the facilities of the road for West Philadelphia traffic.

Pittsburg, Pa.

Traction St. Rv. Co., of which Thomas M. Bigelow is Vice President, will build a line from Market street to Point Breeze, along Fifth avenue. The conduit is to be of solid steel, 18 in. in diameter, imbedded in concrete. The cable will be of steel wire, 1\frac{3}{3} in. in diameter. It will take ten months to finish the road. Philadelphia parties are said to be interested in the scheme. Estimates of the cost vary from \\$1,000,000 to \\$2,000,000.

PITTSBURG & MCKEE'S ROCKS ST. Ry. Co. has begun laying tracks, and it is expected that cars will be running by July 4. A double track will be laid, and cars will be run about 15 minutes apart, from the corner of West Carson and South Main streets to Chartiers, until the ordinance now pending will be passed, after which they will run through to corner of Fifth avenue and Smithfield street. The barn and stables will be built at Chartiers, near Chartiers station, on the Lake Erie Railroad, and 6 cars will arrive about June 15 from Philadelphia, where they are now being built by J. G. Brill & Co. Along Smithfield street the track will be built to straddle that of the Birmingham line. William J. Burns is Superintendent.

Pittsfield, Mass.

PITTSFIELD Sr. Ry. Co. Frank Harwood is President.

Portland, Ore.

Transcontinental St. Ry. Co. increases from 7 miles to 10, from 15 cars to 24, and from 65 horses to 100. Tyler Woodward is now President and General Manager, and D. W. Wakefield Secretary.

Portsmouth, Va.

Portsmourh St. Rv. Co. has been organized, with a capital of \$15,000.

Racine, Wis.

Belle City St. Ry. Co. George B. Hathaway is now President and Superintendent.
Raleigh, N. C.

RALEIGH ST. Rv. Co. The control of this road has been sold to the following gentlemen by the builder: V. E. Turner, President; F. H. Busbee, Counsel; R. T. Gray, Secretary and Treasurer. The road has 5 miles of track. Capital stock, \$25,000; mortgage bonds, \$25,000. A short extension will be built.

Richmond, Ind.

RICHMOND CITY Ry. Co. will build 2 miles track this summer.

Richmond, Va.

RICHMOND UNION PASS. Ry. Co., whose line is now in process of construction, will use electricity for motive power. It will have 8 miles of track, of 4 ft. 81 in. gauge, 40 lb. rail, 30 cars. The following are the directors: J. Thompson Brown, Charles L. Todd, W. H. Scott, Fred. C. Brauer, and Valentine Hechler, Jr., of Richmond; Henry Steers, Theodore N. Motley, James M. Motley, James N. Smith, Theodore Moss, of New York. and John F. Barry, of Boston. J. Thompson Brown is President and J. F. Barry Secretary and Treasurer. The line will connect two of the largest sections of the city, Shockoe and Church Hills, and will extend as far as the Chesapeake & Ohio shops. It will also run along Clay to Hancock street, and thence to Reservoir street and out Ashland street to the new reservoir. A branch of it will run through Jackson Ward.

Rockmart, Ga.

A Line is projected here by S. E. Smith and others.

Rome, Ga.

ROME St. Rv. has been purchased by the Rome Land Co., who will extend it at once to their lands. J. L. Bass is Secretary of the Board of Trustees.

Rutland, Vt.

RUTLAND St. Ry. Co. write us that they think of using steam or electricity in place of horses.

Salem, Mass.

Salem & Danvers St. Ry. Co. has been purchased by the Naumkeag St. Ry. Co. of Salem.

San Diego, Cal.

AN ELECTRIC ROAD is contemplated here. San Francisco, Cal.

GEARY St. PARK & OCEAN R. R. Co. Charles F. Crocker is now President.

CENTRAL R. R. Co. reports a new list of officers, as follows: President, Charles F. Crocker; Vice President, T. Hopkins; Secretary, Jabez Hatch; Treasurer, N. T. Smith; Superintendent, J. T. Clark. They have 15 2-horse and 16 1-horse cars.

POWELL ST. Ry. Co. The winding machinery for this new cable road is being made in San Francisco. There are to be four engines, 22 in. in diameter and 48-in. stroke, aggregating 800 H. P. The spurwheels will be 14 ft. in diameter and 23 in. face. The winding reels will be 13 ft. 9 in. in diameter. This machinery will wind three separate cables, which will be run at a speed of eight miles an hour-faster than the other cable roads in the city. There are to be six horizontal tubular boilers, 54 in. in diameter and 16 ft. long, made of steel. 'The engine house will be three stories, of brick, $137\frac{1}{2}$ by $137\frac{1}{2}$. machinery and blacksmith shops will be on the first floor. The second story will be used for storing cars, and it will hold 38 of them. On the third floor will be located the carpenter shops, paint shops, and it will be otherwise devoted to general repairing. The new device for crossing other cables at right angles is described as follows: The grip engages with an inclined plane, which is pivoted on one end with a

lever arm. The other end of the plane is left free to travel on rollers. The lever arm is connected rigidly to a shaft, on which shaft is fastened a roller and also a counterweight. After the grip engages it pushes the inclined plane forward, thereby shoving the roller over the rope to be crossed, and depresses it, thus doing away with every possibility of touching or injuring the cross rope. After the grip has passed the counterweight swings the roller and plane clear off the cross tube.

Santa Rosa, Cal.

A Company with a capital stock of \$25,-000 has been formed by T. J. Glary, M. Doyle and A. B. Ware to build a street railway along Fourth, Mendocino, College and North streets and Heraldsburg avenue. Work is to begin within the next two months.

Savannah, Ga.

COAST LINE R. R. Co. report 7 miles of track, of which 5 miles suburban line, laid with 35 lb. T rail, are steam. They have 17 cars, 1 engine, 35 horses.

Scranton, Pa.

SCRANTON SUBURBAN Ry. Co. In his letter to the Van Depoele Manufacturing Co. definitely accepting their system, after a six months' trial, President Sturges says: "We are, as a company, thoroughly satisfied with the success of the plant, and would not have it removed or replaced by any other power for twice its cost. You have certainly succeeded in running our heavy cars on extremely heavy grades with great regularity, considering the season, and permit me to say that in my opinion you have solved the street car motor question. Please hasten the additional motors and generators for increase of our plant, as we need them for our summer business.' Springfield, Ill.

Springfield City Ry. Co. expect to relay mile with 35 lb. rail and to build ½ mile new track, with block pavement. They have now 30 to 45 lb. rail on 7 miles of track, 10 open and 10 box cars, 85 horses and mules. George H. Black is Vice President and Irwin Johnson Superintendent. Springfield, Mass.

THE BEMIS FARE BOX Co. are receiving orders for 150 sets of their gearings per month. Among shipments recently made are to roads in Detroit, Milwaukee, Denver, Rochester, Buffalo, Chicago, Providence, St. Louis, Cambridge, Mass., and South Boston.

SPRINGFIELD ST. Ry. Co. are making rapid progress with their Chestnut street extension. It is hoped to have the line in running order in a few days. Two new cars have been ordered for this division, one box and one open. Work on the West Springfield linehas begun. Travel will be opened early in July, when the two open and two box cars already ordered for this division will have arrived, with the 20 horses to draw them. This will make four miles of extension built by the company this year, and they consider it about enough for one season, but they recognize the possibility of extending the St. James avenue line through Dartmouth or

Princeton streets, up Bay street to the entrance of Oak Grove cemetery. The growth of the city in this district will determine the route to be taken, but the increase in population will probably not demand it till next year.

Springfield, O.

CITIZENS' ST. R. R. Co. have recently put on a new equipment of summer cars, built by the Brownell & Wight Car Co., St. Louis. They are 14 ft. long, 7 ft. wide, patent reversible seats on each side, making seating capacity 20 passengers. They are very popular with the people, who say the only additional thing they can ask of the company is free transportation.

St. Joseph, Mo.

FREDERICK AVE. Ry. Co. has changed to double track, standard gauge, 42 lb. Johnson steel rail, from narrow gauge, T rail. They report now 31 miles of track, 10 cars and 75 horses. Some of the officers have changed, and are now as follows: President, D. D. Burnes; Secretary and General Manager, J. A. Corby; Treasurer, S. A. Walker.

St. Louis, Mo.

People's Line just compromises a suit for \$25,000 damages.

BENTON-BELLEFONTAINE RY. Co. reports 57 cars and 234 horses.

Brownell & Wight Car Co. are busy in all departments and report prospects good for the balance of the season.

CABLE ROADS, It is probable that at least one more cable road will be built in this city very soon, making four in all.

J. B. GREENSFELDER & Co. the sponge and chamois house, have moved into quarters double the size of the former place.

St. Louis R. R. Co. has called a meeting for June 29th to consider an increase in its capital stock and an issue of bonds equal to the capital stock.

MOUND CITY R. R. Co. have put on a complete new line of summer cars that were built by the Brownell & Wight Car Co., St. Louis. They are the finest that have been built.

St. Louis Cable & Western Ry, Co, reports 6 miles, 4 ft. 101 in. gauge, 40 lb. rail, 88 cars. President, Dwight Tredway; General Manager and Secretary, A. de Figueredo; Treasurer, Manning Tredway.

CITIZENS' Ry. Co. has let the contract to build 6 miles of double track cable road, using the California system. Their capital stock is to be increased from \$1,000,000 to \$1,500,000 and bonded debt from \$200,000 to \$1,500,000.

SUMMER CARS are popular in St. Louis. The Jefferson Ave. Ry. Co. have just put on a new line of 20 cars of this class built by the Brownell & Wight Car Co. With but one or two exceptions all the lines in the city now have complete double equip-

NORTHERN CENTRAL Ry. Co., which has not heretofore been reported in full in our Directory, has 10½ miles of 4 ft. 9½ in. track, 50 lb. rail, 60 cars and 280 horses.

Julius S. Walsh is President, Charles K. Dickson Secretary and Treasurer, John Mahoney Superintendent, William Harrigan Foreman, and T. C. Callahan Cashier.

W. B. GUERNSEY, the St. Louis representative of the Sprague Electric System, is the head of the large Guernsey furniture house. In the main one of several magnificant show rooms he has a complete working model of the Sprague system, with track from one part of the store to another. The car is provided with automatic reversing gear, so that it will run by the hour without any attention.

UNION DEPOT Ry. Co. asks permission to build a double track on Russell and Compton avenues and Shenandoah street to Grand avenue; on Second Carondelet; on Eighteenth and Clark avenue; and a single track on Dolman street. One object is to afford an uninterrupted line of travel between Grand avenue and Shenandoah street and the eastern terminus of the road. The road may at any time operate its lines either by cable or electric motor.

St. Louis Cable & Southern Railway Co. asks for authority to build a cable road beginning at Sixth and Locust streets, along the tracks of the present cable road to Thirteenth street, to Clark avenue, to Tryon avenue, to Gratoit street, to a point opposite Mississippi avenue, through the intervening block to Mississippi avenue, to Park avenue, to California avenue, to Russell avenue, to Compton avenue, to Rappahannock street, to the main entrance of Tower Grove Park.

NEW ROAD ON GRAND AVENUE. A bill has been introduced in the City Council authorizing John Jackson, Julius S. Walsh, J. R. Helfenstein, M. A. Doyle, E. Walsh, G. S. Case, A. R. Easton and W. B. Ewing to build a street railroad on Grand avenue, to be operated with horse, cable or electric power. The route proposed is a double track from the intersection of Arsenal street and Grand avenue, along Grand avenue to the intersection of Lindell and Grand avenues, thence over and upon the track or tracks of the Missouri Railroad Co. to the intersection of Olive street and Grand avenue, thence along Grand avenue, thence over and upon the tracks of the Lindell Railway Co. to the intersection of Grand and Finney avenues, thence to the intersection of Grand and Easton avenues, thence over and upon the tracks of the Citizens' Railway to the Natural Bridge

St. Paul, Minn.

OPPOSITION LINE. There is some talk in West St. Paul of organizing a new company because it is claimed that the City Ry. Co. has not carried out its promises to that locality, but assurances have been given that are satisfactory to many of the objectors.

ST. PAUL CITY Ry. Co. It will probably be July before the company begins the laving of its tracks beyond the Robert street bridge. The Dayton's Bluff extensions and the Fourth street cable line will certainly be built this year, and early next

spring operations will begin on the East Seventh street cable line. President Lowry says he intends as soon as the Selby avenue cable is completed, to extend the St. Anthony Hill line, which now runs up Rice street, out Rice to Rondo, thence out Rondo to Mackubin, and farther as occasion requires.

Syracuse, N. Y.

People's R. R. Co. has been incorporated. Capital, \$300,000. A franchise has been asked of the Council. They propose to run completely across the city from Wolf street to South Onondaga street, a distance of about six miles. The work of organization has been in the hands of Frank J. Callanen of Utica. Frank D. H. Robinson, who is largely interested in the system of horse railways in Cleveland, is the originator of the enterprise. With him are associated, besides Mr. Callanen, Andrew W. Mills, of Clinton, Oneida county; Daniel Jones, of Brooklyn; Charles H. Childs, Samuel A. Beardsley and Joseph R. Swan, of Utica; John C. Keeffe, Samuel H. P. Lathrop, John S. Fredericks, John Moore, and Frank B. Klock, of Syracuse.

Tacoma, Wash. T.

THE NEW STREET RAILWAY, on which work has begun, will be pushed to an early completion. The kind of motor is not specified in the ordinance except that it must not be steam. Allen C. Mason, for the company, asks the Council that steam be allowed, and says they will use a noiseless motor.

Texarkana, Ark.

STATE LINE Ry. Co. has been incorporated to build a street railway here, by E. A. Warner, Samuel Lemby, C. C. Dorran. Benjamin Whitaker, Larry Klein and others. Capital stock, \$25,000.

Toledo, O.

METROPOLITAN ST. R. R. Co. will build 5 blocks double track to the Union Depot They report 30 cars and 115 horses. T. F. Shipherd is General Manager and Superintendent.

Topeka, Kan.

TOPEKA CITY R. R. Co. will take up during the summer 2 miles of tram rail and relay with the Johnson rail, and construct nearly two miles of new track. They have within the past two months built nearly a mile of extensions. They will put on 3 new cars at once. They have 6 in process of construction by the John Stephenson Co. This company have purchased grounds and are fitting up a park at the north end of their main line, being just north of the city, and they expect to spend about \$15,000 in improvements. Since their last report to us they have increased to 101 miles of track, of 4 ft. gauge, 25, 28 and 38 lb. rail, 27 cars, 55 horses and 64 mules.

UTICA, CLINTON & BINGHAMTON ST. R. R. This road is leased to the Utica Belt Line St. R. R. Co. James J. Scollard is President, and Robert S. Williams Secretary and Treasurer.

ONEIDA St. R. R. Co. Work has begun on this new company's line, which is to run from Oneida square to the New Forest and Forest Hill cemeteries. The rails are of steel, 5 in. wide, with the crown in the center. Three cars have been purchased. It is hoped to open the road early in June. West Haven, Conn.

New Haven & West Haven Horse R. R. Co. reports 7 miles, of 4 ft. 8 in. gauge, 50 to 60 lb. steel rail. W. W. Ward is Treasurer, Superintendent and General Manager.

Wichita, Kan.

WEST END MOTOR LINE Co., with a capital stock of \$100,000, has been incorporated by William P. Carey and others.

Woburn, Mass.

NORTH WOBURN St. R. R. Co. increases to 4.82 miles of track, of 4 ft. 81 in. gauge, 35 lb. steel rail and 42 lb. T rail, 9 cars, 26 horses. The officers are: President, Amos F. Breed; Treasurer, Frank H. Monks; Superintendent, Gilman F. Jones.

Woonsocket, R. 1.

ELECTRIC ROADS. The work of building the new street railway has begun. The first lines will be laid from the farther end of South Main street to the Social corner, and the motive power to be used for a trial, at least, will be electricity. The motors and cars will be supplied by the Sprague Electric Motor Co. of Boston, and the running power by the Woonsocket Electric Machine and Power Co. Mr. W. E. Stow, electrician, of Boston, who successfully introduced the incandescent electric lighting system, will have charge of the electric work during the construction.

Worcester, Mass.

CITIZENS' ST. Ry. Co. increases to 141 miles of track, of 4 ft. 81 in. gauge, 35 lb. rail, 57 cars and 270 horses. I. B. Chapin is Assistant Superintendent.

Yankton, Dak.

THE NEW COMPANY has completed its organization, all the stock having been taken. The directors were instructed to procure bids for the construction of 2 miles of track, the work to commence within 60 days.

Youngstown, O.

Youngstown St. R. R. Co., which has not heretofore been reported in full in our Directory, has 21 miles of track, of 3 ft. gauge, 24 and 27 lb. rail, 6 cars and 18 horses. John R. Davis is President, and Alfred Smith Secretary and Treasurer.

Veterinary Suggestions.

Dr. Fair, in a letter to the Ohio Farmer, suggests that in the case of a horse having the heaves or broken wind, that the animal be fed on very little bulky food and that this little be wet with lime water. Also that half an ounce of Fowler's Solution of Arsenic be administered three times a day. It must not be expected to cure the disease, for that cannot be done at the best, it can only be relieved.

For a slight congestion of the kidneys, the remedy will be to give the horse a twodrachm dose of acetate of potash and half an ounce of the fluid extract of buchu in a little water twice a day. He should also be fed on cooling and laxative food.

of carbolic acid and twenty of water to the sores three times a day.

For spasmodic colic, take tincture of opii 1 oz.; spts. camphor 2 drams; mix in 4 oz. of water, and give one tablespoonful every fifteen minutes till the spasmodic action subsides. A cloth wrung out in hot water will allay the pain. Feed sloppy warm bran and flaxseed with salt and carrots after, so as to prevent a return.

For the treatment of weak fetlocks the first thing to be done is to roll a flannel bandage around the legs from the hoof to the hock. Then get four splints of wood that are clean dressed and flat, so that they will yield to a tight bandage placed over them. Then roll as tight as you can a strong cotton bandage, two inches wide, for if you make it wider you cannot make it so tight. If it is possible to get a piece of broad tape or girth it will be better. Keep the front splints down to the toe level with the ground, and the hind two splints only the length of the heel, but all up to the hock joint. If properly applied the colt will walk in five minutes after. He only needs support. Take off the bandage every day and hand-rub the legs. Put them on again.

Pavements.

EDITOR STREET RAILWAY JOURNAL:-

The discussion in regard to pavements in a recent issue of your paper suggests that there are some cases where wood can be used to great advantage. The first requisite that it will be called upon to fulfill, is that it must be cheap.

In the wooden cities of Michigan, where stone is almost worth its weight in gold, wood is universally used for street pavements. The form in which it is put differs from that which I have ever seen elsewhere. For this work, round cedar blocks are used. The diameters of these blocks vary according to the place where they are used. In some cities I believe that the diameter is limited to 5 in., in others the contractor is allowed to use blocks as high as 7 in. through.

In laying these pavements, the street is first excavated and carefully graded, and then swept over with a layer of fine sand. On the sand there is placed a flooring of 1 in. boards of an inferior quality. The cedar blocks are placed on end on this flooring, care being taken that the interstices between the blocks shall be as small as possible. After the blocks are all in position, fine gravel is rammed into the spaces, and finally the whole is covered with a thin layer of gravel.

Such a pavement as this, when it is well aid, will remain in good condition for about seven years. To be sure, the traffic is not what would be called heavy for a street in New York, but heavy single loads are hauled over it without producing any bad effects.

The same class of pavement is used between the rails of the street railway lines. In this position an effort is made to use smaller blocks and very frequently they For piles apply a solution of one counce | are limited to three or four inches in diam-

eter. As the streets are usually broad enough to afford ample room for the street vehicles, there is very little wheel traffic between the rails, and the small blocks give a better footing for the horse. These pavements will last about the same length of time as that in the sides of the street.

This is not intended for a plea in favor of the wood paving, but must be taken merely as a statement of what is being used in that line where stone is expensive.

P. Q. J.

East Saginaw, Mich.

Horse Shoeing.

The value of a horse is mainly dependent upon the soundness of his feet. He may be perfect in every other respect, but if he has a bad foot no intelligent horseman would want him. You can see, therefore, how important it is that his shoes should nt. If they are too small they will cramp and pinch his feet, and may eventually make him lame.

Allowances have to be made for excessive heat and cold which expands or contracts the metal. We have to make allowance also for the nature of the animal. He may have a peculiar manner of stepping, which can be remedied by changing the weight of his shoes. To illustrate to you how important a consideration this is, I have only to tell you that it is possible to change a pacer into a trotter by increasing the weight upon his forefeet. This has often been done. A horse cannot pace with heavy foreshoes. They have a tendency to make him take longer steps and throw his feet out straight forward. Frequently veterinary surgeons have to ask my advice. A horse may be lame and they cannot ascertain the cause. Often it is because he is improperly shod. Horses are subject also to corns, the same as human beings. Sometimes we pare them until they gradually disappear, We also burn them out.-Ex.

Enemies of Labor.

The rough element in society exists everywhere, and like the volcanic element beneath the earth's crust is ever ready to break through and devastate. Hoodlum is not the right name for the brutal gangs which infest all large cities. They are anarchists to all intents and purposes, who would overturn society for the plunder they might obtain. The wage question, which could be easily settled by arbitration, and the consequent strikes, which result from bad management, bring to the surface that large and dangerous class whose motto is, "The world owes me a living, and I intend to have it without work." Many of them are graduates of criminal institutions, whose only occupation appears to be whiskey guzzling, thieving and assaulting quiet citizens. A large portion of these disturbers are vicious boys, who having no parental restraints are running wild, and preparing themselves for the penitentiary and the gallows. They must be ruled by the iron hand. -Ex.

Notes and Items.

Received too late for classification.

Ansonia, Conn.

ELECTRIC R. R. Track is now being laid. The Van Depoele system will be used. Binghanton, N. Y.

IT IS EXPECTED that the new electric road, on the Van Depoele system, will be started in a few days.

Brooklyn, N. Y.

BROOKLYN RY. SUPPLY Co. report that their broom business is good. They have orders ahead from jobbers in the large cities that they find it difficult to fill promptly. They get orders at this season occasionally for snow clearing apparatus, and they are now shipping a sweeper, "Walkaway" plow and flat car to Contractor Rasines for the Rome City Railway, at Rome, N. Y.

Butte, Mont.

ELECTRIC RAILWAY. The City Council has granted a franchise to Willard Bennett, Nelson Bennett and S. E. Larabie. They are to build an electric motor railway from Butte City to South Butte, to be completed in four months; a line on Park street east and west to Meaderville, either electric or horse railroad, to be completed and in running order in six months; a cable railroad from Butte City to Walkerville, to be completed in fifteen months or sooner if possible. Ten cent fares are to be charged in the city limits. Surveyors have been put on the line already. A proposition for a franchise was made by Geoffrey Lavell and others, but was rejected.

Indianapolis, Ind.

A CONFLICT between the police and bobtail car drivers occurred Sunday May 15.

A city ordinance went into effect requiring the driver to call out the names of streets as they were crossed by the cars. The drivers decided that they would not obey the law, asserting that the company should put on conductors. Over 100 of the men were arrested, and there was some interference with travel until the street car company made an arrangement to become responsible for the drivers' appearance.

Ithaca, N. Y.

Work is Begun on the new road by the Haines Bros., using the Daft system. The work will be pushed rapidly forward, and it is expected that the cars will be running in July.

Lina, 0.

ELECTRIC R. R. Work is nearly completed on the Van Depoele road at this point.

Little Rock, Ark.

CITIZENS' & LITTLE ROCK ST. RY. Co. is now the only company here. The consolidated statistics show 12 miles of 4 ft. 10 in. track, 24, 36 and 45 lb. rail, 30 cars, 200 mules. President, James R. Miller; Secretary and Treasurer, Allan Johnston; Superintendent, J. A. Garrett.

THE DAFT SYSTEM will be used for the new road of 2½ miles. The cars have been ordered, and it is expected the road will be in running order July 1st.

Mobile, Ala.

Consolidation. All the street car lines in the city have been purchased by a syn-

dicate, and will be consolidated under one system. The transaction involves the outlay of over a quarter of a million dollars. W. B. Duncan, of Nashville, Tenn., conducted the negotiations for the purchase for himself and for parties in New York, Louisville, Nashville and elsewhere. The purpose of the company, it is stated, is to give Mobile a "metropolitan street railway system." The State and city charters to the street railway lines are so liberal and untrammeled that the deal is looked upon by the purchasing committee as a very good thing.

Newark, 0.
Newark City Ry. Co., whose returns we have not obtained in full until now, has 5 miles of track, of 4 ft. 8½ in. gauge, 35 lb. rail, 6 cars and 24 horses. President, Stephen G. Clarke; Vice President and Superintendent, Byron E. Clarke; Secretary, John W. Lanehart.

New York, N. Y.
VAN DEPOELE ELECTRIC Co.'s new office is at 45 Broadway. Manager Stiles and W. H. Gillette may be found there.

Orange, N. J.

THE DAFT ROAD is reported successful. Cars are running every day, and more cars are being equipped.

Philadelphia, Pa.

THE J. G. BRILL Co. write us as follows: "In electrical railways we are making 30 cars for the Richmond Street Railway, which will be fitted with Sprague motors. We are also furnishing cars for following electric railways: Port Huron, Scranton, Ansonia, and Montgomery, Ala., and also for the Union Electric Co. of Philadelphia, one experimental car. In street railway matters, we have our full share of work. We report for following new orders: for Portland, San Antonio, New Haven, Lancaster, Pa., Brooklyn City & Newtown, Brooklyn, Chattanooga, Detroit, Zanesville, and a dozen other places. Our foreign business still continues to hold good. Are now delivering Third avenue cable cars."

Portland, Ore.

MUTTNOMAH ST. Ry, Co. W. J. Matchette is Superintendent.
San Francisco, Cal.

POWELL St. Ry. Co. will have 10 miles of track, 40 lb. rail.

SUTTER St. Ry. Co. has 13.5 miles of track.

South Omalia, Neb.

So. OMAHA St. R. R. Co. has elected the following officers: President, D. Anderson; Vice President, C. M. Hunt; Secretary, C. C. Van Kuren; Treasurer, H. C. Bostwick. Arrangements are being perfected for a connection with the Omaha Street Railway.

Springfield, Mass.

Springfield St. Ry. Co. The West Springfield route, from the corner of Main and Bridge streets to Elm street at the West Springfield common, will be 1\(^2\)4 miles in length. Travel on this route will begin in July, and not less than 24 trips daily will be made.

Worcester, Mass.

Mr. Leo Daff is constructing a motor for heavy passenger service in this city.

Quarterly Reports.

QUARTER ENDED MARCH 31.

EIGHTH AV	VENUE.	
Gross carnings Operating expenses	1886. \$158,985.75 12 9 ,410.89	1887. \$143,722.50 111,131 46
Net earnings Income from other sources	29,574.86 2,288.51	32,588 04 4,014.14
Grossincome	\$31,863.37	\$36,602.17
Interest on funded debt	1886. \$15,000	1887. \$15,000
Taxes on property	5,000 5,000	5,200 4,500
Totai Gross income. Charges.	25,000 \$31,863 37 25,000.00	24,700 \$36,602.17 24.700.00
Net income Operating cost per cent of	\$6,863.37	\$11,902.17
earnings	87.69	84.07
Cost of road and equipment.		\$1,803,943.08
Stock and bonds of other cos Supplies on hand Due by companies and indivi	duole	6,120.00 9,885.80
Cash on hand Tax suspense Profit and loss (deficiency)		66,229 17 31,789.40 16.358.55 75,673 00
Totai		
Capital stock	ies.	\$1,000,000 00 1,000,00 1.00
Total		\$2.010.000.00
NINTH AVE		
Gross earnings Operating expenses	1886. \$47,586.03 51,298.34	1887. \$41.012.91 42,232.47
Net earnings Income from other sources.	-3.712.31 $1,939.10$	1,780.44 1,602.18
Grossincome	-\$1,773.21	\$3,382 62
Taxes on property	1886. \$4~0.00	1887. \$1,000.00
Taxes on earnings	550.00 2,500 00	2,666.66 2,500.00
TotalGross incomeCharges	\$3,500.00 -\$1,773.21 3,500.00	\$6,166 66 \$3,3\$2.62 6,166 66
DeficiencyOperating cost per cent of	\$5,273.21	\$2,784.04
earnings	109.40 SHEET—ASSE	104.28
Cost of road and equipment. Stocks and bonds of other co	18	\$275,164 91 760.00
Due by agents on account of	traffic	2,492.30 200.00
Cash on hand	duals	3,824.78 14,105.63
Profit and ioss (surplus)		5,327.52 459.924.86
TotalLIABILITI		761,800.00
Capital stock		\$761,800.00
BUSHWICK OF I		1000
Gross earnings Operating expenses	1886. \$79,623.69 74,194.02	1887. \$83,349.16 74,653.52
Net earnings Income from other sources	5,429.67 710.00	8,695.64 230.00
Gross income	6,139.67	8,925.64
Interest on funded debt	1886. \$6,000.00	1887. \$6,000.00
Taxes on property	1,504,51 4,035.00	1,882.82 3,525.00
Rentals	750.00 134.40	675.00 134.40
Total	\$12,423.91	\$12,217.22
Gross income	\$6,139.67 12,423.91	\$8,925.64 12,217.22
Deficiency General Balance S	\$6,284.24 SHEET—ASSE	\$3,291.58 TS.
Cost of road and equipment		\$899,008.99 222,167.82
Real estate		2,951.13 17,586 30
Total		9,441.24 \$1.151.155.48
Capital stock	TIES.	\$500,000.00
MortgagesFunded debt		10,000.00
Interest due and accrued		139,500.00 8,191.67
Due for wages		5,299.37 11,952.77
Profit and loss, (surplus)		6,450.29 69,761.38

Total \$1,151,155.48

BROOKLYN CROSSTOWN.		BROOKLYN CITY AND NEWTOWN	i.	LIABILITIES.	
	1887. 1,333.94	1886. Gross earnings \$62.022.57	1887. \$67,157.26	Capital stock. \$2.100,000.00 Funded debt. 2,200,000.00	
Operating expenses. 48,498.26 5.	5,647.03	Operating expenses	50,036.98	Loans and bills payable 95,000.00)
	5,686.91	Net earnings 15,273.67	17,120.28	Due for wages and supplies	
Income from other sources 424.84	550.25	Income from other sources. 499.98	263,23	TotaI\$4,615,887.48	
	16,237.16	Gross income	\$17,383.51		
	5,000.00	Interest on funded debt \$7,000	\$7,000	NEW YORK & HARLEM (CITY LINB.) 1886. 1887.	
Taxes on property500.00	660.59	Taxes on property 991 Taxes on earnings 799	1,176 448	Gross earnings \$224,142.95 \$225,665.97	
	15,660.59 16,237.16	Taxes other than above 356 Rentals	3 19 90	Operating expenses 138,964.38 151,920.95	-
	15,650.59	Interest on loans 2,640	2,850	Net earnings	
Net income	\$576,59	Total\$11,786	\$11,883	Gross Income	2
GENERAL BALANCE SHEET—ASSETS.		Gross Income	\$17,3-3.51 11,883.00	Charges:—	
	99,880.39 32,935.95	Net income\$3,987.65	\$5,500.51	Interest	
Supplies on hand 8	30,345.96	GENERAL BALANCE SHEET—ASS		Total, \$14,800 \$11,950	5
	1,954 05 17,304 69	Cost of road and equipment Permanent Investments		Gross Income\$\\$5,178.57\\$73,745.02\Charges14,8\)0.00\\$11,950.00	
Total \$78	82,421.04	Supplies on hand	1,992.90		-
LIABILITIES.		Accrued interest Due by companies and individuals	5,566.55	Net income	
	00,000.00 80,000.00	Cash on hand		67.32 ln 1887.	
	1,335.00 48.00	Total	\$1,658,564.45	BALANCE SHEET—ASSETS.	
Due companies and individuals	6,368.62 94.669.42	LIABILITIES. Capital	\$1,000,000,00	Cost of road and equipment\$23,365,557,77 Stocks and bonds of other cos6,100,00	
		Funded debt	400,000.00	Supplies on hand	8
TotaI \$78	82, 421.04	Interest on funded debt	14,000.00	Due by cos, and individuals	
ROCHESTER CITY AND BRIGHTON.		Due for wages and supplies Due by companies and individuals	1,640.46	portion chargeable to quarter 23,586.33	3
Gross earnings \$82.196.36 \$9	1887. 92,445,95	Profit and loss (surplus)		Total \$23,551,422.68	8
Operating expenses 69.089.55	68,884.23	Total	\$1,658,564.45	LIABILITIES.	
	23,561.72	PROSPECT PARK AND CONEY ISL	AND.	Capital stock	0
	659.38	1836.	1887.	Funded debt. 12,005,000.00 Loans and bills payable. 60,000.00	0
Gross income	24,221.10	Gross earnings \$6,418.06 Operating expenses 14,936.43	\$6,868.68 15,923.92	Dividends and interest unpaid 2,008.48 Due for wages and supplies 3,084.24	8
1886.	1887. 10,020.00	Loss	9,055.24	Due companies and individuals 14,829.77 Due N. Y. C. & H. R. R. Co., advanced for	
Taxes	2,250.00	Income from other sources 6,896.68	8,272.50	28,458.33 Profit and loss (surplus) 1,988,041.50	3
	10.050.00	Loss \$1,621.69	\$782.74		_
	12,272.00 24, 2 21.10	Charges:— Interest on funded debt \$7,750.00	\$12,605.00	Total\$23,551,422,48	8
Charges 9,274 06	12,272.00	Taxes on property 664.60 Taxes on earnings. 174.70	528.46 176.84	CENTRAL PARK, NORTH & EAST RIVER.	
Net income \$1,232.75 \$	11,949.10	Taxes other than above 110 70 2,5003	2,500.00	1886, 1887. G'oss carnings\$162,629,56 \$149.313.88	· e
GENERAL BALANCE SHEET—ASSETS.		Int. on floating debt paid on on acct. of previous year	75,75	Operating expenses 123,029.29 125,188.96	
Stocks and bonds	62,691.91 7,510.00	Total\$16,456.81	\$16,781.23	Net earnings	
Supplies on hand	5.533.40 7,805.65	Gross income\$1,631.69	-\$782.74		_
Unpald calls	75,000.00	Charges 16,456.81	16,781.23	Gross income	6
Total \$1.17	58,545.95	Net Income		Interest on funded debt \$21,000.00 \$21,000.00 Taxes on prop. and earnings 13,000.01 12,500.00	
Liabilities.	00 000 00	Operating cost, per cent of earnings, 2 231.85 in 1887.	32.70 11 1850	Rentals	
Funded debt	00,000.00 13,000.00	GENERAL BALANCE SHEET—Ass	ETS.	Total \$34,187.50 \$33,687.50	
Interest due and accrued	73,0±0.00 11.965.00	Cost of road, etc	\$1,172°874.36 35,0(0.0)	Gross income	
Mortonge	3,2 ⁻ 4.00 10 400 00	Supplies on hand	4,185.03	Net income	-
Profit and loss surplus	2 ,926.96	Due by cos. and individuals	40.668.28	Operating cost, per cent of earnings, 83,64 in 1886.	i;
Total \$1,1	58,545,96	Cash on handSundries	. 12,844.44	92.21 In 1887. BALANCE SHEET—ASSETS.	,
Long Island.		Profit and loss (deficiency)		Cost of road and equipment\$2,771,610,49 Stocks and bonds of o her cos	
1886.	1887.	Total	\$1,347,233.11	Other permanent investments 301,000.00	00
Gross earnings \$481,999.81 \$5	\$19,230.99 \$0,244.57	Capital	. \$250.000.00	Accrued interest	13
	188,986.57	Funded debt	. 1,007,000.00	Due on account of traffic	
	40,079.31	Interest on funded debt	. 12,685.00	Total\$3,189,330.4	4
	179.865,73	Due for wages and supplies Rent accrued N. Y. & C. l. R. R.	2,500.00	LIABIL TIES.	00
	78,968.26	Total	. \$1,345,233.11	Capital stock. \$1,500,000.00 Funded debt. 1,200,000.00	00
	14.000.00 7.000.00	Dro Dwi v & Coverent Assess	ישר	Loans and bills in suit. 45,220.8 Interest on debt due and accrued. 23,000.0	00
Rentals 42,129,19 Interest 8,982,64	43,423 38 9,429.59	BROADWAY & SEVENTH AVENU	1887.	Dividends unpaid	00 80
	152,821.23	Gross earnings	\$387,656.25	Due companies, etc. 169.9 Profit and Ioss (surplus) 103,004.8	98
Gross income \$132,304.33 \$1	178,865.73	Net earnings		Total\$3,189,330.4	_
	152,821.23	Other income	none.		
	\$27,044.50	Gross income \$17,741.73	\$120,582.80	СHRISTOPHER & TENTH STREET. 1886. 1887.	
GENERAL BALANCE SHEET—ASSETS.	0.0° 0.1° 00	Charges:— Interest on funded debt \$28,000.00	\$28,000.00	Gross earnings	
Cost of road and equipment\$14,5 Stocks and bonds of other cos1,1	115,182.79	Taxes 40,664.21 Rentals 40,664.21	26.797.94 53,649.99	Operating expenses 40,300.07 40,026.2 Net earnings	_
Due by agents	46,930.01 20,885.33	Total \$68,664.21	\$98 447.93	Income from other sources. 13,631.43 19,091.0 20,474.00	
Due by others	431.17 33,934.45	Gross income \$77,741 73	\$120,582 8))2
Due by cos. and individuals	930,905.57 47,990.00	Charges 68,664.21		Charges:— Interest on funded debt \$2,700.00 \$1,630.5	
Total\$16,		Net income \$9,077.52 Operating cost, per cent of earnings,		Taxes on property. 112.90 Taxes on earnings. 975.00 1,026.0	
LIABILITIES.	3-,012:00	68.89 in 1887.	, 0.20 III 1000;	Rentals 1,975.00 1,975.0	
Capital stock\$:0.0	000,000.00	BALANCE SHEET—ASSETS. Cost of road and equipment	\$4.257.878.07	Total \$5,7\epsilon2.90 \$4,631.5	
Funded debt	725.00	Permanent Investments	. 18,767.22	Gross income	
Due by companies and individuals	153, 5 12.45 117,315.24	Supplies on hand	. 82,031.19	Net income\$8,345.53 \$34,933.4	_
Profit and loss (surplus)	747,056.33	Profit and loss, (deficiency)	. 247,716.00	Operating cost, per cent of earnings, 74.75 in 1886	
Total\$16,5	501,814.99	Total	. \$4,615,887.48	67.75 in 1887.	

BALANCE SHEET—ASSETS.	
Cost of road and equipment	\$719,970.00
Permanent investments Supplies on hand	66,700.00
Supplies on hand	8,832.62 55,579.92
TotalLIABILITIES.	\$851.082.54
	\$650,000,00
Capital	190,000.00
Due for wages and supplies	5,733,35 5,349 . 19
Total	\$851,082.54
Houston, West Street & Pavonia	
1886,	1887. \$52,060.16
Gross earnings	18,133.77
	3 926.39
Net earnings	3,350.41
Gross Income	\$8,276,80
Charges:—	4.01010.00
Interest on funded debt \$9.091.25	\$8,898.75
Taxes. 1,72 i,00 Rentals 881,75	1,100.00 :61.25
Advertising expenses. 1,2 5.55	
Total \$12,913.05	\$10,860,00
Gross Income	\$8.276.80
Charges	10,860.00
Net income	-\$2,5 3.20
BALANCE SHEET—ASSETS.	
Cost of road and equipment	\$75),600.00
Permanent Investments	58.500,00 27,999.05
	\$836,499.65
Total Liabilities.	\$000 ₁ 499.00
Capital stock	\$259,000,00
Funded debt.	500,000.00
Funded debt	503,000.00 8,893.75 77,600.90
Funded debt. Interest on funded debt. Profit and loss (surplus).	8,893.75 77,600.90
Funded debt. Interest on funded debt. Profit and loss (surplus). Total.	8,899.75
Funded debt. Interest on funded debt. Profit and loss (surplus) Total. Broadway of Brooklyn.	\$,894.75 77,600.90 \$836,499.65
Funded debt. Interest on funded debt. Profit and loss (surplus) Total. BROADWAY OF BROOKLYN. 1886.	\$,893.75 77,600.90 \$836,499.65
Funded debt. Interest on funded debt. Profit and loss (surplus) Total. Broadway of Brooklyn.	\$,894.75 77,600.90 \$836,499.65
### Funded debt.	\$893.75 77,600.90 \$836,499.65
Funded debt.	\$\\$98.75 77,600.90 \$836,499.65 \$\\$7.20.72 \$\\$4,579.98
### Funded debt.	\$\\$98.75 77,600.90 \$836,499.65 \$95,720.72 \$4,579.98 14,140.74
### Funded debt.	\$,898,75 77,600,90 \$886,499,65 1587, \$93,720,72 \$4,579,98 14,140,74 474,42 \$14,615,16
Funded debt.	\$,898.75 77,600.90 \$836,499.65 15.87, \$93,730.72 \$4,579.98 14,149.74 474.42 \$14,615.16 \$5.875.00 3,600.00
Funded debt. Interest on funded debt. Profit and loss (surplus)	\$,894.75 77,600.90 \$836,499.65 1587. \$93,720.72 \$4,579.98 14,149.74 474.42 \$14,615.16 \$5.875.00 3,600.00
Funded debt.	\$,894.75 77,600.90 \$836,499.65 1587. \$93,720.72 \$4,579.98 14,149.74 474.42 \$14,615.16 \$5,875.00 3,600.00 1,002.90 152.12
Funded debt. Interest on funded debt. Profit and loss (surplus) Total. Is86. Is86. Is86. Is86. Is86. Is86. Is86. Is86. Is86. Is86. Is8	\$,894.75 77,600.90 \$836,499.65 1587. \$93,720.72 \$4,579.98 14,149.74 474.42 \$14,615.16 \$5,875.00 3,600.00 1,002.90 152.12 \$10,630.02
Funded debt. Profit and loss (surplus)	\$,894,75 77,600,90 \$836,499,65 1587, \$93,720,72 \$4,579,98 14,140,74 474,42 \$14,615,16 \$5,875,00 1,002,90 152,12 \$10,630,02 \$14,615,16
Funded debt. Profit and loss (surplus)	\$,894,75 77,600,90 \$836,499,65 1587, \$95,720,72 \$4,579,98 14,149,74 474,42 \$14,615,16 \$5,875,00 3,600,00 1,002,00 152,12 \$10,630,02 \$14,615,16 10,630,02
Funded debt. Profit and loss (surplus) Total	\$,894,75 77,600,90 \$836,499,65 1587, \$93,720,72 \$4,579,98 14,140,74 474,42 \$14,615,16 \$5,875,00 1,002,90 152,12 \$10,630,02 \$14,615,16 10,630,02 \$3,985,14
Funded debt. Profit and loss (surplus)	\$,894,75 77,600,90 \$836,499,65 1587, \$93,720,72 \$4,579,98 14,140,74 474,42 \$14,615,16 \$5,875,00 1,002,90 152,12 \$10,630,02 \$14,615,16 10,630,02 \$3,985,14
Funded debt. Interest on funded debt. Profit and loss (surplus) Total. Is86. S89,012.99 Operating expenses 73,973.37 Net earnings. 15,639.62 Income from other sources 1,214.14 Gross Income from other sources 1,214.14 Gross Income \$16,253.76 Charges: Interest on funded debt. \$5,875.00 Taxes on property 3,500.00 Taxes on earnings. 1,859.64 Rentals 252.12 Total \$11,486.76 Gross Income \$16,23.76 Charges. 12,486.76 Net Income \$4,767.00 Operating cost, per cent of earnings, 996.44 in 1887. Balance Sheet Assets.	\$,898,75 77,600,90 \$836,499,65 15.87, \$95,720,72 \$4,579,98 14,140,74 474.42 \$14,615,16 \$5,875,00 1,002,90 152,12 \$10,630,02 \$14,615,16 10,630,02 \$3,985,14 6,00 in 1886;
Funded debt. Profit and loss (surplus)	\$,898.75 77,600.90 \$836,499.65 15.87, \$95,720.72 \$4,579.98 14,149.74 474.42 \$14,615.16 \$5,875.00 3,600.00 1,002.90 152.12 \$10,630.02 \$3,985.14 6.00 in 1886;
Funded debt. Profit and loss (surplus)	\$,894.75 77,600.90 \$836,499.65 1587. \$93,720.72 \$4,579.98 14,140.74 474.42 \$14,615.16 \$5.875.00 3,600.00 1,002.90 152.12 \$10,630.02 \$14,615.16 6.00 in 1886; \$888,870.74 21,733.91
Funded debt. Profit and loss (surplus)	\$,894.75 77,600.99 \$836,499.65 1587. \$93,720.72 \$4,579.98 14,149.74 474.42 \$14,615.16 \$5,875.00 1,002.90 152.12 \$10,630.02 \$14,615.16 6.00 in 1886; \$888,876.74 21,743.91 100.00 1,169.28 8,000.00
Funded debt. Profit and loss (surplus)	\$,898.75 77,600.90 \$836,499.65 1587. \$95,720.72 \$4,579.98 14,149.74 474.42 \$14,615.16 \$5,875.00 3,600.00 1,002.90 152.12 \$10,630.02 \$3,985.14 6.00 in 1886; \$888,876.74 21,743.91 100.00 1,169.28
Funded debt. Interest on funded debt. Profit and loss (surplus)	\$,894.75 77,600.99 \$836,499.65 1587. \$93,720.72 \$4,579.98 14,149.74 474.42 \$14,615.16 \$5,875.00 1,002.90 152.12 \$10,630.02 \$14,615.16 6.00 in 1886; \$888,876.74 21,743.91 100.00 1,169.28 8,000.00
Funded debt. Interest on funded debt. Profit and loss (surplus)	\$,898.75 77,600.90 \$836,499.65 1587. \$93,720.72 \$4,579.98 14,140.74 474.42 \$14,615.16 \$5,875.00 3,690.00 1,002.90 152.12 \$10,630.02 \$14,615.16 6.00 in 1886; \$888,870.74 21,743.91 100,00 1,169.28 8,000.00 370.85
Funded debt. Interest on funded debt. Profit and loss (surplus) Total. BROADWAY OF BROOKLYN. 1886. Gross earnings. S89,012,99 Operating expenses. 73,973,37 Net earnings. 15,639,62 Income from other sources. 1,214,14 Gross lneome. \$16,253,76 Charges:— Interest on funded debt. \$5,875,00 Taxes on property. 3,500,00 Taxes on earnings. 1,559,64 Gross income. \$16,23,76 Charges. 12,486,76 Net income. \$4,767,00 Operating cost, per cent of earnings, 9 96,44 in 1887. BALANCE SHEET—ASSETS, Cost of road and equipment. Supplies on hand. Accrued interest. Due on account of traffic Temporary loans secured by collateral. Cash on hand Total. Liabilities. Capital stock.	\$,898.75 77,600.90 \$836,499.65 1887. \$93,720.72 \$4,579.98 14,149.74 474.42 \$14,615.16 \$5.875.00 3,600.00 1,002.90 152.12 \$10,630.02 \$14,615.16 10,630.02 \$3,985.14 6.00 in 1886; \$888,876.74 21,733.91 6.00 in 1886; \$888,876.74 \$21,733.91 100.00 1,169.28 8,000.00 370.85
Funded debt. Interest on funded debt. Profit and loss (surplus) Total. BROADWAY OF BROOKLYN. 1886. Gross earnings. S89,012,99 Operating expenses. 73,973,37 Net earnings. 15,639,62 Income from other sources. 1,214,14 Gross lneome. \$16,253,76 Charges:— Interest on funded debt. \$5,875,00 Taxes on property. 3,500,00 Taxes on property. 3,500,00 Taxes on earnings. 1,559,64 Gross income. \$16,23,76 Charges. 12,486,76 Net income. \$4,767,00 Operating cost, per cent of earnings, 9 96,44 in 1887. BALANCE SHEET—ASSETS, Cost of road and equipment. Supplies on hand. Accrued interest. Due on account of traffic Temporary leans secured by collateral. Cash on hand Total. Liabilities. Capital stock. Funded debt. Interest on debt to April 1	\$,898.75 77,600.90 \$836,499.65 1587. \$93,720.72 \$4,579.98 14,149.74 474.42 \$14,615.16 \$5,875.00 3,600.00 1,002.90 152.12 \$10,630.02 \$14,615.16 10,630.02 \$3,985.14 6.00 in 1886; \$888,876.74 21,733.91 100.00 1,169.28 8,000.00 370.85 \$920,240.78
Funded debt. Profit and loss (surplus)	\$,898.75 77,600.90 \$836,499.65 1587. \$95,720.72 \$4,579.98 14,149.74 474.42 \$14,615.16 \$5,875.00 3,600.00 152.12 \$10,630.02 \$3,985.14 6.00 in 1886; \$888,876.74 21,733.91 100.00 1,169.28 8,000.00 350.85 \$920,240.78
Funded debt. Interest on funded debt. Profit and loss (surplus) Total. BROADWAY OF BROOKLYN. 1886. Gross earnings. S89,012.99 Operating expenses. 73,973.37 Net earnings. 15,693.62 Income from other sources. 1,214,14 Gross lneome. \$16,253.76 Charges:— Interest on funded debt. \$5,875.00 Taxes on property. 3,500.00 Taxes on property. 3,500.00 Taxes on property. 3,500.00 Taxes on property. 3,500.00 Taxes on earnings. 11,486,76 Gross Income. \$16,23.76 Charges. 12,486.76 Net income. \$41,767.00 Operating cost, per cent of earnings, 9 96.44 in 1887. BALANCE SHEET—ASSETS. Cost of road and equipment. Supplies on hand. Accrued interest. Due on account of traffic Temporary I caus secured by collateral. Cash on hand Total. LIABILITIES. Capital stock. Funded debt. Interest on debt to April 1 Due for wages and supplies. Due commants and Individuals	\$,894.75 77,600.90 \$836,499.65 1887. \$93,720.72 \$4,579.98 14,140.74 474.42 \$14,615.16 \$5,875.00 3,600.00 1,002.90 152.12 \$10,630.02 \$34,855.14 6.00 in 1886; \$888,870.74 21,733.91 100.00 1,169.28 8,000.00 350.85 \$920,240.78
Funded debt. Interest on funded debt. Profit and loss (surplus) Total. BROADWAY OF BROOKLYN. 1886. Gross earnings. S89,012.99 Operating expenses. 73,973.37 Net earnings. 15,693.62 Income from other sources. 1,214,14 Gross lneome. \$16,253.76 Charges:— Interest on funded debt. \$5,875.00 Taxes on property. 3,500.00 Taxes on property. 3,500.00 Taxes on property. 3,500.00 Taxes on property. 3,500.00 Taxes on earnings. 11,486,76 Gross Income. \$16,23.76 Charges. 12,486.76 Net income. \$41,767.00 Operating cost, per cent of earnings, 9 96.44 in 1887. BALANCE SHEET—ASSETS. Cost of road and equipment. Supplies on hand. Accrued interest. Due on account of traffic Temporary I caus secured by collateral. Cash on hand Total. LIABILITIES. Capital stock. Funded debt. Interest on debt to April 1 Due for wages and supplies. Due commants and Individuals	\$,894.75 77,600.90 \$836,499.65 1587. \$93,720.72 \$4,579.98 14,149.74 474.42 \$14,615.16 \$5,875.00 3,600.00 1,002.90 152.12 \$10,630.02 \$3,985.14 6.00 in 1886; \$888,876.74 21,743.91 100.00 1,169.28 8,000.00 350.85 \$920,240.78
Funded debt. Interest on funded debt. Profit and loss (surplus) Total. BROADWAY OF BROOKLYN. 1886. Gross earnings. S89,012.99 Operating expenses. 73,973.37 Net earnings. 15,693.62 Income from other sources. 1,214,14 Gross lneome. \$16,253.76 Charges:— Interest on funded debt. \$5,875.00 Taxes on property. 3,500.00 Taxes on property. 3,500.00 Taxes on property. 3,500.00 Taxes on property. 3,500.00 Taxes on earnings. 1,559.64 Gross lncome. \$16,23.76 Charges. 12,486.76 Net lncome. \$4,767.00 Operating cost, per cent of earnings, 9 96.44 in 1887. BALANCE SHEET—ASSETS. Cost of road and equipment. Supplies on hand. Accrued interest. Due on account of traffic Temporary loans secured by collateral. Cash on hand. Total. LIABILITIES. Capital stock. Funded debt. Interest on debt to April 1 Due for wages and supplies. Due companies and Individuals. Tickets in circulation. Estimated for taxes, insurance and il- cense on cars in advance.	\$,894.75 77,600.90 \$836,499.65 1887. \$93,720.72 \$4,579.98 14,149.74 474.42 \$14,615.16 \$5.875.00 3,600.00 1,002.90 152.12 \$10,630.02 \$14,615.16 10,630.03 \$14,615.16 21,743.91 \$21,743.91 \$21,743.91 \$21,743.91 \$3,985.14 \$21,743.91 \$21,743.91 \$30.00 1,169.28 8,000.00 30.85 \$920,240.78
Funded debt. Interest on funded debt. Profit and loss (surplus) Total. BROADWAY OF BROOKLYN. 1886. Gross earnings. S89,012.99 Operating expenses. 73,973.37 Net earnings. 15,693.62 Income from other sources. 1,214,14 Gross lneome. \$16,253.76 Charges:— Interest on funded debt. \$5,875.00 Taxes on property. 3,500.00 Taxes on property. 3,500.00 Taxes on property. 3,500.00 Taxes on property. 3,500.00 Taxes on earnings. 11,486,76 Gross Income. \$16,23.76 Charges. 12,486.76 Net income. \$41,767.00 Operating cost, per cent of earnings, 9 96.44 in 1887. BALANCE SHEET—ASSETS. Cost of road and equipment. Supplies on hand. Accrued interest. Due on account of traffic Temporary I caus secured by collateral. Cash on hand Total. LIABILITIES. Capital stock. Funded debt. Interest on debt to April 1 Due for wages and supplies. Due commants and Individuals	\$,894.75 77,600.90 \$836,499.65 1587. \$93,720.72 \$4,579.98 14,149.74 474.42 \$14,615.16 \$5,875.00 3,600.00 1,002.90 152.12 \$10,630.02 \$3,985.14 6.00 in 1886; \$888,876.74 21,743.91 100.00 1,169.28 8,000.00 350.85 \$920,240.78

A DUPLEX AUTOMATIC SWITCH has recently been invented by Mr. W. C. Lyon which allows the car to pass either to the right or left or straight ahead. The device is ingenious, the parts being simple and operated by the driver by means of a lever.

THE FOLLOWING genuine Irish "bull" was recently uttered by an applicant for work on the South Boston Railroad, while the strike was in progress. Superintendent Coolidge was explaining the situation, when the man interrupted with: "You needn't be afraid of my leaving, Mr. Coolidge. I'll work for you as long as I live if I don't get shot dead beforehand."

STREET RAILWAY STOCK QUOTATIONS.

NEW YORK STOCKS.—Corrected by H. L. Grant, 145 Broadway, New York.

Company.	Par.	Capital.	Period.	Rate.	Date.		Bid.	Asked
Bleecker St. & Fulton Ferry	100	\$900,000	J. & J.	3/	January,	1887	28	30
1st mort	1,000	700,000	J. & J.	7	July,	1900	115	118
Broadway & Seventh Avenue	100	2,100,000	QJ.	2	January,	1886	200	210
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 City—Stock	10	2,000,000	QF.	2		1887	165	170
1st mort	1,000	800,000	J. & J.	5	January,	1902	106	110
Brooklyn Crosstown	100	200,000	A. & O.	4	April,	1887	160	165
1st mort bonds	1,000	400,000	J. & J.	7	July,	1888	105	109
Central Park North and East river.	100	1,800,000	QJ.	2	January,	1887	98	105
Con, mort. bonds	1,000	1,200,000	J. & D.	7	December,	1902	117	120
Christopher & Tenth	100	650,000	F. & A.	11/6	February,	1887	120	125
Bonds	1,000	250,000	A. & O.	7	October,	1898	110	116
Central Crosstown	100	600,000	QF.	13/	January,	1887	150	160
1st mort	1,000	250,000	M. & N.	6	November,	1922	118	125
Dry Dock, East B'way & Battery	100	1,200,000	Q.—F.	2	February,	1887	155	160
1st mort consol	500	1,900,000	J. & D.	7	June,	1893	1081/	111
Serip	100	1,200,000	F. & A.	6	August,	1914	105	107
42d & Grand St. Ferry	100	748,000	QF.	3	February,	1887	210	215
1st mort	1,000	236,000	A. & O.	7	Aprll,	1893	110	112
42d St., Manhattan & St. Nich. av.,	100	2,500,000					39	40
1st mort	1,000	1,200,000	M & S.	5		1910	109	111
2d mort. In. bonds	1,000	1,200,000	J. & J.	6		1915	50	53
Eighth Avenue—Stock	100	1,600,000	QJ.	2	Aprll,	1887	165	170
Scrlp	100	1,000,000	F. & A.	6	August.	1914	105	110
Houston, West St. & Pavonla Ferry	100	1,000,000	Q = F.	2	August,	1885	150	160
1st mort	500	250,000	J. & J.	7	July,	1894	110	111
Second Avenue—Stock	100	500,000	J. & J.	5	January,	1887		160
1st mort		1,862,000	M. & N.	5	November,	1909	104	106
Consol	1,000	550,000	M. & N.	7	May,	1889	103	200
Slxth Avenue	100	1,050,000	M. & S.	3	February,	1887	170	175
1st mort	1,000	500,000	J. & J.		July,	1890	110	112
Third Avenue—Stock	100	2,000,000	Q.—F.		February,	1886	200	205
1st mort	1.000	2,000,000	J. & J.		January,	1890	110	112
23d St.—Stock	100	600,000	F. & A.	5	February.	1887	245	250
1st mort	1.000	250,000	M. & N.	7	May,	1893	110	113
Ninth Avenue	100	800,000		3	September,	1885	100	110
Chicago City Rallway	100	, , , , ,					299	325

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

Company.	Par.	Capital.	Perlod.	Rate.	Date.	Bld.	Asked.
Cltlzens	50	\$500,000	Q.—J.				
Continental	50	1,000,000	J. & J.				125
Frankford & Southwark	50	750,000	Q.—J.				290
Germantown	50	1,500,000	QJ.			92	98
Green & Coates	50	500,000	QJ.			110	118
Hestonville	50	2,050,000				30	31
Lombard & South	25	500,000				90	95
People's	25	1,500,000				40	45
Philadelphia City	50	1,000,000	J. & J.			14416	150
Phlladelphla & Gray's Ferry	50	617,500	J. & J.			89	92
Phlladelphla Traction	50	5,000,000				65	693
Rldge Avenue	50	750,000	J. & Q.				230
Second & Third	50	1,060,200	QJ.				180
Seventeenth & Nineteenth	50	500,000	J. & J.			154 %	
Thirteenth & Fliteenth	50	1,000,000	J. & J.			150	
Union	50	1,250,000	J. & J.				
West Philadelphla	50	750,000	J. & J.			1	190

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

Company.	Par.	Capital.	Perlod.	Rate.	Date.	Bld.	Asked.
Metropolitan		\$2,000,000 750,000	J. & J. J. & J.	10	January, 188 July, 188		120 120
Boston Consolldated	100	1,700,000 1,950,000	J. & J. J. & J.	8 5	January, 188 January, 188	37 155	160 122

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

Company.	Par.	Capital.	Perlod.	Rate.	Date.	Bid.	Asked.
STOCKS. Benton-Bellefontaine. Cass Ave. & Falr Grounds. Citizens' Forest Park & Laelede. Jefferson Avenue. Lindell Missouri. Mound City Northern Central. People's. St. Louis. Tower Grove Unlon.	100 50 100 100 100 100 100 100 100 50 100	\$100,000 300,000 1,000,010 100,000 112,000 600,000 125,000 200,100 300,000 900,000 300,000 300,000 600,000	Jan. April April April Jan. May Jan.	1½ 1¼ 2 2 .50 2 .50		95 80 60 100 100 100 150 103 40 50	100 70 105 107 42 1/3 55 9
Union Depot	100	1,000,000 1,000,000				75 95	100
Benton-Bellefontaine. Cass Avenue. Citizens' Lindell Mound City People's 1st mort. 2d mort. Northern Central. St. Louls Cable.	1,000 1,000 1,000 1,500 1,000 1,000 1,000 1,000	\$50,000 200,000 200,000 87,500 125,000 75,000 200,000 600,000	A. & O. F. & A. J. & J. F. & A. J. & J. J. & D. M. & N. J. & J. M. & N.	6 6 7 6 7 6	1880 1886 1882 1879 1884 1884 1884	102 102 103 102 102 103 102 103	103 104 103 105 103 110
Union Depot.	1,000 1,000	150,000 350,000	M. & N. A. & O.	6 6	1885 1886	102 103½	103 105

STREET RAILWAYS

IN THE UNITED STATES & CANADA.

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

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

AKRON, O.—Akron St. Ry. & Herdle Co. 2½ m, 6c, 31 h. Pres. Ira M. Miller, V. Pres, James Christy, Treas, B. J. Dodge, Sec. F. M. Atterholt, Supt. John

AKRON, O.—Akron St. Ry. & Herdic Co. 2½ m, 6c, 31 h. Pres. Ira M. Miffer, V. Pres. James Christy, Treas, B. J. Dodge, Sec. F. M. Atterhoit, Supt. John T. Metlin. k

ALBANY, N. Y.—Watervliet Turmpike & R. R. Co. 15 m, 4-8½ g, 30-15 lb. r, 31 c, 145 h. V. Pres. C. B. Tillinghast, Sec. & Treas. Cantine Tremper, Supt. Amos Free. Offices, 1165 Broadway. b

The Albany Ry. 14 m, 4-8 g, 54 c, 232 h. 33-47 lb r. Pres., Supt. and Treas. John W. McNamara, V. Pres. Robt. C. Pruyn, Sec. Jas. H. Manning, Cashler, Wm. W. Dennin, Asst. Supt. Edgar S. Fassett, Accountant, J. N. Murphy. Offices 3 & 5 N. Pear's st. j

ALLEGHENY CITY, PA.—Federal St. & Pleasant Valley Pass. Ry. 4.8 m, 5-2 g, 50 br, 12 c, 160 h and mu. Pres. Wm. McCreery, Sec. R. F. Ramsey, Supt. Wm. J. Crozter. Office, 129 Taggart st. a

People's Park Pass. Ry. Co. 5.2 m, 5-2 g, 45 lb r, 10 c, 70 mu. Pres. Wm. McCreery, Scc. R. F. Ramsey, Tracs. Jas. Boyle, Supt. Wm. J. Crozter. Office, 129 Taggart st. a

ALLENTOWN, 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. k

ALTON, ILL.—Alton & Up. Alton Horse Ry. Co. ALTOONA. PA.—City Pass. Ry. (o. of Altoona, Pa. 3½ m, 5-3 g, 43 & 45 lbs. r, 17 c. 40 h. Pres. John P. Levan, Sec. & Treas. L. B. Reifsnelder, Supt. John D. Buch. Capital, \$68,000. a

AMSTERDAM, N. Y.—Amsterdam St. R. R. Co. 154 m, 4-8½ g, 35 lb r, 4 c, 11 h. Pres. Henry Herrick, Treas. David Cady, Sec. M. L. Stover. Leased to Jas. R. Snell. a

ANN ARBOR, MICH.—(Sce new roads.)

APPLETON, WIS.—Appleton Electric St. Ry. 44 m. 4-8½ g, 35 lb r, 4 c, 5 motors. Pres. J. E. Harriman, V.-Pres. N. B. Clark, Sec. & Treas. Jos. Koffend. a

ASHTABULA, O.—Ashtabula City Ry. Co. 4 m, 4-8½ g, 30 lb, 7 c, 5 f. motors. Pres. J. E. Harriman, V.-Pres. N. B. Clark, Sec. & Treas. Jos. Koffend. a

ASHTABULA, O.—Ashtabula City Ry. Co. 4 m, 4-8½ g, 40 lb, 70 c, 26 h. Pres. L. B. Nelson, V. Pres. L. DeGlvc, Sec. & Treas. John Steplens, Solicitor, A. Re

20 c, 65 li, 4-8½ g, 20-3) lb r. Pres. J. II. Beeson, Treas. II. M. Jackson, Sec. J. P. Adams. Gen. Supt. Geo. W. Carpenter. 11

Gate City S R.R. t.Co. 2½ m, 4-8½ g, 16 & 60 lb r, 7 c, 26 h. Pres. L. B. Nelson, V. Pres. L. DeGivc, Sec. & Treas. John stephens. Solicitor, A. Remharat. 6

Metropolitan St. R.R. Co. 2m, 4-8½ g, 20 lb r, 6 c, 34 mu, Pres J. D. Turner, V. Pres. T. L. Langston, Sec. & Treas. B. II. Brumhead, Man. & Pur. Agt. Jno. S. Brumhead.

ATHENS. GA.—Classle City St. Ry. Co. 3¼ m., 4 g, 16 & 20 lb T, 4 c, 30 mu. Pres. Geo. M. Snodgrass, V.-Pres. R. B. Russell, Treas. Lamar Cobb, Supt. J. H. Dorsey. 4

ATIANTA, GA.—Atlanta St. Ry. Co. 13 m, 4-8½ g, 24 lb C. B. rail, 40 two h cars, 150 horses. North Atlanta Line 1 m. Decatur St. Line 1.50 m. Marletta St. Line 2.50 m. McDonough St. Line 1.50 m. Whitehall St. Line 1.50 m. Pres. Richard Peters, Sec. & Treas. J. W. Culpepper, Supt. & Purch. Agt. E. C. Peters. Office, 49 Line St. g. Gate City St. R. R. Co. 23 m, 4-8½ g, 16 & 60 lb r, 7 c, 28 mu. Pres. R. Peters. Sec. & Treas. J. W. Culpepper, Supt. & Pur. Agt. E. C. Peters. 6

Metropolitan St. R. R. Co. 6 m, 4-8½ g, 16 & 60 lb r, 7 c, 28 mu. Pres. R. Peters. Sec. & Treas. J. W. Culpepper, Supt. & Pur. Agt. E. C. Peters. 6

Metropolitan St. R. R. Co. 6 m, 4-8½ g, 20 lb r. 20 c, 84 h. Pres. J. W. Rankin, Sec. J. S. Hanlutu. Office cor. Hunter and Butler sts.

West End & Atlanta St. R. R. Co. Pres. T. G. Healey.

ATLANTIC, N. J.—Atlanta City Ry. Co.

Office cor. Hunter and Datact Sts.
West End & Atlanta St. R. R. Co. Pres. T. G. Healey.

ATLANTIC, N. J.—Atlantic City Ry. Co.
AUBURN, N. Y.—Auburn & Owasco Lake R.R. Co.
1¼ m, 4-8½ g, 28-30 lb r, 4c, 13 h, Pres. D. M Osborne,
Sec. & Treas. C. B. Kosters, Supt. J. L. Windsor.
East Genesee & Seward Ave. Ry. Co. 2¾ m, 4-8½ g,
30 lb r, 6 c, 25 h. Pres. David M. Osborne, Sec. &
Treas. C. B. Kosters, Supt. J. L. Windsor.
AUGUSTA, GA.—Augusta & Summerville R.R. Co.
6 m, 5 g, 30 lb r, 13 c, 42 ln, Pres. Patk. Waish, Supt. & Sec. Edw. G. Mosher. Auditor, Frank E. Petit.
Office, 513 McKinne st.
AURORA, H.L.—Aurora City Ry. Co. 5 m, 4-8½
g, 28 lb r, 7 c, 10h, 30 mu. Pres. H. H. Evans, V. Pres.
S. W. Thatcher, Sec. A. J. Hopkins, Treas, E. W
Trask, Supt. I. B. Chattle.
BABYLON, N. Y.—Babylon Street Ry. Co. 1.53
m, 4-9 g, 60 lb r, 3 c, 3 h. Pres. W. F. Norton, Sec.
Jos. F. Sammis, Treas. John R. Reed, Supt. David S.
S. Sammis. d

m, 4-9 g, 60 ld r, 3 c, 3 h. 17es. W. F. Norton, Sec, Jos. F. Sammis, d
S. Sammis. d
BALTHMORE, MD.—Baltimore & Powhatan Ry. Co. 6 m, 5-4½ g, 30 lb r, 4 c, 18 h. Pres. & Treas. E. R. Freeman, Sec. R. B. Clark, Supt. 1. M. Ketrick. Office 406 Laurens st.
Baltimore City Pass. Ry. Co. 44 m, 5-4½ g, 46 & 47 lb r, 155 c, 1065 h. Pres. & Supt. Oden Bowie, Supt. car shops J. M. Blundell, Supt. tracks, Boyer Parks. Treas John Bolglano, Sec. S. L. Bridge. Office cor. Calvert & Baltimore sts.

Baltimore Union Pass. Ry. Co. 16 m, 5-4½ g, 47 lbs r, 61 c, 39 lh. Pres. N. Perrin, Gen. Man. T. C. Robbins, Treas. E. P. D. Cross, Sec. Leon Fender, Assit. Gen., Man R. E. Robbins. Office cor. Huntington ave. & Oak st.

Baltimore, Catonsville & Elliott Mills Pass. Ry. Co. 6 m, 5-4½ g, 35 lb r, 15 c, 42 h. Pres. T. C. Robbins, Sec. W. W. Orendorf, Treas. E. P. D. Cross.
Baltimore & Pimlico & Pikesville R.R. Co.

Central Ry. Co. 11½ m, 5-4½ g, 40 lb r, 22 c, 2 sweepers, 186 h. Pres. Peter Thompson, sec. & Treas. Waiter Blakistone. Office cor Preston and Constitution sts. b.
Citizen's Ry. Co. 20 m, 5-4½ g, 47 lb. r, 36 c, 400 h. Pres. Jas. S. Hagarty, Treas. Jos. Balzino, Supt. & Pur. Agt. C. C. Speed, Cashier Wm. V. Hammersley. a Highlandtown & Point Breeze Ry. Co. City Div. 6 m, 5-8 g, — lb r, 15 c, 9 h. Pt. Breeze Div. 3 m, 1 loco, 4c. Pres & Gen. Man. Francis Haziehurst, of Philadelphia, Treas. Robt. D Morrison.
North Baitimore Passenger Ry. Co. 21 m, 5-4½ g, 45 lb. r, 72 c, 400 h. Pres. Jas. L. McLane, Treas. Ban'l J. Foley, Sec. Thos. J. Wilson.
People's Ry. Co. 13 m, 5-4½ 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. f
York Road R. R. Co.
BATTLE CREEK, MICH.—Battle Creek St. Ry. 4 m, 3-6 g, 28 lb r, 8 c, 20 h. Pres. G. L. Beveredge, Chicago, V. Pres. Lucius Clark, S. Bend, Ind., Sec. Il. Il. Brown, Battle Creek, Treas. H. H. C. Miller, Chicago, Supt. Geo. Wolf, Battle Creek. c
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.—Beatrlee St. Ry. Co. 4 m, 4-8½ g, 25 lb. r, 4 c, 28 h. Pres. J. D. Kilipatrick, Purchasing Agt. J. E. Smith. h
BEAVER FALLS, PA.—Beaver Valley St. Ry. Co. 3½ m, 5-2½ g, 38 lb r, 5 c, 31 h. Pres. M. L. Knight, V. Pres. Col. J. Weyand, Sec. & Treas. J. F. Merriman, Supt. L. Richardson. Office, 1207 7th av., Beaver Falls. a
BELLAIRE, G.—Bellaire St. R.R. Co. Purchased by Chas. D. Halnes, of Haines Bros., for the bond-holders.
BELLAIRE, G.—Bellaire St. R. R. Co. Purchased by Chas. D. Halnes, of Haines Bros., for the bond-holders.
BELLEVILLE, ONT., CAN.—Belleville St. Ry. Co. 1½ m, 3-6 g, 25 lb r, 5 c, 14 h Pres. D. Lockwood, Sec., Treas. & Man. S. A. Lockwood. l
BELLEVILLE, ONT., CAN.—Belleville St. Ry. Co. 1½ m, 3-6 g, 25 lb r, 5 c, 14 h Pres. D. Lockwood, Sec., Treas. & Man. S. A. Lockwood. l
BILLYILLE,

Man. R. 11. 216 Fort st.

Mr. Osborn). Offices 112 State St.

Clty Ry. Co. 1 m, 4g, 25 lb r, 2 c, 5 h. Pres. & Man. R. II. Meagley, Supt. Wm. Whitney. Office, 216 Fort st. 3

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

Washington st.

Park Ave. R. R. Co. 1 m, 4 g, 20 lb r. Pres. E. Ross, Treas. F. E. Ross, Scc. E. A. Matthews. S. M. Nash, lessee. 5

BIRMINGHAIJ, ALA.—Birmingham St. Ry. Co. 10 m, 4-8½ g, 16 lb r, 24 c, 90 mu. Pres. Geo. L. Morris, Sec., Treas. & Supt. G. J. Stubbiefield. Office, cor. 2d av. and 19th st. d.

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

Highland Avenue R. R. 6½ m, 4-8½ g, 30 lb r, 5 c, 28 h. Pres. H. M. Caidwell, Man. W. J. Milner, Supt. J. M. Lens, Eng. II. 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. c.

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

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

BLOOMIFIELD, N. J.—Newark & Bloomfield R. Septoprietor A. H. Moore, Sec. Edw. Sharp. c.

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. 5 m, 20 lbs. r, 3-6 g, 2 motors, 3 c. President & Supt. J. B. Hodges, Treas. A. B. Hodges, Sec. S. K. Huntsinger. R. BOSTON, MASS.—Boston Consolidated St. Ry. Co. 5½ 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, Jr. Gen. Supt. Julius E. Rugg. Supt. J. H. Studley, Jr. Gen. Supt. Julius E. Ry. G, 50-60 lbr. Pres. W. W. Wheildon, Treas. and Clerk, John

Supt. J. H. Studley, 19 City Square, Charlestown: Capital, \$1,700,000. Office, Tremont row, cor. Pemberton Sq. k
Boston & Chelsea R. R. Co. 4.154 m, 4-8½ g, 50-60 lbr. Pres. W. W. Wheldon, Treas. and Cierk, John H. Studley, Jr. (Operated by the Boston Consolidated St. Ry. Co.) f
Albany St. Freight Ry. Co. 93 m, 4-8½ g, 90 lb r, no c, no lb. Pres. Chas. L. Pierson, Treas. Geo. F. Child. Office, 439 Albany St. j
Lynn & Boston. R. R. Co. 42 1-6 m, 4-8½ g, 28-48 lb r, 175 c, 748 lb. Pres. Amos F. Breed, Treas. & Cierk E. Francis Oliver, Supt. Eiwin C. Foster. Office, 13 Tremont row, k
Metropolitan R. R. Co. 83 m, 48 to 54 lb r, 687 c, 3543 lb. Pres. C. A. Kichards, Sec. Wm. P. Harvey, Treas. Chas. Boardman. Office, 16 Kilby st. k
So. Poston Ry. Co. 16 m, 4-8½ g, 50 lbr, 199 c, 970 lb. Pres. Chas. H. Hersey, V. Pres. Ezra H. Baker; Sec. & Treas. Wm. Reed, Supt. Daniel Coolidge. Office, 715 Broadway, So. Boston. k
Somerville Horse R. R. Co. (Operated by the Boston Consolidated Street Ry. Co.) 5.4 m, 4-8½ g, 48-60 lbr. Pres. Sam? I. S. Sewail, Treas. & Clerk, J. H. Studley, Jr. Office, 27 Tremont row. a
Winnisimmet R. R. Co. 1.95 m, 4-8½ g, 48 lb r, no c, no h. Pres. Wm. R. Pearmain, Chelsea, Mass.

Treas. & Clerk, E. Francis Oliver, Boston. Office, 13 Tremont row. /
BRADFORD, P.1.—Bradford & Kendall R.R. Co. 1½ m, 4-8½ g, 38 ib r, 3 c, 4 h. Pres. James Brodey, Sec. Geo. H. Moon, Gen. Man. & Supt. Enos Parsons. Capital \$12,000

1½ m, 4-8½ g, 38 lb r, 3 c, 4 h. Pres. James Brodey, sec. Geo. H. Moon, Gen. Man. & Supt. Enos Parsons. Capital, \$12,000.

BRANTFORD CAN.—Brantford St. Ry. Co. 4
m, 3-6 g, 25 lb r, 6 c, 20 h. Pres. D. A. Flack, V. Pres.
R. A. Pringle, Sec., Treas. & Man. Chas. H. Flack. h
BRENHAM, TEX.—Brenham St. R. R. Co. 2 m,
4g, 20 lb r, 3 c, 18 mu. Pres. T. J. Pampell, V-Pres. F,
Krentzlin, Sec. John A. Randie, Treas. D. C. Giddings.
Man. E. B. Randie. Office, Gruber Blig., Norths st. l
BRIDGEPORT. CONN.—Bridgeport Horse R. R.
Co. 6½ m, 4-8½ g, 42 lb r, 20 c, 90 h. Pres. Albert
Eames, Sec. & Treas. F. Hurd, Supt. B. F. Lashar. j
Bridgeport & W. Stratlord Horse R. R. Co. 3½ m,
4-8½ g, 45 lb r. 10 c, 40 h. Pres. David F. Hullister,
Sec. & Treas. Henry D. Drew, Man. Henry N.
Beardsley j
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.-Annex St. Ry.Co. (See new

Treas. C. R. Fillebrown. Supt. H.B. Rogers. Office, Maln st. j

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

Atlantic Avenue R. R. Co. of Brooklyn. 28½ m., (leased and owned). 4-8½ g, 50-60 lb r, 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.

Brooklyn Cable R. R. Co. Leases its line from Atlantic Ave. R. R. Co., for 14 per cent of gross receipts. Capital, \$1,000,00. 4:

Brooklyn Cross Town R.R. Co. 16 m, 4-8½ g, 50-60 lb r, 72 c, 430 h. Pres. Henry W. Slocum, V. Pres. Ezra B. Tuttle, Sec. M. Joost, Treas. John R. Conner, Supt. D. W. Suilivan. Offices 585 Manhattan ave. 1 Bushwick R.R. Co. 28 m, 4-8½ g, 45-50-60 lb r, 172 c, 600 h. Pres. Frank Cromwell, V. Pres. Wm. M. Husted, Treas. & Sec. S. D. Ilalioweil, Supt. Wm. M. Morrison. Office 22 Broadway, N. Y.

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

Brooklyn City R.R. Co. 88½ m, 4-8½ g, 45-64 lb r, 501 close c, 335 optn c, 3176 h. Pres. Daniel F. Lewis, V. Pres. Wm. M. Thomas, Sec. H. M. Thompson, Asst. Sec. Francis E. Wrigley, Treas. Cromwell Hadden. Offices, 10 Futton st. a

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

Coney Island and Brooklyn R.R. Co. 18 3-5 m, 45 lb r, 4-8½ g, 15 c, 304 h. Pres. John R. Conner, Supt. D. W. Sullivan. Office, 5-5 Manhattan ave. a

Coney Island and Brooklyn R.R. Co. 18 3-5 m, 45 lb r, 4-8½ g, 105 c, 344 h. Pres. John McMahon, Sheepshead Bay & Ocean Avenue R. R. Co. 2½ m, 4-8-9 g, 40 c. Pres. A. A. McClemer, V. Pres. Daniel Mone, Sec. John McMahon, Sheepshead Bay, Trea

head Bay, Treas. Horace Valkulyh. Office 16 Red Hook Lane.
Crosstown Line, Hamilton Ferry to Bridge. d
Grand St. & Newtown R.R. Co. 13½ m, 4-8½ g, 5060 lb. 7, 2c, 250 h. Pres. Martin Joost, Sec. & Treas.
Wm. E. Horwill, Supt. Walter G. Howey. Office 394
Kent ave. l
Grand Street, Prospect Park & Flatbush R.R. Co.
11½ m, 4-8½ g, 50- lb. 7, 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 Alien, Sec.
Wm. B. Walt, Treas. C. B. Cottrell, Supt. Chas. E.
Harris. Office, cor. Nostrand and Park aves. J
New Williamsburgh & Flatbush R. R. Co. 17½
m, 4-8½ g, 47-50 lb. r, 78 c, 278 h. Pres. Geo. W. Van
Allen, 54 Ann st., New York, Sec. W. B. Walt, 34th
st. & 9th ave., New York, Treas. C. B. Cottrell, 8
Spruce st., N. Y. City, Supt. Chas. E. Harris, Nostrand & Park aves, Brooklyn. J
Prospect Park & Flatbush R.R. 3 m, 4-8½ g, 34
br. 70 c, 360 h. Pres. Loftis Wood, Sec. & Treas.
Sam'l Parkhill, Supt. Loftis Wood. Offices 45 Broadway.
South Brooklyn Central R.R. Co. 8½ m, 4-8½ g, 60

Sam'l Parkhill, Supt. Loftls Wood. Omces 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.
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. 15½ m,
4-8½g, 50 lb r, 109 c, 615 h. Pres. Henry M. Watson,
V. Pres. P. P. Pratt, Sec. S. S. Spaulding, Treas. W.
H. Watson, Supt. Edward Edwards. Office, 246 Main
St. 6

H. Watson, Supt. Edward Edwards. Office, \$46 Main st. 6
Buffalo East Side St. Ry. Co. 31 m, 4-8½ g, 50 tb r, h. Pres. S. S. Spaulding, V. Pres. Joseph Churchyard, Sec. H. M. Watson, Treas. W. H. Watson, Supt. Edward Edwards. Office 346 Main st. 6
BURLINGTON, IA.—Burlington St. R.R. Co 3½ m, 4-8½ g, 16-32 lb r, 9 c, 22 h, 10 mu. Pres. & owner, John Patterson, Sec., Treas. & Man. C. T. Patterson. Office. 1401 Summer st. a
Union St. Ry. Co. 8½ m, 4-8½ g, various r, 20 c, 80 h. Pres. Geo. A. Duncan, Sec., Treas. & Supt. F. G. Jones. 6

BURLINGTON, VT.—Winooski & Burlington Horse Ry. Co. 3½ m. 4-8 g, 25 lb r, 7 c, 24 h. Pres. W. A. Woodbury, V. Pres., F. C. Kennedy, Supt, K.

The Julien Electric Company.

OFFICE, 120 BROADWAY, N. Y

FACTORY, CAMDEN, N. J.

Electric Street Cars on Secondary Battery Principle.

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

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

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

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

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

COST.

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

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

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

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

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

B. Walker, Treas. L. E. Woodhouse, Clerk, G. W. Walls. Office, Winooski ave. g
CAIRO, ILL.—Cairo St. Ry. Co. 2 m, 3-6 g, 25 lb
r, 4 c, 12 h. Pres. J. A. Goldstine, V-Pres. C.V. Neff,
Supt. & Treas. Thos. Lewis, Sec. H. Schulze. k
CAMBRIDGE, MASS.—Cambridge R. R. Co.51-59
m, 4-8½ g, 50 lb r, 255 c, 1,428 h. Pres. Prentiss Cummings, Treas. & Clerk Franklin Perrin, Exec. Com. I.
M. Spelman, P. Cummings, O. S. Brown, Clerk of Directors, O. S. Brown, Supt. Wm. A. Bancroft.
a
CAMDEN, N. J.—Camden & Atlantic St. Ry.
Camden Horse R.R. Co. 9 m, 5-1 g, 35-52 lb r, 26 c,
85 h. Pres. Thos. A. Wilson, Sec. Wilbur F. Rose,
Treas. & Supt. John Hood. Office 1125 Newton ave. h
CANTON, O.—Canton St. Ry. Co. 4½ m, 4 g, 28
lb r, 11 c, 55 h. Pres. & Treas. G. E. Cook, Sec. John
F. Clark, Supt. O. S. Stanton. Office, 4 E. 7th st. a
CAPE MAY, N. J.—Cape May & Schellenger
Landing Horse R. R.
CEDAR RAPIDS, 1A.—Cedar Rapids & Marion
Ry., 13½ m, 4-8½ g, 28-30-33 lb r, 20 c, 44 h. Pres. W.
Greene, V-Pres. A. J. McKean, Sec. N. B. Consigny, Treas. G. Greene, Supt. Wm. Elsom. Office,
11 N. Second st.
CHATHAM, CAN.
CHARLESTON, S. C.—Charleston City Ry.
Co. 8½m, 4-8½ g, 38 lb r, 32 c, 110 h. 1mu. Pres.
Jno. S. Riggs, Sec. and Treas. Evan Edwards, Asst.
Treas. Frank Whilden, Supt. Jno. Mohlenhoff.
Office? Broad st. k
Enterprise R.R. Co. 15 m, 5 g, 42 lb r, 29 pass. c,
10 freight c, 95 h. Pres. A. F. Ravenel, Sec. & Treas.
U. E. Hayne, Supt. T. W. Passallague.
Middle street Sullivan 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. d
CHARLOTTE, N. C.—Charlette St. Ry. Co. 2½
m, 4-8½ g, 16 lb r, 4 c, 20 mu. Pres. W. J. Rushton

road st. d CHARLOTTE, N. C.—Charlotte St. Ry. Co. 2½ 1, 48½ g. 16 fb r, 4 c, 20 mu. Pres. W. J. Rushton oc. and Treas. E. K. P. Osborne, Supt. F. W. Dixon,

m, 4-8½ g, 16 lb r, 4 c, 20 mu. Pres. W. J. Rushiom. Soc. and Treas. E. K. P. Osborne, Supt. F. W. Dixon, Capital, \$20,000.]

CHATTANOOGA, TENN.—Chattanooga St. R. R. Co. 12 m, 4-8½ g, 25-43 lb r, 25 c, 120 h. Pres. and Treas. J. II. Warner, Sec. C. R. Gaskill. 3

CHESTER, PA.—Chester St. Ry. Co. 7½ m, 5-2½ g, 47 lb r, 14 c, 66 h. Pres. Richard Peters, Jr., Treas. Sam'l H. Seeds, Sec. & Manager E. M. Cornell.

CHICAGO, ILI.—Chicago City Ry. Co. 90 m, 4-8½ g, 45-63 lb r, 697 c, 1,600 h, cable doing work of 2,500 h. Pres. C. B. Holmes, Sec. H. II. Windsor, Treas. T. C Pennington, Supt. C. B. Holmes. Office 2,020 State st.

a. Chicago Pass. Ry. Co. 21 m, 52 lb r, 60 c, 500 h. Pres. Harvey T. Weeks, Supt. Austin J. Doyle.

Chicago West Division Ry. Co. 45½ m, 4-8½ g, 40 r, 688 c, 3,825 h. Pres. J. R. Jones, Sec. George L. Webb, Supt. Dc Witt C. Cregier. Office, 59 State st.

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. Chas. T. Yerkes, Treas. Hiram Crawford, Supt. Fred L. Threedy, Purch. Agt. John M. Roach, Master Mechanic J. Millar. Car Builder II. N. E. Cottler. Office, 44 N. Clark St. & CHILLICOTHE, O.—Chillicothe St. R.R. Co. 12 m, 32, 16 lb r, 7 c, 10 h. Pres. E. P. Safford, Sec. A. E. Wenis, Treas. William Poianel, Supt. Ewel McMartin.

CINCINNATI, O.—Cincinnati Inclined Plane Ry.

Sec. A. E. Wells, Treas.

McMartin.

CINCINNATI, 0.—Cincinnati Inclined Plane Ry.

Co. 6½ m, 5-2½ g, 43 lb r, 25 c, 140 h. Pres. Geo. A.

Smith. Sec. & Supt. James M. Doherty, Tr. J. S.

Smith, Sec. & Supt. James M. Doherty, Tr. J. S. IIIII. a
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. Dunlap, Sec. & Auditor, Jas. A. Collins, Supt. Jno. Harris, Pur. Agt. B. F. Haughton. Office second floor of Apolio Bullding. k
Columbia & Cincinnati St. R.R. Co. 3½ m, 3 g, 40 lb r, 6 c, 3 dummy c. Pres. & Auditor C. H. Kilgour, V. Pres. John Kilgour, Treas. & Sec. A. H. Meler, Mt. Lookout, O. Office Station C. a
Mt. Adams & Eden Park Inclined R.R. Co. 7 m, & 8 m cable, 5-2½ g, 42 lb r, 20 c, 40 cable c, 175 h. Pres. G. B. Kerper, Sec. J. R. Murdoch, Supt. R. P. Alley. Office, head of Mt. Adams incline. a
Price Hill Inclined Plane R.R. Co. 8-13 m, 5-6 g, 60
lb r, 4 c. Pres. M. W. Oliver, Gen. Man. Rees E. Mc
Duffice, Sec. & Treas. Geo. T. McDuffie. a
So. Covington & Cincinnati. (See Covington, Ky.)
CLARKSVILLE, TENN.—Clarksville St. Ry. Co. 2 m, 4-8½ g, 16 lb T-r, 4 c, 16 mu. Pres. John F. Shelton, Sec. & Treas. John W. Faxon. Capital, \$6,250. Office, Far mers' & Merchants' Nat. Bank. 1
CLEVELAND, O.—The Brooklyn St. R.R. Co. 12%

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 McConnell, Supt. A. L. Johnson. Office 1,301

John McConnell, 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.
11. E. Andrews, Sec. & Treas. E. Fowler, Supt. J. J.
Stanley. Office 1373 Broadway.
Superior St. R.R. Co. 15 m, 4-8½ g, 45 lb r, 46 c,
265 h. Pres. Frank De II. Robison, V. Pres. John
Koch. Sec., Treas. & Supt. J. II. Robinson, Jr.
The East Cleveland R.R. Co. 20½ m, 4-8½ g, 45 lb
steel r, 110 c, 517 h. Lines, Euclid ave. & Prospect
st.: Cedar ave.; Garden st. Pres. A. Everett, VPres. Chas. Wason, Sec. & Treas. H. A. Everett,
Supt. E. Duty. Offices, 1154 Euclid ave. a
Woodland Avenue & West Side St. R.R. Co. 40 m,
4-5½ g, 43-45 lb r, 140 c, 630 h. Pres. M. A. Ilanna, V.
Pres. C. F. Emery, Sec. & Pur. Agt. J. B. Hanna,
Gen. Supt. George G. Mulhern. Office, cor. Pearl
and Detroit sts. a
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. k
St. Clair Street Ry. Co. 9 m, 4-8½ g, 40 lb steel r,
10 one-h. & 20 two-h. c, 150 h. Pres. & Treas. Chas.
Hathaway, V.-Pres. S. S. Lyons Sec. Affred G. Hathaway, Supt. A. W. Lynne. Office, 814 St. Clair st. a
CLIFTON, CAN.—Niagara Falls, Wesly Park
and Cliftton Tramway Co. 3½ m, 4-3½ g, 30 lb r, 8 c,
40 h. Pres. J. H. Mooney, 280 B'way, N. Y. Treas.

John N. Hayward, 52 B'way, N.Y. Sec. John H. Bache, Niagara Falls, Ont. h
CLINTON, IA.—Lyons & Clinton Horse R.R. Co.
(See Lyons.)

CLINTON, IA.—LYOIS & CLINCH HOLSE AND CSEL LYONS.)

COLUMBIA, S. C.—Columbia St. Ry. 4½ m, 4-8½ g, 30 lb r, 6 c, 18 h. Pres. E. M. Cole, Sec. Edw. Benedict, Treas. W. de L. Benedict, all of 32 Liberty St., New York. Capital, \$50,000. 5

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. Gabourch.

Dourgh.

COLUMBUS, O.—Columbus Consolidated St. R.R. Co. 25 m, 5-2 g, 35-52 lb r, 97 c, 383 h. Pres. A. D. Rodgers, V. Pres. H. T. Chittenden, Sec. & Treas. E. K. Stewart, Supt. J. H. Atcherson. a Glenwood & Greeniawn St. R.R. Co. 4½ m, 3-6 g, 24 lb r, 4 c, 19 h. Pres. A. D. Rodgers, V. Pres. B. S. Brown, Sec. R. R. Ri-kly, Treas. S. S. Rickly, Supt. Jonas Willcox. Office 9 S. High st. d. CONCORD, N. II.—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. k

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. k
CORTLAND, N. Y.—Cortland & Homer Horse R. R. Co. 4 m, 48 ½ g, 25-30 lb 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. f. COUNCIL BLUFFS; IA.—Council Bluffs St. Ry. Co. 4 m, 48 ½ g, 27 lb r, 10 c, 32 h, Pres. S. R. Callaway, Sec. & Treas. Geo. R. Hall, Supt. Wm. H. Burns. Office, 506 First ave. 1
COVINGTON, KY.—So. Covington & Cincinnati St. Ry. Co. 17½ m, 5-2½ g, 43 lb r, 46 c, 296 h. Pres. E. F. Abbott. Sec. J. C. Benton, Treas. G. M. Abbott. DALIAS, TEX.—Dallas Consolidated St. Ry. Co. 13 m, 4-8½ g, 20-38 lb r, 26 c, 126 mu. Pres. J. E. Henderson, Sec. W. C. Connors. Capital, \$300,000. DANVILLE, HLL.—Cittzens' St. Ry. Co. 4½ m, 4 g, 20 lb T, 8 c, 44 mu. Pres. Wm. P. Cannon, Sec. & Treas. Adam R. Samuel. Office, 146 Vermillon st. I. DAVENPORT, IA.—Davenport Central St. Ry. Co. 2 m, 4-8½ g, 20 lb r, 14 c, 24 h, 15 mu. Pres. Whit. Grant, V. Pres. W. L. Allen, Treas. J. B. Fidlar, Sec. O. S. McNeil, Supt. J. W. Howard. k
Davenport City Ry. Co. 3½ m, 4-8½ g, — lb r, 14 c, 46 h. Pres. C. S. Watkins, Sec. and Treas. S. D. Bawden. e
DAYTON, KY.—Newport & Dayton St. Ry. Co. 2 m, 6-2½ g, 44 lb r, 9 c, 36 h. Pres. & Supt. W. W. Bean.

c, 46 h. Pres. C. S. Watkins, Sec. and Treas. S. D. Bawden. e

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

DAYTON, O.—Dayton St. R.R. Co. 7½ m, 4-8½ g, 44 lb r, 25 c, 95 h. and mu. Pres. C. J. Ferneding, V. Pres. G. W. Rogers, Sec. C. A. Craighead, Supt. A. W. Anderson. Office, W. 3d st. d. Fifth St. R. R. Co. 7 m, 4-8½ g, 45 lb r, 18 c, 58 h. Pres. A. A. Thomas, Sec. D. B. Corwin, Treas. R. l. Cummin, Supt. J. M, B. Lewis. Office, 7 E. 3d st. a. Oakwood St. Ry. Co. 6 m, 4-8½ g, 38 lb r, 14 c, 56 h. Pres. Charles B. Clegg, Sec. H. V. Perrine. a. The Wayne & Fifth St. R. R. Co. 4½ m, 4-8½ g, 38 lb r, 10 c, 35 h. Pres. Geo. W. Shaw, Sec. & Treas. Eugene Watchet, Supt. N. Routzahn. Office, 29 Wayne st. k

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

Ctilzens Street R.R. Co. 2 m, 4-8½ g, 20 lb Tr, 9 c, 48 h. & mu. Pres. D. S. Shellabarger, Sec. W. L. Shellabarger, Treas. & Gen. Man. W. L. Ferguson. 40

DENISON, TEX.—Denison St. Ry. Co. 3½ m, 3-6 g, 16 lb r, 7 c, 25 mu. Pres. C. A. Walterhouse, Supt. J. J. Campbell. 5

DENVER, COL.—Denver City Ry. Co. 24m, 3-6 g, 16 lb r, 64 c, 332 h. Pres. Geo. ll. Holt, 10 Wall st., New York City, Sec. G. D. L'huiller, 10 Wall st., New York City, Sec. G. D. L'huiller, 10 Wall st., New York City, Treas. & Man. G. E. Randolph. h. Denver Tramway Co. 4 m, 3-6 g, 16 ls 10, 7 e. Rev. Soc. G. D. L'huiller, 10 Wall st., New York City, Pres. Rodney Curtis, V. Pres. John J. Riechman, Sec. Wm. G. Evans. e

DES MOINES, IA.—Des Moines St. R. R. Co. 12 m, 35, 25-30-38-52 lb r, 18 c, 125 h. Pres. W. Mc-

J. Riechman, Sec. Wm. G. Evans. e

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

Capital City St. Ry. Co. 7 m, 48½ g, 45 lb r, 6 c,
32 h. G. Van Ginket, Sec. H. E. Teachout, Treas.
J. Weber. Office, cor. E 5th & Locust Sts. a

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

DETROIT, MICH.—Fort Wayne & Elmwood Ry. Co. 9.1 m, 4-8½ g, 45 lb r, 33 c, 216 h. Pres. H. Brown, V. Pres. Edward Kanter, Sec. N. W. Goodwin, Treas. E. S. Heineman, Supt. Geo. S. Hazard. Office, 129 Griswold st. a

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, Gratlot Ave. line, Brush St. line, Cass Ave. line, Congress & Baker line. Pres. Sidney D. Miller, Treas. George Hendrie, Sec. James Heugh, Gen. Supt. Robert Bel, M. M. John Willis. Office, 12 Larned st. W.

Grand River St. Ry. Co. 6½ m, 4-8½ g, 45 lb r, 15 c, 160 h. Pres. & Treas. Jos. Dalley, Sec. J. W. Dalley, Supt. C. M. Dalley.

Elighland Park Ry. Co. 3 m, 4-8½ g, 42 lb r for ½ m in citv ilmits, outside 35 lb Tr, 2 c, electric motors. Pres. and Treas. Frank E. Snow, Sec. F. Woodruff. Capital, \$50,000. Office, 92 Griswold st. a

DOVER, N. H.—Dover Horse R.R. Co. 5 m, 3 g,

DOVER, N. II.—Dover Horse R.R. Co. 5 m, 3 g, 30 lb r, 4 c, 14 h. Pres. Chas. H. Sawyer, Treas. llarrison Haley.

DUBUQUE, 1A.—Dubuque St. R.R. 7 m, 4-8½ g, 5 lb r, 21 c, 65 h. Pres. J. A. Rhonberg, Sec. & Treas. E. Linehan, Supt. J. J. Linehan. Office Coulier

ave,
DULUTH, MINN.—Duluth St. Ry. Co. 5½ m, 3-6
g, 35-45 lb r, 18 c, 91 mu. Pres. Sam'l Hill, V. Pres.
T. P. Wilson, Sec. & Treas. A. S. Chase, Supt. T. W.

EAST OAKLAND, CAL.—Oakland, Brooklyn & Fruit Vale R.R. Co. 2 m, 5-6 g, 35 lb r, 4 c, 26 h. Pres. & Treas. H. Tubbs, Sec. W. C. Mason, Supt. Jas. Dixon, Pur. Agt. J. Reed. Office, 301 Central ave. 5 EAST SAGINAW, MICII.—East Saginaw St. Ry. 8 m, 4-8% g, 30 and 40 lb r, 23 c, 70 h. Pres. Walter A. Jones, Acting Sec. C. A. Bartlett, Supt. A. Bartlett. 4
EAST ST. LOUIS, ILL.—East St. Louis St. R.R.

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

EASTON, PA.—The Easton & So. Easton Passenger Ry. Co. 1½ m, 5-2½ g, 45 lb r, 4 c, 20 h. Pres. H.

A. Sage, Sec. & Treas. H. W. Cooley, Supt. Elisha Burwell, So. Easton. Capital, \$29,562. Office, 34s 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 CLAIRE, WIS.—Eau Claire St. Ry. Co. 5 m, 4-8½ g, 27 lb, 42 lb center bearing steel, and 60 lb grooved steel r, on all curves, 16 c, 80 h. Pres. A. G. Bradstreet, Nev York, V.-Pres. Geo. B. Shaw, Eau Claire, Sec. & Treas. Weston Lewis, Gardiner, Me. h

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

ELGIN, ILL.—Elgin City Ry. 2½ m, 48½ g, 25
Br, 4 c. 18 h. Pres., Sec., Treas. Supt. & Owner, B. C.
Payne. 4
ELIZABETH, N. J.—Elizabeth & Newark Horse
R.R. Co. 14 m, 5-2½, 4-10½ g, 30 lb r, 24 c, 74 h. Pres.
& Treas. Jacob Davis, Sec. & Supt. Jonn F. Pritchard.
Elizabeth St. Ry. Co. Pres. & Supt. Amos Clark,
Sec. & Treas. John P. Earl. 4
ELKHART, IND.—Citizens' Ry. Co. 4½m, 4-8½
g, 30 lb r, 7c, 25 h. Pres. F. W. Miller, V. Pres. J.
W. Ellis, Sec. C. W. Fish, Treas. J. A. Cook, Man. Director, Jas. Kavanagh. Office, 101 N. Main st. b
ELMHRA, 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. Go. W. Hoffman,
Sec. Wm. S. Kershner, Supt. Henry C. Silsbee. Officers \$12 E. Water st. k
EL PASO, TEX.—El Paso St. Ry. Co. 6m, 4-8½ g,
20-30 lb r, 18 c, 40 mu. Pres. B. H. Davis, Vice Pres.
J. F. Croby, Treas. C. R. Morehead, Sec. & Supt.
H. W. Marks. Offices, Seventh st.
EMPORIA, KAN.—Emporia City Ry. Co. 3½ m,
3-6 g, 20 lb r, 8 c, 24 h. Pres. Van R. Holmes, Treas.
A. F. Crowe, Sec. & Man. J. D. Holden.
ENTERPRISE, MISS.—Enterprise St. Ry. Co.
1½ m, 3-6 g, 24 lb r, 2 c, 6 h. Pres. John Kampe, V.
Pres. E. B. Gaston, Sec. & Treas. J. W. Gaston. g
ERIE, PA.—Erie City Passenger Ry. Co. 8½ m,
4-8½ g, 30, 40 & 45 lb r, 20 c, 55 h. Pres. W. W. Reed,
Treas. Wm. Spencer, Sec. J. L. Sternberg, Supt.
Jacob Borst. Office, cor 2d & State sts. a
EVANSVILLE, IND.—Evansville St. Ry. Co. 12
m, 4-8 g, 27 lb r, 32 c, 200 mu. Pres. John Gilbert,
Sec. & Treas. W. S. Gilbert, Supt. T. J. Gist. Office,
cor. First and Main sts. a
EVANSVILLE, IND.—Evansville St. Ry. Co. 16
R-8½ g, 35-40-46-47 lb r, 51 c, 210 h. Pres. Fank S.
Stevens, Treas. F. W. Brightman, Sec. M. G. B.
Switt, Supt. John H. Bowker, Jr. Office, 182 N. Main
St. f. The Cock AWAY, N. Y.—Village Ry. Co. 1 m,
4-8½ g, 47 lb r, 52 c, 10 h. Pres. C. A. Cheever, Treas-

Swift, Supt. John H. Downer, Jr. Choo, Jan. St. J. FAR ROCKAWAY, N. Y.—Village Ry. Co. 1 m, 4-8½ g, 47 lb r, 5 c, 10 h. Pres. C. A. Cheever, Treas. D. L. 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, 35 lb r, 9 c, 35 h. Pres. H. A. Willis, V. Pres. H. J. Wallace, Treas. B. F. Wallis, Sec. H. C. Hartwell, Supt. Wesley W. Sargent. Office, 131 Main St. J.

Hartwell, Supt. Wesley W. Sargent. Office, 131 Main st. f
FORT SCOTT, KAN.—Bourbon County St. R. R. 3m, 4g, 16 lb r, 5 c, 22 h. Pres. J. D. Hill, sec. C. O French, Treas. J. H. Richards, Supt. E Strong. 4
FORT SMITH, ARK.—Fort Smith St. Ry. Co. 2 m, 3-6 g, 28 lb r, 5 c, 16 mu. Pres. Sam'l M. Loud, sec. & Treas. Geo. T. Sparks. h
FORT WAYNE. IND.—Citizens' St. R.R. Co. FORT WORTH, TEX.—Fort Worth St. Ry. Co. 7½ m, 4 g, 25-88 lb r, 16 c. 89 mu. Pres. K. M. Vanzandt, Treas. W. A. Huffman, Supt. J. T. Payne. 4
FRANKFORT, N. Y.—Frankfort & Ilion Street Ry. Co. 2½ m, 5 g, 4 c. Pres. A. C. McGowan, Frankfort, Sec. D. Lewis, Ilion, Treas. P. Remington, Ilion, Supt. Fredk. Gates, Frankfort.
FREDONIA, N. Y.—Dunkirk & Fredonia R.R. Co. 3½ m, 4-10g, 25 lb r, 5 c, 9 h. Pres. W. McKinstry, Sec. & Treas. M. M. Fenner, Supt. Z. Elmer Wheelock. 5
FREEPORT, ILL.—Freeport St. Ry. Co. 4½ m.

3½ m, 4-10g, 25 lb r, 5 c, 9 h. Pres. W. McKinstry, Sec. & Treas. M. M. Fenner, Supt. Z. Elmer Wheelock. 5
FREEPORT, ILL.—Freeport St. Ry. Co. 4½ m. 48½ g, 8 c, 48 h. Pres. Jacob Krohn, V.-Pres. F. C. Platt, Sec. W. G. Barnes, Treas. John B. Taylor, Supt. H. T. Warner. a
FULTON, N. Y.—Fulton & Oswego Falls St. Ry. Co. 6,000 tt, 48½ g, Gibbon's metallic stringer and r, 4 c, 8 h. Pres. Joseph Walker, Jr., V. Pres. N. N. Stranahan, Sec. and Treas. Chas. Lyman. Capital, \$15,000. Office, 15 Broad st, New York. 4
GAINSVILLE, TEX.—Gainsville St. Ry. Co. 2½ m, 3-6 g, 17 lb r, 4 c, 12 h. Pres. C. N. Stevens, V. Pres. J. T. Harris, Sec. & Treas. F. R. Shewood.
GALESBURG, ILL.—College City St. Ry. Co. 5 m, 48½ g, 8-20 38 lb r, 9 c, 24 h. Pres. L. W. Sanborn, V.-Pres. A. St. Hoover, Supt. & Sec. Geo. S. Clayton, Treas. A. Matteson. g
GALVESTON, TEX.—Gaiveston City R.R.. Co. 25 m, 48½ g, 30 lb r, 79 c, 218 mu. Pres. Wm. H. Sinclar, Sec. & Treas. F. J. DeMeritt, Supt. M. J. Keenan. Office, cor. Twenty-first & 1 sts. a
Gulf 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. 23d & 23d l GARDEN CITY, KAN.—Garden St. Ry. Co. 4 GLENS FAILS, N. Y.—Glens Falls, Sandy Hill. Sec. & Treas. T. S. Coolidge, Supt. Albert V. Brayton. 12
GLOUCESTER, MASS.—Gloucester City R. R.

Sec. & Treas. T.S. Coolidge, Supt. Albert V. Brayton. 12
GLOUCESTER, MASS.—Gloucester City R. R. 4 m 4-6 g, 35 lb r, 10, c, 90 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. Fitch, V. Pres. Walter A. Jones, Treas. Francis W. Homans, Sec. David S. Presson.
GRAFTON, MASS.—Dummy road. 4-8½ g, 40 lbr. GRAND RAPIDS, MICH.—Street Ry. Co. of Grand Rapids, Mich. 14½ m, 4-8½ g, 25-40 lb r, 29 c, 190 h. Pres. W. J. Hayes, Cleveland, O., V. Pres. L. H. Withey, Grand Rapids, Treas. C. G. Swensberg, Grand Rapids, Supt. A. Bevier, Grand Rapids. Office, cor. Washington & Indianasts. g

THE RAILWAY SYSTEM Van Depoele Electric Manufg. Co.

The Harrisburg Morning Call says: --

Our local columns this morning contain a description of the trip made to Scranton for the purpose of examining into the practical workings of the electric motor for propelling street cars, by a number of gentlemen of this city, who returned iast night. It will be seen by reading the interviews, that the expressions were unanimous and enthusiastic in favoring that system after the most careful, critical inspection. The Vice President of the road, Mr. Sanderson, furnished valuable information relative to cost, detailed expenditures, working expenses, etc., which, of course, was not intended for publication but is valuable as data on which to base estimates.

Without exception the gentlemen of the party were perfectly delighted with the system and all expressed themselves as being entirely satisfied as to its practicability. On the way home the Call representative, who accompanied the excursionists, secured the following expressions demonstrating the truth of the above expressions:

Mr. Pancake—It is better than I thought and good

Mr. Pancake—It is better than I thought and good for a long run. The important point is the cost but I believe this is the best plan for operating street railway lines that I have heard of. I am of the opinion that a similar line to Steelton would pay from the word go.

Mr. Litch, of Steelton-It's a great success and so far as Steelton is concerned I approve of it heartly. I see no objection to the system and it is certainly a great improvement over horses. I see none of the objections noticeable in the Baltimore line in this system. Cars run smoothly and with perfect safety. I bid the Harrisburg project God speed.

CHARLES MASON-I think it is a grand success and hope to see a meeting called at d a great stir made. I propose to invest in the Harrisburg enterprise and would take 10,000 shares if I were able. It will be

the building up of Eieventh street.

JOSEPH EWING-The Scranton electric road is pretty near perfection. It wastes no electricity, cars run smoothly, runs up grades four feet to the one hundred at a rate of five miles an hour, and on ievel grade at a rate of fifteen.

T. G. CALDER-I was very much delighted with the way the road was conducted. Electricity will certainly prove to be the motive power of the future.

M. R. ALLEMAN, of Steelton-Was delighted with what I have seen and if the line in operation at Scranton pays, there is no trouble in the world with the Steelton line. I will certainly increase my stock subscription and will assist in securing other subscribers.

C. A. Green, M. D.—I believe we should use every effort to start a similar enterprise. I have no doubt that it will pay in a reasonable time.

DAVIN C. CUNKLE-The Scranton line runs smooth and is certainly a great enterprise.

A. G. CUMMINGS-I believe the electric system is a good thing, but am not so sanguine as to its paying at the start. There is no question as to the speed, as cars could be run to Steetton at the rate of fifteen miles an hour.

Frank R. Leib-I have always been in favor of this scheme and our trip simply verifies what I have preached, viz: That an electrical road to Steelton is the only available and practicable system.

DAVIN FLEMING, JR .- Was very much pleased with what I saw. The Scranton line seems about perfect and was very favorably impressed with even the overhead wires. They are in no way objectionable nor an eye-sore as arranged. Ycs, I believe it an entire success.

J. W. JONES-While the system is feasible I do not know that it can be called a money making scheme to experiment. Electrical railroading is largely exEDWARD B. STURGES,

Van Deforte Mfy les.

ak. Lates, En, Int. Myr
Draufir.
Ou we test on the Electric plant furnished by you in normhie last, Expires today - m'mue, as you Kine. och evactives in our Contract, and have subjected the system to almost every con-Cevable difficulty Irhile there are many minon details to be remedied me are, as a Company throughly satisfied with the Success of this plant, and small not have it comons? or replaced by any other pours for twice its cock. Ifm had certainly succeeded his lenning one heavy Cars one externely heavy grades, with great Regularity Considering the Lockon - and pumil we Orutical in my opinion you have folors Verace hartre the additional Motors and generation orders for picuase of our plant. so me hud theme for one funner husiness -Your leeky

perimental as yet. It possesses even now many advantages over horse power. The first cost of electrical roads is, of course, more expensive, but will be cheaper in the long run.

JOHN J. HARGEST-It's immense and if a line of that kind won't pay running to Steelton it won't pay anywhere.

JOHN Q. DENNY-This system to me is nothing new. I have examined them all and this I believe to be the best.

CHARLES L. BAILEY, JR .- It is certainly a great success. I see no obstacle in the way of a Steelton line becoming a paying investment.

WILLIAM KNISELY—Count me in favor of electrical railway.

WILLIAM SHEESELY-It's the finest thing I ever saw and I hope the Steelton line will be started.

MAJOR GREENAWALT-I believe it practical and

feasible and see no reason why it should not pay. It is vastly superior to horse power.

Scranton, Fa. March 3/4 1087

JOHN F. KERPER-It is away ahead of anything I ever saw or read about. A company to build a line to Steelton would have a safe thing of it.

H. L. CHAMPLAIN-I was delighted with the working of the road and am convinced that a like enterprise at Harrisburg would be a thing devoutly to be wished for.

EDMUND MATHER-I have examined the practical working of the system with great care and it seemed to me that the mechanical construction and operation was all that could be expected and as reliable as any other form of propelling power.

E. Z. WALLOWER-I think it is a feasible, successful and apparently economical method of working a read between Steelton and Harrisburg.

The Van Depoele Electric Manufacturing Company

21 NORTH CLINTON STREET, CHICAGO, ILL.

New York Office: 41, 43 and 45 Broadway, and 17, 19 and 21 Trinity Place,

GREENBUSH, N. Y.—North & East Greenbush St. Ry. Co. 1½ m, 4-8½ g, 4 c, 12 h. Pres. & Treas. A. Bleekerbanks, Supt. J.Gascoigne. 1
GREEN CASTLE, IND.—Green Castle City St. Ry. Co. 2½ m, 4-8½ g, 23 lb f, 3 c, 14 h. Pres. & Supt. Dudley Rogers, Sec. James S. Nutt, Treas. Ralph Rogers, Gen, Man. E. W. Rogers. Office, 16 S. Jackson st. a
GREENVILLE, S.C.—Greenville City Ry. Co. 1m 15 g,—lb f, 5 c, 20 h. Proprietors, Gifreath & Harris. HALIFAX, N.S.—Halifax 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. Conian, Offices, Room 39, Drexel Building, New York, and Halifax, N. S.—The Hamilton St. Ry. Co. 4 m.

Offices, Room 39, Drexet Building, New Toria, a...
Halifax, N. S.

HAMILTON, O.—The Hamilton St. Ry. Co. 4 m.
3 g, 28 lb r, 11 c, 12 h. Pres. James F. Griffin, Sec. O.
V. Parrish, Treas. H. L. Morey, Supt. J. C. Bigelow,
HANNIP U., MO.—Hannibal St. Ry. Co. 2 m,
4-8½ g, 36 lb r, 6 c, 22 h. Pres. & Supt. M. Doyle,
Sec. & Treas. James O'Hern. Office, 300 Market st. g
HARRISBURG, PA.—Harrisburg City Passenger Ry. Co. 5.2 m, 5-2½ g, 42-47-50 lb r, 25 c, 75 h,
Pres. H. A.Kelker, Sec. John T. Ensminger, Treas.
R. F. Kelker Capital, \$62,500. Office, 27 South 2d
St. e

senger Ry. Co. 5.2 m, 5-2½ g, 42-47-50 lb r, 25 c, 75 h, Pres. H. A. Kelker, Scc. John T. Ensminger, Treas. R. F. Kelker. Capitai, \$62,500. Office, 27 South 2d St. e
HARTFORD, CONN.—Hartford & Wethersfield Horse R.R. Co. 12 m, 4-8½ g, 45 lb r, 53 c, 259 h. Pres. E. S. Goodrich, Sec. Dan'l R. Howe. g
HAVERHHIL, 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. J
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.
HIERKIMER, 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. 25 m, 4-7 g, 50-60 lb r, 116 c, 635 h. Pres. John II. Bonn, Sec. F. J. Maitory, Treas. Fredk. Milchet, Supt. Nicholas Goetz.
HOLYOKE, MASS.—Holyoke St. Ry. Co. 3½ m, 4-8½ g, 35 lb r, 15 c, 55 h. Pres. Wm. A. Chase, Treas. C. Fayette Smith, Supt. H. M. Smith. a
HOT SPRINGS, ARK.—Hot Springs R.R. Co. 3 m, 4 g, 25 lb r, 11 c, 30 h. Pres. S. W. Fordyce, Sec, E. Maurice, Supt. J. L. Butterfield.
HOUSTON, TEX.—Houston City St. Ry. Co. 14 m, 4-8½ g, 20-30 dv lb r, 40 c, 118 mu. Pres. Wm. H. Sincialr, Gaiveston, V. Pres. & Gen. Man. H. F. MacGregor, Houston, Supt. Henry Freund, Houston, Sec. & Treas. E. H. Balley, Houston. Office, 90 Travis st. a
HUTOHNSON, KAN.—Hutchinson St. Ry. Co. 2½ m, 4-1 g, 20 lb r, 6 c, 18 h. Pres. A. L. Forsha, V. Pres. John Severance, Treas. S. W. Campbell, Sec. Fred. A. Forsha. Office, 5 North Mainst. 1
H.HON, N. Y.—Frankfort & Illon St. R. R. Co. 2½ m, 5 g, 25 lb r, 5 c, 5 h. Pres. A. L. Forsha, V. Pres. P. A. Skiff, Sec. & Treas. John A. Giblin, Supt. J. J. Bannahr.
I. H.HON, N. Y.—Frankfort & Illon St. Ry. Co. 35 m, 4-8½ g, 33-38-45-50 lb, 70 c, 550 mu. Pres. A. W. Johnson, Indianapolis, Treas. Tom L. Johnson, Cleveland, O. Sec. A. A. Anderson, Indianapolis, and W. T. Steele, Indianapolis. Office 80 W. Louis-lana St. a
JACKSON, MICH.—Jackson City Ry. C

Man. W. T. Steele, Indianapolis. Office 80 W. Louislana st. a

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

JACKSON, MISS.—Jackson City R. R. 1½ m, 5g
3c, 9 mu. Pres, P. W. Peoples, Sec. & Tr. J.B. Bradford,
JACKSON, TENN.—Jackson Street Ry. Co.

JACKSON TENN.—Jackson Street Ry. Co.

Man. H. S. Ely.

Jacksonville St. Ry. Co. 8 m, 5 g, 25 lb r, 22 c, 93
mu. Pres. H. S. Haines, Savannah, Ga.; V. Pres.
Geo. R. Foster, Jacksonville, Fla.; Treas. J. M. Lee,
Savannah; Supt. G. W. Haines, Savannah. c

Springfield St. Ry. Co.

JACKSONVILLE, ILL.—Jacksonville Ry. Co.

½ m, 48½ g, 30 lb r, 16 c, 30 h. Pres. Wm. S. Hook,
Sec. T. J. Hook, Treas. Marcus Hook, Supt. B. F.
Sibert. 4

LAMAICA. N. V.—Jamaica & Brooklyn R. B. Co.

Sec. T. J. Hook, Treas. Marcus Hook, 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. Morris Fosdick, Supt. Wm. M. Scott.

JAMESTOWN. N. Y.—Jamestown St. Ry. Co. 4-34 m. 4-8½ g, 30-42 lb r, 13 c, 40 h. Pres. Jas. B. Ross, V. Picš. L. B. Warner, Sec. F. F., Gifford, Treas. A. N. Broadhead. Supt. G. E. Maltby. j.

JANESVILLE, WIS.—Janesville St. Ry. Co. Pres. Stephen G. Clarke, Chicago.

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

Pavonia Ferry St. R. Man. J. H. Small.

JOHNSTOWN, N. Y.—Johnstown, Gloversville

JOHNSTOWN, N. Y.—Johnstown, Gloversville & Kingsboro Horse R.R. Co. 4 m. 4-8½ g, 26 lb r, 6 c, 18 h. Pres. James Younglove, V. Pres. R. Fancher, Sec. & Treas. J. Mc Laren, Supt. Henry Slotter. a

JOHNSTOWN, PA.—Johnstown Pass. Ry. Co. 7¼ m, 5-3 g, 41-43 lb r,15 c, 74 h. Pres. James McMillen, Sec. B. L. Yeagley, Treas. W. H. Rosensteel, Jr. f

JOINET, ILL.—Joilet City Ry. Co. 3½ m, 4-8½ g, 38 lb r, 16 c, 30 h & mu. Prop. J. A. Henry, Supt. A. Bischman, Treas. J. Huisizer. 6
JOPLIN, MO.—

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

KANSAS CITY, MO.—Kansas City Cable Ry. Co. 12 m, 4-8 g, 45-56 lb r, 26 grip c, 39 pass. c, Pres. Wm. J. Smith, V. Pres. Philip A. Chase. Sec. W. H. Lucas, Cht. Eng. Clift Wise, Supt. F. A. Tucker. Office, S. E. cor. Ninth & Washington sts. e Corrigan Consolidated St. Ry. Co. 20 m, 4-1 g, 30 lb r, 80 c, 350 h. Pres. Bernard Corrigan, Gen. Man.

THE STREET RAILWAY JOURNAL.

Thos. Corrigan, Sec. Jas. T. Kelley. Operated by Metropolitan St. Ry. Co. 4
Grand Avenue Ry. Co. 8 m, 4-8 g, 40 lb r, 15 c, 75 h. Pres. C. F. Morse, V. Pres. and Gen. Man. W. H. Holmes, Sec. & Atty. D. B. Holmes, Engineers, Knight & Boutleon, Auditor, T. J. Fry, Supt. C. F. Holmes. Capital stock, \$1,200,000. Office, 15th & Grand av. d
Kansas City Electric Ry. Co. 2 m, 4 8½ g, 70 lb girder r, 4 motor c (Henry system). Pres. W. W. Kendall, V. 1 res. Hugh L. McEiroy, Sec. & Treas. Warren Watson, Supt. John C. Hervey. Office, 1139 E. 5th st. Capital, \$10,000. d
Kansas City & Rosedale St. Ry. Co. Operated by the Metropolitan St. Ry. Co. 25 m, 4-8½ g, 56 lb r, 126 c, 475 h. Pres. C. F. Morse, V. 1 res. Geo. H. Nettleton, Sec. & Auditor R. J. McCarty, Treas A. W. Armour, Supt. E. J. Lawless, Engineers. Knight & Boutleon a
KEOKUK, IA.—Keokuk St. Ry. Co. 4 m, 4-8½ g, 27 lb steel r, 12 c, 40h. Pres. Jas. II. Anderson, Sec. Wm. E. Anderson. h
KINGSTON, ONT., CAN.—Kingston St. R. R. Co. ½ m, 3-6 g, 91 br, 10 c, 36 h. Pres. Robert Carson, Sec. & Treas. F. Sargent, Man. William Wilson. KNOXVIII.E, TENN.—Knoxville St. R.R. Co. 2 m, 4-8½ g, 22 lb r, 5 c, 2 hacks, 30 h. Pres. V. P. Chamberiain, Sec., Treas. Supt. T. L. Beaman. Mabry Beil Ave. & Hardee St. Ry. Co. 4 m, 4-8½ g, 22 lb r, 4 c, 27 h. Pres. John S. Vangilder, Man. & Treas. T. L. Beaman. Office, 336 Broad st. 5
Market Sq. & Asylum St. Ry. Co. 2 m, 5 g, 22 lb r, 3 c, 18 h. Pres. Peter Kern, Sec. W. B. Henderson, Treas. W. H. Simmonds, Supt. L. O. Rogers. Office, 148 Gay St.
L. ACONIA, N. H.—Laconia & Lake Village Horse R. R. 2½ m, 3 g, 34 lb r, 5 c, 20 h. Pres. A. G. Folsom. Sec. J. P. Hutchinson, Treas. Endmund Little, Man. Bela S. Kenniston. a
L. A CROSSE, WIS.—La Crosse City Ry. Co. 5½ M. 4-8½ g, 35 lb r, 6 c, 6 g, 16 h. Pres. B. E. Edwards, V. Pres. Geo. F. Gund, Treas. Fred Tillman, Sec. Jas. T. Daggett, Supt. (North Division), Peter Valier. Supt. (South Division), Geo. F. Smith. Office 222 Main st. 4 La Frayette. L. A. M. Pa-Sa SPRING

LAMPASAS SPRINGS, TEX.—Lampasas City ty. Co. 3¼ m, 4-8½ g, 22 lb r, 6 c, 15 h. Receiver, — Maddox

Maddox.

LANCASTER. PA.—Lancaster & Millersville St. Ry. Co.—m., 4.8½ g, 30 lb r, 4c, 14 h. Pres. J C. Hager. V. Pres. II. S. Shirk, Sec. & Treas. Chas. Dennes. b. Lancaster City St. Ry. Co. 1.1 m, 5-2 g, 38 lb r, 6c, 4 h. Pres. W. D. Sprecher, Treas. J. H. Baumgardner, Sec. Thos. B. Cochran, Man. J. B. Long. Gen. Office, 129 North Queen st. a

LANSING, MICH.—Lansing City Ry. Co. 3 m, 4-8½ g, 90 1b steel r, 5 c, 24 h. Pres. Stephen G. Clarke Chicago, V.-Pres. & Treas Harry M. Clarke, Lansing, Sec. John P. Altgeld, Supt. Byron E. Clarke,

Lansing. LARCHMONT, N. Y.—Larchmont Manor Co. 1% m, 4-8 g, 25 lb r, 2 c, 10 h. Pres. C. H. Murray, Treas. T. H. French, 38 East Fourteenth st.. N. Y. City. a

LAWRENCE, KAN.—Lawrence Transportation Co. 5½ m, 4-1 g, 38 lb r, 8 c, 36 h. Pres. II. Tisdale, Sec. W. N. Bangs. Supt. Geo. Fricker.

LAWRENCE, MASS.—Merrimack Valley Horse R. R. Co. 6½ m, 4-8½ g, 48 lb r, 22 c, 87 h. Pres. Wm. A. Russell, Clerk & Treas. James H. Eaton, Supt. A. N. Einbatt

LEWISTON, ME.—Lewiston & Auburn llorse R.R. Co. 10 m, 4-8 / g, 32 lbr, 20 c, 60 h. Pres. Frank W. Dana, Clerk & Treas. C. C. Corbett, Supt. J. E. Fairbanks. k

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

LEXINGTON, MO.—Lexington St. Ry. Co. 11/2 m, 4-4 g, 30 lb r, 2 c, 8 h. Supt. John C. Young. Office, 124 Main st. 4

fice, 124 Main st. 4
LINCOLN, NEB.—Lincoln St: Ry. Co. 12m, 4-8%
g, 20 ib steel r, 24 c, 150 h. and mu. Pres. J. W. Deweese, V.-Pres. John R. Clark, Sec.& Treas. C. J.
Ernst, Supt. Wm. R. Carter. b
LHTTLE ROCK, ARK.—Little Rock St.Ry. Co..
5 m, 5-10 g, 36 ib r, 9c, 80 mu. Pres. T. J. Darragh, Sec. & Tresa. F. C. Reed, Supt. J. A. Garrett. d
Citizens' St. Ry. Co. 5 m, 4-10 g, 20-25 ib r, 22 c, 80 h.
Owned and operated by Little Rock Street Railway
Co. Same offices.
LOCK PORT. N. Y.—Lockport St. R. R. Co. 3%

LOCKPORT, N. V.—Lockport St. R. R. Co. 3½
m, 4-8½ g, 42 lb r, 8 c, 33 h. Pres. & Treas. John Hodge, Sec. W. T. Ransom, Atty. E. M. Ashley. Orfice, 19 & 20 Hodge Opera House Bidg. 4
LOGANSPORT, IND.—Logansport Ry. Co. 2½
m, 4g, 30 lb r, 6c, 39 mu. Pres. Frank G. Jaques, Sec. M. Jaques, Supt. Wm. P. Jaques. Office, Urbana, Ill. k

bana, III. k

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

LONG ISLAND CITY, N. Y.—Steinway &
Hunter's Point R. R. Co. 30 m, 4-8½ g, 47 lb r, 68 c,
225 h. Pres. H. A. Steinway, Steinway Hall, N. Y.
City. V. Pres. Henry A. Cassebeer, Jr.., Steinway
P. O., Long Island City, N. Y. Sec. & Treas. Chas. F.
Tretbar, Steinway Hall, N. Y. City. Supt. W. H.
Delahanty. Offices Steinway Hall, N. Y. d
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. 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. 3/m, 3-6 g, 16 lb r, 2 c, 4 h. Pres. F. T. Rembert,

Sec. R. B. Levy, Treas. F. S. Whaley, Supt. C. W Booth. d

Booth. d

LOS ANGELES, CAL.—City Ry. Co. 8 m, 4-8 g, 3c c, 180 h. Pres. J. W. Hellman, Gen. Man. J. F. Crank, Sec. Fred Harkness, Supt. W. Hawks. 6
Central & Boyle Heights Co. 6½ m, 3-6 g, 26 c, 110 h. Pres. B. F. Spence, Gen. Man. J. F. Crank, Sec. Fred Harkness, Supt. W. Hawks. 6
East & West Los Angeles Co. 7 m, 2) c, 80 h. Pres. & Gen. Man. J. F. Crank, Sec. Fred Harkness, Supt. W. Hawks. 6
Main St. & Agricultural Park Co. 8 m, 3-6 g, 15 c, 60 h. Pres. W. J. Broderick, Sec. A. C. Taylor, Supt. E. M. Loricke. 6
Second St. Cable Ry. Co. 1½ m cable & 1½ m steammotor extension, 3-6 g, 8 c, 6 grip c, 2 motors. Pres.

Supt. E. M. Loricke. 6
Second St. Cable Ry. Co. 1½ m cable & 1½ m steammotor extension, 3-6 g, 8 c, 6 grlp c, 2 motors. Pres. & Treas. Jas. McLoughlin, Sec. & Supt. H. W. Davis, Asst. Supt. & Master Mechanic E. H. Hutchinson. 6
Temple St. Cable Ry. Co. 1½ m, 3-6 g, 6 c, 6 grlp c. Pres. P. Beaudry, Sec. & Man. F. W. Woods, Supt. J. Fowier. 6
Los Angeles Electric Ry. Co. 5 m, 4-8 g, 4 c, Daft system, overhead wires. Pres. Geo. H. Bonebrake; Sec. & Man. C. H. Howland, Constructing Engr. A. H. Hayward. 6
Louisville, Ky.—Kentucky St. R. R. Co. 5 m, 5 g, 52 lb r, 22 c — h. Pres. T. J. Minary, Sec. T C. Donigan. 6
Central Pass. R. R. Co. 5 m, 5 g, 52 lb r, 156 c, 800 h, Pres. B, du Pont, V. Pres. & Man. T. J. Minary, Sec. T. C. Donigan. wifice, 18th & Walnut Sts. 6
Crescent Hill R. R. Co. 3 m. Leased and operated by Central Pass. R. R. Co. 6
Louisville City Ry. Co. 65 m, 5 g, 40 to 58 lb r, 230 c, 1,400 mu. Pres. Maj. Alexander Henry Davis, Syracuse, N. Y., V. Pres. St. John Boyle, Sec. & Treas. R. A. Watts, Supt. H. H. Littell. Office, 13th and Maiu sts. Co. Lowell Horse R.R. Co. 7 m.

Sts. c LOWELL, MASS.—Lowell Horse R.R. Co. 7. 7m, 48½ g, 28-33-45 lb r, 33 c, 125 h. Pres. Wm. E. Living-ston, Gen. Man. J. A. Chase. Lowell & Dracut St. Ry. Co.

LYNCHBURG, VA. — Lynchburg St. Ry. Co. 2½ m. 5-1 g, 20-26 ib r, 6 c, 32 h. Pres. & Treas. Stephen Adams, Supt. William M. Payne.

LYONS, IA.—Clinton & Lyons Horse Ry. Co. 44/ m, 3-8 g, 19-30 ib r, 15 c, 40 h. Pres. D. Joyce, Sec. W. T. Joyce, Supt. Frank Crapset. 6

MACON, GA.—Macon & Suburban St. R.R.Co. 10 m, 5 g, 20 to T r, 20 c, 90 mu. Pres. John S. Bransford, Nashville, Tenn., Sec. and Supt. Jno. T. Voss. Office, Elm st.

voss. Omce, Eim st.

MADISON, IND.—Madison St. Ry. Co. 2½ m., 4
g, 15 ib r, 7c, 4 h, 11 mu. Pres. & Supt. Jacob Wendel,
V.Pres. & Treas. Peter F. Robinius, Sec. John K.
Weyer. Office, 1026 Walnut st. a

MADISON, WIS.—Madison St. Ry. Co. 2½ m., 3
g, 23 ib r, 8 c, 25 mu. Pres., D. K. Tenney, Sec. &
Treas. B. W. Jones, Supt. A. R. Kentzler. Office,
Williamson st. 4

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

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

313 SO Front street. f
MARSHALLTOWN, IA.—3 m, 4 g, 25 lb r, 7 c, 20 h. Pres, B. T. Frederick, Treas. T. E. Foley, Sec. C. C. Gillman, Supt. A. E. Shorthill.
MARYSVILLE, CAL.—City Pass. R.R. Co.
MAYSVILLE, KY.—Maysville St. R. R. & Transfer Co. 3½ m, 20 lb r, 4-8½ g, 7 c, 32 mu. Pres. L. W. Robertson, Sec., Treas. & Supt. W. S. Frank. Office, Court st. d

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

Thompson.

MEMPHIS. TENN.—Memphis City R.R.Co. 18 m, 5 g, 38-40 ib r, 80 c, 320 h. Pres. R. Dudiey Frayser, V. Pres. Thos. Barrett, Sec. James Frost, Treas. S. P. Read Jr. Supt. W. F. Shippey. Office 474 Main st. f. Union R. R. Co. 14 m, 38 c, 200 h and mu.

MERIDEN, CONN.—Meriden Horse R.R. Co. 5 m, 4-8 g, 35 ib r, 15 c, 100 h. Pres. Geo. R. Curtis, Sec. & Treas. Chas. L. Rockwell, Supt. Dan'l Barker. 6

MERIDIAN, MISS.—Meridian St. Ry. Co. 2 m, 4-8 g, 161b Tr, 5 c, 17 mu, Pres.Geo.S. Covert, V. Pres. and Sup. J. L. Handley, Treas. J.A. Kelly, Sec. R. M. Houston.

MICHIGAN 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 H.Knight. Office West Washington st., South Bend, Ind.

MIDDLETOWN, CONN.—Middletown Horse R.R. Co. 2 m, 6c, 36 ib. r, 30 h. Pres. John M. Douglas, Sec. & Treas. J. K. Guy, Supt. Waiter Baldwin. 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. C. F. Gunckel, Sec. and Treas. E. W. Gunckel, Supt. T. C. Reed. 3

ckel, Supt. T. C. Reed. 3

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

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

m, 48½ g, 38 & 52 lb girder r, 27 lb tram r, 80 c, 319

mu. Pres. Winfield Smith, V. Pres. Christian Preusser, Treas. Ferdinand Kuehn, Sec. Wm. Damkoehier, Gen. Man. D. Atwood, Supt. H. J. C. Berg. Office, 440 E. Water St. b

Milwaukee City Ry. Co. 30 m, 4-8½g 45 lb r, 81 c, 513 h. Pres. Peter McGeoch, Sec. & Treas, Geo. O. Wheatcroft. Office 299 West Water st. a

West Side St. Ry. Co. Pres. Washington Becker Sec. Thos. J. Durnin, Supt. A. McNaughton. 4

MINNEAPOLIS. MINN.—Minneapolls St. Ry. Co.

MINNEAPOLIS, MINN.—Minneapolis St. Ry. Co. 62 m, 3-6 g, 27-35-45 lb r, 186 c, 773 h, 226 mu. Pres.

THE SPRAGUE ELECTRIC RAILWAY & MOTOR CO.

16 & 18 BROAD ST.,

NEW YORK CITY.

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

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Systems of Conducting Current to the Cars with the Impossibility of an Accident at any point of the Line Interfering with the operation of the Remainder of the Road.

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

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NEW ORLEANS: 20 Carondelet St.

OUIS: 304 Locust St. DETROIT: 133 Jefferson Ave.

Thos. Lowry, V. Pres. C. Morrison, Treas. W. W. Herrick, Sec. C. G. Goodrich, Supt. D. W. Sharp. g MOBILE, ALA.—City R.R. Co. 17½ m, 5-2 g, 35 to Tr, 60 c, 200 h. Pres. O. W. Cawthon, V. Pres. A. H. Spira, Sec. Peter Stark, Supt. R. R. Benson. d 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. Overail, Treas. & Acting Sec. Jas. W. Gray, Pur. Agt. & Man. J. B. Robertson. e

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. Sheidon, Man. F. Ingate. h

MOHAWK, N. Y.—Mohawk & Illon R.R. Co. 1½ m, 48½ 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.

D. Alexander, Treas. R. M. Devendorff, Supt. O. W. Bronson.
MOLINE, ILL.—Moline Central St. Ry. Co. 14/2, 484/2, 30 lb r, 3 c, 10 h. Pres. P. H. Wessel, V. Pres. M. Y. Cady, Sec. W. R. Moore, Treas. C. F. Hemenway. Office, 314 l6th st. 1
Moline & Rock Island St. Ry. Co. 5 m, 4-8½ g, 20 lb r, 8 c, 40 b, 2 steam motors. Pres. & Treas. Eugene Lewis, Sec. l. M. Buford, Gen. Man. Geo. W. French, Supt. Jas. Cazatt. 1
MONTGOMERY, ALA.—Capital City Electric Ry. 11 m, 4 g, 42 lb r, 20c. Electric motors. Pres. E. B. Joseph, Gen. Man. J. A. Gaboury, Treas. Thos. E. Hannon. 6
MONTREAL, CAN.—Montreal St. Ry. Co. 30

B. Joseph, Gen. Man. J. A. Gaboury, Treas. Thos. E. Hannon. ©
MONTREAL, CAN.—Montreal St. Ry. Co. 30
m. 4-8½ g, 80 c, 80 sleigbs, 40 'buses, 700 b. Pres. Jesse Joseph, V. Pres. Alex. Murray, Sec. & Man. Ed. Lusher, Supt. T. H. Robiliard. 3
MOULTRIEVILLE, S. C.—Middie St. & Suffivan's Landing ky. 2½ m, 4-8½ g, 20 lb r, 7c 4 h. Pres. B. Caitahan, Treas. B. Buckley.
MT. VERNON. N. Y.—Mt. Vernon St. Ry. Co. Mount Vernon & East Chester R. R. Co. 3½ m,—g, -r, 7c, 30 b. Pres. Wm. A. Butler, V Pres. Thos. Nichols, Sec. Jas. T. Byrne, Treas. Benj. L. Welthelmer; office, 261 Broadway, N. Y.
MUSKEGON, MICH.—Muscathne Cit. Ry. Co. 3½ m, 3-6 g, 21 lb r, 7c, 34 h. & mu. Pres. Peter Musser, V-Pres. W. Hoffman, Sec. T. R. Fitzgeraid, Treas. S. M. Hughes. & MUSKEGON, MICH.—Muskegon Ry. Co. 4½ m 1-6 g, 20 lb r, 8 c, 17 b, 9 mu. Pres. F. A. Nims, V. 9 cs. Chas. Merriam, Boston, Mass., Sec. Tbomas Munroe, Treas. G. R. Sberman, Supt. Wm. McLaughlin. a
NASHUA. N. H.—Nasbua St. Ry. Co. 2 m, 3 g, 35

Murroe, Treas. G. R. Sberman, Supt. Wm. McLaughin. a

NASHUA, N. H.—Nasbua St. Ry. Co. 2 m, 3 g, 35
id., 5c, 22 h. Pres, John A. Spaiding, Clerk, R. D

Barnes, Supt. Q. A. Woodward. Office, Kinstey st.

NASHVILLE, TENN.—Nashville & Edgefield

R.R. Co. Fatheriand Street Railway Co. North Edgefield and Nashville St. R.R. Co., one management.

5 m, 5 g, 16-20-32 id fr, 21 c, 100 mu. Pres, Jas. II. Yarbrough, Scc. & Treas. H. B. Stubblefield, Supt. D.

Deaderlek. J

McGavock Mt. Vernon Horse R.R. Co. 7½ m, 5 g,
16-20-23-32 id fr, 25 c, 140 h & mu. Pres, John P White,

V. Pres, B. F. Wilson, Scc. & Treas. II. B. Stubblefield, Supt. Daingerfield Deaderlek. 4

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 Sts. i

NATCHEZ, MISS.—Natchez St. Ry. Controlled

by Thos. Reber.

NATICK, MASS.—Natchez St. Ry. Controlled

NATCHEZ, MISS.—Natchez St. Ry. Controlled by Thos. Reber. NATICK, MASS.—Natick & Cochituate St. Ry. 3 m, 4-8½ g, 35 lb r, 7 c, 17 h. Pres. Harrison Har-wood, 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. Lettita V. Vredenburgh, Supt. & Pur. Agt. Wm. L. Timberiake. Office cor. Vincennes and Saring Sts.

6 m, 4-11½ g, 25 lb r, 15 c, 55 h. & mu. Pres. Geo. T. Vance, Treas. Lettita V. Vredenburgh, Supt. & Pur. Agt. Wm. L. Timberiake. Office cor. Vincennes and Spring sts.

NEWARK, N. J.—Newark & Bloomfield St. R.R. Co. Consolidated with Essex Pass. Ry. Co. 5 Essex Pass. Ry. Co. 5 f. 5 Essex Pass. Ry. Co. 5 f. F. Kirk, Supt. II. F. Totten, Paymaster, W. L. Mulford. Office, 786 Broad st. d. Newark & Irvington St. Ry. Co., 7 m, 5-2½ g, 47 lbr, 30 c, 150 h, Pres. S. S. Battin, Sec. T. F. Kirk, Supt. II. F. Totten. Office 788 Broad st. d. Newark & Irvington St. Ry. Co., 7 m, 5-2½ g, 47 lbr, 30 c, 150 h, Pres. S. S. Battin, Sec. W. L. Mulford, Supt. II. F. Totten. Office 788 Broad st. d. Newark & So. Orange, Ferry St. & Hamburg Place R. R. Co. 15 m, 5-2½ g, 45 lbr, 49 c, 300 h. Pres. Jobn Radel, Sec. Andrew Radel, Treas. Joseph Criqui. Office, cor. So. Orange ave. & So. 19th st. f. NewArk, O.—Newark St. Ry. Co. Pres Stephen G. Clarke, Cbicago. 4. NEW HEDFORD, MASS.—Union St. Ry Co. 17.78 m, 48-½ g, 35, 38, 45 & 50 lbr, 84 c, 311 h. Pres. Smith. Auditor, Geo. R. Phillips. Capital, \$266,000. NEW BRITAIN, CONN.—New Britain Tramway Co. 3½ m, 4-8½ g, 35 lbr, 4 c. Pres. Aliston Gerry, Treas. Jos. A. Flynn, both of New York City. 5 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. 2½ m, 4-8½ g, 40 lbr, 5 c, 28 b. Pres. Rowland F. Hill, V. Pres. Sidney W. Hopkins, Sec. & Treas. Wm. Moores, Gen. Man. H. Ives Smith. President's Office, 3 Broad st., New York. b. NEWBURGH, N. Y.—Newburgh St. Ry. Co. 5 h. Pres. Gen. Man. H. Ives Smith. President's Office, 3 Broad st., New York. b. New Burnswick Horse R.R. Co. 6 1-3 m, 4-8½ g, 35 lb r, 18 c, 50 h. Pres. Co. 10 m, 4-8½ g, 50 lb r, 28 c, 207 h. Pres. H. B. Ives, Sec. & Treas. L. Candee, Supt. Walter A. Graham. Office 736 Chapel St. a New Haven & West Haven & R. Co. (See West Haven).

State Street Horse R.R. Co. 2½ m, 4-8½ g, 43 lbr, 6 c, 40 h. Pres. C. A. Warren, Sec. & Treas. J

Haven).
State Street Horse R.R. Co. 2½ m, 4-8½g, 43 lb r, 6 c, 40 h. Pres. C. A. Warren, Sec. & Treas. J. E. Emery. Office 16 Exchange Bidg. d
Whitney Ave. Ry. Co. 2½ m, 4-8½g, 25 lb r, 3 c, 20 h. Pres. Geo. H. Watrous, Sec. George D. Watrous, Treas. Ell Whitney, jr., Lessee J. A. Davis. a
NEW ORLEANS, LA.—Canal & Cialborne St. R.R. Co. 13 m, 5-2½g, 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. W. J. Behan, Sec. & Treas. J. R. Juden, Supt. A. V. Smith. C. Grieans R.R. Co. 9½ m, 5-2½ g, 35 lb r, 32 c, 155 b. & mu. Pres. & Supt. H. Larquie, Sec. & Treas. P. Cougot. Office, cor. White & Laharpe Sts. b. St. Charles St. R.R. Co. 15 m, 5-2½ g, 35-49 lb r, 61 c, 260 mu. Pres. & Supt. Aiden McLeflan, Sec. V. Riviere. Operates 3 lines. Office cor. Carondelet & 8th sts. a. New Orleans & Carroliton R.R. Co. 8 m, 4-8½ g, 30-45 lb r, 65 c, 200 h, 19 engines. Pres. Jos. Hernandez, Sec. Waiter V. Croucb, Supt. Chris. V. Haile. a. New Orleans & Carroliton R.R. Co. 60 m, 5-2½ g, 46 lb r. Pres. J. A. Walker, Sec. W. E. Leverich, Supt. F. Wintz. Office, 102 Canal St. 6. NEWPORT, KY.—Newport St. R.R. Co. NEW ROCHELLE, N. Y.—New Rochelle & Pelham R. R. Co. 10 m, 4-8½ g, 42 lb r, 8 c, 30 h. Pres. W. R. Bergholz, Sec. Eugene Durnin, Treas. Thos. E. Crimmins. 1.

E. Crimmins. 1. NEWTON, MASS.—Newton St. R. R. Co. (See

NEWTON, MASS.—Newton St. R. R. Co. (See New Roads.) a

NEW YORK, N.Y.—Ninth Ave. R.R. Co. 16 m, 4-8½ g, 50 lb 1, 50 c, 500 h. Pres. Geo. Law, Sec. & Treas. James Affleck, Supt. Lewis P. Foulk. Offices, Ninti Ave., cor. 54th st. a.

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. Neweil. Office 761 Seventh ave. f
Central Crosstown R.R. Co. 5.22 m, 4-8½ g, 52 lb r, 45 c, 241 h. Pres. Geo. S. Hart, V. Pres. A. Cammack, Sec. & Treas. Milton I Masson, Office 365 Ave. A. Central Park, Nortb & East River R.R. Co. 26 m, 4-8½ g, 60 lb r, 162 c, 1,200 h. Pres. G. Ii. Scribner, V. Pres. C. D. Wyman, Sec. H. Scribner, Treas. J. L. Vaientine, Supt. W. N. A. Harris. Office, Tenth Ave., 53d & 54th st. j. Chambers St. & Grand St. Ferry R. R. Pres. II. Thompson.

Valentine, Supt. W. N. A. Harris. Office, Tenth Ave., 53d & 54th st. j.. Chambers St. & Grand St. Ferry R. R. Pres. H. Thompson.
Christopher & Tenth St. R.R. Co. 5 m, 4-8 g. 45 lb r, 47 c, 290 h. Pres. Jacob Sbarp, Treas. W. T. Hatch, Sec. & Supt. G. W. Linch. 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, Sec. & Treas. Richard Kelly, Auditor E. T. Landon, Supt. Fred F. White. Offices, 605 Grand st. a Eighth Ave. R.R. Co. 20 m, 4-8½ g, 60 lb r, 112 c, 1155 h. Pres. Geo. Law, Sec. & Treas. James Affleck, Supt. H. B. Wilson. Office, Eighth Ave. & 50th st. 4. 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. Ailen, Supt. John M. Calhoun. Office, 653 W. 42d st.
Forty-second St., Manhattanville and St. Nicholas Avenue Ry. Co. 18 m, 4-8½ g, 60 lb r, 105 c, 650 h. Pres. Jobn S. Foster, Sec. C. F. Naething, Treas. Arthur Leary. Office, 118 E. 42 st. a.
Harlem Bridge, Morrisania & Fordham Ry. Co. 16.37 m, 4-8½ g, 45-60 lb r, 65 c, 316 h. Pres, and Supt., 11. Spratley, V. Pres. Wm. Remsen, Sec. & Treas. Wm. Cauldwell. Office, Third ave, near 170 st. f. Houston, West Street & Pavonia Ferry R.R. Co. 12.3 m, 4-8½ g, 60 lb r, 50 c, 440 h. Pres. Henry Thompson, Sec. & Treas. Daniel B. Hasbrouck. Office, 415 E. 10 st. Jerome Park R.R. 1 2-3 m, 4-8½ g, 50-56 lb r. Pres. Leonard W. Jerome, Sec. Fred A. Lovecraft, Treas. Theodore Moss. Office, cor. 5th. ave. & 22d st. 6 New York City St. Ry. Co. 10 m, (not in operation). Pres. Loomis L. White, Sec. W. L. McCorkle, Treas. Wm. L. Skidmore.
New York & Harlem R.R. Co. 17 m, 4-8½ g, 60-75 lb r, 172 c, 1,500h. Pres. C. C. Clarke, Sec. & Treas. Ed. V. W. Rossiter, Supt. A1-fred Skitt, Pur. Agt. Chas. Reed. Office, Grand Central Depot. e
Sixth Ave. R.R. Co. 9½ m, 4-8½ g, 60 lb r, 109 c, 1250 b. Pres. Frank Curtiss, Sec. and Treas, Henry

red Skitt, Pur. Agt. Chas. Reed. Office, Grand Central Depot. e Sixth Ave. R.R. Co. 9½ m, 4-8½ g, 60 ib r, 109 c, 1250 b. Pres. Frank Curtiss, Sec. and Treas, Henry S. Moore, Supt. Edw E. Moore. Office, 7586th ave. 2 South Ferry Ry. Co. 1½ m, 4 8½ g, 60 ib r, 6 box 4 open c, 32 h. Pres. Henry liart, Sec. & Treas Albert 1. Elias, Supt. Cbas H. Meeks. Office, 20 Whitehali St. b.

h. Nicholas & Crosstown R, R. Co. (See New

St. Nicholas & Classification of the Roads.)
Second Ave. R.R. Co. 28 m, 48% g, 60 lb r, 316
cars, 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.

Third Ave. R. R. Co. 28% m, 4-8% g, 60 lb r, 360 c, 2190 h. Pres. Lewis Lyon, 739 Madison ave., sec. Alfred Lazarus, 436 W. 61st st., Treas, John Beaver, 211 E. 112th st., supt. John H. Robertson, 307 E. 65th st. Office, 1,115 Third ave.

Twenty-tbird St. Ry. Co. 14 m, 4 8% g, 54 lb r, 122 c, 764 h. Pres. Jacob Sharp, V. Pres. Isaac Hendrix, Sec. Thos. H. McLean, Treas. Lewis May. Office 621 West 23d st. f.

NIAGARA FALLS, N. Y.—Niagara Falls & Suspension Bridge Ry. Co. 2% m. 4-8% g, 38 lb r, 12 c, 41 h. Pres. Benj. Flagler, V. Pres. H. Nielson, Sec. W. J. Mackay, Man. & Treas. A. Schoellkopf. j. NORFOLK, VA.—Norfolk City R. R. Co. 3% m. NORFOLK, VA.—Norfolk City R. R. Co. 3% m. NORTHI ADAMS, MASS.—Hoosac Vailey St. Ry. Co. 6 m, 4-8% g, 40 lb. r, 10 c, 28 h, 2 steam motors. Pres. Wm. B. Baldwin. V-Pres. L. W. Cronkhite. Sec. & Treas. S. Proctor Thayer, Manager Geo. W. Lincoln. e

NORTHAMPTON, MASS.—Northampton St. Ry. Co. 3¼ m, 4-8½ g, 32 lb r, 9 c, 35 h. Pres. Oscar Edwards, Sec. M. H. Spaulding, Treas. & Sup. E. C. Clark.

Clark. 1.

NORWALK, CONN.—Norwalk Horse Ry. Co. 1% m, 4:10 g, 42 lb. 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 R.R. Co. 3 m, 5 g, 30 lb r, 18 c, 46 h. Pres. Walter B. Carr, Sec. Montgomery Howl.

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

Fourteenth St. R.R. Co. 8 m. 5 g, 25-40 lb r, 10 c, 46 h. Pres. & Supt. Walter Blair, Sec. P. J. Van Lobe; Office, 524 14tb st. l Oakland R. R. Co. 8 m., 3 g, 60 lb r, 9 c, 83 b. Pres. Jas. G. Fair, Sec. Chas. S. Neal, Supt. Geo. Y. Loring. Office, 21st & Jones sts. 5
Oakland, Brooklyn & Fruit Vale R. R. Co. (See East Oakland.)
Oakland Cable Ry. Co. 5 m., 3 g, 40 lb. Iron r, 10 c. Pres. Jas. G. Fair, S-c. & Treas. Chas. S. Neal, Supt. Geo. Y. Loring. Office. 21st & Jones sts. 5
OGDEN CITY, UTAH.—Ogden City Ry. Co. 3 m, 4-8½ g, 20 lb r, 4 c, 20 b. Pres. L. W. Shurtliff, V. P. & Supt. O. P. Arnold, Sec. & Treas. H. S. Young.

V. P. & Supt. O. P. Arnold, Sec. & 110000 Young. & October Spurg, N. V.—Ogdensburg St. Ry. Co. 5m. 4-8½ g, 25 lb. r, 6c, 22 h. Pres. W. H. Daniels, Sec. E. A. Neweil, Treas. A. E. Smith. b O. L. W. A., N. Y.—Olean St. Ry. Co. 1½ m, 3-6 g, 25 lb r, 3 c, 7 h. Pres. & Supt. M. B. Fobes, Sec. & Treas. M. W. Barse, Asst. Sec. John Fobes. Office, Union st. 4 OMAHA, NEB.—Omaha 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. Smith. Office 1504 Farnam st. 6

W. W. Marsh, Supt. W. A. Smith. Office 1002 Far.

nam st. 6
Cable Tramway Co. of Omaba, 4 m, 4-8 1-2 g, 58% ib
r, 10 c, each with grip; operated by cable. Pres. S.
R. Johnson, V. Pres. L. B. Williams, Sec. and Treas.
C. E. Yost, Chief Engineer Robert Gillham. Capital
stock, \$300,000. General office, 130 South 13th st. 4
ONEIDA VILLAGE, N. Y.—Onelda Ry. Co. 2
m, 4-8% g, 47 ib r, 3 c, 6 h. Pres. W. A Stone,
sec. & Treas. W. E. Northrup, Supt. Chas. Bonta. j
OSHKOSH, WIS.—Oshkosh St. R R. Co. 3% m,
4-8% g, 27 lb r, 9 c, 24 h. Pres. Leander Cboate, V.
Pres. F. Zentner, Sec. & Treas. J. Y. Hull, Sup. F. L.
Thompson. g

Rider. e
Paterson City Ry. Co. 8 % m, 4-8 % g, 35 lb r, 10 c,
40 h. Pres, Garret Pianten, Treas. & Man. H. Romaine,
sec. Albert A. Wilcox, Supt. M. Pettigrew. Office
27 Broadway. a
PAWTUCKET, R. I.—Pawtucket St. Ry. Co. 8
m, 54 lb r. 4 g, 24 c, 124 b. Pres. A. B. Chase, V-Pres.
& Gen'l Man. D. F. Longstreet, Treas. E. N. Littlefield. Office Broad St. k
TENSE ACOLLA FLA — Pensacola St. Car Co. 3 m.

m, 54 lb r, 4 g, 24 c, 124 b. Pres. A. B. Chase, V. Pres. & Gen.¹ Man. D. F. Longstreet, Treas. E. N. Littlefield. Office Broad st. k

PENSACOLA, FLA.—Pensacola St. Car Co. 3 m, 4-8 g, 6 h, 30 mu. Pres. A. V. Clubbs, Sec. W. A. Blount, Treas. Thos. C. Watson. Capital, \$100,000. Office, 100 E. Government st. c

PEORIA, ILL.—Central City Horse Ry. Co. 10 m, 4-8 g, g, 40 & 60 lb r, 40 c, 90 h. Pres. & Gen. Man. H. R. Woodward, sec. & Treas. E. Caliender, Supt. John Strong. Office 2011 N. Adams st. j

Central Horse & Cable R. R. Co. 3 m, 4-8 g, g, 30 & 40 lb r, 9 c, 22 h. Pres. & Gen. Man. H. R. Woodward, Sec. Jos. Edder, Treas. E. Caliender, Supt. John Strong. Office, 2011 N. Adams st. j

East Bluff Peorla Horse Ry. Co. 1 m, 4-8 g, 30-40 lb r, 4 c, 24 h. Pres. N. Giles, Sec. R. R. Bourland, Treas. M. E. Culver. Capital, \$11,000. \$4.

Fort Clark Horse Ry. Co. 8 m, 4-8 g, 20-38 lb r, 32 c, 80 mu. Pres. J. H. Hall, Sec. H. W. Wells, Treas. H. Detweller, Supt. John Strong. Gho. 2 ch. Man. H. R. Woodward, Sec. & Treas. E. Caliender, Supt. John Strong. J

PETERSBURG, VA.—Petersburg St. Ry. 3 g, m, 4-8 g, 42 lb r, 9 c, 40 h. George Beadle, Prop. 3

PHILADELPHIA, PA.—Cittzens Pass. Ry. Co. (2 m, 5-2 g, 45-47 lb r, 86 c, 470 h. Pres. John McCarthy, Sec. & Treas. Ry. Co. 8 g, m, 5-2 g, 45 lb r, 32 c, 250 h, Pres. James McManes, Sec. and Treas. John I.

\$192,600 a Empire Pass. Ry. Co. 8½ m, 5-2 g, 45 ib r, 32 c, 250 h, Pres. James McManes, Sec. and Treas. John I. Adams. Office, n w cor. 12th st. and Susquehanna

av. a Frankford & Southwark Phila, City Pass. R.R. Co. 18.10 m, 5-2g, 47 lbr, 100 c, 8 dummles, 550 h. Pres. John Nobitt, Sec. Thos. S. Harris, Treas. R. C. Brewster, Supt. T. E. Cox. Capital, \$750,000. Office, 2501 Kensington ave. a Germantown Pass. Ry. Co. 29½ m, 5-2½ g, 47 lb r, Cars and horses, leased. Pres. Craig D. Ritchie, Sec. & Treas. Lewis S. Renshaw. Office, 1,001 Chestnut. St. f

nut st. 1 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

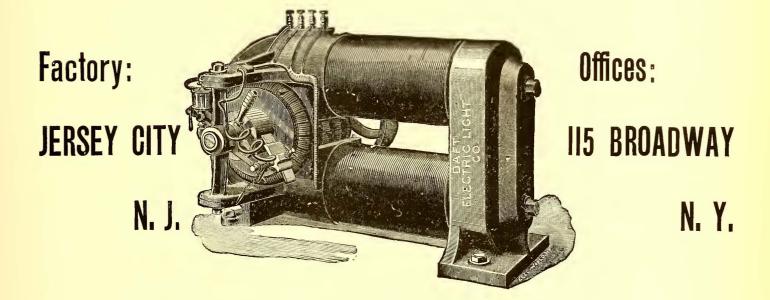
sts. 6
Hestonville, Mantua & Fairmount Pass. R.R. Co. 20
m, 5-4½ g, 45 lb r, 60 c, 500 h. Pres. Charles H. Lafferty, Sec. & Treas. W. C. Foster. Office, 4,300 Lancasterave. a

terave. a Lombard & South Sts. Pass. Ry. Co. 10 m, 5-2 g, 43 lb. r, 51 c, 276 h. Pres. John B. Parsons, Sec. & Treas. Thos. C. Barr, Supt. J. H. Fresh. Office, 25th & South sts. k

Sts. k
People's Pass. Ry. Co. 45 m, 5-2 g, 47 lb r, 125 c, 1153
b. Pres. John B Parsons, Sec. & Treas. D. C. Colden,
Supt. Chas. S. Whiting. Office, 8th & Dauphin
sts. a

SIS. a Principlina City Pass. Ry. Co. 12.417 m, 5-2% g, 47 & 78 lb r, 132 c, 708 h. Pres. Wm. W. Colket, Sec. &

THE DAFT ELECTRIC LIGHT CO.



Is now manufacturing the DAFT SELF-REGULATING MOTOR from 1-4 to 50 horse power FOR ALL CIRCUITS, are or incandescent, with all the necessary appliances for proper distribution from central light or power stations. The motors of this Company are in each case guaranteed to deliver the

Full-Rated Power Without any Reservation Whatever,

and on circuits of constant potential the regulation is equal to that of any high-class power in the market. To cite a fair case, the 3A machine, 5 H.P., varies less than 1.5 per cent from free speed to full load.

This Company is also prepared to promptly EQUIP STREET or other ROADS with ELECTRIC MOTORS, SUBTERRANEAN CONDUITS, OVERHEAD CONDUCTORS or ANY OTHER FORM of CONDUCTIVE SYSTEM which local conditions may demand, and IS NOW ENGAGED IN THE EQUIPMENT OF SEVERAL ELECTRIC RAILROADS, HAVING, in one case, GRADIENTS WHICH HAVE NEVER BEFORE BEEN SURMOUNTED by ELECTRIC TRACTORS, and involving a DISTRIBUTION OF GREATER POWER than ANY ELECTRIC RAILROADS YET BUILT, HERE OR ELSEWHERE. The Installations ARE PROVIDED WITH COMPLETE APPLIANCES FOR INSURING SAFETY, ECONOMY AND CONVENIENCE OF OPERATION.

For Full Particulars and Estimates, Address the New York Office.

Treas. T. W. Pennypacker. (Leased to W. Phila. Pass. Ry. Co.) Office, 202 Walnut place. a Philadelphia Traction Co. 109 in, 5-2½ g, 47 lb r, 534 c, 2608 h. Pres. W. H. Kemble, V. Pres. P. A. B. Widener & W. L. Elkins, Sec. & Treas. D. W. Dickson. Office, no yor. 41st. and Haverford sts. Philadelphia & Darby Ry. Co. 6½ in, 5-2½ g, 42 lb r, road leased, Pres. C. L. Borfe, Sec. and Treas. Win. W. Colket. Office, 202 Walnut pl. Leased to Phila. City Pass. Ry. Co. Philadelphia & Gray's Merry 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, 261 h. g. 42 lb, 74 lb, 74

Sarah st. e ass. Ry. Co. 64 m, 5-2 g, 52 lb r, 39 c, 243 h. Pres. C. L. Magec, V. Pres. C. F. Klopfer, Sec. & Treas, Wm. R. Ford, Supt. Miller Elliot.

& Treas. W.M. R. Ford, Supt. Miller Elliot.

PITTSFIFI.D, MASS.—Pittsfield St. Ry. Co. Pres. Frank Ilarwood.

PITTSTON, PA.—Pittston St. Car Co. 1½ m, 5-2g, 42 lbr, 2 c, 6 h. Pres. Isaac Everitt, Sec. Eug. M. Mullgan, Treas. M. W. Morris.

PIYMOUTH, 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, 22 h. Pres. Jno. P. Sanborn, V. Pres. Frank A. Beard, Sec. Treas. & Man. J. R. Wastell.

Port Huron Electric Rv. Co. 4½ m, 4-8½g, 16-25 lb. 18 motor c, Van Deppele system. Pres. Wm. F. Botsford, V. Pres. John F. Talbot, Sec & Man. J. H. Talbot, Treas. Chas. A. Ward

PORTIAND, ME.—Ocean St. R.R. Co. Operated

Botsford, V. Pres. John F. Talbot, Sec & Man. J. H. Talbot, Treas. Chas. A. Ward h

PORTILAND, ME.—Ocean St. R.R. Co. Operated oy Portland R. R. Co. 12

Portland R.R. Co. 92

Portland R.R. Co. 93

Portland R.R. Co. 94

Portland R.R. Co. 94

PORTLAND, ORE.—Portland St. Ry. Co. 2 m, 3-6 g, 25-42 lb r, 11 c, 40 h. Pres. Jos. Holladay, Sec & Supt. C. K. Harbaugh. Office. 104 Fourth st. k

Muttnomah St. Ry. Co. 23 m, 3-6 g, 30 lb r, 19 c, 65 h. Pres. A. N. King. Sec. E. A. King.

Transcontinental St. Ry. Co. 10 m, 3-6 g, 25-38 lb r, 24 c, 100 h. Pres. & Gen. Man. Tyler Woodward, Sec. D. W. Wakefield. Office, 145 G st. b

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

POTTSVILLE. PA.—People's Ry. 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. 53.8 m, 4-8 g, 47-54 lb r, 27 c, 1,400 h. Pres. Jesse Metcalf. V. Pres. & Gen. Man. D. F. Longstreet. Sec. and Treas. C. A. Babcock, Auditor B. A. Jackson. Office, Market sq. k.

Market sq. k
PURBLO, COL.—Pueblo St. Ry. Co. 5 m, 3 g, 22
10 iron r, 8 c, 28 h, Pres. J, B, Osman, V, Pres. J, K.

Moore, Sec. & Supt. J. T. Clark, Treas. J. N. Carlisle. 5

Moore, Sec. & Supt. J. T. Clark, Treas. J. N. Carlisle. 5
QUEBEC, CAN.—Quebec St. Ry. Co. 3 m, 48½ g, 45 lb r, 9 c, 46 h. Pres. Chas. St. Michel, Quebec, V. Pres. G. R. Renfrew, Quebec, Sec., Treas. & Supt. Samuel Moore. b
St. John St. Ry. Co. Lim, 1½ m, 48½ 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. b
QUINCY, H.L.—Quincy Horse Ry. & Carrying Co. 6 m, 5 g, 71 lb r, 21 c, 118 mu. Pres. Lorenzo Bull, Sec. C. H. Bull, Supt. E. K. Stone.
RACINE, WHS.—Belle City St. Ry. Co. 4 m, 4 g, 32 lb r, 9 c, 40 h. Pres. Geo. B. Hathaway, Sec. & Treas. J. E. Dodge. Office, 716 Park ave. a
RALEIGH, N. C.—Raleigh St. Ry. Co. 5 m, 4-8½ g, 16 T steel r, 6 c, 36 mu. Pres. V. E. Turner, Sec. & Treas. R. T. Gray, Atty. F. H. Busbee. Capital stock, \$25,000. 6
RAPID CITY, DAK.—Rapid City St. Ry. Co. 1½ m, 4 g, lb r, 2 c, 4 h. Pres. Fred. T. Evans, Sec. & Treas. G. Schnasse. a
READING, PA.—Reading City Pass. Ry. Co. 21-5 m, 5-2½ g, 45 lb r, 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. Ry. Co. 4½ m, 5-2½ g, 38 45 lb r, 18 c, 75 h. Pres. Chas. Breneiser, Sec. & Treas. Isaac Hiester, Supt. John B. Houp. Office, Perklomen ave. 419th st. e
RED OAK, IA.—Red Oak St. R.R. Co. 1½ m, 4-2½ g. flat r, 2 c, 2 h, 2 mu. Pres. J. W. Judkins, V. Pres. G. West, Sec. F. M. Byriket, Treas. & Supt. F.O. Judkins. RICHMOND, IND.—Richmond City Ry. Co. 3 m, 3 g, 20 lb r, 13 c, 30 h. Pres. J. C. Shaffer. V. Pres. D. F. Miller, Sec. H. I Miller. Office, 15 S. 7th st. d
RICHMOND, V. A.—Richmond City Ry. Co. 7½ m. 48½ g, 30-40 lb r, 42 c, 185 h. Pres. J. L. Schooleraft, Treas. Walter Kidd, Man. C. M. Bolton, Supt. Charles Seiden. a
RICHMOND & Man. C. M. Bolton, Supt. Charles Seiden. a
Richmond & Manchester Ry. Co. 3½ m, 4-8½ g, 38 lb r, 6 c, 26 h. Pres. J. E. Taylor, V. Pres. J. Bryan,

A 18 / 3 0.40 lbr / 42 c, 185 h. Pres. J. L. Schooleraft, Treas. Walter Kidd, Man. C. M. Bolton, Supt. Charles Seiden. a 18 klchmond & Manchester Ry. Co. 3½ m, 4-8½ g, 38 lbr, 5 c, 26 h. Pres. J. E. Taylor, V. Pres. J. Bryan, sec. & Treas. Jackson Brandt, Supt. B. R. Seiden. a Richmond Union Pass. Ry. Co. (See new roads.) ROCHESTEIR, N. Y.—Rochester City & Brighton R.R. Co. 37 m, 4-8½ g, 25-30-45 lbr, 142 c, 596 h, Pres. Patrick Barry, Sec. C. C. Woodworth, Treas. C. B. Woodworth, Supt. Thomas J. Brower. e Citzens' St. Ry. Co. Pres. Wm. H. Jones, Sec. & Treas. J. E. Pierpont, Supt. S. A. Green. ROCKFORD, ILL.—Rockford St. Ry. Co. 62-5 m, 4-8½ g, 30-40 lbr, 13 c, 52 b, 26 mu. Pres. Anthony Italnes, Sec. H. H. kobinson, Treas. N. E. Lyman, Supt. Fred. Halnes c. ROCK ISLAND, ILL.—Rock Island & Milan St. Ry. Co. 12 m, 4 8½ g, 20, 30 & 40 lbr, 8 pass c, 8 ft c, 7 h, 2 motors. Pres. & supt. Balley Davcnport, Sec. E. C. Hurst, Treas. J. F. Robinson. e RODBOUT, N. Y.—Kingston City R. R. 2.78 m, 4-8½ g, 40 lb r, 8 c, 40 lb. Pres. Jaines G. Lindsley, V. Pres. S. D. Coykendall, Sec. & Treas. Peter E. Schoonmaker, Auditor, Oscar L. Eastman, Gen. Man. Geo. Coykendall. J. Ruttland St. Ry. Co. 8 m, 4-8½ g, 20 lbr, 8c, 30 lb. Pres. 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-horse c. Prop. R. S. Carey, Supt. Geo. W. Carey.

SAGINAW, MICH.—City of Saginaw St. R. R. Co. 2½ m, 4-8½ g, 24 lbr, 14 c, 50 lb. Pres. David II. Jerome, V. Pres. Geo. F. Williams, Sec. & Treas. Geo. L. Burrows, Supt. Fred. G. Benjamin. Office, 311 Court st. 5 sALEN, MASS.—Salem & Danvers St. Ry. Co. 2 m, 4-8½ g, 3-45 lb r, 24 c, 117 h. Pres. Beni. W

COURTSI. 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. G. A. Vickery, Asst. Supt. David N. Cooke. Purchased by Naumkeag St. Ry.

Co. 6 Naumkeag St. Ry. Co. 24 m, 4-8½ g, 35-45 lb r, 83 c, 275 h. Pres, Chas. Odell, Clerk Joseph F. Hickey, Treas. Henry Wheatland, Supt. Willard B. Fergu-

SALINA, N. Y .- Woodlawn and Butternut St.

SALT LAKE CITY, UTAH.—Sait Lake City R.R Co. 13 m, 4-8½ g, 20 lb r, 16 c, 106 mu. Pres. John Taylor, Sec. David McKenzie, Treas. James Jack, Supt. Orson P. Arnold. d

R.R. Co. 13 m, 4-8½ g, 20 lb r, 16 c, 106 mu. Pres. John Taylor, Sec. David McKenzle, Treas. James Jack, Supt. Orson P. Arnold. d
SAN ANTONIO, TEX.—San Antonio St. Ry. Co. 18 m, 4 g, 38 lb r, 40 c, 150 mu. Pres. A. Belknap, San Antonio, V. Pres. F. W. Pickard, N. Y. City, Treas. J. Withers, San Antonio, Sec. E. R. Norton, Supt. John Robb. J
Prospect Hill St. R.R. Co. 1½ m, 1 c, 2h. Pres. Sam. Maverick, v. Pres. & Gen. Man. P. J. Moss, Sec. Leonardo Garza, Treas. L. Wim. Menger. d
SANDUSKY, O.—Sandusky St. Ry. Co. 4 m, 4-8½ g, 32 lb r, 7 c, 23 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, 15 2-h & 16 1-h c, 290 h., Pres. Chas. F. Crocker, V. Pres. T. Hopkins, Sec. Jabez Hatch. Treas. N. T. Smitb, Supt. J. F. Clark. Office, 44 Turk st. g
Clay St. Hill R. R. Co. 2 m. 3-6 g, 30 lb r, 11 c, 12 dummy cars. Pres. Joseph Britton, V. Pres. Chas. Mayne, Treas. Henry L. Davis, Sec. Chas. P. Campbell. Office, sw cor. Clay & Leavenworth sts. h
Geary St. Park & Ocean R.R. Co. 9% m, 65% m
Cable, 44 m steam) 5 g, 45 lb r, 39 c. Pres. Chas. F. Crocker, V. Pres. R. F. Morrow, Sec. John N. Lynn, Treas. H. T. Smith, Supt. Johnson Reynolds. g
Market St. Cable Ry. Co. 12½ m, 4-8½ g, 37-38 lb r. 182 c, 2 motors, 82 h. Pres. Leland Stanford, V. Pres. Chas. F. Crocker, V. Pres. R. F. Morrow, Sec. John N. Lynn, Treas. H. T. Smith, Supt. Johnson Reynolds. g
Market St. Cable Ry. Co. 12½ m, 14-8½ 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. Willicutt, Supt. H. D. Morton. Office, Fourth and Townsend streets. d
North Beach & Mission R. R. Co. 16 m, 5 g, 4 lb r, 50 two h. c, and 14 one h, c. Pres. Albert Meyer,

Sec. H. W. Hathorne, Treas. Wm, Alvord, Supt. M. Skelly. Office, 4th & Louisa sts. h
Ocean Beach Ry. Co. (operated by Market St. Cable Ry Co.) 2 m. Pres. Leland Stanford, V. Pres Chas. F. Crocker, Treas. N. T. Smith, Sec. J. Wilcutt, Supt. H. D. Morton. d
Omnibus R. R. & Cable Co. 18 m, 5 g, 40-45 lb r, 60
C, 390 h. Pres. Gustav Sutro, V. Pres. D. Skein, Sec. G. Ruegg, Supt. M. M. Martin. Office 727 Howard st. f
Park & Ocean R. R. Co. 4.62 m, 35 and 40 lb r, 4-8½
g, 7 dummy engines, 16 pass. c, 6 flat and section c. Pres. Chas. F. Crocker, V. Pres. Timothy Hopkins, Treas. N. T. Smith, Sec. J. L. Willcutt, Supt. H. D. Morton. d
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. H. O. Rogers. d
Powell St. Ry. Co. (see new roads.)
Sutter Treas. R. F. Morrow, Sec. A. K. Stevens, Treas. M. Schmitt. Office, cor. Sutter & Polk sts. f
Telegraph Hill R.R. Co. 1.550 ft, 4-8½ g, 45 lb r, 2c, —h. Pres. Gustave Sutter & Polk sts. f
Telegraph Hill R.R. Co. 1.560 ft, 4-8½ g, 45 lb r, 2c, —h. Pres. Gustave Sutre, V. Pres. C. Kohler. Sec. & Supt. Chas. J. Werner. Suspended operations. Cable taken up and stored away. e
City R.R. Co. 11 m, 5 g, 45 lb r, 72c, 280 h. Pres. R. B. Woodward, V. Pres. Geo. E. Raum, Sec. M. E. Willis, Treas. Jas. H. Goodman, Supt. William Woodward, Master Car Builder, Frank O. Landgram. e
SANJOSE, CALL—San Jose & Santa Clara R.R.Co.

E. Willis, Treas. Jas. II. Goodman, Supt. William Woodward, Master Car Builder, Frank O. Landgram. e

SAN JOSE, CAL.—San Jose & Santa Clara R.R. Co. 8½ 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. Mc-Murtry, Treas. Jacob Rich, Sec. E. M. Rosenthal, Man. Wm. Fitts. Office, 20 W. Santa Clara st. h

First St. R. R. & Willow Glen R. R. 4½ m, 3 g, 20 lbs. r, 6 c, 30 h, Jacob Rich, Sole Owner. Sec. E. M. Rosenthal. Office, 20 Santa Clara st. 12

First St. & San Pedro St. Depot R.R. Co. 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. 1

Willow Glen R.R. 7½ m, 3 g, 20 lb r, 8 c, 30 h. Sole owner Jacob Rich, Sec. E. M. Rosenthal. Office 20 W. Santa Clara st. k

SANTA BARBARA, CAL.—Santa Barbara St. R.R. Co. 22-5 m, 3-6 g, 3 c, 12 mu. Pres. A. F. McPhall. Office, State st. 5

SARNIA, CAN.—Sarnia St. Ry. Co. 5 m, 4-8 g, 32 lb r, 2 c, 9 h. Pres. J. F. Lester, Sec. & Treas. Thos. Symington, Supt. Henry W. Mills. Office, Canadlan Block. C

SAUGATUCK, CONN.—Westport & Saugatuck

SARNIA, CAN.—Sarnia St. Ry. Co. 5m, 4-8 g, 32 lb r, 2 c, 9 h. Pres. J. F. Lester, Sec. & Treas. Thos. Symington, Supt. Henry W. Mills. Office, Canadian Block. C
SAUGATUCK, CONN.—Westport & Saugatuck Horse R. R. Co. (See Westport, Conn.)
SAVANNAH, GA.—City & Suburban R. R. 12½ m steam line, 6 m, street line, 5 g, 35, 38 & 42 lb r, 40 street c, 12 steam c, 130 h. 3 engines. Pres. J. H. Johnston, Sec. A. L. llatridge, Treas. E. Schmidt. 1 Coast Line R.R. Co. 7 m. 5 g, 35 lb r, 17 c. engine, 35 h, 5 m suburban l ne 35 lb T r steam. Pres. Geo. Parsons, New York, Sec., Treas. & Gen. Man. R. E. Cobb, Savannah. Office, Bolton st. c
SCRANTON, PA.—People's St. Ry. Co. 9½ m, 4-8½ g, 25-52 lb r, 19 c, 70 h. Pres. Wm. Matthews, Sec. & Treas. J. C. Platt.
Scranton Suburban Ry. Co. 2½ m, 4-8½ g, 52-40 lb r, 3 c, operated by electricity. Pres. Edward B. Sturges, Treas. T. F. Torrey. Sec. Geo. Sanderson. 1
SEARCY, ARK.—Searcy & West Point R.R. Co. 8 m, 4-8½ g, 20 lb r, 7 c, 6 mu. Pres. A. W. Yarnell Sec. W. H. Lightle, Treas. Jasper Hicks.
SEAATTLE, W. T.—Seattle St. Ry. Co. 4½ m, 4-8½ g, 25 & 30 lb T steel r for 2½ m, 35 lb flat steel r for 2 m, 6 c, 20 h. Pres. Joseph D. Sicher, V. Pres. Louis Deutsch, Treas. F. H. Guenther, Sec. Chas. Scoond sts. a
SEDALIA, MO.—Sedalla St. Ry. Co. 2½ m, 4-10 g, 22 lb r 6 c 25 h. Pres. Joseph D. Sicher, V. Pres. Louis Deutsch, Treas. F. H. Guenther, Sec. Chas. Sconrad. 1
SELMA, ALA.—Selma St. R.R. Co. 2½ m, 5 g, 20 lb r, 5 c, 8 h. Pres. H. L. McKee, Sec. J. F. Brown. g
SEVASTOPOL, IA.—Des Moines & Sevastopol St. Ry. Co. 2 m, 4g, 20 lb r, 3 c, 10 h. Pres. G, Van Ginkel, Sec. G. C. Van Ginkel, Treas. John Weber. a
SHERMAN, TEX.—Sherman City R. R. Co. 1½ m, 4-49, 4 g, 10 hr, 6 c, 25 h. Pres. Doux City R. R. Co. 1½ m, 4-4 g, 4 db lb r, 6 c, 14 h. Pres. Peter Youree.
SILVER CLIFF, COL.—Sliver Cliff St. R. R. Co. 1½ m, 4-4 g, 30 lb r, 16 c, 56 h. Pres. Fred. T. Evans, V. Pres. D. A. Mæce, Sec. & Treas. F. T. Evans, V. Pres. D. A. Mæce, Sec. & Treas. F. T. Evans, V. Pres. D. A. Mæce, Sec. & Treas. F

SPRINGFIELD, MASS.—Springfield St. Ry. Co. SPRINGFIELD, MASS.—Springfield St. Ry. Co. Sym. 4-8½ g, 35 lb r, 40 c, 162 h. Pres. John Olmsted, Auditor L. E. Ladd, Clerk Gideon Wells. Treas. A. E. Smith, Supt. F. E. King. Office, 1 Main st. a SPRINGFIELD, MO.—Cittzens' Ry Co. of Springfield and No Springfield, 7 m, 4-8½ g, 33-40 lb r, 15 c. 2s h, 48 mu. Pres. R. C. Kerens, V.-Pres. B. F. Hobart, Sec. and Treas. A. M. Longwell, Supt. F. P. Smith, Ex-Com. H. F. Denton. L. H. Murray, C. B. McAffee. Office, North Springfield. 3

SPRINGFIELD, O.—Cittzens' St. R.R. Co. 11½ m, 4 g, 30 lb r, 30 c. 145 h. Pres. D. W. Stroud, V.

E. M. Bentley & W. H. Knight, Patentees. Rhode Island Locomotive Works, Constructors.

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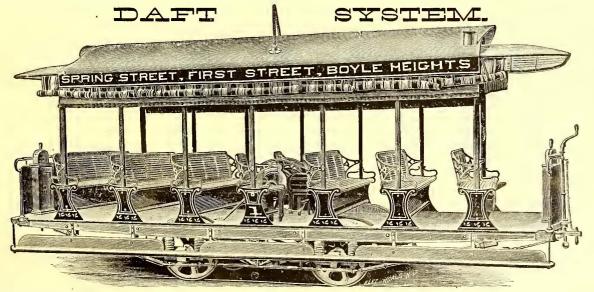
Broadway, New York. 115

ESTIMATES FURNISHED ON APPLICATION FOR ROADS USING EITHER SURFACE, UNDER-GROUND OR ELEVATED CONDUCTORS.

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We are now building, in the city of Pittsburg, a road which will cost \$120,000. This road has a 14 per cent grade, and has overhead and underground conductors, like much process.

we are now building, in the city of Pittsburg, a road which will cost \$120,000. This load has a 14 per cent grade, and has overhead and diddighted conditions, and five motors.

The cost of electric power per car per day on the Baltimore road, operating our system, is \$4.00. Fifty or more cars could be run at an average of \$1.80 per day. The grade on this road is \$50 feet per mile. Average speed, eight miles per hour. By horse power the speed was only four miles per hour, and the cost under the old system was \$6.50 per car per day. SEND FOR ESTIMATES.

On receipt of full particulars of your road, or of power wanted, we will send you exact estimates for equipping and operating it by our system. SEND FOR CIRCULARS.

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Factory, Creenville, N. J.

Pres. II. s. Bushnell, Treas. Ross Mitchell, Sec. F. S. Penfield. a

Pres. II. S. Bushnell, Treas. Ross Mitchell, Sec. F. S. Penfield. a
STAMFORD, CONN.—Stamford Horse R. R. Co. 5½ m, 4-8½ g, 10; 40 h. Pres. F. M. Delano, Treas. Philip Richardson, Supt. A. H. Lombard. 3
STATEN ISLAND, N. Y.—Staten Island Shore Ry. ST. CATHAR INE'S, ONT.—St. Catharine's, Meritton & Thoroid St. Ry. Co. 5½ m, 4-8½ g, 30 lbr, 8; 33 h. Pres. E. A. Smyth, Sec. A. P. Friesman, Supt. E. A. Smyth. b
ST. JOHN, N. B.—St. John St. Ry. Co. 7 m, 4-8½ g, 45-60 lbr, 15c, 66 h. Pres. John R. Bothwell, Treas. John F. Zebley. Office Room 39 Drexel Bidg., New York, and St. John, N. B.
ST. JOSEPH, MO.—Citizens' St. R.R. Co. 3 m, 4-8½ g, 28 lb r 14 c, 56 mu, Pres. Richard E. Turner, Sec. & Treas., Arthur Kirkpatrick, Supt. John F. Meriam. C. Frederick Ave. Ry. Co. 3½ m, 4-8½ g, 22 lbr, 10c, 75 h. Pres. D. D. Buynes, Sec. & Gen. Man. J. A. Corby, Treas. S. A. Walker. Office, 511 Francis St. d. Union Ry. Co. 8½ m, 4-8½ g, 20, 30 & 52 lb r, 29 c, 116 h. Pres. Seymour Jenkins, Sec. & Treas. A. Steinacker, Supt. Chas. S. Wilson. C.
ST. LOUIS, MO.—Baden. & St. Louis R.R. Co. 3¼ m, 4-9½ g, 20, 10 h. Pres. Seymour Jenkins, Supt. H. Neison. C. Benton-Beilefontaine Ry. Co. 8m, 4-10 g, 52 lb r, 57 c, 234 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, 34 c, 278 h, Pres. Julius S. Walsh, V. Pres. Jas. Campbell, Sec. Edw. Walsh, Jr., Supt. M. J. Moran. Office, 2300 Cass ave. c
Cittzens' Ry. Co. —m, —g, —lb r, —c, —h. Pres. Julius S. Walsh, V. Pres. Jas. Lindell Ry. Co. 13½ m, 4-10 g, 44 lb r, 20 c, 190 h. Pres. C. H. Turner, Sec H. B. Davis, Man. P. Co. Maitt. 2
Jefferson Ave. Ry. Co. 5 m, 4-9 g, 56 lb r, 21 c. Pres. P. C. Maffitt, Sec. Wm. D. Henry, Man. John Scullin. Office, Gravols & Jefferson aves. 6
Lindell Ry. Co. 13½ m, 4-10 g, 45 lb r, 75 c, 407 h. Pres. John Il. Maxon, Sec. & Treas. Geo. W. Baumhoff. Office, 2207 Washington ave. 6
Northern Central Ry. Co. 10½ m, 4-10 g, 45 lb r, 50 c, 48 h. Pres. P. C. Maffitt, S

V. Pres. C. G. Goodrich, Sec. A. Z. Levering, Treas. W. R. Merriam, Supt. A. L. Scott, Auditor & Cashier G. C. Eddings. Office, cor. Oak, Forbes and Ramsey Sts.

ST. THOMAS, CAN.

STONEHAM, MASS.—Stoneham St. R. R. Co. 2½ m, 48½ g, 28 lbr, 11 c, 30 h. Pres. A. F. Breed, Treas. F. H. Monks, Supt. G. F. Jones. Office, 35 Congress st. Boston. k

STILLWATER, MINN.—Stillwater St. Ry. Co. STILLWATER, N. Y.—Stillwater & Mechanics ville St. Ry. Co. 4½ m, 48½ g, 25-30 lb r, 4 c, 6 h. Pres. W. L. Denison, V.-Pres, Lyman Smith, Gen. Supt. Peter Van Veghten, Sec. & Treas. Edw. I. Wood. k

STROUBSBURG, PA.—Stroudsburg Passenger Ry. Co. 1½ m, 48½ g, 28-30 lb r, 3 c, 10 h. Pres. & Treas. J. Lantz, Sec. Jacob Houser. 4

SYRAGUSE, 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. Ciark, 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. Danlel Pratt, V. Pres. Jonathan C. Chase, Sec. & Treas. James Barnes, Supt. George Crampton. 4 Syracuse Savings Bank Building. h. 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 Purneii. 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. Il. Smith, Sec. & Treas. Geo. J. Gardner, Supt. W. J. Hart. Onondaga Savings Bank Building. j. New Brighton & Onondaga Valley R.R. Co. 1½ m, 4-8 g, 16-35 lb r, 2 c, 6 h. 1 dummy. Pres. Mathlas Britton, Sec. T. W. Meacham, Treas. J. H. Anderson. Supt. Arthur G. Markham. Office, 58 W. Rallroad st. j.

St. j Seventh Ward Ry. Co. Pres. E. F. Rice, Supt. R.

Seventh Ward Ry. Co. Pres. E. F. Rice, Supt. R. Purnell. 2
Syracuse & Geddes Ry. Co. 2½ m, 4 8½ g, 30-45 lb r, 8 c, 35 h. Pres. R. Nelson Gere, Sec. & Treas. Rasselas A. Bonta, Supt. Wm. J. Hart. Gen. offices, 1 Onondaga Co. Savings Bank Building.
Third Ward Ry. Co. Pres. W. B. Cogswell, Sec. & Treas. W. S. Wales.
TAMPA, FLA.—Tampa St. Ry. Co. 2½ m. 3-3 g, 25 lb r, 7 c, 2 engines. Pres. C. A. Martinez Ybor, Sec. & Treas. G. T. Chamberlain, Supt. C. E. Parceell.

TAUNTON, MASS.—Taunton St. Ry. Co. 4 m, 4-8½ g, 14 c, 45 h. Pres. Wm. C. Lovering. Treas. Henry M. Lovering, Clerk, Orville A. Barker, Supt. Geo. C. Morse. j

TERRE HAUTE, IND.—Terre Haute St. Ry. Co.

TERRE HAUTE, IND.—Terre Haute St. Ry. Co. 6 m, 48½ g, 38 lb r, 16 c, 8 h, 76 mules. Pres. Jos. Collett, V. Pres. D. W. Mimshal, Sec. J. R. Paddock, Treas. W. R. McKeen, Supt. Jos. G. Elder. Office, 101 N. Ninth st. c
TOLEDO, OHIO.—Toledo Consolidated St. Ry. Co. 21 m, 4-8½ g, 42 lb r, 50 c, 255 h. Pres. & Treas. J. E. Bailey, Sec. A. E. Lang. Supt. John Gilmartin. a

CO. 21 m, 4-8½ g, 42 lb r, 50 c, 255 h. Pres. & Treas, J. E. Bailey, Sec. A. E. Lang. Supt. John Gilmartin. a Metropoiitan St. R.R. Co. 10 m, 3 g, 28-35 lb r, 30 c, 115 h. Pres. & Sec. Jno. J. Shipherd, Treas. H. E. Wells, Supt. & Gen. Man. T. F. Shipherd. Office, Cherry st., near Bancroft. 6 Central Passenger R.R. Co. 9 m, 3 g, 27 lb r, 17 c, 80 h. Pres. F. E. Seagrave, Sec. C. F. Parkis, Treas. A. R. Seagrave, Supt. Joseph Murphy. a TOPEKA, KAN.—Topeka City Ry. Co. 10½ m, 4 g, 25, 28% 38 lb r, 27 c, 55 h, 64 mu. Pres. Joab Mulvane, V. Pres. D.W. Stormont, Sec. & Treas. E. Wilder, Supt. Jesses Shaw. Office, 116 W. 10th ave. b TORONTO, CAN.—Toronto St. Ry. Co. 60 m. 410¾ g, 30 lb r, 180 c, 850 h. Pres. Frank Smith, Sec. & Treas. Lewis Perine, Jr., Supt. John J. Frankiln. Offices, 94 & 96 King st., east. 7 TRENTON, N. J.—Trenton Horse R. R. Co. 3 m, 5-2 g, 43-48 lb r, 10 c, 33 h. Pres. Gen. Lewis Perrine, Sec. & Treas. Lewis Perrine, Jr., Supt. Thomas S Morris City Ry. Co. 10 m, 5-2½ g, 35 lb r, 24 c, 108 h. Pres. Adam Exton, V. Pres. W. II. Skirm, Sec. H. B. Howell, Treas. & Mang. Director Chas. Y. Bamfond. Office, 264 Clinton ave. a TRINIDAD. COL.—Trinidad St. Ry. Co. 1½ m.

Sec. & Treas. Lewis Perrine, Jr., Supt. Thomas S Morris City Ry. Co. 10 m., 5-2½ g., 35 ib r., 24 c., 108 h. Pres. Adam Exton, V. Pres. W. H. Skirm, Sec. H. B. Howell, Treas. & Mang. Director Chas. Y. Bamford. Office, 264 Cilinton ave. a

TRINIDAD, COL.—Trinidad St. Ry. Co. 1½ m., 3-2 g., 14 lb r., 2 c. 8 mu. Pres. S. H. Jaffa, Treas. T. B. Collier, Sec. R, L. Wootton, Supt. R. L. Pearson. c. TROY, N.Y.—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. Knickerbucker, Sec. & Treas, Theo. E. Hasiehurst, Supt. W. R. Bean. Office 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, HLL.—Urbana & Champaign St. Ry. Co. 2 m., 4-8½ g., 33 lb r, 4 c., 20 h. Pres. Wm. Park, Sec. & Treas. Frank G. Jaques, Supt. W. Park. 1

UTICA, N.Y.—Utlca, Clinton & Binghamton St. R. R. Pres. Jas. J. Scollard, Sec. & Treas. Robt. S. Williams. Leased to and operated by Utlca Belt Line St. R. R. Co. a

Utlca & Mohawk R.R. Co. 3½ m., 4-8 g., 47 lb r, 8 c., 11 h. Pres. Jas. F. Mann, V. Pres. R. W. Sherman, Sec. Wm. E. Lewis, Treas. Geo. D. Dimon. Office, 26 Union Bidg. 4

Utlca Bcit Line St. R. R. Co. 20m., 4-8½ g., 32 c, 97 h. Pres. J. Mather, V. Pres. J. W. Boyle, Treas. Chas W. Mather. 4

VALEJO, CAL.—Valejo St. Ry. Co.

VINCENNES, IND.—Vincennes St. Ry. Co. 1111 City R.R. Co.

VINCENNES, IND.—Vincennes St. Ry. Co. 2½ m., 4-8½ g., 36 lb r, 4 c., 24 h. Pres. & Treas. Fredk. Graeter, Sec. Geo. W. Graeter. Office, Fair Ground ave. 4

WALO, TEX.—Waco St. Ry. Co. 5 m., 4-8½ g., 37 lb r, 9 c, 24 h. Pres. & Treas. W. E. Boughton, Supt. Andrew Glass. 6

Robins, Graeter, Sch. Pres. R. Co. 20 m., 4-8½ g., 37 lb r, 9 c, 24 h. Pres. C. Ottok

R. CO. 3 m, 48½ g, 40 lb r, 4 c, 2 dummies. Pres. B. R. WATERLOO, N. Y.—Seneca Falls & Waterloo R, R. Co. 5 m, 48½ g, 40 lb r, 4 c, 2 dummies. Pres. S. R. Welles, V. Pres. A. II. Terwilliger, Sec. & Treas. A. G. Mercer, Supt. Albert Jewett. 5

WATERFORD, N. Y.—Waterlord & CohoesR.R. Co. 2 m, 48½ 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. II. Hartman, V. Pres. & Supt. J. A. Foye, Sec. & Freas. T. N. Kellogg.

WEST HAVEN, CONN.—New Haven & West Haven Horse R.R. Co. 7 m, 48 g, 50 to 60 lb steel r, 24 c, 115 h. Pres. Geo. R. Kelsey, Sec. Sam'l L. Smith, Treas., Supt. & Gen. Man. W. W. Ward. a

WESTPORT, CONN.—Westport & Saugatuck Horse R. R. Co. 14 m, 48½ g, 40 lb r, 3 c, 6 h. Pres. A. S. Hurlbutt, Sec and Treas B L Woodworth, Supt E 8 Downey. c

Supt E S Downey. c

WHEELING, W. VA.—Citizens Ry. Co. 10 m,
5-2% g, 45 lb r, 16 c, 60 h. Pres. Dr. Geo. B. Caldwell,
Sec. Frank P. Hall, Supt. Michael I otus. a
Wheeling & Elm Grove R.R. 7 m, 4-8% 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. 18 m,
3-6 g, 20 & 25 lb r, 50 c, 300 h & mu. Pres. G. L. Rouse,

V. Pres. B. H. Campbell, Sec. & Man. G. M. Dickson, Treas. J. O. Davidson. Office, 121 N. Market st. k. WILKESBARRE, PA.—Wilkesbarre& Kingston Pass. R.R. 3 m, 5-2 g, 30-45 lb r, 10 c, 22 h. Pres. & Man. Wm. J. Harvey, Sec. & Treas. A. J. Davis. a Coalville Passenger R.R. Co. 2½ m, 4-8½ g, 20-34 lb r, 3 c. 12 h. Pres. Geo. W. Kirkendall, Supt. A. S. Orr, Sec and Trens Geo. Loveland. Capital, \$02,675. a WILLIANISPORT, 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. Pass. Ry. Co. 1½ m, 5-2 g, —lb r, 7 c, 22 mu. Pres. Geo. W. Bush, Supt. Sam'l A Price, Treas. E. T. Taylor. Office, Front & Union sts. e Wilmington City Ry. Co. 6 m, 5-2½ 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

W. Bush, Supt. Sam'l A Frice, Treas. E. 1. Tayor. Office, Front & Union Sts. e
Wilmington City Ry. Co. 6 m, 5-2½ 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 Passenger R.R. Co. 12
Windsor Electric St. Ry. Co. 1½ m, 1 motor, 2 cars.
Van Depoete system. Pres. W. M. Boomer, Sec. &
Treas. A. H. Joseph. Office, 19 Sandwich st., W. 5
WINFIELD, KAN.—Union St. Ry. Co. 1½ m 4
g, 28 lb r, 2c, 8 mu. Pres. A. J. Thompson, Sec. J. R.
Clark, Treas. John A. Eaton. Capital, 225,000. a
WINNIPEG, MANITOBA, CAN.—The Winnipeg St. Ry. Co. 5 m, haif single, half double, 48½ g,
35 lb r, 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. R.R. Co.
4.52 m, 4.8½ g, 35 lb r. with 42 lb Tr, 9c, 26 h. Pres.
Amos F. Breed, Treas. Frank H. Monks, Supt. Gliman F. Jones. Office, 35 Congress st., Boston. k
WORCESTER, MASS.—Worcester St. Ry. Co.
7½ m, 4.8½ g, 43-45 lb r, 32 c, 150 h. Pres. Geo. H.
Seeley, Treas. H. S. Seeley, Supt. J. N. Akarman,
ASSt. Supt. J. B. Chapin. Office, 15 Market st. a
Citizens' St. Ry. Co. 14½ m, 4-8½ g, 35 lb r, 57 c,
70 h. Pres. Chas. B. Pratt, Sec. & Treas. H. S. Seeley,
Supt. J. N. Akarman, Asst. Supt. I. B. Chapin.
Office, 15 Market st. 6
WYMORE, NEB.—Wymore and Blue Springs Ry
Co. 3½ m, 3-6 g, 4 c, 10 h. Pres. D. N. Stanton, Sec.
John F., Brennan, Treas. D. Perry Stanton. Office,
83 Main St. a
YONKERS, N. Y.—Yonkers R. R. Co. 5 m,
4-8½ g, 42-48 lb r, 10 c, 70 h. Pres. D. N. Stanton, Sec.
John F., Brennan, Treas. D. Perry Stanton. Office,
83 Main St. a
YONGSTOWN, O.—Youngstown St. Rr. Co.
2½ m, 3 g, 24 & 27 lb r, 6 c, 18 h. Pres. John R. Davis,
Sec. & Treas. H. S. Co. 2. St. h. Pres. F. M.
Townsend, Sec. W. C. Townsend, Treas. O. H. Townsend.

CABLE RAILWAYS.

BROOKLYN, N. Y.—Brooklyn Cable Co.
CHICAGO, ILL.—Chleago City Ry. Co.
CINCINNATI, O.—Mt. Adams & Eden Park Inclined R. R. Co.
DENVER, COL.—Denver Tramway Co.
KANSAS CITY, MO.—Kansas City Cable Ry. Co.
Temple St. Cable Ry. Co.
NEW YORK, N. Y.—Third Ave. R. R. Co. Line
on Tenth ave.
OMAHA, NEB.—Cable Tramway Co. of Omaha.
Cable line to be built.
OAK LAND, CAL.—Oakland Cable Ry. Co.
PEORIA, ILL.—Central Horse & Cable R. R. Co.
SAN FRANCISCO, CAL.—California St. Cable
R. R. Co.
Market St. Cable Ry.
Omnibus R. R. & Cable Co.
Clay St. Hill R. R. Co.
Geary St. Park & Ocean R. R. Co.
Sutter St. R. R. Co.
Telegraph Hill St. Ry. Co.
ST. LOUIS, MO.—St. Louis Cable & Western Ry.
Co.

ELECTRIC RAILWAYS.

APPLETON, WIS.—Appleton Electric St. Ry.
BALTIMORE, MD.—Union Pass. Railway Co.
LOS ANGELES, CAL..
LOS Angeles Electric Ry. Co.
DETROIT, MICH.—Dix Electric Ry.
KANSAS CITY, MO.—Kansas City Electric Ry.
MONTGOMERY, ALA.—Capital City Electric Ry.
LRY. CO.

St. Ry. Co.
SCRANTON, PA.—Scranton Suburban Ry. Co.
WINDSOR, CAN.—Windsor & Walkerville Electric Ry. Co.

NEW ROADS,

ALTON, ILL.—Alton Imp't Co. To operate h. or cable rys. Wm. Armstrong, Julius Raible & others, incorporators. Capital, \$25,000. 5

ALLEGHENY, PA.—Observatory Hill Pass. Ry. Co. Electric road, 3% m, to cost \$225,000. Ask for authority to lay overhead and underground conductors. O. P. Scaife, of Pittsburg, is said to be interested. 6

Allegheny Rapid Transit Co. From Northside bridge to California avenue. 6

ASHVILLE, N. C.—Co. formed. Will use dummy engine. 6

ASBURY PARK, N. J.—Tenders invited for an electric road.

ATCHISON, KAN.—Atchison Rapid Transit St. & Road Ry. Co. Mechanical traction. John

HAINES BROS., STEAM & STREET RAILWAYS,

55 Broadway, New York.

Promoters of Steam and Street Railways.

Builders of over a score of Railroads. Unlimited Capital furnished for Building and Extending Railways.

Purchase Street Railway Franchises.

Information upon Railway Materials and Matters pertaining to any branch of the Railway Business cheerfully given.

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.

Price, J. W. Parker and others incorporators. Capital, \$600,000, 5

tal, \$600,000. 5

ATHENS, TENN.—Athens Mineral Land & Imp't
Co. are ready to receive bids for a new railroad which
they will build. 5

ATLANTA, GA.—Harry lilli is organizing a
soleme for a belt st. ry. 5.

J. Haas, W. A. Hemphill and Hoke Smith have

soheme for a belt st. ry. 5.

J. Haas, W. A. Hemphill and Hoke Smith have formed a co.

BALTIMORE, MD.—Baltimore, Brooklyn & Cedar Hill Ry. Co. 4 m, 4-8½ g, 25 ib T r, 16 c, 50 h. Will be running soon. S. C. Long, Solicitor. 3

BELLEVIE, PA.—Elec. clevator and rr. Elevator will run to height of 90 ft.; from there plane will run back ½ m to center of town. Now building. 6

BELOIT, KAN.—Beloit City St. Ry. Co. has been incorporated by C. J. Brown and others. Capital, \$75,000. 6

BANGOR, ME.—Electric ry. proposed, in which D. F. Longstreet and Joshua W. Wilbour of Providence, R. l., are interested. 5

BINGLEVIED, PME.—Biddeford & Saco Horse R. R. To he operated by animal, electric or cable power. 5

BINGHANITON, N. Y.—Van Depoele Co. will supply plant for new road; 6 c. 3

BIRMINGHAM. ALA.—Birmingham & Jones Valley St. R.R. 6 m, 45 lb, steel r. Hefin & Knox received proposals.

Smith & Eastman have made surveys for electric road to run 3 m from the city to their real estate near North Birmingham. 4

Western Valley St. Ry. Co. 4 m, 4-8½ g, 24 lb r, 6 c, 20 mu; but will likely change motive power ultimately. Work to be commenced in 60 days and road opened in 3 or 4 months. Capital, 5:0 c00. Pres. J. C. Westbrook, V. Pres. W. E. Berry, Gen. Man. S. Torrey. 5

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

opened in 3 of 4 months. Capital, \$50.00. Pres. J. C. Westbrook, V. Pres. W. E. Berry, Gen. Man. S. Torrey. 5

BOSTON, MASS.—West End St. Ry. Co. H. M. Whitney, Asa P. Potter, Eben D. Jordan and others incorporators. About 8 m, 4-8½ g. Pres. H. M. Whitney, Treas. G. D. Braman. Hope to use electricity as motive power.

Suburban St. Ry. Co., proposes to lay tracks through Park, Beacon, Arlington and Mariboro streets to West Chester Park. 3

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

Brooklyn & Suburban St. Ry. Co. To run from Bedford ave. through Flatbush to Flatlands, with a branch to the Cemetery of the Holy Cross. Will use either horse or cable power. Geo. Malcom. Wm. Ziegler, Wm. J. Gaynor, Henry H. Adams, Jas. Ryan, Petter Sutter and Patk. McCanna, Directors. Paid-up capital, \$100,000.

Union Ry. Co. of the City of Brooklyn. 11

Brooklyn Heights R. R. Co. Capital, \$150,000. To build along Montague street from Court street to Wall Street Ferry. Will use either cable or electricity, and will build as soon as the consent of proporty owners is obtained. Pres. S. B. Chittenden, Scc. Geo. W. Chauncey; and the other directors are J.J. Pierrepont, C. L. Fincke, W. A. Brown, A. C. Capitalists interested in Calvary Cemetery road are building from Ash street to Park avenue. Pres. John McKewen, Sec. Michael Just, Treas. John R. Connor, Man. D. W. Sullivan. 6

BRUNNWICK, GA.

CALERA, Al.A.—J. D. Hardy is interested in a new line that is projected. 6

CIIARLESTON, W. VA.—Gienwood Co. will lay out a town near the city and ultimately construct a road 2½ mlong. Supt. Benj. Brown. Capital, \$55,400.

CIIARLESTON, W. VA.—Gienwood Co. W. Cohand others. 5

10. 4
CHATTANOGGA, TENN.—North Side St. R. R.
o, Incorporators, G. W. Thompson, Geo. W. Ochs

CHATTANOOGA, TENN.—North Side St. R. R. Co. Incorporators, G. W. Thompson, Geo. W. Ochs and others. 5
City St. Ry. Co. has been organized by John T. Williamson and others. 6
CHETOPA, KAN.—Chetopa St. Car Line Corporation. 2 m. rres. Geo. D. Boon, Sec. W. L. Sly. Capital, \$5,000. 5
CHICAGO, ILL.—The Crosstown Pass. Ry. Co. of Chicago, 30 m, 4-8 1-2 g, 45 lb r, 75 c, 500 to 800 h, Pres. John J. Currar, Treas. Geo. P. Bunker, Sec. James A. Taylor. Capital stock, \$1,000,000. Gen. of-dee, room 18, No. 164 Washington st. Time of commencement of work undecided.

Lakeside City St. Ry. Co. Tooperate h. or dummy roads in Chicago and its suburbs. Incorporators, Sam'l P. Moconnell, C. H. Merrill and Theo. P. Elliott. Capital, \$250,000. 5
CHICOPEE, MASS.—New company started under the leadership of Haines Bros. Capital, \$250,000. Work to begin soon. Line to extend from Chicopee Falls through Chicopee Center to the point where the boundary line between Chicopee and Springfield crosses the River road. About 4 m, 4-8½ g, not less than 35 lb r. Chas. D. Haines and Geo. W. Stetson of N. Y. City are the largest stockholders.

COLUMBUS, MISS.—City R.R. Co. Capital, \$24,000. Pres. R. W. Banks, Sec. & Treas. E. T. Sykes. Will build at once. 6
COLUMBUS, O.—Third & Schiller St. R. R. Co. Capital, \$25,000. Incorporators, P. E. Blesch, Julius A. Kramer and others.

COVINGTON, GA.—W. C. Clark & Co. incorporators and owners. 1 m, 20 or 30 lb r, 2 pass. c, 2 flat

COVINGTON, GA.—W. C. Clark & Co. incorporators and owners. 1 m, 20 or 30 lb r, 2 pass. c, 2 flat c, pass. cars for 1 h, 6 to 8 mu. or h. 2

c, pass, cars for 1 h, 6 to 8 mu. or h. 2

CROOKSTON, MINN.—Crookston St. Ry. Co.
Capital, \$100,000. J. E. Sawyer and others incorporators. Line to be built this year. 6

DALTON, GA.—Dalton St. Ry. Co. Bids invited for iron, cars, etc. T. R. Jones, Secretary of Board of Directors.

DANVILLE, VA.—L. C. Berkeley, W. N. Ruffin, Albert Gerst and others are raising a bonus for whoever will build a road, and the town makes an offer of exemption from taxation. 4

DANBURY CONN. Dappage St. Ry. Co. Am.

DANBURY, CONN.—Danbury St. Ry. Co. 4m, between Danbury and Bethlehem. Work in pro-

gress. 11 DECATUR, ALA.—Decatur Land Improvement &

Furnace Co. have begun the building of a street car line.

DENVER, COL.—Denver Cable Ry. Co. Capital stock, \$500,000. Jas. McCord and others incorpora-

stock, \$500,000. Jas. McCord and others incorporators.

DERBY, CONN.—Co. organized to build an electric rr. on Van Depoele system from Derby to Birmingham and Ansonia. 3½ m. 6

DULUTH, MINN.—Duluth Highland Cable Ry. Co. Propose to build to the hill top unless the old co. after notice build there. Il. W. Bradley and Wm. W. Billson, of Duluth, and J. A. Willard, of Mankato, are interested. Capital, \$200,000. 5

Minnesota Point St. Ry. Co. Capital, \$100,000. Reginald W. Petre is one of the incorporators. 6

DURHAM, N. C.—Durham St. Ry. Co. 8 m, 4-8½ g, 16 lb r, 16 c, 25 h. and mu. Pres. W. T. Blackwell, V.-Pres. J. S. Carr, Sec. & Treas. R. D. Blackwell, V.-Pres. J. S. Carr, Sec. & Treas. R. D. Blackwell. Construction committee, R. D. Blackwell, W. W. Fuller, J. W. Blackwell. Capital stock, \$25,000. a. 4

W. Fuller, J. W. Blackwell, Capital stock, \$25,000.
a. 4
EAST ST. LOUIS, MO.—East St. Louis Motor Ry. Incorporated by H. D. Sexton, Henry O'Hara and Wm. H. Hill. Capital, \$20,000.0 6
EL DORADO, KAN.—Expect to finish road by middle of summer. Sec. R. H. Hazlett. 5
EUFAULA, ALA.—City of Eufaula St. Ry. Co. 4 m, 4-8½ g, 20 lb r, 4 regular cars and several excursion flats, 12 h. Will commence work about July, and the road will be opened in September. Pres. E. B. Young, Sec. Geo. McCormick, Treas. Ell Shorter. Capital \$25,000. 4.
FLUSHING: N. Y.—Charter obtained for line from College Point to Flushing Cemetery, along Jamaica ave. Supervisor Dykes, John Henderson and D. Master are among those interested. Electricity will prob. be used. 6
FRAMINGHAMI, MASS.—Framingham St. Ry. Co. So, Framingham to Framingham Center. Principal stockholders: Richard S. Brown, Chas. D. Haines, Geo. W. Stetson, Andrew G. Haines and Frank W. Stanley, all of New York. Capital \$35,000. Work to begin about middle of May and to be finshed by July 1. Main line 4 m, with a branch to the Middlesex South Agricultural grounds, another to the Para Rubber Shoe Co. 3 works, and another to the State muster field, 10 c. Treas. Geo. W. Stetson, Clerk Ira B. Forbes, Supt. of Construction R. S. Brown. 4.

"Framingham Center Ry. Co. Capital, \$25,000. 2½ m. 4.8½ g. 4.

Brown. 4. Rramingham Center Ry. Co. Capital, \$25,000. 21/2

, 4-8% g. 4. FORRESTVILLE, GA.—A, W. Ledbetter is in-

FORKESTVILLE, GA.—A, W. Ledbetter is interested in the co. 6
FORT SMITH, ARK.—Belt Line St. R. R. Co. Has been chartered. 6
Sulphur Springs Ry. Co. Has been chartered. 6
GAINESVILLE, FLA.—Gainesville City & Subraban Ry. Co. 6 m, 4-8½ g, prob. about 20 or 24 lb. r, motive power undecided. Are just beginning to build. Pres. W. H. Robertson, Gen. Man. R. L. Robb. a

Robb. a GRAND FORKS, DAK.—Secretary of State McCormack, of Bismarck, has secured franchise, and is said to be backed by Duluth and New York capi-

GRAND ISLAND, NEB.—Grand Island St. R. R. Co. Capital, \$100,000. Incorporators, O. A. Abbott, W. A. Hogge and others. H. or motors. Will bulld 5 m, and have ordered 8 c. GREENVILLE, ALA.—J. T. Perry will bulld a

build 5 m, and have ordered 8 c.

GREENVILLE, ALA.—J. T. Perry will build a st. ry. 6

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GREENVILLE, CONN.—Greenwich Horse R. R. Co. 7

GREENVILLE, ALA.—J. T. Perry will build a st. ry. Co. 10

Steamboat road to the steamboat dock, with a branch along Rallroad ave. to the N. Y., N. H. & H. station. Capital, \$30,000. Prob. 4 cars. Delano-Richardson syndicate are back of the scheme. 5

HARTLAND, KAN.—Hartland St. Ry. Co. 2

m, narrow g, light r, 2 c, 1 mu. Pres. E. S. Snow, Sec. & Treas, Logan A. Garten, Supt. W. S. Handy. Capital stock, \$5,000. 3

HASTINGS, NEB.—Hastings St. Ry. Co. 3 m, 5 c ordered. 6

HARRISBURG, PA.—Electric road, Van Depoele system, 3½ m, to Steelton. 6

HILLENA, ARK.—Helena St. R. R. Co. Capital, \$30,000. Pres. Greenfield Quarles, Sec. D. T. Hargraves, Treas, S. H. Horner. 5

HOLDEN, MO.—Franchise granted to Wm. Steele, J. S. Johnson, John T. Bruce, J. N. McDonald and Thos. C. Carter. To run on Oilve st. from 2d to 14th, to Main, to 2d, to Starting point. 6

HUDSON, N. Y.—To be built just as soon as authority is granted, and cars prob. be running by July 1. To cost \$20,000. Will form a belt line in the upper part of the city, and connect the two railroad depots, Mr. Hadcock chiefly interested. 5

HUNTINGTON, N. Y.—3 m, from the Long Island R, R. Station along the east side of Huntington Harbor. Stockholders, D. Schuberth and R. G. Phelps of New York, Henry S. Brush and others of Huntington. Capital stock, \$30,000.

HUTCHINSON, KAN.—Metropolitan St. Ry. Co. Being rapidly pushed to completion. Capital, \$50,000. Directors G. W. Hardy, Jas. H. Perkins, Hiram Constant, J. W. Mulky and A. H. Robinson. 5

ITHIACA, N. Y.—Haines Bros. are building here, and will use the Paft System. under contract with

Son. 5
ITHACA, N. Y.—Haines Bros, are building here, and will use the Datt System, under contract with the Safety Electric Ry. and Power Co. 4

JUNCTION CITY, KAN.—Junction City & Fort Riley St. Ry. Co. 7 m, method of propulsion not de-cided. Must obtain franchises from city, county and Congress. Capital \$50 000. Pres. B. Rockwell, V. Pres. G. E. Harvey, Sec. & Treas. C. G. Thurs-

ton. 5
KANSAS CITY, Mo.—Grand Avenue Ry. Co. (For officers See Directory). Now constructing: 8
m, double track cable road.

KEYPORT, N. Y.—Co. will build at once, under the new law granting turnpike companies the right to lay horse railroad tracks on their roads.

KNOXVILLE, TENN.—Knoxville & Edgewood Ry. Co. Will build at once, and open in the fall. 2 to 5 m. Have proposals from other new lines to join them, and it will depend upon which they accept

what mode of propulsion, car and rail will be adopted. Pres. Wm. Caswell, V. Pres. E. C. Camp, Sec. Arthur Swan. F. A. Moses, A. N. Jackson and S. R. Rogers also interested. Capital, \$26,000. 5
Fountain Head R. R. Co.incorp'd by F. A. R. Scott, J. H. Cruze and others to build a dunimy rr. 6
Knoxville Beit Ry. Work to begin at once. Capital, \$100,000. Pres. W. R. Tuttle, Sec. J. W. S. Frierson, Treas. Sam'l House. 5
I.AKE CITY, FLA.—H. S. Haines, Gen. Man. Sav., Fla. & W. Ry. and all the Plant system in Fla., has right of way.
LEAVENWORTH, KAN.—Leavenworth St. Ry. Co. Capital, \$500,000. Motor line, between the Pententiary, Soldier's Home, the city of Leavenworth and Fort Leavenworth. Expected that road will be in operation-by last of June. Capt. M. H. Insley, Paul E. Havens and other incorporators. 5
I.NCOLN, NEB.—Elec. motor co. From city to stockyards. Capital, \$100,000. 6
LONG ISLAND CITY, N. Y.—Riker Avenue & Sandford's Point R. R. Co. 2 m, 4-8½ g, 47 lb steel r. Will have no cars of its own, but will be operated by Steinway & Hunter's Point R. R. Co. Horses will first be used, afterwards electricity. Road is located half in Long Island City and half in Newtown, running along Bowery Bay beach. Pres. J. H. Hempstead, Yonkers, Sec. & Treas, Oscar R. Steins. Capital, \$20,000. Work in progress. Office, 107 E. Fourteenth st., New York. d
LOS ANGELES, CAL.—The American Rapid Transit Co. has been formed here, capital, \$500,000, to build from Pasadena to Monlea, under the Enos elevated electric system. 4
S. O. Brown will build a road 6½ m long to Glen-dale.

S. O. Brown will build a road 6½ m long to Glen-

build from Pasadena to Monica, under the Enos elevated electric system.

As.O.Brown will build a road 6½ m long to Glendale.

LYONS, KAN.—E. A. Deupree, Sam Steiner, C.**
W. Shumway and others incorporators.

McKESPORT, PA.—McKeesport Pass. Ry. Co.**
6 m. Commence work this spring. Pres. J. C. Smith, Sec. & Treas. E. F. Woods.

**Sec. & Treas. E. F. Wo

Noel. 5
Lake R. R. Co. has been organized by John Lellyett, John McEwen and others. 6
Mansfield & University St. R. R. Co. 1½ m, to cost

Mansfield & University St. R. R. Co. 1½ m, to cost \$10,000.
North Nashville St. Ry. Co. J. G. Jones, Theo. Selfred, A. W. Willis and others incorporators. 6 NEW CASTLE, PA.—New Castle St. Ry. Co. Organized, but mode of propulsion not yet determined. Sec. Chas. S. Wallace. 3 NEW LONDON, CONN.—New London Horse Ry. Co. John Tebbetts, incoporator. 11 NEWBURYPOLT, MASS.—Plum Island St. Ry. Co. 4 m, 4-S½ g, 35-40 lb steel & Johnson r, 10 c, 20 h, & dummy or electricity. Pres. & Gen. Man. E. P. Shaw, Treas. Eben Sumner. Capital \$40,000. Route from Fair st. on Water st., Newburyport. to and over Pulm Island to mouth of Merrimac river. Cars are being outli in Newburyport. 1 NEWTON, KAN.—Newton City St. Ry. Co. Pres. Allen Moore, V. Pres. John A. Randall, Sec. W. Goldfield, Treas. J. M. Kagsdale. 5 m 3-6 g, 20 lb Steel r, 8 c, h or m. Capital, \$60,000. 3 m to be opened as soon as men can do the work. 5 NEWTON, MASS.—Newton St. R. R. Co. 5 m,

NEWTON, MASS.—Newton St. R. R. Co. 5 m, 8½ g, 5 c. 5 electric motors, 35 lb r. Pres. Horace Parker, V. Pres. Luclus G. Pratt, Treas. Herbert Pratt. Capital stock, \$50,000. Office, Newton-

C. Pratt. Capital stock, \$50,000. Office, Newtonville,

NEW YORK, N.Y.—St. Nicholas and Crosstown
R. R. Co. (Incorporated and franchises partly
granted.) 11

North & East Rivers Ry. Co. To run through Fulton and Cortlandt streets, operated by BentleyKnight electric system. Pres. W. W. Laman, Directors A. Hudnut, Ira Perego, David Bangs, Aaron
Raymond, J. L. Truman, W. H. McDougal, W. G.
Smith, Homer A. Nelson, R. R. Hazard, Robt. W.
Blackwell and John T. Fanning. J. W. Childs, contractor for construction of road.

New York Underground R. R. Co. Pres. Edw. Lauterbach. J. Coleman Drayton is Pres, of New York
Underground Construction Co., which has made appilication to open Lafayette place to operate under
the Bentley-Knight system. Col. Rowland R. Ilazard is prominent in the enterprise. 4.

East & West Ferries R. R. Co. has been incorporated, with capital stock of \$50,000. Chas. W. Hough
and others incorporators. 6

NORRISTOWN, PA.—Citizens' Pass. Ry. Co. 4
m. Will connect the hospital, Montgomery Cemetery and railroad stations. 5

NORFOLK, NEB.—Norfolk St. R. R. Co. Capital,

NORFOLK, NEB .- Norfolk St. R. R. Co. Capital,

THOS. F. GRIFFIN & SONS,

Buffalo, N. Y., U.S.A.,

ST. THOMAS CAR WHEEL CO.,

St. Thomas, Ont., Canada,

MANUFACTURERS OF

STREET CAR WHEELS

Ghilled Curved Rail of any Radius,

Turnouts with adjustable Tongues,

Track Crossings, Chairs,

Castings of every description for Street Railway Construction.

CORRESPONDENCE AND ORDERS WILL HAVE PROMPT ATTENTION.

NEW YORK AGENCY,
EDWARD CORNING & CO.,
15 CORTLANDT ST.,
NEW YORK.

Q. A. McCONNELL & GEORGE LOUTHIAN,
35a GREAT GEORGE ST.,

WESTMINSTER, LONDON, S.W.

\$50,000. Incorporators, J. S. McClary, W. A. Rainbolt and others. 5

and others. 5
OBERLIN, KAN.—Oberlin St. Ry. Co. Capital, \$50,000. R. A. Marks, Everton Doom and others incorporators. 5
OLATHE, KAN.—Mr. Ogg has organized a co., to run a line between the Fort Scott and Southern

Kansas depots. 5
OMAHA, NEB.—Cable line to be built by a Kansas City syndicate. Intended to have 3 m. in opera-

OMAHA, NEB.—Cable line to be built by a Kansas City syndicate. Intended to have 3 m. in operation by next fail.

Lake Manawa R. R. Co. will run from Broadway down Eighth street and then off in the direction of the Lake. Directors: Samuel Haas, J. J. Brown, D. W. Archer, George F. Wright, E. A. Benson, George Keeline, N. Merriam, of Omaha; H. H. Ilay, of Minneapolis; T. J. Evans and Spencer Smith.

E. A. Benson, W. L. McCague and C. E. Mayne have formed a company which has received permission to build on Thirty-sixth street, Hamilton street and Institute boulevard; also on Leavenworth street, Lincoln place and west of Walnut hill to Institute boulevard. Work has begun.

4. Omaha & So. Omaha St. Ry. Co. Capital, \$1,00,000. Cable road. Wm. A. Paxton, John E. Creighton and Isa to E. Corydon are among the incorporators.

5. Omaha & Council Bluffs Ry. Bridge Co. To build a bridge and operate a horse, cable or electric rallway on it. Capital, \$600,000. Guy C. Barton, J. H. Millard, Frank Murphy, T. A. Evans, John T. Stewart and Geo. F. Wright are incorporators.

5. Omaha & Southwestern St. R. R. Co. Capital \$15,000. Incorporators, H. Ambler, S. J. Howell and others.

Omaha Motor Ry. Co. incorporated. Capital, \$500.

art and Geo. F. Wright are incorporators. 6
Omaha & Southwestern St. R. R. Co. Capital \$15, on, fincorporators, H. Ambler, S. J. Howell and others.
Omaha Motor Ry. Co. incorporated. Capital, \$500.000, of which \$50,000 to be paid in before commencement of business. Samuel D. Mercer, Clitton E. Mayne and others incorporators.

Line to asylum and penttentlary. Ex-Gov. Dawes, Senator S. W. Burnham, J. M. Hoffman and others are interested.

So. Omaha St. Ry. Co. Capital, \$250,000, with power to increase to \$500,000. To use horse, motor, electric or cable power. D. Anderson, Betthas Jetter and C. M. Hunt are among the incorporators. To run from Twenty-first street at Armour, along Twenty-first, Wyman, Bellevue to the corporation limits, with a number of branches.

ORANGE, N. J.—Orange Crosstown and Orange Valley St. Ry. Co. 2½ m, 5-2 g, 35 lb Johnson girder rail, 5 Stephenson cars, are trying Daft electric system. Pres. Francis M. Eppley, of Orange, Sec. Jas. E. Brown of Elizabeth, Treas. Henry W. Pope of Elizabeth, Capital stock, \$20,000; bonds, \$20,000. 3

ORLANDO, FLA.—Orlando & Winter Park Ry. Co. 6 m, 4-8½ g, 25 lb r, 4 c, 2 motors. Pres. J. R. Mizell, Sec. Geo. R. Neweil, Treas. J. S. Capen, Supt. J. H. Abbott. Work has begun, and the road will be opened by the Fourth of July. Capital stock, \$100,000. a 5.

OTTAWA, KAN.

PADUCAH, KY.—Paducah St. Ry. Co. Contract has been let to S. R. Bulloch & Co., of New York, who will complete the line by August. 5

PASAIC, N. J.—Passalc St. Ry. Co. Must be completed in 2 years from depots to park. Incorporators, S. D. Condon, J. H. Phillips and E. W. Robinson. 5

PASSAIC, N. J.—Passalc St. Ry. Co. Must be completed by Wm. P. Craig. Runs from Barton station through Pelham park and over nearly the entire length of City Island. 6.

PELMAN, N. Y.—Pelham Park St. Ry., just completed by Wm. P. Craig. Runs from Barton station through Pelham park and over nearly the entire length of City Island. 6.

PELMAN, N. Y.—Pelham Park St. Ry., just completed by Wm. P. Craig. Runs from Barton

PITTSBURG, PA.—From junction of cable road to Squirrel Hill, and will utilize the old ratis and rolling stock and horses of the road replaced by the

rolling stock and horses of the road replaced by the cable.

3. 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.

Pittsnurg & Mckee's Rocks St. Ry. Co. Has begun laying tracks, and cars will be running by July 4.
6 c. Supt. Wm. J. Burns. 6

Traction St. Ry. Co. V. Pres. Thos. M. Bigelow. Market st. to Point Breeze, along Fifth ave. Philaparties interested. To cost from \$1,000,000 to \$2,000,000.

6 Pittsburg & East End R. R. Co. Capital, \$250,000.
Incorprato rs, Wm. L. Chalfort, John Bissel and others.

PLATTSMOUTH, NEB.

PLYMOUTH, MASS.—Plymouth & Kingston St. R.R. Co. 2½ m. 48½ g, rundecided, 6 to 10 c, 10 to 12 h, though electric motors will be used if the system is perfected in time. Capital stock, \$25,000. Joseph D. Thurber and others incorporators. Grant of location expires in the fall but could be renewed. 5

of location expires in the fall but could be renewed. 5
PORT CHESTER, N. Y.—Port Chester & Rye
Beach St. Ky. Co. 3 m, 48½ g, 30 lb r, 6c, 25 h.
Work will be commenced June 1, and the road will
be opened July 1. Pres. Chas. D. Haines, V.-Pres.
Andrew G. Haines, Sec. Frank H. Skeeie, Treas.
Geo. W. Stetson. Capital, \$40,000. a 3
PORTSMOUTH, VA.—Portsmouth St. Ry. Co.
Capital, \$15,000. Wm. H. Stewart is interested. 6
RALEIGH, N. C.—Jas. Graham, who is backed
by the Messrs. Pratt, the oil men, has obtained a
franchise, 4,

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. 12 m, 48½ g, 40 lb r, 30 c, electric motors. Now building. Pres. J. Thompson Brown, Sec. & Treas. John F. Barry of Boston. 6

ROANOKE, VA.—Roanoke St. Ry. Co. Chartered, with capital of \$10,000. Pres. Thos. Lewis, Sec. F. T. Brinkley.

ROCKMART, GA.-S. E. Smith is interested. ROME, N. Y.—Rome City St. Ry. Co. 5 m. filst-classtrack. To be built at once by Ifill & Dayton of New York.

SAN FRANCISCO, CAL.—Powell St. Ry. Co. 10 m, 3-6 g, 40 lb r. Pres. W. J. Adams, V. Pres. Thos. Magee, Treas. H. H. Lynch, Sec. G. H. Waggener. Capital stock, \$2,000,000. Work in progress, Cable traction. Office. 32 Merchants Exchange. 15 Telpherage Electric Ry. Co. has been incorporated by Julius Loatz, F. M. Speed, R. A. Wilson and others. 5

SANTA ROSA, CAL.—T. J. Glary, M. Doyle and A. B. Ware have formed co. with capital of \$25,000, work to begin within next two months, 6 SAVANNAH, GA.—Cars to be furnished by Pullman Palace Car Co. 3

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

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

SCHENECTADY, N. Y.—Schenectady St. Ry. Co. Jas. Graham, contractor. 5 c. already, and will have about 30 h. The Pratts (off men) own all the stock and half the bonds.

SCRANTON, PA.—The Nayaug Crosstown R.R. Co. Pres. G. Clark, V. Pres. H. C. Dowd, Sec. T. C. Snow, Treas. B. E. Leonard. Will build 5 m, and probably use electricity. Capital, \$50,000. 2

SELIMA, ALA.—Selma Land Imp'te Frunace Co. will build electric st. ry. Capital, \$3,000,000. R. M. Nelson, W. Ullman and V. T. Vaughan are among the incorporators.

4. SHEFFIELD, ALA.—Sheffield & Tuscumbla St. R. R. Co. 6 m, broad g, heavy steel r, 2 c at first, steam dummy. Will be opened very soon. Pres. F. D. McMillan, V. Pres. J. T. Hull, Sec. Ed. B. Alman, Treas. Jo. H. Nathan.

SHERMAN, TEX.—H. A. Burnett will build a road this year.

SIOUX CITY, IA.—E. W. McNeil, Manager Rasmussen cable, will build a road here, 2½ m. 3

SIOUX FALLS, DAK.—Sloux Falls St. R. R. Co. Company must have 2 m running by Nov. 1 and a mile each year for five years thereafter. Incorporators, L. F. Pettigrew, L. L. Dunning and S. L. Tate, Sloux Falls; Jas. Creighton, Chicago; Elnathan Sawtelle, Evansville, Wis. Capital, \$150,000.

STEUBENVILLE, O.—Halnes Bros propose building a new line here this spring.

ST. CLOI'D, MINN.—Co. incorporated, with capital of \$50,000. To run in St. Cloud, E. St. Cloud

ST. CLOID, MINN.—Co. Incorporated, with capital of \$50,000. To run in St. Cloud, E. St. Cloud and Sauk Rapids. Incorporators, C. P. McClure, A. G. Whitney, O. W. Baldwin, R. L. Gale, L. Troutman and F. Tolman.

ST. LODIIS, MO.—John Jackson, Julius S. Walsh, J. R. Helfenstein and others are interested in a new road on Grand avenue, to use horse, cable or electric power.

stric power. 6
Stafford, Kan.—1 m. to be in operation by
July 1. Cars have been ordered.
Stracust, N. Y.—Butternut St. Ry. Co. 2m.
To be built in the spring of 1887. 2
People's R. R. Co. Capital, \$300,000. 6 m, from
Wolf st. to So. Onondaga St. Among those interested are Frank D. H. Robinson, of Cleveland; Frank
J. Callanen; and Frank B. Klock, of Syracuse. 6
Tacking W. M. St. T. Allen C. Moson is there

TACOMA, WASH. T.—Allen C. Mason is interested. Will be pushed to an early completion. May use any power but steam, but the co. want this restriction removed, saying they will use a noiseless

use any power out steam, but the co. want this restriction removed, saying they will use a noiseless motor.

6 TAUNTON, MASS.—Scadding St. Ry. Co. Franchise granted. 4 m. To build through Cedar street from Main to Grant, thence through School, Purchase, Washington and Bay to Scadding's pond. Work begins at once.

4. TEXARKANA, ARK.—Texarkana St. Ry. Co. Pres. N. W. Bechtel, V. Pres. E. N. Maxwell, Sec. & Treas. Thos. Orr, Supt. B. M. Foreman. Contract awarded to Texas & St. Louis St. Ry. Construction Co. Dallas, Tex.

5 State Line Ry. Co. Capital, \$25,000. E. A. Warner, Samuel Lemby and others are incorporators.

6 TIFFIN, O.—Tiffin St. Ry. Co. has been incorporated. Capital, \$10,000. Perry M. Adams and others, incorporators.

7 TOPEKA, KAN.—Topeka Rapid Transit St. Ry. Co. 12 m, 4-8½ g, 40 lb r, 20 to 25 c, 12 to 15 noiseless steam motors. Work begun. Pres. John Francis, V. Pres. P. G. Noel, Sec. J. B. Bartholomew, Treas. Armin Fassler. Capital, \$25,000. Office, 189 Kansas avenue.

4. Sixth Ave. & Deer Creek St. Ry. Co. Incorporators, Guilford Dudley, B. F. Golden, W. D. Alexander and others. Steam, electricity or other motive power. To accommodate the east side and to be built at once.

Highland Park Circle Ry. Co. Incorporated, and first 3 m. will be completed by Dec. 1. Steel r. nar-

at once 5
Highland Park Circle Ry. Co. Incorporated, and first 3 m. will be completed by Dec. 1. Steel r, narrow g, dummy engine. Major Hudson is at the head of the enterprise. 5

of the enterprise. 5
TUSCALOOSA, ALA.—Tuscaloosa & Castle Hill
Real Estate & Mfg. Co. Dummy line to a lake in the
suburbs, Gen. Man. W. W. Hill. 5
UTICA, N. Y.—Oneida St. R. R. Co. Steef r, 3 c.
Road to be opened early in June. 6
WASHINGTON, KAN.—Co. organized. 5
WATERTOWN, DAK.—Chas. Joscelyne has re
ceived a franchise allowing him the use of any streets
he wisnes, and to use either horse, steam or electric
motors. At least 1 mile must be in operation by May
1,1888. 5

WICHITA, KAN.—Riverside and Suburban RyCo, Pres. J. O. Davidson, Sec. N. G. Lee. Capital
stock \$100,000. Work now in progress. 2
West End Motor Line Co. Capital, \$100,000. Wm.
P. Carey is one of the incorporators. 6
WILMINGTON, N. C.—Wilmington St. Ry. Co.
Incorporators include Lieut. Gov. Stedman, John D.
Beilamy, Jr., and J. C. Devine. Will build 5 m at
once, and have contracted with Sea Shore Construction Co. of New York for construction and entire
equipment. Capital, \$25,000. 4.
WOONSOCKET, R. I.—Contract let, and cars
will be running by July.
WYANDOTTE, KAN.—Brighton filli & Chelsea
Park Ry. Co. Capital, \$100,000. Incorporators, D.
M. Edgerton and Daniel D. Heag of Wyandotte,
Robt. Gillham of Kansas City, and others, 2 m,
dunmy road. 5
YANKTON, DAK.—Bids asked for the building
of 2 m, work to commence in 60 days. 6

Business Notices.

THE CAR TRACK FRICTION APPLIANCE Co., of Boston, Mass, have supplied 40 of their Reliable Sand Boxes to the Laclede Car Co., St. Louis, Mo., for the new grip cars which the latter company has been building for the Metropolitan Railroad of Kansas City, Mo.

SUPT. DUNCAN, of the Johnstown, (Pa.) Pass. Ry. Co., says of the Brill Equalizing Gear: "I have been using 10 sets of this gear fourteen or fifteen months without reciling. On examination 1 find only about one-third of first oiling used. They are still good for sixteen months with reoiling." Mr. Duncan is to equip his entire service of cars with this gear. The Messrs. Brill have received an order for 7 sets from the Perkiomen Railway, Reading, Pa., and the Reading City Pass. Ry. Co. are equipping all their cars with the Brill gear.

T. W. Hoopes, Esq., Duluth, Minn.

DEAR SIR:-Upon my arrival home I found your letter of April 21st on my desk in which you inquire in regard to sand boxes made by the Car Track Friction Appliance Co., of Boston. Replying there'o will say that we purchased for one car last fall in order to give them a trial, and they rroved excellent, just what is wanted for the purpose intended. They are simple, cheap and effective, and we have always found Mr. W. T. Butler, General Manager, a firstclass man to deal with.

Yours truly,

(Signed) H. E. TEACHOUT, Sec. Des Moines Broad Gauge St. Ry. Co. Des Moines, May 6, 1887.

Recent Patents.

ISSUED APRIL 26.

Car signal apparatus. No. 361,994. J. Stephenson, New York, N. Y.
Car starter. No. 361,753. Z. Floryanowicz, Warsaw, Russia.
Signaling apparatus for cars. No. 362,042. J.
Stephenson, New York, N. Y.
Horse collar. No. 361,881. A. Loher, Quincy, Ill.
Fare-boxes. No. 361,860. G. R. Brownrigg and J. Sutzin, Minneapolis, Minn.

ISSUED MAY 3.

Electrical railway. No. 362,323. S. H. Short and J. W. Nesmith, Denver, Col. Automatic switch for railways. No. 362,158. J. Hope, Jr., Providence, R. I. Balanced pulley for cable railways. No. 362,258. W. Dunham, Igo, Cal. Gripping device for cable railways. No. 362,567. W. Embley, Jerseyville, Iil.

ISSUED MAY 10.

Cable. No. 362,649. A. J. Moxham, Johnstown, Car brake. No. 362,773. J. A. Neichter, Orrville,

Car brake. No. 502,113.

O.
Cable car mechanism. No. 362,633. T. L. Johnson, Cleveland, O.
Street car motor. No. 362,795. J. P. Sparks, Austin, Tex.
Collar and neck strap. No. 362,549. S. T. Smith, Collambus, O.

ISSUED MAY 17.

Automatic brake. No. 363,251. C. T. Moore, Gillett,

Automatic Drake. No. 363,075. J. C. Lowry, Huntersville, W. Va.
Streer car heater. No. 362,928. J. L. Brink, Dubuque, Ia.
Railway track cleaner. No. 362,967. C. M. Ingersoll, Rutherford, N. J.
Detachable horseshoe. No. 363,225. C. V. Geschke, Bridgenort. Conn.

Bridgeport, Conn.

SPECIAL NOTICES.

Advertisements under the heading of Wants, For Sale, etc., are charged at the rate of ten cents per line, about eight words to a line. Street kallway Companies, or their Officers, may send advertisements to be billed and paid for after insertion.

WANTED—A live man to introduce among street railways the best system of heating street cars yet devised. Address A. W., care Street RAILWAY JOURNAL, 113 Liberty street, New York.

ROR SALE—The Ottumwa (Ia.,) Street Raiiway is offered for sale. This line is two miles long, running through the heart of the city. Streets on line, except four blocks, either paved or macadamized. New Union Passenger Depot for four Trunk Lines now being built midway on line. Ottumwa is a booming manufacturing and raifroad city of 14,000 inhabitants. Franchise runs 25 years yet. Address H. L. HEDRICK, Admr., Ottumwa, Iowa.

ANTED.—()ffers to supply, f. o. b.. good second-hand St. Railway Johnson and Trail, iron or steel (steel preferred), 20, 25 and 30 lbs to the yard, for one-haif to two miles track, and splices to match. Communicate best terms, describing fully surface width, height, weight, condition, etc. DEN ISON STREET RAILWAY Co., Denison, Texas.

ROR SALE.—Second-hand N. Y. Sweeper, in good working order. If sold at once, \$250. Address Brooklyn Railway Supply Co., 37, 39 & 44 Walworth St., Brooklyn, N. Y.

St., Brooklyn, N. Y.

FOR SALE CHEAP.—One fron 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 Bott Cutter (National), cuts to 1½", in very good order. One Single-Head Bott Cutter. One Double-Head, horizontal, bar-iron shear, cuts to 1½"'s 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 H. P. Nagle Engine, horizontal, with one 15 H. P. upright steel boiler, complete, used four weeks and good as new. Manager for the Star Tool Co., Lathes, etc.; Grant Corundum Wheel Co.; Dlamond Emery Wheel and Machine Co. Chicago Agent for the Acme Kerosene Engine, very good for light power, boats, etc. Send for circulars. W. H. Robertson, Machinery Dealer, 48 So. Canal st., Chicago, III.

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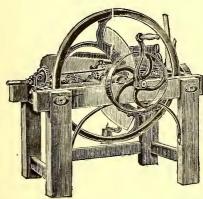
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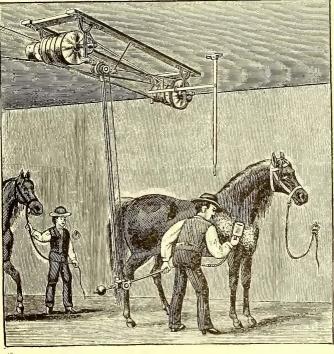
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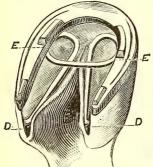


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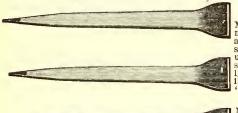
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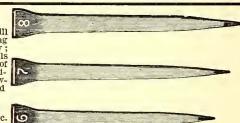
CHAMPION HORSE NAILS.

Manufactured from very best Swedish Metal. Will not split. Are accurately pointed, tough, strong and hold the shoes. Soft enough to clinch readily; stiff enough to drive without bending. All nails uniform and perfect. They are used in thousands of shops with the best of satisfaction, and are especially liked by "floor-men" for their good reliable driving. Made in two patterns, "Large Heads" and "CITY HEADS."

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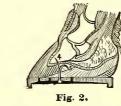


TO YOUR











Centennial Exhibition.

These drawings show how many horses are made lame and permanently injured by the use of the cold cut and sheared prointed Nails. This process of manufacture produces famination, causing the fron to form in layers, and when driven into the foot, the horny fibers of which the hoof is composed cause the nail to separate at the point, and one portion passes into the foot.

No. 4 represents one of these nails which was driven into the hoof and slivered in driving, one thin blade passing into the quick or sensitive sole; No. 5 the thick blade of the nail passed out of the wall of the hoof for clinching. After a few days the horse was returned lame, and upon the removal of the shoe, a nail similar to the above was broken off, leaving the sliver in the foot: lock-jaw ensued, from which the horse died. Upon dissecting the foot a portion of the nail was found to have penetrated through the coffin bone, as seen in Fig. 2, letter A, thus sacrificing the life of a valuable animal.

It requires but little observation and reflection, one would think, to arrive at the conclusion as to the kind of nails to be used in the horse's foot, whether a mangled piece of Iron rendered DANGEROUS by the Cold Rolling and Shearing process, or one made from the rod at a welding heat, where all the fibers remain intact and a perfect onexess 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 Purram 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 addage is true as ever. save a rew cents in process adage is true as ever, "NO FOOT, NO HORSE."

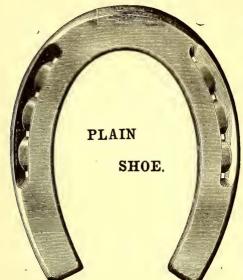
As the remedy lies with the owner of the horse, it is for him to prohibit any cold-rolled or sheared nails being used in his horse's feet.

The only Hot-Forged and Hammer-Pointed Horse-Shoe Nail in the World

that is not cut, clipped or sheared upon the point, and will not split in driving, is THE PUTNAM NAIL.

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Forged Solid Calk



HORSE AND MULE SHOE.

These shoes are forged into shape under heavy drop hammers, greatly condensing the iron and adding very much to wearing qualities, making it nearly equal to steel in durability.

The distinctive feature of our system of manufacture is, that it produces a *finished* shoe, calked, or plain, ready for attaching to the hoof.

The crease is made low and the nail holes are punched well in and beveled to permit the nailhead to be well driven in, reducing the strain on the nails and insuring a firmly fastened shoe.

The foot bearing of the shoe is level, thus materially aiding in the preservation of the hoof.

It is not ne essary to heat the shoe in order to fit it.

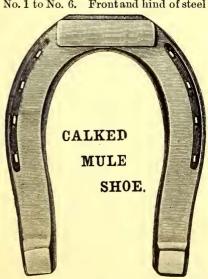
There are no welds in the shoe to break, the calks being solid forged up from the web. SOLID
CALK
HORSE
SHOE.

The shoes have a good substantial clip drawn up from metal driven outside the regular ontlines of the shoe for that purpose. The outer edge of the clip, when drawn up, coinciding with the outlines of the shoe, requires no robbing of the hoof wall to let in the clip.

Among the street railways using our shoes are, the Third Avenue R. R. Co., Eighth Avenue R. R. Co., Broadway & Seventh Avenue R. R. Co. of New York city; Bushwick R. R. Co. of Brooklyn; Philadelphia Traction Co., Citizen's Passenger R. R. Co. of Philadelphia; Metropolitan R. R. Co. of Washington, D. C.; North Chicago R. R. Co., Chicago City R. R. Co., West Division R. R. Co. of Chicago, Ill.; New Orleans City & Lake R. R. Co. of New Orleans, La.

We present illustrations of some of the many designs of shoes manufactured by us.

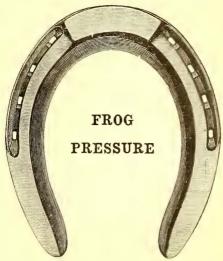
OUR CALKED SHOE. A good, strong, reliable shoe to have on hand. The calks will not come off. Always ready to nail on. A handy shoe for the Winter, easily sharpened, and, as the calks will not break, will give as much service as steel. Made in sizes No. 1 to No. 6. Front and hind of steel or iron.



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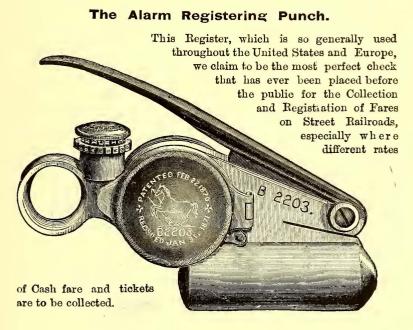


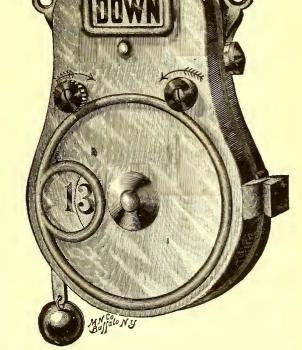
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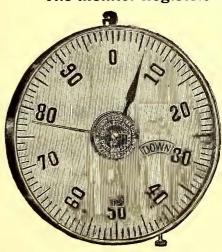
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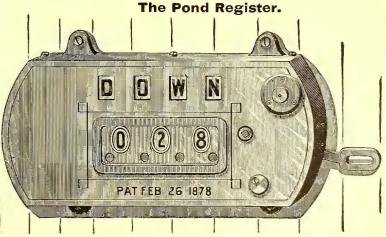




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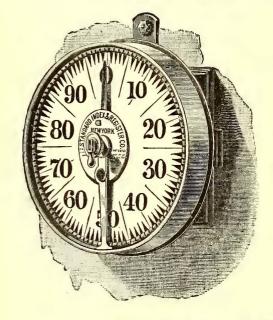
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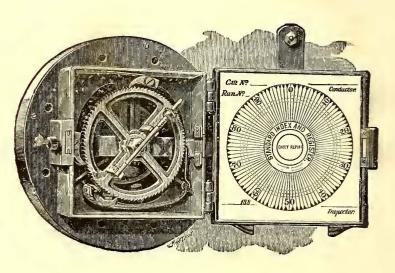
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IMPORTANT DECISION.

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The improvements in the Standard Index & Register which have been applied to those in use on various railroads of the United States during the past year, and which have met with so much favor, particularly the apparatus for setting the trip-hand to zero, have been the subject of another action by the Railway Register Manufacturing Co., who claimed that the last mentioned was an infringement of the Benton Patent of July 4, 1882, and thereupon moved in the United States Circuit Court for a decision accordingly. Arguments were heard by the court in this city, on the 9th March, resulting in a decree on the 12th March iu favor of the users of the Standard Index & Register.

We give below the decision of the court in full.

Yours respectfully,

Present:-

STANDARD INDEX & REGISTER CO.

The Hon. Hoyt H. Wheeler, Circuit Judge.

March, 1887.

UNITED STATES CIRCUIT COURT SOUTHERN DISTRICT OF NEW YORK.

RAILWAY REGISTER MANUFACTURING COMPANY IN EQUITY. BROADWAY & SEVENTH AVENUE RAILROAD COMPANY.

Broadway & Seventh Avenue Railroad Company. In Equity.

A permanent injunction has been granted in this cause against further infringement of the plaintiff's patent No. 260,526 dated July 4, 1882, and granted to John B. Benton for an improvement in fare registers. The patented invention is a combination which includes a tell-tale hand to indicate any failure to re-set the trip hand of the register at zero at the commencement of a trip. 26 Fed. Rep., 522. The tell-tale hand of the patent is moved with the trip hand in re-setting; and if they are re-set at zero moves with it in registering fares until they are again re-set. If they are not re-set at zero the tell-tale hand remains at the place at which they are re-set when the trip hand moves forward in registering fares, and indicates that registration was begun at a wrong place. The tell-tale hand of the infringement moves the trip hand forward in re-setting, and is left by it when registration begins, and as that is begun at any place other than zero it indicates that fact. Since the injunction the defendant has commenced using another re-setting device which the plaintiff claims is an equivalent of the tell-tale hand in the combination, and a colorable attempt to evade the injunction. The plaintiff has moved for an attachment on account of this use of that device. This device re-sets the trip hand by moving it forward, and has a stop by which it cannot move the trip hand beyond zero. If it is stopped short of zero and registration is begun it can be moved up to zero, when the trip hand has proceeded in registration to that point at any time and forward to it again without interfering with the trip hand in registration. It is therefore a stop on moving the trip hand beyond zero, but is not capable of being fixed where registration is begun away from the proper place so as to indicate that fact, or act as a tell-tale at all. Therefore it is not the equivalent of the tell-tale hand in the combination and its use is not a violation of the injunction. The motion i

HOYT H. WHEELER.

the affidavit of Edward E. Quimby, verified December 10th, 1886, presented on the part and behalf of the said plaintiff; and upon the affidavit of Chandler Hall, verified March 5th, 1887; the affidavit of William H. Kukuck, verified March 7th, 1887, and the affidavit of Arthur L. Baldwin, verified March 8th, 1887; and upon the exhibits produced in court; the opinion of the court on final hearing in this case, and the interlocutory decree heretofore filed herein, presented, read, and referred to, on the part and behalf of the defendants herein, and after hearing the

THE RAILWAY REGISTER MANUFACTURING COMPANY, vs.

This cause coming on to be heard upon the motion of the plaintiff, the Railway Register Manufacturing Co., for an attachment for contempt based upon the proceedings already had, and upon the injunction issued herein, and upon

BROADWAY & SEVENTH AVENUE RAILROAD COMPANY, et. al. ftempt.

At a regular term of the Circuit Court of the United States, held in the court rooms of said court in the city of New York, in the Second

Circuit, in the Southern District of New York, on the 9th day of

arguments of counsel for the respective parties hereto; and after due consideration thereof, on the motion of John Dane, Jr., Solicitor for the defendants, it is ORDERED, that the said motion for an attachment be, and the same hereby is, denicd.

A true copy. (Seal of the Court.) HOYT H. WHEELER.

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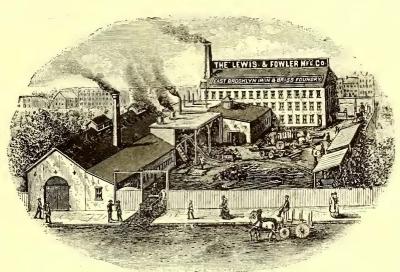
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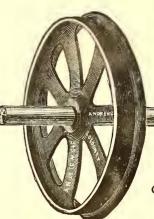
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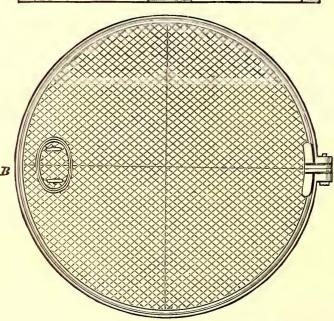
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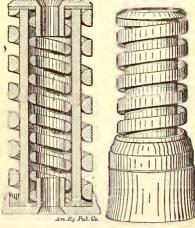
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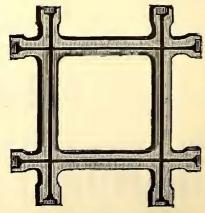
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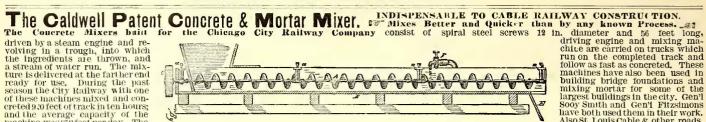
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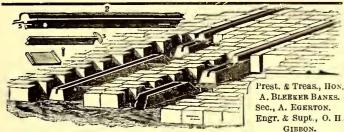
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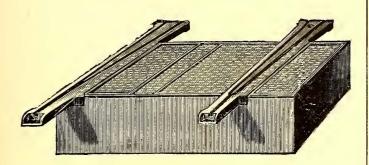
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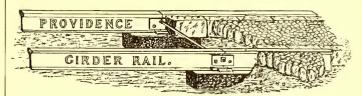


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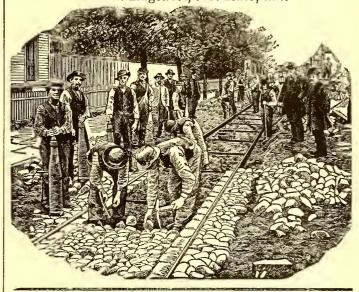


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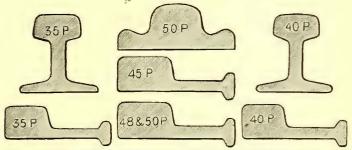
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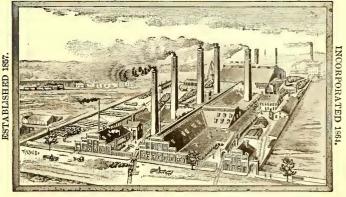


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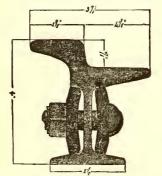
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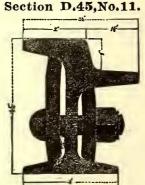
Section C. 38, No. 111.



Patented February 20, 1883. Section E. 76, No. 117.

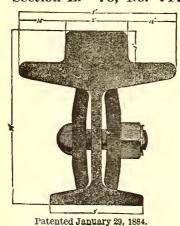
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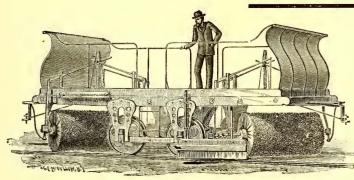
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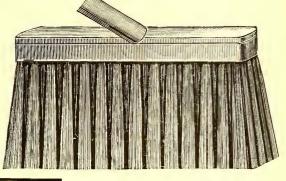
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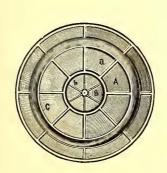
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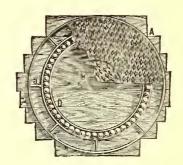
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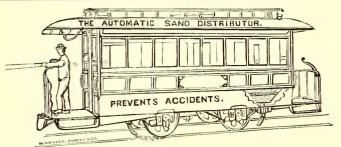
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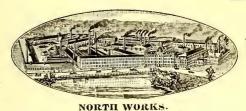
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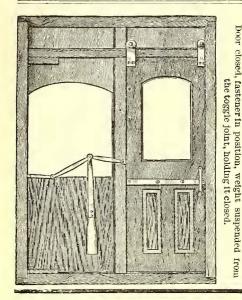
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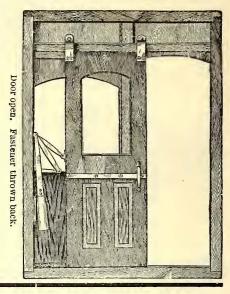
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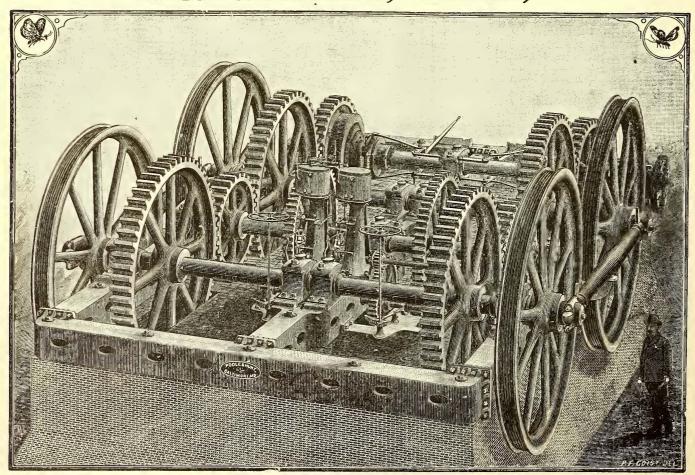
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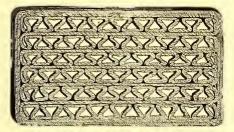
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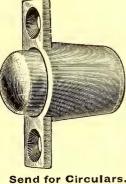
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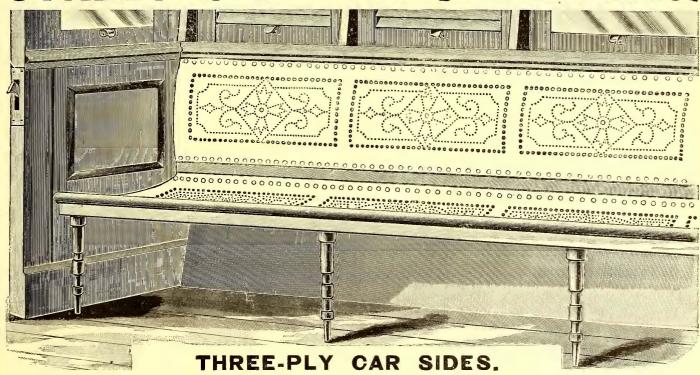
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13 Park Row, New York.

MANUFACTURERS OF AND DEALERS IN

STREET RAILWAY SUPPLIES.

BRILL'S PATENT DUST AND OIL-TIGHT EQUALIZING GEAR.

This improved running gear needs oiling but twice a year, and the brasses will wear upwards of six years. No waste is required in the box, and the triction is reduced upwards of fifteen per cent. In ordinary running gears, oiling is necessary once or twice a week. Brasses wear out in less than one year, and the boxes require frequent re-stuffing with waste. This is the most comfortable, easy running and lasting gear in the market. It can be had to fit any ordinary pedestals.

Brake shoes, (improved pattern) sold by the pound.

BRILL'S PATENT RATCHET BRAKE HANDLE,

Made of Bronze and of Malleable Iron. The ratchet enables the driver to adjust the handle to any position, where he can obtain increased leverage and power. This Brake Handle will prove an economical attachment to any car, and can be attached to any shaft.

BRILL'S PATENT CHANGEABLE SIGNAL LIGHT.

An arrangement for altering the Signal Lights of a car, by which different routes can be designated. The center or stationary lens, or "bull's-eye" is white, and the two changeable lights may be had of any desired color. These lights are used to advantage in connection with the Reversible Signs, described below, and can be easily attached to any car.

BRILL'S PATENT REVERSIBLE SIGNS FOR CARS.

This is a Wooden Sign, placed on the sides or end of the cars, on the edge of the roof, and is used to designate certain streets or routes through which the car passes. Also to designate terminal points. The castings are sold complete, and it is an easy matter to fit in the board sign. When in place, a simple upward push will turn the sign and expose the reverse side. Done in an instant. Send for sample set of castings.

MARTIN'S IMPROVED CHANGE BELT.

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

Card Signs and Change Envelopes.

Conductors' Badges. Numbers, etc.

WHISTLES.

Car Trimmings, Brake Shoes, Fare Boxes.

Wood Mattings, Rubber Mattings and Treads.

Registers, Indicators and Punches.

WESTERN

AGENCY

Wichita Construction and Supply Co., - - Wichita, Kan.

WATKEYS'

ADJUSTABLE CLUTCH AXLE.

- 1. Sayes thirty per cent in the wear of wheels and rails.
- 2. Does away with the severe racking and straining of cars.
- 3. Reduces the cutting of the ends of journals to a minimum.
- 4. Enables horses to do twenty-five per cent more work, by sparing them the hard pull in rounding curves.
- 5. Adds greatly to the comfort of passengers, wholly avoiding the shaking up and jolting now unavoidable, and silencing the unpleasant grating noise incident to turning corners.

Satisfaction Guaranteed

AT A COST SLICHTLY ABOVE ORDINARY WHEELS AND AXLES.

We use only the best car wheels, cold rolled steel axles of the finest quality, and our work is second to none in the country.

Our axle is now in use on the Jersey City and Bergen Railroad, and in Syracuse, N.Y. We refer to the officers of these lines to substantiate the above claims.

Now negotiating with other leading roads.

MANUFACTURED BY-

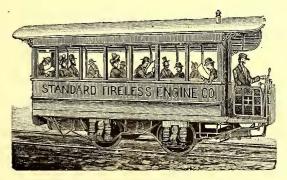
THE EMPIRE AXLE MANUFACTURING COMPANY,

GEORGE B. HIBBARD, President,

32 Nassau Street, New York City.

The Standard Fireless Engine Co.

P. O. Box 1914, New Orleans, La.



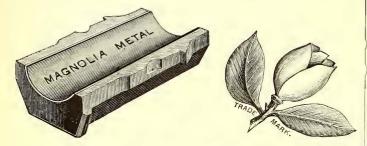
Use of Expansive Power of Condensed Ammonia as a Motive Power.

Machinery Simple in Construction, Effective, Economical in Action.

Thoroughly Tested and Practical Value Fully

Demonstrated.

Magnolia Anti-Friction Metal.



TESTIMONIAL

L. Pfingst, Master Car Builder, Third Avenue Surface Road, New York, Jan. 21, 1887.

CHARLES B. MILLER, Proprietor of Magnolia Anti Friction Metal, New York City. SIR-I have taken out the metal given me by you, placed it under Car No. 85 on our road. I find yours as sound as when put in, and the others entirely gone. This is the invention of Samuel Singley. You can call and see the journal bear-I am, yours truly, L. PFINGST,

Formerly with Pullman Car Works.

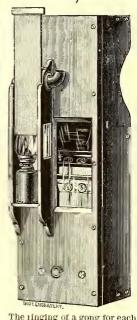
New York Depository, E. S. GREELEY & CO., F. JORDAN, 200 Broadway, State Agent, outside city.

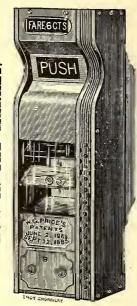
CHARLES B. MILLER, Manufacturer,

541 West 32d Street, New York.

Horace A. Keefer & Co.,

St., Cable & Motor Road Track, Material & Equipment a Specialty.





The linging of a gong for each fare, checks the passenger as well as driver, and hence conductors' bell punch is unnecessary.

SEND FOR PRICES AND CIRCULARS BEFORE BUYING.

Hamilton-Corliss Engine.
The A. French Spring Co., Ltd. Fulton Foundry Co.
Rails, Splices, Spikes, Bolts & Nuts of all Kinds.

PECKHAM'S Patent Elastic Street Car Wheel,

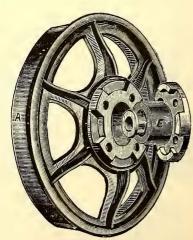
WITH INTERCHANGEABLE WEB, TUBULAR FIBROUS CUSHION AND

INDESTRUCTIBLE CLUTCH JAW HUB

The only Cushioned St. Car Wheel. The only Interchangeable

Street Car Wheel.

No Crystalization of Wheels or Axles. Noise and Jolting of Cars Prevented.



No Special Machinery or Skilled Labor Required for Renewals. Price Lists, Descriptive Circulars and Blue Prints furnished upon application,

All Parts Interchangeable and Warranted.

The Peckham Cai Company,

SYRACUSE,



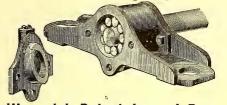
o. w. meysenburg & co., Street Ry. Track Material.

204 No. Third St., St. Louis. 185 Dearborn St., Chicago.

Street Railway Supply Company,

Higley Car Journal Company, Cleveland, O.,

MANUFACTURERS AND DEALERS IN

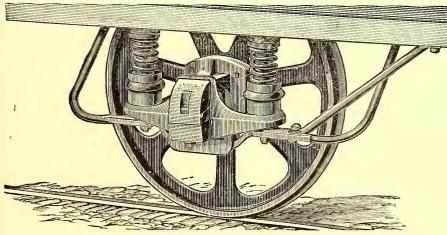


Street Railway Supplies

OF EVERY DESCRIPTION.

Worswick Patent Journal Box. GEAR SUPPLIES A SPECIALTY.

THE BEMIS CAR BOX COMPANY



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 in-

specting but once in 12 months. Boxes are positively dust proof.

We Refer to the

Boston Consolidated St. Ry. South Boston R. R. Cambridge, Mass., R.R. Lynn & Boston R. R. Union R. R., Providence, R. I. Globe St. Ry., Fall River, Mass. Citizens' St. Ry., Worcester. Brooklyn Cross Town R. R. Second Ave. R. R., New York. Forty-second St. & Grand St. Ferry Ry., New York. Rochester City & Brighton Ry. Buffalo St. R. R. Co. Citizens' Pass. Ry., Pittsburg. Pittsburg & Birmingham Pass. Ry., P'burg. Columbus Consolidated St. Ry. Detroit City Ry. Louisville, City Ry. Denver City Ry. Milwaukee City Ry. Cream City Ry., Milwaukee. Minneapolis St. Ry. St. Paul City Ry. Galveston City Ry. North Baltimore Pass. Ry. Chicago Pass. Ry. Co. and others. SEND FOR CATALOGUE TO

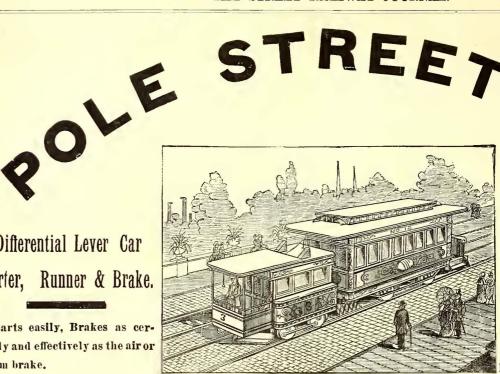
THE BEMIS CAR BOX COMPANY.

SPRINGFIELD, MASS., or 18 & 20 Platt St., NEW YORK.

REET

Differential Lever Car Starter, Runner & Brake.

Starts easily, Brakes as certainly and effectively as the air or Steam brake.





Standard No. 3 Motor Is operated by a

Specially Designed Low Pressure Condensing Engine

of great power in small space and having no escapes on the street.

MOTOR SYSTEM

The system can be operated by compressed air and is so recommended where good all-the-yearround water power can be secured to compress the air. Can be operated by storage battery, electricity or soda, ammonia, and other motive powers.

Warranted to climb hills, start on hills, and when the track is so slippery that the driving wheels will slip round under the motor, we still guarantee the motors starting by a system of ground levers.

WE ARE FULLY SECURED BY PATENTS.

We claim the only motor system capable of starting and going when the tracks are slippery, excepting only the cable motor. Ours is a cheaper outfit.

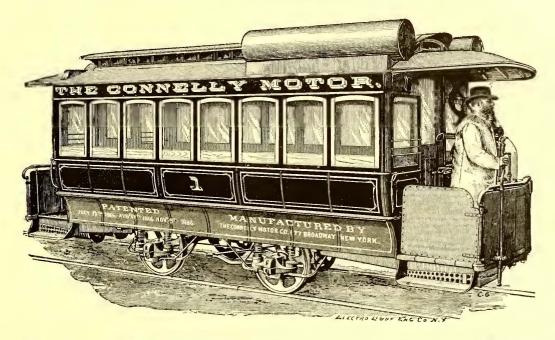
Correspondence solicited.

Pole Street Car Motor System,

310 Chestnut Street, Philadelphia, Pa.

THE CONNELLY MOTOR.

PATENTED.



No Fire! No Smoke! No Dust! No Ashes! No Fireman! No Engineer!

Complete within Itself! Generates its own Power! Perfectly Independent! Can run on any Track!

No Cables, "grips" or expensive conduits.

No "Central Station" for generating power.

No loss of power in transmission,

No dangerous Electric currents.

No tearing up of streets for repairs.

No suspension of traffic for repairs.

It excels all other motors in ECONOMY and CONTROLLABILITY, and stands alone in its INDIVIDUALITY.

It carries a supply of fuel for a day's run, and consumes but ONE GALLON OF NAPHTHA PER HOUR.

The daily expense of operating a road with these motors IS IN EXACT PROPORTION TO THE NUMBER OF MOTORS IN USE, which cannot be said of any Cable or Electric system.

The cost of equipping a road with them is about ONE-HALF the cost of any Electric system, and less than ONE-FOURTH the cost of any Cable system.

The cost of operating, including Fuel, Lubrication, Care, Repairs and Royalties, will not exceed \$2.00 per day, being about HALF the cost by Cable or Electricity.

Any road can adopt these motors without making any change in their system, without interruption to their business, and without risking any investment in special plant, as a few motors can be put into use along with the Horse-cars, and the number gradually increased.

All companies desiring to abandon the use of horses should examine fully into the merits and peculiar advantages of our system, before making any contracts, as it is the only system that can be applied with equal economy on both large and small roads.

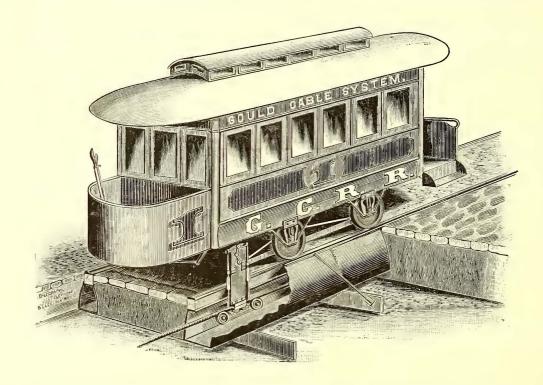
All parties interested in street or suburban roads are requested to correspond with us.

THE CONNELLY MOTOR CO., 177 BROADWAY, NEW YORK CITY.

THE GOULD DOUBLE CONDUIT.

A CONDUIT FOR THE CABLE AND AN EXTRA CONDUIT FOR TELEGRAPH,
TELEPHONE AND ELECTRIC WIRES, ETC.

Constant Tearing up of the Street Avoided.



The Conduit for the Cable is placed at the side, doing away with the Central Conduit entirely.

A Conduit on the other side is supplied for Electric and Telegraph Wires, Gas, Steam, Etc.

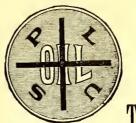
The Rails are Tied Together at the Surface.

The Slot which admits the Grip is placed outside the rails. The construction of the Grip is the simplest known.

THE INVENTOR WILL MAKE FAVORABLE TERMS WITH PARTIES WISHING
TO PUT THIS SYSTEM IN OPERATION, OR TO FORM COMPANIES
IN THE DIFFERENT STATES OR CITIES.

Address all communications to

J. H. GOULD, Ninth and Market Streets, Philadelphia, Pa.



DUX LUBRICANT.

Trade Mark Pat. Mar. 13, 1883. 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. JOHN HOOD, Supt., etc.

OFFICE OF ACUSHNET STREET RAILWAY Co., NEW BEDFORD, MASS., Dec. 11, 1886.

OFFICE OF ACUSUMET STREET RAILWAL CO., A.B.

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. Harry W. Yours truly, HARRY W. HITT, Supt.

FAULENER MILLS.-F. J. HASTINGS & Co., MILLERS.

FAULENER MILLS.—F. V. A.

So. Acton, Mass., Dec. 23, 1880.

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.

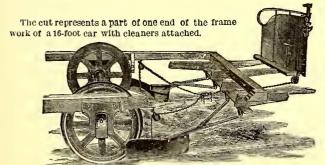
Yours truly,

F. J. Hastings & Co.

MANUFACTURED BY

The Leib Lubricating Co., 196 & 198 Chicago St., Buffalo, N.Y.

DAY'S IMPROVED STREET RAILWAY TRACK CLEANERS.

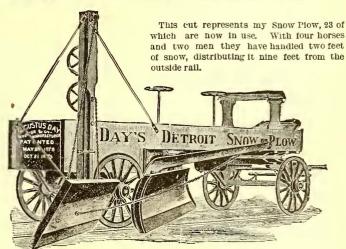


These Track Cleaners need no extended statement of their great superiority over all others invented. The fact of over three thousand pairs being now in use is sufficient evidence of their necessity and utility. Are adaptable to all kinds of rails and styles of cars. Clean Snow, i.e., Mud and Stones from the rail. The driver can raise or lower them instantly with one hand. To secure the largest benefit they should be attached to every car.

No estimate can be made of their advantage in saving of horsefiesh hand labor, salt, and the making of time in stormy weather. Since their introduction new and valuable improvements have been made in their construction, mode of attachment, and convenience of handling. They are finished in a thorough, workmanlike manner of the best material obtainable, the design being to manufacture the most efficient article in preference to other considerations. Price includes right of use and is less than heretofore.

Reference is made to a few of the roads using these Cleaners.

Detroit City Ry, Detroit, Mich. 154 Pair Chicago City Ry, Chicago, Ill. 400 "Rochester City & Brighton R. R. Rochester, N. Y. 100 "Albany Ky, Albany, N. Y. 75 "Lynn & Boston R. R. Boston, Mass. 68 "Grand Rapids Street Ry. 48 "Naumkeig Street Ry. 48 "Naumkeig Street Ry. 51 Salem, Mass. 64 "Grand Rapids Street Ry. 52 Salem, Mass. 64 "Grand Rapids Street Ry. 53 Salem, Mass. 64 "Grand Rapids Street Ry. 54 Salem, Mass. 64 "Grand Rapids Street Ry. 55 Salem, Mass. 64 "Grand Rapids Street Ry. 56 Salem, Mass. 64 "Grand Rapids Street Ry. 56 Salem, Mass. 65 "Buffale Port Horse Ry. Bidgeport, Conn. 40 "Cream City Ry, Milwaukee, Wis. 40 "Milwaukee City Ry, Milwaukee, Wis. 50 "Buffale Street Ry., Buffale, N. Y. 32 "



It is adapted to single or double track roads, adjustable where necessary; built in the most thorough and substantial manner of the best materelal. The Plow is not intended to supply the place of the small Track Cleanrs, but be auxiliary to them. For execution in deep snow, ease, 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 City & Brighton R.R., Rochester, N. Y. (Two plows.) Cream City Ry., Milwaukee, Wis. West Side Street Ry., Milwaukee, Wis. Chicago City Ry., Chicago, Ill. (Three plows.) Grand Rapids Street Ry., Grand Rapids, Mich. Highland St. Ry., Boston, Mass. Buffalo St., Ry., Buffalo, N. Y. (Two plows.) Johnstown Pass. Ry., Johnstown, Pa. Minneapolis St. Ry., Minneapolis, Minn. (Two plows.) St. Paul St. Ry., St. Paul, Minn. (Two plows.) Kalamazo ost. Ry., Kalamazoo, Mich. Worcester St. Ry., Worcester, Mass. South Bend Ry., South Bend, Ind. Milwaukee City Ry., Milwaukee, Wis,

For Further Information and Price, Address:

AUGUSTUS DAY, 76 State Street, cor. Park Place,

Detroit, Michigan, U. S. A.

EDWARD C. WHITE, Brass & Bronze Works,

531 West 33rd St., New York.

Superior Quality Journal Bearings; Car, Loco-motive and Machine Castings; Railway Hardware & Supplies.

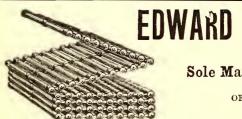
Clute's Patent Double



GEORGE M. CLUTE, Sole Manufacturer;

Also Dealer in Car Reflectors, Chimneys, Burners, Etc.

WEST TROY, N. Y.



Sole Manufacturer

OF THE

Eureka Folding M

The Most Durable, Easiest Cleaned and Repaired Wood Mat ever made.

I would respectfully call the attention of Managers of Street Railways to my latest improved Reversible Folding Mat, made to fit any size car. Sample order solicited.

1193 Broadway, New York.

FACTORY-CRANFORD, N. J.

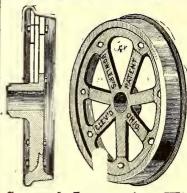
The "BROADWELL CAR STARTER."

having been subjected to practical tests, is now placed on the market at a very low price.

C. B. BROADWELL,

169 Laurel Street,

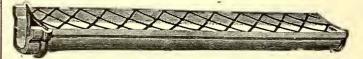
New Orleans, La.



Cleveland Foundry,

Manufacturers of

Car and Locomotive Wheels either Chilled or Steel Tired; with or without axles. Street Railway Wheels, Turnouts and Turntables. Patent Chilled Face RR. Frogs. Engine & Heavy Castings a Specialty.

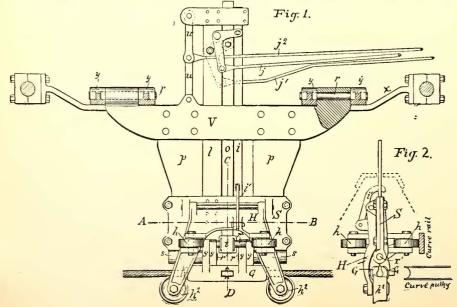


Graded Stable Gutter with Straight or Curved Cover

Descent % inch per foot. Pieces 5 feet lengths; short pieces furnished to suit any length. Spouts to connect with sewer.

They control and make N. P. Bowler's Patent Street Railroad Wheel. The tire of this wheel is cast separately from the hub and spokes; the latter is made of soft strong iron, and is perfectly free from strain—therefore can be made much lighter and more durable. The tires and the spokes or center of the wheel are made perfectly interchangeable so that when the tire or rim is worn out another can be put in its place by any employee with no other tool than a common wrench.

Bowler & Co. Winter St. Cleveland, O.



Simple, Durable, Efficient.

Cable may be dropped and picked up without leaving the platform. The whole under the constant control of the gripman.

Most efficient device in existence for releasing and gripping cable in crossing other roads.

Can be worked from either end of the car.

Mechanism Simple and not Liable to get out of order.

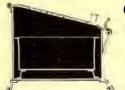
The rope may be dropped at any time to a lower level than the path of the gripping device and again raised into the gripping jaws at the will of the gripman with perfect ease and safety.

2313 RIDGE AVE., PHILADELPHIA, PA.

CAR HEATING

 $\mathbf{B}\mathbf{Y}$

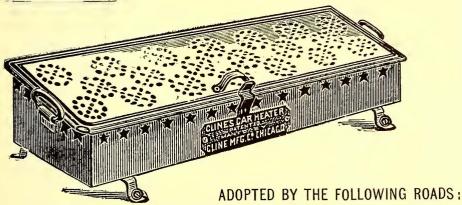
Aromatic Carbonic Compound Fuel,

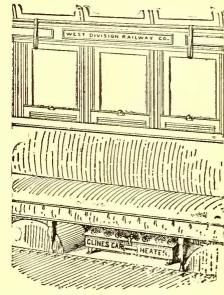


Cheap. Convenient. Safe.

Once Filling lasts 18 hours.

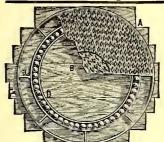
NO CUTTING OF CAR TO PUT IN.





CHICAGO WEST DIVISION; WAY CO.; PEOPLE'S PASSENGER, Philadelphia; PITTSBURG & BIRMINGHAM AND OTHERS.

Cline Mfg. Co., 42 & 44 West Monroe St., Chicago, Ill.

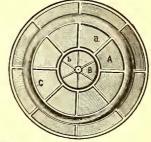


S. M. CARPENTER, Prop.

C. J. LANGDON, Secy.

FULTON FOUNDRY,

MANUFACTURERS OF



STREET RAILWAY SUPPLIES,

Carpenter's Patent Turn-tables and Transfer-tables,

Open Wheels of all sizes and weights. Wheels and Axles of all sizes fitted on short notice.

Chilled curve rail, Turnouts, Switches, etc., etc. Blue prints and Bills Furnished on Application. Send for Illustrated Catalogue. Address,



FOUNDRY,

202 MERWIN ST.

CLEVELAND, OHIO.

"PAY HERE."

Fare Boxes and Change Receptacles

R STREET CARS.

OUR NEW FARE BOX NO. 3

Is pronounced by the many Street Car Companies using it to be the best.

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

Simplicity of Construction, Ouickness and Convenience of Cleaning, Security of Money Drawer, Beauty of Finish and Much Cheaper in Price.



CHANGE RECEPTACLE.

Descriptive and Illustrated Circular on application.

Examine the merits of this box and get our prices before buying.

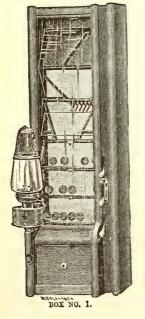


Back or Driver's

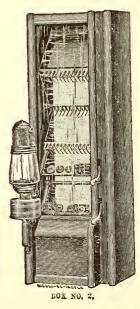
The only satisfactory arrangement in use for making change with the driver.

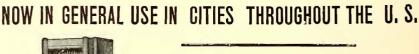
ES MANUF. CO., 76 & 78 E. Water St., Syracuse, N.Y.

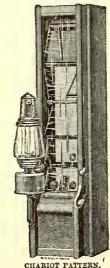
TOM L. JOHNSON'S IMPROVED FARE BOX.



Front or Passengers'





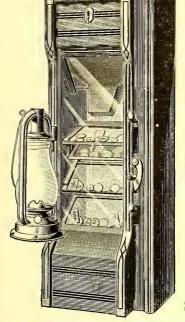


FARES CANNOT BE EXTRACTED OR BOXES ROBBED WITHOUT VIOLENCE.

SPECIAL SIZES BUILT TO ORDER.

ROADS EQUIPPED WITH BOXES ON TRIAL, AND IF NOT SATISFACTORY, RETURNED WITHOUT ANY EXPENSE TO THE COMPANY TRYING THEM. Patented Oct. 14, 1873.

Write for Descriptive Circular and Price List. Address all correspondence to A. A. ANDERSON, INDIANAPOLIS, IND.



THE BEAMAN FARE BOX.

MANUFACTURED UNDER TWO PATENTS OF FEB. 15th, 1887.

Absolutely Secure, Whether Fastened to the Car, or Not.

No Fares can Possibly be Turned Out or Abstracted by any Known Means.

EVERY CONVENIENCE PROVIDED FOR THE INSPECTION OF FARES.

Easily Cleaned, Simple and Durable in Construction.

The Smallest Detail has been Carefully Designed.

Its many New and Important Features, it is Conceded, place It Beyond Competitors.

For Full Particulars, Address,

BEAMAN, Knoxville, Tenn.

SLAWSON'S PATENT FARE BOXES

These Boxes are of the latest and most approved pattern, and contain a front door, by opening which 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-

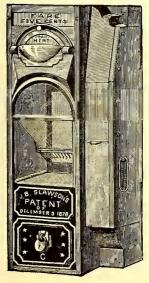


Change Slide. Outside View.

CHANGE

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

These Boxes, etc., are now in use not only in the United States and Canada, but in Mexico, South America, Europe, Asia, Africa and Australia—in fact, nearly all places where street cars are used.

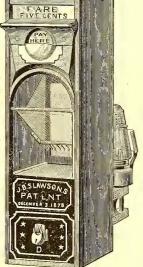


C. Front View.

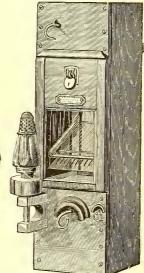


Change Gate. Outside View.

The prices have been greatly reduced, and are made to fit the times. Orders will be promptly filled by addressing,



D Front View.



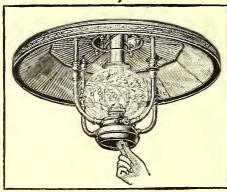
D Rear Vlew.

MILTON I. MASSON, Agent, 365 AVENUE A, NEW YORK.

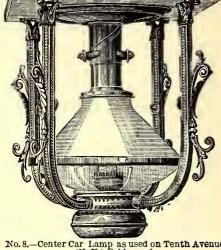
JOSEPHINE D. SMITH, Successor to the late WILLARD H. SMITH,



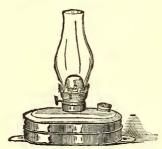
No. 10.--Two-light C ar Lamp as used on Tenth Avenue (N.Y.) Cable road.



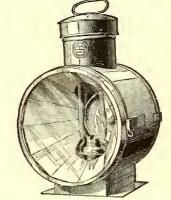
No. 14.—Center Car Lamp.



No. 8.—Center Car Lamp as used on Tenth Avenue (N. Y.) Cable road.



No. 3 .- Box Lamp with drip cup.



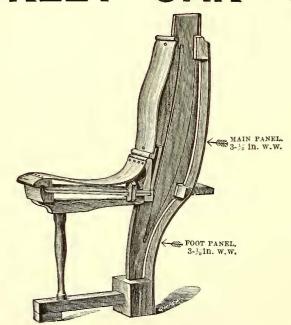
Small Head Light for Grip Cars and Stages.



All kinds of trimmings pertaining to car lamps. No. 1.—Center Car Lamp in general use throughout the United States and Canada.

MANUFACTURER OF W. H. SMITH'S PATENT RAILROAD CENTER LAMPS AND REFLECTORS.

STREET CAR SEATS & BACKS.



THREE-PLY CAR SIDES.

Having given our three ply white wood car sides a thorough trial for a number of years in our city street and railway lines, which test has left them as firm and good as the day they were put in, we unhestatingly 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 cars these sides have no equal.

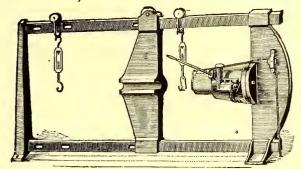
Our Three Ply Car Seats and Backs, so well known all over the world, are now the most popular seat and back in the market, and recommend themselves especially for their Lightness, Cleanliness, Heathfulness and Beauty, as also their Cheapness and Durability. For they are indestructible by moths (the great enemy of upholstering), and will not harbor vermin or insects, or carry or communicate contagion or disease. Our trade in this line has grown in thirteen years to vast proportions, which in itself is a sufficient guarantee of their merits. They are made either perforated or plain to suit customers. Birch is the wood most generally used. Today fully one-half the railroads in the country are using these seats and backs. We would also call attention to our Veneer Ceiling for cars. They are made either plain, perforated or decorated, and greatly add to the beauty of the car. For repairing cars they have no equal; for they are placed over the carlines and cover all the old paint and wood work. The woods generally used are Birch, Birdseye Maple, Oak and Mahogany.

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.

HAND POWER, LEVER AND HYDRAULIC PRESSES



See page 197, July, 1885.

Screw and Hydraulic Jacks.

Watson & Stillman.
204 to 210 East 43d Street. N. Y.

ESTABLISHED 1847.

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CAR WHEEL WORKS,

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CAST CHILLED WHEELS,

AXLES AND BOXES

FOR EVERY KIND OF SERVICE.

Street Railway Wheels of all Sizes.

ROBERTS' PATENT WOVEN-WIRE

Gar Seats and Backs.

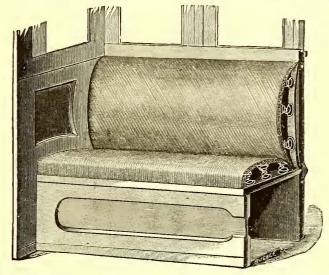
Especially adapted to Street Car use.

Cleanly, Durable, Economical, Cool, Comfortable.

Cannot be Cut, Injured or Defaced.

Being entirely of Metal will last indefinitely.

Can be covered in Rattan, Carpet, Leather or other material, with less labor in covering and less expense in material than any seat in the market,



Send for Catalogue with illustrations. Prices and estimates cheerfully given on application to

THE HARTFORD WOVEN-WIRE MATTRESS CO.,

Baldwin Locomotive Works

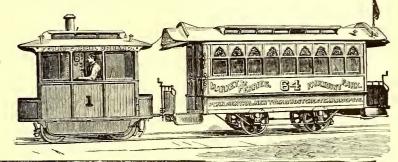
Burnham, Parry, Williams & Co.,
PROPRIETORS,

PHILADELPHIA, PA.

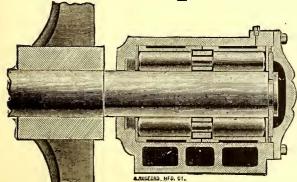
Locomotives for every variety of service.

Noiseless Motors and Steam Cars for City and Suburban Railways.

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LIGHT DRAFT EASY RIDING DURABLE POSITIVELY DUST PROOF AND OIL TIGHT

Boxes Hold Sufficient Oil for One Year. No Waste Used for Packing nor Babbitting for Boxes.

Overcomes Friction in Taking a Curve.

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NO. 827 SHAWMUT AVE., BOSTON, August 19, 1886.
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. Ricc," for the past four years and it has proved very acceptable, so
much so that we have decided to put on 50 sets of your improved patiern. The wear on the
journal is imperceptible, and it is beyond question the easiest running gear in the market.
Respectfully, J. E. Rugg, Sup't.

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RICHARD VOSE,

13 Barclay Street,

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PATENTEE AND MANUFACTURER OF

Graduated Street Car Springs.

RUBBER CONE.

Patented, April 15th, 1879.

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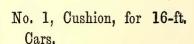
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No. 2, for 12-ft. Cars.

No. 3, for 14-ft. Cars.

No. 4, for 16-ft. Cars.

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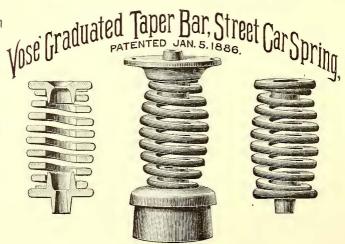
No. 2, Cushion, for 12 and 14-ft. Cars.







Adapted to all Pedestal Dest Gears.



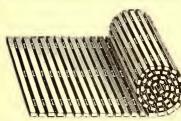
Motion Soft and Slow.

It has no Rapid Vibrations.

This Spring is weakest on the ends, and strongest in the center. The bar is coiled on a mandril of equal diameter throughout. Thus where the greatest strength is needed the greatest amount of metal is found. The load first compresses the ends of the coils, and as the load is increased the center of the spring is brought into requisition.

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Price, a running foot, 3 feet wide, only 70c. Orders respectfully solicited.



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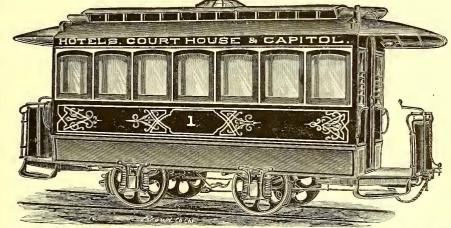
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Manufacturers of all kinds of

MACHINERY RUN BY WATER POWER.

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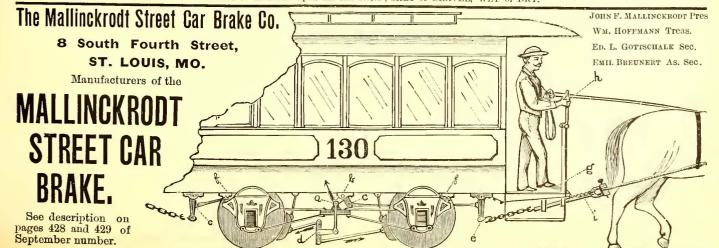
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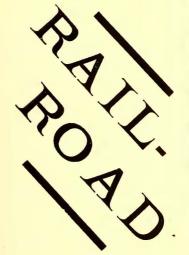
ACENTS,

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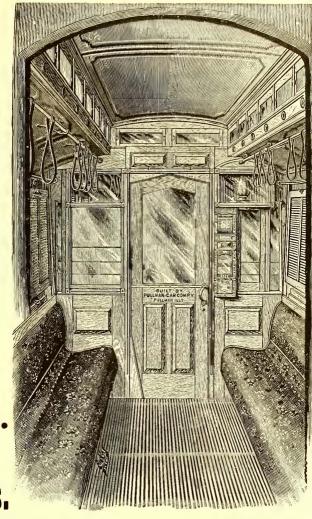
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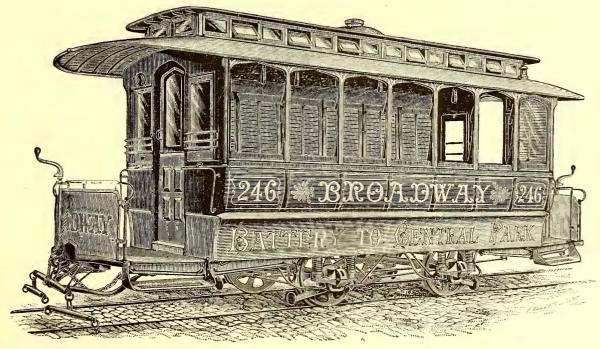
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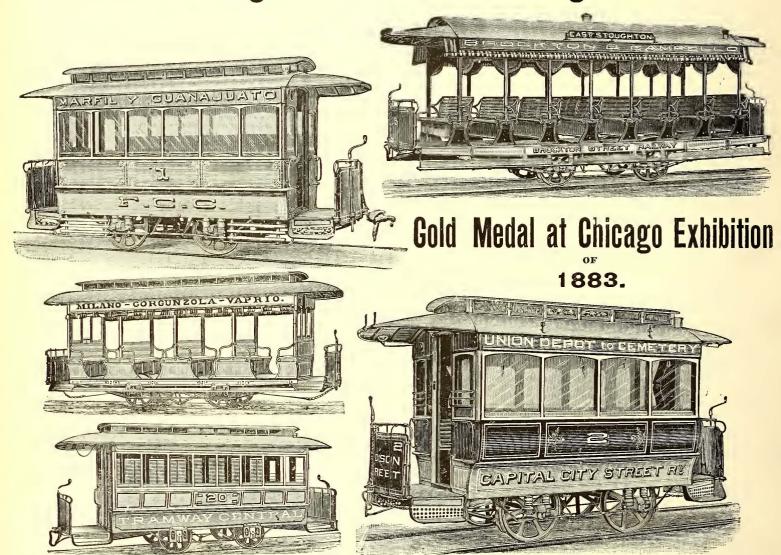
Address all correspondence

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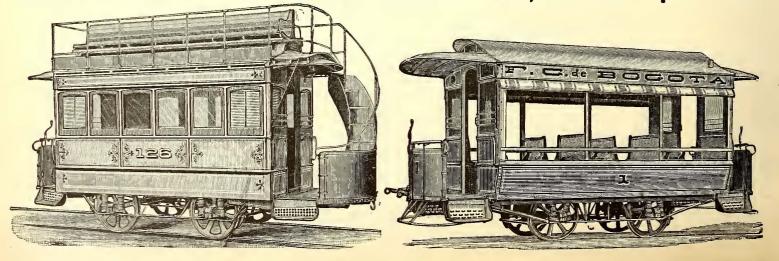
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Railway and Tramway Cars



Gold Medal at New Orleans Exhibition of 1885, for Best Open Cars.

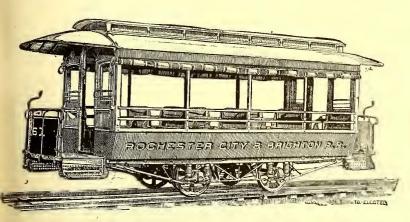


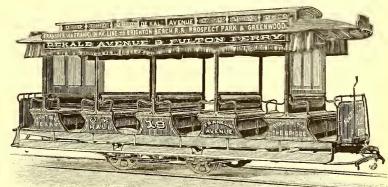
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PHILADELPHIA,

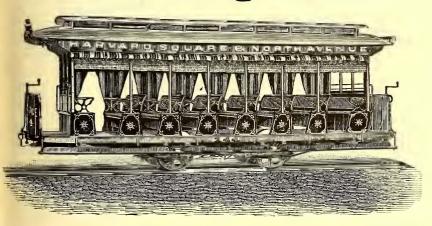
BUILDERS OF

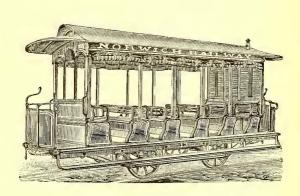
RAILWAY& TRAMWAY CARS



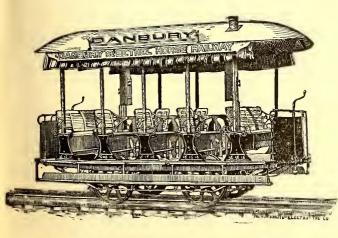


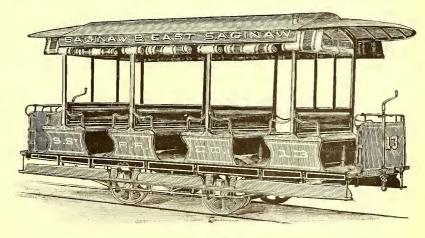
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Construction Cars, Cane Cars, Power Hand Cars, Small Merchandise Cars.

