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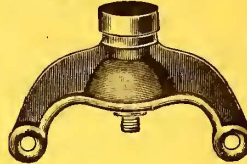
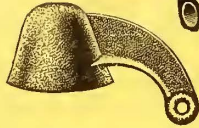
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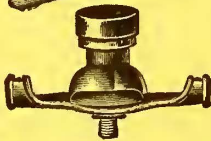
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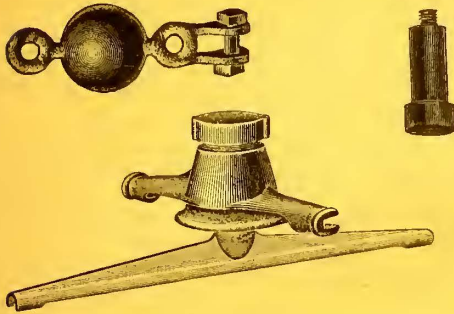
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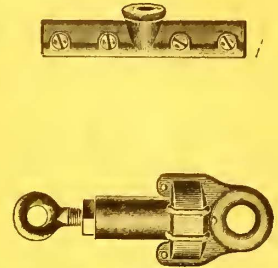
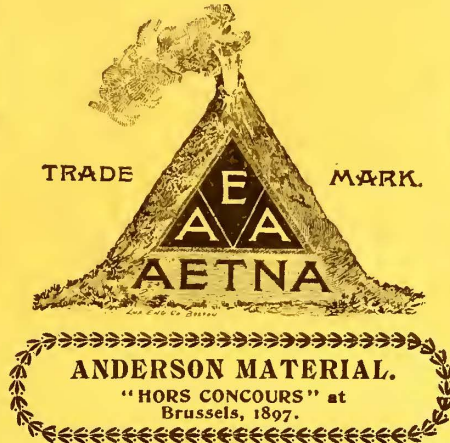
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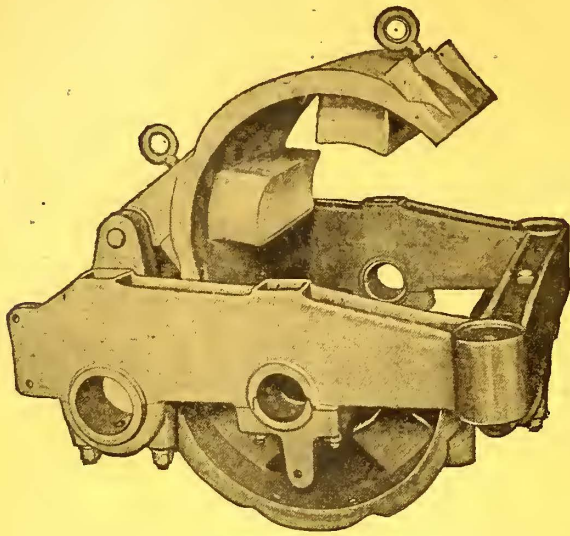


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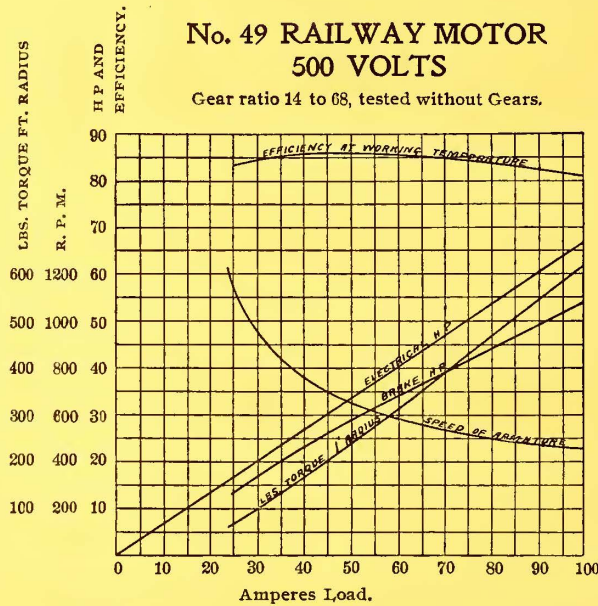
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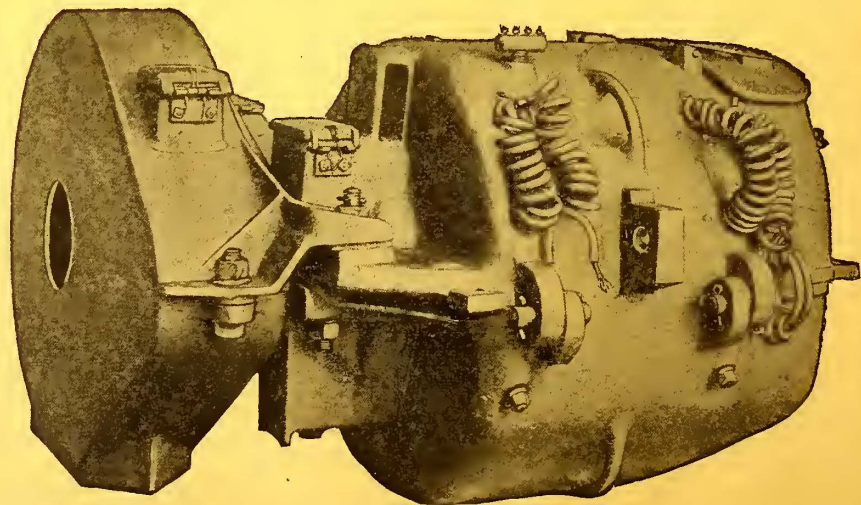
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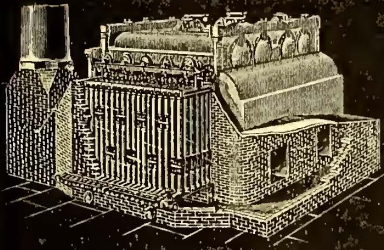


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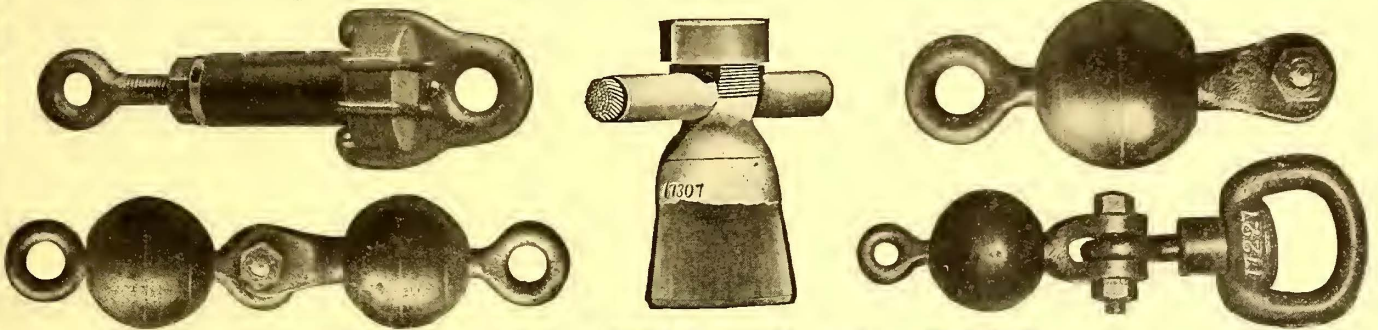
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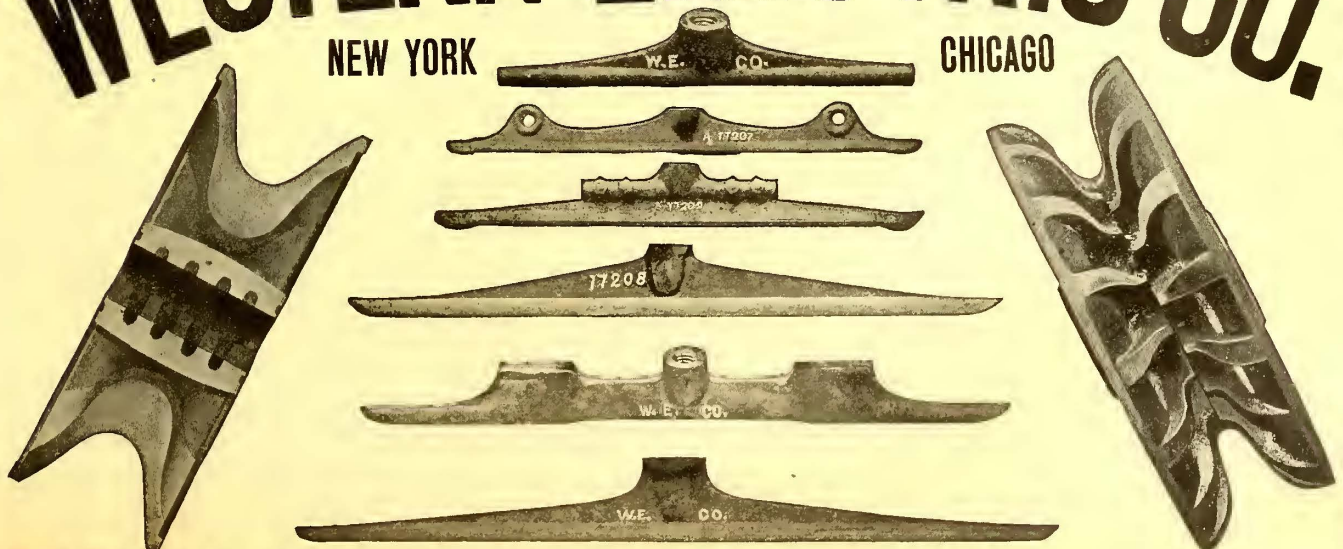
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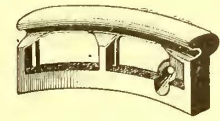
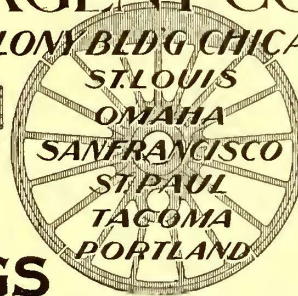
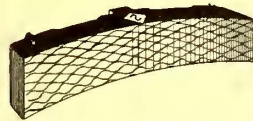
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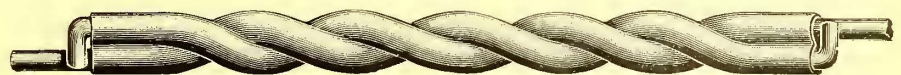
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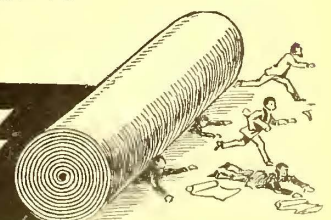
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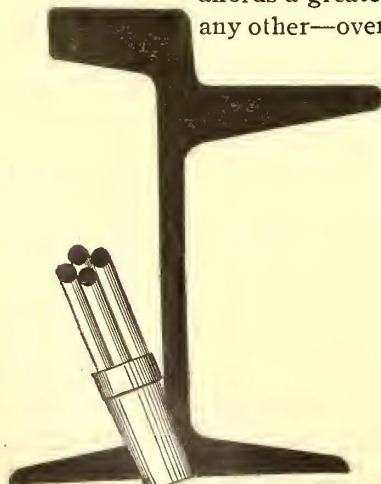
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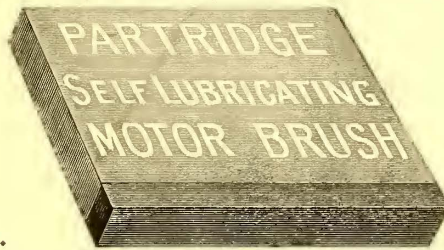
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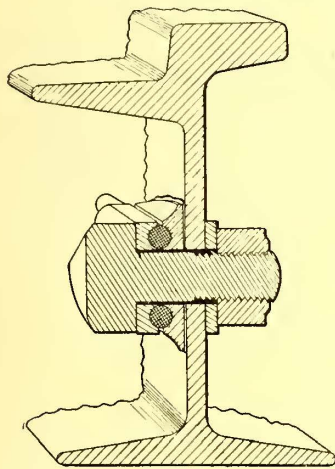
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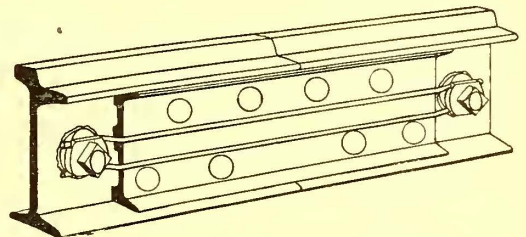
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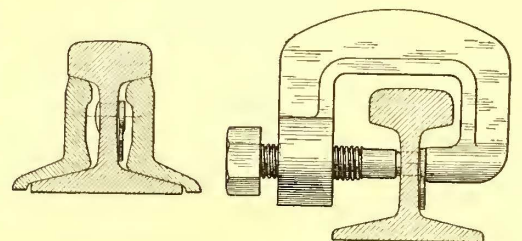
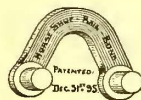
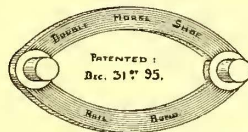
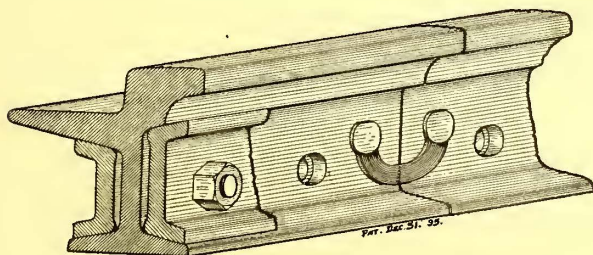


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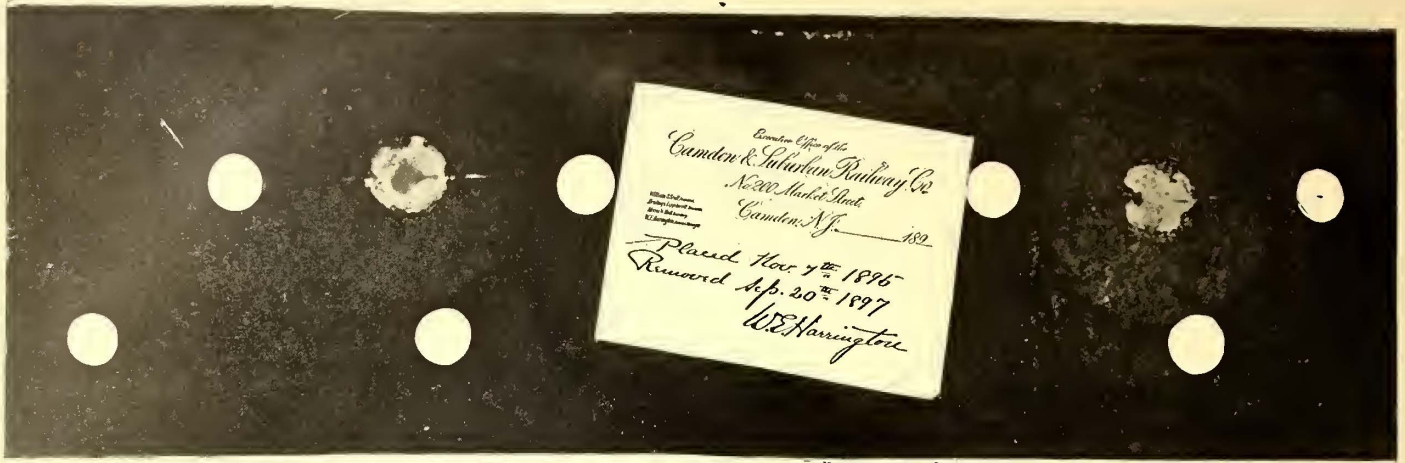
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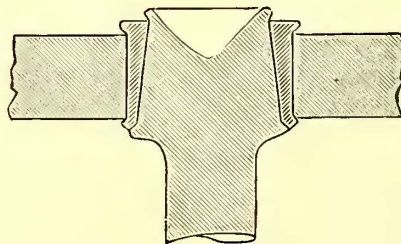
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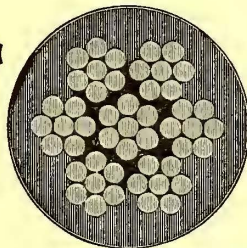


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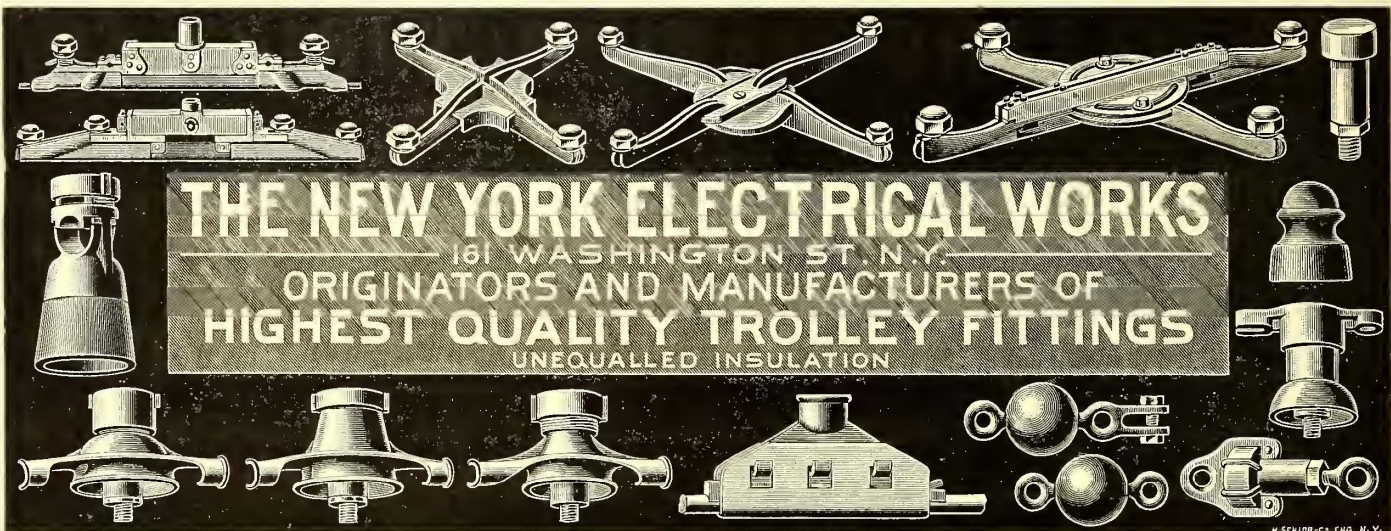
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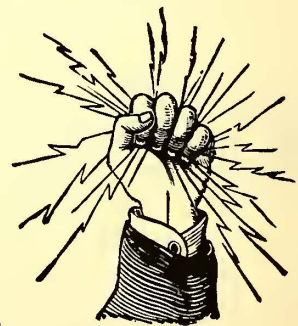
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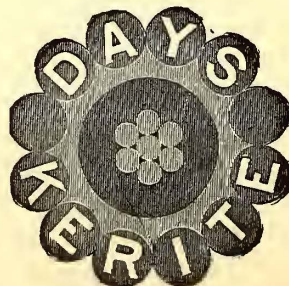
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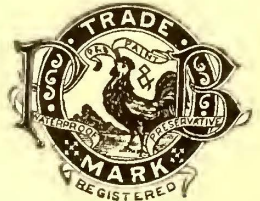
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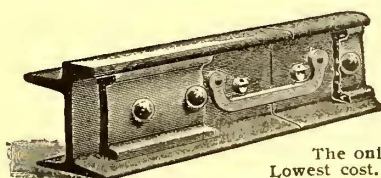
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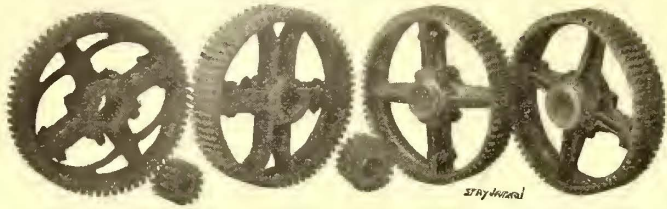
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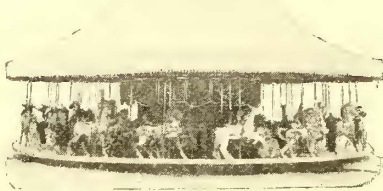
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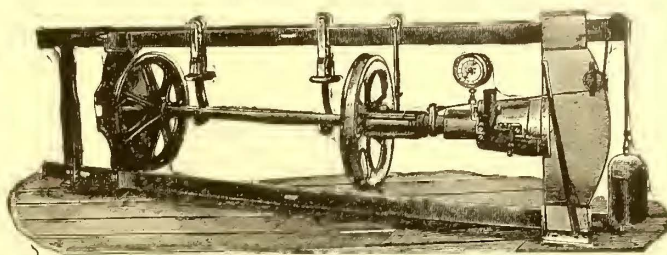
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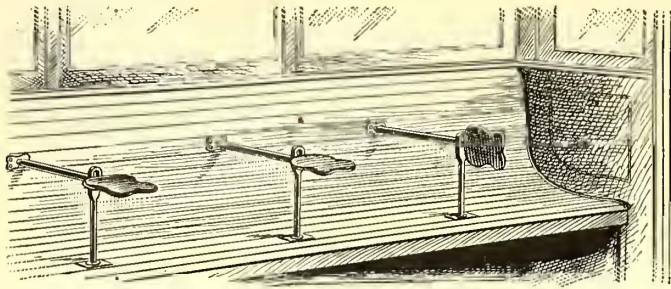
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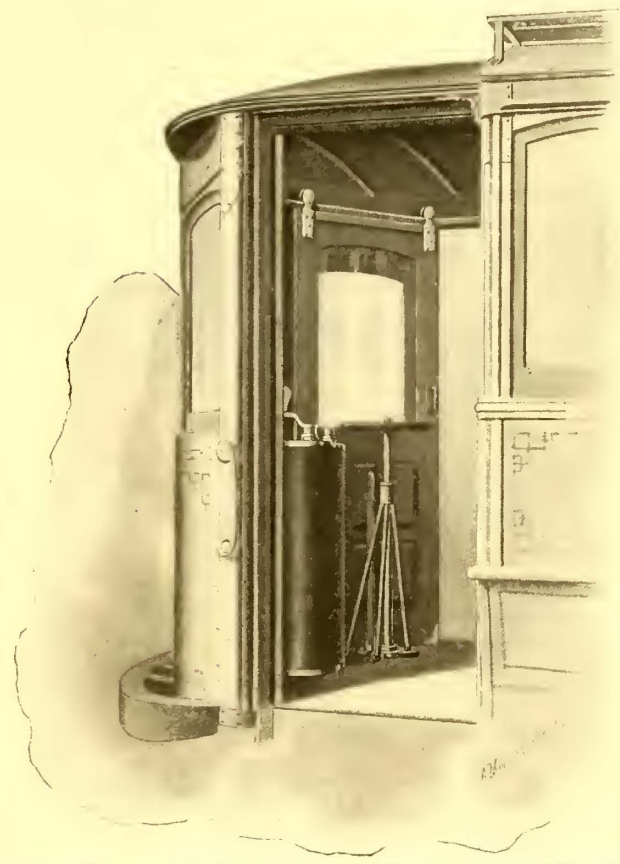
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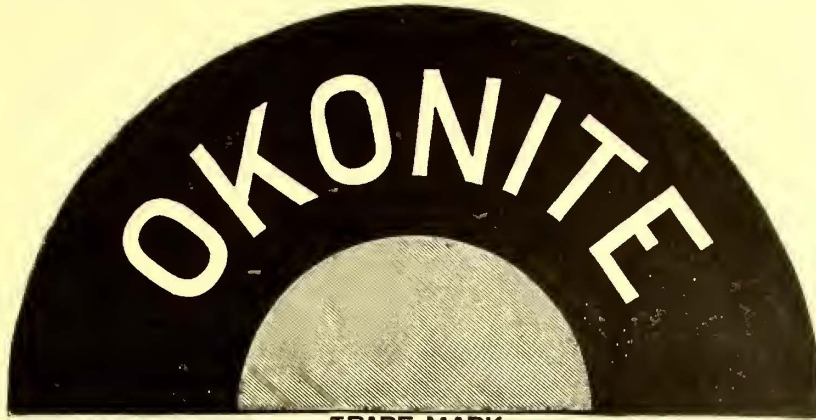


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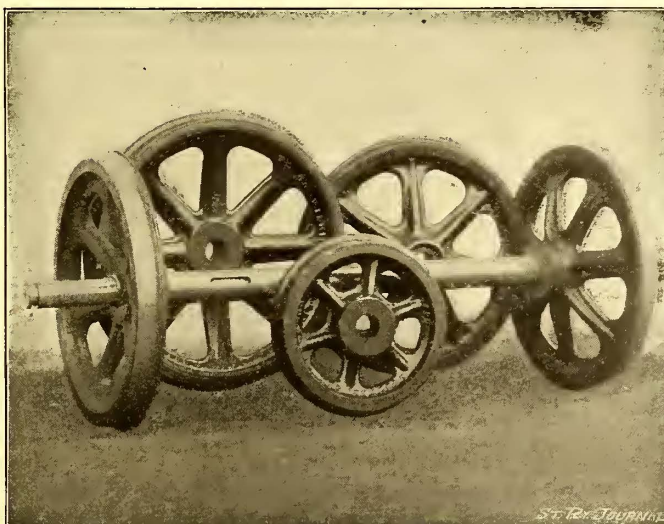
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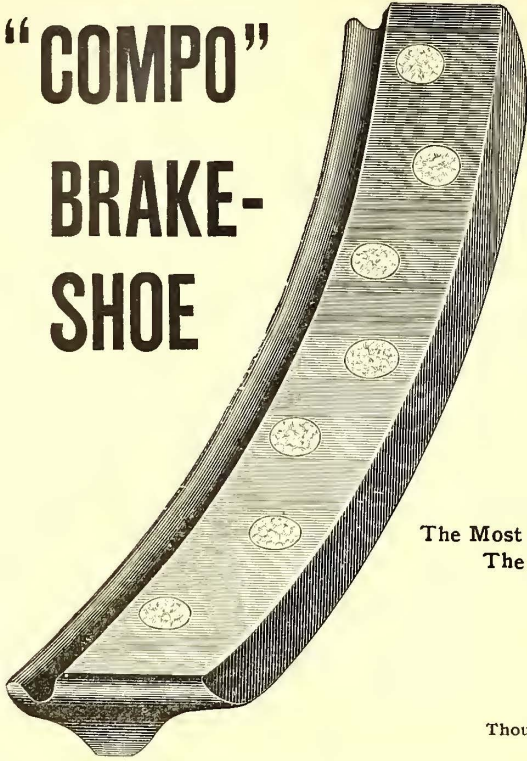
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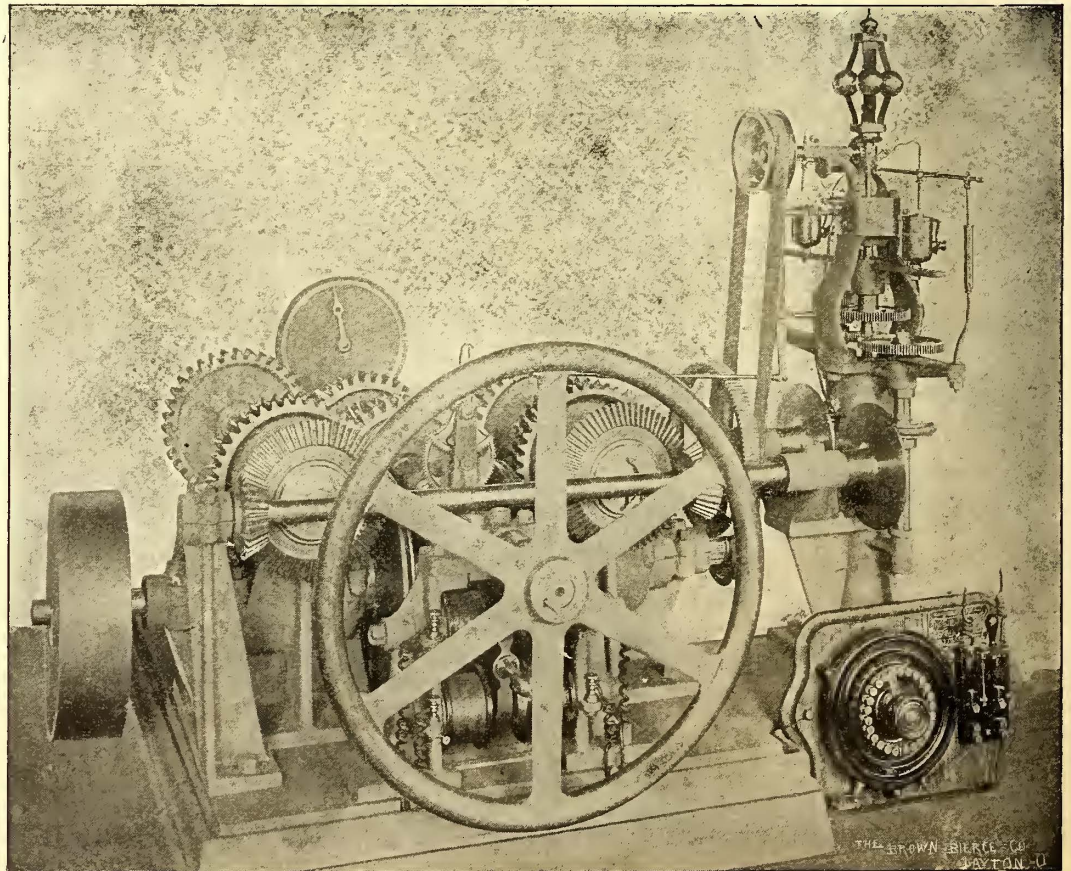
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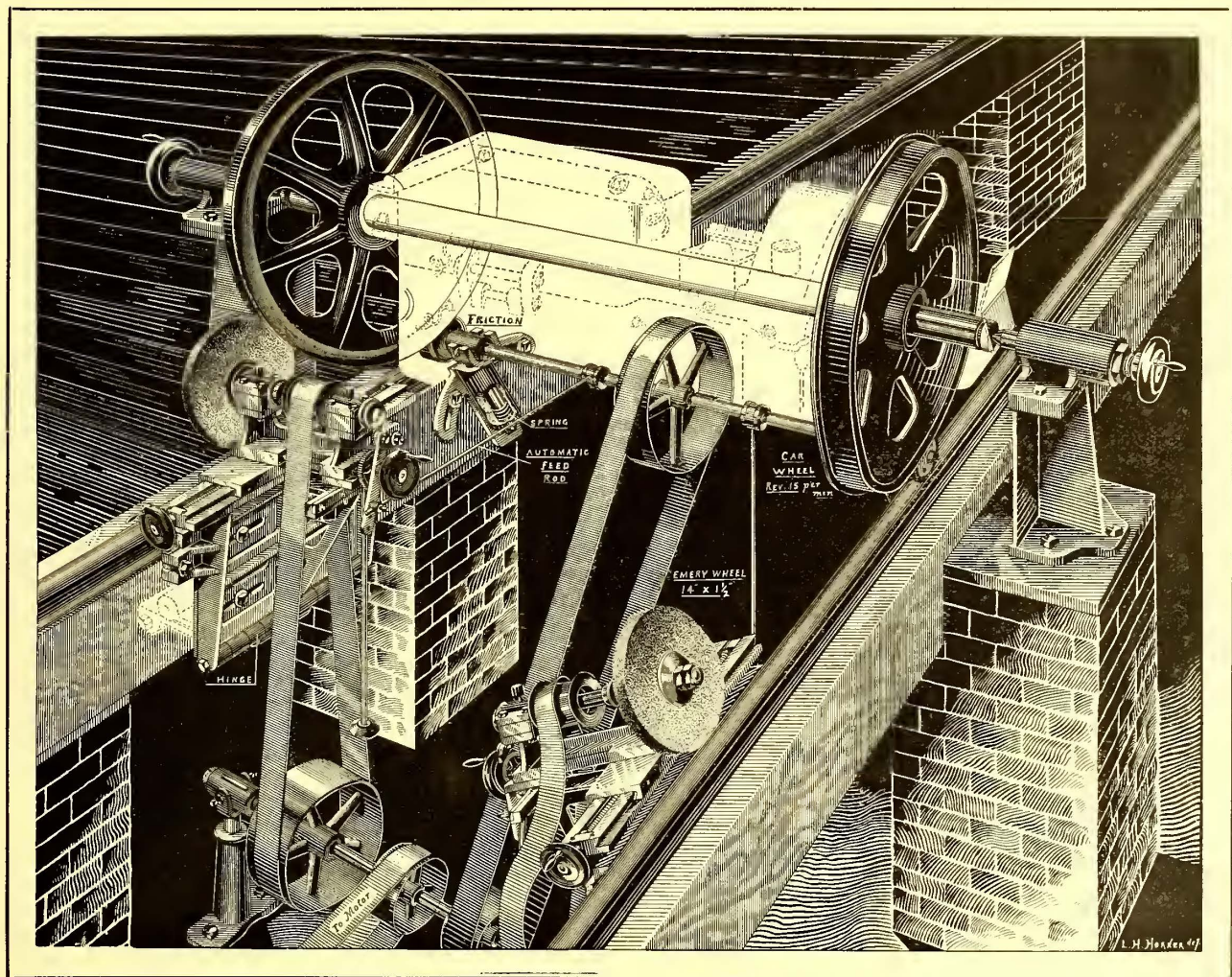
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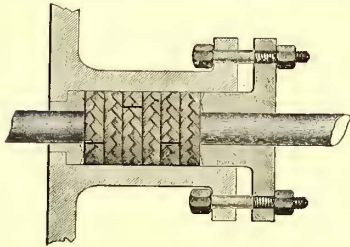
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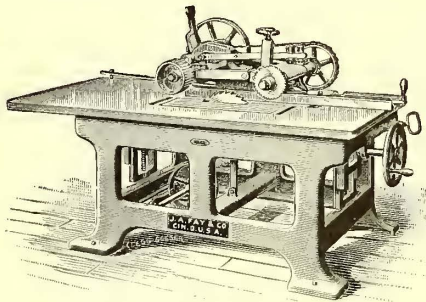
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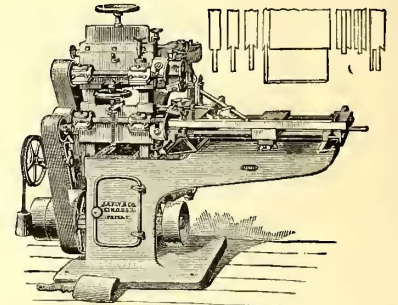
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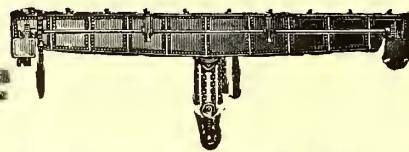
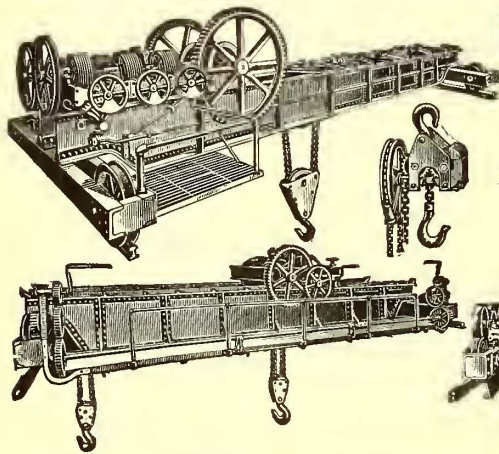
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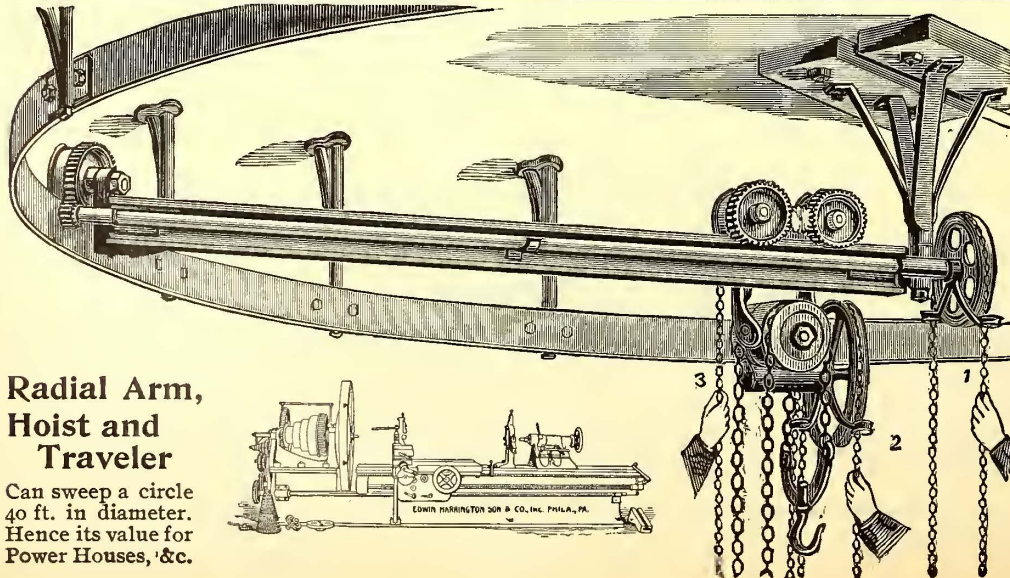
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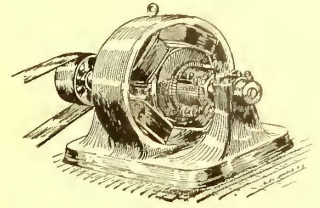
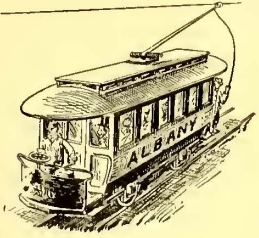
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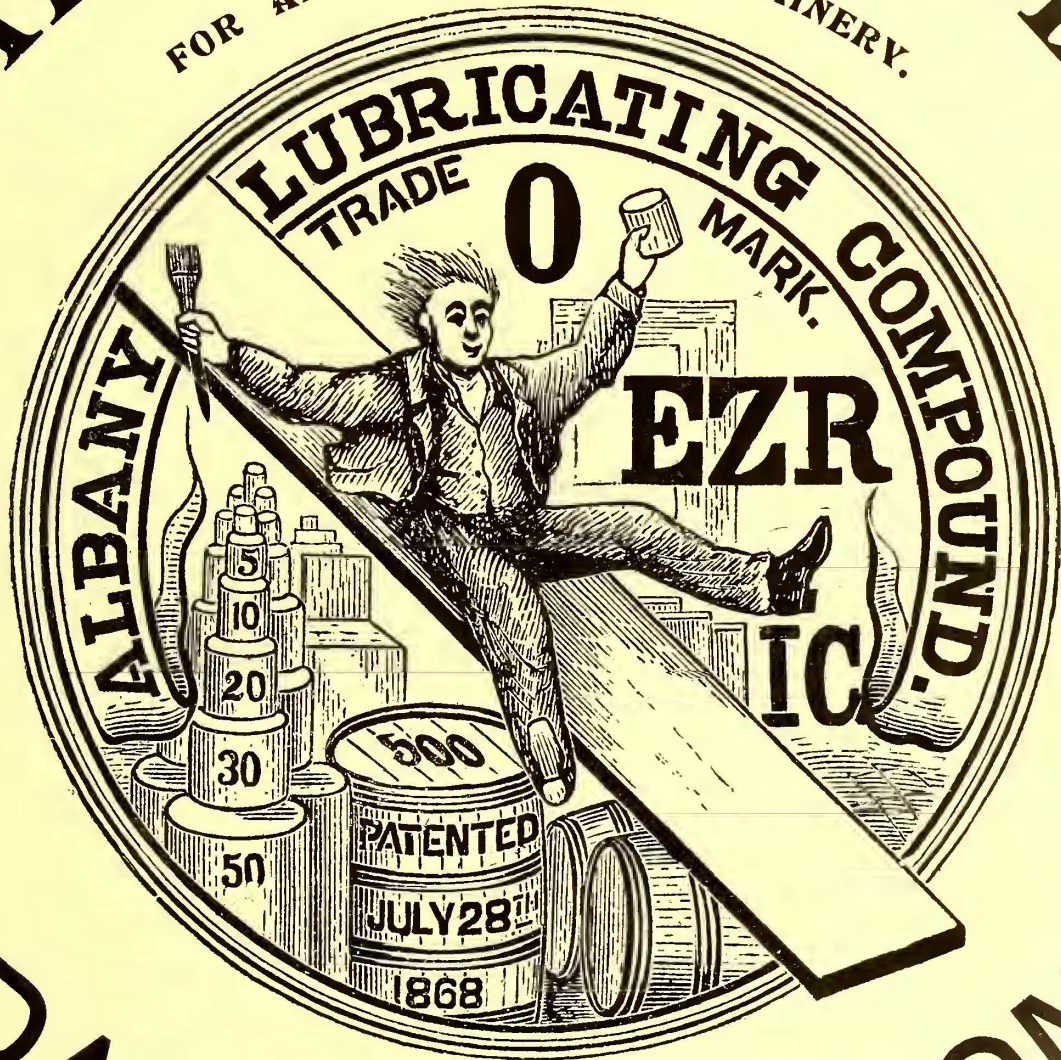
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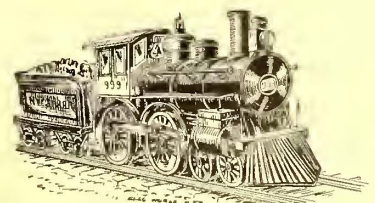
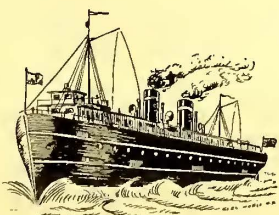
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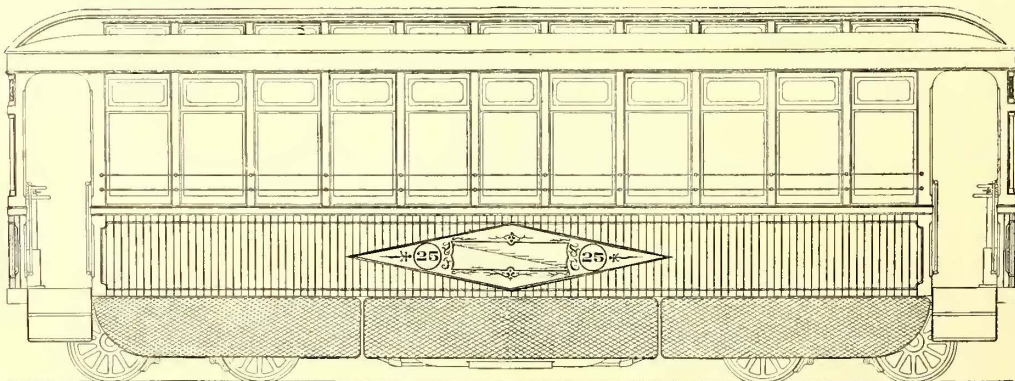
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GENERAL OFFICES: 622 LORD'S COURT BUILDING,

27 WILLIAM STREET and 40 EXCHANGE PLACE,

CABLE ADDRESS, "KINETIC, NEW YORK."

NEW YORK.



POWER GENERATORS

.. THE ..

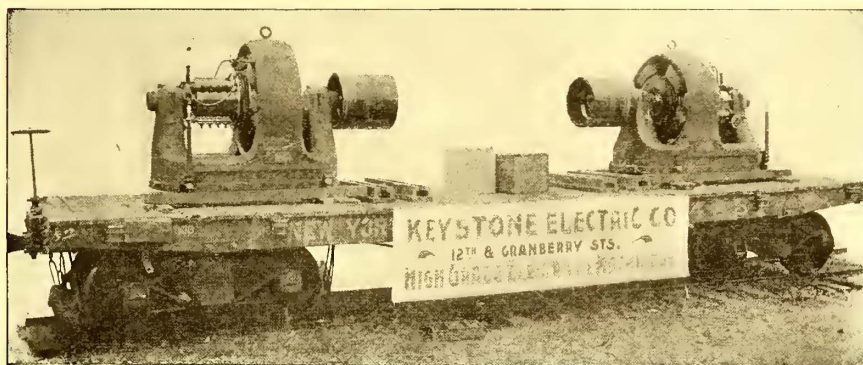
KEYSTONE ELECTRIC COMPANY

ERIE, PENNA.,

FURNISHES POWER GENERATORS FOR STREET RAILWAYS
IN CLASSES C AND D.

CLASS C: BELTED MULTIPOLAR MACHINES IN CAPACITIES UP TO 400 H. P.

CLASS D: DIRECT CONNECTED MACHINES IN CAPACITIES UP TO 275 H. P.



STREET RAILWAY GENERATORS OF 200 H. P. EACH.

HIGH ECONOMY,
COOL RUNNING,
SIMPLICITY OF DESIGN,
DURABILITY.

CORRESPONDENCE SOLICITED.

KEYSTONE ELECTRIC COMPANY,

ERIE, PENNA.,

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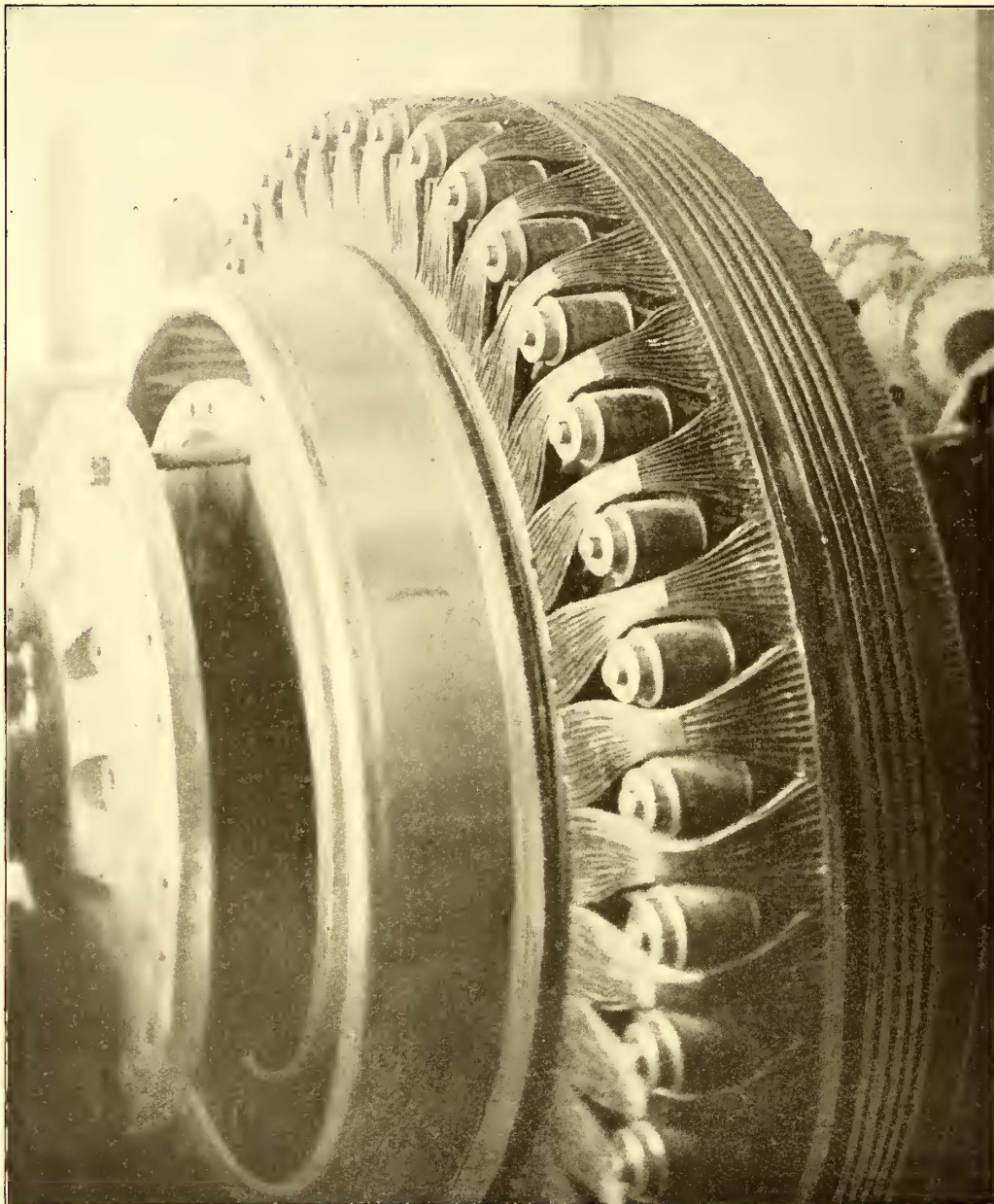
41 FEDERAL STREET, BOSTON.



The Siemens & Halske Electric Co.

OF AMERICA.

Will Install Three 1,500 K. W. Generators for the
Union Consolidated Elevated Railroad Company of Chicago.



Armature of Siemens & Halske 1,500 K. W. Generator.

GENERAL OFFICES:
Monadnock Block, CHICAGO.

THE NEW RAILWAY MOTORS

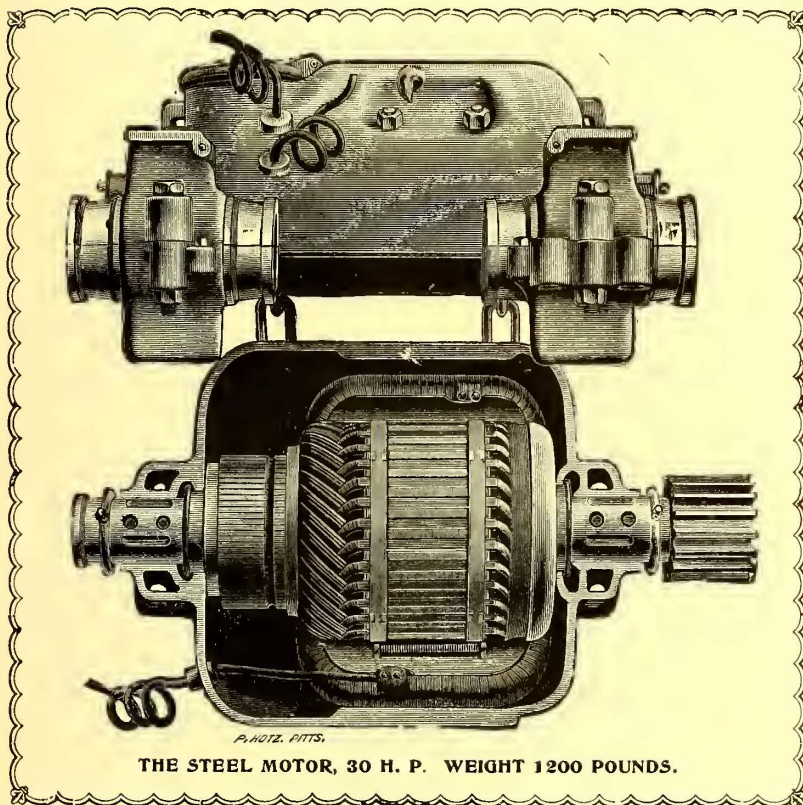
Manufactured by

The Steel Motor Company

JOHNSTOWN, PENNA.,

Have proved in Service to be Superior to all others.

30 H. P. MOTOR, 1200 POUNDS.



The Motor weighs

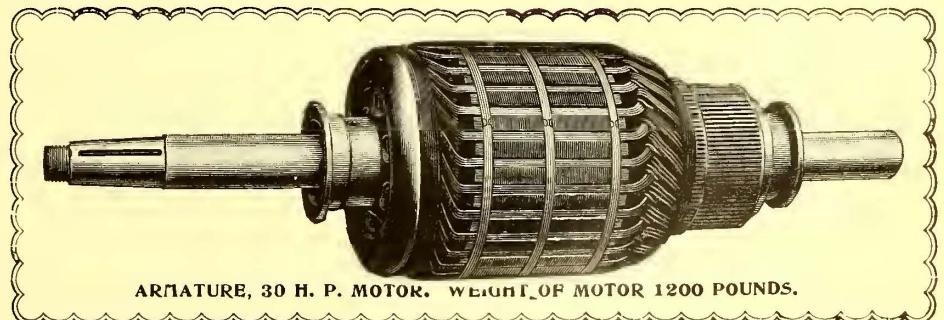
1200 pounds and has:

- Mechanical Strength.
- Interchangeable Parts.
- Minimum Number of Parts.
- Laminated Pole Pieces.
- Four Interchangeable Field Coils.
- Interchangeable Brush Holders.
- Extra Large Bearings.



The Armature

- Is Small in Diameter.
- Is Ventilated.
- Has Small Number of Slots.



OUR Motors

WILL EARN MONEY FOR THE PURCHASERS, AND REPRESENT THE HIGHEST ATTAINMENT YET REACHED IN THE REDUCTION OF OPERATING AND MAINTENANCE EXPENSE.

General Sales Office, Cuyahoga Building, Cleveland, O.

Eastern Representatives:

EDGAR C. MOXHAM & CO.,
80 William Street, New York.



General European Representatives:

WANDRUSZKA & CO.,
Askaniischer Platz, Berlin, S. W.

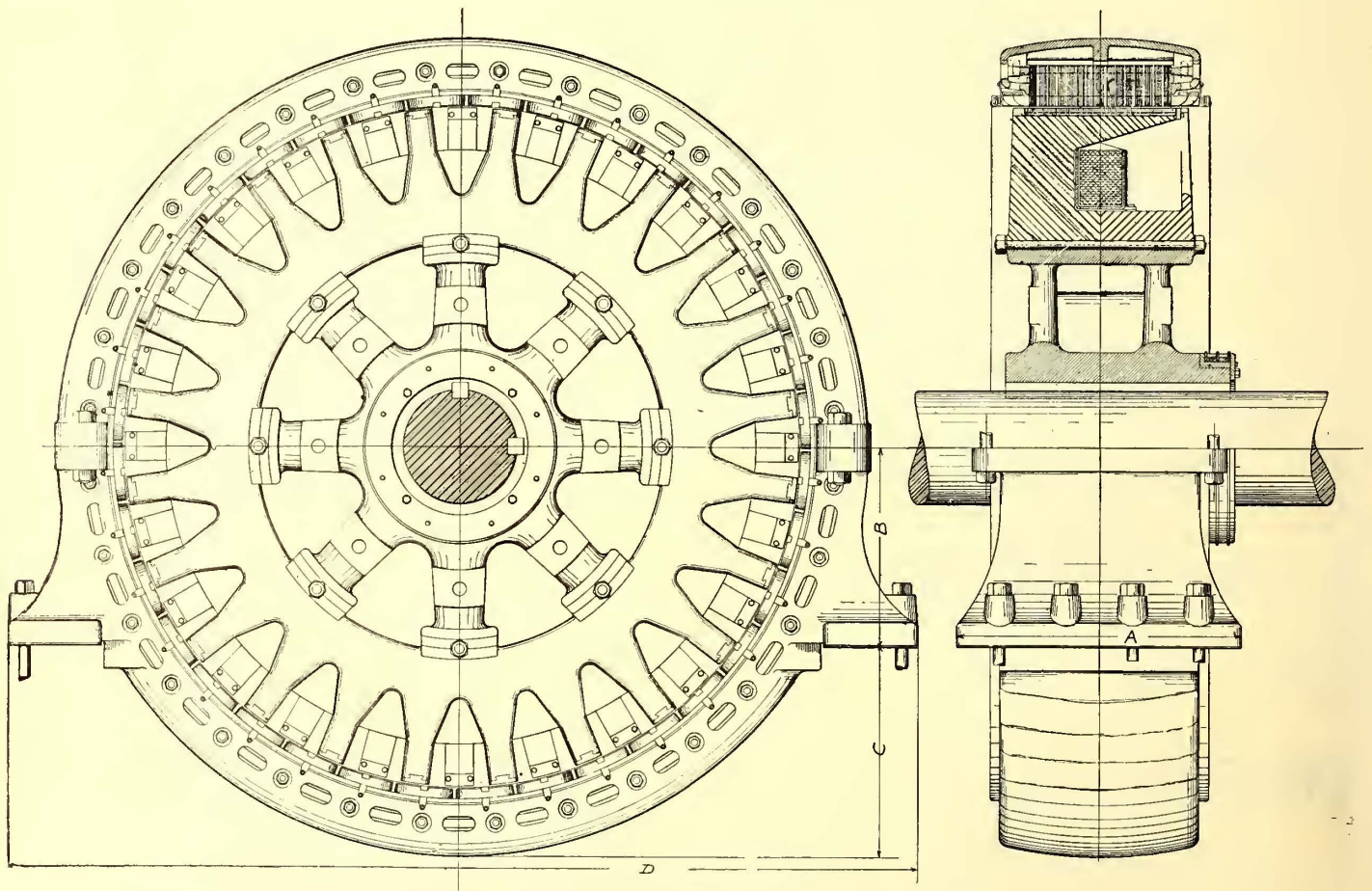
Alternating Current Apparatus.

For long distance transmission of power for railway purposes an alternate system is conceded to be superior engineering, even when the old established forms of alternating current machinery are employed. The Walker Company have long been urged by pleased purchasers of their direct current machines to enter the alternate current field. They have done so, and results have exceeded those of any other manufacturing concern.

Here are some of the reasons why Walker alternate current machinery is preferable for railway work.

AT THE STATION

1. An alternator with but one field coil, which requires less exciting current than any other machine of equal capacity.
2. A machine with a rotating member as durable and as capable of withstanding abuse as an ordinary cast iron flywheel.
3. A machine with a stationary armature, the coils of which can be insulated to withstand any line voltage. Each coil is separately removable without disturbing the other. The insulation of this armature is as durable as that of a transformer.
4. A machine which generates the full line pressure. No step-up transformers are necessary. This makes a Walker alternate current installation for power transmission cost \$15 less per K. W. than that of a competitor, and a reduction of 2 or 3 % in the subsequent coal bills.



AT THE SUB-STATION

1. A rotary transformer with all the advantages of the Walker direct current machine, which has now become to be generally preferred. The straight out protected winding, the one piece convenient brush holder, the sparkless operation, accentuated to even a higher degree than in the direct current machine, if that were possible, are all here.

A Walker installation is made by a company of sterling responsibility. It cannot afford to compromise its high reputation.

The Walker alternators are made in sizes from 25 to 1600 K. W. The largest size that a company manufactures is a measure of its responsibility. No company builds larger standard sizes than these.

WALKER COMPANY,

Main Office, = CLEVELAND, O.

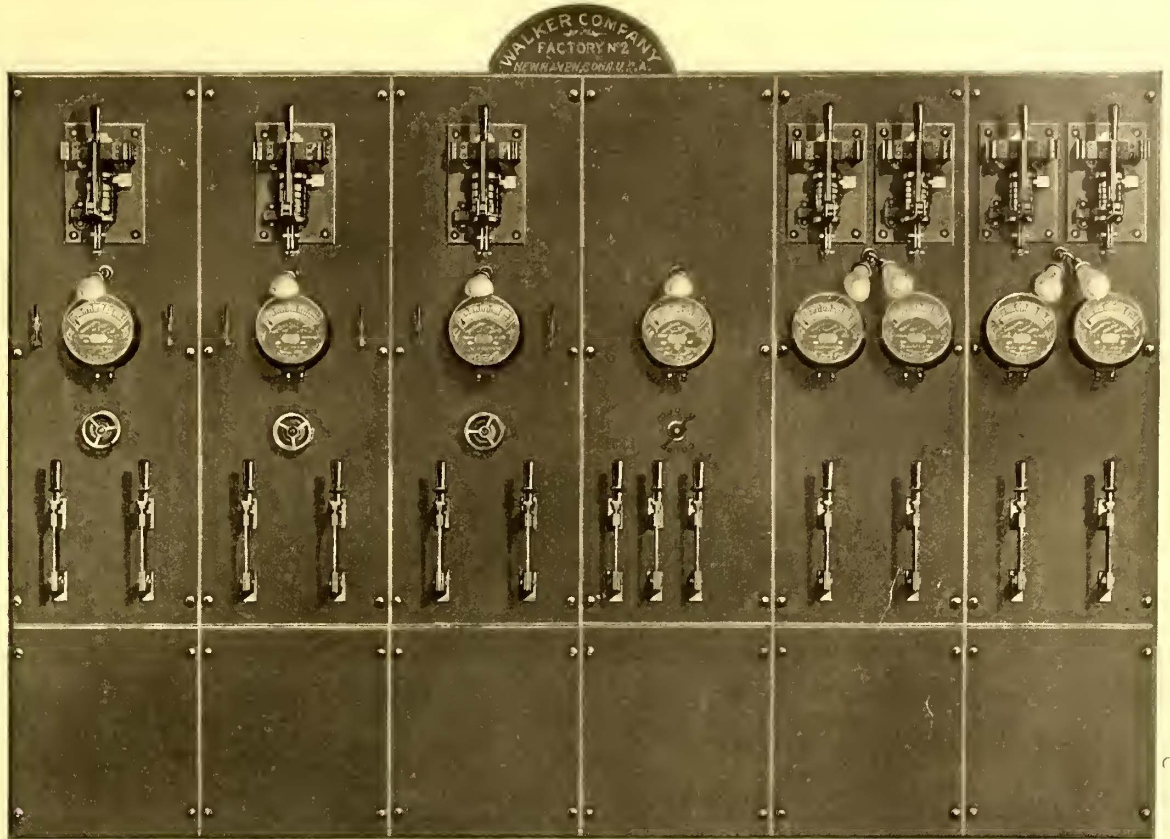


Factory No. 1, Cleveland, Ohio.

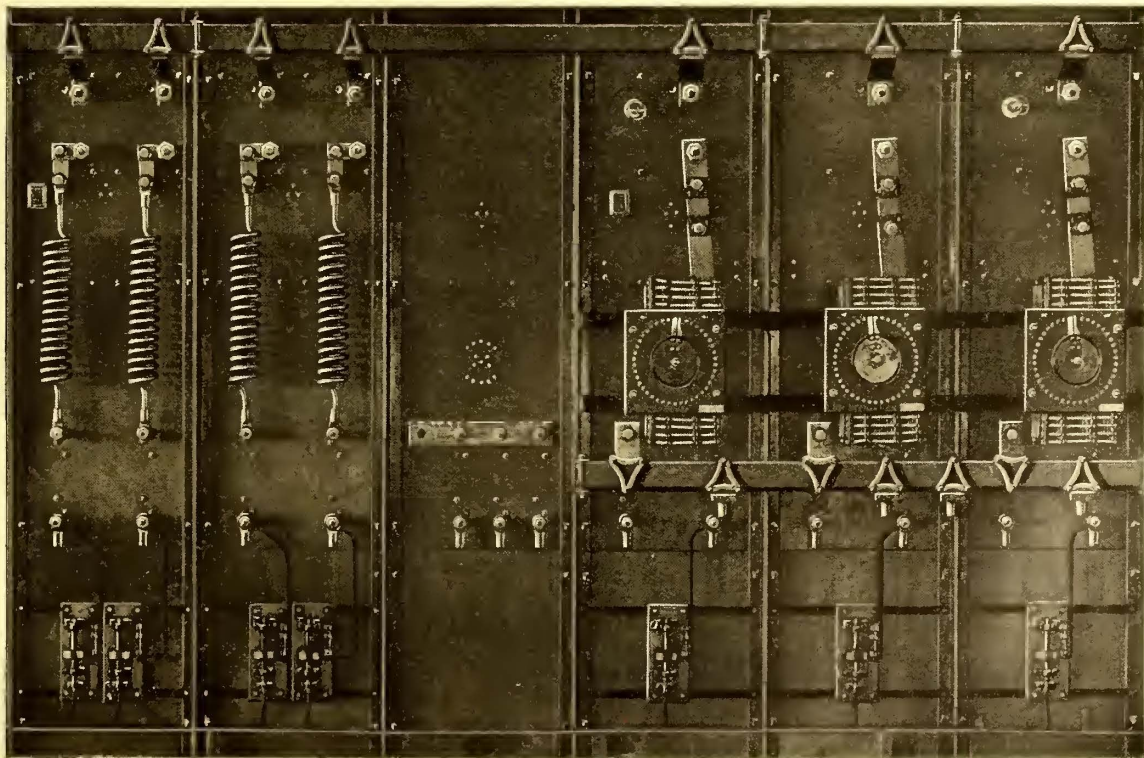
Factory No. 2, New Haven, Conn.

General Sales Offices, No. 1 NASSAU STREET, N. Y. CITY.

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In the design of switch boards the Walker Company has taken great pains. It now devotes a skilled force of engineers and a large factory department to producing and perfecting this important station accessory. The accompanying cuts show our railway switch board, a standardized product. Simplicity obtains both in front and behind these boards. Single pole switch control admits of any method of manipulating the generators. A panel system is adopted by which the board may be inclosed at pleasure without marring its symmetry. For excellence of workmanship it is sufficient to say it is of Walker make.



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WALKER COMPANY,

Main Office, = CLEVELAND, O.

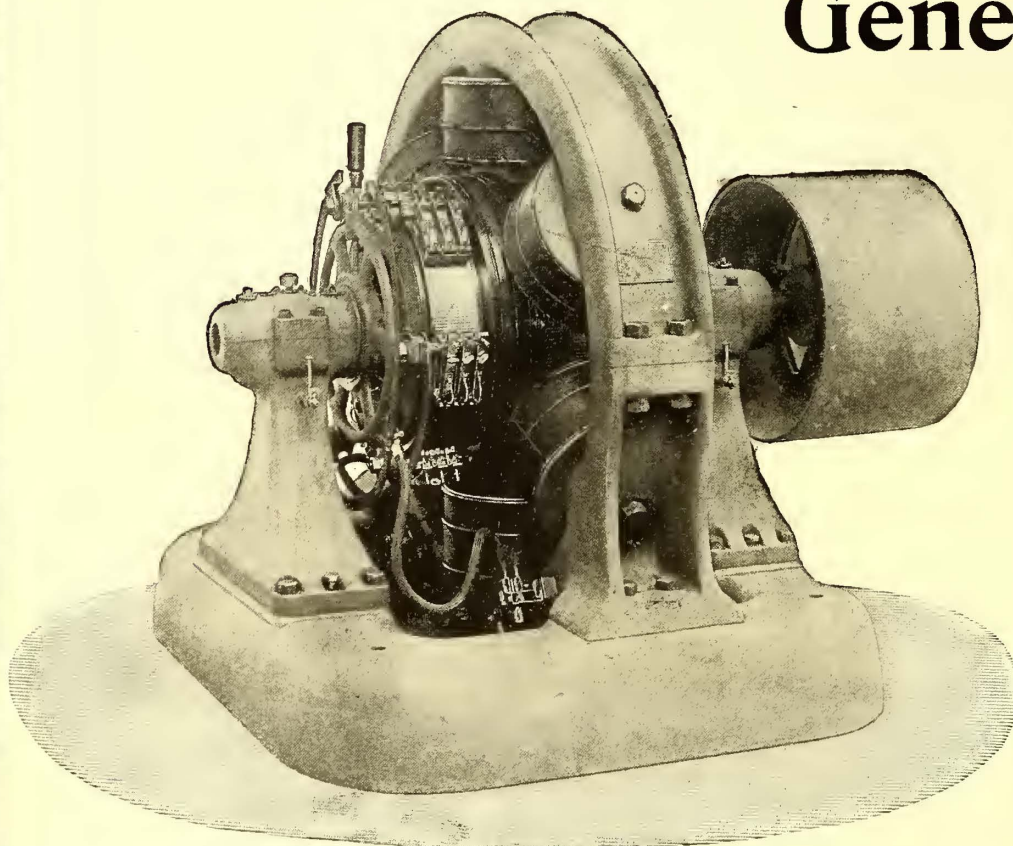


Factory No. 1, Cleveland, Ohio.
Factory No. 2, New Haven, Conn.

General Sales Offices, No. 1. NASSAU STREET, N. Y. CITY.

General Electric Company,
Schenectady, N. Y.

Belt Driven Railway Generators



M. P. 6-110-600 General Electric Co. Belt Driven Railway Generator.

FRAME

Cast steel of highest magnetic efficiency.

POLES and POLE PIECES

Cast steel, in one piece, Easily removable.

FIELD COILS

Series winding and shunt winding entirely independent. Easily accessible.

ARMATURE

Perfectly insulated, ventilated and protected.

BEARINGS

Extra long. Self-aligning and self-oiling.

Denver, Colo., July 26, 1897.

General Electric Co., Denver, Colo.

Gentlemen:—We take pleasure in stating that the two M. P. 6-110-600 generators furnished by your company last January have been running steadily 22 hours per day since they were installed, and have given the most perfect satisfaction in all respects.

They run cool and absolutely sparkless under all variations of load, which are quite severe in our service, as we have a number of electric elevators and hoists and other motors on intermittent service. In fact, we cannot recommend these machines too highly.

Yours truly,

THE DENVER CONSOLIDATED ELECTRIC CO.,

By WM. J. BARKER, Superintendent.

General Electric Company,

Main Office, SCHENECTADY, N. Y.

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Boston, Mass.
New York, N. Y.
Syracuse, N. Y.
Buffalo, N. Y.

Philadelphia, Pa.
Baltimore, Md.
Pittsburgh, Pa.
Atlanta, Ga.

New Orleans, La.
Cincinnati, Ohio.
Columbus, Ohio.
Nashville, Tenn.
Portland, Ore.

Chicago, Ill.
Detroit, Mich.
St. Louis, Mo.
Dallas, Tex.

Helena, Mont.
Minneapolis, Minn.
Denver, Colo.
San Francisco, Cal.

For Canada, address Canadian General Electric Company, Ltd., Toronto, Canada.

For all business outside of the United States and Canada: Foreign Dept., Schenectady, N. Y., and 44 Broad St., N. Y.

News Notes

Adrian, Mich.—The Adrian Street Railway was sold recently by Commissioner L. B. Robertson to A. P. Southworth for \$1,200.

Asbury Park, N. J.—The Atlantic Coast Electric Railroad Company, through its president, George B. M. Harvey, has purchased the Asbury Park & Belmar Street Railway Company's road, which has been in a receiver's hands. Col. Harvey purchased the first mortgage bonds of the company, aggregating \$100,000, and \$75,000 of the stock. The second mortgage bondholders, thereupon sold their holdings, aggregating \$50,000, and the transfer was effected.

Baltimore, Md.—In accordance with the plan of re-organization of the Columbia & Maryland Railway Company, Nicholas P. Bond, president of the Baltimore Security & Trading Company, which was incorporated for the purpose of acquiring the railway, has been appointed receiver for it. Suit was also instituted to foreclose the two mortgages on the railway.

THE directors of the Baltimore Consolidated Railway Company have declared a dividend of 2 per cent on the capital stock, payable out of the earnings for the past six months.

Boston, Mass.—Kidder, Peabody & Company, of Boston, and J. P. Morgan & Company, of New York, have issued a circular to the stockholders of the West End Street Railway, of Boston, offering in behalf of an underwriting syndicate the entire \$10,000,000 capital stock of the Boston Elevated Railroad Company at \$104.25 premium, representing the actual cost to the firms over and above the par value.

Brantford, Can.—The Canadian General Electric Company has made application for the appointment of a receiver for the Brantford Street Railway Company.

Brockton, Mass.—The directors of the Brockton Street Railway Company have declared a quarterly dividend of 1½ per cent.

Charleston, S. C.—Sperry, Jones & Company, of Baltimore, have concluded the purchase of the first mortgage bonds of the Charleston City Railway Company. It is understood that R. B. Sperry and Charles R. Spence, vice-president of the Mercantile Trust Company, of Baltimore, will enter the board of directors of the railway company.

Clarksburg, W. Va.—The Sistersville & Salem Railroad Company has been incorporated with a capital stock of \$500,000, to build an electric railway from Sistersville, on the Ohio River, to Salem, Harrison County, by way of Middlebourne. The road is to be built through the richest part of the West Virginia oil fields, and will touch seven prosperous towns. It is stated that Marcus Pulaski, of Chicago, and the Standard Oil Company are interested in the road.

Cleveland, O.—The Cleveland, Painesville & Eastern Railroad Company has filed a mortgage to the Cleveland Trust Company, and the State Trust Company, of New York, for \$500,000 to cover an issue of bonds.

East St. Louis, Ill.—At a recent meeting of the directors of the St. Louis & Belleville Railway Company it was decided to increase the capital stock of the company from \$50,000 to \$500,000. All the grading for the road between Winstanley Park and the bluffs will be completed by Jan. 15, and the road is expected to be in operation by June 1. The Winstanley Park ordinance, giving the railway the right to run its cars through the village, was accepted.

Elkton, Md.—At a recent meeting of the stockholders and directors of the Cherry Hill, Elkton & Chesapeake City Electric Railroad Company, the secretary was directed to prepare a bill to be presented to the coming Legislature asking for the transfer of the \$58,000 now standing in the name of the Elkton & Southern Railroad Company to the Cherry Hill, Elkton & Chesapeake City Electric Railroad Company. A communication was received from New York capitalists offering to furnish capital for the construction of the road, and after the first of the year steps will be taken to procure the right of way. The company's charter gives the right to construct an electric railway from the Pennsylvania state line to the Sassafras River.

Greensburg, Pa.—The Greensburg & Mt. Pleasant Street Railway Company has elected the following officers: W. F. Sadler, president; W. F. Thompson, secretary and treasurer, and W. F. Sadler, Jr., superintendent.

Hamburg, N. Y.—At a recent meeting of the directors of the Buffalo, Hamburg & Aurora Electric Railway Company, which proposes building an electric railway from Buffalo to Hamburg, it was decided to go on with the construction of the new road. Bids will be advertised for shortly, and it is probable that the contract for the work will be let not later than Feb. 1. The power house will be located at Hamburg and contain three engines and boilers of 100 h. p.

Hamilton, O.—The Cincinnati & Hamilton Electric Street Railway Company has secured a franchise from the corporation of Mt. Healthy, obtained the necessary consents from property owners on both sides of the turnpike between Hamilton and College Hill, and has also received subscriptions amounting to about \$4000 from various farmers along the line. It is estimated that it will cost about \$60,000 to build the road, erect power plants and purchase the necessary machinery, not including wires, poles and cars. Peter Schwab, of Hamilton, is one of the promoters of the enterprise.

Hannibal, Mo.—The Hannibal, Palmyra & Suburban Traction Company is about to be incorporated. D. Thomson, W. I. Dairs, A. Van Enercooven, G. W. Thomson and P. Swervtz are interested.

Why...

not increase your dividends by using

THE Servis Tie Plate?



Over **50,000,000** IN USE.

Doubles the life of Tie.

The Q & C Co.

700-709 Western Union Building,
CHICAGO, ILL.

BRANCH OFFICES :

100 Broadway, NEW YORK.
109 Endicott Arcade, ST. PAUL.
17 Place d'Armes Hill, MONTREAL.
537 Mission St., SAN FRANCISCO.

THE Hannibal Railway has been sold under a deed of trust to John H. Garth, for \$13,500.

Hartford, Conn.—At a recent meeting of the stockholders and directors of the Hartford Street Railway Company and the East Hartford & Glastonbury Horse Railroad Company, the former company secured a thirty years' lease of the line operated by the latter company, and voted to increase its capital stock from \$200,000 to \$1,000,000.

Hoboken, N. Y.—On application of William B. Gourley, representing the Mercantile Trust Company, of New York, which holds a mortgage of \$3,500,000 on the property of the New Jersey Electric Railway Company, John C. Heins was appointed as receiver for the company by Judge Kirkpatrick on Dec. 15. The company's line runs between Paterson and Hoboken.

Lansing, Mich.—At a recent meeting of those interested in the proposed electric railway from Lansing extending through

FRANK R. FORD.
GEO. W. BACON.
GEO. H. DAVIS.

NEW ORLEANS OFFICE.
Morris Building.

Ford, Bacon & Davis, Engineers,

ST. PAUL BUILDING,
220 BROADWAY,
NEW YORK.

BLOOD & HALE, CONSULTING AND DESIGNING ENGINEERS.

Experts on Elevated and Heavy Electric Traction. Complete designs furnished for electrical and mechanical apparatus.

PLANS AND SPECIFICATIONS FURNISHED FOR POWER PLANTS.
EQUITABLE BUILDING, BOSTON.

GEO. E. FISHER, Pres. and Treas.
E. N. CHASE, V. P. and Supt.

O. D. CHASE, Sec'y and
Chief Engineering Dept.

Chase Construction Company, CONSTRUCTING ENGINEERS,

Electric Railway, Electric Lighting, Water Works
and Steam Power Plants.

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WM. P. CRAIG, GENERAL CONTRACTOR,

Grading, Paving, Sewer Building, Curb and Gutter Flagging, etc.

Furnishing and setting up all sizes, Wooden Poles, for Electric Light,
Trolley, Telephone, etc.

STREET RAILWAY BUILDING A SPECIALTY.

Material Furnished. Estimates Given. 35 Years' Practical Experience.

Office and Residence: 22 Burnett St., East Orange, N. J.

E. E. NAUGLE.

W. H. HOLCOMB.

A. P. HOPKINS.

NAUGLE, HOLCOMB & CO. CONTRACTORS

Electric Street Railways, Railway Ties, Telegraph Poles, Paving
Operating Suburban Railroad.

355 Dearborn Street,
CHICAGO.

GEO. WESTON,
Manager Construction Dept.

REED & McKIBBIN, 30 Broad St., New York.

**ELECTRIC RAILWAY
Construction and Equipment.**

PROJECTED RAILWAYS FINANCED.

St. Johns and Maple Rapids to St. Louis, a considerable sum of the capital stock was subscribed, the articles of incorporation filed with the Secretary of State and the franchise fee of \$125 paid. The following officers were elected: president, M. V. Montgomery, of Lansing; vice-president, Isaac Hewitt, of Maple Rapids; treasurer, A. B. Darragh, of St. Louis; secretary, F. L. Dodge, of Lansing. The directors are A. B. Darragh, Isaac Hewitt, George P. Stone, Ithaca; Jacob Stahl, M. V. Montgomery and F. L. Dodge, Lansing. It is proposed to push the construction of the road as rapidly as possible.

Lewiston, Me.—The syndicate which purchased the Lewiston & Auburn Horse Railroad, has organized by electing M. G. Shaw, of Bath, president, A. F. Gerald, of Fairfield, vice-president and general manager, and I. C. Libby, of Waterville, treasurer.

Lincoln, Neb.—The Lincoln Street Railway system has been sold under foreclosure, and was bid in by first and second mortgage bondholders, represented by the New York Security & Trust Company and the New York Guarantee & Indemnity Company, the price paid being \$60,500, subject to paying taxes of not less than \$40,000.

CULLEN, WM. A.

GENERAL CONTRACTOR,

Steam and Street Railways. Electric Track and Overhead Construction
A Specialty.

837 BROAD STREET, NEWARK, N. J.

PEPPER & REGISTER,

General Contractors.

Electric Street Railways a specialty

1414 South Penn Square,

PHILADELPHIA, PA.

SAXTON, E.,

CABLE AND ELECTRIC RAILWAY
CONTRACTOR,

WASHINGTON, D. C.

See page 77.

SHEAFF & JAASTAD,

ENGINEERS,

85 WATER ST.,

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SMETHURST & ALLEN,

Electrical Engineers and Contractors,

Complete Electric Light and Power Installations. Electric Railway Work
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907 Drexel Bldg., Philadelphia, Pa.

Estimates, Plans, Specifications and Superintendence.
Electric Railways, Electric Power, Electric Light, Steam Plants,
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1405-1412 Manhattan Building,

Telephone, Harrison 592.

315 Dearborn St., CHICAGO, ILL.

FREDERICK SARGENT.

A. D. LUNDY.

MARTIN J. INSULL

SARGENT & LUNDY, ENGINEERS,

13 and 15 Monadnock Block, - - CHICAGO, ILL.

THE Lincoln Traction Company has been incorporated with a capital stock of \$1,065,000, and is composed of Eastern capitalists who bought the Lincoln Street Railway system.

Parkersburg, W. Va.—The Parkersburg City & Suburban Electric Railway Company has been organized with a capital of \$300,000 to build an electric railway 6½ miles in length in Parkersburg. James M. Jackson, W. W. Van Winkle and J. N. Camden, of Parkersburg, are interested. Brown & Hazlett, of Wheeling, are engineers of the company.

Perth Amboy, N. J.—The Perth Amboy & Sewaren Electric Street Railway Company has been incorporated with a capital stock of \$25,000, by W. Boynton, of Woodbridge; Henry Maurer and Robert W. de Forest, of New York; John Pfeiffer, Jr., C. Whitman Boynton, Jr., Garret Brodhead and Patrick Comery, of Perth Amboy, to build an electric railway in Perth Amboy.

Pittsburgh, Pa.—George B. Hill & Company have succeeded in securing the money for \$1,000,000 of subscriptions to the common and preferred stock of the United Traction Company, which completes the transaction whereby the United Traction Company se-

cures control of the North Side Traction Company, the Second Avenue Traction Company, the Pleasant Valley Traction Company and the Pittsburgh, Allegheny & Manchester Traction Company, this perfecting its organization.

ALEX. BROWN & SONS, of Baltimore, and N. Holmes & Sons, of Pittsburgh, offer for subscription at \$40 per share, an issue of 60,000 shares of the United Traction Company, 5 per cent cumulative preferred stock, being the total amount of said stock, par value being \$50 per share, yielding to investors at the price offered a net income of 6¼ per cent.

THE United Traction Company has declared a semi-annual dividend of 2½ per cent on the preferred stock.

Staten Island, N. Y.—By the sale of the mortgages on the stocks and bonds of the Staten Island Electric Railroad Company

LEMUEL W. SERRELL, M. E.,
CONTRACTING ENGINEER.

GENERAL STREET RAILWAY CONTRACTOR.
ROADS BUILT READY TO OPERATE.

FIDELITY & CASUALTY BLDG., 99 CEDAR ST., NEW YORK.

J. G. WHITE & COMPANY,
INCORPORATED,

Engineers,
Contractors.

29 BROADWAY, - NEW YORK, N. Y.

Baltimore Office, Equitable Building.

J. F. MACARTNEY, E. E. JOSEPH A. MCELROY, M. E.

Macartney, McElroy & Co.

Consulting Engineers
and Contractors :::

Power Stations
Track
Line 1312 HAVEMEYER BUILDING,
New York. Surveys
Reports
Estimates

International Construction Co.

—CONTRACTORS FOR—

Electric Light, Power and Railway Plants
and Kinetic Motor Roads.

Bonds Negotiated. Roads Financed.

Rooms 1 to 10, 92 GRISWOLD ST., DETROIT, MICH.

PERCY S. HILDRETH. ALFRED LIEBMAN.

R. W. Hildreth & Co.

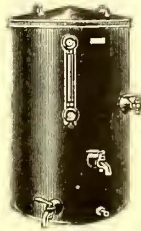
CONTRACTING ENGINEERS,

ELECTRIC AND STEAM RAILWAYS,

BRIDGES, BUILDINGS, ETC.

50 BROADWAY, NEW YORK.

THE CROSS OIL FILTER



Actually reduces oil bills 50% or more. Sent on approval. Capacities ranging from 3 to 120 gals. per day. Used in 13 countries. It is specially adapted to Electric Light and Power Plants. Correspondence invited. Our specialty is Oil Filters, of which we are the largest manufacturers in the world. Established seven successful years. The BURT MANUFACTURING CO., Akron, O., U. S. A.

H. GORE & CO.,
Pavers and Street Railway Contractors
54 Kilby Street, - Boston.

O. J. GORE,
F. S. GORE,
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J. T. GORE, ESTIMATES FURNISHED.
CONNECTED BY TELEPHONE.

Railway Car Painting.

“WEAVER’S RAPID SYSTEM.”

Durability; Brilliancy; Economy.

References to present contracts covering sixteen years.

JOHN C. WEAVER, Contractor,

P. O. address 1687 Washington Ave., New York.

DIXON’S
Graphited Wood Grease

FOR TROLLEY CAR GEARS.

Absolutely prevents noise and does not ooze out of gear case.
“Lasts three times as long as any other lubricant.”

JOSEPH DIXON CRUCIBLE CO., Jersey City, N. J.

The CONTINENTAL CONSTRUCTION COMPANY,

A Builder and Promoter of

.. Electric Railways ..

Would like to hear from cities and towns in any section of the United States (where conditions are favorable), which desire a first-class modern Electric Railway. The Company will also purchase Franchises or Charters for Electric Railways from parties holding the same, or will finance, construct and equip. Address the

CONTINENTAL CONSTRUCTION CO.

Box 1157.

BOSTON, MASS.

recently to the New York & Staten Island Electric Company, the latter company now owns and will operate both companies. The mortgages on the stocks and bonds sold amounted to \$1,245,000 out of a total of \$1,250,000.

St. Louis, Mo.—Application has been made for the removal of Charles Green as receiver of the People's Railroad.

Topeka, Kan.—A charter for the Kansas City, Lawrence & Topeka Electrical Railway & Power Company was filed on Dec. 23, the capital being placed at \$3,000,000. It is the intention of the company to construct an electric line between Kansas City and Topeka, and to do a freight and passenger business. The incorporators intend using water power from two dams, one at Lawrence and one near Holliday, to generate the electricity.

Webster, Mass.—The subscribers to the stock of the Webster & Dudley Street Railway Company have published their intention to form a corporation with a capital stock of \$50,000 with a temporary board of directors, composed of Edgar S. Hill, John Flint, Cyprien Dandurand, George R. Marble, Lyman R. Eddy, Oscar Shumway and Charles Haggerty.

Zanesville, O.—At a recent meeting of the creditors and stockholders of the Zanesville Railway & Electric Company it was decided to terminate the receivership of the company held by William Christie.

Lincoln Park, Chicago

One of the beauty spots of Chicago, is described in a most beautifully illustrated book, of 96 pages, now being distributed by the Chicago, Milwaukee & St. Paul Railway Company. It is full of the finest half-tone pictures of one of Creation's most charming places of resort for citizens of the Great Republic. Everyone who has ever visited the park will appreciate the souvenir, and for those who have not it will be a revelation of what is to be seen in Chicago. It can only be procured by enclosing twenty-five (25) cents in coin or postage stamps, to Geo. H. Heafford, general passenger agent, 410 Old Colony Building, Chicago, Ill. *.*

New Chicago-Washington Sleeper Service

The Monon Route's through Sleeping Car line between Chicago and Washington and Baltimore via Cincinnati, the C., H. & D., B. & O. S. W. and B. & O. Railways has proved so successful that it will be continued through the winter. The sleeper is ready for occupancy in Dearborn Station, Chicago, at 9:30 p. m., and leaves at 2:45 a. m. daily, arriving at Washington at 6:47 and Baltimore 7:55 the next morning. As the sleeper goes through without change, and as the hours of leaving and arriving are so convenient, this will prove altogether the most comfortable, as well as the most picturesque, route to the national capital. City Ticket Office, 232 Clark Street. Depot, Dearborn Station, Chicago. *.*

B. & O. Electric Light Plant

In accordance with the policy of economy adopted by the receivers of the Baltimore & Ohio Railroad, an electric lighting plant has been installed at Philadelphia for the purpose of lighting the passenger station, yards, freight stations, freight yards, docks, roundhouses, machine shops, etc. Twice as many lights are in service now as when the company purchased the current from local lighting companies, yet the expenses have been reduced one-half. The Philadelphia plant consists of one 150 h. p. boiler, two 50 G. E. arc light generators, which are belted to a 125 h. p. standard Westinghouse engine. It took 20 miles of wire for the overhead construction, and a submarine cable is used in crossing the Schuylkill River.

WILSON & STEPHENS,

BANKERS,

41 Wall Street, New York.

Street Railway and Gas Properties Bought, Sold and Reorganized.

EDWARD C. JONES CO.

1 Nassau St., New York.

421 Chestnut St., Philadelphia.

ISSUES OF

Eastern Street Railway Bonds

Bought—
Advances Made.

United States Bonds

— and

Selected Railroad and City Bonds

BOUGHT AND SOLD.

HARVEY FISK & SONS,

Members New York and Boston Stock Exchanges.

NEW YORK. BOSTON. PHILADELPHIA.

HIRSCH BROTHERS & Co.,

Bankers and Brokers,

Street Railway and Gas Securities

A SPECIALTY

CHICAGO, New York Life Building.
NEW YORK, 10 Wall Street.

C. TOWNSEND BLAKE,

Street Railways Financed,

Girard Building, Philadelphia, Pa.

Maryland Trust Co.,

Corner South and German Sts.
BALTIMORE.

CAPITAL, - \$1,000,000.

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Acts as Financial Agent for States, Cities, Towns, Railroads and other corporations. Transacts a general trust business. Lends money on approved security. Allows interest on special deposits. Acts as Trustee under Mortgages, Assignments and Deeds of Trust; as Agent for the Transfer or Registration of Stocks and Bonds, and for the payment of coupons, interest and dividends.

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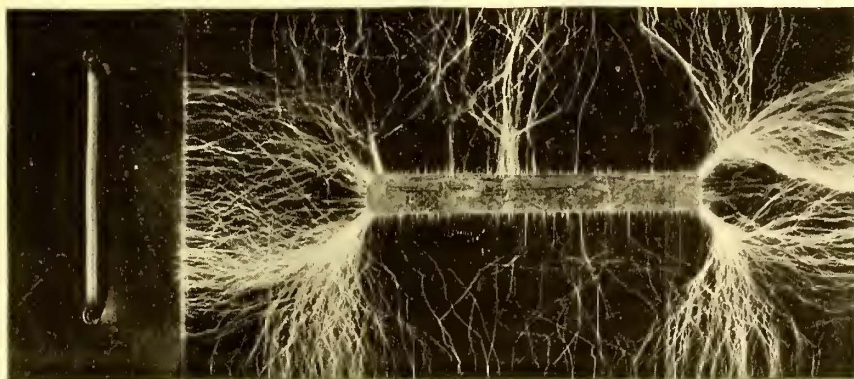
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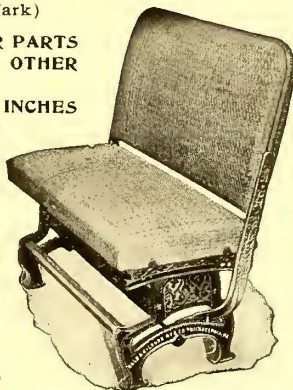
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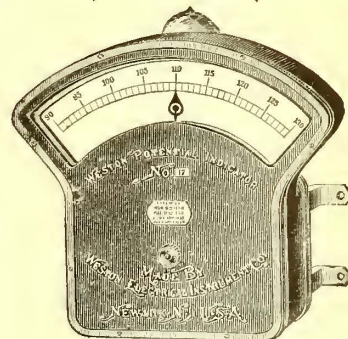
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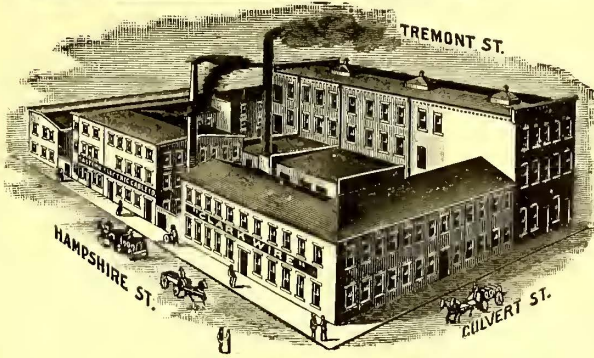
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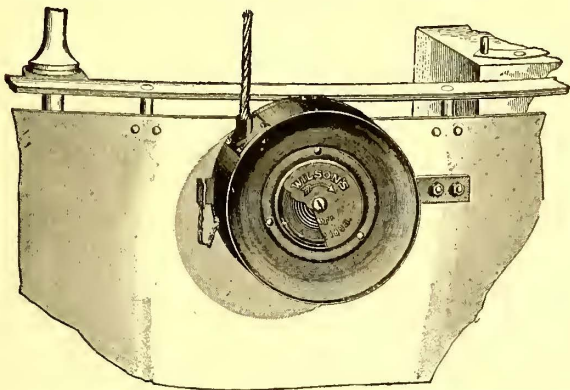
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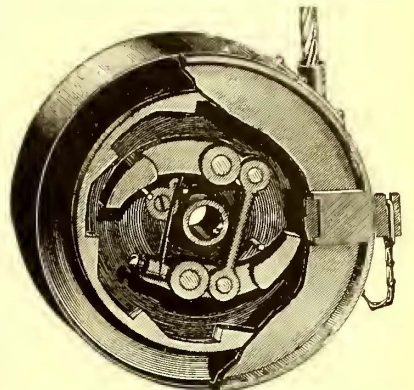
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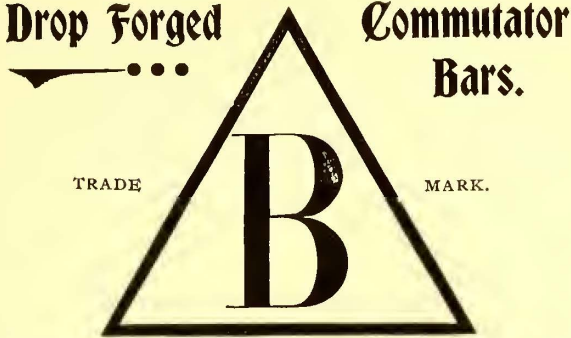
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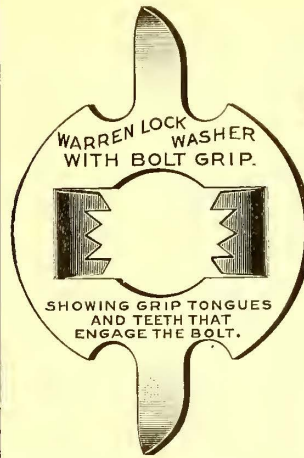
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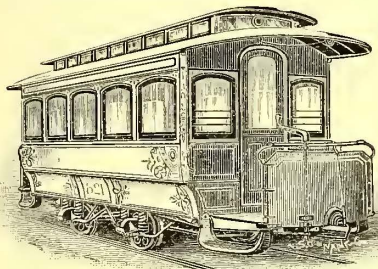
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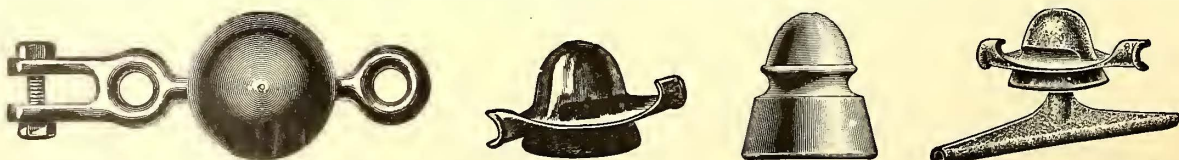
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NEW YORK.

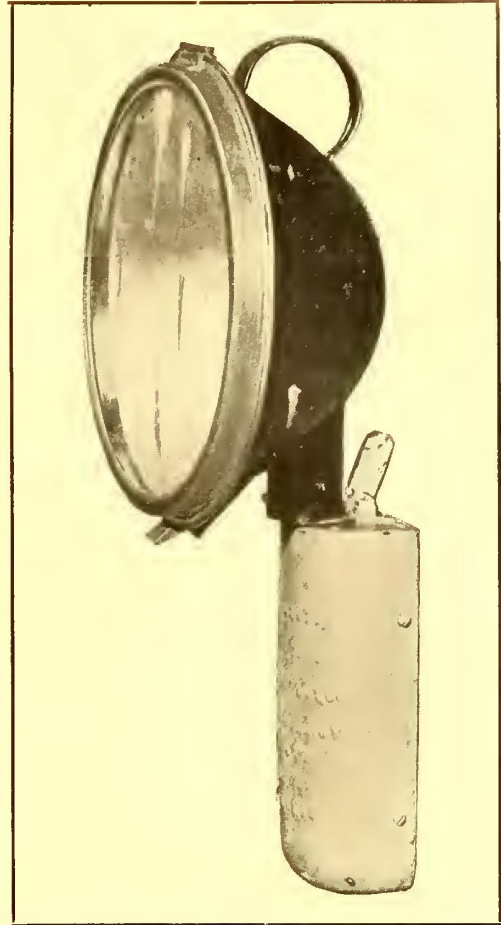


CON el Uso del Syracuse Changeable Electric Headlight es necesario solo un reflector para cada coche, porque puede ser cambiado de una extremidad del coche á la otra sin ninguna dificultad. Cavidades con transmisión eléctrica son establecidas á cada extremidad del coche. Basta simplemente insertar el reflector en una de las cavidades para iluminar la lámpara automáticamente. Por la adquisición de dos cavidades adicionales, á un precio muy barato, un coche abierto y un coche cerrado pueden ser equipados con mayor economía que por medio de cualquier otro reflector. Fabricación de primera calidad. Milliares en uso.

DURCH Verwendung des Syracuse Changeable Electric Headlight wird nur ein Reflector für jeden Wagen erñthigt, da er von einem Ende des Wagens zum anderen ohne irgend welcher Schwierigkeit angebracht werden kann. Elektrisch verbundene Höhlen sind an jeder Wagenende befestigt. Durch die Einsetzung des Kontaktstammes des Reflektors in einer der Höhlen, wird der letztere selbstthätig erleuchtet. Indem man zwei mehrere Höhlen zu geringem Preis kauft, wird es ermöglicht, einen offenen und einen geschlossenen Wagen viel billiger als durch irgend welchen anderen Reflektor zu beleuchten. Bestes und bewährtestes Fabrikat. Tausenden werden verwendet.

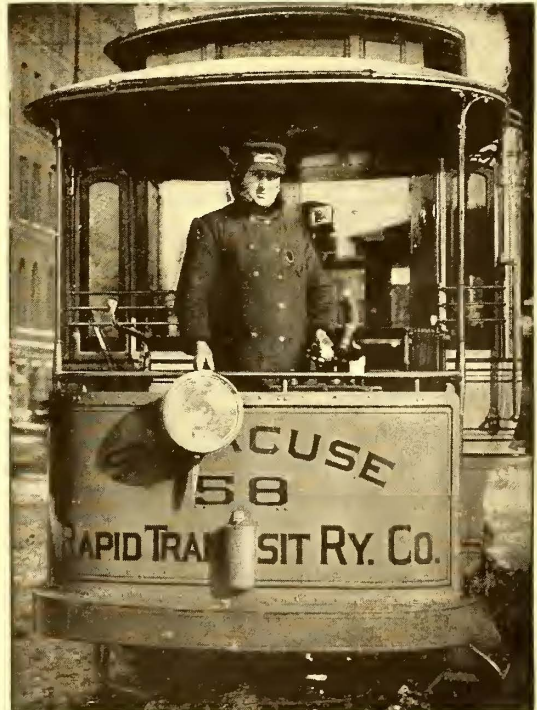
EN Faisant Usage du Syracuse Changeable Electric Headlight il n'y a besoin que d'un seul réflecteur pour chaque voiture, attendu que le réflecteur peut être transporté d'une extrémité de la voiture à l'autre sans occasionner le moindre dérangement. Des cavités de connexion électrique sont établies á chaque extrémité de la voiture. Il suffit d'insérer la tige du réflecteur dans l'une quelconque des cavités afin d'établir l'éclairage automatique des réflecteurs. Par l'acquisition de deux cavités supplémentaires à un prix très minime, il est facile d'équiper une voiture ouverte et une voiture fermée à meilleur marché qu'il ne serait possible de le faire au moyen de n'importe quel autre réflecteur. Fabrication de premier ordre. Des milliers en emploi.

BY Using the Syracuse Changeable Electric Headlight only one headlight is needed for each car, as it can be changed from one end of the car to the other without the slightest trouble whatever. Electrically connected sockets are fastened to each dash-board. By simply inserting the contact stem of the headlight into either socket the lamp lights automatically. By buying two extra sockets at small cost, both an open and a closed car can be equipped at less cost than either of them could be with any other make of headlight. No switches. Everything the very latest. Thousands in use.



HEADLIGHT AND SOCKET.

SOCKETS ARE PERMANENTLY ATTACHED TO EITHER OR BOTH DASHES. INSERTING CONTACT STEM OF HEADLIGHT INTO SOCKET LIGHTS LAMP AUTOMATICALLY.



MOTORMAN CHANGING HEADLIGHT FROM ONE END OF THE CAR TO THE OTHER.

MANUFACTURED BY THE

Crouse-Hinds Electric Co.,

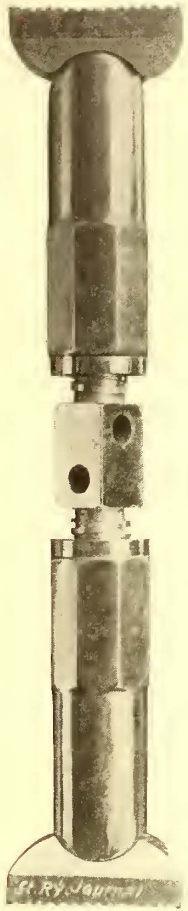
SYRACUSE, NEW YORK,
U. S. A.

EUROPEAN REPRESENTATIVES:

CHAS. G. ECKSTEIN & CO., Spandauer Strasse 58, Berlin C.

E. H. CADJOT & CIE, 12 Rue St. Georges, Paris.

The Pearson Jack.



La "Pearson Jack" est positivement l'appareil le plus commode pour le remplacement rapide de voitures dérailées. Elle est d'une construction si simple que n'importe qui peut en faire usage. D'autres chèvres ne peuvent que soulever ou élever. La "Pearson Jack" peut le faire aussi bien que la meilleure d'entre elles, et de plus, IL PEUT FAIRE CE QUE NULLE AUTRE CHÈVRE NE FAIT, et ce qu'un appareil de ce genre est précisément appelé à faire—c'est-à-dire, de travailler à angle avec la même force que perpendiculairement. Les poids sont sous contrôle absolu. Les Pearson Jacks se fabriquent en diverses grandeurs, avec barres ou à crics. Employées en grand nombre par les lignes électriques et à vapeur. Ceux qui s'en servent déclarent qu'ils ne peuvent s'en passer. Nous en enverrons une paire à l'essai sur demande.



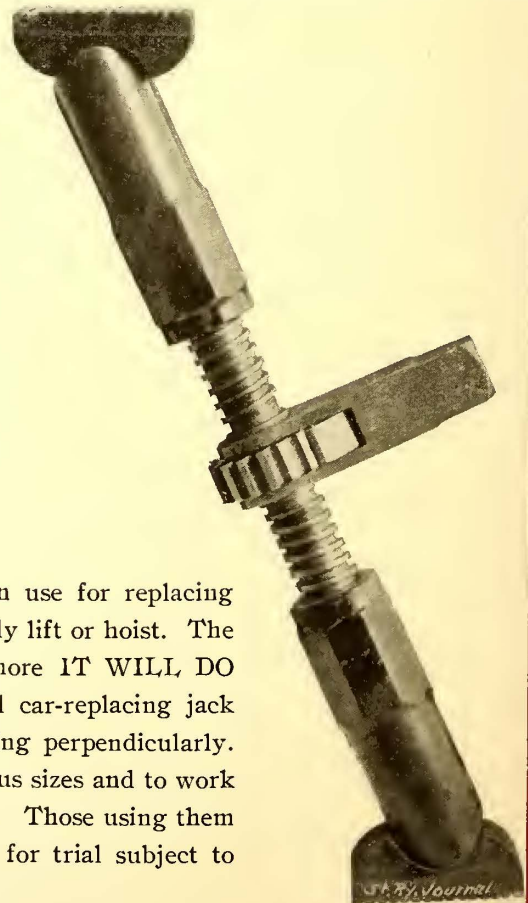
Die "Pearson Jack" ist unbedingt das schnellste Verfahren in Verwendung für die Wiedereinsetzung von ausgegleisten Strassenbahnwagen. So einfach dass Jedermann es verwenden kann. Andere Winden können bloß erheben oder aufziehen. Die "Pearson Jack" kann dies ebenso wie die beste derselben thun, und AUCH WAS KEINE ANDERE WINDE THUN KANN, und was eine erfolgreiche Winde thun soll, d. h., winkelartig ebenso stark als senkrecht arbeiten. Das Gewicht ist unter vollständigem Control. Die Pearson-Winden werden in verschiedenen Grössen und mittels Stangen oder Zahnstangen verfertigt. Vielfach durch elektrischen- und Dampfbahnen verwendet. Die Verwaltungen welche davon Gebrauch machen erklären dass sie sie nicht entbehren können. Wir werden Ihnen ein Paar versuchsweise auf Verlangen einsenden.



El "Pearson Jack" es seguramente el aparato más conveniente para reemplazar coches desrielados. Es tan sencillo que puede ser maniobrado por cada uno. Otras alzaprimas pueden solamente levantar ó alzar. El "Pearson Jack" puede hacer lo mismo que el mejor de los otros, y en adición, PUEDE HACER LO QUE NINGUNA OTRA ALZAPRIMA NO PUEDE, y lo que un aparato de ese género debe hacer—es decir, de trabajar á un ángulo con la misma fuerza que perpendicularmente. El peso está bajo control perfecto. Los Pearson Jacks son hechos de varios tamaños con barras ó engranajes. Usados extensivamente por ferrocarriles eléctricos y de vapor. Los que los emplean no pueden trabajar sin ellos. Se remitirá una par al ensayo á petición.



The Pearson Jack is positively the quickest working device in use for replacing derailed cars. So simple that anyone can use it. Other jacks will only lift or hoist. The Pearson jack will do this as well as the best of them, and furthermore IT WILL DO WHAT NO OTHER JACK WILL DO, and just what a successful car-replacing jack must do—namely, work at an angle with the same force as if working perpendicularly. Weight under perfect control. The Pearson Jacks are made in various sizes and to work with bar or ratchet. Extensively used on electric and steam roads. Those using them say they cannot afford to be without them. Let us send you a pair for trial subject to approval.



Pearson Jack Co.,

64 Federal St., Boston, U. S. A.

NEW YORK OFFICE, 245 BROADWAY.

The Protected Rail Bond

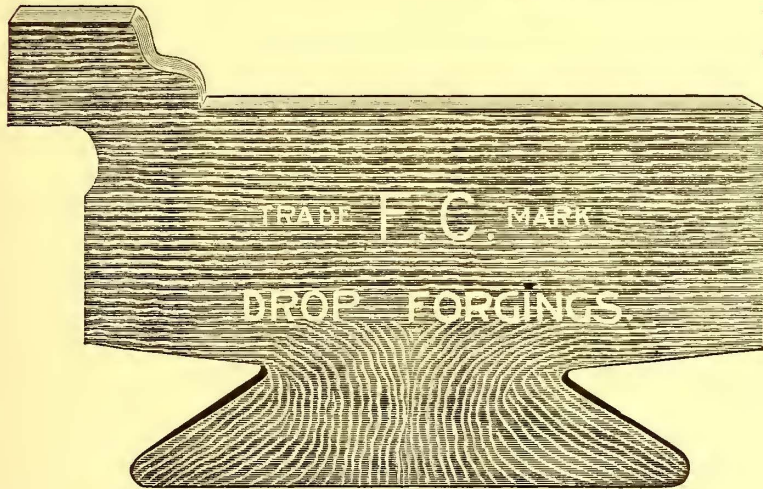
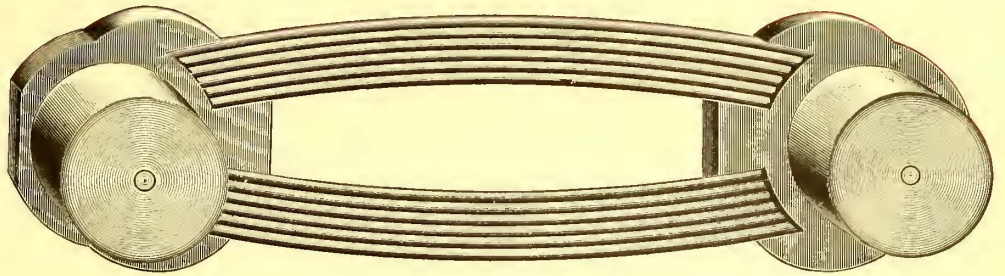
PLACED UNDER THE FISH PLATE

Flexible to Vibration
and Yielding to Con-
traction and Expansion.

Solid Copper Terminals Cast-
Welded on to Copper Wires.

NO SOLDER.

We Furnish Screw Welders for
Fastening Bond to the Rail
Send for Samples.



**DROP FORGED
AND ROLL DROP**

Commutator Bars.

All Styles and Sizes.

The FOREST CITY ELECTRIC CO.

126 Liberty St., New York.

FACTORY, CLEVELAND, OHIO.

Profit by others' Experience

.. YOU MAY BE NEXT ..

Consolidated Traction Company,

GENERAL SUPERINTENDENT'S OFFICE,
315 & 317 MARKET STREET.

Newark, N. J., December 9th, 1897.

Rochester Hose Bridge Company, Rochester, N. Y.

Gentlemen--On August 30th, 1897, there was a large fire in the New York Biscuit Company's building, on Lombardy Street, near Broad Street, Newark.

The Fire Department were required to place the hose across our tracks at 9:09 P. M. Our cars were blocked eleven minutes, when your hose bridges arrived, which were immediately put into service and kept in service, enabling our traffic to move without interference until midnight, when the hose was removed. During that time, 143 cars had passed over the bridges.

I consider your bridge a good one, and the ordering of six more of them is evidence of the fact.

Yours truly,

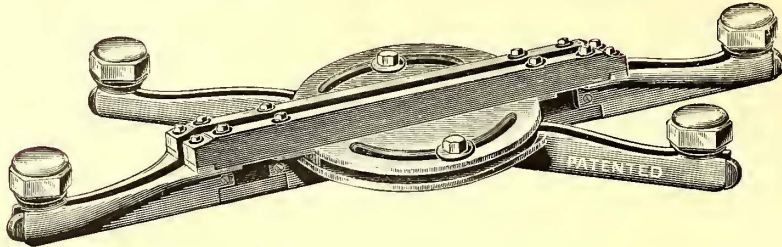
General Superintendent.

Have your emergency stations equipped with **ROCHESTER HOSE BRIDGES**

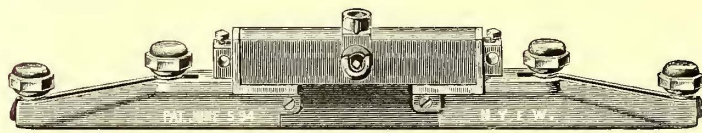
MANUFACTURED BY

Rochester Hose Bridge Company, Rochester, N. Y.

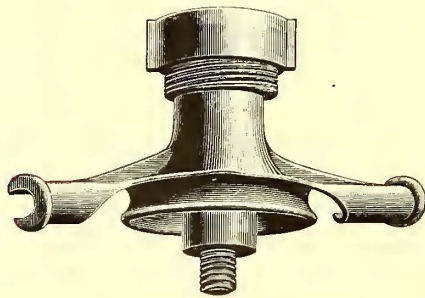
RAILWAY SUPPLIES



Code Word. Cat. No.
Sacramento 1099 Insulated Adjustable Crossing.

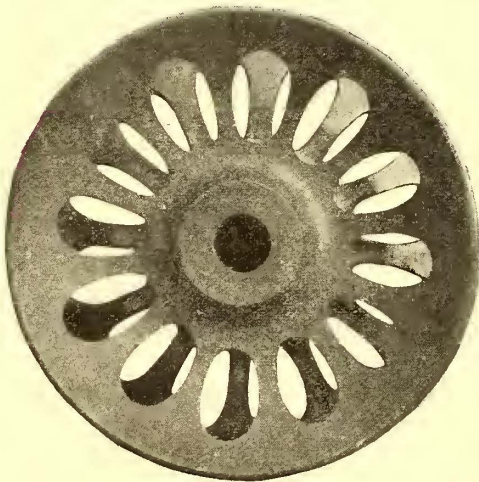


Sabbath 1094 SECTION INSULATORS.



Safeguard 1117 Straight Line Hanger, Bronze.

Saffron 1118 Straight Line Hanger, Malleable Iron.



Steel 2521 Sleet Wheel,
Most perfect design on the market.

Trolley Harps,
Controller Parts,
Drop Forged
Commutators.

REPAIR SHOP EQUIPMENT

We are prepared to furnish everything required for the complete equipment of Railway Repair Shops. We pay special attention to this department and full satisfaction is guaranteed to patrons.

STEAM SPECIALTIES

When in need of anything in in this line you will serve your own interests by getting our figures. We can supply you anything required.

ENGINE ROOM SUPPLIES

Our oils, greases, packing and sundries required by the steam engineer are the best obtainable. Let us quote you.

TROLLEY WIRE,
MAGNET WIRE,
RAIL BONDS,
MACHINE BOLTS,
CARRIAGE BOLTS,
SCREWS.

WENDELL & MacDUFFIE,



26 Cortlandt St., NEW YORK. 53 State Street, BOSTON.

Track Sprinklers,
Construction Cars,
Transfer Tables.

TAUNTON LOCOMOTIVE M'F'G. CO.

Taunton, Mass.

WENDELL & MacDUFFIE,
SALES AGENTS,

26 Cortlandt Street,
NEW YORK.

53 State Street,
BOSTON.

GEARS • AND • **PINIONS**

WESTERN GEAR CO.

OFFICES:

MILWAUKEE, WIS.

26 Cortlandt Street,
NEW YORK.

525 Mission Street,
SAN FRANCISCO.

8 Oliver Street,
BOSTON.

Laclede Building,
ST. LOUIS.

VAN WAGONER & WILLIAMS HARDWARE CO.

CLEVELAND, O.

DROP FORGED

Pure Lake Copper

COMMUTATOR SEGMENTS



For all the Standard Railway Motors.

ACCURATE BAR, HIGHEST CONDUCTIVITY, MODERATE PRICE.

... MANUFACTURED BY ...

VAN WAGONER & WILLIAMS HARDWARE CO., Cleveland, Ohio.

REPRESENTATIVES:

C. N. WOOD, 31 State St., Boston, Mass.; New England States.
MAYER & ENGLUND, 10 S. Tenth St., Philadelphia, Pa.; New York, Philadelphia and Middle States.
HAYES & ARTHUR, Cleveland, O.; Western New York, Central Northern Ohio and Canada West.

EUGENE MUNSELL & CO., Chicago; Gen. Western Selling Agts.
BRADFORD BELTING CO., Cincinnati, O., and vicinity.
JAMES CLARK, JR. & CO., Louisville, Ky., and vicinity.
ARTH. S. PARTRIDGE, St. Louis, Mo., and vicinity.
FRANK X. CICOTT, 33-4 Temple Chambers, Temple av. London, E.C.

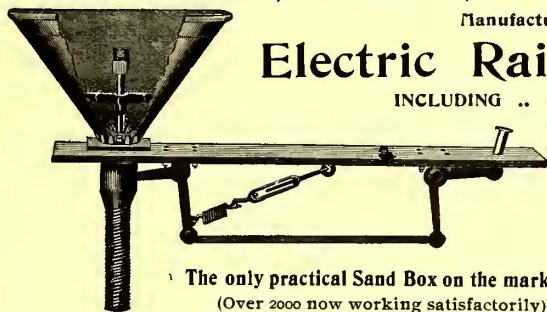
The COLUMBIA MACHINE WORKS

BUEHLER & PLATT, 18 Fulton St., 2-18 Columbia Heights, Brooklyn, N. Y.

Manufacturers of all kinds of

Electric Railway Supplies

INCLUDING



The only practical Sand Box on the market (Over 2000 now working satisfactorily)

Car Trimmings, Sand Boxes, Adjustable Brake and Controller Handles, Complete Commutators ready for use, Self-Oiling and Plain Trolley Wheels, Fuse Boxes, Controller Parts, Patent Interchangeable Reversible Armature Bearings.



COMMUTATORS MADE and REFILLED.

Our Drop Forged :: Commutator Bar is the Best on the Market.

Electric Railway Repairs of all kinds.

KEYSTONE ELECTRICAL INSTRUMENT COMPANY

Switchboard and Portable Voltmeters,

• Ammeters, Ground Detectors and •

• Differential Voltmeters. •

We meet all the requirements of modern Central Stations or Isolated Plants, whether using direct or alternating current circuits.

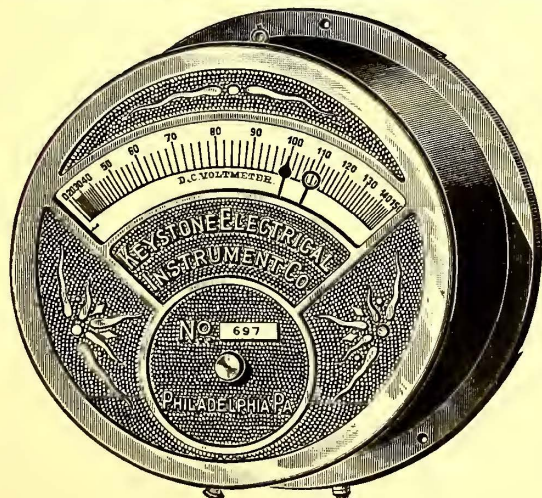
Our instruments are constant and durable, sensitive and accurate, pleasing in appearance and always correct.

We can interest you in prices and other details if you will write to

Ninth St. and } PHILADELPHIA.

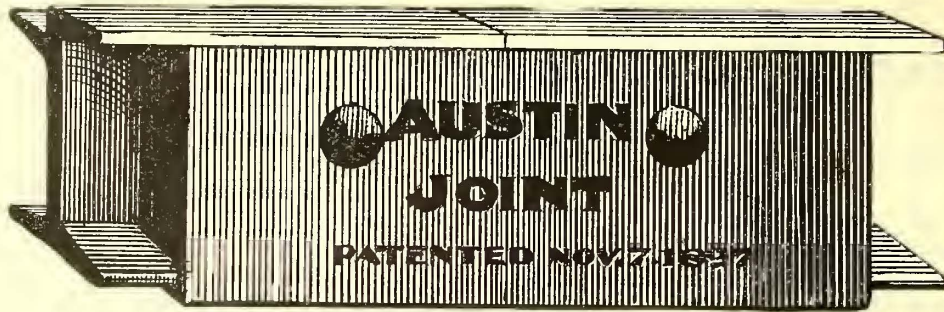
15 } NEW YORK.

1440 } CHICAGO.



TYPE "R" INSTRUMENT.

THE MILWAUKEE RAIL JOINT AND WELDING CO.



We claim the strongest joint.
 We claim the best fusion of the metals.
 We claim the best electrical bond.



We never disturb a tie to place our joints on your tracks.
 We solicit your patronage; write us for prices.
 Our joints do not extend below or outside the flanges of the rail.

GENERAL OFFICE,

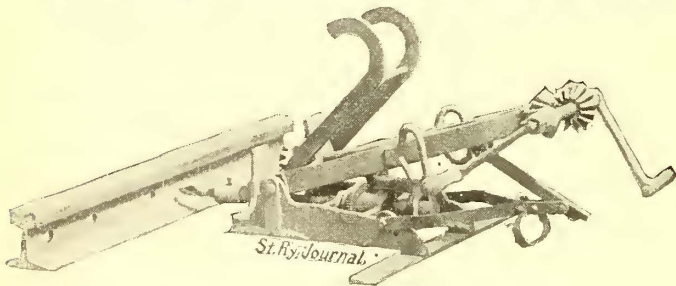
50 Loan & Trust Bldg., - - MILWAUKEE, WIS.

Do You Care what it costs to drill holes for Bond Wires?
 With the BUDA DRILL two minutes is sufficient for a seven-eighths hole in eighty pound rail.

BUDA FOUNDRY & MANUFACTURING CO.,

HARVEY, ILL.

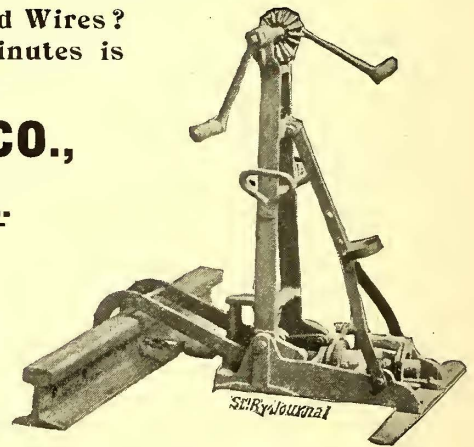
LONDON AGENTS:
 Laing, Wharton & Down, Ltd.,
 82 a New Bond St., West, LONDON.



BUDA PATTERN TRACK DRILL.

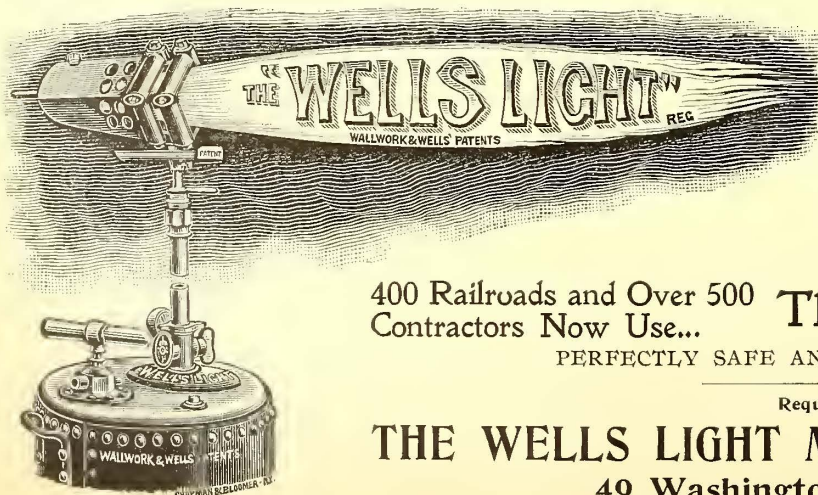
Thrown Back for Passing Train.

(PAULUS PATENT.)



BUDA PATTERN HEAVY BASE TRACK DRILL.

In Position for Drilling. (PAULUS PATENT.)



"ALWAYS READY."

800 to 4,000 Candle Power
 from Kerosene Oil

Especially adapted for NIGHT CONSTRUCTION and HEAVY METAL HEATING, for which purposes its Portability, Power and Automatic Action make it invaluable.

12,000 IN USE.

400 Railroads and Over 500 Contractors Now Use...

The **"WELLS LIGHT"**

PERFECTLY SAFE AND UNAFFECTED BY WEATHER.

Request Circular from

THE WELLS LIGHT MFG. CO.

EDWARD ROBINSON,
 Sole Propr.

49 Washington Street, New York.

A TIME OF RECKONING.



January 1 is usually the time, and when the account for Maintenance of Track comes up, the question of the Falk Cast Welded Joint should also be considered.

Figures founded on facts cannot be disputed, and when such figures can be produced, it is the duty of everyone entrusted with the responsibility of railway management to have these figures produced and substantiated by the facts, and in form clearly understandable, so that the merits of the case may be arrived at immediately.

The Falk Manufacturing Co. will produce these facts and figures. Will you listen to them? Then write to the

FALK MANUFACTURING CO. MILWAUKEE, WIS.

Our Special Department: Curves, Frogs, Switches.

YOU CAN SWEAR

BY OUR **Automatic Electric Track Switch.**

IT HAS BEEN IN PRACTICAL AND SUCCESSFUL OPERATION FOR THREE YEARS.
NO ATTACHMENT TO PUT ON CARS. NOTHING TO GET OUT OF ORDER.

This is what the President of the Brooklyn City & Newtown R. R. Co. says of our Switch:

MR. W. C. WOOD, Prest.,

N. Y. Switch & Crossing Co., Hoboken, N. J.

BROOKLYN, N. Y., May 14th, 1897.

Dear Sir:—In reply to your inquiry about the electric switches which you have furnished us, would say that the first one was put in in October, 1896, at a point where there are about 700 cars passing over it daily. We have had no trouble with it at all. It has worked equally well when there were heavy falls of snow. All that we had to do was to keep the snow clear from it, either by the use of brooms or salt, or both. It was because we were so well pleased with it that we ordered a second one at a similar point this Spring.

I am, yours very truly,

JOHN N. PARTRIDGE, *President.*

We have a number of these switches in constant use, including 7 on the North Hudson County Railway; 7 on the Brooklyn Heights R. R.; 3 on the Brooklyn City & Newtown Railroad, etc.

We will contract to turn your switch for one-half the price it is costing you at present, or will sell the switch outright, which will pay for itself the first seven months. Write us about it.

WE WILL FURNISH YOU WITH ONE OF THESE SWITCHES ON TRIAL.

SPECIAL TRACK WORK OF EVERY DESCRIPTION.

New York Switch & Crossing Co.,

✻ HOBOKEN, N. J., ✻

WEBER RAILWAY JOINT MFG. CO.

MANUFACTURERS OF ..

A Rail Joint

**Which will bring Depressed Rail Ends
to surface and keep them there**

NOTE THE FOLLOWING LETTERS:

HAMILTON & LINDENWALD ELECTRIC TRANSIT CO..

HAMILTON, OHIO, Oct. 13, 1897.

WEBER RAILWAY JOINT MANUFACTURING Co.,
Cotton Exchange Building, New York City.

Gentlemen:—In reply to your favor of the 17th ult., our electrician, Mr. Bowman, has this to say:

“We find that the Weber joint we are using for track joints on $4\frac{1}{4}$ inch girder rail gives perfect satisfaction in every respect. Our rail ends were somewhat depressed before using your joints. After using same for about three months, we find these rail ends in perfect alignment. Our cars ride smoothly, and it is like one continuous rail. Our joints are solid, and we think they will last for from seven to ten years with the present number of cars traveling over them (twelve).

“We believe this joint will increase the life of the rail from three to five years. We had considerable trouble with our joints prior to this time, but think now our trouble is at an end.”

Yours very truly,

(Signed) IRA S. MILLIKIN, Sec'y.

AUBURN CITY RAILWAY COMPANY,

AUBURN, N. Y.

General Office; SYRACUSE, N. Y.

SYRACUSE, N. Y., Dec. 13, 1897.

WEBER RAILWAY JOINT MFG. Co., New York City.

Gentlemen:—We have had an experimental half mile of your joints in our system for about six months, and we are pleased with the results.

They were put on a piece of track composed of 45 lb. Tee rail that was in very bad order. They were an improvement from the beginning and within two weeks the track was in very fair shape, the ends of the rail being straightened out entirely, substantiating your claims in that respect.

The last order of 500 joints has been delivered, and we are putting them in as fast as possible.

We hope to use your joints on our new Tee rail construction, as the results on our old track have been very satisfactory to us.

Yours truly,

(Signed) THOS. H. MATHER, Chief Engr.

Weber Joints

have been used for ten years or more with entire success on a number of the large steam railroad systems of the country, and for the last three years on many city railway systems, including the Manhattan Railway Company of New York City, where they are the standard joint and are used on 100 miles of track. Full references to results actually accomplished will be given when desired.

Cotton Exchange Building, NEW YORK, N. Y.

Branch Offices: { 70 Kilby Street, - - - BOSTON, MASS.
Old Colony Building, - - - CHICAGO, ILL.

A FORGING

of Fluid-Compressed Open Hearth Steel, worked under an hydraulic press, has no equal.

PARTICULARS
ON
APPLICATION.

THE BETHLEHEM IRON COMPANY,

SOUTH BETHLEHEM, PA.

100 Broadway, NEW YORK.

Marquette Bldg., CHICAGO.

421 Chestnut St., PHILADELPHIA.

Cambria Steel Rails.

Girder Rails, Grooved Rails and High Ts

FOR ELECTRIC RAILWAYS.



T Rails from 8 to 100 pounds per yard.

RAILWAY FASTENINGS.



ADDRESS, **CAMBRIA IRON COMPANY, PHILADELPHIA.**
(WORKS AT JOHNSTOWN, PA.)

SELLING AGENTS:

NEW YORK CITY.—W. A. Washburne, 33 Wall Street.
CHICAGO, ILL.—C. J. Ellis, 209 Western Union Building.
DETROIT, MICH.—W. F. Jarvis & Co., Newberry Building.
TOLEDO, O.—W. E. C. Cox, 401 The Nasby.
ST. PAUL, MINN.—Geo. M. Kenyon, 109 Endicott Arcade.

CINCINNATI, O.—Puchta, Pund, & Co., S. W. Cor. Elm and Pearl Streets.
ST. LOUIS, MO.—Ezrah H. Linley, 714-716 N. Second Street.
OMAHA, NEB.—Jos. R. Lehmer, 303-305 S. Thirteenth Street.
ATLANTA, GA.—F. I. Stone & Co.
PITTSBURG, PA.—W. McLain, 818 Park Building.

BARBOUR, STOCKWELL CO.,

205 Broadway,

SPECIAL WORK!

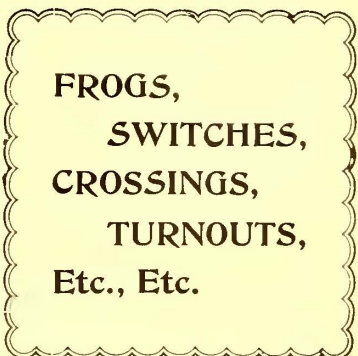
Cambridgeport,
MASS.



Manufacturers
and
Selling Agents

.. FOR THE ..

COMPOSITE BRAKE SHOE COMPANY.



We make OUR
Mates and Frogs with a
HARD STEEL RISER.

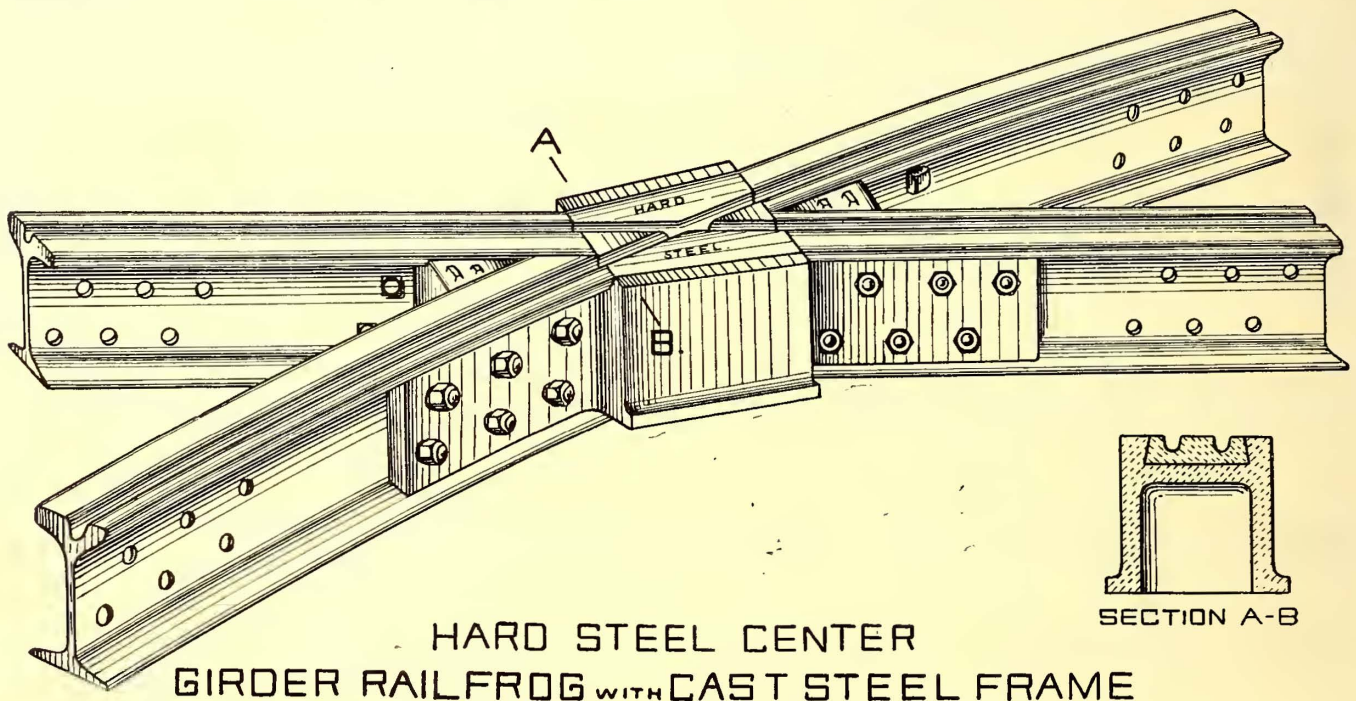
— THE —

Cleveland Frog and Crossing Co.,

— MANUFACTURERS OF —

Improved Hard Steel Centre

SPECIAL WORK



For Electric Railway Service of Every Description.
 All Sections of Groove, Girder, Guard and T Rail Carried in Stock.

PORTER ROCKING SWITCHES

Safest and Most Durable Switch for Branch-offs and Derails at Railroad Crossings.

Steam and Electric Railway Easer Rail Crossings
 and Track Supplies in General.

Plans and Estimates Furnished on Application.

Main Office and Works,
 Bessemer Ave. and Erie R.R.
 Engineer's Office,
 614 & 615 Cuyahoga Bldg.,

CLEVELAND, O.

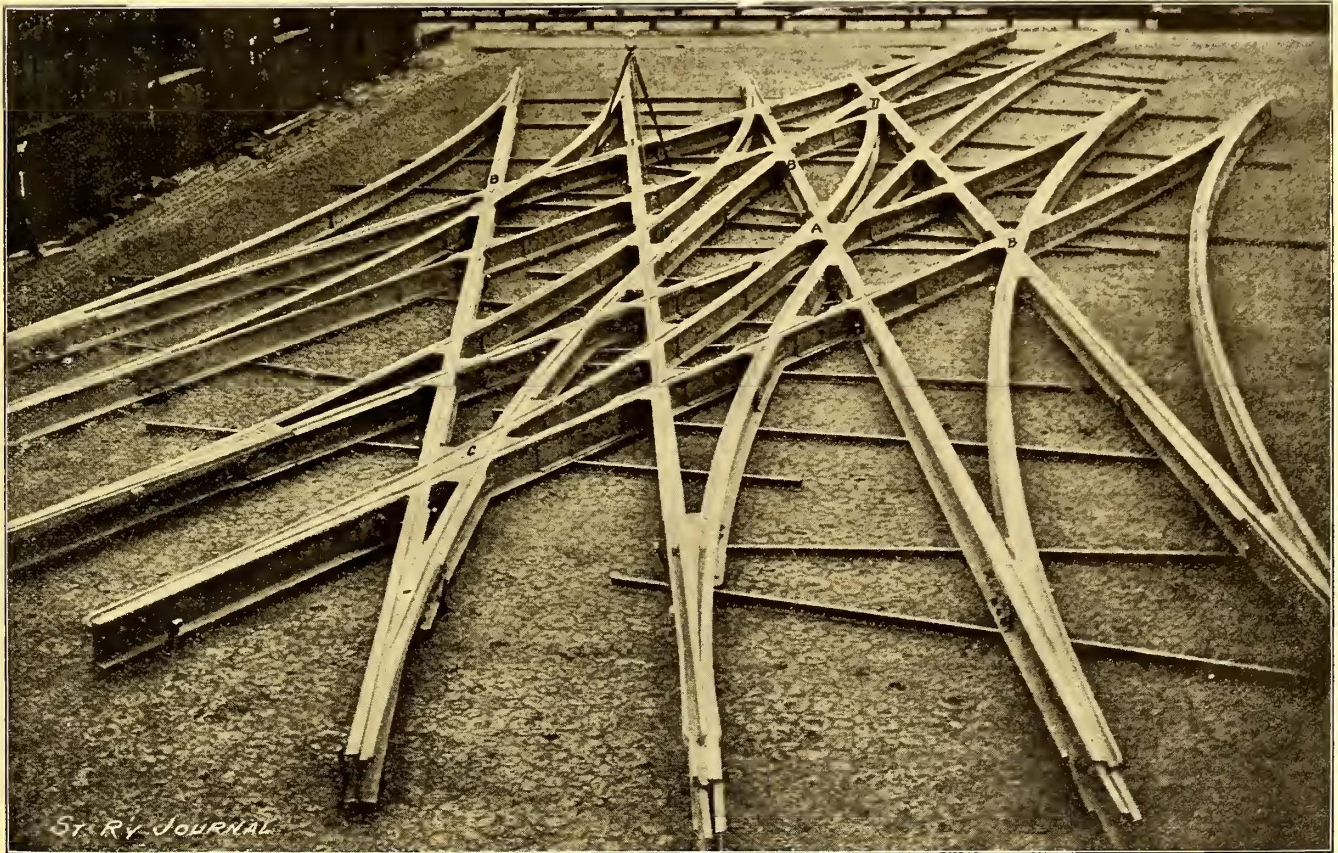
G. C. LUCAS,
 General Manager.
 F. A. LAPHAM,
 General Sales Agent.

The Pennsylvania Steel Co.
and The Maryland Steel Co.

... Manufacturers of ...

STEEL RAILS.

ALSO, OF STRUCTURAL MATERIAL,
BUILDINGS, BRIDGES AND VIADUCTS,
FROGS, SWITCHES, CURVES and CROSSINGS,
FOR BOTH STEAM and STREET RAILWAYS.



SOLID CAST STEEL SPECIAL WORK.

The several parts of this piece of work are made of the best quality of Open Hearth Steel. The decided advantage of this construction over all other, is well illustrated by the small number of parts required. The Frog marked A contains five intersections and eight arms, and yet is but one single piece of metal. There are no chocks, bolts, rivets, or braces to get loose, thus insuring the longest possible life.

Call on or address our nearest Agent for Information and Prices.

Philadelphia Office, Girard Building,
Richard Peters, Jr., Sales Agent.
New York Office, - No. 2 Wall Street,
S. W. Baldwin, Sales Agent.
Boston Office, - - No. 8 Oliver Street
Chas. S. Clark, Sales Agent.



Baltimore Agts.—R. C. Hoffman & Co., Equitable Building.
San Francisco Agts.—C. B. Kauffman & Co., 525 Mission St.
Chicago Agts.—W. H. Stearns and A. F. Klink,
413 Western Union Building.
London Agts.—Sanders & Co., 36 Lime Street.

Main Office, Mills, Shops and Foundries at Steelton, Pa.
and Sparrow's Point, near Baltimore, Md.

Business Established in 1859.

WM. WHARTON, Jr., & CO.,

INCORPORATED.

MANUFACTURERS OF

Everything Entering into the Track Construction

OF

Electric Railways, Cable Railways, Horse Railways,

Including all the latest and most approved appliances and appurtenances.

— ALL KINDS OF —

STREET RAILS,
GIRDER RAILS,
FLAT TRAM RAILS,
SLOT RAILS,

CURVED RAILS,
RAILWAY CASTINGS,
SWITCHES,
FROGS,

CROSSINGS,
TURNABLES,
TRANSFER TABLES,
DERAILING SWITCHES.

WE PARTICULARLY DIRECT ATTENTION TO OUR

PATENTED "INTEGRAL" SPECIAL WORK,

With and without Manganese Steel Inserted at points of maximum wear. This special work is used by the leading railroads, and by them considered the best ever made.

Improved Brake Shoes of all Kinds. Gray Iron Castings.

Frog, Switch and Curve Works,
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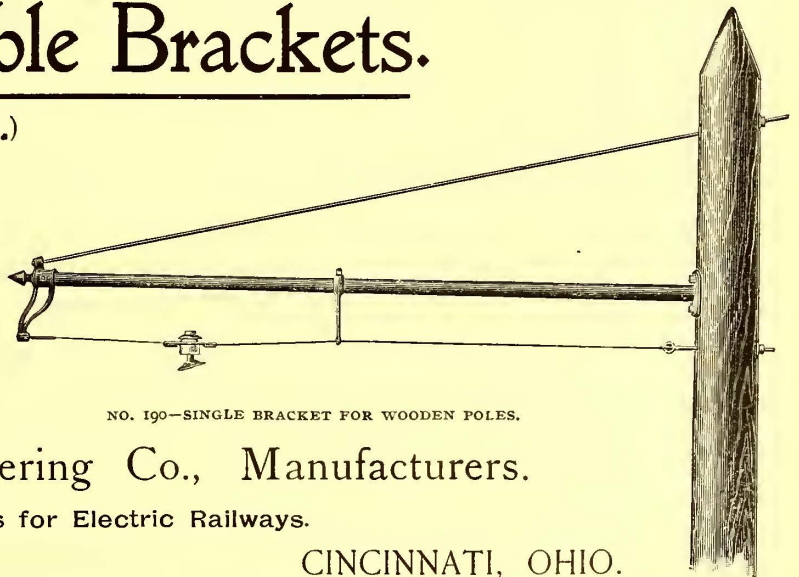
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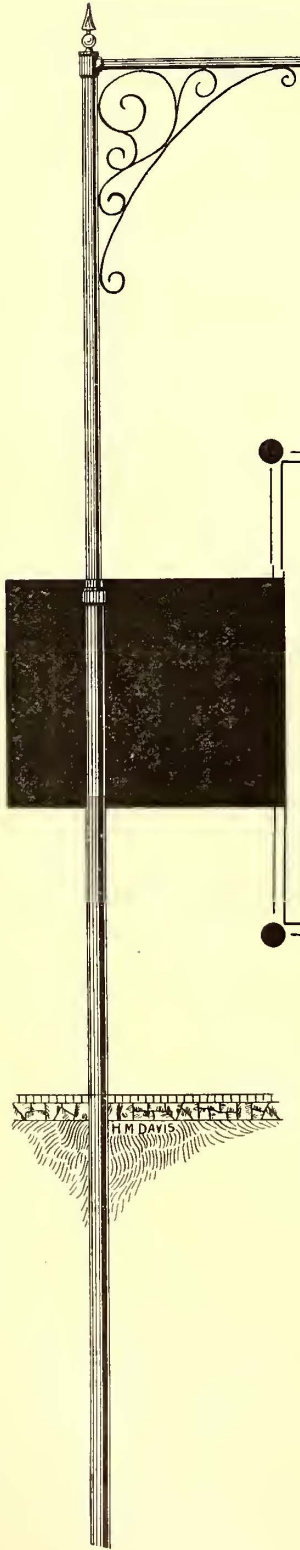
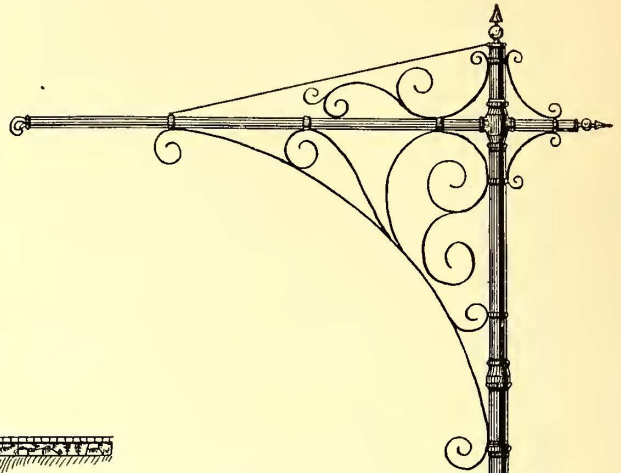
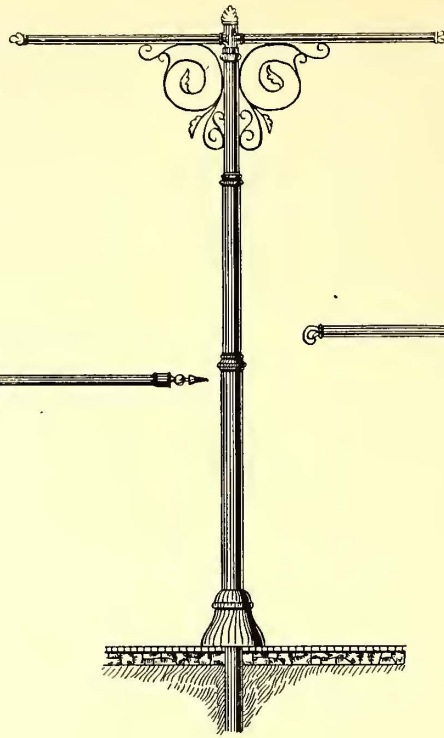
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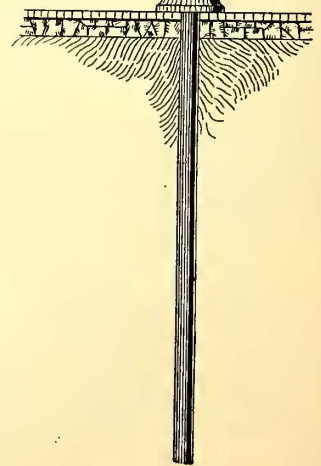
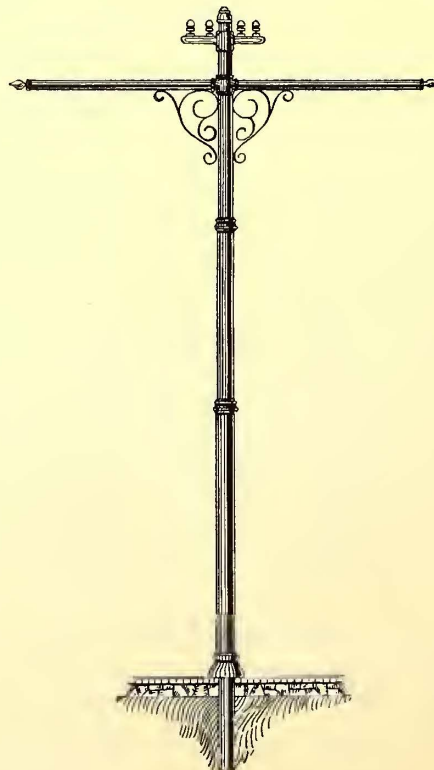
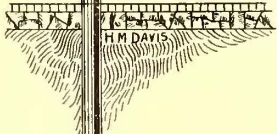
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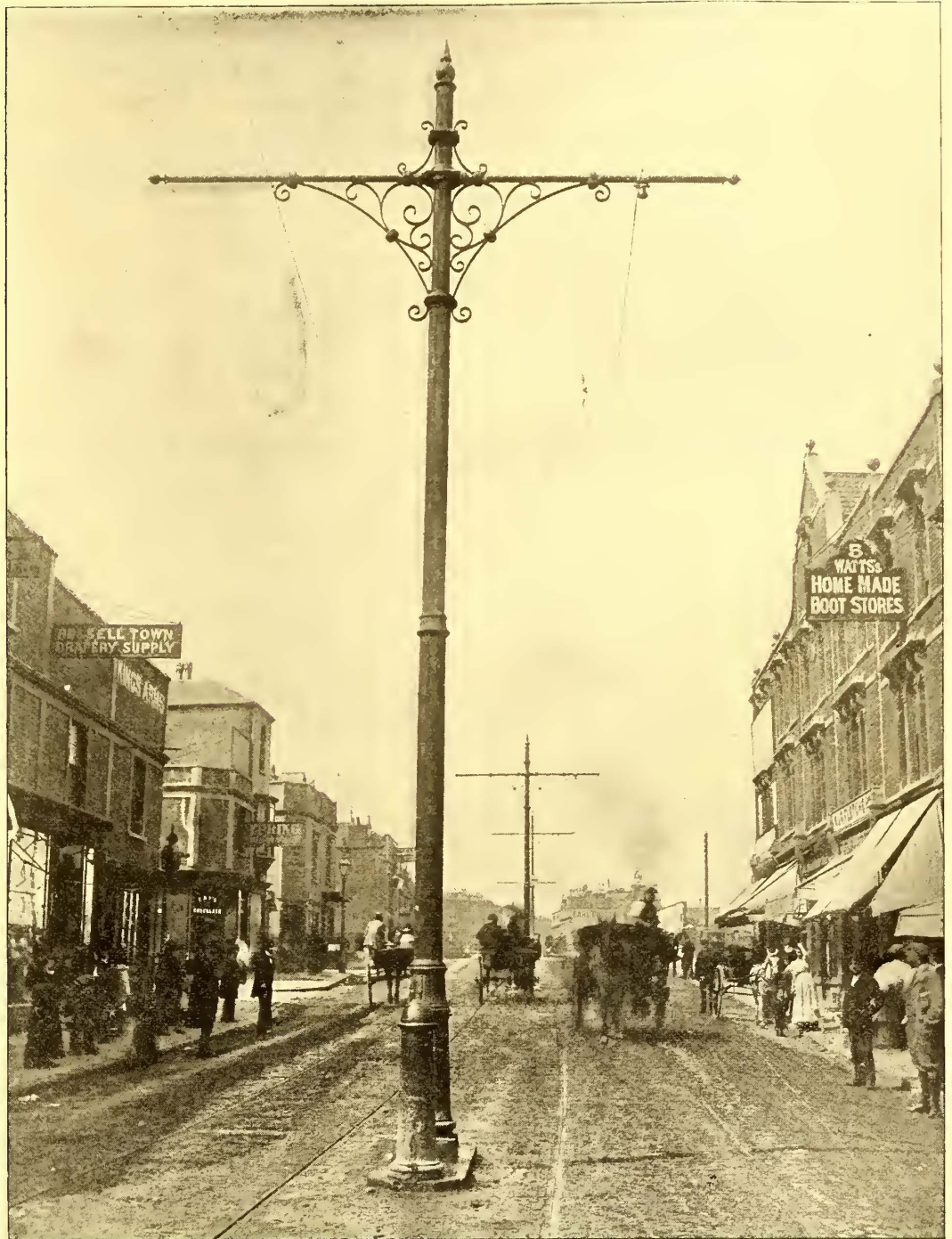
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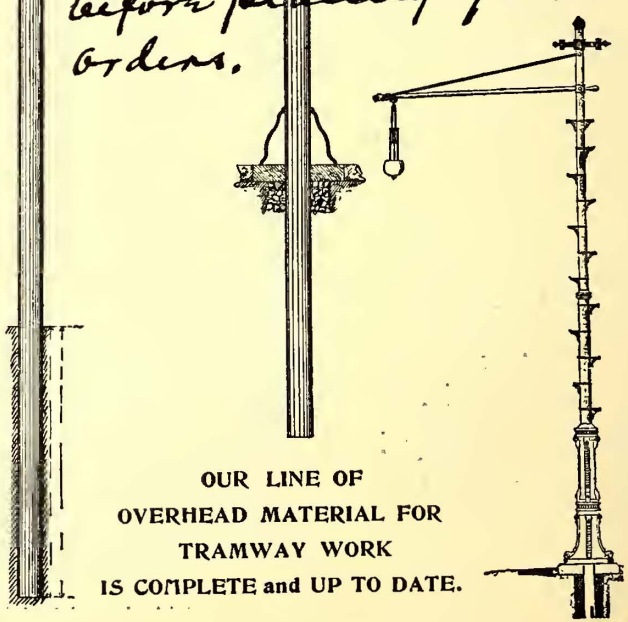
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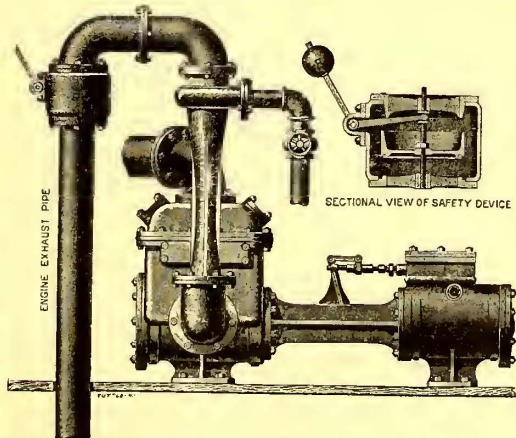


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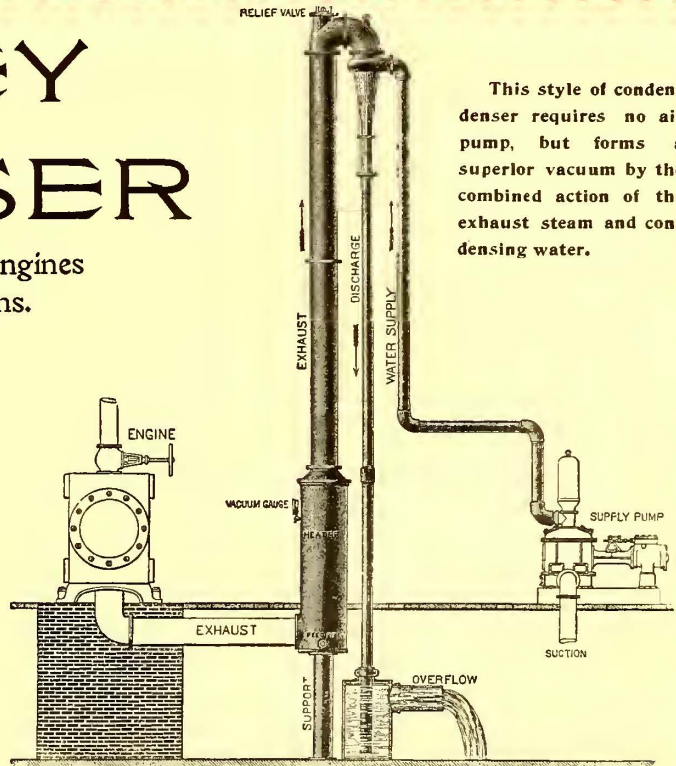
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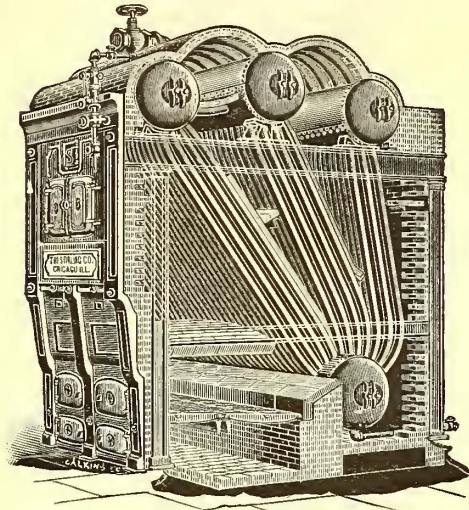
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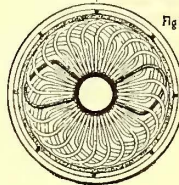
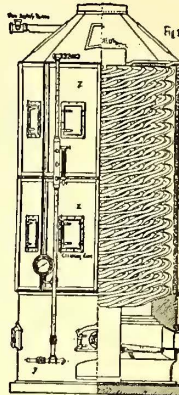
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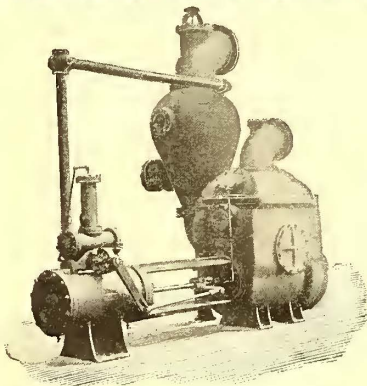
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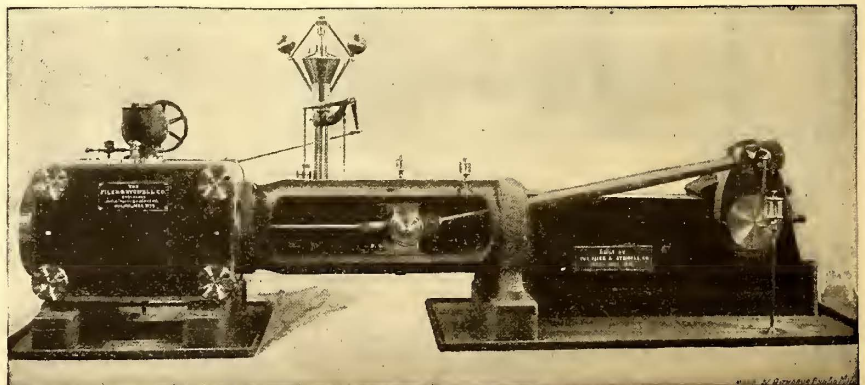
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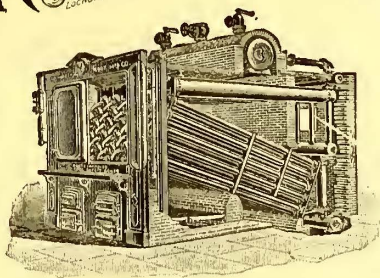


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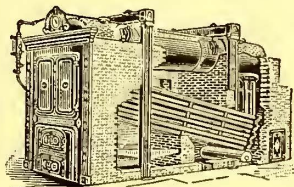
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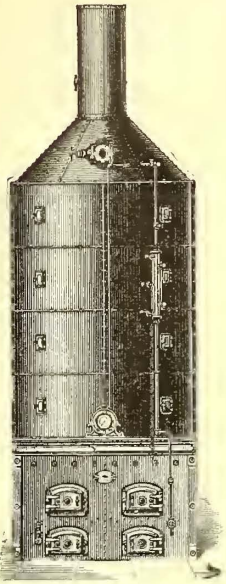
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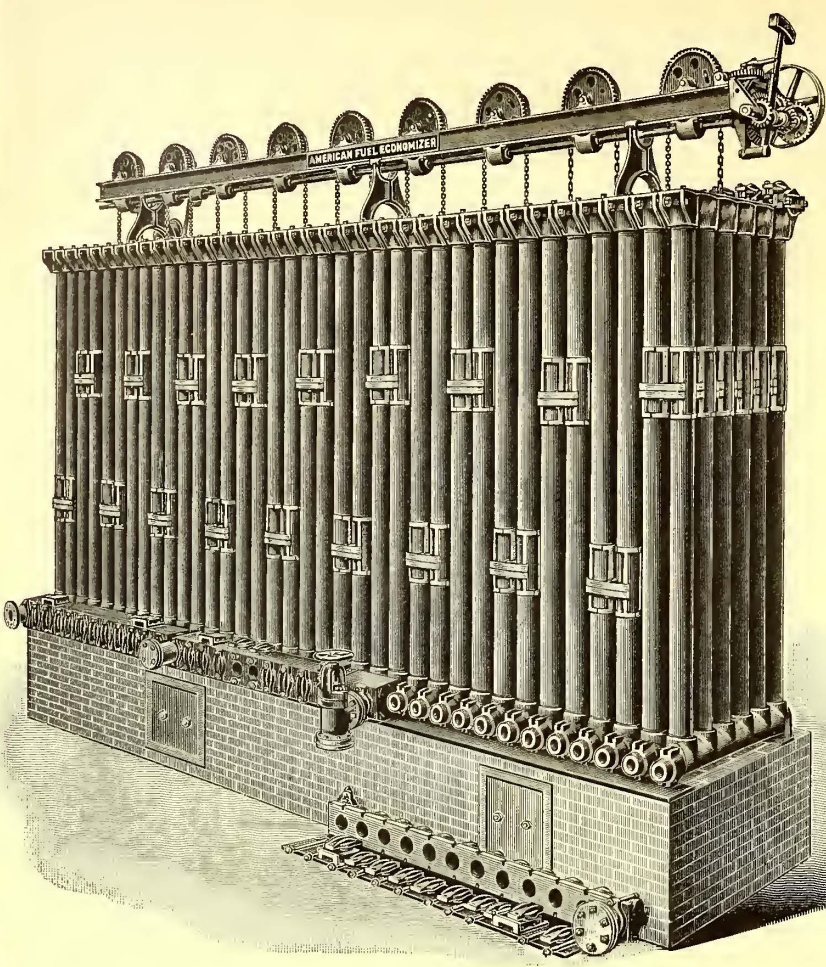
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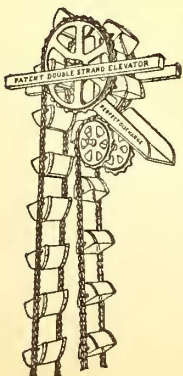
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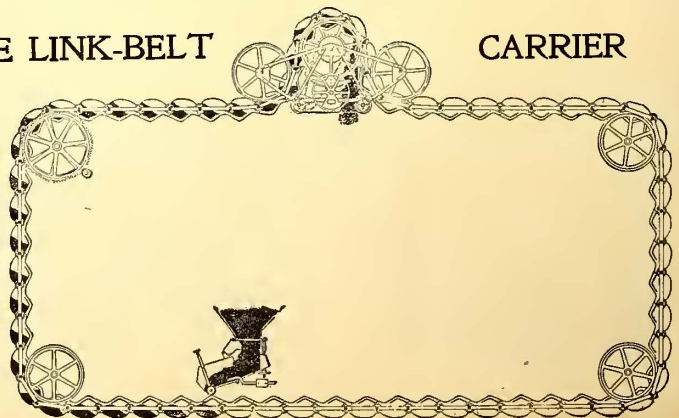
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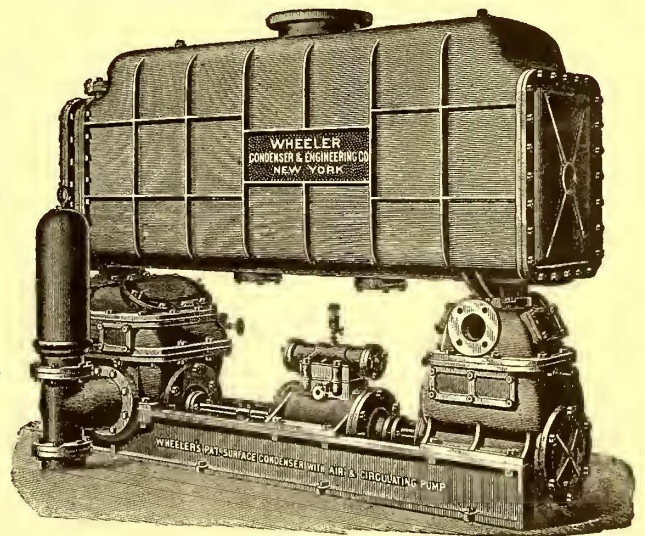
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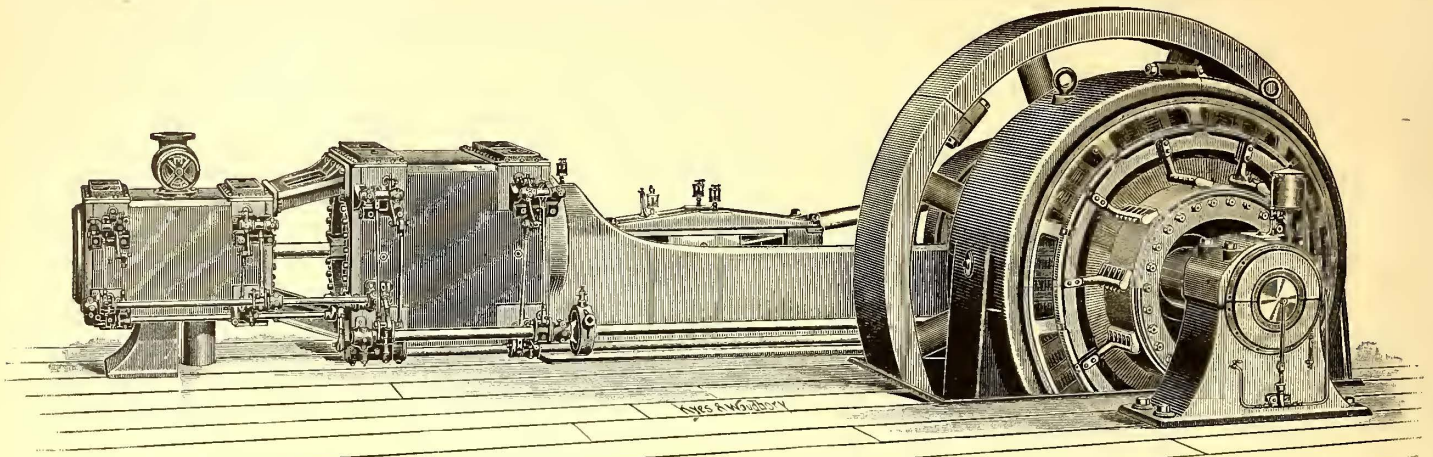


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We can also Refer to Many of the Largest Lighting Plants Throughout this Country and Europe

McINTOSH, SEYMOUR & CO.,

AUBURN, N. Y.



HORIZONTAL TANDEM DIRECT-CONNECTED UNIT.

GRIDIRON VALVES, POSITIVE VALVE-GEAR, ECONOMY, CLOSE REGULATION,
DURABILITY, RIGIDITY.

These are some of the features of our

ENGINES OF ALL SIZES AND TYPES
ESPECIALLY ADAPTED FOR RAILWAY WORK.

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McINTOSH, SEYMOUR & CO.,
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J. A. GRANT & CO.,
8 Oliver Street.

European Representative, ROBT. W. BLACKWELL, 39 Victoria St., Westminster, London, S. W., England.

BUCKEYE ENGINE COMPANY,

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HORIZONTAL AND VERTICAL ENGINES

SIMPLE, COMPOUND AND MULTIPLE CYLINDER,
CONDENSING AND NON-CONDENSING,

For Direct Connecting to Generators for Electric Railway Work.

—CATALOGUES UPON APPLICATION.—

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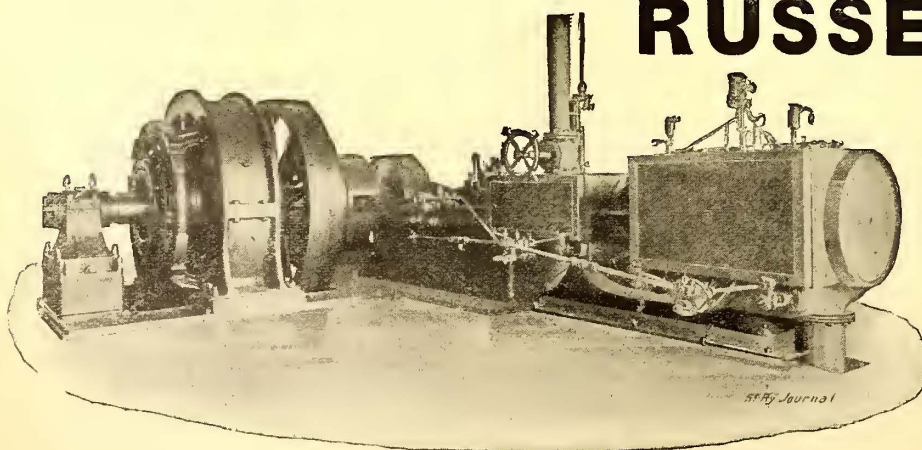
Massillon, Ohio, U. S. A.

BUILDERS OF

ENGINES

Of the Single and Four
SIMPLE AND COMPOUND. Valve Pattern

ELECTRIC RAILWAY WORK A SPECIALTY
Belted and Direct Connected.



Pierce & Miller Engineering Co.

CONTRACTING ENGINEERS

**Electric Railways Financed, Built and Equipped.
Power Plants Designed and Installed Complete.**

HIGH GRADE ENGINES FOR ELECTRIC AND MANUFACTURING PLANTS.

THE "STANDARD" BALL AUTOMATIC ENGINES



SIZES

20 to 500 H. P.



STYLES

Horizontal and Vertical,
Simple and Compound,
Tandem and Cross.



UNIQUE FEATURES

Enclosed while running.
Removable front.
Housing and Boxes.

Making Open Front for
Adjustment and Repairs.



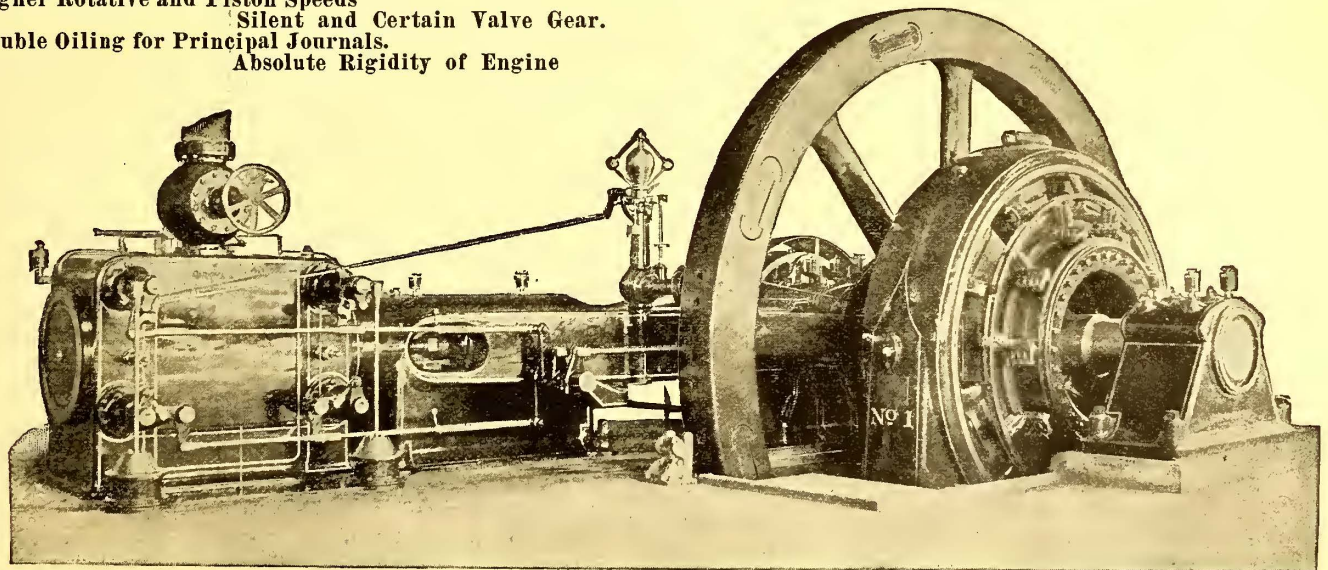
RICE-SARGENT ENGINES } A NEW DEPARTURE IN ENGINES

Combination of the Gridiron and Corliss Valve.

Steam Operated Dash Pots for Speeds from 100 to 150 Revolutions

Cylindrical Gridiron Valves
Large Port Openings
Perfect Steam Distribution
Higher Rotative and Piston Speeds
Double Oiling for Principal Journals.
Reduced Clearance Space
No Wrist Plates
Double Eccentrics
Silent and Certain Valve Gear.
Absolute Rigidity of Engine

"INERTIA" AUTOMATIC SHAFT GOVERNOR



Vertical and Horizontal Engines, 300 to 3,000 H. P., either simple or compound, especially adapted for Street Railway Service, Surpassing all others in adaptability to varying loads.

WE CHALLENGE COMPETITION IN ECONOMY, EFFICIENCY,
PERFECTION IN DESIGN AND WORKMANSHIP

PIERCE & MILLER ENGINEERING CO. 26 Cortlandt St., New York, U. S. A.

HAVEMEYER BUILDING,

WAS DIE INGENIEUREN VERLANGEN

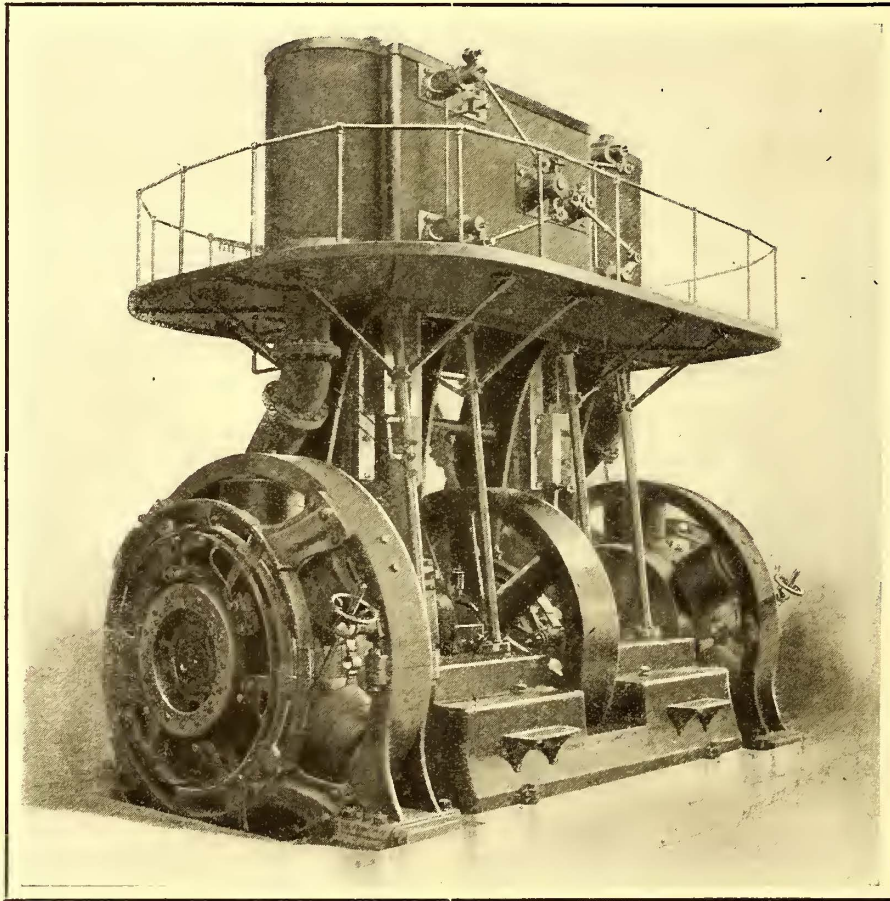
ist eine Maschine für elektrischen Betrieb, von mittelmässiger Geschwindigkeit, nicht zu schnell weder zu langsam gehend, welche die Ersparniss einer Corliss sowie die beste Regulierung ergibt, und stark genug ist um die Anstrengungen einer plötzlichen und schwankenden Ladung zu widerstehen.

Eine Zentralstation in den Vereinigten Staaten, welche mit Zehn solchen Maschinen eingerichtet ist, steht an der Spitze aller anderen für die Produktion in Watts pro Pferdekraft.

LO QUE LOS INGENIEROS

desean es una máquina para el servicio eléctrico de velocidad intermedia, ni demasiado rápida, ni demasiado lenta, que puede dar la economía de la Corliss, la mejor regulación, y ser bastante fuerte para resistir á los esfuerzos de cargas súbitas y variables.

Una estación central en los Estados Unidos, en la cual son colocadas diez de estas máquinas, está primera de todas otras respecto de la producción en watts por caballo-vapor.



THE BALL & WOOD COMPANY,

NEW YORK, U. S. A.

WHAT ENGINEERS ARE LOOKING FOR

is an engine for electric service of intermediate speed, not too fast nor too slow, which gives Corliss economy, the best regulation, and is strong enough to stand the strains of sudden and variable loads.

A central station in the United States having ten of these engines, stands at the head of all others for its watts output per horse power.

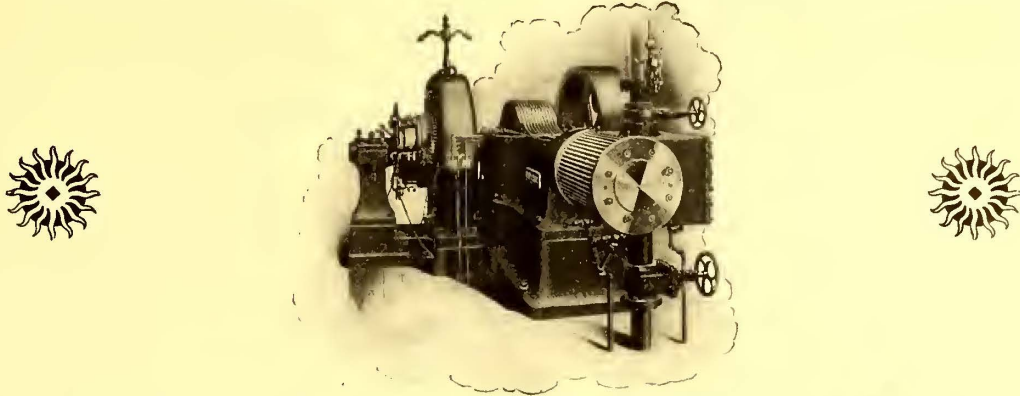
CE QUE LES INGÉNIEURS DEMANDENT

est une machine pour le service électrique à vitesse intermédiaire, ni trop rapide ni trop lente, qui puisse donner l'économie de la Corliss, la meilleure régulation, tout en étant assez solide pour soutenir les efforts de charges subites et variables.

Une station centrale aux Etats-Unis, équipée avec dix de ces machines, se trouve à la tête de toutes les autres en ce qui concerne la production en watts par cheval.

Imperial Engines

FOR ELECTRIC LIGHTING AND RAILWAY PLANTS.



WESTON ENGINE COMPANY,

General Offices, PAINTED POST, N. Y.

BRANCH OFFICES: { 1203 Fisher Building, Chicago.
901 Harrison Bldg., Philadelphia, Pa.

REPRESENTATIVES

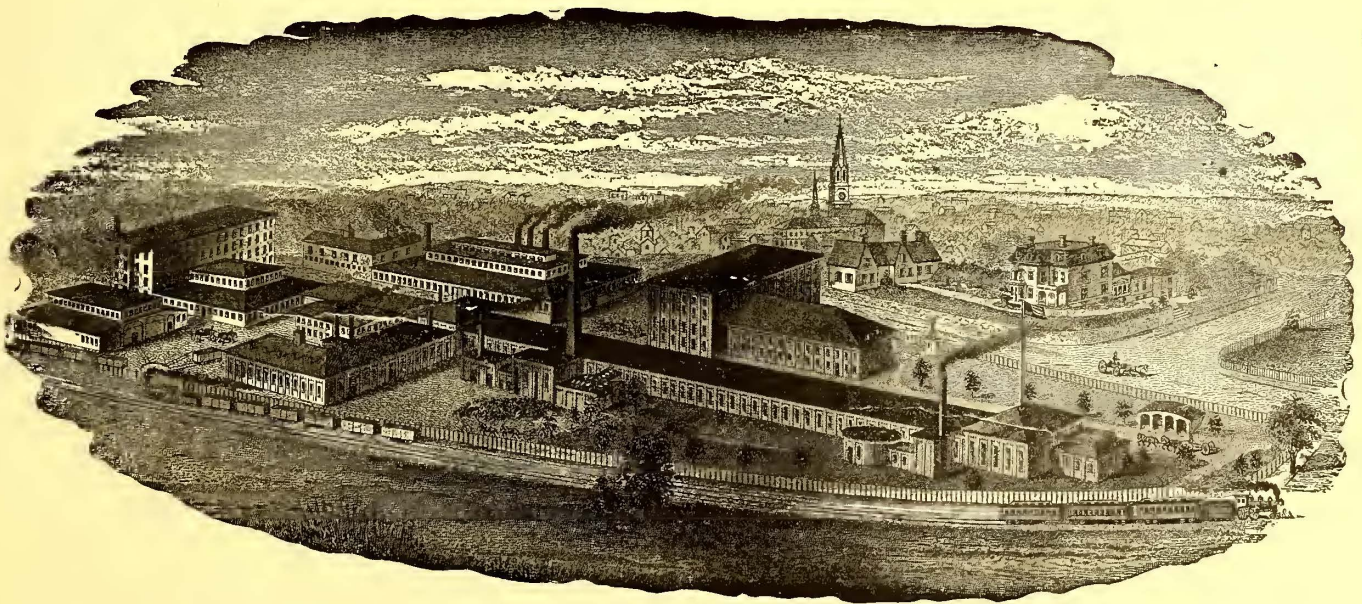
NEW YORK CITY, Julian Scholl & Co., 126 Liberty Street.
SCRANTON, PA., Scranton Supply & Machinery Co., 131 Wyoming Ave.
ST. LOUIS, Moses P. Johnson Machinery Co., 715 North Second Street.
BOSTON, 77 Oliver Street, H. F. Ruggles, Agent.
SAINT PAUL, 201 Manhattan Building, Frank B. Thompson, Agent.

BALTIMORE, MD., T. K. Carey & Bros. Co., 26 Light St.
SEATTLE, WASH., Mitchell, Lewis & Staver Co.
LOS ANGELES, CAL., Chas. B. Boothe & Co., 120 So. Los Angeles St.
DENVER, Hendrie & Bollhoff Mfg. Co., Agents.

General South Eastern Agents: D. A. TOMPKINS CO., Charlotte, N. C.

CORLISS STEAM ENGINE CO.

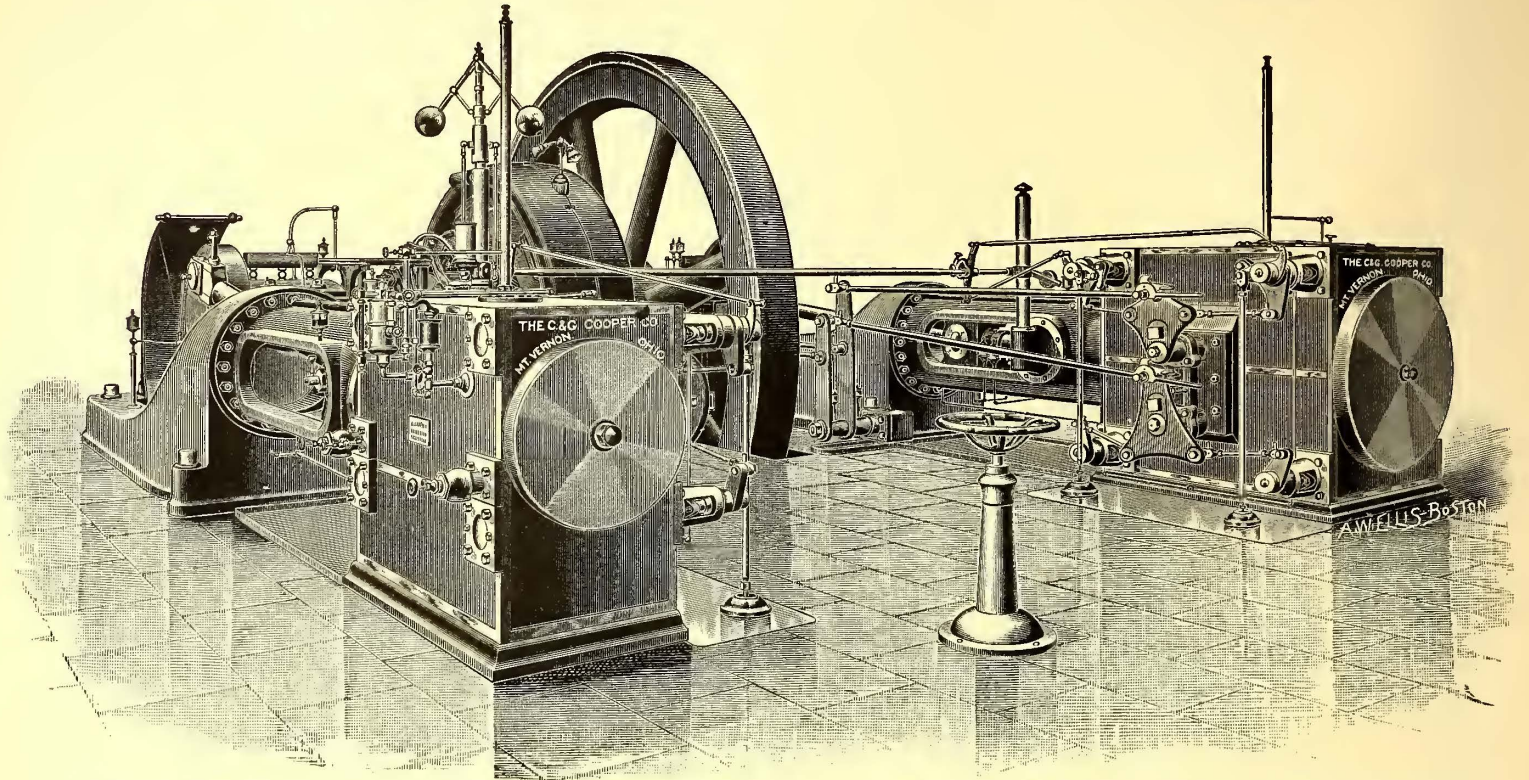
PROVIDENCE, R. I.



Plant of the Corliss Steam Engine Co., at Providence, R. I.

This Company manufactures Corliss Engines in different types, which are generally and successfully used for Manufacturing and Electric Power. Also builders of Corliss Patent Vertical Tubular Water Leg Boilers, especially adapted for compound and triple expansion engines requiring superheated steam and at very high pressure.

THE C. & G. COOPER CO. BUILDERS OF CORLISS ENGINES
MT. VERNON, O. **COMPOUND, CONDENSING AND HIGH PRESSURE.**



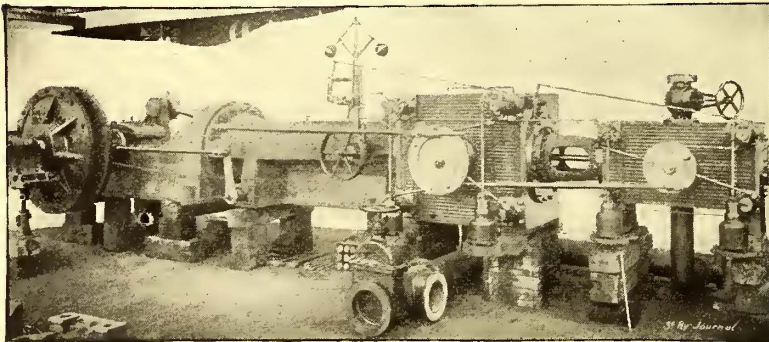
From 50 to 3,000 H. P.
with Girder or
Semi-Tangye Frames.

CROSS COMPOUND CONDENSING
For ELECTRIC R. R. WORK.

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HEAVY DUTY
ST. LOUIS CORLISS

HEAVY DUTY
"ST. LOUIS CORLISS"
ENGINES FOR
Street Railway Service.



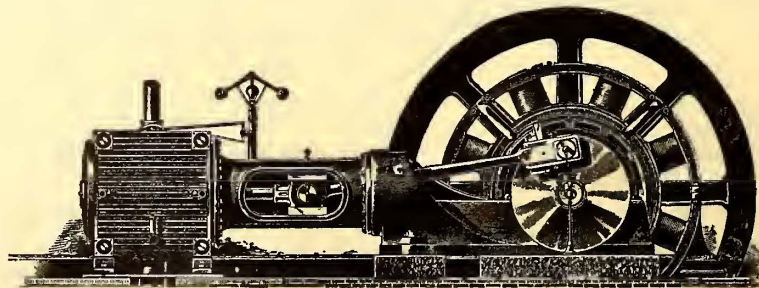
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ST. LOUIS IRON & MACHINE WORKS,
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1897 CATALOGUE JUST OUT.

ROBT. WETHERILL & CO.,

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 Electric and Cable Railway Power Machinery.

**Corliss
 Engines.**



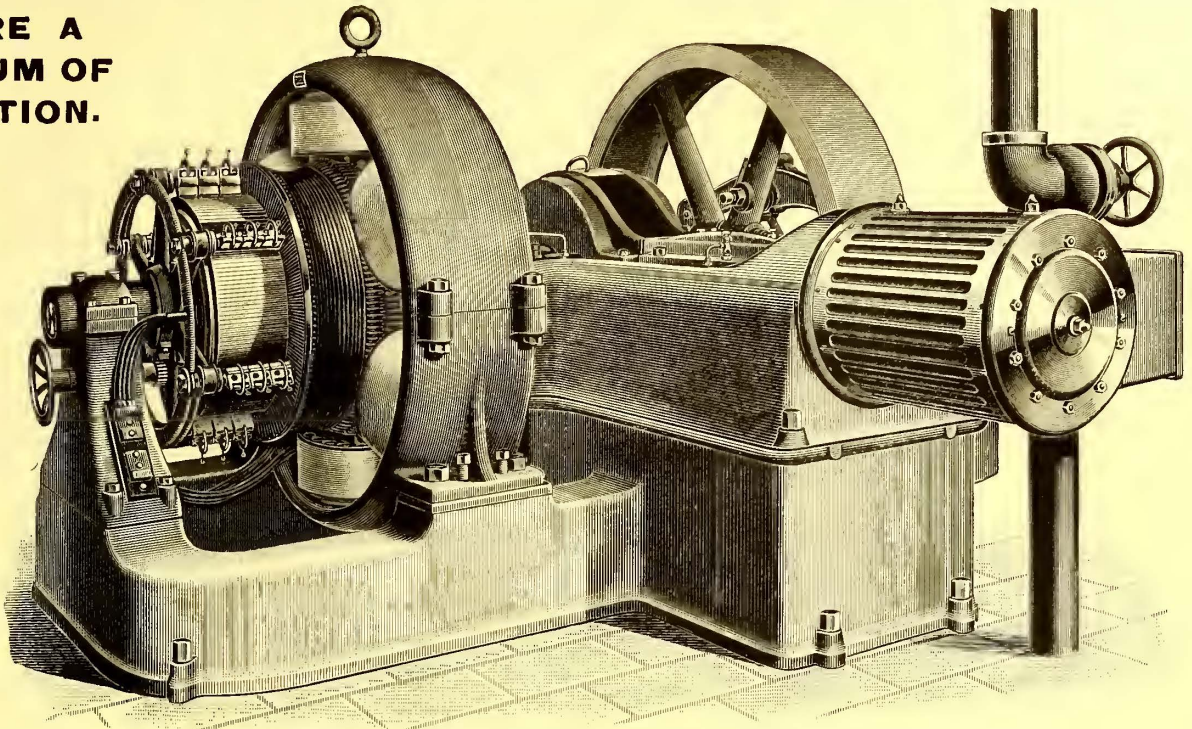
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 Boilers.**

AMERICAN-BALL ENGINE AND DIRECT-CONNECTED GENERATOR

REQUIRE A
MINIMUM OF
ATTENTION.

Belted
Engines
Simple
and
Compound.

Belted
Generators
and
Motors.



Self oiling engine.
Self regulating generator.
"You press the button (open the throttle)
and the machine does the rest."

No noise or vibration.
No hot bearings.
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No sparking at commutator.

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Nothing but happiness for all concerned.

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THE NEW "BROWN."

C. H. Brown & Co.,

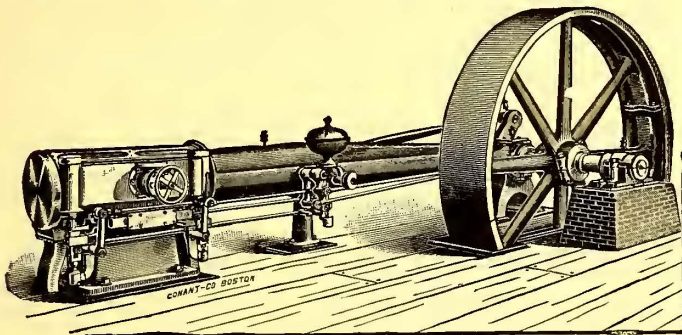
16 Main St., Fitchburg, Mass.

Exclusive Manufacturers.

Simple, Condensing and Compound.

Heavy Patterns for Electric

Street Railway Work.



Equal to the Best in Economy, Durability and Close Regulation.

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BATES MACHINE CO.,

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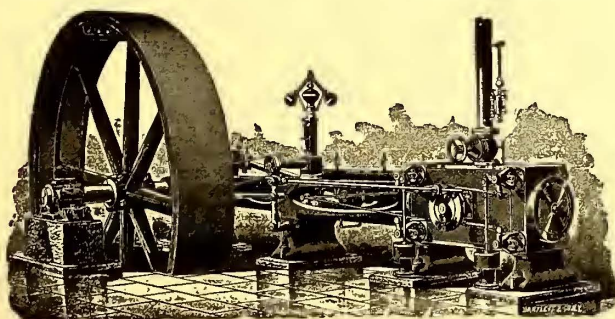
SOLE MANUFACTURERS.

SIMPLE AND COMPOUND.

The only Liberating Valve Gear without Springs
or Hook Block. All joints have Wrist Pin
Bearings.

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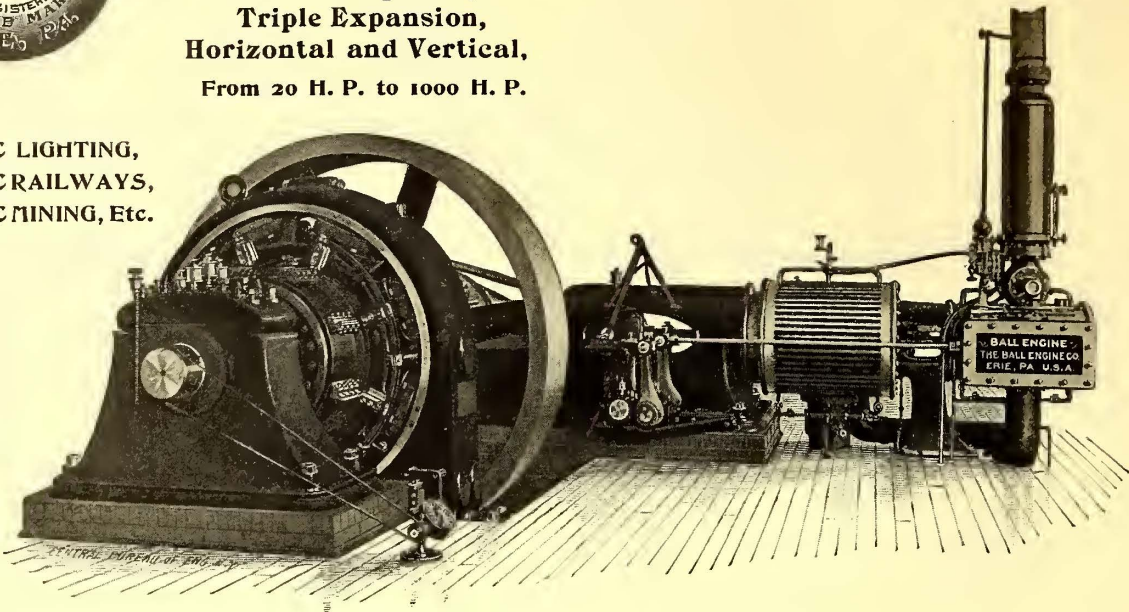
AUTOMATIC ENGINES,

Medium and High Speed,
 Single Cylinder,
 Tandem Compound,
 Cross Compound,
 Triple Expansion,
 Horizontal and Vertical.

From 20 H. P. to 1000 H. P.

For

ELECTRIC LIGHTING,
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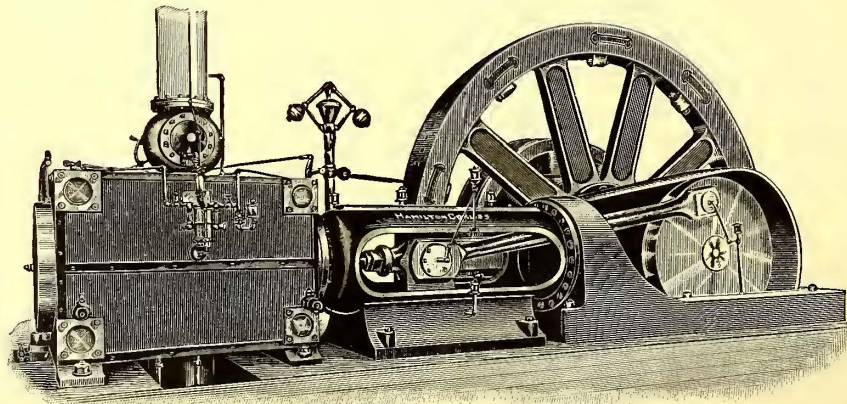
THE BALL ENGINE CO.

ERIE, PENNA., U. S. A.

HAMILTON CORLISS ENGINES.



Over 1,200
 in
 Daily Use.



Over 200
 in
 Street Railway
 Service.

FOLLOWING ARE A FEW OF THE PRINCIPAL LINES HAVING OUR ENGINES IN USE:

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 Pittsburgh & Birmingham Traction Co., Pittsburgh, Pa.
 Missouri R. R. Co., St. Louis, Mo.
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 Union Depot R. R. Co., St. Louis, Mo.

Consolidated Street Railway Co., Cincinnati, O.
 Naumkeag Street Railway Co., Salem, Mass.
 Wichita Electric R. R. Co., Wichita, Kans.
 City Electric Railway Co., Little Rock, Ark.
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Constructing and Consulting Engineers.

Builders of Corliss Engines, Cable and Electric Railway Machinery, Winding and Driving Machinery, Plants for Gas and Water Works, Pumping and Special Heavy Machinery.

ROPE TRANSMISSION MACHINERY.

Builders of Hydraulic Machinery, consisting of Motors, Pumps, Accumulators, Shears, Punches, Riveters, Flanging Presses, Forging Presses, etc.

Builders of the " **GLOBE** " Gas and Gasoline **ENGINES** —

FOR STATIONARY AND MARINE SERVICE.

Sole Licensees for the Manufacture and Sale of the Walker Patent Differential Drums and Friction Clutches

and other Cable Railway Devices (for the New England, Middle and South Atlantic States).

PLANS AND ESTIMATES FURNISHED FREE OF COST TO CUSTOMERS.

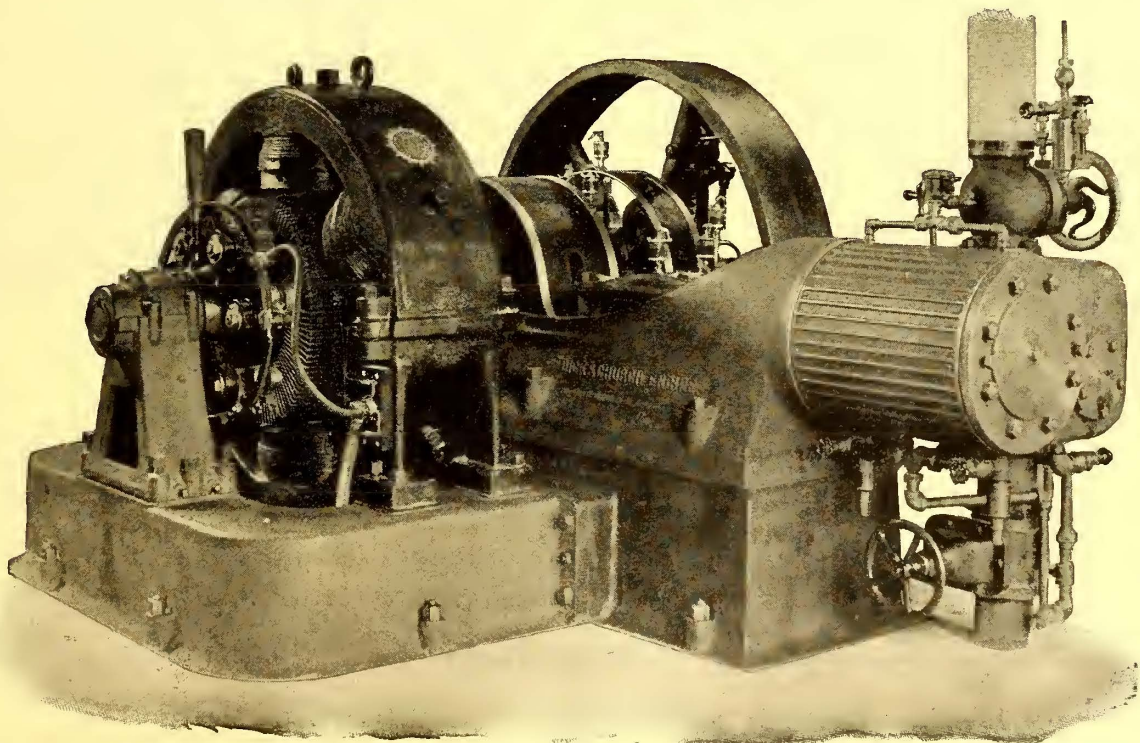
General Offices, 50th St. and Lancaster Ave. ✱ Works: Merion Ave. from 49th to 52d Sts.

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New York Offices: Cable Building, 621 Broadway.

PHOENIX IRON WORKS CO.

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15 Cortlandt Street, New York.
19 Pearl Street, Boston, Mass.

1105 The Rookery, Chicago, Ill.
51 Schmidt Building, Pittsburg, Pa.

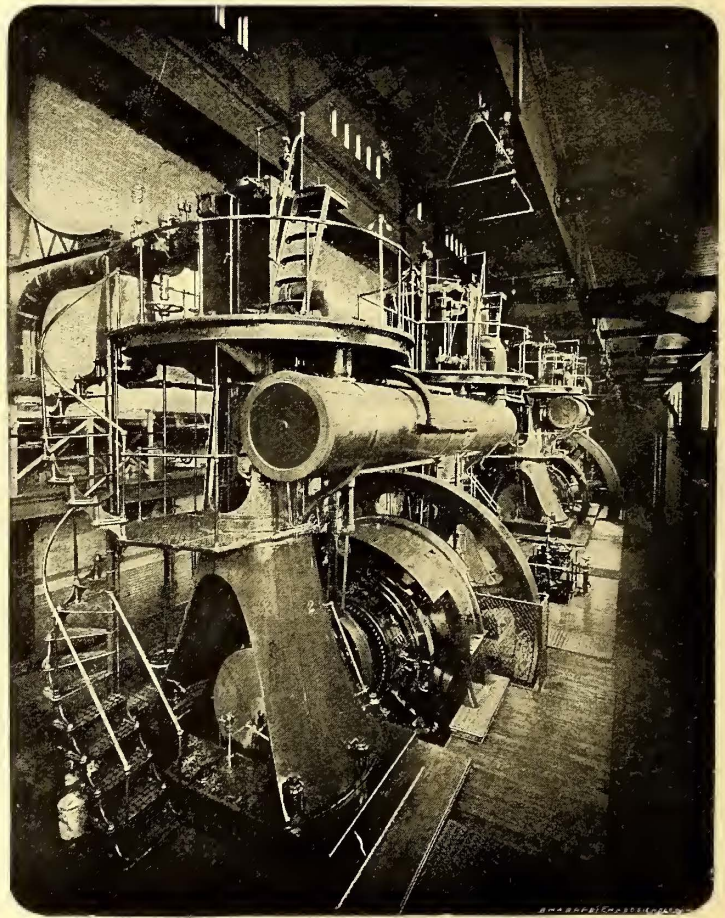
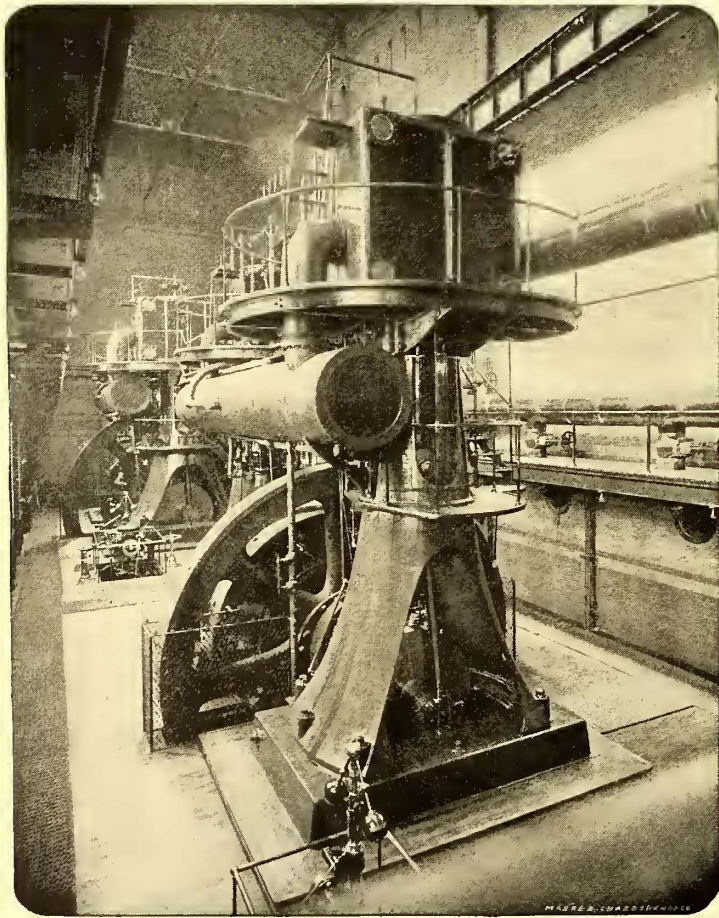
THE EDWARD P. ALLIS CO.

Milwaukee, Wis., U. S. A.

BUILDERS OF

REYNOLDS CORLISS ENGINES.

PUMPING ENGINES.
BLOWING ENGINES.
HOISTING ENGINES.



Power House of the Metropolitan West Side Elevated Railroad, Chicago, Ills.

Our engines are operating the principal electric stations in nearly all the large cities of this country, and we have equipped a number of electric railway stations with power plants of from 8,000 to 15,000 horse power.

We were the first to build large direct coupled engines, and have built many engines coupled to generators of 1,500 k. w. capacity.

We solicit the correspondence from managers of electric railways in foreign countries.

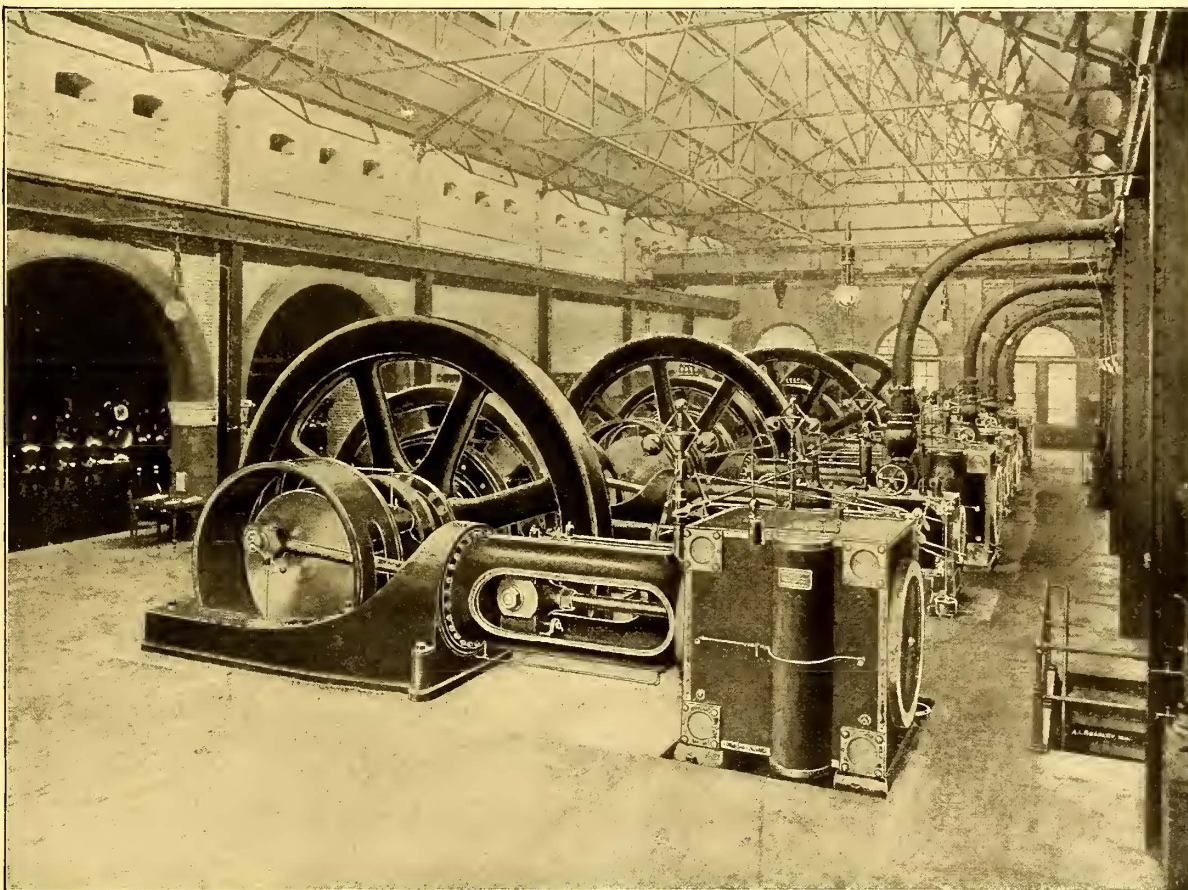
We have recently issued a pamphlet giving a list of the various street railways equipped with our engines, a copy of which will be sent on application.

THE EDWARD P. ALLIS CO.

Milwaukee, Wis., U. S. A.

SIMPLE, COMPOUND, *ANY POWER*
TRIPLE EXPANSION,

Over 3,000 of our Engines in use.



Over 350 in Street Railway Service.

Power House of the Detroit Railway, Detroit, Mich.

WE ARE NOW BUILDING FOR EXPORT:

- Six Engines of 1300 H. P. each for Central London Underground Railway, London, Eng.
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- Three Engines of 800 H. P. each for Barcelona Tramways, Barcelona, Spain.
- Three Engines of 800 H. P. each for Madrid Tramways, Madrid, Spain.
- Three Engines of 600 H. P. each for Buenos Ayres Tramways, Buenos Ayres, South America

EUROPEAN OFFICES:

LONDON, ENGLAND:

Robert W. Blackwell, 39 Victoria St.

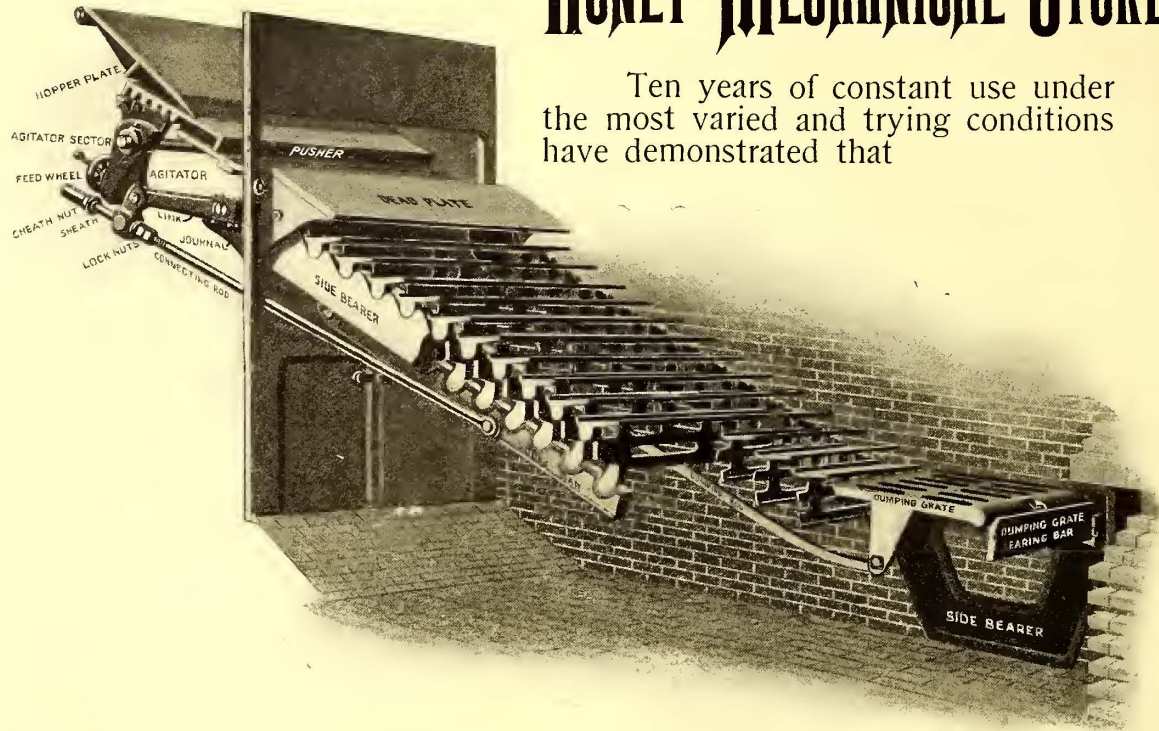
PARIS, FRANCE:

C. P. Anemaet, 80 Rue Taitbout.

THE WESTINGHOUSE MACHINE COMPANY, MANUFACTURERS.

WESTINGHOUSE, CHURCH, KERR & CO., ENGINEERS.

THE **RONEY MECHANICAL STOKER.**



Ten years of constant use under the most varied and trying conditions have demonstrated that

The Roney Mechanical Stoker

Supplies the most favorable conditions for combustion and thereby renders it practicable
 To Burn with equal facility both Anthracite and Bituminous coals.
 To Burn Bituminous and Semi-Bituminous coals without smoke.
 To Burn not only the best, but also the cheaper grades of fuel and
 To do this without throwing away the resulting heat by frequent opening of fire doors

CONSEQUENTLY

It does this more efficiently and at less expense than is possible with hand firing.
 Gives more uniform results and does better work at less cost.

AMONG OUR OTHER SPECIALTIES ARE THE FOLLOWING:

Steam Engines, Complete Steam Plants, Refrigerating Machinery, Complete Ice Plants, Mechanical Stokers, Steam Loops, Complete Electrical Plants, Complete Boiler Plants, Mechanical Draft, Complete Economizer Plants.

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 53 State Street, Boston.
 171 La Salle Street, Chicago.
 Westinghouse Building, Pittsburg.
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WESTINGHOUSE ELECTRIC CO., LTD.
 32 Victoria Street, London, S. W., England.

ROGERS & BOULTE, 1 Rue St. Georges, Paris, France.
 EDUARDO CHALAUX, 16 Puerta del Angel, Barcelona, Spain.
 G. BLUMCKE, Kaiser Wilhelm Str. 19, Hamburg, Germany.

M. R. MUCKLÉ, JR., & CO., Drexel Building, Philadelphia, Pa.

D. A. TOMPKINS CO., 38 College Street, Charlotte, N. C.

PARKE & LACY CO., 21-23 Fremont St., San Francisco, Cal.

AGAR, CROSS & CO.,
 7 Royal Bank Place, Glasgow, Scotland, and Buenos Ayres, S. A.

J. K. ROBINSON, Iquique, Chili, S. A.

DR. HENRY DINA, Est de St. Paulo, Jacarehy, Brazil, S. A.

FRAZAR & CO. (of Japan), Yokohama and Kobe.

JUL. STERN & CO., Moscow, Russia.

“NEW HAVEN” FAHRTREGISTER

EINFACHE.....DOPPELTE..... DREIFACHE. Fuer STRASSENBAHNEN.

Erhielten die höchsten Prämien auf der Columbianer Weltausstellung, Chicago, 1893, und der Baumwollstaaten- und Internationalen-Ausstellung, Atlanta, 1895. Akkurat, zuversichtlich, dauerhaft, compact, vollständig. Elegante Form und Ausführung. Die einzige Gattung von Fahrtregistern welche dem heutigen Bedürfniss des Strassenbahn-betriebs entspricht. Durch die bedeutendsten und feinsten Strassenbahnen in den Vereinigten Staaten, so wie im Auslande verwendet. Durch jeden Fachmann als der beste Apparat seiner Gattung anerkannt.

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THE NEW HAVEN CAR REGISTER CO., New Haven, Ct., V. S. A.

LES COMPTEURS-CONTROLEURS “NEW HAVEN.”

Simples.....Doubles.....Triples.....pour Tramways. ONT OBTENU LES PLUS HAUTES RÉCOPENSES

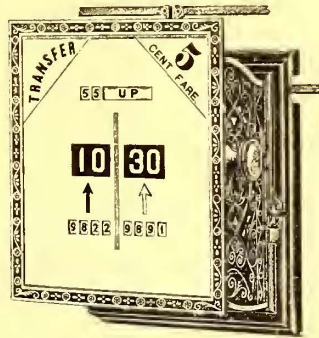
Exposition Colombienne de Chicago, 1893. Exposition des Etats Cotonniers et Internationale, Atlanta, 1895. Solidité. Précision. Sûreté. Fonctionnement parfait. Elégance de dessin et d'exécution. Un ornement pour voitures de luxe. Fonctionnent au moyen d'une corde ou d'une tringle. Le seul genre de Compteur-Contrôleur qui remplisse toutes les conditions requises de nos jours sur les tramways. Adopté par les principales lignes aux Etats-Unis et à l'étranger. Reconnu par tous les gens du métier comme le compteur par excellence.

Circulaires avec descriptions détaillées envoyes sur demande.

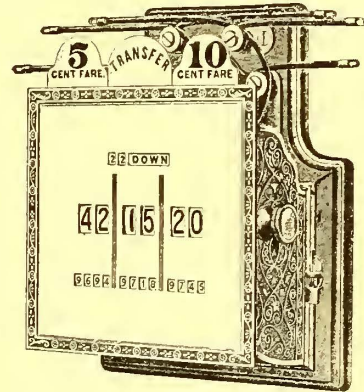
THE NEW HAVEN CAR REGISTER CO., Manufacturiers,
New Haven, Ct., Etats-Unis.



Single.



Double.



Triple.

SIMPLE..... DOBLE.....TRIPLE.

CONTADOR-REGISTRADOR “NEW HAVEN.”

PREMIADO CON MEDALLA DE ORO EN LAS EXPOSICIONES

Columbiana de Chicago, 1893, y de Atlanta, 1895. Preciso—seguro—durable—sólido—completo. Elegancia de diseño y ejecucion. Un ornamento para carruajes de lujo. Funciona por medio de cuerda ó varilla. El único género de registrador que ha logrado la mayor perfeccion de condiciones requisitas en el servicio moderno de tranvías. Ha sido empleado por las primeras líneas en los Estados Unidos y al extranjero. Está reconocido por todos los peritos como el mas excelente.

Se manda circular descriptiva á petición.

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THE “NEW HAVEN” FARE REGISTERS.

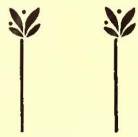
SINGLE. DOUBLE. TRIPLE.—FOR STREET RAILWAYS.

Highest Awards—Columbian Exposition, Chicago, 1893. Cotton States and International Exposition, Atlanta, 1895. Accurate, Reliable, Durable, Compact, Complete. Elegant in design and finish. An ornament in the finest class of cars. Operated by cord or rod fixtures. The only line of Fare Registers made which are adapted to meet all the requirements of modern street railways. Adopted on many of the largest and finest roads in the United States and foreign countries. Recognized by practical railway men everywhere as the standard of excellence.

Full descriptive circulars on application.

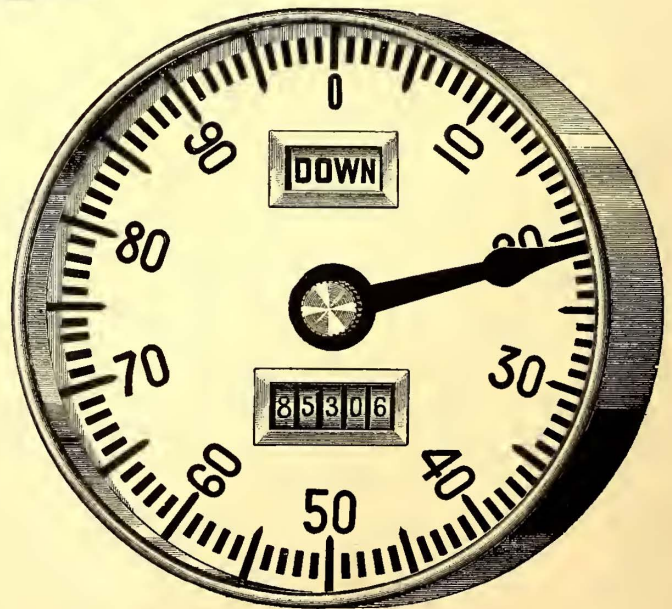
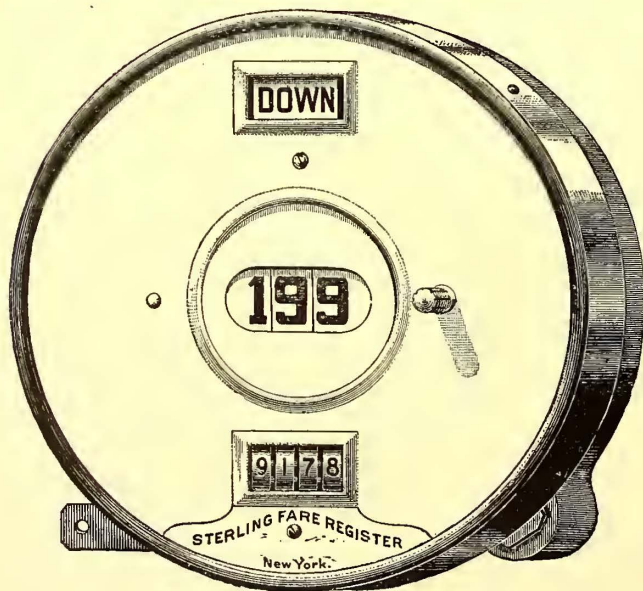
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THE largest sales
to the largest
Street Railway
Companies in the
world.

STANDARD
Bronze Rod
Connections--Sin-
gle and double--
for Open and Box
Cars.



12000 **STERLING STANDARD REGISTERS** IN DAILY OPERATION.
2500 IN NEW YORK CITY ALONE.

Sterling Supply & Mfg. Company,

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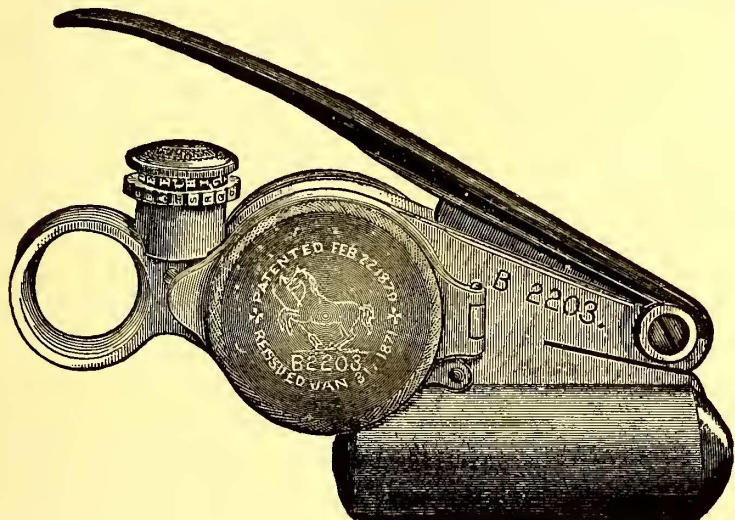
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RAILWAY REGISTER

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ALL STYLES OF PORTABLE and STATIONARY REGISTERS.

ALSO FULL LINE OF
BRASS FIXTURES,
LEATHER GOODS, Etc., Etc.



Alarm Registering Punch.

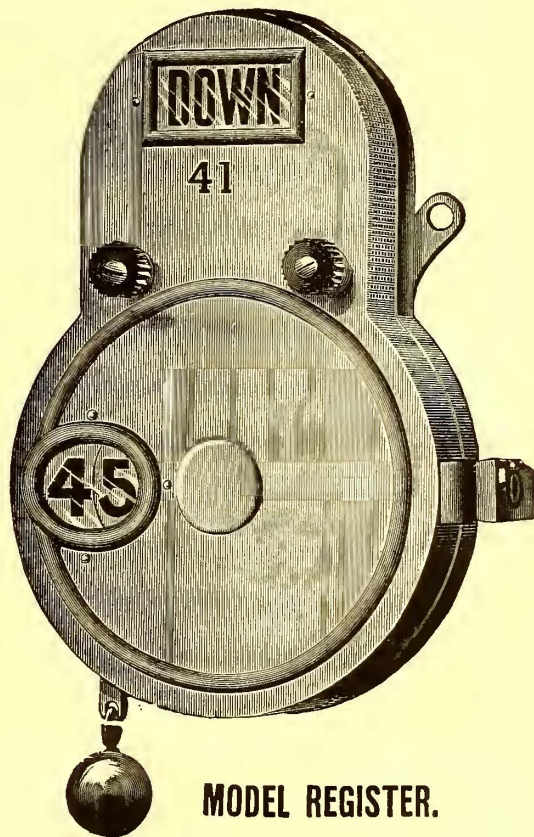
Especially adapted for any number of cash fares, tickets and transfers. Adopted by the Melbourne Tramway & Omnibus Co., of Melbourne, Australia, for their entire system.

Thousands of these registers in use in this country and Canada, and have stood the test for years. No matter what system or different rates of fares you have on your road we can furnish you with a register that will meet your requirements.



NEW MONITOR REGISTER.

Showing the Largest Figures yet Introduced on any Register.



MODEL REGISTER.

-----SPECIAL ATTENTION PAID TO EXPORT ORDERS.-----

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Full line of Samples at our Pacific Coast Office, 1630 Market St., San Francisco, Cal., F. T. HULL, Agent.

THE MEAKER

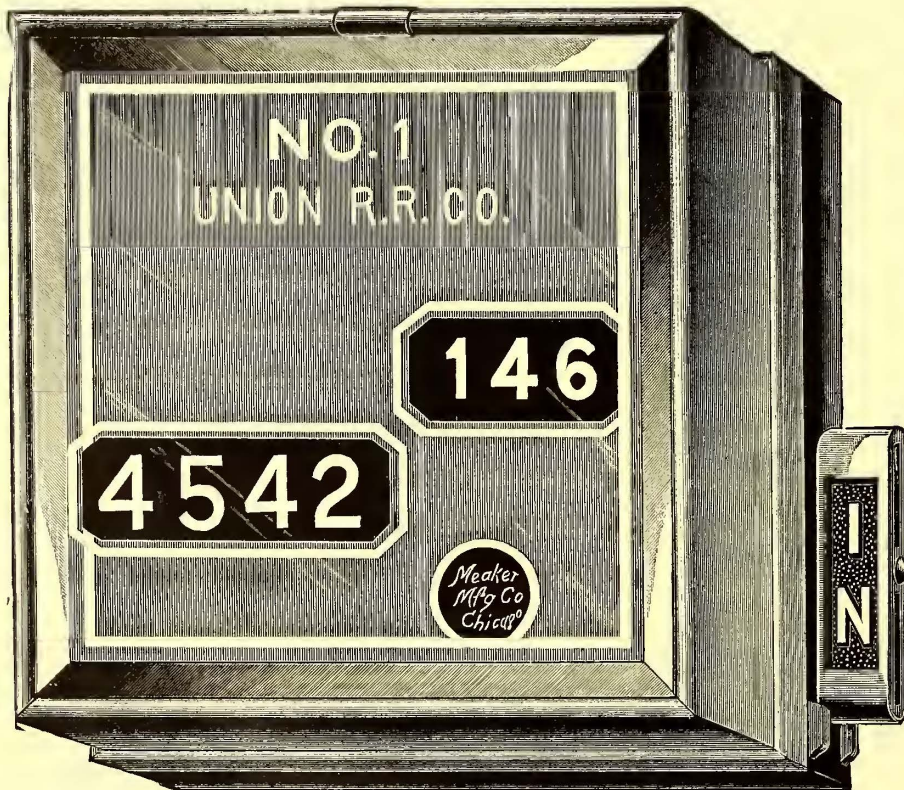
Portable, Stationary and Combination

REGISTERS.



OUR NEW PORTABLE.

Our Registers are in use in All the Principal Cities.



Our New 1894 Stationary. (Cases in Nickel or Bronze.)

We express all amounts in **PLAIN** Figures, and not by part figures, part dots, and part dashes as in all Clock Registers.

Three Figure Trip. Face Protected by One-Fourth Inch Bevel Plate Glass.

The name of the Company Purchasing will be placed on the face of all Machines ordered unless otherwise directed.

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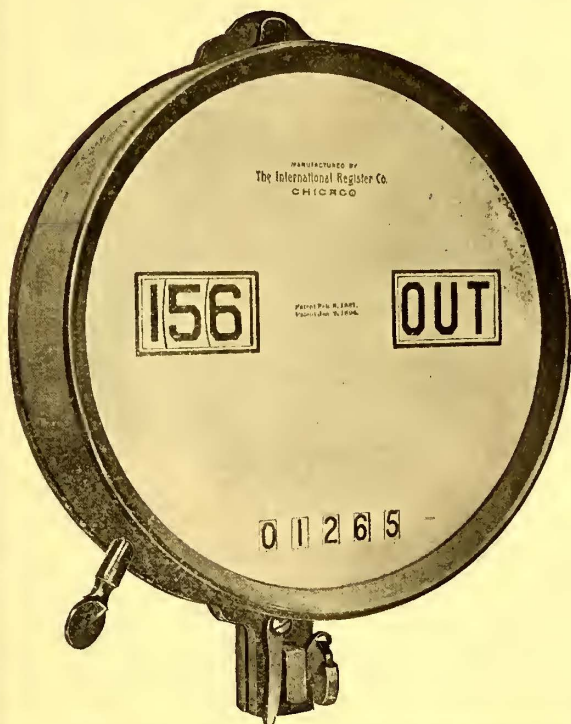
USED BY 500 RAILWAY COMPANIES.

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135 South Clinton Street,
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Portable Registers,
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EXCLUSIVE FEATURES OF OUR CAR REGISTERS:

Totalizer completely protected against tampering, even when taken from the register.

Solid drawn case telescoping on bed-plate rim, forming a dust-proof and tamper-proof joint.

Glass signature seal which must be destroyed before case can be detached from bed plate.

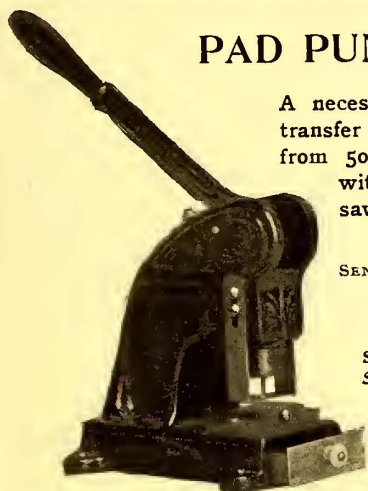
A single blind completely covering the trip figures during both the operations of registering and re-setting, and so interlocked with the trip register that no reading can be shown when either operation is incomplete.

PAD PUNCH, No. 50.

A necessity on all roads where transfer tickets are used. Punches from 50 to 100 transfer tickets with ease, and is a great saving of time for conductors.

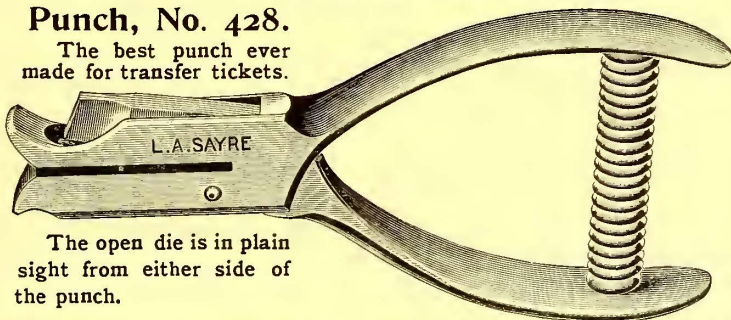
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Punch, No. 428.

The best punch ever made for transfer tickets.



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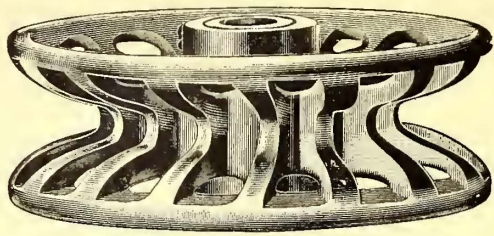


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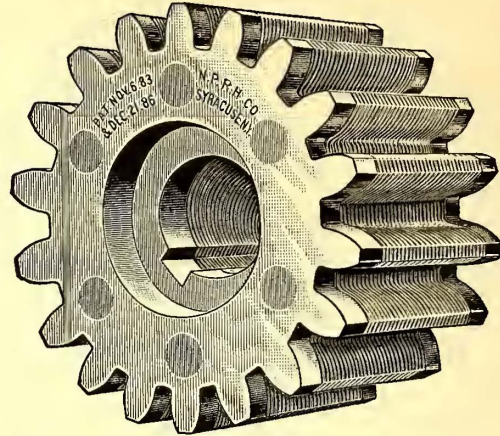
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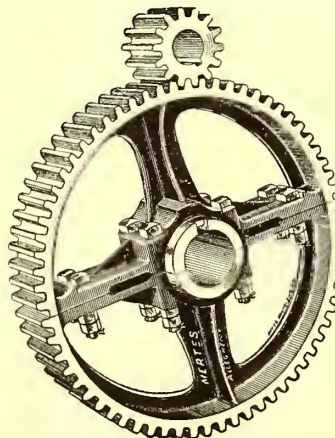
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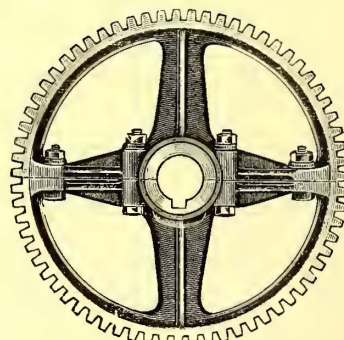
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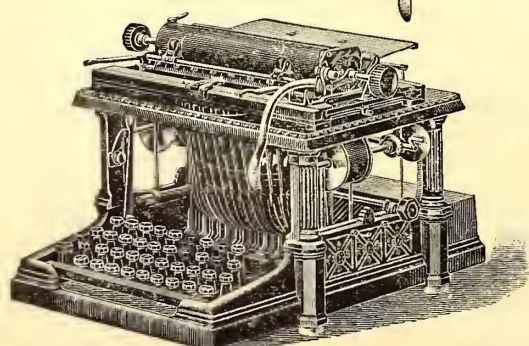
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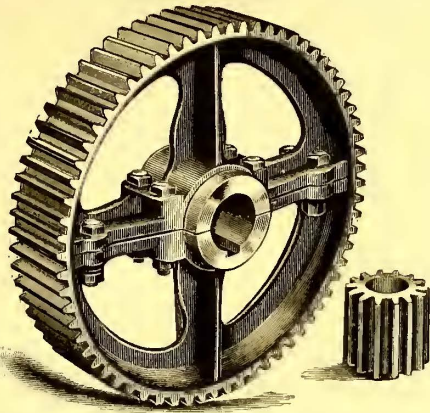
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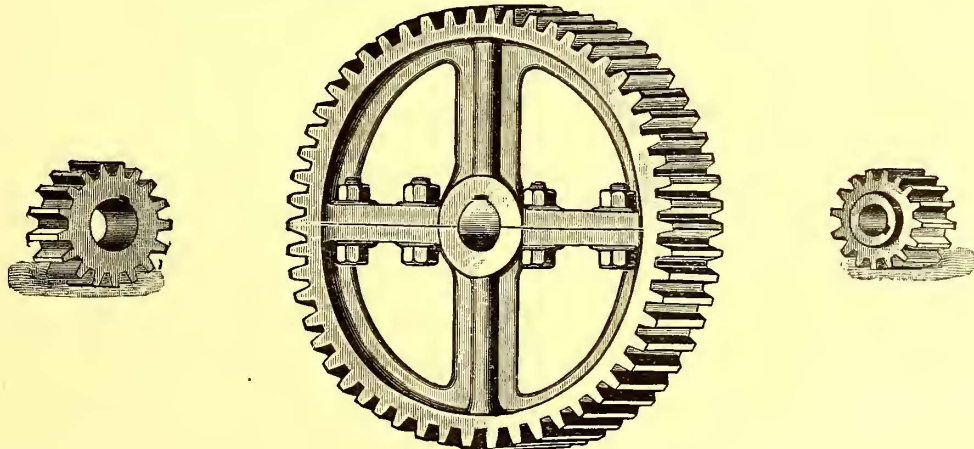
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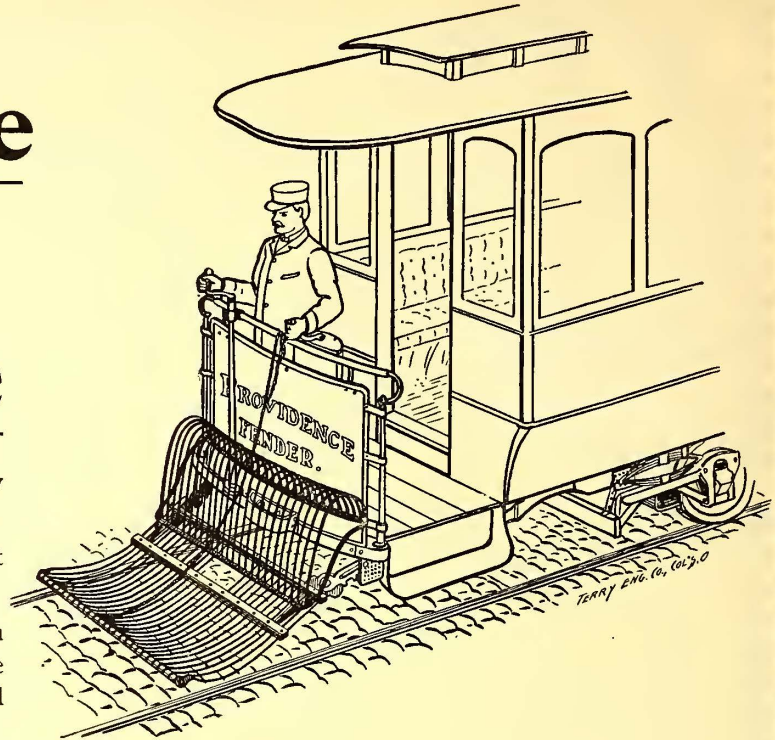
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The Providence Car Fender Saves Life

97 per cent of all persons struck by this Fender have been saved; and

99 per cent of those saved were not injured.

100 per cent of all lives placed in jeopardy have been saved, when the full equipment, viz., front fender and wheel guard, has been used.



Fourteen Points of Advantage Possessed by...The PROVIDENCE FENDER.

FIRST. The device is such that it **will remove the endangered person from the track** if the motorman should fail to stop the car in time.

SECOND. This removal is effected by a **projecting cradle** on which the person may fall, and which at the time of using touches the ground.

THIRD. It being impracticable to carry such a cradle touching the ground all the time, **it is possible for the motorman instantly to drop it**, while at the same time his hands are free for other purposes.

FOURTH. The mechanism is such that the motorman, after dropping his fender, **can again raise it without stopping his car** or leaving the front platform.

FIFTH. The front edge of the cradle is furnished with such rolls, and the cradle itself is of such form, that it **may be dropped on any ordinary road surface without risk of breaking**.

SIXTH. **The front edge of the cradle is yielding**, so as to cushion the blow against the foot or body, if the person has fallen.

SEVENTH. The front end of the car is furnished with a **resilient shield**, covering all the rigid projecting parts of the car, such as the bumper, the draw bar, and the fixtures by which the fender itself is attached to the car.

EIGHTH. The fender is strong enough and elastic enough to serve as a **substantial buffer** in colliding with other vehicles, so as, within a considerable limit, to receive all the damage itself, and prevent injury to both colliding vehicles.

NINTH. It is **detachable from the car**, so that in case of accident the conductor and motorman may readily remove it without the use of tools.

TENTH. It is **foldable against the dash**, so that if fenders are attached to both ends of the car, the rear fender, and in the car house, both fenders, may be turned up.

ELEVENTH. It has a breaking part **inexpensive to repair**.

TWELFTH. It is **easily transferable** from one end of the car to the other, so that, if necessary, it may be quickly so transferred by the conductor and motorman at the end of each trip.

THIRTEENTH. It is of **simple construction and easy to repair**, and to that end all the parts are interchangeable.

FOURTEENTH. All fenders for cars of the same company are **interchangeable**.

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THE CONSOLIDATED CAR FENDER CO.,

181 Canal Street,

PROVIDENCE, R. I.

Christensen's Improved Air Brake

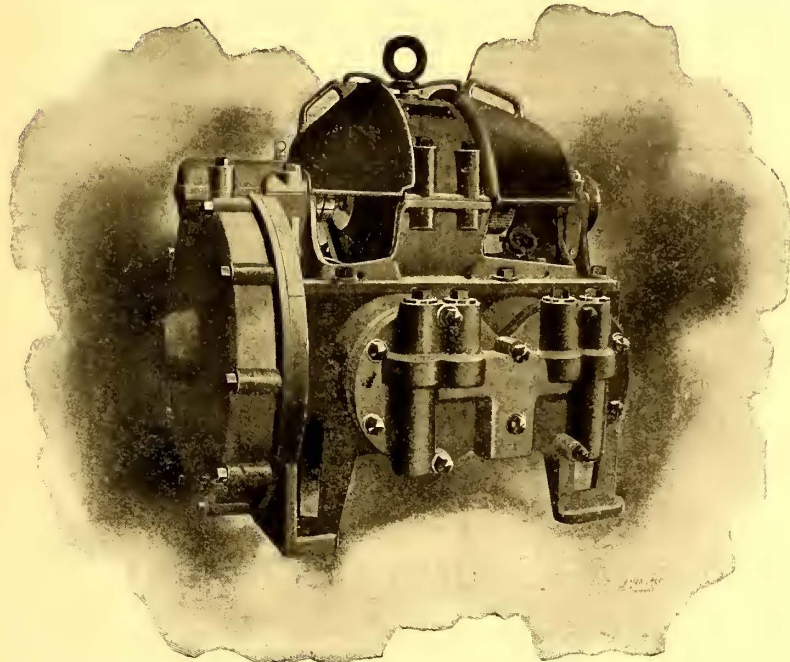
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PATENTS APPLIED FOR.

A Perfect System for Elevated and the Largest of Inter-Urban Cars. Has many superior advantages over any brake made, for

Simplicity of Construction, WHICH ASSURES DURABILITY.

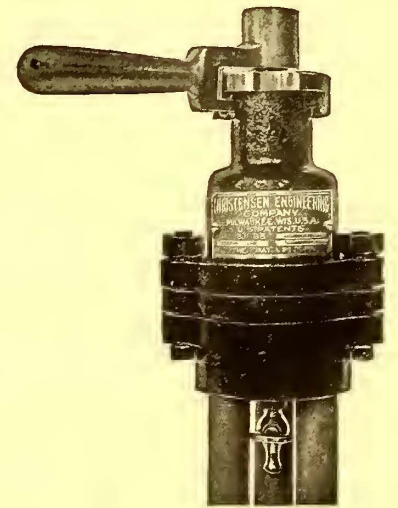
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Novel Valve Arrangement.
Automatic Switch Controller.



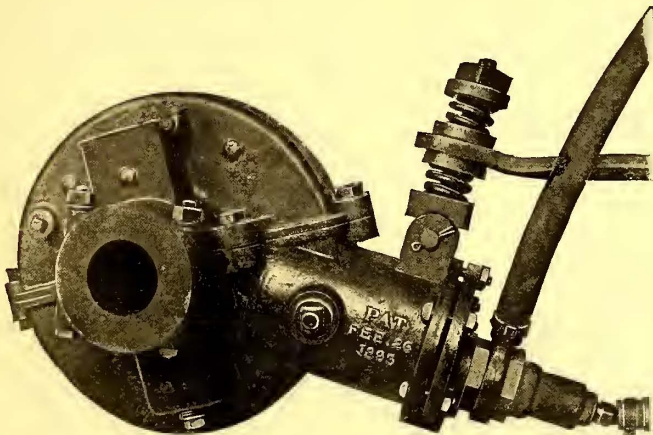
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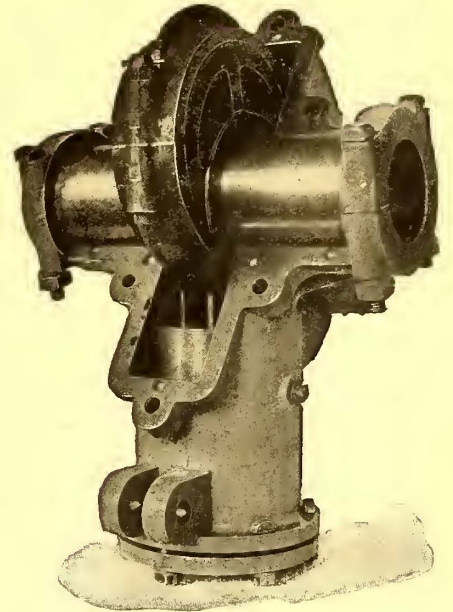
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AXLE COMPRESSOR AND GOVERNOR.

Simple.
Durable.
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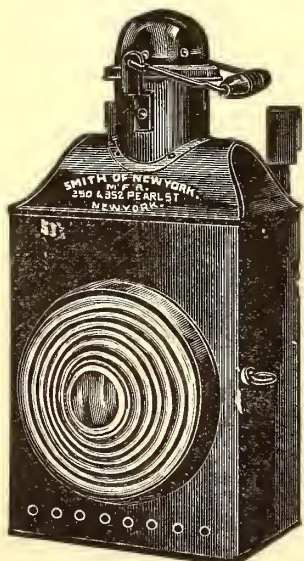
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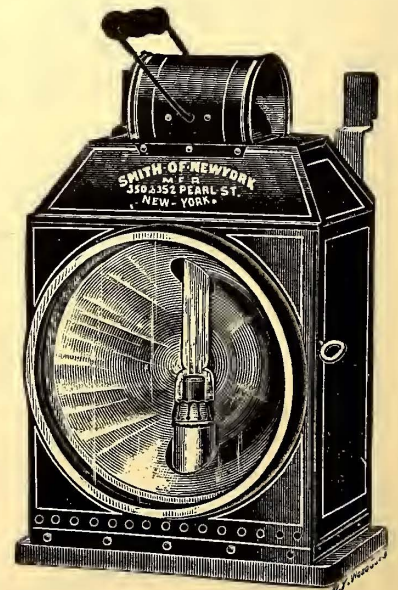
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ADAPTED TO ELECTRIC,
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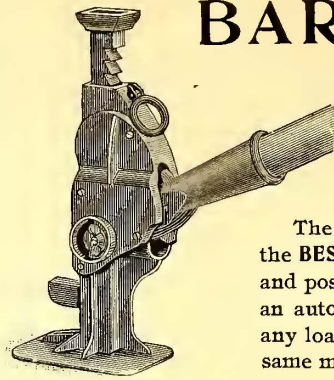
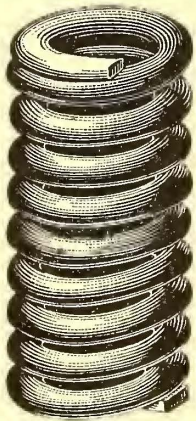
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SPIRAL AND ELLIPTIC SPRINGS
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MADE OF CRUCIBLE CAST STEEL.

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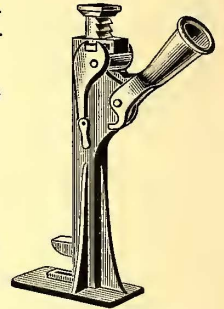
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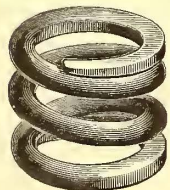
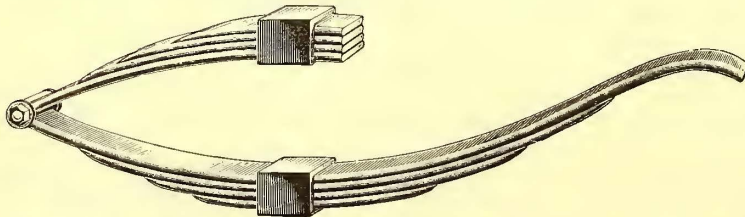
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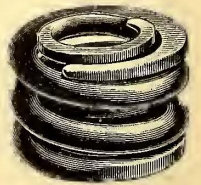
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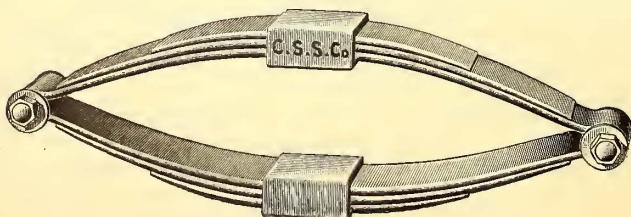
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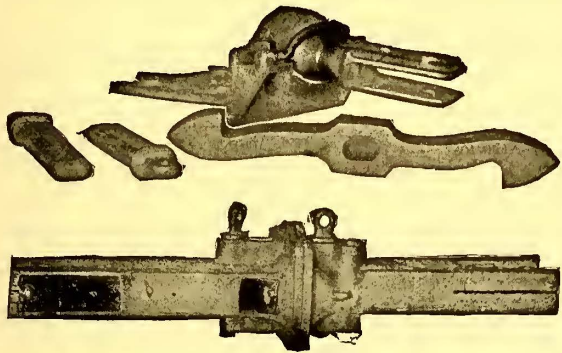
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Manufacturers of the Patented

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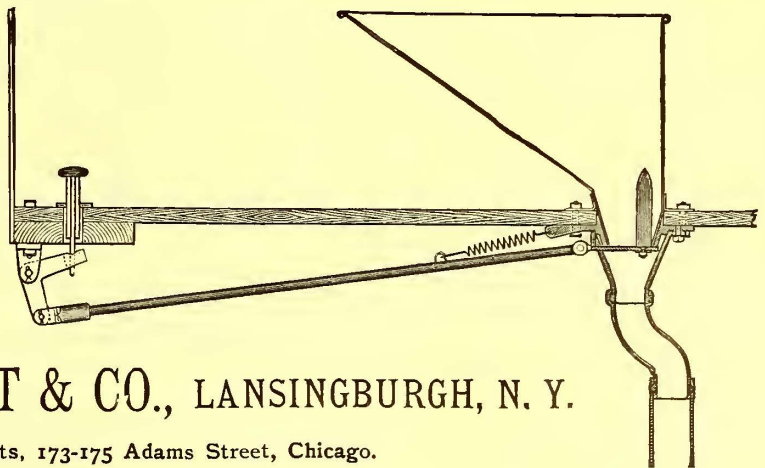
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It is the only one on the market that can show a record of four years' steady work, without costing a cent for repairs. Will give written guarantee if properly placed on cars. Used on many roads in this and foreign countries.



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MADE ENTIRELY OF BRONZE,

Feeds a Minimum Quantity of Sand. Will Not Leak.
 Controls the Output Completely. Will Not Rust.

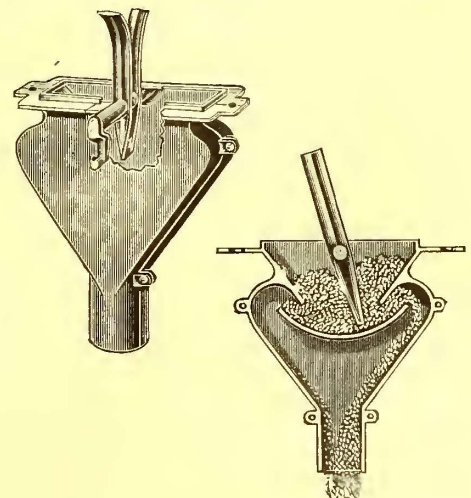
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It is necessary to replace Iron Boxes every two or three years because of rust. Why go to this expense when a Bronze Box can be secured at a low price?

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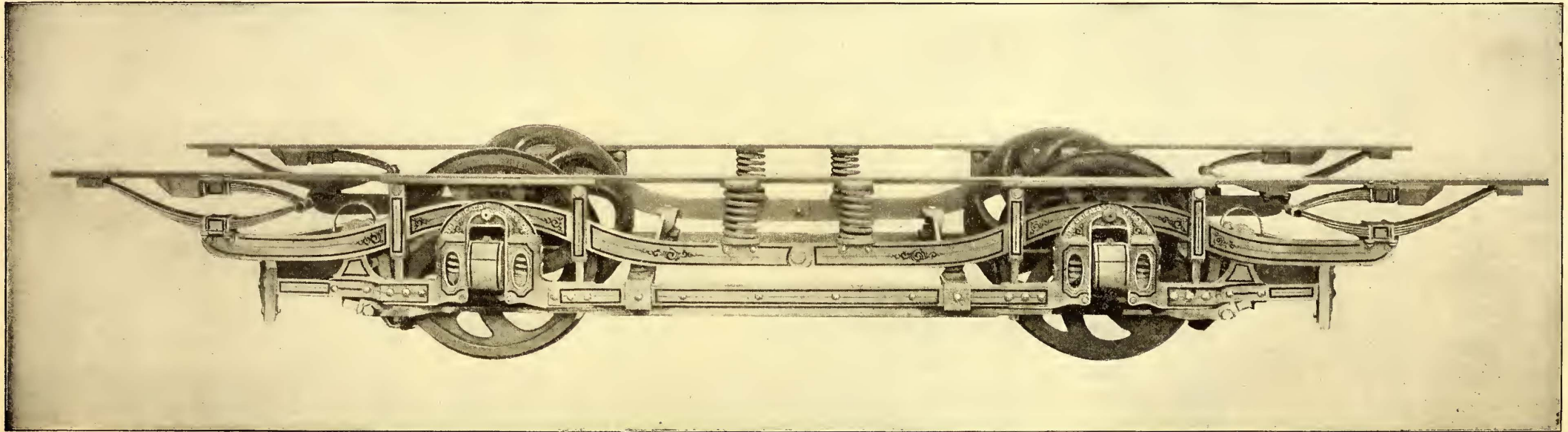
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BUILDERS OF STREET RAILWAY

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THIS TRUCK IS DESIGNED ESPECIALLY FOR HIGH SPEED.

It is Positively Non-Oscillating.
Absolute Equalization of Load Insures Easy Riding.
Strong. Simple. Durable.

HIGH GRADE STREET CAR WHEELS A SPECIALTY.

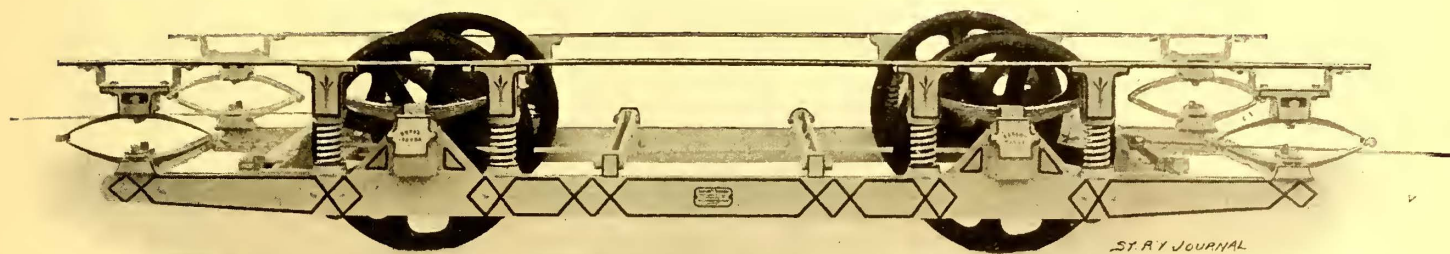
GENERAL OFFICES, FISHER BUILDING.
WORKS, 22d AND BLUE ISLAND AVE.

CHICAGO, ILL.

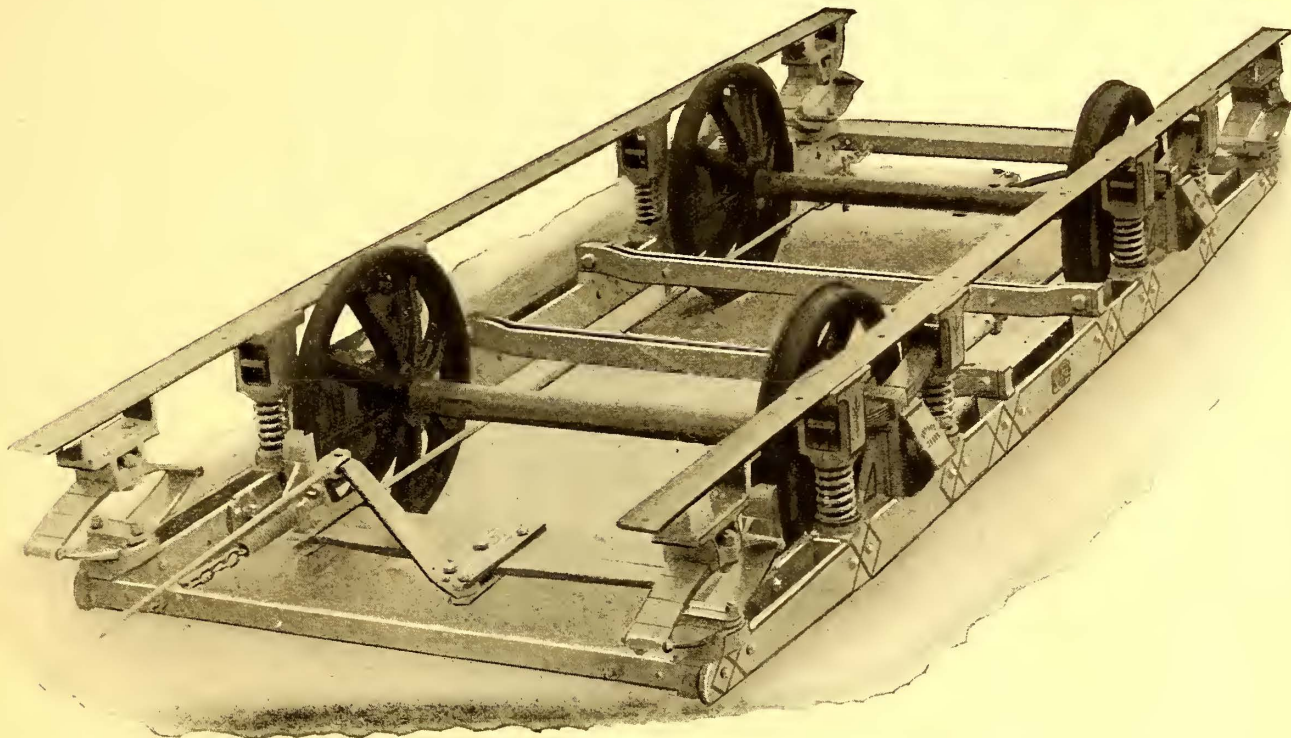
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|| COMBINES ||

Strength, Durability and Simplicity of Construction,
Continuous Side Bars, Frame Free from Bolts,
Extended Spring Base, Minimum Oscillation.



STYLE C.—SPRING BASE FROM 12 TO 18 FEET.



STYLE C.—SPRING BASE FROM 12 TO 18 FEET.

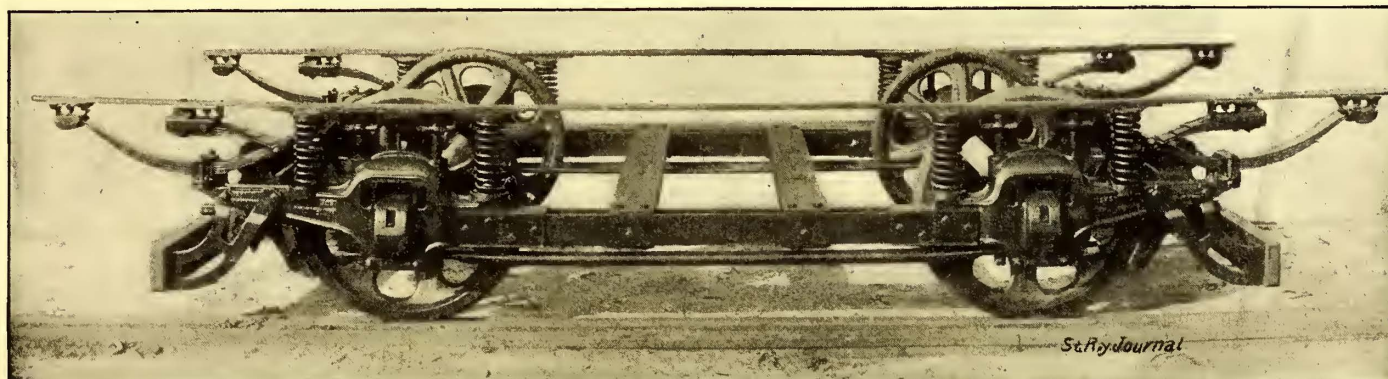
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ALL BEMIS
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"SINGLE" ELECTRIC CAR TRUCKS

Different lengths and weights of cars and different conditions of service require **different** trucks, and these we are able to supply for all classes of cars, from light short to heavy long closed and open car, and also Special Extra Strong Trucks for Freight, Switching and Locomotive Service.

We do not recommend one style of Truck for all lengths of car bodies (as some car and truck builders do), as we have found by experience that it is impossible to do so and give satisfactory service. Our aim is to so support the cars that the ends will not "sag" down and the centres "hog" up. To prevent this we construct our Trucks with a **long Spring Base properly supported**. Our **Cantilever trussed side frames** furnish both the **long spring base** and the strength necessary to properly support the car bodies. These Cantilever trussed side frames are so designed and constructed that no Shearing Strains come upon the rivets, and they are able to support any desired weight.

We do not recommend a Double Truck for 20 and 22 ft. closed cars (as some car and truck builders do), because **we don't have to**, as our "Extra Long" Truck, designed expressly for such cars, is sufficiently long and sufficiently strong to support such cars easily under the most severe conditions. In addition to the long spring base Truck, our single Trucks are provided with **under tension end springs**, which hold the end of the car bodies down when inclined to oscillate and make them run steadily. The car supporting springs (elliptic and coil) are so arranged as to make the car bodies ride easily, whether light or heavily loaded.

For high speed cars we construct our **Extra Long Truck** with two under tension springs. Over 4000 of these "Extra Long" Trucks are in service under 20 and 22 ft. closed cars in Greater New York, New Jersey, Philadelphia, Baltimore, Richmond, Buffalo and San Francisco.

For 14 to 16 ft. closed and 22 to 28 ft. open cars, we recommend our **Excelsior Truck**, designed expressly for this service.

For 18 to 20 ft. closed and 28 to 30 ft. open cars, we recommend our **Standard Truck**, designed expressly for such service.

For 20 to 24 ft. closed and 28 to 32 ft. open cars, we recommend our **Extra Long Truck**, designed expressly for such service.

For Heavy Freight Storage Battery and Switching Cars, we recommend our Special "**Extra Strong**," **Standard** or **Extra Long Trucks** (according to length of car body). These Trucks are being used under freight cars carrying regularly 10 to 15 tons, and for switching and locomotive service hauling 4 to 6 trailer cars.

All of our Trucks are constructed with the same degree of care, **all bearings being carefully machine fitted to prevent lost motion**, **all rivets driven hot by power riveters under 20 tons pressure**, and **all bolts turned to a uniform size**. **Wheels machined to accurate uniform diameter**. Axles of either hot, cold rolled or hammered steel, as specified. Springs of best material. Pennsylvania Railroad Standard Specifications. We guarantee all parts of our Trucks against imperfections in material or workmanship, and our Truck Frames against breakage for five years.

"DOUBLE" ELECTRIC CAR TRUCKS

"Double Cushioned" Truck, No. 14.

This Truck has a **Center-Bearing "Flexible" Bolster**, supported upon half elliptic side bearing springs, which support the weight of the car body and relieve it from shocks and concussions (incident to a rigid bolster) produced by an uneven track. These **Side Bearing Bolster Springs** in turn rest upon the "**Bridge Trussed Side Frames**" of the Truck which are supported upon double coil springs resting upon the Journal Boxes, making a **double set of supporting springs** between the truck and the car body, ensuring a smooth, easy riding car.

"Triple Cushioned" Swing Bolster Truck, 14 A.

This Truck is designed for **High Speed Inter-urban and Elevated Railway Electric Cars**. It is constructed with the same **Bridge Trussed** side frames as our Extra Strong No. 14 and with the same style of Journal Boxes and Brakes, except for extra heavy cars, when the Journal Boxes and Axles are made M. C. B. standard, and double plate wheels are used. The **Bolster** of this Truck is supported between the transom bars on a combination of half elliptic and spiral springs resting upon the spring plank, which is hung from the transom bars by M. C. B. regulation links, which are supported upon **Rubber Cushioned Bearings** housed in pockets between the transom bars. It is provided with three complete sets of springs to make it ride easily and without jar.

The special claims we make for this Truck over other makes are **Greater Strength**, owing to the Bridge Truss construction of its side frames, **Shorter Wheel Base**, owing to the narrow construction of its Bolster **Easier Riding**, owing to its Triple Cushions, **Less Noise**, owing to Rubber Cushioned Support of Swing Bolster, **Less Power** required in turning curves, owing to flexibility of Bolster and Short Wheel base.

Short Wheel Base Truck, 14 B.

This truck was designed especially for "short radius curves." It is a modification of 14 A above described, the difference being in the method of supporting the Motors, which is from the outside instead of the inside of the Axles. This construction allows the wheel base to be reduced to 4 ft. 6 ins., if desired.

Center Bearing Maximum Traction Trucks, 14 C and 14 D.

These Trucks are designed for special service, requiring only one Motor to the truck; they are constructed with Center Bearing Bolsters either flexible as in 14 C, or Swing Bolster as shown in 14 D. The wheels are made all of same size, as shown in 14 C, or with one pair of smaller wheels as shown in 14 D. The Traction of the driving wheels can be varied from 70 to 80 per cent., as desired.

"Extra Heavy" Swing Bolster Trucks, Nos. 15 and 17.

These Trucks were designed for "Extra Heavy" Elevated or Trunk Line Service. The arrangements of bolsters, spring cushions, etc., are constructed on the same general lines as our 14 A, only much heavier, the weights being for No. 15, 6,600 lbs., and No. 17, 10,000 lbs. per truck, double this amount for car equipment without motors.

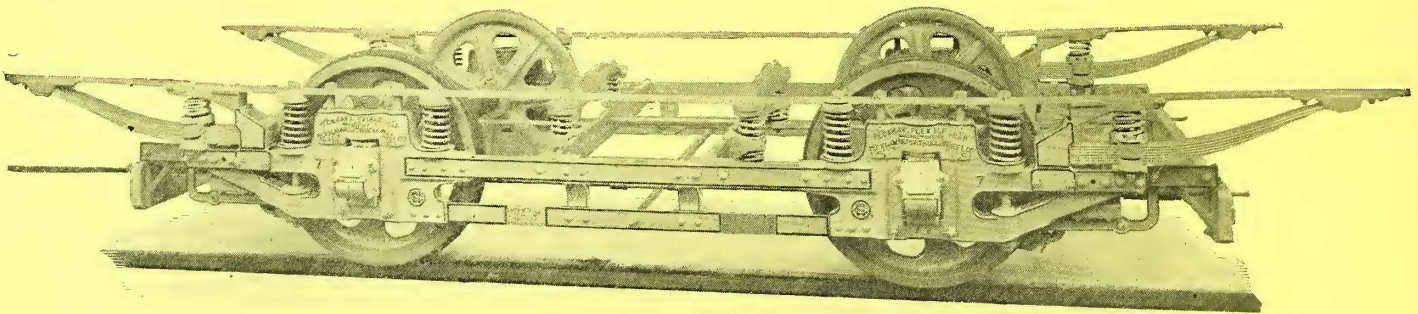
This (complete) SYSTEM embodies trucks for any and all conditions of service, from light Suburban to heavy Elevated or Trunk Line Cars, and Electric Locomotives used for hauling trains of both Freight and Passenger Cars, and also several styles of "Center Bearing" Maximum Traction Trucks for both open and closed cars.

DESCRIPTIVE CATALOGUE AND BLUE PRINTS FURNISHED UPON APPLICATION.

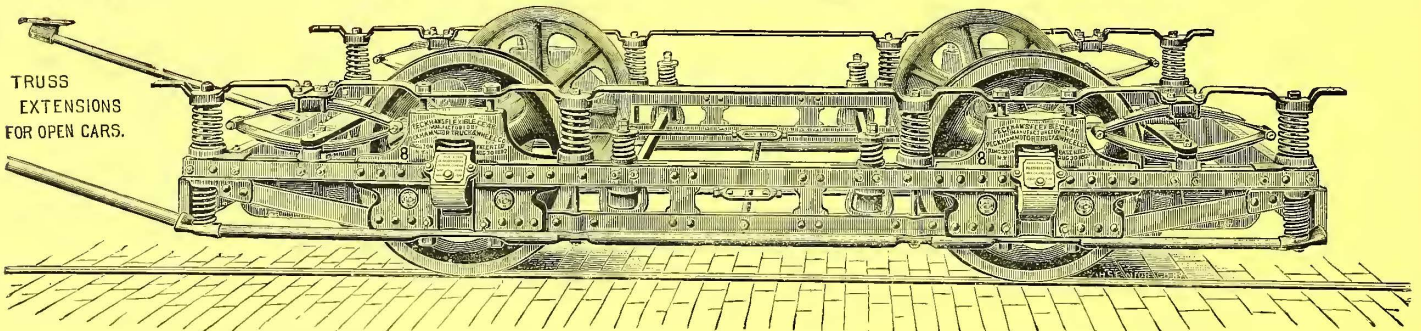
PECKHAM'S ALL STEEL MACHINE MADE

CANTILEVER EXTENSION TRUCKS

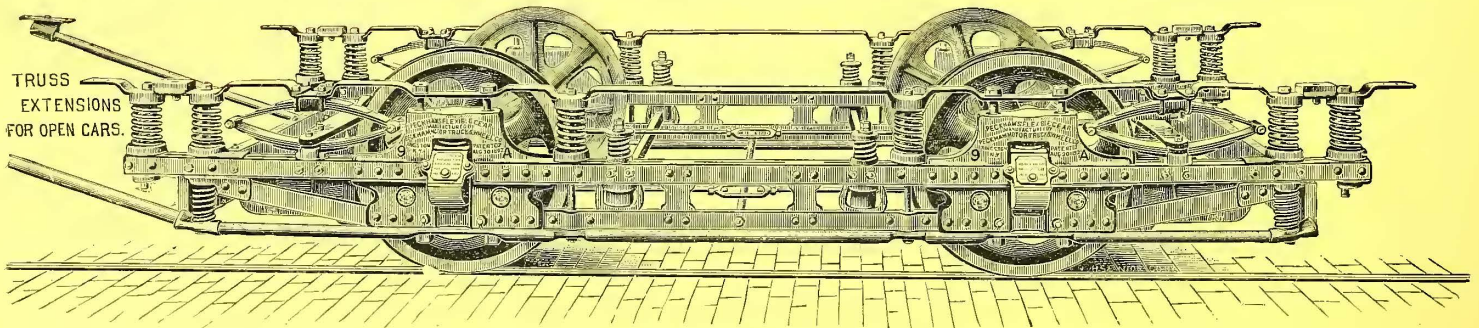
EXCELSIOR EXTENSION Designed for Light Weight Electric Cars.



STANDARD. Designed for Medium Length and Weight Electric Cars.



EXTRA LONG. Designed for Extra Long and Extra Heavy Electric Cars.



The Strongest, Easiest Riding and Most Economically Maintained Trucks in use.
Adopted as Standard by the Largest Electric and Cable Railways in the United States and Europe.

Over 10,000 in Use in the United States.

For Descriptive Catalogue, Testimonials, Price List and Blue Prints, apply to

THE PECKHAM TRUCK CO.

General Sales Office:—HAVEMEYER BUILDING, 26 CORTLANDT ST., NEW YORK.

Boston, 53 State Street.

Philadelphia, 420 Walnut Street.

Chicago, Marquette Building.

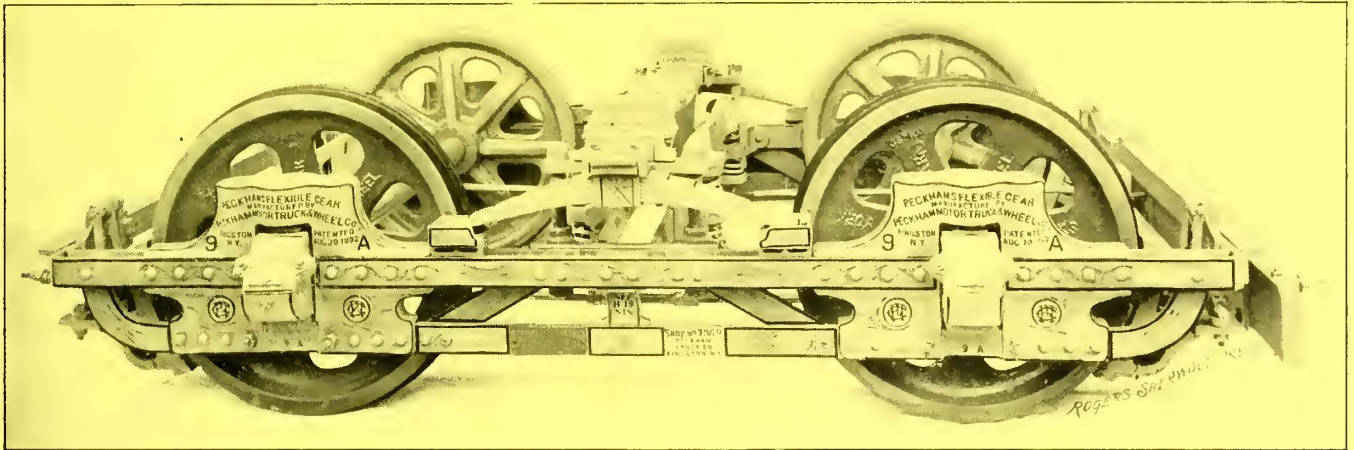
San Francisco, 123 California Street.

London Office: 30 Victoria Street, Westminster.

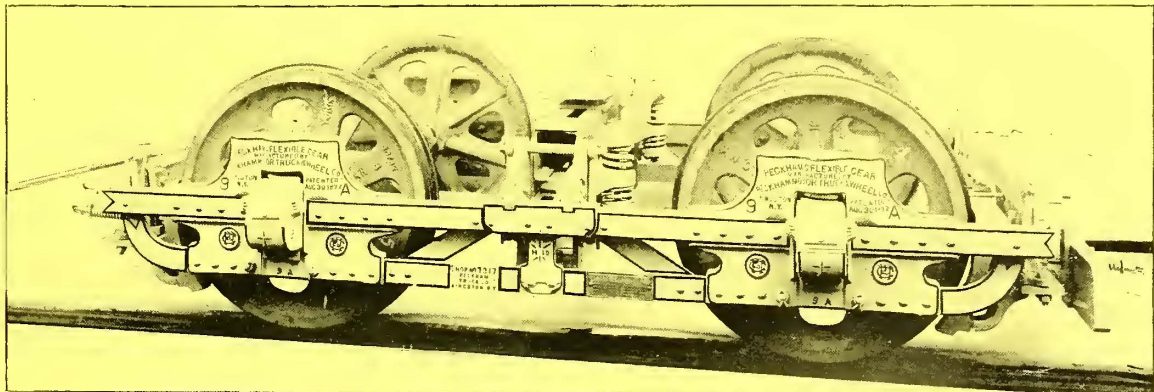
PECKHAM'S SYSTEM OF "DOUBLE" ELECTRIC TRUCKS

Comprises Trucks adapted for any and all conditions of Electric Railway service, from light suburban to heavy Truck, Passenger, Freight and Locomotive Cars, and also a full line of

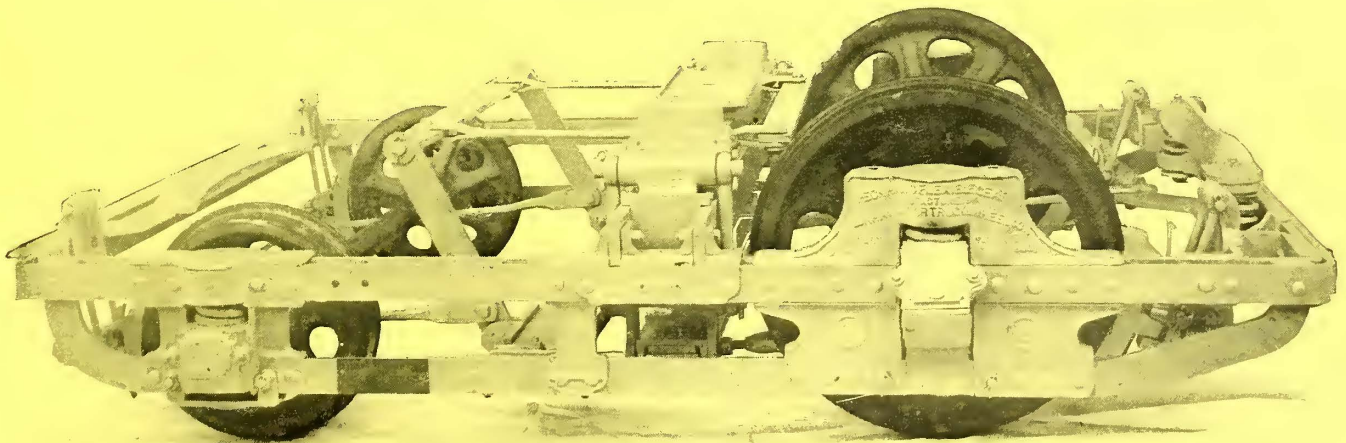
"Center Bearing" Maximum Traction Trucks.



CENTER BEARING, "DOUBLE CUSHIONED" NO. 14.



CENTER BEARING, TRIPLE CUSHIONED "SWING BOLSTER" NO. 14 A.



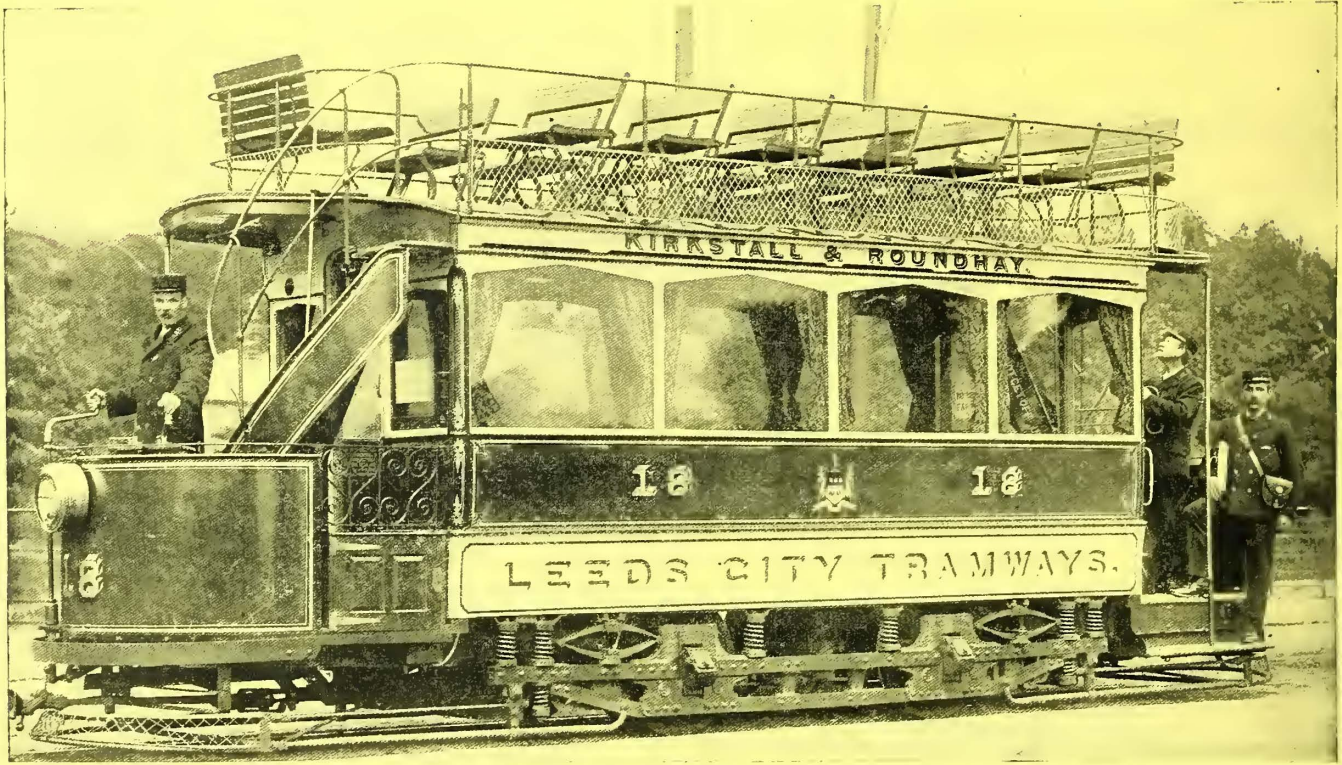
CENTER BEARING, "SWING BOLSTER," MAXIMUM TRACTION NO. 14 D.

All PECKHAM TRUCKS, Double or Single, are Guaranteed to be of Superior Construction, Easy Riding, and with Lower Cost of Maintenance than any other Trucks in use.

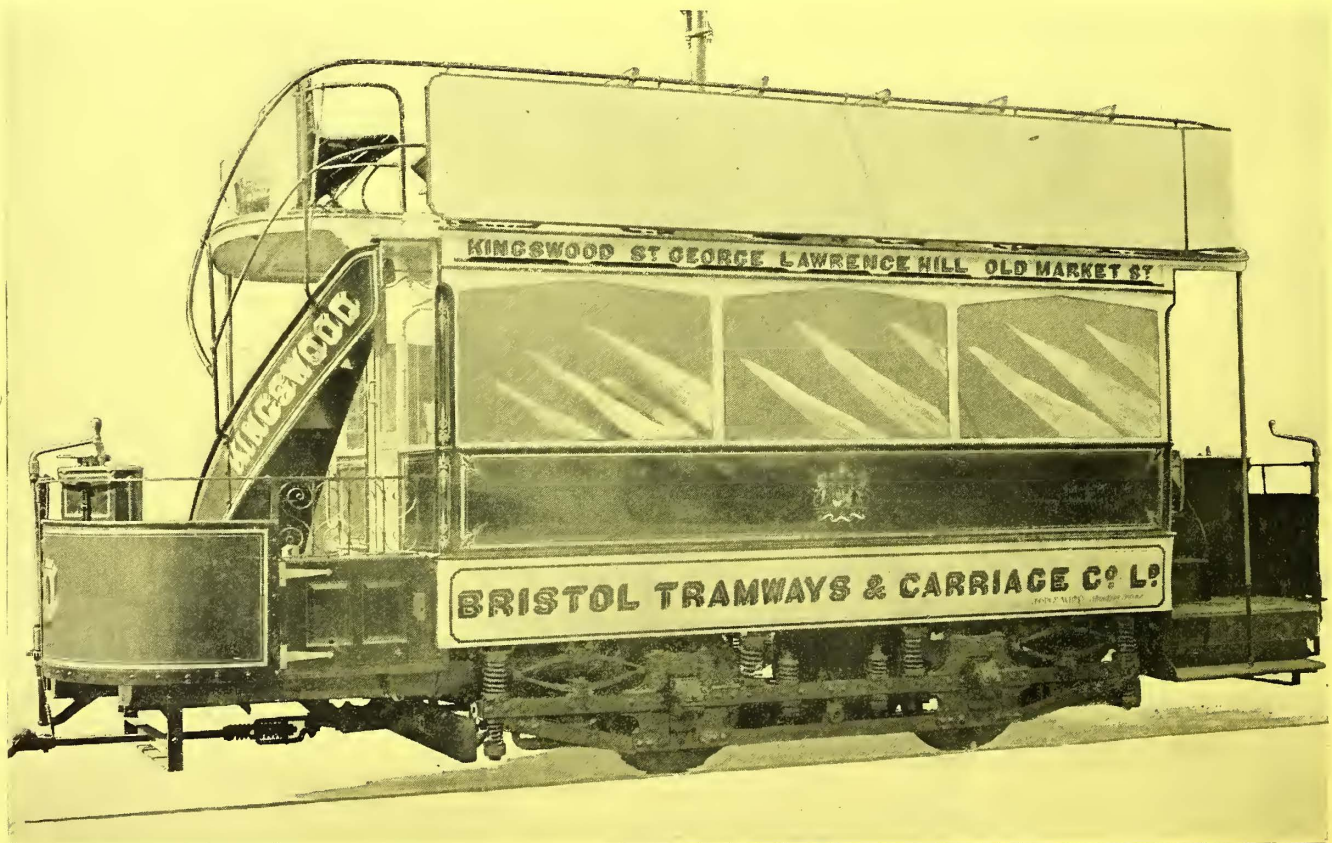
SATISFACTION GUARANTEED.

PECKHAM'S STANDARD and EXTRA LONG TRUCKS

are the **only trucks** that can handle **double deck cars** without oscillation, owing to their **long spring base** and the **counterbalancing arrangement of springs** for supporting upon, and securing the car body firmly to the ends of the truck.



PECKHAM EXTRA LONG TRUCK, UNDER 18 FT., DOUBLE DECK CAR AT LEEDS, ENGLAND.



PECKHAM STANDARD TRUCK, UNDER 16 FT., DOUBLE DECK CAR AT BRISTOL, ENGLAND.

Peckham Trucks have been adopted as Standard for this service in Coventry, Guernsey, Leeds, Bristol and Dublin.

LAST ORDER from DUBLIN was for 150 TRUCKS.

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CABLE ADDRESS, "CARWHEEL," BALTIMORE, A B C CODE.

J. PAUL BAKER, *Secretary.*

THE BALTIMORE CAR WHEEL CO.

Baltimore, Md., U. S. A.

MANUFACTURERS OF

THE LORD BALTIMORE

Cable and Electric Motor Trucks, Flexible Suspended Car Gear.

CHILLED WHEELS OF ALL PATTERNS AND SIZES FOR EVERY SERVICE AND WITH OR WITHOUT AXLES.

CAPACITY, 400 WHEELS PER DAY.



— ALSO —

THE BLAKISTONE AUTOMATIC FENDER AND WHEEL GUARD, APPROVED BY SPECIAL MUNICIPAL COMMISSIONS.

CORRESPONDENCE SOLICITED.

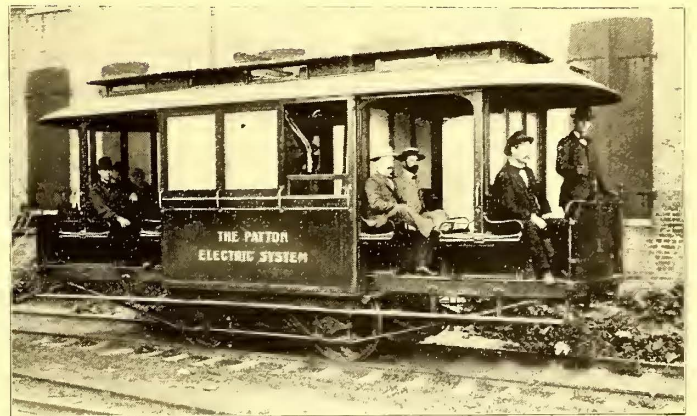
As a Feeder for Trolley Lines



**FOR NIGHT
WORK**

**FOR LONG
DISTANCE
WORK**

For service where, because of Operating Expense, the Trolley equipment is unsatisfactory, the Patton Motor is particularly adapted.



IT REQUIRES

- No Poles,
- No Wires,
- No Power House,
- No Bonding of Rails.
- No Special Construction,
- No Power House Force,
- No Linemen,
- No Engineers,
- No Skilled Mechanics.

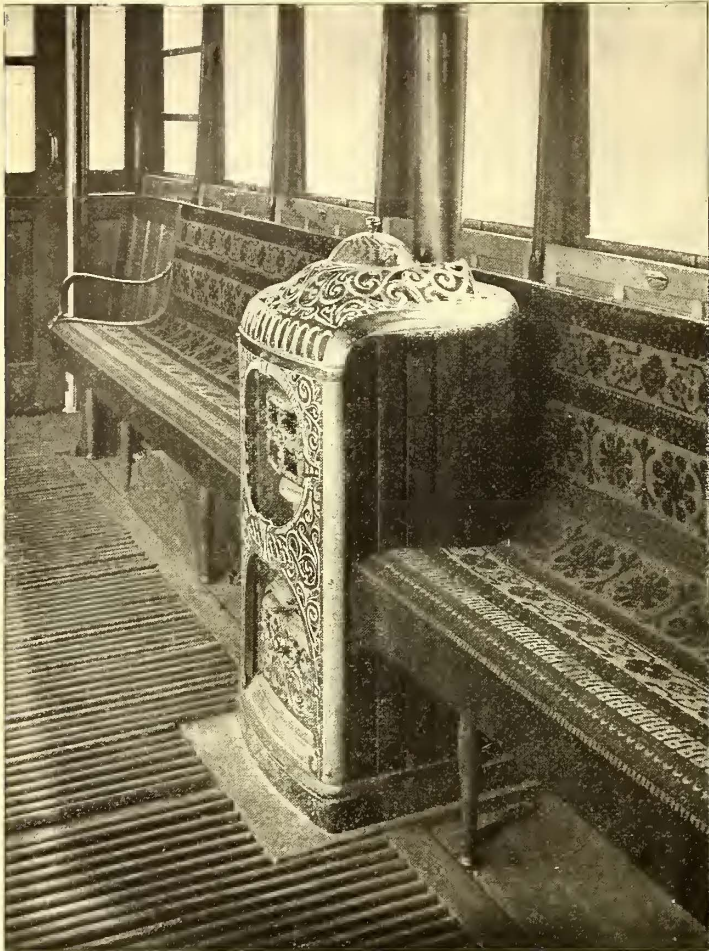
Items of expense saved by the use of the Patton Electric System.

It requires only ordinary Track.

We guarantee to do street car service (under average conditions) for less than two cents per car mile for power. Correspondence Solicited.

PATTON MOTOR CO., Chicago, Ill.

Address all communications to L. S. STEINITZ, 340 and 342 Dearborn St.



New Columbia SELF-FEEDING CAR HEATER.

Can be set on seat without
injuring cushions

OR

Can be set on floor where seat
is already cut, as shown in
illustration.

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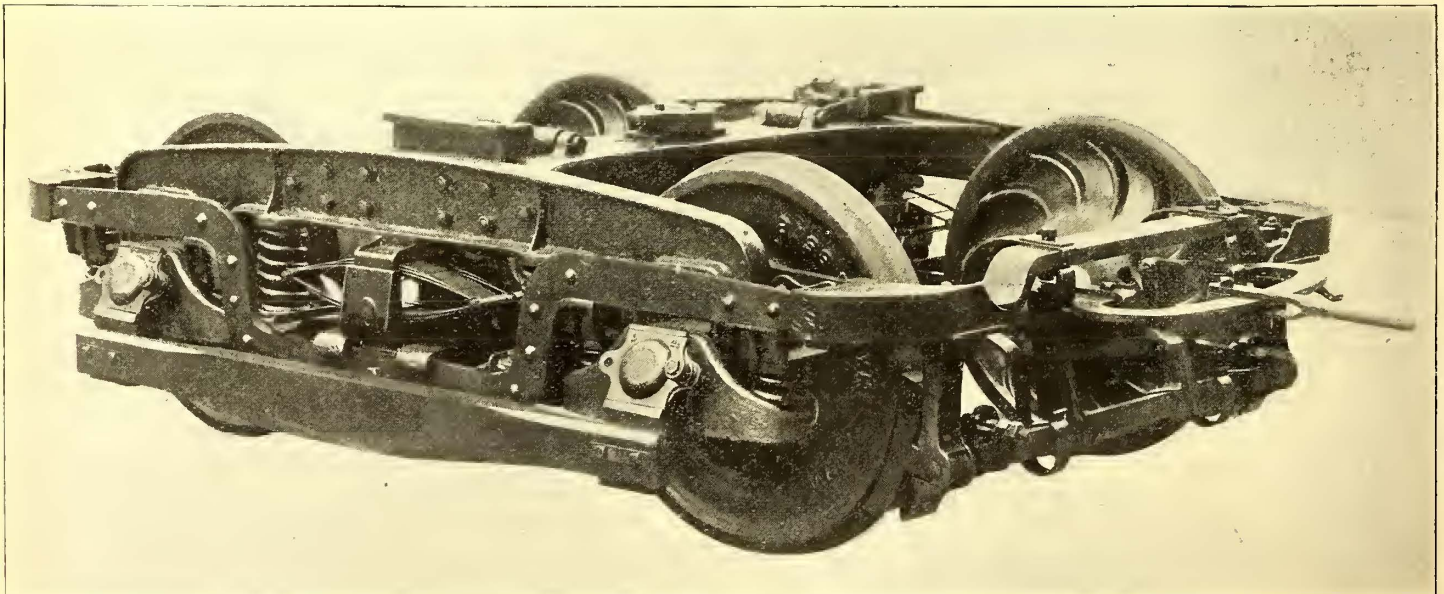
best and most modern ideas
in stove building.

The New Columbia

with every up-to-date improve-
ment will be sent anywhere in
the United States on approval.

THE LARGEST MANUFACTURERS OF CAR STOVES IN THE WORLD.

No. 28 Pivotal Motor Truck.



Adopted by the South Side Elevated Railroad Co., Chicago, after the most thorough investigation and the strongest competition, in which all the truck builders in the United States were represented.

McGUIRE MANUFACTURING CO.

122 to 132 N. Sangamon Street, Chicago, U. S. A.

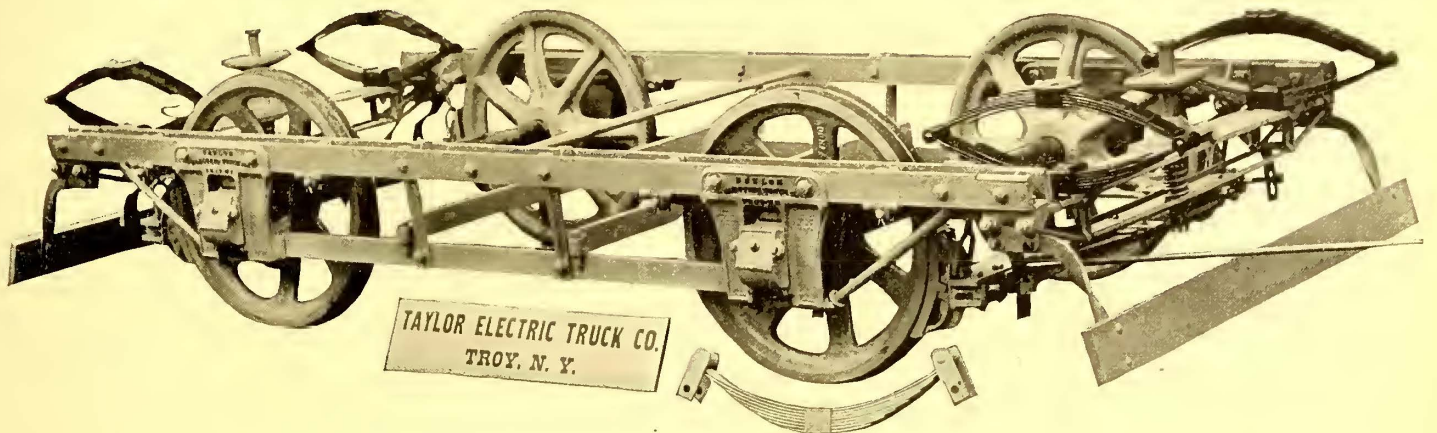
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TAYLOR ELECTRIC TRUCK CO. TROY, N. Y.

MANUFACTURERS OF HIGHEST GRADE

SINGLE AND DOUBLE TRUCKS.



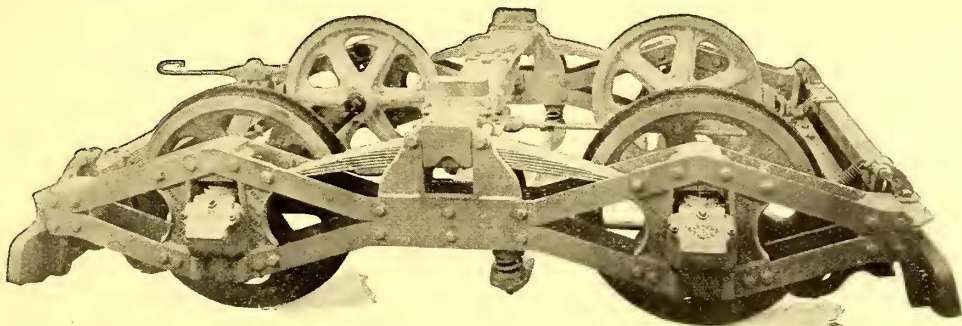
THE SIMPLE CONSTRUCTION OF OUR TRUCKS
Specially Adapts them for FOREIGN Shipment.

DIAMOND TRUCKS

TRUCKS FOR CABLE OR ELECTRIC SERVICE.

Any Length Wheel Base Desired.

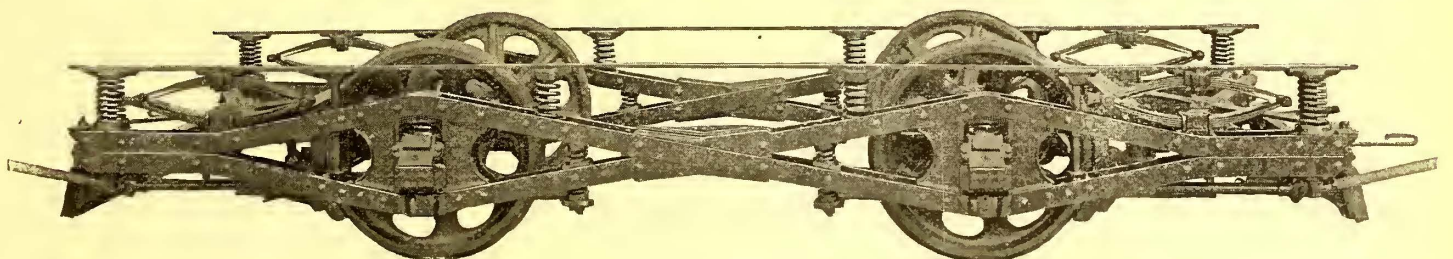
Simplicity
of
Construction.



Low Cost
of
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DIAMOND DOUBLE TRUCK.

DURABLE == EASY RIDING == GUARANTEED

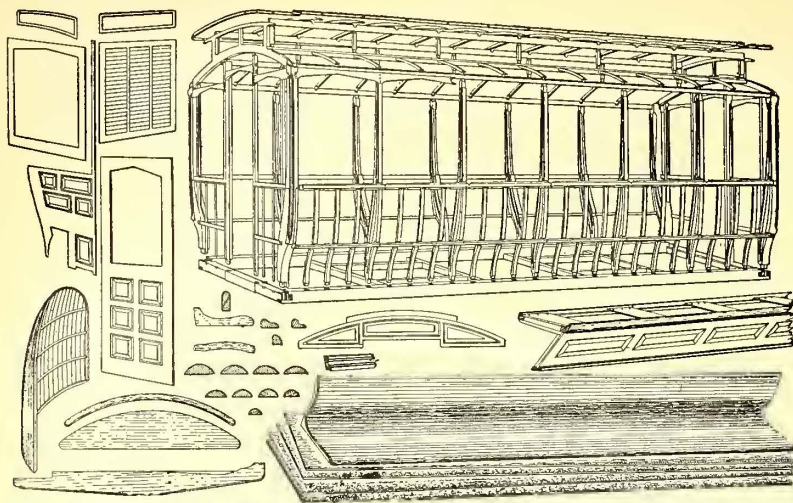


TRUCK No. 5.

Diamond Truck & Car Gear Co.

Office and Works, KINGSTON, N. Y.

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J. P. Sjoberg & Co.,

MANUFACTURERS OF

STREET CAR WOOD WORK

—FOR—

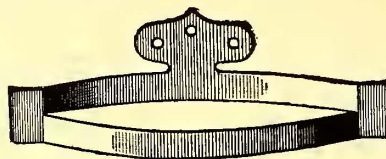
New Car Bodies

COMPLETE,

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Repairing and

Rebuilding.

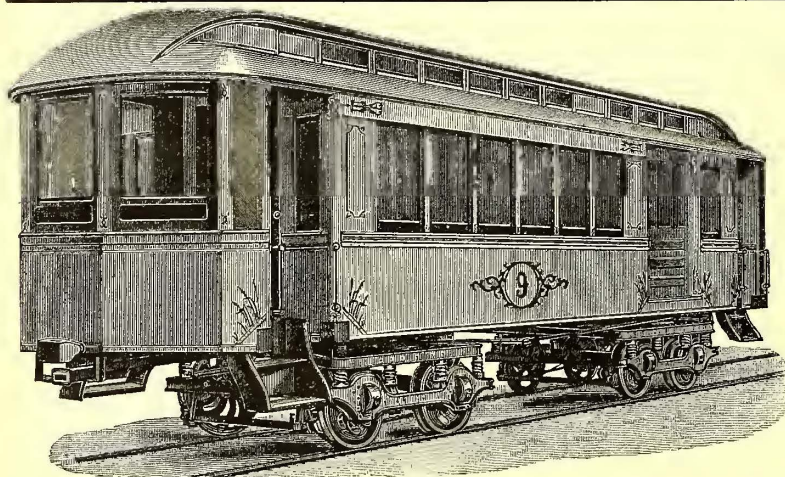


NEW CAR SASH AND BLIND SPRING.
Most Popular Spring on the Market.

145 & 147 Eleventh Avenue,

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NEW YORK.



MANUFACTURERS OF

Street Railway Cars,

ALSO

CAR WOOD WORK.

Mouldings, Doors, Sash, Blinds,
And General Planing Mill Work.

THE JEWETT CAR & PLANING MILL CO.,

JEWETT, OHIO.

Do you intend to.... Sprinkle Your Tracks or Your Roadway?

If so, write to us, and find out what we have to offer.



WENDELL & MacDUFFIE,
Sales Agents,
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Taunton Locomotive Mfg. Co.

TAUNTON, MASS.

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(INCORPORATED.)

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Contracts Solicited for Sprinkling Entire Cities.

SPRINKLING CARS LEASED
on Reasonable Terms.

Local Companies Formed for Carrying on Work of Street Sprinkling.

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THIS COMPANY controls all patents
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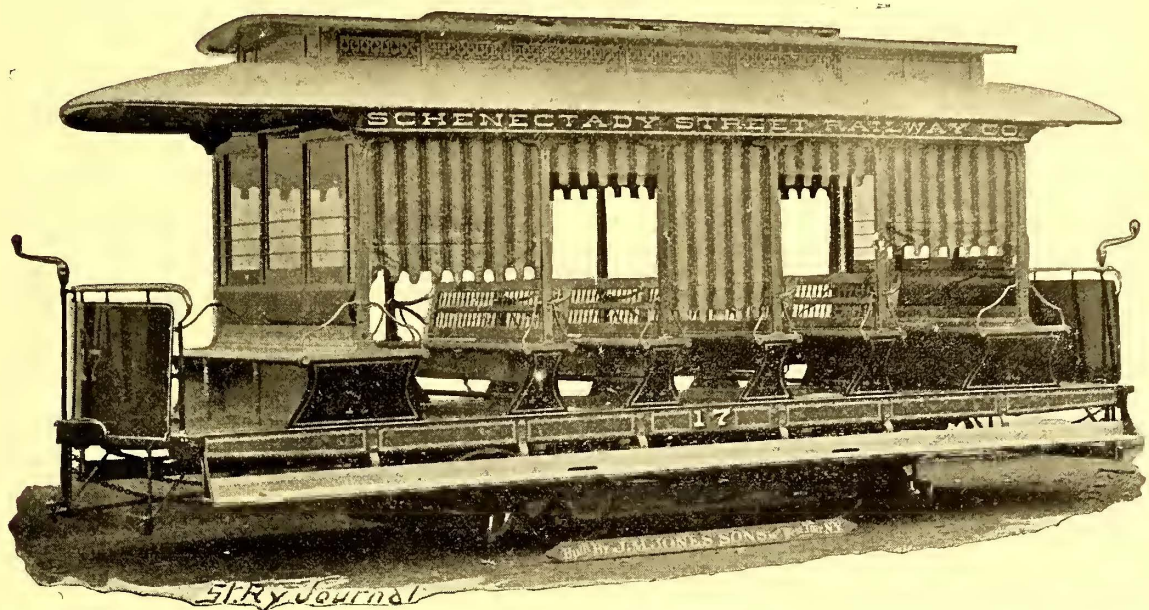


St. Ry Journal

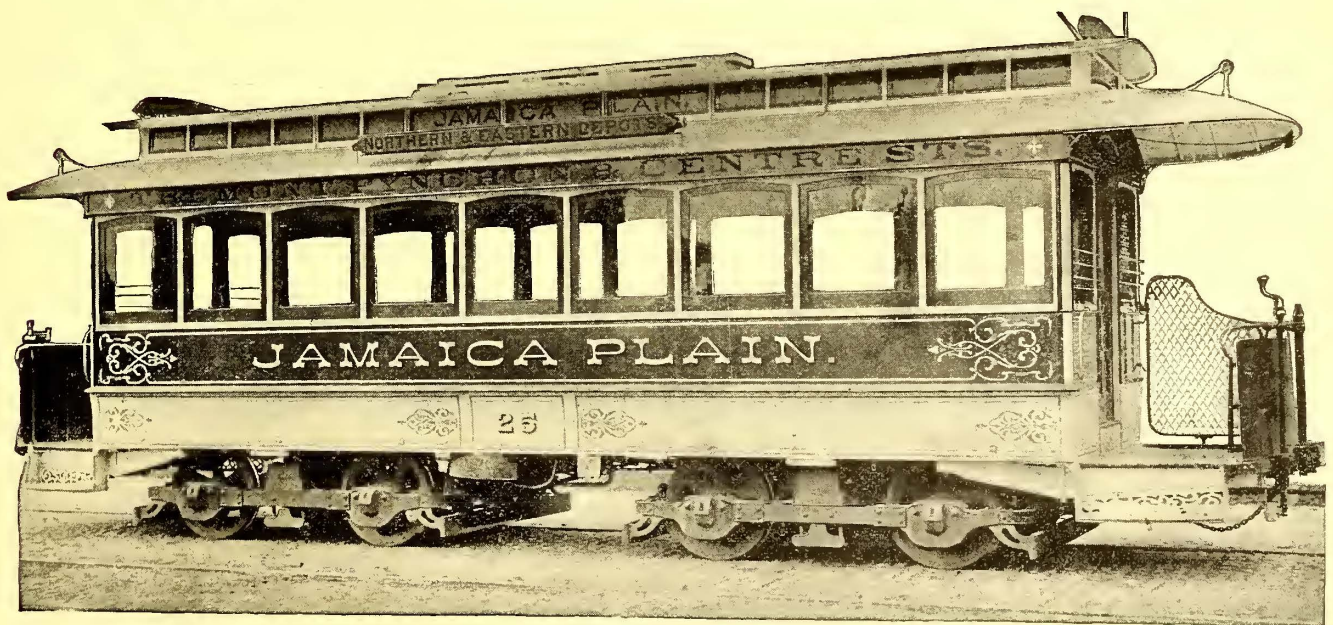
—ESTABLISHED 1839.—

J. M. JONES' SONS, STREET RAILWAY CAR BUILDERS,

West Troy, N. Y.



— **ORDERS FILLED PROMPTLY** —



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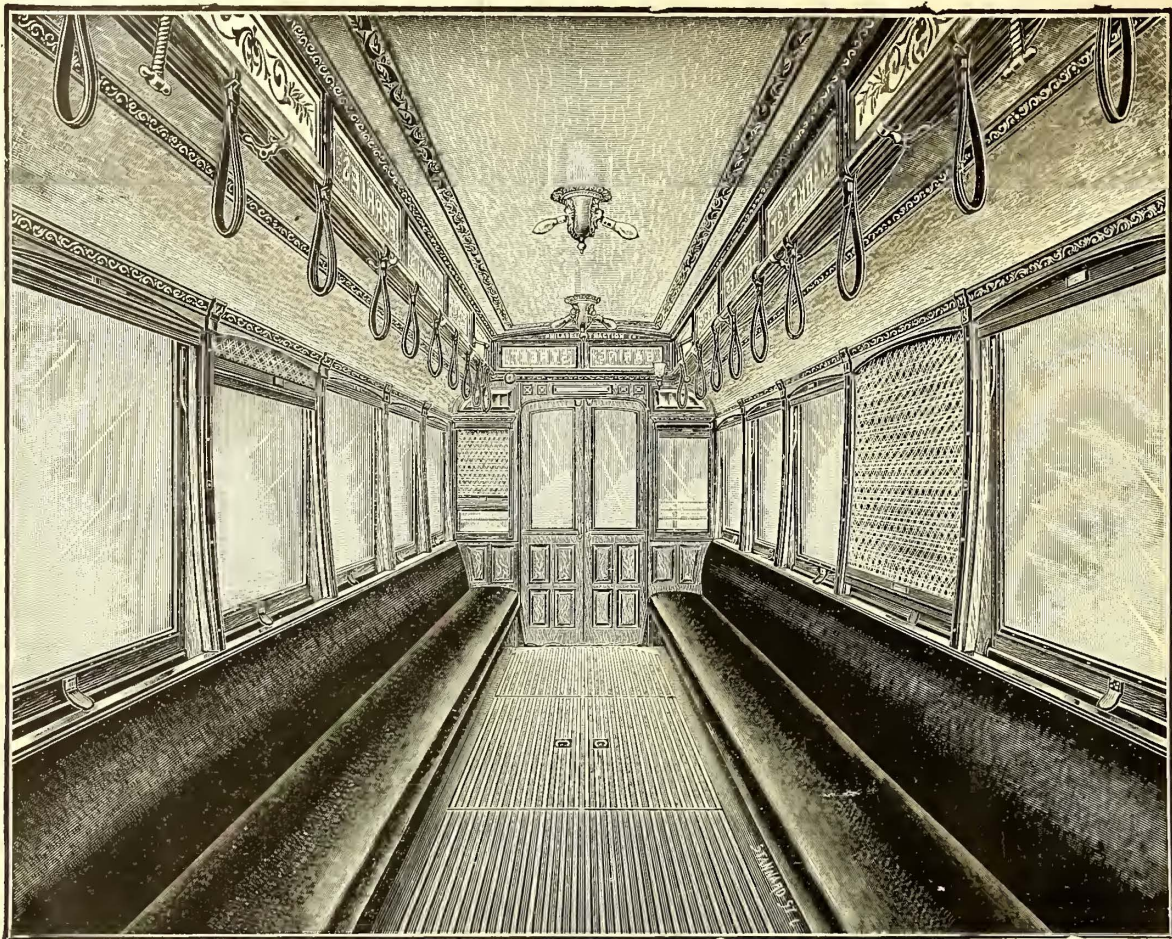
CARS FOR ELECTRIC AND CABLE SERVICE.

Laclede Car Co., *St. Louis, Mo.*

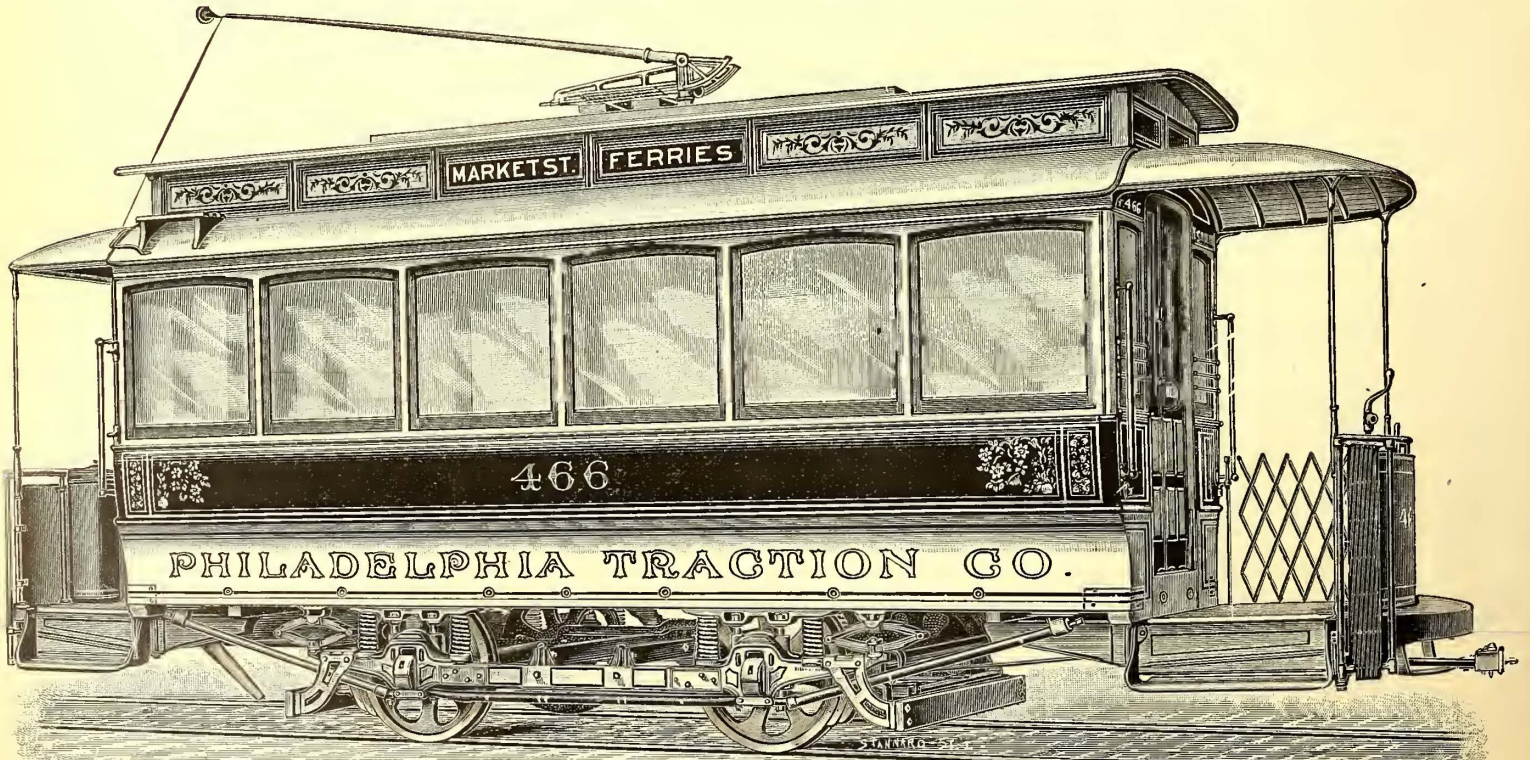
BUILDERS OF

ELECTRIC CARS

AND TRUCKS



INTERIOR OF PHILADELPHIA "MARKET STREET" CAR.



THIS CUT REPRESENTS ONE OF THE 100 CARS WE FURNISHED THE PHILADELPHIA TRACTION COMPANY FOR THE MARKET STREET LINE.

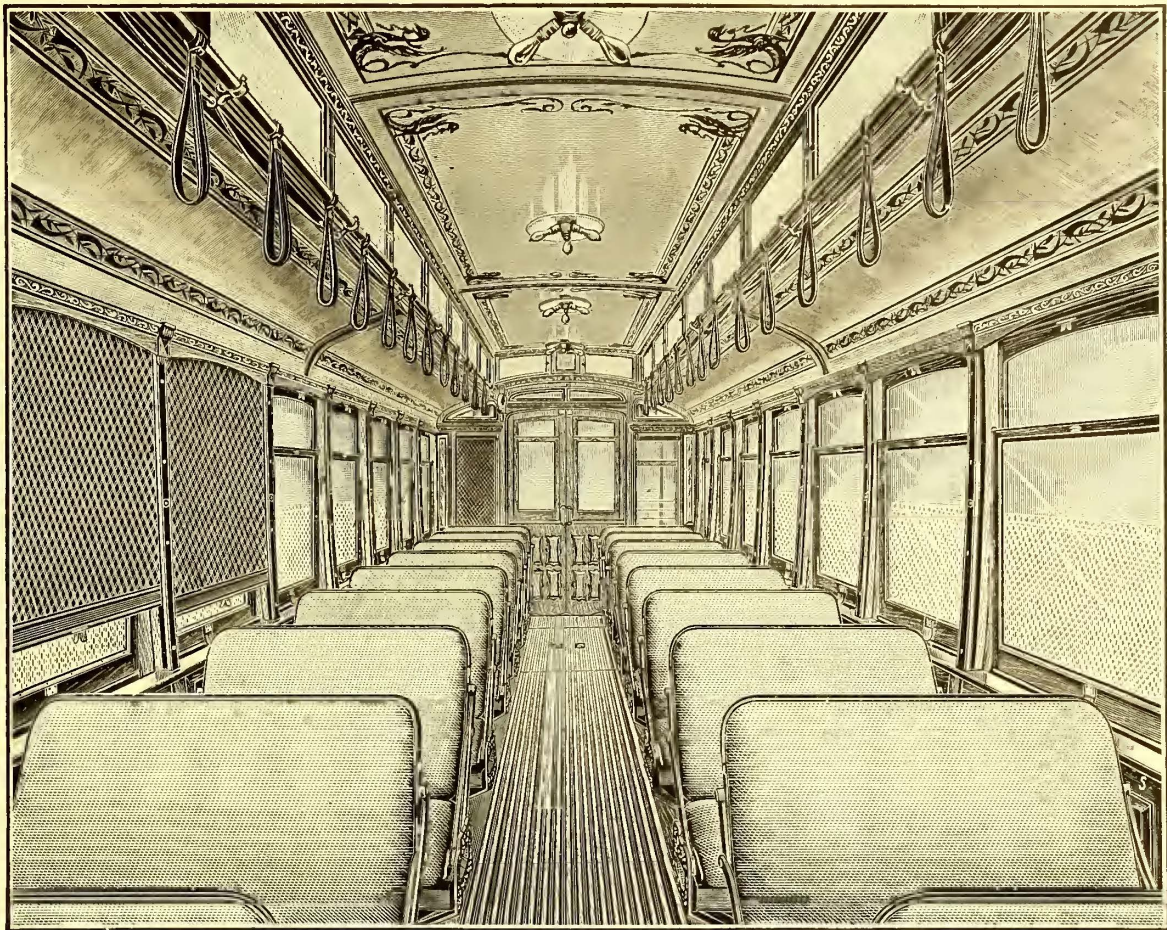
All Orders Promptly and Carefully Executed.

Laclede Car Co., *St. Louis, Mo.*

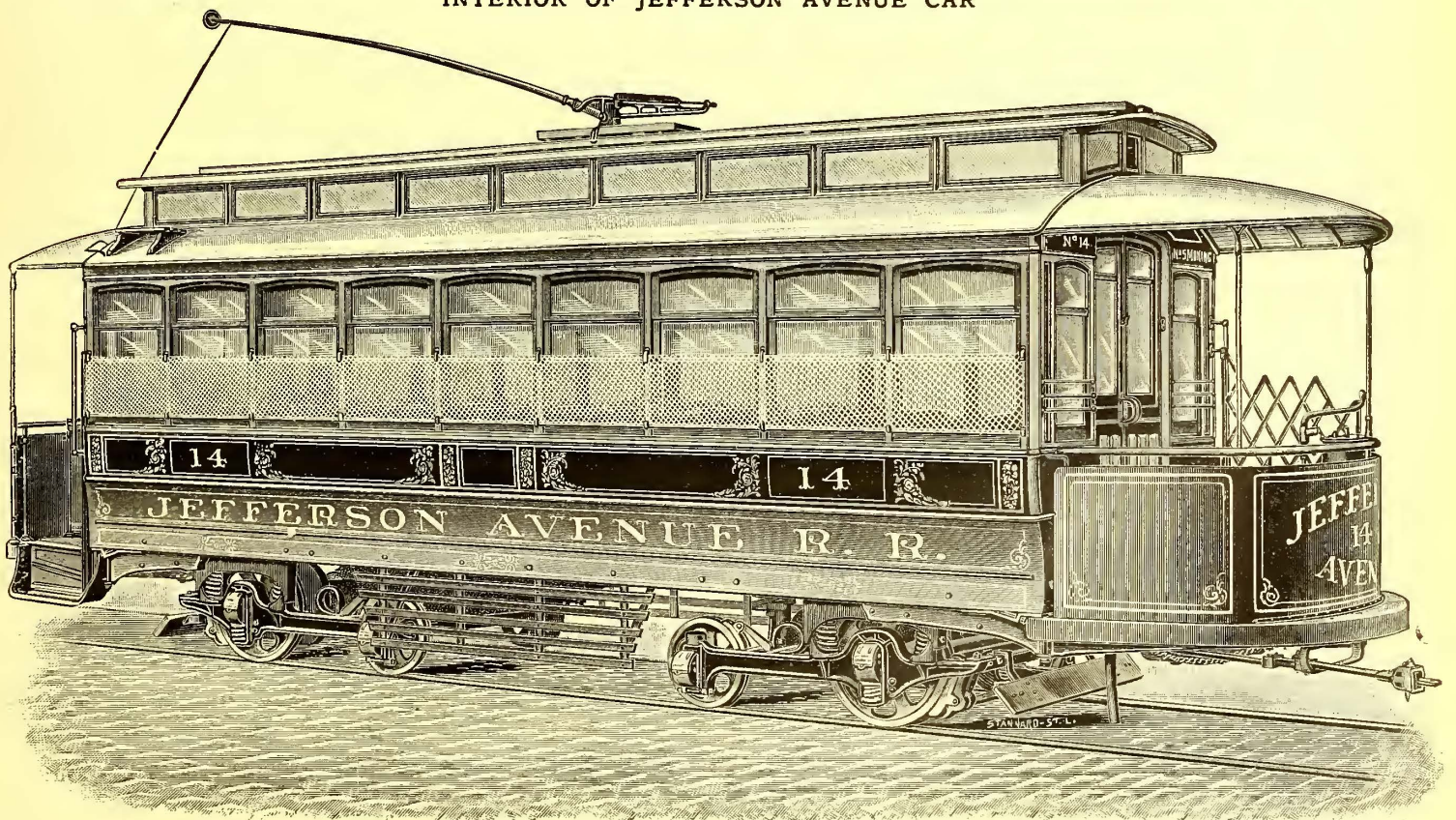
BUILDERS OF

ELECTRIC CARS

AND TRUCKS



INTERIOR OF JEFFERSON AVENUE CAR



THIS CUT REPRESENTS ONE OF THE CARS WE FURNISHED THE JEFFERSON AVENUE RAILROAD COMPANY ST. LOUIS, MO.

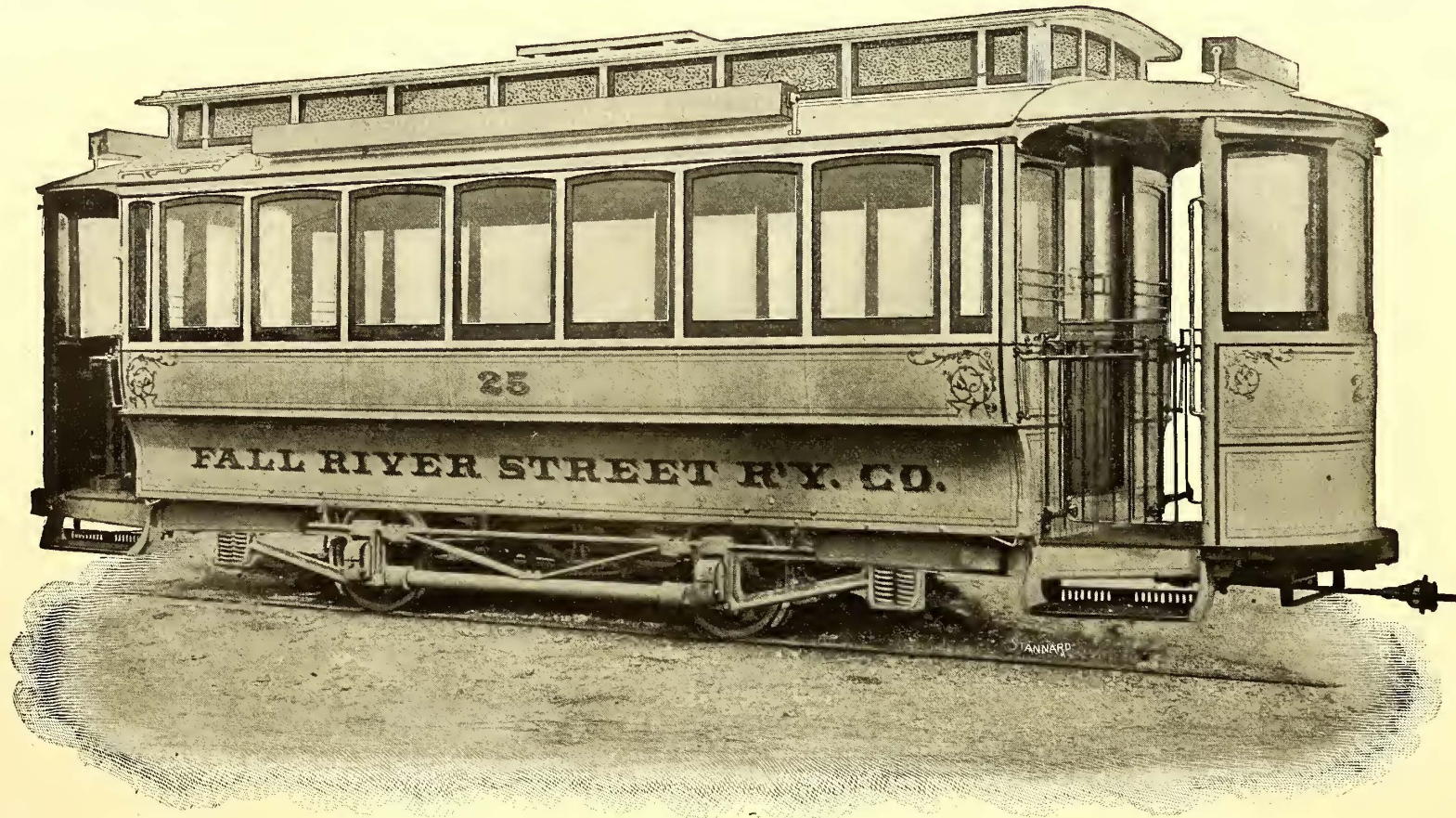
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AMERICAN CAR CO.

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ST. LOUIS, MO.

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TWENTY FOOT CAR BODY MOUNTED ON AMERICAN CAR CO. No. 3 MOTOR TRUCK.
Built for Fall River Street Railway Co., Fall River, Mass.

STREET CARS and TRUCKS *For all Kinds of Motive Power.*

WRITE FOR OUR
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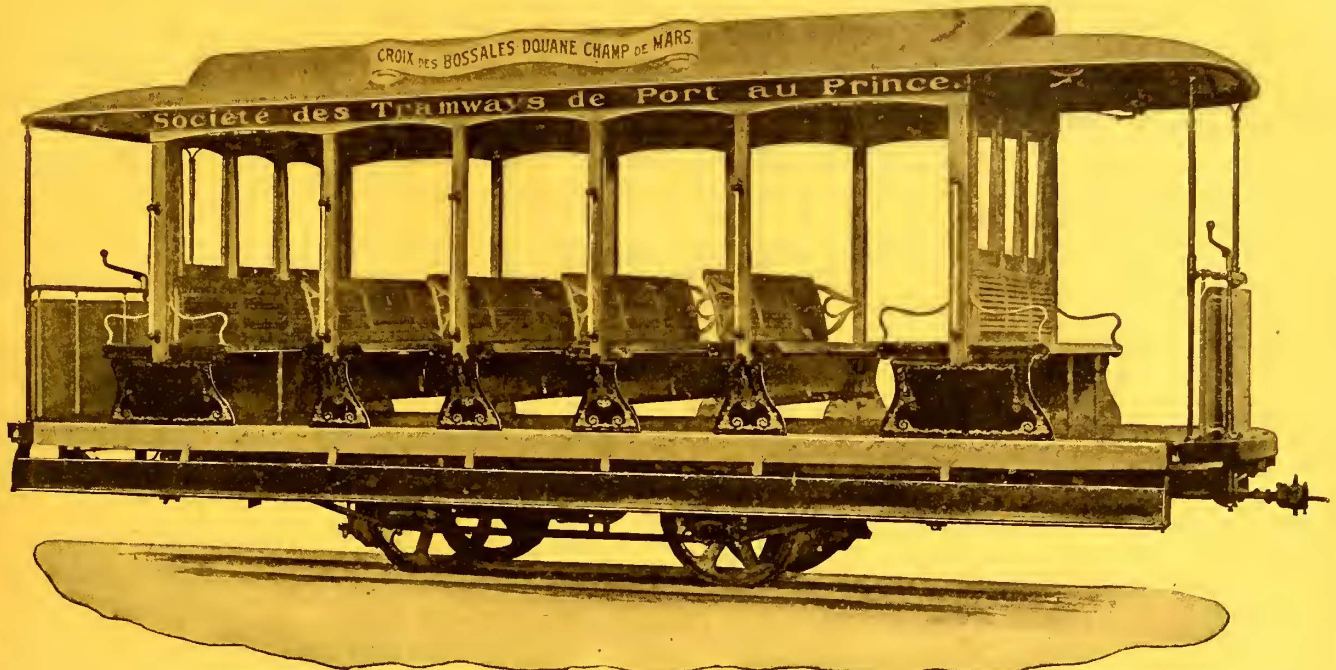
JACKSON & SHARP COMPANY,

Delaware Car Works,
WILMINGTON, DELAWARE, U. S. A.

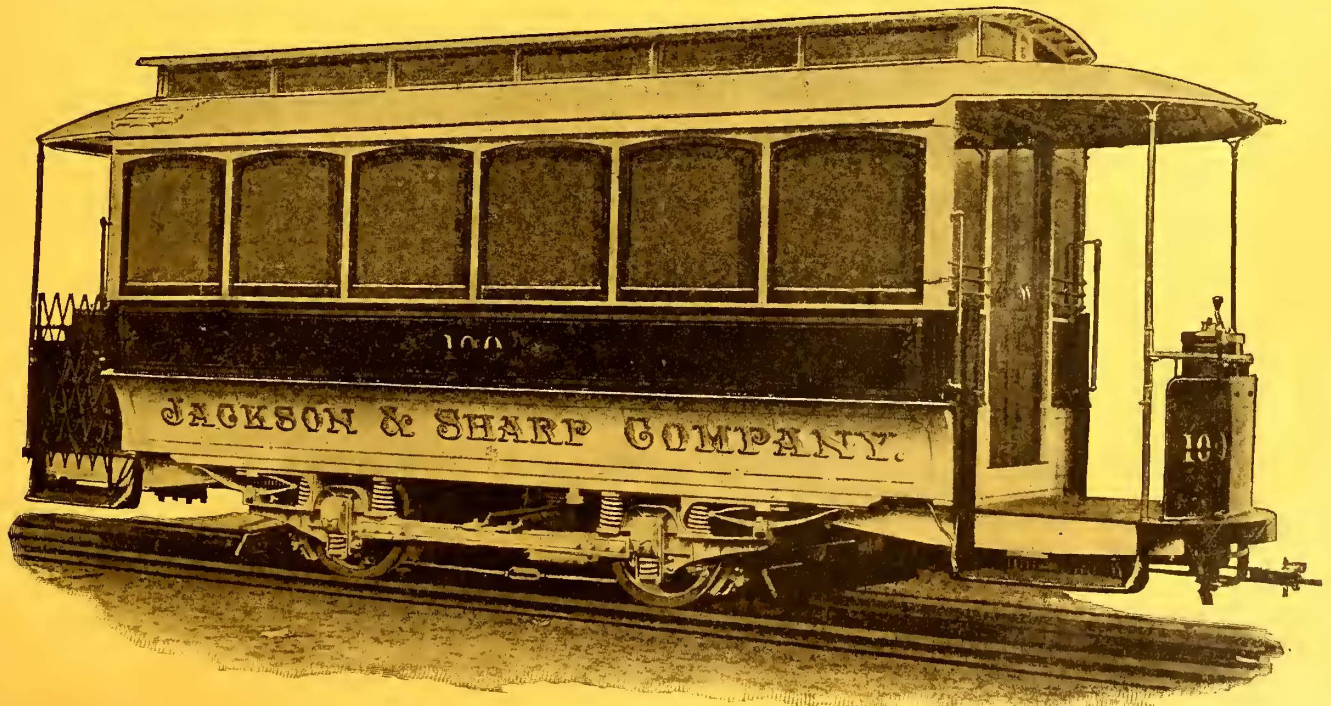
Builders and Exporters of Tramway Cars OF EVERY . . .
DESCRIPTION.

Unexcelled facilities and extensive experience enable us to insure satisfaction. Write us regarding your requirements and we will send you plans, illustrations, etc.

PARTS OF CARS, READY TO PUT IN PLACE, A SPECIALTY.



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<p>CONSTRUCTEURS ET EXPORTATEURS de Voitures de Tramways de tous Genres.</p> <p>Des facilités exceptionnelles et une longue expérience nous permettent d'assurer toute satisfaction. Faites-nous connaître ce qu'il vous faut, et nous vous enverrons nos plans, catalogues illustrés, etc. Spécialité de pièces détachées de voitures, prêtes à être unises en place.</p>	<p>FABRIKATION UND EXPORT von Strassenbahn-Wagen Jeder Art.</p> <p>Unübertreffliche Gelegenheiten und langjährige Erfahrung setzen uns im Stande jegliche Zufriedenheit zu versichern. Lassen Sie uns Ihre Bedürfnisse kennen, und wir werden Ihnen Pläne, illustrierte Catalogen, u. s. w. einsenden. Spezialität von Wagenstücken, bereit für Einsetzung.</p>



*Builders of***J. G. BRILL CO.**

Philadelphia, U. S. A,

Electric Cars
Trucks and
Tram Cars.

Cars "in the White"

A new system of constructing

Cars for Export.

Cars "in the White"

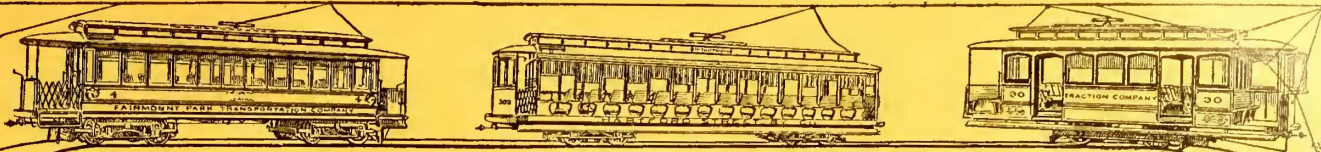
Pack in small space
 Are not damaged in shipment
 Are low in first cost
 Are as strong as cars shipped whole
 Can be erected by ordinary carpenters
 Make great saving in freight
 Often save in customs

A New Departure in Tram and Electric Car Construction.

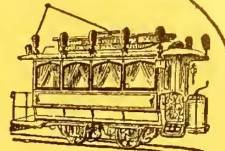
A Great Improvement over the old "Knock-Down" Systems

No paint to be damaged.
 No glass to be broken.
 No spoiled seat coverings.
 No sawing apart of timbers.
 No doubling of posts to obtain strength.

A NEW METHOD OF CONSTRUCTION
 has been introduced. The car is
 completed before being taken
 apart. The wood work perfectly
 protected from moisture before
 shipment.



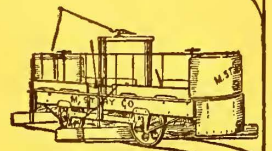
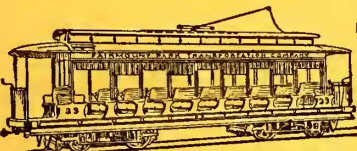
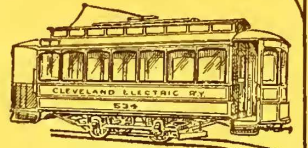
J. G. BRILL COMPANY,



Philadelphia, U. S. A.



Street and Suburban Cars,
Steam Cars, Motor Cars,
Electric Cars,



CARS of all kinds for

EXPORT.

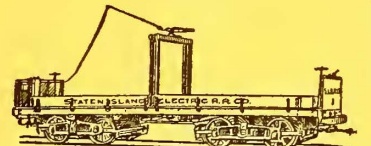


Shipped with _____
Hoods and Platforms removed.

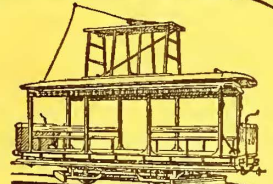
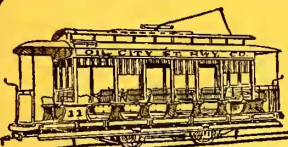


ALL CARS

"KNOCKED DOWN"
and BOXED if desired.

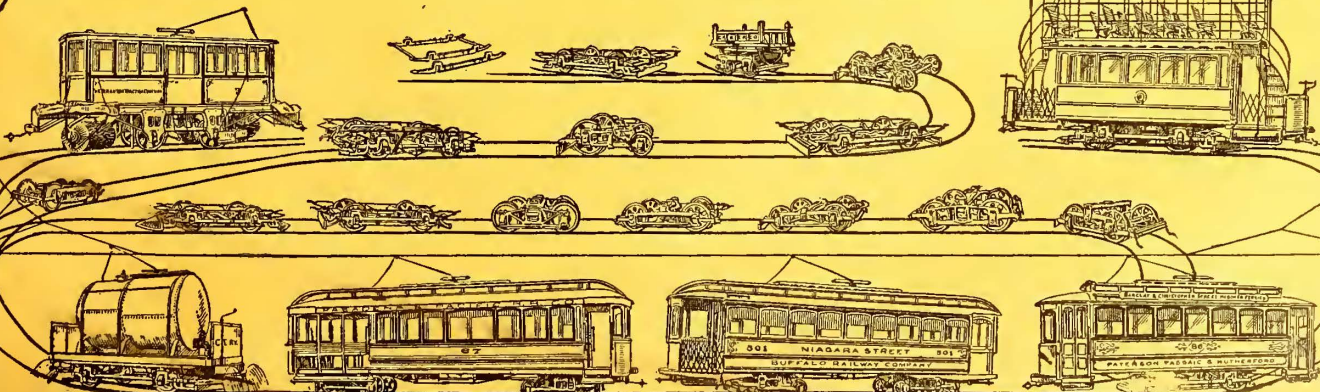
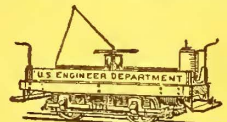


Fine timber for Car Building is cheap and abundant in America. Our climate on account of its dryness affords peculiar facilities for seasoning timber. Our plant is the largest of its kind in the world. We have the best procurable machinery. These advantages and facilities enable us to produce the best, most durable and most economical street cars.



TRUCKS with Solid Forged Frames

THEY NEVER RATTLE,
NO REPAIRS ARE REQUIRED,
EASY RIDING,
VERY "LIGHT" on the Rails and Special Work.



JANUARY RAILWAY

* 1831 *

* 1897 *

JOHN STEPHENSON CO. LIMITED NEW YORK

CARS



HORSE ELECTRIC CABLE

*Plain * Practical * Permanent.*

Twin Automatic Doors, Affording Largest Capacity
for Entrance and Exit.



LIGHT. ELEGANT. DURABLE.

*Electric Railway
Generators.*

*Electric Railway
Motors.*

General Electric Co.

SCHENECTADY, N. Y.

Complete Electrical Equipments,

— FOR —

Street, Suburban, Elevated and
Trunk Railways.

*Electric Railway
Line Supplies.*

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