

STREET RAILWAY JOURNAL

A WEEKLY RECORD OF THE WORLD'S PROGRESS IN CITY AND INTERURBAN RAILROADING.

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FEBRUARY 7, 1903.

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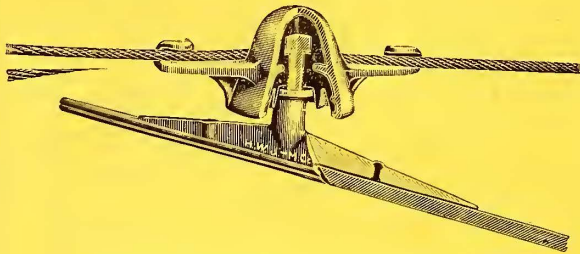
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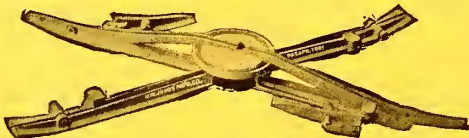
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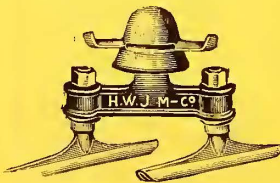
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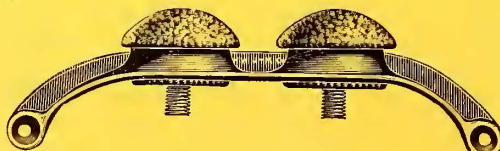
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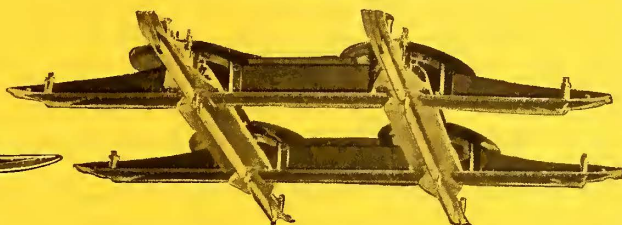
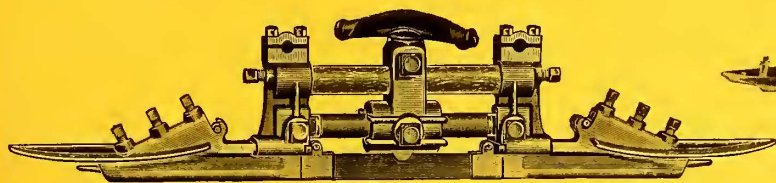
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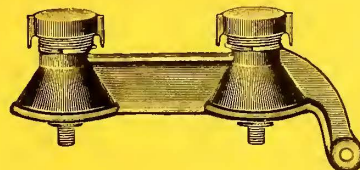
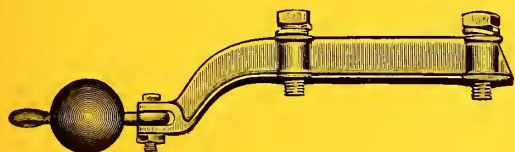
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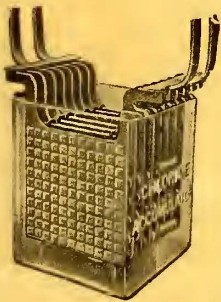
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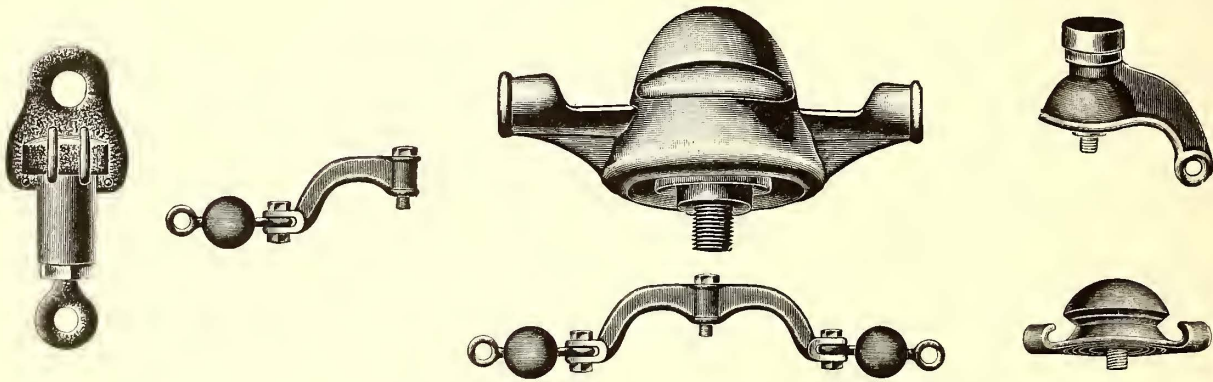
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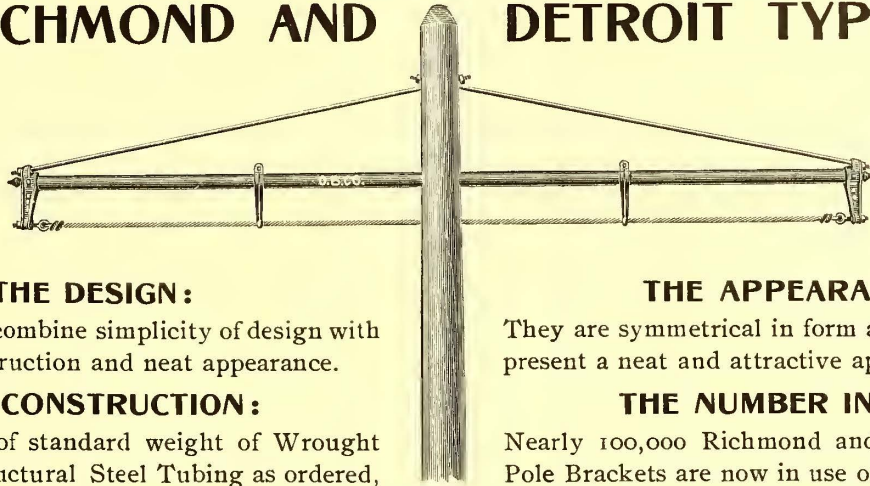
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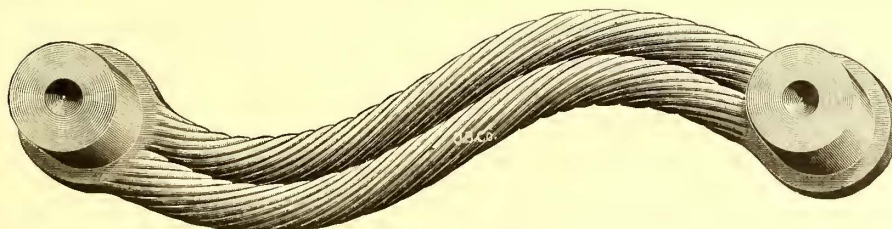
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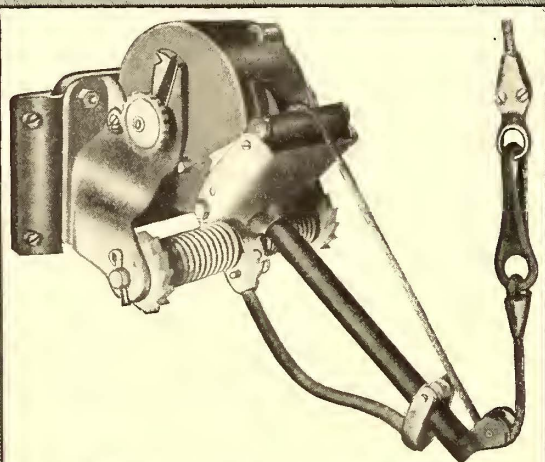
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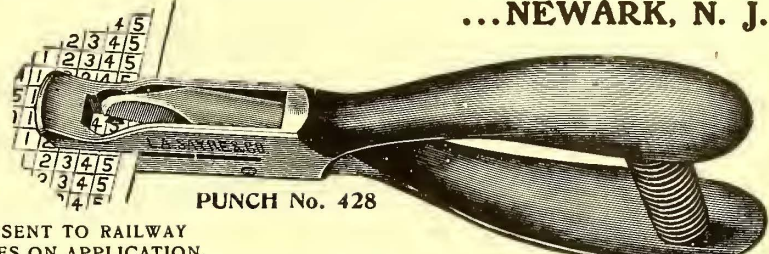
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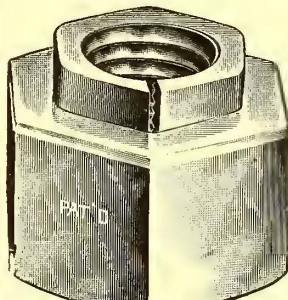
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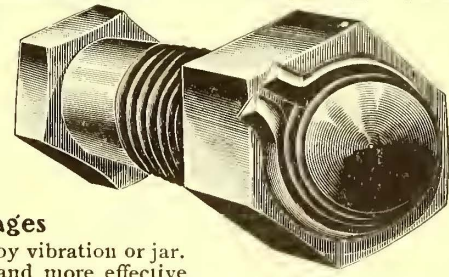
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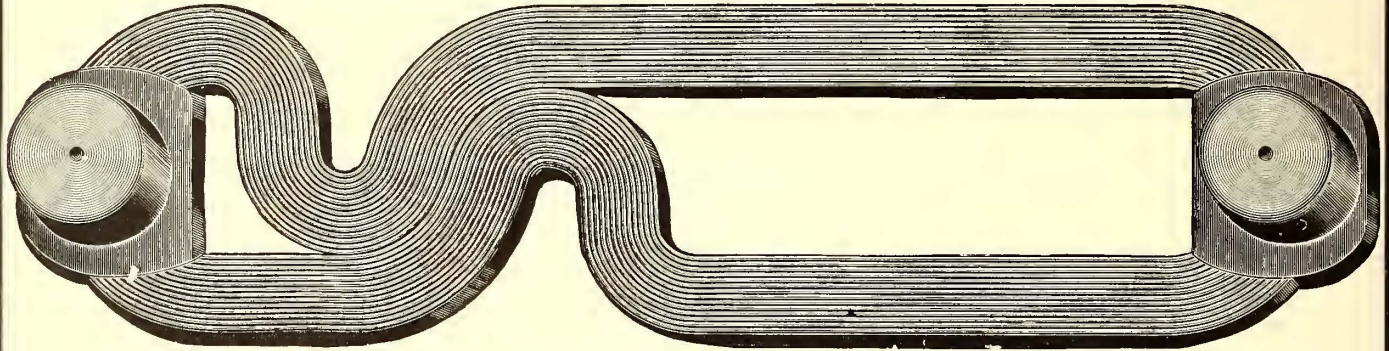
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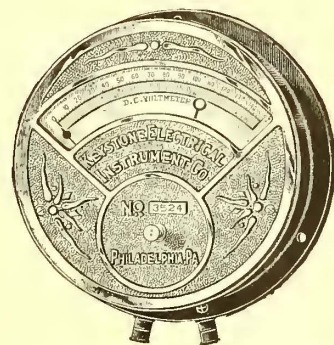
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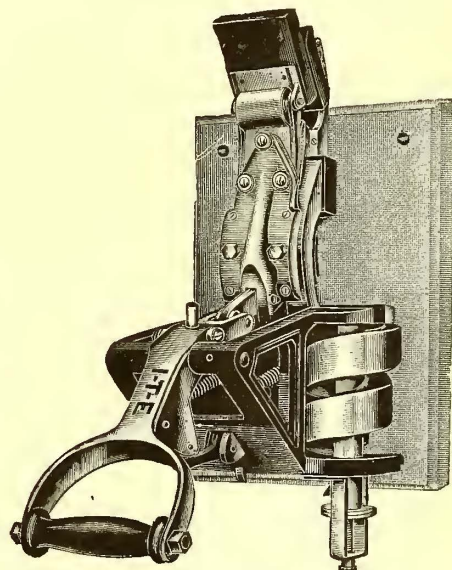
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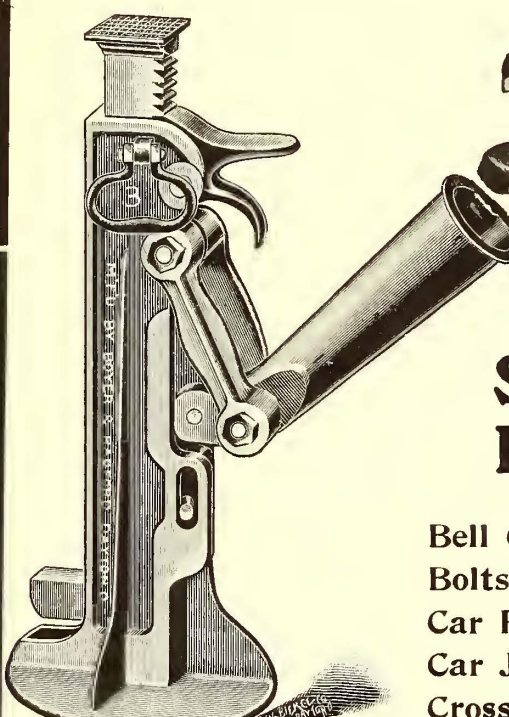
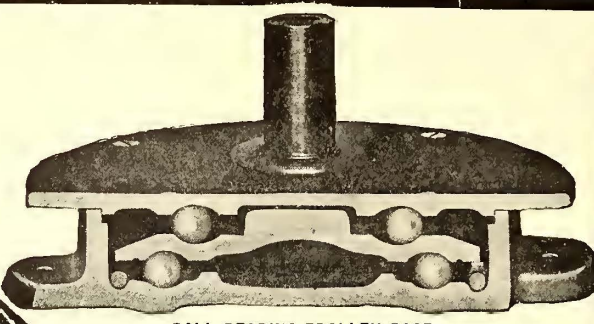

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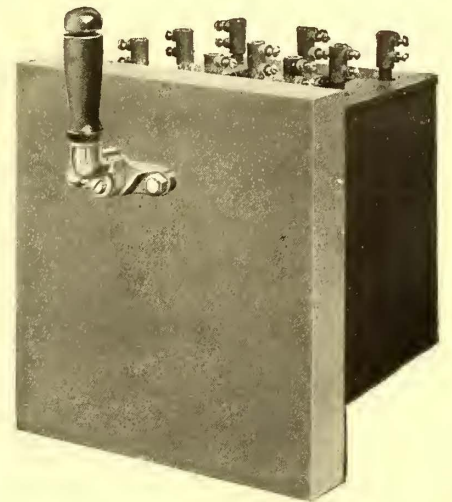
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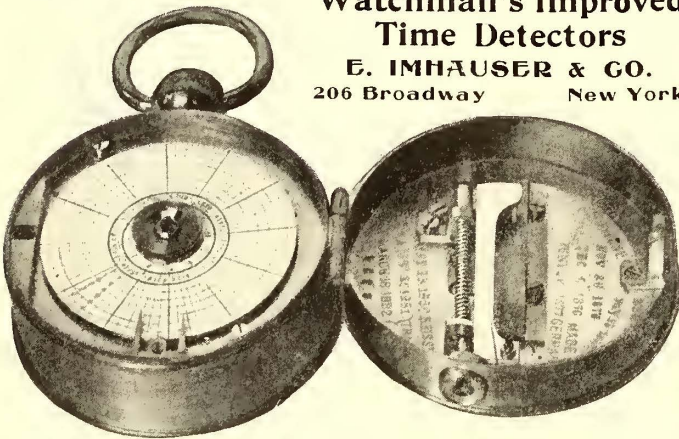
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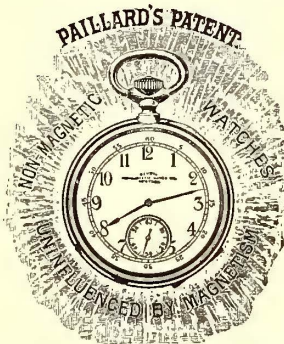
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This work is the outcome of a sense of need which the authors keenly felt while engaged for several years in the shops and on the testing floors of the large manufacturing companies, and also subsequently in installation and general road work. This need is felt by the college graduate as he steps from the plane of the laboratory and lecture room to the commercial testing floor; it is also felt by the multitude of station managers and engineers, who find the hit-an-I-miss methods of testing far from satisfactory. The present work has a twofold object: 1. To give a complete theory of the commercial testing floor, with its multitudinous applications of theory to practice. 2. To meet the growing demand on the part of operating companies for a manual that shall enable them to do their own repair work and consequent testing. To this end this work presents such tests as can be undertaken without elaborate or expensive instruments. Part 1 is devoted to fundamental and preliminary conceptions. Part 2 treats of the testing and use of instruments, taking up Ohm's law, measurement of current, E. M. F., resistance and insulation. Part 3 constitutes the body of the book, and takes up in detail the shop and road tests of dynamos and motors, including the familiar heat test, pumping back, compounding, efficiency test, etc., etc. The series, shunt and compound-wound machines are taken in order, and the circumstances under which they can be operated considered. A chapter is added on locating faults and grounds, which will be of particular service to the lighting station and street railway operator.

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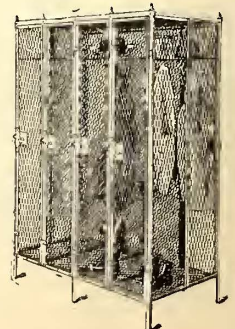
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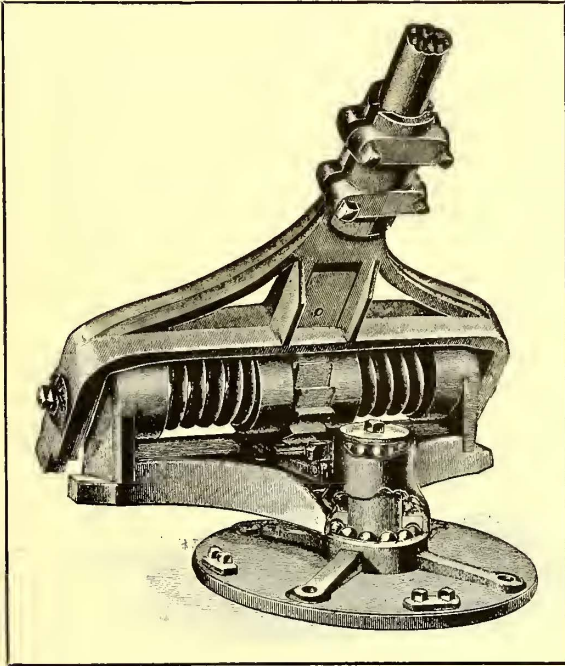
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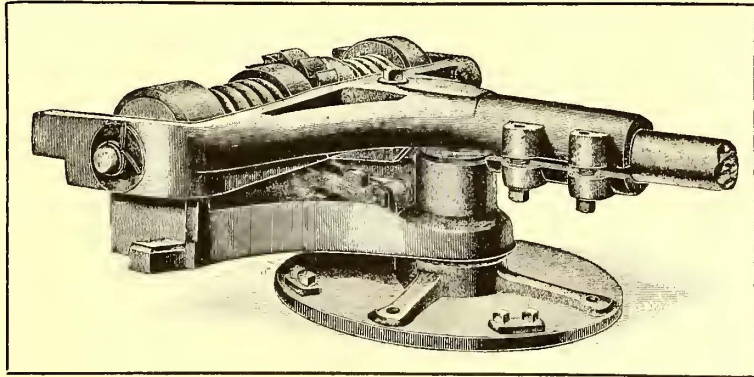
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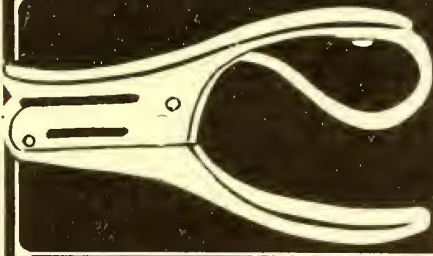
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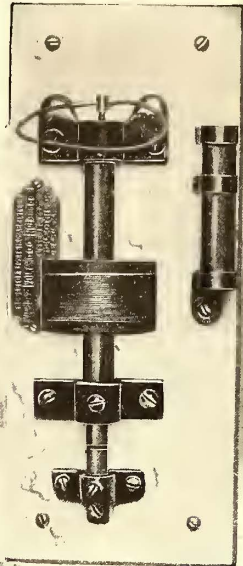
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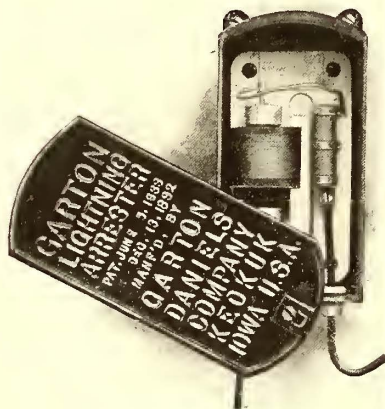
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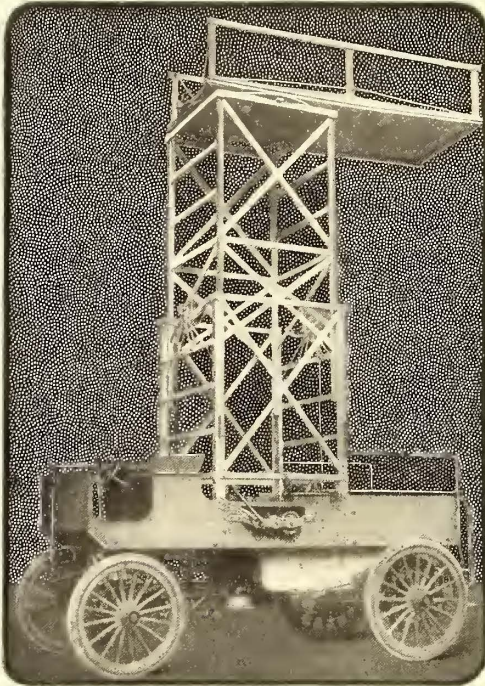
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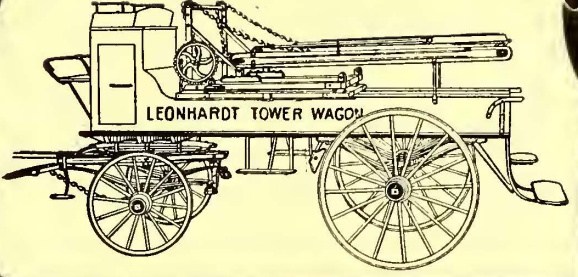
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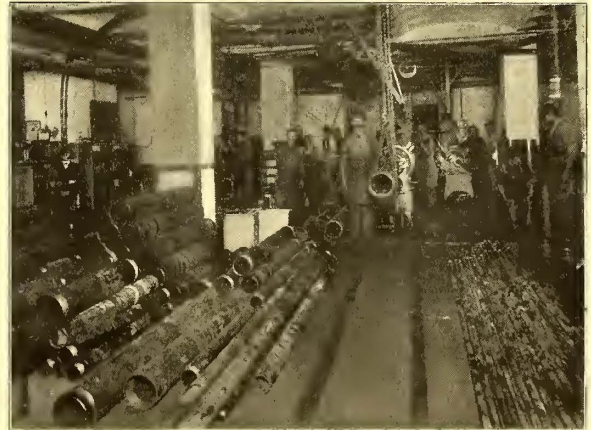
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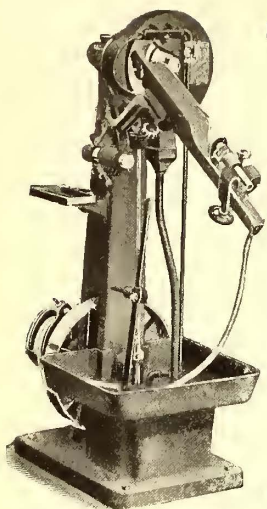
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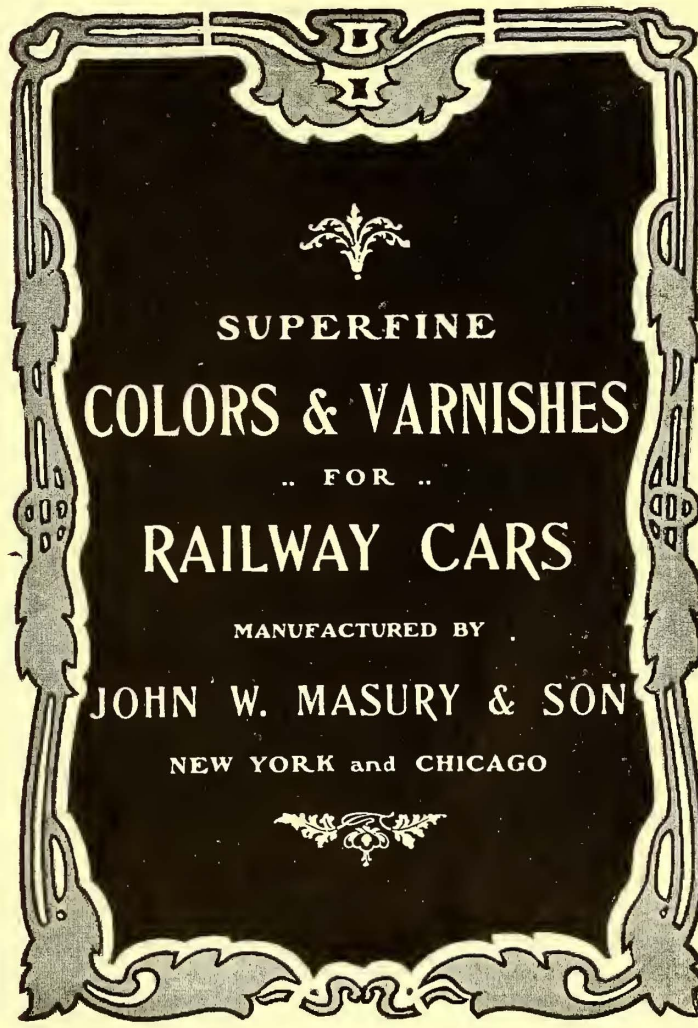
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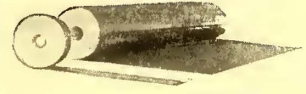
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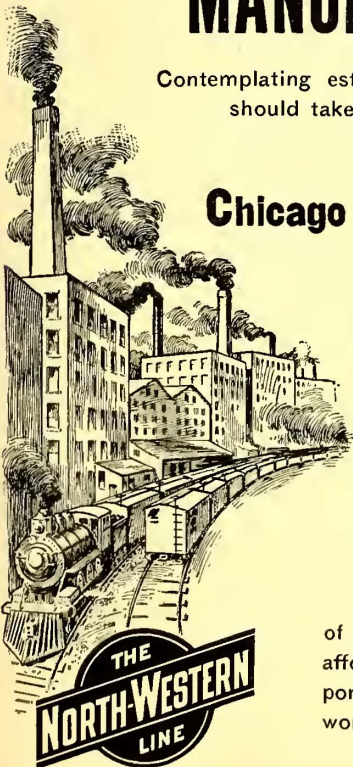
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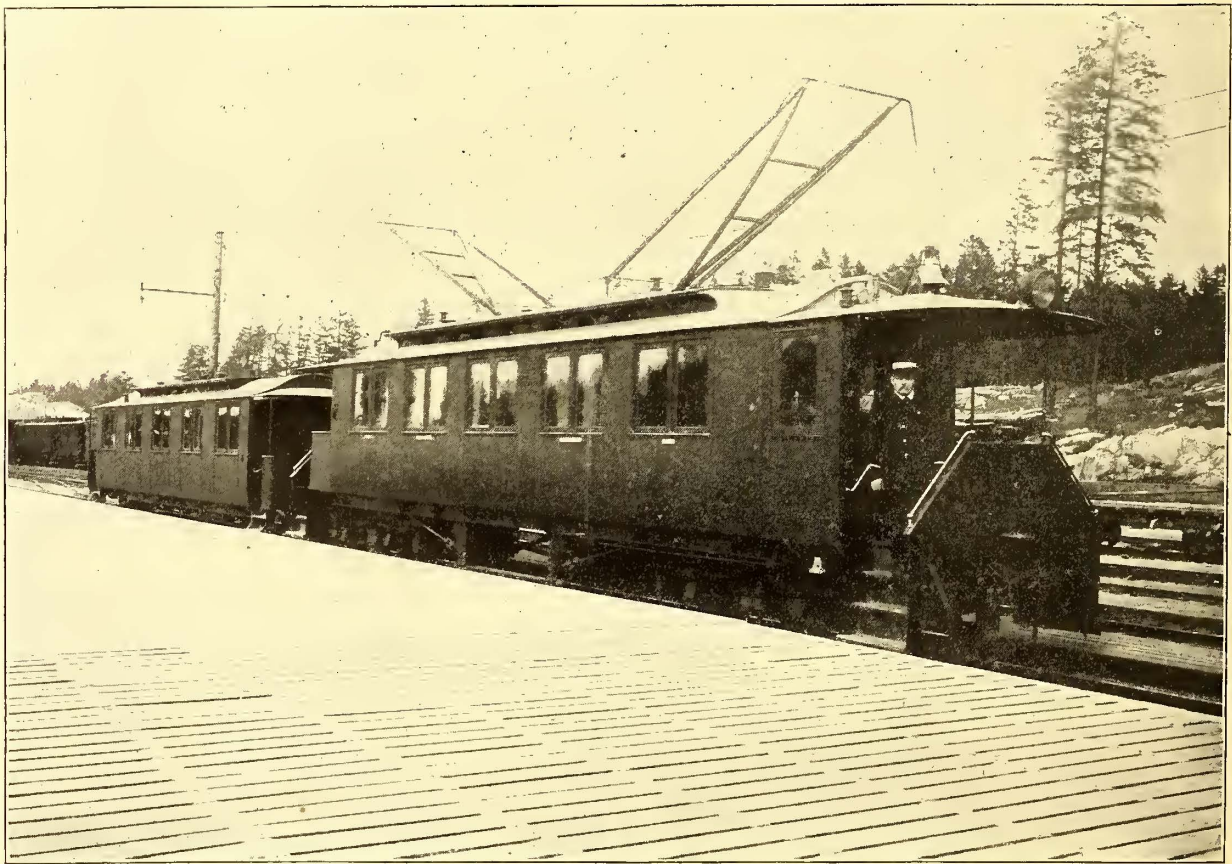
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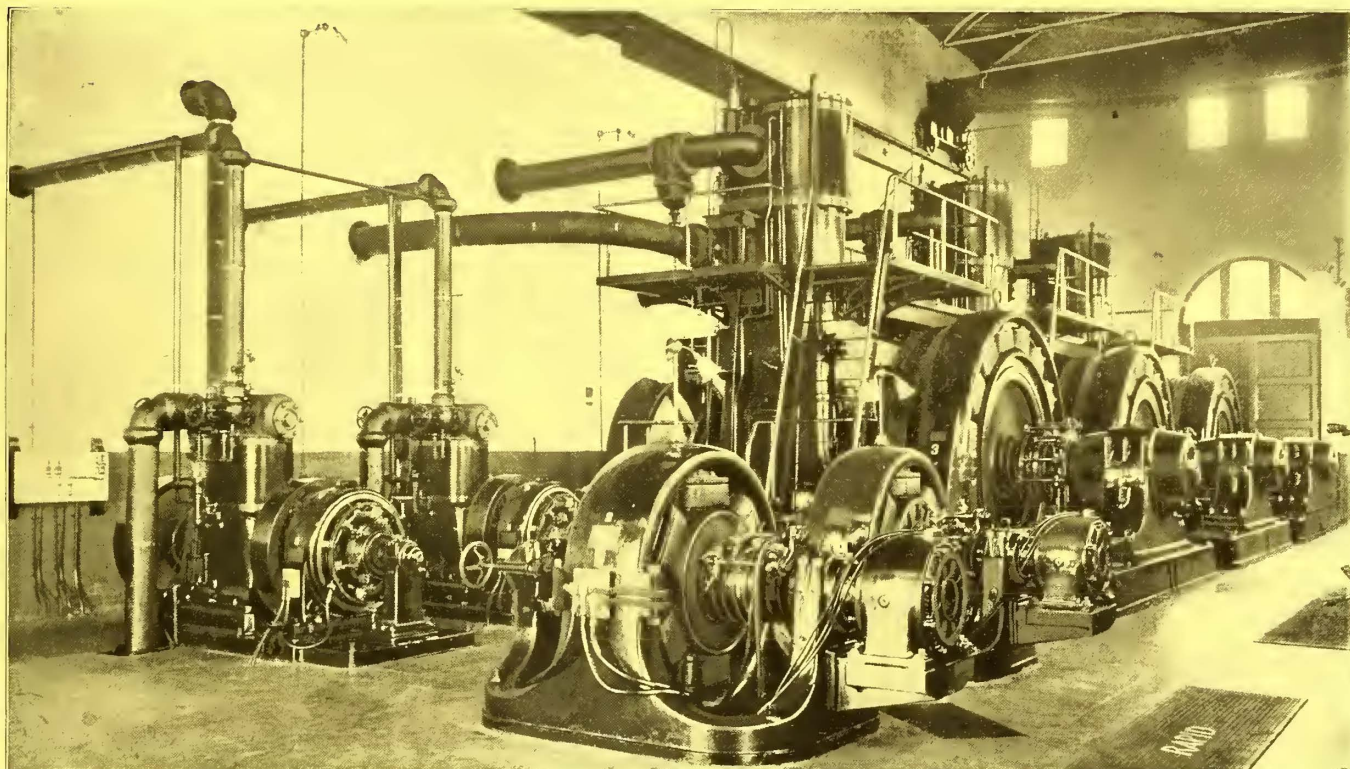
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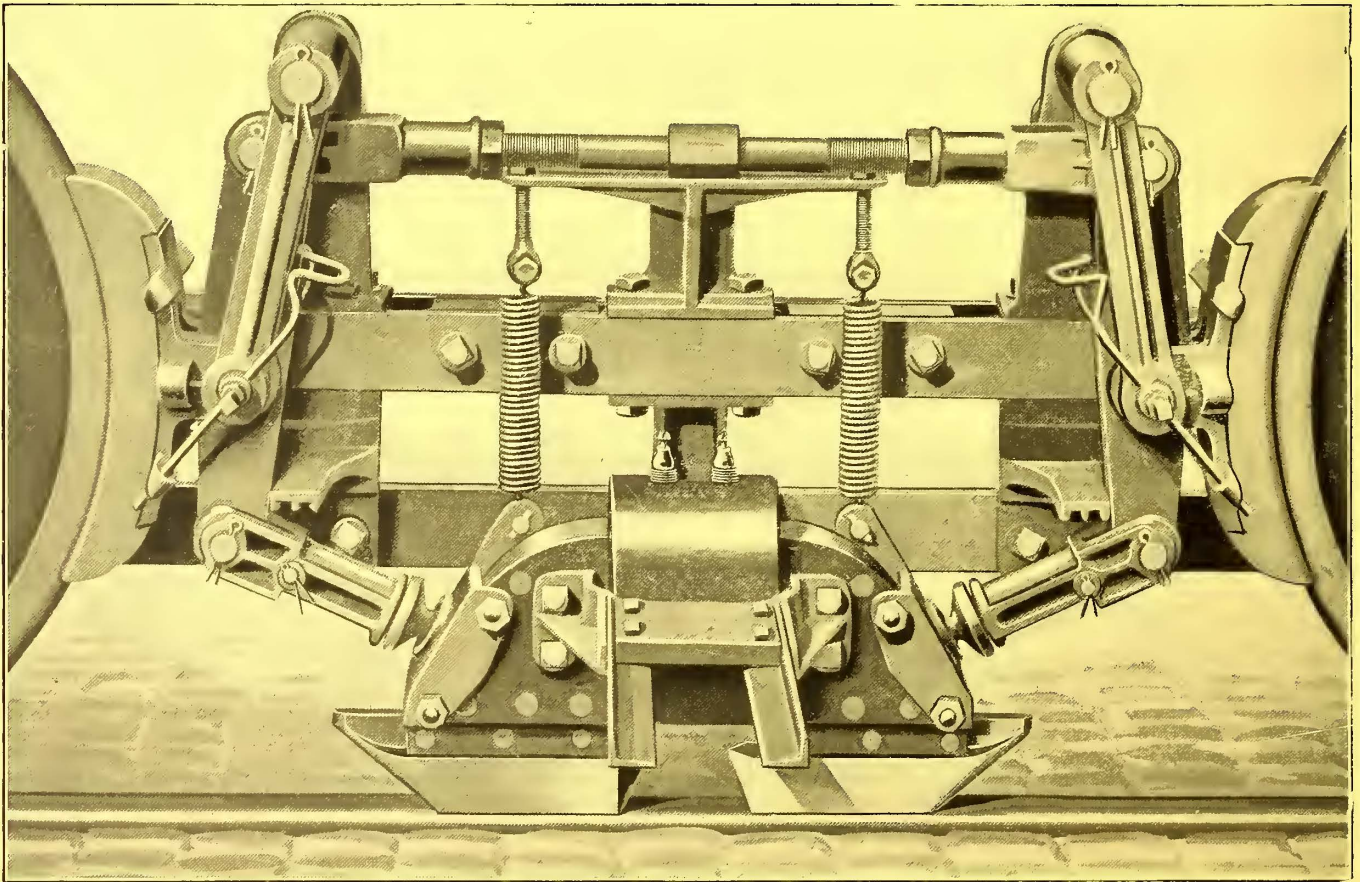
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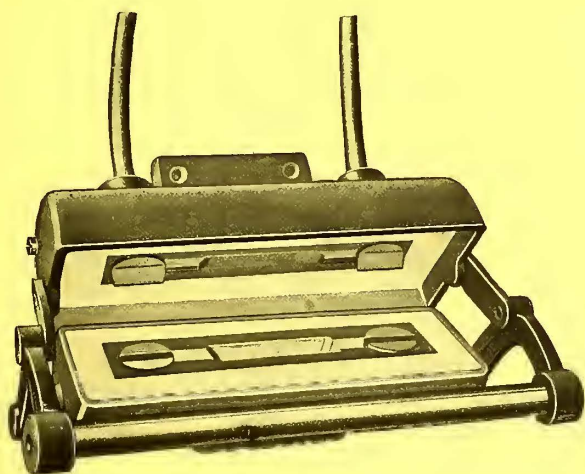
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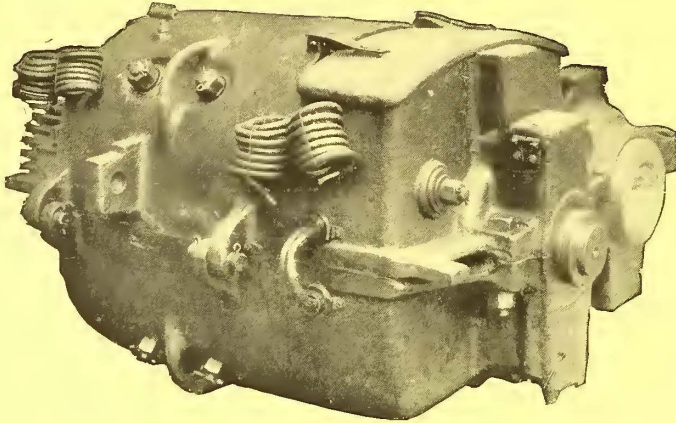
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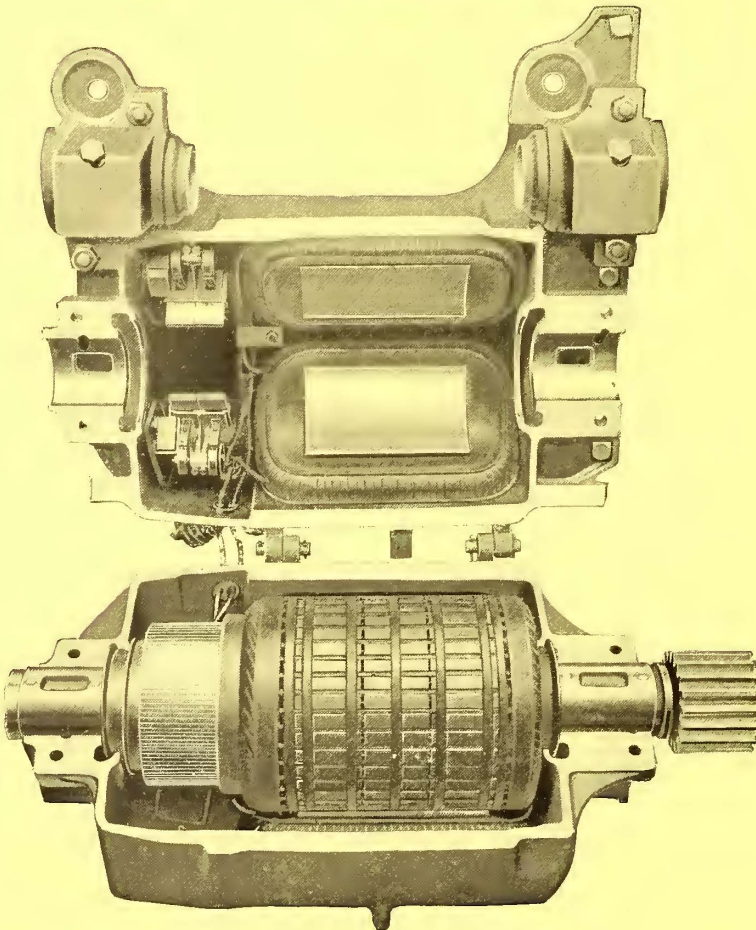
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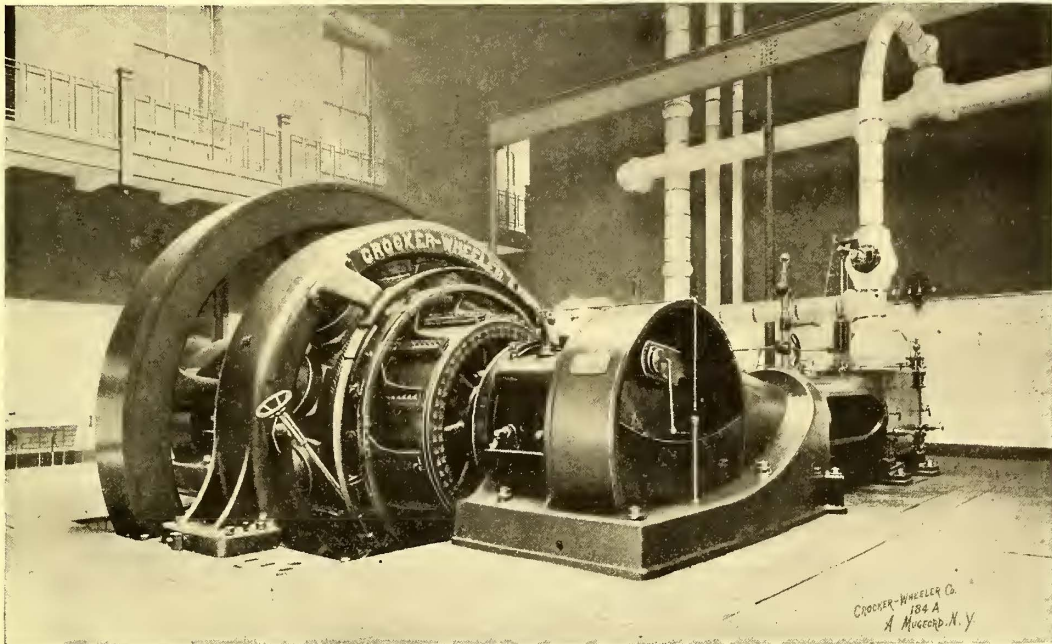
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MARTIN'S FERRY, OHIO.—The Wheeling Traction Company has asked for a franchise in Martin's Ferry. As soon as the grant can be obtained a line will be built from Martin's Ferry to Brilliant. This will connect Wheeling and Steubenville.

AKRON, OHIO.—The Northern Ohio Traction & Light Company is receiving ten new cars built by the St. Louis Car Company for use on the Akron-Barberton line.

CINCINNATI, OHIO.—The Cincinnati Traction Company has sold to the Cincinnati & Columbus Traction Company the recently completed Harris Avenue extension of the Norwood route. Arrangements have been completed whereby the interurban roads will enter the city over the tracks of the city company.

COLUMBUS, OHIO.—The Columbus, Delaware & Marion Railway Company has purchased 56 acres of land 2 miles north of Worthington, where it will establish picnic grounds. Shelter houses and a pavilion will be erected and a large pond will be built. Later other attractions will be added.

TOLEDO, OHIO.—The Toledo, Port Clinton & Lakeside Construction Company has been organized, with P. McCrory, president; L. E. Flory, vice-president; H. R. Klauser, treasurer, and D. H. James, secretary. The company will build the Toledo, Port Clinton & Lakeside Railway, and is receiving bids on material of all kinds. Contracts will shortly be closed for all the equipment required.

FOSTORIA, OHIO.—The Toledo, Fostoria & Findlay Railway Company has elected these officers: J. E. Reeves, president; E. C. Deardorff, vice-president; Theodore Wentz, secretary and general manager, and A. J. Krantz, treasurer. The above, with S. W. Croxton, S. W. Adams, E. A. Wentz and J. D. McDonald, are directors. The company will build an extension from Fostoria to Toledo this summer.

NEW PHILADELPHIA, OHIO.—The Tuscarawas Traction Company held its annual meeting last week and elected these officers: F. T. Pomeroy, of Cleveland, president; J. A. Rutherford, of Cleveland, vice-president; J. O. Wilson, of Cleveland, secretary; Will Aikins, treasurer and general manager. The above, with Theodore Wentz, George Bowers and Will Christy, are directors. The company plans to extend its line from New Philadelphia to New Comerstown this summer. Much of the right of way has been secured.

BELLEFONTAINE, OHIO.—The Bellefontaine & Sidney Traction Company has secured a franchise in Bellefontaine, thus completing its right of way.

DAYTON, OHIO.—The Covington, Bradford & Versailles Traction Company has been incorporated by Dennis Dwyer, Albert Emanuel, B. M. Hopkins, E. C. Spring and T. H. Robinson. The parties mentioned are interested in the Dayton, Covington & Piqua Traction Company, which is now in operation. It is proposed to build a branch line from Covington to Versailles.

CINCINNATI, OHIO.—It is announced that arrangements have been completed for financing the Cincinnati & Columbus Traction Company, which proposes to build from Cincinnati to Washington C. H. H. Hoffman, a prominent tobacco merchant, and Seasongood & Burkhold, bankers, of Cincinnati, are back of the project. The company is planning to use the third-rail system.

SANDUSKY, OHIO.—The Sandusky Southwestern Railway Company, which has started work on a line from Sandusky to Wapakoneta, has elected these officers: John Van Fleet, president; F. C. Olson, vice-president and general manager; S. P. Douglass, secretary; S. W. McFarland, treasurer; W. H. Wyke, superintendent.

MANSFIELD, OHIO.—The Citizens' Electric Railway, Light & Power Company plans several improvements for the Shelby-Mansfield line.

YOUNGSTOWN, OHIO.—The Pennsylvania & Mahoning Valley Railway Company is stringing new trolley wire over the greater portion of its interurban system. The line from Warren to Lowellville will all be relaced. Poles will be replaced in a number of places.

DAYTON, OHIO.—The recent closing of contracts for the equipment and construction of the line of the Dayton & Muncie Traction Company, reference to which was made in the STREET RAILWAY JOURNAL of Jan. 10, attracted to Dayton the representatives of many of the leading supply manufacturers of the country. After the contracts had been signed, the winners entertained the losers at a dinner. George S. Hastings, the Cleveland supply man, induced the majority of the party to pose for a photograph.

CINCINNATI, OHIO.—It is announced that the Cincinnati, Milford & Eastern Railway Company has been financed by F. L. Fuller & Company, bankers, of Cleveland.

FINDLAY, OHIO.—The Findlay & Southern Railway project, which has been dormant for some time, has been revived. David Joy and George P. Jones, of Findlay, and C. E. Bailey, of New York, are the chief promoters. R. Rosenstock, of Cleveland, engineer of the company, has the plans for the road.

COLUMBUS, OHIO.—The transformation of the Bellaire, Zanesville & Cincinnati Railroad, now the Ohio River & Western, from a narrow-gauge steam road to an electric railway will add 112 miles to the electric mileage of the State and increase the system controlled by the Appleyard and Tucker-Anthony interests to 306 miles.

ASHLAND, OHIO.—H. B. Camp, chief owner of the Ashland & Wooster Railway, a short steam road operating in Ashland and Champaign Counties, announces that the road is to be extended to Lake Erie either at Huron or Vermillion. The extension would pass through Ashland, Wellington, North Amherst and numerous smaller towns. It is the intention to operate freight trains by steam and equip the line for electric passenger service. The company has just increased its capital stock and arranged for a \$500,000 bond issue secured by a mortgage on the present or acquired property of the road.

JOHNSTOWN, PA.—It is stated that a company is being formed to construct an electric railway between this city and Geistown via the Bedford Pike, taking in the town of Walnut Grove.

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SPRINGFIELD, OHIO.—The Dayton, Springfield & Urbana Railway will erect three new sub-stations, one near Urbana, one at Springfield and the third at Dayton. The Columbus, London & Springfield Railway is also planning to increase its power facilities by erecting additional sub-stations.

CINCINNATI, OHIO.—J. G. Schmidtlapp, B. W. Campbell and H. A. Perkins, prominent business men of this city, are at the head of a project to build an electric railway from Decatur to Springfield, Ill. Messrs. Schmidtlapp, Campbell and H. A. Perkins are largely interested in the Decatur Street Railway, and have secured a 50-ft. private right of way between the two towns.

MARION, OHIO.—The Marion Council has granted a long-sought-for franchise, enabling the Columbus, Delaware & Marion Railway Company to run into the city over the principal street. The company is pushing work between Delaware and Marion.

COLUMBUS, OHIO.—The Central Market Street Railway has completed its connection with the Columbus, Delaware & Marion Railway, and cars of the latter road are now operating to the interurban station in the center of the city. The Central Market Street Railway now operates through Columbus, a distance of 16 miles. The main line closely parallels the north and south line of the Columbus Railway Company, and will prove a formidable competitor to the latter, since the new company sells eight tickets for 25 cents and gives transfers to any of the interurbans entering the city. The new lines were built by the Appleyard syndicate to provide entrance for its standard-gauge interurban lines. The Columbus Railway Company's lines are broad gage.

ASHTABULA, OHIO.—The Ashtabula & Lake Shore Railroad Company was incorporated Jan. 29, with \$10,000 capital stock, by T. G. Robison, W. S. McGechan, Thomas W. Sanderson, Emil J. Anderson and G. A. Hillawell. The company proposes to build an electric railway to connect Ashtabula with Woodland Beach, a resort on the lake shore.

DAYTON, OHIO.—The Dayton & Kenton Traction Company has elected the following officers: E. M. Hopkins, of New York, president; W. W. Chambers, of Dayton, vice-president; H. S. Forgy, of New Carlisle, secretary; H. Pomeroy, of Saginaw, Mich., treasurer. W. E. Harris, of DeGraff, with the above, are the directors. The work of surveying has been completed and the profiles are in the hands of the Falk Company, of Milwaukee, which has the contract for building the road. The power house will be located at DeGraff. Work will start in the near future.

TOLEDO, OHIO.—The Toledo, Port Clinton & Lakeside Electric Railway Company has elected these officers: P. McCrary, president; E. E. Flory, vice-president; D. H. James, secretary; H. R. Klausner, treasurer; A. E. Klausner, Hugh Schunk, Theodore Schmidt and H. S. Landis, directors. The company increased its capital stock from \$10,000 to \$1,800,000. It also let the contract for building the road to the Cooper Construction Company, of Toledo. It is to be completed to Oak Harbor by July 4, to Port Clinton next fall, and to Lakeside the following spring.

CANTON, OHIO.—Officials of the Canton & New Philadelphia Railway Company announce that the line will be completed from Navarre to New Philadelphia by March 15. The road will be connected with the Canton-Akron Railway, which is owned by the same interests, and cars will be operated through from Akron to New Philadelphia.

WEST CHESTER, PA.—Among the contemplated improvements to the lines of the West Chester Street Railway are the building of the loops discussed years ago, in the northern and southern sections, the reconstruction of the Lenape Branch and the early completion of the line to Unionville, Kennett and Oxford. Work is also being pushed on the building of the extension to Coatesville and Kennett Square.

LENAPE, PA.—The steel crossing for use where the Kennett extension of the West Chester Street Railway will cross the Wilmington & Northern Railroad has arrived, and as soon as it is placed in position it will be possible to run cars from West Chester to a point near Unionville. The line between West Chester and Lenape will be put in first-class shape in the early spring, and several new cars put in service.

MEADVILLE, PA.—The Meadville, Conneautville & Alton Traction Company, capital \$100,000, has been chartered at Harrisburg to build an electric railway 16 2-3 miles long to connect Meadville, Shadeland, Springboro, Conneautville, Norrisville, Hayfield and Alton. The directors of the company are: J. J. de Kinder, J. H. McNeal, R. M. Anderson, L. M. A. Stiefel and A. C. Wood, of Philadelphia.

HARRISBURG, PA.—Charters have recently been issued to the Elizabethtown & Middletown Street Railway Company, capital \$54,000; West Fairview & Harrisburg Street Railway Company, capital stock \$12,000; Lake Erie & Albion Traction Company, capital stock \$72,000; Girard & Conneaut Traction Company, capital stock \$36,000; Monaca Heights Street Railway Company, capital stock \$7,500; Sewickley & Leetsdale Electric Street Railway Company, capital stock \$18,000; Hall Park Street Railway Company, capital stock, \$18,000; Latrobe, Pleasant Unity & Greensburg Street Railway Company, capital stock \$6,000. Among the directors of the several companies are: Elizabethtown & Middletown Company, Edward Bailey, of Harrisburg; H. K. Alwine, A. L. Etter, of Middletown; West Fairview & Harrisburg Company, Frank Martin, Lemuel R. Spong, of West Fairview; Lake Erie & Albion Traction Company, J. J. de Kinder, J. H. McNeal, of Philadelphia; Girard & Conneaut Company, Robert L. Forrest, M. M. Freeman, of Philadelphia; Monaca Heights Company, James H. Welch, Walter G. Moffat, of Monaca; Sewickley & Leetsdale Company, J. H. Park, John Warren, of Beaver; Hall Park Company, Robert C. Hall, C. V. Reid, of Pittsburg; Latrobe, Pleasant Unity & Greensburg Company, L. W. McCurdy, T. M. Feeble, of Latrobe.

GREENSBURG, PA.—The Latrobe, Pleasant Unity & Greensburg Electric Railway, recently incorporated, is to be built between these towns the coming spring. L. W. McCurdy, of Latrobe, is among those interested in the company.

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LANGHORNE, PA.—The Philadelphia & Langhorne Street Railway Company has filed notice of a proposed extension over the turnpike from Somerton to Feasterville and Willow Grove. The maps already filed cover a line from Morrisville, via Langhorne, to Somerton, where it is expected connections will be made with an extension of the Philadelphia Rapid Transit Company's lines for Philadelphia. It would afford a direct and popular line between Trenton, N. J., and Willow Grove, the great pleasure resort. Capitalists having stock in the company also own a power plant at Attleboro (Langhorne Station), once used for furnishing the Newton, Langhorne & Bristol line with power, but now standing idle. It is probable that this will be used in the operation of the new line.

MAUCH CHUNK, PA.—The Mauch Chunk, Lehigh & Slatington Street Railway Company has adopted plans for the early extension of the road to Slatington, and the completion of the power house at Lehigh.

PHILADELPHIA, PA.—The Philadelphia Rapid Transit Company is said to have awarded contracts for material for building 50 miles or 60 miles of new surface railways in West Philadelphia, Germantown and Frankfort. The franchises for these lines were granted by the Council last fall.

NEW MARTINSVILLE, W. VA.—The New Martinsville & Sistersville Street Railway Company has now secured all its required franchises.

WHEELING, W. VA.—The Wheeling Traction Company has secured the necessary consents for the construction of a line over an entirely new route into this city. The route will provide a favorable entry for the proposed interurban line to Steubenville.

KAUKAUNA, WIS.—The Knox Engineering Company, of Chicago, which plans to build an electric railway from Green Bay to Kaukauna, is in the market for ties, poles, wire and power-station equipment.

KENOSHA, WIS.—The Chicago & Milwaukee Interurban Electric Railway was to have begun operations Jan. 28, but a fire in the power house of the Kenosha Gas & Electric Company, which was to have furnished power for the road, made it impossible to begin operations. B. J. Arnold, of Chicago, was granted the franchise for this road. The cars, under the terms of the franchise, were to be in operation Feb. 2. It will now be impossible to comply with the franchise terms with electric motive power, and there is a possibility that some legal difficulties will come up about the extension of the franchise, because of the opposition to it in some quarters, although the people of Kenosha in general are in favor of treating the company fairly. Horses are being used for motive power at present.

NEWS NOTES

LOS ANGELES, CAL.—Manager C. W. Smith is contemplating the adoption of a merit system of discipline for the Pasadena lines of the Pacific Electric Railway Company.

CHICAGO, ILL.—At the annual meeting of the Chicago North Shore Street Railway Company C. F. Marlow resigned as vice-president and director, and was succeeded by F. H. Roeschlaub. The other directors and officers were re-elected. The following is the full list: Directors, L. S. Owsley, F. H. Roeschlaub, C. E. Yerkes, E. C. Veasey, A. L. Dewar; L. S. Owsley, president; F. H. Roeschlaub, vice-president; E. C. Veasey, secretary and treasurer.

CHICAGO, ILL.—At the meeting of the Union Traction protective committee held Jan. 28 a plan of campaign was submitted by J. S. Auerbach, representing the Eastern interests in the company. The details were guarded. It is said to have been submitted to John P. Wilson, legal adviser of the committee, and W. W. Gurley, general counsel for the company. An agreement has been sent out by the Chicago City Railway protective committee which stockholders are signing in large numbers. It sets forth in unequivocal terms the intent of the committee to fight for independence, and expresses the belief that a majority of the stock is held by persons opposed to a change in the status of the company.

CHICAGO, ILL.—Judge A. N. Waterman, in delivering an opinion of the Appellate Court, has dismissed the appeal taken by the City of Chicago from the judgment of the Circuit Court in refusing to issue a writ of mandamus directing the West Chicago Street Railroad Company to lower its tunnel at Van Buren Street so as to provide for a depth of water of 21 ft. at all times. The reviewing court declares that a freehold is involved, and that the case should have been taken to the Supreme Court.

INDIANAPOLIS, IND.—A bill has been introduced in the Legislature providing that all interurban and street railway companies hereafter wishing to cross steam roads may do so by taking the regular course as prescribed by statute, providing, however, that when a crossing controversy is so settled the interurban company shall build and maintain an interlocking switch at the crossing. When either company shall petition for an overhead bridge or subway the local court shall determine whether such a crossing is necessary, and shall divide the cost of the crossing. The interurban people will seek to have the bill amended so as to divide the cost of building and maintaining interlocking switch at crossings.

BOSTON, MASS.—The committee on street railways of the Legislature has taken up the Governor's address and the annual report of the Railroad Commissioners. Chairman Jackson, of the Railroad Commission, favors the passage of legislation recommended by the Board. These recommendations are three in number, as follows: That all double-truck cars be equipped with power brakes; that cars carry lifting jacks, and that the Railroad Commissioners may specify the style of fender which must be used. Mr. Jackson says the Board has not yet seen a fender which it feels disposed to recommend.

FITCHBURG, MASS.—The Fitchburg & Leominster Street Railway Company has petitioned the Legislature for an act authorizing it to act as common carrier of parcels, freight and baggage between Lunenburg and Fitchburg, and to act as common carrier of quarry products and quarry supplies between the railroads and quarries in Fitchburg and Leominster.

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BAY CITY, MICH.—The car house of the Bay City Consolidated Street Railway Company was burned on Jan. 23. Summer cars stored therein were destroyed. The loss is stated at \$25,000.

ST. PAUL, MINN.—It is said that the St. Paul City Railway Company has made an offer to the Water Board to compromise the \$50,000 electrolysis suit brought against it by the city, and to further relieve the city from any more responsibility regarding the future of the mains. The offer which has been made is in effect the thorough "bonding" of the present ground return system, the testing of the same to the entire satisfaction of the Board, the perfect insulation of all mains usually subject to the electrical leakage, and the payment to the city of damages where such can be shown.

ALBANY, N. Y.—Deputy Attorney General Wood and attorneys representing the corporations concerned in the franchise tax law litigation appeared before Judge Chase of the Appellate Division of the Supreme Court, at his chambers in Catskill, Jan. 30, and submitted to him questions as to the form of the orders to be entered with the Court of Appeals on these cases. Judge Chase decided that the form of the order must follow the decision of the court which reversed the report of the referee, Earl, on questions of law and affirmed it on questions of fact. An order conforming to that decision was drawn and will within a day or two be filed with the Court of Appeals.

ALBANY, N. Y.—Senator Dowling has introduced in the Senate the original Ford franchise tax bill, so amended that the power of assessment shall be taken from the State Board of Tax Commissioners and be vested in the local authorities.

ALBANY, N. Y.—There has been introduced in the Assembly a bill providing that every passenger car on a railroad in New York City shall have two conductors, "the particular and only duty of one of which shall be to see that all passengers on said car shall be protected from all accidents that may arise from the starting and stopping of such car."

NEW YORK, N. Y.—The opinion is prevalent here that it is an assured fact that there will be a track connection at Forty-Second Street between the New York Central and the subway, and that trains will be run directly from the New York Central's tracks to the tracks of the subway and down town.

FINANCIAL NOTES

FLORENCE, COL.—The Florence & Canyon City Electric Street Railway has filed a mortgage to the Eastern Trust Company, of New York, as trustee, to secure \$2,700,000 of 5 per cent \$1,000 gold bonds dated Jan. 1, 1903, and due Jan. 1, 1928, interest payable Jan. 1 and July 1. The plan of the company is to build an extensive system of electric railways to connect Florence, Canyon City and adjacent towns. The officers of the company are: Thomas Robinson, president; Harley A. Cook, vice-president and treasurer; Harry Robinson, secretary.

CHICAGO, ILL.—The West Chicago Street Railway Company has declared the quarterly dividend of 1½ per cent, payable Feb. 15.

LOUISVILLE, KY.—The directors of the Louisville Railway will call a special meeting of stockholders to pass upon a plan to raise money for betterments and extensions by a new issue of stock. The plan they recommend is for a 40 per cent issue, each of the \$2,500,000 of preferred stock and of the \$3,500,000 of common stock. Twenty-five per cent will be issued at once when authorized and sold to the stockholders at par, the preferred to the preferred shareholders and the common to the common stockholders.

BOSTON, MASS.—The Boston Elevated Railway Company has declared a regular semi-annual dividend of 3 per cent, payable Feb. 16, to stock of record Jan. 31.

GRAND RAPIDS, MICH.—The Grand Rapids Railway Company has declared a quarterly dividend of 1¼ per cent on the preferred stock.

CHICAGO, ILL.—It is said that a movement is on foot to secure the release by the syndicate managers of \$300,000 of the preferred stock of the Aurora, Elgin & Chicago Railway Company. The syndicate managers last summer sold \$1,000,000 of this stock to Claude Ashbrook and others, of Cincinnati, at 91 and paid the money to the receipt holders. This preferred stock, which has been issued, now sells around 92, while the receipts calling for preferred stock are selling around 85. The 18,000 shares which were secured by the original pool holders, have been distributed, but the 40 per cent, or 12,000 shares, which went with the bonds, is still in the hands of the syndicate managers.

ELGIN, ILL.—The Elgin, Aurora & Southern Traction Company reports earnings as follows:

	1902	1901
Total gross earnings	\$410,431	\$361,665
Operating expenses	234,653	200,005
Net earnings	\$166,778	\$155,660
Deductions from income	100,000	100,000
Net income (being amount available for dividends).....	\$66,778	\$55,660

GREENWOOD, IND.—At the annual meeting of the shareholders of the Indianapolis, Greenwood & Franklin Railway Company, held Jan. 21, it was decided to change the name of the company to the Indianapolis, Columbus & Southern Traction Company, and it was voted to increase the capital from \$150,000 to \$285,000. The voting of a bond issue of \$300,000 by the directors was also ratified. The bonds will be held in Philadelphia. The headquarters and general offices of the company will be moved to Columbus. An additional power house and car house will be erected at Edinburg, which is the center of the road. Work on the extension is progressing notwithstanding the cold weather. The bridges are nearing completion and the rails will be laid as soon as the weather permits.

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CHICAGO, ILL.—Earnings of the Chicago & Milwaukee Electric Railway for the year ended Dec. 31, 1902, compare as follows: Gross receipts, \$190,110, as compared with \$171,172 in 1901; operating expenses, \$79,364, as compared with \$74,015 for 1901; net earnings \$110,746, as compared with \$97,157.

ANDERSON, IND.—The gross earnings of the Union Traction Company for the year ended Dec. 31, 1902, are given as \$948,288. For the year ended Dec. 31, 1901, the gross earnings were \$742,654, and for the year ended Dec. 31, 1900, the gross earnings were \$442,762. The average earnings per month for 1902 was \$79,024, as against \$61,887 for 1901, and \$36,896 for 1900.

LOUISVILLE, KY.—The Louisville, Anchorage & Pewee Valley Electric Railway Company has filed amended articles of incorporation changing its name to the Louisville & Eastern Railroad Company, and increasing its authorized capital stock from \$350,000 to \$1,250,000, of which \$250,000 is 5 per cent non-cumulative preferred. The indebtedness is limited to \$1,500,000. The company is empowered to build from Shelbyville to Frankfort, to Eminence, New Castle, Mount Eden, in Anderson and Spencer Counties, and to a point on the Kentucky River in Henry County.

BALTIMORE, MD.—The stockholders of the United Railways & Electric Company have ratified the lease of the Baltimore, Sparrows Point and Chesapeake Railway, guaranteeing the principal and interest of \$2,000,000 of the bonds of the new company.

BOSTON, MASS.—The Boston Elevated Railway Company has declared the semi-annual dividend of 3 per cent, payable Feb. 15, to stock of record Jan. 31.

MINNEAPOLIS, MINN.—The Twin City Rapid Transit Company reports earnings as follows:

	1902	1901
December		
Gross receipts	\$331,331	\$294,341
Operating expenses	151,456	114,106
Net earnings	\$179,875	\$180,235
Charges	78,017	64,350
Surplus	\$101,858	\$115,885
Year ended December:		
Gross receipts	3,612,210	3,173,975
Operating expenses	1,630,169	1,415,451
Net earnings	\$1,982,041	\$1,758,524
Fixed charges	921,717	876,637
Surplus	\$1,060,324	\$881,887

ALBANY, N. Y.—The property of the Albany & Hudson Railway & Power Company will be sold at public auction in the Court House at Hudson, Feb. 11. The sale is due to a foreclosure of the judgment for \$2,500,000 held by the Colonial Trust Company, of New York. The company has been unable to pay the interest on its bonds for some time past, and the last accident on the road compelled it to seek the appointment of a receiver. The receiver is George W. Blakeslee. A reorganization committee has been formed to buy in the property.

ZANESVILLE, OHIO.—The Zanesville & Southeastern Railroad, one of the lines projected by Colonel A. E. Boone, has increased its capital stock from \$10,000 to \$1,000,000.

CHARLESTON, S. C.—Hambleton & Company, of Baltimore, give the following statement of the Charleston Consolidated Railway, Gas & Electric Company, of Charleston, S. C. Statement showing gross earnings, operating expenses and net income of the four divisions for three years and ten months, from March 1, 1899, to Dec. 31, 1902:

	City Ry.	Seashore R.R.	L. & P.Div.	Gas Div.	Total
Year, Feb. 28, 1900.....	\$182,613	\$68,573	\$57,267	\$131,466	\$439,920
Year, Feb. 28, 1901.....	194,594	64,422	76,961	151,544	487,523
Year, Feb. 28, 1902.....	231,738	71,790	96,832	149,159	549,520
10 months, Dec. 31, 1902.	231,091	80,647	92,366	120,548	524,653
Totals	\$840,037	\$285,434	\$323,427	\$552,719	\$2,001,619

	Operating Expenses	Net Income
Year, Feb. 28, 1900.....	\$103,493	\$54,537
Year, Feb. 28, 1901.....	111,434	82,328
Year, Feb. 28, 1902.....	133,946	62,445
10 months, Dec. 31, 1902.	131,238	61,888
Totals	\$480,112	\$261,200

	Net Income	Fixed Charges	Net Income
Year, Feb. 28, 1900.....	\$54,537	\$43,543	\$79,168
Year, Feb. 28, 1901.....	82,328	46,644	91,005
Year, Feb. 28, 1902.....	62,445	48,463	89,480
10 months, Dec. 31, 1902.	61,888	46,614	72,842
Totals	\$261,200	\$185,265	\$332,496

The following table shows gross earnings, operating expenses, net earnings, fixed charges and net income for the several periods:

	Gross Earnings	Operating Expenses	Net Earnings	Fixed Charges	Net Income
Fiscal year 1900.....	\$439,920	\$280,742	\$159,178	\$144,719	\$14,458
Fiscal year 1901.....	487,523	331,412	156,111	152,001	4,109
Fiscal year 1902.....	549,520	334,335	215,185	153,437	61,747
10 months 1902	524,653	312,584	212,069	125,921	86,147
Totals	\$2,001,619	\$1,259,074	\$742,544	\$576,080	\$166,463

PITTSBURG, PA.—The gross earnings of the Pittsburgh Railways Company for the year 1902 are reported to be \$8,137,763, showing an increase of \$983,738 over the earnings of 1901.

ALLENTOWN, PA.—Dividends have been declared by local electric railway companies as follows: Lehigh Valley Traction Company, quarterly of 1% per cent; Allentown & Slatington Street Railway Company, semi-annual of 2½ per cent.

PHILADELPHIA, PA.—It is said that the Philadelphia Rapid Transit Company will soon call for an assessment of \$5 a share on its stock.

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PITTSBURG, PA.—The Philadelphia Company and affiliated companies report earnings as follows:

	1902	1901
December		
Gross earnings	\$1,375,133	\$1,206,282
Operating expenses and taxes	710,968	646,483
Net earnings	\$664,165	559,799
Other income	117,578	18,144
Total income	\$781,743	\$577,943
Interest and rentals	340,699	202,584
Balance	\$441,044	\$375,359
Dividend	106,437	99,167
Surplus	\$334,607	\$276,192
Fiscal year:		
Gross earnings	\$13,795,053	\$12,189,125
Operating expenses and taxes	7,759,029	6,655,849
Net earnings	\$6,036,024	\$5,533,276
Other income	1,607,649	471,820
Total income	\$7,643,673	\$6,005,096
Interest and rentals	3,880,969	2,434,752
Balance	\$3,762,704	\$3,570,314
Dividends	1,306,175	1,189,917
Surplus	\$2,456,529	\$2,380,427

EL PASO, TEX.—The El Paso Electric Company Jan. 12 paid a dividend of \$3 per share on its preferred stock. This is the first dividend paid by the company.

MILWAUKEE, WIS.—The Milwaukee Electric Railway & Light Company has declared a regular quarterly dividend of 1½ per cent on its preferred stock, payable Feb. 2.

AMONG THE MANUFACTURERS

THE LACLEDE CAR COMPANY, of St. Louis, is reported very busy just now and its works are working full time on the cars for which orders have been received.

THE GREEN ENGINEERING COMPANY, of Chicago, is evidently meeting with great success in the sale of the link traveling grates, as the sale of these grates during 1902 was much larger than during the previous year.

H. F. SANVILLE, of Philadelphia, has been appointed exclusive sales agent for the Johnson Wrecking Frog Company for New York, New Jersey, Delaware, Pennsylvania, Maryland, District of Columbia, Virginia, North Carolina and South Carolina.

THE INDIANAPOLIS SWITCH & FROG COMPANY, Springfield, Ohio, has issued a large office calendar for 1903. The tops of the various leaves are ornamented with views of some of the handsome specimens of special track work turned out by this company.

THE GLACIER METAL COMPANY, of New York, is sending out a large calendar to users and prospective buyers of the Glacier anti-friction metal. The dates in this calendar are printed in large, plain type, which can easily be distinguished at a considerable distance.

CATALOGUE NO. 6, of the Weir Frog Company is a comprehensive treatise on track specialties. The company announces that it is prepared to do work for electric railways, either from designs furnished by the railway company or made especially by the Weir Company.

THE ELECTRICAL INSTALLATION COMPANY, of Chicago, has completed its work on the Indianapolis & Plainfield Electric Railroad, and has just closed a contract for 40 miles of overhead work for the Indianapolis Northern Traction Company, this latter work extending from Indianapolis to Tipton.

THE PARTIAL LIST OF USERS OF RISDLER PUMPING, COMPRESSING AND BLOWING ENGINES, which has just been issued by the Allis-Chalmers Company, comprises a formidable record and a practical indorsement of this apparatus by many of the most prominent power users in the country.

"OUR LIST OF REFERENCES" is the suggestive title of a neat pocket pamphlet issued by the Watertown Engine Company, of Watertown, N. Y., giving a list of the principal recent sales made by this company and mentioning the plants operated. The list includes power plants of all descriptions and for all classes of service.

E. CLARENCE JONES & COMPANY is the new title of the old and well-known firm of Edward C. Jones & Company, bankers, brokers and dealers in high-grade bonds, at No. 1 Nassau Street, New York. The firm also has branch offices at 112 South Fourth Street, Philadelphia. The firm is a member of the New York Stock Exchange.

G. M. GEST has been awarded the additional contracts for placing under ground the remainder of the overhead system of the Brooklyn Heights Railroad Company. This will practically complete the removal of the overhead system of that company within the prescribed area, and work will be finished early in the spring. These contracts amount to nearly \$40,000.

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Plans and Supervision of Installation of complete Lighting, Power
and Railway Plants. Special Reports on Electrical Properties

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THE MAYER & ENGLUND COMPANY, of Philadelphia, have prepared for distribution among their patrons a very artistic calendar, which is worthy of a prominent position in any office. The calendar is of very attractive design, and the company is receiving many compliments upon it, as it is not only serviceable, but is really a very attractive ornament.

THE C. W. HUNT COMPANY, of New York, has issued an interesting circular descriptive of the Hunt electric storage battery locomotive. The circular points out a few of the chief points which have made this locomotive so popular in plants where the Hunt industrial railways have been installed, and where heavy loads are required to be moved for some distance about the works.

THE AMERICAN ELECTRICAL WORKS, of Phillipsdale, R. I., have sent out a very handsome calendar bearing the portrait of Sir Humphry Davy. It is accompanied by a brief sketch of the distinguished experimenter, which was compiled for this publication by Thomas D. Lockwood. This calendar is an artistic production, and is worthy of a conspicuous position in the advertising literature which has been issued by the American Electrical Works.

THE CROCKER-WHEELER COMPANY, of Ampere, N. J., has just issued a bulletin on "Semi and Fully Enclosed Motors." The motors described are designed with special reference to securing protection for their windings and most delicate parts from external injury, and they have been found well adapted for driving machinery especially where it is desirable to attach the motors to side walls or ceilings. This catalogue will be of special interest to superintendents of machine shops which are electrically operated.

THE GRAFTON PRESS, of New York, has issued a Bookbuilders' Handbook which contains much valuable information upon types, scales, bulks and equivalents in printers' supplies, which ought to interest not only publishers, but advertisers and men engaged in the preparation of advertising matter. The work is compiled by Frederick H. Hitchcock, and, in addition to other features mentioned, contains instructions for proofreaders and a graphic illustration of the methods accepted by experts in marking manuscript and proof sheets.

THE OHIO BRASS COMPANY, Mansfield, Ohio, has issued an attractive folder describing the Haycox electric car signal. This is device for signalling electric cars to stop for passengers at crossings, flag stations, etc., and consists of lamps enclosed in a box at the top of the pole and operated by a switch near the base. By simply lifting up a handle bulls-eyes in the box are illuminated and the motorman knows 1000 ft. away that he must stop, instead of waiting until the prospective passenger comes within range of his headlight. Copies of the circular will be gladly mailed to all desiring it.

IT IS ANNOUNCED that the business heretofore operated under the firm names of "William A. Hardy" and "Hardy & Pinder," will, from now on, be conducted by William A. Hardy & Sons Company, at Fitchburg, Mass. It is therefore asked that all communications be addressed, and all invoices for materials now being supplied to either William A. Hardy or Hardy & Pinder be sent to the new firm. The new company will be under the same management as the old firms, the change being in name only, and will continue to manufacture the same high-grade of babbitt, lining and other metals as heretofore.

THE MAYER & ENGLUND COMPANY, of Philadelphia, has just commenced the publication of a very attractive monthly called "The Keystone Traveller." The paper is pocket size and is devoted incidentally to reminding the reader of the various appliances sold by the Mayer & Englund Company, and it also contains short and bright stories, the moral of which is usually added and which points to the desirability of placing orders with the publishers. The first number, which is dated January, 1903, is handsomely printed and its attractive typographical appearance, epigrams and wit will make it a welcome visitor to those who may be fortunate enough to receive it.

THE WATERTOWN ENGINE COMPANY, Watertown, N. Y., has recently published a little book giving a list of references of users of Watertown engines. The book contains a large number of names, including the following: Roland Park; Poughkeepsie & Wappinger's Falls Railroad Company; Louisville & New Albany Railroad Company; Metropolitan Street Railway Company (Kansas City); LeRoy Electric Light & Power Company; M. A. Hanna & Company; Wisconsin Electric Construction Company; Pennsylvania Railroad Company; Union Elektrizitäts-Gesellschaft, Berlin; Dutchess County Light, Heat & Power Company; Wolcott Electric Light Company; Missouri Pacific Railroad Company; Muncie Electric Light Company; Delhi Electric Light Company.

SPENCER, TRASK & COMPANY, the New York City bankers, announce the completion of their 1903 edition "Statistical Tables" (pocket size), which are now ready for gratuitous distribution among institutions and investors. The present number is the twentieth annual edition of the booklet. Condensed information is given covering the capitalization and earnings of railroad and industrial companies. A very complete bond list, covering all issues listed on the New York Stock Exchange, and other important bonds, is one of the main features, and is arranged in exceptionally convenient form. The section relating to industrial corporations, which includes statistics of a number of street railway properties, is of special interest.

THE BELLAMY VESTLETTE MANUFACTURING COMPANY, of Cleveland, reports an excellent business during the past year, and that the vestlette is coming into more general use by street railway companies. It has already been adopted by more than fifty of the large railway companies in this country, and many vestlettes have been shipped abroad. There are now nearly 22,000 vestlettes in use in different parts of the country. It is an interesting fact that a number of companies are not ordering vests for their employees' new uniforms, but will place orders for vestlettes instead. The vestlette has some eight or ten pockets especially adapted for carrying tickets, transfers, change and other articles required by the conductor, and is constructed in such a way that it is always presentable.

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CONSULTING AND CONTRACTING ENGINEERS
Structural Work for Electric Roads a Specialty

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STREET RAILWAY CONTRACTOR,

See Page 87

123 G STREET N. E., WASHINGTON, D. C.

ESTABLISHED 1893

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EXECUTIVE OFFICES, CONTINENTAL TRUST BUILDING
BALTIMORE, MD.

Finances—Builds—Purchases

Electric Railways, Electric Lighting Properties, Water
Works, Ice Plants, etc.

Examinations made and reports furnished on all classes
of industrial properties. & Correspondence solicited.

THE INTERNATIONAL SMOKELESS POWDER & DYNAMITE COMPANY recently purchased from the Westinghouse Electric & Manufacturing Company a 180-kw, two-phase alternator with switchboard, and a number of type C induction motors ranging in size from 7½ hp to 50 hp. The motors will drive apparatus used in the making of smokeless powder, for which purpose the induction motor is especially well suited on account of the absence of commutator, slip rings or other moving contacts, and it may be easily started from a switchboard at any distance from the motor or, if the starting switch is near at hand, the switch may be submerged in some non-inflammable oil, thus rendering the equipment absolutely safe in the presence of explosive or combustible materials.

A SUCCESSFUL BUSINESS.—Charles F. Johnson, of Buffalo, reports an excellent business during the past year in the sale of rails, cars, motors and, in fact, all classes of machinery and equipment for electric railway operation. These include both first and second-hand material, as, owing to Mr. Johnson's ability to see opportunities and act promptly upon them, he has been able to secure a great many bargains in electric railway material, which he has been able to offer again as bargains to his customers. An example of this is shown by the fact that in the period of twenty-two months ending Dec. 31, 1902, Mr. Johnson personally inspected, bought and sold rails, railway equipment and electrical machinery to the amount of \$245,000. About \$100,000 of this has been transacted for spot cash in the last six months. The next six months he expects to double this amount. During the past sixty days Mr. Johnson states that he has shipped rails, cars and motors to Idaho, Iowa, Illinois, Michigan, Indiana, Pennsylvania, Georgia, New York and Rhode Island. He has also had regular telegraphic or mail communications from such extremes as Maine, Florida, Oregon, Louisiana, and foreign countries.

THE RONEY MECHANICAL STOKER maintains its popularity as an important factor in steam plant operation. A few recent stoker orders comprise: North Jersey Street Railway Company and Jersey City, Hoboken & Paterson Street Railway Company, twelve quadruplex stokers, for plant extensions aggregating 6250 hp.; Indianapolis Street Railway, twelve duplex and quadruplex stokers for 4200-hp B. & W. and Zell boilers; Indiana, Lebanon & Frankfort Railway, 12 duplex stokers for 3000-hp plant of Stirling boilers; Utah Light & Power Company, Salt Lake City, six duplex stokers for a lighting plant containing 1250-hp Heine boilers; Phoenix Iron Company, six quadruplex stokers, for rolling-mill plant, fifth order, 2700-hp extension, Heine boilers; Youngstown (Ohio) Consolidated Gas & Electric Company, third order, quadruplex stokers for central lighting, railway and power plant, 1050-hp B. & W. boilers; Rhode Island & Suburban Railway, plant extensions, quadruplex stokers, 1050-hp B. & W. boilers, 12,000-hp ultimate; Pennsylvania Railroad, Altoona, Juniata shops, quadruplex stokers for Sederholm boilers. The Roney mechanical stoker is applied to all types of boilers, for all classes of power service, and is sold by Westinghouse, Church, Kerr & Company, of New York, Boston, Chicago, Pittsburg and Detroit.

THE NATIONAL TROLLEY MANUFACTURING COMPANY, of Rochester, N. Y., has issued a very handsome catalogue on its improved roller-bearing trolley wheels. Instead of going into extended details as to the construction of the wheel and its parts, excellent half-tone engravings are shown from which the simple construction can be readily appreciated by all mechanical men. The book is not issued for the purpose of instructing the uninitiated into methods of trolley wheel manufacture, but is intended for the perusal of intelligent practical mechanics in the railway field whose judgment can be relied upon to realize the merits of the device. The roller bearings of these wheels have retaining rings of peculiar construction at each end which give an extremely low friction coefficient, and the wheel under the severest test has proven its remarkable efficiency, both as to life and mechanical operation. A wheel of this type is, naturally, of great service on high-speed lines, but its adoption on low-speed lines is, of course, a logical consequence. The manufacturers claim that oiling the wheel once a week will keep it in the best condition, an item which is of no little importance. The National Trolley Manufacturing Company expresses its desire to open correspondence with all roads desiring to investigate the merits of these wheels, and will be glad to place such data before prospective customers in regard to the manufacture and test of the wheels as will be of interest.

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AND ELECTRIC RAILWAYS, POWER PLANTS
AND LIGHTING SYSTEMS.

PRELIMINARY ENGINEERING WITH ESTIMATES.

REPORTS ON PROPERTIES IN OPERATION.

HARRISON BUILDING, PHILADELPHIA

THE OHMER FARE REGISTER COMPANY, of Dayton, is doing a large business in the sale of registers on several of the new interurban roads in Ohio. Among the companies which have recently adopted the register are the Canton-Akron and Canton-Massillon lines, the Toledo & Maumee Valley Railway, the Dayton, Covington & Piqua Railway, the Toledo, Fostoria & Findlay Railway, the Pennsylvania & Ohio Railway, the Dayton & Troy Railway and the Northern Ohio Traction Company. The company is also negotiating with the Pomeroy-Mandelbaum syndicate with a view to equipping several of its roads with registers, and he also has strong hopes of a contract from the Lake Shore Electric Railway. The last-mentioned company presented a new proposition in the way of recording fares, as its system is longer than any heretofore equipped with fare registers. The through fare from Cleveland to Toledo is \$1.75, and the railroad is desirous of having a register which will register fares up to that amount, with, of course, a number of intermediate amounts. This can probably be accomplished by supplying spaces for 5, 25, 50, 75 and \$1.50 fares and instructing conductors to use combinations of the above in case of higher or intermediate fares. The use of these registers is coming into more and more general use on interurban roads because of losses through dishonest conductors. The difficulty is not so much through the so-called practice of "knocking down" fares, but through the sale of return-trip tickets to other passengers and through the repeated use of receipt slips which have been dropped on the floor by passengers. A number of roads are attempting to obviate the first-mentioned practice by forcing passengers to buy return-trip tickets at stations, but in many instances this rule is the cause of serious complaint from numerous passengers who live at a distance from the regular ticket offices. It is claimed the use of the Ohmer register greatly reduces the chance of loss by any means.

BRITISH INDUSTRIAL NOTES

THE BRUSH ELECTRICAL ENGINEERING COMPANY has distributed a pocket memoranda book which practically forms a calendar for the whole year. It is of small size, but very conveniently got up and most useful to anyone desiring to keep memoranda for the whole year.

WE ARE IN RECEIPT of a handsome little book from Robt. W. Blackwell & Company, which is got up in the most simple fashion without any information contained therein, but a book which will be of use to anyone making memoranda. The pages are all ruled so that they can be used for engineering diagrams.

SIEMENS BROTHERS & COMPANY have just brought out a most interesting book on "Electrical Crane and Capstan Equipment," which is thoroughly well illustrated, and shows this useful device in full detail. It illustrates specially the plant which they installed at the Middlesboro wharves, which makes interesting reading. It also shows details of the Siemens controllers, which are most ingenious and simple in operation.

W. F. DENNIS & COMPANY, sole agents in the United Kingdom for Felten & Guillaume, of Mullheim-on-Rhine, probably the largest manufacturers of electric cables, wires, bonds and other electrical devices on the continent, have removed their offices from 23 Billiter Street, where they have been for many years, to the Albert Buildings, 49 Queen Victoria Street. In the new offices they will be much more centrally situated and much more convenient to their many customers in this country. The annual production of Felten & Guillaume is about 100,000 tons, and they employ about 6000 hands.

THE BRITISH ELECTRIC CAR COMPANY has just published a catalogue descriptive of the various manufactures which are turned out at the company's works at Trafford Park, Manchester. The book gives a short description of the works, with illustrated views of the company's traverser, loading crane, railway sidings, etc., and also shows some internal views in the factory with a lot of work in process. Illustrations and descriptions are then given of the British Electric standard cars and various types of car which the company has made for the Birmingham Corporation, London United Tramways Company, Aberdeen Corporation, Isle of Thanet Light Railway, City & South London Railway, etc. Some excellent views are also given of the British Electric standard truck, motor water cars, etc., with a description of the company's patent track brake, brake-shoe, improved swivelling trolley head and patent illuminated destination indicator. The whole publication is a credit to the company and should be in the possession of all tramway engineers.

JOHN B. WATSON

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ENGINEER IN

**Rails, Railway Equipments
and Railway Securities**

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Surveys, Estimates, Plans and Specifications.

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Telephone, Central 90

CHICAGO, ILL.

WILLANS & ROBINSON, of Rugby, have received the following orders: The tramway committee of Newcastle have decided to put down a Willans high-speed engine of 650 hp for direct coupling to a Bruce-Peebles dynamo for supplying power to their tramways; the Doncaster Corporation has sent them an order for a 360-hp engine, also to be direct-coupled to a Bruce-Peebles dynamo. Willans & Robinson are also supplying the owners of the Binchester Colliery, of Durham, with a 360-hp engine direct coupled to a multi-phase generator of the A. E. G. type, which will be used for supplying power in their colliery. The Derby Co-operative Society has ordered Willans engines for direct coupling to a dynamo of Mather & Platt make for supplying power to their new premises. Simpson & Company, of Newark, are putting down a 250-hp Willans engine for direct coupling to a Westinghouse dynamo for supplying power to their works. Dorman & Long, of Manchester, have also ordered Willans engines of 600 hp to be direct-coupled to a Mather & Platt dynamo for electric power purposes. Willans & Robinson have also received orders for three 75-hp steam dynamos for exporting to South Africa.

THE KLEIN ENGINEERING COMPANY, LTD., of Manchester, states it has recently erected and set to work one of its accumulator central condensing plants at the Cleveland Steel Works of Messrs. Bolckow, Vaughan & Company, Ltd. One-half of the plant is at present in operation and has given such satisfactory results that the second half has been ordered. The total amount of steam condensed by the complete plant will be 100,000 lbs. per hour. The company has also in hand at present several large central surface and jet condensing plants for steel works and collieries in various parts of the country, besides a large number of orders for plants for electric light and power stations. During the last year the company has received orders for condensing and cooling equipments capable of dealing with 1,200,000 lbs. of steam per hour. This company was the first English firm to make a specialty of cooling towers and central condensing plants, and it is pleasing to note that, in spite of the keen competition to meet from Germany and America, the company still occupies a foremost place in this important branch of mechanical engineering.

RECORD CERTAIN IN TRAVEL TO CALIFORNIA

The following appeared in the Los Angeles Herald of Nov. 30, 1902: As creators of California travel the New York Central lines are near the head of the list. It is a fact that three-fourths of the advertising matter sent out by the New York Central passenger department during the summer and fall was on California, and a large portion of the Four-Track News, the Central's magazine, is devoted to stories and descriptive matter with California as the theme. A big share of the New England people who come West begin their journeys from points on the lines of the Central system. Last year it was found necessary to make an increase in the train service to accommodate the travelers; this year still further increases have been made by adding more cars to trains and putting on new trains. The local office has been advised that 75 per cent of the inquiries about resorts and winter trips that come into the Eastern offices of the lines are about California. The indications are that there will be a tremendously heavy tourist travel from the Atlantic Coast States.***

H. P. BRUCE, Electrical Engineer. A. W. PATTON, Mechanical Engineer. E. H. CONVERSE, Civil Engineer.

E. H. CONVERSE & CO. ENGINEERS.

Plans, Specifications, Superintendence and Inspection. 515 TIMES BUILDING, PITTSBURG, PA.

CONTRACTOR FOR COMPLETE CONDUIT SYSTEMS G. M. GEST

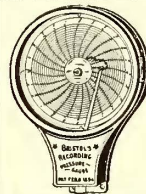
277 Broadway New York

Union Trust Bldg. Cincinnati, Ohio

THE GRAF AUTOMATIC, LIFE-SAVING FENDER. For Street Cars, and Automobiles.

Received the Highest Award over all other Fenders, at the AMERICAN INSTITUTE—Stands Highly Recommended by the Press—Is Reliable, Durable, and Ornamental, and cannot be damaged through collisions. Operated by the Motorman, or by the Person to be rescued, at the same time. Is no obstruction to traffic, and cannot become unnecessarily weather-beaten. Also economizes space-room in depots.

FREDERICK J. GRAF, Fender Expert, 47 St. Marks Place, New York. WRITE FOR CATALOGUE



Recording Volt, Ampere and Watt Meters.

Make Continuous Record Day and Night. SEND FOR CATALOGUE.

Recording Pressure Gauges. Recording Thermometers.

EVERY INSTRUMENT FULLY GUARANTEED.

SILVER MEDAL, PARIS EXPOSITION.

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Voltmeter Type F.

A cheap but excellent Switch-board Instrument for Direct Current Circuits.

Particularly suited for Isolated Plants and Feeder Circuits in Railway and Power Plants. Voltmeters in ranges from 3 to 750 volts. Ammeters in ranges from 1 to 2,500 amp.

All Weston Instruments are unsurpassed in excellence of workmanship, in accuracy and economy of operation.

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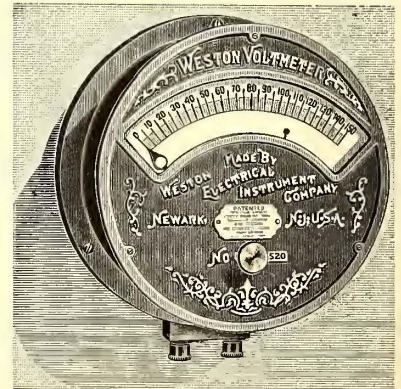
Waverly Park, Newark, N. J.

BELTIN—European Weston Electrical Instrument Co., Rlitterstr. see, No. 83.

LONDON—Elliott Bros., 101 St. Martin's Lane.

PARIS, FRANCE—E. H. Cadot, 12 Rue St. Georges.

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INTERNALLY FIRED BOILERS AND ACCESSORIES,

Superheaters, Furnace Fixtures, Automatic Stokers, Stacks and Plate Work.

BOSTON OFFICE, 53 STATE STREET.

NEW YORK OFFICE, 141 BROADWAY.

The Publishers' Page

THE STREET RAILWAY JOURNAL AS A BUYERS' MANUAL.

THE Classified Directory published in the large issues of the STREET RAILWAY JOURNAL each month contains over 250 separate headings. Under each of these headings are indexed the names of leading American and European companies doing business in the electric railway field.

As to the completeness of this Directory, it is interesting to note the number of entries under some of the principal headings. For example :

Bankers and Brokers....	15	Names	Engines.....	33	Names
Boilers	19	"	Gears and Pinions.....	18	"
Bonds, Rail....	18	"	Line Material	28	"
Car Builders.....	15	"	Motors.....	15	"
Circuit Breakers.....	17	"	Poles and Ties.....	14	"
Contractors	39	"	Trucks.....	12	"
Conveyors, Coal.....	10	"	Trolley Poles and Wheels... ..	22	"
Crossings, Frogs and Switches	16	"	Wires and Cables.. ..	26	"

This Classified Directory is no mere list of every one who ever has done or would like to do business with city and interurban traction companies, whether capable of properly supplying their needs or not. On the contrary, every company and individual indexed is an advertiser in the STREET RAILWAY JOURNAL. This means that they are all alive to the possibilities of business in the electric railway field, and have faith themselves in the apparatus they manufacture, or the services they are prepared to render.

From which it is evident—a fact which our readers have long appreciated—that the advertising pages of the STREET RAILWAY JOURNAL form, without question, the most valuable buyers' manual for every one interested in the construction, operation and management of city and interurban traction systems.

Directory of Street Railway Associations

American Street Railway Association.

President, JERE C. HUTCHINS, President Detroit United Railways, Detroit.

First Vice-President, W. CARVL ELY, President International Railway Company, Buffalo.

Second Vice-President, W. KELSEY SCHOEFF, President Cincinnati Traction Company, Cincinnati.

Third Vice-President, P. S. ARKWRIGHT, President Georgia Railway and Light Company, Atlanta.

Secretary and Treasurer, T. C. PENNINGTON, 2020 State St., Chicago, Ill.

Executive Committee: H. H. VREELAND, President Metropolitan Street Railway Company, New York; R. T. LAFFIN, General Manager Worcester Consolidated Street Railway Company, Worcester; ANDREW RADEL, Vice-President Middlesex and Somerset Traction Company, Bridgeport; WALTER P. READ, Vice-President Consolidated Railway and Power Company, Salt Lake City; WILLARD J. HIELD, General Manager Twin City Rapid Transit Company, Minneapolis; Secretary and Treasurer, T. C. PENNINGTON, Treasurer Chicago City Railway, Chicago.

Next meeting, October, 1903.

Street Railway Accountants' Association of America.

President, HENRY J. DAVIES, secretary Cleveland Electric Railway Company, Cleveland, Ohio.

First Vice-President, IRWIN FULLERTON, general auditor Detroit United Railways, Detroit, Mich.

Second Vice-President, D. DANA BARTLETT, general auditor Boston & Northern Railroad Company, Boston, Mass.

Third Vice-President, J. B. HOGARTH, auditor Denver City Tramway Company, Denver, Col.

Secretary and Treasurer, W. B. BROCKWAY, consulting accountant, Birmingham Railway, Light and Power Company, 25 Broad Street, New York.

Executive Committee: The officers and H. C. MACKAY, comptroller the Milwaukee Electric Railway and Light Company, Milwaukee, Wis.; O. M. HOFFMAN, treasurer Conestoga Traction Company, Lancaster, Pa., and ELMER M. WHITE, cashier Hartford Street Railway Company, Hartford, Conn.

Next meeting, October, 1903.

The California Street Railway Association.

President, CHAS. F. CROCKER, San Francisco.

Vice-President, S. B. MCLENNAN, San Francisco.

Secretary and Treasurer, J. E. MORRIS, Oakland.

Executive Committee: E. P. VINING, San Francisco; F. W. WOOD, Los Angeles; L. WHEELER, Alameda.

Connecticut State Street Railway Association.

Vice-President, A. M. YOUNG, Waterbury.

Secretary, A. E. POND, New Haven.

Treasurer, E. S. GOODRICH, Hartford.

Executive Committee: The above officers and A. M. YOUNG, Waterbury; C. S. TREADWAY, Bristol; E. H. MATHER, New Britain.

Next annual meeting, November, 1902.

The Maine Street Railway Association.

President, W. R. WOOD, Portland.

Secretary and Treasurer, E. A. NEWMAN, 471 Congress St., Portland.

Executive Committee: WILLIAM R. WOOD, Portland; AMOS F. GERALD, Waterville; J. MANCHESTER HAINES, Augusta; G. E. MACOMBER, Rockland.

Massachusetts Street Railway Association.

President, ELWIN C. POSTER, Lynn.

First Vice-President, EDWARD P. SHAW, Newburyport.

Second Vice-President, FRANCIS H. DEWEY, Worcester.

Secretary, CHARLES S. CLARK, 70 Kilby St., Boston.

Treasurer, FRED H. SMITH, Quincy.

Executive Committee: President, Vice-Presidents and F. F. SULLIVAN, Boston; H. H. CRAPO, New Bedford; WILLIAM S. LOOMIS, Holyoke; ROBERT S. GOFF, Taunton, and W. W. SARGENT, Fitchburg.

Auditing Committee: HORACE B. PARKER, Newtonville; Geo. W. COOK, Springfield, CHARLES F. GROSVENOR, Palmer.

Monthly meetings second Wednesday of each month excepting July and August.

Next annual meeting Sept., 1903.

Michigan Interurban and Street Railway Association.

President, J. D. HAWKS, Detroit.

Vice-President, W. L. JENKS, Port Huron.

Secretary and Treasurer, BENJAMIN S. HANCHETT, Jr., Grand Rapids.

Executive Committee: Officers of the Association and STRATHEARN HENDRIE and JOHN WINTER, Detroit.

Next meeting to be held subject to call of president.

New England Street Railway Club.

President, H. E. FARRINGTON, Chelsea, Mass.

Vice-President, E. E. POTTER, New Bedford, Mass.

Vice-Presidents for States, C. A. BODWELL, Sanford, Me.; H. A. ALBIN, Concord, N. H.; A. J. CROSBY, Springfield, Vt.; W. D. WRIGHT, Providence, R. I.; J. S. THORNTON, Putnam, Conn.

Secretary and Treasurer, J. H. NEAL, of the Boston Elevated Railway Company, 101 Milk St., Boston, Mass.

Executive Committee: President, Vice-Presidents, Secretary and Treasurer and H. E. REYNOLDS, Quincy, Mass. D. L. PRENDERGAST, Boston, Mass.; A. J. PURINGTON, Palmer, Mass.; W. F. ELLIS, Boston, Mass.; F. J. STONE, Boston, Mass.

Finance Committee: J. F. WATTLES, Boston, Mass.; W. PESTELL, Worcester, Mass.; PAUL WINSOR, Boston, Mass.

Meetings are held the last Thursday of every month at various points in New England.

Annual election of officers will take place January 22, 1903.

New York State Street Railway Association.

President, G. TRACY ROGERS, Binghamton.

First Vice-President, E. G. CONNETTE, Syracuse.

Second Vice-President, A. B. COLVIN, Glens Falls.

Secretary and Treasurer, H. A. ROBINSON, 621 Broadway, New York.

Executive Committee: G. TRACY ROGERS, Binghamton; T. J. NICHOLL, Rochester; W. CARVL ELY, Buffalo; H. H. VREELAND, New York; J. L. GREATSINGER, Brooklyn.

Next meeting at Syracuse, N. Y., September, 1903.

Ohio Street Railway Association.

President, S. L. NELSON, Springfield.

Vice-President, JOHN F. FLOOD, Steubenville.

Secretary and Treasurer, CHAS. CURRIE, Akron.

Executive Committee: A. A. ANDERSON, Youngstown; W. A. LYNCH, Canton.

Pennsylvania State Street Railway Association.

President, E. H. DAVIS, Williamsport.

First Vice-President, EDWARD BAILEY, Harrisburg; Second Vice-President, W. W. GRIEST, Conestoga.

Secretary, CHARLES H. SMITH, Lebanon.

Treasurer, W. H. LANIUS, York.

Executive Committee: The President, Secretary, Treasurer and B. F. MEYERS, Harrisburg; JOHN A. RIGG, Philadelphia.

Next meeting, September 1903.

South Western Gas, Electric and Street Railway Association.

President, H. F. MACGREGOR, Houston, Tex.

First Vice-President, E. H. JENKINS, San Antonio, Tex.

Second Vice-President, C. F. YEAGER, Laredo, Tex.

Third Vice-President, JOHN R. CULLINANE, Denison, Tex.

Secretary, T. H. STUART, Waco, Tex.

Treasurer, THOMAS D. MILLER, Dallas, Tex.

Directors: The above and J. F. STRICKLAND, Waxahachie, Tex.; E. DYSTERUD, Monterey, Mexico; J. B. WARD, Beaumont, Tex.; F. R. STARR, Gonzales, Tex.; A. E. JUDGE, Tyler, Tex.; R. B. BAER, Galveston, Tex.

Tennessee Street Railway Association.

President, C. C. HOWELL, Knoxville.

Vice-President, E. J. JONES, Memphis.

Toronto, Canada, Roadmasters' Association.

President, E. WHITAKER, Toronto.

Vice-President, GEORGE A. GREENE, Toronto.

Secretary and Treasurer, JOHN F. ARGUE, Room 52 James Building, King and Young Sts., Toronto.

Executive Committee: F. M. BLIGHT, D. KEARNEY and LOUIS WHEELER.

Executive Committee meets the first of each month.

Virginia Street Railway and Electric Association.

President, R. D. APPERSON, Lynchburg.

Vice-President, E. R. WILLIAMS, Richmond.

Executive Committee: The above and R. L. WILLIAMS, Norfolk, and E. L. TRAFFORD.

Union Internationale de Tramways et de Chemins de fer d'intérêt local.

President, LEON JANSSEN, Gen. Mgr. Société des Tramways Bruxellois, 6, Impasse du Parc, Brussels.

Vice-President, JOHANNES RÖHL, Mgr. Strassenbahn-Gesellschaft of Hamburg.

Secretary, M. T'SERSTEVENS, 6, Impasse du Parc, Brussels.

Treasurer, F. NONNENBERG, Chief Engineer of the Compagnie des Chemins de fer Secondaires, Brussels.

Executive Committee: Officers and Messrs. BROCA, Paris; GERON, Cologne; KESSELS, Brussels; KÖHLER, Berlin; LAVALARD, Paris; ZIFFER, Vienna.

Freie Vereinigung der Strassenbahn-Betriebsleiter Rheinlands, Westfalens und der Benachbarten Bezirke (Germany).

Tramways and Light Railway Association (London, England).

President, SIR CHARLES RIVERS WILSON, G. C. M. G., C. B., Dashwood House, London, E. C.

Vice-President, L. A. ATHARLEY JONES, K. C., M.P., 4 Paper Buildings Temple, London.

Secretary, ERNEST BENEDICT, M. Inst. C. E.; Clun House, Surrey Street, Strand, London, W. C.

Verein Deutscher Strassenbahn und Kleinbahn-Verwaltungen (Hamburg).

President, JOHANNES KÖHL, Mgr. Strassenbahn-Gesellschaft, of Hanover.

Secretary and Treasurer, HEINRICH VELLGUTH, Hamburg.

Next meeting at Düsseldorf, September, 1902.

Verein für die Förderung des Local- und Strassenbahnwesens (Vienna, Austria).

(Office, 1 Elizabethstrasse 2.)

President, E. A. ZIFFER, Vienna.

Vice-President, W. HALLAMA, Vienna.

Treasurer, J. M. WOLFBAYER, Vienna.

Secretary, DR ISADOR BING, Vienna.

Executive Committee: S. VON HAHN, A. MAYER, C. SCHLENK, R. VON T. STUMMER, N. MESSING, Vienna.

Association holds two meetings each month from October to May, inclusive.

The MULFORD & PETRY COMPANY
Street Car Advertising Contractors

Will be pleased to submit their proposition for advertising space in cars of electric roads.

Eastern Offices, St. Paul Bldg., NEW YORK.

Executive " Puritan Bldg., DETROIT.

Also offices at Chicago, Indianapolis, Toledo, etc.

MOTOR BEARINGS For **Electric Cars**

We have patterns for every style in use in this country to-day, thus insuring prompt deliveries. Send for our quotations

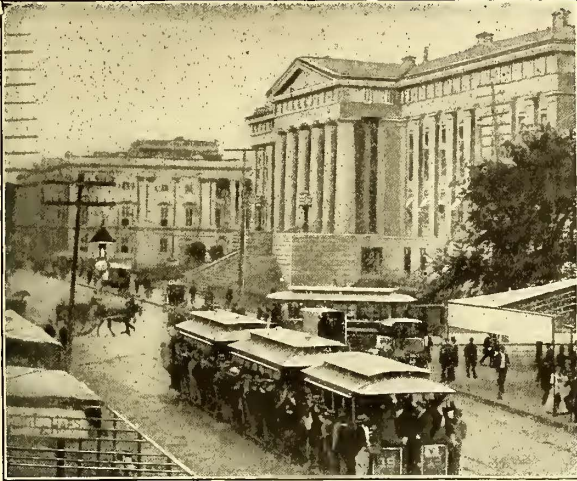
BRADY BRASS COMPANY

200-208 Tenth Street, JERSEY CITY, N. J.

BRASS CASTINGS, JOURNAL BEARINGS, TROLLEY WHEELS, BABBITT METALS AND SOLDER

Drummond's Detective Agency
RAILWAY WORK A SPECIALTY

A. L. DRUMMOND, General Manager,
Ex-Chief U. S. Secret Service
Park Row and Ann St., New York



E. SAXTON Street Railway Contractor

WASHINGTON, D. C.

BUILDER OF

Cable Railways

Conduit Electric Railways

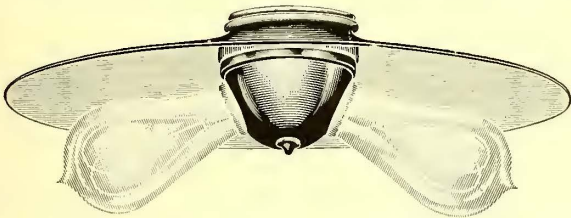
Trolley Lines

City and Suburban

Office: 123 G Street Northeast

Long Distance Telephone,
Main 1040, Washington.

BENJAMIN WIRELESS SERIES CLUSTERS



Lamps are connected in series by means of over lapping contacts. Binding posts are provided for leading in wires only. Send for Catalog B 13.

BENJAMIN ELECTRIC MFG. CO.,
1992 W. Van Buren Street, CHICAGO, ILL., U. S. A.

Railroad and Tram Car Specialties

New Inventions developed, perfected
and worked for the English Market

Messrs. G. D. PETERS & CO.,

Moorgate Works Moorfields, LONDON, E. C.

DYNAMO AND MOTOR REPAIRS

Electric Railway Supplies, Armature and Field
Winding, Commutator Building. Gears and Pinions.

The Elliott Bros. Electric Company

970-972 Hamilton Street, CLEVELAND

SAFE FILING OF PLANS

Now ready,
Catalogue 533

"SAFE
FILING OF PLANS"

ART METAL CONSTRUCTION CO.
JAMESTOWN, N. Y.

2-200 K. W. GENERAL ELECTRIC Direct Connected Units, each consisting of a type M.P. 6-200-120 generator, each being direct connected to a 14 and 26 x 36 E. P. Allis tandem compound Corliss engine. These outfits complete with switchboards and condensers.

1-500 K.W. GENERAL ELECTRIC Railway Generator, type M.P. 4-500-350, with a 28 x 60 E. P. Allis Corliss Engine.

Also the following machines for belted work:

5-200 K. W. 4 Pole General Electric.
1-200 K. W. 6 Pole Westinghouse.
1-250 K. W. 4 Pole Walker.

1-150 K. W. 6 Pole Westinghouse.
2-150 K. W. 6 Pole Fort Wayne.
4-100 K. W. 4 Pole General Electric.

ROSSITER, MACGOVERN & CO.

BRANCH OFFICES: WORKS
Boston, St. Louis, Jersey City, N. J. St. Louis, Mo.
111 Milk St. Mo. Trust Bldg.

Principal Offices 141 BROADWAY, N. Y.

SECOND HAND EQUIPMENT

CONSTRUCTION LOCOMOTIVES and CARS



Flats, 34 and 36 ft., SPECIAL LOTS

F. M. HIGGS, 285 DEARBORN STREET CHICAGO

- 100-3 1/2-yard 2-way dump cars, 36-inch gauge.
- 100-3-yard 2-way dump cars, 36-inch gauge.
- 6-9 x 14-inch locomotives, 36-inch gauge.
- 100-40-ton hopper coal cars, standard gauge.
- 1,000 tons relayers, 25 lb., 30 lb. and 35 lb.

Frogs, Switches, etc.

Apex Equipment Co.
11 Broadway, N. Y.

Second-Hand Locomotives, Cars, Steam Shovels, etc.

—WRITE US FOR PRICES—

Have you anything for sale?

THE MALES CO.

Aetna Bldg. 256 Broadway
Cincinnati, O. New York

NEW STEEL RAILS

For Sale.

Tee and Girder Sections for prompt shipments

ALSO

Light Rails, 12 to 30 lbs., carried in stock at works, Passaic, N. J.

WONHAM & MAGOR

Railway Contractors and Industrial Equipment . .

Columbia Building NEW YORK

FOR SALE RAILS All Sizes, Good Steel Relaying and New RAILS

Iron and Steel Scrap purchased in carload lots.
Henry L. Schwarzenberg Rail Co.
407 Cuyahoga Bldg., Cleveland, O.

FOR SALE

About 500 tons new 80-lb. T Rails A. S. C. E. Section, with joints, for immediate shipment from stock.

HENRY LEVIS & CO.,
PHILADELPHIA.

FOR SALE

Seventy (70), seventy-five (75), eighty (80), and eighty-five (85) pound new steel "T" rails; seconds with angle bars, immediate shipment.

Wire or write:

WALTER A. ZELNICKER SUPPLY CO.
IN ST. LOUIS.

Branches: New Orleans, La., and Mobile, Ala.

RAILS FOR SALE, IMMEDIATE SHIPMENT

225 tons of 60-lb. Steel Relayers with angle splices. Pittsburg delivery.
300 to 500 tons of 40-lb. Iron Relayers with splices. Ohio delivery.
Also NEW 16-lb. rails in stock at Pittsburg, Pa. We buy good R laying Rails for cash; write us if you have any to offer.

HYDE BROS. & CO., 902-903 Lewis Bldg., Pittsburg.

LARGEST ASSORTMENT.

IMMEDIATE DELIVERY.
REBUILT AND GUARANTEED.

20 in. x 40 in. x 60 in. Cross Compound Corliss Engine.
28 in. x 60 in. Wetherill Corliss Engine—Rolling Mill Type.

One Pair 20 in. x 42 in. Greene Corliss (Double).
23 in. x 32 in. Watertown Automatic.
20 in. x 48 in. Wetherill Corliss.
20 in. x 42 in. Slater Automatic—Rolling Mill Type.

21 in. x 42 in. Rickards Corliss.
16 in. x 36 in. Wetherill Corliss.
15 1/2 in. x 15 in. Armington & Sims.
14 in. x 42 in. Taunton Corliss
13 in. x 25 in. x 16 in. Reeves Cross Compound.

12 in. x 22 in. x 20 in. Porter-Allen Automatic.
And many others, Automatics and Slide Valves, all sizes.

One 250 H. P. Berry Boiler, 150 lbs. steam.
Eight 150 H. P. Vertical Manning Boilers, 130 lbs. steam.
Four 150 H. P. Horizontals, 125 lbs. steam.
Four 135 H. P. Corliss Vertical Boilers, 100 lbs. steam.

Two 100 H. P. National Water Tube Boilers, 120 lbs. steam.
Three 60 H. P. Horizontals, 100 lbs. steam
Vertical and Locomotive Boilers, all sizes, on hand.

Sixty Large Steam Pumps, up to 12 in. suction, assorted makes.
Dynamos, Iron and Wood Working Machinery, Gas and Gasoline Engines, etc. Send for special catalogue of 2,000 pieces.

Frank Toomey
127-131 N. Third St., Philadelphia.

10 Z BAR COLUMNS, 3 1/2 in. x 6 in. x 27 ft. long.

We are always in the market for cylinder boilers, smokestacks and tanks, relaying rails and pipe.

We always carry 1000 tons of new steel I beams and channels. Highest prices paid for all kinds of scrap iron and metals.

HENRY A. HITNER'S SONS

Aramingo Ave. and Huntingdon St.
PHILADELPHIA, PA.

When writing to advertisers please mention the STREET RAILWAY JOURNAL.

FOR SALE

2-100 K. W. General Electric Class M. P. 100-4-650 Railway Generators practically new. \$975.00 each F. O. B. Chicago.
1-80 K. W. Sprague 500 volt Railway Generator. \$500.00 F. O. B. Chicago.

NATIONAL STAMPING WORKS
Cor. Michigan Street and La Salle Ave. Chicago, Ill.

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Philadelphia Rapid Transit Co.

8th and Dauphin Sts.

Philadelphia, Pa., Sept. 10, 1902

Sealed proposals will be received by the Philadelphia Rapid Transit Company on March 2, 1903, for the advertising privileges on the cars of said company, for a period of five (5) years, from September 1, 1903. Proposals should be for a lump sum per year, payable monthly in advance.

PHILADELPHIA RAPID TRANSIT CO.

CHAS. O. KRUGER 2d Vice-Prest.

FOR-SALE BARGAINS

EXTRA ARMATURES AND PARTS

17 Westinghouse No. 3 Cores \$18.50 each

20 Westinghouse No. 3 Armatures, with old windings and Commutators. 30.00 "

1 Walker 50 H.P. Armature 92.00 "

3 W. P.-50 Armatures. 65.00 "

7 Westinghouse 38-B, practically new Armatures 190.00 "

2 Westinghouse 49, practically new Armatures 142.00 "

2 Westinghouse 12-A, practically new Armatures 140.00 "

4 G. E. 800, 4 turn, practically new. 110.00 "

4 G. E. 800, 3 turn, practically new. 110.00 "

4 G. E. 1,000, practically new. 135.00 "

Extra Field Coils, Armature Coils and Commutators at reduced prices

MOTORS

7 W. P.-30 \$75.00 each

12 W. P.-50 100.00 "

12 Westinghouse No. 3 140.00 "

40 G. E. 800, in strictly first-class condition, form "B," three and four turn. 150.00 "

BOILERS

1 400 H. P., vertical

1 500 H. P., vertical

4 200 H. P., Marine Type, stationary

GENERATORS

1 150 K. W. Westinghouse, 6 pole Railway, practically new, used 8 months. \$2,000

2 80 K. W., M. P., T.-H. 550 each

CARS

6 18 foot Brill, closed

20 16 " " "

7 9 bench Brill open

TRUCKS

4 Brill No. 21. \$90 ea. h

20 Peckham. 85 "

Write or Wire for Prices and Details

A. D. Schoonmaker Co.

Shippers of Reliable Second-hand Machinery

126 LIBERTY STREET

New York City

Trolley Ties For Sale

30,000 trolley ties, 7 ft. long.

10,000 to 15,000 trolley ties,

7 ft. 6 in. long, 5 in. x 5 in.

The 7-ft.-long trolley ties are 5 in. and 6 in. thick.

GARRISON BROS.,
BERWICK, PA.

TROLLEY TIES AND POLES

PROMPT SHIPMENTS

Cross Arms, Brackets and Pins.

H. H. MAUS & CO.

420 Walnut St., PHILADELPHIA, PA.

POSITIONS WANTED

POSITION WANTED—A young man, 30 years old, desires position as superintendent of urban or interurban street railway. Nine years' experience as conductor, motorman, inspector, chief inspector and electrician. If you are looking for a man who thoroughly understands every department of electric rail-roading, address "H." 188 Mountain Street, Montreal, Canada.

POSITION—By a young man 28 years old, as superintendent of suburban road or assistant to manager of city road. Have had theoretical education and four years practical railway work in different departments. Excellent references. Address "H. C. G." care STREET RAILWAY JOURNAL, New York.

AMERICAN street railway manager, 12 years' experience constructing and operating electric street railways, desires position. Understands Spanish, last four years having been in Spanish-speaking countries. Best of references. Address "F. G.," care STREET RAILWAY JOURNAL.

WANTED—POSITION—A first-class railway man, 39 years old, who has had 16 years of experience, 8 years as supt. and mgr. of operations and 8 years in construction and installation. Has had charge of every department. Highest recommendations. Is now open for engagement. Address "B. G. S." care STREET RAILWAY JOURNAL, New York.

WANTED—Position as Master Car Painter with electric or steam road. Thoroughly practical in all branches. Must be permanent. Address "Master Car Painter," care STREET RAILWAY JOURNAL, New York.

ENGINEER desires position as Chief Engineer railway plant: 15 years' experience erection and operation all types engines, boilers, pumps and dynamos. High grade mechanic; capable all lines repairs and renewals. References of the convincing kind. "High Pressure." care STREET RAILWAY JOURNAL, New York.

WANTED—Position as auditor or accountant of street railway or electric light company. Seven years' experience in construction, operating and auditing departments of one of the largest roads in New England. Can give best of references, including present company. Address "S. E. A.," care STREET RAILWAY JOURNAL.

POSITION WANTED—As manager of high-class urban or interurban electric railroad by a thoroughly practical railroad man with long experience on both steam and electric roads. Is competent to handle large and difficult property. Knows how to handle men and is prepared to apply the best modern methods for safe and successful electric operation. Understands all departments and obtains the most efficient and economical results. The very highest references from railroad presidents as to experience, ability and character. Correspondence strictly confidential. State salary and prospects. Address "F. G. H.," care STREET RAILWAY JOURNAL.

POSITIONS VACANT

WANTED—To correspond with an electric car man who is capable of taking complete charge of car shops of small electric railway plant in Arizona. Address H. W. Heap, Supt. Phoenix Railway Co., Phoenix, Arizona.

An established manufacturing company in the Electric Railway Supply line requires several additional salesmen; state age, previous experience, salary required, etc. Must be thoroughly competent to handle first-class trade. Address "RAILWAY," care STREET RAILWAY JOURNAL.

Francis Beidler & Co.
Chicago, Ill.

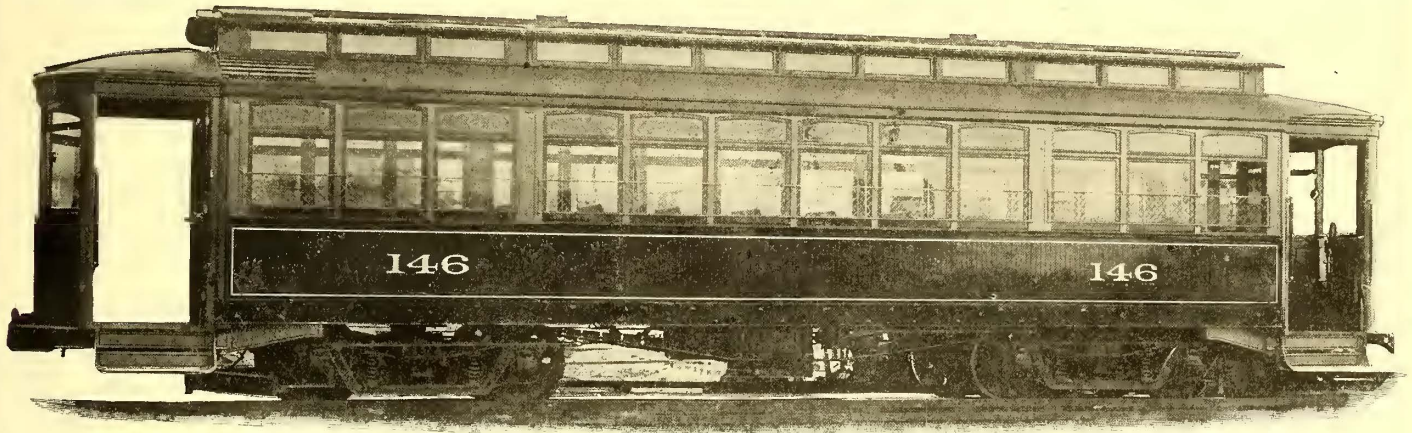
POLES

LIVE
PEELED
WHITE CEDAR

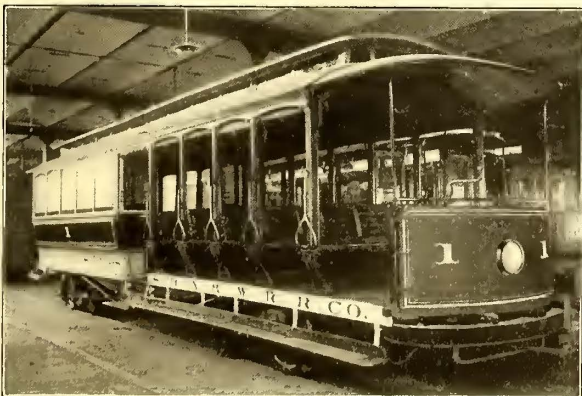
**YOU SEE I
SHIP THEM
BY THE
TRAINLOAD**



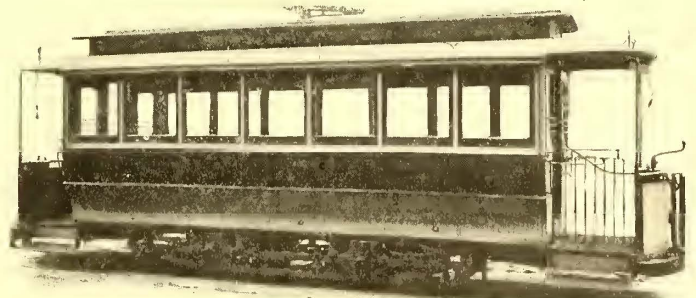
Eighteen (18) Absolutely New Motor Cars



Built by St. Louis Car Company. The latest achievement in the car builder's art, up-to-date in every respect. Length of body 24 feet; length over all 45 feet 4 inches; width over all 9 feet. Mounted on St. Louis Car Company's No. 23 M. C. B. high-speed trucks made to accommodate four (4) No. 56 Westinghouse Motors, 33-inch wheels, 3-inch tread, $\frac{7}{8}$ -inch flange, $4\frac{3}{4}$ -inch axles, journals $4 \times 6\frac{1}{2}$ inches, standard gauge, fully wired for motor and all necessary equipment, with the latest thing in double registers, one interchangeable arc headlight with each car, signal bells, gongs, hand brakes and complete set of Christensen air brakes, with double end controllers, whistles, air gauge, etc. Cars are heated with Milwaukee pattern of stove; completely vestibuled, vestibule shaving interchangeable doors and gates; car provided with 13 St. Louis Car Company's walk-over seats on each side of aisle, with brass grab handles on corner of seat backs, seats upholstered with best rattan; spring roller Pantasote curtains on Burrowe's fixtures, end windows provided with curtains same as side. Cars are painted Broadway yellow, no lettering, only numbers. In fact, car is absolutely complete and ready for mounting of motors, and immediate delivery can be made. Write for price and complete specifications.



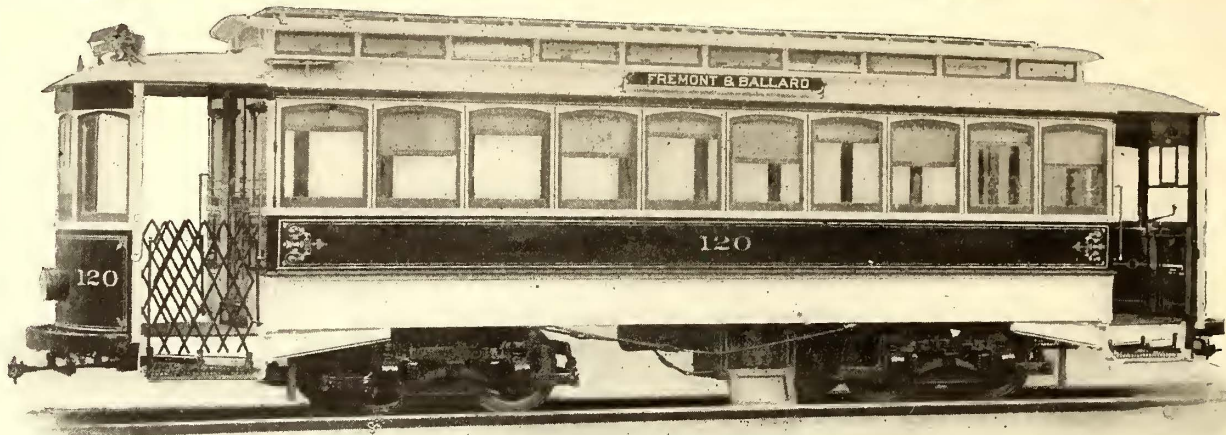
Sixty fully equipped Cars, like cut, equipped with two Westinghouse 38 Motors and Diverters, K-8 Controllers, Peckham Trucks, Sterling Brakes, Smith Headlights, etc. Length over all 41 feet; closed body 16 feet, with longitudinal seats inside. All in good condition and can arrange to have painted to suit purchaser. Offered very cheap.



Twenty-five Cars, like cut, fully equipped, in good operating condition, with G. E. 800 Motors and K Controllers, Heaters, Headlights, Register and all complete, mounted on Peckham Truck and painted to suit purchaser; 20' bodies, $4\frac{3}{4}$ ' platforms. If you need any such equipment, would advise quick action, as they will go fast, being the best offer of this kind ever made. Only reason for selling is the substitution of standard double-truck Cars for them.

**If Above Don't Suit You, Describe What You Want and I Will Get It
GILES S. ALLISON, 57 Broadway, N. Y.**

**F
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E**

6 DOUBLE TRUCK CARS, Mounted on Brill No. 27 G Trucks, Christensen Air Brakes Complete. As good as new, right up to date and ready for immediate delivery. 🌸 🌸 🌸 🌸

ELECTRIC RAILWAY EQUIPMENT CO.

OFFICE AND WORKS

31st Street below Chestnut Street

PHILADELPHIA, PA.

Second-Hand Bridges For Sale

IN GOOD CONDITION FOR RE-ERECTION.

We offer the Double-Track Wrought Iron Bridge formerly used by the Penna. R. R. over the Susquehanna River, near Harrisburg, 21 spans, each span about 157 ft. long and weighing approximately 150 net tons. Can be converted into single track bridge. For details apply to

20-1t

HENRY LEVIS & CO., Philadelphia

NEW COPPER WIRE

Exchanged for OLD Wire

Write stating quantity to

JAMES E. POPE

61 Beekman Street, N. Y.

Let Your Wants Be Known

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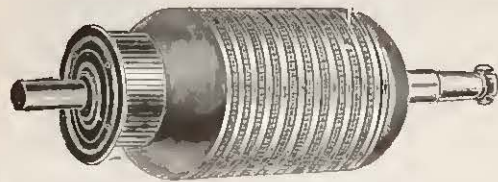
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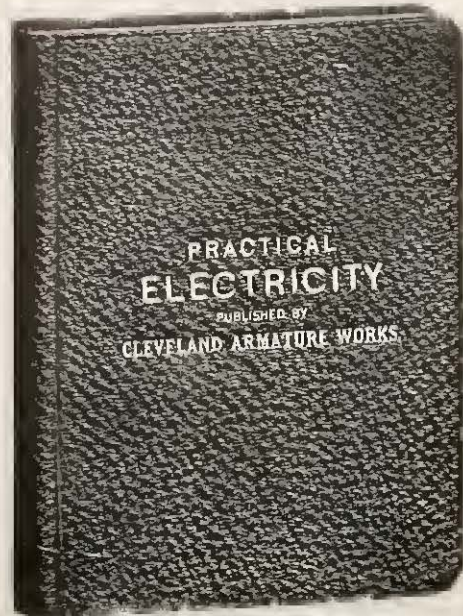
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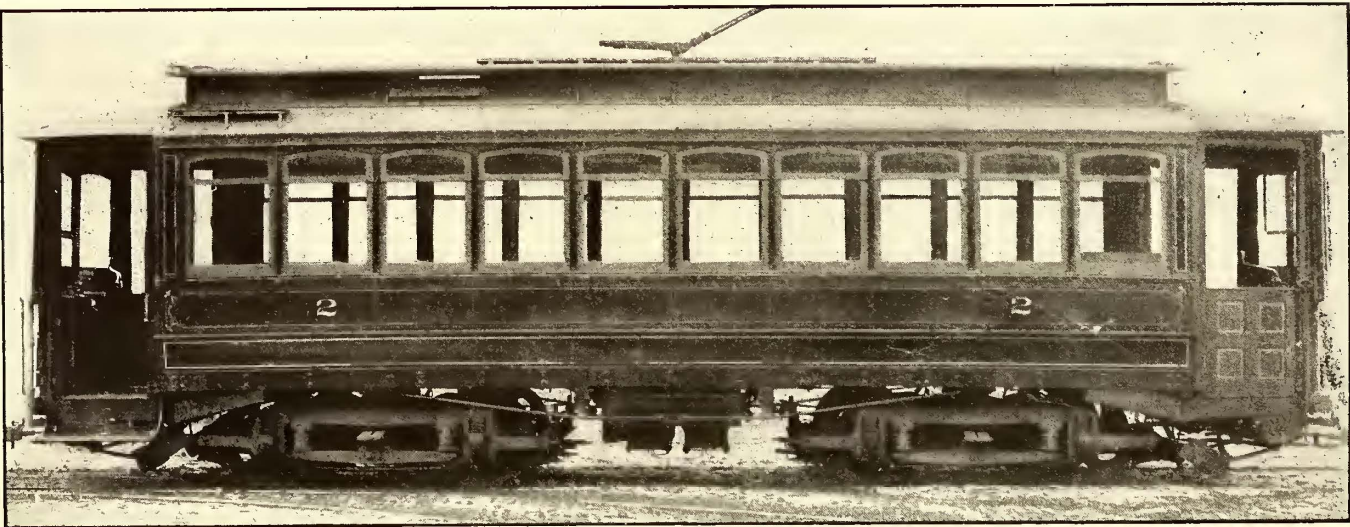


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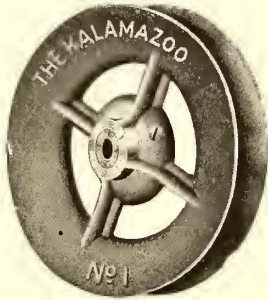
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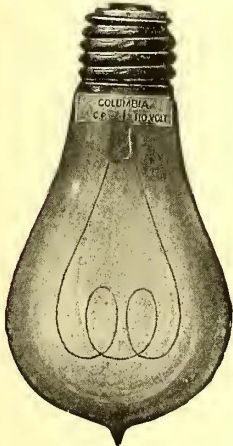
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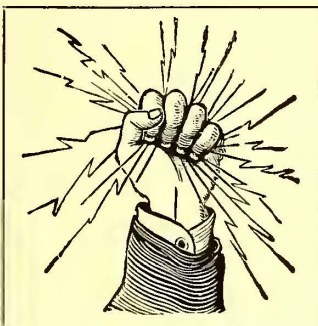


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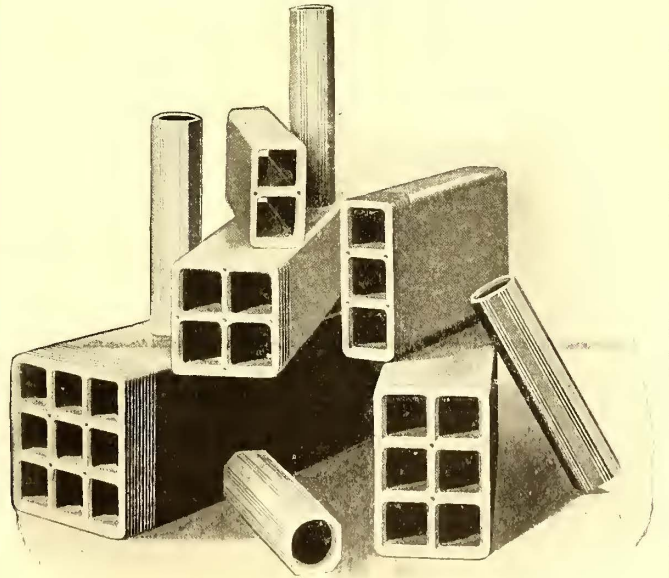
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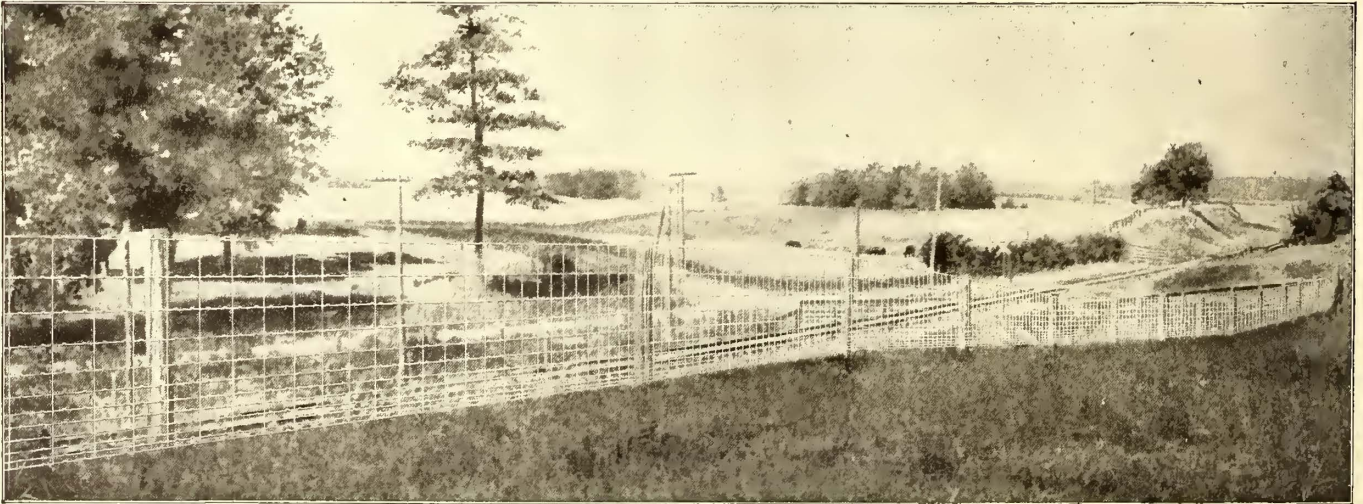
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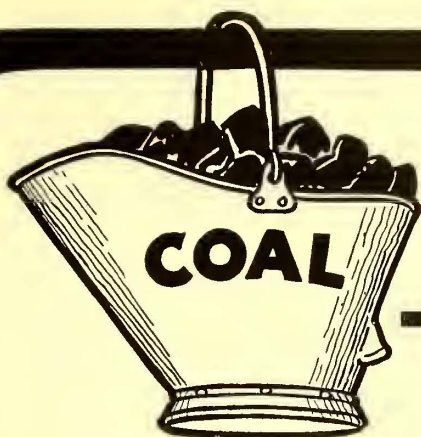
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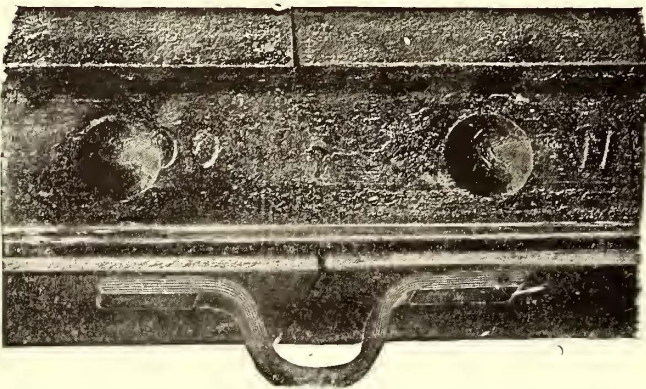


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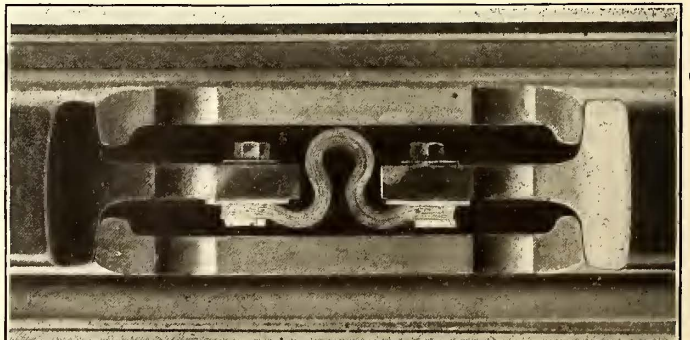
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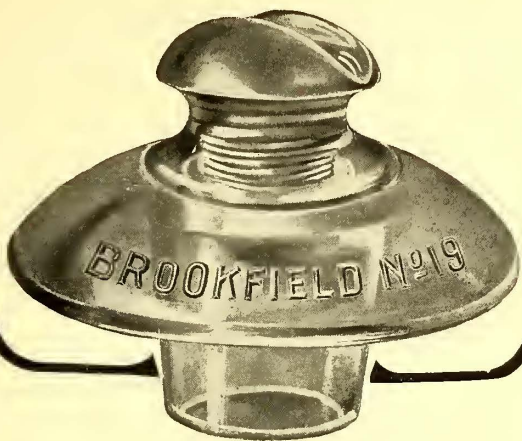
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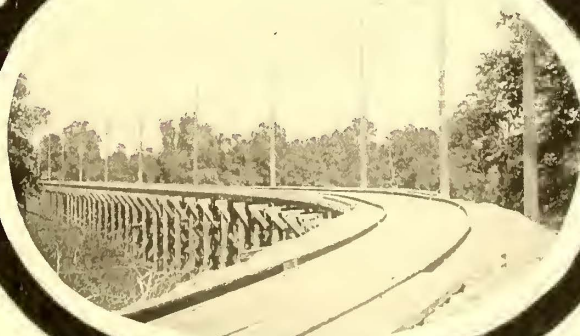
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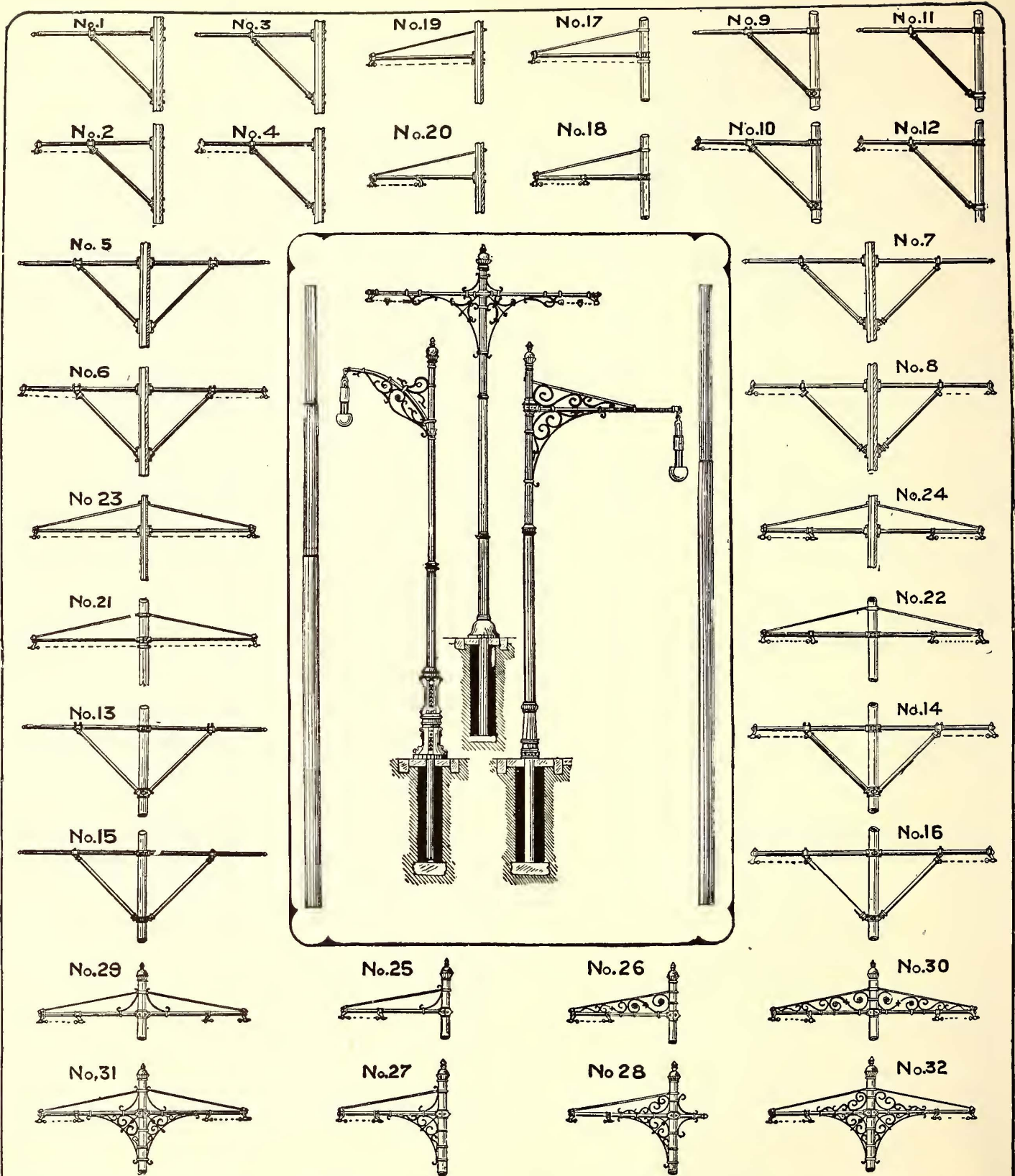
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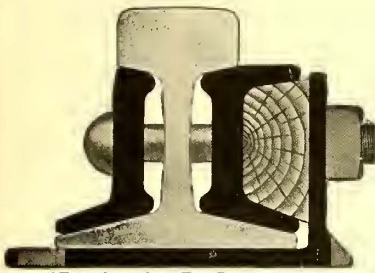
THE AMERICAN SWITCH CO., Hamilton, Ohio **SPECIAL TRACK WORK FOR ELECTRIC RAILWAYS**

THE WEBER RAILWAY JOINT MANUFACTURING CO.

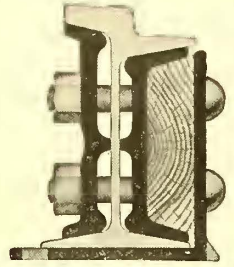
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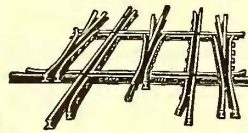
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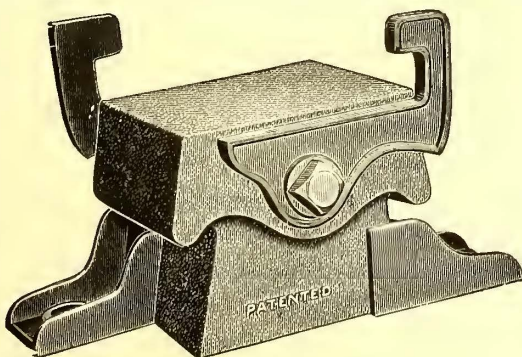
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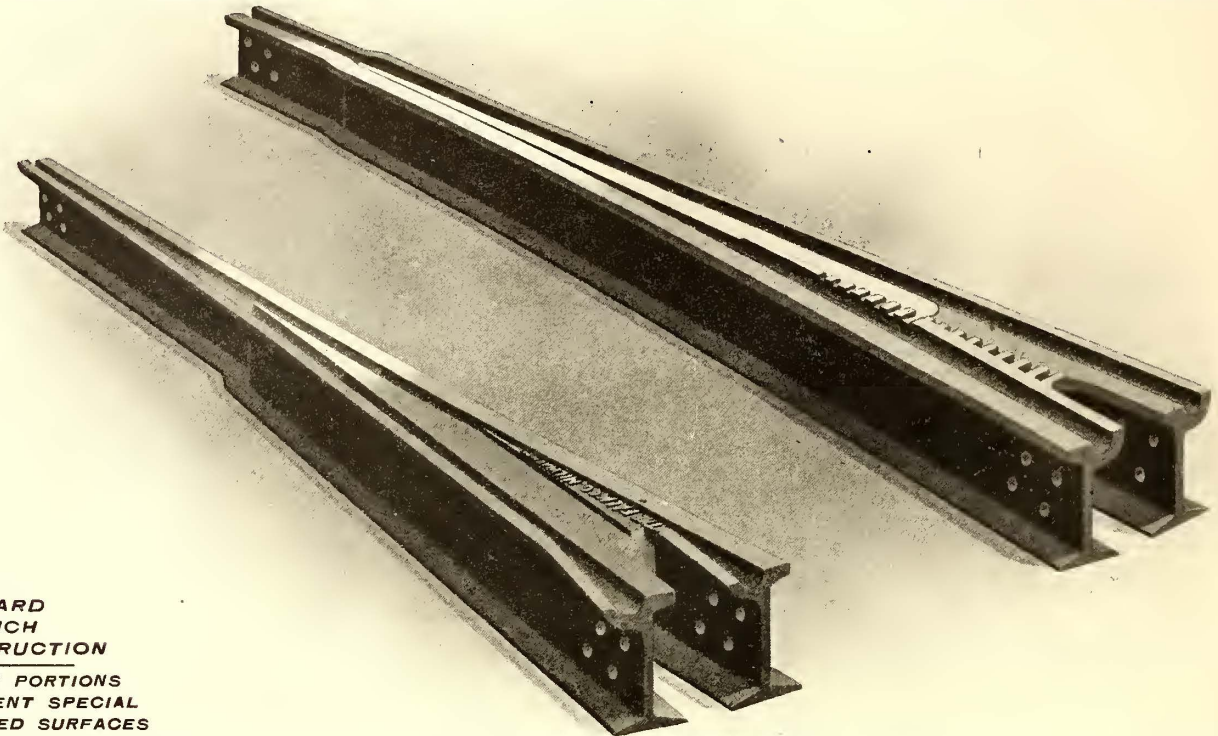
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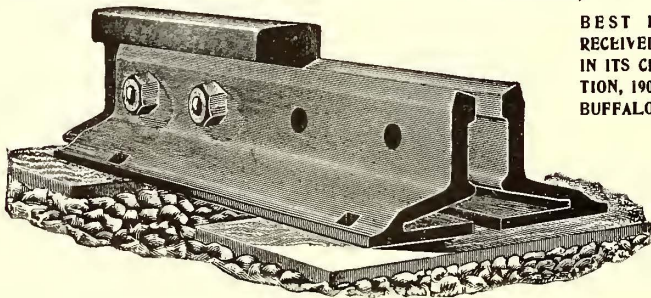
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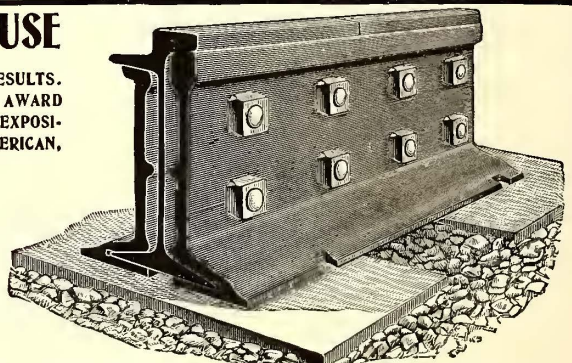
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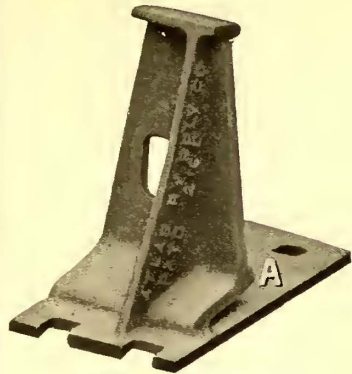
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Takes the place of oil
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Takes the place of lead
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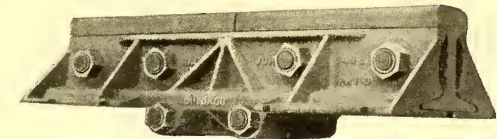
ASK FOR CATALOG H.

SECTION THROUGH AT TIE PLATE OF ATLAS JOINTS No. 1 or No. 7

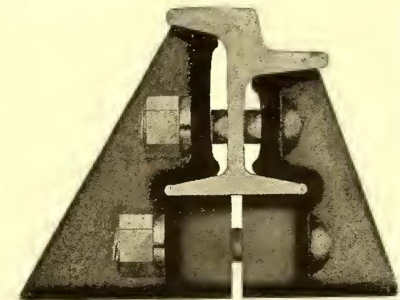
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DESIGN



Joint No. 1 has a double truss; it is composed
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Cross Section Atlas Raised Joint—
Raises rail to any height,
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Compromise Joints

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guaran-
teed.

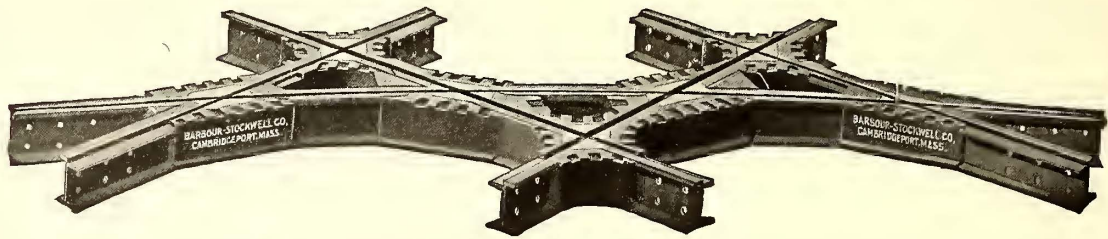
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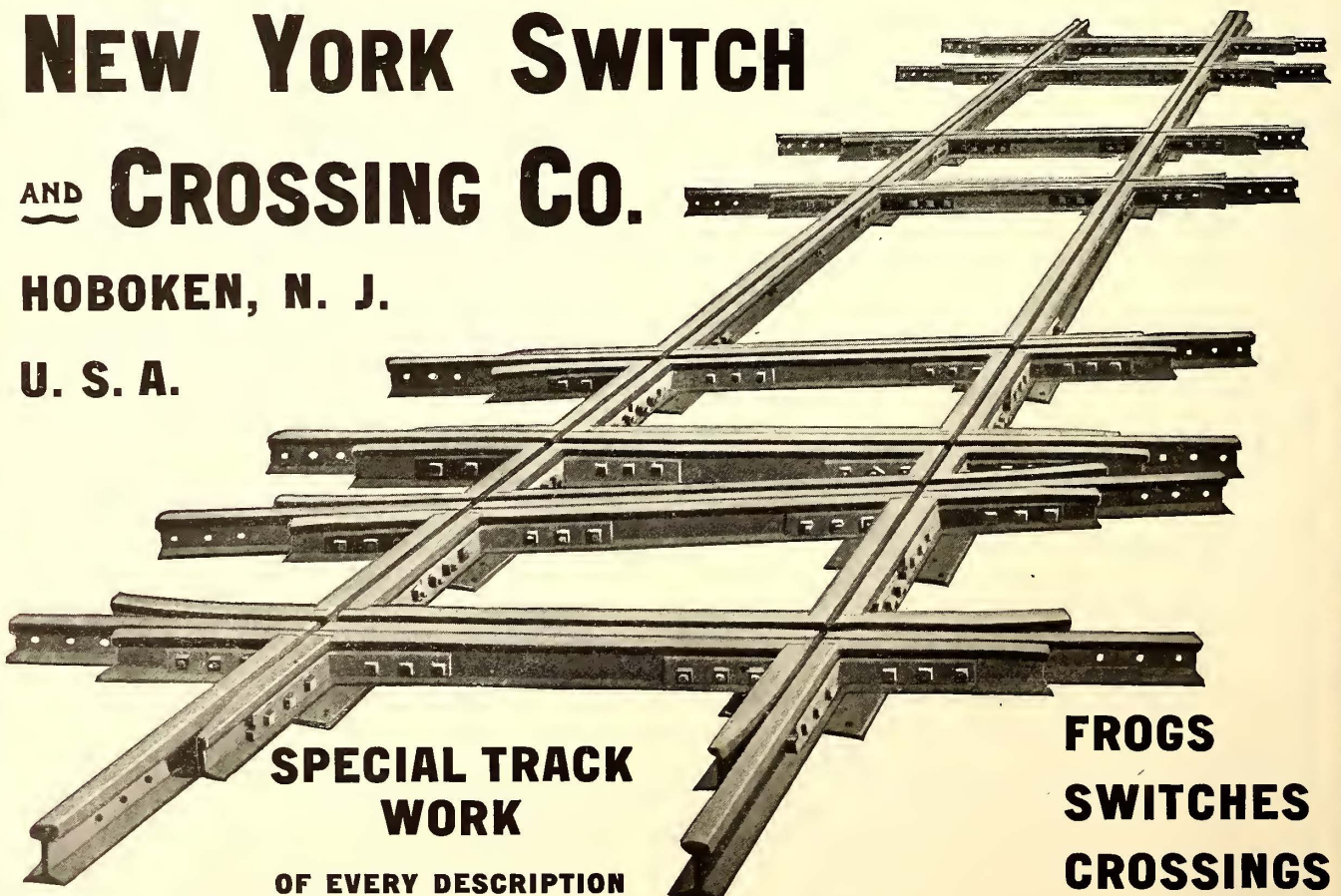
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**NEW YORK SWITCH
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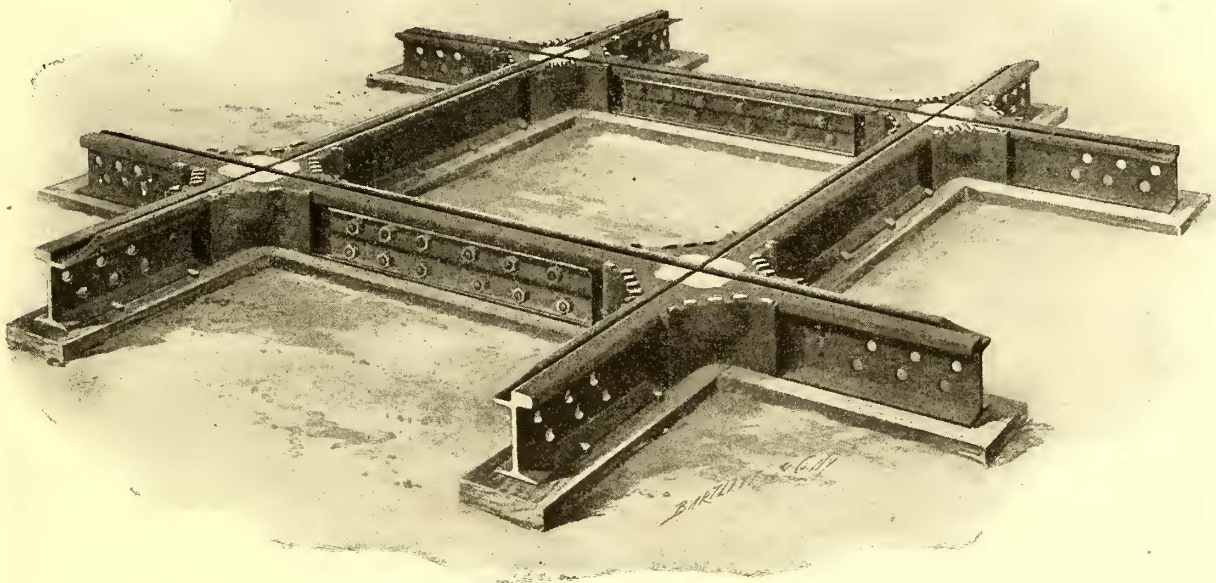
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**FROGS
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Without Disturbing
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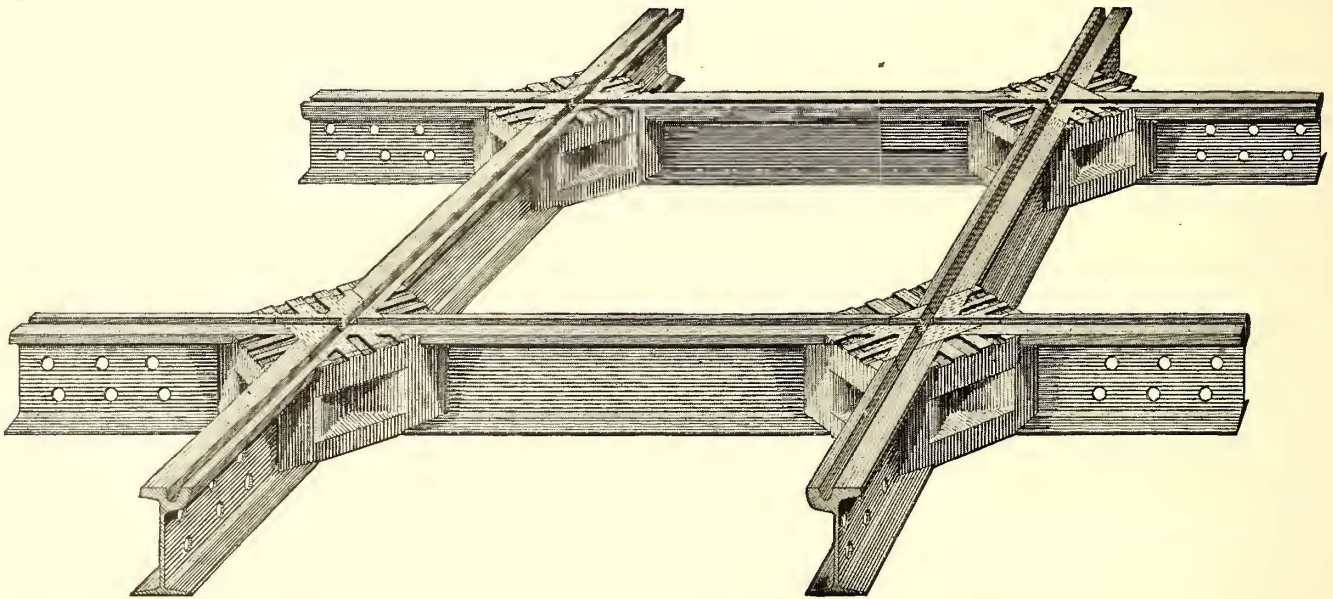
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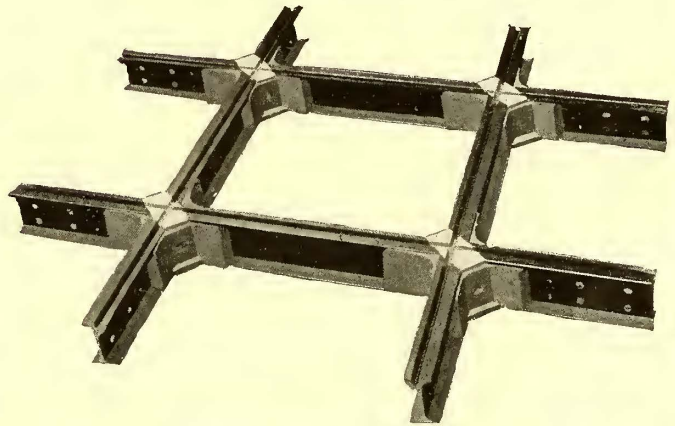
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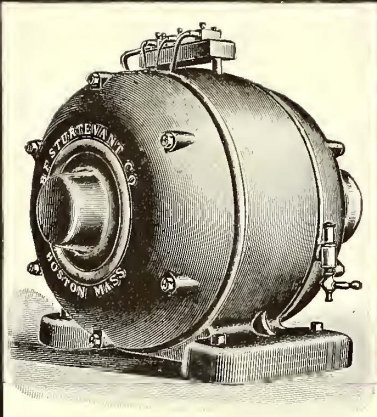
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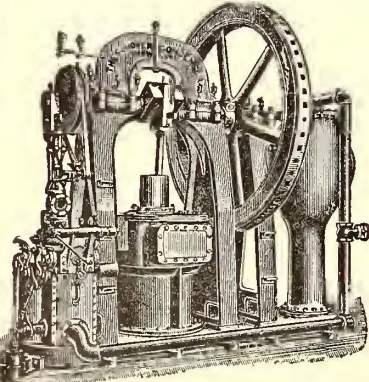
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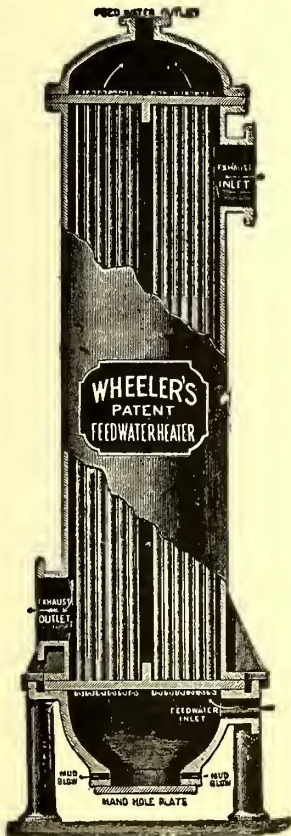
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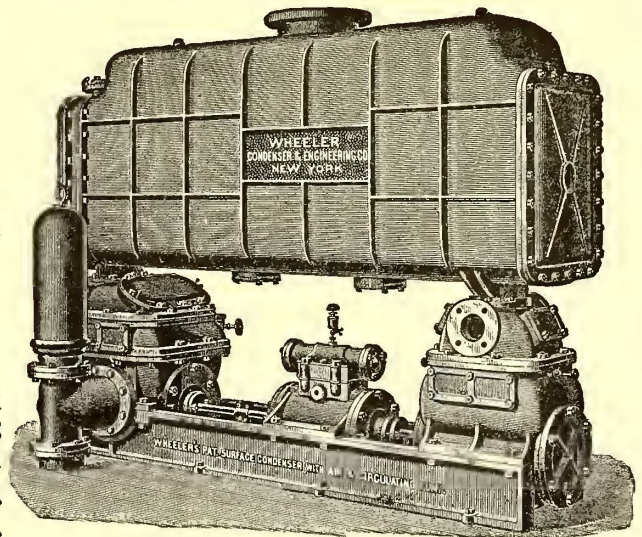
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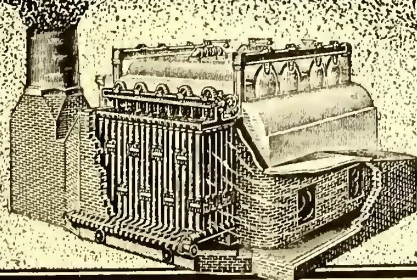
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HIGH grade engine of 500 horse power costs in the neighborhood of \$5,000. A

Cochrane Steam Separator

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An interesting proposition—isn't it?—when looked at in the right way.



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WATER ENTERING THE ECONOMIZER 150 DEGREES

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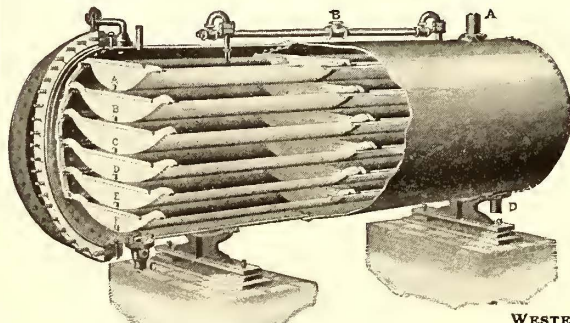
TEMPERATURE OF GASES IN BOILERS 700 DEGREES

THE PROFITS ARE NOT ALL GOING OUT OF THIS STACK

A large body of very hot water always ready for use is of great advantage in keeping regular steam pressure. Boilers are supplied with purified water, fewer boilers are required and much less repairs—all from waste heat.

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Live Steam Feed-Water PURIFIERS
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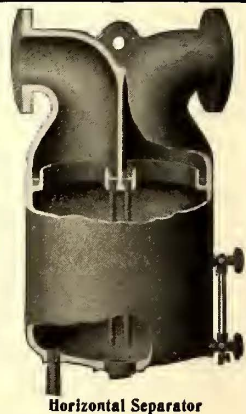
Our Purifiers are guaranteed to keep boilers clean, using any kind of water. The Heaters will heat feed-water to 210° and catch all solids liberated.

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Horizontal Separator

An Improved Method of Condensing Steam

A Fuel Saver
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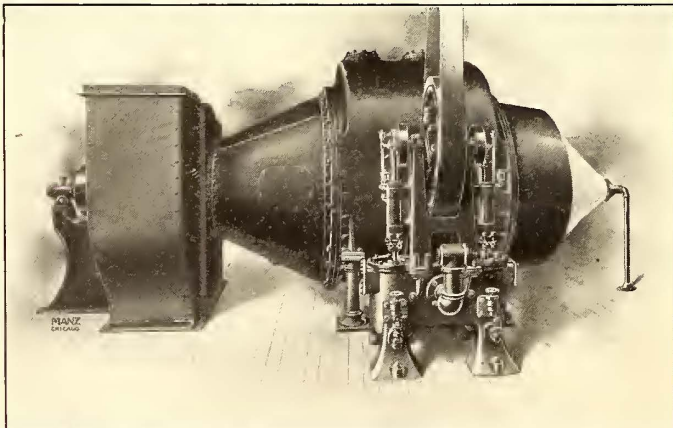
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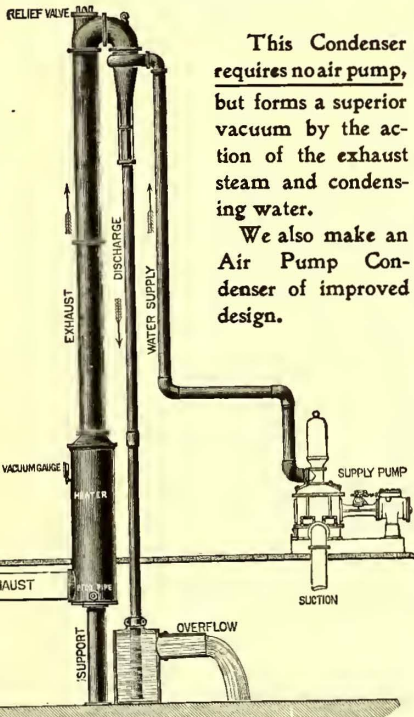
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Write for pamphlet "A," and give size of your Engines, Pumps, Pipes, etc., also the nature and volume of water supply.

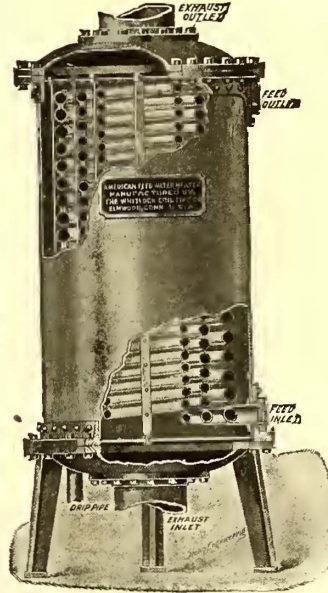


This Condenser requires no air pump, but forms a superior vacuum by the action of the exhaust steam and condensing water.

We also make an Air Pump Condenser of improved design.

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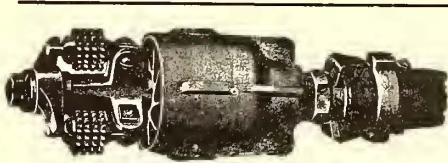
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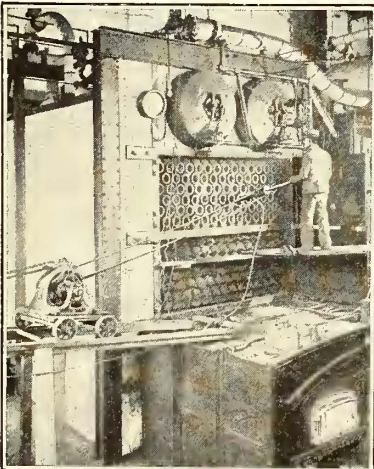


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from a practical superintendent of a modern up-to-date plant.

OFFICE OF
Syracuse Rapid Transit
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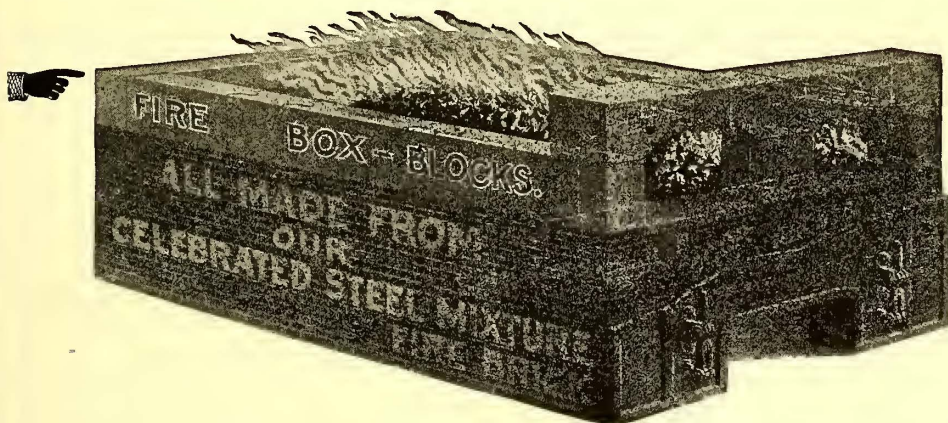
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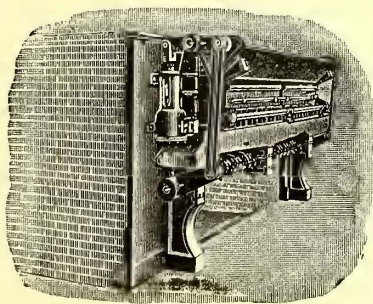
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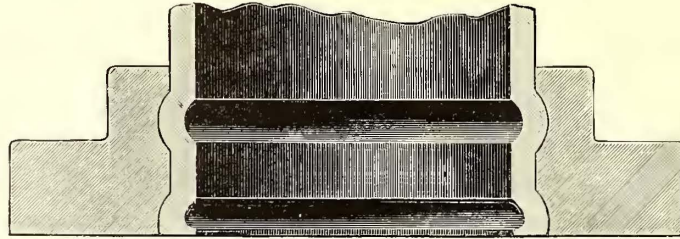
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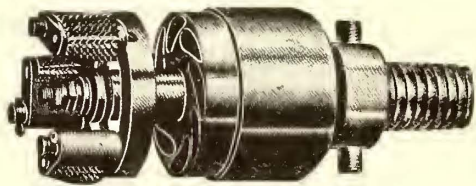
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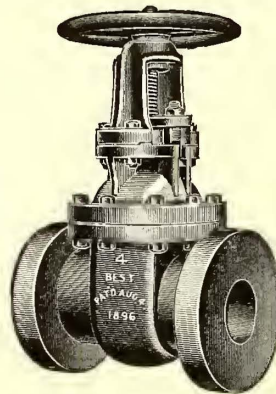


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Metropolitan St. Ry. Co., New York	12 orders, '94-'00 50,100	Market St. Cable Ry. Co., San Francisco, Cal.	3 orders '00 2,208
Manhattan Elevated Ry. Co., New York	'09 33,500	Virginia Ry. & Dev. Co. Richmond, Va.	1 order '00 2,080
Boston Elevated R. R. Co., Boston, Mass.	12 orders, '89-'90 22,500	St. Joseph Ry. Light, Heating & Power Co., St. Joseph, Mo.	3 orders '98-'99 2,057
Union Traction Co., Philadelphia, Pa.	9 orders, '93-'95 21,675	Union R. R. Co., Providence, R. I.	2 orders '92-'93 2,000
Brooklyn Rapid Transit Co., Brooklyn, N. Y.	13 orders, '91-'07 20,000	United Traction Co., Albany, N. Y.	5 orders '89-'99 2,000
Union Elevated R. R. Co., Chicago, Ill.	1 order, '96 6,400	Springfield St. Ry. Co., Springfield, Mass.	4 orders '94-'00 2,000
Northwestern Elevated R. R. Co., Chicago, Ill.	1 order, '96 6,400	Columbus St. Ry. Co., Columbus, O.	4 orders '90-'93 1,807
Metropolitan West Side Elevated R. R. Co., Chicago, Ill.	2 orders, '94-'98 6,000	Charleston Consolidated Ry., Gas & Elect. Co., Charleston, S. C.	3 orders '97-'00 1,800
Consolidated Traction Co., Pittsburg, Pa.	2 orders, '07-'09 6,000	N. Y. & Brooklyn Bridge, Brooklyn, N. Y.	5 orders '92-'96 1,786
North Jersey St. Ry. Co., Jersey City, N. J.	6 orders, '93-'99 6,000	Dayton, Springfield & Urbana St. Ry. Co., Dayton, O.	2 orders '99 1,702
South Side Elevated R. R. Co., Chicago, Ill.	2 orders, '97-'98 4,800	Florence & Cripple Creek Ry. Co., Goldfield, Col.	1 order '08 1,584
Metropolitan St. Ry. Co., Kansas City, Mo.	6 orders, '86-'96 4,696	Duluth St. Ry. Co., Duluth, Minn.	4 orders '90-'93 1,312
Buffalo St. Ry. Co., Buffalo, N. Y.	3 orders, '90-'93 4,500	Richmond Passenger & Power Co., Richmond, Va.	2 orders '90-'00 1,339
Louisville Ry. Co., Louisville, Ky.	3 orders, '06-'00 4,062	Detroit, Ypsilanti & Ann Arbor St. Ry. Co., Ypsilanti, Mich.	2 orders '98 1,380
United Rys. & Elect. Co., Baltimore, Md.	1 order, '99-'02 4,000	Pittsburg & Birmingham Traction Co., Pittsburg, Pa.	2 orders '90-'00 1,528
Lynn & Boston R. R., Boston, Mass.	3 orders, '99-'02 4,000	Rochester St. Ry. Co., Rochester, N. Y.	3 orders '91-'94 1,143
Cincinnati St. Ry. Co., Cincinnati, O.	3 orders, '90-'93 3,300	Atlanta Ry. & Power Co.	2 orders '00 2,400
Citizens St. Ry. Co., Detroit, Mich.	3 orders, '95 3,500	Union R. R. Co., New York	2 orders '91-'92 1,500
Denver City Tramway Co., Denver, Colo.	3 orders, '89-'91 2,686		
United Traction Co., Pittsburg, Pa.	2 orders, '00 2,436		
Union Traction Co., Anderson, Ind.	2 orders, '98-'99 2,400		
Cleveland Elect. Ry. Co., Cleveland, O.	2 orders, '98-'99 2,378		

Note the number and size of the renewal orders.

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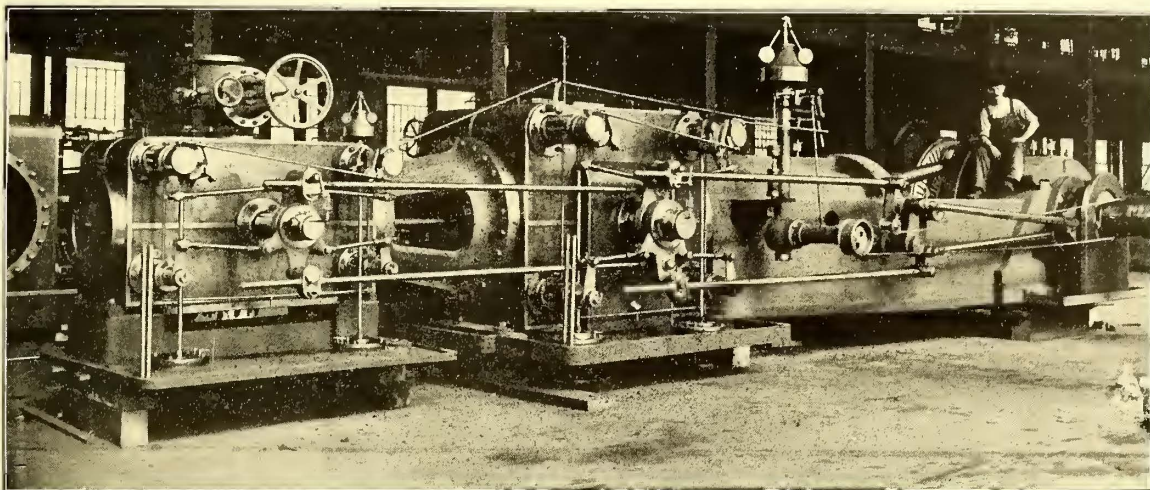
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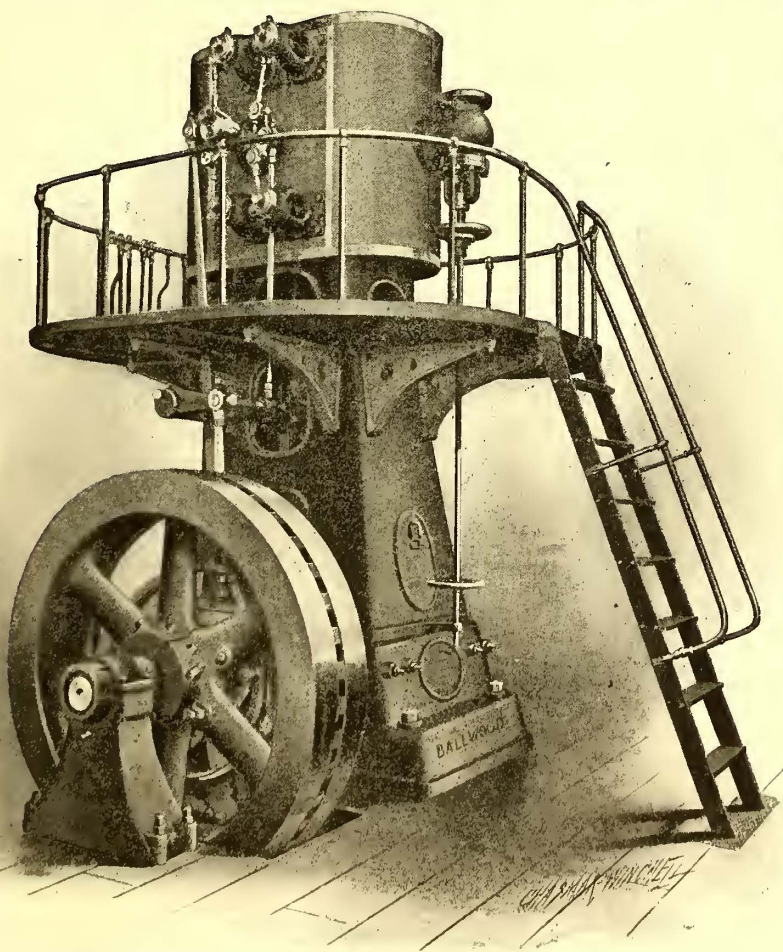
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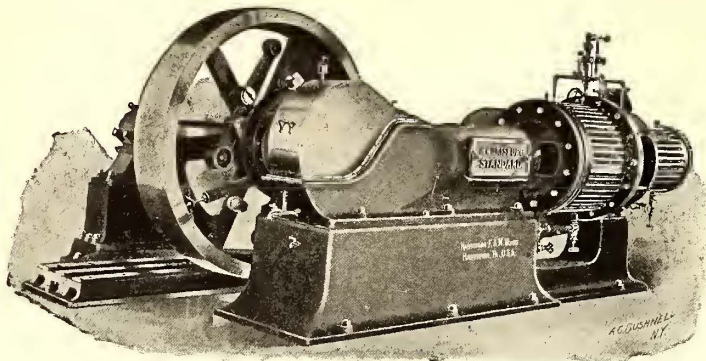
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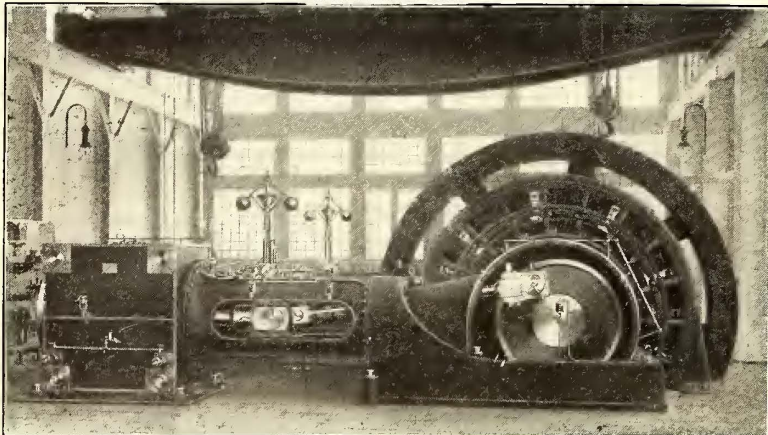
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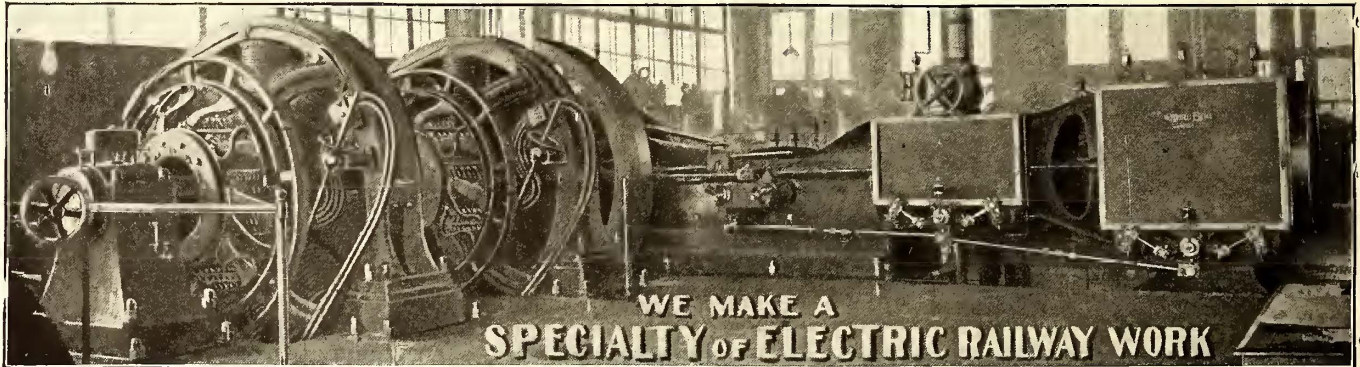
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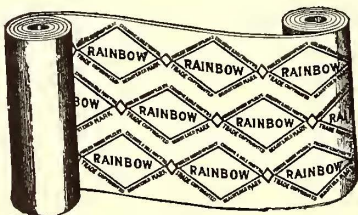


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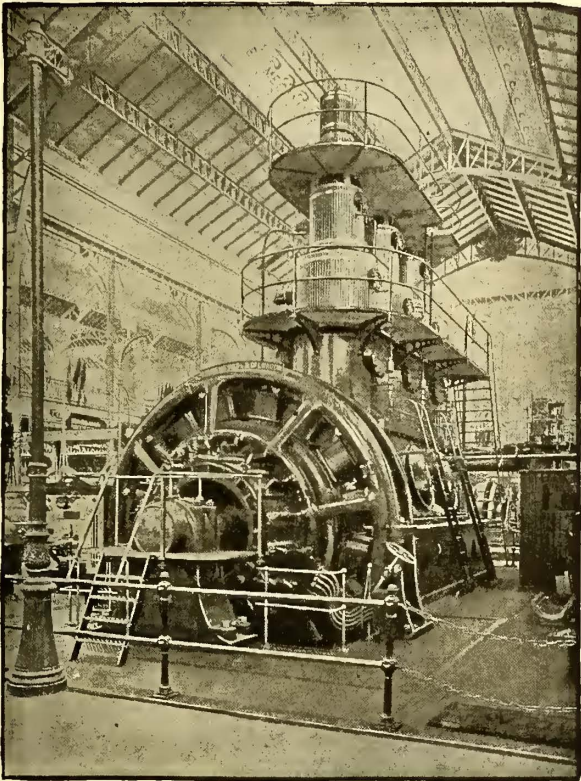
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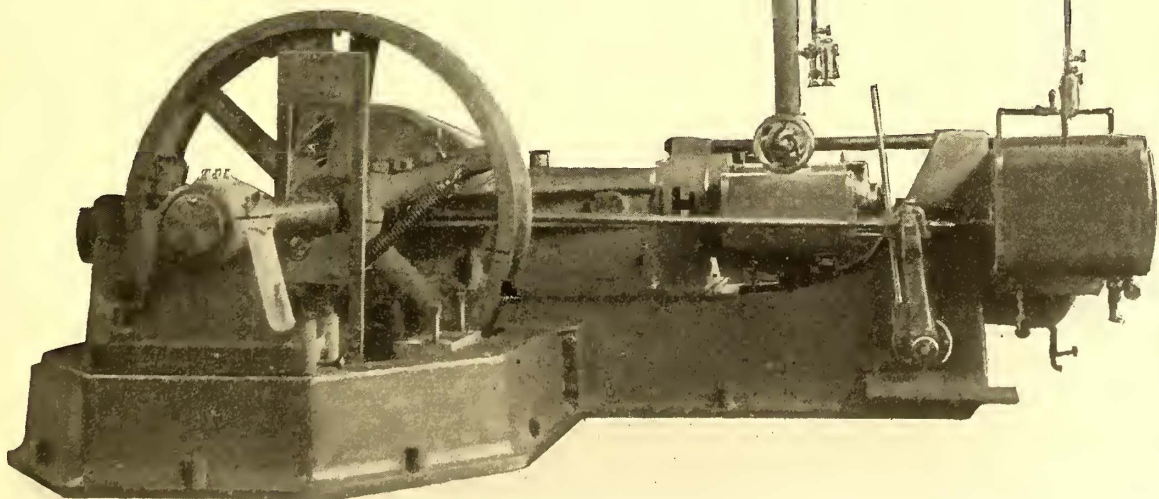
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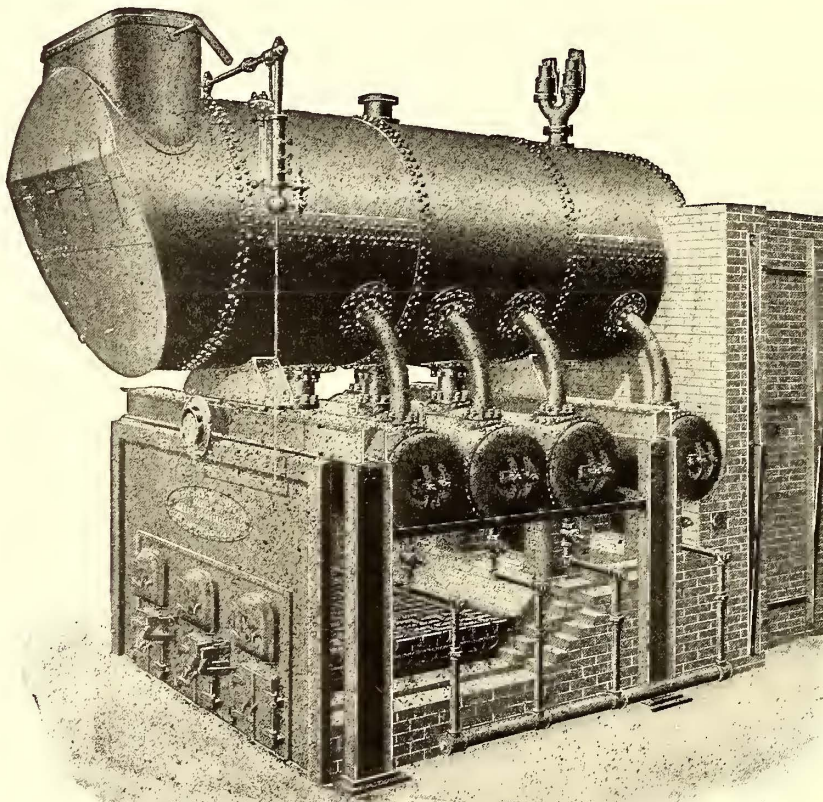
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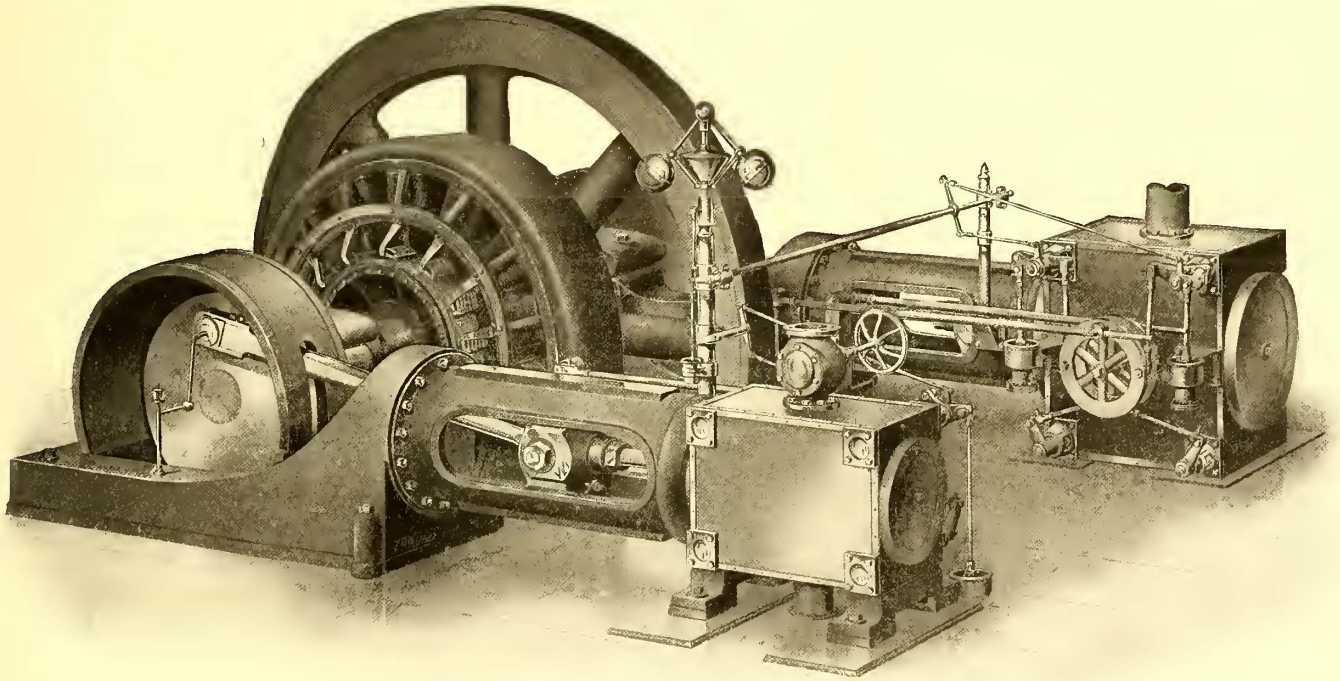
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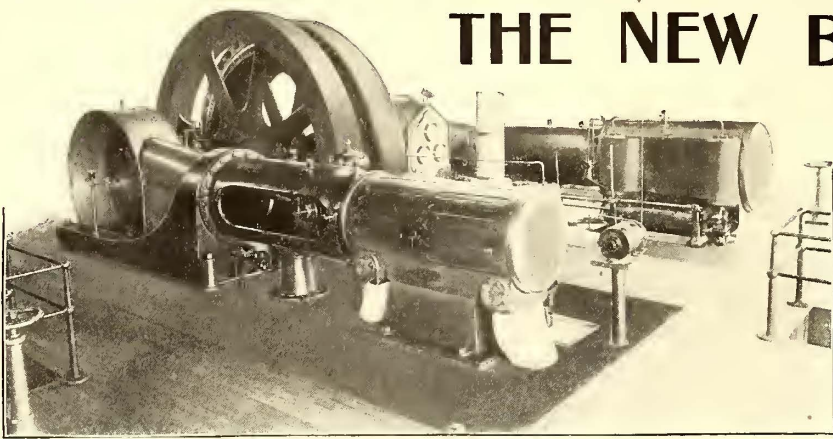
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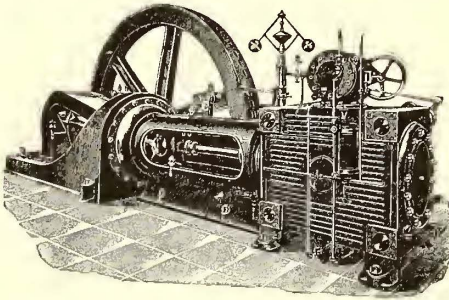
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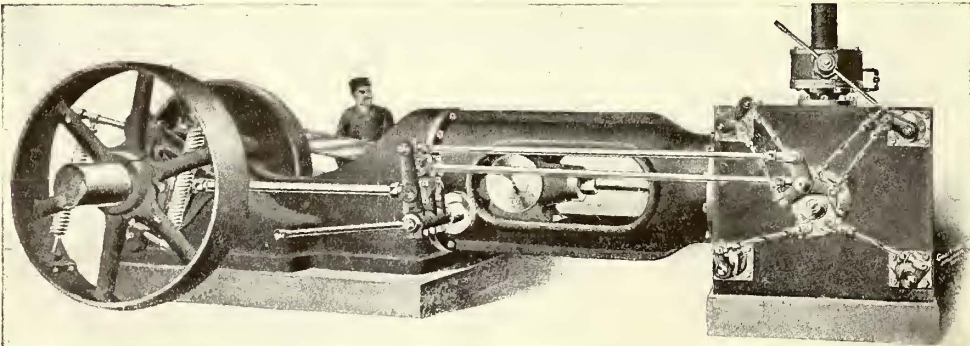
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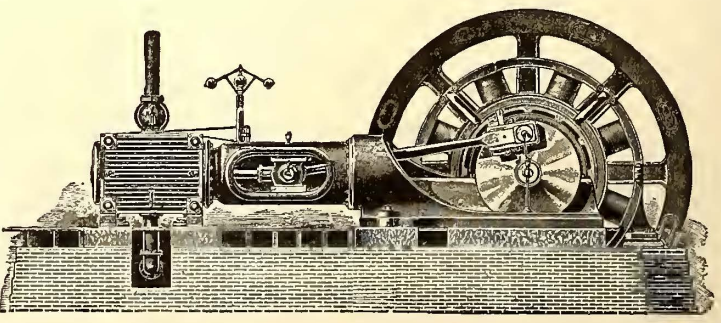
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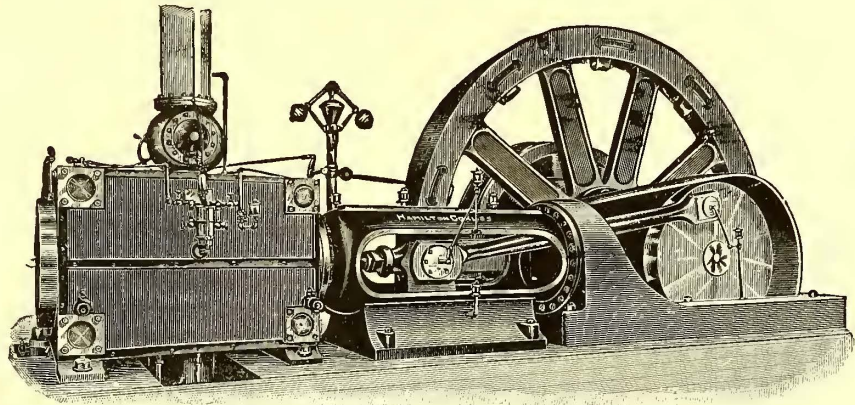
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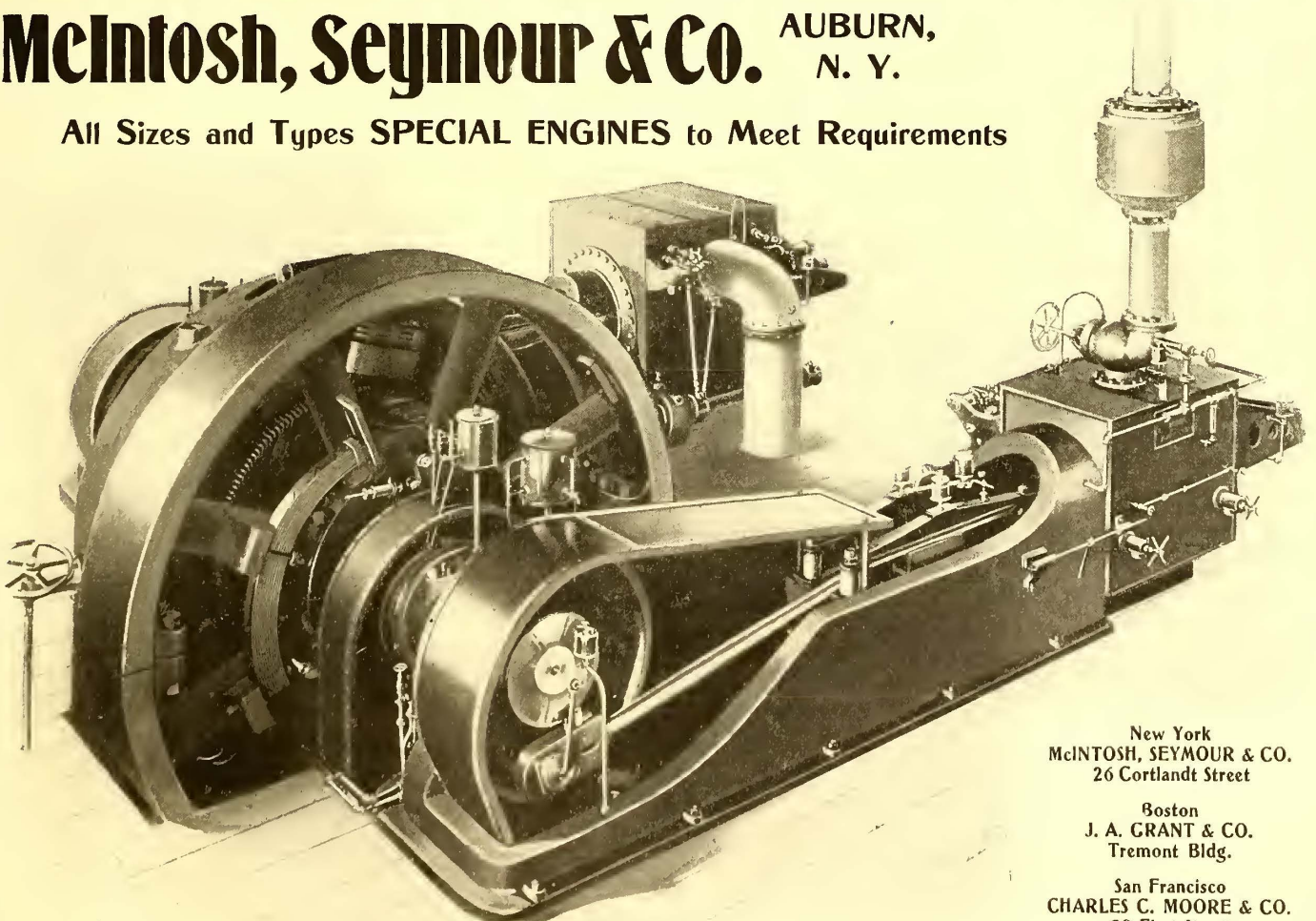
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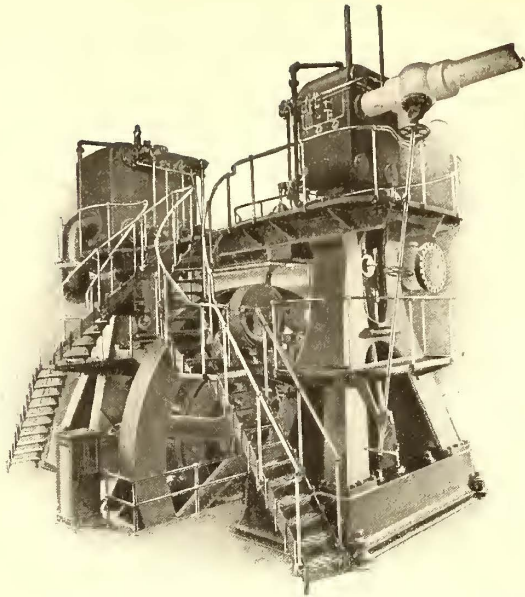
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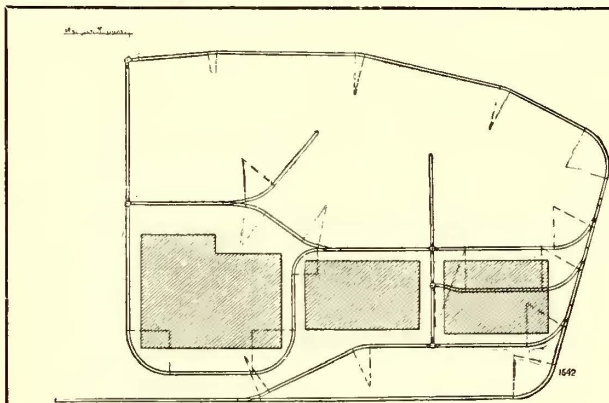


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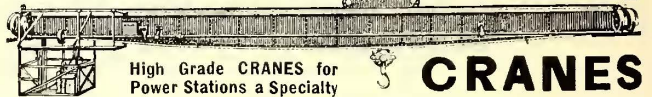
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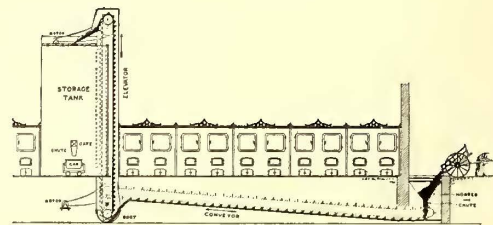


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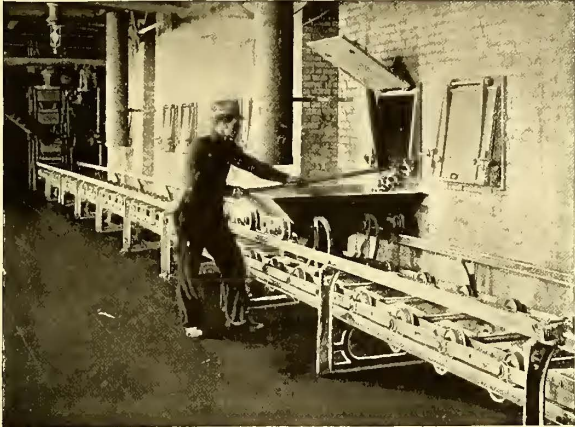
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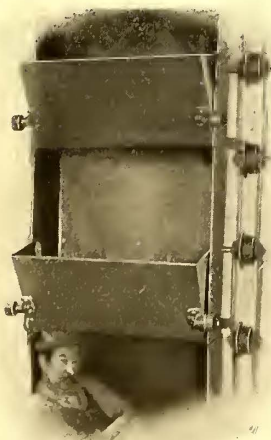
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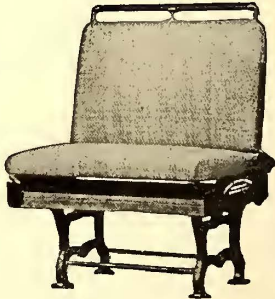


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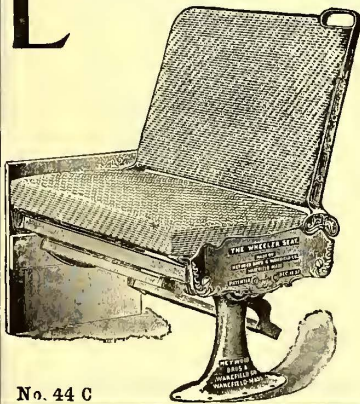
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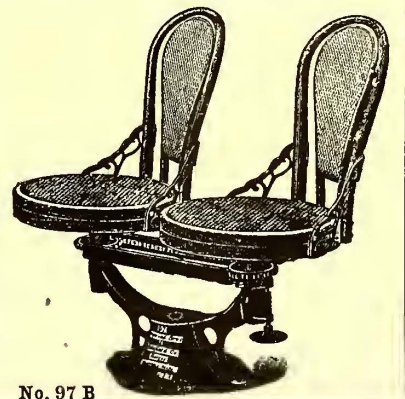
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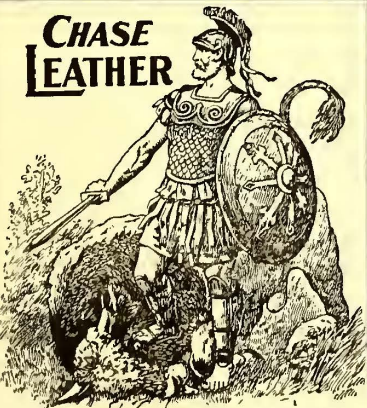
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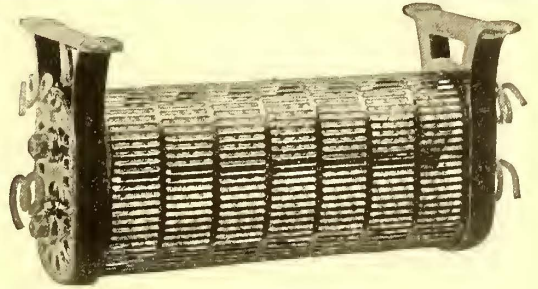


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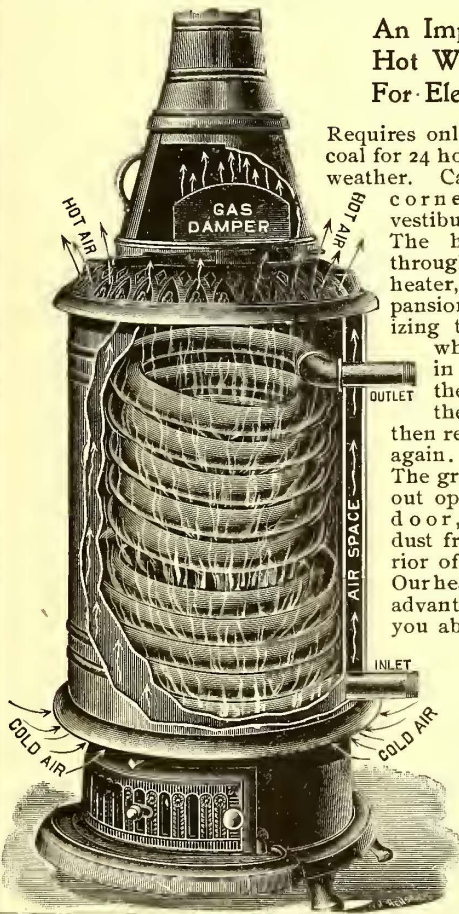
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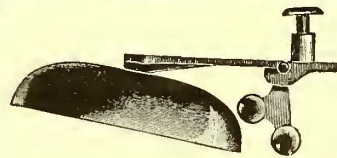
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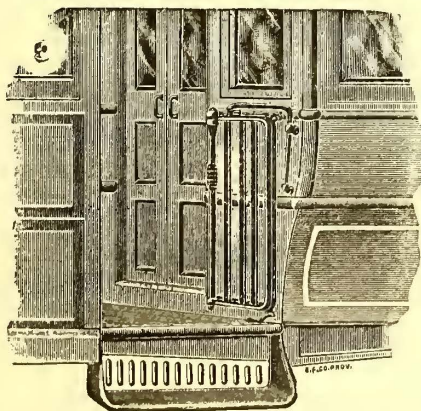
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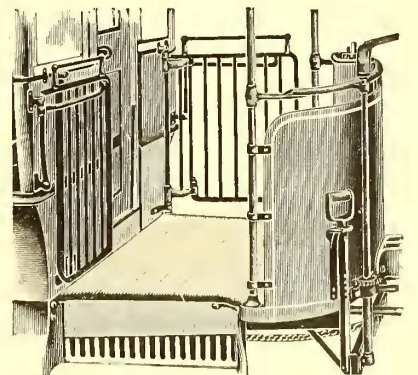
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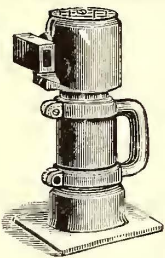
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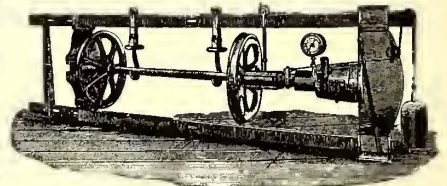
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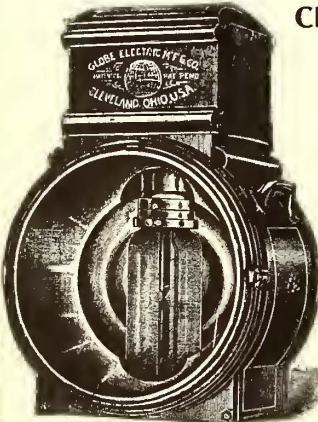
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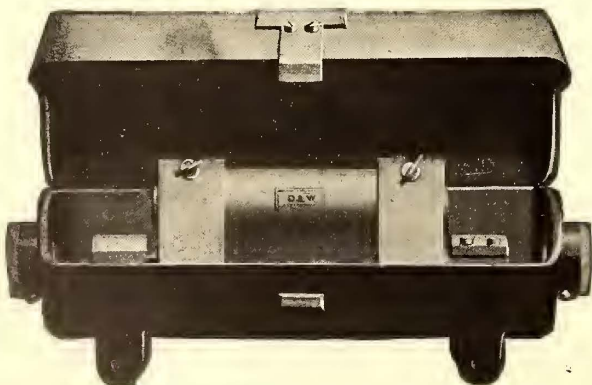
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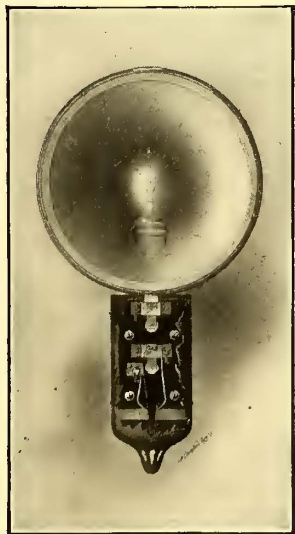
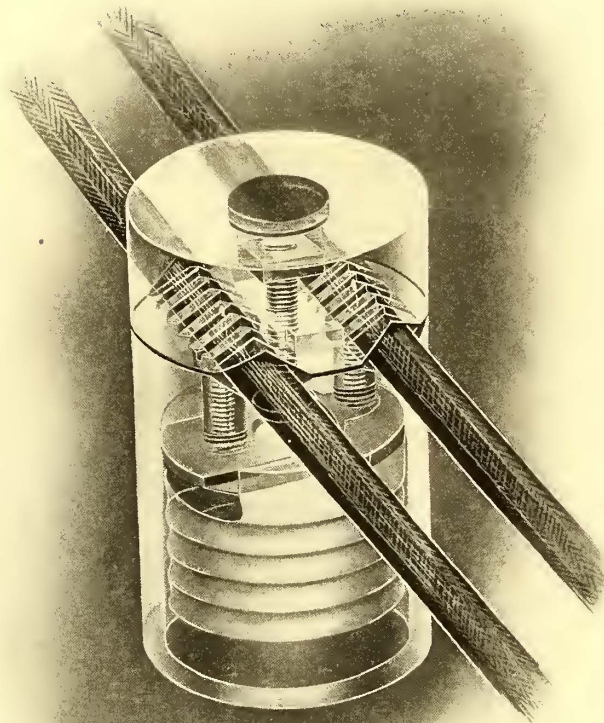
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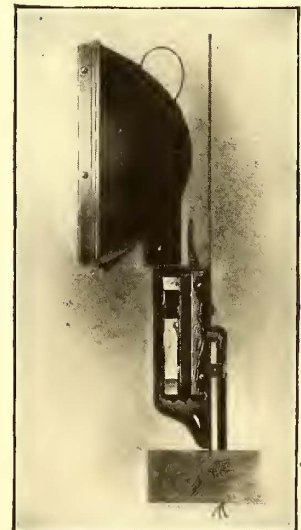
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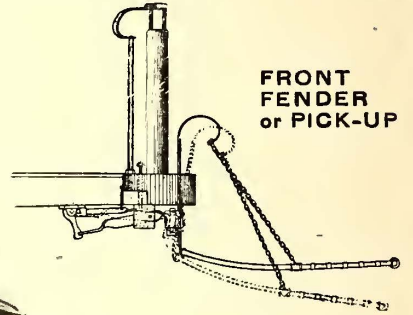
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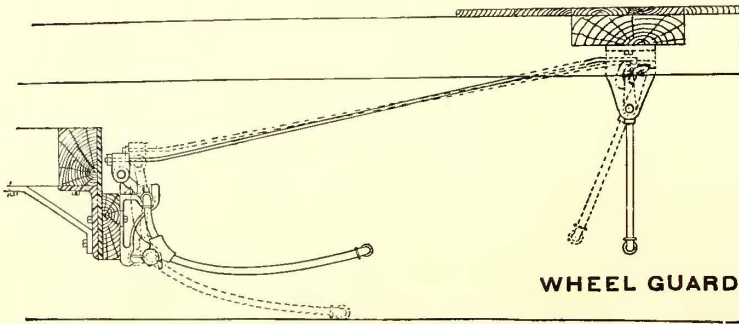
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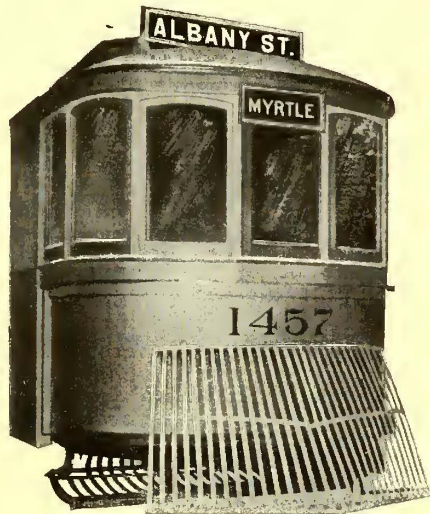
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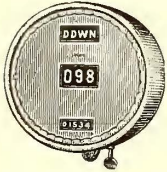
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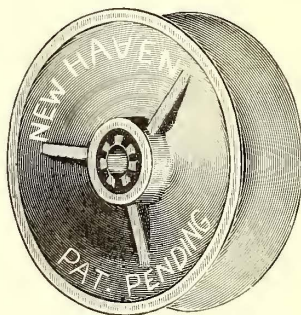
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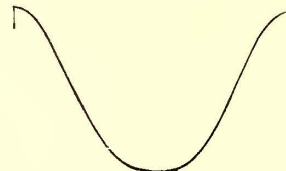
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Trolley wheels with a BEARING and NOT a bushing and WHICH require NO oiling, is what Electric Railway men have long sought. We have accomplished JUST these features in the "New Haven" Trolley Wheel. The solid wheel made from our special long-lived compound is rifled out, and into the rifling is forced, by hydraulic pressure, our lubricating graphitic compound, WHICH MUST NOT BE OILED. Letters of commendation from a host of electric roads using these wheels "tell the story." NOT hard enough to wear out your TROLLEY, and yet HARD enough to give the GREATEST MILEAGE attainable in a HIGH-GRADE trolley wheel.

Try the "New Haven" Trolley Wheel and you will use no other.

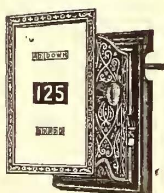
Samples and prices furnished on application. State size and quantity wanted.

MANUFACTURED BY

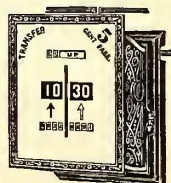
THE NEW HAVEN CAR REGISTER CO.

...NEW HAVEN, CONN...

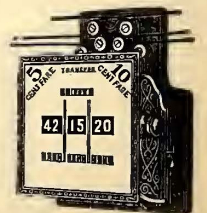
CATALOGUE OF OUR FULL LINE ON REQUEST



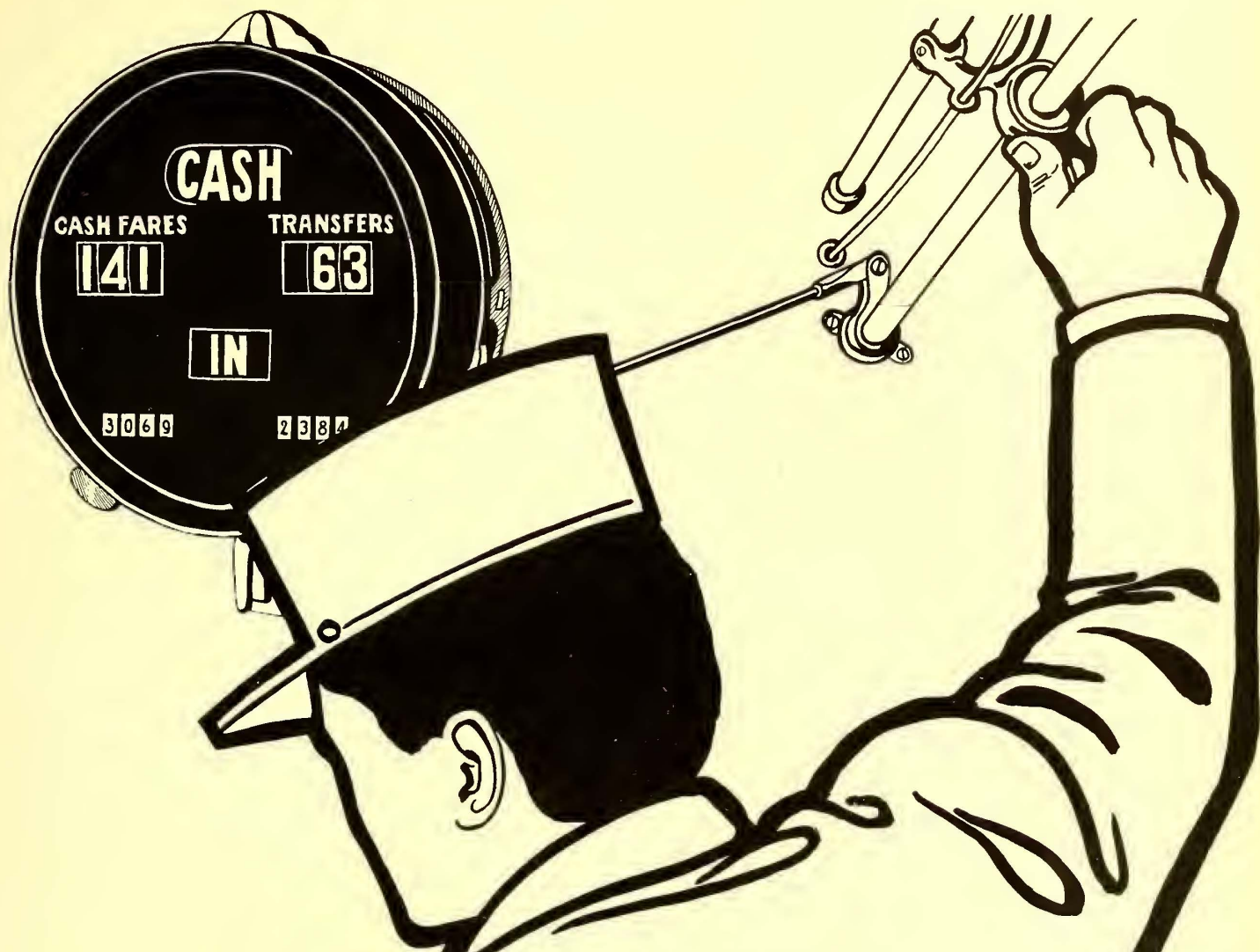
SINGLE.



DOUBLE.



TRIPLE REGISTER.



FARE, PLEASE!

Whether it be "Cash" or "Transfer" a complete, accurate record is made by

The International Fare Register

Two trip records. Figures easily read in the longest cars

Every precaution has been taken to make it the safest register on the market for both company and conductor.

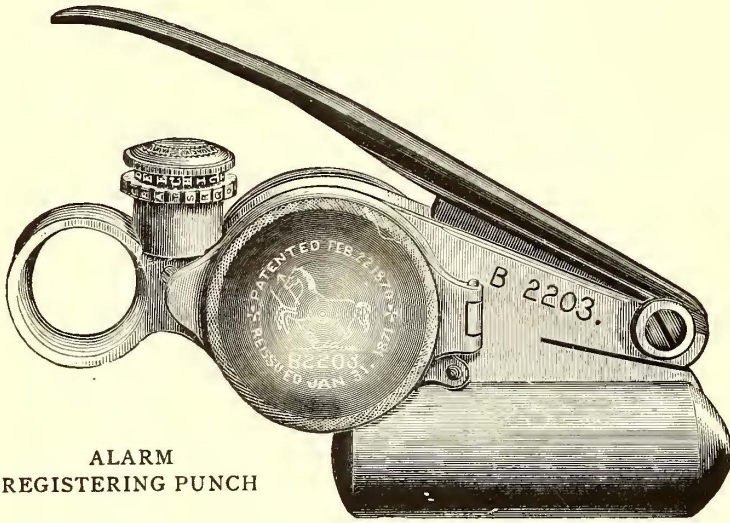
The International is durable, compact, easy to operate.

Let us tell you more about it.

THE INTERNATIONAL REGISTER CO.

118-132 West Jackson Blvd., - - - - - CHICAGO

ALARM REGISTERING PUNCH



ALARM REGISTERING PUNCH

Clippings should agree. This system has been found very perfect by the roads using it, being some of the largest in this and foreign countries.

THIS Register we claim to be the most perfect check yet devised for the collection and registration of fares on Street Railroads, especially where different rates of fares and tickets are to be collected.

The conductor is provided with Trip Slips of different colors for different rates of fare, on which he is obliged to punch out a number every time he receives a fare; there is a register in the Punch which records the number of times it is operated; the register and the receptacle for clippings are secured by a combination lock, which renders access to them impossible by any one unacquainted with the combination.

When the conductor renders his report to the office he returns his Trip Slips, Tickets and Punch; and the Register Totals, Slips, and

RAILWAY REGISTER MANUFACTURING CO.

For further particulars, prices, etc., address all communications to EDWARD BEADLE, MANAGER, 1193 BROADWAY, NEW YORK, U. S. A.

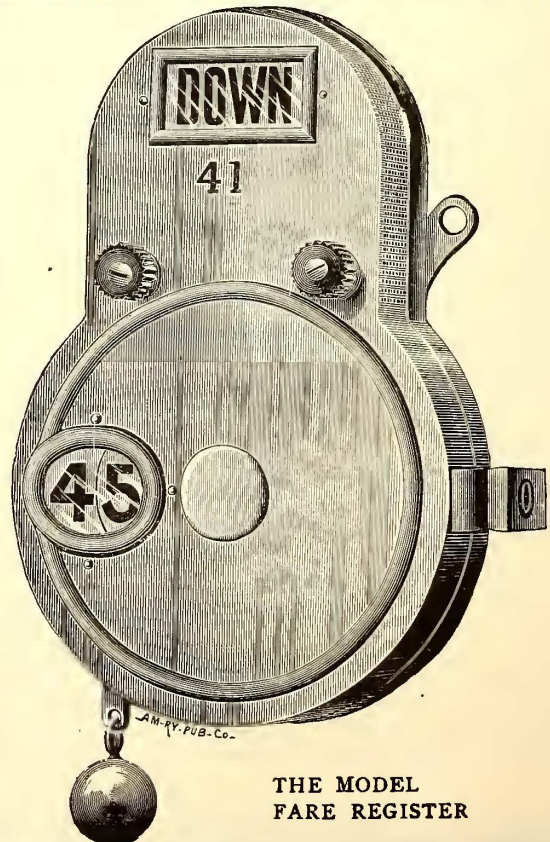
MODEL REGISTER

THIS portable Register is the best of its class yet introduced. Each time it is operated, the bell rings, the fare is recorded, and a corresponding figure is shown through the opening on front of the register in view of the passenger. It also has an indication plate showing the direction the car is going, and which the conductor is compelled to change at the end of the route.

It is also provided with a punch at side to cancel passes, tickets, transfers, etc., making, in all, a very perfect and handsome machine.

It has many advantages over the clock or stationary register, as conductors can collect their fares much more rapidly by thus doing away with reaching over the passengers' heads to operate the register rope or rod attachment. It also avoids the necessity of having some one to take off the state of the register each time a conductor changes his car, as with The Model he uses the same register during the entire day, and is solely responsible for it.

We can highly recommend this register to roads having one rate of Cash fare, Tickets, Transfers, etc.



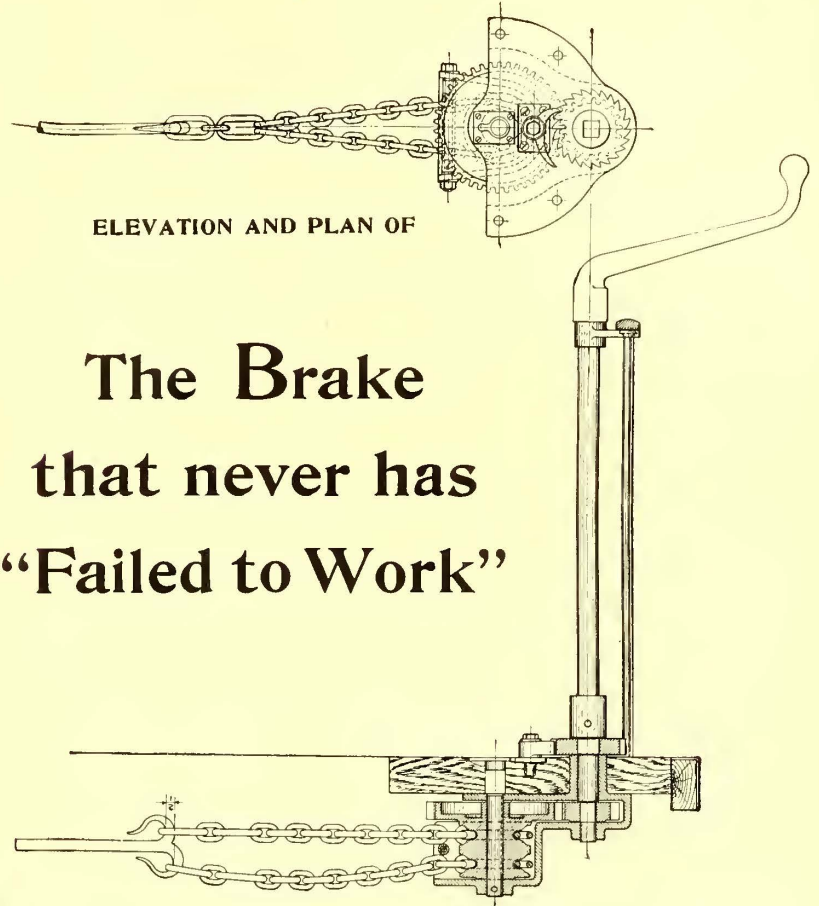
THE MODEL FARE REGISTER

SPECIAL ATTENTION PAID TO EXPORT ORDERS

The Sterling Safety Brake was patented Feb. 26, 1895. Many thousand cars are equipped with it.

It is liked and absolutely relied upon by every road using it. It is surer than any other brake.

Infringements will be prosecuted.



**The Brake
that never has
"Failed to Work"**

Sterling=Meaker Company

420-422 Ogden Street, Newark, N. J., U. S. A.



The Sterling No. 5 is the surest, simplest, strongest fare register. It is attractive in appearance. It is only 9 inches square. All figures 1 1-16 inches in length. It is well worth looking up.

THE CONSOLIDATED CAR FENDER CO.

OFFICE: 39-41 CORTLANDT STREET, NEW YORK

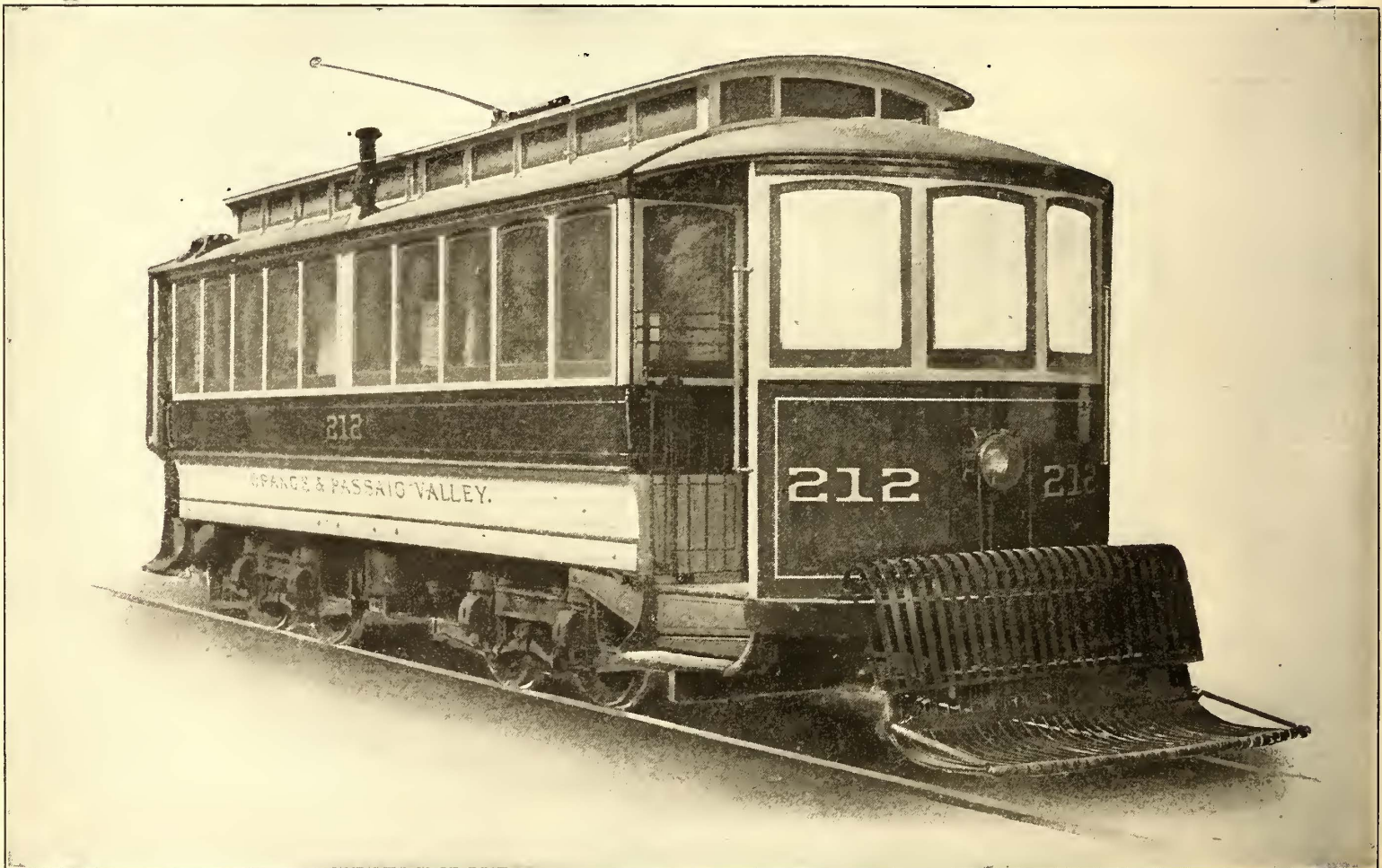
Factory: Providence, R. I.

6 Rue Boudreau, Paris, France

**MANUFACTURERS
OF . . .**

**THE PROVIDENCE CAR FENDER
MILLEN CAR STEP LIFTER and
THE CAMPBELL SNOW SWEEPER BROOM**

More than 10,000 electric cars equipped with the Providence Car Fender are now in service on 158 electric roads in the United States. We make 95 per cent. of all car fenders used in the United States other than cheap devices made by electric roads and attached to their cars to comply with local city ordinances.

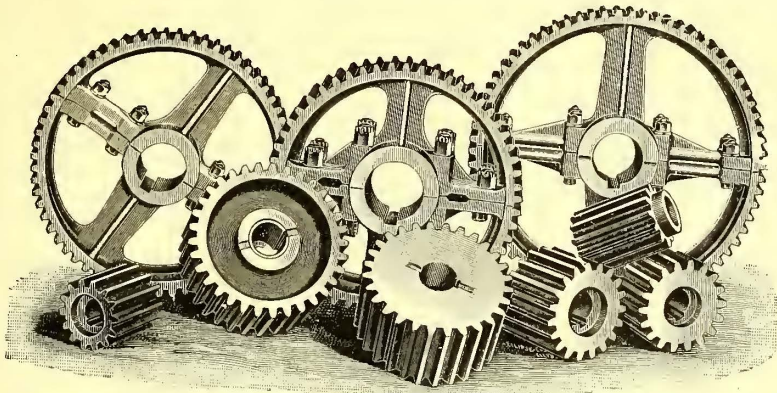


This Cut Shows a Car Equipped With Our Model "C" Car Fender

THIS is the latest car fender made by the Consolidated Car Fender Company and embodies all of the improvements made by this Company in life-saving devices for electric cars.

Practical railroad men who have adopted this car fender as a standard for their roads say it is the most perfect life-saving device ever attached to an electric car, and that it is practical in every way, easily kept in repair and not expensive except in its first cost.

SEND FOR CATALOGUE AND LIST OF PRICES



HIGHEST QUALITY. FOR ALL TYPES OF MOTORS

The Van Dorn & Dutton Co.

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Open Hearth Steel

GEARS

and Hammered Steel

PINIONS

CLEVELAND, OHIO



KALAMAZOO TROLLEY WHEELS

Are known throughout the United States and Canada for their **LONG LIFE WITHOUT INJURY TO THE WIRE**, AMPLE oiling device, less weight for amount of wearing surface, and as the most satisfactory wheel's manufactured.

THE KALAMAZOO IMPROVED TROLLEY HARP

SOLVES THE PROBLEM. Thick washers easily replaced, best possible contact, parts fully protected, and **ABSOLUTELY NO WEAR ON THE SPRINGS.** Send for catalogue.

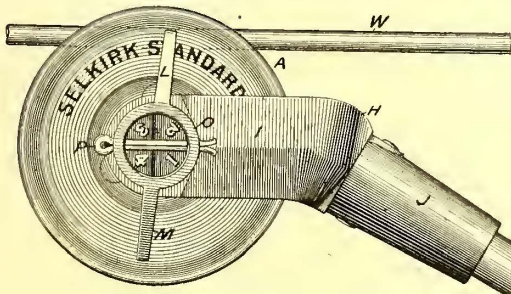


THE STAR BRASS WORKS

KALAMAZOO, MICH.

The LATEST TROLLEY WHEEL and HARP

The Longest Lived Trolley Wheel on the Market.



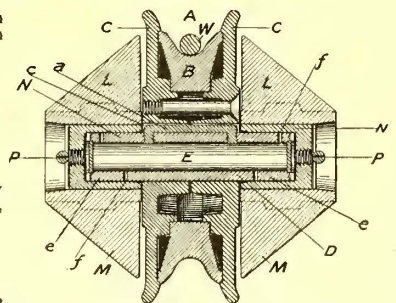
Central conductor "B" (shown in cut) will run **18,000 miles** before it will wear out, and it can be renewed.

- The balance of the wheel is perfect.*
- The running is smooth and even.*
- The contact is constant and true.*
- It will not spark or blow out fuses.*

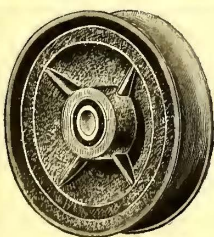
You should, for economy sake, make the early acquaintance of this Wheel and Harp. Write us, and we'll introduce you.

MANUFACTURED BY THE

RAILWAY APPLIANCE CO., ALBANY, N. Y.



TRANSVERSE SECTION.



TROLLEY WHEELS

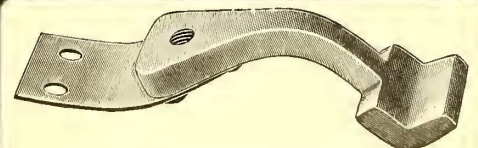
Upon the return of worn out copper Trolley Wheels of our manufacture, credit will be allowed for same at price of new pig

copper in exchange for new wheels. The actual cost of copper trolleys on well-equipped roads is often less than 10 cents per thousand miles. "100 miles for a cent."

WHAT ARE YOURS COSTING YOU NOW?

EUREKA TEMPERED COPPER WORKS

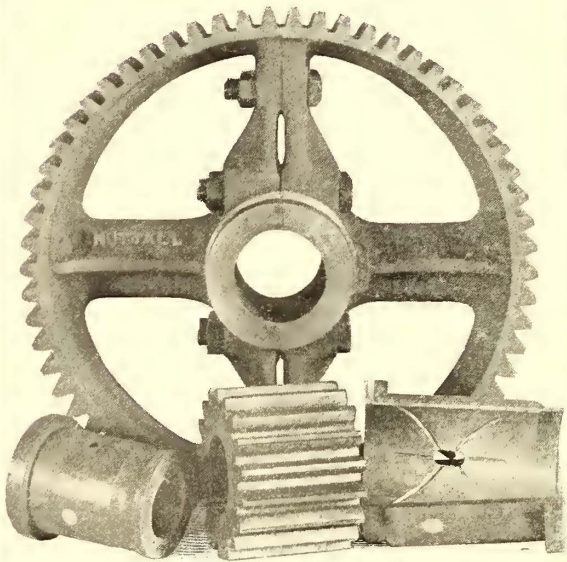
NORTH EAST PA., U. S. A.



CONTROLLER CONTACT FINGERS

WE can furnish on short notice all of the standard contact fingers in use. They are of neat design, well made and of first-class quality.

Nuttall Railway Supplies



The Union Standard Trolley

is reliable in every particular—
is manufactured in fifteen types
for the various requirements.

U. S. Trolley Poles are made
from a special pipe and of a
special material, and are satis-
factory in service.

R. D. Nuttall Company

Pittsburg, Pa.



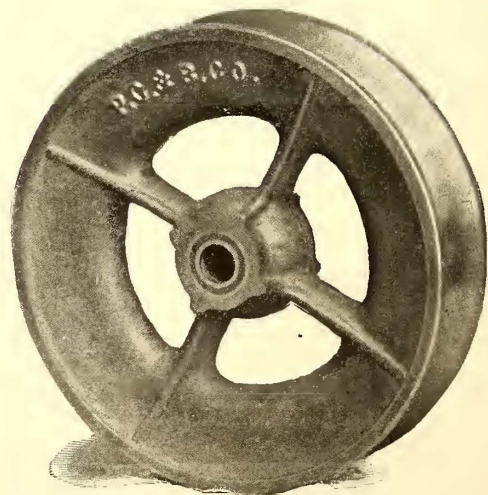
OVER THE WHOLE COUNTRY Wilson Trolley Pole Catchers are now used upon trolley cars. The United Testimony of the United States is unanimously in their favor. They have already been elected a standard part of the equipment of every line by the enthusiastic endorsement of hundreds of well-managed trolley lines. A judge and a jury have recognized that a certain street car line would have been liable for an accident caused by a flying trolley rope if the Wilson Trolley Catcher had been on the market at the time. These facts mean something to you. Is not there a big leak in the way of expenses on your line which could and should be cut off? The Wilson Trolley Pole Catcher is the knife which will cut it.

Wilson Trolley Catcher Co. 200 Summer Street, Boston, Mass.



Have You Tried It Yet ?

"P. C. & B. Co." Copper Trolley Wheel
WILL NOT BURN

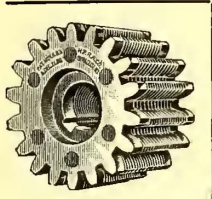


'02 Model, 6 inch. Regular Model, 4½ inch.

Some in Massachusetts have a record of over four months. Others in Georgia have covered 12,000 miles and are still running. Are you getting such service from the wheel you are using? If not, write me.

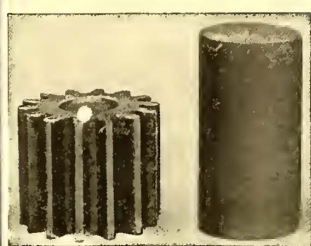
T. RAYMOND PIERCE, Sales Agent
No. 170 SUMMER ST., BOSTON

Noiseless Pinions



Make quiet running cars. Let us tell you where it is to your advantage to use New Process Pinions. Others are using them. Why be behind the times?

The New Process Raw Hide Co.
SYRACUSE, N. Y.



Showing Size of Billet to Pinion

"PROJECTILE BRAND"

GEARS AND PINIONS

Our GEARs are made of first-class Open Hearth Steel Castings and cut on the Most Improved Machinery.

Our PINIONS are made of our Special HIGH CARBON Steel and are Solidified by a Pressure of Over

1,000,000 POUNDS

THEY ARE THE MOST DURABLE AND LONGEST IN LIFE.

MANUFACTURED BY

E. W. BLISS CO.,

SUCCESSORS TO THE U. S. PROJECTILE CO.
"BLISS, BROOKLYN. BROOKLYN, N. Y.

DeWitt's



BEST MADE

A Sand Box That Will Work Every Time and Under All Circumstances.

In use on roads for years and never a complaint, and the only repairs needed were pieces of hose.

SOLD NOW AT A LOW FIGURE

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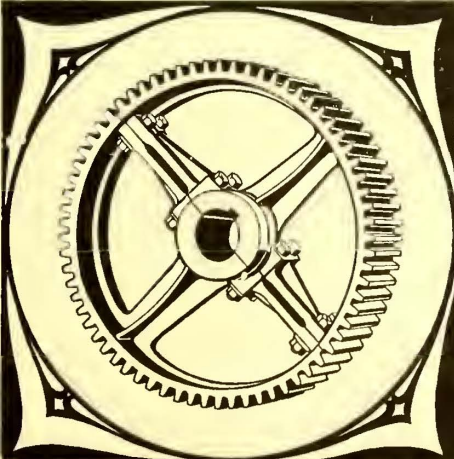
New York Office, C. J. Harrington, 15 Cortlandt St., N. Y. Western Agents, Standard Railway Materials Co., Chicago, Ill.

TECHNICAL BOOKS.

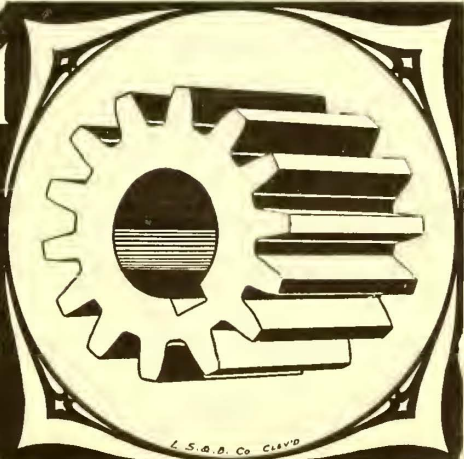
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114 Liberty St., New York



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MANUFACTURERS OF
GEARS AND PINIONS
CLEVELAND, O.



L. S. & B. Co. CLEVED



Big Money Saver to Railway Companies
Flatted Wheels Ground True While Cars Run

This is the only trueing shoe made with pure carborundum insets, and does the work most economically and perfectly. Write us for particulars

CAR WHEEL TRUEING BRAKE SHOE CO.
 Ellicott Square, BUFFALO, N. Y.

The American Brake Shoe & Foundry Company

BROADWAY-MAIDEN LANE BUILDING
 170 BROADWAY, NEW YORK

WESTERN UNION BUILDING
 CHICAGO

Operating the Plants formerly Controlled by the RAMAPO FOUNDRY CO., Mahwah, N. J.; THE LAPPIN BRAKE SHOE CO., Bloomfield, N. J., and Buffalo, N. Y.; THE CORNING BRAKE SHOE & IRON WORKS, Corning, N. Y.; THE SARGENT CO., Chicago Heights, Ill.; THE ROSS MEEHAN FOUNDRY COMPANY, Chattanooga, Tenn.

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Under the SARGENT, DIAMOND "S," LAPPIN, CORNING, STREETER, HERRON, CARDWELL, and other Patents. Also

MISCELLANEOUS IRON AND STEEL CASTINGS



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This is **THE WHEEL TRUEING BRAKE SHOE** and it has NO EQUAL as a wheel trueing device.

USED BY

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**WHEEL TRUEING BRAKE SHOE CO.,
 DETROIT, MICH.**

THE "COMPO"
BRAKE SHOE

IS NO EXPERIMENT



"COMPO" Trade Mark
 Electric Railway Shoe

It has been in use, particularly in street railway service, more largely than any other "Special" Shoe, and many railway officials give it preference over any other type. The effect of "Cork Inserts" is to take hold more quickly and to brake more uniformly throughout its contact, without the usual gripping effect of an all-metal shoe, thereby securing the smooth running of the cars. A want of uniformity in braking and sudden gripping, results in flat wheels. The elasticity of the cork prevents this gripping and overcomes *bucking*. This shoe has no straight or diagonal lines across the face, nor chilled or hard white iron cutting edges, *to shear and wear away the wheel*.

This invention avoids chilled and soft iron in the face of the same shoe. We prefer to use a fine grain, tough iron, of medium hardness, for mileage, and "CORK INSERTS" for braking. The Allston Foundry Co. will hereafter manufacture their Brake Shoes at their own foundry at Allston.

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 WM. W. WHITCOMB, President
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 Pole Brackets, Rail Bonds, Carbon Brushes,
 Circuit Breakers, Car Shades, Electric Signals,
 Inc. Lamps, High Tension Feeder Supplies,
 Sand Boxes, Trolley Catchers.

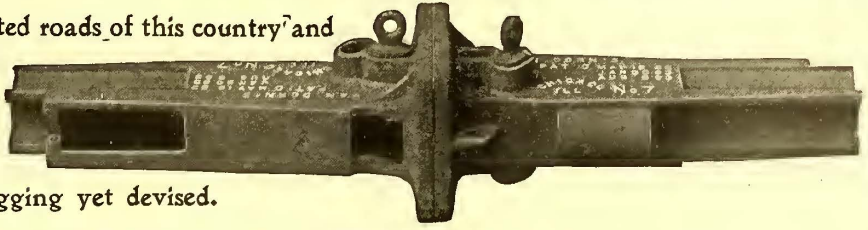
WRITE US FOR PRICES

PORTER & BERG, 309 Dearborn St., Chicago, Ill.

WHEN WRITING TO ADVERTISERS in the STREET RAILWAY JOURNAL you will confer a favor on both publisher and advertiser by mentioning this paper.

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Are now a standard on all of the elevated roads of this country and are being made a standard on all the leading surface, street and interurban roads. All couplings are machine fitted and we make sixteen sizes to meet any requirements. * * * We build the most complete draft rigging yet devised.



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Prices consistent with quality and market
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— DELTA METAL —
CASTINGS, STAMPINGS AND FORGINGS.
ORIGINAL AND SOLE MAKERS IN THE U.S.

Machine Moulded Steel Castings

10 lbs. to 500 lbs.

BENJAMIN ATHA & CO. ESTABLISHED 1864. **NEWARK, N. J.**

Steel Castings

One Pound
to
Five Tons

Delivery

Five to Ten Days

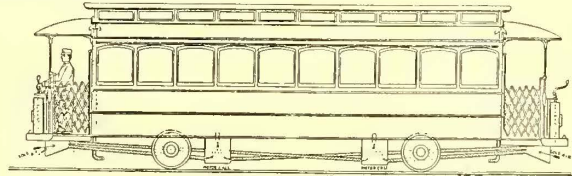
Uniform Steel Company

Rahway, N. J.

ELECTRIC MOTOR AND GENERATOR VENTILATING CO.

Drexel Bldg., Fifth & Chestnut Sts., Philadelphia.

Our new ventilator is a simple and efficient device for carrying cold air direct to the motor case, from the hood through hose under car, or from the funnel at top, as may be preferred. Will ventilate from either end, according to direction of moving car.



SOME POINTS OF MERIT:

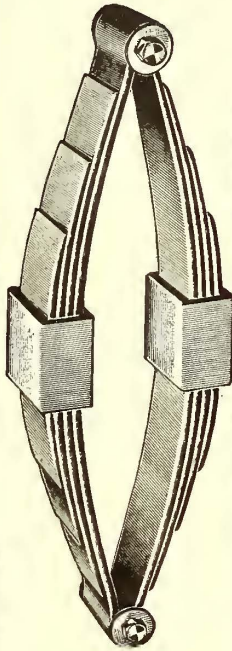
Keeps motors clean and cool; will break arcs on commutators; increases fully five times the life of armatures, commutators, field coils and brush holders; decreases labor in car house; takes no power to operate.

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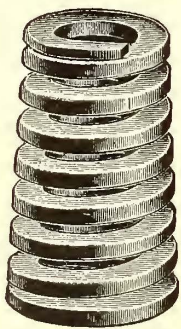
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LOTUS LIVING METAL	IDEAL TROLLEY WHEELS



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PRICE, \$10.00.

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CONTENTS

The Code contains 800 pages of 75,000 Ciphers: 65,000 have sentences, and 10,000 are blank, enabling the addition of private phrases under their proper headings.

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LIEBER'S MANUAL, published every three months, contains a revised list of those using the code. NO OTHER CODE FURNISHES SUCH A LIST.

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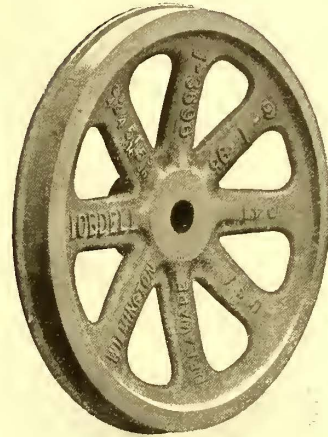
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NEW YORK.

20 BUCKLESBURY,
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Lobdell Car Wheel Co.

WILMINGTON, DEL., U. S. A.



MANUFACTURERS OF

CAR WHEELS

OF ALL SIZES AND DESCRIPTIONS

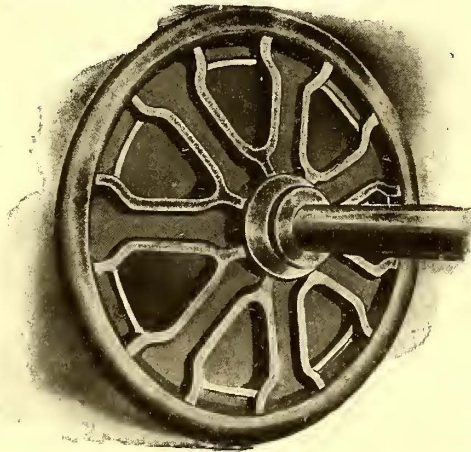
For Electric and Cable Cars, Snow Plows,
Sprinklers, Horse Cars, Etc.

Re-enforced... Spoke Wheels For City Service

Stronger Spokes. Stronger Flange. Deep, Even Chill. Greater Mileage. Absolute Safety.

A Sample Order will prove its superiority over the old style Spoke Wheel.

Write for Booklet on Wheels



For Interurban Cars

This Wheel is being substituted in place of the old style Plate Wheel because it does NOT rumble and roar when on paved City Streets.

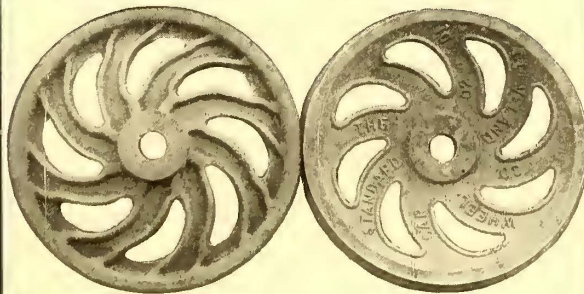
The Only Spoke Wheel for Heavy, High-Speed Service

St. Louis Car Wheel Co.

ST. LOUIS, MO.

**Electric
Railway
Department**
of
**The Standard
Car Wheel Company**
Cleveland, Ohio.

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STRENGTH AND DEEP CHILL

Manufacturers of
ALL STYLES AND SIZES OF

CHILLED WHEELS

For City and Suburban Lines

Axles Furnished
and Wheels Fitted

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Manufacturers of

Electric Trucks Single and Double for
Every Condition of Service

Electric Locomotives

Electric Snow Sweepers

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Royal Flush Fenders

**COLUMBIA CAR HEATERS,
BRAKE HANDLES, ETC.**

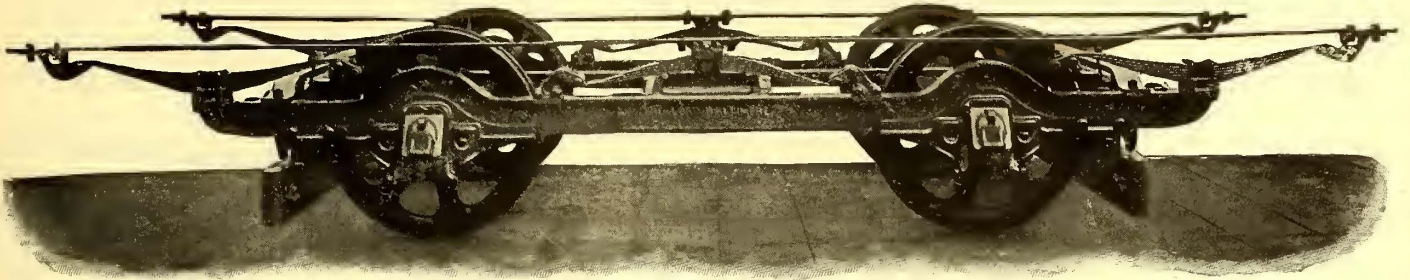
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5 WARWICK COURT,
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W. S. G. BAKER, *President and Treasurer*

BALTIMORE, MD., U. S. A.

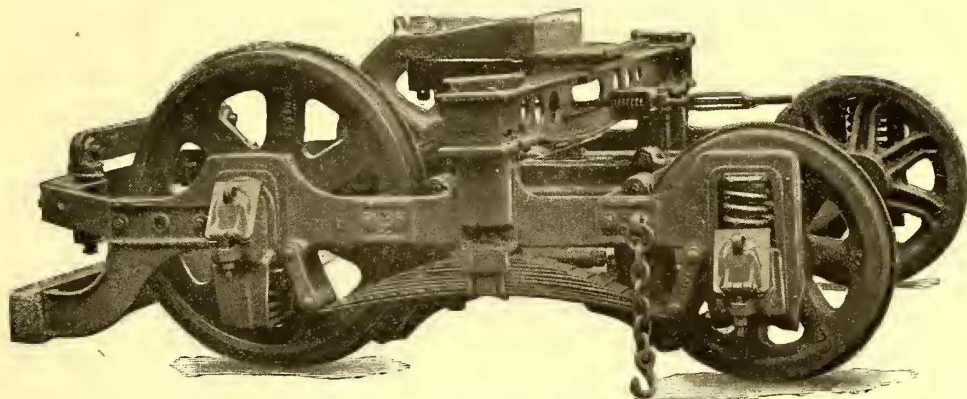
J. PAUL BAKER, *Secretary*

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4-WHEEL BOGIE AND MAXIMUM TRACTION

ELECTRIC CAR TRUCKS



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

ESTABLISHED 1839

J. M. JONES' SONS

WEST TROY, N. Y.



....BUILDERS OF....

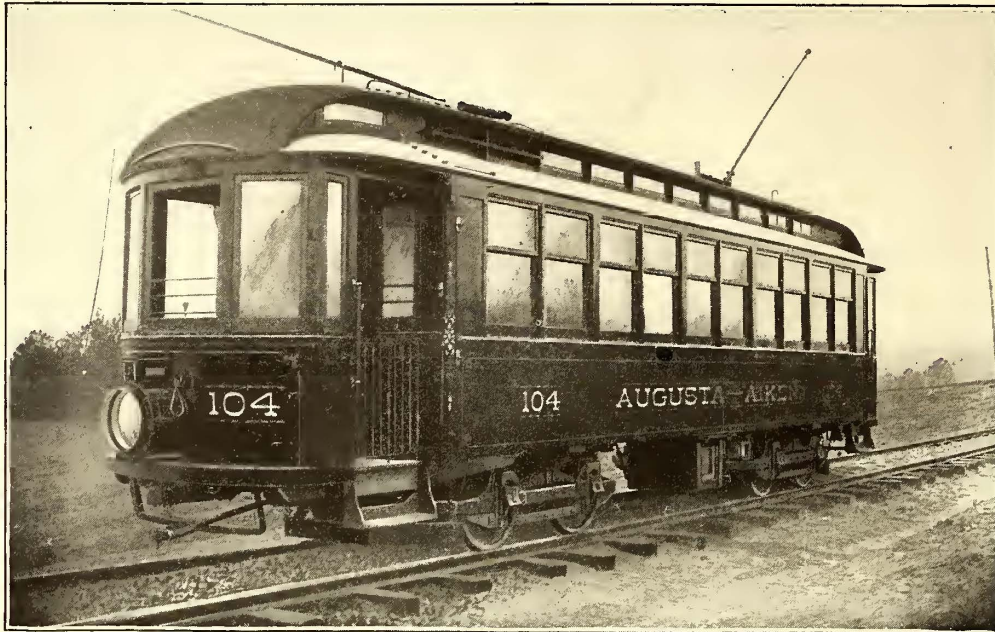
High Grade Cars for Electric Railways

The Laconia Car Company Works

P. W. WHITTEMORE, M'g'r and Treas.

BOARD OF TRADE BLDG., 131 STATE ST., BOSTON, MASS.

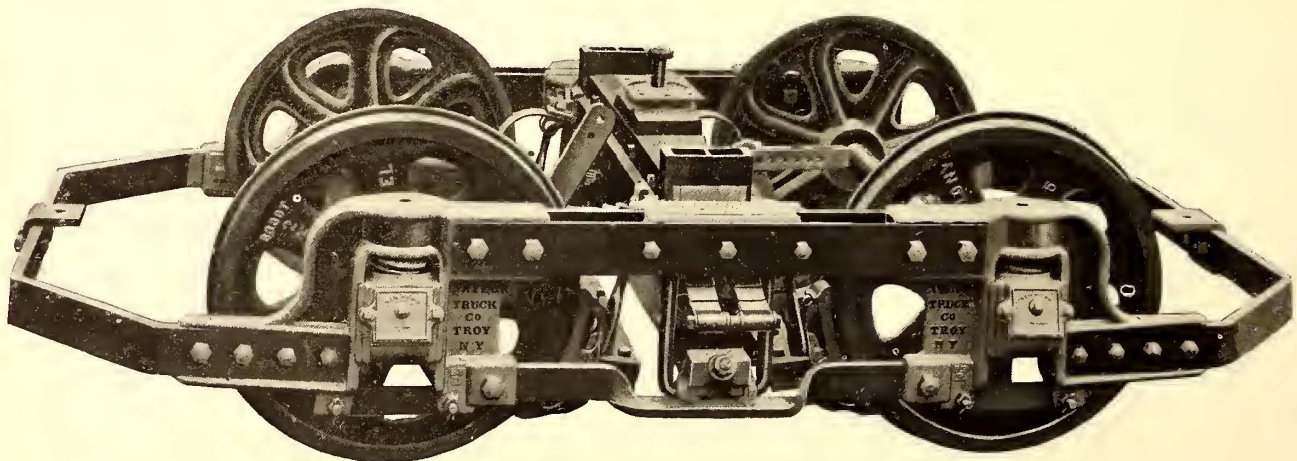
Works: Laconia, N. H.



BUILDERS OF ELECTRIC CARS AND TRUCKS

MALLEABLE IRON CASTINGS FOR ELECTRICAL WORK

For Carrying Long Cars Around Curves of Short Radii, the Taylor Swing Motion Double Truck is Superior to All Others



Constructed to mount a car low down, and to accommodate long cars that are FRAMED NARROW on the sills. The wheel base is 4' 6" with 33" wheels, and 4' 3" with 30" wheels. The only short wheel base Double Truck on the market with swing motion and elliptic springs for the riding of the car body. Constructed on the best principles of Master Car Builders' standard practice. The brakes are of the live and dead lever system, made extra strong, so that air-brakes can be used if desired.

TAYLOR ELECTRIC TRUCK CO., Troy, N. Y., U.S.A.

Agents for Great Britain

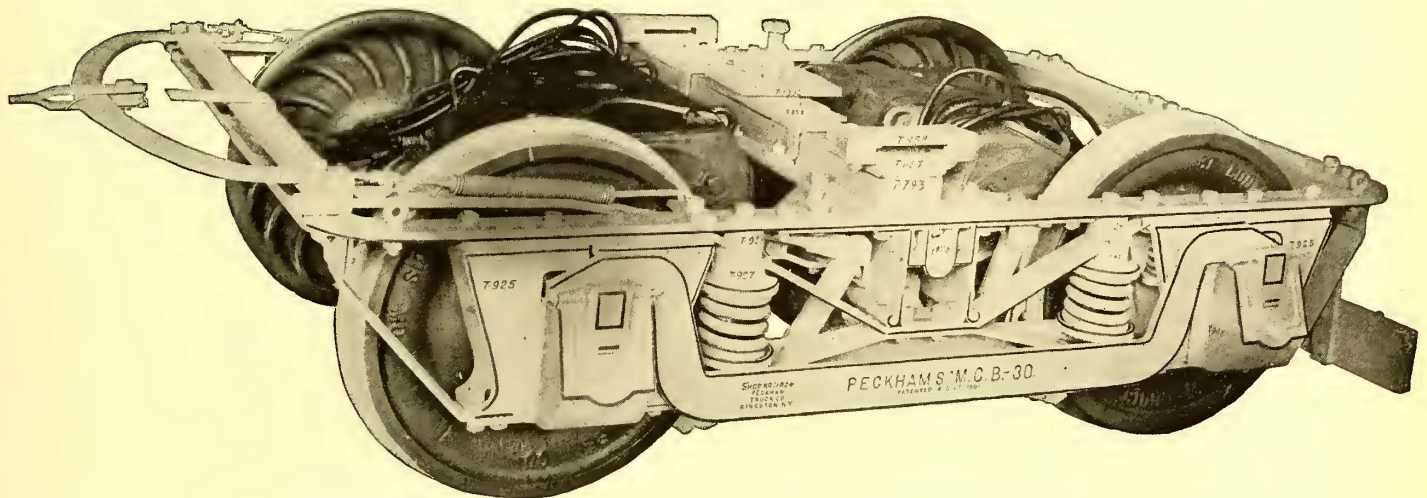
ESTLER BROTHERS, 25 Laurence Pountney Lane, Cannon St., London, E.C.

Our Export Trade (outside of Great Britain) is Handled Exclusively by

DUTILH-SMITH, McMILLAN & CO., Broad-Exchange Bldg., New York

Peckham's "Non-Tilting" M. C. B. High Speed Double Trucks

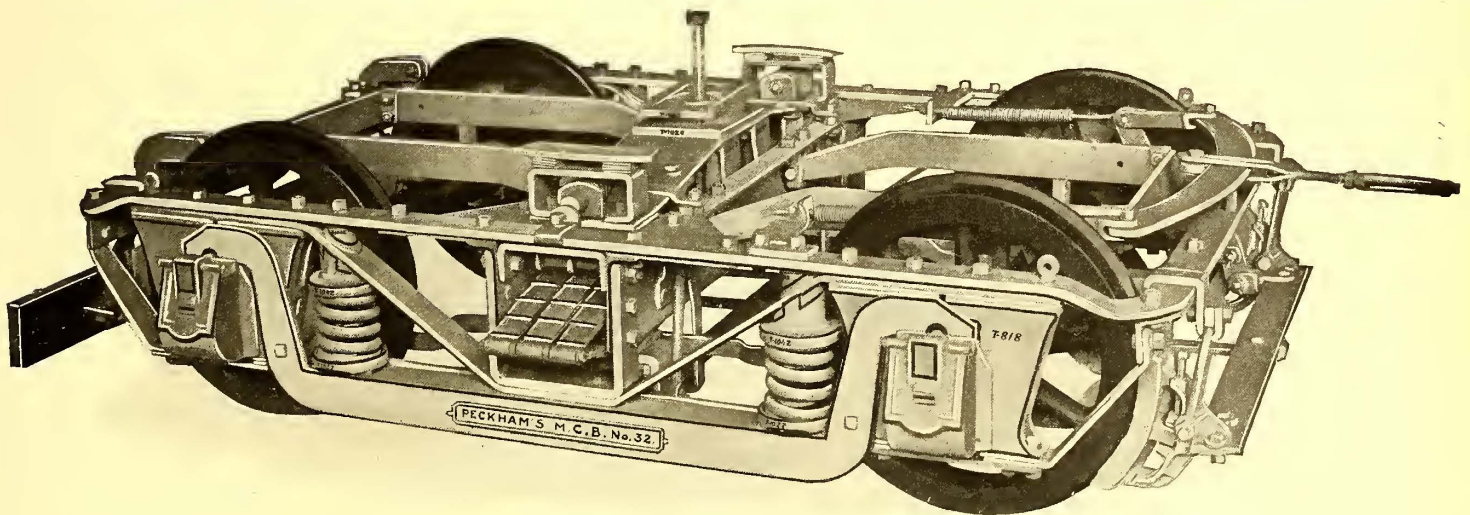
M. C. B. 30. As constructed for Aurora, Elgin & Chicago Railway Company, Chicago, Ill. Equipped with two G. E. No. 66 High Speed Motors.



DIMENSIONS
 Wheel Base 6 feet 6 inches
 Diameter of Wheels 36 inches

Diameter of Axles 6½ inches
 Weight Without Motors 10,770 lbs.
 Weight With Motors 19,580 lbs.

M. C. B. 32. As constructed for Columbus, Delaware & Marion Electric Railway, Columbus, O. Equipped with two Westinghouse No. 76 High Speed Motors.



DIMENSIONS
 Wheel Base 6 feet 6 inches
 Diameter of Wheels 33 in. Steel Tired

Diameter of Axles 5½ inches
 Weight Without Motors 10,000 lbs.
 Weight With Motors 18,750 lbs.

SPECIAL FEATURES

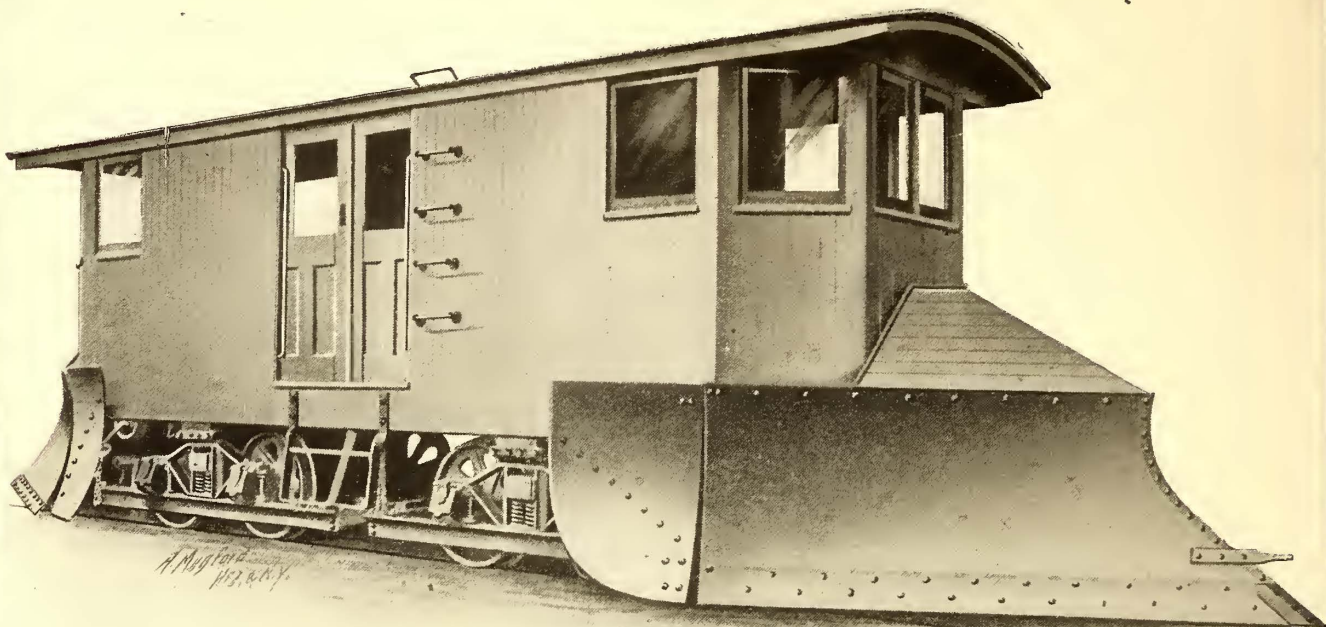
Non-Tilting Side Frames with Bridge Truss Support, Elliptic Spring Steel Bolster, Angle Bar Transoms, M. C. B. Journal Boxes.

THE PECKHAM MANUFACTURING COMPANY KINGSTON, N. Y.

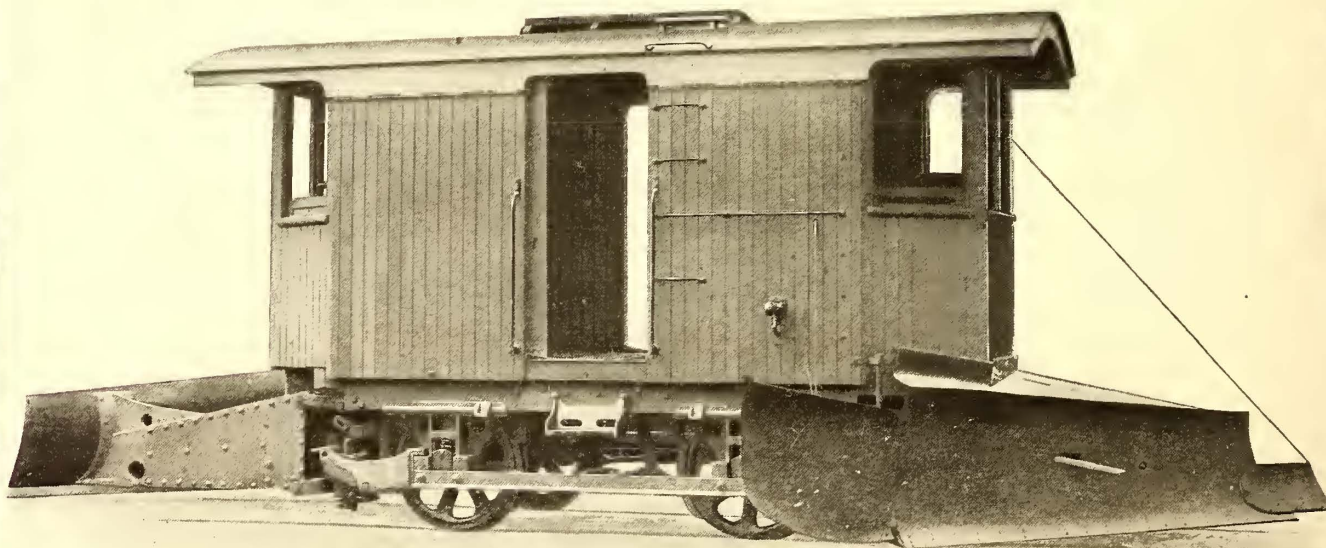
Sales Offices, HAVEMEYER BUILDING, 26 CORTLANDT STREET, NEW YORK

BOSTON, 53 State Street PHILADELPHIA, North American Building CLEVELAND, 312 Electric Building
 LONDON OFFICE, 59 City Road, E. C. JAPAN, No. 12 Yokohama PARIS OFFICE, Bureau de Paris, 50 Boulevard Haussmann
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TAUNTON SNOW PLOWS



EIGHT WHEEL NOSE PLOW



FOUR WHEEL HEAVY SHARE PLOW

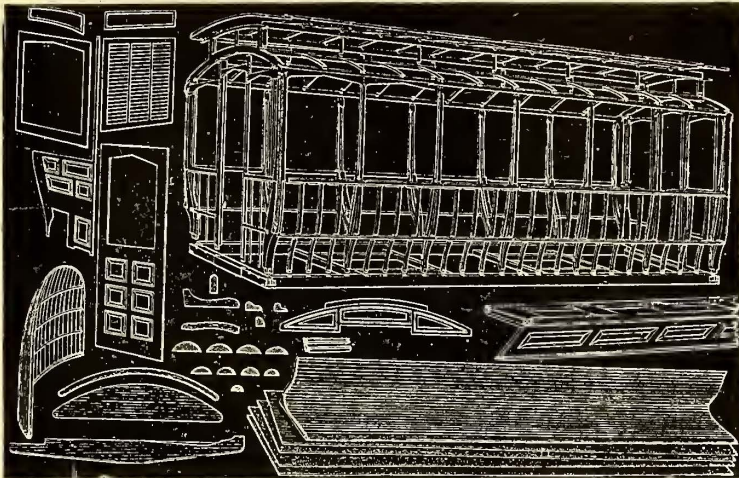
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THE TAUNTON LOCOMOTIVE MFG. CO.

TAUNTON, MASS., U. S. A.

— SELLING AGENTS —

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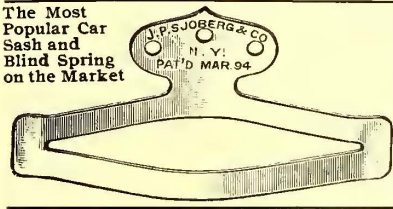
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STREET CAR WOOD WORK

The Most Popular Car Sash and Blind Spring on the Market



For Repairs Rebuilding and Stationary Vestibules

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CALIFORNIA CAR WORKS

J. HAMMOND & CO.

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Manufacturers of Electric Cars
Cable Cars and Trucks
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CURTIS TRUCKS

OUR TYPE "A" TRUCK

is designed expressly for severe high-speed service under heavy loads. It is a swing motion truck pure and simple. The frame is made of soft steel with the exception of the pedestals, which are of malleable iron with a tensile strength of 77,000 lbs. to the square inch. Full elliptic springs are used under the truck bolster, and coil springs on each side of the journal box in the pedestals.



GUARANTEE—We guarantee perfect lateral, vertical and longitudinal ease; safety on curves at any rate of speed; a saving in wheel and tire wear and an increased life of roadbed. This truck will not get out of square, and will perform any work that is required of it. It is equipped with the Curtis patent inside hung brake without beams or cross-connections of any kind.

CHICAGO TRUCK CO

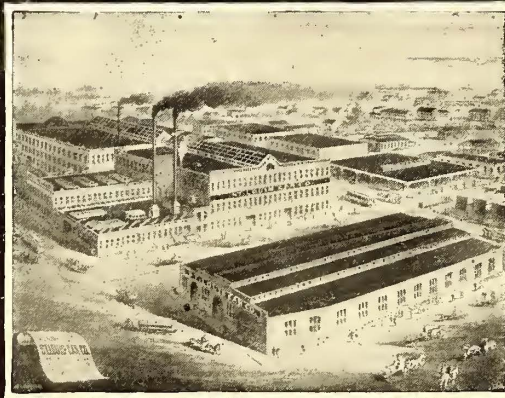
MONADNOCK BLOCK, CHICAGO, ILL.

GEO. J. KOBUSCH PRES. AND TREAS.
H. F. VOGEL GENL. MANAGER
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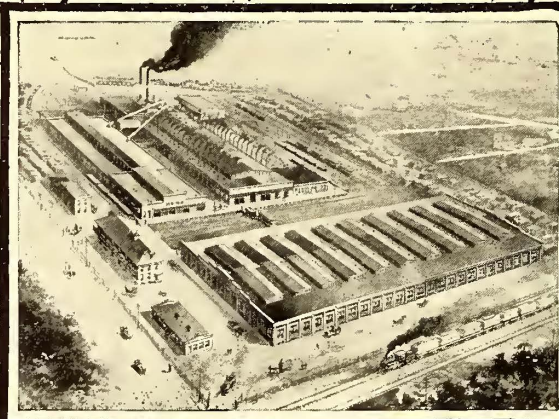
W. S. McCALL
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ST. LOUIS CAR CO

ST. LOUIS, U. S. A.



1887 CAPACITY 600 CARS PER ANNUM



1898 1000 CARS PER ANNUM

COACHES
OF ALL
CLASSES

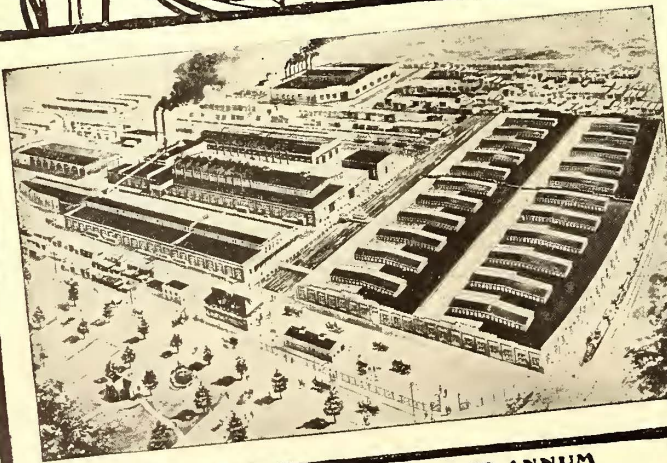
ELEVATED
CARS
AND
TRUCKS

ELECTRIC
CARS
AND
TRUCKS
OF ALL
TYPES

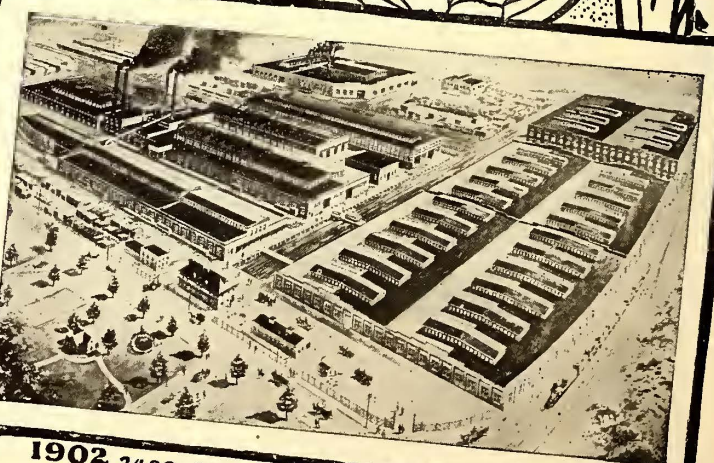
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BOTTOM
CONVERTIBLE
CARS

SPIRAL
JOURNAL
BEARINGS

CORRESPONDENCE
SOLICITED



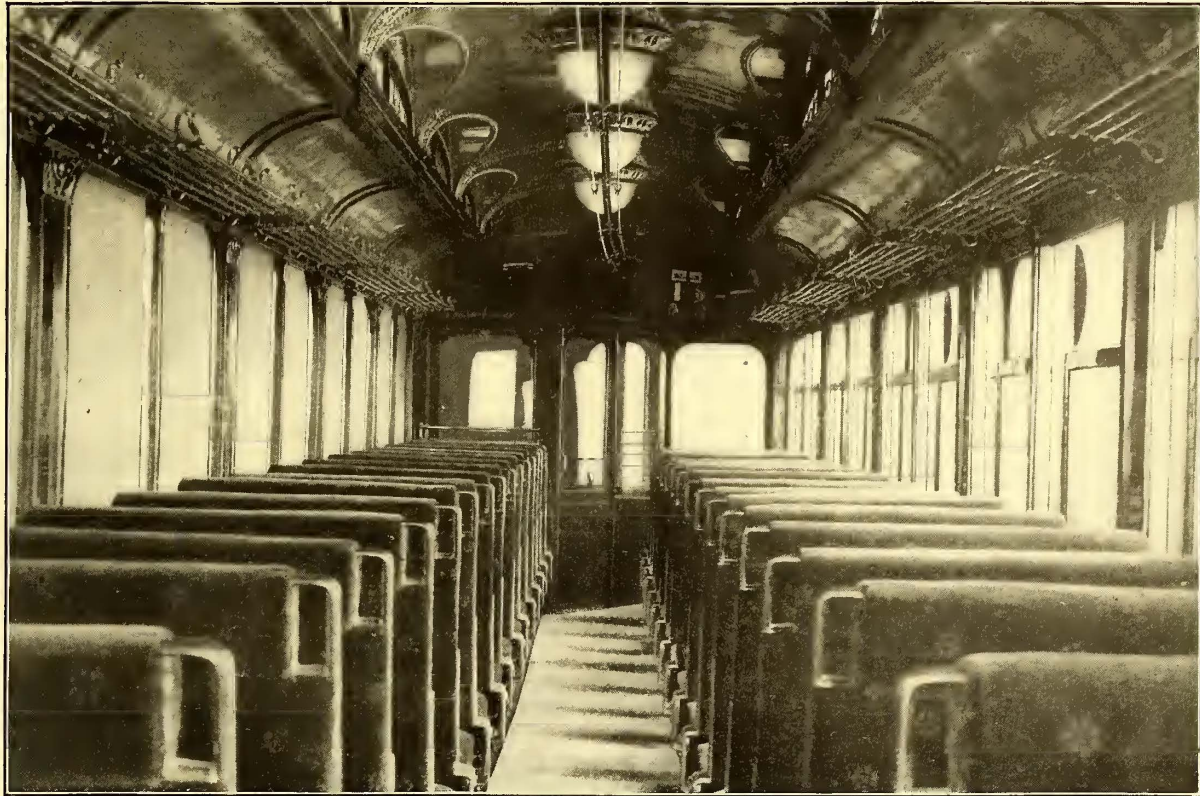
1900 1500 CARS PER ANNUM



1902 2400 CARS PER ANNUM

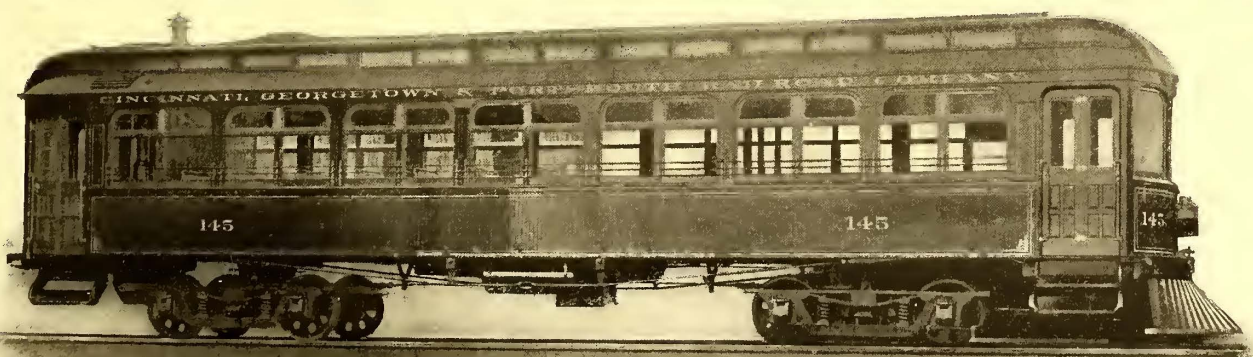
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Interior of New Cars for Canton and Akron Railway Company.

Coach and Truck Builders



ALSO MANUFACTURERS OF
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Especially Designed for Any Truck in the Market.

Guaranteed to Outwear Any Phosphor Bronze Bearing.

Sole Manufacturers of the **ANDERSON-SMITH ARC HEADLIGHT**

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The only complete and perfect Arc Headlight on the market



THE JEWETT CAR CO.

Makes a Specialty of
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Office and Works,

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THE
AMERICAN CAR AND FOUNDRY CO.
 Jackson & Sharp Plant, Wilmington, Del.



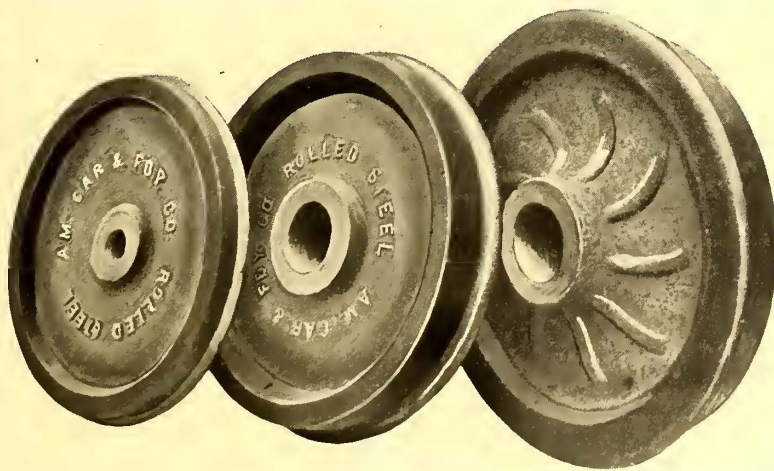
A POPULAR CAR FOR INTERURBAN SERVICE

THE SOLID ROLLED STEEL CAR WHEEL

MADE EXCLUSIVELY BY

AMERICAN CAR and FOUNDRY CO.

The Only Solid Rolled, Low Price Steel Wheel for Railway, Electric and Street Car Service



"The tire is developed from the rim of a solid wheel blank by action of driven rolls, which embrace it on all sides, condensing and working the steel to the required form. Being an integral part of the wheel, it cannot loosen from the heating action of the brakes, and can safely be worn or turned down much thinner than the tire of any built up wheel."

"Many of the original Solid Rolled Steel Wheels now running under passenger cars have been in continuous service for the past twelve years."

"The price of this wheel is much less than that of any composite steel tired wheel of equal diameter and service."

Address all communications concerning wheels to
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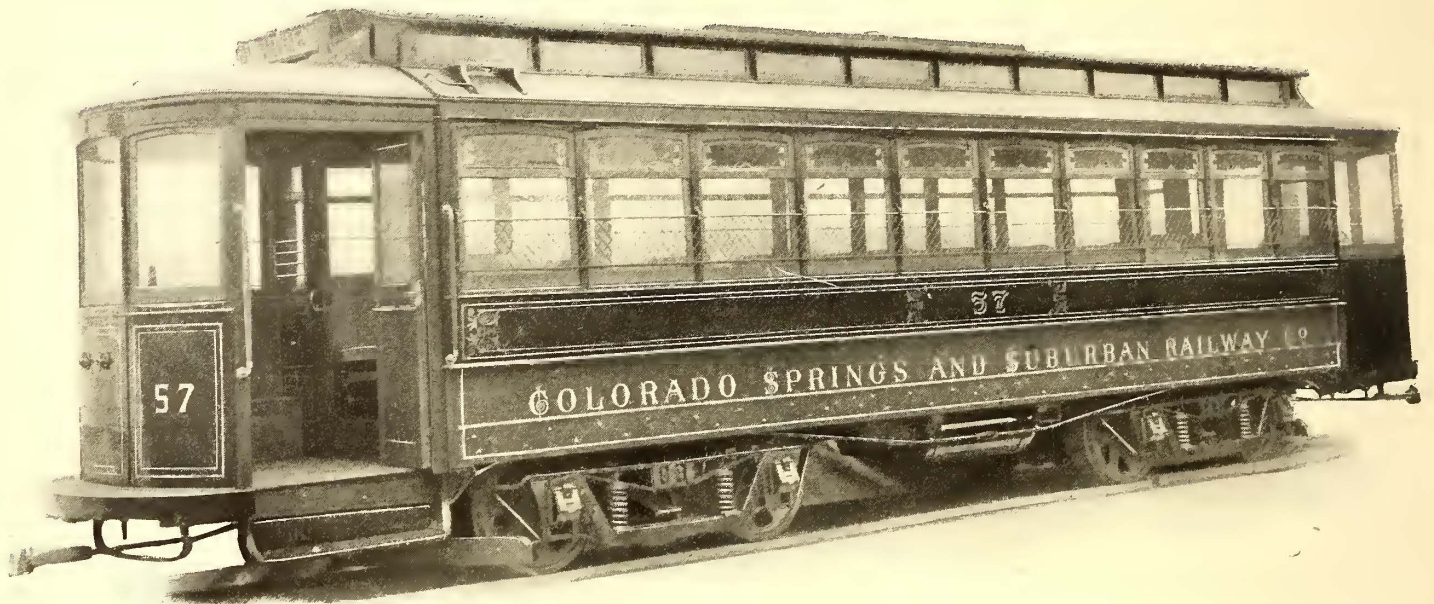
Builders of Any Type of Cars for Steam, Electric or Animal Traction
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LACLEDE CAR CO., ST. LOUIS, MO.

BUILDERS OF

Cars and Trucks

Car No. 512



ABOVE CUT REPRESENTS A 30 FT. VESTIBULED CLOSED CAR MOUNTED ON NO. 6 M.C.B. DOUBLE TRUCKS



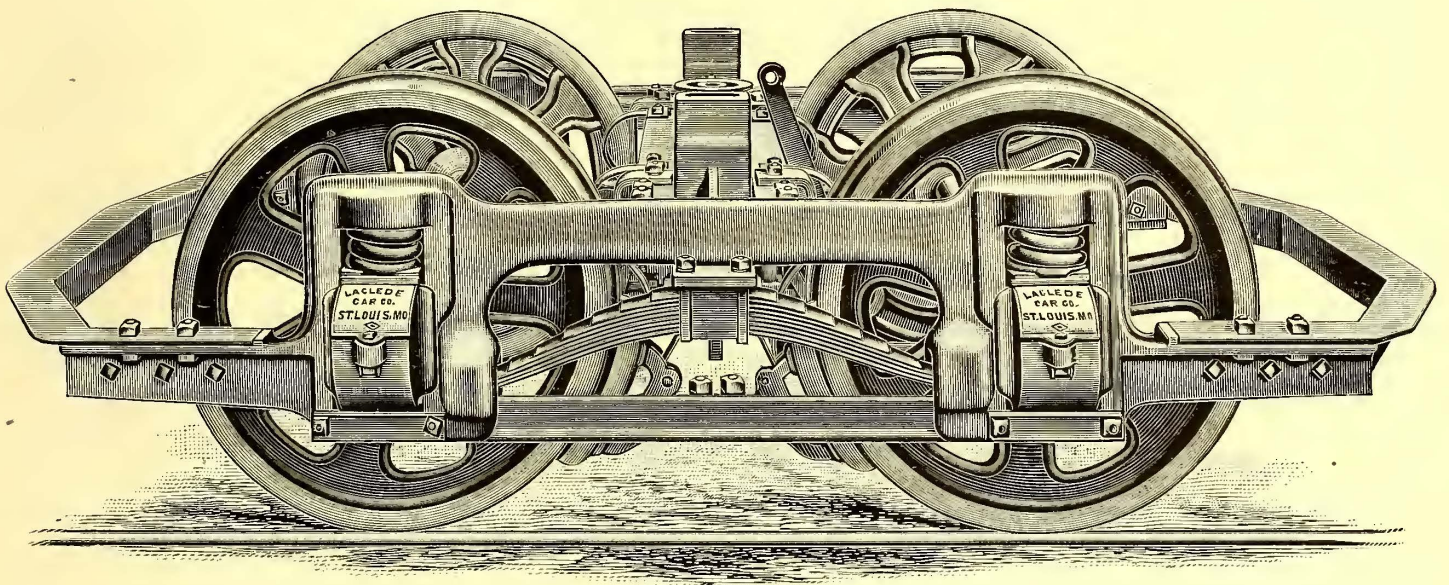
32 FT. VESTIBULED BAGGAGE AND PASSENGER CAR FOR INTERURBAN TRAFFIC

SEND US YOUR SPECIFICATIONS AND GET OUR PRICES

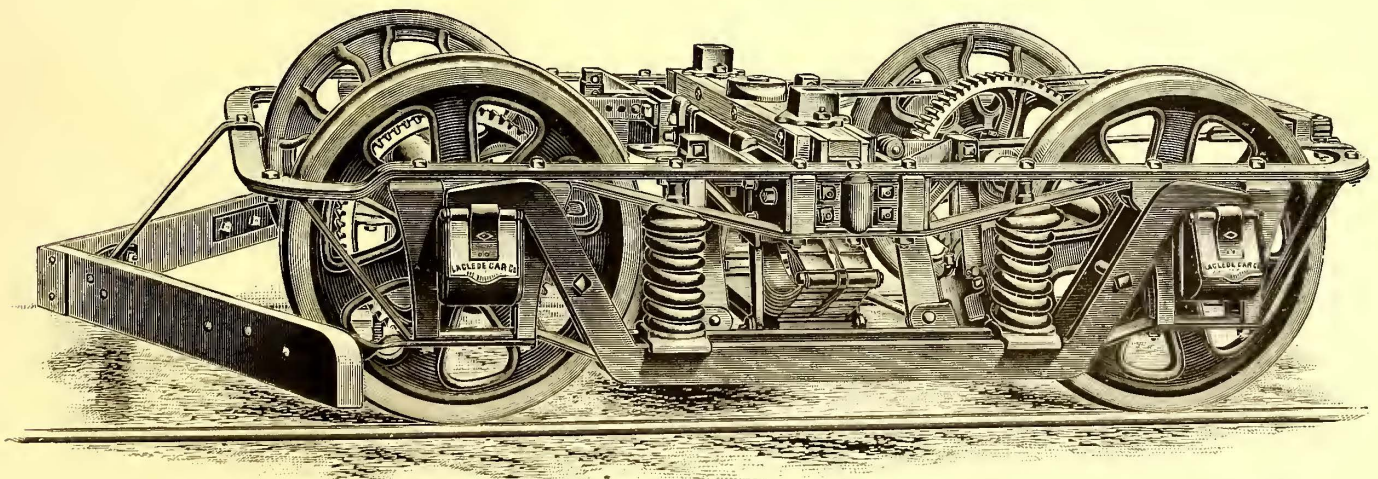
LACLEDE CAR CO., ST. LOUIS, MO.

BUILDERS OF

Cars and Trucks



NO. 5 STEEL FRAME DOUBLE TRUCK WITH 4 FT. WHEEL BASE

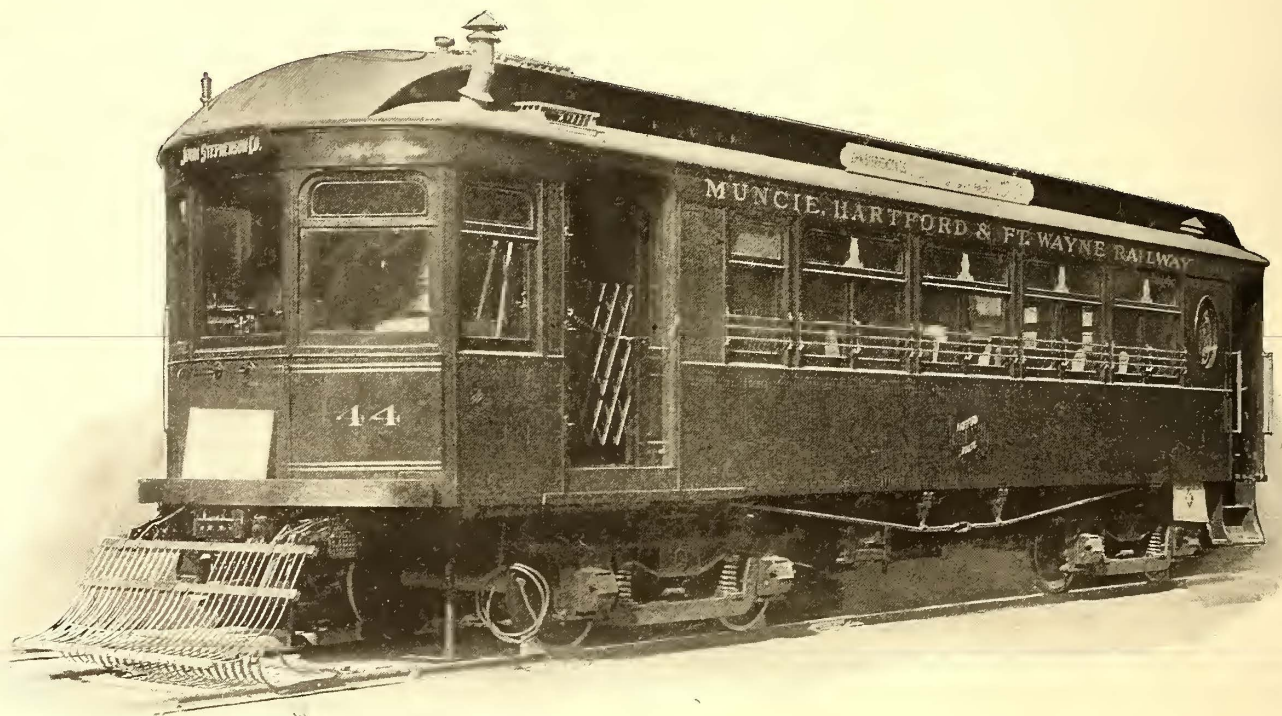


NO. 6 M. C. B. DOUBLE TRUCK

John Stephenson Co.

Builders of

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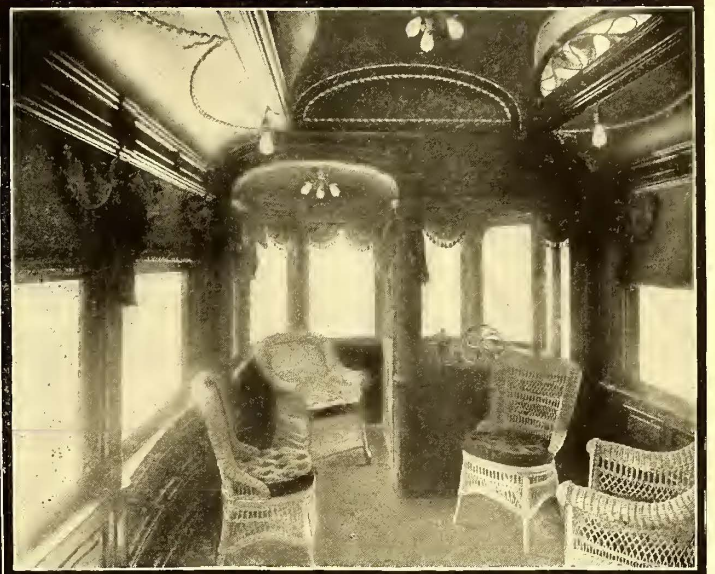
We exhibited this car at the last Street
Railway Convention held in Detroit—
one of a number built for various roads
in Indiana ❀ ❀ ❀ ❀ ❀ ❀ ❀

Office and Factory: ELIZABETH, N. J.

THE G. C. KUHLMAN CAR CO.

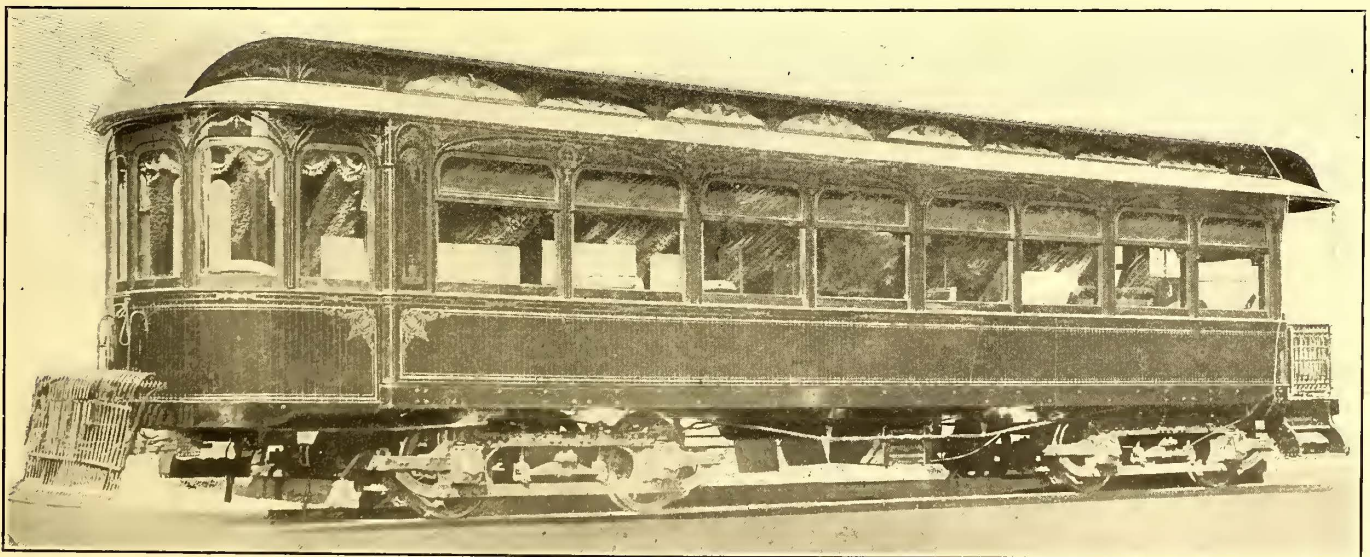
CLEVELAND, OHIO

FACTORY AND OFFICES AT COLLINWOOD



If you did not see this car at Detroit, we wager you have heard about it, as it was the talk of the Convention.

Can not you think of hundreds of citizens along your road who would like to rent this car for excursions? Cars like this are going to be absolutely necessary for all roads of any size. .



We finish all our cars for city and suburban use in the same elegant and complete manner.

We are prepared to deliver promptly all cars contracted for and we guarantee that the very best of everything will enter into their construction and finish. The finish and work on this beautiful car is no exception. Write us for photographs and blue prints and we will send you anything you want.

PHILADELPHIA, U.S.A.

Cablegrams
"Brill," Philadelphia**J. G. BRILL COMPANY**110 CANNON STREET
London, E. C., England
Telegrams
"Axles," London

Brill Semi-Convertible Car

PATENTED

Roof storage of windows. Appearance of roof, inside and out, same as standard car. Large windows raised with one easy lift. No rattling and no sticking. No rubbish-collecting window pockets in walls. Space saved to interior width of car by doing away with wall pockets—6 to 7½ inches. A bright, roomy car, warm in winter and cool and airy in summer. Always ready for all kinds of weather. A money-saver and a money-earner.



The Brill Convertible Car

PATENTED

Large double-sash windows and flexible double-sheet metal panels slide into roof pockets with an ease as wonderful as the fact that they go into such small space. The car is warm in winter and thoroughly weather-proof. In summer it is a standard open car. Between seasons it is whatever the weather demands. Built extra strong for double work.

PHILADELPHIA, U.S.A.

Cablegrams
"Brill," Philadelphia

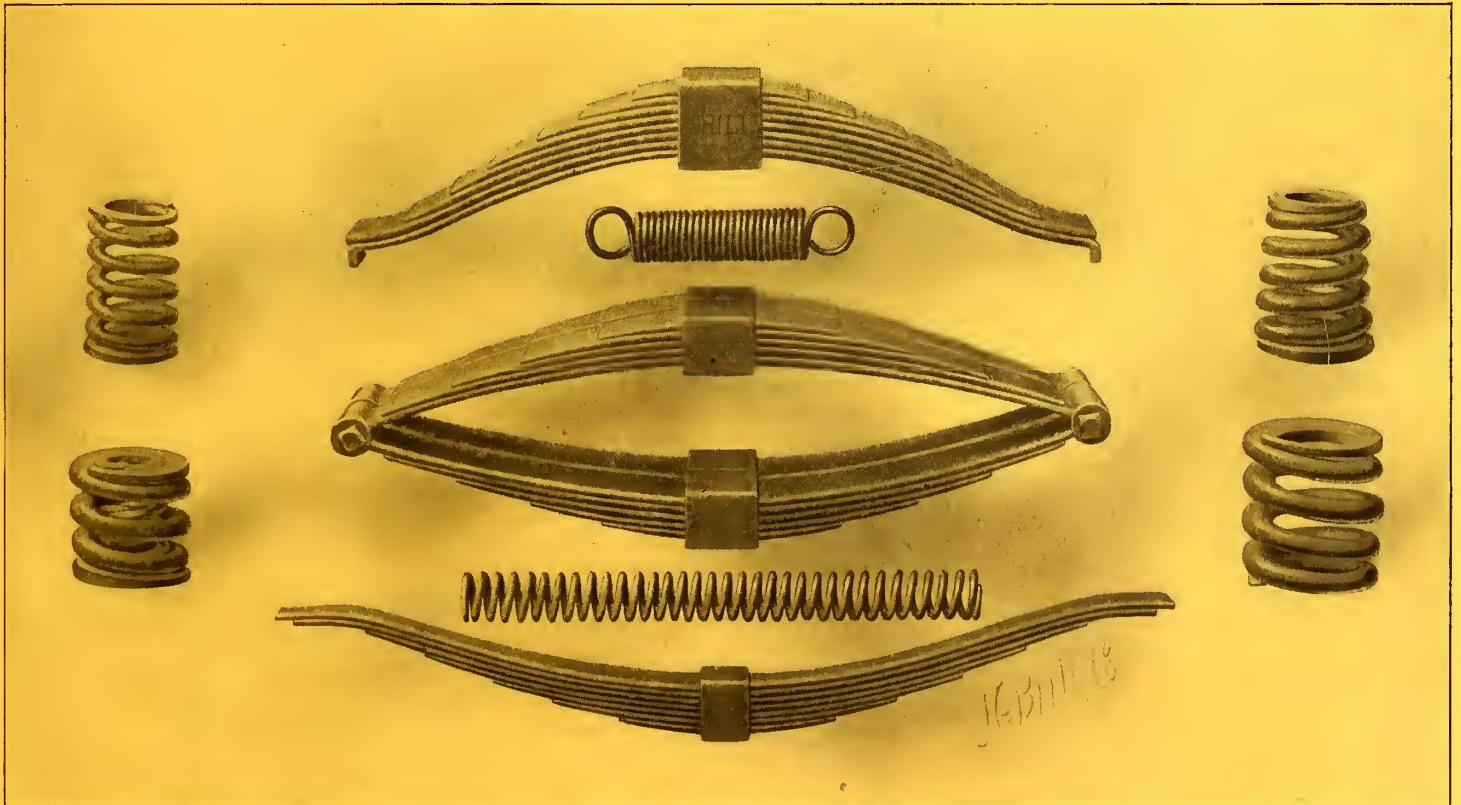
J. G. BRILL COMPANY

110 CANNON STREET
London, E. C., England
Telegrams
"Axles," London



Brill Sprinkling Cars

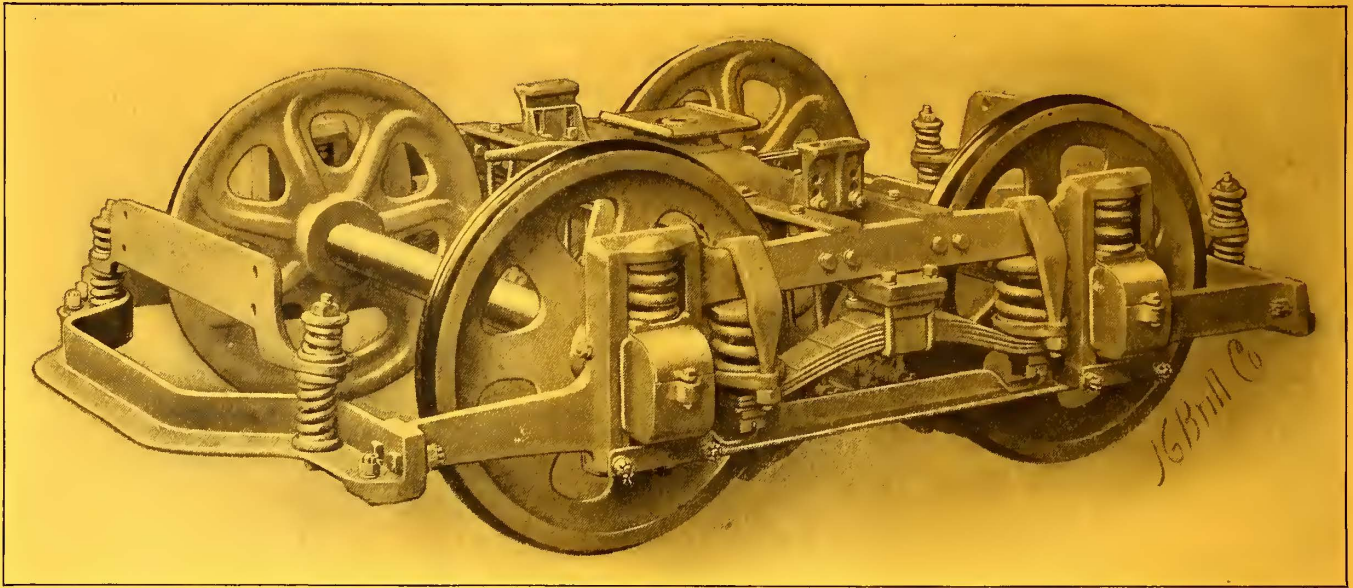
The "Geyser" Sprinkler, with axle-driven air compressor, distributes the water evenly over 35 to 45 feet on either side of track. The Brill Standard Gravity Sprinkler covers 9 to 11 feet on either side. Centrifugal pumps, for filling from stream or lake, furnished when desired.



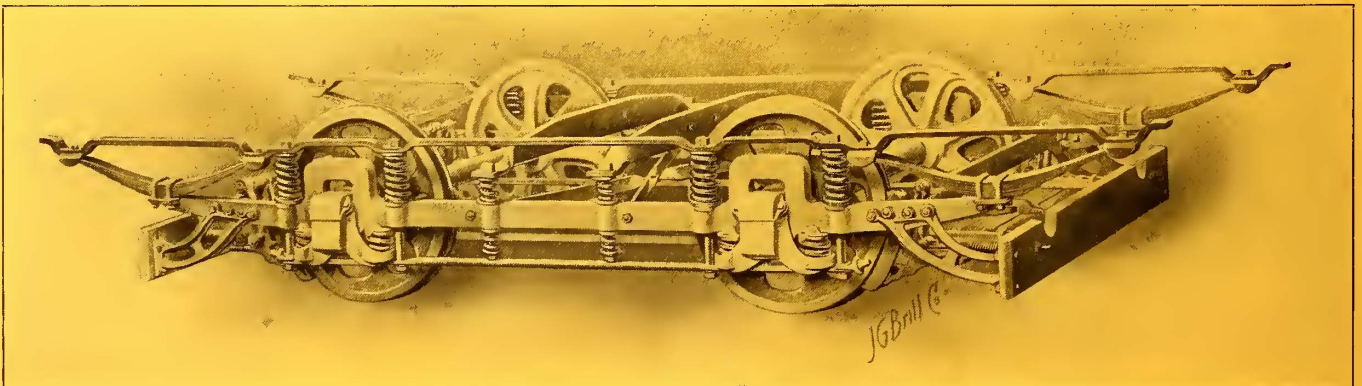
High-Grade Springs

of Every Description
ORDERS PROMPTLY FILLED

PHILADELPHIA, U.S.A.

Cablegrams
"Brill," Philadelphia**J. G. BRILL COMPANY**110 CANNON STREET
London, E. C., England
Telegrams
"Axles," London**Brill 27-G Truck****PATENTED**

For fast and heavy city and suburban work. Can be used under narrow and low car bodies. Cushioned side swing—no jar in rounding curves, so destructive to the car body, wheel flanges, rail heads and passengers' comfort. Solid forged frames do what they are meant to do—keep square and keep out of the repair shop. Height from track to body bolster, after car body is mounted, is 27 inches, with 30-inch wheels.

**Brill 21-E Truck****PATENTED**

Each side frame a single, solid forging. Solid forged end pieces and centre diagonal braces—an everlastingly square frame. No rivets, no built-up work, nothing to break down, nothing to get loose. A spring arrangement giving complete support and steady cushion. No oscillation. Self-oiling journal boxes, run six months without re-oiling and are absolutely dust-proof. Height from track to top of upper chord, after car body is mounted, is 25½ inches, with 30-inch wheels. Two inches lower than the lowest.

PHILADELPHIA, U.S.A.

Cablegrams
"Brill," Philadelphia**J. G. BRILL COMPANY**110 CANNON STREET
London, E. C., EnglandTelegrams
"Axles," London

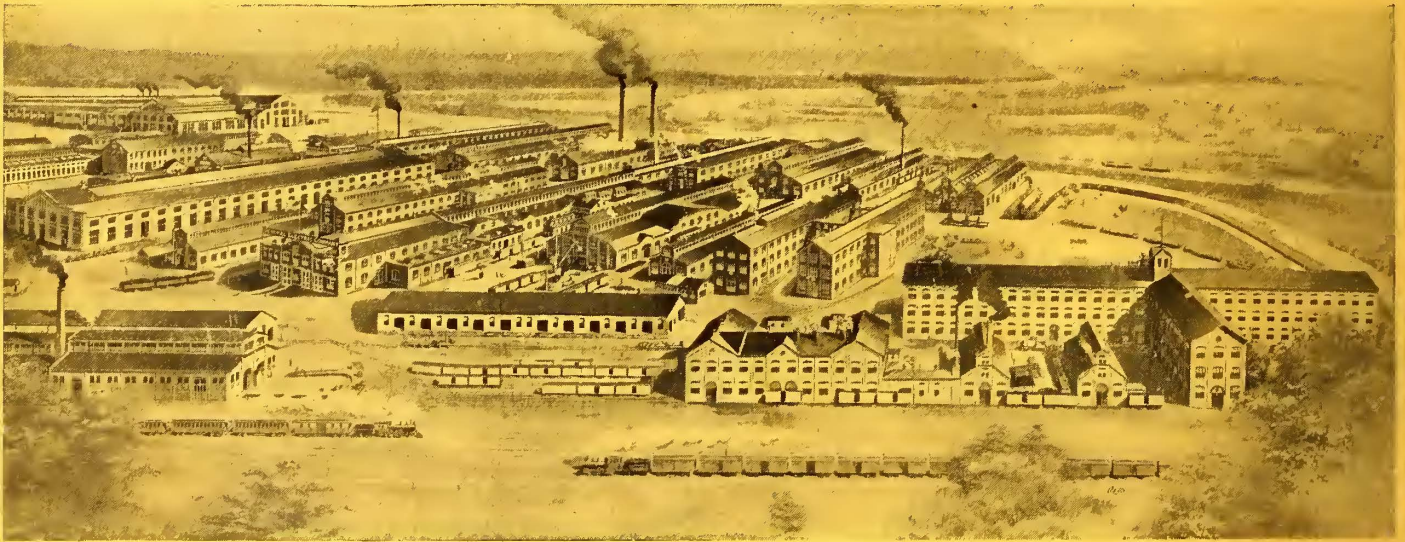
The Survival of the Fittest

A frame has to stand strains and shocks from every direction. A riveted frame will stand a good deal of vertical strain, provided there are no shocks; shocks loosen the rivets, and once loose, the scrap pile is not far off. A riveted side frame must depend entirely upon the cross pieces for lateral strains, as it has no strength of itself in that direction. The horizontal strains of present-day motors and of the many quick starts and stops soon force a riveted frame out of square, and the bad dislocations which follow defy the skill of the most scientific doctors of the truck hospital. Riveted frames served their day and generation and gave place to cast steel. Frames of cast steel were a big improvement, for they were stiff and square, in fact they had only one fault, but a bad one, they broke. So we simply had to make solid forged frames. It took years, but we made them, and thousands of them—the great hydraulic presses and hammers have been going night and day ever since. There's a true ring to the name "solid forged"—it sounds as substantial and true as the frame itself. It stands for a frame that can be trusted—a frame that can stand all the strains and shocks that can be brought upon it from any direction. A solid forged frame keeps a truck square, to the last run, and the truck is called in only when it is out of date.



One of the Brill Solid Forged Frames

THE GENERAL ELECTRIC COMPANY OF NEW YORK, U. S. A.



View of the Schenectady Works

Principal Offices: Schenectady, N. Y.

SALES OFFICES:

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 NEW YORK, N. Y., 44 Broad Street.
 Syracuse, N. Y., Sedgewick, Andrews & Kennedy Bldg.
 Buffalo, N. Y., Ellicott Square Building.
 PHILADELPHIA, PA., 214 South Eleventh Street.
 Baltimore, Md., Continental Trust Building.
 Pittsburgh, Pa., 502 Tradesmen's Bank Building.
 ATLANTA, GA., Empire Building.
 New Orleans, La., 917 Hennen Building.
 CINCINNATI, OHIO, Perin Bldg., Fifth and Race Sts.
 Cleveland, Ohio, 310 New England Building.
 Columbus, Ohio, 14 North High Street.

Nashville, Tenn., Room 73, Cole Building.
 CHICAGO, ILL., Monadnock Block.
 Detroit, Mich., 704 Chamber of Commerce Building.
 St. Louis, Mo., Wainwright Building.
 Dallas, Texas, Scollard Building.
 Butte, Mont., 47 East Broadway.
 Minneapolis, Minn., Phoenix Building.
 DENVER, COLO., Kittredge Building.
 Salt Lake City, Utah, 25 E. First South Street.
 SAN FRANCISCO, CAL., Claus Spreckels Bldg.
 Los Angeles, Cal., Douglas Building.
 Portland, Ore., Worcester Building.

FOREIGN:

Foreign Dept., Schenectady, N. Y., and 44 Broad Street, New York, N. Y.

LONDON OFFICE: 83 CANNON STREET, E. C.

For all CANADIAN Business, Canadian General Electric Company, Ltd., Toronto, Ontario.