

ELECTRIC RAILWAY JOURNAL

Hill Publishing Company, Inc.

October 15, 1927

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THE 40-PASSENGER

ALL-STEEL Q. C. F. METROPOLITAN COACH

reveals the full possibilities of real mass transportation by motor coach—typifying Q. C. F. progressiveness in significant coach developments.

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points the way to de luxe, high fare, high-revenue Urban operation—an Q. C. F. development which is the first real challenge to private cars!

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demonstrates that universal revenue-transportation experience inevitably results in higher net income from coaches of any type.



AMERICAN CAR AND FOUNDRY MOTORS COMPANY
30 CHURCH STREET, NEW YORK CITY

Why scrap all this



HIGH brush mileage is dependent, among other things, on the fit of the brush in the box.

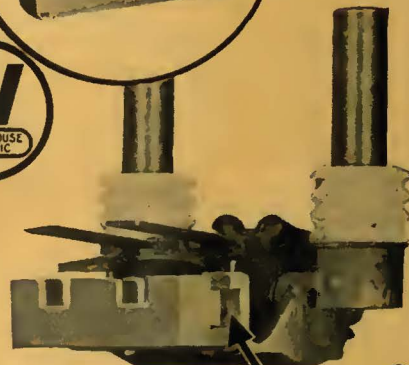
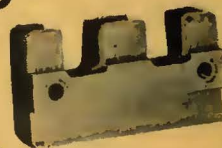
With the continuous movement of the brush, the box is bound to wear.

To hold correct carbon box dimensions at a nominal cost, the Westinghouse detachable box brushholder has been designed.

This construction permits the use of a hard bronze metal in the carbon box without greatly increasing the cost and makes it possible to detach and renew the carbon box when worn.

Why scrap the whole brushholder to renew the carbon box!

To renew this



Cut off
Carbon Box
Expense
Here

Westinghouse Electric & Manufacturing Company
East Pittsburgh Pennsylvania
Sales Offices in All Principal Cities of
the United States and Foreign Countries

Westinghouse

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No. 16

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Bringing to Light an

Industrial Romance

AN INDUSTRIAL romance which should thrill the spirit and fire the imagination of every red blooded railway man lies between the pages of the twelve briefs filed in this year's Coffin Award contest, according to Ex-President Sawyer, who testified on Advisory Council night in Cleveland to his reactions in reading the presentations of the several contestants.

The value of these briefs as sources of inspiration to the entire industry has continued to increase each year since the award was founded. In recognition of this value, the JOURNAL has made it a yearly custom to digest for publication in its columns the new practices and methods which have been found successful by the Coffin contestants.

Again this year, the JOURNAL will render this service to its readers. Forthcoming issues will unfold the story of progress as reflected in the practices of these twelve properties that Mr. Sawyer characterized as "Beacon lights that should lead us on our way." Watch for these Coffin brief stories. They contain many ideas for improvement that have been tested in the crucible of practice.

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American Machinist

Power

Chemical and Metallurgical Engineering

Cool Age

Cool Age News

Engineering and Mining Journal

Ingeniería Internacional

Bus Transportation

Electric Railway Journal

Electrical World

Industrial Engineering

Electrical Merchandising

Radio Retailing

Construction Methods

Electrical West

(Published in San Francisco)

American Machinist—European Edition

(Published in London)



BETTER RAIL, BETTER TRANSPORTATION

You can get the proper fare

Again we quote Editor Gordon:

“Give your riders a taste of really modern transportation and all the politicians in town can't keep you from getting the proper fare to support it.”

Modern service is comfortable, swift, silent and safe.

Nothing you do will provide such service unless you first put your track in good condition.

Track rejuvenation is the logical start—Take the first step first. Grind out corrugations. Build up and level the joints.

Here is the equipment that makes a little money go a long way toward providing modern service.

Bulletins?

Railway Trackwork Co.

3132-48 East Thompson Street, Philadelphia

AGENTS:

Chester F. Gallor, 30 Church St., New York
 Chas. N. Wood Co., Boston
 Electrical Engineering & Mfg. Co., Pittsburg
 H. F. McDermott, 208 S. LaSalle St., Chicago
 P. W. Wood Railway Supply Co., New Orleans, La.
 Equipment & Engineering Co., London
 Frazer & Co., Japan

Ⓜ 1951



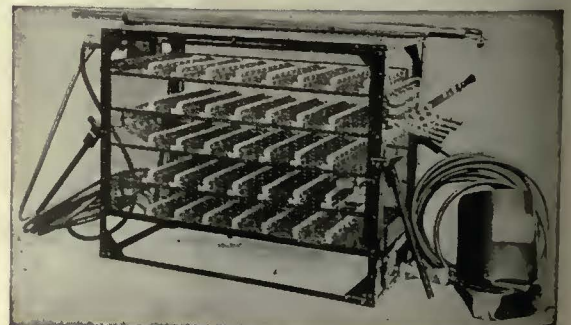
Eureka Radial Rail Grinder



Vulcan Rail Grinder



Reciprocating Track Grinder

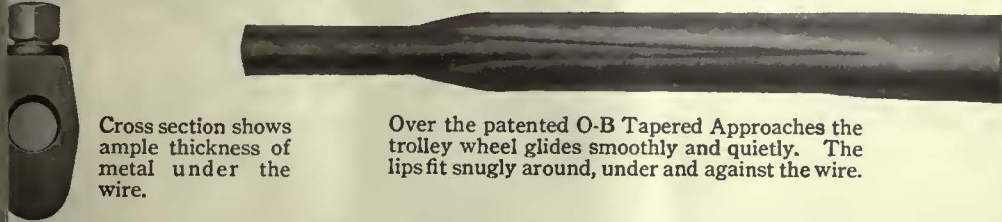


"Ajax" Electric Arc Welder

BETTER RAIL, BETTER TRANSPORTATION

WEATHER
now storms
today and
tomorrow

DOLLARS and SENSE!



O-B Type C Splicer, patented. Made for round, grooved and Fig. 8 wire in all sizes. O-B Catalog Page 542.

Cross section shows ample thickness of metal under the wire.

Over the patented O-B Tapered Approaches the trolley wheel glides smoothly and quietly. The lips fit snugly around, under and against the wire.

500 Trolley Breaks in a Storm Area on a Single day!

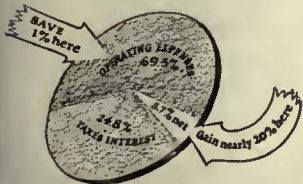
EACH one means delay and disruption of schedules—delayed and disgruntled passengers—creation of public condemnation of street railway service. *Unless*—the damaging effects of unavoidable trolley breaks are minimized by forehanded preparation for such emergencies.

Wire breaks need not tie up traffic for any length of time—need never occur in the same place—if you have a stock of O-B Splicers on hand ready for use in a pinch.

They go into place and stay there. Their holding power exceeds the strength of new wire. The trolley wire enters in a straight line, without a kink—which means without a weak spot. In a few moments the line is up again, ready for traffic.

Be prepared. Put in *your* stock of O-B Splicers now. Write or wire

Statistics of the industry as a whole reveal a split-up of the average fare as illustrated below. The net income is only 5.7%. Just one percent saved from the 69.5% now devoted to operating expenses would make the net 6.7%—an increase of nearly 20%.



Ohio Brass Company, Mansfield, Ohio
Dominion Insulator & Mfg. Co. Limited
Niagara Falls, Canada
707B

Ohio Brass Co.



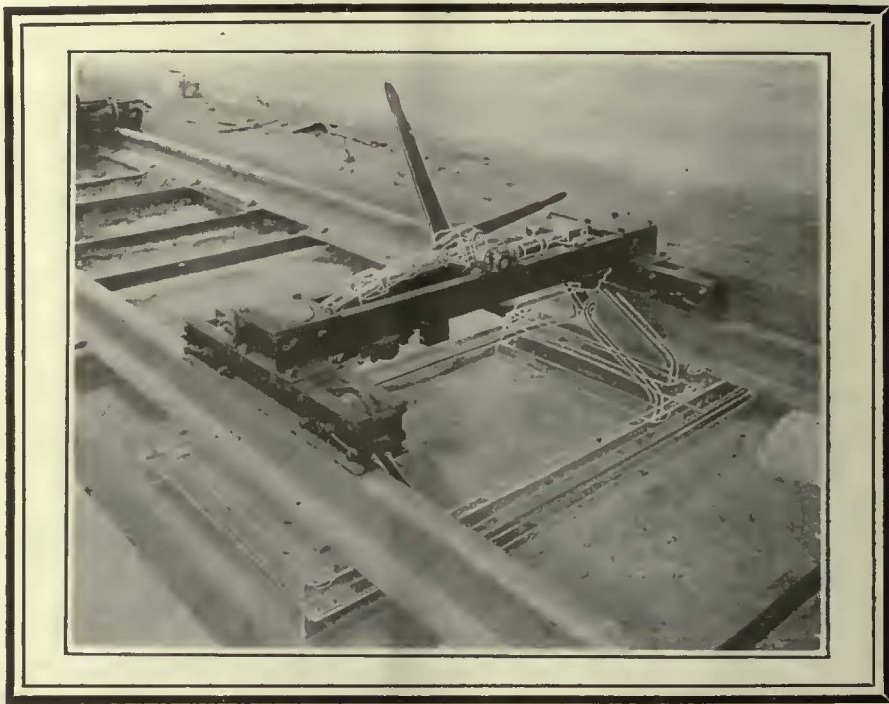
SALES OFFICES: NEW YORK CHICAGO

PHILADELPHIA PITTSBURGH CLEVELAND
SAN FRANCISCO LOS ANGELES

PORCELAIN INSULATORS
LINE MATERIALS
RAIL BONDS
CAR EQUIPMENT
MINING MATERIALS
VALVES

ANNOUNCEMENT

Two New Machines for Paved Tracks
at the 46th Annual AERA



THE D-S-R TRACK LAYER

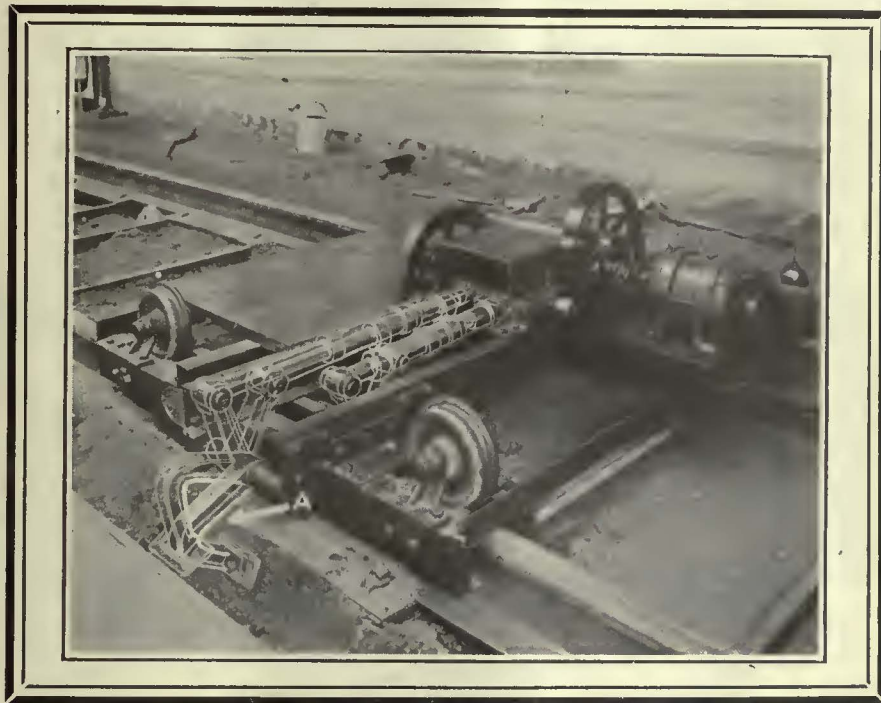
One man can now fasten Twin Ties to the rail applying any type of fasteners complete, in a part of the time formerly required by four men. This machine is simple, sturdy, and can be carried to the rails from the work car by four men. A simple toggle action operated by hand lever actuates the grab hooks which lift the tie from the subgrade to rail base. Total lift 7 inches. Photograph shows phantom view of machine in raised and lowered positions.

The International
CLEVELAND

STEEL TWIN

ANNOUNCING

Construction—shown for the First Time
Convention in Cleveland, Ohio



THE COMPRESSION TAMPER

A machine which applies a new principle to tamping—*compression*. The tamping arms "A," acting simultaneously on opposite sides of the plate on both rails, apply a compressive force of 800 pounds to the concrete, forcing it under the plates and squeezing out all voids and water pockets. The tamping arms have a speed of 20 strokes per minute, giving the machine a theoretical production capacity of 6000 feet per day. Equipped with Hyatt Roller Bearings, 1 H.P. 550 D.C. all weather motor, driving through reduction gear. A punch press type of clutch starts the tamper and can be locked for continuous operation. While the labor saving feature of this machine is notable, the main subject of comment by Engineers during the Convention was the dependability and improved quality of the construction with compression tamping. Photograph shows phantom view of machine with arms at top and bottom of stroke.

Steel Tie Company

OHIO, U. S. A.

TIE TRACK

Would you try to row a boat with one oar?



It can be done, but the inefficiency of steering against the turning effect of the one-sided force is obvious.

Similarly, balanced braking (the double shoe clasp type) is vastly superior to the single brake shoe rigging. The heavy braking load is equally balanced on opposite sides of the wheel. There is no shifting of the journal box bearing; no unbalanced load on truck frames and truck springs; less brake shoe wear; less journal box wear; fewer hot boxes; fewer slid-flat wheels; smoother and shorter stops; less train resistance in starting.

In other words, dozens of advantages—all making for economy and better transportation service.



**AMERICAN MULTIPLE-UNIT
CLASP BRAKES**



AMERICAN STEEL FOUNDRIES

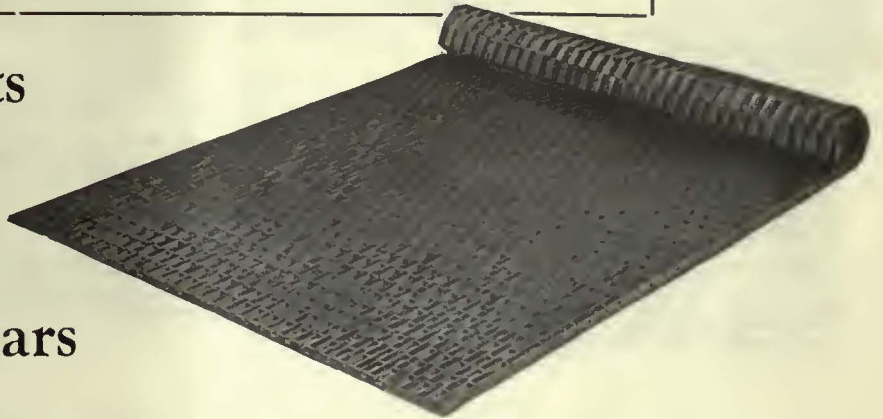
NEW YORK

CHICAGO

ST. LOUIS



Wear-Proof Mats
add to interior
attractiveness
of Kansas City cars



“Upholstered seats, linoleum floor covering, and *flexible matting* in the aisles add to the interior attractiveness.”

—From recent issue of ELECTRIC RAILWAY JOURNAL

THE *flexible matting* referred to above is Wear-Proof Mat, an ideal floor covering for cars.

Wear-Proof Mats combine safety, sanitation and resiliency with economy. They roll up like a rug and cannot turn up at the edges, nor slip nor warp. They may be used on both sides, have an indefinite life and are absolutely guaranteed for a period of five years under the most extreme service conditions. They are supplied in any rectangular shape and in one or more pieces.

And remember that sure-footed passengers minimize the danger of accidents.

We'll be glad to send you further particulars of Wear-Proof Mats. Write us today.

Home office and plant at 17th & Cambria Sts., PHILADELPHIA; District offices at 230 So. Clark St., CHICAGO; 60 Church St., NEW YORK; Bessemer Bldg., Pittsburgh; 88 Broad St., Boston; General Motors Bldg., Detroit; 316 N. Washington Ave., Scranton; Canadian Agents, Lyman Tube & Supply Company, Ltd., Montreal, Toronto, Vancouver.

ELECTRIC SERVICE SUPPLIES Co.

MANUFACTURER OF RAILWAY, POWER

AND INDUSTRIAL ELECTRICAL MATERIAL



Interurban Service



“STANDARD”
Wheels
Axles
Springs
Armature Shafts



STANDARD STEEL WORKS COMPANY

Philadelphia, Pa.

BRANCH OFFICES

CHICAGO
ST. LOUIS

NEW YORK
HOUSTON

PORTLAND
RICHMOND

MEXICO CITY
SAN FRANCISCO

ST. PAUL
PITTSBURGH

WORKS: BURNHAM, PA.

INDIANA



NP

50 TO 100 TREADLES IN TWELVE MONTHS

FIFTY cars equipped with NP Treadle Exit Doors gave Indianapolis an opportunity to sample treadle service. The trial *must* have given satisfaction, for the treadle installations in this city have been *doubled* in the last twelve months.

NATIONAL PNEUMATIC COMPANY

Executive office, Graybar Building, New York

General Works, Rahway, New Jersey

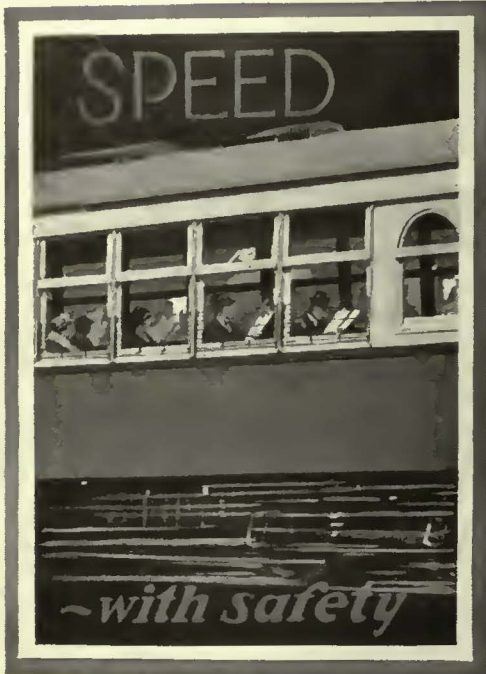
CHICAGO
518 McCormick Building

MANUFACTURED IN TORONTO, CANADA, BY
Railway & Power Engineering Corp., Ltd.

PHILADELPHIA
1010 Colonial Trust Building



Eleven accidents at a total



The Four Features
of balanced design
are the Cardinal
Points of Today's
Demand!

Averted at cost of \$31.55!

[[This is the first of several "brass tack" advertisements on the subject of CINCINNATI AIR and MAGNETIC BRAKE]]

Thirty-one dollars and fifty-five cents spent for accident prevention. Eleven accidents averted as a direct result of this expenditure!

This, in brief, is the story told by operators' reports and maintenance records on the operation of Cincinnati Duplex Air Magnetic Brakes on a famous Southern property.

The cost figure is for one month's maintenance of the Magnetic Brakes on 41 cars,—an average cost per car of \$.602. During this period eleven motormen's reports definitely stated that more or less serious accidents

were averted only because of the braking efficiency of the Magnetic equipment.

Any one of these accidents might have involved several thousand dollars. Adequate prevention cost only a few cents a car.

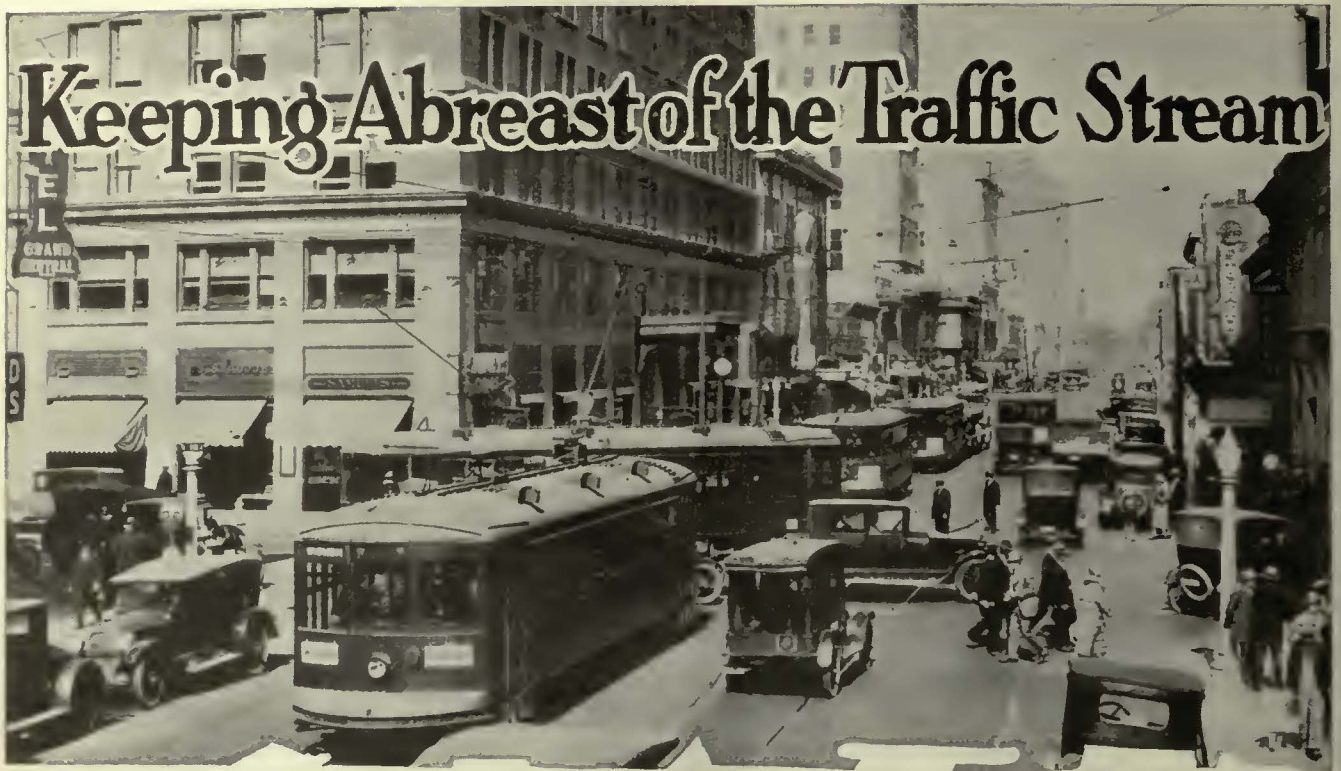
In exactly the same way the Cincinnati Duplex Air Magnetic Brake can help YOU speed up schedules and reduce to an absolute minimum your accident reserve!

Full details and technical data on request.

CINCINNATI CAR COMPANY, CINCINNATI, OHIO

[[The Duplex Air and Magnetic Brake is a feature of the Cincinnati Balanced Lightweight Car]]

CINCINNATI BALANCED
LIGHTWEIGHT **CARS**



HOW to speed up traffic through congested areas is a problem confronting many street railway companies today. Such a problem can be solved by a better brake—a quicker acting brake—a brake that is as effective on loaded cars as on empty cars.

The Westinghouse Variable Load Brake will better traffic conditions because—

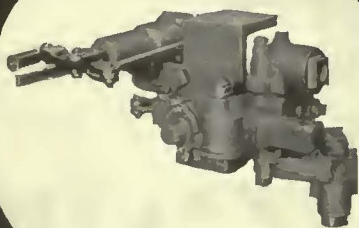
It maintains the maximum braking ratio substantially constant throughout the range of passenger loading, by an automatic adjustment of cylinder pressure as the car weight changes.

It makes the brake action independent of main reservoir fluctuations, as the maximum cylinder pressure for a loaded car corresponds to the minimum governor setting.

It decreases the time of brake application and release, and makes possible a higher rate of retardation, because the maximum braking ratio is obtainable with a lower cylinder pressure.

The uniformly short stops thus made possible are reflected in greater safety and faster service during congested periods—cars are able to keep abreast of the traffic stream.

Perhaps this brake has the potentiality for solving your transportation problem.



**WESTINGHOUSE
TRACTION BRAKE CO.**
GENERAL OFFICES AND WORKS
WILMERDING, PA.

The Westinghouse Variable Load Brake is now being used by a score or more of traction properties on over 1500 cars



Prepare now for Snow!

This nimble and versatile snow fighting unit will eliminate blockades on car lines or bus routes.

Exhibited at the Convention this year, the Cummings Gas Electric Drive Snow Sweeper made a decided impression on all who inspected it. Its great utility in clearing snow from locations inaccessible to rail sweepers was at once apparent. It will be found very advantageous in removing snow from tracks in front of car barns, and from bus routes, both in cities and on highways.

When operating as a sweeper, the rear cab is used by the driver, and the machine runs broom foremost.

Gas Electric Drive gives independent control of broom and vehicle speeds.

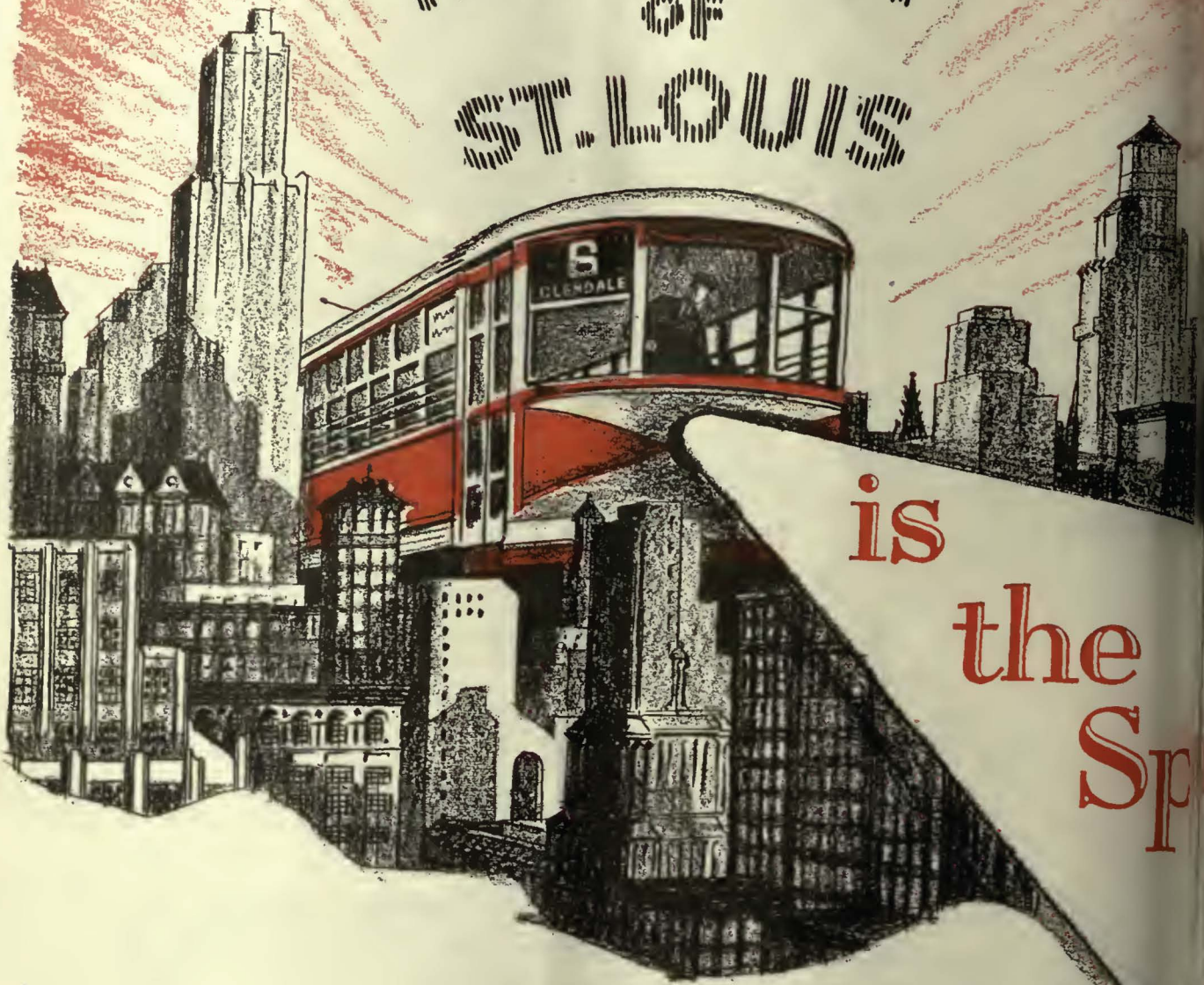
By removing broom and rear cab, the machine is converted into a utility truck, suitable for construction and repair work, thus rendering service the year round.

Designed and Built by

CUMMINGS CAR AND COACH CO.

111 W. Monroe Street
CHICAGO

THE SPIRIT OF ST. LOUIS



is
the
Sp

Be
be
pr
are
car
An
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alon
serv



irit of Progress ~

Because to stand still is to go backward—because there is a dynamic force which presses forward—St. Louis Quality Shops are far from having reached a climax in car improvement and development.

Any objectives thus far achieved—and you have had an opportunity to study some of them at Cleveland—are merely milestones along the path of progress. They merely serve to indicate that St. Louis has gone a

long way in bringing transportation up to date and in popularizing the street railway.

St. Louis could not halt now. The forward movement has just started. The great strides already taken not only vindicate our confidence in the industry's future but quicken our pace in the never-ending march forward.

Cleveland was an inspiration—but only a sample of what the next year holds in store.

St. Louis Car Co.





Through specific figures, facts are revealed. Experience of a few years with modern light-weight cars, both city and interurban, has furnished convincing proof that new revenues can be developed and substantial savings effected.



A significant page from recent Illinois Traction history

In 1924 this company replaced its 94,000-lb. interurban cars, operated on the Illinois Valley Division, with new 37,000-lb. one-man cars and decreased its headway from 2 hours to 1 hour. The financial gain realized in 1925 from operating these modern cars, which are all equipped with G-E Motors and Control, is indicated by the following facts:

Although two more city cars were operated on the system than in 1923, there was a reduction of 33% in the shop force.

Even with an increase of 70% in interurban passenger car mileage, operating expenses were less by \$39,000.

On account of the more attractive cars and reduction in headway, passenger revenue increased \$33,000—the total savings, therefore, being about \$72,000 or a gross return of about 39% on the investment.

Of 22,239 trains operated in 1923, 92% were on time; in 1925 the number of trains increased to 32,858, of which 97% were on time.

The comparative operating costs per car-mile for accounts affected by the new cars are:



This achievement in improving service and lowering costs of operation is another instance of the success of modern G-E Car Equipment. For these new Illinois Traction cars, G-E-265 Motors with K-35 Control were selected.

	1923	1925	Saving per C. M.	% reduction
Equipment	3.60	0.95	2.65	73
*Power Purchased	5.80	3.35	2.45	42
Platform expense	5.17	3.75	1.42	27

*All service

GENERAL ELECTRIC

GENERAL ELECTRIC COMPANY, SCHENECTADY, N. Y., SALES OFFICES IN PRINCIPAL CITIES

Electric Railway Journal

Consolidation of Street Railway Journal and Electric Railway Review

Published by McGraw-Hill Publishing Company, Inc.

CHARLES GORDON, Editor

Volume 70

New York, Saturday, October 15, 1927

Number 16

Influence of the Coffin Award Continues to Grow

IN THIS issue is abstracted the brief of the Grand Rapids Railroad that won the Coffin Award for 1927. As was pointed out in the report of the award committee, the accomplishments set forth in the brief are those of a comparatively small property in an industrial community of approximately 160,000 population, the class of city in which the effects of automobile competition are felt the strongest. It is among railway properties of this size that there is shown a serious dropping off of revenues in many cities.

Again in the words of the committee, the practices and accomplishments of this property have had a widespread influence on the entire industry and have done much to awaken the present almost universal interest in the improvement of electric railway service. With limited facilities, on its own initiative, and largely with its own resources, the Grand Rapids Railroad, which was scarcely known outside of its own city a few years ago, undertook to demonstrate to the world the process of popularizing electric railways by the improvement of equipment and service. The present awakened interest in the development of cars, which was permeated to all the manufacturers and to almost every operating company in the country, was given a strong impetus by the pioneering of this comparatively small company.

This year's Coffin contest was particularly outstanding in the excellence of the presentations made by practically all the contestants, and by the spirit of progress and determination evidenced by each of the competing companies. There was a wide difference in the size and character of the twelve properties and consequently it was an extremely difficult task to apply a common measuring stick in determining the relative value to the industry of their various accomplishments. It is particularly difficult, in comparing large with small properties to judge the relative weight to be given size and complexity on the one hand, in comparison with limited resources, personnel and facilities on the other.

Each year the committee has testified to the difficulty of its task, but has endeavored to make its decisions in the light of what it considered the best interests of the industry and the spirit of the award conditions. That a comparatively small property should win out in the face of competition by properties many times its size should inspire the entire industry with confidence in the sincerity with which the contest is judged, though it is obvious that an earnest and unsuccessful contestant may question the committee's decision. This year's result in particular should inspire every property that has pointed the way, through its practices toward the development of electric railway transportation for the convenience of the public and the benefit of the industry, to enter the contest, regardless of how modest its resources. It is significant that this is the second time the win-

ning company has competed for the award, the first effort having been unsuccessful. The spirit in which the award can be made of greatest service to an individual property and to the industry is illustrated by the Northern Texas Traction Company, which, although already once a winner, has filed five successive briefs in the competition in the conviction that the very act of preparing such a brief is more than worth the effort and cost involved. While joining with the rest of the industry in congratulating the Grand Rapids Railroad Company on its success, the JOURNAL voices the hope that some of this year's other contenders, who according to the committee's report presented a formidable array of accomplishments, will again enter the contest in the spirit of helping to stimulate that general improvement of the industry which was in the minds of the founders of the award.

Now That the Convention Is Over

NOW that more than a week has elapsed since the close of what is perhaps the greatest and most remarkable convention ever staged by the local transportation industry, we can look back on it in better perspective. As we view thus the kaleidoscopic exhibit and program, its many separate and diverse elements blend into general impressions from which we can begin to interpret the significance of what we saw and heard.

What, then, is the greatest single idea that comes out of the convention? What is the one thing that seemed to impress itself on every man's mind, both those who have spent their lives in the local transportation business and those who were merely observers of the industrial drama that unfolded in Cleveland? What outstanding thought did the Cleveland delegate carry away with him, consciously or unconsciously, that he did not have when he arrived?

Perhaps a good way to express it would be to say that the industry, for the first time in many years, gave unmistakable evidence of being "sold" on itself. In every meeting and in every conference men spoke out with a note of optimism in their voices. The whine of defeat, which unfortunately has been in evidence in some railway meetings during past years, was entirely absent. Men talked about how to go ahead faster, not whether it was possible to go ahead. Executives listened to criticism of past practices, and nodded their heads in obvious agreement. Everyone seemed to be eager for new ideas. Those who were lulled into a condition of hopelessness on the assumption that they had done everything possible to better the situation of their properties were either absent entirely or kept their thoughts to themselves.

Again and again, one recurring thought rang out, "The industry has only taken a forward step; it has only started!" When a man or an industry sees as many new things and hears as many new things as were in evidence

in Cleveland, and receives them with the statement that "we have only started," then indeed is that man or that industry on the road to progress.

So to repeat, Cleveland sold the industry on itself. There was unmistakable evidence that the last word has by no means been written on the possibilities of the street car in meeting present-day conditions. Local transportation men came away from this greatest of all exhibits with a broadened perspective of what can be done in the way of merchandising transportation. When they returned to their properties, practices which had a few days before seemed to be the last word faded, in many instances, into comparative mediocrity. The experience was probably similar in many respects to that of the visitor to an automobile show a few years ago, who upon returning home looked over the old "bus," which with its new coat of paint had looked "pretty classy" only that very morning.

Sales psychology and sales thinking is a comparatively new thing for electric railway men. They have been using the words for several years, but at Cleveland many acquired for the first time a real grasp of their meaning. The next few months will demonstrate whether or not they have yet acquired the power to translate these new impressions into action.

Half a Billion in Ashes!

FIRE last year exacted the staggering toll of 10,000 lives and a \$560,000,000 property loss, the latter representing \$1,066 worth of property destroyed every minute in the year. This was more than sufficient reason for a whole-hearted observance of Fire Prevention Week, which has just closed. The best observance—one that will last infinitely longer than a week—will come through a serious study of means to check this demon, which is conceived in carelessness.

The consequences of fire in the electric railway industry are perhaps more appalling than in any other industry which contributes to a nation's welfare and happiness. In our case it is not a question of hastily securing other quarters, ordering new standardized machinery, or, as is generally the case, throwing the burden of supply upon another factory or a competitor. Once street railway equipment is destroyed there arises a civic calamity that strikes deeply, a calamity the effects of which time alone can obliterate. The public and the utility can only stand and wait. Insurance may be the balm, but it is certainly not the speedy cure. Street cars and buses are rarely carried in stock.

The seriousness of the fire risk in this field was brought home recently when 25 cars of the Ottawa Electric Railway went up in smoke. The cause given was defective wiring. In a few minutes this company's emergency equipment was destroyed. A great metropolis was robbed of one of its vital civic factors. The remaining rolling stock will now have to bear a 100 per cent overload, perhaps more. Congestion and inconvenience to the public will result. The company must wait for new equipment to be manufactured. There is no other recourse. Granted that it were possible to borrow from some of its neighbors, such action would be robbing Peter to help Paul.

With such an example before us there can be only one case where fire in the electric railway field is justifiable, i.e., the public application of the torch that destroys

obsolete equipment that has already been replaced by new. Let us bear this in mind during the year to come. The Chinese employ a doctor to keep them well. Apply this method to the question of fire loss, then prevention will become the infallible cure.

Engineering Association's Committee Reorganization Completed

WHEN the reorganization of committee work in the Engineering Association was begun several years ago, during the administration of President R. C. Cram, it was more or less in the nature of an experiment. Accordingly, only the committees treating of way and structures subjects were regrouped according to the proposed plan. The result was so satisfactory that last year the new grouping was extended to include rolling stock subjects. With the opening of the new association year, the power subjects have been consolidated into a third division, and two other committees that have been functioning independently have been logically placed in their respective groups. A very few committees that do not fall within the new grouping are still retained, but aside from these all the technical committee work has been placed in the divisions of way and structures, rolling stock and power.

According to the plan, standing committees have been appointed to head up the activities in the three groups. These committees are continuing, one-third of the members being appointed each year. Thus there is a continuity in the personnel which is valuable for the advice and guidance it can give in following the activities of the various special committees in the group. The old standards committee has been relieved of work in connection with these three groups, as the respective standing committees pass on standards, subject, as in the past, to the approval of the executive committee. Consideration of standards will thus be in the hands of men who are experts on their subjects, rather than a general group of whom but few are specially qualified to evaluate the proposals advanced by the special or sub-committees.

A very evident advantage of the new organization was seen in the working out of the Cleveland convention program. Instead of taking up the entire time of the sessions with presentation and discussion of committee reports, only one day was needed. The remaining two afternoons were free for outside speakers, and the time was effectively used, several valuable addresses being made.

Building Sound Fundamentals for the Future

WORK that has attracted little general attention, but which is nevertheless of the greatest importance to the local transportation industry and to the development of American cities, has been going quietly and steadily forward during the past three years. This year the job will have been carried as far as the present development of the art and the state of mind of the public will permit. When the committee on rapid transit made its report to the association there was completed a service to the industry and the public the value of which it may take many years adequately to demonstrate.

On this very important subject of rapid transit, the electric railway industry is now in the happy position of building for the future. The membership of the com-

committee includes various schools of thought. These members are by no means agreed on the many phases of the rapid transit problem. They have, however, been able to present the fundamentals of transit from its several angles, all approached from the broad viewpoint of the community's best interests. The several annual reports of the committee constitute what is undoubtedly the most thorough digest available of this important subject.

It has been the committee's object to guide the thought of the industry and the public along sound and constructive lines. The mistakes that have been made in those communities that were forced into rapid transit construction without an adequate understanding of transit economics have cost taxpayers, investors and riders undreamed millions. The situation in New York illustrates the seriousness of rushing into transit construction on a large scale without the establishment first of a definite policy. Even today the country's metropolis seems as far away as ever from the establishment of a transit policy, and in the meantime taxpayers and riders are carrying a constantly increasing back-breaking burden.

The committee seeks to anticipate recurrence of such a situation in other cities that are approaching rapid transit development. It is quite likely that in years to come these reports will be considered among the most constructive pieces of work ever done in the interests of the industry and of community development.

Another Columbus Makes a Discovery

MAYOR WALKER has been traveling again. This time it is in his own New York and in daytime. The Mayor may know his way unaided to the City Hall, but he had no intention of trusting himself alone to the mysteries of Brooklyn. So on Columbus Day, most fitting after all, he, with Samuel Untermyer, Chairman Delaney of the Board of Transportation and Transit Commissioner Lockwood, made a personal inspection of the rapid transit lines in Brooklyn. To do so the party is said to have traveled 45 miles by automobile and to have stopped at a dozen strategic transit points.

The party discovered a lot, at least the Mayor did. He discovered the maze at Canal Street and that the Brighton Beach line is in a cut. Later he is to make a trip into the Bronx. Compared with Brooklyn, the possibilities of the Bronx and of Queens, the city's fastest growing borough, are about ten to one. Some day he may ride on the lines. Ex-Mayor Hylan did for a while. Solid a former public service commissioner. On one occasion they had an appointment to ride downtown together from Brooklyn. The platform on which they were to have met was so crowded at the appointed hour that they didn't discover each other. One came into New York over the Lexington Avenue L and the other along the Broadway line through Canal Street. One saw nothing wrong. The other saw everything wrong. It would be unkind to intimate that they saw only what their respective political positions made it desirable they see.

Mayor Walker, on the other hand, sees a lot of things wrong. Certainly, the newspaper men who talked with him were not disappointed at his statements to them. They seldom are. The gushing Jimmie apparently was it is best. And that means a great deal. Of course, he didn't commit himself on the Untermyer plan. Jimmy is cautious. But he is still for the 5-cent fare. "How could anybody help but like it who has the interests of

the people at heart," he said. And the echo answers, "How could they, especially if they are in a precarious political office and politics is their profession." It isn't a matter of fare, the Mayor says. Not even a dollar fare would help in the present case. The need is for more subways. But there is hope. The Mayor promises to study the transit plans that have been advanced and to comment on them officially when they come before the Board of Estimate. And there's where matters stood on Oct. 13—the Mayor contemplating a trip into the Bronx and promising more comment after the meeting of the Board of Estimate. Again New York apparently is on the threshold of great things transit-wise.

American Association's Scope Broadened

WITHOUT fanfare of trumpets, with comparatively little attention save by those charged with the responsibility, the revisions to the constitution and by-laws of the American Electric Railway Association adopted at the Cleveland convention bid fair to be the most important advance accomplished at that epoch-making meeting. Four principal objects were sought in the changes: (1) To restate the purpose of the association so as to be in accord with present activities of the membership, and to make it possible for responsible transportation operators now barred out to gain admission and take part in its activities; (2) to correlate more effectively the work of the state and sectional associations; (3) to provide for plural voting in certain instances, thus recognizing the proportionate size of member companies; (4) to readjust the financial structure of the association so as to include the office of the managing director.

The changes make it possible for the association to cover the entire field of transportation in local communities, which has been difficult in the past. While so-called independent bus operators may now be admitted, restrictions have been drawn that will prevent the entrance of interests antagonistic to organized community transportation. Thus full recognition of present-day conditions and trends of the industry has been provided.

There are two reasons for the introduction of plural voting. In the adoption of proposals which affect the entire membership, such as engineering standards, there have been instances where the smaller companies have outvoted the larger, although the amount of material to be ordered by the large companies is far greater. As a result some large companies refused to accept the standard, and the purchases of the small ones have been insufficient to obtain for it the recognition of the manufacturers. Under the new arrangement it virtually will be necessary to secure the support of a sufficient number of the large properties to insure the adoption of important changes in standards or the introduction of new ones. Those voting in favor of the proposals will be much more inclined to adopt them than they would had they remained neutral or indifferent. Another advantage of plural voting is that a group of the smaller companies cannot band together to dictate the policies of the association against the interests of the larger ones.

As to the change in financing of the association, it was a logical step that will be of advantage in many ways. In the past, the managing director's office has been supported by subscriptions. Its work has more than demonstrated its value to the industry and the financial simplification is both logical and desirable.



This year's

Coffin Prize Winner

has an international reputation for the fine quality of its cars and of its service in general

1. Looking forward in the Grand Rapids rail coaches. The ceiling is free of obstruction. There are attractive and effective lighting fixtures, leather bucket seats, inlaid rubber tiling on the floor, and inclosed control cabinets.

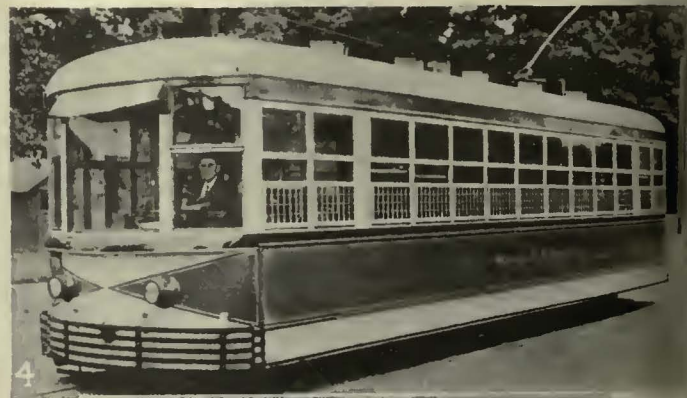
2. This double door in the front has an inside step well and low steps. The comfortable and neat-appearing seat provided for the operator is shown.

3. The rear-end view of new rail coaches shows the smoking compartment closed off at the rear. It has attracted many lost patrons.

4. Note the skirt which muffles noise and improves the low-hung appearance of the car; also note the manner of naming each car.

5. Looking toward the rear end of the Grand Rapids rail coaches. The smoking compartment is shown back of the bulkhead.

6. Circulation through the car and easy egress are provided by an automatic treadle door at the rear. The double door at each end affords facilities for two-man operation when needed.





This view of one of the new Grand Rapids "rail coaches" gives a very good idea of its inviting appearance, as well as the effective outlook possessed by the operator

Modern Cars Important Factor in Winning Coffin Prize

Grand Rapids Railroad in its presentation for 1927 says its new cars were the backbone of nearly the whole of the recent merchandising and public relations campaigns. The following series of articles in this issue, based upon the Grand Rapids brief, tell the details of the accomplishments

BREADTH of the influence exerted throughout the country by the practices and accomplishments of the Grand Rapids Railroad is cited by the Coffin Award Committee in its report awarding the 1927 Coffin Prize to this comparatively small city property in a community of 160,000 population. With limited facilities, on its own initiative, and largely with its own resources, this comparatively small railway property, which was scarcely known outside of its own city a few years ago, undertook to demonstrate to the world the process of popularizing electric railway service.

In its brief the company frankly says that the major step taken in making possible its accomplishments was the development of its new rail coaches. Their significance, the brief says, goes far beyond a mere contribution to car design and lower operating costs. The primary motive in their development was that of merchandising transportation service. They represent to the public the beginning of a new day in mass transportation. They have been the basis for all the company's merchandising and public relations campaigns. Without them but a small fraction of the progress realized could have been made. In very large measure, the profound change which has taken place in public sentiment toward the company and toward street railway transportation in Grand Rapids is attributed to the popularity of the improved equipment, which has transformed the common attitude toward riding in street cars from one of apology to one of enthusiasm. The cars were the talk of the

city, and, indeed, of the country. Seemingly, all the city, individuals and officials, suddenly found themselves voicing pride in the Grand Rapids railway service.

A striking thing about all this change is that these new cars were only 30 out of 127 on the system. Nevertheless, they developed so much good will that it served to take out of mind the antipathy toward the older cars too.

The main features are the comfort and beauty of soft leather bucket-type automobile seats, mosaic rubber tile floor covering, special illumination, cabinet-inclosed control mechanism, easy ingress and egress, bright colored painting and streamline body with aprons emphasizing the low-hung appearance, notable noiselessness, beauty of large plate glass vestibule windows and illuminated dash. Further particulars of these cars will be found in previous issues of this paper, particularly in that of May 29, 1926.

INFLUENCE OF NEW CARS ON RIDING

The new cars provided practically the complete service on three lines, so it was easy to determine their influence on riding. The three lines equipped with the new cars showed as a whole a substantially larger increase in total revenue than the remainder of the system equipped with old cars. One of these three lines had some decreases, but

it serves many industries, mostly furniture factories, while the two others are residential lines. One of these latter serves the city's best residential section. It was the earliest line to show a decline in earnings with the advent of the automobile. It is now one of the first lines to indicate a return of lost patrons, as the new coaches induce residents to leave their autos at home and take advantage of the comfortable ride on the new cars where they "Relax—Don't Worry."

SPECIAL MEANS OF CREATING TRAFFIC

The method of putting these cars in service indicates that the Grand Rapids company possesses good merchandising ability. When the day came for placing the 27 new rail coaches in service, they were not unceremoniously started on their runs. A parade of the whole fleet was arranged. It afforded a dramatic way of impressing people with an event of very real importance to them. And incidentally, thousands of those who came downtown to witness the well-heralded new cars rode down and back on street cars and swelled the revenue for that day, and for succeeding days, too, for to view the new cars was to desire to try them out. Of course this interest spread rapidly to neighbors and friends, and they rode.

After building toward the big climax with display advertising, feature stories, banners and other media, the company announced the date of its now historical street car bonfire and jollification on the West Michigan Fair Grounds, which is at the terminal of one of the company's long lines. Seventeen old cars furnished the funeral pyre. More than 50,000 people jammed into the Fair Grounds to enjoy the free admission, free grandstand seats, band concert, illuminated balloon flight and fireworks display, and to witness Mayor Elvin Swarthout and the company's vice-president apply the torches to either end of the long line of cars that had outlived their usefulness.

As was expected, thousands of autoists motored to the bonfire and were given free rein in parking. At the conclusion of the jollification a situation arose that did more to impress the serviceability and reliability of the street car than reams of advertising could have accomplished. There was an uncontrolled rush by autoists to get their cars out of the grounds. Naturally a tangled jam resulted, and it was two hours before the last autoist left the grounds, shortly after midnight. While this delay to private autos prevailed, railway passengers were promptly started home, the last passengers getting away nearly two hours before the last automobile.

* * * * *

The Prize Winner This Year

What It Is and Has Done

THE Grand Rapids Railroad is exclusively a transportation utility, supplying Grand Rapids, Mich., and immediate vicinity with street car and motor bus service. It comprises 68.4 miles of track, on the single-track basis, which serves approximately 95 per cent of the population, on the assumption that any resident within one-fourth mile of a street car line is adequately served. The company owns and maintains car shops, paint shops, three carhouses, a bus garage, a general information office for the use of the public and an amusement park.

The total number of persons employed by the company on July 1, 1927, was 550. The total number of passenger cars owned and operated by the company is 127, besides the necessary complement of snow-plows, sweepers and other working equipment. The base week-day schedule requires 89 cars and the rush hour 112 cars.

Grand Rapids has a population of about 160,000. Its topography makes operation somewhat difficult. The city is built upon both sides of Grand River, which flows through its center and in close proximity to its business district. Severe hills necessitate tracks on long 9 per cent grades and require very high energy consumption as well as special equipment and operating precautions in the interest of safety.

The main business district is flanked on the west by the river. Three blocks to the east the hills rise abruptly and extend eastward to the fringe of the residential sections. The natural barriers of hills and river have caused the business district to be built practically along one main artery of traffic, Monroe Avenue, through which a great share of the traffic passes. Into this narrow gateway pour thousands of automobiles, taxicabs, trucks and

the tourists on their way to and from northern Michigan resorts. This greatly hampers the speed and regularity of street car schedules, while cross-town travel over the bridges adds to the perplexity of the situation.

Farther to the north along the banks of the river, between the hills that bound the city on the west and from the high land that swings to the northeast, are wide-reaching valleys and undulating uplands through which are found the only transportation avenues. To the south, west, near the shore of the river and in the valley below the Black Hills, nestle many factories.

AN AUTOMOBILE FOR EVERY 3½ INHABITANTS

The eastern, southeastern and mid-west sections are thickly settled, causing a density of population unusual in cities the size of Grand Rapids, and also presenting another trying situation for the railway company. The city has 150 miles of paved streets and more than 100 miles of improved streets not paved. The city's population of about 160,000 lives within an area of approximately 23 square miles, which makes the sidewalk a great competitor of the railway as private automobile. Of the latter 44,829 were registered this year in Grand Rapids—one for each 3.5 residents. Revenue rides per capita for the year ended Dec. 31, 1926, were 116, based on 160,000 population and including rides on both cars and buses.

Grand Rapids is a manufacturing center, and while its industries are fairly diversified, furniture accounts for about 50 per cent of its products in point of value and 50 per cent of the total number employed. Hence, a depression in this one industry has a very appreciable

effect on the business of the railway. Furniture is a seasonal product, and it is one of the first industries in the city to feel business slumps.

MODERNIZATION PROGRAM OUTLINED

The close of the war found this property in much the same condition as other small railways over the country. It was badly run down. Rolling stock was in such poor repair that on many days there were not sufficient cars to fill the regular runs. Little or nothing had been expended in reconstructing track, only enough to maintain service, such as it was. Besides the bad condition of the physical plant, the financial situation was also little short of desperate. Naturally, with the service reflecting these conditions, the public was unsympathetic if not antagonistic.

With faith in the industry and its future, the management set about to rebuild in every way and to re-establish the company in its proper place in the minds of its customers and its investors.

It is noteworthy that this modernization program, spreading over a period of five years, has been carried out step by step in a practical way along the lines recommended by the Federal Electric Railways Commission appointed by President Wilson, and has also comprised in many instances the conclusions reached by various committees of the American Electric Railway Association. The various steps in this program are best briefed in the chronological order in which each task was undertaken and carried to successful conclusion:

FIRST STEP TAKEN IN 1922

The first major step in the program came with the granting of a new franchise in 1922, the old franchise having expired in 1920. From 1920 to 1922 the railway had operated under a day-to-day permit, which was very unsatisfactory.

In a remarkably short time, as securing of franchises goes, a 30-year service-at-cost franchise was secured, 7 per cent of the voters giving it their approval, though in prospect of a lower fare was offered. This franchise safeguarded the company's interests by providing for the elimination of jitneys and other competitive motor vehicle transportation. It embodied the right to earn an 8 per cent return on the investment. Its adoption aided in gaining relief from unjust taxes in the form of sprinkling expense and salaries of traffic policemen. A necessary step in securing this franchise was a revaluation fair to both company and city. The book value of the property was written down from \$8,571,580 to an agreed valuation for rate-making purposes of \$5,500,000. All major provisions of the new grant were in accord with the recommendations of the Federal Electric Railways Commission.

FIVE-YEAR BUILDING PROGRAM UNDERTAKEN

The fine support of the public in approving the franchise prompted the company to go forward with its plans at once for improvement of the physical condition of the property. This rebuilding program naturally covered the renewal and rebuilding of rolling stock and the reconstruction and extension of tracks in conformity with the transit plan adopted by the city. It also included the abandonment of certain track where duplication of service existed.

A five-year building program was laid out and from 1922 to 1926, inclusive, \$1,633,044 was expended, which

is equal to 50 per cent of the total value of track and roadway at the time reconstruction work began. During this period property to the value of \$833,381 was retired from service, of which 12 per cent was due to duplication of service. All new money required for this construction program was secured without outside assistance.

It was during 1923, when serious consideration was being given rehabilitation of equipment, that preliminary plans were laid for a new design of cars. These came to fruition in 1926 when 27 new "rail coaches" were put in operation, as mentioned on page 782.

FINANCIAL IMPROVEMENT FOLLOWED NEXT

The next step undertaken was a financial one, involving the reissue of bonds to replace those maturing in 1924. In that year \$3,700,000 matured and a new issue was made. Notwithstanding the general uncertainty with which traction securities were looked upon and the precarious position of electric railways generally, this issue was entirely subscribed within an hour after it was placed on the market. This event did not merely happen. Dillon, Read & Company acted as brokers and only took the issue after their engineers had made repeated and exhausted study on the property. A feature of their report was the suggestion that the very strong public relations position of the company gave these securities an uncommon worth.

This refunding was carried out without change in the capital structure, another evidence of the confidence and returning good will of the people and investors toward the Grand Rapids company.

During 1924 a schedule department was established, resulting in economies through decreased man-hours and car-miles and increased running speed.

On July 19 fire destroyed the Hall Street carhouse and 57 cars. This disastrous loss was taken advantage of to promote the new type of electric coach for which plans had been partially completed. This course of action meant that it would be necessary to operate old and obsolete borrowed equipment for the time necessary to bring the new cars into operation, but the public, taken into the confidence of the management and fully advised of the circumstances, gave its hearty support and waited with unusual patience until the new coaches were placed in service.

TEST CARS REVOLUTIONIZED DESIGN IDEAS IN 1925

In the early spring of 1925 delivery was made of three test coaches which had been worked out with the cooperation of three car builders, in accord with the design proposed by the railway.

In view of the somewhat radical changes which had been made in design, it was deemed advisable to make a thorough test of these three cars to determine the relative merit of the innovations, with a view to adopting a final composite design of car which would incorporate all of the features found to have merit. The aim was to provide a light-weight car which would carry a new appeal in comfort and appearance.

In order to keep the industry advised as to the progress made, these cars were taken to Atlantic City for exhibition purposes at the annual convention of the A.E.R.A. The enthusiasm with which they were received gave evidence of the industry's approval of the company's effort to furnish the public rides comparable with those in automotive vehicles.

After these cars had been in service during the year,

a composite design of coach was evolved incorporating those features which had shown up well in the test period and had proved to be salient in the sale of transportation. Plans were completed and orders placed to equip three lines.

IMPROVEMENT PROGRAM REACHED CLIMAX IN 1926-1927

The rehabilitation of the physical property of the railway company reached a climax in June, when 27 new electric coaches were delivered. These cars were placed in regular service and almost immediately increased car riding was enjoyed, confirming the expectations of the company that the new idea in cars would create increased car riding as well as effect decreased operating expenses. The biggest return, however, was the intangible value of the reaction upon the public. This was particularly helpful just at this time as it thus became easier and more popular for the City Commission to work with the company.

The first six months of the year 1927 have seen the culmination of the crowning accomplishment in the program, as affecting the financial future of the company. This was the revamping of the financial structure, very much along the lines recommended by the advisory committee on finance, A.E.R.A., 1925.

It is the belief of the management that, with continuance in the betterment of the physical property and with the financial structure of the company reorganized and placed on a substantial footing, the future of the railway company is now assured both from the standpoint of its investors and the public.

The reorganization of the Grand Rapids Railroad was undertaken in the interest of the holders of preferred stock, to re-establish credit and permit reduction of the fixed charges, which had been too great a burden. It provided for the extinguishment of \$600,000 of bonded indebtedness and reduced the annual cash outlay \$140,000. The immediate results obtained and the ultimate benefits which will be derived from this reorganization are given in detail elsewhere.

During the months that have gone by in the year 1927 the rehabilitation program as outlined has been steadily carried forward and the results have been very gratify-

ing. During 1926 the total operating expense was \$1,108,709, as compared with \$1,172,157 in 1925, a reduction of \$63,447, or 5.41 per cent. The inauguration of the electric rail coaches has resulted in increased popularity of car riding. This is shown by an increase in gross revenue from \$1,738,779 in 1925 to \$1,776,758 in 1926 an increase of 2.18 per cent. This increase is the more remarkable because the coaches did not go into operation until the middle of June, 1926.

In general, this extensive five-year rehabilitation program has resulted in economy of operation, improved service, improved earnings, a profound improvement in public good will, and has gained for the Grand Rapids Railway widespread recognition in the transportation field. This brings the company to the place now where it has laid out and is embarking upon a new ten-year program of betterment and construction, which should shortly bring the property up to and maintain it in a virtually 100 per cent condition.

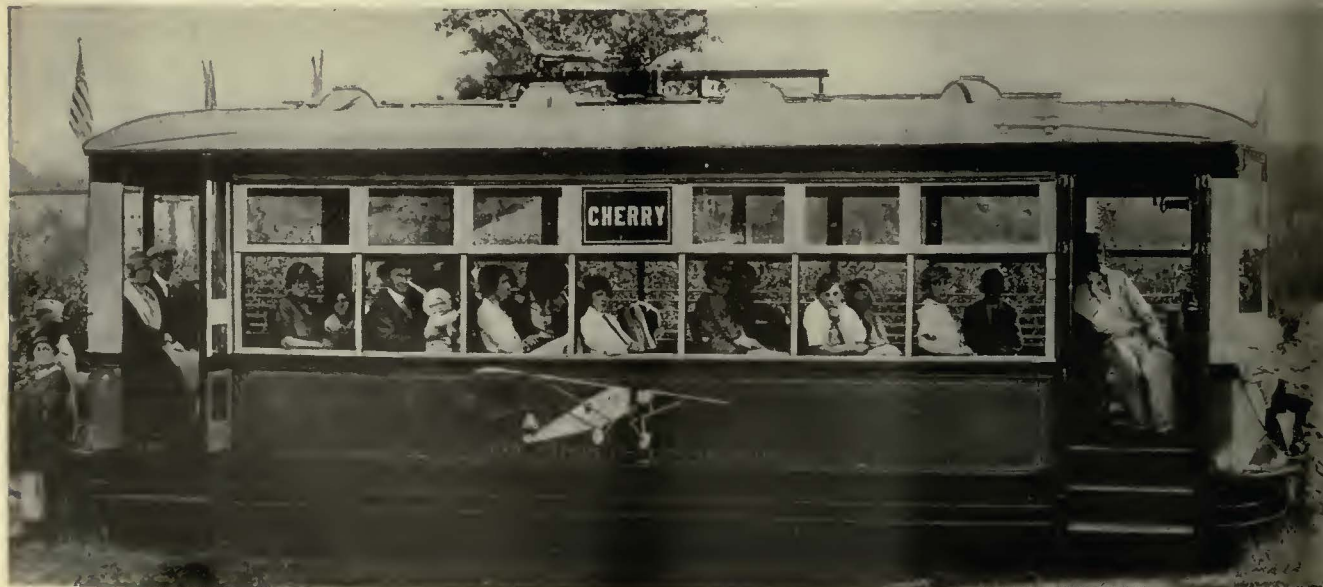
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Car Named After Colonel Lindbergh

Prize-winning company accedes to request of Grand Rapids Flying Club to act as sponsor for coach named after noted aviator.

THE practice of naming electric railway cars after distinguished local citizens is followed in Grand Rapids as well as in some other cities. Grand Rapids has gone a step farther, however, and on Sunday, June 19, 1927, one of its electric rail coaches was dedicated to Col. Charles A. Lindbergh. A suggestion for this ceremony was conveyed to the officers of the Grand Rapids Flying Club, in the belief that it would be in keeping with the spirit of the time and strengthen the efforts of the club to gain greater public support for the local airport. The club agreed.

Accordingly, a request was made by the Flying Club,



The Lindbergh car shows what can be done to make rebuilt Birney cars attractive, comfortable and less noisy



The Grand Rapids "Colonel Lindbergh" car carried appropriate front decorations and the operator was dressed in flying costume. The air propeller over the coupler was removed when the car was put in operation

through its president, to the railway management to permit the club to sponsor such a coach at a public dedication. A coach was being rebuilt in the company's shops at the time, and to take advantage of this opportunity it was promptly decorated to serve this purpose. News stories and advertising informed the public of the event, which was held at Ramona Park at 5 p.m. This hour was chosen so as not to conflict with a public concert in the John Ball Park at the end of another car line, where during the early afternoon the Elks Band played for the first time in Grand Rapids "The Spirit of St. Louis."

At 2 p.m., to accommodate the public, the Lindbergh coach was placed on public exhibition and inspection. More than 2,000 people passed through and praised it during the hours until the dedication.

The ceremony was also broadcast by the local radio station, WOOD. Several thousand people crowded about the car during the ceremony and airplanes from the local airport flew low overhead and dropped flowers on the coach. Of course telegrams were sent by the Flying Club to Colonel Lindbergh and his mother telling them of the dedication in his honor. An attractive album of photographs of the event, autographed by the president of the club, Mayor Swarthout, Association of Commerce officials and others, was sent to the Colonel.

A feature of the Lindbergh coach was the attire of the car operator, who will be known as "pilot" instead of chauffeur. He wore for this occasion the regulation one-piece flying uniform with goggles and helmet, in keeping with the atmosphere of the coach.

The new coach, harmonizing with the quality of the company's new rolling stock, is made unusually attractive by the outside decorations, which include the name of Colonel Lindbergh, the flying insignia with American shield and star signifying a senior aviator. The panels are illuminated with artistic reproductions of Lindbergh's famous airplane, "Spirit of St. Louis." An unusual but very appropriate decoration was an 8-ft. airplane propeller that graced the front of the car. Small models of airplanes with revolving propellers, donated by the Grand Rapids Airport organization, were placed in front on the roof, and American flags at the rear.

Within the coach the bulletin board contains an artistic crayon drawing of the Colonel in flying regalia. Above the picture is the inscription: "This car is sponsored and dedicated to Colonel Charles A. Lindbergh by the Grand Rapids Flying Club."

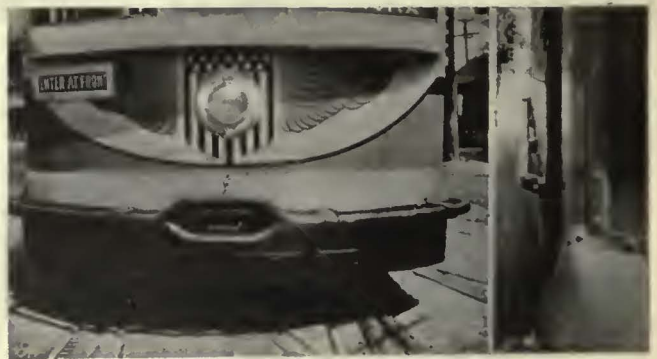
The car is painted in desert sand color, trimmed in red and black, with lettering in gold. The seats are an innovation, being round-top reed, upholstered with leather, with air cushions. Bulletins will be posted daily in the car by the Flying Club on matters pertaining to local and national aviation events. This and the continued operation of the Lindbergh car should tend to hold the kindly interest of air fans and their very active organization in the railway company.

* * * *

Side and End Car Bumpers in Grand Rapids

REALIZING that more automobiles collide with street cars than street cars with automobiles, the Grand Rapids Railroad has equipped its cars with bumpers as a protective measure. This has eliminated to a large extent the marring and scratching of car bodies, has prolonged the life of the paint job and at the same time has been worked out so that the bumpers have added to the attractiveness of the car by keeping the panels free from dents.

On the latest cars remodeled in the company shops a bumper has been placed the entire length of the car body, attached to the side panel at the sill line. This protects against sidewipes. It is made of steel tubing, the ends of the tubing being upset and swedged to a flat surface for bolting to the body. The bumpers are painted black and form a part of the attractive paint scheme.



The Grand Rapids company is experimenting with the tubular end and side bumpers shown above

Front and rear bumpers are made of spring steel of a weight and size to conform with the weight and size of the car and are bent to shape to conform to the dash of the car and project from the dash approximately 6 in. so that the entire force of collision is taken up by the bumper. Horizontal bars of the bumpers are so arranged that there is no interference with the drawbar pocket and the drawbar slips in between two horizontal leaves of the bumper. Views of these bumpers are shown in the car views in the preceding pages. The company has also been experimenting with a tubular front bumper. It has been attached to the Colonel Lindbergh car as illustrated herewith. It has been found that the saving made in repairs due to collisions has more than offset the cost and installation of these bumpers.



Deep-cushioned, rounded-back leather seat



Pullman type plush seat



Two-paneled upholstered seat with deep seat cushion and enameled reed back



Upholstered reversible seat with reed-paneled back made over from old type Birney seat



Deep-cushioned adjustable seat for operator, showing also the easy entrance and exit of car



Cushioned, upholstered reed adjustable seat for operator on remodeled Birney cars

Seats for the Passenger and Operator

IT IS said that the average man spends at least a third of his life in bed. Whether this is correct or not, every passenger on an electric railway, except during rush hours, spends practically all of his time in a seat. Hence, the comfort of the seat which he occupies is a large factor of the opinion formed by him of the service.

The Grand Rapids Railroad, which has been very successful in other ways in winning popular support, believes it would overlook an important business-getting feature if it did not pay especial attention to the character of the seats which it offers the riding public.

On its cars it has been experimenting with, and has developed, four different kinds of passenger seats for different types of cars. They are respectively the deep-cushioned, rounded-back leather seat, the Pullman type plush seat, the two-paneled upholstered seat with deep seat cushion and enameled reed back and the upholstered reversible seat with reed-paneled back made over from the old seat.

The company also believes that its car operators should be provided with comfortable seats, and for them it has developed two types—one is a deep-cushioned adjustable seat. The other, a cushioned, upholstered reed adjustable seat, is designed for the operator on a remodeled Birney car. All of these different types of seats are illustrated on the opposite page.

* * * *

Operating Costs Reduced at Grand Rapids

THE fact that the new rail coaches at Grand Rapids have been a major influence in the accomplishment there lends added interest to the company's expense accounts. The figures for the four principal accounts for the fiscal years ended May 31, 1927 and 1926, are given in Table I and show that there was a decrease in 1927 from 1926 in all four accounts, namely, way and structures, equipment, power and conducting transportation, although there was an increase in car-miles operated. The per cent reduction in way and structures expense was 10.72 per cent. While this can hardly be attributed

TABLE I—FOUR PRINCIPAL EXPENSE ACCOUNTS FOR YEAR ENDED MAY 31, GRAND RAPIDS RAILROAD

	1927	1926	Decrease
Way and structures.....	\$85,006	\$95,218	\$10,212
Equipment.....	119,210	176,896	57,686
Power.....	162,980	172,359	9,379
Conducting transportation.....	320,157	363,848	43,691
Total of four accounts.....	\$687,353	\$808,321	\$120,968
Car-miles operated.....	3,745,031	3,675,090	*69,941

*Increase.

wholly to the operation of the lighter cars, because it followed so quickly after their introduction, undoubtedly they produced less wear and tear on the tracks. The greater part of this reduction was undoubtedly caused by the extensive reconstruction of the track undertaken a short time previously, a reconstruction involving more than 20 per cent of the system.

The percentage reduction in equipment expense was 32.61 and was brought about very largely by the operation of the new coaches, which allowed the retirement of the old equipment that was costly to maintain. At the same time the pull-ins for the year fell off 52.11 per cent. Practically, the change allowed the company to reduce the working force in its car shops from 56 to 39 men, and later to shorten the working day from nine to eight hours without increased compensation. It will be noted that the saving in the equipment account, \$56,686, is larger than in any of the other primary accounts.

The reduction in power expense amounted to \$9,379, or a decrease of 5.86 per cent, and a corresponding reduction in consumption of 687,486 kw.-hr. This is the total amount of electrical energy purchased for all uses, including car propulsion, car heating, air compressors, lighting, shop power and track tools. In a sense it is more noteworthy than appears on its face, because the new electric coaches are electrically heated, while the cars which they replaced were heated with coal. The saving was also made in the face of the additional car-miles operated, as mentioned above. The kilowatt-hours used during 1926 were 3.36 per car-mile, whereas in 1927 they were 3.11 per car-mile.

The reduction in conducting transportation accounts was \$43,691, or 13.65 per cent. This reduction was largely accomplished through the inauguration of the new coaches, which are one-man operated, though of practically the same seating capacity as the old two-man cars replaced.

Table II shows the income statement for the past six years.

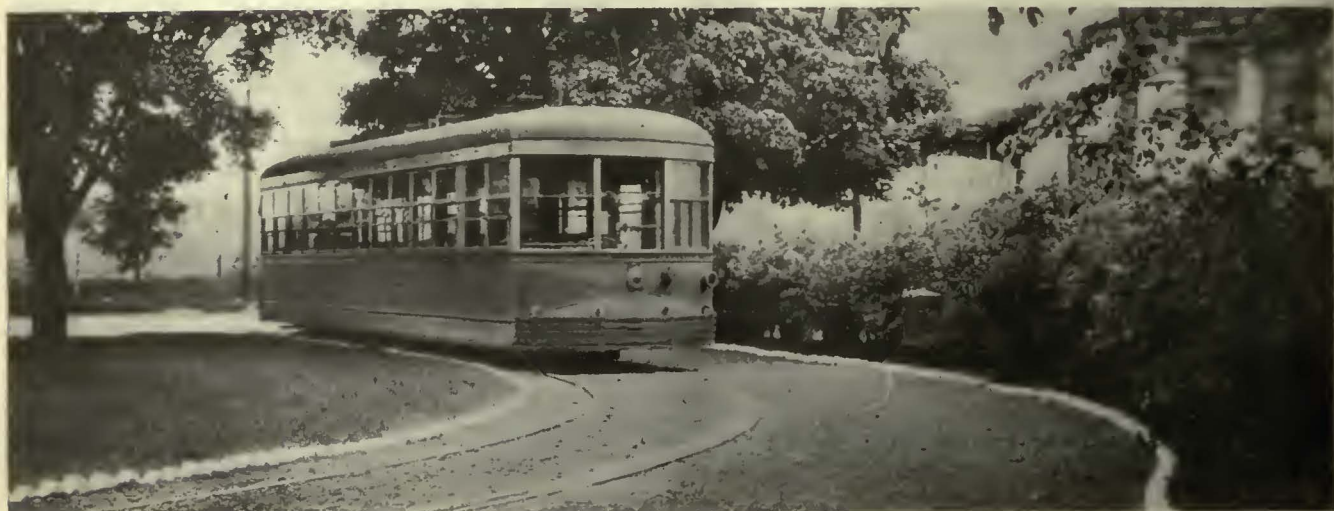
TABLE II—INCOME STATEMENT FOR SIX-YEAR PERIOD FOR YEAR ENDED MAY 31, GRAND RAPIDS RAILROAD

	1922	1923	1924	1925	1926	1927
Passenger earnings.....	\$1,798,898	\$1,825,185	\$1,742,796	\$1,682,199	\$1,710,633	\$1,710,126
Other earnings.....	46,061	53,596	63,031	50,017	39,643	47,220
Total gross earnings.....	\$1,844,960	\$1,878,782	\$1,805,827	\$1,732,217	\$1,750,277	\$1,757,347
Operating expenses.....	1,187,810	1,189,614	1,114,465	1,126,733	1,163,691	1,048,740
Gross income.....	\$657,149	\$689,167	\$691,362	\$605,483	\$586,585	\$708,606
Taxes.....	138,544	135,204	137,811	131,419	147,170	149,014
Gross income after taxes.....	\$518,605	\$553,962	\$553,550	\$474,064	\$439,415	\$559,592
Fixed Charges:						
Bond interest.....	\$224,000	\$222,166	\$232,608	\$271,357	\$265,474	\$258,135
Other interest.....	31,512	26,666	30,715	37,484	41,404	60,845
Depreciation.....	193,821	171,848	161,527	152,313	168,047	175,099
Amortization of bond discount and expense.....	78,436	78,009	79,392	18,439	19,021	17,037
Bridge sinking fund.....	1,152	96
Total fixed charges.....	\$528,922	\$498,787	\$509,244	\$479,595	\$493,946	\$511,117
Net available for dividends.....	*\$10,317	\$55,174	\$44,305	*\$5,530	*\$54,531	\$48,474
Revenue passengers carried.....	24,495,587	24,138,107	21,993,359	19,267,331	19,435,873	19,347,835
Car-miles operated.....	3,946,702	3,958,371	3,826,643	3,621,293	3,675,090	3,745,031

*Deficit.

Winning Popular Approval in Many Ways

The Grand Rapids Railway embraces every opportunity to improve its service and to make it more popular with its riding public



Loops for turning cars at the ends of routes are beautified by tasteful treatment

OTHER articles in this issue tell of the major points in the public service policy of the Grand Rapids Railroad, but no opportunity was overlooked by the company to improve its service and make it more popular. Brief accounts of some of these methods will be given.

PAINTING CARS TO ATTRACT PASSENGERS

With the introduction of the new electric rail coaches came the realization that pleasing color combinations on street cars offer an attraction that is conducive to increased good will and increased desire to ride. The idea, born in Grand Rapids, was used as an experiment to determine what the reaction of the public would be. Harmonious color combinations, public and parochial school pennants in their proper colors, also Boy Scout and Camp Fire Girls' insignias, truthfully reproduced, were introduced on the new coaches and gradually extended to many of the older cars on various lines.

STORES SELL STREET CAR CHECKS

Co-operating with store owners to accommodate their patrons, at the same time increasing the car riding revenues, the railway company has established stations for the sale of street car checks in the leading downtown department stores and in drug stores and business places in many parts of the city. This convenience to the public has not only been appreciated but has been mentioned in the advertisements of many stores because of its shopping and trade value.

Believing that a direct advertising contact with hotel guests would encourage street car riding as against taxi patronage, the railway management has followed such

a plan for several months. Through arrangement with the hotels, a trustworthy employee was detailed to slip under the door of each guest's room each night an attractive cardboard folder. It is of pocket size so that it may be carried for reference or mailed to friends soon to visit the city. The front page of the folder bore the cheery greeting "Good Morning!" and beneath it a half-tone picture of one of the new rail coaches. Beneath this a caption read: "Grand Rapids, the Furniture Capital of America, Welcomes You." The second page contained a map of Grand Rapids, showing the company's lines. The third page bore a message about the service given by the company and asking the guest to patronize it.

The back page carried a list of those places of interest, depots, factories, etc., such as a hotel guest would likely be interested in and can be reached by the street cars.

"WELCOME" CARDS FOR DELEGATES

Small-sized, attractively printed "welcome" cards are issued to delegates upon their arrival in the city to attend conventions, field days, touring parties, etc., where the number of persons would make it worth while.

These cards welcome the visitors to Grand Rapids and then add: "The Grand Rapids Railway takes pleasure in placing its service and its amusement park (if in the summer) at your disposal for your 1927 convention (field day, outing, etc.). We sincerely hope you (and your wife, families or friends) will have a most enjoyable visit (session, outing, meeting, etc.)."

Letters are also sent to persons taking up residence for the first time in Grand Rapids. The newcomers may be in the midst of getting their new home settled, or may have it just established, when the mail brings them a

message from the street railway company welcoming them to the city, and in a sincere way inviting them to ride the street cars to work, to school, or shopping, etc., telling them the line nearest their home. Often it is the first letter received by them and it produces a favorable reaction. Usually the recipients do not understand how the company could learn of their arrival so soon. The key to the secret is that the moving van companies supply the information that makes the letter a success. Along the same lines a letter is also mailed to residents who change their street address, calling attention to the street car service nearest their new residence location.

PORTER SERVICE FOR STREET CARS

To maintain a high standard of car cleanliness, a special car porter has been stationed at a downtown central point on the system. He boards the cars and passes through them, picking up refuse left by passengers, wiping dust from seats and window sills, cleaning ashes off the floor in the smoking compartment, etc. He does this while the car continues on its way and, when through, leaves the car and boards a returning car, which he cleans before arriving at the central point. In this manner practically all the cars receive special attention once or twice daily. This sort of secondary cleaning was formerly done at the ends of car lines, but the passengers did not know it. By having it done in the center of the city, where passengers see it, the company gets credit for the special effort which it is making. Furthermore, it employs the time of the porter more effectively, since practically all cars pass the point at which he is stationed.



Mirror provided at each carhouse to induce car operators to maintain a neat appearance

TRAINING EMPLOYEES IN SALESMANSHIP

That its service may meet the modern demand, the Grand Rapids Railroad has established a school for the education of its operators along the lines of safe, courteous, efficient service and salesmanship. The instructors are division superintendents. The curriculum includes good operation, safety, personal service, personal comforts, passenger friendliness, general public responsiveness.

The operators' views are taken and discussed. The operators are questioned regarding all phases of their work, their responsibilities and trying incidents that test their courtesy or the service, and an effort is made thoroughly to educate them to meet every situation that may

confront them. They are asked difficult questions, such as might come from passengers. If their answers are not favorable, proper instruction is given.

The objective sought is so to train these men that they will not be bound by a set of iron-clad rules, but rather will be fortified for any emergency, any situation, any problem, any question or any phase of the service where only good judgment and thoughtfulness could meet the situation.

After passing through this course, although the operator's viewpoint has changed in many cases, he has been unconsciously educated to a better understanding of his work, salesmanship and responsibility.

OTHER MEANS OF WINNING THE PUBLIC

At certain times the railway company has written letters calling attention to the safety and economical features of its service to owners of automobiles that were found on different days parked in or near the business districts. The letters invited the autoists to use the street car service, the invitations being worded in such a way that no resentment could be, or has been felt, by the autoist.

The company has always paid great attention to maintaining the attractiveness and cleanliness of its properties, especially those which are conspicuous, like loops. An accompanying view shows the manner in which loops are being beautified.

A new uniform of the "chauffeur" style was adopted in 1924 for the company's platform men. It is a two-piece olive drab suit with breeches and puttees and a business-like touch. In the car, chauffeur nameplates identify the operators and conductors. A full-length mirror in each carhouse helps the car operators to maintain a neat appearance.

A bulletin board at the front of each city car permits different civic associations to post notices of events of city-wide interest.

A young man in neat railway uniform is stationed at a central loading and transfer point to answer all general questions, give directions, and sell car tickets. His uniform has the words "Ask Me" embroidered on the sleeve.

The old longitudinal rattan car seats which were removed from the cars to make room for more modern types were presented to the Fire Department. They have made comfortable benches at the various fire stations.

Where the street width permits, permanent loading platforms have been erected. Where the streets have been too narrow for this, portable zones have been established by means of pipe and chain railings placed in sockets inserted in the pavements. After the evening rush-hour period these railings are removed.

A full uniform is presented to each operator who has a record for the year of no preventable accident during this period. Last year 85 awards of this kind were made.

Employees and their families receive free admission, by passes, on weekday afternoons to the theater at Ramona Park, which is operated by the company.

Suggestion boxes are maintained, at which any employee may drop a written suggestion or idea for the improvement of the service. Each month a special committee reviews these suggestions, and cash prizes are awarded for the best ideas that can be adopted.

Six or more employees, usually car operators, are invited to attend each of the monthly department head meetings. These invitations are divided equally among union and association men and are rotated among the employees generally.

Rebus Contest as a Business Getter

Grand Rapids Railroad offers prizes for successful solutions of puzzles based on the names of its cars



More than 10,000 persons came down town to view the exhibit of the Grand Rapids rebus contest the first day it was opened

DURING April of this year, while the car-riding patronage was showing a decrease, the Grand Rapids Railroad announced a street-car name rebus contest which ran from May 1 to May 30. The company has 76 cars with names. Of this number 27 were chosen and expressed in rebus sketches. A sheet with these sketches numbered and with the conditions of the contest was distributed in the cars. Any one in Grand Rapids except employees of the company was eligible to compete. Persons were asked to familiarize themselves with the names of the cars, then study each of the 27 sketches and decide the name represented by each sketch. The prizes offered were, first, \$25; second, \$15; third, \$10; fourth, \$5, and forty-five prizes of \$1 each. Three prominent citizens of Grand Rapids were named as judges.

Figures on passengers carried during the month indicated the contest stimulated riding besides popularizing the service. More than 60,000 rebus folders were taken from the cars and more than 2,000 answers received. One of the outstanding good-will and patronage features of the rebus contest was that every person who sent in an answer received a card of single admission to Ramona Park, good any time during the summer season. Recipients were notified of this "prize" and had to come to the company office to get it. This meant riding. Then, the single admission tickets probably brought increased patronage in both car riding to and from the park and in tickets for friends, because people seeking amusement do not go alone.

From the good-will building standpoint, the contest was perhaps even more important than as a revenue producer. The answers were submitted in all manner of forms, some very elaborate. But all through the 2,000 answers there came back to the company many of its advertising and public relations work expressions, reflections of its efforts to improve service and of the problems on which it had sought public understanding. The contest was a revelation in its proof that these efforts of the company had really made their impression.

Letters from Grand Rapids residents traveling in many states were received by mail, showing the folders were taken from the boxes before the residents departed from the city and were worked out while en route. Many patients in public and private hospitals and in homes wrote in thanking the company for the comfort and enjoyment they had found in working the rebus.

All answers, the rules required, had to be filed at the company's information office, or mailed. While one would suspect the preponderance of answers would be by mail, such was not the case, the office contact with the public being far beyond the company's expectations. Entire classes and rooms in different schools worked the rebus, sent a chairman to file it, and with it a letter of explanation.

After the prizes were awarded a central location was procured for prize distribution and there was an exhibition of the more novel and attractive answers. It was opened to the public to continue for four days. The first day more than 10,000 persons viewed the display, while the total attendance for the four days was more than 20,000, by clicker check. This again brought patronage to the cars and had its effect in building favorable reaction toward the railway. In general, the contest effected its purpose, made the people think and talk street cars for more than 30 days during a period unusually favorable for motoring.

* * * *

Turning a Park into an Asset

An annual feature is Kiddies' Day, when prizes are given to the children and all amusements are half price

ONCE it was thought that a park was a necessary adjunct to practically every electric railway company, but the cost of keeping it up and providing the attractions has done much to change this point of view.

The Grand Rapids Railroad is one company that looks upon its park as an asset rather than a liability. This resort, known as Ramona Park, is situated on the shores of Reed's Lake, near the city and at the end of a car line. A large sign at the entrance states, "This resort is maintained by the Grand Rapids Railroad for our citizens and their friends." An exceptional feature is that the company operates a regular theater there, offering the best Keith-Albee New York acts—the only high grade attraction in the city during the summer.

A policy of "free gate" to the park is maintained and reacts in public good will and increased revenue through more riders.

By keeping definite control of the concessions and entertainment the company maintains a high class park at all times and has won public approval because unescorted women and children are safe there at any time. This condition is made possible by a trained and courteous staff.

This activity on the part of the company is highly appreciated, so much so that the Grand Rapids Furniture Manufacturers' Association subsidizes this theater during the July furniture market season.

Another feature of Ramona Park operation is an annual event there during the summer known as Kiddies' Day. In August, 1926, the second annual Kiddies' Day celebration was held at Ramona. It taxed the facilities of the railway company to care for the unexpected throngs. More than 30,000 children enjoyed the gala

day arranged for their entertainment. Naturally many parents accompanied their children, with resultant benefit to street car revenues.

In first creating Kiddies' Day the railway management (though without thought of any profit) sought to have one day that the children could call all their own, when every child, rich or poor, of any race, creed or color, could have one day's outing at very small expense, for there are many in every city who do not ordinarily get these pleasures. Consequently, all amusement rides, theater admissions, etc., were made half price. The company, aided by concessionaires, gave away 100 valuable prizes, including a Ford, a pony, radio set, bicycle, dog, baseball suits and many other things the childish heart desires. In addition, 300,000 souvenirs furnished by department stores, banks and other establishments were distributed. Every child received a store of cherished things as tokens of the occasion.

Because of the public confidence, good will and patronage Ramona Park annually returns a profit to the company and certainly creates more riders.

* * * *

Short Notes on Big Events

A summary of some of the events not previously mentioned which helped the Grand Rapids Railroad to win the Coffin Prize this year

EVIDENCE of the rehabilitation of the Grand Rapids Railroad, financially and physically, does not rest on one event or a dozen, but on a great many—all of which cannot be recounted here for lack of space. Brief notes will be given of a few of the more important events not previously mentioned.

The litigation against the company for accidents has become almost negligible. Only three suits were begun against the company during the year ended May 31, 1927,

and all were of a minor character. One was dismissed by the plaintiff, the second was compromised out of court for less than \$50, and the third, involving about \$85, is still pending. Part of this satisfactory condition is due to the great care exercised in operation, part to the reputation the company has for fairness in adjusting claims, and part to its endeavor where liability exists to handle the matter outside the court.

Since the disastrous fire which destroyed its carhouse with many cars all carhouse employees are drilled in fire protection under the instruction of the City Fire Department.

SERVICE AT COST FAVORED BY CIVIC BODIES

In February, 1927, the Civic Round Table, composed of delegates from representative civic bodies, improvement associations, etc., passed a resolution to the effect that as the company was then on a service-at-cost basis it would be desirable to have it relieved from paving charges. This resolution was sent to the City Commission, which arranged to have an amendment to the City Charter to carry this resolution into effect submitted to the voters on March 7. Indorsements of the proposed amendment were passed by a very large number of trade and other civic organizations in Grand Rapids. Even a competitor in the transportation field, the principal local taxicab company, urged passage of the amendment. Unfortunately, the vote on March 7 was unfavorable. This may have been due to the fact that another amendment, providing for a 2-mill tax on all real property, was on the same ballot and the public thought they were dependent to some extent on each other or it may have been due partly to the inclement weather which kept many voters from the polls, or partly to the shortness of the campaign which did not give an opportunity for all voters thoroughly to understand the question. However, of the total vote of 8,565, the number cast in favor of the plan was 3,375, while only 4,190 were against the



An idea can be gained from this picture of the crowd of children assembled on Kiddies' Day at Ramona Park, Grand Rapids

measure. The other amendment was defeated by a vote of nearly two to one.

In November, 1926, the Grand Rapids Association of Commerce, later supported by the City Commission and other representative associations, nominated Mr. DeLamar, vice-president and general manager of the company, as the candidate from Grand Rapids for the Harmon Foundation gold medal and \$1,000 prize. This is an annual award to the individual, who, in the opinion of the judges, has been responsible during the year "for the creation, introduction or development of a distinctive contribution to the social, civic, or industrial welfare." In its letter to the foundation, making this nomination, the Association of Commerce emphasized the benefit to the city brought by the rehabilitation of the railway property. The nomination was indorsed by the two leading newspapers, many civic clubs and prominent citizens.

EQUIPMENT IMPROVEMENTS

In its equipment the company has made a number of improvements besides those already mentioned in this issue.

It has established a maintenance cost system by which small leaks in operating expenses are detected.

It has equipped two cars with roller bearings and has kept a careful record of energy consumption from meter readings and of their lubricating and inspection costs. The test has not been carried over a long enough period to quote definite results, though up to the time that the brief was submitted the lubricating and inspection costs for the roller bearings per month were much less than

for the plain bearings. Tests are also being conducted with one car equipped with band brakes.

Maps of the company's property and tracks have been prepared, drawn to a scale of 50 ft. to the inch. The track drawings show location of all poles, curb lines, tracks and paving, history of track, type of joints, etc. The plan is considered very much worth while.

RELATIONS WITH EMPLOYEES

The improvement in the company's equipment has been coincident with that of improvement in relations with its employees.

Suggestions as to betterments of the service are solicited from employees, and cash prizes are awarded for the best ideas adopted.

A company publication, the *Token*, is issued for circulation among the employees to encourage good public relations, increase courtesy to the public, teach tolerance, increase efficiency, and create a greater fellowship between departments. A leaflet, *Trolley Topics*, is issued monthly for circulation among the public through car boxes. Since June 1, 1926, every employee has had the benefit of free life insurance, under a group plan.

LARGE BOOK OF CLIPPINGS

A part of the evidence submitted by the Grand Rapids Railroad to the Charles A. Coffin Prize Committee consisted of a large book of many hundred pages in which clippings referring to the company had been pasted. The publications represented were of all kinds and from all parts of the country.

Caribbean Tramways Prosper

Narrow streets introduce serious problems, but there are compensating advantages, one of which is there is little automobile parking

ELECTRIC railway systems in the countries bordering on the Caribbean Sea are of smaller size than those in cities of equal population in the United States, but the traffic on their lines is comparatively heavy. In Havana, Cuba, the largest city in this area, local transportation is furnished by the Havana Electric Railway, Light & Power Company. The population of the city is slightly more than 400,000. The railway has more than 100 miles of standard gage track in the city and neighboring communities. A total of 590 cars are owned, of which 524 are required for regular operation. On account of the narrow streets and sharp curves, all the cars are of single-truck design. Double trolley wire is used at present, but plans are under consideration for changing to single wire. The fare is only 5 cents, but much of the riding is short-haul and the company is prosperous.

At Camaguey, a city of about 100,000 population, and at Santiago, which is somewhat smaller, the railways are under the same management as at Havana. The Camaguey Tramway operates 22 motor passenger cars on 10.5 miles of track, while the Santiago Electric Light & Traction Company operates 30 cars on 9 miles of track. The fare is 5 cents. Like that in Havana, the track is standard gage, but in contrast to the Cuban metropolis, the overhead system is single trolley wire.



Left-hand operation is a characteristic of electric railway service at Kingston, Jamaica

All cars on these three properties are of the two-man type.

Throughout Cuba the weather is so humid during the rainy season that particular attention must be paid to the wood work in car bodies. Duralumin screws have been found more satisfactory than brass. Outside body joints are first covered with canvas soaked in white lead and a finishing strip of wood is then screwed on over the



Narrow streets and double overhead trolley are characteristics of electric railway operation in Havana



Crooked and narrow streets are numerous at Camaguey and require complicated special trackwork at intersections

canvas. Double belt rails are used to protect the sides of the cars and the window posts from damage in the narrow streets. One belt rail is immediately below the windows, while the other is at the bottom of the side panel.

Kingston, Jamaica, is a city of about 65,000 population. Transportation is furnished by the Jamaica Public Service Company. This company operates 39 motor passenger cars on 26.6 miles of standard-gage track. As in England and some other British possessions, left-hand operation is the rule. This company also does a general lighting business.

In contrast to the other railways in this territory the Panama Electric Company's track in Panama City is 3 ft. 6 in. gage. Transportation is furnished to a population of 76,000 by 22 cars operated on 11.4 miles of track. This service is supplemented by two buses operated on .5 miles of route.



At Panama City the track gage is only 3 ft. 6 in.



At Camaguey the local electric railway uses single overhead trolley wire. Span wires are often attached to buildings in these narrow streets



Single-track cars are used in Havana on account of the narrow streets and sharp curves. Double belt rails protect the car body from damage by sidewipe

European Brake Practice

Surface cars use many types of power brakes, but the air brake is standard on rapid transit lines

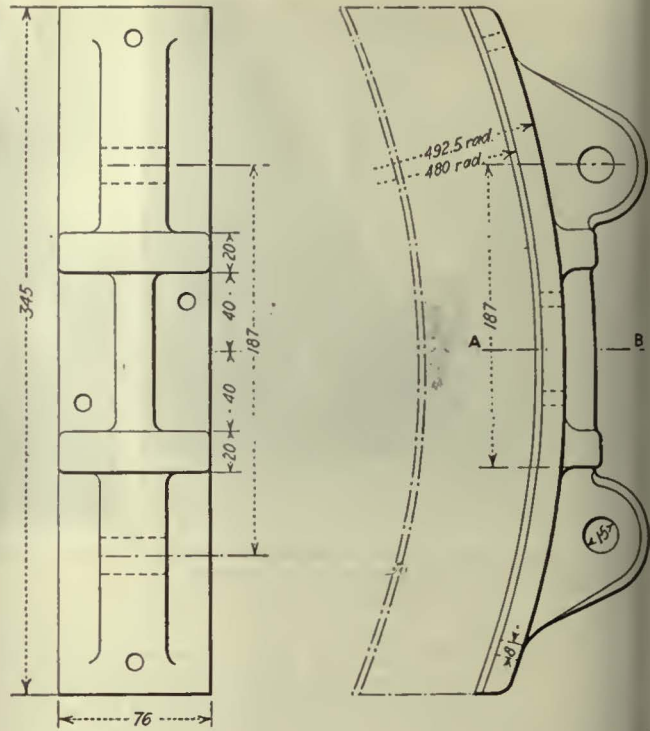
WHILE the air brake is practically the only power brake used in this country, this is by no means so in Europe. Other brakes whose use is very popular abroad are the various forms of electric brakes, such as the short-circuiting brake, solenoid brake and magnetic track brake. In Berlin electric brakes are so greatly favored that the air brake has been abandoned for surface car use. In the latest Berlin cars, equipped with spur gear motors, a band brake mounted on the armature shaft is employed. The trail cars use an axle disk brake, operated by hand or a solenoid. In the Cardan drive motor cars braking action is on the motor shaft.

Undoubtedly where the motors are used for braking cars, as with the short-circuiting brake and the magnetic track brake where current is taken from the motors, a greater load is put on them than where they are used for propulsion only, as in the United States. - But this extra duty seems to have been considered when the capacity of the motors was chosen and burnouts do not appear to be more frequent abroad than here.

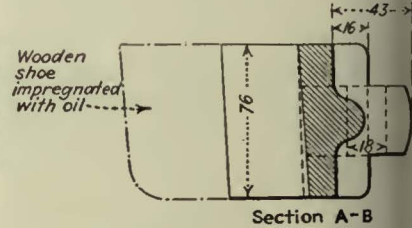
In London, where the magnetic track brake is used extensively, the track shoe is attached to the brake lever system, so that when the brakes are applied the track shoe stops the car by acting against the head of the rail and also by setting the wheel brake shoes. As the current to operate this brake is taken from the motors, action ceases, of course, when the car stops moving. Hence, at stops, the car is held at rest by the hand brake. Four magnetic track shoes are used on each double-truck car of the London County Council Tramways.

Air brakes are used on the rapid transit lines of Paris, London, Hamburg and Berlin, but sometimes wood brake-shoe blocks are used instead of the customary cast iron. These wooden blocks seem to give good results on lines which do not have to run in the open. In Paris, where such shoes are used very extensively, the wood employed is beechwood. After the shoe is cut from the wood it is put in a vacuum chamber, where all juice and sap are taken out. Then it is impregnated with oil under a pressure of from two to three atmospheres. Olive oil is used. Originally linseed oil was employed, but gave a bad smell when it became heated in train operation.

The wooden shoe is held in a cast steel back, as shown in the illustration, being attached to it by four screws



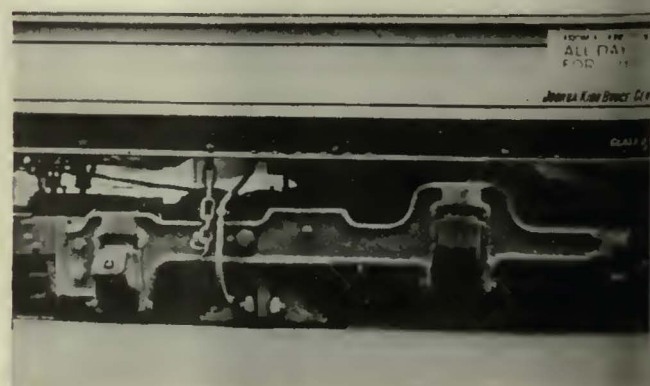
For the past fifteen years the Paris subway lines have used wooden brake shoes like this with success. The wooden shoe is held in a steel back



which pass through the steel back into the wood. All dimensions shown in the engraving are in millimeters.

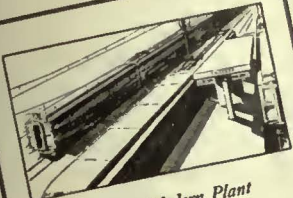
The life of a wooden brake shoe under Paris conditions is about 30,000 km. (19,000 miles), whereas with cast iron the life is only about one-third this mileage. The wear is from abrasion of the material and not from burning. On all recent trucks on the Paris underground lines two brake shoes are used for each wheel.

In one subway line in London, which does not operate in the open, a composition called ferodo is used for brake shoes instead of cast iron, but it has been found that where a wood or composition shoe is exposed to moisture, as in a line operating in the open, it becomes slippery. In consequence, iron brake shoes are used on all London subway lines except the one mentioned.



Magnetic brake shoes as employed on the Naples Municipal lines (left) and London County Council Tramways (right). In the Naples view the shoe is partly hidden by the side rod connecting the body posts on this single truck

Electrification Brings Profit to Illinois Central



Using a Modern Plant

The Illinois Central suburban service is distinctive for convenience, comfort, safety and speed. These qualities are possible because the plant is thoroughly modern.

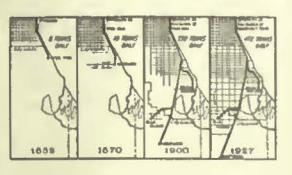
Two hundred sixty steel cars afford comfortable seats for 22500 persons at a time. Clean waiting rooms are at all stations. One hundred eighty miles of smooth and level tracks are used to expedite the different classes of service. From 800 miles of overhead wire is drawn electrical energy—clean, quiet and efficient—to operate the trains.

Upward of 100,000 commuters daily use this service. A continued increase in patronage will enable the further development of its advantages.

Constructive criticism and suggestions are invited.

E. L. Downs
President, Illinois Central System


ILLINOIS CENTRAL ELECTRIC



Growing With Chicago

For more than seventy years the Illinois Central suburban service has grown with Chicago.

In 1858 a wood-burning locomotive and a few wooden cars began making four round trips each week-day between downtown Chicago and the outlying village of Hyde Park, via one-half miles



The Human Element

The superior service received by Illinois Central suburban patrons is a business as well as a mechanical product. More than 1,000 men and women devote their full time to the service, using with great skill the modern facilities with which they are provided.

Three hundred men operate the trains. These men are carefully selected and thoroughly trained. They are required to pass frequent examinations on physical fitness and on the rules of the service. They are a group of experienced veterans—the youngest man assigned to a regular run has fourteen years of Illinois Central service to his credit; the oldest has forty-two. These men are proud of their reputation for courtesy and are eager to assure the safety, comfort and convenience of patrons.

Perfection in every detail of the service is the goal of the entire suburban organization. Increased patronage will facilitate progress toward that goal.

Constructive criticism and suggestions are invited.

E. L. Downs
President, Illinois Central System

ILLINOIS CENTRAL ELECTRIC



Electric Trains for Service

For six months we have been operating electric trains on the South Side suburban service of Chicago. We are proud of this improved service, which has brought us a great contribution to the city's progress and progress. Some of the outstanding improvements are more and smaller trains, cleaner and more comfortable cars and faster and more convenient schedules.

These results from the millions we have spent are the result of the persons of the suburban service. We are proud of the service, which has not only paid its way in the past, but, because fully self-supporting, we hope to realize this aim in future years.

We want all Chicagoans to know about our service. The service is so good that it should be kept on being so. In working out and plan, we are glad to have our patrons cooperate with us by giving us the benefit of their views.

Constructive criticism and suggestions are invited.

E. L. Downs
President, Illinois Central System

ILLINOIS CENTRAL ELECTRIC

ELECTRIFICATION of the suburban service of the Illinois Central Railroad in the Chicago area as one year old on Aug. 6 this year. While officials of the company do not feel that all the benefits from this move can as yet be specified it is interesting to note the comments of resident E. L. Downs, as given out in a recent interview with Oscar Hewitt of the Chicago Tribune. Mr. Downs said:

Despite a considerable increase in investment, the increase in patronage has combined with a decrease in operating expenses to produce an improved earning situation. The operating deficit, which was a feature of this suburban service prior to its electrification, is being slowly but surely reduced, and there is reason to believe that if the present favorable condition continues—particularly that part of it having to do with the important factor, increased patronage—the service will eventually become a paying proposition.

Present investment carried on the books chargeable to operation of this service totals \$23,500,000. Of this amount \$10,000,000 is represented by rolling equipment and \$13,500,000 by other facilities.

Among other things commented upon by Mr. Downs are factors that have brought about an increase in patronage under electrification are: Running time of suburban trains has been reduced on an average of 15 to 25 per cent as compared with the old steam schedules. The last steam time-table listed 406 trains serving the south side, compared to 450 trains listed on the time-table of the first electrification operation. On June 26 last this number had increased to 485 trains, and the present schedule of 542 trains is an increase of 33½ per cent.

Suburban service on the Illinois Central during the year 1926 was mostly operated by steam at a deficit of \$37,000. Under an exclusive electric operation the profit is estimated at \$400,000. The company's net operating income for the first six months of this year was \$241,000, which, as Mr. Hewitt comments, makes the estimate of \$400,000 for the year a conservative one.

Some of the reasons for increased patronage on the Illinois Central suburban electrified service by Chicago commuters

This estimate for 1927 shows a difference of \$737,000 in the net operating income between this year and last. During the first six months of 1927, excluding Sundays, the road handled daily 91,621 passengers, as compared with a daily average of 76,457 passengers for the first half of 1926, 77,074 for 1925, 77,533 in 1924, 73,393 in 1923, and 68,259 in 1922. There were 11,848,000 riders during the first half of last year, as compared to 15,108,000 this year, and this increase is attributed to speed, the average being 58 m.p.h. for the trains. The abolition of dust, smoke and cinders and the uncomfortable jolts occasioned by steam operation played their part, as does cleanliness, in making the new service popular.

According to President Downs, "the new schedule provides an express train in each direction every ten minutes throughout the day between Hyde Park and 67th Street inclusive, in addition to the special trains serving some of these stations. It gives an express train in each direction every twenty minutes throughout the day for stations on the South Chicago line, and between 72d Street and Kensington—115th Street and the main line. The new schedule also provides nineteen additional local trains daily between Randolph Street and Hyde Park."

As pointed out by Mr. Hewitt in his report, while no Illinois Central official will consent to be quoted, several of them both hope and expect that the electrified suburban service will carry 30,000,000 riders this year—an increase of more than 5,000,000 over last year.

On the anniversary of the electrification, the south side staged a celebration in Washington Park Race-track, to which there were more than 20,000 invitations sent out. Meanwhile, as shown in the accompanying illustrations, the road is selling its electrified service to commuters through attractive newspaper advertising.

Rehabilitation Program of Norfolk Property

AS ANNOUNCED in a recent issue of this paper, the Norfolk Division of the Virginia Electric & Power Company is rehabilitating sixteen of its double-truck cars from two-man operation to one-man operation, at an approximate cost of \$100,000. The work is being done at the company's shops under the direct supervision of T. W. Madison, master mechanic.

General details of the cars before converting are as follows:

Length.....	45 ft. 10 in.
Width.....	8 ft. 6 1/2 in.
Height, rail to trolley stand.....	11 ft. 3 1/2 in.
Inside length.....	31 ft. 10 1/2 in.
Inside height.....	8 ft. 3 1/2 in.
Inside width.....	8 ft. 2 in.
Seating arrangement.....	Sixteen crosswise seats and four 5-ft. longitudinal seats, with a combined seating capacity of 54. Seats of wood framing with rattan centers
Type of body.....	Round top with U-shaped "T" iron posts. Entire body of steel with exception of floors and inside finish
Trucks.....	Brill 27G-1
Brake cylinders.....	Westinghouse 8-in.
Air compressor.....	General Electric CP-27
Motors.....	Four Westinghouse 514-C, gear ratio, 14:64
Controllers.....	K-35 G-2
Total weight of car.....	36,000 lb.

In order to reconstruct these cars for one-man operation, all modern safety car appliances are being installed including a full set of pneumatic door controls, both front and rear, with a rear door treadle attachment. This necessitates the removal of the entire vestibule and platform, the only remaining part of the entire front being the hood. In rebuilding the old platforms, two side platform knees are being made from 9-in. channel iron bent into the proper shape. The two center platform knees are fashioned from 2 3/4-in. x 9-in. white oak, the crown sill of 2 3/4-in. white oak, bumper of 6-in. channels, corner and center vestibule posts of white oak, dasher of 14-gauge steel, 36 in. high, and inside of vestibule below windows of 18-gauge steel.

The right-hand doors are double folding with individual steps and control. The left-hand doors are folding, with treadle attachment, all doors opening outward. One special feature in the construction of the door-operating mechanism is that all piping is entirely concealed by the inside finish of the vestibule, thus making the job neat appearing.

The interior trim is of natural wood with a cherry red finish, while the exterior has a color scheme of red, white and blue. The lower part of the car bodies is in red enamel, the body above the sills in white and the roof



1. Virginia Electric & Power Company's car before remodeling. These cars were purchased in 1917. Sixteen of the units are passing through the Norfolk shops.

2 and 3. Views showing the car interior before and after the changes. Individual type deep-cushioned seats replace the old bench type seats of the old car.

4. One of the rehabilitated cars of the Norfolk Division, Virginia Electric & Power Company. Compare its striking appearance with that of the old car

olley catchers, headlights and other trimmings in blue. On parts around the bottom are painted black, the trucks a dark red and striping and lettering are in imitation gold.

Each car has twenty double seats of the individual fashioned type, as shown in one of the illustrations, and longitudinal side seat at each end of the car body. The seats are of spring construction, 8 in. thick and covered with genuine hand-buffed leather. Cushions for the backs are 4 in. thick. Each vestibule is provided with a folding seat and an upholstered seat with back for the operator.

Other details of the car are Hunter illuminated signs, two rotary foot gongs, porcelain sanitary hand straps, liner window wipers and hinged side window rods. Sixteen single-coil, cylinder type heaters are installed under the seats and two of the double-coil type in each vestibule. The operating equipment includes Westinghouse air brakes with 10-in. cylinders, Peacock staffless hand brakes, Westinghouse type 801-E-4 line switch equipment and K-75 controllers, chair level type, with A-8 handle switches.

The Readers' Forum

Where Are the Many Track Maintenance Kinks?

PUBLIC SERVICE PRODUCTION COMPANY

NEWARK, N. J., Sept. 22, 1927.

To the Editor:

As a member of the committee of judges which is passing upon the various entries in your Maintenance contest, I have been very much surprised at the relatively small number of items that have been entered by representatives of the way and line departments. Those that have been submitted possessed considerable merit, but it cannot be true that there are not many more special devices, developed by track and line men for everyday use to meet some particular need on their own property, which are simplifying some maintenance operation and reducing track maintenance costs. It is in the hope of attracting more attention from these branches of the service that this letter is written.

It is certain that throughout the country there are many special welding machines, contact devices for taking power from the trolley wire, special methods of rounding to the rail, spike pulling apparatus, rail straightening equipment, track drills, grinding tools, tar bottles, track gages and many other pieces of equipment so numerous to mention which have been developed to meet a local condition but which would have an application elsewhere and which have been playing their small part in putting the electric railway industry back on its feet.

Perhaps this apparent indifference is due in large measure to a feeling on the part of the track men that they cannot adequately express their ideas in writing or it may be due to their inability to secure the necessary photograph, snapshot or sketch of their pet device. Possibly the track men as a class are too modest, or it may be that they have not been fully advised of the contest and its terms. Then, again, it is possible that they have not considered that their device possessed sufficient merit to justify entering it in the contest.

But whatever the reason, the fact remains that entries

from the equipment men were greatly in the majority and some mighty fine ideas have been submitted, so much so, in fact, that it was frequently quite difficult for the judges to pick out the winner.

There is no question but that in most cases the trouble could be corrected by a little co-operation between the engineer and the track foreman. It is the idea itself and its application which counts the most, the matter of penmanship and smoothness of expression of the idea being secondary to a well-illustrated device.

It is to be hoped that as the contest enters its second stage it will draw out an increasing number of entries from both the way and line departments.

HOWARD H. GEORGE,
Member Judges' Committee.

Long Life from Brake Hangers with Hardened Bushings

DALLAS RAILWAY & TERMINAL COMPANY

DALLAS, TEX., Sept. 20, 1927.

To the Editor:

Additional information is given in regard to brake hangers which were rebuilt to eliminate rattle, as described in the July 23 issue of *ELECTRIC RAILWAY JOURNAL*, page 156. The ball and socket hangers referred to are giving us an approximate mileage of 135,000. When we began first to use the straight hanger, as described, there was no such thing on the market as hardened steel bushings for these hangers. At the present time, however, we have 30 sets of Brill 177-E-1 trucks, and all the hangers for these have steel hardened bushings. These hangers are showing very little wear at the present time, after about one year's service.

J. L. BROWN,
Master Mechanic.

In Defence of the Double-Deck Car

WALLINGTON, SURREY, ENGLAND, Sept. 5, 1927.

To the Editor:

I have read with interest the editorial comments on my article on double-deck cars in your issue of July 30.

In Great Britain the upper deck attracts passengers by the freedom for smoking permitted and the provision of cross-seats. While this might not be the case in America, the provision of seats for the majority of passengers during rush hours should be sufficiently attractive. Even if the increased capacity and the economy of operation and street space are not considered of appreciable value, it cannot be disputed that the double-decker permits a higher standard of service. The big single-deck car can handle peak loads, but only with a high percentage of standing. Is not this improved service worth striving for?

I do not understand why a double-deck car with ordinary load is necessarily a two-man vehicle or why a headroom of, say, 6 ft. 3 in. should incommode standees.

Stair accidents over here seem to be extremely rare, yet the cars on our more progressive systems are smoothly operated. And I imagine that the acceleration and braking in London, due to 130-hp. equipment and track brakes, is as severe as any in America.

Finally, I suggest that if the stairs are placed away from the door, so that passengers may ascend or descend them while the car is in motion, there need be no difference whatever in the loading characteristics of double and single-deck cars.

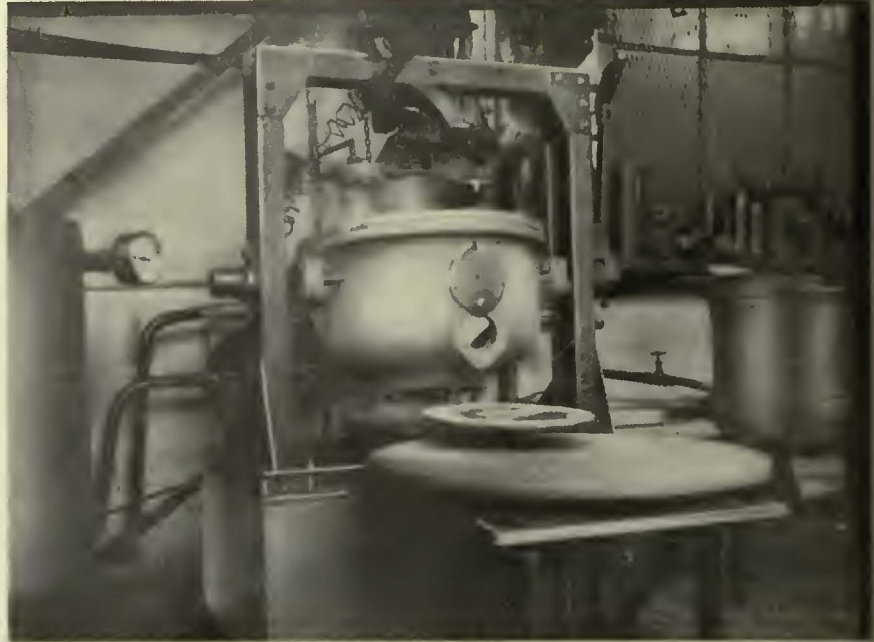
HENRY WATSON.

Maintenance Methods *and* Devices

Testing Pinions by Electro-Magnetic Method

MOTOR pinions are tested by an electro-magnetic method for minute cracks which would escape examination by the visual process in the shops of the London County Council Tramways, London, England. The method is similar to that used by the same system for testing axles, which was published in the issue of Aug. 27. The pinion is clamped in a frame, as shown at the right in the first illustration, so that it forms one leg of a magnetic circuit, the leg at the left being wound with wire. When direct current is passed through the coil the pinion is magnetized. It is then removed and retains sufficient residual magnetism so that when it is dipped into a box containing iron filings wet with kerosene, in a manner similar to that used for axles as described in connection with the testing of axles in the issue of Aug. 27, previously mentioned, the presence of any hair cracks is indicated by a line of filings which remain on the pinion at such points.

After the magnetic test the pinion is given a mechanical test in the frame shown in the second illustration. Two arbors are placed at the same distance as the gear and pinion centers in the motor. A standard gear is then placed on the gear arbor and the



Temperature-gage regulated furnace for bearing metal, Dortmund

pinion to be tested is placed on the other arbor. When the pinion is turned by a crank any eccentricity or other defect in the form of the pinion can readily be seen. For the testing of gears the same device is employed, except that a standard pinion is used.

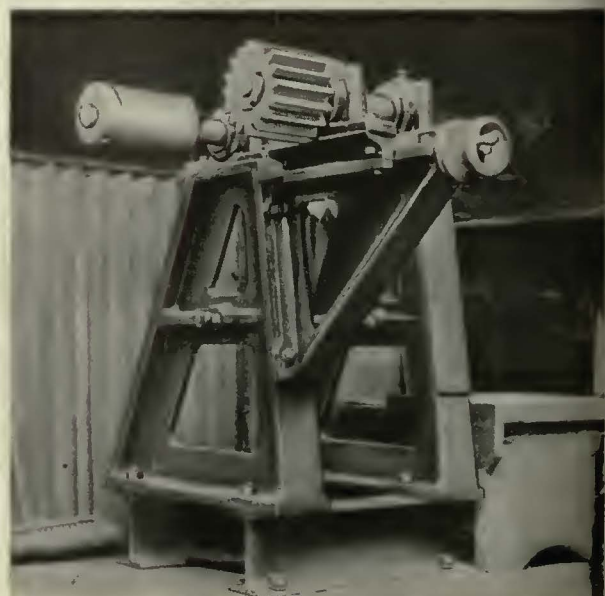
The distance between the centers of the arbors is adjustable to correspond with the gear centers of the various types of motors used on the property.

Bearing Metal Furnace

BEARING metal is best when melted and cast at just the right temperature. To insure this, the Dortmund Street Railway, Dortmund, Germany, has installed a furnace with an automatic temperature regulator. It is of the tilting type and the heat is supplied by gas. The furnace was built by the Aktiengesellschaft für Feurungstechnik, Berlin.



The magnetic process is used to test pinions for cracks in the shops of the London County Council Tramways

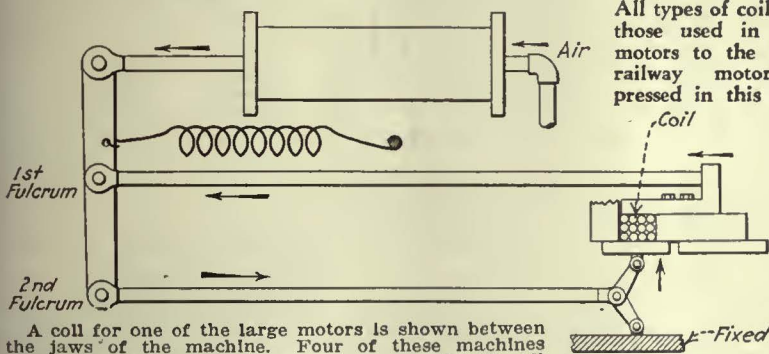


In this frame the mechanical perfection of a pinion and gear are tested

Armature Coils Clamped by Air



Air-operated armature coil press gives both upward and sideward pressure to the coil. The use of the toggle link to give the upward pressure and the employment of the principle of changing fulcrums on the rear vertical lever accomplish these results.



A coil for one of the large motors is shown between the jaws of the machine. Four of these machines mounted on a bench in the armature room handle all work of the department.

All types of coils from those used in pump motors to the largest railway motor are pressed in this device.

COILS for all types of armatures, from those used in compressor motors to the largest size railway motors, are pressed in an air-operated device which was developed at and is now used in the South Park shop of the Los Angeles Railway. This clamp applies pressure to the newly wound coil in two directions, forming the sides and other portions of the coil to perfect shape.

The lower jaw of the clamp is first raised up against the coil. Then the outer portion of the clamp moves sideways toward the coil, thus compressing it in that direction. One air cylinder mounted on the top of the apparatus produces the double action by the use of a toggle lever or combined with the principle of changing fulcrums. The accompanying illustrations show how this is done.

The movement of the air cylinder piston to the rear first actuates the

toggle links directly under the jaws and dies of the machine. After the toggle links have straightened out the fulcrum of the vertical lever at the rear shifts from its center to its extreme lower end. Continued movement of the air cylinder piston actuates the center lever, carrying the

outside jaw or die of the machine with it.

Different size dies have been made for use with various sizes and shapes of coils. A battery of four of these machines is located in the armature room. They are capable of handling all of the work of coil pressing required by the department. The machine frame is made up of 2 x 1/2-in. flat steel with the head, dies and clamps of cast steel. An air cylinder built up of steel tubing has a stroke of approximately 8 in. and a bore of 4 in. The operation of the device is controlled by a treadle, which when depressed opens the air valve on the cylinder.

Old Rails and Angle Bars Used for Small Bridges

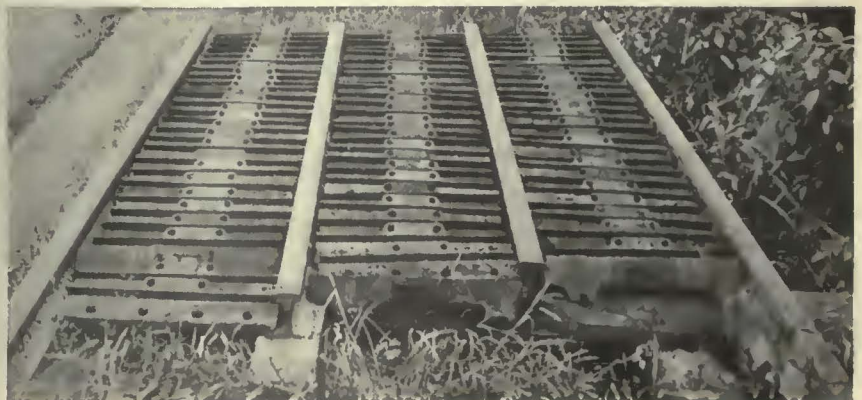
By A. H. SMITH

Railway Superintendent Interstate Power Company, Dubuque, Iowa

IN RENEWING small railway bridges and crossing culverts on a toll road to one of its parks, the Interstate Power Company, Dubuque, Iowa, makes use of scrap rails and obsolete angle bars. The accompanying illustration shows the material arranged for a half section of one bridge.

In the construction a wooden form is spaced 1 ft. on each side of the skeleton bridge. After assembly the entire surface is filled in with concrete, on which the railway ties are laid. This furnishes a very permanent and substantial bridge over ordinary culverts.

This method of construction permits the use of the bridge almost immediately after it is finished as the rails are tied together with cross bars. With the usual type of reinforced concrete construction some time must be allowed for the concrete to set. With the construction used, however, the concrete is simply for spacing and holding the material together.



Material used for structure of half section of bridge

Coil Winding in One Process

WIRE armature coils are wound and shaped all in one process by a machine installed in the shops of the London County Council Tramways, London, England. It was built by the Midland Dynamo Company of Leicester and has an output of about 100 coils a day. It is known as the Quickway coil winding machine.

The armature coils are first wound as plain loops, after which the two arms shown in the illustration move outward, spreading the sides of the coils apart and giving the desired form to the ends. Obviously the arm movement required differs according to the type of motor for which the coil is intended, but the machine can be set to make any one of a number of various types of coils.

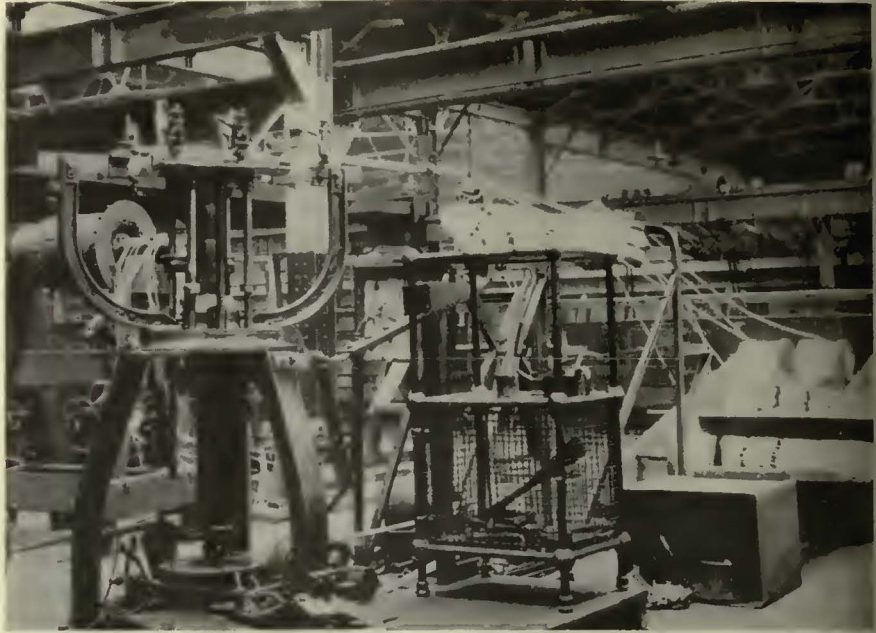
Incidentally, it might be said that where there are several separate wires in each coil it is the practice in these shops to use different colored insulation for each circuit. Thus if there are three circuits in each coil the insulation of the respective wires will be red, white and blue. This makes it very easy for the man who connects the leads into the armature to get the wires in their proper order because he simply has to put the wires into the commutator bars in the same regular rotation of red, white and blue.

Cleaning Car Side Panels in the Hamburg Shops

STEEL cars are used by the Hamburg Elevated Railway of Hamburg, Germany, and considerable attention is given to the outside appearance. The cars are attractively painted in a light color. As an experiment, two cars have been equipped with vitrified enameled plates for the side and end panels to eliminate the cost of painting. These cars have been in use for about two years, with no trouble from flaking or chipping of the enamel. All of the other 333 rapid transit cars of the company are painted.

In spite of this care in painting, the side panels of the cars rust out in from ten to fifteen years, because of the moist climate in Hamburg, and they have to be renewed. This work is done in the shops of the railway company.

To clean the new plates from rust before they are attached to the framework they are run through the sand-blasting machine shown in the accompanying illustration. The plates



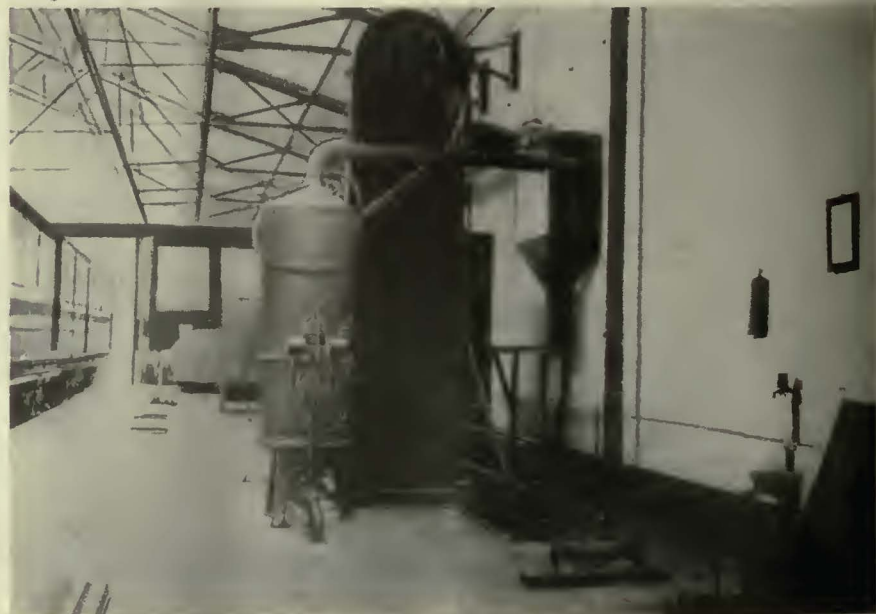
This coil winder turns out 100 complete coils in a day

travel over the rollers shown in the foreground through a slot into the back of the dark colored vertical chamber. The sand is then sprayed on the plate from two nozzles which are moved up and down so as to cover the entire side of the plate as it passes through the chamber. The sand later is automatically collected for reuse.

This sand-blasting machine is used also for similar cleaning of the side plates to be attached to surface cars, of which the company has 1,900, and of buses, of which it has about 80. Hence there is enough work for it to do, as all buses have steel bodies, and it is kept busy.

Pneumatic Hoists Change Trucks Under Car Bodies Rapidly

HYDRAULIC jacks are used by the London County Council Tramways, London, England, for changing car bodies in its shops, and the work is done so rapidly that only about half a minute is required to raise the car body. The car is brought in on a transfer table and when it reaches the lifting point there is a hydraulic jack under each corner post. There are several sets of these jacks on the line of the transfer table. They are connected by hose with the central source of supply, so they can



Inclosed sand blast for cleaning car side plates in the Hamburg Elevated shops



Hydraulic jacks on each side of the transfer table lift cars very rapidly for truck exchange in London

moved if necessary to provide for their proper adjustment under the car. Movement of a handle then rapidly raises the car body in the short time mentioned. While the old trucks are taken out

and the new ones are being substituted there is opportunity for the workmen to examine the underside of the car. If the car body needs repair, dummy trucks are placed under it and it is then taken to the body shop.

	Inches
Size of table.....	5 x 26
Longitudinal travel.....	16
Transverse movement.....	8
Vertical movement.....	6 1/2
Maximum distance center line of spindle to table.....	9 1/2
Maximum swing.....	9 1/2 x 20
Capacity for face milling cutters, diameter..	12

chine is designed so that the knee, saddle, sub-table and table swing around the column, while the table in turn swivels on the sub-table. Transverse, vertical and longitudinal movement can be obtained from a position directly in front of the machine or from the rear of the machine. Both handwheel and lever movements are provided for the longitudinal movement.

The vertical and cross-movements are provided by an Acme thread running in a bronze nut. Both are fitted with graduated dials reading in thousandths of an inch. The longitudinal movement is provided by means of an accurately cut steel rack with which meshes an equally carefully cut steel pinion with ground

New Equipment Available

Trapezoidal Tie Plate Without Long Heel

TO PROVIDE the necessary eccentricity of a tie plate for equalizing its bearing on the tie in an expensive manner, the Track Specialties Company, New York, N. Y., has just developed a new plate. It is wider on the outside than on the inside and a short heel is used instead of a long one. Maintenance of way men have long recognized the neces-

sary, as ordinarily used, this is accomplished by offsetting the plate with respect to the center line of the rail so that it has a greater extension outside than inside the rail.

The new plate of the Track Specialties Company is symmetrical in the section about the center line of the plate, but its trapezoidal plan provides a wide edge along the outside of the rail and a shorter one along the inside of the rail base. This makes it possible to locate the center of gravity of the plate-bearing area at a sufficient distance outside the center of the rail to coincide with the resultant of the forces acting on it without extending it out as far as would otherwise be necessary. The short heel prevents the plate from curling so that the thickness can be reduced.

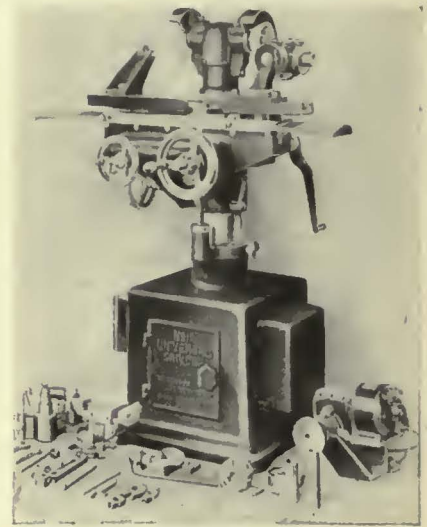
Plates of this design will be rolled from steel to meet the specifications of railways and can be had in any non-patented type of base, although the present plan is to roll these plates with flat bottoms. The plates are punched for either three or four holes, as desired, but must have shoulders on each side, as economy with beveled shearing demands that the plate be symmetrical in section.

Universal Cutter and Tool Grinder

ty of having a plate designed in such a manner that the center of gravity of the bearing area will lie outside the vertical plane through the web of the rail to coincide with the resultant of the vertical and lateral forces acting on the rail. The resultant is inclined in an outward direction and intersects the base of the rail outside the center of the base.

The solution of this problem in the design of the tie plate has been to proportion it in such a manner that the center of gravity of the bearing area coincides with the point at which the resultant of the forces acting on the rail intersects the base of the plate. With a plate of rec-

PROVISION for a machine of medium capacity for grinding tools has been made in a new design just brought out by Gallmeyer & Livingston, Grand Rapids, Mich. Convenience of operation has received prime consideration. The ma-



Cutter and tool grinder

shank or stem. This insures free movement devoid of backlash.

The new machine is of very rigid construction and is equipped with hammered crucible steel spindles, ground accurately and running in well-oiled bronze bearings. Convenient means is provided for adjusting both for radial wear and end play. The machine can be furnished either belt driven or with self-contained motor drive. When furnished with motor drive, the equipment includes a 1-hp. motor placed in the base of the machine for driving the main spindle and a 1/2-hp. motor built into the headstock for revolving the work. The accompanying dimensions show size and capacity.

Association Activities

National Safety Council Meeting

Intense interest evoked by a series of well-prepared papers on various phases of safety in the railway field.

A. W. Koehler elected chairman

DRAWN by a program of the most transcendent interest yet conducted, more than 250 individual representatives from the electric railways met in Chicago last week together with nearly 5,000 other representatives of American industry to participate in the sixteenth annual congress of the National Safety Council. The sessions of the electric railway men as well as the parallel meetings of 35 other groups, which were held in the Stevens Hotel from Sept. 26 to Sept. 30, were the largest and the most eminently successful of any yet sponsored by the council.

The electric railway section meetings were attended by representatives of all the principal properties of the country and many smaller ones, the delegations in many instances being composed of every class of employee, from operating executives to platform men and shop workers. Significant of the increasing co-operation between employees and managements in matters of safety was the presence of E. D. McMorrow, officially appointed delegate of the Amalgamated Association of Street and Electric Railway Employees of America. The section meetings this year were the best attended of any in the history of the organization, there being an average turnout on the three days of the congress of 235 delegates.

Summarizing the discussions and conclusions of the last annual meeting of the section, Truman Curtess, superintendent of transportation Chicago, Aurora & Elgin Railroad, asserted in opening the first day's program that an accident prevention program could be carried out successfully only when initiated and followed through by heads of departments. From this point the speaker turned to the more technical questions of stop signals, safety zones and other matters related to traffic regulation, his remarks being principally intended to introduce new points and to stimulate discussion of them. The consensus of all expressions given on the subject of stop signal locations was that they should be built on concrete blocks in the center of the road, although several delegates insisted that this system leads to frequent automobile crashes.

SELECTION OF NEW MEN IMPORTANT

In connection with his paper on the "Selecting and Training of New Men and Their Relation to Safety," Clinton D. Smith, superintendent of personnel Cleveland Railway, declared that his company required a minimum of from

ten days to two weeks instruction for all trainmen before they were permitted to take out a car. "The careful selection of employees is the most important factor in accident prevention and this should include not only physical examinations but mental and psychological tests as well," he said.

Mr. Smith strongly emphasized, however, that every employment manager must to a very considerable extent rely on his own observation and judgment in selecting an employee. Careful records, he added, should always be kept of every applicant on the theory that although no opening may exist at the time, it is conceivable that the man might some day make a valuable employee.

In the discussion which followed Mr. Smith's address, it was revealed that many street railway companies have employee training courses lasting three and four weeks or even longer. On the question of physical and psychological examinations, A. W. Koehler, Milwaukee Electric Railway & Light Company, interposed that his organization was a firm believer in both types and had consistently employed them for years. Others declared that no examinations of any kind were given to trainmen on their properties, while a few delegates indicated that the tests were confined to color blindness or other single factors.

Dr. Hart E. Fisher, medical director Chicago Rapid Transit Company, told the meeting of his own interesting experiences in obtaining the confidence of employees and their families in matters of health. "You cannot go at things in a mechanical way when you are dealing with human nature," was his parting remark.

In a paper entitled "Courtesy and Its Relation to Accident Prevention," L. M. Brown, vice-president Interstate Public Service Company, implanted the thought that "the courteous employee is usually the cautious and the efficient employee." Courtesy, he added, is a principle of modern transportation that should be regarded as of equal importance with convenient and reliable service and safe operation.

Addressing the electric railway delegates on the second day of the convention, H. H. Adams, superintendent of shops and equipment Chicago Surface Lines, referred to the light-weight, low-hung type of car, with pneumatically-controlled doors, treadles, folding steps, lightning arresters, line breakers, dead man's handle, illuminated signs and

other features which have resulted in greater safety to passengers and trainmen. All of these devices are helpful, he declared, but should be utilized only after close study of operating conditions and practices as they exist on the individual properties.

Among the recommendations made by Mr. Adams in this connection was that brakes should be so proportioned to car weights that quick application will be insured. Good practice dictates a braking ratio of 9 to 1 with quick service valves, he declared. A clear-ringing, dependable gong is another essential to safe operation and the maintaining of schedules in congested city streets. The speaker also pointed out the necessity of regular 24-hour inspections of all vital parts of the car, such as brakes, fenders, flanges, etc., not only for improved safety but for the better maintaining of schedules. "Some equipment failures may be factors in accidents and excessive wear of parts should not be tolerated. Eternal vigilance is the price of safe operation," he concluded.

GONGS STILL HAVE A PLACE

Discussion of Mr. Adams' paper centered principally around the most suitable type and location of gong and the various methods used in inspecting car equipment. E. K. Eastham, safety director of the United Railways of St. Louis, commented that many claims had been filed against his company on the grounds that the folding step had failed to operate properly and on this account 20 per cent of the cars in St. Louis had been equipped with "well-steps." Replying to a remark that gongs are obsolete, Mr. Adams said the real need was for better gongs, not for some substitute device, because the public has become accustomed to their sharp insistence. The question of how rapidly the gong should be struck, however, is one that is well worth study, he avowed. To the question of what time limit he thought should be placed on the application of the controller handle, Mr. Adams replied that the Chicago Surface Lines endeavors to keep its equipment maintained so that the motorman may feed up his controller rapidly and brake at the rate of 4 m.p.h. per second in order to maintain the highest possible schedule speed, which at the present time, he added, averages about 11.2 m.p.h. Mr. Eastham's comment on this statement was that if such a practice were permitted in St. Louis the company would have 25 claims a day from passengers thrown out of their seats.

A delegate from the United Railways & Electric Company of Baltimore contributed the information that on articulated cars in his city and in Boston trolley bases are placed over the front

truck, the trolley rope being led down through a slot in the roof to a retriever located inside the car at the center. This arrangement was reported to be a great time saver and a positive factor in the conductor's safety.

In order to simplify the daily inspection of equipment on the Chicago Surface Lines, Mr. Adams explained, in closing the discussion, that all defects can be quickly spotted and handled from the reports turned in by the motormen at the end of the day's runs.

**CHARACTER AND ENTHUSIASM
ESSENTIAL**

"Earnestness, enthusiasm, strength of character and knowledge of his property are the essential requirements of a successful safety director," declared A. W. Koehler, superintendent of accident prevention Milwaukee Electric Railway & Light Company, "because it is almost impossible for the superintendent to get in touch with every man of his organization, and the safety director must be qualified to substitute for him. Since the electric railway business does not lend itself particularly well to the use of mechanical safeguards, safety work in this industry is dependent very largely on intensive education, bulletins, posters, and above all, personal contacts with every individual of the railway organization."

The most important functions of the railway safety committee, Mr. Koehler said, may be classified as follows:

1. To inspire confidence and respect for the company's safety activities.
2. Dissemination of information about accidents and causes of accidents.
3. Stimulation of interest in safety suggestions and in planting in the employee's mind that the management is anxious to receive them.
4. Investigation of conditions and practices leading to every accident and the making of recommendations as to the kind and degree of discipline to be meted out.
5. If the men serving on safety committees can be made to feel individual responsibility in such work, they are almost certain to take keener interest and greater pride in other functions of their jobs.

While he suggested a number of methods that have been successfully employed in selecting safety committee personnel, Mr. Koehler was of the opinion that such appointment should always be governed by local conditions. Regardless of whether the members are selected by the employees from their own numbers or whether they are appointed directly by the superintendent, it is essential that unlimited inspiration be given to the members of the committee. Only such men as are natural leaders should be placed on the safety committees and too much system should not be allowed to harass them.

"Because of the natural seriousness of the work they are engaged in, the most satisfactory results can be obtained when humor is injected into the meetings," he said. "If any real response is to be won from the employees, some kind of answer should always be given to their safety suggestions, for it is only according to the degree of co-op-

**COMING MEETINGS
OF
Electric Railway and
Allied Associations**

Oct. 18-21—National Association of Railroad and Utilities Commissioners, thirty-ninth annual meeting, Baker Hotel, Dallas, Tex.

Oct. 26-27—Public Utilities Association of West Virginia, annual convention, Parkersburg, W. Va.

Oct. 26-27—Society Automotive Engineers, Transportation Section meeting, Hotel Sherman, Chicago, Ill.

Nov. 4—American Institute Electrical Engineers, New York Section, Engineering Societies Building, New York City.

Nov. 2-3—Iowa Electric Railway Association, operating and maintenance sections, annual convention, Blackhawk Hotel, Davenport, Iowa.

eration and interest you as managers evidence in the work that will get results from your safety organization and your entire personnel."

Discussion of Mr. Koehler's paper brought out that on most properties where safety principles have been adopted, safety meetings are always held on company time in order to assure good attendance. They should be brief and to the point and the appeal should always be made to the employees' reason. A representative of the Pittsburgh Railways announced with some degree of pride that employee suspensions had been abolished on his property. On the question of compensation for safety suggestions, Mr. Koehler declared that this practice had not been established in Milwaukee.

**SAFETY IS COMMON GROUND BETWEEN
UTILITY AND PUBLIC**

In an address made by Col. E. C. Springer, general manager Lehigh Valley Transit Company, Allentown, Pa., safety was declared to be the only common ground on which the public utility and the general public can meet and converse in the same language. "Safety will win the friendship of the public where politics fails," Colonel Springer asserted. "Safety work can be made a tremendous factor in strengthening public relations, through co-operation with chambers of commerce, motor clubs, community and civic organizations, the radio, newspaper and other local agencies.

Safety is also a potent factor for efficiency and production in every industry, the speaker maintained, but as such has been singularly neglected by the electric railway industry. "Our industry can derive a large measure of profit from the heavy investment and wide experience in safety work of other industries," he declared. "The study of safety is inevitably a means to better understanding of working conditions, and, therefore, to greater efficiency in production.

"Unlike the experience of most industries," said Colonel Springer, "the experience of electric railway operators has been that safety must work from the executive staff down, hence the management must be completely sold on the idea. Only when it is strenuously and consistently promoted can safety work produce the desired results." In successful accident prevention work, he pointed out, proper selection of men, thorough dissemination of knowledge, and a fair and reasonable policy of discipline are the most important factors. Inasmuch as reduced cost of operation is one of the outstanding problems of the electric railway industry today, safety committees should be constantly on the watch for waste and carelessness.

That newspapers throughout the country publish a daily safety story in an effort to reduce the annual toll of 90,000 lives in traffic accidents as well as to inform the public of the work being carried on by all industry to relieve this situation, was the suggestion made by P. J. McGrath, international fifth vice-president of the Amalgamated Association of Electric Railway Employees of America. In urging that every wage worker should be a safety engineer, Mr. McGrath asserted that every employee should be given every possible opportunity to participate in the work of advancing his own safety and that of others. The wage worker has greater interest in safety than any other because he cannot afford lost time. "The best safety comes when all factors of the public utility industry—the investor, the management, the employee and the public—harmonize in watchfulness and when a spirit of co-operation and confidence binds them closely together."

Mr. McGrath also reported that the street car men's union was fully alive to the value of safety work, and that at the last annual convention of the Amalgamated Association resolutions had been passed urging co-operation of employees with the management in this work and that an official delegate be sent to the present congress of the National Safety Council.

LESS EMPHASIS ON SPEED

J. S. Kubu, assistant superintendent accident department, Cleveland Railways, took the interesting stand that automobile manufacturers should be restrained from emphasizing speed in their advertisements and that laws should be enacted restricting the manufacturer from producing cars capable of being driven at "insane" speed. The psychological effect of the speed advertisements on the public mind, especially its impression on the minds of young people, Mr. Kubu said, is probably very directly linked up with the appalling number of automobile accidents.

Other suggestions made by Mr. Kubu in the interest of reducing collisions between vehicles on city streets embraced the adoption of public liability laws to keep the driver of the cheap car and the driver who has had frequent accidents off the highways; the estab-

lishment of a uniform system of physical and intelligence examinations and comprehensive road tests for all drivers; the widespread dissemination of knowledge on accident prevention and the establishment of a uniform code of justice for traffic violations.

"Many good things have been said about safety activities," concluded Mr. Kubu, "but specific things must now be done. Safety organizations must be more thoroughly co-ordinated and then we must open the public's eyes to the human relationships involved in accident prevention measures."

Leading off the discussion on Mr. Kubu's paper, E. K. Eastham, safety director United Railways of St. Louis, voiced the opinion that the electric railway industry should be represented at all national and state traffic and safety conferences in order to see that our point of view is adequately and clearly presented. He also recommended that the laws which were framed by the Hoover Conference on Motor Vehicle Laws be passed in every state of the union. Thomas Fitzgerald, vice-president Pittsburgh Railways, favored the Hoover laws in general but expressed the belief that if autos were to be prohibited from passing standing street cars at loading points excessive traffic congestion would result. Instead of such a rigid regulation, Mr. Fitzgerald held that it would be better to permit autos to pass when driven slowly and carefully and only when sufficient clearance allows. Mr. Eastham agreed that this practice would be satisfactory if adequately protected safety zones were to be provided. Representatives of the street railway properties in Providence, Pittsburgh and St. Louis declared that yellow street markers are used to indicate the sweep of cars on curves in their cities, and a delegate from the Des Moines City Railway suggested that in order to assure better treatment for the company in court, the arbitrary term of "safety zones" should be changed to "loading zones." The motion that a committee be appointed by the chairman of the electric railway section to investigate compulsory liability insurance and to report its findings to the section was lost for want of a second.

STREET ACCIDENTS INCREASING

In a paper entitled "A Statistical Review of the Accident Experiences of Electric Railways," G. R. Whitmore, general claims attorney Illinois Power & Light Corporation, presented a table of accident statistics gathered from more than 100 city and interurban railways and motor coach properties in all parts of the country. His figures indicated that while there had been a marked decrease in the past five years in the number of interurban railway accidents, due to increasing street congestion, accidents on city lines are steadily gaining, and that the average car-miles per accident show similar tendencies. (See tables above.)

Mr. Whitmore remarked that in the light of records shown by his tables, electric railway managements are to be

ELECTRIC RAILWAY ACCIDENT AND PERSONAL INJURY FREQUENCY, EXPRESSED IN CAR-MILES PER ACCIDENT AND PER INJURY

Year and Number of Reporting Companies	Average All Accidents	Collisions		Average All	Injuries			Other Persons
		Motor Vehicle	Car		Passenger	Employee		
1922 (104)	3,030	6,380	146,940	14,250	25,040	62,320	70,490	
1923 (104)	2,800	5,600	124,280	14,250	25,730	58,440	70,460	
1924 (105)	2,610	5,150	123,770	13,780	24,820	96,220	45,620	
1925 (113)	2,750	5,030	149,250	13,660	28,050	68,450	43,110	
1926 (113)	2,680	5,110	115,040	13,880	26,620	84,480	44,270	
<i>57 City Companies</i>								
1925	2,420	4,770	117,920	13,640	26,630	74,380	44,760	
1926	2,380	4,710	111,950	12,970	24,250	81,580	42,310	
<i>13 Interurban Companies</i>								
1925	11,890	25,020	346,060	56,410	241,620	110,150	217,110	
1926	12,100	24,850	550,480	58,610	183,490	136,400	233,530	
<i>43 Companies, Combined City and Interurban</i>								
1925	3,870	6,590	184,960	16,500	37,340	82,110	46,140	
1926	3,630	6,020	167,890	15,480	32,060	88,940	45,080	

BUS ACCIDENTS, BUS-MILES PER ACCIDENT AND PER PERSONAL INJURY

Year and Number of Reporting Companies	Average All Accidents	Vehicle Collisions	Average All	Injuries			Other Persons
				Passenger	Employee		
1925 (20)	4,780	10,670	10,720	38,960	91,020	17,660	
1926 (20)	4,520	9,510	10,510	34,000	75,170	19,090	
<i>10 City Companies</i>							
1925	3,660	7,730	7,400	30,180	56,870	11,840	
1926	3,750	7,940	8,510	32,920	49,380	14,960	
<i>4 Interurban Companies</i>							
1925	11,850	16,070	278,540	835,630	1,671,270	557,090	
1926	14,620	22,760	179,840	359,670	899,180	599,460	

congratulated. "The fine work on the part of these companies," he said, "is keeping other accidents down. But let us not stop here; it should be our aim to establish a mark of 5,000 miles per car accident, and then to strive earnestly to add at least 1,000 miles per car-mile per year thereafter."

In the discussion which followed this paper, H. R. Hodgson, East St. Louis Railway, brought up the question of uniform accident reports, declaring that many companies differ as to what constitutes chargeable accidents, and that as a result, national accident statistics are often misleading. Commenting on Mr. Hodgson's statement, E. K. Eastham, chairman of the section's committee on uniform accident statistics, announced that a resolution embodying the following recommendations had been filed with the claims section of the American Electric Railway Association: (1) that every accident, including non-chargeable cases, be recorded in the figures sent out by each company to central bodies; (2) that such uniform records shall be kept for inter-company use only and shall not be permitted to interfere with intra-company methods.

At the general round-table discussion following these talks questions regarding proper colors for cars operated at night and during heavy fogs; suitable air pressure, and the relative advantage of the one-man car were treated at length, although no general conclusions were recorded on any subject. H. K. Bennett, safety manager United Electric Railways of Providence, extolled the virtues of the white and yellow cars used on his company's lines. A. R. Bowman of the Milwaukee Electric Railway & Light Company suggested his company's combination of red and yellow as a means to greater visibility, while others suggested all white or all yellow, or the use of floodlighted dashers.

Replying to E. D. McMorrow's criticism of the one-man car on the ground that too many duties are simultaneously required of the operator, Mr. Shaw of the Akron, Ohio, property asserted that larger responsibilities have made the operators of one-man cars much more careful and efficient. In Akron and Canton, Ohio, he said, 100 per cent one-man operation has resulted in the same headway and average speed of cars being maintained as had been possible with the old two-man equipment, that there have been fewer accidents and that the men like the one-man cars better than those formerly used. Members of the Pittsburgh, Providence and Milwaukee delegations reported similarly satisfactory results from one-man operation. Mr. Fitzgerald of Pittsburgh told the meeting that it was the one-man car that had saved the insolvent Pittsburgh Railways and that while the speed of one-man cars on his property is slightly lower than that of two-man equipment, there has been a decrease in the number of accidents.

That no fixed standard should be prescribed for air-pressure condition was the opinion of the majority of those who entered into the discussion. While 60 lb. pressure may be adequate in some cities, Pittsburgh representatives felt that 90 lb. was more nearly the standard on their properties, but they admitted that the whole question depended upon local operating conditions.

Concluding the three-day meeting of the electric railway section was a talk on "Utilizing the Radio," by H. K. Bennett, safety manager United Electric Railways of Providence, R. I., and originator of the now famous "Uncle Red's A.B.C. Club of Providence." Mr. Bennett told of the idea which resulted in the formation last November of the children's radio club, now

boasting more than 135,000 juvenile members throughout the country. Tens of thousands of letters, he said, have been received from these children in which they pledge to abide by the simple common-sense rules of the club. The influence of his radio talks has also spread to many parents and teachers with the gratifying results that the number of accidents to children in the state of Rhode Island has shown a notable decrease.

THE NEW OFFICERS

At the close of the session on Sept. 29, the following officers were elected for the ensuing year: Chairman, A. W. Koehler, superintendent of accident prevention Milwaukee Electric Railway & Light Company; first vice-chairman, H. K. Bennett, safety manager United Electric Railways, Providence, R. I.; second vice-chairman, E. K. Eastham, safety director United Railways of St. Louis; third vice-chairman, Melvin W. Bridges, safety engineer Chicago Rapid Transit Company; secretary, J. E. Stott, Georgia Power Company, Atlanta, Ga.

Members of the electric railway section elected to offices in the National Safety Council for the year 1928 were: George T. Hellmuth, general claims attorney North Shore Line, treasurer, and M. R. Brabson, Birmingham Electric Company, Birmingham, Ala., director.

Iowa Operators to Meet Nov. 23

OPERATING and maintenance sections of the Iowa Electric Railway Association will hold their annual meeting at the Blackhawk Hotel, Davenport, Iowa, on Wednesday and Thursday, Nov. 2 and 3. It is planned to have a number of good speakers and to make this an even better convention than was last year's.

A.E.S.C. Standards of Interest to Electric Railways

THREE important standards dealing with electric railway practices have recently been approved by the American Engineering Standards Committee. The first is a standard specification for tubular steel poles for electric line construction. The importance of this standardization work may be understood when it is considered that 1,400 combinations of tubular steel poles have been shown in a catalog of a single company, while sixteen are sufficient to meet practical commercial needs. A simple table of deflections has been prepared for use in designing the poles based on a regular theoretical point. The specifications are believed to apply to all tubular steel poles, no matter by what process manufactured.

The second standard is a group of three 7-in. plain girder rails and splice bars for use in paved streets. The rails weigh 82, 92 and 102 lb. per yard.

Approval of standard specifications for cross ties and switch ties marks the completion of an important piece of

work extending over a period of years, during which time the steam railways and electric railways have co-operated

on this subject of common interest. About 100,000,000 ties are produced annually in this country.

American Association News

New Executive Committee Begins Year's Work

PRESIDENT R. P. STEVENS presided at the opening meeting of the new executive committee of the American Electric Railway Association, which was held at the Cleveland Hotel, Cleveland, Ohio, on the afternoon of Oct. 6. The following were recorded as present:

R. P. Stevens, J. P. Barnes, J. H. Hanna, C. E. Morgan, Lucius S. Storrs, Barron Collier, W. H. Sawyer, Edward Dana, T. A. Kenney, M. B. Lambert, S. J. Cotsworth, Charles R. Ellicott, H. L. Brown, T. W. Casey, D. W. Snyder, J. G. Barry, J. R. Fitzpatrick and J. W. Welsh, active members; F. R. Coates, J. N. Shannahan, Robert I. Todd and A. W. Brady, past-presidents; W. W. Holden, representing the Southwestern Association; Labert St. Clair, J. W. Colton and Leslie Vickers of the association staff.

On motion of Mr. Barnes, the minutes of the last meeting were approved without reading, with the understanding that they would be mailed to members.

On motion of Mr. Barnes, seconded by Mr. Cotsworth, J. W. Welsh was elected general secretary for the ensuing year.

President Stevens introduced the new members of the executive committee who were present.

Mr. Shannahan stated that the resolutions presented at the general session of the association in the morning covered the thanks of the association to all those responsible for the convention and exhibit, except the director of exhibits, and he moved that a special vote of appreciation be extended to him on behalf of the executive committee. This was seconded by Mr. Barnes and unanimously carried.

SUBJECTS FOR COMING YEAR

H. L. Brown, chairman of the committee on subjects and meetings, presented a progress report covering the proposed work of committees for the coming year. Under consideration are a committee on customer relations, a committee on industrial relations, a national women's committee and a traffic problem committee. The committees definitely recommended for continuance are the following: Co-operation with the motor vehicle industry; co-operation with manufacturers; co-operation with state and sectional associations; education; insurance; management and operation; rapid transit; taxation; Charles A. Coffin Award; Hoover conference; motor vehicle information; motor bus depreciation.

In certain instances last year's committees have recommended work for the

coming year, while others have not. It was also definitely recommended that the new subjects and meetings committee continue at the next convention the round-table luncheon conferences. On motion of Mr. Storrs, the report of the committee was accepted with a further recommendation that it favorably consider the general plan of holding the type of convention meetings adopted this year. This was seconded by Mr. Barnes and unanimously carried.

Mr. Shannahan moved that the committee express its appreciation of the excellent work done by the meetings and subjects committee, stating that he could not recall any committee that had done better work. This was seconded by Mr. Sawyer, who stated that this committee stood out as leading in the conduct of the convention. The motion was unanimously carried, the president stating that he planned to continue the same committee for the coming year.

COMMITTEE CHAIRMEN ANNOUNCED

President Stevens announced the chairmen of the following committees for the coming year, as follows:

Advisory Council, B. C. Cobb; policy, J. P. Barnes; meetings and subjects, H. L. Brown; publicity, Paul Shoup (Barron Collier, vice-chairman); membership, C. E. Morgan; finance, T. A. Kenney; national relations, J. H. Hanna; publications, J. H. Hanna; publication of *Aera* (sub-committee), H. V. Bozell, statistics (sub-committee), F. W. Doolittle; convention location, F. R. Coates (J. G. Barry, vice-chairman); co-operation with state and sectional associations, T. A. Kenney. Additional appointments are to be made in the near future.

Resolutions on the death of Charles L. Henry were read by Mr. Welsh. After the reading, A. W. Brady, chairman of the resolutions committee, suggested changing the resolutions to indicate that they were adopted by the executive committee instead of by the association. On motion of Mr. Brady, seconded by Mr. Storrs, these motions were unanimously adopted.

PLANS FOR 1928 CONVENTION

There was considerable discussion as to whether an exhibit should be held in 1928, in view of the suggestion that exhibits should be held in alternate years. The possibility of holding the convention on the Pacific Coast in 1930, when it would be difficult to hold an exhibit, was considered in connection with the possibility of not holding an exhibit in 1928. The question of the expense to the manufacturers and the

difficulty of measuring the value to the manufacturers was presented, and that this all was reflected in an increased cost to the industry. Counter arguments were presented to the effect that much of the inspiration and interest on the part of the membership was due to the exhibit, particularly among the junior officers of companies. The possibility of the new convention hall at Atlantic City being completed was presented and the desirability of having an exhibit there in 1928 was suggested. The need for canvassing the manufacturers broadly, particularly the smaller ones, was also suggested. The possibility that more numerous meetings and round-table conferences might take the place of the exhibit was suggested.

As no action had been taken on the recommendation of last year's finance committee that the dues be fixed for the coming year on the basis of the maximum prescribed in the new constitution, the report of that committee was read. There was some discussion on the basis underlying the budget for the coming year, as recommended by the finance committee in last year's report. On motion of Mr. Barnes, seconded by Mr. Casey, the report of the finance committee was approved. Mr. Barnes then moved that the dues for the coming year be fixed on the basis recommended by the finance committee. The motion was seconded and unanimously carried.

On motion of Mr. Barnes, seconded by Mr. Storrs, the price of an annual subscription to *Aera* was continued at \$2.

There was some discussion as to the best date for the next meeting of the executive committee. Since some of the Western members expected to be in New York for other reasons on Nov. 12, it was agreed that the next meeting be held in New York City on Friday, Nov. 11.

There being no further business, the meeting adjourned.

OLD EXECUTIVE COMMITTEE COMPLETES WORK

The final meeting of the old executive committee, which was held at Cleveland on Oct. 3, to check last minute arrangements, failed to develop a single oversight which might mar the smooth functioning of the convention, it was said.

Reports on luncheon meeting ticket sales indicated that all of these affairs were sold out early, the attendance being limited to a specified number. Arrangements were made to take moving pictures of this event and to show them at the theater party Wednesday night.

Reports of all standing committees were made during the meeting. That of the membership committee, made by C. R. Ellicott, chairman, indicated a total company and manufacturer membership of 802, the largest on record for the association. Individual memberships likewise showed an increase of 144 for the year. Fifteen company members and 22 individual members were elected, as reported in more detail elsewhere in this issue.

The financial condition of the asso-

ciation for the fiscal year just ended is a healthy one, according to the report of the finance committee, presented by C. E. Morgan, chairman. This committee recommended that the schedule of dues, suggested by the committee on revision of constitution and by-laws, be adopted. Although this represents a substantial increase in the former regular dues of member companies, it consists merely of a consolidation of the former dues with former revenues received by special assessment, and originally underwritten by the Advisory Council upon the formation of that body.

Resolutions Adopted at Cleveland

RESOLUTIONS of appreciation in connection with the past association year and particularly regarding the annual convention were prepared by a committee appointed for the purpose, consisting of J. N. Shannahan, chairman; G. A. Richardson, W. E. Wood, J. G. Barry and T. W. Casey. These resolutions, which were adopted unanimously by the American Association, follow:

Resolved, That the American Electric Railway Association, assembled in its 46th annual convention, express its appreciation of and gratitude for the untiring, enthusiastic and inspiring co-operation of those who have had a part in making this convention so notable in the annals of the association.

Especially are we indebted to the Cleveland convention committee for the successful manner in which it carried through the difficult task assigned to it. To the chairman, Col. Joseph H. Alexander, we express our heartfelt thanks. To the people of the city of Cleveland and to the officials of Cleveland who welcomed us and made us feel that we were indeed among warm-hearted friends we offer our cordial appreciation. To the City Manager of Cleveland, in particular, to the executive officers of the Auditorium, to the hotel managements and the various contractors who supplied the convention with services we express our gratitude.

We extend our thanks to the Cleveland Railway for its wonderful assistance in making this convention such a success, not only because of the manner in which it handled the placing of cars and other details of the exhibit, but also for its contribution to the entertainment program and for the many courtesies which it and its representatives have shown us.

And to the Pittsburgh Railways is due our deep appreciation for its co-operation in sending to us the magnificent Pittsburgh Railways Employees' Band, an organization that well deserves the high place it has attained among American bands.

We thank the Cleveland newspapers for the completeness of their reports of our sessions, and especially for the accuracy and intelligent understanding of our business evidenced in the work of the reporters assigned to our convention.

We are indebted to the committee on meetings and subjects for arranging a most interesting and valuable program, and to the distinguished speakers who were our guests for their able discussion of the problems that confront us and the help they offered us in meeting them.

The exhibit committee, in preparing for us the greatest exhibit in the history of the association, and particularly for its work

in bringing about the great display of street cars through the fine co-operation of manufacturers and operating companies, deserves our warmest thanks, which are hereby recorded.

We extend to the entertainment committee our thanks for the excellent program which it prepared and so carefully supervised.

To the efficient work of our executive secretary, James W. Welsh, and the association headquarters staff we give hearty recognition.

Our thanks are extended to the *ELECTRIC RAILWAY JOURNAL* for its *Convention Daily*.

We renew our confidence in, affection for and loyalty to our managing director, Lucius S. Storrs, and we pledge him our fullest co-operation in every way in his most important and difficult work.

To our Advisory Council and its chairman, B. C. Cobb, we express our gratitude for its counsel and advice during the year.

Our thanks and appreciation are extended to our retiring president, W. H. Sawyer, for the sacrifices he so willingly made during his term of office. He has journeyed many hundreds of miles to visit state and sectional associations and has carried to them the enthusiasm and encouragement with which he abounds. There is no man who believes more earnestly in the electric railway industry or who has striven harder for what he believes to be for its best interest.

To all others who have in any way contributed to the success of this great convention and exhibit we are sincerely grateful.

We ask that this resolution be spread upon the minutes of the association and a copy sent to the trade press and the Cleveland newspapers.

New Association Members

FIFTEEN companies and 22 individuals were elected to membership in the American Electric Railway Association at the meeting of the executive committee held on Oct. 2 in Cleveland. The company members include two operating companies, one associate and twelve manufacturers. A list of the company members elected follows:

OPERATING COMPANIES

Lake Erie & Northern Railway, Galt, Ont., Canada.

London Street Railway, London, Ont., Canada.

ASSOCIATE

N. D. Ballantine, consulting engineer, New York, N. Y.

MANUFACTURER COMPANIES

Aqua Oil Service, Inc., New York, N. Y.
Binks Spray Equipment Company, Chicago, Ill.

Brooks Steam Motors, Ltd., Stratford, Ont., Canada.

R. W. Cramer & Company, New York, N. Y.

Crew-Levick Company, Philadelphia, Pa.

Hannum Manufacturing Company, Milwaukee, Wis.

Laconia Car Company, Laconia, N. H.

Lebanon Steel Co., Lebanon, Pa.

Shuler Axle Company, Louisville, Ky.

South Bend Lathe Works, South Bend, Ind.

United States Air Compressor Company, Cleveland, Ohio.

Wiener Body Company, Newark, N. J.

News of the Industry

Another Franchise Draft Soon for St. Louis

Mayor Victor J. Miller of St. Louis, Mo., has stated that he hopes to be able to present to the Board of Aldermen an ordinance for enfranchisement of the United Railways under a service-at-cost plan. Mayor Miller indicated that the new measure will differ little from his former service-at-cost plan, abandoned this summer because the city officials and the reorganization committee of the railway could not agree upon the questions of valuation and rate of return.

Alderman Samuel L. Wimer has presented to the Board of Aldermen a resolution calling for another aldermanic inquiry into the problem of transportation in St. Louis. Alderman Wimer says the purposes of his proposed inquiry are:

1. To consider "this scheme to grant a service-at-cost franchise" and its effect upon the development of any system of rapid transit which later may be devised.
2. To learn what bearing a franchise of this kind would have on any future plan under which the city might desire to acquire and operate these surface lines on its own account.
3. To determine the feasibility of the city acquiring and operating the surface lines at this time.

The committee of three proposed by Alderman Wimer would include him as chairman of the board's special committee on Rapid Transit, Edward Wiehe, chairman of the board's committee on public utilities, and President Neun. The board cannot appoint to its committees non-members, but Mayor Miller, Comptroller Nolte, City Counselor Muench and E. R. Kinsey, president of the Board of Public Service, are formally invited to sit in with the committee.

San Francisco Votes to Retain Delos F. Wilcox

In the face of the assertion by Nelson Eckart, assistant city engineer, that the appointment was illegal, supervisors of San Francisco, Cal., by a vote of fifteen to three overrode Mayor Rolph's veto of Delos F. Wilcox's designation as an expert to make a 60-day survey of the local street railway situation.

In addressing the supervisors Mr. Eckart declared that the appointment of Mr. Wilcox is a violation of the city charter. He quoted a section of the charter which provides that work connected with the operation of any public utility owned or controlled by the city must be certified as necessary by the city engineer. Further, Mr. Eckart pointed out that the appointment of Mr. Wilcox had been opposed by City Engineer O'Shaughnessy, who had advised

the Mayor to veto the measure appointing him.

Court action may follow as a result of the veto upset, but at any rate the matter will be put up to the voters on Nov. 8.

Mayor Rolph has drafted an ordinance to be voted on by the electorate proposing that the Board of Public Works shall appoint a commission of three members to study and report upon the valuation of the physical properties of the Market Street Railway and investigate the situation confronting the city at the expiration of the company's

franchises. The three would be selected from a list of 24 names, six each to be submitted by the presidents of the University of California, Stanford and Santa Clara Universities and St. Mary's College. The three members finally selected would make their report in 90 days and it is stipulated that their recommendations must provide for maintenance of a 5-cent fare within the city limits of San Francisco with half fares for school children. The Mayor has power under the charter to put this ordinance on the ballot.

Committee Approves New Chicago Bills

Three of the five measures intended to help unification program are advanced by Aldermanic action—Two more measures to be considered—Full program expected to go before board at an early date

THREE of the five new bills representing the city of Chicago's views as to the kind of legislation needed to settle the local transportation problem were formally approved on Oct. 11 by a sub-committee of the City Council committee on local transportation. Modeled after the original company bills, which failed to pass at the last session of the Legislature, the new bills were drawn up several weeks ago by James W. Breen, assistant corporation counsel. The three measures which were approved are the subway bill, the bill providing for the consolidation of surface, elevated and bus lines, and one creating a local transit commission. The other bills, which amend the cities and villages act to allow franchises of more than twenty years and provide for the issuing of terminable permits, are expected to be approved in a few days.

In the new subway draft the provision of the original bill, that the cost of relocating public utility pipes and conduits in connection with subway construction should be borne by the city and charged to the cost of building the tubes, has been changed to give the city the option of standing the expense and charging it to subway cost or to put the cost of the work on the utilities themselves.

In the local transit commission bill the Aldermen stood by their original plan of almost complete home rule by recommending a transit commission of five members, four to be appointed by the Mayor of Chicago and the other to be selected by the president of the county board of commissioners. In the bill initiated by the companies last summer the Governor was to have named two, the Mayor, two and the county board president, one.

The consolidation bill, as approved by

the sub-committee, is practically identical with the original company measure, providing for the formation of a single transportation company to operate elevated, surface and bus lines and the subway system, when it is built. This bill would permit the elevated lines, which are incorporated under the state railroad act, to purchase and operate the surface lines and the bus lines, but would not give the same right to the street car company.

When the last two bills are approved by the sub-committee they will be submitted to the full local transportation committee, which will consider recommending them to the City Council for adoption. When the last-named group is presented with the drafts representatives of the railways and their bankers will be called in to reject, modify or accept the bills.

Boston Elevated to Open New Dorchester Line Nov. 5

Work is so far advanced on the building of the new Dorchester rapid transit line, which will be the newest part of the Boston Elevated system, Boston, Mass., that a part of it will be opened for service on Nov. 5. The Boston Transit Department, which is building the line, announces that the section from Andrew Square to Field's Corner will be ready for service on that date and has petitioned the Public Utilities Department to authorize the New York, New Haven & Hartford Railroad to close the Savin Hill station on Nov. 1 so that the Boston Elevated Railway may turn the power into the third rail on that date and allow the Elevated officials and employees three days to try out the new line and familiarize them-

selves with the signals, curves and station platforms before carrying any passengers. There will be an official inspection of the line on Nov. 4.

This is the section, a third-rail rapid transit line, which will take the place of the steam railroad, the right-of-way having been bought from the New York, New Haven & Hartford Railroad, which is to abandon the passenger service when the new line is built so that the Boston Elevated can take it over. In planning for this extension of the Elevated system it has been assumed that the short-haul suburban passenger traffic can be handled more economically by a railway than by the steam railroads. The railroads coming into Boston have been talking about abandoning the suburban service.

Fare Hearings on California Petitions Set for Dec. 6

The hearing before the California Railroad Commission on the application of the Pacific Gas & Electric Company for a 7-cent fare in Sacramento, Cal., was resumed on Sept. 28. Considerable data were submitted on the valuation of the system and cost of operation of cars. Resumption of the hearings has been set for Dec. 6.

This date was made to allow for time to study the exhibits filed by that company and by the Central California Traction Company, San Francisco, Cal., which also is petitioning for an increase to 7 cents. The city is fighting the proposed increase of 2 cents on the lines within the city, while the district attorney's office is interested in the increase on the railway company's lines which run outside the city limits.

Citizens Abandon One-Car Road

Three weeks of trying to run a railway and make it pay is enough for the citizens of the little town of Philley's, Ind., so they have returned the line to its original operators and are retiring to less arduous occupations.

The town of Philley's adjoins the city of Fort Wayne on the southeast and is located on the interurban line running between that city and Decatur. When the Indiana Service Corporation, which has operated the insolvent Fort Wayne & Decatur Traction Company for some time, recently decided to abandon the service to Decatur the residents of Philley's were greatly incensed. So the Indiana Service Corporation turned over to the Philley's Community Association that portion of the line between Philley's and Fort Wayne and gave them a single street car to operate. The line was leased to the community with the understanding that it would be operated and maintained by the citizens, at a rental of \$1 a year.

After several weeks of operation, however, the amateur utility men discovered the receipts were insufficient to pay the lone motorman so the line was handed back to the company and will soon be abandoned.

Council Heckling Tacoma Company

The City Council of Tacoma, Wash., recently passed a resolution directing the Tacoma Railway & Power Company to pave between its tracks on McKinley Avenue from 40th to 64th Streets and to complete its double tracking between 35th and 40th Streets on McKinley Avenue. The Council was advised by Corporation Counsel E. K. Murray that it was justified legally in taking such action. The company planked between its tracks according to an agreement with the city in 1921, which permitted planking in view of double tracking, and the company was to pave when financially able to do so. The resolution was adopted after frequent complaints had been received by the city from residents on McKinley Hill over the condition of the planking.

The Council also instructed the company to pull up the remainder of its tracks on Commerce Street. This work was halted due to an altercation over whether the ties should come up too after the company had completed the distance between Seventh and Ninth Streets.

A letter from Richard T. Sullivan, manager of the company, held that the Council's interpretation of the agreement to pave between 48th and 56th Streets on Yakima Avenue was unfair, and the company withdrew its consent to pay for any portion of it.

Jitney Decision Awaited in Columbia

Columbia's railway case, more or less in the public eye since last March, when the cars operated by the Columbia Railway, Gas & Electric Company were withdrawn, is now before the State Supreme Court.

Some time after this action by the company in suspending operations the Attorney-General instituted mandamus proceedings requiring the resumption of service. Several "interveners" added their petitions to that of the Attorney-General. Among them were the Columbia city school board, the towns of Arden and Eau Claire (suburbs of Columbia and heretofore served by the railway), Columbia College, land development companies and others. All of these contend that the discontinuance of railway service is injurious to the city's welfare, that the street car is the best and cheapest mode of transportation and that the utility is under obligation to continue service despite the fact that it makes no money.

The company's position is that it lost money steadily during the latter several months of its operations and that to force it to operate would mean still further loss.

The Supreme Court, after hearing the case, has taken the petition for a mandamus under advisement and will likely hand down a decision soon.

At present the city is served by two systems of public transportation—neither

very satisfactory. Buses operate on definite routes and are supposed to run on schedule. Their fare is 10 cents and they are not heavily patronized. Ten-cent jitneys operate without any regulation. They cover no definite route and go off the streets when they are so disposed to take passengers to their doors or to their offices. These vehicles are fairly well patronized. The jitneys are privately owned, some transfer only whites and others only negroes. Practically 95 per cent of them are Fords. The licenses for the jitneys change hands often.

One-Man Operation Extended by Connecticut Company

One-man car operation has been extended by the Connecticut Company at New Haven to the Lighthouse line, the Branford and Stony Creek runs, Momauguin and to the Country Clubs. This leaves two-man car operation on the Shelton Avenue line, the Winchester-Grand Avenue, State-Congress Avenue, New Haven-Waterbury, Dixwell Avenue-Savin Rock, and the Bridgeport runs. It is expected that these lines will follow into the one-man class before many months, for it is understood to be the intention of the company to operate 100 per cent of the cars in New Haven with one man. With the operation of one-man cars on the Branford, Stony Creek, East Haven and Momauguin lines a new system for fare collection went into effect. On east-bound trips from New Haven passengers pay as they leave the car. Passengers boarding cars beyond the first fare limit receive identification checks to show the number of the fare limit in which they have boarded the car. On the westbound trips to New Haven passengers, as they enter the car pay full fare from the point they board the car to their destination, and receive identification checks showing the number of the fare limit through which they have paid. Passengers return the identification checks to the operator when they leave the car. Passengers without checks are obliged to pay full fare to the point at which they leave the car.

Co-operation Between Savannah Utility and Education Board

The Savannah Electric & Power Company, Savannah, Ga., will co-operate with the Board of Education to consider transportation problems for pupils who live outside the city limits. Out of a recent meeting came a definite proposition for the making of a school survey of Chatham County. The company agreed to submit figures for the employment of a special car to carry the children from the Fort Wentworth section into the city and carry them back after school hours. As soon as these figures are obtained the committee will hold another meeting and formulate a report to the Board of Education.

\$30,000 Toward Portland Viaduct

The Oregon Electric Railway is to pay \$8,000 toward the cost of a \$30,000 viaduct over its tracks at Roland Street, Portland, Ore. The agreement specifies that the amount will be paid in full by the company within ten days after notification by the city engineer that the viaduct has been completed, the company to be free of all liability of the viaduct toward the structure.

Oakland Hearing to Be Resumed on Nov. 2

The hearing before the Railroad Commission concerning permanent rates for the local and transbay lines of the Key System Transit Company, Oakland, Cal., will be resumed by Commissioner Clyde Seavey on Nov. 2. The arguments have been held from time to time, and at the last hearing the Key System broached a plan for a "pass" system with a 10-cent cash fare. This matter is still under consideration.

Would Dismiss Suit for 5-Cent Fare in Philadelphia

Motions were filed in U. S. District Court by the Public Service Commission and Philadelphia Rapid Transit Company, Philadelphia, Pa., for dismissal of the equity suit for restoration of the 5-cent fare. The motion is based on grounds that the federal court has no jurisdiction in the case, and for the further reason that the fare advances, approved by the Public Service Commission, were consented to by the parties to the 1907 city-P.R.T. agreement.

"Vepcovian" Will Appear in Richmond

The November issue of the magazine published for employees of the Virginia Electric & Power Company, Richmond, Va., will appear under the name *Vepcovian*, it has been announced by A. H. Herrmann, the editor. A contest was held to secure a name for the publication, and *Vepcovian* won in a field of 90 entries. J. Morris Hardy, Norfolk, an employee of the accounting department of the company, won \$10 in gold for the suggestion.

Out for Prizes in Jacksonville

Employees of the Jacksonville Traction Company, Jacksonville, Fla., announced recently that they would compete for the prizes to be offered to the Stone & Webster, Inc., owned or managed property in Georgia and Florida, which shows the most efficiency in keeping cars in repair while in service. The winning company must lower the record established for the smallest number of street cars which are brought into the

shops for repairs while in service. Awards will be made by Alba H. Warren, district manager in Savannah.

Kansas City "Dad" Retires

"Dad" Nelson, veteran motorman at Kansas City, Mo., recently retired after 42 years of service. Almost a half century ago he entered railway service as a gripman for the old Kansas City Cable Railways. The *Railwayman*, the official paper of the Kansas City Public Service Company, states that his leaving brought many expressions of regret. It said that twice in his street car career he was responsible for the saving of the lives of his passengers. "Dad" is 79 years old, but appears much younger.

Employees Can Tip Company Off on British Columbia Business

"How the Employee Can Help," which appeared in the July issue of the *British Columbia Electric employees' magazine*, has been reprinted in pamphlet form, inside of which is the new business form designed to secure new business for the company. On this form employees can give any information they want on prospective customers for chartering coaches or cars, for parcel express by rapid transit and for electric railway freight services.

Examiner Reports Against Piedmont Project

An Interstate Commerce Commission examiner has recommended in a tentative report that the commission deny the application of the Piedmont & Northern Railway for authority to construct a line of railroad from Spartanburg to Gastonia, S. C., a distance of 53 miles, and another line from Charlotte to Winston-Salem, N. C., a distance of about 75 miles. The examiner held the proposed construction would result in an unwarranted duplication of existing railways, would impair their facilities by diverting their traffic, would not open any through routes that are not now available and would perform no transportation service of importance that cannot be performed by lines that now exist.

The commission will pass upon the recommendation before making a final decision. The Southern Railway and other carriers protested that the line was unnecessary and further asserted that the Duke power interests, controlling the Piedmont company, desired to build the railroad largely for the purpose of controlling traffic.

The Piedmont company contended that it had projected its extension prior to the passage of laws under which the commission controls railroad consolidation and, further, as an electric interurban, it was not under the commission's supervision. Both of these claims were held invalid by the examiner's ruling.

Planners to Study Route in Oklahoma City

Members of the City Planning Commission of Oklahoma City, Okla., are studying the route of the proposed belt line railway for the city. The plans were recently submitted to that commission by Hubert Hudson, president of the Oklahoma Railway. Mr. Hudson said it was desirable for the city to take sufficient time to study the plans.

Chicago Utilities Operate Radio Stations

Local and interurban transportation companies and other public utilities in the Chicago, Ill., metropolitan area under the management of Samuel Insull and associates have purchased and are now operating two local radio broadcasting stations under the slogan, "The Voice of Service to the Public." The stations, which are known as "WENR and WBCN," are operated by the Great Lakes Broadcasting Company, a newly created organization, owned and controlled jointly by the Chicago, North Shore & Milwaukee and the Chicago, South Shore & South Bend Railroads, Chicago Rapid Transit Company, Commonwealth Edison Company, the Peoples Gas Light & Coke Company, Public Service Company of Northern Illinois, Middle West Utilities Company and the Northern Indiana Public Service Company.

The two stations alternate broadcasting hours, thus making it possible to furnish continuous programs throughout the day. Both have been assigned the same wave length—228 meters or 1,040 kilocycles.

Morgan Eastman, formerly director of the Commonwealth Edison studio in Chicago, has been made manager of the two stations. He has a staff of well-known artists and announcers to aid in giving some of the best programs on the air. In addition famous radio entertainers from all parts of the country will be heard from time to time.

The "News" Established in Cincinnati

In order to keep the 15,000 citizens of the Cincinnati Street Railway City, Cincinnati, Ohio, informed as to what is happening in that city, the *News* made its appearance this month, and will appear every month hereafter. According to the first issue, it fulfills the promise made by J. B. Stewart, Jr., that there should be some means for the exchange of ideas and for keeping people acquainted all over the property. The editor is Marvin S. Gilbert. On opening up the fifteen-page pamphlet one sees the picture of Walter A. Draper, president of the Cincinnati Street Railway, and reads his hopes and ideas of "our new paper." He promises that personal items as well as business items will find a place in its pages.

Five-Cent Fares for Miami School Children

Special 5-cent fare tickets for school children of Miami, Fla., will be honored on bus and railway cars operated by the Miami Beach Railway. They are purchasable in book form, containing 40, for \$2. Applications signed by school principals will be distributed at the schools and must be presented upon purchasing the tickets.

One Pittsburgh Driver Speaks to Another

In a recent advertisement in the Pittsburgh *Post-Gazette*, the Pittsburgh Railways extended its appreciation to the taxicab and truck drivers of the city for the splendid co-operation they have shown in helping to minimize accidents to pedestrians and passengers. The railway "as one driver to another" warns the drivers not to run past open trolley doors at loading points and to remember that the trolley cannot deviate its course to avoid hitting an auto.

New Toledo Ordinance Being Drafted

Progress on a new franchise ordinance for Toledo following the basis of agreement arrived at between representatives of the Henry L. Doherty & Company ownership group and the Board of Street Railway Control for the city is expected to be rapid after the election in November. Company officials and attorneys are already busy drafting in a preliminary way the new ordinance. There is some hope that it may be put through and presented to the electorate before January or early in the spring at the latest. A considerable development of new bus service depends on the new ordinance, in which it is proposed to give the railway company a virtual monopoly of all city transportation for a number of years. Closer control by the public board and commissioner would also be provided under the new plan.

Providence Men to Receive Checks

The United Electric Railways, Providence, R. I., has abandoned its trolley pay car and will mail checks hereafter to its employees. Paymaster G. B. Merchant, who knew the 2,400 employees so well, will no longer ride the cars with from \$12,000 to \$80,000 twice each week in his care. The ever-present bandit menace has forced a change from the 30-year old method.

Loops to Be Constructed in Buffalo

Attempts on the part of the Buffalo municipal authorities to prevent the International Railway, Buffalo, from constructing loops at the two ends of the Fillmore-Hertel line, which would

enable the company to establish one-man car service on this line, the last route in the city to use two-man crews, failed when Supreme Court Justice Horton authorized the railway to construct the loops.

The permit was granted by the court by dismissing the stay granted the city some time ago pending an appeal to the higher courts. The Appellate Division dismissed the application of the city of Buffalo to enjoin the railway on the ground of legal errors. For several weeks city police have been posted at both ends of the line with orders to arrest any employee of the company who attempted to start the construction of new tracks. Henry W. Killeen, of counsel for the railway, says the conversion of the line from two-man crews to one-man cars will save the International Railway \$64,000 a year.

Efforts to Collect \$25,000 for Restoration of Hocker Line

Reports have it that efforts will be made in Merriam, Kan., to raise the \$25,000 needed to reconstruct the Hocker Interurban Line and to re-establish electric railway service between Zarah and Kansas City, Mo., in accordance with the plan of Herman Sonken, president of the Sonken-Galamba Company, which purchased the line at sheriff's sale on Aug. 27 with the intention of junking it. Mr. Sonken said he believed the line could be operated at a profit under favorable conditions and that he was willing to wait a while before junking the line. He estimated that it would cost about \$25,000 to place the line in operation again, as much repair work would be necessary. The Kansas City, Lawrence & Topeka Electric Railroad, the official name for the Hocker line, operated 21 miles.

"We Have Among Us —"

In the guard of honor to greet Colonel Lindbergh on his arrival in Los Angeles, Cal., was conductor Leonard C. Price, Division 1 of the Los Angeles Railway. He was selected because of his excellent overseas record. With nine other Legionnaires he escorted "Lindy" to the Coliseum on Sept. 20.

Eight Cents in Phillipsburg

To offset a deficit said to be increasing each year, the Phillipsburg Transit Company, Phillipsburg, N. J., has been granted permission by the Board of Public Utility Commissioners of New Jersey to charge an 8-cent fare, effective Oct. 9. The old fare was 7 cents. The schedule calls for the sale of two tokens for 15 cents, and weekly passes entitling the holders to an unlimited number of rides for a period of seven days are offered at \$1.25 each. Children between five and twelve years old are carried for 5 cents, providing tickets are bought from the company in strips at the rate of twenty for \$1.

Excess Fares Cannot Be Collected by Missouri

Federal Judge Faris in St. Louis on Sept. 30 denied the State of Missouri the right to sue Receiver Rolla Wells of the United Railways, St. Louis, Mo., for \$85,000 excess fares which car riders paid during the period Feb. 5 to March 28, while the company was charging an 8-cent fare under the protection of a federal court restraining order. He held to the law that the state cannot sue to collect debts due individuals when those individuals fail to press their own claims, but under the escheat statute it may sue to collect claims of individuals which have been reduced to judgments. The court pointed out that during the extra-fare period the company had issued refund script to passengers. These scripts covering the excess fare were redeemable within 60 days after the return to the lower fare, and if the car riders failed to collect the excess fare due them that was their individual right and the state could not collect the money.

Proposes Shortening Line in New York State

Following a traffic census of the bridge across the Hudson River at South Ferry Street connecting Albany and Rensselaer, N. Y., which confirms the opinion that the bridge had reached its traffic capacity, the State Department of Public Works has requested the Eastern New York Utilities Corporation to terminate its Albany-Hudson railway lines at Rensselaer instead of at Albany. This would provide for additional space for vehicular traffic by the removal of tracks from the structure.

Officials of the company have indicated that the proposal will not meet with their approval. Use of the bridge by the cars of the United Traction Company was discontinued some time ago with the substitution of bus service at Rensselaer.

Holyoke Changes Deferred

Because of the continued objection to the proposed increase in fare rates the Holyoke Street Railway, Holyoke, Mass., the Public Utilities Commission suspended operation of the proposed changes to Oct. 15. Previously the commission had suspended the date to Oct. 15 because of inability of objectors in Holyoke and Chicopee to prepare their case within the time set for the delay.

Despite the postponement, as much of the business as possible was taken care of at the recent hearing. President Louis D. Pellissier and Counsel William H. Brooks presented the case for the railway.

In addition to objectors from Holyoke and Chicopee, C. W. Cavanaugh appeared for the people of South Hadley. He said it was the feeling in that section that the time was most inopportune for fare increases. He thought the people should ride as cheaply in South Hadley as in Holyoke.

Recent Bus Developments

Buses Between Jefferson City and North Jefferson

Abandonment of a railway line operated by the Missouri Power & Light Company between Jefferson City and North Jefferson, Mo., including tracks at the Missouri River toll bridge at Jefferson City, was authorized on Sept. 12 by the Missouri Public Service Commission. The company was authorized to operate a bus service between Jefferson City and the railroad station in North Jefferson.

Buses have been in operation three or four months under a temporary order. The fare for the 2½-mile car trip across the river to North Jefferson has been 10 cents, including the bridge toll, and the same rate was authorized for the buses.

ter for public and city officials to decide. The bus line was operated in compliance with the bus franchise. It never had paid operating expenses and really was operated as a convenience to the people of the district served.

Lines Planned in Utica

The Utica Railways Co-Ordinated Bus Line, Inc., applied on Sept. 27 to the Public Service Commission for a certificate for the operation of a bus line from James and Dominick Streets in Rome, over five streets, under consent given by the city. The company plans to use two twenty-passenger buses and the rate of fare will not exceed that charged on the railway lines. Application was also made to the Public Service Commission for permission to operate a bus line from Baggs Square in Utica to the Cemetery loop, and returning over the same streets. The operation is to be under a city consent, dated Sept. 23, the company stipulating not to charge fares in excess of those charged on the railway.

Philadelphia Rural Transit Would Extend Line

Representatives of the Philadelphia Rural Transit Company, a subsidiary of the Philadelphia Rapid Transit Company, Philadelphia, Pa., appeared before James S. Benn of the Public Service Commission recently to ask approval of an agreement entered into between it and the Doylestown & Easton Motorcoach Company, providing for the operation of the latter corporation by the Philadelphia Rural Transit Company. C. C. Shaeffer, traffic engineer, explained that at the present time the applicant operates buses between Philadelphia and Doylestown, and the other company from Doylestown to Easton. The agreement provides for the operation of a line from Philadelphia to Easton, the equipment to be furnished by the Philadelphia Rural Transit Company. The fare is to be \$1.85 each way. The application was referred to the entire commission for final action.

Objection to Kansas City Buses Fails

The objection of the Warwick property owners to the operation of Warwick buses on that street in Kansas City, Mo., faded Sept. 28, when leaders in the dispute failed to organize an association for the benefit of Warwick property owners. The Warwick property owners could not agree upon the new organization, nor upon whether they wanted last year's paving tax cut or the buses of the Kansas City Public Service removed. After the failure to organize, the entire plan fell through.

Fred G. Buffe, general manager of the Kansas City Public Service Company, in a statement on Sept. 24, said that the question of continued operation of buses on Warwick Street was a mat-

ter. Threats of the Indiana Service Company to withdraw city service is believed to have prompted the Council to rule against the buses.

Bus Line to Supply Service in Glens Falls

L. F. Loree, William H. Williams, officials of the Delaware & Hudson Railroad, and H. B. Weatherwax, Albany, N. Y., vice-president and general manager of the United Traction Company, are the incorporators of the Hudson Transportation Company, Inc., Glens Falls, chartered on Oct. 6 by the Secretary of State, with a capital of \$100,000. The new company, it was stated at the offices of the United Traction Company, would operate a bus line in the city of Glens Falls, N. Y., to take the place of service formerly supplied by the Hudson Valley Railroad, the abandonment of whose railway lines was authorized by the Public Service Commission a short time ago.

Expansion in Fort Worth Planned

The Northern Texas Traction Company, Fort Worth, Tex., through its manager, A. F. Townsend, has petitioned the Texas Railroad Commission for permission to purchase the Harvey Bus Line running between Weatherford and Fort Worth. The new line will cooperate closely with the Texas Motor Coaches, a bus line running between Fort Worth and Dallas, recently purchased from the Red Ball Company by R. E. Harding and other men of Fort Worth, in which Stone & Webster is also interested.

Bus Proposal Renewed in Miami

The Miami Beach Railway, Miami, Fla., will apply again for a bus system permit at Miami Beach, revising the schedule for which City Manager C. A. Renshaw refused a permit because the plan was considered inadequate and curtailed the service started a month ago.

The only other permit application filed, as required by the city ordinance passed a month ago, is that of the Intercity Transportation Company, composed of 29 jitney drivers. This application has not been acted upon by the city. Officials of the jitney corporation say they have leased a terminal lot at South Beach, from which they will operate the intercity lines if the city refuses a permit. Their application offers a ten-minute schedule from Miami to South Beach and twelve-minute service from Miami to North Beach.

Peru Saved from Unwarranted Competition

The death knell of intracity buses in Peru, Ind., in so far as their operation in competition with street cars is concerned, was sounded recently when the City Council voted to instruct the ordinance committee to draft a new bus ordinance under which buses will be required to operate only on streets where there are no street car lines. Previous to the vote a resolution from the Peru Chamber of Commerce recommending that such an ordinance be passed was

Hearing on Purchase of Peoples Coach at Indianapolis

A hearing was held recently in Circuit Court in Indianapolis, Ind., on a petition of the Indianapolis Street Railway for approval of the purchase by that company of the Peoples Motor Coach Company for \$500,000. The court's decision will be announced later.

The hearing was an appeal from a ruling of the Indiana Public Service Commission, which denied the petition last spring and is the first appeal taken under an act passed by the 1927 Legislature, which provides for procedure of this nature. The city legal department offered no opposition to the purchase, the corporation counsel claiming that city officials feel there should be only one transportation company in operation.

Attorneys for the local electric railway informed the court that the petition should be granted, as it would permit improvement in service and argued that the purchase price was not unreasonable.

Arthur L. Gilliom, Attorney-General, did not appear in court to represent the Public Service Commission. He ex-

plained that the law under which the appeal was taken did not make the Public Service Commission a party to the petition. Should the Circuit Court judge reverse the ruling of the Public Service Commission, he would notify the commission and give the commissioners an opportunity to change the ruling. If the commission refuses to alter its ruling, the court then has power to grant the appeal and authorize the transaction.

Bus Permit Between Danville and Springfield Sought

The Illinois Power & Light Corporation has applied to the Illinois Commerce Commission for permission to operate buses between Danville and Springfield, Ill. Harry Payne, general division superintendent of the corporation, indicated that establishment of the bus service would probably mean greater co-ordination of motor vehicles with interurban carriers.

Buses on Lakewood Line in Jamestown

A declaration of abandonment of the Lakewood line of the Jamestown Street Railway, Jamestown, N. Y., operating between Jamestown and Lakewood, N. Y., was approved by the Public Service Commission on Oct. 6. At the same time a certificate of convenience and necessity was granted for the operation of a bus line by the Jamestown Motor Bus Transportation Company, a subsidiary, to provide service in the territories to be abandoned by the railway. The abandoning of the railway will do away with a grade crossing of the Erie Railroad tracks, the bus company planning so to operate its line that the railroad will not be crossed.

Evidence presented at the hearing showed that the company would not be justified in trying to finance the work needed to be done to rehabilitate the railway. There was no opposition to the railway abandonment provided bus service was arranged.

Sea Side Bus Line Passes to Railway

After prescribing certain conditions as to the transfer of an indebtedness, the Board of Public Utility Commissioners of New Jersey on Oct. 8 approved the sale of the property, franchises and equipment of the Atlantic Coast Transportation Company to the Coast Cities Railway. The trolley line extends from North Long Branch through various municipalities to Sea Girt. The transportation company operates a bus line through the same general territory, but skirting the ocean closely, extending, however, south to Manasquan and in addition serves the outlying territory west of the general route of the main line. Both properties have been under the same financial control.

Financial and Corporate

Increase in Illinois Business

The Chicago & Joliet Electric Railway, operating cars and buses, carried 2,171,740 passengers and the Illinois Traction System 226,764 passengers through the Joliet, Ill., terminal in the summer season of June, July and August. More than half the Chicago & Joliet total represents city service traffic in Joliet, while nearly 400,000 others rode the buses. The establishment of a connecting link in Joliet between downstate centers and Chicago was responsible for the great increase in business, officials explained.

Bondholders Buy Boston & Worcester

An offer of \$360,000 for all the property of the Boston & Worcester Street Railway was submitted at the foreclosure sale at Framingham, Mass., on Oct. 11 by Henry D. Rising of Boston, representing the bondholders' protective committee. The sale was conducted by Franklin P. Miller, receiver, and Mr. Rising's bid was the only one received. The sale is subject to confirmation by the Supreme Court at Boston. If it is confirmed the bondholders' committee plans to take possession of the property early in November and continue operations.

Offer Made to Winnipeg Stockholders

Stockholders of the Winnipeg Electric Company, Winnipeg, Man., will be offered rights to subscribe to 40,000 shares of additional common stock at \$60 a share, on the basis of four new shares for each eleven held, on Oct. 15. Manitoba Power Company, Ltd., controlled by the Winnipeg Electric Company, is expected to double its common stock of 200,000 shares at a stockholders' meeting on Nov. 10. The company intends to issue 50,000 shares of this stock to shareholders at \$60 a share in the ratio of one share for each two held.

A. W. McLimont, president of the Winnipeg Electric Company, stated that earnings of the Manitoba Power Company, Ltd., have reached the point where a dividend is warranted and it is the intention of the directors to declare it.

Sale Date Set for New Jersey Property

Charles F. Lynch, special master appointed by the United States District Court, will sell the holdings of the Morris County Traction Company at public sale on Oct. 31. The sale will be held at Morristown and is on a bill of foreclosure brought by the People's Savings & Trust Company, Pittsburgh, Pa.

The sale will comprise auto buses, franchise, real estate and interests in land held by the company in Morris County. The company has 43.60 miles of track, 47 trolley cars, nine buses, snow plows, flat cars and tools. In all there are 122 tracts of land, in Union and Morris Counties.

Abandonment on Joplin City Line Sought

The Southwest Missouri Railroad, Webb City, Mo., has applied for permission to take up its city service lines in Joplin, Mo., and discontinue service other than on the main line. Officials seeking discontinuance state that these lines are being operated at a loss. The railroad is now under a receivership. The city of Joplin will oppose the abandonment.

Smallest New York Car Line Would Quit

The shortest car line in New York City, namely, the Van Brunt Street & Erie Basin Railway, operating about a mile of track from Hamilton Ferry to Erie Basin, Brooklyn, has asked Justice Carswell in Supreme Court, Brooklyn, to appoint a receiver so that the railway can file a petition of voluntary dissolution and go out of existence. The company is faced with financial difficulties and refers to serious debt in the nature of a judgment of \$10,040 obtained for personal injuries inflicted by one of the company's cars. Besides this, on a revenue of \$140 a day, the company has been running up annual deficits for some time past.

Junior Security Holders Sue Chicago Railways Receivers

The suit of the trustees of junior securities of the Chicago Railway, Chicago, Ill., to compel receivers of the property to pay interest on the \$37,866,000 of A and B consolidated mortgage and purchase money bonds was taken under advisement recently by Federal Judge James H. Wilkerson. Funds sufficient to pay the interest at 5 percent from Feb. 1, the date the company's twenty-year franchise expired, to Aug. 1 of this year has been set aside by the receivers on the order issued by Judge Wilkerson early last summer, but no interest has yet been paid for the period.

Attorneys for the junior security holders in their petition contend that their bonds were considered in the ordinance of 1907 as special funds and as such should receive interest payment before or at the same time that interest is paid on the first mortgage bonds.

The suit of the junior security holders

is being opposed by the Harris Trust & Savings Bank, Chicago, trustee for the first mortgage bondholder, on the ground that first mortgage bonds are prior liens over all other outstanding securities of the company.

One-Mile Line in Pennsylvania Quits

The Huntington, Lewiston & Juniata Valley Traction Company, Huntington, Pa., abandoned service on Oct. 4. High cost of operation was given as the reason for the suspension. It was said that the cars were worn out and the company could not afford to replace them. The line is only 1 mile long.

A Michigan Interurban to Abandon Service

The combined efforts of the Benton Harbor & St. Joseph Railway & Light Company, Benton Harbor, Mich., the Benton Harbor Chamber of Commerce and civic organizations in communities served by the railway to revive patronage have met with little success. Officials of the railway recently announced that freight and passenger service would be abandoned on the interurban lines running between Benton Harbor and Watervliet and between Benton Harbor and Dowagiac. Approximately 40 miles of single track is affected. No definite date was given for the discontinuance of service, but the first step toward a final abandonment was taken when notices were posted of the cancellation of existing rate schedules on Oct. 30. H. W. Wallsmith, general manager of

the railway, remarked that the decision of the railway to cease operation of its interurban lines marked the end of an unsuccessful struggle against changed conditions brought about by the increasing use of trucks for short hauls and the growth of the automobile and bus as factors in passenger transportation. The company will continue to operate the local lines in Benton Harbor and St. Joseph.

8,463,338 Passengers Traveled in Westchester

Nearly 8,500,000 people traveled on the New York, Westchester & Boston Railway lines in Westchester, N. Y., during the first eight months of the current year, according to a traffic report made public recently by Leverett S. Miller, president. Daily travel on both eastern and western divisions has reached the record average of approximately 36,000 daily. The total of 7,561,310 registered during the first eight months of 1926 has been boosted during a similar period in 1927 11.94 per cent to a new record of 8,463,338. The month of August also set a new record, 1,073,347 passengers having been carried, which was a gain of 103,434 compared with August, 1926, which itself was a record-breaker. Passengers at the recently opened terminal at Harrison numbered 53,978 during August.

\$581,700 Balance in Detroit

The city of Detroit, Department of Street Railways, income and statistical statements for the year ended Dec. 31, 1926, are as shown in the table below.

Approves Abandonment of Two New York Lines

A declaration of abandonment by the Hudson Valley Railway, Glens Falls, N. Y., of its Lake George-Warrensburg lines and its Greenwich-Thompson Lines received approval of the Public Service Commission on Aug. 29, following a rehearing given by the commission on its order dated March 3, 1927. At that time it denied approval of the company's petition to abandon these two lines. The amendment does not become effective until Jan. 1, 1928, and in the interim the commission will make a survey of the transportation facilities along and contiguous to the Hudson Valley Railway's entire line and then call a conference of representatives of the railway line and other public carriers, including bus lines, and representatives of municipalities to discuss and devise means of public transportation where unprofitable branches are abandoned by the railway. The order approving the proposed abandonment was based on a memorandum by Chairman Prendergast which was concurred in by Commissioners Pooley, VanNamee and Brewster. Commissioner Lunn voted against the proposal.

It was shown in the evidence that the Hudson Valley Company in 1926 sustained an operating deficit of \$64,758 and, based on a complete analysis of the evidence and exhibits and actual experience, an operating loss of \$5,974 was indicated for the Greenwich line and \$13,492 for the Warrensburg line. These deficits take into consideration revenue from sales of power which, if excluded, would increase the deficits on the two branch lines to \$11,245 and \$13,618.

	—Year Ended Dec. 31—	
	1926	1925
Income		
Operating Revenue:		
Railway operating revenue.....	\$22,580,243	\$22,413,689
Coach operating revenue.....	2,137,818	818,328
Total operating revenue.....	\$24,738,061	\$23,232,017
Non-operating income.....	268,528	184,273
Total revenue from all sources.....	\$25,006,590	\$23,416,291
Operating Expenses:		
Railway operating expenses.....	\$17,055,022	\$16,572,497
Coach operating expenses.....	2,083,942	786,557
Total operating expenses.....	\$19,138,965	\$17,359,055
Net revenue from all sources.....	\$ 5,867,624	\$ 6,057,235
Deduct:		
Taxes assignable to operation.....	\$724,569	\$705,615
Other deductions.....		935
Interest on funded debt:		
On purchase bonds.....	149,728	155,380
On construction bonds.....	785,875	785,875
On additions and betterments bonds.....	230,860	137,305
On purchase contract (D. U. R.).....	794,663	854,662
Total interest.....	\$1,961,126	\$1,933,224
Total deductions.....	\$2,685,696	\$2,639,774
Net income.....	\$3,181,928	\$3,417,461
Disposition of Net Income:		
Sinking Funds:		
For purchase bonds.....	\$133,000	\$133,000
For construction bonds.....	519,709	571,351
For additions and betterments bonds.....	160,000	358,798
For purchase contract (D. U. R.).....	1,787,518	1,787,518
Total sinking funds.....	\$2,600,227	\$2,850,667
Balance for the period.....	\$581,700	\$566,793

	—Year Ended Dec. 31—	
	1926	1925
Railway revenue car-miles.....	53,109,845	52,863,111
Coach revenue coach-miles.....	8,977,267	3,529,795
Railway revenue car-hours.....	5,497,640	5,692,190
Coach revenue coach-hours.....	895,112	354,155
Railway revenue passengers.....	359,475,040	357,926,168
Railway transfer passengers.....	125,763,285	123,310,526
Railway total passengers.....	485,238,325	481,236,694
Coach revenue passengers.....	25,314,545	10,564,723
Coach transfer passengers.....	2,095,715	387,228
Coach total passengers.....	27,410,260	10,951,951
Total revenue and transfer passengers.....	512,648,585	492,188,645
Railway operating revenue per car-mile, cents.....	42.52	42.40
Coach operating revenue per coach-mile, cents.....	24.04	23.18
Railway operating expenses per car-mile, cents.....	32.11	31.35
Coach operating expenses per coach-mile, cents.....	23.21	22.28
Railway operating revenue per car-hour.....	\$4.11	\$3.94
Coach operating revenue per coach-hour.....	\$2.41	\$2.31
Railway operating expenses per car-hour.....	\$3.10	\$2.91
Coach operating expenses per coach-hour.....	\$2.35	\$2.22
Ratio of transfer passengers to revenue passengers—railway, per cent.....	34.99	34.45
Ratio of transfer passengers to revenue passengers—coach, per cent.....	8.28	3.66
Railway revenue passengers per car-mile operated.....	6.77	6.77
Railway transfer passengers per car-mile operated.....	2.37	2.33
Total railway passengers per car-mile operated.....	9.14	9.10
Coach revenue passengers per coach-mile operated.....	2.82	2.99
Coach transfer passengers per coach-mile operated.....	.23	.11
Total coach passengers per coach-mile operated.....	3.05	3.10
Ratio of railway operating expenses to railway operating revenue, per cent.....	75.53	73.94
Ratio of coach operating expenses to coach operating revenue, per cent.....	96.58	96.12

Industries Expanding in Beaver Valley Territory

While gross receipts of the Beaver Valley Traction Lines, New Brighton, Pa., were less in 1926 than in 1925, the decrease is due principally to the loss of business incident to bridge reconstruction. However, certain charges assumed by a neighboring company brought net revenues to about the same as in the preceding year. This was the explanation contained in the annual report of the Philadelphia Company, the parent concern. The net deficit for the year was \$8,044.

STATISTICS OF BEAVER VALLEY MOTOR COACH COMPANY

Routes operated.....	
Route miles operated (single way).....	10.1
Coaches owned.....	16
Revenue coach miles operated†.....	352,109
Passengers carried.....	1,084,811
Passenger revenue per revenue coach mile (cents) †.....	29.28
Average fare per passenger (cents).....	9.16
† Includes special coach miles.	
‡ Includes special coach revenue and mileage.	

SUMMARY OF INCOME AND PROFIT AND LOSS OF THE BEAVER VALLEY MOTOR COACH COMPANY FOR THE YEAR ENDED DEC. 31, 1926

Operating revenues.....	\$108,861
Operating expenses:	
Maintenance of equipment.....	\$12,508
Traffic.....	584
Transportation.....	54,354
General administrative.....	5,380
Other general.....	8,611
Taxes.....	5,184
Total.....	86,623
Net revenue from operations.....	\$22,237
Income charge—Interest on unfunded debt.....	3,860
Net income before appropriation..	\$18,377
Appropriation for depreciation....	23,031
Deficit for the year.....	\$4,654
Deficit, Jan. 1, 1926.....	\$7,484
Deficit credits—Miscellaneous (net).....	4,526
Total.....	2,958
Deficit, Dec. 31, 1926—Per balance sheet.....	\$7,613

The Beaver Valley is a rapidly growing industrial section, owing its advance to the development of diversified industries; and as the electric railway serves the territory for an expanse of 20 miles, the prospects appear to be improving. Established industries are expanding and the communities in the valley are growing at a rate scarcely exceeded in any other part of the Pittsburgh district. With the completion of many of the highway improvements in 1927, it is expected that restored communications will favorably affect the revenues during the year.

In November, fourteen employees had completed a 25-year record of continuous service and were awarded engraved watch charms. A twenty-year club has been organized.

The Beaver Valley Motor Coach Company's revenue of \$108,861 increased 25 per cent over the previous year, due largely to the change in service at Leetsdale from street cars to coaches, and also to temporary conditions. Operating expenses, excluding

SUMMARY OF CONSOLIDATED INCOME AND PROFIT AND LOSS FOR YEAR ENDED DEC. 31, 1926, BEAVER VALLEY TRACTION COMPANY AND PITTSBURGH AND BEAVER STREET RAILWAY

Gross revenue from atree railway operations.....	\$597,038
Operating Expenses:	
Maintenance of way and structures.....	\$66,794
Maintenance of equipment.....	34,330
Traffic.....	8,622
Power.....	70,343
Transportation.....	134,206
General administrative.....	57,607
Other general.....	48,969
Taxes.....	14,964
Total.....	435,839
Net revenue from atreet railway operations.....	\$161,199
Auxiliary Operations:	
Operating revenues.....	\$5,533
Operating expenses.....	6,112
Net loss from auxiliary operations.....	578
Net revenue from operations.....	\$160,621
Non-operating revenues:	
Rental of real estate and buildings.....	\$887
Interest from investment securities.....	385
Interest from other sources.....	100
Miscellaneous.....	4,862
Total.....	\$6,235
Non-operating expenses.....	551
Net revenue from other operations.....	5,683
Gross income.....	\$166,305
Income charges:	
Rent of leased properties.....	\$4,475
Interest on funded debt.....	119,100
Interest on unfunded debt.....	36,032
Total.....	159,597
Net income before appropriations..	\$6,707
Appropriations:	
Depreciation.....	\$13,448
Amortization of debt discount and expense.....	1,304
Total.....	14,752
Net deficit for the year.....	\$8,044
Deficit, Jan. 1, 1926.....	482,298
Miscellaneous debits (net).....	33,378
Deficit, Dec. 31, 1926—Per balance sheet.....	\$523,721

depreciation, for which a relatively large sum was reserved, increased \$4,102 and although there was a sharp rise in taxes, net earnings from operations amounting to \$22,237 increased \$17,886 over 1925.

With the completion of the rebuilding program affecting bridges and streets and the resumption of normal operating schedules, it is expected that the system of motor coach lines in the Beaver Valley will become a factor of importance in the transportation facilities of that section. The lines are primarily intended to serve as auxiliaries to the electric railway lines and the service is co-ordinate.

STATISTICS OF THE BEAVER VALLEY TRACTION COMPANY AND PITTSBURGH & BEAVER STREET RAILWAY

Miles of road.....	25.30
Miles of track.....	42.06
Cars { Passenger.....	38
Miscellaneous.....	7
Total cars.....	45
Car miles operated.....	1,573,527
Passengers carried { Revenue.....	11,429,625
Transfer.....	555,371
Total passengers carried†.....	11,984,996
Passenger revenue per (revenue) car-mile—cents.....	37.53
Passenger revenue per total passenger carried—cents.....	4.92
† Excluding free passengers.	

Lincoln Depreciation Allowance Reduced

The Nebraska Railway Commission has reduced the amount of maintenance and depreciation which the Lincoln Traction Company, Lincoln, has been compelled to set up on its books in recognition of the fact that abandonment of car lines has greatly reduced the investment in physical property and the cost of repair and replacement. Buses have been substituted in each case where a car line has been eliminated and the set-up required for them is much less. The company is still suffering a loss of about \$1,000 a month in revenues compared with a year ago, but the increase in the number of buses has been materially reducing the figure. Managing officials say that the smaller set-up for depreciation will enable the company to add enough to its net revenues to take care of its bond interest this year.

Colorado Property Valued

The Grand River Valley Railroad, electric line, operating between Grand Junction and Fruita, Col., was given a tentative value on Sept. 12 of \$260,250 by the Interstate Commerce Commission. This figure is of June 30, 1919.

Car Line Bought by San Francisco Business Men

Merchants of Montgomery Street sent a check for \$18,000 to the Market Street Railway, San Francisco, Cal., for the car line on that street. It was the final gesture in the long campaign to remove the car tracks from Montgomery Street so as to make way for the needs of modern traffic. This is in line with the purpose of the organization to make Montgomery Street a financial stronghold of the Pacific Coast.

Claims Hold Up Ratification of Binghamton Sale

Claims of the city of Binghamton N. Y., against the Binghamton Railway for more than \$200,000 for paving work will have to be settled before the sale of the company is ratified by the court. This was the advice given Corporation Counsel John J. Irving by the United States Court in Albany.

Assistant Corporation Counsel Ra represented the city in the court fight to have these claims made a prior lien over the first mortgages, and claim amounting to \$182,599 were included in the report of Special Master George F. Lyon. There is now included in the preferred list an estimate of \$43,000 for paving. The railway claims an offset to a part of these charges on account of expense in connection with change in track to accommodate sewer laying. The court holds the claims must either be paid by the railway before the property is sold or else the property must be sold subject to these claims, which precede mortgages or other liens.

Readjustment Plan for West Chester Property

A plan and agreement for the readjustment of securities of the West Chester Street Railway, West Chester, Pa., and which provides for the exchange of new securities for old securities without the payment of any cash on the part of the security holders has been adopted by a committee. The plan involves the company's first mortgage 5 per cent gold bonds, due Aug. 1, 1932; first lien and collateral trust sinking bond gold bonds, series A, 6 per cent, due Oct. 1, 1939; 7 per cent participating cumulative preferred capital stock, common capital stock and secured promissory notes.

An invitation has been extended by the committee to all holders to deposit their securities at an early date. O. Howard Wolfe, cashier Philadelphia-Grand National Bank, is chairman of the committee. The company has total assets of approximately \$3,000,000.

Payment Period Extension in Seattle in Hands of Committee

By a vote of five to four, the City Council of Seattle, Wash., recently adopted Councilman A. Lou Cohen's resolution for appointment of a committee of three to negotiate with representatives of the Puget Sound Power & Light Company, the Old Colony Trust Company of Boston and the Boston Safe Deposit Company with the intention of taking a hand in the negotiations with Stone & Webster interests for an extension in the payment period for the remaining \$10,000,000 of the \$15,000,000 purchase price of the Seattle Municipal Railway. The committee appointed by Council President John E. Carroll are A. Lou Cohen, Oliver T. Erickson and E. L. Blaine. This committee will act in conjunction with Mayor Bertha K. Landes, who has been conferring with A. W. Leonard, president of the Puget Sound company.

Electric Bond & Share Acquires South American Properties

The acquisition of utilities in Brazil, Colombia, France, Japan and other foreign countries by the Electric Bond & Share Company, New York, N. Y., costing \$36,417,597, was announced on Oct. 3, and a proposal of their transfer to the American and Foreign Power Company, Inc., a subsidiary. The cost includes annual interest at 6 per cent from date of expenditure to Oct. 1 and \$350,000 in overhead expenses. Shareholders of the subsidiary will vote on the proposed transfer at their annual meeting in Augusta, Me., on Oct. 18.

Brazilian acquisitions of the Electric Bond & Share include railway companies in Petropolis, Bahia and Victoria. The new acquisitions of the Electric Bond & Share Company have been vested with the South American Power Company, a Florida corporation.

Book Reviews

Your Money's Worth

By Stuart Chase and F. J. Schlink. New York, N. Y.: Macmillan Company. 286 pages. Price, \$2.

"What fools these mortals be" can be applied to the majority of consumers who spend a dollar and receive 25 cents worth. The American's gullibility for advertising misrepresentation, label mysteries, short weights and measures and his complacency and lethargy in wiping out quackery in general have been made the subject of serious study by these two explorers of hokum. Their findings are offered very frankly in "Your Money's Worth." Many things have been debunked within the past few years, but the reader in this instance will be more amenable to the indictments as he will not feel that the authors have an axe to grind or a product to sell. Rather do the authors point the way out of this wonderland of advertising mystery and illusory products to a terra firma of frank if less colorful sales propaganda where the trial and error method, so futile and so costly, is unknown.

Against this widespread adulteration and fraud there is little in the way of protection for products other than food and drugs. In cement and certain electrical equipment voluntary standards have been nationally accepted. Certain transportation equipment, especially in motor car parts and materials, must conform to standards, including those of safety. Simplification has been a first aid in the buyer's buying.

In paving brick alone, a commodity used very generally in the railway business, the variety has been reduced from 66 to four, with an annual estimated saving of \$1,000,000.

Buying from specification, however, to aid the consumer needs more coordination and more direct release of information. There are governmental outposts, such as the Federal Trade Commission, Bureau of Standards and the United States Navy, where laboratories are in operation as well as private outposts such as the General Electric, the Westinghouse and the United States Steel, which operate with splendidly equipped research facilities, but it is the intermediate consumer who is benefiting and not the ultimate consumer to any great degree.

A cure for this unhealthy economic condition can be found, according to Messrs. Chase and Schlink, in a definite interest on the part of the community toward organized pressure to get money's worth. Besides asking advertisers to produce scientific facts upon which their claims are based, they offer about 50 suggestions to the man about to buy. If only science could displace magic in salesmanship the authors believe that the whole curve of consumption would change.

This book is a "plea for a genuine science of buying and consuming." Against H. L. Mencken's theory that the average citizen is desolute without his daily dose of bunkum, the authors say that a greater man than he "founded his life on the principle that you 'cannot fool all the people all of the time.'"

Business Without a Buyer—

By William Trufant Foster and Waddill Catchings, Pollak Foundation for Economic Research. New York, N. Y.: Houghton Mifflin Company. 205 pages. Price, \$2.

A pleasant and profitable evening is offered the American business and industrial man through "Business Without a Buyer," a theory for the smoothing out of the business cycle expressed in the language of the layman. Why, with all this progress of increased wages, high technical attainments and better living conditions, has this "cycle of business" not been smoothed out and "depression" and "prosperity" softened into "good times" and "better times"?

The authors answer this question with a theory based upon five facts: First, our vast production resources are not used at any approach to capacity; second, we do not produce at capacity because we fear we cannot sell the goods at prices which will make continued production possible; third, we cannot sell the goods because the consumer does not have a sufficient income; fourth, the consumer does not have sufficient income to buy because the manufacturing processes do not allow a money profit sufficient for the consumer to buy the goods, and the people, under the impelling necessity of saving, cannot spend even as much money as they receive, and, fifth, since business can be prosperous only when there are buyers, and since our present system limits both the number of buyers and their capacity to purchase goods, then the solution of the problem lies in an adequate income to the consumer, which in addition to what he may save will allow him to buy all the finished products as rapidly as they are put on sale. Here are points on the possible solution of America's economic problems.

Electrification of Sydney and Suburban Railways

Reprint of the Institution of Engineers, Australia, Transactions, Vol. VII, 1926. 382 pages.

This is a series of papers presented before the Institution of Engineers, Australia, at Sydney, August to December, 1926, with maps, illustrations, drawings and index. Among the subjects discussed are signaling system, power supply and distribution and track and construction work.

Personal Items

F. A. Klock Controls Coach Operation

Fred A. Klock, formerly superintendent of motor coach operations of the Chicago, North Shore & Milwaukee Railroad, Highwood, Ill., has been appointed general manager of the North Shore Line's motor coach division. Reorganization of the motor coach department as a division attended the promotion. Simultaneously, Mr. Klock was also appointed general manager of the following associated motor coach companies under the management of Samuel Insull and associates: Metropolitan Motor Coach Company, Chicago-Milwaukee; Western Motor Coach Company, Chicago-Rockford, Ill.; Northwestern Transit Company, local service in Oak Park, Ill., and vicinity, and Northern Illinois Service Company, Chicago-Dixon, Ill. - Clinton, Iowa-Davenport, Iowa. Mr. Klock now has charge of the operation and maintenance of the entire group of motor coach companies. His office is located in the Commonwealth Edison Building, Chicago.

M. M. Herrell Traffic Agent at Logansport

The Indiana Service Corporation has announced the appointment of M. M. Herrell as traffic agent with headquarters at Logansport, Ind. Mr. Herrell will represent the traffic department in the freight and passenger business in Peru, Logansport, Delphi, Lafayette and intermediate points.

C. C. Gillette Resigns at Wheeling

C. C. Gillette, general manager of the Wheeling Public Service Company, Wheeling, W. Va., since June, 1926, has resigned. No announcement has been made on any new assignment Mr. Gillette will pursue. Rumor has it that his successor will be H. H. Patterson of Philadelphia.

During Mr. Gillette's two years administration in Wheeling many improvements have been made. New cars were put in operation during the period and considerable paving work accomplished or under way. As general manager in Wheeling he succeeded J. K. Buchanan.

Prior to his affiliation at Wheeling Mr. Gillette served as special investigator and then as traffic agent of the Pittsburgh Railways, Pittsburgh, Pa. On Oct. 1, 1925, he became research manager, succeeding A. C. Spurr. In the course of his five years with the Pittsburgh property he held a number of other executive positions, these embracing practically every phase of railway endeavor. The research department

especially entered the entire field of electric transportation dealing with the quantity and quality of railway service and especially public relations.

Mr. Gillette gained his first engineering experience with the American Expeditionary Forces in France. After he was graduated from Bucknell Univer-

sity with the degree of electrical engineer he joined the service and came out of the Meuse-Argonne offensive a captain. Immediately after the war he joined the engineering staff of the Westinghouse Electric & Manufacturing Company, engaging entirely in the railways project section. He was there two years and from there went to the Pittsburgh Railways.

Mr. Gillette was born in Rochester, N. Y., in 1895. He is a member of the American Legion and the Veterans of Foreign wars.

W. H. Sawyer Heads Stevens & Wood

Former East St. Louis executive and past-president of A.E.R.A. joins engineering firm as president with jurisdiction over its engineering, appraisal and report work

W. H. SAWYER has purchased a financial interest in Stevens & Wood, Inc., New York, and has joined that organization as president, succeeding in that position R. P. Stevens, who



W. H. Sawyer

part of this work, including, as it does appraisals and reports, is for outside interests with which Stevens & Wood have no financial connection. Particularly in this field is Mr. Sawyer's long service as an engineer, operator and executive of wide experience expected to add materially to the effectiveness of the Stevens & Wood organization.

As president of the American Electric Railway Association during the past year Mr. Sawyer has given unselfishly of his time toward promoting the interests and the development of the industry. He has traveled extensively, has visited many properties and has appeared on the program of various sectional associations in his effort to impress upon the industry a clear conception of the requirements for meeting present-day transportation demand. He is a firm believer in the possibilities of the bus in the development of public transportation service, but insists that destructive competition and exaggerated claims for the advantages of the bus handicap rather than further its development. He has been an ardent advocate of the need for improving the street car to meet present-day conditions, and devoted himself tirelessly to the task of insuring an adequate car exhibit at the recent convention in Cleveland.

After his graduation from the University of Nebraska the new president of Stevens & Wood, Inc., had a diversified and an important nine years experience with the General Electric Company. He then became engineer in charge of the New York office of Ford, Bacon & Davis, where he served for another nine years.

In 1914 Mr. Sawyer was elected vice-president of the E. W. Clark & Company Management Corporation, where he had further management, engineering and construction experience. This experience was further widened by his connection with the North American Company, as president of the East St. Louis & Suburban Railway and affiliated properties, which connection Mr. Sawyer leaves to join Stevens & Wood.

It is a post of much magnitude that Mr. Sawyer is assuming. Stevens & Wood, Inc., are identified with the operation of public utilities in eight states, with a combined value of more than \$150,000,000. These properties include the American Electric Power and the Penn-Ohio systems. The engineering and construction business of the firm now in progress includes work throughout most of the Eastern states and the territory of Alaska. A considerable

A great compliment was paid to his

business and engineering ability when in 1925 Mr. Sawyer was retained by the Victorian Government of Australia and appointed a Royal Commissioner to inquire into and report upon the status and affairs of the Electricity Commission of Victoria, and especially as to its power generation and distribution. He obtained a leave of absence from the North American Company to undertake this work, which was accomplished with great success.

The business of Stevens & Wood, Inc., is increasing rapidly. Moreover, plans are underway by them for further expansion of their public utility interests, especially their consulting engineering, construction, appraisal and report business. This program has necessitated a material enlargement of their organization. The accession of Mr. Sawyer to the organization in connection with the corporation's expansion policy, bringing to bear as it will his keen mind, broad knowledge and experience, delightful personality and broad acquaintance in the public utility industry, should be of great value to that organization, particularly as he is a builder—a man careful in making decisions and fearless in carrying them out. He is an engineer-executive with keen appreciation of the value of good public relations. He has an enviable record in his management of men. He knows the utility industry and he knows the public.

A. G. MacKenzie Directs Pennsylvania Committee

A. G. MacKenzie has been appointed director of the Pennsylvania Public Service Information Committee, according to an announcement made recently by P. H. Gadsden, vice-president of the United Gas Improvement Company, who is chairman of the committee. Mr. MacKenzie succeeds Major J. S. S. Richardson, who has become director of information for the Joint Committee National Utility Associations.

Mr. MacKenzie has been associated with the Pennsylvania committee since October, 1925. He was formerly associated with Philadelphia newspapers in editorial and reportorial capacities. He has been acting director of the committee for the last five months.

H. W. Eales with Byllesby Engineering Corporation

H. W. Eales has been appointed head of the electrical engineering division, engineering department, of Byllesby Engineering & Management Corporation, New York. As a prominent engineer he accompanied W. H. Sawyer early in 1926 to Australia to assist in an investigation for the Victorian state government of the status and affairs of the State Electricity Commission.

He entered the General Electric Company test course at the West Lynn works in 1907, and in 1909 was trans-

ferred to its St. Louis office. In 1913 he became chief electrical engineer of the Union Electric Light & Power Company, St. Louis. This position he held until joining the Byllesby Engineering & Management Corporation.

Mr. Eales was born in Coventry, England. He came to the United States at an early age and received his education in this country, graduating with honors from Yale University in 1904.

E. J. Dickson Leaves Providence

Edgar J. Dickson, vice-president of the United Electric Railways, Providence, R. I., has resigned because of ill health.

Mr. Dickson went to Providence to assume the duties of vice-president on July 1, 1923, severing connection with the International Railway, Buffalo, after a service record of ten years as vice-president in charge of operation. He went with the Buffalo property in 1913, and when the Mitten Management took



E. J. Dickson

control in 1920 he was one of the few officials connected with the former administration who remained with the property.

As mentioned in the *ELECTRIC RAILWAY JOURNAL*, issue of April 7, 1923, he served through the most trying period in the company's history, aggravated by a strike of the trainmen in July, 1922. He stuck to his post until the emergency had passed, an act which was greatly appreciated by the company and which was commented upon at the time of his resignation when the management accepted it with reluctance and regret. The management was not alone in expressing such sentiments on his leaving the city of Buffalo. In the public press of the territory in which the International Railway operates, his standing in the community and his notable services in the industry were fulsomely praised.

Mr. Dickson started in the transportation industry in 1887 with the Chicago, Burlington & Quincy Railway at Galesburg, Ill. Later he served with the Northern Pacific Railway at St. Paul, Minn., and still later with the Lehigh

Valley Railway at South Bethlehem, Pa. Steadily advancing, he next became affiliated with the New England Investment & Security Company and then general manager of a group of four electric railways at Attleboro, Mass. Just prior to his connection with the International Railway he was general manager of the Springfield Street Railway, Springfield, Mass., one of the most important properties in the New England States.

Mr. Dickson was born at Joliet, Ill., in 1872.

As yet no successor has been named to Mr. Dickson. Temporarily, the transportation and traffic department of the United Electric Railways at Providence is being filled by Herbert B. Shaftoe, who is in charge of the financial and construction departments.

OBITUARY

H. R. Culley

Harry Randolph Culley, head of the freight department of the Augusta-Aiken Railway & Electric Corporation, Augusta, Ga., died recently in Augusta. Mr. Culley went with the company in 1920, when Mr. Banghart was general manager. With him he brought a record of service in the transportation field, both in the navigation and steam railway fields. On account of his familiarity with the details of steam freight service, Mr. Banghart placed him in charge of that branch, which had been operating at a loss. To his efforts the revival of the freight business in that locality has been attributed.

Mr. Culley was born in Suffolk, Va., in 1859. He was educated in the public schools of that city and at the Boys Military Academy, Nansemond County, Va. His son, F. B. Culley, is general manager of the company at Augusta.

RALPH A. GILL former superintendent of railways for the Eastern Texas Electric Company, Beaumont, Tex., died recently at Holredge, Neb., where he was transferred about two years ago. He went to Beaumont from El Paso, where he was assistant to the superintendent of the El Paso Electric Company.

A. K. PLUMMER, long affiliated with the Los Angeles Railway, Los Angeles, Cal., died recently. He entered the service as a motorman on Aug. 27, 1903, and continued in that capacity until Nov. 1, 1906, when he was appointed extra inspector and regular inspector a year or two later. He was transferred to the instruction department on Sept. 8, 1917. A few years later he was appointed director of traffic. When failing health compelled his transfer to less arduous duties on Oct. 1, 1923, he was placed in charge of the signing up and dispatching of cars from the various divisions and succeeded in improving conditions materially.

Manufactures and the Markets

Work on Twelve Macon Cars Progresses

The twelve new cars being built by the Perley A. Thomas Car Company for the Macon Light & Railway Company are scheduled for delivery in November. The cars, which are of the one-man, double-end, double-truck type, have an over-all length of 41 ft. 8 in. and a seating capacity of 40. The exterior color scheme is of green and cream, while the interior trim is of cherry.

Specifications covering the cars are appended here:

Number of units.....	12
Type of unit.....	One-man, motor, passenger, city, double end, double truck
Number of seats.....	40
Builder of car body.....	Perley A. Thomas Car Co., High Point, N. C.
Date of order.....	June, 1927
Date of delivery.....	November
Length over all.....	41 ft. 8 in.
Length over body posts.....	28 ft. 6 in.
Truck wheelbase.....	5 ft. 4 in.
Width over all.....	8 ft. 4 1/2 in.
Height, rail to trolley base.....	11 ft. 3 in.
Window post spacing.....	29 1/2 in.
Body.....	All steel
Roof.....	Arch
Doors.....	End
Air brakes.....	Safety Car Devices
Armature bearings.....	Plain
Axles.....	A.E.R.A. E-2 Phys. prop. E-5-24
Car signal system.....	Faraday
Compressor.....	Westinghouse DH-16
Conduit.....	Flexible
Control.....	K-35-KK
Curtain fixtures.....	Curtain Supply Co., Rex roller No. 90 fixtures
Curtain material.....	Pantasote, double grain color 86
Destination signs.....	Keystone ILR and RLR
Door mechanism.....	National Pneumatic or Consolidated
Doors.....	Sliding
Floor covering.....	Rubber tile
Gears and pinions.....	G.E., long and short addendum
Glass.....	Plate and D.S.A.
Hand brakes.....	Peacock staffless
Hand straps.....	Rico retrieving
Heaters.....	C.C.H. Co. with G.E. heliocol elements
Headlighting.....	G.E. J-34
Interior trim.....	Haskelite
Journal bearings.....	Natural cherry
Journal boxes.....	Plain
Lamp fixtures.....	Keystone center dome
Motors.....	Four G.E.-264, inside bung
Painting scheme.....	Green and cream
Registers.....	Ohmer
Roof material.....	1/2-in. poplar
Safety car devices.....	Standard
Sash fixtures.....	Curtain Supply Co., brass sash
Seats.....	Hale & Kilburn AWO 400 walkover
Seat spacing.....	29 1/2 in.
Seating material.....	Canvas lined cane inerts
Slack adjusters.....	American, Form E-1
Steps.....	Stationary
Step treads.....	Kass
Trolley catchers.....	Ohio Brass No. 13141
Trolley base.....	Ohio Brass Form 4, Timken bearing
Trolley wheels.....	Nuttall 4-in.
Trucks.....	Taylor, type M
Ventilators.....	Nichols-Lintner, type C
Wheels.....	26-in. cast chilled
Wheelguards.....	HB type
Special devices.....	Treadle doors with power and brake interlock and signal lights

Ten Units Ordered for Milwaukee

The Milwaukee Electric Railway & Light Company, Milwaukee, Wis., has ordered ten one-man cars at a cost of \$14,000 each. Delivery is expected from the St. Louis Car Company, builders, on Dec. 1 this year. Except for several minor improvements, the new units will be identical with the 50 new one-man safety cars purchased last winter. The contemplated changes in-

clude improved design of the movable platform seats, further improvement in location of compressed air pipes and probably the installation of a permanent operator's seat on each platform.

Patent is a Monopoly, Says Report of N.E.M.A. Committee

Although asking for more time in which to continue further study, the committee on cross-licensing of patents, National Electric Manufacturers' Association, has agreed on the following principles which were presented to the policies division of the association at its meeting during the first week of September:

A patent is a monopoly granted to an inventor or his assignee for a term of seventeen years. It is designed and intended to be a monopoly, the important objects of which are to stimulate the making of inventions and to justify the expenditure of money in the development and working out of inventions after they are made.

Any policy of cross-licensing must, in our opinion, be based upon the fundamental consideration that a patent is, and fundamentally should be, a monopoly, and that the holder of any lawful monopoly is entitled to decide for himself the manner in which he will use it.

Any licensing plan must, therefore, be acceptable not only to those parties who have no patents (or no important patents), but also to whatever parties may happen to have patents regarded by them as important.

We all recognize that in the case of an individual grant of a license under a patent, if the royalty is too high the return from the royalty will be likely to be small, whereas, on the other hand, if the royalty is too low the return will necessarily be unduly small.

Your committee also recognizes that it is often undesirable and unwise to grant too many licenses under any particular patent or group of patents, since it often happens that it is only by limiting the number of licensees that it is possible to obtain sufficient interest on the part of a group of manufacturers properly organized and equipped to undertake the manufacturing and distribution of the patented device. Such restriction of the number of licensees often aids, both directly or indirectly, in maintaining the quality of the article and the service to the public.

Your committee believes it advisable also to make it clear that no cross-licensing arrangement involving all the patents of the electrical industry has been, or should be, considered practicable. The extreme diversity of the electrical industry makes it fall naturally in certain groups. In some of these groups the bulk of the valuable patents is held by a relatively small number of concerns. In other groups the distribution of valuable patents is more general. There are a number of group licensing arrangements in force at the present time, in different branches of the industry, and most of these seem to work very well. There is no justification whatever for disturbing such arrangements; there is, on the

other hand, every reason why they should be studied with a view to determining whether similar arrangements, duly modified to take care of the exigencies encountered, might not be useful in other branches of the industry.

Considering this whole question, it should be remembered that the cost of patent litigation is often high, so high that there are unquestionably a number of valuable patents in the industry which are not being enforced because of fear on the part of the owners of being involved in unduly high legal expense. On the other hand, it will doubtless be found that certain manufacturers are handicapped in their enterprises by their fear of these patents, or by their unwillingness to infringe them, even though they are not being aggressively enforced.

Your committee is satisfied that no general formula can be devised; that each case must be studied on its merits.

New Orleans Cars to Be Delivered in November

Details for the twenty new cars ordered by the New Orleans Public Service, Inc., on Aug. 22, 1927, have been released. The cars are being built by the St. Louis Car Company and the Perley A. Thomas Car Company and will be delivered near the end of November. They are all-steel, double-truck, double-end cars designed for one-man or two man operation. The seating capacity is 52 and the total weight 40,000 lb. Previous mention of the order appeared in the JOURNAL of Aug. 20.

The specifications as given by the New Orleans Public Service are as shown below:

Number of cars.....	20
Date order was placed.....	Aug. 22, 1927
Date of delivery.....	90 days
Builder of car body.....	Ten, St. Louis Car Company; ten, Perley A. Thomas Car Company
Type of car.....	Double-truck, double-end, one-man two-man safety car
Seating capacity.....	52
Weight.....	Total, 40,000 lb.
Length over bumpers.....	48 ft. 2 in.
Length of body.....	34 ft. 2 in.
Width over all.....	8 ft. 7 in.
Height, rail to trolley base.....	11 ft. 1 1/2 in.
Body, type.....	Steel, arched roof
Interior trim.....	Cherry
Roof.....	Poplar and No. 8 duck
Air brakes.....	Westinghouse air brake and General Electric
Axles.....	Standard Forging Company
Bumpers.....	Hedley anti-climber
Buzzers.....	Faraday
Car trimmings.....	Bronze
Conduits and junction boxes.....	Steel
Control.....	K-35-JI
Curtain fixtures.....	Curtain Supply Company
Curtain material.....	Pantasote
Destination signs.....	Keystone
Door-operating mechanism.....	National Pneumatic
Gears and pinions.....	General Electric and Westinghouse
Hand brakes.....	Peacock staffless
Headlights.....	Ohio Brass, type 2P
Journal boxes.....	Agasote
Lightning arresters.....	Brill M.C.B.
Motors.....	Aluminum cell
Paint.....	Four G.E. 265-G and Westinghouse 510-E
Registers.....	Murnhy Varnish Co.
Sash fixtures.....	International R-11
Seats.....	Nichols-Lintner
Seating material.....	Curtain Supply Co., brass sash
Side and center bearings.....	Hale & Kilburn
Slack adjusters.....	Wood stat
Slings.....	American Brake Co., type "A"
Step treads.....	Brill
Trolley catchers.....	Kass
Trolley base.....	Ohio Brass
Trucks.....	Ohio Brass No. 11395
Ventilators.....	Brill 76-E-1
Wheels.....	Railways Utilities Co.
Wheel Guards.....	Southern Car Wheel Co. H-B life guard Consolidated Car Fender Company
Miscellaneous.....	Ellecon 1-in. white enamel stanchion

Trial Trolley Buses for Penang Completed

Last year the municipality of Georgetown, Penang, Malaya, decided to start trackless trolley service and an order was placed in England for three vehicles for trial. These vehicles have now been completed and are about to be shipped.

Apart from the fact that they have the driving motor in an extreme forward position in order to obtain the best possible loading line, the chassis in all respects built on the same principles as the improved type of trolley is fitted with pneumatic tires, concerning which an article was published in this paper.

The body is of a type suitable for the use of natives and is provided with wooden slatted seats in place of upholstered seats. The whole of the framework is of teak instead of European woods. The body has a seating

capacity of 35. The windows are made to drop and are fitted with sun blinds. The entrance is at the rear, with a low loading platform. Doors are provided on both sides of the driver's compartment, one being for the use of the driver and the other for staff use.

Ten One-Man, Two-Man Cars for North Shore & Milwaukee

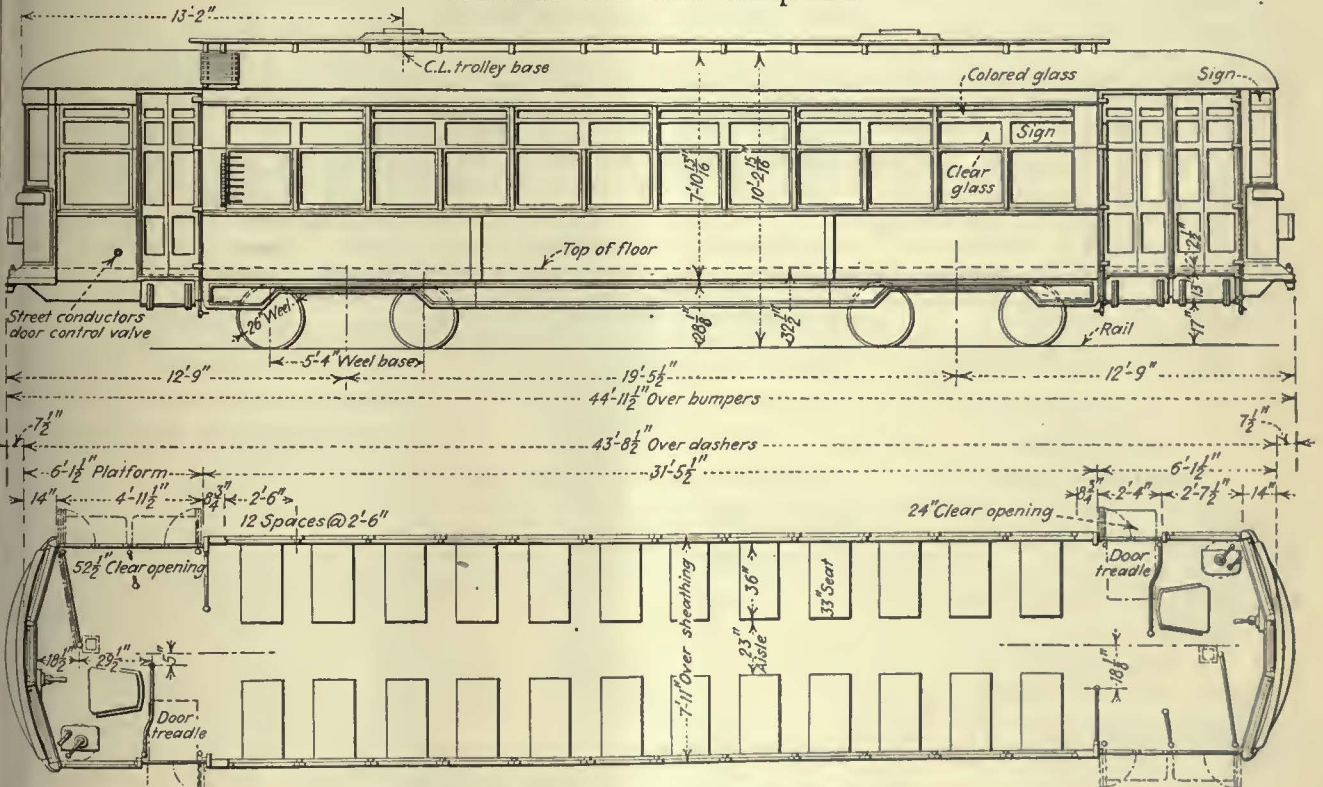
Ten new double-truck, one-man, two-man city type cars of modern design have been ordered by the Chicago, North Shore & Milwaukee Railroad, Chicago, Ill., from the St. Louis Car Company. The units will be 50 ft. long and they will be equipped throughout with the latest safety controls and devices. They will replace the present single-truck, one-man, safety units now in service on the Milwaukee city division of the road. A color scheme of orange and maroon has been specified for the exterior.

Metal Markets Mark Time

Developments in the non-ferrous metal markets during the week ended Oct. 11 have been unimportant. Zinc prices are a little higher and tin is a little easier. Lead and copper are virtually unchanged. Copper and zinc have been very quiet, this being attributable in the case of zinc to a very active week just preceding. As for copper, this is the third successive dull week. Lead has been bought in good volume and consumers likewise have been in the tin market for fair amounts of metal.

Copper buying in large volume that producers have been expecting to develop has not begun yet, the past week being the smallest in point of tonnage sold for two months at least. Only two sellers did business under 13.25 cents delivered in Connecticut, but the tonnage at lower figures exceeded that at the even quarter by a good margin. On Oct. 6 several good sales were made at

Galveston Cars Near Completion



New Galveston cars will be operated as one-man units

Galveston Electric Company, Galveston, Tex., is expecting delivery in the near future of four double-end, double-truck cars from the American Car Company, St. Louis, Mo. The order was placed on Feb. 24, as noted in a recent issue of the ELECTRIC RAILWAY JOURNAL.

The cars, which will be of semi-steel construction, will have a length over all of 44 ft. 11 1/2 in. and will have 24 double seats upholstered in genuine hand-buffed leather. General Electric No. 510-A motors have been specified.

The principal specifications of the new units are appended here:

Number of cars ordered.....	4	Fare boxes.....	Johnson DM-3
Builder of car body.....	American Car Company, St. Louis, Mo.	Floor covering.....	Rubber tiling
Bolster centers.....	19 ft. 5 1/2 in.	Headlights.....	Golden Glow SM-95
Length over all.....	44 ft. 11 1/2 in.	Headlining.....	Haskelite
Length over body posts.....	31 ft. 5 1/2 in.	Interior trim.....	Mahogany, bronze nickel-plated
Truck wheelbase.....	5 ft. 4 in.	Journal bearings.....	Plain
Width over all.....	8 ft. 2 in.	Journal boxes.....	Symington
Height, rail to trolley base.....	132 in.	Lamp fixtures.....	Dome type
Window post spacing.....	30 in.	Motors.....	Four General Electric 510A, inside hung
Body.....	Semi-steel	Roof material.....	Canvas
Roof.....	Arch	Sash fixtures.....	Schechter post casing
Doors.....	End	Seats.....	Brill 201-D
Air brakes.....	Westinghouse	Seat spacing.....	30-in.
Axles.....	A. E. R. A.	Seating material.....	Genuine hand-buffed leather
Car signal system.....	Faraday	Slack adjusters.....	Westinghouse type E
Compressors.....	DH-16	Steps.....	Folding
Control.....	K-75	Stop treads.....	Feralun
Couplers.....	American Car Company	Trolley catchers.....	Keystone
Curtain fixtures.....	National Lock Washer Company	Trolley base.....	Ohio Brass Company
Curtain material.....	Double-faced Pantasote	Trolley wheels.....	Holland
Destination signs.....	Hunter	Trucks.....	Brill 177-E-1-X
Door mechanism.....	American Car Company	Wheels.....	26-in. Davis cast steel
Doors.....	Folding	Wheelguards.....	HB, six-bar type
		Special devices.....	Economy meters

13.125 cents, but 13.15 and 13.175 cents was the ruling figure Oct. 11. At the same time sales have been made each day during the week at 13.25 cents, particularly on the last few days. Business in Europe has been quite satisfactory at the exporter's price of 13.50.

The buying of zinc that materialized in such large volume when the price sagged to 6 cents last week subsided as prices were advanced. Nevertheless a fair business was done and prices seemed firm at 6.075 cents Oct. 12, with still more being realized on occasional lots. Joplin concentrate sales were up last week, but production continues well above 15,000 tons per week. The principal buyers of slab zinc during the week have been brass melters, the galvanizers apparently having supplied themselves for the time being.

Most sellers sold satisfactory tonnages of lead during the last week, that metal being in considerably better demand than copper. Prices were unchanged, practically all sales being made on the basis of 6 cents St. Louis or 6.25 cents New York, the last named quotation also continuing as the contract price of the American Smelting & Refining Company. Desilverized lead in the Middle West, however, has sold nearer to a 6.05 cents St. Louis basis. Though the London price on prompt lead in London declined to a new low of £20 1s. 3d. Oct. 7, the market since then has turned stronger, so that Oct. 12 price was somewhat above that of Oct. 5.

Corroders continue to take good tonnages of lead, and a fair amount has been sold to ammunition makers in the last week.

The tin market was largely a routine affair until Oct. 11, when lower prices

in London brought offerings here as low as 57.75 cents for prompt Straits tin. Consumers then entered the market and quickly pushed the price up to 58 cents, at which level an appreciable tonnage was sold. Tin for shipment from the Straits has averaged about a half-cent less than prompt, and 99 per cent has been available for from $\frac{3}{4}$ to 1 cent below the Straits quotation.

Soft Seats Popular in London

So popular has been the introduction of spring cushioned seats in the lower decks of the London tramway cars that the County Council has now decided to provide similar seats on the upper decks. The cost is estimated at £37 per car.

SHOPS AND BUILDINGS

BOSTON ELEVATED RAILWAY, Boston, Mass., is making some changes at the Everett terminal station, where it is enlarging platforms and building new tracks. The purpose is to provide for more traffic, give station accommodations to local passengers so that they can take cars inside the station, and also to provide storage space for cars which now have to lay over at Malden Square. This will relieve Malden Square of congestion and afford a better schedule out of the Everett terminal station.

INTERNATIONAL BUS CORPORATION, a subsidiary of the International Railway Buffalo, N. Y., announces plans for the construction of a 91-ft. x 150-ft. steel and brick addition to its bus garage at Walden Avenue and Lathrop Street.

TRADE NOTES

CUTLER-HAMMER MANUFACTURING COMPANY, Milwaukee, Wis., announce the removal of its Cleveland office from the Guardian Trust Building to the Guaranty Title Building.

LARS G. NILSON has resigned as chief engineer of the Nilson-Miller Corporation, Hoboken, N. J., to enter consulting engineering practice. Mr. Nilson has been connected with the Nilson-Miller firm for eighteen years. He will continue to serve the corporation as consultant.

KEYSTONE CARBON COMPANY, Emporium, Pa., has placed on the market what it considers an entirely new material for metal and semi-metal brush application. Factors taken into consideration in the manufacture and development of this new material were increase in friction-resisting properties and very low electrical resistance.

TRICO FUSE MANUFACTURING COMPANY, Milwaukee, Wis., announces an improvement in its ferrule type renewable fuses. The improvement is said to reduce the time spent in renewing fuses and eliminates all small loose parts. This is accomplished by the method of using spring retainers on the end caps to hold the end screws. There are now only two parts and the renewal element. The general design of the fuse requires the removal of only one cap when renewing. This improvement has been made in addition to the recent one on the knife-blade type fuse. Samples and literature are available by writing the manufacturer.

ADVERTISING LITERATURE

J. G. BRILL COMPANY, Philadelphia, Pa., is issuing loose-leaf fillers for its seat catalog No. 284, which deals with car and bus seats. The sheets under review feature the Brill No. 202-B-1 car type seat, with dimensions; a diagram of the Brill No. 301 and 130 car and bus type seat, with standard dimensions and the Brill No. 201-D car type seat with dimensions and diagram.

IRVING IRON WORKS COMPANY, Long Island City, is mailing an illustrated postcard describing Irving "subway" flooring.

BEARDSLEY & PIPER COMPANY, manufacturer of sand conditioning and conveying equipment and "Sandslingers," has mailed 4,500 copies of its house organ, *Better Methods*, to the trade by air mail. This is the first publication of any kind, so far as is known, that has used air mail as a means of distributing a complete issue. The stunt was a tribute to Col. Charles Lindbergh.

TIMKEN-DETROIT AXLE COMPANY, Detroit, Mich., has issued a folder entitled "The Theory of the Differential and How It Is Applied to Timken Axle-Worm Drive."

ELECTRIC RAILWAY MATERIAL PRICES—OCT. 11, 1927

Metals—New York		Paints, Putty and Glass—New York	
Copper, electrolytic, cents per lb.	13.0	Linseed oil (5 bbl. lots), cents per lb.	10.5
Lead, cents per lb.	6.25	White lead in oil (100 lb. keg), cents per lb.	13.75
Nickel, cents per lb.	35.00	Turpentine (bbl. lots), per gal.	\$0.56
Zinc, cents per lb.	6.075	Putty, 100 lb. tins, cents per lb.	5.25-5.50
Tin, Straits, cents per lb.	58.0		
Aluminum, 98 or 99 per cent, cents per lb.	26.00	Wire—New York	
Babbitt metal, warehouse, cents per lb.:		Copper wire, cents per lb.	15.25
Commercial grade.	61.00	Rubber-covered wire, No. 14, per 1,000 ft.	5.50
General service.	31.50	Weatherproof wire base, cents per lb.	15.75
Bituminous Coal		Paving Materials	
Smokeless mine run, f.o.b. vessel, Hampton Roads.	\$4.175	Paving stone, granits, 5 in. New York—Grade 1, per thousand.	\$150
Somerset mine run, Boston.	1.80	Wood block paving 3 $\frac{1}{2}$ x 8 $\frac{1}{2}$ x 4, 16 lb. treatment, N. Y., per sq. yd.	\$2.70
Pittsburgh mine run, Pittsburgh.	1.825	Paving brick 3 $\frac{1}{2}$ x 8 $\frac{1}{2}$ x 4, N. Y., per 1,000 in carload lots.	51.00
Franklin, Ill., screenings, Chicago.	1.775	Paving brick 3 x 8 $\frac{1}{2}$ x 4, N. Y., per 1,000 in carload lots.	45.00
Central, Ill., screenings, Chicago.	1.625	Crushed stone, $\frac{1}{2}$ -in., carload lots, N. Y., per cu. yd.	1.85
Kansas screenings, Kansas City.	2.675	Cement, Chicago consumers' net prices, without bags.	2.05
Track Materials—Pittsburgh		Gravel, $\frac{1}{2}$ -in., cu. yd., f.o.b. N. Y.	1.75
Standard steel rails, gross ton.	\$43.00	Sand, cu. yd., f.o.b. N. Y.	1.00
Railroad spikes, drive, $\frac{1}{2}$ in. and larger, cents per lb.	2.85	Old Metals—New York and Chicago	
Tie plates (flat type), cents per lb.	2.25	Heavy copper, cents per lb.	10.50
Angle bars, cents per lb.	2.75	Light copper, cents per lb.	9.25
Rail bolts and nuts, cents per lb.	3.90	Heavy yellow brass, cents per lb.	7.00
Steel bars, cents per lb.	2.15	Zinc, old scrap, cents per lb.	3.875
Ties, white oak, Chicago, 6 in. x 8 in. x 8 ft.	\$1.45	Lead, cents per lb. (heavy).	5.25
Hardware—Pittsburgh		Steel car axles, Chicago, net ton.	\$17.00
Wire nails, base per keg.	2.55	Cast iron car wheels, Chicago, gross ton.	13.75
Sheet iron (24 gage), cents per lb.	3.00	Rails (short), Chicago, gross ton.	15.25
Sheet iron, galvanized (24 gage), cents per lb.	3.85	Rails (relaying), Chicago, gross ton (65 lb. and heavier).	28.50
Galvalnead barbed wire, cents per lb.	3.25	Machine turnings, Chicago, gross ton.	7.25
Galvanized wire, ordinary, cents per lb.	2.40		
Waste—New York			
Waste, wool, cents per lb.	14-20		
Waste, cotton (100 lb. bale), cents per lb.:			
White.	14-19.50		
Colored.	9-16		

—and on the heaviest Interurbans— they specify—

Work Progressing on Five-Car Order for Philadelphia & Western

While no definite date has been announced for delivery of the five two-man all-steel interurban cars ordered by the Philadelphia & Western Railway, Norristown, Pa., from the J. G. Brill Company of Philadelphia, work on the units has progressed to a point where A. M. Robinson, publicity manager for the car company, has released the following specifications. As announced in the JOURNAL for Feb. 19, the cars will have an over-all length of 50 ft. 6 in. Their design includes smoking and passenger compartments and they will be mounted on Brill 27-MCB-2-X trucks, equipped with Westinghouse 535-B-1 inside hung motors. Wheels of 30-in. diameter have been specified. Doors will be located at both ends and in the center. The seats are upholstered in hand-buffed brown Spanish leather. Specifications follow:

- Number of units.....5
- Type of unit.....Two-man, motor, passenger, interurban, double end, double truck
- Builder of car body.....J. G. Brill Company
- City and state.....Philadelphia, Pa.
- Date of order.....1/28/27
- Weights:
 - Car body.....26,070 lb.
 - Trucks.....19,030 lb.
 - Equipment.....17,985 lb.
 - Total.....63,085 lb.
- Bolster centers.....30 ft. 0 in.
- Length over all.....50 ft. 6 in.
- Length over body posts.....40 ft. 8-in.
- Truck wheelbase.....8 ft. 4 in.
- Width over posts.....9 ft. 3 in.
- Height, rail to trolley base.....13 ft. 3 in.
- Window post spacing.....20 in.
- Body.....All steel
- Roof.....Arch
- Doors.....Center and ends
- Air brakes.....Westinghouse AMM
- Armature bearings.....Plain
- Axles.....A.S.T.M. spec. A-2—21
- Car signal system.....Faraday buzzers
- Compressors.....DH-25
- Conduit.....Metal
- Control.....Westinghouse ALMPC
- Couplers.....Tomlinson, Form 16
- Curtain fixtures.....Curtain Supply Company's No. 48
- Curtain material.....Panlaseite
- Destination signs.....Railway company's portable
- Door mechanism.....National Pneumatic
- Doors.....Sliding
- Energy-saving device.....Economy watt-hour meter
- Finish.....Paint
- Floor covering.....Tuco
- Gears and pinions.....Nuttall solid forged steel
- Glass.....Libbey-Owens
- Hand brakes.....National staffless
- Heaters.....Railway Utility Company's truss plank
- Headlights.....Golden Glow HDD—No. 128
- Headlining.....Agasote
- Interior trim
 - Statuary bronze, Haskellite side linings
 - Journal bearings.....Prommet, plain
 - Journal boxes.....Brill
 - Lamp fixtures.....Electric Service Supplies
 - Motors.....Four Westinghouse 535-B-1, inside bung
 - Painting scheme.....Moss green
 - Registers.....Ohmer
 - Roof material
 - 7/8-in. poplar covered with No. 8 canvas
- Sash fixtures.....Brill Renitent
- Seats.....Three cars Brill 202-B-1, two cars Hale & Kilburn
- Seat spacing.....20 in.
- Seating material
 - Hand-buffed brown Spanish leather
- Slack adjusters.....American Brake Company's type J
- Steps.....Stationary, triple
- Step treads.....Wood
- Trolley base.....U. S. No. 20
- Trolley wheels.....No. 60-B
- Trucks.....Brill 27-MCB-2-X
- Ventilators.....Railway Utility Company
- Wheels.....Standard r.s., diameter 30 in.



The
"Peacock"
Staffless

That "Peacock" Staffless Brakes are the choice of the Electric Railways in every type service is again evidenced by the recent order of the Philadelphia & Western Railway for five new 63,085 lb. interurban cars!

These new cars, being built by the J. G. Brill Company, are to be "Peacock" Staffless equipped.

Modern car design demands the "Peacock" Staffless, because of its many advantages: Unfailing reliability, light weight, low installation and maintenance costs, little platform space required, maximum braking power and many others.

May we mail detailed information?

National Brake Company, Inc.
890 Ellicott Square Buffalo, N. Y.

Canadian Representative:
Lyman Tube & Supply Co., Ltd., Montreal, Can.

(Electric Railway Journal)
(Aug. 27, 1927)



THE PUBLIC BE PLEASED!

One of the Goodyear-equipped buses of the Tampa Electric Company, Tampa, Fla.

MOST important factor of all in the growth of any bus service is the public satisfaction with the service.

For out of public satisfaction comes public patronage, assuring the necessary revenue to meet expenses and pay a profit.

And of all the elements in bus operation that contribute to public satisfaction, confidence and patronage, none is so essential as uninterrupted service.

The dependable, on schedule service that Goodyear Bus Tires do so much to maintain.

* * *

Goodyear Pneumatic Cord Bus Tires are more durable and more trouble-proof largely because they are made with SUPERTWIST—the new cord material which eliminates shoulder breaks and other casing troubles.

This patented cord fabric was invented and developed by Goodyear to overcome carcass failures and diminish tire changes.

It is more elastic than ordinary cord fabric.

Stretches farther before it breaks. Withstands flexing better and longer before "fabric fatigue" sets in.

* * *

The dependable, long-lived service they give is one reason why Goodyear Tires are used on the buses of the Tampa Electric Company, Tampa, Florida.

"For the past year we have been using Goodyear Tires on our buses operating city service," writes Manager T. J. Hanlon, Jr.

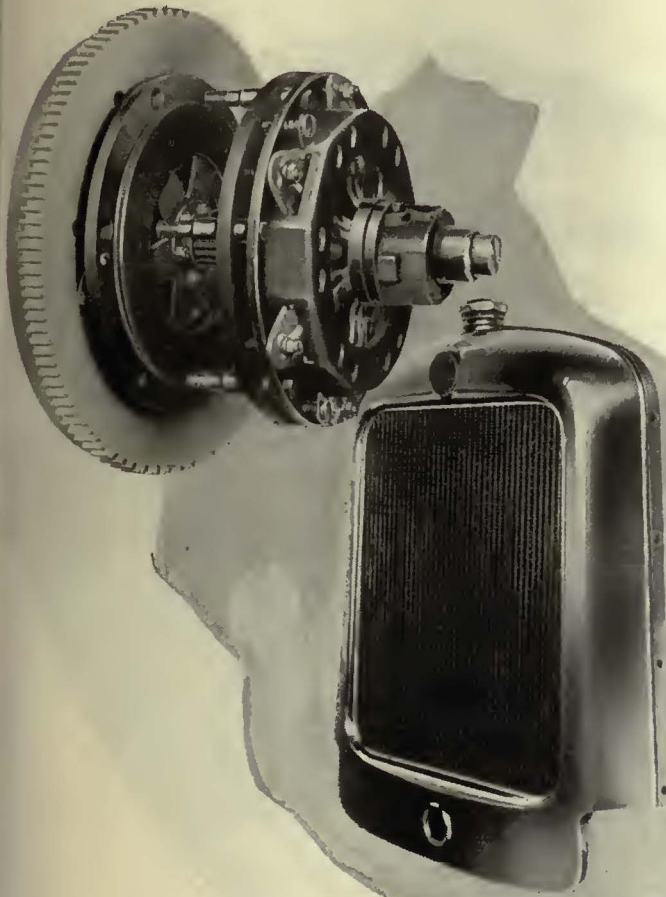
"The local Goodyear Branch has rendered 100% service; the mileage we have obtained has been beyond our expectations, and tire failures on the road have been reduced to a minimum."

The mileages to which Mr. Hanlon refers include 39,021 miles for one Goodyear Tire, and still-in-service mileages of 26,826 for another; 25,207 for a third; 22,418 for a fourth; 21,667 for a fifth, and so on through a long record of reliable, trouble-free, low-cost Goodyear Tire miles.

For every Goodyear Cord Bus Tire there is an equally fine Goodyear Tube, built especially to the needs of bus service



POWER



Our radiators are correctly designed to properly cool the motor—our clutches to easily transmit the maximum power developed.

LONG
MANUFACTURING
COMPANY
Detroit • Michigan



LONG

LONG PRODUCTS—AUTOMOTIVE CLUTCHES AND RADIATORS

THE sturdiness and tough resistance to wear that is built into Kelly Bus Balloons gives bus operators an opportunity to add to the riding comfort of their passengers without increasing their operating costs.

KELLY-SPRINGFIELD TIRE CO.
General Motors Bldg. New York, N. Y.



KELLY SPRINGFIELD **BUS BALLOONS**

101 YEARS OF MANUFACTURING EXPERIENCE

Cane Webbing may be ordered through any H-W sales office.



Interior of one of the Eastern Mass. Street Railway cars, showing the installation of our No. 327-M.



A MODERN CAR SEAT!

THE Eastern Massachusetts Street Railway was in the market for a modern car seat that would increase the attractiveness and comfort of its cars. It finally selected our 327-M—the new, fast-selling Heywood-Wakefield design shown above.

This seat has deep, double spring cushions. Mechanism rails are set in. The individual backs are properly pitched for comfort.

Our car seating experts will be glad to help you decide on the best seating equipment for your needs. This service is free through any H-W sales office.

We shall be glad to send you complete information on this practical seat, as well as a copy of our new Bus Seat Catalogue.



Heywood-Wakefield
REG. U.S. PAT. OFF.

Heywood-Wakefield Co., Wakefield, Mass.; 516 West 34th St., New York, N. Y.; 439 Railway Exchange Bldg., Chicago, Ill. H. G. Cook, Hobart Bldg., San Francisco, Cal. The G. F. Cotter Supply Co., Houston, Texas. F. N. Grigg, 630 Louisiana Ave., Washington, D. C. The Railway & Power Engineering Corp., 133 Eastern Ave., Toronto; Montreal; Winnipeg, Canada.





Time to Re-tire
Get a FISK
TRADE MARK REG. U. S. PAT. OFF.

Your Profits Depend on Reliability of Service

Tire equipment is a vital factor in transportation service. And for this reason the improved construction of the Fisk Motor Coach Balloon is of paramount importance.

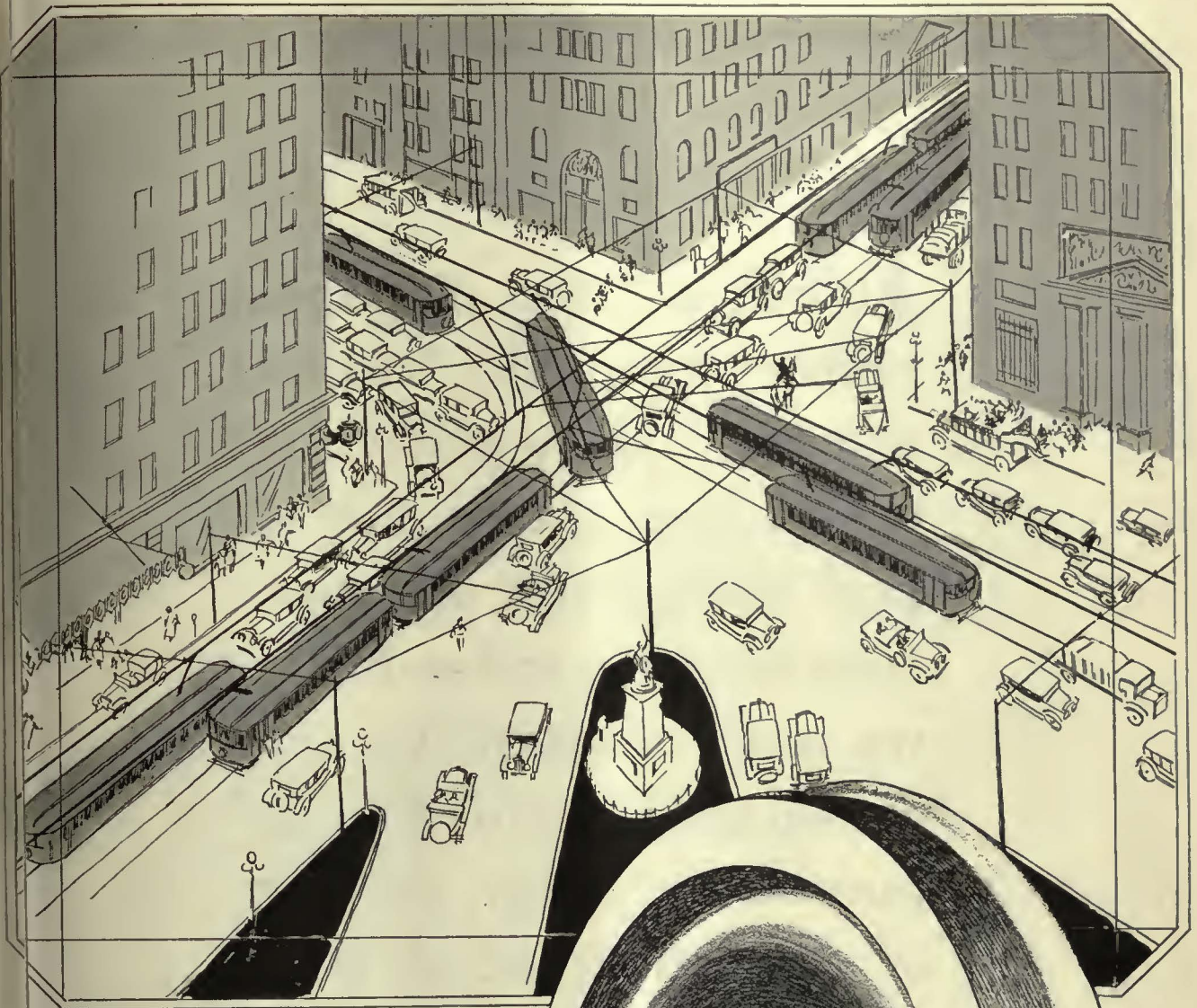
Its tough, heat-resisting, Non-Skid tread, its "Fillerless" Cord construction (a patented Fisk process) and its multi-cable bead (original with Fisk) are advantages which not only make this tire more reliable but materially cut the cost of motor coach tire mileage.

Write for information about what the Fisk Motor Coach Balloon has done for other railways which operate motor coach lines

FISK TIRES

For the Finest Motor Coaches

THE FISK TIRE COMPANY, Inc.
Chicopee Falls, Mass.



Year by Year The Congestion Grows

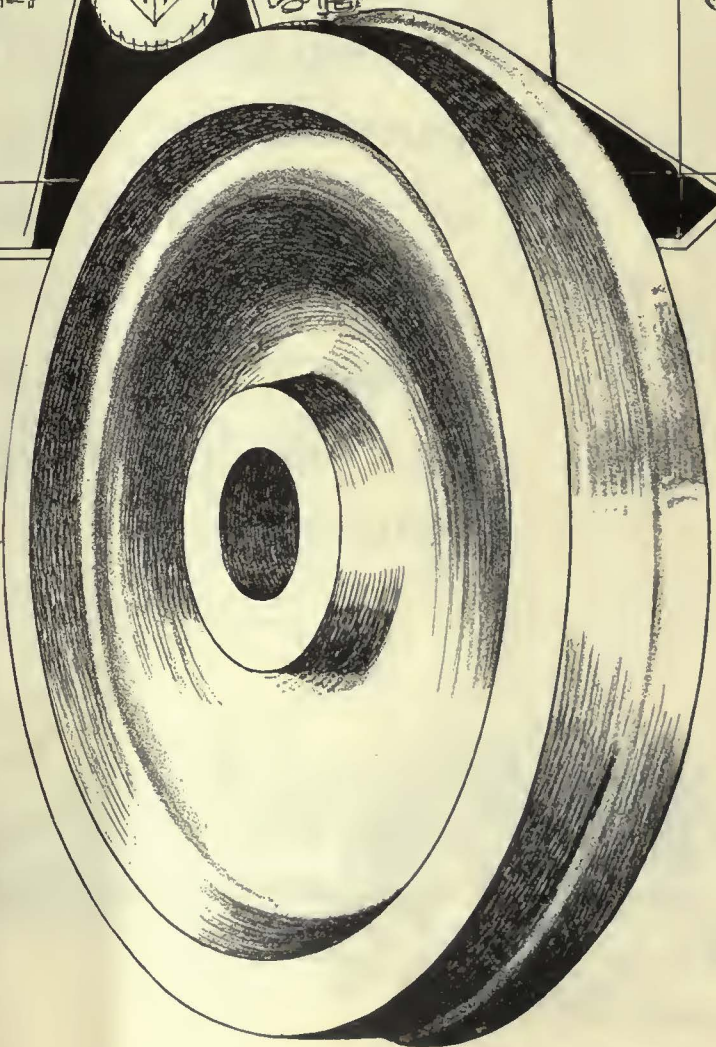
Year by year the country's population clusters more and more about the metropolitan centers. Business sections, crowded before, are beehives of congestion now—and regardless of how rapidly this congestion grows, the street car company is expected to provide adequate transportation facilities.

It is this requirement of 100% service in peak periods that causes the management of street car companies to be so careful of their operating equipment. It is this requirement also that is responsible for the widespread use of Gary Wrought Steel Wheels in electric railway service. A well made, wrought steel product—an iron-clad inspection system—an organization trained in electric railway equipment.

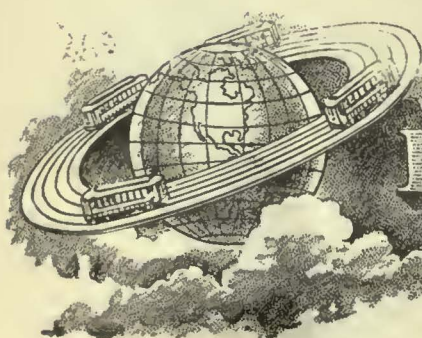
Our wheel engineers are at your command.

Illinois Steel Company

General Offices: 208 South La Salle Street
Chicago, Illinois



JUST as the electric railway companies have to compile and be guided by exhaustive statistics as to peak loads, traffic densities, costs per mile, and so forth, we must constantly keep ourselves informed as to purchasing power, density of population and all vital market information in order to maintain our service as an active asset of your service.



Barron G. Collier

INCORPORATED

CANDLER BLDG. NEW YORK

WINDOWS DO MAKE A DIFFERENCE

Modern Transportation calls for Comfort

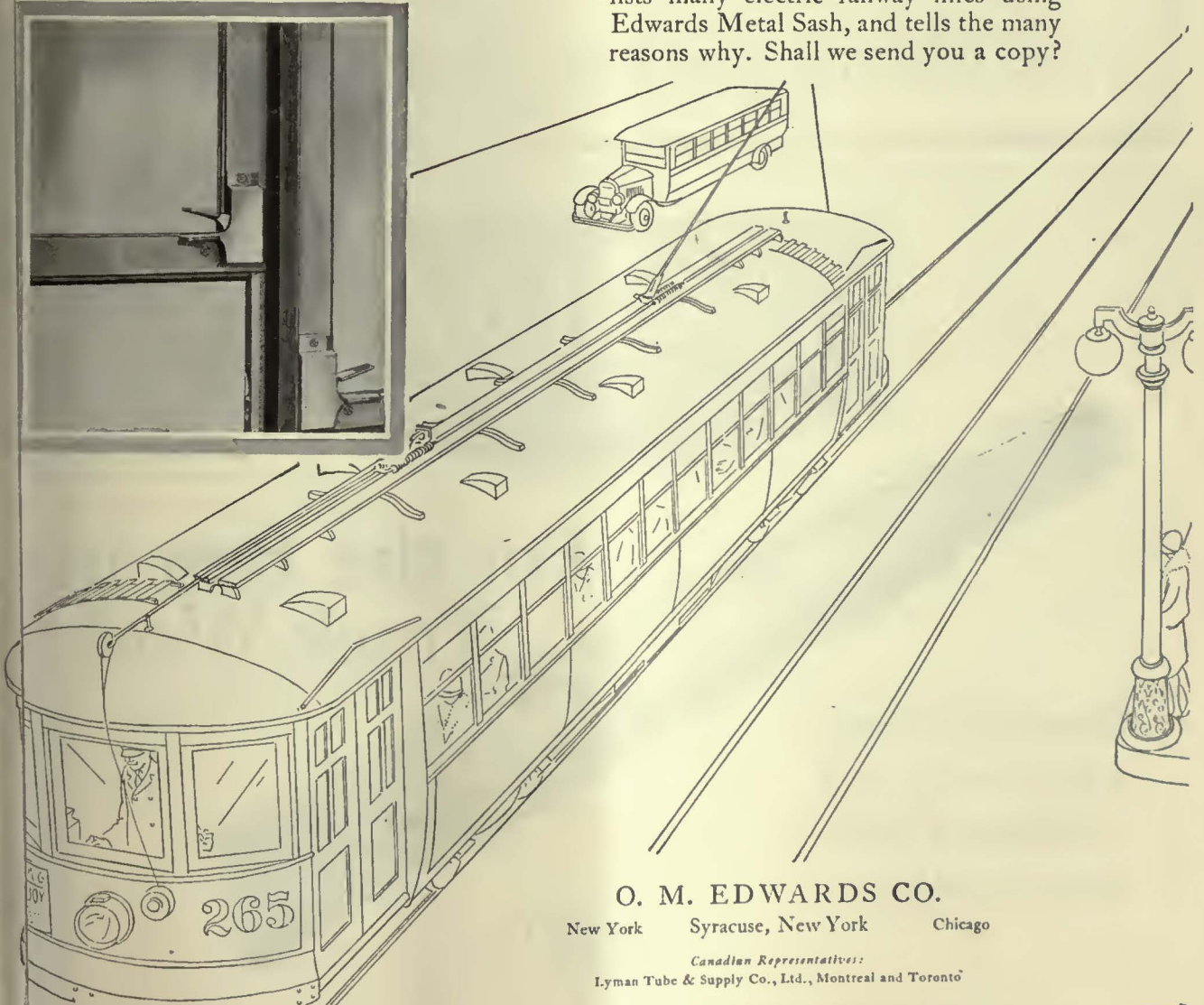
Edwards Metal Sash

“PASSENGER COMFORT” is a commodity that has increased many times over. And recently the strides have been tremendous.

For forty years this company has helped to make passengers more comfortable by constantly improving car windows.

We have made a big step forward with Edwards Metal Sash, for steam and electric railway passenger cars, and for motor coaches.

Our profusely illustrated Catalog S lists many electric railway lines using Edwards Metal Sash, and tells the many reasons why. Shall we send you a copy?

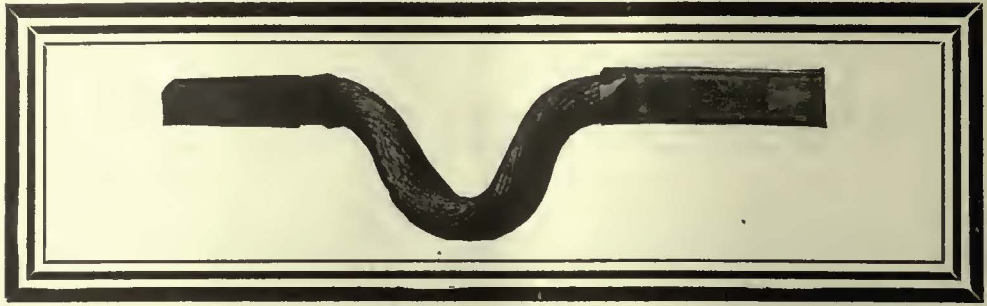


O. M. EDWARDS CO.

New York Syracuse, New York Chicago

Canadian Representatives:

Lyman Tube & Supply Co., Ltd., Montreal and Toronto



Type EAS—Champion

Especially For High Speed Service

High speed trains induce high frequency vibrations—reduce metal's resistance—cause its destruction.

Type EAS, Erico Champion Rail Bonds ward off this threat of destruction.

Rope lay stranding, wires tightly interwoven—

rail vibration to any single strand eliminated, yet the bond is extremely flexible—vibration completely dampened at weld zone by heavy copper sheath.

No rail bond outlives Erico EAS. Let us give you details. Address—

The Electric Railway Improvement Co.

2070 E. 61st Place, Cleveland, Ohio

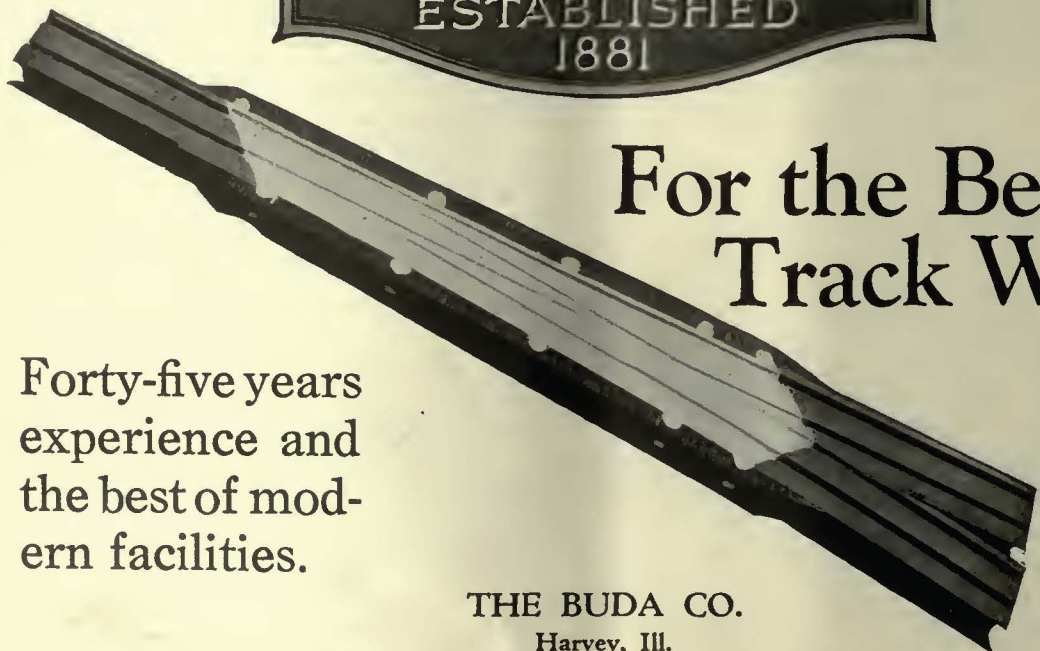


For the Best in Track Work

Forty-five years
experience and
the best of mod-
ern facilities.

*Send Us
Your
Inquiries*

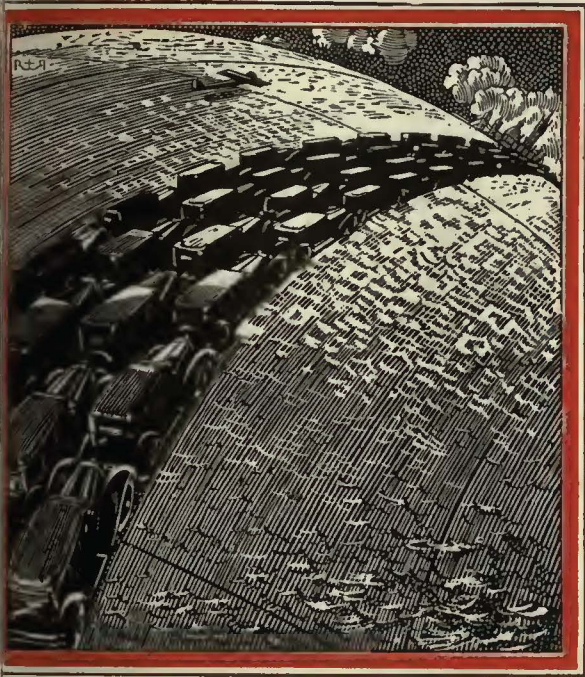
THE BUDA CO.
Harvey, Ill.



London speaking. . .

We want

1000 cars



THE MANAGING DIRECTOR of a motors company in London talked with an automobile factory in the American Middle West and ordered a thousand cars. Amount involved, \$1,500,000. Communication was over the regular long distance lines, and by radio telephone across the Atlantic. Delivery dates and other details were arranged; business conditions of the moment were discussed.

"I HAD URGENT NEED yesterday," writes a London barrister, "to confer with a brother lawyer in New York.

. . . The conference was disposed of satisfactorily in 3 minutes."

A New York department store sold so much of a certain silk that it had to know whether more could be shipped from London immediately. More was quickly ordered by transatlantic telephone.

"I cannot resist letting you know," writes the president of another American

company, "the result of a telephone call with London this morning. . . . It was the thrill of a lifetime. . . . And it's wonderful how much conversation can be crowded into a four or five minute talk."

Use transatlantic service for business and social calls. It's simplicity itself. Just ask for "Long Distance" and place your call in the usual way. . . . *Number, please?*

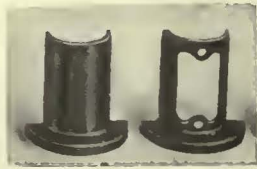
BELL LONG DISTANCE SERVICE



What Do



Bearings



Cost?

THE cost of your bearings is determined by the wear they give divided by their price. The wear of Columbia Journal, Armature, Axle, Compressor and Motor Bearings is assured by our specially developed bronze, accurately machined with perfect halves and complete interchangeability. Their price is held to moderate limits by our large scale and efficient methods of production. It's a combination of long wear, low price and reduced cost which you cannot well afford to miss.



The Columbia Machine Works & M.I. Co.

263 Chestnut Street, Cor. Atlantic Avenue

Brooklyn, N. Y.

The advertisements in the SEARCHLIGHT SECTION *of this paper*

constitute the most comprehensive group of "live" opportunities to be found in any publication serving this industry.

Each announcement represents a current Want of a concern or individual in the industry with some element of profit in each for whoever can fulfill the need. Some have money saving possibilities, others are opportunities for more business; many are employment opportunities while still others offer chances to buy going businesses, plants, property, etc.

"Searchlight" advertisements are constantly changing. New opportunities find their way into this great Want medium each issue. Regular consultation of the "Searchlight" pages should be as important to the careful reader as reading editorial articles of his particular liking. One is news of the industry, the other, the NEWS OF OPPORTUNITIES being offered in the industry. No one can afford to overlook opportunities.

For Every Business Want
"Think SEARCHLIGHT First"



Structural Shapes • Steel Sheet Piling
 Plates • Skelp
 Bars and Bar Mill Products
 Bands • Hoops
 Axles • Wrought Steel Wheels
 Rails • Rail Joints
 Steel Cross Ties

CARNEGIE STEEL COMPANY
 General Offices • Carnegie Building • 434 Fifth Avenue
 PITTSBURGH PENNSYLVANIA



1839



Strombos Signals for Railway Service

A pleasing sound of tremendous volume is emitted from the powerful Strombos Signal which is admirably suited for railway service. Day in, day out, it broadcasts a warning of approaching danger and promotes safe and efficient railway operation.

The Strombos Signal operates on an air pressure of 10 lbs. and over and is controlled by a lever valve and cord. It uses only 1/10 the volume of air required by a whistle. It has no moving parts which might fail in the emergency.

Write us for more complete data.

AMERICAN STROMBOS CO.
 INCORPORATED
 18th & Market Sts., Philadelphia, Pa.



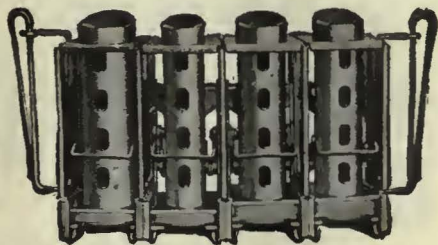
JOHNSON FARE COLLECTING SYSTEMS



Johnson Electric Fare Boxes and overhead registers make possible the instantaneous registering and counting of every fare. Revenues are increased 1 1/2 to 5% and the efficiency of one-man operation is materially increased. Over 4000 already in use.

When more than two coins are used as fare, the Type D Johnson Fare Box is the best manually operated registration system. Over 50,000 in use.

Johnson Change-Makers are designed to function with odd fare and metal tickets selling at fractional rates. It is possible to use each barrel separately or in groups to meet local conditions. Each barrel can be adjusted to eject from one to five coins or one to six tickets.



Johnson Fare Box Co.

4619 Ravenswood Ave., Chicago, Ill.

KERITE

*Pacific Electric Railway
 Main Street Terminal
 Los Angeles*



KERITE WAREHOUSE COMPANY

ELECTRICAL INSULATION

MICANITE and **EMPIRE**
INSULATOR

Micanite and Super-Micanite Sheets, Commutator Segments, and Commutator Rings.

Micanite Tubes and Washers

Linotape, Seamless or Sewn Bias (Yellow or Black Varnished Tapes)

Empire Oiled Cloths and Papers (Yellow or Black)

Compounds, Varnishes, Etc.

Send for catalog and helpful booklet on Commutator Insulation and Assembly

MICA INSULATOR COMPANY

Largest manufacturers in the world of mica insulation. Established 1893.

New York: 68 Church St. Chicago: 542 So. Dearborn St.

Cleveland
San Francisco

Pittsburgh
Los Angeles

Cincinnati
Seattle

Works: Schenectady, New York. Victoriaville, Canada; London, England



Clark-Williams Tubular Iron Pole Reinforcing and Extension Clamps

Years can be added to the life of any iron pole which has become corroded at the ground level with our REINFORCING CLAMPS, or added height may be obtained by using the EXTENSION CLAMPS.

ALSO MOUNTS FOR WOOD POLES.

Ask for quotations on your requirements.

The Clark-Williams Engr. Co.
886 Main St., Bridgeport, Conn.

Represented in Canada by the Canadian Line Materials, Ltd., Toronto, Ont.

TRIBLOC Chain Hoists

An improvement that makes a Tribloc easier to use

It is an established policy of Ford Chain Block Company to adopt only those ideas which actual practice has shown will be to the advantage of our customers. If shop use and engineering tests over a long period of time demonstrate the value of a new idea, it is then incorporated into the construction of these good hoists.

This new Ball Bearing Hook, therefore, becomes a part of Tribloc Chain Hoists with the assurance that it has demonstrated its value. Let us show you this improved load hook. Let us tell you why the malleable iron and forged steel construction of Ford Triblocs mean a better, long-lived hoist.

Let us send you a catalog which shows the complete line of Ford Triblocs, Screw Hoists and Differential Hoists, as well as several special types.

FORD CHAIN BLOCK COMPANY
Second and Diamond Sts., Philadelphia, Pa.



The cut at left shows the standard Ford Tribloc in the 1/2- to 2-ton size.



"Nick Lynt" says:

"No exhaust gases, no engine fumes."

"The construction of the N-L Heater prevents the entrance of exhaust gases and engine fumes into the body. All joints are heavily brazed, and the Heater is so suspended that strained joints are impossible."

Write for Information

THE NICHOLS-LINTERN CO.

7960 Lorain Ave., Cleveland, Ohio

The DIFFERENTIAL CAR



Standard on 60 Railways for

Track Maintenance
Track Construction
Ash Disposal
Coal Hauling
Concrete Materials
Waste Handling
Excavated Materials
Hauling Cross Ties
Snow Disposal

Use These Labor Savers

Differential Cranes Car
Clark Concrete Breaker
Differential 3-way Auto Truck Body
Differential Car Wheel Truck and Tractor

THE DIFFERENTIAL STEEL CAR CO., Findlay, O.



Complete satisfaction

Operating perfectly and requiring minimum attention for maintenance and lubrication, Earll Catchers and Retrievers give genuinely satisfactory results. Their refinement of design, and mechanical superiority are summarized in the following five features, peculiar to Earll construction.

- No-wear Check Pawl
- Free-Winding Tension Spring
- Ratchet Wind
- Emergency Release
- Perfect Automatic Lubrication

Earll Catchers and Retrievers
C. I. EARLL, York, Pa.

Canadian Agents:
Railway & Power Engineering Corp., Ltd., Toronto, Ont.
In All Other Foreign Countries:
International General Electric Co., Schenectady, N. Y.

Why



Le Carbone? Carbon Brushes?

Reason No. 9

Figure out the cost of carbon brushes per car mile. You will find that not only do "Le Carbone" Brushes cost you less per car mile but that their uniform dependability lowers the entire cost of operation.

They talk for themselves

W. J. Jeandron
Factory Terminal Bldg.,
Fifteenth Street, Hoboken, N. J.
Pittsburgh Office: 634 Wabash Bldg.
Chicago Office: 1657 Monadnock Block
San Francisco Office: 525 Market Street
Canadian Distributors: Lyman Tube & Supply Co., Ltd.
Montreal and Toronto



Drip Points for Added Efficiency

They prevent creeping moisture and quickly drain the petticoat in wet weather, keeping the inner area dry.

The Above Insulator—No. 72—Voltages—Test—Dry 64,000
Wet 31,400, Line 10,000.

Our engineers are always ready to help you on your glass insulator problem. Write for catalog.

Hemingray Glass Company.
Muncie, Ind.

Est. 1848—Inc. 1870

1 man strips car in 6 hours the OAKITE way!

DOWN to the body metal! The car had been in service 12 years and had accumulated as many coats of paint. But Oakite stripping left it in fine condition for priming and repainting. No hand scraping was necessary around rivet heads.

Here Oakite materials and methods cut cost about 20%, while stripping time was considerably shortened.

Every street railway official knows that new-looking street cars promote better public relations. Efficient and safe Oakite cleaning will prove invaluable in keeping rolling stock always clean and bright, inside and out. Write for booklet, "Cleaning in Car Shops." No obligation.

Oakite Service Men, cleaning specialists, are located in the leading industrial centers of the U. S. and Canada

Oakite is manufactured only by
OAKITE PRODUCTS, INC., 28B Thames St., NEW YORK, N. Y.
(Formerly OAKLEY CHEMICAL CO.)

OAKITE

Industrial Cleaning Materials and Methods

Bankers and Engineers

Ford, Bacon & Davis
 Incorporated
Engineers
 115 Broadway, New York
 PHILADELPHIA CHICAGO SAN FRANCISCO

The J. G. White
Engineering Corporation
 Engineers—Constructors
 Oil Refineries and Pipe Lines, Steam and Water Power Plants, Transmission Systems, Hotels, Apartments, Office and Industrial Buildings, Railroads.
 43 Exchange Place New York

STONE & WEBSTER
 Incorporated
 Design and Construction
 Examinations Reports Appraisals
 Industrial and Public Service Properties
 NEW YORK BOSTON CHICAGO

THE BEELER ORGANIZATION
 Transportation, Traffic, Operating Surveys
 Better Service—Financial Reports
 Appraisals—Management
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SANDERSON & PORTER
 ENGINEERS
 PUBLIC UTILITIES & INDUSTRIALS
 Design Examinations Construction Reports Management Valuations
 CHICAGO NEW YORK SAN FRANCISCO

ENGELHARDT W. HOLST
 Consulting Engineers
 Appraisals Reports Rates Service Investigation
 Studies on Financial and Physical Rehabilitation
 Reorganization Operation Management
 683 Atlantic Ave., BOSTON, MASS.

ALBERT S. RICHEY
 ELECTRIC RAILWAY ENGINEER
 WORCESTER, MASSACHUSETTS
 REPORTS - APPRAISALS - RATES - OPERATION - SERVICE

WALTER JACKSON
 Consultant on Fares and Motor Buses
 The Weekly and Sunday Pass—Differential Fares—Ride Selling
 Holbrook Hall 5-W-3
 160 Gramatan Ave., Mt. Vernon, N. Y.

A. L. DRUM & COMPANY
 Consulting and Constructing Engineers
 VALUATION AND FINANCIAL REPORTS
 RATE STUDIES FOR PRESENTATION TO PUBLIC SERVICE COMMISSIONS
 CONSTRUCTION AND MANAGEMENT OF ELECTRIC RAILWAYS
 230 South Clark Street, Chicago, Ill.

DAY & ZIMMERMANN, INC.
 ENGINEERS
 DESIGN - CONSTRUCTION - REPORTS
 VALUATIONS - MANAGEMENT
 NEW YORK PHILADELPHIA CHICAGO

STEVENS & WOOD
 INCORPORATED
 ENGINEERS AND CONSTRUCTORS
 120 BROADWAY, NEW YORK
 ENGINEERING CONSTRUCTION YOUNGSTOWN, O. FINANCING MANAGEMENT

HEMPHILL & WELLS
 CONSULTING ENGINEERS
 Gardner F. Wells APPRAISALS Albert W. Hemphill
 INVESTIGATIONS COVERING
 Reorganization Management Operation Construction
 43 Cedar Street, New York City

LINN & MARSHALL, Inc.
 Financing — Engineering — Management
 PUBLIC UTILITIES
 ELECTRIC RAILWAYS — MOTOR BUSES —
 GAS — ELECTRIC
 25 Broadway, New York City

C. B. BUCHANAN President W. H. PRICE, JR. Sec'y-Treas. JOHN F. LAYNG Vice-President
BUCHANAN & LAYNG CORPORATION
 Engineering and Management, Construction
 Financial Reports, Traffic Surveys
 and Equipment Maintenance
 BALTIMORE 1004 Citizens National Bank Bldg. Phone: Hanover: 2142 NEW YORK, 49 Wall Street

E. H. FAILE & CO.
 Designers of
 Garages—Service Buildings—Terminals
 441 LEXINGTON AVE. NEW YORK

McCLELLAN & JUNKERSFELD
 Incorporated
 ENGINEERING AND CONSTRUCTION
 Examinations—Reports—Valuations
 Transportation Problems—Power Developments
 68 Trinity Place, New York
 Chicago St. Louis

THE BABCOCK & WILCOX COMPANY

85 LIBERTY STREET, NEW YORK

Builders since 1868 of
Water Tube Boilers
of continuing reliability

Makers of Steam Superheaters
since 1898 and of Chain Grate
Stokers since 1893



BRANCH OFFICES

BOSTON, 80 Federal Street
PHILADELPHIA, Packard Building
PITTSBURGH, Farmers Deposit Bank Building
CLEVELAND, Guardian Building
CHICAGO, Marquette Building
CINCINNATI, Tracton Building
ATLANTA, Candler Building
PHOENIX, ARIZ., Heard Building
DALLAS, TEX., Magnolia Building
HONOLULU, H. T., Castle & Cooke Building
PORTLAND, ORE., Gasco Building

BRANCH OFFICES

DETROIT, Ford Building
NEW ORLEANS, 344 Camp Street
HOUSTON, TEXAS, Electric Building
DENVER, 444 Seventeenth Street
SALT LAKE CITY, Kearns Building
SAN FRANCISCO, Sheldon Building
LOS ANGELES, Central Building
SEATTLE, L. C. Smith Building
HAVANA, CUBA, Calle de Aguilar 104
SAN JUAN, Porto Rico, Royal Bank Building

WORKS
Bayonne, N. J.
Barberton, Ohio

Byllesby Engineering & Management Corporation

231 S. La Salle Street, Chicago
New York San Francisco

Transmission Line and Special Crossing Structures, Catenary Bridges

WRITE FOR OUR NEW DESCRIPTIVE CATALOG

ARCHBOLD-BRADY CO.

Engineers and Contractors SYRACUSE, N. Y.

KELKER, DELEUW & CO.

CONSULTING ENGINEERS

REPORTS ON

Operating Problems Valuations Traffic Surveys

111 W. Washington Street, Chicago, Ill.

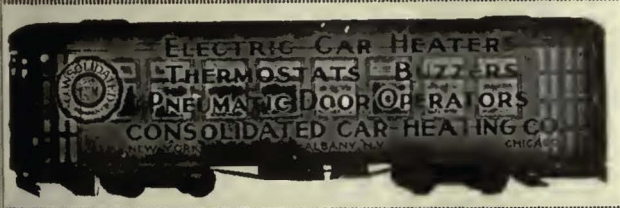
UNA
RAIL JOINTS
DYNAMOTORS
WELDING ROD
UNA Welding & Bonding Co.
Cleveland, Ohio.

THE P. EDWARD WISH SERVICE

50 Church St. NEW YORK Street Railway Inspection DETECTIVES 131 State St. BOSTON

When writing the advertiser for information or prices, a mention of the Electric Railway Journal would be appreciated.

Gets Every Fare
**PEREY TURNSTILES
or PASSIMETERS**
Use them in your Prepayment Areas and Street Cars
Perey Manufacturing Co., Inc.
101 Park Avenue, New York City



"Bates Poles Outlive the Bond Issues that Buy Them"
BATES POLES AND STRUCTURES
Bates **E**xpanded **S**teel **T**russ **C**o.
General Offices and Plants
EAST CHICAGO, INDIANA, U. S. A.

We make a specialty of
**ELECTRIC RAILWAY
LUBRICATION**
We solicit a test of TULC
on your equipment
The Universal Lubricating Co.
Cleveland, Ohio
Chicago Representatives: Jameson-Ross Company,
Straus Bldg.

THE WORLD'S STANDARD
"IRVINGTON"
Black and Yellow
Varnished Silk, Varnished Cambric, Varnished Paper
Irv-O-Slot Insulation Flexible Varnished Tubing
Insulating Varnishes and Compounds
Irvington Varnish & Insulator Co.
Irvington, N. J.
Sales Representatives:
Mitchell-Rand Mfg. Co., N. Y. Prehler Brothers Inc., Chicago
E. M. Wolcott, Rochester White Supply Co., St. Louis
I. W. Levine, Montreal Clapp & LaMoree, Los Angeles
A. L. Gillies, Toronto Martin Woodward, Seattle
Consumers' Rubber Co., Cleveland

AMERICAN BRIDGE COMPANY

EMPIRE BUILDING—71 BROADWAY NEW YORK, N. Y.

Manufacturers of Steel Structures of all classes particularly **BRIDGES AND BUILDINGS**

ALSO STEEL BARGES FOR HARBORS AND RIVERS, STEEL TOWERS FOR ELECTRIC TRANSMISSION, HEROULT ELECTRIC FURNACES; ETC.

SALES OFFICES:

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Cincinnati, Ohio
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St. Louis, Mo.
Denver, Colo.
Salt Lake City, Utah

Pacific Coast Representative:
U. S. Steel Products Co.,
Pacific Coast Dept.
San Francisco, Cal.
Los Angeles, Cal.
Portland, Ore.
Seattle, Wash.

Export Representative: United States Steel Products Co., 30 Church Street, New York.

Lorain Special Trackwork Girder Rails

Electrically Welded Joints

THE LORAIN STEEL COMPANY

Johnstown, Pa.
Sales Offices:

Atlanta Chicago Cleveland New York
Philadelphia Pittsburgh Dallas

Pacific Coast Representative:
United States Steel Products Company
Portland San Francisco Seattle

Export Representatives:
United States Steel Products Company, New York, N. Y.

SPECIAL TRACKWORK of the famous TISCO MANGANESE STEEL

WM. WHARTON JR. & CO., INC. EASTON, PA.

Sales Offices:
Boston Chicago El Paso Montreal New York Philadelphia
Pittsburgh San Francisco Scranton

B. A. HEGEMAN, Jr., President H. A. HEGEMAN, First Vice-Pres. and Treas.
F. T. SARGENT, Secretary W. C. PETERS, Vice-Pres. Sales and Engineering

National Railway Appliance Co.

Grayhar Building, 420 Lexington Ave., New York

BRANCH OFFICES

Munsey Bldg., Washington, D. C. 100 Boylston St., Boston, Mass.
Hegeman-Castle Corporation, Railway Exchange Building, Chicago, Ill.

RAILWAY SUPPLIES

Tool Steel Gears and Pinions	Ft. Pitt Spring & Mfg. Co., Springs
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National Hand Holds	Anderson Slack Adjusters
Genesco Paint Oils	Economy Electric Devices Co.
Dunham Hopper Door Devices	Power Saving and Inspection Meters
Garland Ventilators	"Topseal" Lamps
Walter Tractor Snow Plows	Bus Lighting Equipment
Feasible Drop Brake Staffs	Cowdry Automotive Brake Testing Machine

Bethlehem Products for Electric Railways

Tee and Girder Rails; Machine Fitted Joints;
Splice Bars; Hard Center Frogs; Hard Center
Mates; Rolled Alloy Steel Crossings; Abbott and
Center Rib Base Plates; Rolled Steel Wheels and
Forged Axles; Tie Rods; Bolts; Tie Plates and
Pole Line Material.

Catalog Sent on Request

BETHLEHEM STEEL COMPANY, Bethlehem, Pa.

BETHLEHEM

They Don't Break Down!

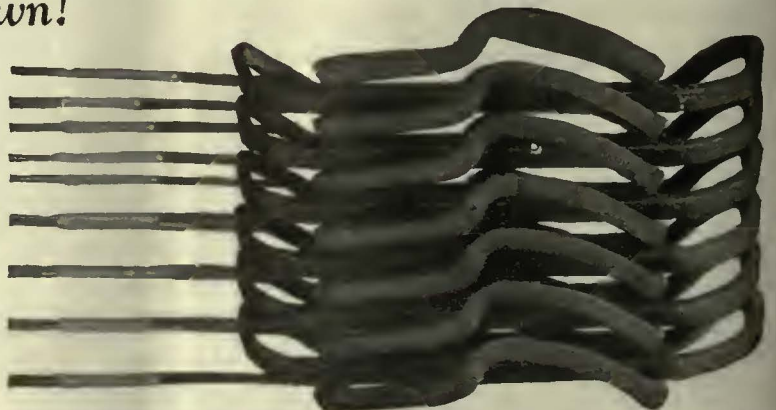
Built to fit. No excessive hammering.
Elliott-Thompson coils aren't weak-
ened.

They get away to a good start and
nearly forty years' experience making
coils has taught us how to finish the job.

You know how a good coil lasts when
insulated with the very best material.

Why hesitate? Send us your next order.

Elliott-Thompson Electric Co.
Ajax Bldg., Cleveland, Ohio



SEARCHLIGHT SECTION

USED EQUIPMENT & NEW—BUSINESS OPPORTUNITIES

UNDISPLAYED—RATE PER WORD:

Positions Wanted, 4 cents a word, minimum 75 cents an insertion, payable in advance.
Positions Vacant and all other classifications, 8 cents a word, minimum charge \$2.00.
Proposals, 40 cents a line an insertion.

INFORMATION:

Box Numbers in care of any of our offices count 10 words additional in undisplayed ads.
Discount of 10% if one payment is made in advance for four consecutive insertions of undisplayed ads (not including proposals).

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4 to 7 inches..... 4.38 an inch
8 to 14 inches..... 4.10 an inch
Rates for larger spaces, or yearly rates, on request.
An advertising inch is measured vertically on one column, 3 columns—30 inches—to a page.

POSITIONS VACANT

ASSISTANT general manager, man preferred who has held similar position and who from experience would be able to entirely manage property within few months. Position is in Latin American country. Therefore, knowledge of Spanish desirable. Bus operating experience also desirable. In first letter, give full details, experience and salary expected. P-44, Electric Railway Journal, Tenth Ave. at 36th St., New York City.

WANTED—Shop foreman of ability and experience to take charge of modern equipment of twenty cars in city of 50,000 within 100 miles of New York City. State age, experience and salary expected. Address, Room 1509, 43 Cedar Street, New York City.

POSITIONS WANTED

SALES engineer, wide acquaintance in railway and bus industry both manufacturers and operators, desires permanent connections with reliable firm. PW-52, Electric Railway Journal, Guardian Bldg., Cleveland, Ohio.

SUPERINTENDENT transportation, qualified by wide experience, fine record in city and interurban operation and coordination rail and bus service. Exceptional ability in dealing successfully with labor, public, public officials, resulting in increased revenue, reduced operating costs. A progressive efficient operating official with high grade references. Correspondence invited. PW-49, Electric Railway Journal, Guardian Bldg., Cleveland, Ohio.

WOULD like to correspond with any company needing a high-grade official in any capacity, in city or interurban railways. Can manage any or all departments in the most efficient manner. PW-33, Electric Railway Journal, Guardian Bldg., Cleveland, O.

When Writing Your Ad

Provide an indexing or subject word.

Write it as the first word of your ad.

If it is a Position Wanted or Position Vacant ad, make the first word the kind of position sought or offered.

This will assure proper classification in the column. The right is reserved to reject, revise or properly classify all Want Advertisements.

Proper Classification

increases the possibility of

Prompt Returns

0301

LEGAL NOTICE

STATEMENT OF THE OWNERSHIP, MANAGEMENT, CIRCULATION, ETC., REQUIRED BY THE ACT OF CONGRESS OF AUGUST 24, 1912

Of Electric Railway Journal, published weekly at New York, N. Y., for Oct. 1, 1927.

State of New York } ss.
County of New York }

Before me, a Notary Public in and for the State and county aforesaid, personally appeared C. H. Thompson, who, having been duly sworn according to law, deposes and says that he is the Secretary of McGraw-Hill Publishing Company, Inc., Publishers of Electric Railway Journal, and that the following is, to the best of his knowledge and belief, a true statement of the ownership, management (and if a daily paper, the circulation), etc., of the aforesaid publication for the date shown in the above caption, required by the Act of August 24, 1912, embodied in section 411, Postal Laws and Regulations, printed on the reverse of this form, to wit:

1. That the names and addresses of the publisher, editor, managing editor, and business managers are: Publisher, McGraw-Hill Publishing Company, Inc., 10th Ave. at 36th St., New York, N. Y. Editor, Charles Gordon, 10th Ave. at 36th St., New York, N. Y. Managing Editor, Morris Buck, 10th Ave. at 36th St., New York, N. Y. Business Manager, L. F. Stoll, 10th Ave. at 36th St., New York, N. Y.

2. That the owner is: (If owned by a corporation, its name and address must be stated and also immediately thereunder the names and addresses of stockholders owning or holding one per cent or more of total amount of stock. If not owned by a corporation, the names and addresses of the individual owners must be given. If owned by a firm, company, or other unincorporated concern, its name and address, as well as those of each individual member, must be given.) McGraw-Hill Publishing Company, Inc., 10th Ave. at 36th St., New York, N. Y. James H. McGraw, 10th Ave. at 36th St., New York, N. Y. James H. McGraw, Jr., 10th Ave. at 36th St., New York, N. Y. Donald C. McGraw, 10th Ave. at 36th St., New York, N. Y. Harold W. McGraw, 10th Ave. at 36th St., New York, N. Y. Curtis W. McGraw, 10th Ave. at 36th St., New York, N. Y. James H. McGraw, James H. McGraw, Jr., and Malcolm Muir, 10th Ave. at 36th St., New York, N. Y. Trustees for: Harold W. McGraw, James H. McGraw, Jr., Donald C. McGraw, Curtis W. McGraw, Henry W. Blake, 10th Ave. at 36th St., New York, N. Y. Fred R. Low, 10th Ave. at 36th St., New York, N. Y. Mason Britton, 10th Ave. at 36th St., New York, N. Y. Anne Hugus Britton, McGraw-Hill Bldg., New York, N. Y. Grace W. Mehren, 30 West 88th St., New York, N. Y. Malcolm Muir, 10th Ave. at 36th St., New York, N. Y. Trustee for Lida Kelly Muir, Fred S. Weatherby, 271 Clinton Road, Brookline, Mass. Edwin S. Wilsey, 10th Ave. at 36th St., New York, N. Y. Edgar Kobak, 10th Ave. at 36th St., New York, N. Y. James L. Walsh, 10th Ave. at 36th St., New York, N. Y. Leonard D. & Arthur J. Baldwin, 27 Pine St., New York, N. Y. Trustees for: Franklin Baldwin, Grace Riker, Cynthia Hazelton, Arthur J. & Leonard D. Baldwin, 27 Pine St., New York, N. Y. Trustees for: Donald Baldwin The Grosvenor, Inc., stockholders of which are Arthur J. & Leonard D. Baldwin, Inc., 27 Pine St., New York, N. Y.

3. That the known bondholders, mortgagees, and other security holders owning or holding 1 per cent or more of total amount of bonds, mortgages, or other se-

curities are: (If there are none, so state.) None.

4. That the two paragraphs next above, giving the names of the owners, stockholders, and security holders, if any, contain not only the list of stockholders and security holders as they appear upon the books of the company but also, in cases where the stockholder or security holder appears upon the books of the company as trustee or in any other fiduciary relation, the name of the person or corporation for whom such trustee is acting, is given; also that the said two paragraphs contain statements embracing affiant's full knowledge and belief as to the circumstances and conditions under which stockholders and security holders who do not appear upon the books of the company as trustees, hold stock and securities in a capacity other than that of a bona fide owner; and this affiant has no reason to believe that any other person, association, or corporation has any interest direct or indirect in the said stock, bonds, or other securities than as so stated by him.

5. That the average number of copies of each issue of this publication sold or distributed, through the mails or otherwise, to paid subscribers during the six months preceding the date shown above is (This information is required from daily publications only.)

McGRAW-HILL PUBLISHING COMPANY, INC.

C. H. THOMPSON, Secretary.

Sworn to and subscribed before me this 30th day of September, 1927.

[Seal.] MARTIN J. WIEMER, Notary Public Queens County Certificate No. 1819. Certificate filed in New York County No. 272. (My Commission expires March 30, 1928.)

WANTED

20 Westinghouse 306—C.V. 4.
20 K. 36—J Controllers.

W-61, Electric Railway Journal
Tenth Ave. at 30th St., New York City

FOR SALE

15 BIRNEY SAFETY CARS

Brill Built
West, 508 or G. E. 264 Motors
Cars Complete—Low Price—Fine Condition
ELECTRIC EQUIPMENT CO.
Commonwealth Bldg., Philadelphia, Pa.

NEW RELAYING RAILS

Tie Plates
—Switches—Frogs—
—Portable Track
Finest Quality
Flat Cars—Locomotives
Quick Delivery Lowest Prices
HYMAN-MICHAELS CO.
People's Gas Building
St. Louis CHICAGO San Francisco

WHAT AND WHERE TO BUY

Equipment, Apparatus and Supplies Used by the Electric Railway Industry with Names of Manufacturers and Distributors Advertising in this Issue

Advertising, Street Car
Collier Inc., Barron G.

Air Brakes
Westinghouse Air Brake Co.

Anchors, Guy
Elec. Service Supplies Co.

Armature Shop Tools
Columbia Machine Works & M. I. Co.

Automatic Return Switch Stands
Ramapo Ajax Corp.

Automatic Safety Switch Stands
Ramapo Ajax Corp.

Axles
Bemis Car Truck Co.
Bethlehem Steel Co.
Brill Co., The J. G.
Carnegie Steel Co.
Cincinnati Car Co.
Illinois Steel Co.
St. Louis Car Co.
Standard Steel Works Co.
Westinghouse E. & M. Co.

Axles (Front & Rear) Motor Truck & Passenger Car
Timken Detroit Axle Co.

Axles, Steel
Bethlehem Steel Co.

Axles, Trailer & Motor Bus
Timken Detroit Axle Co.

Babbitting Devices
Columbia Machine Works & M. I. Co.

Badges and Buttons
Elec. Service Supplies Co.
International Register Co.

Barges, Steel
American Bridge Co.

Batteries, Dry
Nichols-Lintern Co.

Bearings and Bearing Metals
Bemis Car Truck Co.
Cincinnati Car Co.
Columbia Machine Works & M. I. Co.

Belt Elec. & Mfg. Co.
Eureka Copper Products Co.
General Electric Co.
St. Louis Car Co.

Westinghouse E. & M. Co.

Bearings, Center and Boiler Side
Cincinnati Car Co.
Columbia Machine Works & M. I. Co.
Stucki Co., A. A.

Bearings, Roller and Ball
Timken Roller-Bearing Co.

Bells & Buzzers
Consolidated Car Heating Co.

Bells and Gongs
Brill Co., The J. G.
Cincinnati Car Co.
Columbia Machine Works & M. I. Co.

Elec. Service Supplies Co.
St. Louis Car Co.

Benders, Rail
Railway Trackwork Co.

Bodies, Bus
Brill Co., The J. G.
Cummings Car & Coach Co.
St. Louis Car Co.

Body Material—Haskelite & Plymetl
Haskelite Mfg. Corp.

Boilers
Babcock & Wilcox Co.

Bolts & Nuts, Track
Illinois Steel Co.

Bond Testers
American Steel & Wire Co.
Elec. Service Supplies Co.

Bonding Apparatus
Amer. Steel & Wire Co.
Electric Railway Improvement Co.
Elec. Service Supplies Co.
Ohio Brass Co.
Railway Trackwork Co.
Una Welding & Bonding Co.

Bonds, Rail
American Steel & Wire Co.
Drew Elec. & Mfg. Co.
Electric Railway Improvement Co.
Elec. Service Supplies Co.
Ohio Brass Co.
Railway Trackwork Co.
Una Welding & Bonding Co.
Westinghouse E. & M. Co.

Brackets and Cross Arms (See also Poles, Ties, Posts, etc.)
American Bridge Co.
Columbia Machine Works & M. I. Co.
Electric Railway Equipment Co.
Elec. Service Supplies Co.
Hubbard & Co.
Ohio Brass Co.

Brake Adjusters
Brill Co., The J. G.
Cincinnati Car Co.
National Railway Appliance Co.
Westinghouse Traction Br. Co.

Brake Shoes
American Brake Shoe & Foundry Co.
Bemis Car Truck Co.
Brill Co., The J. G.
St. Louis Car Co.

Brake Testers
National Railway Appliance Co.

Brakes, Brake Systems and Brake Parts
Bemis Car Truck Co.
Brill Co., The J. G.
Cincinnati Car Co.
Columbia Machine Works & M. I. Co.
General Electric Co.
National Brake Co.
St. Louis Car Co.
Westinghouse Traction Brake Co.

Brakes, Magnetic Rail
Cincinnati Car Co.

Bridges, Steel
American Bridge Co.

Brushes, Carbon
Eureka Copper Products Co.
General Electric Co.
Jeandron, W. J.
Le Carbone Co.
Westinghouse E. & M. Co.

Brushholders
Columbia Machine Works & M. I. Co.
Eureka Copper Prod. Co.

Buildings, Steel
American Bridge Co.

Bulkheads
Haskelite Mfg. Corp.

Bunkers, Coal
American Bridge Co.

Bus Lighting
National Railway Appliance Co.

Buses
Cummings Car & Coach Co.

Bushings, Case Hardened and Manganese
Bemis Car Truck Co.
Brill Co., The J. G.
Cincinnati Car Co.
St. Louis Car Co.

Cables (See Wires and Cables)

Cambric Tapes, Yellow and Black
Vanishing & Ins. Co.
Mica Insulator Co.

Carbon Brushes (See Brushes, Carbon)

Car Lighting Fixtures
Elec. Service Supplies Co.

Car Panel Safety Switches
Consolidated Car Heating Co.
Westinghouse E. & M. Co.

Car Steps, Safety
Cincinnati Car Co.

Car Wheels, Rolled Steel
Bethlehem Steel Co.

Cars, Dump
Brill Co., The J. G.
Differential Steel Car Co.
St. Louis Car Co.

Cars, Gas-Electric
Brill Co., The J. G.
General Electric Co.
Westinghouse Elec. & Mfg. Co.

Cars, Gas, Rail
Brill Co., The J. G.
St. Louis Car Co.

Cars, Passenger, Freight, Express, etc.
Amer. Car Co.
Brill Co., The J. G.
Cincinnati Car Co.
Cummings Car & Coach Co.
Kuhlman Car Co., G. C.
St. Louis Car Co.
Wason Car Co.

Cars, Self-Propelled
Brill Co., The J. G.
General Electric Co.

Cars, Second Hand
Electric Equipment Co.

Castings, Brass Compositior or Copper
Cincinnati Car Co.
Columbia Machine Works & M. I. Co.
Eureka Copper Prod. Co.

Castings, Gray Iron and Steel
American Bridge Co.
American Steel Foundries
Bemis Car Truck Co.
Columbia Machine Works & M. I. Co.
St. Louis Car Co.
Standard Steel Works Co.
Inc.
Wm. Wharton, Jr. & Co.,

Castings, Malleable & Brass
Bemis Car Truck Co.
Columbia Machine Works & M. I. Co.
St. Louis Car Co.

Catchers and Retrievers, Trolley
Earl, C. I.
Elec. Service Supplies Co.
Ohio Brass Co.
Wood Co., Chas. N.

Catenary Construction
Archbold-Brady Co.

Ceiling Car
Haskelite Mfg. Corp.

Ceilings, Plywood Panels
Haskelite Mfg. Corp.

Chairs, Parlor Car
Heywood Wakefield Co.

Change Carriers
Cleveland Fare Box Co.
Electric Service Supplies Co.

Change Trays
Cincinnati Car Co.

Circuit-Breakers
General Electric Co.
Westinghouse E. & M. Co.

Clamps and Connectors for Wires and Cables
Electric Railway Equipment Co.
Electric Railway Improvement Co.
Elec. Service Supplies Co.
General Electric Co.
Hubbard & Co.
Ohio Brass Co.
Westinghouse E. & M. Co.

Cleaners
Oakite Products, Inc.

Cleaners and Scrapers, Track (See also Snow-Plows) Sweepers and Brooms
Brill Co., The J. G.
Cincinnati Car Co.
St. Louis Car Co.

Clusters and Sockets
General Electric Co.

Clutches
Long Mfg. Co.

Coal and Ash Handling (See Conveying and Hoisting Machinery)

Coll Banding and Winding Machines
Columbia Machine Works & M. I. Co.
Elec. Service Supplies Co.
Westinghouse E. & M. Co.

Coils, Armature and Field
Columbia Machine Works & M. I. Co.
Elliot Thompson Co.
General Electric Co.
Westinghouse E. & M. Co.

Coils, Choke and Kicking
Elec. Service Supplies Co.
General Electric Co.
Westinghouse E. & M. Co.

Coin Changers
Illinois Motive Equipment Co.
Johnson Fare Box Co.
Coin Counting Machines
Cleveland Fare Box Co.
International Register Co.
Johnson Fare Box Co.

Coin Sorting Machines
Cleveland Fare Box Co.
Johnson Fare Box Co.

Coin Wrappers
Cleveland Fare Box Co.

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Columbia Machine Works & M. I. Co.
Elec. Service Supplies Co.
General Electric Co.
Westinghouse E. & M. Co.
Wood Co., Chas. N.

Commutator Truing Devices
General Electric Co.

Commutators or Parts
Columbia Machine Works & M. I. Co.
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General Electric Co.
Westinghouse E. & M. Co.

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General Electric Co.
Westinghouse Traction Br. Co.

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General Electric Co.
Westinghouse E. & M. Co.

Connectors, Solderless
Westinghouse E. & M. Co.

Connectors, Trailer Car
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Consolidated Car Heating Co.
Elec. Service Supplies Co.
Ohio Brass Co.

Controllers or Parts
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General Electric Co.
Westinghouse E. & M. Co.

Controller Regulators
Elec. Service Supplies Co.

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General Electric Co.
Westinghouse E. & M. Co.

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General Electric Co.
Westinghouse E. & M. Co.

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American Bridge Co.

Copper Wire
American Brass Co.
American Steel & Wire Co.
Anaconda Copper Mining Co.

Copper Wire Instruments
Measuring, Testing and Recording
American Brass Co.
American Steel & Wire Co.
Anaconda Copper Mining Co.

Cord, Bell, Trolley, Register
American Steel & Wire Co.
Brill Co., The J. G.
Elec. Service Supplies Co.
International Register Co.
Roebling's Sons Co., J. A.
St. Louis Car Co.
Samson Cordage Works

Cord Connectors and Couplers
Elec. Service Supplies Co.
Samson Cordage Works
Wood Co., Chas. N.

Couplers, Car
American Steel Foundries
Brill Co., The J. G.
Cincinnati Car Co.
St. Louis Car Co.
Ohio Brass Co.
Westinghouse Tr. Br. Co.

Cowl Ventilators
Nichols-Lintern Co.

Cranes, Hoist and Lift
Electric Service Supplies Co.
Eureka Copper Prod. Co.

Cross Arms (See Brackets)

Crossing Foundations
International Steel Tie Co.

Clutches
Long Mfg. Co.

Crossing, Frog and Switch
Ramapo Ajax Corp.
Wm. Wharton, Jr. & Co., Inc.

Crossing Manganese
Bethlehem Steel Co.
Ramapo Ajax Corp.
Wm. Wharton, Jr. & Co., Inc.

Crossings
Wm. Wharton Jr. & Co., Inc.
Ramapo Ajax Corp.
Inc.

Crossings, Track (See Track Special Work)

Crossings, Trolley
Ohio Brass Co.
Westinghouse E. & M. Co.

Curtains & Curtain Fixtures
Brill Co., The J. G.
Edwards Co., O. M.
St. Louis Car Co.

Dealer's Machinery & Second Hand Equipment
Elec. Equipment Co.
Hyman Michaels Co.

Derailing Devices (See also Track Work)

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Electric Service Supplies Co.

Detective Service
Wish-Service, P. Edward

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Cincinnati Car Co.
Consolidated Car Heating Co.
National Pneumatic Co., Inc.

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Cincinnati Car Co.
Edwards Co., O. M.
General Electric Co.
Hale-Kilburn Co.
St. Louis Car Co.

Doors, Folding Vestibule
National Pneumatic Co., Inc.

Drills, Track
Amer. Steel & Wire Co.
Elec. Service Supplies Co.
Ohio Brass Co.

Drivers, Sand
Elec. Service Supplies Co.
Ohio Brass Co.
Westinghouse E. & M. Co.

Ears
Columbia Machine Works & M. I. Co.
Elec. Service Supplies Co.
Ohio Brass Co.

Electric Grinders
Railway Trackwork Co.

Electric Rivet Heaters
American Car & Foundry Motors Corp.

Electric Transmission Towers
American Bridge Co.

Electrical Wires and Cables
Amer. Electrical Works
American Steel & Wire Co.
Roebling's Sons Co., John A.

Electrodes, Carbon
Railway Trackwork Co.

Una Welding & Bonding Co.

Eletrodes, Steel
Railway Trackwork Co.
Una Welding & Bonding Co.

Engineers, Consulting, Contracting and Operating
Archbold-Brady Co.
Beeler, John A.
Buchanan & Layng Corp.
Bylesby & Co., H. M.
Day & Zimmermann, Inc.
A. L. Drum & Co.
Faile & Co., E. H.
Ford, Bacon & Davis
Hemphill & Wells
Holst, Engelhardt W.
Jackson, Walter
Kelker & DeLuw
Linn & Marshall Co.
McClellan & Junkersfeld
Richey, Albert S.
Sanderson & Porter
Stevens & Wood, Inc.
Stone & Webster
White Eng. Corp., The J. G.

Engines, Gas, Oil or Steam
Westinghouse E. & M. Co.

Exterior Sign Panels
Haskelite Mfg. Corp.

Fare Boxes
Cleveland Fare Box Co.
Illinois Motive Equipment Co.
Johnson Fare Box Co.
Perey Mfg. Co., Inc.

Fare Registers
Electric Service Sup. Co.
Johnson Fare Box Co.

Fences, Woven Wire and Fence Posts
Amer. Steel & Wire Co.

Fenders and Wheel Guards
Brill Co., The J. G.
Cincinnati Car Co.
Consolidated Car Fender Co.
St. Louis Car Co.
Star Brass Works
Wood Co., Chas. N.

Fibre and Fibre Tuning
Westinghouse E. & M. Co.

Field Coils (See Coils)

Floodlights
Elec. Service Supplies Co.

Floor, Sub.
Haskelite Mfg. Corp.

Floors
Haskelite Mfg. Corp.

Forgings
Brill Co., The J. G.
Carnegie Steel Co.
Columbia Machine Works
Eureka Copper Prod. Co.
Standard Steel Works Co.

Frogs & Crossings, Tee Rail
Bethlehem Steel Co.
Ramapo Ajax Corp.
Wm. Wharton, Jr. & Co., Inc.

Frogs, Track (See Track Work)

Frogs, Trolley
Electric Service Supplies Co.
Ohio Brass Co.
Westinghouse E. & M. Co.

Funnel Castings
Wm. Wharton, Jr. & Co., Inc.

Furnaces, Electric Steel Melting
American Bridge Co.

Fuses and Fuse Boxes
Columbia Machine Works & M. I. Co.
Consolidated Car Heating Co.
General Electric Co.
Westinghouse E. & M. Co.

Fuses, Refillable
General Electric Co.

Garage Equipment
Columbia Machine Works & M. I. Co.
Westinghouse Tr. Br. Co.

Gas Producers
Westinghouse E. & M. Co.

Gates, Car
Brill Co., The J. G.
Cincinnati Car Co.
St. Louis Car Co.

Gear Blanks
Bethlehem Steel Co.
Carnegie Steel Co.
Brill Co., The J. G.
Standard Steel Works Co.

Gear Cases
Chillingworth Mfg. Co.
Columbia Machine Works & M. I. Co.
Elec. Service Supplies Co.
Westinghouse E. & M. Co.

Gears and Pinions
Bemis Car Truck Co.
Bethlehem Steel Co.
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REG. U.S. PAT. OFF.
 Electric Railway
 Automatic Signals
 for Accessibility
 and Reliability

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"American"
INSULATING
MACHINERY
COMPANY
REG. U.S. PAT. OFF.

521 Huntington St.
 Philadelphia, Pa.

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Boyerized Parts:

- Brake Pins
- Brake Hangers
- Brake Levers
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- Brake Fulcrums
- Turnbuckles
- Center Bearings
- Side Bearings
- Spring Post Bushings
- Spring Posts
- Bolster end Transom
- Chefing Plates
- Manganese Brake Heads
- Manganese Truck Parts
- Bushings
- Bronze Bearings
- McArthur Turnbuckles

Can be purchased through the following representatives:

- Economy Electric Devices Co.,
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- F. F. Bodler,
 603 Monadnock Bldg., San Francisco, Cal.
- W. F. McKenney,
 54 First Street, Portland, Oregon.
- J. H. Denton,
 1328 Broadway, New York City, N. Y.
- A. W. Arlin,
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Bemis Car Truck Company
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Type R-11
 Double Register

**International
 Registers**

Made in single and double types to meet requirements of service. For hand or foot, mechanical or electric operation. Counters, car fittings, conductors' punches.

The International Register Co.
 15 South Throop Street, Chicago, Illinois

Kalamazoo Trolley Wheels

The value of Kalamazoo Trolley Wheels and Harps has been demonstrated by large and small electric railway systems for a period of thirty years. Being exclusive manufacturers, with no other lines to maintain, it is through the high quality of our product that we merit the large patronage we now enjoy. With the assurance that you pay no premium for quality we will appreciate your inquiries.



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 KALAMAZOO, MICH., U. S. A.

RAILWAY UTILITY COMPANY

CAR COMFORT WITH HEATERS
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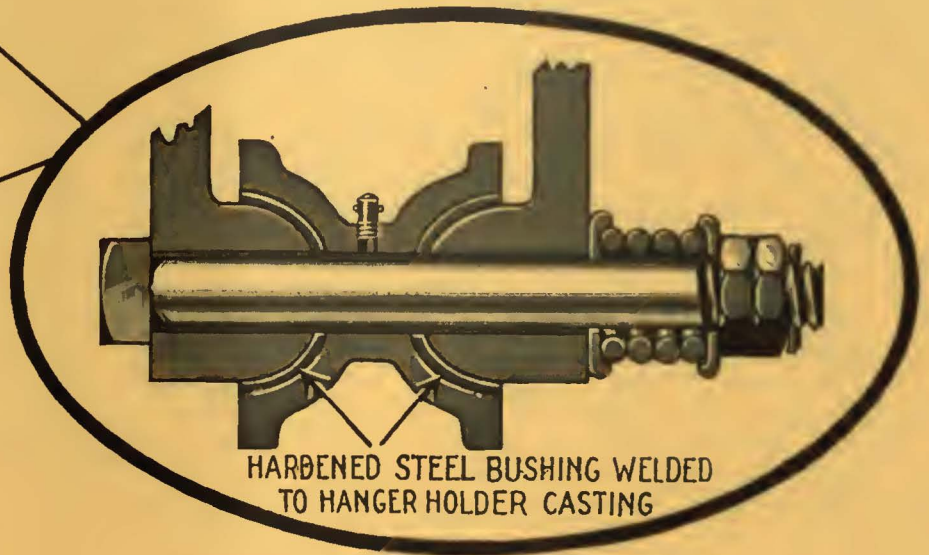
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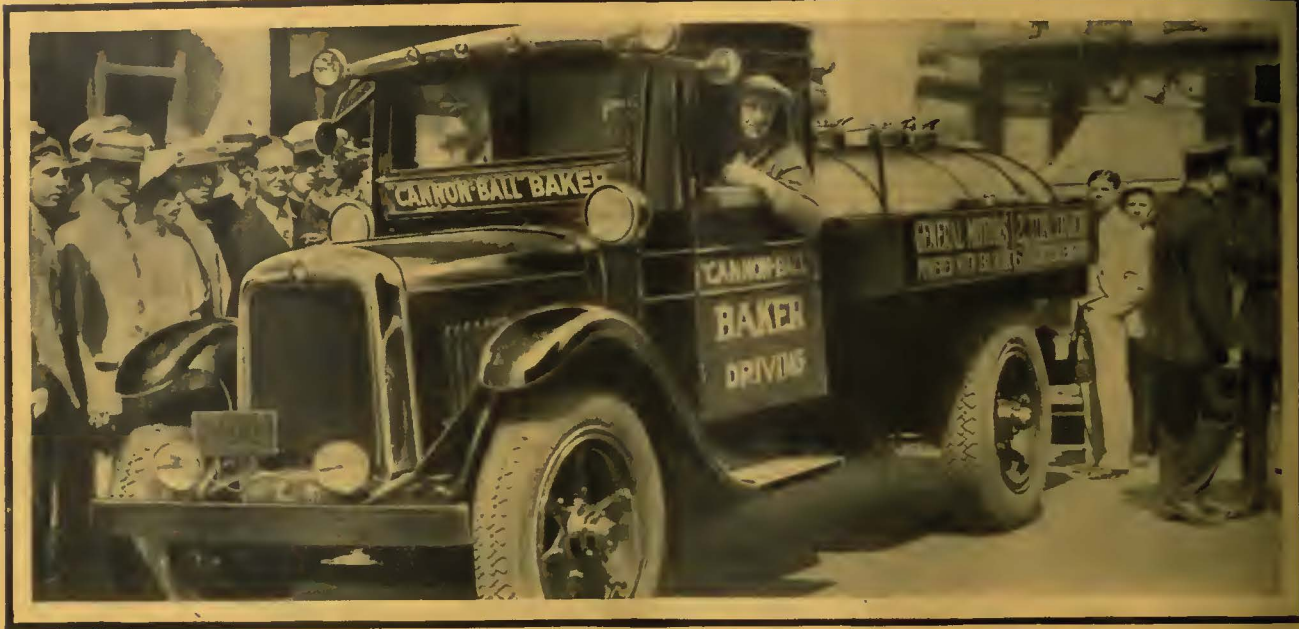
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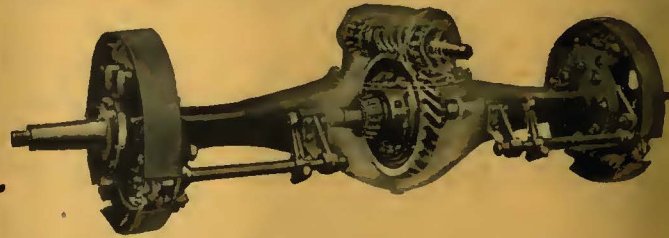
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This afternoon the truck emptied its load of Atlantic Ocean water into the Pacific.

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