

conductor on return trip. If opened by any one except the conductor, the ticket will not be honored. A. B. & C. Railroad." The envelope bears also the usual figures found on a ticket showing date of expiration, while the reverse side is blank and is supposed to be used for railroad advertising.

A demurrage claim amounting to five cents was brought by the Santa Fe Ry. Company against a judge in Pekin, Ill., recently. The judge ordered a new door for his safe, and he says that when the door came he was not apprised of the fact until five cents demurrage charges had accumulated. The judge refused to pay the charge and gained possession of the door by replevin. The railroad then brought suit.

A freight wreck on the River division of the New York Central & Hudson River R. R. on the morning of Aug. 6 delayed over 12 passenger trains, some of them over six hours, in addition to stopping all freight traffic for a considerable time. The wreck occurred on the section of track which received the prize for last year and was apparently caused by a defect in rolling equipment, the exact nature of which was not given out.

Train crews on the Missouri, Kansas & Texas Ry. have received instructions from the officials to prohibit passengers from using the water cool-

shall be regarded as a test. The hearing is to be extended and more than 500 witnesses have been summoned.

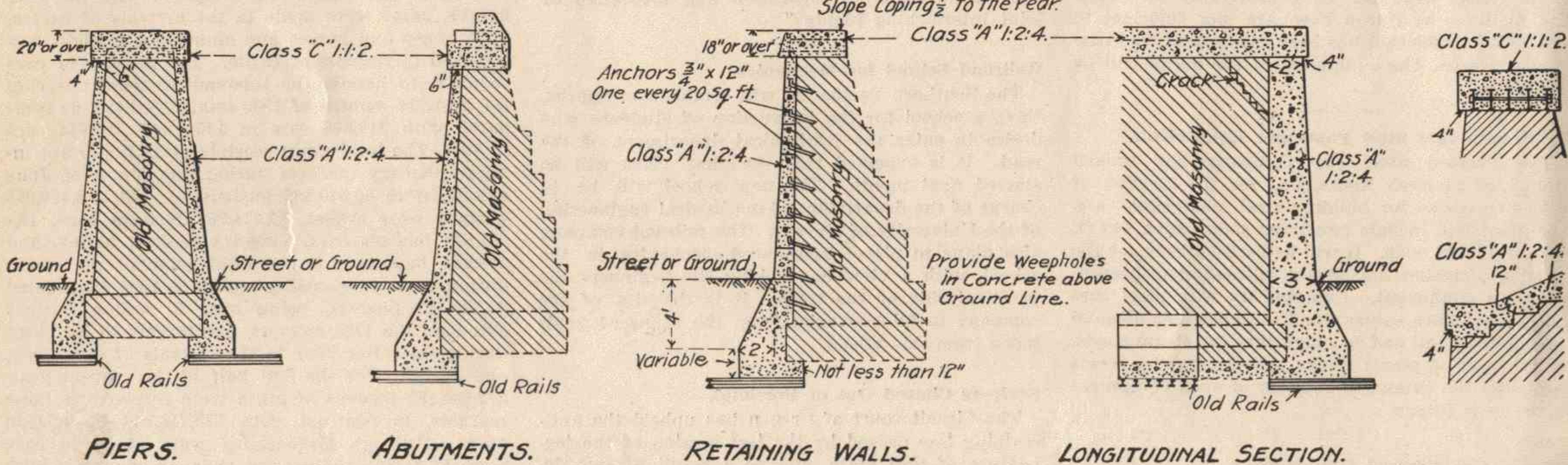
**Strengthening Old Masonry with Concrete,
N. Y. C. & H. R. R. R.**

Of late years the plan of strengthening old stone masonry by facing it up with a thin wall of concrete has been in considerable practice. The Railway and Engineering Review has published some interesting work of this character carried out on the Philadelphia & Reading and Illinois Central roads. The accompanying illustrations show the standard plans for such work on the New York Central & Hudson River R. R.

The illustration at the left shows the method of encasing a masonry pier in concrete. Excavation is made below the footing and a bed of old rails is laid as the foundation for the concrete work. The batter of the sides is increased over that of the old masonry, if necessary, and No. 8 galvanized wire netting, 1x2-in. mesh, or Clinton wire cloth, No. 8 wire, 3x8-in. mesh, is used as a reinforcement. The concrete is "Class A," which consists of a mixture 1:2:4. Wherever heavy beds are concentrated on copings, I-beams, imbedded in the concrete, are used as the means for reinforcement. In this case the concrete is "Class C," or a mixture of 1:1:2. All exposed corners and edges are rounded

stand in opposition to the word "tax" as it makes the necessary distinction.

Now with respect to what may fairly be called government rate making—that is, the initiation of rates by government—there can be no two opinions. The thing is simply impossible. The railroad advocates have by the immense mass of evidence that they have laid before the public demonstrated to the meanest capacity the utter hopelessness of any plan to have a government commission sit down and make rates for the country at large. This cannot be too freely admitted. But the awkward fact remains that the question is not thus settled. The railroads do supply what Mr. Peters calls a commodity. But so far as the greater portion of their business is concerned, it is in the nature of a monopoly commodity. Every railroad has a monopoly of a large part of the business originating on its lines. The extent to which it monopolizes business will vary according to circumstances; but in the broad sense of the word, every railroad supplies a commodity to its patrons under conditions which to a considerable extent shut out competition. A railroad cannot be moved bodily from one place to another and the transportation that it sells is limited to a certain number of people and a certain extent of territory. Competition of two parallel lines even affects only a moderate proportion of the business done by those lines, unless they be very close together. It was brought out in the Northern Securities suit that only about 3 per cent of the freight business of Northern Pacific and Great Northern was strict-



Plans for Facing Stone Masonry with Concrete, N. Y. C. & H. R. R. R.

ers for cold storage purposes generally. This action is the result of a growing habit among thoughtless people of placing their bottles next to the ice, which has caused considerable complaint.

The management of the Southern Pacific Co. has ordered an examination of the men employed in every branch of the operating department. Every man who has anything to do with the handling of trains will have to submit to the inspection, which will include a thorough test of the sight, especially as to color sense, the hearing, and the general physical condition. To facilitate the examination, special cars, in charge of assistant surgeons on the various divisions, will be sent over the lines, stopping wherever convenience suggests. It is proposed to renew these examinations every three years.

While a Chicago & Alton excursion train from Bloomington, Ill., to Kansas City, was crossing the Mississippi river, at Louisiana, Mo., on Aug 5, a man on board shot and killed a man, wounded a woman and robbed a third passenger. The unfortunate man killed was asleep when the outlaw came through the train asking people if they were armed. He awoke a Mr. Warner and asked him if he had a revolver. Receiving a negative reply, he immediately shot him dead. Passengers rallied and the man was overpowered and held until the train stopped, when he was turned over to the authorities and placed in jail. After sobering up he denied having done any shooting and refused to give his name or any information concerning himself.

A suit against the Grand Trunk Ry. involving an aggregate of half a million dollars was argued before the referees at Bloomfield, Vt., recently. The suit was brought by the Connecticut Valley Lumber Co. which claims that 30,000 acres of timber land owned by the company were destroyed in 1903 by a fire said to have been caused by a locomotive of the defendant corporation. Damages of \$300,000 is the claim of the Connecticut Valley Co. Upon the finding of the referees rest the cases of several other lumber firms with losses aggregating \$200,000 by the same fire, as these firms have agreed that the Connecticut Valley suit

to a 1-in. radius. The protection of the abutments is similar to that of piers, except that the concrete facing is used only on the exposed surfaces, as shown by the second engraving from the left.

In facing up old masonry retaining walls 3/4x12-in. anchor bars are inserted in drilled holes, one for every 20 sq. ft. of surface. The third engraving from the left shows the arrangement. The holes are drilled so that the anchors will have a driving fit. When the masonry is poor, 3/4-in. square twisted rods are inserted 2 ft. apart vertically for the length and around the ends of the structure. The joints are raked out for a distance of at least 1 in. and concrete is rammed to fill the crevices. In cases where the wall is poor or porous, weep holes are made in the concrete above the ground line.

The longitudinal view shows how underpinning is done in alternate sections, the second set of sections being treated after the concrete in the intermediate section has set. The foregoing description with reference to retaining walls refers to "Class A" concrete (1:2:4). In some cases, however, "Class B" (1:3:6) is used below the ground surface.

Transportation a Commodity, Not a Tax.

Mr. Ralph Peters, president of the Long Island Railroad, recently delivered an address before a branch of the Railway Y. M. C. A. (now republished in Public Policy) in which he took advanced ground against railroad rate legislation on the lines embodied in the bill which passed the house at the last session. Among other things he said the following:

"The public also misapprehends the nature of a freight rate. Transportation is a commodity, not a tax. The railroads and the shippers stand in the relation of merchants and customers, and every effort should be made to bring them into closer harmony, not by fixing an arbitrary rate, but by allowing them to work together to the end that the lowest rate be fixed that the peculiar local condition allow."

Mr. Peters is unquestionably correct in insisting on the fact that transportation is not a tax. The word "commodity," however, is not the best in the world to apply to transportation. A better word would be "service." Transportation enters into total cost of any product at its final market, very much as labor does in the manufacture of that product. Still the word "commodity" may

ly competitive; the rest was more or less monopolized by each line.

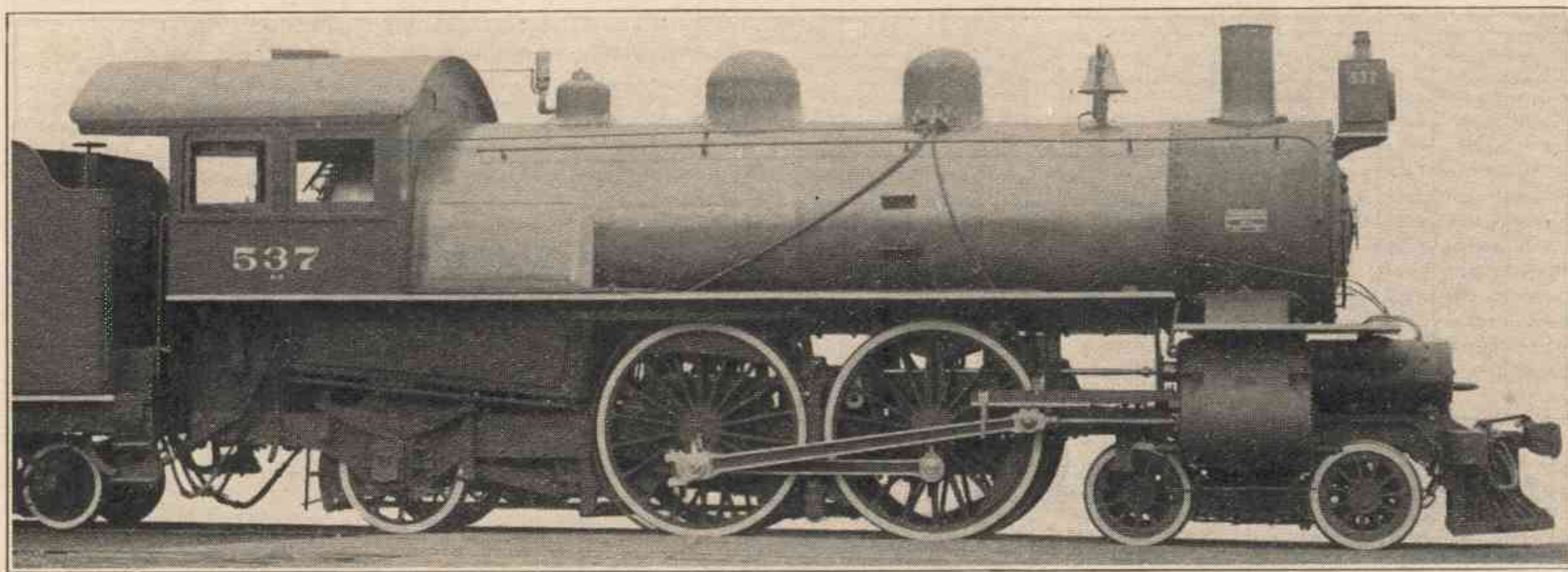
A monopoly is not harmful per se, it is the abuse of monopolistic power that is aimed at in anti-monopoly legislation. In every community there are practical monopolies—almost every public service corporation is a monopoly and the railroads are of this character. Now the best principle for dealing with such companies is that of private ownership under sufficient public control to prevent monopolistic exaction. It is this principle which it is sought to apply in the railroad question. Quite apart from the matter of rebates, discrimination and other illegal practices already barred by the statute book, the proposition is to facilitate public control over railroads by providing machinery for the prompt and efficient trial of rate cases. The idea is to make the Interstate Commerce Commission—materially strengthened in personnel—the initial court of resort for such cases. The great controversy is as to the immediate effectiveness of the rate ordered after hearing by the commission. The railroads desire an appeal to the circuit court before the rate is effective. The administration does not believe that this is necessary or advisable. Our judgment is that provided care be taken by appropriate legislation to assure immediate hearings and prompt decisions by the circuit court, the administration can wisely and safely concede the appeal. If this does not now satisfy the railroads, it should do so, and we believe it will.—Wall Street Journal.

Balanced Compound Locomotive, Erie R. R.

The Erie R. R. has recently received from the American Locomotive Co. a balanced compound Atlantic type passenger locomotive built on the Cole principle of balancing.

This engine, which is illustrated herewith, is very similar to that built for the New York Central & Hudson River R. R., which was exhibited at the St. Louis World's Fair and tested on the Pennsylvania testing plant at that time. It had the distinction of being the only locomotive which was able to sustain a speed of 75 miles per hour for one full hour while on the plant. The details and illustrated description of this locomotive were given in the World's Fair special issue of the Railway and Engineering Review Dec. 31, 1904, page 1033, and an account of the tests mentioned will be found in the same issue, page 1056.

The Erie engine differs from that of the N. Y. C.



Balanced Compound Locomotive, Erie R. R.

principally in having the barrel of the boiler 1 ft. longer and thus locating the front truck 1 ft. further from the front driver than the other engine. This gives a longer inside main rod, but at the same time throws slightly more weight on the front truck. The size of the cylinders and general arrangement is the same in both engines, and a drawing of the cylinders used on the Erie locomotive is given herewith. These cylinders are 15½ and 26x26 ins., which, with 220 lbs. of steam and the 78-in. drivers, give a tractive force on the Erie engine of 23,860 lbs., which is a ratio to the weight on drivers of 1 to 4.7. The boiler, while slightly smaller in diameter than that of the New York Central, has a larger heating surface because of the longer flues, it being 3622 sq. ft. in this case. The grate area is considerable larger, being 56.3 sq. ft. as compared to 50.3 sq. ft. This gives a ratio of 64 sq. ft. of heating surface to one of grate area, an average figure of modern equipment.

It will be noticed in the illustration of this engine that the counterbalance on the main driver is located at an odd angle with the pin for reasons which were explained in connection with a balanced-compound locomotive for the Oregon Ry. & Navigation Co., illustrated and described in our issue of July 1, 1905, page 495.

The N. Y. C. Cole compound has been in general service on the main line of that railroad since being returned from the World's Fair, and has proven itself to be entirely capable of handling the same trains that similar weight engines of the simple type are hauling. Its service is reported to have been entirely satisfactory in all respects, but in regular work it has not proven itself to be materially better in any respect than a similar simple engine, except possibly in the matter of easy riding.

The general dimensions and weight of the Erie locomotive are as follows:

- Cylinder, type, comp. piston valve, diam. 15½ ins. and 26 ins., stroke, 26 ins.
- Tractive power, 23,860 lbs.
- Wheel base, driving 7 ft. 0 ins., rigid 16 ft. 6 ins., total 28 ft. 9 ins.
- Wheel base, total, engine and tender, 60 ft. 9 ins.
- Weight, in working order, 206,000 lbs., on drivers 115,000 lbs.
- Weight in working order, engine and tender, 368,800 lbs.
- Heating surface, tubes, 3433.55 sq. ft.
- Heating surface, firebox, 188.47 sq. ft.
- Heating surface, total, 3622.02 sq. ft.
- Grate area, 56.3 sq. ft.
- Axles, driving journals, back 10 ins. x 12 ins., others 10 ins. x 12 ins.
- Axles, engine truck journals, diameter 6½ ins., length 12 ins.
- Axles, trailing truck journals, 8 ins., length 14 ins.
- Axles, tender truck journals, diameter 5½ ins., length 10 ins.
- Boiler, type, Ex. W. T. O. D. first ring 70¾ ins.
- Boiler, working pressure, 220 lbs., fuel, bitum. coal.
- Firebox, type wide, length 108 1-16 ins., width 75¼ ins.
- Firebox, thickness of crown ¾ in., tube 9-16 in., sides ¾ in., back ¾ in.
- Firebox, water space, front 4 ins., sides 3½ ins., back 3½ ins.
- Crown staying radial.
- Tubes, material char. iron No. 388, diam. 2 ins.
- Tubes, length 17 ft. 0 ins., gage No. 11 B. W. G.
- Boxes, driving, main C. S., others C. S.
- Brake, driver, N. Y., H. S.
- Brake, tender, N. Y., H. S.
- Brake, pump, Duplex No. 5 L. H. 1, reservoir 20½ ins. x 150 ins.
- Engine truck, 4 whl. swing center bearing, with spring centering device.
- Trailing truck, rigid, with outside journals.
- Exhaust pipe, single nozzles 5¾ ins., 5¾ ins. and 5¾ ins.
- Grate, style, rocking.
- Piston, rod diam. 3 ins.

- Smoke stack, diam. 18 ins., top above rail 15 ft. 2¼ ins.
- Tender frame 12 ins., steel channel plates.
- Tank, style, water bottom.
- Tank, capacity, 8500 gallons.
- Tank, capacity, fuel, 16 tons.
- Valves, type, piston 14 ins. diam., travel 6 ins., steam lap 1 in.
- Valves, ex. C. L. 3-16 in., H. P., ¾ in. L. P.
- Setting, ¼ in. lead ford motion when cutting off at 11 ins. of the stroke.
- Wheels, driv. diam. outside tire, 78 ins., centers diam. 72 ins.
- Wheels, engine truck, diam. 36 ins.
- Wheels, trailing truck, diam. 50 ins.
- Wheels, tender truck, diam. 33 ins.

Switching and Switching Revenue.*

By William Q. Morcom, Auditor Freight Receipts, Missouri Pacific.

In the preamble to the original resolution on the subject of switching, adopted at the fifteenth annual meeting of this association (a copy of which may be found on page 104 of the "Agenda" for this meeting), the following occurs: "Whereas, the railroads should have as good a check on their revenue for switching done for the public, and for other roads, as they have on their own revenue for carrying freight or passengers." And further along, on page 105, appears the following explanatory note: "Under this resolution the mover undertakes to submit to the association for the consideration of the standing freight committee, a set of blanks which will carry out the purpose set forth in the preamble, viz., that the railroads may have as good a check on switching revenue as they have on the revenue of both freight and passenger business."

But this, from the nature of the service, is impracticable. Road freight is receipted for by the loading agent, who issues a bill of lading to the shipper. The conductor handling the car reports its movement to the superintendent of transportation, and other in-transit records are maintained. These methods minimize the opportunity for collusion between agents, and safeguard the carrier's interests.

The majority plan submitted by the standing freight committee for handling interline switching by means of interline waybills and audit office settlements does not carry out the evident intention of the mover of the original resolution;

*From proceedings of the annual meeting of the Association of American Railway Accounting Officers, New York, June 28-30, 1905.

for, while it offers an elaborate plan of audit office settlements, it fails to provide a basis for any better check at the larger terminal stations than now exists, and leaves the auditor in the old and regrettable attitude of accepting only what the agent reports.

What is wanted is a plan of accounting practicable enough and pliable enough to meet working conditions—something that will enable the accounting officer to detect what may not be reported. This the committee's plan seemingly does not afford. Either the majority or the minority plan may, and I believe will, fit conditions at the smaller junctional stations, but the standing freight committee's plan, if carried out strictly along the lines of the resolution, at such a terminal as St. Louis (where in 1904 the Missouri Pacific handled 252,585 revenue switch cars), would, I am afraid, place a serious embargo on its business.

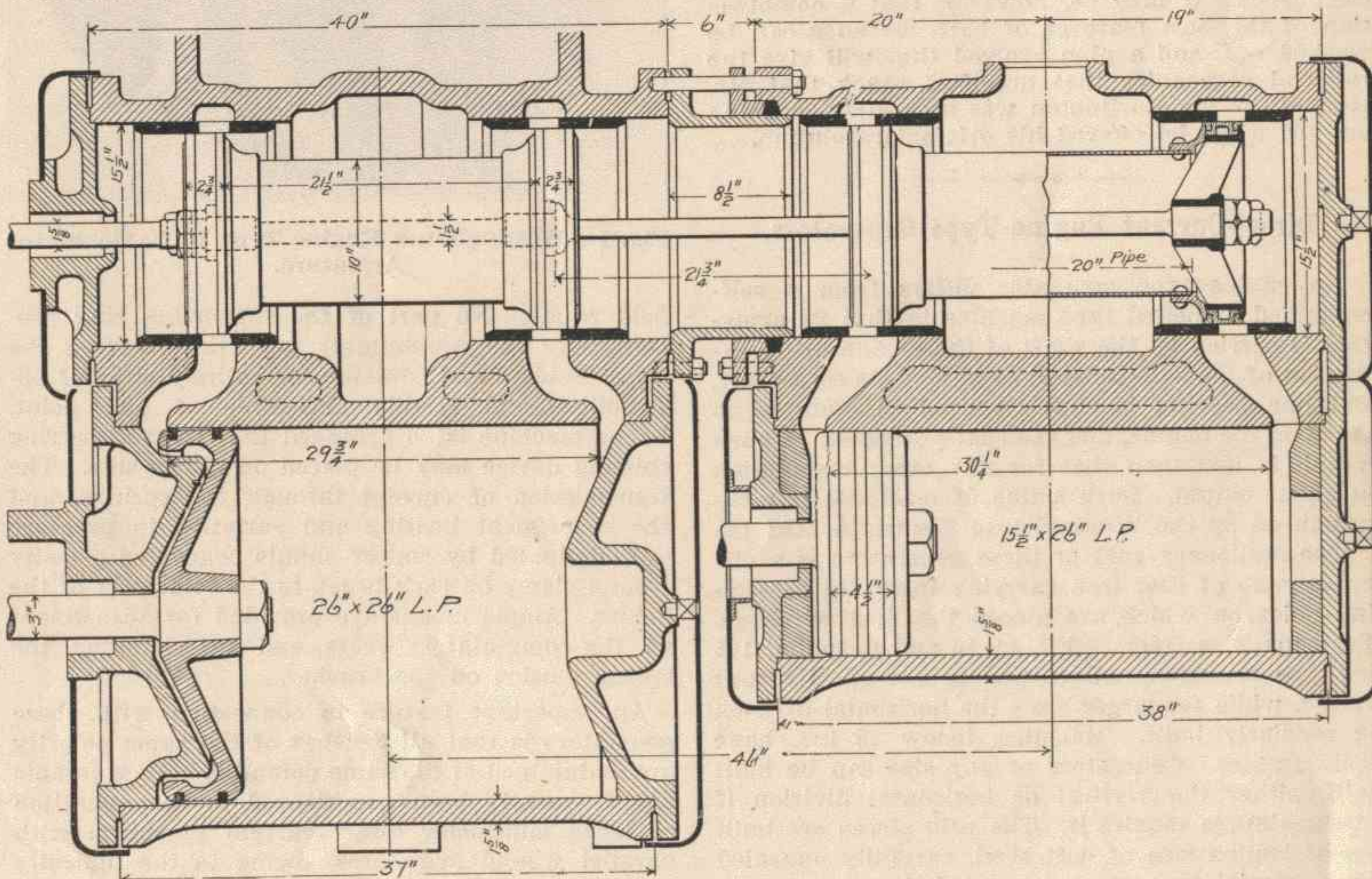
The second resolution provides that cars shall be accompanied by regular waybills whenever possible—when not possible, the cards on the cars to be accepted as authority for the movement. To this latter provision Mr. F. A. Healy, auditor Atlanta & West Point, in his pamphlet, makes a very proper objection, viz., that, as these cards are not numbered, no record can be made of them and no check obtained of their issue.

Any system of car carding for accounting purposes only, such as is contemplated by use of association standard form 121, is going to interfere seriously with the work of switchmen and other yard employes, and will be bound to retard the switching operation. At present the size, shape and color of cards in use have a special significance to switchmen, as it enables them to switch a string of cars without getting close to the car. This expedites the operation. The contrary would be the case if cards were uniform, and it was necessary for switchmen to read each one, in order to make a cut or turn a switch.

I believe that it is now generally conceded that at busy terminals it will be impracticable to accompany switch cars with billing; and, if this is true, where does the proposed plan better existing conditions, and what is the use of writing up the waybills at all?

A special form spaced to show the detailed information called for by the proposed waybill blank could be prepared, on which the revenue switching due to or from each line could be abstracted and forwarded to accounting officers interested, at prescribed intervals for check, and to form the basis of settlement. But what practical good would be accomplished by such a course, other than to take the settlement out of the agents' hands, and lodge it and its attendant expense with the accounting officer, with no improved check of the car's movement?

Our Kansas City agent, who was present at the recent subcommittee meeting, writes: "This provision" (referring to that part of the resolution providing for the movement of cars on side cards, when not possible to move on regular waybills) "removes the greatest stumbling block that has heretofore existed in the operation of the plan of handling switch cars on interline billing, and the plan generally is not now a plan for the movement of the cars on interline billing, but only the settlement of the switching charges through that medium. The movement of the cars themselves would remain as heretofore. It thus becomes an accounting proposition, and simply a question as to whether such settlements can be effected more easily, quickly and satisfactorily than is at present being done by other methods." This candid expression is interesting, as it voices the general opinion of what the original resolution has dwindled to, viz., that the plan submitted affords no



Cylinders of Cole Balanced Compound Locomotive, Erie R. R.