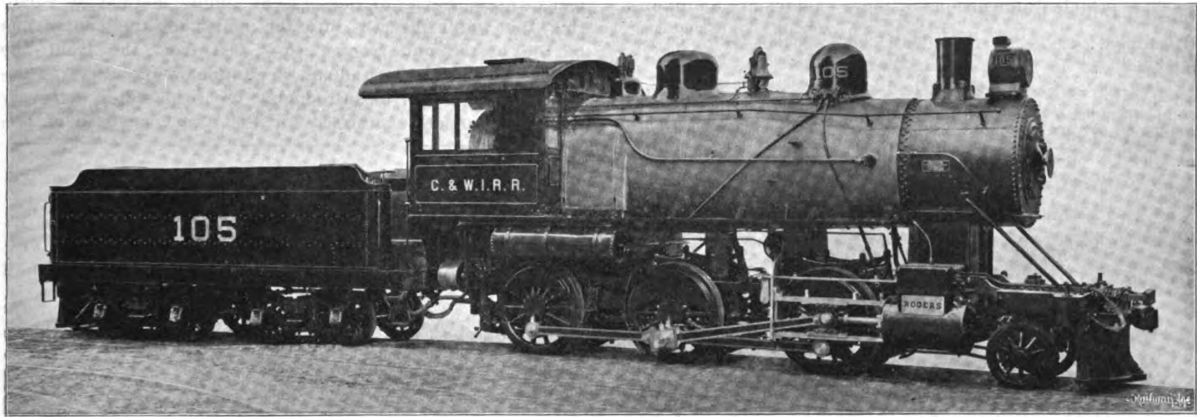


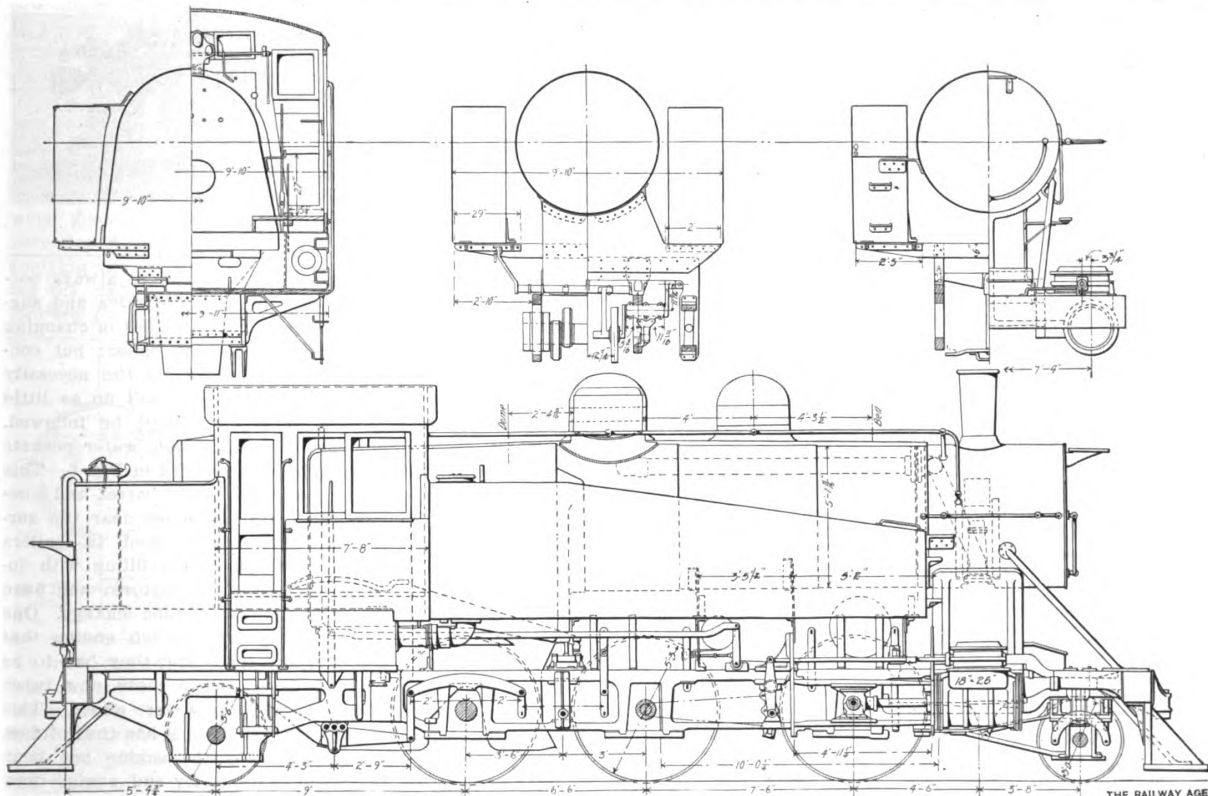
NEW LOCOMOTIVES FOR THE CHICAGO & WESTERN INDIANA.

The Chicago & Western Indiana Railroad has recently received from the Rogers Locomotive Works three double-end suburban locomotives and three moguls. The double-enders combine features found on the Illinois Central and the Central of New Jersey suburban engines, resembling more par-

Dolton. For this kind of service the type of engine shown has done very well upon eastern roads. The engine is provided with a radial swing rear truck. The side water tanks communicate with a water space at the rear under the floor of the coal pocket and a well extending above the top of the coal makes it possible to take water from the regular standpipes in the usual manner. The maximum tractive effort is 22,700 pounds, which gives a ratio to the maximum



CHICAGO & WESTERN INDIANA SUBURBAN TANK LOCOMOTIVE.



CHICAGO & WESTERN INDIANA SUBURBAN TANK LOCOMOTIVE—ELEVATION AND CROSS SECTIONS.

ticularly the latter, which were illustrated in The Railway Age of June 27, 1902. They are, however, considerably heavier, having a total weight of 190,000 pounds ready for service. They will be used to handle the suburban passenger service, which formerly was carried by the Chicago & Eastern Illinois. This traffic is heavy for comparatively short distances and there are a number of curves in entering the city. The engines will haul 10 heavy coaches and they make 15 stops in 11 miles between Polk Street Station and

weight available for adhesion of 1 to 5.7. There is a fluctuating weight of about 30,000 pounds on drivers, but at its smallest amount the ratio is as high as 1.44.

The mogul engines present no unusual features, but are very symmetrical in appearance, and in this respect they resemble the standard Illinois Central mogul, with the exception that the Western Indiana engine has a wide fire-box. As they are intended only for short runs in transfer service, large coal carrying capacity is unnecessary and

therefore the tenders provide for only eight tons of coal and 5,000 gallons of water. The tractive force of this engine is 31,000 pounds, which bears the relation of 1 to 4.4 to the weight available for adhesion. These moguls are intended to run one trip evenings and one trip mornings on suburban regular transfer work. They also take passenger cars to trains and work the remainder of the day in switching coaches in the coach yard at Forty-seventh street for cleaning and repairs.

The principal dimensions of these engines are as follows:

	Mogul.	Suburban.
Cylinders	20 by 26 in.	18 by 26 in.
Driving Wheels—		
Diameter	57 in.	63 in.
Journals	9 by 12 in.	9 by 12 in.
Wheel base	15 ft.	14 ft.
Total wheel base of engine.....	23 ft. 6 in.	31 ft. 2 in.
Weight on drivers	136,000 lbs.	130,000 lbs.

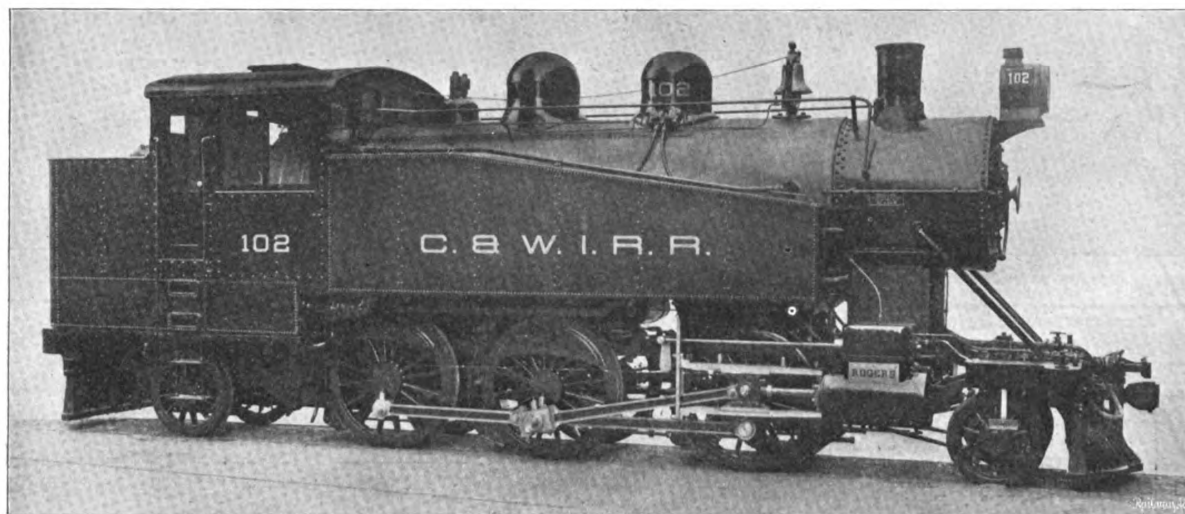
THE CARE OF LOCOMOTIVE BOILERS.

BY M. E. WELLS.

VII.

Some Suggestions for Introducing Feed Water Into Locomotive Boilers.

All that has been said up to the present time, in regard to the effect of admitting and handling feed water to prevent leaky tubes, refers to the present simple method of admitting the water directly into the boiler on the center line of the barrel, and from 1 to 3 feet from the front flue sheet. Much has been done, in stationary practice, to improve the methods of introducing the feed water, but very little in locomotive practice for the direct purpose of pre-



CHICAGO & WESTERN INDIANA SIDE-TANK SUBURBAN LOCOMOTIVE.

Weight on truck.....	21,000 lbs.	20,000 lbs.
Weight on trailer.....	40,000 lbs.
Weight, total, engine.....	157,000 lbs.	190,000 lbs.
Heating Surface—		
Flues	2,239.5 sq. ft.	1,694.9 sq. ft.
Firebox	172.4 sq. ft.	146.5 sq. ft.
Total	2,411.9 sq. ft.	1,841.4 sq. ft.
Grate area	46.75 sq. ft.	46.8 sq. ft.
Boiler—		
Diameter inside first course.....	64 in.	60 in.
Working pressure	200 lbs.	200 lbs.
Thickness of barrel	11-16 in.	21-32 in.
Thickness of dome course.....	3/4 in.
Firebox—		
Crown	13-32 in.	13-32 in.
Thickness flue sheet	1/4 in.	1/4 in.
Sides	11-32 in.	11-32 in.
Back	3/8 in.	3/8 in.
Grate—		
Length	102 in.	102 in.
Width	66 in.	66 in.
Flues—		
Number	329	249
Thickness	No. 11 B.W.G.	No. 11 B.W.G.
Length	13 ft.	13 ft.
Diameter	2 in.	2 in.
Engine truck wheels, diameter.....	33 in.	36 in.
Trailing wheels	42 in.
Journals	8 by 13 1/2 in.
Tender—		
Capacity, water	5,000 gals.	3,500 gals.
Coal	8 tons.	5 tons.
Weight in working order	102,700 lbs.
Frame	10-in. steel channels.

Pennsylvania Railroad Denies Discriminations.—In reply to the allegations made by the Webster Coal Company and the Pennsylvania Coal & Coke Company in their suit for damages against the Pennsylvania Railroad on account of alleged discrimination and the allowance of greater rebates to private mine roads than to the defendants, the Pennsylvania Railroad has stated emphatically that no rebates or allowances or payments in the nature of rebates have been given. As to the distribution of empty cars, it is stated that while it is true that the company has been at times unable to supply the demand of shippers, there has been no unjust discrimination in allotments, as will be shown later.

venting inequalities of temperature. If it were always possible to handle feed water according to the rules and suggestions already given, there would be little need of changing the present method of putting it into the boiler; but conditions arise where this cannot be done, so the necessity is urgent for some means of feeding that will do as little damage as possible, where the rules cannot be followed. One of the first experiments was with simple water pockets placed over the boiler check holes, as shown in Fig. 6. This directed the stream toward the bottom of the barrel, and compelled it to rise and overflow into the boiler near the surface. These water pockets have been used in boilers now, for 18 months, with no trouble from filling with incrusting matter nor inconvenience of any nature; and have shown a marked advantage in decrease of tube leakage. One particular case that we can cite is a switch engine that gave so much trouble from leaky tubes that they had to be replaced in a little over 60 days. When these new tubes were put in, two of these water pockets were added. This was done in July, 1903, and the engine still has these tubes. During this time the work done by the engine has been so satisfactory that the agent, yardmaster and engine crew all acknowledge that they have never had a switch engine at that place that gave the satisfactory service this one has. With this arrangement, as well as others we will describe later, it is found that careless pumping can still make leaky tubes, and that the rules for handling feed water are still necessary and should be followed.

Fig. 7 is an arrangement that is now being tried, on the right injector only, on a 10-wheel engine. The illustration is a cross section through the barrel of the boiler about 1 foot back of the front tube sheet. The boiler check is clamped to the hand rail, and the water is admitted directly