Repairing C. P. R. Boiler Tubes.

In the method of repairing boiler tubes, as done at the C.P.R. shops, West Toronto, there are several features of particular interest, which are worthy of note. In old boilers, the tube ends sometimes become so rusted and corroded, that they must be removed, the ends cut off, and new ones welded on. As a large number of tubes require this treatment, several labor-saving devices have been improvised at the shops with the object of reducing expense, and at the same time improving the quality of the work.

In many shops where new ends are welded on, it is quite customary to merely expand the end, introduce the new piece, and weld in that position, without tapering the ends to fit each other. This method, owing to the sharp ends coming on the flat of the other part of the tube, always leaves a seam around the tube, which tends to weaken it, often producing fracture. The C.P.R. always reams out the end of the tube with a taper reamer to a sharp edge at the end, and the new end is tapered down similarly to fit in.

In reaming out the ends, an improvised machine, fig. 1, is used, unique in some respects. Essentially it is a lathe, the original idea being the feed, which consists of an air cylinder which shoves forward the reamer. Air is controlled by a two-way valve, which allows air out of another passage as desired, to a piece of rubber hose, used to blow the chips away. When the cylinder is released, the piston resumes its initial position by the spring expanding. The make-shift construction of the lathe is interesting. It is formed of two 7 x 7 in. scantlings, on which are attached several wrought iron straps for securing the cylinder, etc. The reamer has a square shank which works in square holes in the cross-sectioned cross-pieces, which prevent it turning. The tubes are rapidly reamed by this method, a greater pressure being given than if fed by hand.

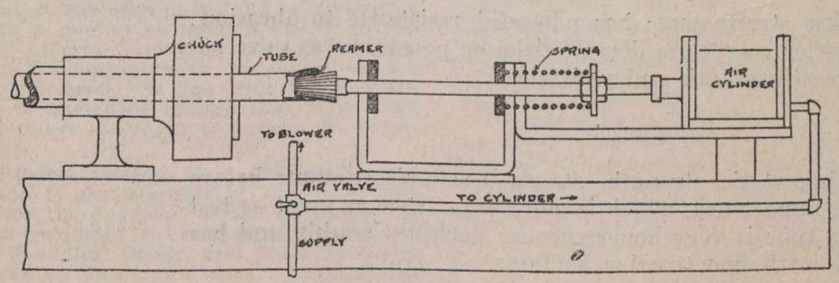

Figure 1.

When ready to be welded, the two parts are placed together, and shoved into a furnace as in fig. 2. The heat has a tendency to loosen the pieces which were lightly placed together, so, if removed when heated without precautions, they would probably part. A simple expedient prevents this. When ready to remove, a tread A, some 4 or 5 ft. back from the furnace, is pressed which slides bar B in its guides, the plate on the end striking the short piece of tube sharply, driving it further into the tube to be repaired, for the pieces are soft from the intense heat. This act in itself practically welds the pieces together, as well as doing what was originally intended, i.e., preventing the pieces falling apart before welding.

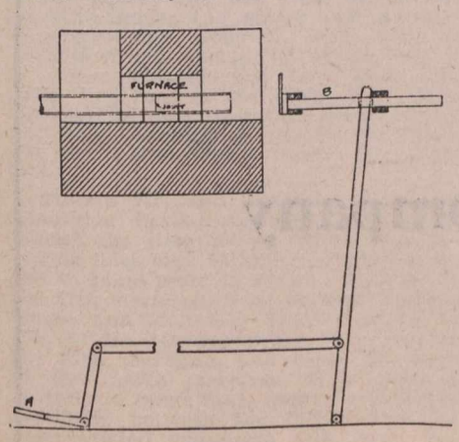

Figure 2.

The welding is done under a quick-acting air hammer, the tube being slipped over a mandrel during the operation. The process insures a very nearly perfect joint, without mark, the size of the pipe being but slightly below the standard.

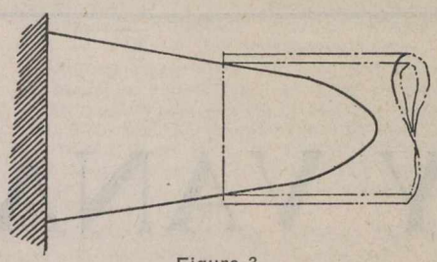

Figure 3.

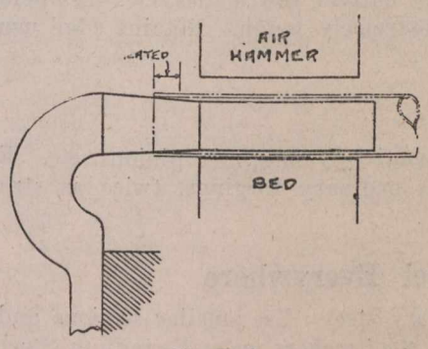

Figure 4.

Before putting into the boiler the back end must be expanded slightly so as to fit the tube sheet better. Formerly, this was done as in fig. 3, by first heating the end of the tube for about an inch, and driving the tube up on a tapered pin, by a couple of men swinging back and forth on to the pin, driving it further each swing till expanded the proper amount, a very slow job.

Fig. 4 shows the method used now for expanding the end. As before, the end is heated, but with the difference that it is now placed on a mandrel, tapered at one end, and under an air hammer. The oscillations set up in the pipe by the quick acting hammer striking the cold part, back from the heat, causes the end to swell, the operation being practically instantaneous, the blows being so rapid. The method is very much quicker and better than the old way, and the production is greatly increased.—Canadian Machinery.

Trade and Supply Notes.

The matter which appears under this heading is compiled, in most cases, from information supplied by the manufacturers of, or dealers in, the articles referred to, and in publishing the same we accept no responsibility. At the same time we wish our readers to distinctly understand that we are not paid for the publication of any of this matter, and that we will not consider any proposition to insert reading matter in our columns for pay or its equivalent. Advertising contracts will not be taken with any condition that accepting them will oblige us to publish reading notices. In other words, our reading columns are not for sale, either to advertisers or others.

L. M. Booth Co., 136 Liberty St., New York, is distributing a leaflet describing its new type of Booth water softener.

In an article in our last issue on G.T.P.R. machine repair cars, it was stated that the power used is a Fairbanks 6 h.p. gasoline engine. The engines are of Fairbanks-Morse manufacture and supplied by the Canadian Fairbanks Co.

The Goldschmidt Thermit Co.'s quarterly, Reactions, contains a number of well illustrated articles on the use of thermit for the welding of rails and for welding repairs on steamships, etc., in addition to a discussion on the welding of locomotive frames.

W. C. Cuntz, for 18 years with the Pennsylvania Steel Co., has been appointed Vice President and General Manager of the Goldschmidt Thermit Co. of New York, which has a Canadian branch in Toronto. He succeeds E. Stutz, who has retired from the company.

G. McAvity, President T. McAvity and Sons, Ltd., St. John, N.B., is reported to have stated, recently, that it was absolutely necessary for the company to increase its plant, and it was probable that a brass or iron foundry would be established at Port Arthur, Ont., and possibly a branch works at Montreal.

The Safety Car Heating and Lighting Co. has commenced the publishing of a house journal under the name of the Safety Heating and Lighting News. The first number is well illustrated, and contains a lot of useful information regarding the heating and lighting of railway cars, one article being devoted to postal cars, with opinions as to the adaptibility of gas over electric light, by various railway officials, amongst whom is H. H. Vaughan, Assistant to the Vice President, C.P.R.

The Galena-Signal Oil Co. has introduced a new locomotive headlight oil, "Galena Railway Supply Oil B." We are advised that recent government tests, made by the Bureau of Standards at Washington, show this oil to produce, with headlights of ordinary construction, a minimum of 1,800 candle power, and with a headlight equipped with 16 inch optical lens, costing no more initially than the ordinary reflector, and much less for maintenance, a minimum of 2,400 candle power; and exhaustive service tests on a prominent railway have proven its adaptation to this purpose. The high fire test of this oil enables it to withstand the great heat generated by headlight burners without becoming gaseous, a condition developing with inferior oils and resulting in the consumption of much more oil than is necessary. The use of this oil insures immunity from danger resulting from smoked chimneys, damaged reflectors and the frequent burning up of headlights, and reduces, to a great extent, the labor necessary in caring for headlights.

Railway Lands Patented.—Letters patent were issued, during August, for railway lands in Manitoba, Saskatchewan, Alberta and British Columbia, as follows:

	Acres.
Canadian Northern Ry.	184.13
Canadian Pacific Ry.	2.77
Total	186.90