

The snap on the left is that used for ordinary cone headed rivets, which of course centre themselves naturally. In the case of flat headed rivets, trouble is usually experienced with the rivet running over unless more than usual care is exercised by the boilermaker. The snap shown in the centre of the group overcomes this running over tendency in a very simple manner. In the centre of the snap, a $\frac{1}{8}$ in. hole is drilled to a depth of about $\frac{1}{2}$ in. The first

plate, there is the usual copper ring. The action of the expander is to so expand the tube in and around the plate opening as to form a solid joint. To finish, the outer edge is beaded over with a beading tool in the customary manner. The ends of tubes that have been thinned down by repeated expandings, to such a degree as are deemed unsafe, are reinforced by means of the same tool, inserting a short piece of smaller tubing in the end, after first cutting off the

proper use of the tools, resulting in a more uniform method of handling running and general repairs at all points.

Grand Trunk Pacific Railway Terminal Facilities at Edson, Alta.

For an outlying point on the G.T.P.R., Edson has been developed to a considerable extent in the short time the line has been running in there. The yards are fairly extensive, and the shops are equipped to handle repairs of a more or less heavy nature.

The car shop is 260 by 40 ft., and 24 ft. high, containing two through tracks, each of which can take 6 cars. Adjoining is a building 102 by 15 ft., 12 ft. high, for offices, store room and paint shop. Both buildings are of wood. All classes of cars are handled here, including passenger equipment, as many as 900 cars a month undergoing repairs either in the shops or yards.

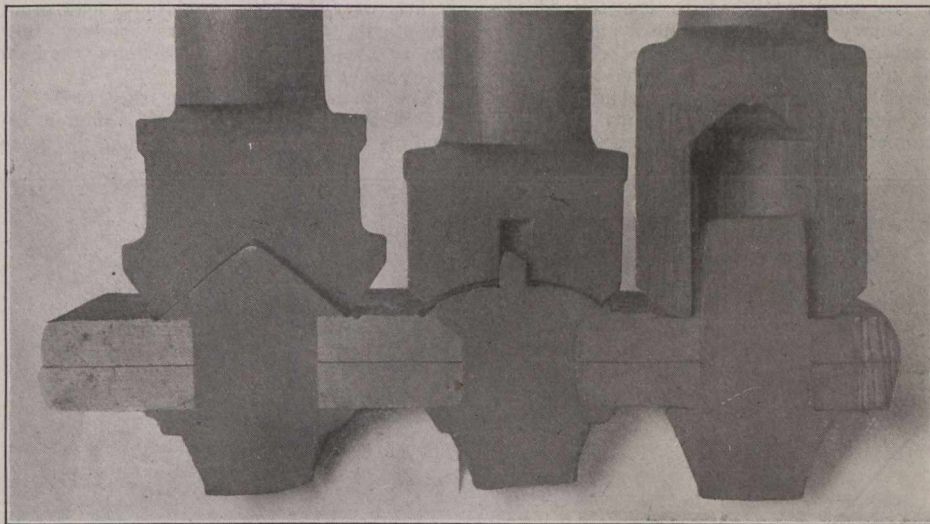


Fig. 5.—C.N.R. Practice in Expanding Tubes.

blow of the hammer on the head causes a small amount of the metal to flow up this hole, forming a small tit that automatically centres the snap on the rivet, a good rivet resulting.

Hand operated flue expanders, as almost universally used, are an ever fruitful cause of trouble. In the first place, they are far too slow in action, and the very fact that their action is a rotary one makes their use rather difficult in cramped places, such

inner beading, the reinforcing piece being beaded over in its place, all as in fig. 4.

The method of safe ending tubes is shown in fig. 7. The C.N.R. practice in this respect resembles that of many other lines. The safe end is flared, and slipped over the heated end of the tube, neither part being bevelled, a practice that is used with a considerable degree of success in some shops. After heating both parts, they are welded together in a rotary swedging machine, pro-

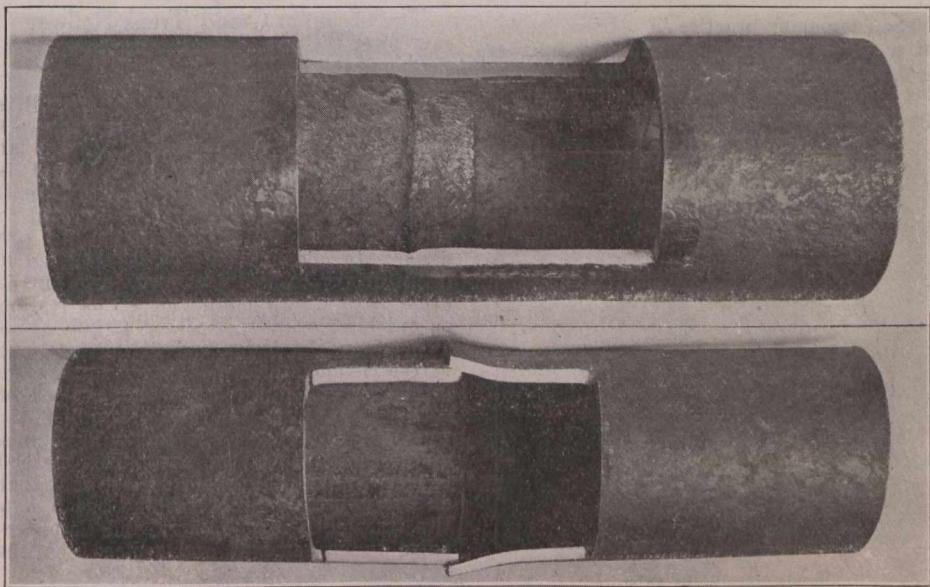


Fig. 7.—C.N.R. Practice of Safe Ending Tubes.

as the side tubes in the fire or smokebox. The C.N.R. practice is shown in fig. 6. An expanding member, made up of six segmental pieces of the form indicated, and held together by a stiff rubber band, are forced out against the tube wall by a tapered pin driven in by an air hammer. The annular recess around the expander, with rims around each side of the recess, forces the tube out in rings at each face of the tube plate. Between the tube and

ducing a joint like that shown in the lower part of the illustration. All the weld seam is on the inner surface.

The views that illustrate this article are from a set of photographs made up by the C.N.R. mechanical department for distribution to all the locomotive houses on the system. It is the intention to make them all up on a large card, which will be framed and hung up in a conspicuous place in the locomotive house, so that all will know the

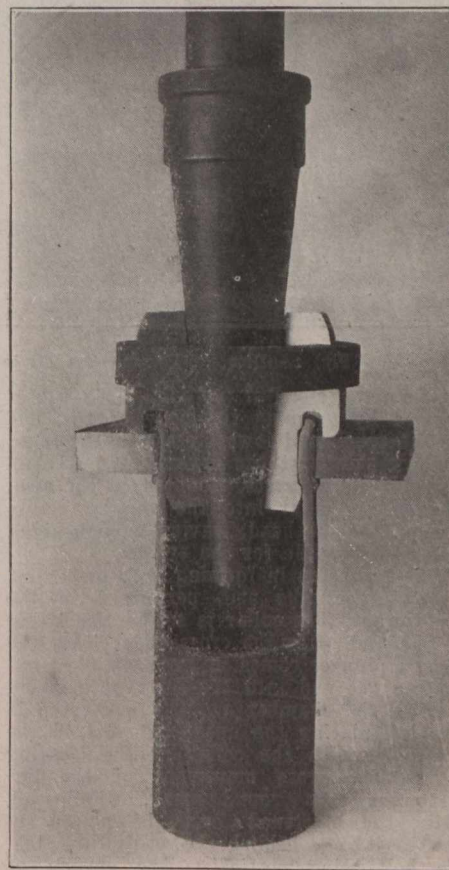


Fig. 6.—C.N.R. Practice of Expanding Tubes.

The car shop pay roll contains from 35 to 40 names.

There is also a 12 stall roundhouse, with a large divisional machine shop adjoining. This shop is equipped with both metal and woodworking machinery, the former for locomotive running repairs, and the latter for planing the lumber used over the system, being shipped east and west from Edson. Both roundhouse and machine shop are brick structure, employing about 75 men. The 1,000 ton coaling station was described in some detail in Canadian Railway and Marine World for July, 1912.

A blacksmith shop employs 3 blacksmiths. The equipment includes a steam hammer, steam shears and heavy punch. The yards contain in addition to the through main line track, 17 yard tracks.

We are indebted to J. Flynn, Car Foreman, Edson, for the foregoing information concerning the shops and yards.