

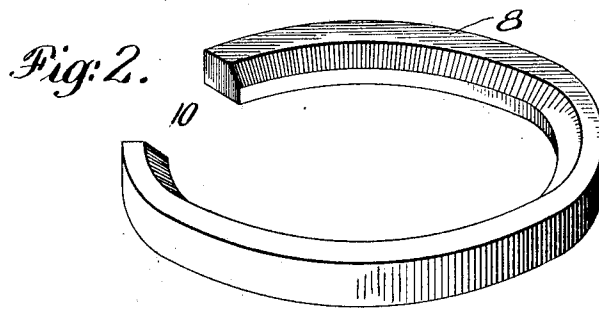
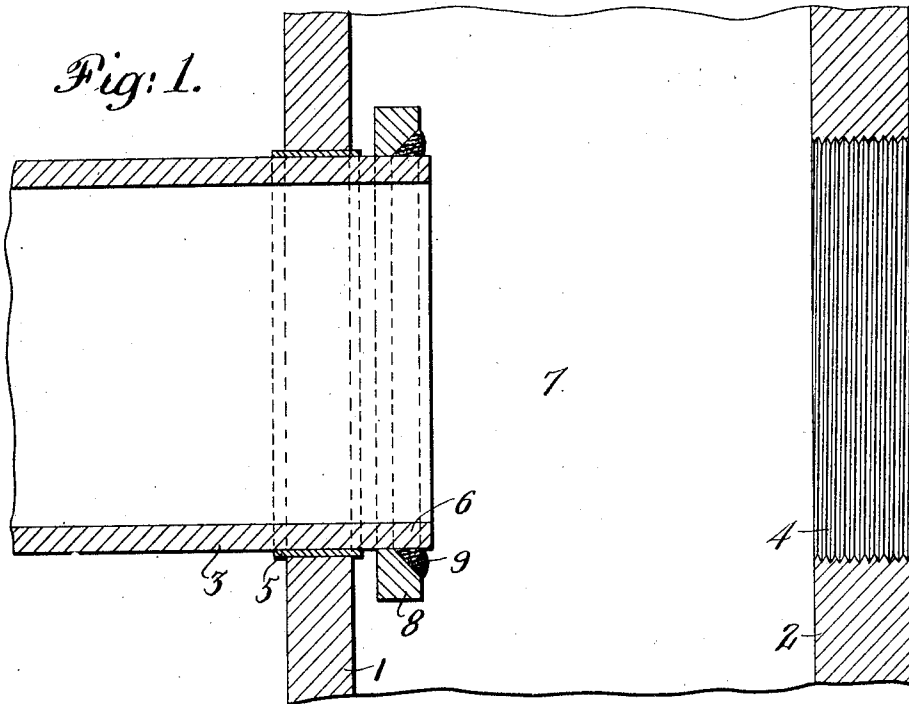
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METHOD OF APPLYING LOCOMOTIVE ARCH TUBES

Filed March 17, 1926



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METHOD OF APPLYING LOCOMOTIVE ARCH TUBES.

Application filed March 17, 1926. Serial No. 95,487.

This invention has reference to a method of applying arch tubes such as are used in locomotive practice for the support of refractory arches in the fire boxes.

One of the objects of this invention is to dispense with all special flaring and beading tools customarily used in applying arch tubes in fire boxes.

Another object of this invention is to overcome the difficulty encountered in many cases in attempting to apply arch tubes on locomotive fire boxes where the springs or driving wheels are in position to interfere with the beading especially at the front end of the tube, in consequence of which in many instances it is difficult to obtain a good secure anchorage of the tube in the sheet.

Another object of this invention is the provision of a device which will facilitate the use of tubes which may be of more than usually hard material which, in present practice, it is difficult to apply because they cannot be flared and beaded over with the usual apparatus with any degree of facility.

In order that my invention may be better understood, I will now proceed to describe the same in connection with the accompanying drawing, in which:

Fig. 1 is a sectional view through a portion of the water leg of a fire box having the inside sheet 1 and the outside sheet 2 with the end of an arch tube 3 in place, and Fig. 2 is a perspective view of a securing ring member for the tube.

The threaded aperture 4 is of course to be closed by a suitable plug and provides the usual means for working on the ends of the tube 3 in putting it in place.

Where the tube 3 engages the sheet 1 I provide a copper ferrule 5 which makes a better fit of the tube inside the aperture of the sheet and I extend the end of the tube 6 into the water space 7 a sufficient distance to allow the application of the ring 8 which is made with a recess on the side toward the end of the tube in which the ring 8 is electrically welded to the tube as indicated at 9.

The tube when put in place is rolled into close contact with the copper ferrule 5 compressing the ferrule between the outer periphery of the tube and the inner wall of the aperture in the sheet 1 in which the tube rests.

To facilitate the application of the ring

and permit its insertion through the aperture 4 I provide a cut-away place 10 indicated in Fig. 2; this cut-away portion being just sufficient in size to permit the insertion of the ring while not impairing the function of the ring as a safety device to avoid the pulling out of the tube through the aperture in the sheet 1. For tightness of the joint I depend primarily upon the rolled close fit of the copper ferrule 5, or, in some cases, if the copper ferrule is dispensed with, upon the rolled tight fit of the tube inside the aperture.

It will be seen from the above that it is possible to roll the tube in tightly and make a good fit and afterward apply the ring by the welding operation indicated without disturbing the fit of the tube in the sheet 1. This is not the case with the usual beading over of the end of the tube which disturbs the fit of the tube within the sheet. It is also to be noted that in the use of my split ring a smaller aperture may be used in the outside sheet only enough room being required to set the tube, and it not being necessary to introduce any flaring or beading device as in usual practice.

It is known that in the common practice serious accidents have in some cases occurred either from not having the tube extend sufficiently far into the water space or not having it securely anchored in the sheet. The presence of the flange formed by the welded ring 8 obviously ensures a greater degree of safety.

I claim:—

1. The herein described method of securing arch tubes in fire box sheets which consists in inserting the tube from the fire side, rolling the tube into close contact with the aperture in the sheet, introducing a ring through an aperture in the opposite sheet, and welding the ring on the end of the tube.

2. The herein described method of securing arch tubes in fire box sheets which consists in inserting the tube from the fire side, rolling the tube into close contact with the aperture in the sheet, splitting a tube securing flange, introducing it through an aperture in the opposite sheet of smaller diameter than the flange, and welding the flange on the end of the tube.

In testimony whereof, I have hereunto signed my name.

RAY M. BROWN.