Railway Mechanical Methods and Devices.

Machining Bell, Stand and Hanger.

An interesting set of jigs for machining the component parts of a locomotive bell and supporting frame is in use in the G.T.R. shops at Stratford, Ont. The jig for machining the bell is shown in Fig. 1. It consists of a shank, a, carrying a casting, b, the outer face of which conforms closely to that of the interior of the bell at its larger end. To the opposite end of the shank, a, there is a small stem, c, the whole jig revolving on centres in a and c. A collar, d, makes a sliding fit on a, and is forced along the latter by the nut, e, a short stretch of the shank, a, being threaded to receive it. The left side of the collar, d, fits into the recessed body of b, and is tapered, four pins, f, in body, b, bearing radially against this taper.

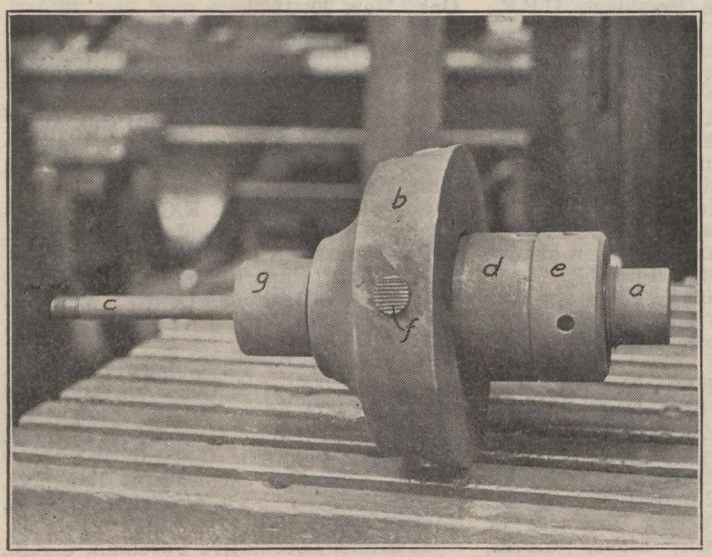

Fig. 1. Jig for Turning Locomotive Bells.

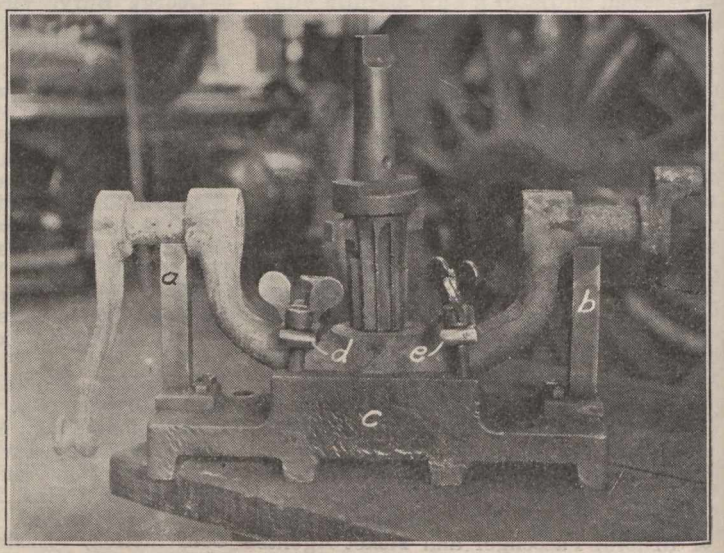

Fig. 2. First Drilling Operation in Bell Hanger Boss.

The hole for the suspending bolt for the bell is first drilled, and this jig is slipped inside, the spindle, c, passing through the bolt hole. The collar, g, bears up against the inner top of the bell, and the whole is clamped by a nut on the end of the spindle, c. The collar, d, is forced to the left of the nut, e, forcing out the pins, f, against the inner face of the bell, securing it solidly for turning, which is performed by swinging the bell between the two jig centres in the lathe.

The bell hanger, which is shown in fig. 2, is first centred, and the journals at either end turned down to size. It is then placed in the jig shown, the turned journals resting on the supports, a and b. The hanger shown has not had the journals turned, and has only been placed in the jig to show the operation. The base of the jig, c, is recessed to receive the hanger boss, which is rough cored. The casting is held in place by two clips, d and e, each of which have two wing nuts.

For boring the cored hole, a tapered reamer of the form shown is used at the top of which there is a facing cutter. The reamer is forced down through the cored hole, and seemingly performs the work satisfactorily without initial drilling out to remove the sand and rough skin. The centre of the base, c, is drilled larger than the reamer, to let the latter pass down to the proper depth.

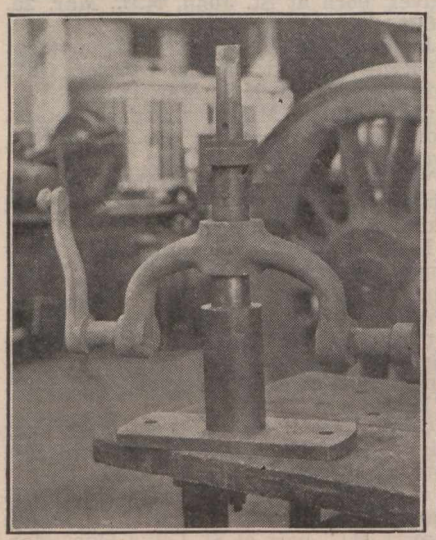

Fig. 3. Final Operation on Bell Hanger Boss.

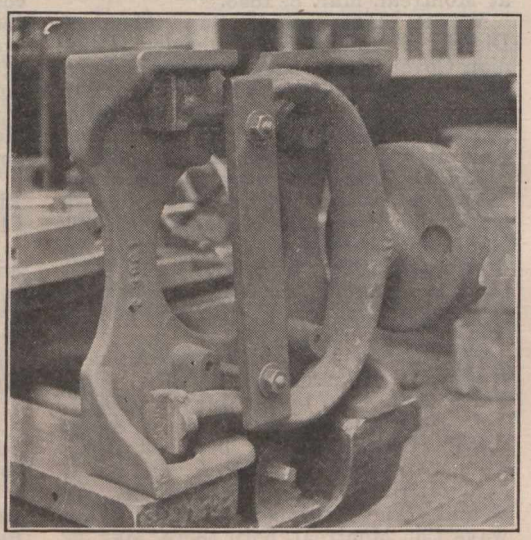

Fig. 4. Drilling Bearings in Bell Frame.

The hanger is then removed to the jig shown in fig. 3, and placed thereon the other way up. This jig consists of a base with a vertical pin, the upper end of which is turned to the taper reamed out in the last operation. This holds the hanger true to the machined surfaces, and a facing reamer forced down on top, to face off the other face of the boss, completing the bell hanger machining.

The bell frame is first taken to the planer, and the faces for the bearing caps planed and the bolt holes drilled. The caps, similarly planed, are bolted in place, and the frame removed to the jig shown in fig. 4, which is used in the drill press. The frame shown in the jig has not had the caps applied and is only placed in position to show the operation. The jig consists of box shaped castings finished on the top and bottom faces, and with bosses on the inside so located as to fit the frame as shown, the frame being clamped in place by a clamp plate and two bolts. In both top and bottom finished faces there is a hole, somewhat larger than that of the hole for the bearing, but in line with the latter. A drill bushing fits in either of these holes. In the upper hole the drill bushing is dropped and the upper hole drilled. The bushing is then removed and the whole jig turned upside down, the bushing placed in the other whole jig whole and drilling operation repeated.

Babbiting Driving Wheel Faces.

A handy device was evolved in the G.T.P.R. shops at Prince Rupert, B.C., some little time ago by G. Carpenter, who was the Locomotive Foreman there, for the babbiting of the faces of driving wheels, and thus avoiding the necessity of placing them in a lathe for turning up, which makes the arrangement of particular use in small shops and roundhouses where a lathe of sufficient capacity is not always on hand. A circular disc about 15 in. diam., made of ⅝ in. boiler plate, turned to ½ in. on one side so that the turned face is perfectly true, is divided into two parts to fit around the axle. The two parts are bolted together with two plates of the same material, 3 x 5 in., which are fastened solid to one half of the disc, so that it is held rigid. The disc has a circular groove 3/16 in. deep and ⅝ in. wide cut in the finished face about an inch from the outside edge, into which may be fitted split rings of different thicknesses according to the amount of metal desired on the wheel. The rings differ in thickness by ⅛ in., and the more metal it is