

Railway Mechanical Methods and Devices.

Forging Machine Work at the Canadian Northern Railway Shops.

Typical examples of the intricate kinds of work that can be handled on the forging machine in the C.N.R. Winnipeg blacksmith shop, J. Kiebler, Foreman, are shown in the two accompanying illustrations. Fig. 1 shows a finished eye bolt and the dies used in its production. F and R indicate the front and rear faces of the dies respectively. The initial step is that of forming the col-

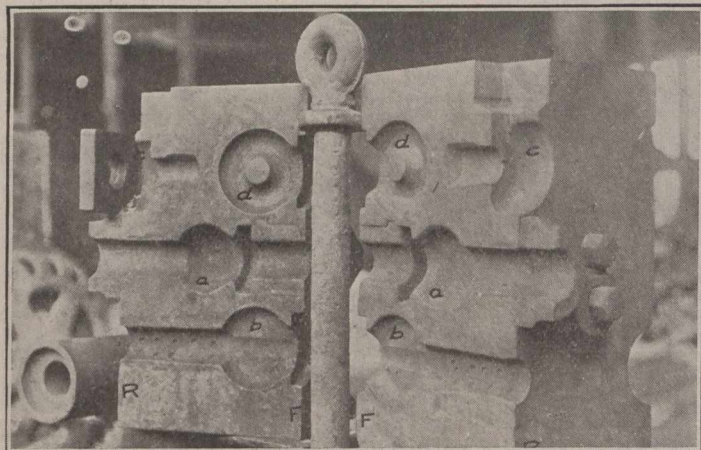


Fig. 1.—Dies for Forging Eyebolt in Forging Machine.

lar on the eye end of the bolt. This is performed by gripping the body of the bolt in the roughened lower recess in the dies; the die shown at the lower left hand corner of the two parts, mounted on the ram, upsets the collar into the annular recess around the die head, leaving enough stock in the hollow die for the eye.

The first step in forming the eye is that of upsetting the end, performed in the position a. The collar is set in the fitting recess, and after the cross slide closes the dies, a plunger comes in from the rear, upsetting the end into the form of a round ball in the chamber a. The next step is that of placing the upset ball end in the recess b, with the collar in the locating recess, the cross movement of the dies flattening the round head. Following this, the flattened head is placed in the cavity c, behind the projecting lug, the bolt being vertical. The closing of the dies holds the flattened head, a plunger on the ram then coming through the guiding hole in the lug at c, punching through the eye hole. The final operation is that of shaping the punched eye head at d, the cross slides on closing forming the eye into its final shape as shown supported between the dies.

The grab iron shown with its forming dies in fig. 2 is slightly more complicated in construction. The bar stock is placed in the groove a, from the front, placing the end against the rear stop. The cross movement of the dies gives the bar end an offset. This offset is next placed in the recess b, and held against the front of this chamber. The closing of the cross slide holds the stock, while a die on the end of the ram entering the chamber b upsets the end to the shape of the end of the chamber, which is the shape of the completed end of the grab iron. From b, the stock is carried to c, the upset end being placed therein, with the upset downward as in the upsetting operation. A punch on the end of the ram coming through the guiding hole in the

plate attached to the rear face of the stationary die at c, punches the bolt hole through the upset stock. All that is now required is that of bending the stock through a right angle, accomplished at d. The stock is placed in the groove in the top of the block attached to the top of the stationary die, with the upset end vertical, bearing out against the attached stop on the rear end. The lug on the top of the movable die on the cross movement of the die, bends the upset end into the cross channel in the rear face of the attached

which 3-16 in. screws can be fitted. Over each hole, a section of thick rubber is placed, backed up by a smaller sheet of thin metal. On this plate, in a recess in the centre, a ball headed screw bears, supported from the girdling frame. This holds the rubber tightly over the hole, providing a leak proof receptacle, which is used in a manner similar to the soldered hole mirrors used in many other shops.

The monetary saving in the time required by the plater to plate a mirror, including the time of preparation, is quite



Fig. 2.—Dies for Forging Grab Iron in Forging Machine.

die, finishing the grab iron. The other end of the grab iron is finished in the same manner.

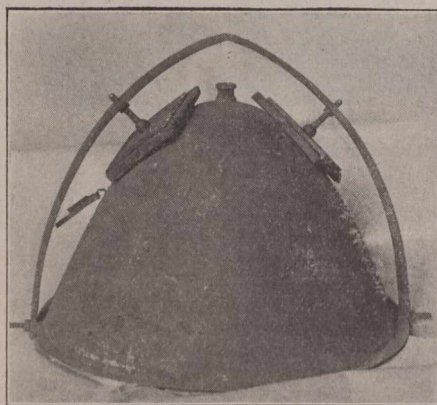
Plating Headlight Mirrors at Grand Trunk Railway Port Huron Shops.

The customary practice in plating the interior of the parabolic headlight mirrors used on locomotives is to solder pieces of sheet metal over the two electric carbon openings, and after making a tight job, to

considerable. In addition, there is the factor of a better job being produced. When the openings are soldered up, extreme care must be exercised after the plating, in the removal of the patch, for if the metal be too hot, the plating will be injured.

Tire Clamp at Grand Trunk Railway Stratford Locomotive Shops.

A handy tire clamp for the boring mill is shown in the accompanying illustration, as used in the G.T.R. locomotive shops at Stratford, Ont. The tire to be bored is clamped concentrically on the boring mill table, with the usual vise jaws clamped to the mill table, bearing inward on the tire flange. In addition to the vise holding, it is customary to hold the work down on the table with clamp bolts and strips resting on outside blocks. The clamping bolt has a T head on the lower end fitting into one of the channels in the table. A cross strip is held down on the work and a block of equal height by this bolt, clamping the work securely in place with the assistance of the centralizing vise jaws. This method is more or less unhandy from the fact that on every occasion the machine has a new tire inserted, the bolt, block and clamp require to be removed and replaced on the tire.



Plating Headlight Mirrors.

fill the interior with the electrolytic fluid for the plating, making the headlight itself one electrode, and the suspended article in the bath, the other electrode.

The practice at the G.T.R. shops at Port Huron, Mich., is different from this, a simpler scheme having been devised, the arrangement being shown in the accompanying illustration. For each of the different sizes of headlights, there is a heart shaped loop similar to the one around the outside of the headlight mirror in the illustration. Opposite the openings for the carbons, there are slots in the girdling band, into

The tire clamp to be here described, combines all the advantages of the older method of clamping in a simpler form, for the whole device can be lifted bodily and placed in position on the mill. A 1 x 2 in. vertical rod of the requisite height, has the lower end formed to fit in the table slot, in which it remains permanently during the period in which tires are being bored. The clamp bar is hinged to this vertical bar at the top, and is tightened down on the tire by a 1 1/4 in. bolt fitting the table channel at the lower end. The bolt is off centre to give the greatest possible leverage on the tire. When removing the tire, all that it is necessary to