

Making Cattle Guards at the Grand Trunk Railway London Car Shops.

Under the direction of Geo. Powe, Foreman Woodworking Department, G.T.R. car shops, London, Ont., a series of jigs for the rapid machining and assembling of the component members of a G.T.R. standard cattle guard, has been developed, and will be illustrated and described herewith. A standard cattle guard of the narrowest size is shown in fig. 1. These guards are made in three sizes. The two commoner sizes are those which fit in between the two rails

the surface of the table, on the left side, where it is again seized by the first operator and passed through as in the first cut, completing that portion of the machining. It may be noted in passing that, on the far side of the saw, there is a vertical board clamped to the table at an angle to the saw, for the purpose of diverting off the table the wedge-shaped pieces that are scrapped by the saw. Otherwise, the saw might pick up these pieces and hurl them

throwing it back towards the operator.

The bar has next to be drilled to receive the three binding bolts. A horizontal drilling machine, rigged as in fig. 4, is employed for this operation. Secured to the drilling machine table, and at right angles to the drill spindle in the horizontal plane, there is an extension to support the bar while drilling and at the same time to locate the holes. This extension has a rear edge which guides the board and against which the operator keeps the bar pressed while machining. Hinged to this rear edge are three hinged stops (the one to the right not shown), against which the bars are held to locate the holes. In the illustration, the bar is held along against the first stop

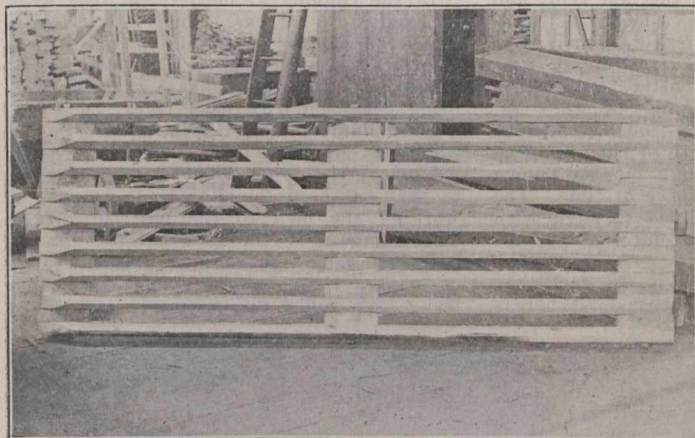


Fig. 1.—Standard Narrow Size G.T.R. Cattle Guard.

and the mating ones for each side of a single track line. The third is the one used between the inner pair of tracks on a double track line. Large numbers of all sizes are made up at London, as that is the central point of a large mileage of both single and double track.

The first operation, illustrated in fig. 2, is that of edging the bars. The stock is placed in piles alongside of a rip saw, as shown in the right background in this illustration. On the rip saw table, to the left of the saw, there is secured a guide block,

back at the operator, with injurious results.

After the passage of a batch through this last operation, the saw is fitted up for the second or end bevelling operation. The machine as set up for this is shown in fig. 3. On the surface of the table, there is a small piece of board, tongued on the lower side to fit the groove of the table, along which it is guided. A counterweight, slung over the end of the table on a pulley attached thereto for the purpose, is attached to the rear end of the guide board to balance the weight of these moving parts and

while the operator is pulling the drill through from the rear. When this hole is drilled, the first hinged stop is swung up out of the way and the bar shoved along to the next or central stop, and the second hole drilled. This stop is then swung up out of the way and the bar located against the third and last hole. The holes in the bar are thus located exactly equidistant to each other, insuring against the holes not lining up properly in the final assembling. This drilling is quickly performed by a dextrous operator.

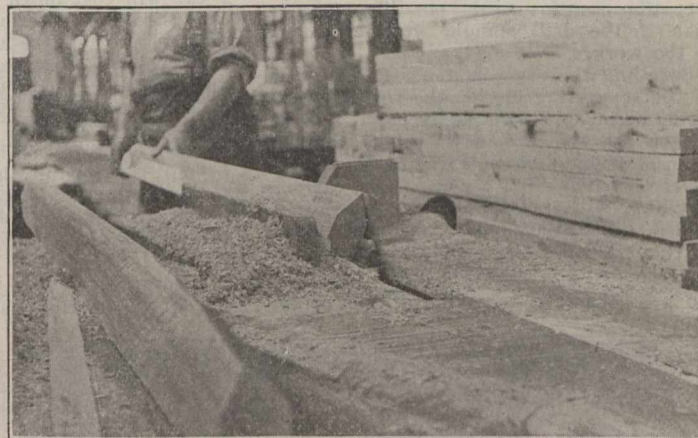


Fig. 2.—Edging Top of Cattle Guard Bars.

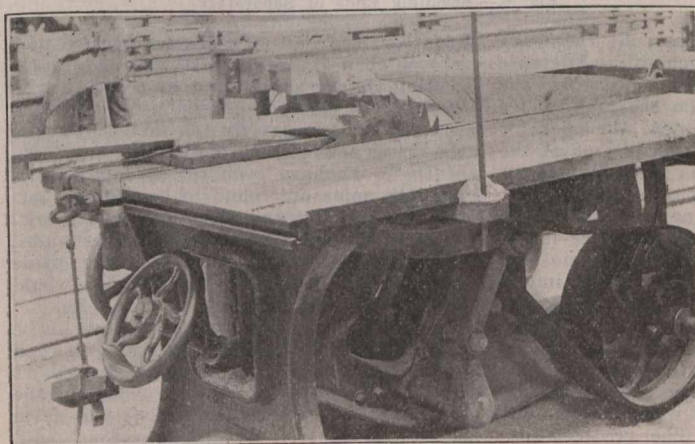


Fig. 3.—Bevelling Ends of Cattle Guard Bars.

into which the base of the bar fits, tilting the bar over into the path of the saw an amount sufficient to give the required bevel. The bar is kept over to the saw by the outer edge of the bar being guided on the guide block. The operator on the far end pushes the bar half-way through its cut, when it is seized by an assistant at the near end and drawn through the balance of the cut. The guide is so set as to cause the saw to cut through half the width of the bar. The half-cut bar is returned along

relieve the operator of much of the arduous part of the work. At the proper angle on the top of the guide board, there is nailed a locating strip, against which the bevel of the bar is held while the cut is being taken. The operator takes the cut to the depth of the top bevelling, reverses the bar and repeats on the opposite end. No assistant is required in this part of the work. To the right of the saw, it will be noticed that there is a saw guard to prevent the saw lifting the severed part and

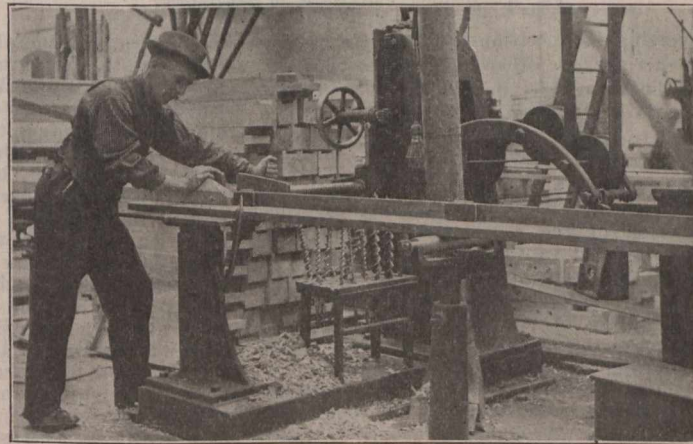


Fig. 4.—Drilling Bolt Holes in Cattle Guard Bars.

Next in order comes the drilling of the separating blocks, through which the clamping bolts pass. This operation is performed in the same drilling machine as the drilling of the bars, the separators having been cut off to length previously. These pieces, being small, permit of rapid handling, and in consequence a quicker method of using the machine than that employed in the previous instance is desirable. Carrying the work towards the drill, instead of the drill towards the work, seemed the best method