

(No Model.)

S. FOX.

HORN PLATE FOR CAR AND LOCOMOTIVE FRAMES.

No. 341,802.

Patented May 11, 1886.

Fig. 1.

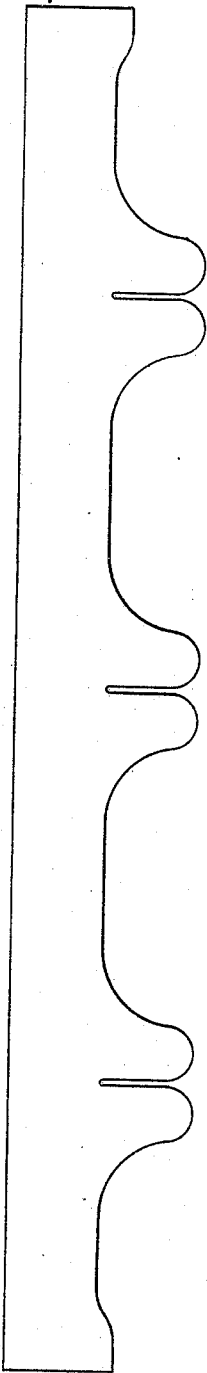


Fig. 2.

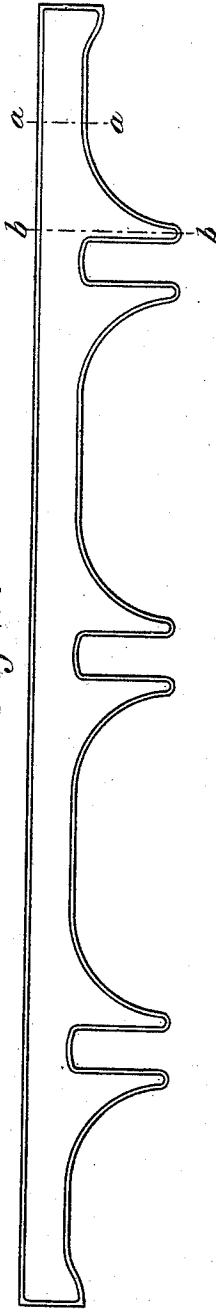


Fig. 6.

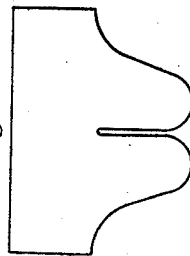


Fig. 7.

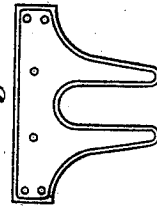
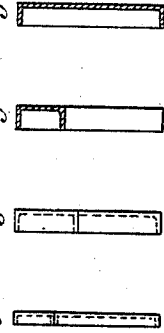


Fig. 8. Fig. 3. Fig. 4. Fig. 5.



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UNITED STATES PATENT OFFICE.

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HORN-PLATE FOR CAR AND LOCOMOTIVE FRAMES.

SPECIFICATION forming part of Letters Patent No. 341,802, dated May 11, 1886.

Application filed January 19, 1886. Serial No. 189,069. (No model.) Patented in Belgium January 5, 1886, No. 71,503, and in Canada February 2, 1886, No. 23,317.

To all whom it may concern:

Be it known that I, SAMSON FOX, a subject of the Queen of Great Britain and Ireland, residing at Harrogate, in the county of York, Kingdom of Great Britain and Ireland, have invented new and useful Improvements in the Manufacture of Frame or Horn Plates for Rolling Stock, of which the following is a specification.

My present invention illustrated by the accompanying drawings, Figures 1 to 8, inclusive, has for object the production in a novel manner of frame or horn plates of any desired form for locomotives or other rolling-stock.

Fig. 1 represents a plain plate cut to an approximate shape ready to be heated and subjected to a pressing or stamping process according to my invention, as hereinafter explained, to produce a flanged frame or horn plate having a number of recesses for the reception of axle-boxes. Fig. 2 shows in side elevation a frame or horn plate so produced. Fig. 3 is an end elevation. Fig. 4 is a vertical section on the line *a a*, and Fig. 5 a vertical section on the line *b b*. Fig. 6 represents a plain plate cut as above referred to for the formation of a single horn-plate. Fig. 7 is a side elevation of the same after being heated and pressed or stamped and flanged, and Fig. 8 is an end view of Fig. 7.

In the manufacture of frame or horn plates for locomotives and other rolling-stock in the ordinary way, a plain plate of metal is subjected to the action of sundry machines for imparting to it by various operations the required shape, and afterward supplementary parts are added to give additional strength where needful—as, for instance, upon and near the horns, or in the neighborhood of the recesses for the reception of the axle-boxes. Now, according to my invention a frame or horn plate of the desired form with flanges to give it the required strength and rigidity is made of a single plate of metal by pressing or stamping. A plate of metal, such as mild steel, (which may be somewhat thinner than would be necessary for the manufacture of a frame-plate of ordinary kind,) is cut roughly to approximately the required form, but somewhat larger than the finished frame is intended to be—for example, as represented in

Figs. 1 or 6. Then it is heated to a suitable temperature for being pressed or stamped to the required shape with flange or flanges, and while hot it is subjected to the action of suitable pressing or stamping apparatus, whereby there is imparted to it the desired shape, the edges being formed into a flange or flanges—for example, as represented in Figs. 2, 3, 4, and 5, and in Figs. 7 and 8, whereby the necessary strength and rigidity is imparted to the whole, and care being taken to prevent buckling or warping during the subsequent cooling and consequent contraction. The edge or edges of the flange or flanges is or are subsequently trimmed.

In carrying out my invention the requisite formation of the plate may be produced by the use of male and female dies with apparatus to prevent warping or buckling, such as described in the specification of my other application for patent, bearing even date herewith, No. 189,070. According to the invention described in that specification, I use a female die or matrix having an internal configuration corresponding to the external form required to be imparted to the frame-plate, and in conjunction with this female die or matrix I use a male die of corresponding external form, but smaller to such an extent that when the male die is within the female die or matrix, there remains or remain between them a space or spaces of a width corresponding to the thickness of plate to be operated upon, such space extending entirely around the male die, where the frame or horn plate is to be made with a single flange extending entirely around it. By hydraulic or other power one or both of the dies is or are operated so that a plate pressed between them has its edges turned up or flanged and passes through the female die onto blocks or supports able to move freely in all directions parallel with the face of the flanged plate, to which end the blocks or plates are arranged to rest upon anti-friction balls. Above the flanged plate other blocks or plates are placed, and these are by the male die or head of the press caused to bear against the flanged plate, so that it is held or squeezed between the blocks situated above and below it in such manner as to admit of the cooling and contraction, but to pre-

vent warping or buckling, to which end anti-friction balls are introduced between each pair of plates forming the upper blocks or pressers and which are acted upon by the male die or head of the press during such cooling. As will be evident, the forms of the dies will depend upon the form, proportions, and dimensions of the frame or horn plate to be produced.

10 What I claim is—

1. The mode or process of manufacturing frame or horn plates for rolling stock, which consists in first cutting a suitable plate to approximately the form of the intended frame or horn plate, afterward heating the said plate, then pressing or forcing it by means of a male

die into and through a female die, thereby imparting to it the desired form and flanging it, and afterward causing it to be held between pressers or holders to prevent warping or buckling, substantially as described.

2. As a new article of manufacture, a flanged frame or horn plate for rolling stock, formed of a single plate by pressing or stamping, substantially as described.

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