No. 616,797. Patented Dec. 27, 1898.

A. MORRISON.

MANUFACTURE OF TIE PLATES.

(Application filed Apr. 1, 1898.)

(No Model.) 3 Sheets—Sheet 1.

Fig. 1.

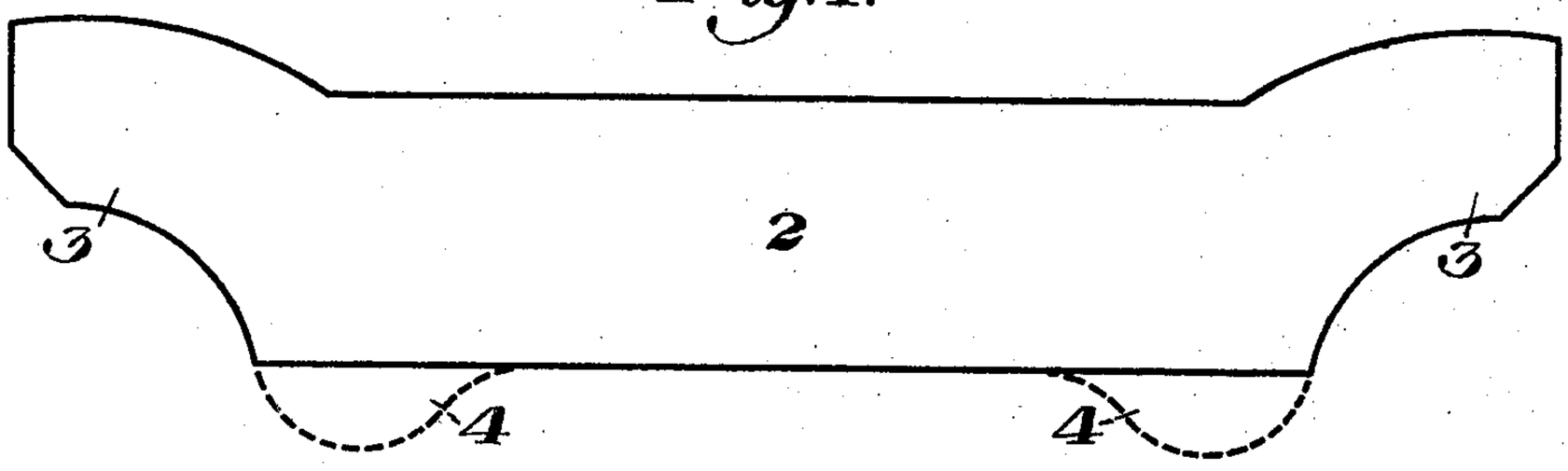


Fig. 2.

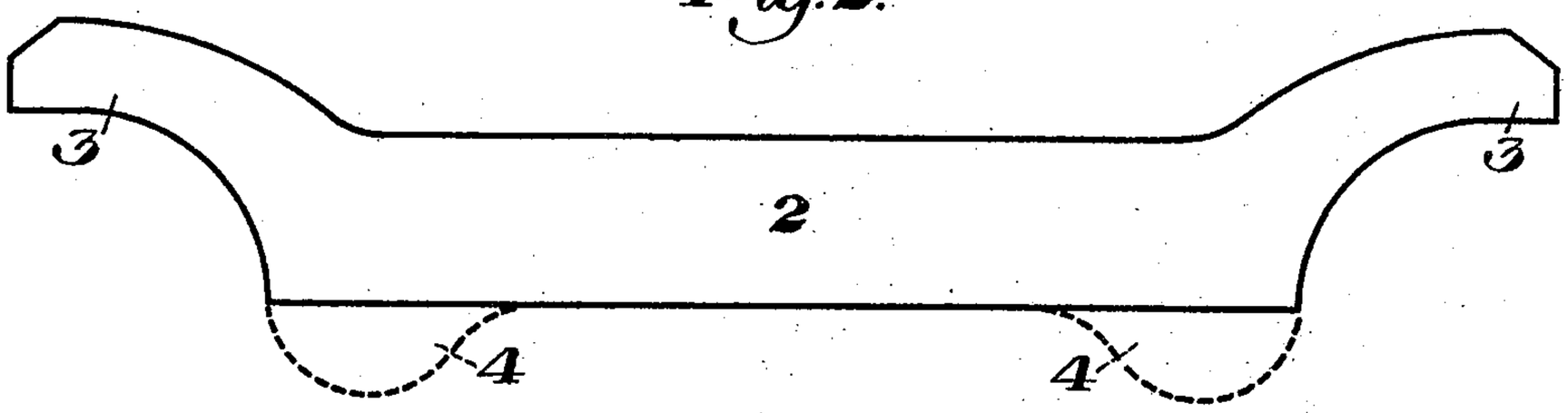


Fig. 3.

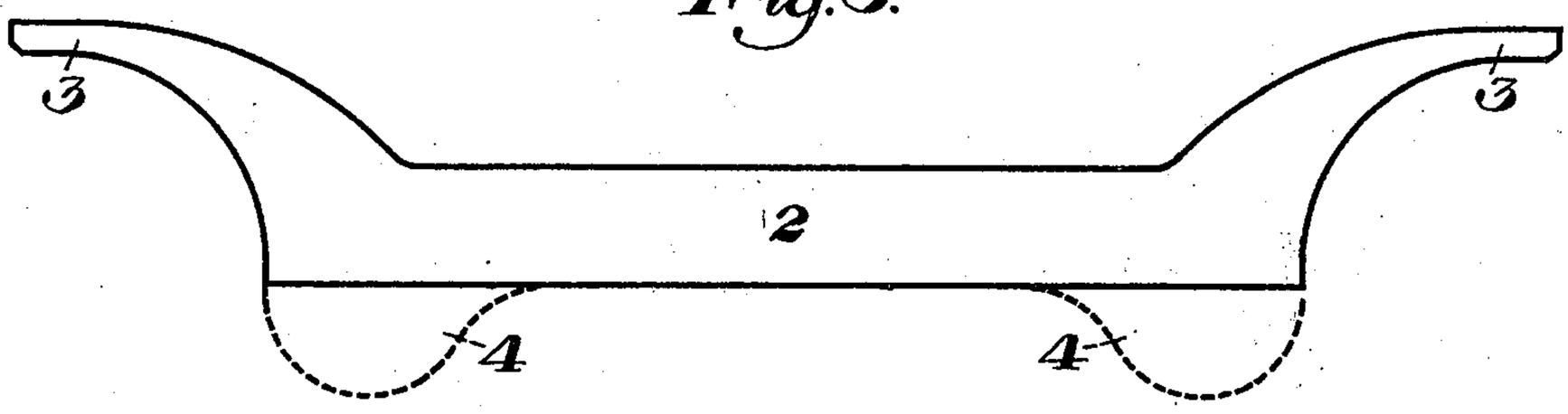
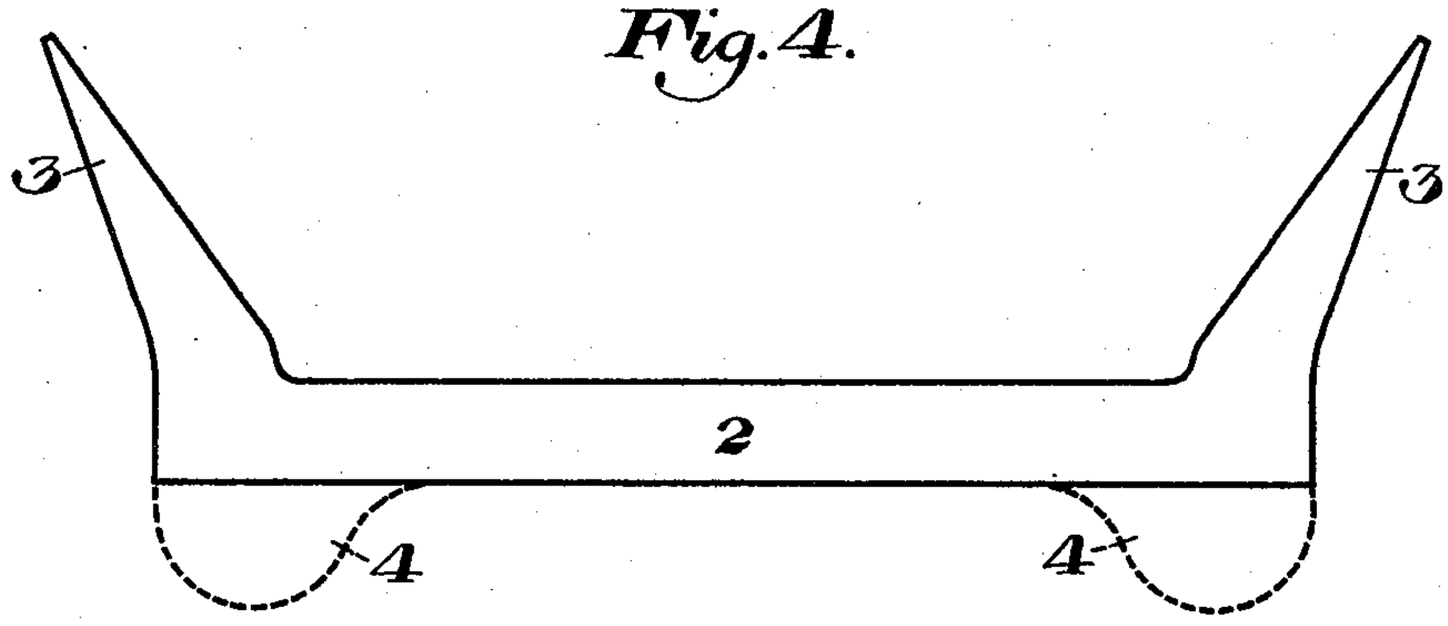


Fig. 4.



WITNESSES

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(No Model.) 3 Sheets—Sheet 2.

Fig. 5.

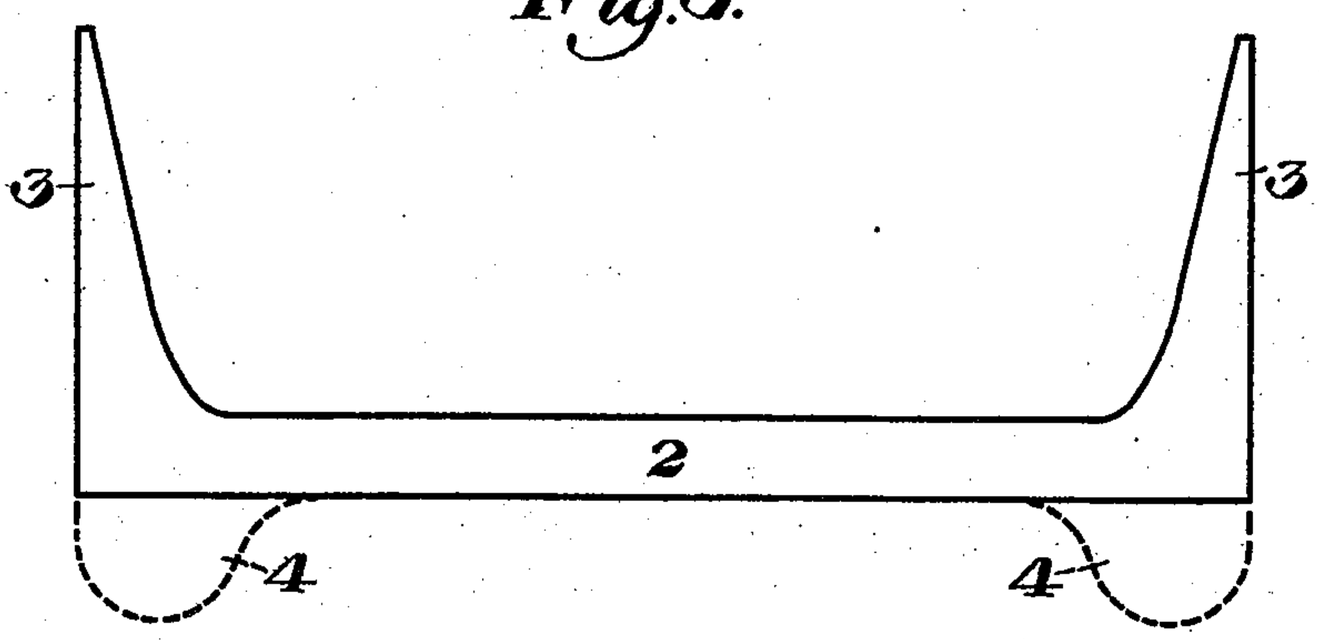


Fig. 6.

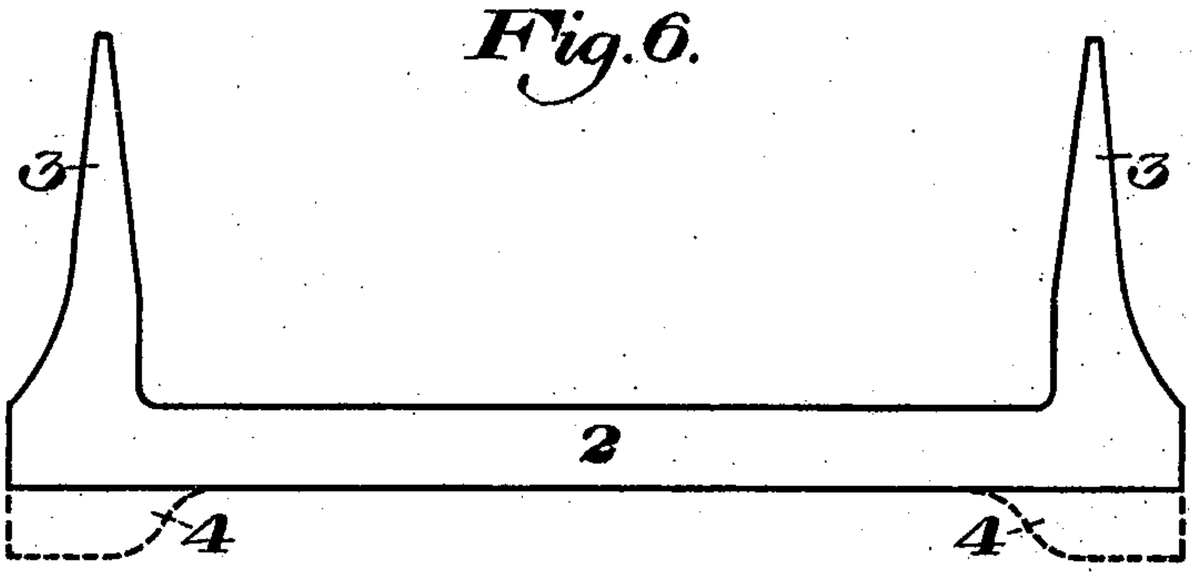


Fig. 7.

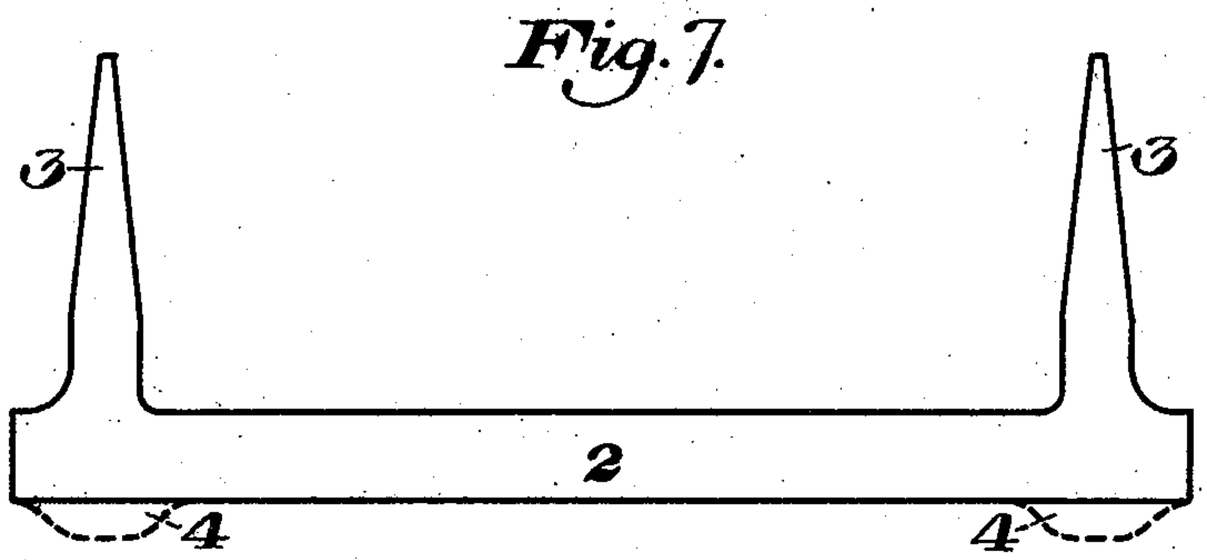
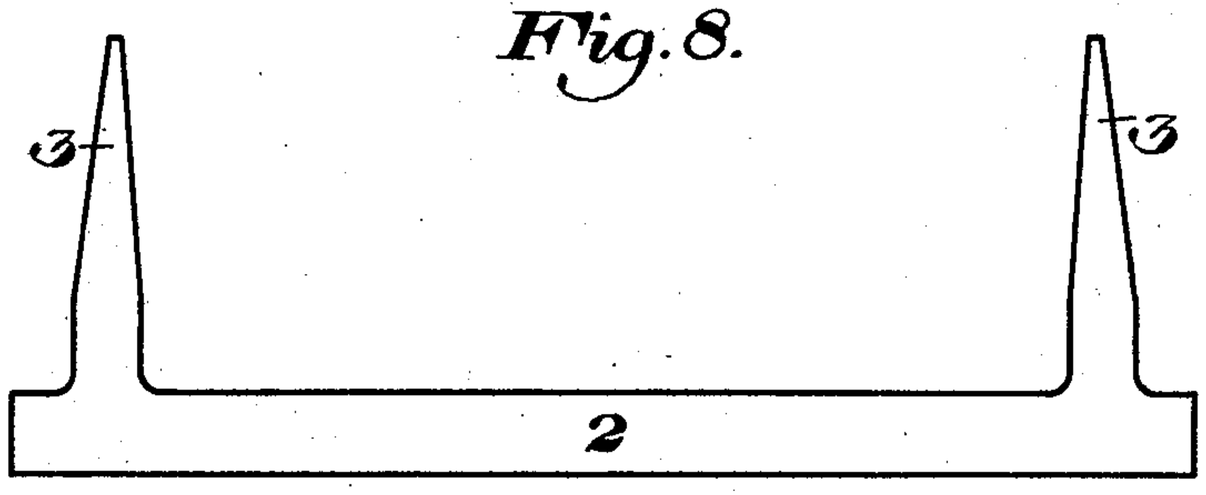


Fig. 8.



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No. 616,797. Patented Dec. 27, 1898.

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Fig. 9.

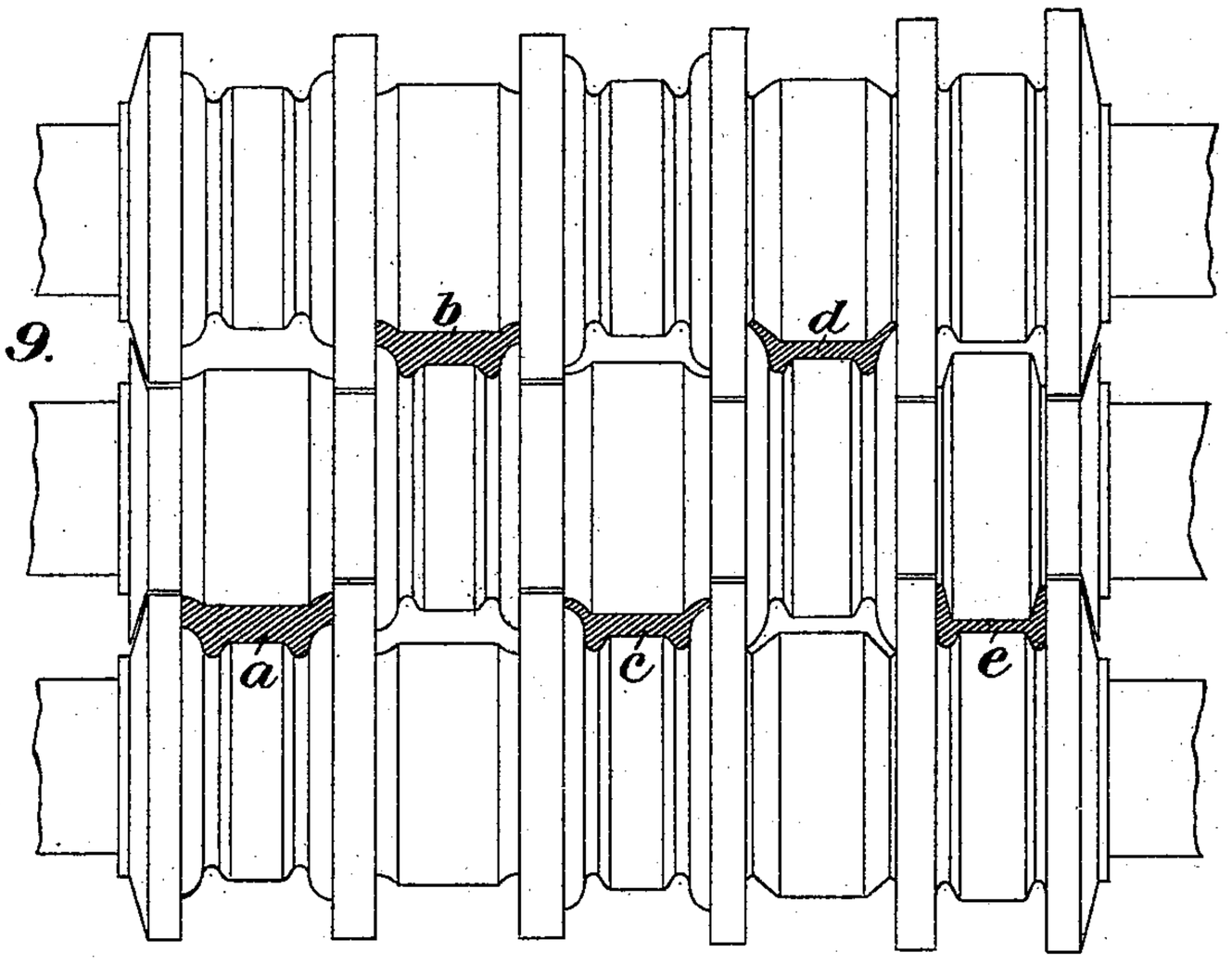
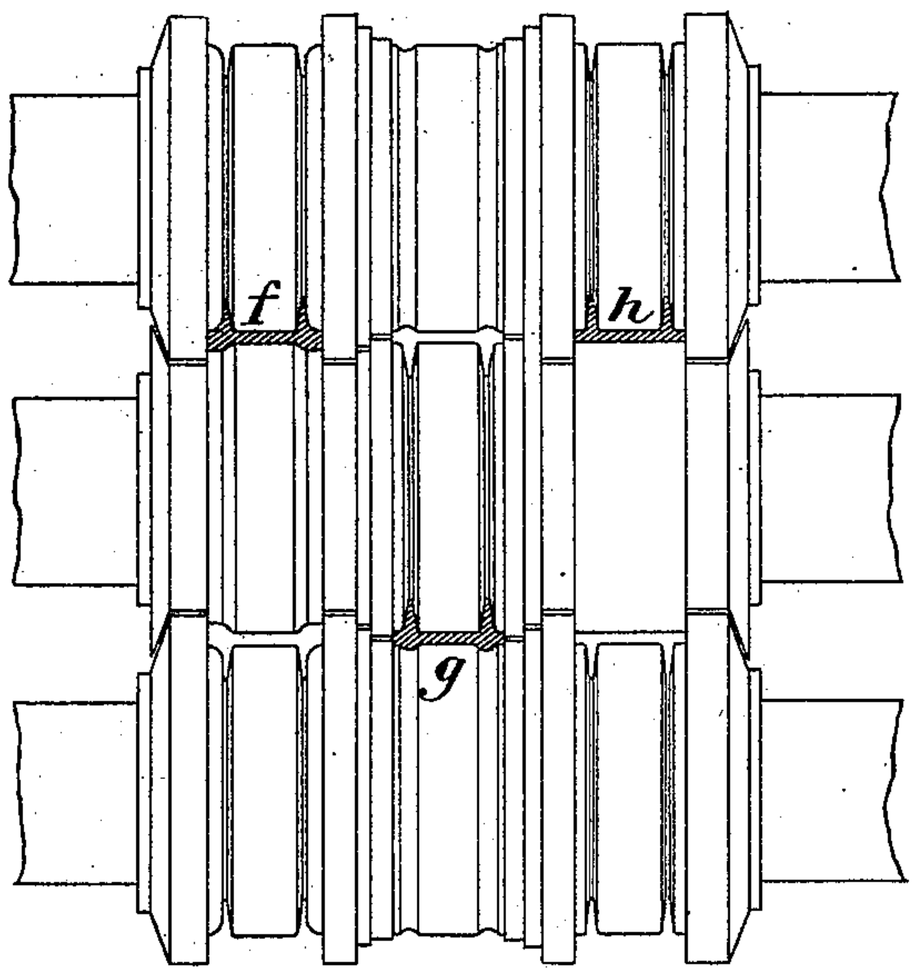


Fig. 10.



WITNESSES

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UNITED STATES PATENT OFFICE.

ANDREW MORRISON, OF PITTSBURG, PENNSYLVANIA, ASSIGNOR TO THE DILWORTH, PORTER & COMPANY, OF SAME PLACE.

MANUFACTURE OF TIE-PLATES.

SPECIFICATION forming part of Letters Patent No. 616,797, dated December 27, 1898.

Application filed April 1, 1898. Serial No. 676,102. (No model.)

To all whom it may concern:

Be it known that I, ANDREW MORRISON, of Pittsburg, in the county of Allegheny and State of Pennsylvania, have invented a new and useful Improvement in the Manufacture of Tie-Plates, of which the following is a full, clear, and exact description, reference being had to the accompanying drawings, forming part of this specification, in which—

Figures 1 to 8, inclusive, are diagrammatic views showing the shapes of the successive passes through which the metal is forced in the rolling of the tie-plate bars; and Figs. 9 and 10 are front elevations of rolls containing passes arranged in accordance with my invention.

My invention relates to the rolling of tie-plate bars, wherein the bar is provided near each edge with a right-angled flange or claw; and it consists in an improved set of passes for this purpose as well as in the improved method of working the metal in these passes.

In the drawings, Fig. 1 shows the first pass, wherein the plate 2 is formed with outwardly-extending flanges or lips 3 3 and also preferably with bumps or longitudinal ridges 4 4. These bumps or ridges, however, may not be used, and I have accordingly shown them in dotted lines, although I find it preferable to employ them. In the second and third passes (shown in Figs. 2 and 3) the plate is elongated and made thinner both in the body and lip portion. In the fourth pass (shown in Fig. 4) the lips are tapered and bent into a more nearly right-angled position, while in the fifth pass (shown in Fig. 5) they are brought to such right-angled position. The plate formed in this fifth pass is of the same width as the final tie-plate and the flanges or claws are at its side edges. In the next or sixth pass (shown in Fig. 6) I indent the outer foot portions of the flanges and force the metal of these flanges inwardly in opposite directions, at the same time forcing the metal of the bumps, if these are employed, upwardly into the body of the plate and its flanges. In the seventh pass these indentations are made deeper and the base portions of the flanges preferably made substantially parallel, the bumps, if employed, being still further forced into the metal of the plate. In the eighth pass (shown in Fig. 8) the bumps, if employed, are forced entirely into the plate and its flanges, so as to prevent any substantial shortening of the flanges, and the bar is given its final shape with the right-angled flanges set in a short distance from each side thereof.

In Figs. 9 and 10 I show sets of three high rolls having the collars arranged to give the passes *a*, *b*, *c*, *d*, *e*, *f*, *g*, and *h*, these passes being shaped to form the metal in the manner above described.

The advantages of my invention result from the fact that by means of this system of rolling much longer flanges can be obtained than was formerly possible.

The plate may be rolled with additional ribs or flanges and may be provided with, grooves or corrugations. The forcing in of the flange may be carried out in one or more passes. The bumps may be done away with, and many other changes will suggest themselves to those skilled in the art without departure from my invention, since I consider myself the first to roll a plate of final width with flanges at its side edges and then force these flanges inwardly, so that they are inset from the edges in the final plate.

I claim—

1. In the manufacture of tie-plate bars, rolls having preliminary passes arranged to form the plate-body with laterally-projecting flanges, intermediate passes arranged to form the plate of its final width and force the flanges into a substantially right-angled position at the side edges of the plate, and final passes arranged to force the metal of the flanges inwardly and produce a plate with the flanges set in from its edges, substantially as described.

2. In the manufacture of tie-plate bars, rolls having preliminary passes arranged to form a plate with laterally-projecting flanges and opposite bumps, intermediate passes arranged to shape the plate of its final width and force the flanges into a right-angled position at its side edges, and final passes arranged to inset the flanges from the side edges and force the metal of the bumps into the plate, substantially as described.

3. In the manufacture of tie-plate bars, rolls having passes arranged to form a plate with a projecting flange at its side edge, and a final pass or passes arranged to force the

metal of the flange inwardly without substantial widening of the plate, and thus produce a plate with the flange set in from its edge; substantially as described.

4. The method of rolling tie-plate bars and similar material, consisting in rolling a plate with a flange at its side edge, and then forcing the metal of the flange inwardly from the edge without substantially increasing the width of the plate; substantially as described.

5. The method of rolling tie-plate bars, consisting in forming a bar with substantially right-angled flanges at its side edges, and bumps opposite the flanges, and then forcing the flanges inwardly from the edges and rolling the metal of the bumps into the plate without substantially increasing the width of the plate; substantially as described.

In testimony whereof I have hereunto set my hand.

ANDREW MORRISON.

Witnesses;
C. E. MACKOWN,
G. I. HOLDSHIP.