(No Model.)

H. G. BROWN.

MANUFACTURE OF T-PLATES.

No. 294,757. Patented Mar. 11, 1884.

Fig 1.

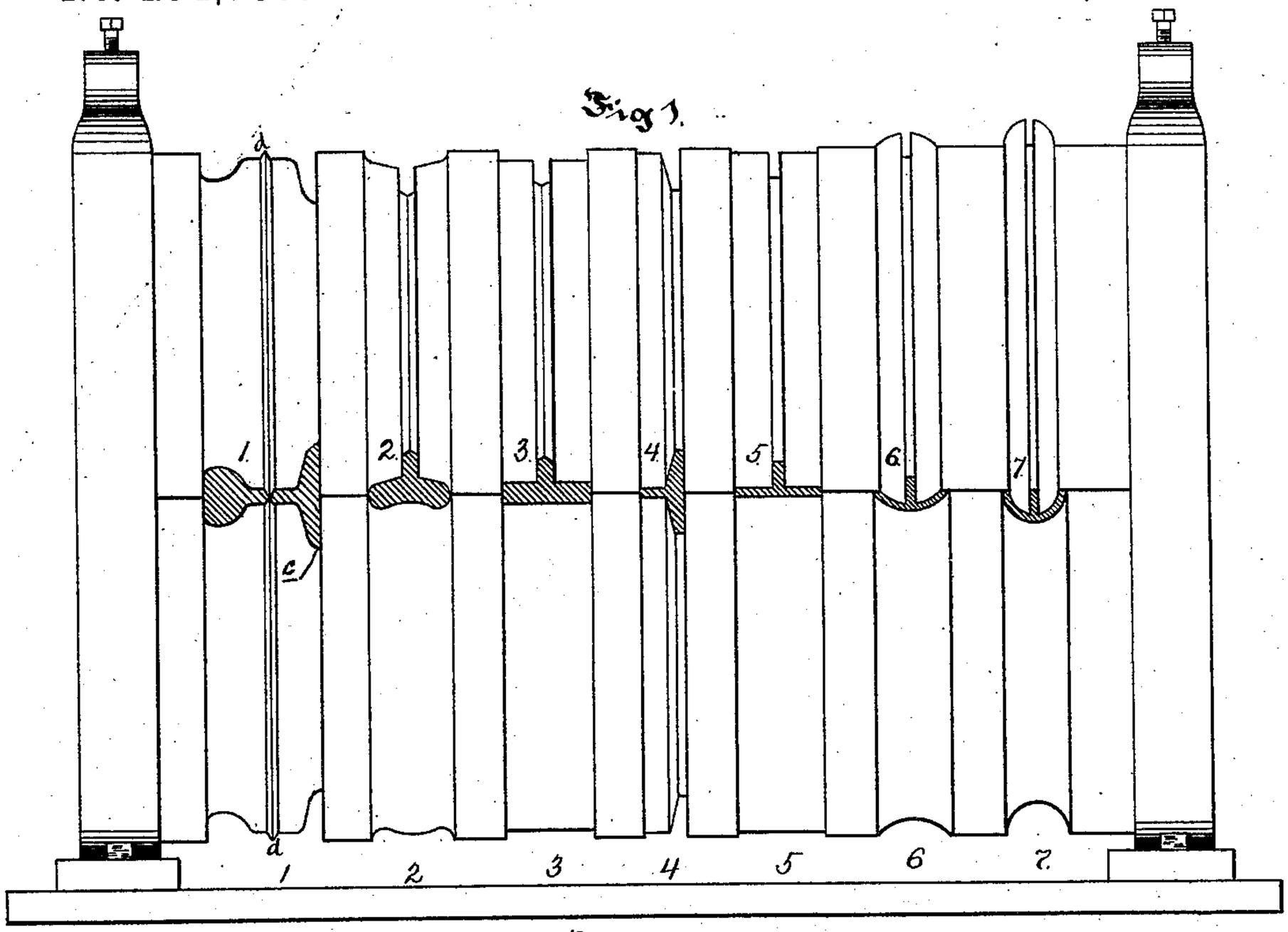

Fig 2.

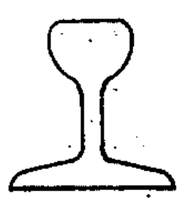

Fig 3.

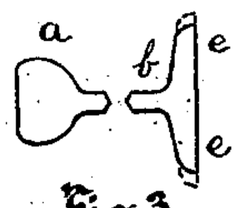

Fig 4.

Fig 5.

Fig 6.

Fig 7.

Fig 8.

Fig 9.

Fig 10.

Fig 11.

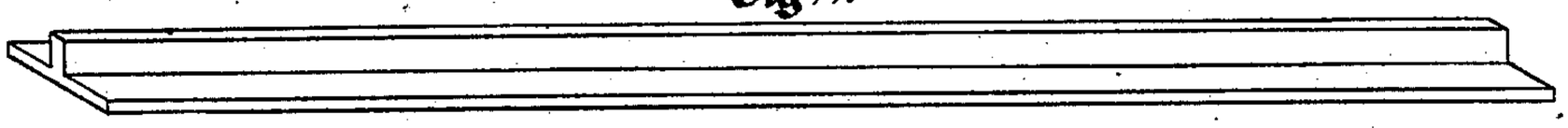

Fig 12.

Witnesses.

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HENRY G. BROWN, OF PITTSBURG, PENNSYLVANIA.

MANUFACTURE OF T-PLATES.

SPECIFICATION forming part of Letters Patent No. 294,757, dated March 11, 1884.

Application filed June 9, 1883. (No model.)

To all whom it may concern:

Be it known that I, HENRY G. BROWN, of Pittsburg, in the county of Allegheny and State of Pennsylvania, have invented a new and useful Improvement in the Manufacture of T-Plates or T-Bars; and I do hereby declare the following to be a full, clear, and exact description thereof.

My invention relates to the manufacture of T-plates or T-bars having longitudinal central ribs—such as, for example, that shown in Figure 11—of which metal fence-posts may be made having curved or cylindrical sides and a longitudinal central rib, as shown in Letters Patent granted to C. D. and L. F. Johnson, March 27, 1877. The rolling of T-plates from iron or steel billets or ingots has always been found difficult, and to form this shape of plate it has required the best material, the strain on the metal being so great that the common grades of metal will split or break at the junction of the central rib with the plate, and this is specially the case in the smaller sizes, and where the plate is thin or the flat part is much wider than the central rib. I have discovered, however, that in rolling the usual shape of railroad-rail it is brought to such form that after severing it in the web two blanks are formed, which, on account of their peculiar shape, can be rolled by a few passes into T-plate without subjecting them to severe strain, and that the worn-out or imperfect rails or rail ends, whether of iron or steel, can thus be utilized for the manufacture of T plates or bars, or analogous forms having central ribs—such as the curved metal fence-posts above described—and, on account of the cheapness of the stock employed, the light strain on the metal, and the light expense in rolling, T-plate may be formed which is as strong as and costs much less than that rolled from the ordinary billet, and these fence-posts may be made cheap enough to compete in the market with the ordinary wooden post.

My invention consists, essentially, in forming these T-plates or T-bars by severing the rail in the web, and by suitable rolls which support the section of the web and slightly reduce it flatwise, rolling the head or tread down to the flat plate and imparting to it the desired shape, the central rib of the finished plate being formed by the section of the web, and the flat or analogous-shaped part of the plate being formed by the head or tread of the rail.

To enable others skilled in the art to make and use my invention, I will describe the same more fully, referring to the accompanying drawings, in which—

Fig. 1 is a side view of the splitting and reducing rolls suitable for carrying out my invention, showing the metal therein. Fig. 2 is an end view of the rail before treatment. Fig. 3 is a like view of the rail after splitting and edge-rolling the flange. Figs. 4 to 10 are end views of the parts of the rail, illustrating their reduction and shaping from the split rail to the finished article. Fig. 11 is a perspective view of the T plate or bar formed, and Fig. 12 is a like view of the finished fence-post.

Like letters of reference indicate like parts in each.

The usual railroad-rail is formed of three parts—the flange, the web, and the head, the flange averaging from four to four and one-half inches in width, and the head from two to nearly three inches in width, but the head being about one-third heavier than the flange, to provide metal for wearing. The rail most commonly employed has a flange about four and one-half inches wide, and a head about two and one-third inches wide, is about four and one-half inches high, and about two inches in the web. By dividing the rail about centrally of the web, two parts, *a b*, are formed, each having a large body of metal and a central rib extending longitudinally along one side, the rib thus obtained being of substantially proper size and shape to form, on slight reduction, the central rib of T plate or bar, and thus providing a bar from which this T plate or bar and analogous shapes can be rolled with but little reduction of and slight strain on the metal. In the same manner, where a wide central rib is desired, either the head or flange may be cut off and the balance rolled into such T plate or bar. In Fig. 1, I have shown rolls suitable for this purpose; and my invention will be described as carried out in these rolls. In said rolls the entering pass 1 is employed for splitting or dividing the rail by means of the shearing-lips *d*, which cut the heated rail about centrally of

the web. At the same time the pass *c* "edge-rolls" the flanges *e* of the part *b*, reducing the flanges in width and thickening up the metal of the flange, as shown in Fig. 3, the reduction of the width of the flange being generally desirable, as the finished article is preferably about three inches wide, or from one inch to one and one-half inch narrower than the flange. For this same reason it is necessary to spread the head of the rail, and the part *a* is fed to the pass 2, by means of which it is reduced in thickness, and by means of the concavo-convex pass is spread, being brought to substantially a trefoil or three-rib shape in cross-section, as shown in Fig. 4, and is afterward fed to the pass 3, which bends up the head and draws it to proper shape, as shown in Fig. 5. By means of similar passes the head can be spread to any width desired. After the spreading of the head, the web is rolled flatwise to proper shape for the central rib, and the head further reduced in the pass 4, as shown in Fig. 6, and it is then rolled to T plate or bar and planished in the pass 5, as shown in Fig. 8, finished T-plate being thus obtained. If it is desired to form the fence-post above referred to, the bar is then fed through the passes 6 and 7, and is thus bent over to form the semi-cylindrical plate, having the central rib suitable for this purpose, as shown in Figs. 9 and 10, and it is then only necessary to cut it into lengths, form the point *f* thereon, and punch the holes for the fastening devices.

As the flanges *e* of the part *b* are as wide as or wider than the flat part of the finished T-plate, they do not require spreading, and, after splitting, the part *b* is fed directly to the pass 4, by means of which the web is reduced to the required width, and if the flanges *e* are still too wide they may be reduced by edge-rolling, as shown in Fig. 7. The bar is then fed through the pass 5 to form the T-plate, and, if desired, through the passes 6 and 7, to form the semi-cylindrical ribbed bar, suitable for fence-posts, as above described. In the same manner, by suitable shaping-rolls, other shapes of T-plates may be formed—as, for example, where the side plates or flanges are bent back from the central rib.

In carrying out my invention I am generally able to roll the metal at one heat. The rails or rail ends are cut to suitable lengths and heated in a suitable furnace to a rolling-heat. The rail is then fed to the first pass and split as above described, the flanges being edge-rolled, if necessary. The part *b* is then fed to the pass 4 and the web reduced, as well as further edge-rolled flatwise, if necessary, and then through the subsequent pass or passes 5, 6, or 7, according to the desired product. In the meantime the part *a* is fed through the passes 2 and 3, to spread the head, as above described, and it is then fed through the passes 4 and 5, and, if desired, through the passes 6 and 7, to form the fence-post bar above referred to.

In making the fence-posts the semi-cylindrical ribbed bar is cut to suitable lengths and pointed and punched, when the posts are ready for shipment and use.

Though the rolls illustrated in the drawings are well adapted for carrying out my invention, it is evident that other rolls suitable for the purpose might be devised, and therefore I do not confine myself to their use.

No claim is made herein for the improved fence-post formed as above described, as that will be made the subject of another application for patent.

What I claim as my invention, and desire to secure by Letters Patent, is—

1. The improvement in the art of making T-plates or T-bars herein described, consisting in severing a rail in the web, and by suitable rolls, which support the section of the web and slightly reduce it flatwise, rolling the head or tread down to a flat plate, substantially as described.

2. In rolls for rolling T-plates or T-bars from rails, the combination of the upper and lower rolls having the passes 2, 3, 4, and 5, substantially as and for the purposes set forth.

In testimony whereof I, the said HENRY G. BROWN, have hereunto set my hand.

HENRY G. BROWN.

Witnesses:
J. N. COOKE,
CLARENCE BURLEIGH.