

No. 722,152.

PATENTED MAR. 3, 1903.

J. M. SELLERS.
PROCESS OF MAKING TIE PLATES.

APPLICATION FILED MAR. 18, 1901.

NO MODEL.

2 SHEETS—SHEET 1.

Fig. 1.

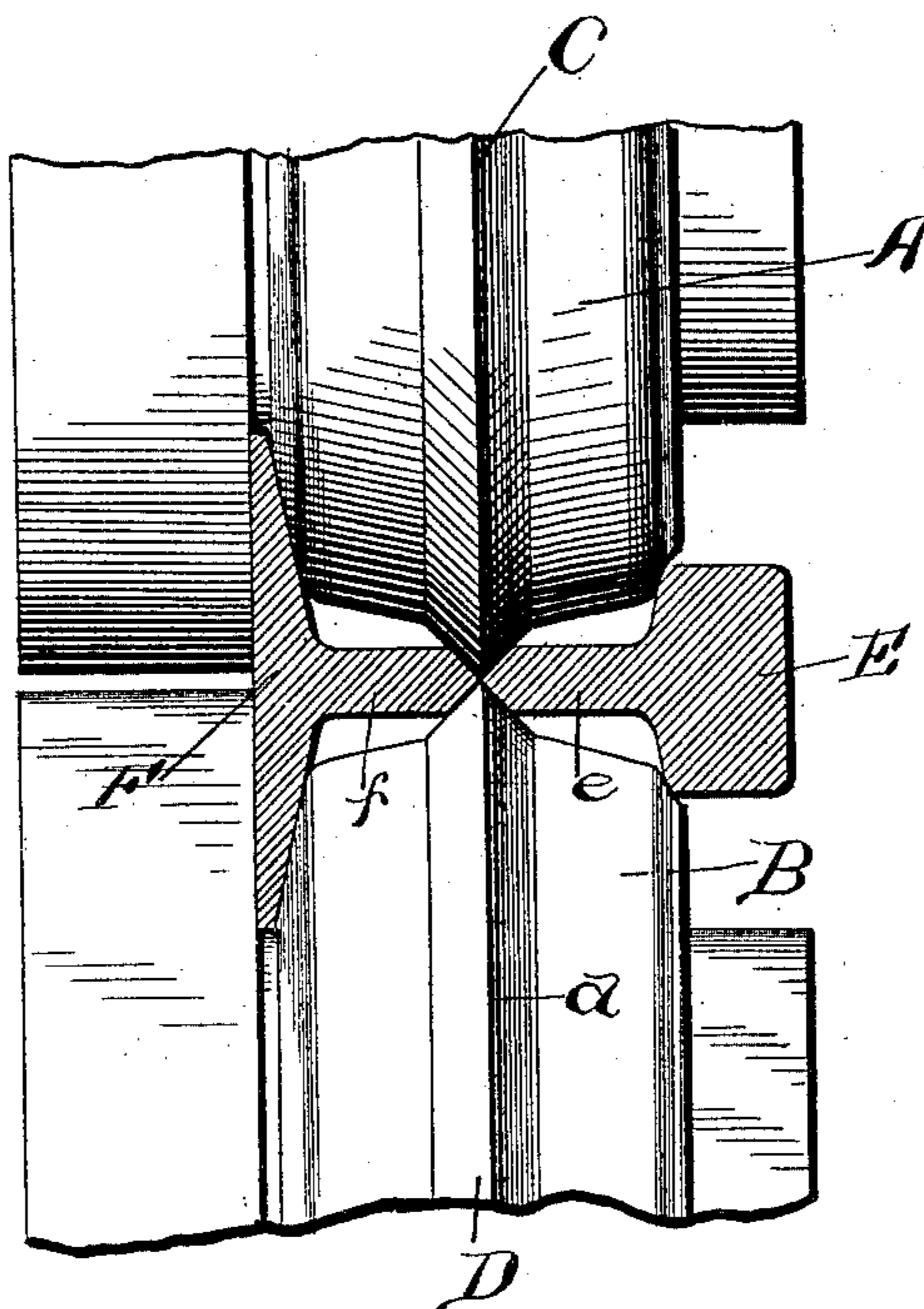


Fig. 2.

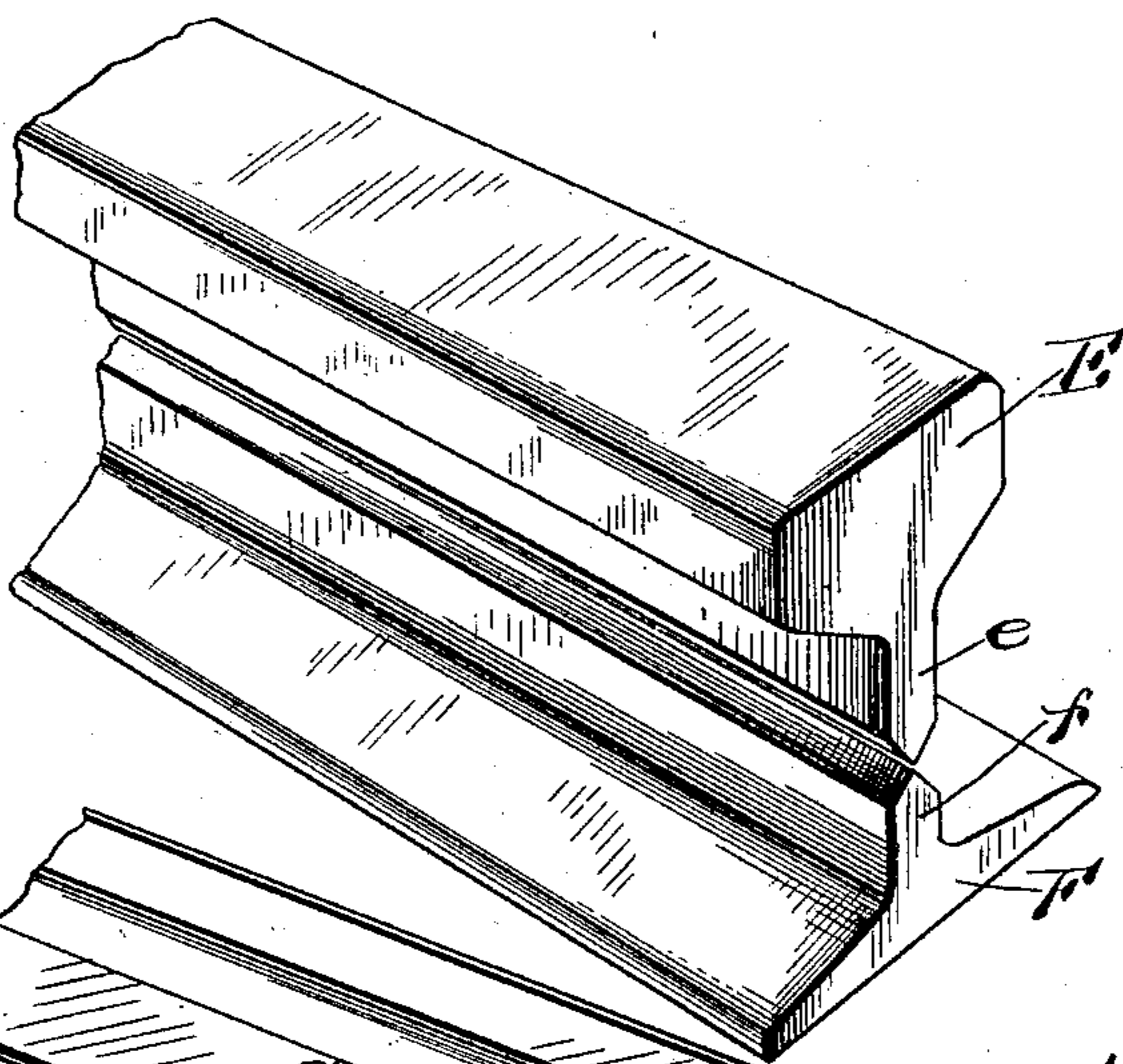
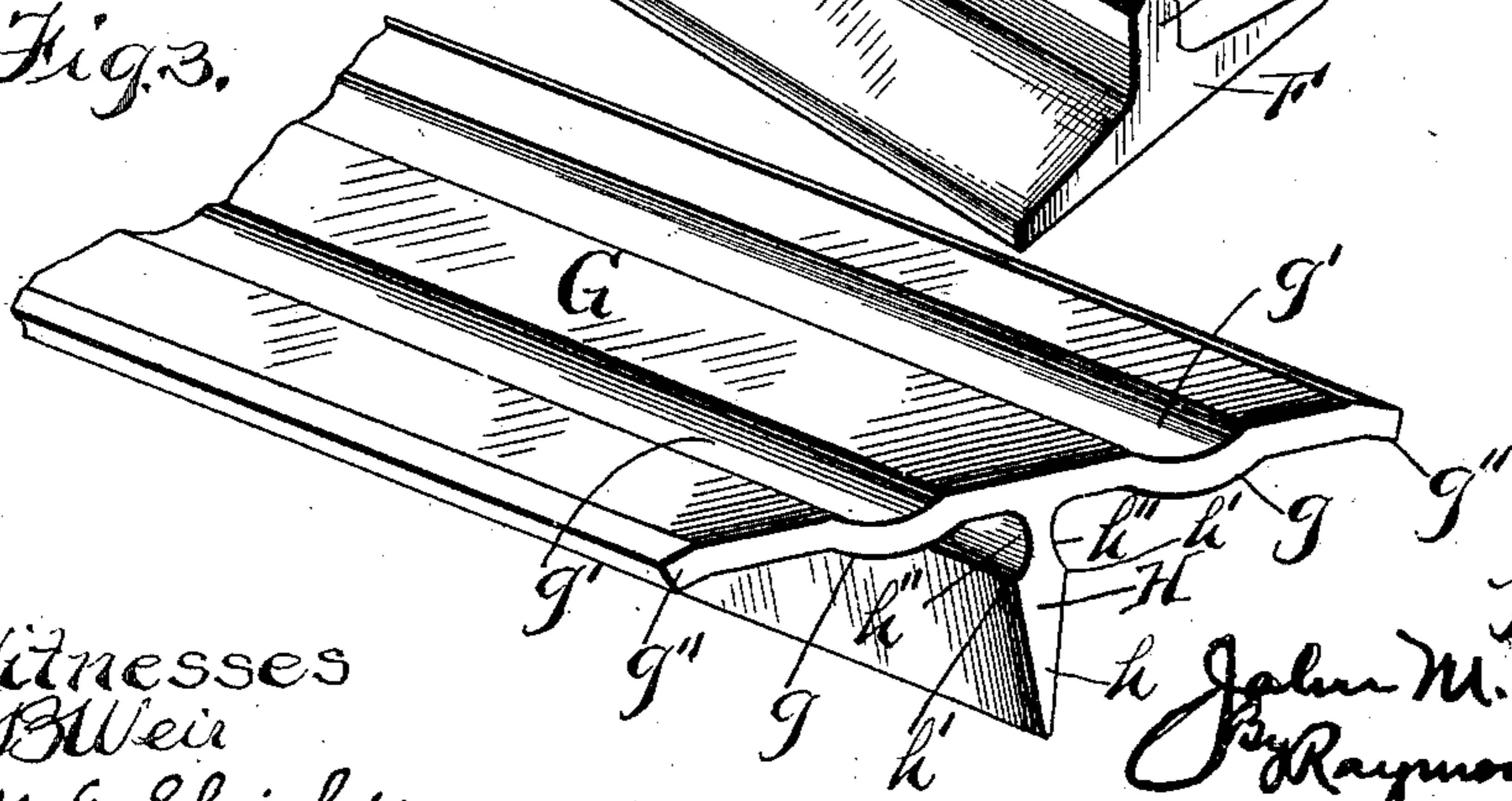


Fig. 3.



Witnesses
J. B. Weir
M. E. Shirlas

Inventor
John M. Sellers.
Raymond H. Barnett
Attys

No. 722,152.

PATENTED MAR. 3, 1903.

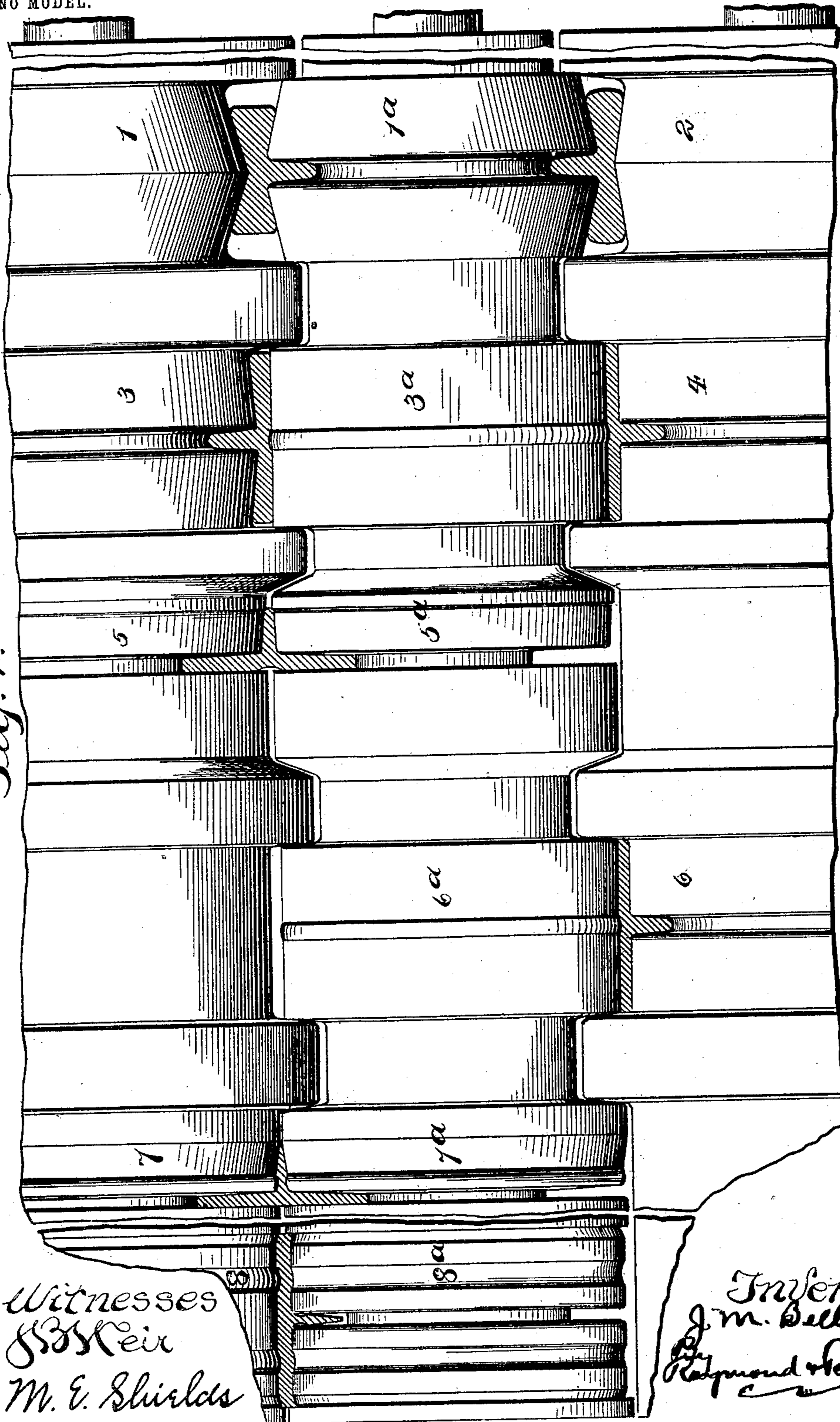
J. M. SELLERS.
PROCESS OF MAKING TIE PLATES.

APPLICATION FILED MAR. 18, 1901.

NO MODEL.

2 SHEETS—SHEET 2.

Fig. 4.



Witnesses
J. M. Sellers
M. E. Shields

Inventor
J. M. Sellers
By Raymond H. Barnett
Attys

UNITED STATES PATENT OFFICE.

JOHN M. SELLERS, OF CHICAGO, ILLINOIS.

PROCESS OF MAKING TIE-PLATES.

SPECIFICATION forming part of Letters Patent No. 722,152, dated March 3, 1903.

Original application filed February 4, 1901, Serial No. 46,023. Divided and this application filed March 18, 1901. Serial No. 51,733. (No model.)

To all whom it may concern:

Be it known that I, JOHN M. SELLERS, a citizen of the United States, residing at Chicago, in the county of Cook and State of Illinois, have invented certain new and useful Improvements in Processes of Making Tie-Plates, of which the following is a specification.

My invention relates to improvements in the process of making improved tie-plates shown and described in my pending application for United States Letters Patent filed February 4, 1901, Serial No. 46,023, of which this present application is a division.

The object of my invention is to furnish a simple, effective, and economical process for manufacturing said tie-plates from old or damaged rails, preferably from what are commonly known as T-rails. It is obvious that if I can produce my improved tie-plate by a process which shall utilize such rails in such a manner that the manufacture of the rails shall, in fact, constitute the first step in the production of my tie-plate I not only effect a saving in utilizing old and, to some degree at least, otherwise useless material, but I materially reduce the cost of producing my tie-plate below what the manufacture of the same tie-plate would cost if made from steel billets. These and such other objects as may hereinafter appear are attained by the devices illustrated in the accompanying drawings, in which—

Figure 1 is a view showing a T-rail in section passing through what I call the "slitting" and "sizing" roll. Fig. 2 is a perspective view of said rail after it has passed through the roll shown in Fig. 1. Fig. 3 is a perspective view of my complete tie-plate; and Fig. 4 shows a set of rolls suitable for rolling my tie-plate from sections of T-rail, the tie-plate in course of production being shown in section as passing through the rolls.

Like characters of reference indicate the same parts in the several figures of the drawings.

Referring by letters and figures to the accompanying drawings, A B, Fig. 1, are rolls fitted with oppositely-disposed steel washers C D, which are tapered to an annular cutting or slitting edge *c d*. These rolls are also

shaped at one side so as to form what I call a "sizing-pass."

E and F are longitudinal sections of a T-rail after it has been passed through the slitting and sizing roll shown in Fig. 1, each of said sections being provided with a stem *e f*.

1, 1^a, 2, 3, 3^a, 4, 5, 5^a, 6, 6^a, 7, 7^a, 8, and 8^a are rolls adapted for use in forming the tie-plate, which is formed in one piece comprising the flange G and the stem H, said stem having a pointed or wedge-shaped portion *h*, shoulders *h'*, and grooves *h*² and said flange being provided with ribs *g*, sand-troughs *g'*, and beaded edges *g*².

My improved process of forming my tie-plate is as follows: A section of T-rail is first slit longitudinally through the web thereof and about midway of the height of the web, so as to separate the rail into the upper and lower sections E F. This can be most economically, conveniently, and readily done by the use of slitting-rolls, as shown in Fig. 1, while at the same time in case the flange of the rail is of an unusual width another step in the formation of the rail into tie-plates may be taken by upsetting the edges of such extra wide flange as the flange portion of the rail passes through the sizing-pass of the slitting-rolls.

As the flange of the finished tie-plate is much wider than the head of a T-rail and as it is desirable to transform the rail into tie-plates with one heating, it becomes necessary at the outset to spread the thick head of the rail laterally as much as possible while at the highest temperature, and so in the softest condition. This can be most readily done by the use of the wedge-shaped rolls 1 and 2, which crush the head of the rail at its thickest portion. The rail may now be further reduced in thickness and increased in width by the rolls 3 4. When the rail has passed through this latter roll, the head-sections of the rail and the flanged sections of the rail will have been rolled to approximately the same size in cross-section and the flanged portion of the blank will have been reduced to approximately the thickness or width of the finished tie-plate. By means of a ring, washer, or suitable formation of the roll 3^a a longitudinal depression is formed upon the upper sur-

face of the blanks for a purpose which will be hereinafter noted. The blanks as they come from roll 4 may now be passed between the rolls 5 5^a for the purpose of rolling and lengthening the stem portion of the blank. In order to give the flanges of these rolls a proper grip on the blanks, the width of this pass is somewhat narrower than the width of the blanks, resulting in a slight upsetting of the blanks laterally. This may be corrected by now passing the blanks through the flat rolls 6 6^a. The stem H of the tie-plate may now be finished by passing the blank vertically through the rolls 7 7^a, which will act only on the stem portion of the blank, and the now nearly-cooled blank may be completed by passing it between the rolls 8 8^a, which roll into the flange of the tie-plate the ribs *g*, the sand-troughs *g'*, and the beaded edges *g*². The blanks now being cut transversely into suitable lengths, the tie-plate is complete.

In rolling the portion of the web of the rail to form the stem of the tie-plate the tendency of the metal is to upset in a direction to form more or less of a longitudinal bulge along the upper face of the tie-plate on a line above the depending stem. Therefore before passing the blank through the rolls 5 5^a I roll the before-mentioned depression or compensating groove in the upper surface of the blank opposite to the stem by means of the formation of the roll 3^a. In then passing the blank through the rolls 5 5^a the upsetting of the metal tends to obliterate the previously-formed groove, and so before passing the blank through the rolls 7 7^a, by means of which the grooves *h*² are formed along the sides of the stem, the strong tendency of which formation is to again upset the metal, so as to form a ridge along the upper face of the tie-plate, I provide means on the roll 6^a for again rolling a groove in the upper surface of the tie-plate at this point.

Obviously other means than those described may be used to manufacture rails into my improved tie-plate, although I believe that the system of rolling described by me shows the simplest, most certain, and most effective way of producing the desired result; but the rail can be slit through its web in other ways than by the use of my slitting-rolls, the blanks may be differently forged, or the blanks may be rolled as described for a part of the process and the flange and stem of the tie-plate may be finished in some other manner; but these and other obvious variations in the means used to carry out my process do not consti-

tute any departure from the spirit of my invention, but are contemplated thereby. So, also, it is not essential in the process of making my improved tie-plate that the sand-troughs, ribs, and other details mentioned should be formed thereon either in the manner described or in any other manner, these being mere details of a preferred form of my tie-plate which are not essential to the practice of my invention.

Having thus described my invention, what I claim, and desire to secure by Letters Patent, is—

1. The improvement in the art of making T-shaped tie-plates at one heating and without waste from the upper section of a T-rail which has been divided longitudinally through its web, which consists, first, in passing such section of rail between wedge-shaped rolls to spread the thickest portion of the head of the rail laterally without undue elongation, in then passing the blank so formed through passes of a contour which will form the blank into a tie-plate, in rolling a groove in the upper surface of the blank and opposite the stem thereof before finishing the rolling of the stem of the tie-plate, and finally rolling the stem thereof, substantially as and for the purposes specified.

2. The improvement in the art of rolling T-shaped tie-plates, which consists in rolling a groove in the upper face of a T-shaped blank and opposite the stem thereof before completing the rolling of the stem of the tie-plate to counteract the upsetting and swelling of the face of the blank which would otherwise be caused by the rolling of said stem, and finally rolling the stem thereof to produce the finished article, substantially as described.

3. The improvement in the process of rolling T-shaped tie-plates from T-shaped sections of T-rails at one heating, and without loss of material, which consists in laterally spreading the rail by rolling a groove in one face of the rail-section and opposite to the stem thereof before completing the rolling of the stem of the tie-plate to prevent the upsetting of the face of the blank upon the rolling of the stem, rolling similar grooves in the opposite side of the rail-section adjacent to and at each side of the stem, pressing the stem of the rail-section into the stem of the tie-plate and finally rolling the stem thereof to produce the finished article, substantially as described.

JOHN M. SELLERS.

Witnesses:

M. E. SHIELDS,
O. R. BARNETT.