

C. W. REINOEHL & B. L. WEAVER.
MACHINE FOR MAKING STEP JOINTS.
APPLICATION FILED AUG. 10, 1910.

1,003,654.

Patented Sept. 19, 1911.

2 SHEETS—SHEET 1.

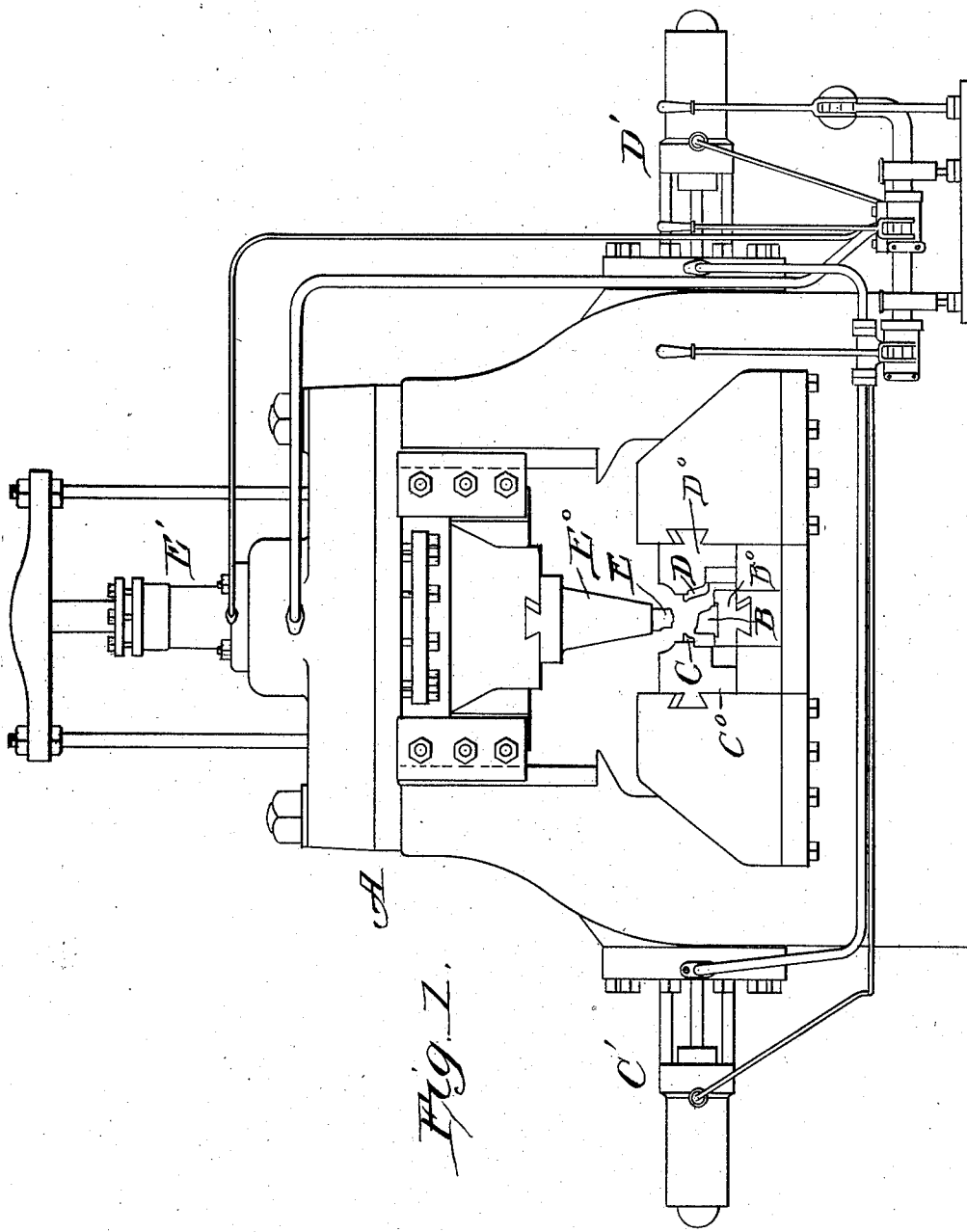


Fig. 1.

Witnesses:

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Ruby V. Brydges.

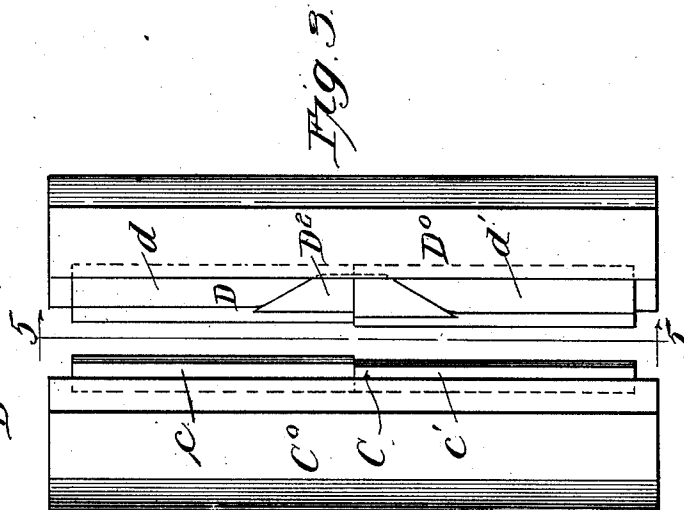
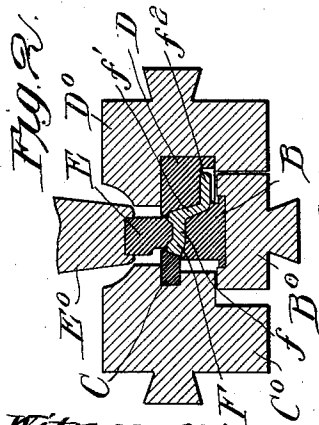
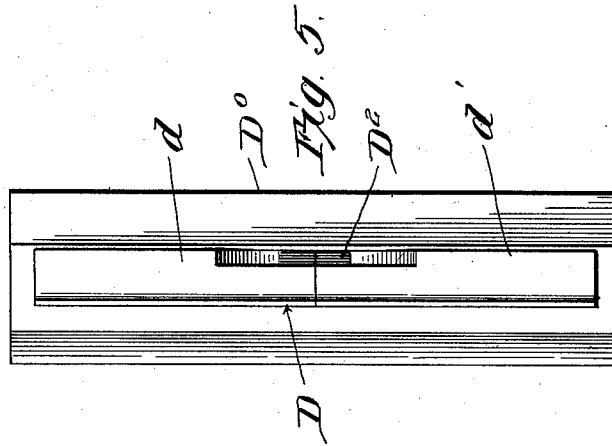
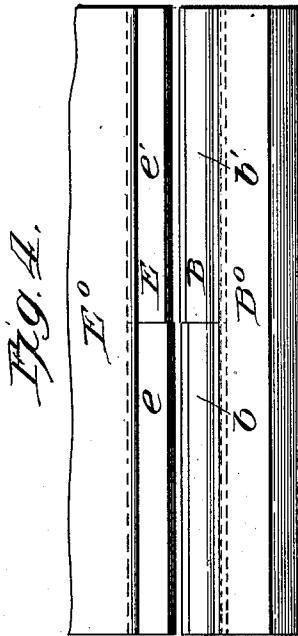
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Ruby V. Brydges

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UNITED STATES PATENT OFFICE.

CHARLES W. REINOEHL AND BENT L. WEAVER, OF STEELTON, PENNSYLVANIA,
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MACHINE FOR MAKING STEP-JOINTS.

1,003,654.

Specification of Letters Patent.

Patented Sept. 19, 1911.

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To all whom it may concern:

Be it known that we, CHARLES W. REINOEHL and BENT L. WEAVER, citizens of the United States, residing at Steelton, county of Dauphin, State of Pennsylvania, have invented a certain new and useful Improvement in Machines for Making Step-Joints, and declare the following to be a full, clear, and exact description of the same, such as will enable others skilled in the art to which it pertains to make and use the same, reference being had to the accompanying drawings, which form a part of this specification.

Our invention has for its object to provide a simple and novel machine wherein only a few die sections are required in order to forge compromise splice bars adapted to connect together different sized rail ends in numerous combinations with each other.

The various features of novelty whereby our invention is characterized will hereinafter be pointed out with particularity in the claims; but for a full understanding of our invention and of its object and advantages, reference may be had to the following detailed description taken in connection with the accompanying drawings, wherein:

Figure 1 is a front elevation of a hydraulic forging press arranged in accordance with our invention; Fig. 2 is a section taken through the dies when closed upon a splice bar; Fig. 3 is a view looking upwardly in Fig. 2, the splice bar and the upper and lower dies being omitted; Fig. 4 is a view looking toward the left in Fig. 2, the splice bar and the two side dies being omitted; and Fig. 5 is a view taken on line 5-5 of Fig. 3.

Referring to the drawings, A represents a press of any suitable construction having means for opening and closing a group of dies. In the arrangement shown, there is a stationary lower die B, side dies C and D and an upper die E. The dies C, D and E are adapted to be moved by hydraulic rams C', D', and E'. All these parts, except as hereinafter noted, may take any usual or preferred forms and it is therefore deemed unnecessary to describe them in detail.

The construction illustrated is adapted to forge trussed compromise bars but it will of course be understood that our invention is applicable to the forging of bars in which the truss is omitted.

Each of the four dies is detachably

mounted in a suitable holder or block, these being respectively designated as B°, C°, D°, and E°. In accordance with our invention we make each die in two pieces arranged end to end; the die B being composed of the members *b* and *b'*, and dies C of the members *c* and *c'*, the die D of the members *d* and *d'*, and the die E of the members *e* and *e'*. The members *b*, *c*, *d* and *e* constitute one set of die sections and the remaining members constitute a second set. Each set of die sections is adapted to shape one end of a compromise splice bar to fit a rail of a certain size. Thus it may be assumed that the particular dies illustrated are adapted to make a splice bar for connecting together a 70 pound rail and an 80 pound rail, the die sections *b*, *c*, *d* and *e* shaping the larger end, and the other set of die sections shaping the smaller end. When it is desired to make bars for connecting together a different combination of rails as, for example, an 80 pound rail and a 90 pound rail, the set of die sections corresponding to the 80 pound rail are left in place while the other set is removed and is replaced by a set corresponding to a 90 pound rail.

It will thus be seen that by having one set of die sections for each size of rail it is possible to make splice bars for connecting together these rails in any desired combination by simply interchanging the sets of die sections so as to give the combinations sought. If each die were made in one piece it would be necessary to have, not only as many sets of dies as there are sizes of rails, but as many sets as there are combinations in which the rails of the various sizes might be brought together. It will also be seen that by dividing each die at the point where the step in the splice bar is to occur, it is very much easier to make the dies because the lines of each are straight and not interrupted as is the case where the two halves of the die are integral with each other. Our invention therefore makes it possible to produce a set of dies more cheaply than where the dies are made of a single piece, in addition to the great saving which results from a reduction in the number of dies required to give the necessary combination. There is a further advantage in making each die in two pieces. The end of each die which is subjected to the heavier service naturally wears more rapidly than the other

end and, where the die is in one piece, it must either be refinished or discarded. By having the die in two pieces, however, each section may be blocked up independently of the other, so that proper compensation may be made for wear regardless of the relative amount of wear in the sections.

The die E has a recess D^2 cut in the underside thereof at the middle, part of this recess being in the die section d and the remainder in the die section d' . This recess is large enough to receive a truss projecting downwardly from the foot flange of a splice bar so as to leave the truss free during the forging operation.

The blanks are made in any suitable way, as by rolling a bar of uniform cross section and cutting it into the desired lengths. The blanks are then heated and laid one at a time upon the bottom die as indicated at F in Fig. 2. The section of the blank may correspond to that of the larger set of die sections or it may be somewhat larger. The two side dies are first brought together, compressing one or both ends of the girder f of the bar and forming the vertical step in the girder and in the foot flange f' . There is no pressure upon the truss f^2 but the metal therein adjusts itself to the new condition encountered when the step is formed in the foot flange in the vicinity of the truss. The top die is then brought down and this produces the transverse step in the girder. If the section of the blank is originally equal to that of the larger end of the finished bar, then there is little forging at one end of the bar, but rather a finishing action by the set of larger die sections. The other end of the bar will, however, be compressed into a smaller section.

While we have illustrated and described

in detail only a single preferred embodiment of our invention, we do not desire to be limited to the structural details so illustrated and described; but intend to cover all forms and arrangements falling within the terms employed in the definitions of our invention constituting the appended claims.

What we claim as new is:

1. In a machine for forging splice bars for step joints, a plurality of cooperating parallel dies, each die comprising two independent detachable sections arranged end to end.

2. In a forging machine for stepped splice bars, a plurality of parallel cooperating dies, each of said dies being made of two independent sections arranged end to end, the contour of the dies being different on opposite sides of the juncture between the two sets.

3. In a machine for forging splice bars each comprising a stepped girder and foot flange and a truss extending from the foot flange at the step therein, a series of elongated dies lying side by side, each of said dies comprising two independent detachable sections arranged end to end, the two sections of each die being displaced laterally a distance equal to the depth of the step in the bar, and one of the dies having a recess to receive the truss, the recess being large enough to leave the truss free when the dies are closed.

In testimony whereof, we sign this specification in the presence of two witnesses.

CHARLES W. REINOEHL.
BENT L. WEAVER.

Witnesses:

GILBERT S. VICKERY,
WM. R. MILLER.