Feb. 20, 1934. O. SCHLENSTEDT 1,948,400

METAL EXTRUSION PRESS

Filed Dec. 22, 1932

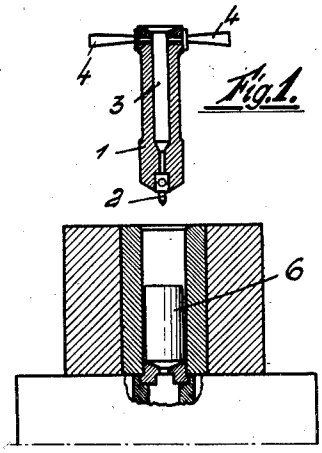


Fig. 1.

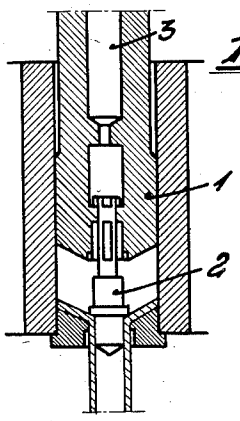


Fig. 5.

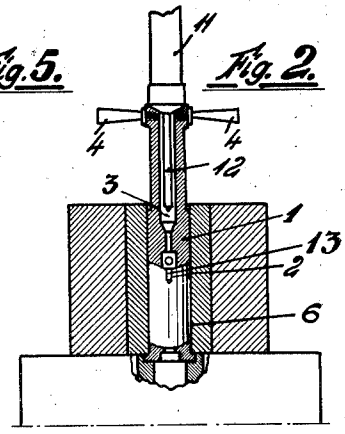


Fig. 2.

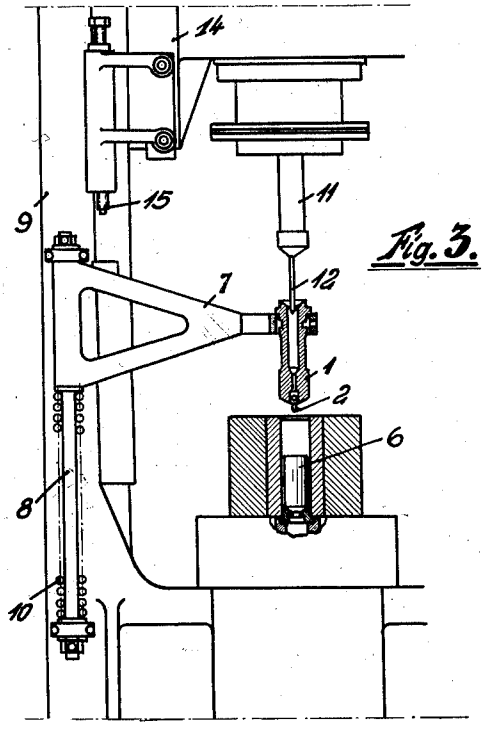
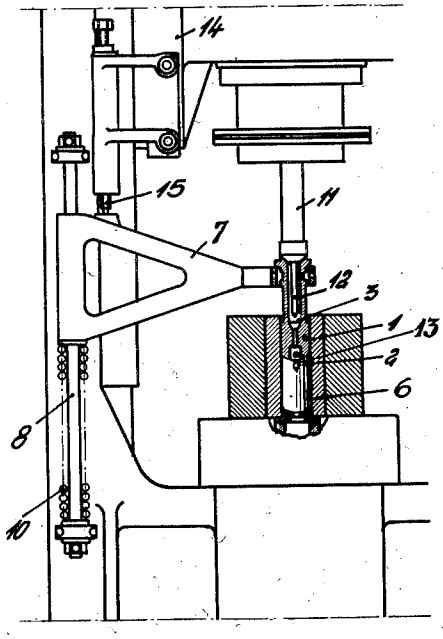


Fig. 3.

Fig. 4.



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UNITED STATES PATENT OFFICE

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METAL EXTRUSION PRESS

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Application December 22, 1932, Serial No. 648,431, and in Germany November 2, 1931

2 Claims. (Cl. 207—1)

The billets or blocks which are pressed in metal extrusion presses have hitherto been turned to an exact cylindrical shape outside the press, and in addition they have been formed with a central hole in the end face into which is inserted the mandrel before the pressing operation is commenced. These two operations are necessary in order to exclude the possibility of the mandrel being forced from its central position during the piercing operation.

According to the invention the billets or blocks, which have previously been placed in the holder or container, have a depression made in them and at the same time are forced into contact with the end surface of the container facing the ram, whereby the cylindrical surface of the billet or block is brought into contact over the whole surface of the inner wall of the holder or container. The turning off operation thus becomes unnecessary, contact over the whole surface of the billet or block being obtained in far more effective manner than heretofore.

Two constructions of the apparatus according to the invention are diagrammatically illustrated, by way of example, in the accompanying drawing.

Figures 1 and 2 illustrate in longitudinal section an apparatus which is introduced by hand into the holder or container.

Figures 3 and 4 show the apparatus applied to a press.

Figure 5 illustrates a modified construction of the apparatus according to the invention.

The apparatus consists of a press ram 1 having the tool 2 for forming the depression inserted in the end face. The press ram 1 is provided hollow, the cavity being numbered 3 in the drawing.

In figures 1 and 2, the press ram is provided with handles 4 to enable it to be inserted into the holder or container and for setting it upon the billet or block.

In the construction according to Figures 3 and 4, the press ram 1 is provided upon a bracket 7; this bracket is rotatable on a spindle 8, which is fixedly mounted adjacent the pedestal 9. The bracket 7 can also slide along the spindle 8 against the action of a spring 10 which tends to force the bracket into the raised position indicated in Figure 3.

If a billet or block after being inserted in position is to be centered in the holder or container, the press ram 1 is swung round into the ambit of the plunger 11 fitted with the mandrel 12.

To effect the pressing of the billet or block in the holder or container the ram 1 is lowered, the plunger 11 is lowered to cause the mandrel 12 to slide into the cavity 3, and to press downwardly the press ram 1 which is forced into the holder or container 5 against the action of the spring 10, and, as will be seen from the drawing, the preliminary piercing tool 2 penetrates the billet or block 6 while at the same time the press ram 1 presses upon the billet or block so that the surfaces of the billet or block press closely against the wall and the bottom of the holder or container. In the apparatus according to Figures 3 and 4, the pressing operation is effected in the same way as in the apparatus according to Figures 1 and 2. In Figures 1 and 2, after the plunger 11 has been withdrawn, the press ram 1 is lifted clear of the holder or container by hand, while in Figures 3 and 4 as the plunger 11 is being withdrawn the spring 10 raises the press ram 1 out of and away from the holder or container 5, so that the bracket 7 may be swung away.

In the succeeding pressure stroke the mandrel 12 enters the depression 13 which has been pressed by the tool 2 in the end of the billet or block 6 and in its further movement pierces the block 6 centrally under the guidance afforded by the depression, and then the block which has been exactly centered in the pressing operation is extruded.

In the construction illustrated in Figure 3, to prevent the bracket from being bent there is provided on the plunger slide 14 of the extrusion press an adjustable pressure screw 15 which, as the plunger 11 comes down upon the pressure ram 1, or a little earlier, bears against the bracket 7 at a position near to the spindle 8, so that the bracket 7 is moved downwardly by being simultaneously engaged in two places.

Instead of the bracket 7 being supported by a spring it may be held in the raised position by means of a weight.

Figure 5 illustrates a modification of construction of the preliminary piercing tool in which the tool can be employed for shearing off the remainder of the billet or block from the pressed article.

I claim:

1. Apparatus for centering blocks in the holders of metal extrusion presses, comprising a press ram and a tool for forming a central depression in the block, the said tool being carried by the said press ram, a carrier for the said press ram, a support separate from the press plunger upon which support the said carrier is movable independently of the plunger in opposite direc-

tions parallel to the path of the plunger, and means for counter-balancing the carrier and the press ram to maintain them remote from the holder, the carrier permitting the press ram to be moved into the path of the plunger.

2. Apparatus for centering blocks in the holders of metal extrusion presses, comprising a press ram and a tool for forming a central depression in the block, the said tool being carried by the said press ram, a carrier for the said press ram, a support separate from the press plunger upon which support the said carrier is movable independently of the plunger in opposite directions parallel to the path of the plunger and also is movable into and out of the path of the plunger, means for counter-balancing the carrier and the press ram to maintain them remote from the holder, and an adjustable abutment in fixed relation to the press plunger to contact with the carrier at the moment when the plunger contacts with the press ram when the press ram is positioned in the path of the plunger and the plunger is moving towards the holder.

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