

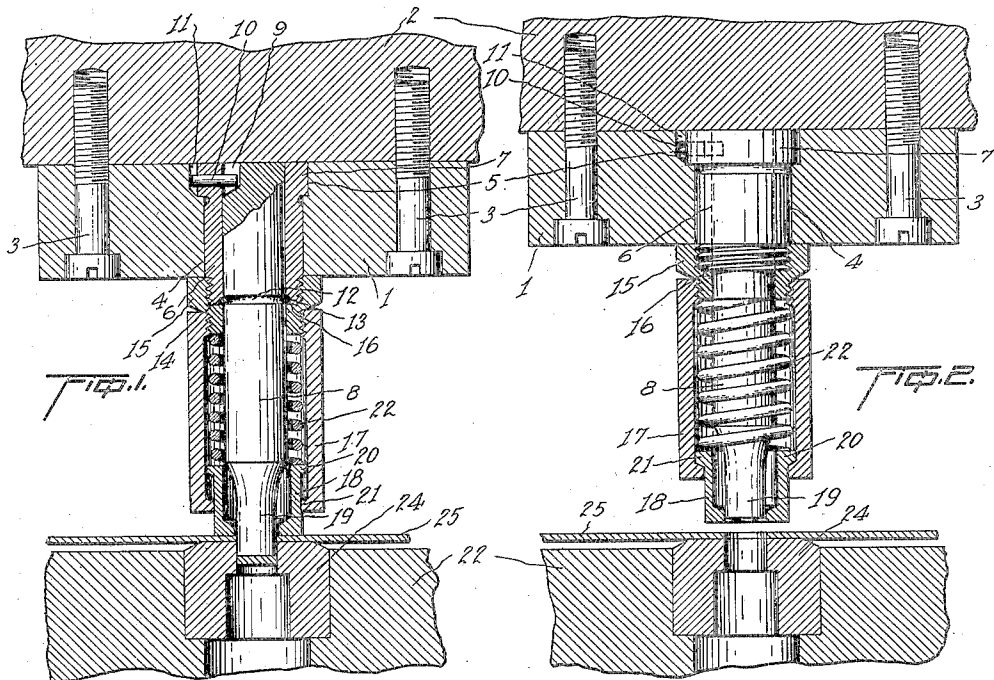
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PUNCH ASSEMBLY

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PUNCH ASSEMBLY.

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The present invention pertains to a novel punch assembly and relates more particularly to a stripper for preventing the punch from adhering to the work while the punch is being withdrawn from the work.

It is well known that a punch, after having been driven through the work, has considerable frictional adhesion to the wall of the aperture thus formed. Consequently, when the tool is withdrawn, there is a tendency for the work to be carried with it. The stripper comprised in the present invention overcomes this difficulty by holding the work firmly on the table or bed of the machine so that the punch may be readily extracted.

The invention further involves simplified means for retaining the shank of the punch in the carrying member. These will be referred to more specifically as the description proceeds.

The invention is fully disclosed by way of example in the following description and in the accompanying drawing, in which—

Figure 1 is a longitudinal section of the assembly, showing the tool in elevation; and

Fig. 2 is a similar section showing also the bushing and spring in elevation and the punch retracted.

Reference to these views will now be made by use of like characters which are employed to designate corresponding parts throughout.

The ram or head 1 for carrying the tool is attached to a movable base member 2 of the machine by means of bolts 3 extending from one into the other. The ram is formed with a bore 4 having an upper end 5 of larger diameter, and into this bore is fitted a bushing 6 having an enlarged end 7 received snugly in enlarged end 5 of the bore. This assembly as well as other assemblies to be described is made before the parts 1 and 2 are bolted together.

A punch 8 is fitted into the bushing and is held against turning relatively thereto by means of a slot 9 cut in its upper end for the purpose of receiving one end of a pin 10 which is passed through the walls of the bushing. In like manner the bushing is held against turning within the ram 1 by having the outer end of the pin received in a notch 11 cut in the head 1 in communication with the enlarged part 5 of the bore 4. The shank of the punch has a groove 12 receiving a

split ring or collar 13 which is also received in a seat 14 formed in the inner wall and at the lower end of the bushing. The punch is held from slipping axially by means of a nut 15 threaded on the lower end of the bushing and formed with an internal shoulder 16 which abuts the ring or collar 13.

The stripping mechanism includes a casing or barrel 17 spacedly surrounding the punch 8 and having its upper end threaded on the nut 15. Prior to making this connection however, a stripper member 18 is dropped into the barrel from the upper end thereof. The stripper slidably surrounds the working end 19 of the punch and is formed at its upper end with an outward flange 20 adapted to be stopped by an inward flange 21 on the lower end of the casing. A strong compressed spring 22 is inserted in the casing, surrounding the punch, in a manner to abut the flange 20 and the nut 15 when the casing is screwed on the nut.

Figures 1 and 2 also show the bed or table 22 of a machine into which is inserted an apertured die 24 adapted to receive the punch. The work 25 is laid upon the die and is pierced by the punch when the head 1 is brought down.

When the ram 1 is brought down for the purpose of driving the punch through the work and into the die, the stripper 18 will remain in contact with the work while the casing 17 approaches the work, thereby compressing the spring 22 as shown in Figure 1. When the tool is lifted, the stripper will remain in contact with the work under the action of the spring 22, thereby preventing the work from being lifted by the punch until the punch is completely withdrawn, as shown in Figure 2. This occurs when the flange 21 comes into engagement with the flange 20 and thereby lifts the stripper from the work.

Although a specific embodiment of the invention has been illustrated and described, it will be understood that various alterations in the details of construction may be made without departing from the scope of the invention as indicated by the appended claims.

What I claim is:—

1. A punch assembly comprising a carrying member, a bushing locked therein, a punch inserted in said bushing and having a collar receivable in the bushing, a nut threaded on said bushing and retaining said

collar, a casing threaded on said nut and surrounding said punch, a stripper slidably mounted in the casing and surrounding the working end of the punch, and a spring in said casing and bearing on said stripper.

5 2. A punch assembly comprising a carrying member, a bushing locked therein, a punch inserted in said bushing and having a peripheral groove and a split ring mounted therein, said ring being receivable in the
10 bushing, a nut threaded on said bushing and retaining said ring, a casing threaded on said nut and surrounding said punch, a
15 stripper slidably mounted in the casing and surrounding the working end of the punch,

and a spring in said casing and bearing on said stripper.

3. A punch assembly comprising a carrying member, a bushing locked therein, a punch inserted in said bushing and having a collar receivable in the bushing, a nut threaded on said bushing and retaining said collar, a casing threaded on said nut and surrounding said punch, a stripper slidably mounted in the casing and surrounding the working end of the punch, and a spring in said casing and bearing against said nut and stripper.

In testimony whereof I affix my signature.
EDWIN HENRICSON.