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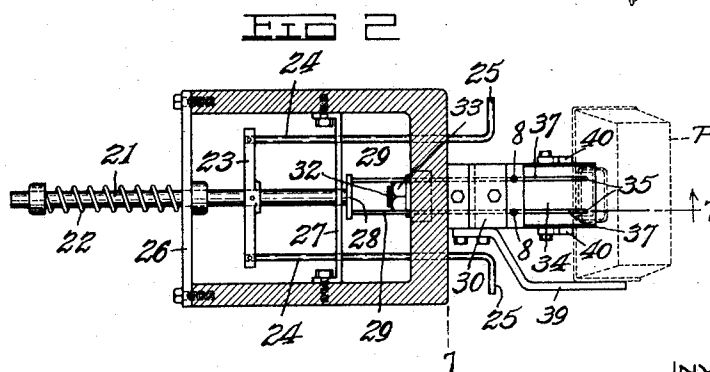
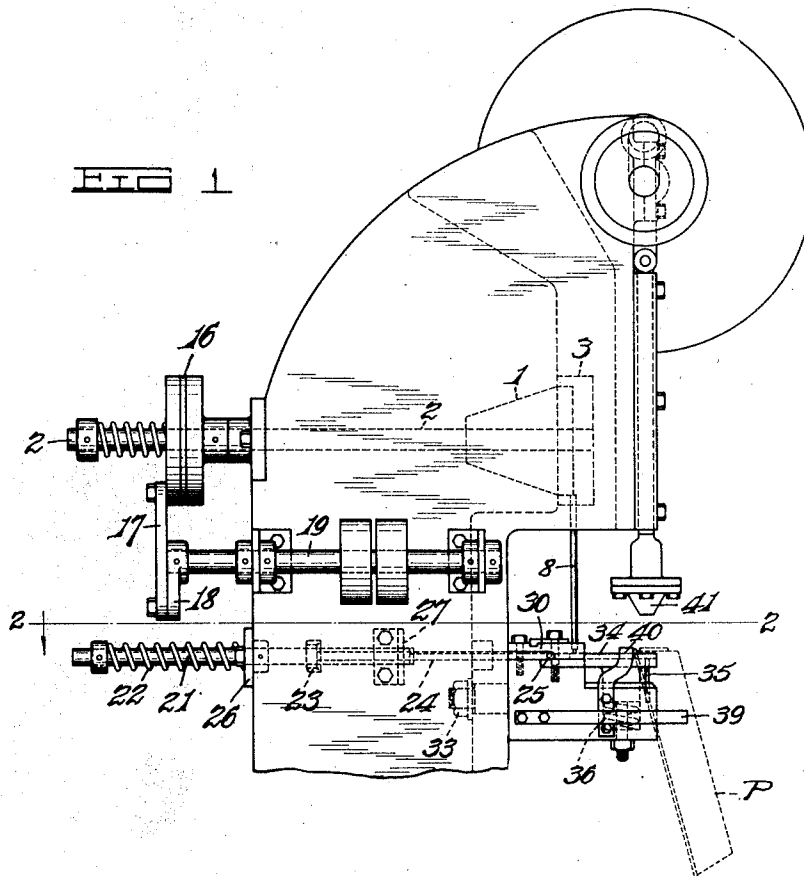
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RIVETING MACHINE FOR POWER PRESSES

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2 Sheets-Sheet 1



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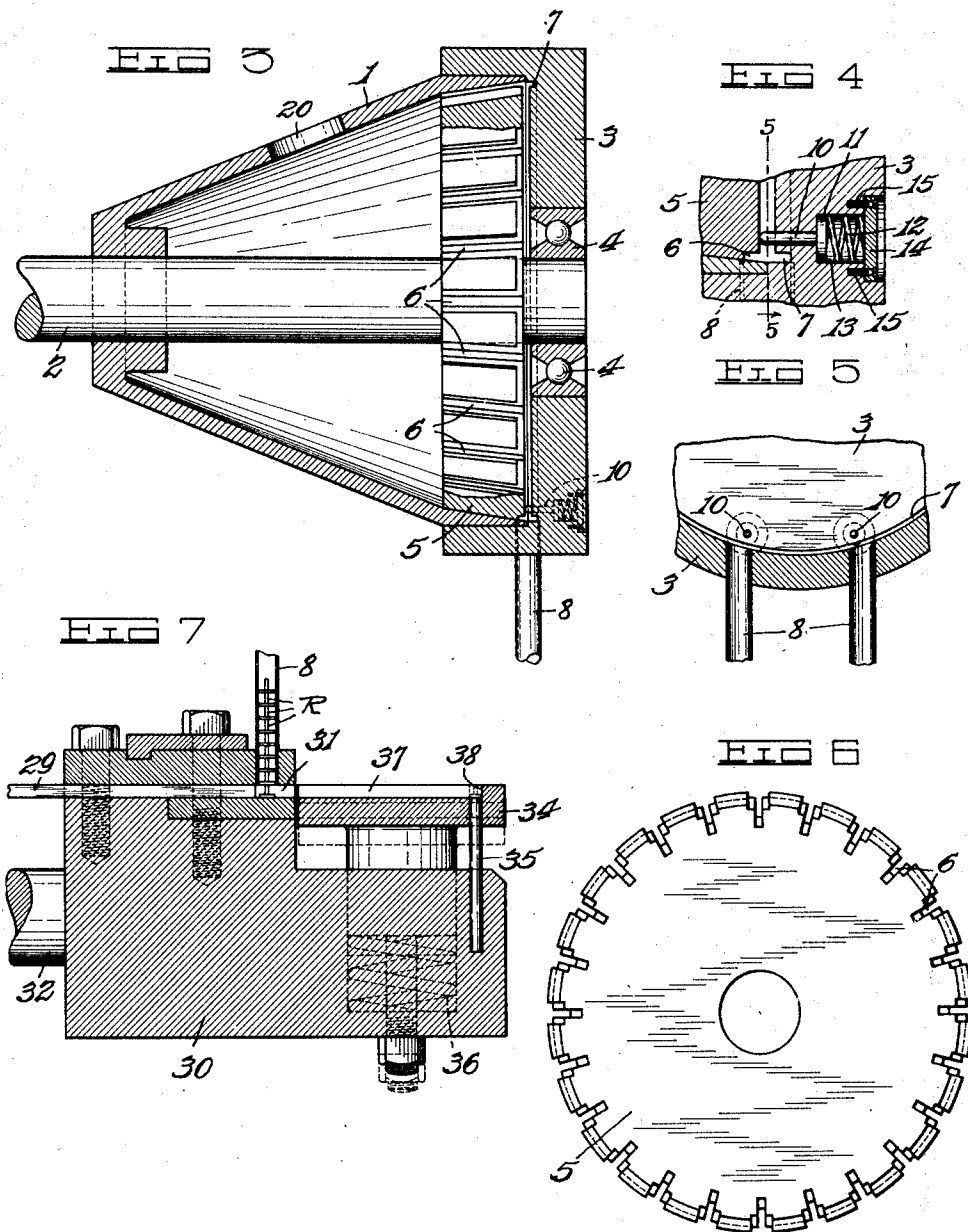
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RIVETING MACHINE FOR POWER PRESSES.

Application filed June 5, 1926. Serial No. 113,932.

This invention relates to certain new and useful improvements in riveting attachments for power presses, and it pertains more particularly to machines for feeding rivets in pairs for the purpose of attaching handles to pans and the like.

The primary object of the invention is to provide means for positively, accurately and quickly feeding rivets in a head-down position to enable same to be engaged with the parts to be riveted to thereby secure the handle to the pan in an expeditious manner.

A further object of the invention is to provide a machine of this character wherein the rivets are mechanically placed in position for application thereof upon the down stroke, or riveting movement, of the press, thereby obviating the dangers incident to hand placement of rivets.

The invention further aims to provide novel means for feeding the rivets to the positioning means, and also to provide means for preventing any jamming of the rivets and consequent injury to the mechanism.

The invention has still further objects which will hereinafter be set forth, and it resides in the novel construction and combination of the parts which will now be described.

In the drawings—

Figure 1 is a side elevation of the invention applied to a power press;

Figure 2 is a section on line 2—2, Fig. 1;

Figure 3 is an enlarged sectional view taken longitudinally through the magazine showing the means for feeding the rivets to the distributing tubes;

Figure 4 is a detail sectional view of the yieldable guide means;

Figure 5 is a section taken substantially on line 5—5, Fig. 4;

Figure 6 is a detail in rear elevation of the feeder disk; and—

Figure 7 is an enlarged section on line 7—7, Fig. 2.

In proceeding in accordance with the present invention, a hollow conical magazine 1 is stationarily seated in a horizontal position within a head 3 which, in turn, is rigidly mounted on the web of the press and which is equipped with ball-bearings 4 for the inner end of a horizontal shaft 2 which extends centrally through said magazine. A feeder disk 5 is rigidly mounted on the shaft 2 and,

as shown in Fig. 6, is provided with a series of peripheral T-shaped slots 6, which latter extends through the disk 5 from face to face. The head 3 has a circular groove 7 formed on its inner face which latter is in register with the head portions of the T-shaped grooves 6 of the feeder disk 5 and co-operates with the latter to form a T-shaped groove, as shown more fully in Fig. 4 of the drawings. A pair of vertical distributing tubes 8 extend downward from the slots 6 of the head 3 and are spaced apart a distance equal to that between the riveting points in the usual attachment ears of the handle. Guide pins 10 are provided in the head 3 and are arranged adjacent to the inlet ends of the tubes, as shown in Fig. 5. Said pins are rounded on their inner ends and are provided at their opposite ends with heads 11 against which rest coil springs 12 which are disposed in sockets 13 formed in the head 3 and said springs have their outer ends seated upon disks 14 which are secured in position by means of screws 15. The power shaft 19 may be operated by any desired source of power, as ordinarily. The rivets are loosely placed in the magazine through an inlet 20 provided in the latter, and upon oscillation of the shaft 2 and the relatively fixed feeder disk 5, the rivets, due to the forwardly sloping formation of the magazine, gravitate into engagement with the disk 5 and are held thereagainst by the force of gravity and the pressure exerted by the remaining rivets. Some of the rivets are thus carried into the T-slots 6 of the feeder disk 5, their heads being seated on the bottom of the magazine, and gravitate with their shanks into engagement with the pins 10, whereby they are directed or deflected into the distributing tubes 8, as shown at R in Fig. 7. Should any jamming of the rivets occur before the latter enter the tubes 8, the oscillating movement of the disk 5 will cause the rivets forcibly to engage the rounded ends of the pins 10, causing the latter to be depressed against the tension of their springs for permitting the rivets to pass thereby, thus preventing injury to the mechanism. To further safeguard against injury to the mechanism resultant from such jamming, a slip or friction clutch 16 is provided on the shaft 2 and is connected to the link 17 driven by the crank 18 of the power shaft 19.

Referring now to Figs. 1, 2 and 7 of the drawings, it will be noted that the rod 21 is slidably mounted in the machine frame and is tensioned by a coil spring 22. A cross-head 23 is attached to the rod 21 intermediate the ends of the latter, and its ends are provided with pull rods 24 turned outwardly at their outer ends to form hand grips 25. The rod 21 is slidably mounted in cross bars 26 and 27, and the latter are also apertured to receive and accordingly guide the pull rods 24. The inner end of the rod 21 is provided with a cross-head 28 to the ends of which a pair of feed bars 29 are secured. The feed bars 29 are slidably disposed in a block 30 and operate through slots 31 provided in the bed of the block. A stud 32 extends rearwardly from the block 30 and is secured by a nut 33 to the frame of the machine to thus support the block in position. A yieldably mounted work holding table 34 is carried by the front end of the block 30 and is apertured to receive a pair of rod-like anvils 35, the latter being rigidly mounted in the block 30 and being loosely extended through the table 34. A coil spring 36 forms a yieldable support for the table 34, and the latter is provided with grooves 37 that register with the grooves 31 of the feed rods 29, the grooves 37 terminating short of the front of the table 34 to form stops 38 for the rivets R. A side stop 39 for engagement with one side of the pan P is secured to the block 30, and a pair of stops 40 are secured to opposite sides of the block 30, the latter serving to engage the outer side edge of one end of the pan so as to position the latter properly to the usual punch and set 41 of the press.

The operation, briefly stated, is as follows:

Rivets are placed in the magazine 1 and the feed disk 5 is oscillated through the shaft 19 and the crank 17. This effects agitation of the rivets and, due to the conical and curved formation of the magazine, the rivets in a head-down position enter the slots 6 of the feed disk and then gravitate until their shanks enter the groove 7 of the head 3, the rivet shanks being engaged by the guide pins 10, which latter deflect the rivets into the distributing tubes 8. As shown in Fig. 7, the rivets pass from the lower ends of the tubes 8 into the grooves 31 in the bed of the block 30, whereupon the operator by grasping either one or both of the handles 25, advances the rivets into the grooves 37 of the table 34 until they engage the stops 38, which latter dispose the rivets with their heads down and seated on the upper ends

of anvils 35. The operator then places the pan and the attaching ears of the handle over the rivets in the position shown in Figs. 1 and 2 of the drawings, the pan being properly aligned with the stop 39 and 40, as depicted. The punch and set 41 of the press is now moved to operative position and the rivets accordingly headed. It will be noted that the feed rods 31 act to advance the lowermost rivets in the tubes 8 to the anvils, and that said rods 31 serve to prevent the remaining rivets from feeding downward in the tubes, the latter rivets being supported thereon until said feed rods have been retracted to their normal positions.

What is claimed is—

1. In a riveting machine, a rivet magazine, a head at the outer end of the magazine, said head having therein a circular groove, a feed disk of circular form rotatable in the magazine and having T-slots in its periphery for feeding the rivets heads down and with their shanks projecting into the groove of the head, a pair of parallel relatively spaced distributing tubes extending into the magazine to receive the rivets, yieldable rivet guiding means carried by the head and arranged to cooperate with the respective tubes, and means for advancing said rivets from said tubes to riveting position.

2. In a riveting machine, a horizontally disposed conical magazine, a head at the larger end of said magazine having a circular groove, a feed disk rotatable in the magazine and having T-slots in its periphery for feeding the rivets heads down and with their shanks lying in the groove of the head, a pair of relatively spaced distributing tubes depending vertically from the magazine and adapted to receive the rivets, and yieldable rivet guiding means carried by the head and arranged to cooperate with the respective tubes.

3. In a rivet feeding device for power presses, a horizontally disposed conical magazine having a grooved head, an oscillatory feed disk in the magazine having peripheral grooves cooperating with the grooves of the head to receive the rivets and to position same heads down, means to actuate the disk, a pair of parallel relatively spaced tubes for conveying the rivets from the magazine, and means associated with each of said tubes and engageable with the rivets contained in said cooperating grooves whereby the rivets are deflected into said tubes.

In testimony whereof, I affix my signature.

CHARLES H. ROLLASON.