

March 27, 1945.

J. KERNER

2,372,499

COMBINATION STOP AND PUSHER

Filed May 24, 1944

3 Sheets-Sheet 1

Fig. 1.

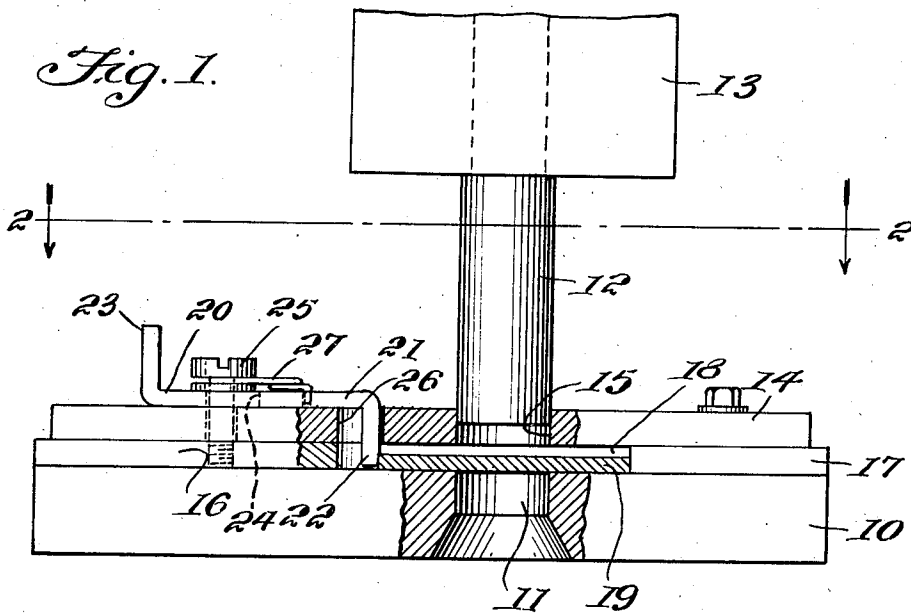
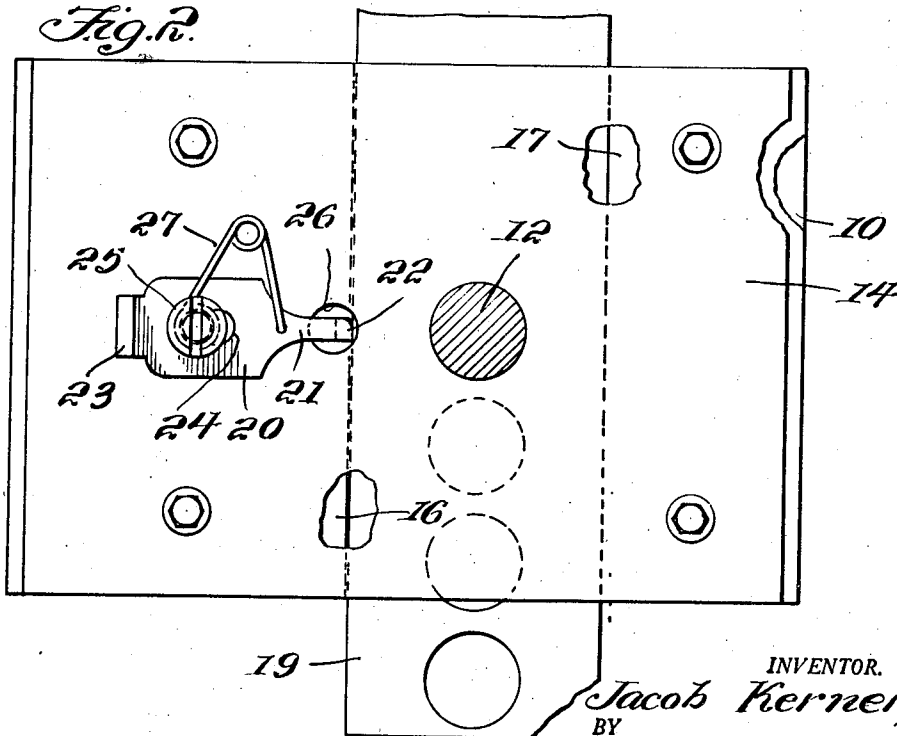


Fig. 2.



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Fig. 3.

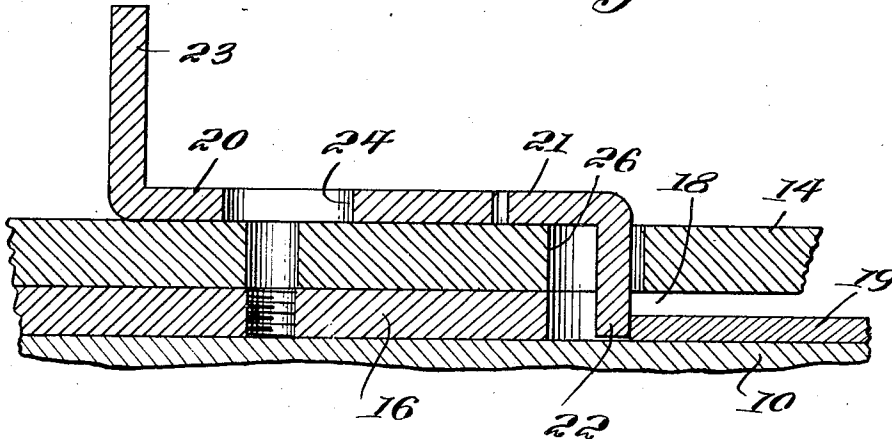
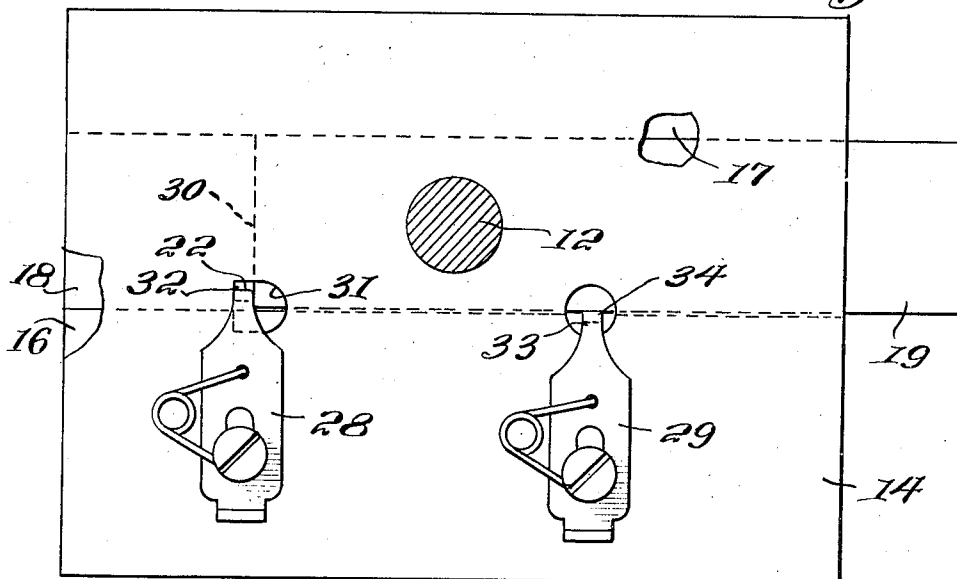


Fig. 4.



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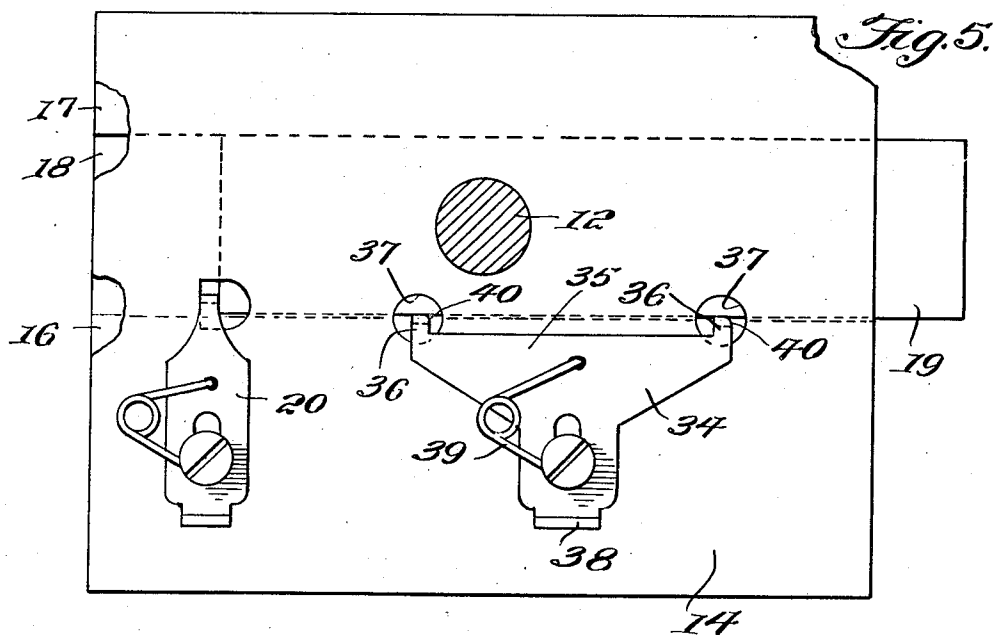
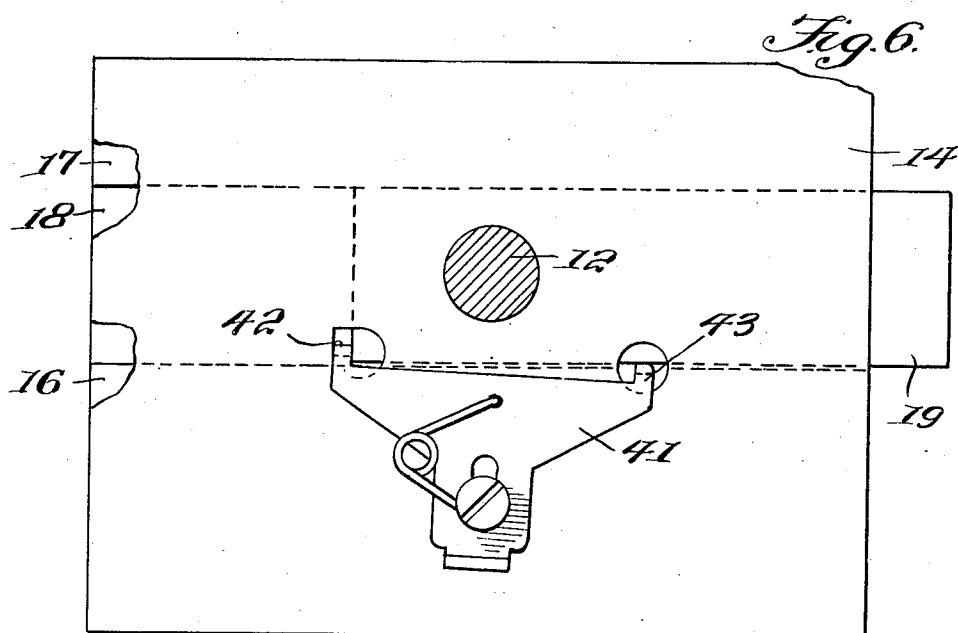
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3 Sheets-Sheet 3



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2,372,499

COMBINATION STOP AND PUSHER

Jacob Kerner, Chelsea, Mass.

Application May 24, 1944, Serial No. 537,131

5 Claims. (Cl. 164—59)

The invention relates to a combined stop and pusher device, and more especially to a stock stop and pusher attachment for punch presses or the like.

The primary object of the invention is the provision of a device of this character, wherein stock within a punch press will be firmly and properly held in position during the punching operation of the press, and such device being manually released from the stock and at a point entirely outside of the path of travel of the punch tool, so as to avoid any possibility of injury resultant therefrom to an operator of the press.

Another object of the invention is the provision of a device of this character, wherein on the fitting of the same upon a punch press it will stop the work in the die for the first operation to pierce, slot or hole the work in this first operation, before blanking, while at the same time such device is applying a uniform pressure against the work, forcing it back against the back gauge and stripper plate of the press, allowing the operator a uniform forward movement for sliding the work between the gauge and stripper plate, for assuring accuracy, whence the work can be advanced for the next or any number of operations, to a final operation when the work is blanked or cut off.

A further object of the invention is the provision of a device of this character, wherein the mounting thereof requires no changes in the punch press, and such mounting can be readily and easily made with dispatch, its use assuring the saving of considerable time on the part of an operator of the press, in that such device will aid in holding and re-locating a piece of work in the said press.

A still further object of the invention is the provision of a device of this character, which is simple in construction, thoroughly reliable and efficient in operation, assuring accuracy in the handling of work in a punch press, it being strong, durable, quickly and easily released from a stop and pusher position, and inexpensive to manufacture and install.

With these and other objects in view the invention consists in the features of construction, combination and arrangement of parts as will be hereinafter more fully described, illustrated in the accompanying drawings, which show the preferred and modified forms of construction thereof, and pointed out in the claims hereunto appended.

In the accompanying drawings:

Figure 1 is a fragmentary elevation of a por-

tion of a punch press and partly broken away showing the device constructed in accordance with the invention applied for service therewith.

Figure 2 is a sectional view taken on the line 5 2—2 of Figure 1 looking in the direction of the arrows.

Figure 3 is a fragmentary enlarged sectional view through the device shown in Figure 1 with certain parts omitted.

Figure 4 is a plan view of one modified form of the invention or the application of several of the devices shown in Figure 1.

Figure 5 is a view similar to Figure 4 showing another modification of the invention.

Figure 6 is a similar view to Figure 5 with only one of the devices therein shown in use.

Similar reference characters indicate corresponding parts throughout the several views in the drawings.

Referring to the drawings in detail, particularly Figures 1, 2 and 3 of the same, 10 denotes a die block having an opening 11 conforming in shape to that of the part to be cut or stamped from stock placed in a punch press or stamp machine of a standard construction. Above and aligned vertically with this opening 11 is a punch or stamping tool 12 which is fitted within a movable head 13, the punch or stamping tool 12 being adapted to accurately fit into the die opening 11 and operates through stripper plate 14, it having an opening 15 registering with the die opening 11.

Between the die block 10 and the stripper plate 14, which latter is superposed with respect to said block, are front and back gauges 16 and 17, respectively, these being spaced apart in parallel relation to each other to provide therebetween a guideway 18 for a strip stock 19 for punching or stamping action thereon by the punch 12 in the working of the press.

In Figures 1, 2 and 3 of the drawings there is shown one construction and arrangement of the device as constituting the present invention, which comprises a flat plate-like body portion 20, at one end a reduced arm extension 21 provided with a downturned substantially right-angular contact finger 22, while at the opposite other end of such body portion 20 is an upturned right-angular ear 23, the finger and ear being at right-angles to the plane of the body portion 20.

The body portion 20 is provided with an elongated slot 24 centrally thereof, which aligns with the finger and ear 22 and 23, respectively, and adapted to pass through this slot 24 is a guide screw 25 made fast in the stripper plate 14 to have the device located at one side of the guide-

way 18, which has a hole 26 opening into the same, the hole 18 being in the stripper plate and loosely receives the finger 22 so that the latter will make contact with the work 19 to urge it against the back gauge 17 for pressing contact therewith.

Anchored at one end on the screw 25 is one arm of a double arm expansion spring 27 which has its other arm engaged in the body portion 20 of the device, so that the spring will tension the latter in the direction of the work 19 to function as a stop and pusher therefor when in the guideway 18 during the punching operation of the press, as is clearly shown in Figures 1, 2 and 3 of the drawings.

In Figure 4 of the drawings there is shown two of the devices arranged on the stripper plate, these devices being denoted at 28 and 29, respectively, they being similar to each other, excepting that the device 28 in this particular instance has its finger 22 in the path of the end edge 30 of the work 19 to function as a stop for the latter. To avoid any displacement of the finger 22 away from the path of the work the opening 31 in the stripper plate has a straight abutment edge 32 for this finger 22.

The device 29 has its finger 33 slightly rounded at 34 along the outermost side edge to have the work 19 ride thereon when the said work is fed into the guideways in the press, this device 29 being effective as a pusher for the work to hold it against the rear gauge 17 of the press for accuracy in the punching operation of the same.

In Figures 5 and 6 of the drawings there is shown a modified form of stop and pusher device comprising a substantially T-shaped flat body portion 34 having at opposite ends of the cross-head area 25 thereof the fingers 36, which are downturned from the body portion 34 and operate through the round holes 37 in the stripper plate 14 on the press to engage and push the work 19 against the rear gauge 17. In Figure 5 of the drawings this device having the body portion 34 is in association with the device having the body portion 20, which in this instance the latter serves as a stop for the work, while the device with the body portion serves as a pusher for such work. The body portion 34 has the grip ear 38 which enables a user to move the device back away from the work against the resistance of the spring 39. Also one side edge of each finger 36 is rounded as at 40 for the riding of the work onto the same.

In Figure 6 of the drawings the device 41 which is similar to the device having the body portion 34 is used singly as a stop and pusher, in that the finger 42 engages the end of the work 19, while the finger 43 engages the side edge of such work forcing it back against the rear gauge of the press.

The devices hereinbefore described on engaging the work at one side edge thereof when within the guideway function as stops for such work, as well as a pusher for the same, so that the said work may be subjected to a step-by-step feed motion within this guideway, which may be done manually or otherwise.

As has been shown in the drawings, the device in one instance is a single unit device and in another instance a double unit device, as well

as for the use of both forms of devices in combination with each other.

What is claimed is:

1. In a punch press, the combination with a cooperating die and punch, said die having a stripper plate over-lying the same and spaced therefrom to afford a stock guideway, of a combined stop and pusher device having a body portion slidably fitted to the stripper plate, a downturned finger on the body portion and working through the stripper plate for disposition in the path of and against stock in the stock guideway, and tensioning means active on the body portion for urging the finger in engaging positions against the stock.

2. In a punch press, the combination with a cooperating die and punch, said die having a stripper plate over-lying the same and spaced therefrom to afford a stock guideway, of a combined stop and pusher device having a body portion slidably fitted to the stripper plate, a downturned finger on the body portion and working through the stripper plate for disposition in the path of and against stock in the stock guideway, tensioning means active on the body portion for urging the finger in engaging positions against the stock, and means connecting the body portion to the stripper plate for directing the finger toward the stock.

3. In a punch press, the combination with a cooperating die and punch, said die having a stripper plate over-lying the same and spaced therefrom to afford a stock guideway, of a combined stop and pusher device having a body portion slidably fitted to the stripper plate, a downturned finger on the body portion and working through the stripper plate for disposition in the path of and against stock in the stock guideway, tensioning means active on the body portion for urging the finger in engaging positions against the stock, means connecting the body portion to the stripper plate for directing the finger toward the stock, and an upturned hand grip on the body portion remote from the finger.

4. In a punch press, the combination with cooperating die and punch, a stripper plate over-lying the same forming a stock guideway and having an opening communicating with said guideway, of a combined stop and pusher pivotally and slidably mounted on the stripper plate and having a downwardly turned end entering the opening and engaging the edge of the stock, and spring means acting on the pusher for urging the finger into engaging position against the stock.

5. In a punch press, the combination with cooperating die and punch, a stripper plate over-lying the same forming a stock guideway and having two spaced openings communicating with said guideway, of a combined stop and pusher pivotally and slidably mounted on the stripper plate having inwardly extending arms provided with downwardly turned ends extending through the openings for engagement with the stock, an upwardly extending projection carried by the outer end of the combined stop and pusher, and spring means for urging the fingers into engaging position against the stock.

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