S. B. WOODWARD.

GUARD FOR PUNCHING MACHINES.

APPLICATION FILED MAY 17, 1921.

1,385,237.

Patented July 19, 1921.

2 SHEETS—SHEET 1.

Fig. 1.

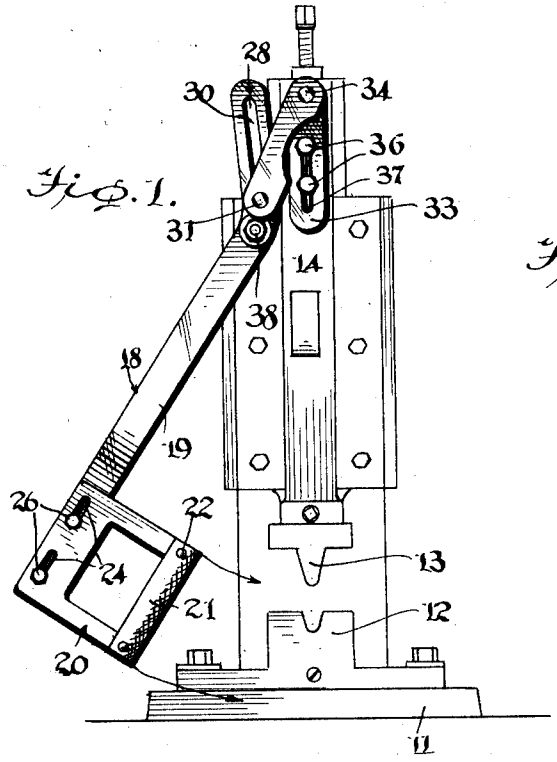


Fig. 2.

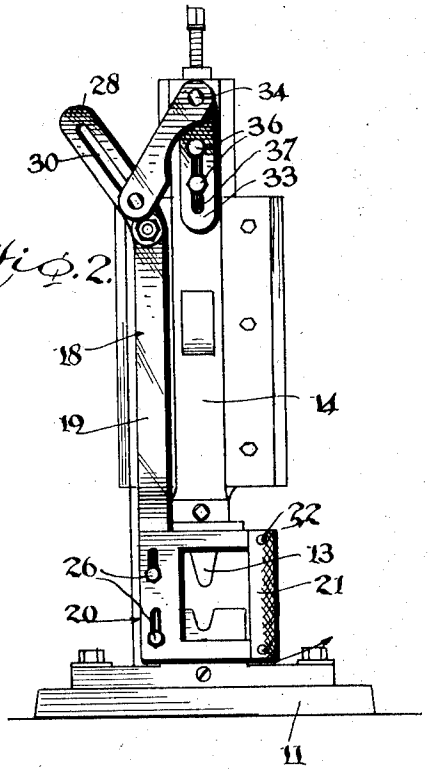


Fig. 3.

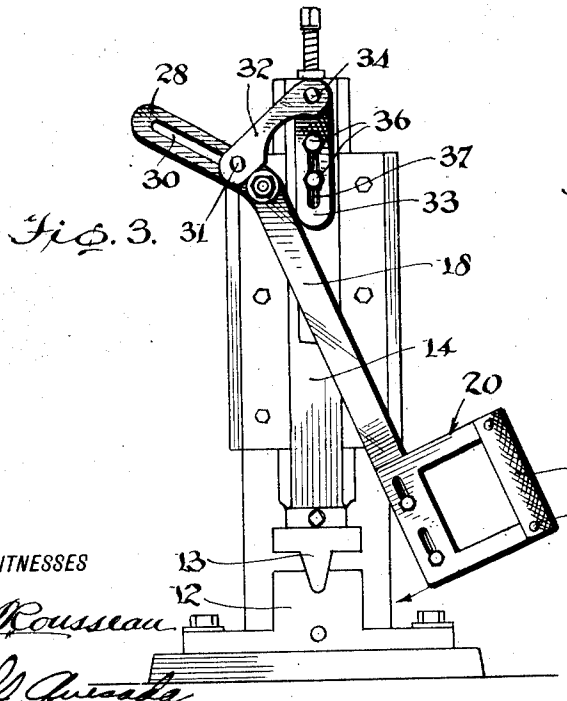
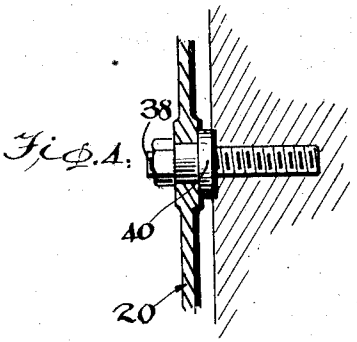


Fig. 4.



WITNESSES

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2 SHEETS—SHEET 2.

Fig. 5.

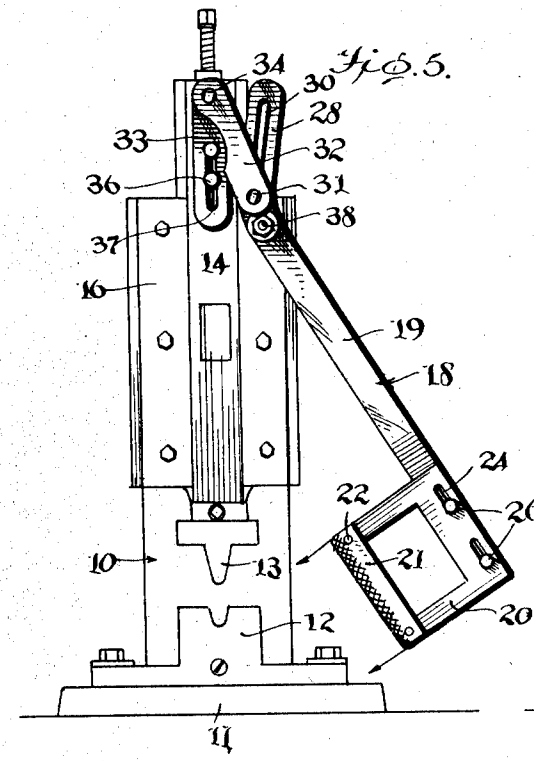
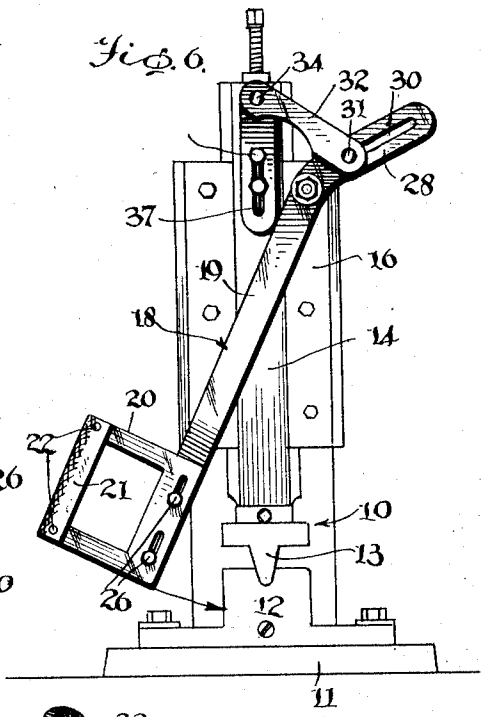


Fig. 6.



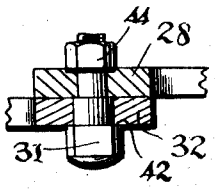


Fig. 7.

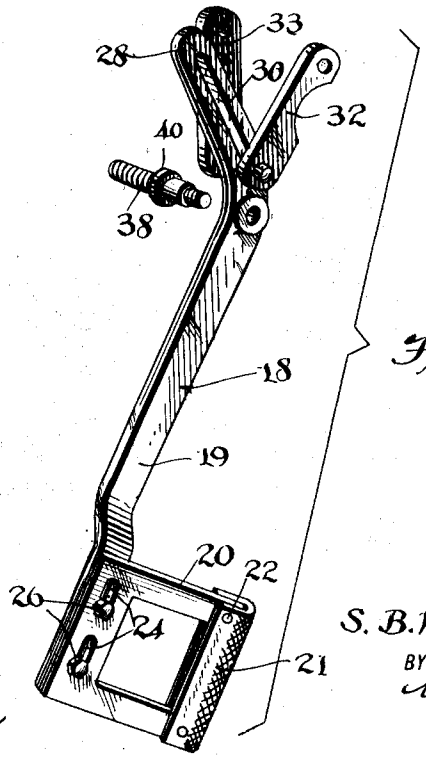


Fig. 8.

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UNITED STATES PATENT OFFICE.

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GUARD FOR PUNCHING-MACHINES.

1,385,237. Specification of Letters Patent. Patented July 19, 1921.

Application filed May 17, 1921. Serial No. 470,393.

To all whom it may concern:

Be it known that I, SAMUEL B. WOODWARD, a citizen of the United States, and a resident of Trenton, in the county of Mercer and State of New Jersey, have invented certain new and useful Improvements in Guards for Punching-Machines, of which the following is a specification.

This invention relates to guards especially adapted for use on punching machines.

An important object of this invention is to provide a guard for punching machines which will effectively prevent the operator from being injured when the movable die member carried by the ram descends.

A further object is to provide a guard which may be attached to either side of the machine for swinging to the right or to the left as may be desired.

A further object of the invention is to provide a guard having novel means whereby the zone of action of the same may be adjusted.

Other objects and advantages of the invention will be apparent during the course of the following description.

In the accompanying drawings forming a part of this application and in which like numerals are employed to designate like parts throughout the same,

Figure 1 is a front elevation of the improved guard applied, the same being shown in its inoperative or elevated position.

Fig. 2 is a similar view of the guard, the same being shown in its operative position in front of the dies.

Fig. 3 is a similar view, the guard being shown at the limit of its movement in one direction.

Fig. 4 is a detail section view illustrating the attaching means for the arm of the guard.

Fig. 5 is a front elevation of the guard applied to the right side of the machine and in its inoperative or elevated position.

Fig. 6 is a view similar to Fig. 5, the guard being shown swung to the left to the limit of its movement.

Fig. 7 is a detail sectional view through the guard.

Fig. 8 is a group perspective of the guard detached.

In the drawings wherein for the purpose of illustration is shown a preferred embodiment of the invention, the numeral 10 generally designates a stamping press having a base 11 upon which is mounted a female die 12 with which a male die 13 coöperates. The die 13 is as usual carried by a ram 14 slidable through vertical guides 16 arranged in spaced parallel relation.

The invention forming the subject matter of this application resides in providing novel means whereby a guard 18 may be swung in front of the dies 12 and 13 as the ram descends whereby the operator will be protected from injury.

The improved guard comprises an arm 19 having its forward end provided with a U-shaped sweeper 20 to which a leather contact strip is connected by means of rivets or other suitable fastening devices 22. The contact strip 21 is folded longitudinally and its opposite sides are secured to the opposite sides of the parallel arms of the sweeper 20 by means of the fastening devices 22. The U-shaped sweeper 20 has its bight portion formed with a pair of slots 24 which adjustably receive fastening bolts 26 employed for securing the sweeper to the lower portion of the arm. By loosening the bolts 26 the sweeper may be adjusted with relation to the arm 19 and with relation to the dies 12 and 13.

The rear portion of the arm is formed with a diagonally extending branch 28 having a longitudinal slot 30 which adjustably receives a pin 31 connected to the forward end of a link designated by the numeral 32. The upper or rear portion of the link 32 is pivotally connected to an attaching plate 33 by means of a pivot element 34. The attaching plate 33 is in turn secured to the upper portion of the ram 14 by means of a pair of spaced screw bolts 36 which are passed through a slot 37 in the lower portion of the attaching plate.

In the use of the improved guard the attaching plate 33 is secured to the front face of the ram adjacent the upper end thereof by means of the fastening bolts 36 and the arm 19 is pivotally secured to the standard of the press by means of a pivot element 38. The pivot element 38 is secured to the arm 19 slightly in advance of the diagonally extending branch 28 and is provided with a washer 40 which spaces the arm 19 from the adjacent guide 16 and thereby permits the same to have a clean sweep.

When the ram descends the arm 18 is swung downwardly and inwardly across the dies 12 and 13 and to a position on the other

side of the press thereby effectively sweeping the hand of the operator away should the operator be tardy in his action.

The speed with which the sweeper acts may be varied by adjusting the pivot bolt in the slot 30. When the pivot bolt 31 is in the rear portion of the slot 30 the speed of the sweeper will not be so rapid as when the bolt is secured in the forward portion of the slot. As illustrated in Fig. 7 the shank of the pivot bolt is provided with a reduced threaded shank defining an annular shoulder 42 which is engaged with one side of the branch 28 by a nut 44 threaded on the shank. By loosening the nut 44 the pivot bolt may be adjusted in the slot 30 for regulating the speed of the sweeper.

The improved guard may be applied to the left of the machine as illustrated in Figs. 1, 2, and 3, and when so applied will swing in an anti-clockwise direction to its operative position. Without any alterations whatever the improved guard may be removed and applied to the right side of the machine for swinging movement in a clockwise direction.

The guard forming the subject matter of this application is entirely automatic in its operation and does not interfere with the free and efficient use of the machine. The throw of the arm 19 may be varied by adjusting the attaching plate 33 vertically. This adjustment may be readily accomplished by loosening the fastening devices 36 and moving the attaching plate 33 either up or down.

It is to be understood that the form of the invention herewith shown and described is to be taken as a preferred example of the same and that such minor changes in arrangement and construction of parts may be made as will remain within the spirit of the invention and the scope of what is claimed.

Having thus described the invention, what is claimed is:—

1. A guard for punching machines comprising an arm having its rear portion formed with a diagonally extending branch having a longitudinal slot, a link having a pivot bolt adjustable in said slot, a pivot element engaged with said arm in advance of said slot, an attaching plate having a longitudinal slot, attaching bolts extending through said second named longitudinal slot and securing the attaching plate in position for vertical adjustment for varying the throw of said arm, a pivot pin connecting one end of said link to said attaching plate, and a sweeper adjustably connected to said arm.

2. A guard for punching presses comprising an arm having its rear portion formed with a diagonally extending branch having a longitudinal slot, a pivot element supporting said arm and extending through the same in advance of said branch, a link having a pivot bolt adjustable in said slot, an attaching plate having its upper end pivoted to the upper end of said link, and means adjustably securing the attaching plate to a movable portion of the press whereby the throw of the arm may be varied.

3. The combination with a punching press having a ram, of an attaching plate secured to the ram, a link pivotally connected at its upper end to said attaching plate, an arm having its intermediate portion pivotally connected to said press and provided at one end portion with a branch extending diagonally and formed with a longitudinal slot, a pivot bolt carried by the lower portion of said link and received within said longitudinal slot, a sweeper connected to the lower portion of said arm, means whereby said attaching plate may be adjusted vertically for varying the throw imparted to said arm, said pivot bolt being formed with a reduced shank defining an annular shoulder engaging one side of said branch and a nut threaded on said reduced shank.

4. A guard comprising an arm, a U-shaped sweeper having a bight portion flatly in contact with the forward portion of the arm and formed with spaced longitudinal slots, fastening bolts extending through said slots for adjustably securing the sweeper to said arm, and a yieldable contact strip folded longitudinally and secured at its ends to said sweeper.

5. A guard as herein specified, comprising an arm, spaced apart fingers projecting laterally from the lower end of same, and a yieldable contact strip bridging the space between said fingers and connected thereto.

6. Guard means as herein specified, comprising an arm member, pivotally secured adjacent its upper end to a stationary part of the press, a diagonally disposed guideway carried by said arm beyond its pivotal point, a link member adjustably coöperating with said guideway at one end, and means for adjustably connecting the other end with a movable member of the press, and a yieldable sweeper carried at the lower end of the arm.

SAMUEL BAKER WOODWARD.