April 5, 1927. 1,623,783

J. K. DIAMOND

FASTENER SETTING MACHINE

Filed Dec. 1, 1926

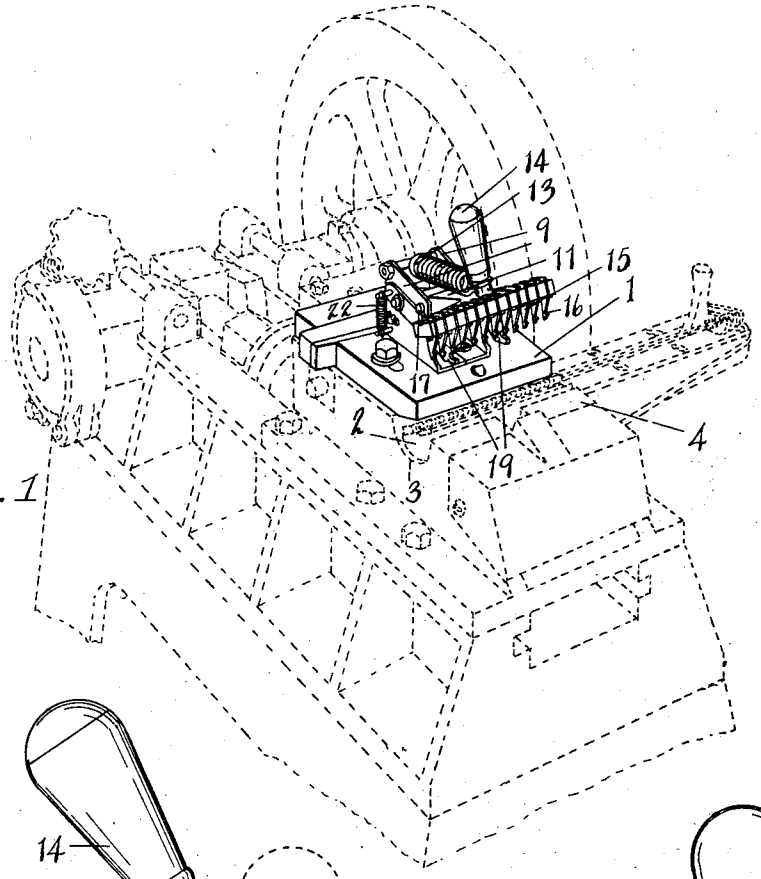


Fig. 1

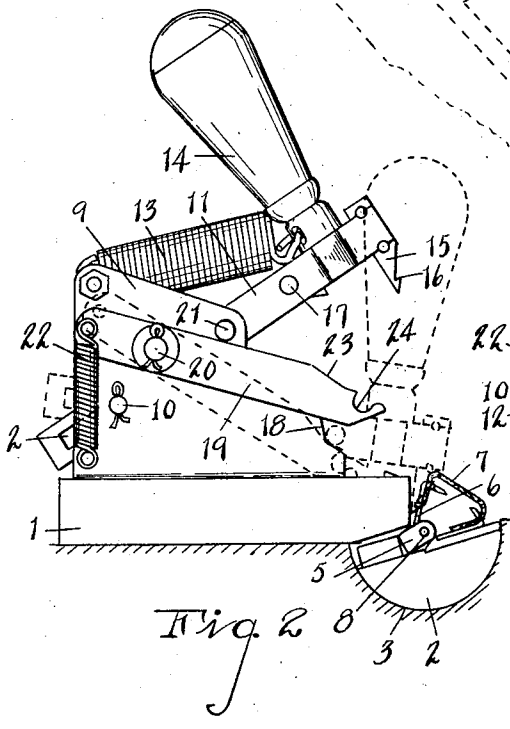


Fig. 2

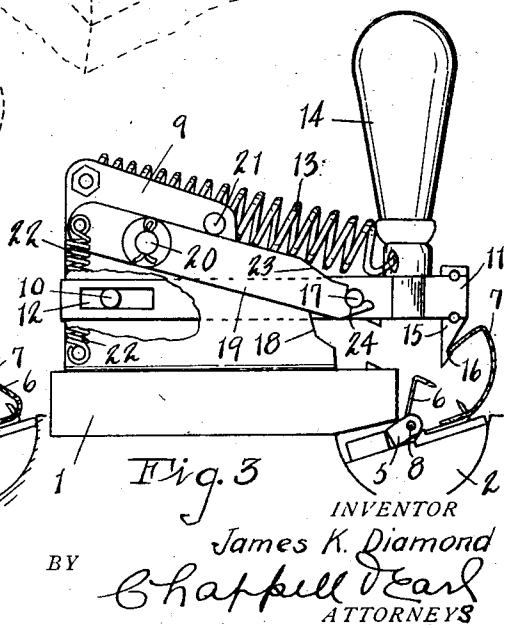


Fig. 3

INVENTOR
James K. Diamond
BY
Chappell Dearl
ATTORNEYS

Patented Apr. 5, 1927. 1,623,783

UNITED STATES PATENT OFFICE.

JAMES K. DIAMOND, OF GRAND RAPIDS, MICHIGAN, ASSIGNOR TO CLIPPER BELT LACER COMPANY, OF GRAND RAPIDS, MICHIGAN.

FASTENER-SETTING MACHINE.

Application filed December 1, 1926. Serial No. 152,009.

In machines for applying fasteners to belts, blowout boots and the like, such as are shown in my Patent No. 1,593,572, dated July 27, 1926, a plurality of fasteners mounted on cards are put in place in the machine and the cards removed. In my said patent, I illustrated one means for doing this.

The main objects of my present invention are:

First, to provide in a machine of the class described, an improved stripper for removing the fastener holding card after the same has been placed in the machine.

Second, to provide an improved stripper mechanism of the class described which is very easy to operate and highly efficient.

Third, to provide a structure having these advantages which is simple and economical and not likely to get out of repair.

Objects relating to details and economies of construction and operation of my invention will definitely appear from the detailed description to follow.

The invention is defined and pointed out in the claims.

A structure which is a preferred embodiment of my invention is illustrated in the accompanying drawing, forming a part of this application, in which:

Fig. 1 is a perspective view of a machine embodying the features of my invention, the parts particularly relating to my present improvements being shown in full lines, the associated parts being shown by dotted lines.

Fig. 2 is a detail side elevation with the stripper in its normal or retracted position, its work engaging position being indicated by dotted lines.

Fig. 3 is a fragmentary side elevation showing the stripper in an intermediate position on its return stroke.

In the drawing similar reference characters refer to similar parts throughout the several views.

In the accompanying drawing, the machine illustrated is an embodiment of certain features of the structure illustrated in my said Patent No. 1,593,572 and comprises a relatively fixed jaw 1 having a vertical face and a coacting rotatably mounted jaw 2, the jaw 2 being mounted in a curved bearing 3 in the bed 4 of the machine. The means for actuating the rotating jaw are not illustrated, suitable means being shown and described in detail in my said patent.

On the jaw 2 I mount a fastener holder 5 adapted to receive a plurality of fasteners 6. These fasteners are, in practice, mounted in sets upon a card 7, a set of the fasteners being arranged in the holder and retained therein by a pin 8 preferably as described in my said patent.

In my said Patent No. 1, 593,572, the jaw 1 has a slotted face into which the teeth of the stripper are retracted.

In my present improvements, the jaw 1 has a flat unbroken face so that the fasteners are uniformly supported and there are no slits or openings for them to wedge into when the jaws are closed.

I provide a support consisting of a pair of spaced upright support members 9 carrying a pin 10. The bar-like stripper 11 is longitudinally slotted at 12 to receive this pin so that the stripper is supported for a combined swinging and longitudinal movement. The coiled spring 13 acts to normally hold the stripper in its retracted elevated position as shown in Fig. 2.

The stripper is provided with an upwardly projecting handle 14 adjacent its front end and has a plurality of downwardly projecting forwardly facing teeth 15 notched at 16 to facilitate their engagement with the edge of the card 7.

As the stripper is swung downwardly and pulled forwardly by the operator, the lugs 17 projecting laterally from the stripper are brought into engagement with the forwardly facing cam portions 18 on the supports, thereby guiding the teeth into work engaging position, as shown by dotted lines in Fig. 2.

On the downward movement of the stripper, the lugs 17 are brought into engagement with the control levers 19 which are pivoted at 20 and held yieldingly against the stops 21 by the coiled springs 22. These levers have inclined parts 23 which permit the lugs to ride on the cams 18, the inclined parts 23 terminating in keepers 24 with which the lugs 17 engage when the stripper is in its work engaging position.

These control levers engaging the stripper, hold it against retracted movement during the initial part of its return stroke so that during this part of its return stroke, the stripper teeth are given a forward and

upward movement, disengaging the card from the rear prongs of the fasteners and lifting it from the fasteners, as shown in Fig. 3.

When the levers come into contact with the stops 21, the lugs 17 are disengaged from the keepers under the action of the spring 13, so that in operation, when the operator pulls downwardly and forwardly on the handle 14, the stripper is brought into work engaging position, and continued forward pull engages the work and frees the card from the rear prongs.

It is not necessary for the operator to push rearwardly on the handle, but as it is released at the end of the forward pull, the spring 13 will return the parts to initial position. With the card disengaged from one set of fastener prongs, it may be easily disengaged from the other merely by pulling upwardly thereon.

My improved stripper is very simple and practical in structure and operation.

I have illustrated and described my improvements as I have embodied them in practice. I have not attempted to illustrate and describe certain modifications and adaptations which I contemplate as it is believed that this disclosure will enable those skilled in the art to embody or adapt my improvements as may be desired.

Having thus described my invention, what I claim as new and desire to secure by Letters Patent, is:

1. In a structure of the class described, the combination of a fixed jaw having a vertical face, a movable jaw operatively associated therewith and provided with a fastener holder adapted to receive a plurality of fasteners, upright spaced support members disposed above and at the rear of said fixed jaw, said support members having forwardly inclined cams on their forward edges, a stripper supporting pin extending between said support members, a stripper longitudinally slotted to engage said pin whereby it is supported for reciprocating and swinging movement, said stripper being provided with a plurality of downwardly projecting forwardly facing notched teeth spaced to pass between the fasteners mounted in said holder, a spring acting to normally hold said stripper in its retracted elevated position, lugs on said stripper engaging said cams on the down stroke of the stripper whereby the stripper is moved forwardly, stripper control levers pivotally mounted on said supports to be engaged by said lugs on the down stroke of the stripper and provided with keepers engaging said lugs when the stripper is in its actuated position to impart a forward movement during the initial part of its return stroke, actuating springs for said control levers, and stops on said supports limiting the upward movement of said control levers so that the stripper is disengaged therefrom.

2. In a structure of the class described, the combination of coacting jaws, a fastener holder adapted to receive a plurality of fasteners operatively associated with said jaws, spaced support members having forwardly inclined cams on their forward edges, a stripper supporting pin extending between said support members, a stripper longitudinally slotted to engage said pin whereby it is supported for reciprocating and swinging movement, said stripper being provided with a plurality of downwardly projecting forwardly facing notched teeth spaced to pass between the fasteners mounted in said holder, a spring acting to normally hold said stripper in its retracted elevated position, lugs on said stripper engaging said cams on the down stroke of the stripper whereby the stripper is moved forwardly, stripper control levers pivotally mounted on said supports to be engaged by said lugs on the down stroke of the stripper and provided with keepers engaging said lugs when the stripper is in its actuated position to impart a forward movement during the initial part of its return stroke, actuating springs for said control levers, and stops on said supports limiting the upward movement of said control levers so that the stripper is disengaged therefrom.

3. In a structure of the class described, the combination of a fixed jaw having a vertical face, a movable jaw operatively associated therewith and provided with a fastener holder adapted to receive a plurality of fasteners, upright spaced support members disposed above and at the rear of said fixed jaw, said support members having forwardly inclined cams on their forward edges, a stripper supporting pin extending between said support members, a stripper longitudinally slotted to engage said pin whereby it is supported for reciprocating and swinging movement, a spring acting to normally hold said stripper in its retracted elevated position, lugs on said stripper engaging said cams on the down stroke of the stripper whereby the stripper is moved forwardly, stripper control levers pivotally mounted on said supports to be engaged by said lugs on the down stroke of the stripper and provided with keepers engaging said lugs when the stripper is in its actuated position to impart a forward movement during the initial part of its return stroke, actuating springs for said control levers, and stops on said supports limiting the upward movement of said control levers so that the stripper is disengaged therefrom.

4. In a structure of the class described, the combination of coacting jaws, a fastener holder adapted to receive a plurality of fasteners operatively associated with said jaws,

spaced support members having forwardly inclined cams on their forward edges, a stripper supporting pin extending between said support members, a stripper longitudinally slotted to engage said pin whereby it is supported for reciprocating and swinging movement, a spring acting to normally hold said stripper in its retracted elevated position, lugs on said stripper engaging said cams on the down stroke of the stripper whereby the stripper is moved forwardly, stripper control levers pivotally mounted on said supports to be engaged by said lugs on the down strike of the stripper and provided with keepers engaging said lugs when the stripper is in its actuated position to impart a forward movement during the initial part of its return stroke, actuating springs for said control levers, and stops on said supports limiting the upward movement of said control levers so that the stripper is disengaged therefrom.

5. In a structure of the class described, the combination of coacting jaws, a fastener holder, a stripper supported for reciprocating and swinging movement provided with notched teeth, a spring acting to hold said stripper normally in its retracted position, a cam with which said stripper engages on its down stroke whereby the stripper is guided into operative relation to the work, a spring actuated stripper control lever engaging said stripper during the initial part of its return stroke whereby the stripper is moved forward, and a stop limiting the upward movement of said control lever whereby the stripper is disengaged therefrom under the action of the said stripper return spring.

6. In a structure of the class described, the combination of coacting jaws, a fastener holder adapted to receive a plurality of fasteners operatively associated with said jaws, a stripper supported for reciprocating and swinging movement and provided with notched work engaging teeth spaced to pass between the fasteners mounted in said holder, a cam with which said stripper engages on its down stroke whereby the stripper is guided into operative relation to the work, a stripper control lever engaging said stripper during the initial part of its return stroke whereby the stripper is moved forward, and a stop limiting the upward movement of said control lever whereby the stripper is disengaged therefrom on the return stroke of the stripper.

7. In a structure of the class described, the combination of fastener setting means, a fastener holder operatively associated with said fastener setting means, a stripper supported for reciprocating and swinging movement, a cam with which said stripper engages on its down stroke whereby the stripper is guided into operative relation to the work, a stripper control lever engaging said stripper during the initial part of its return stroke whereby the stripper is moved forward, and a stop for limiting the upward movement of said control lever whereby the stripper is disengaged therefrom on its return stroke.

8. In a structure of the class described, the combination of fastener setting means, a fastener holder operatively associated with said fastener setting means, a stripper mounted for reciprocating and swinging movement, a spring acting to normally hold said stripper in its elevated position, means for moving said stripper forwardly into operative relation to the work on the downward stroke of the stripper, and a means acting to further advance the stripper during the initial part of its return stroke.

9. In a structure of the class described, the combination of fastener setting means, a fastener holder operatively associated with said fastener setting means, a stripper mounted for reciprocating and swinging movement, means for moving said stripper forwardly into operative relation to the work on the downward stroke of the stripper, and a means acting to further advance the stripper during the initial part of its return stroke.

10. In a structure of the class described, the combination of fastener setting means, a fastener holder operatively associated therewith, a stripper mounted for reciprocating and swinging movement, means for moving said stripper forwardly into operative relation to the work on the downward stroke of the stripper, and means for imparting a forward and upward movement to said stripper after the same is positioned to engage the work.

11. In a structure of the class described, the combination of fastener setting means, a fastener holder, a stripper supported for combined reciprocating and swinging movement, means for guiding said stripper into operative relation to the work on the down stroke thereof, and means for imparting a forward and upward movement from such work engaging position.

In witness whereof I have hereunto set my hand.

JAMES K. DIAMOND.