Jan. 6, 1953 C. E. NYBERG 2,624,046

DESK STAPLER

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Fig. 1.

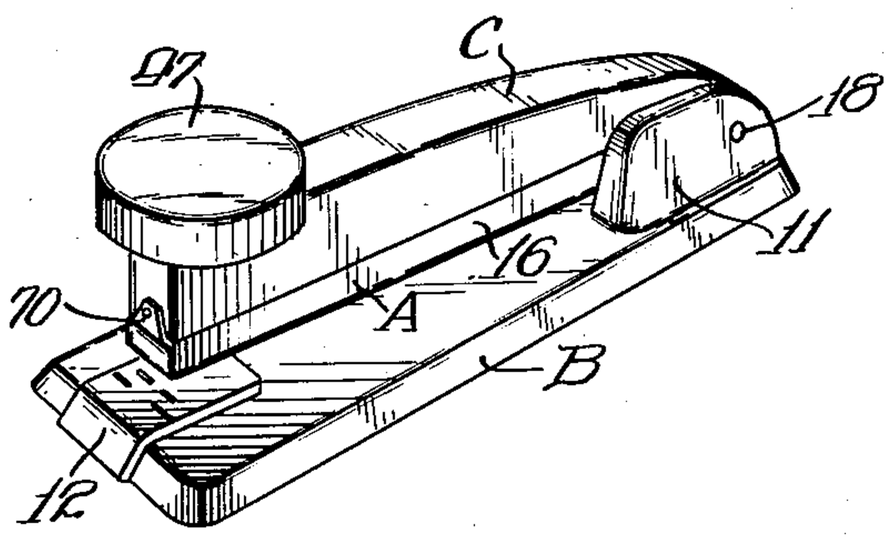


Fig. 2.

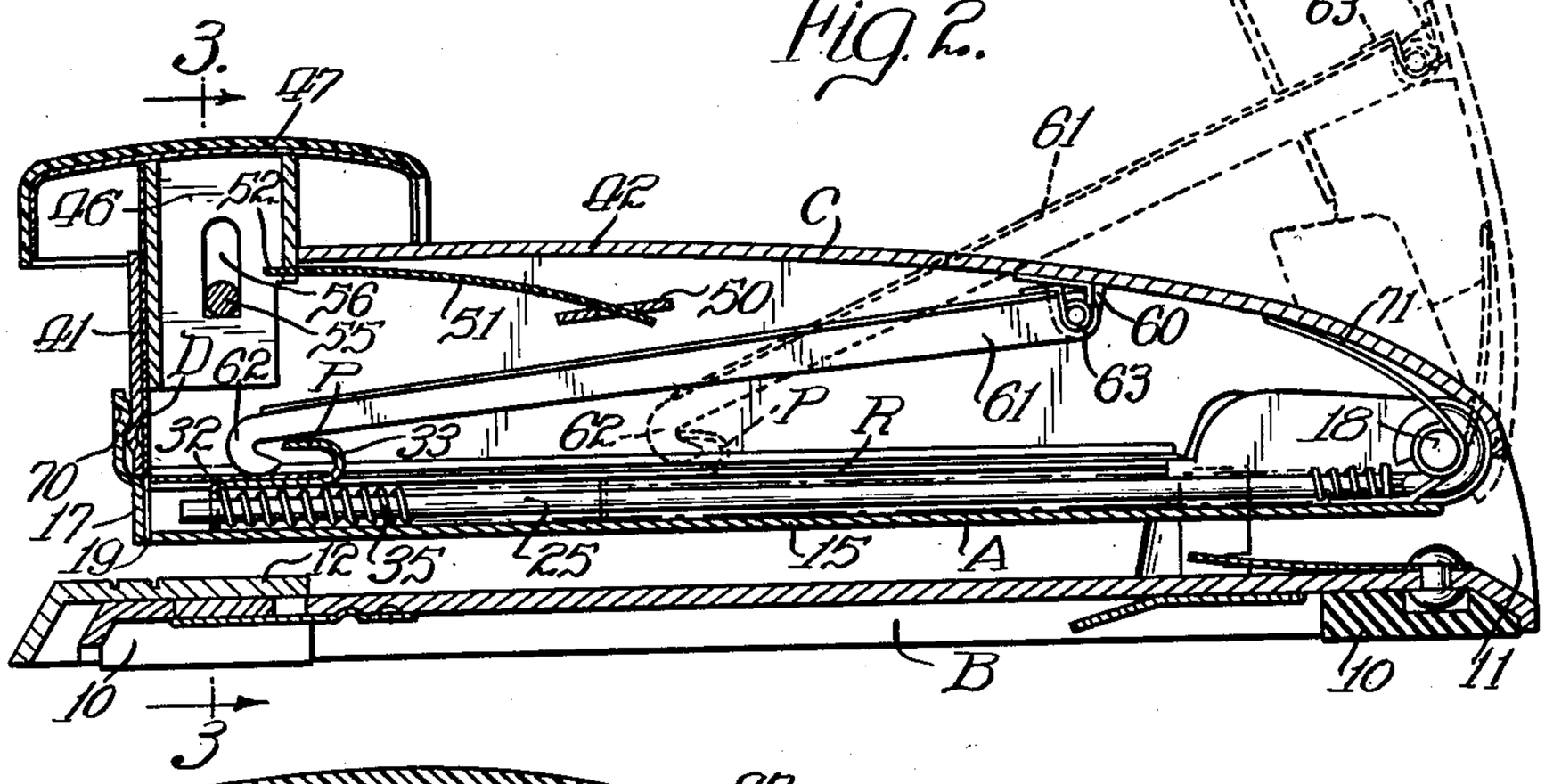
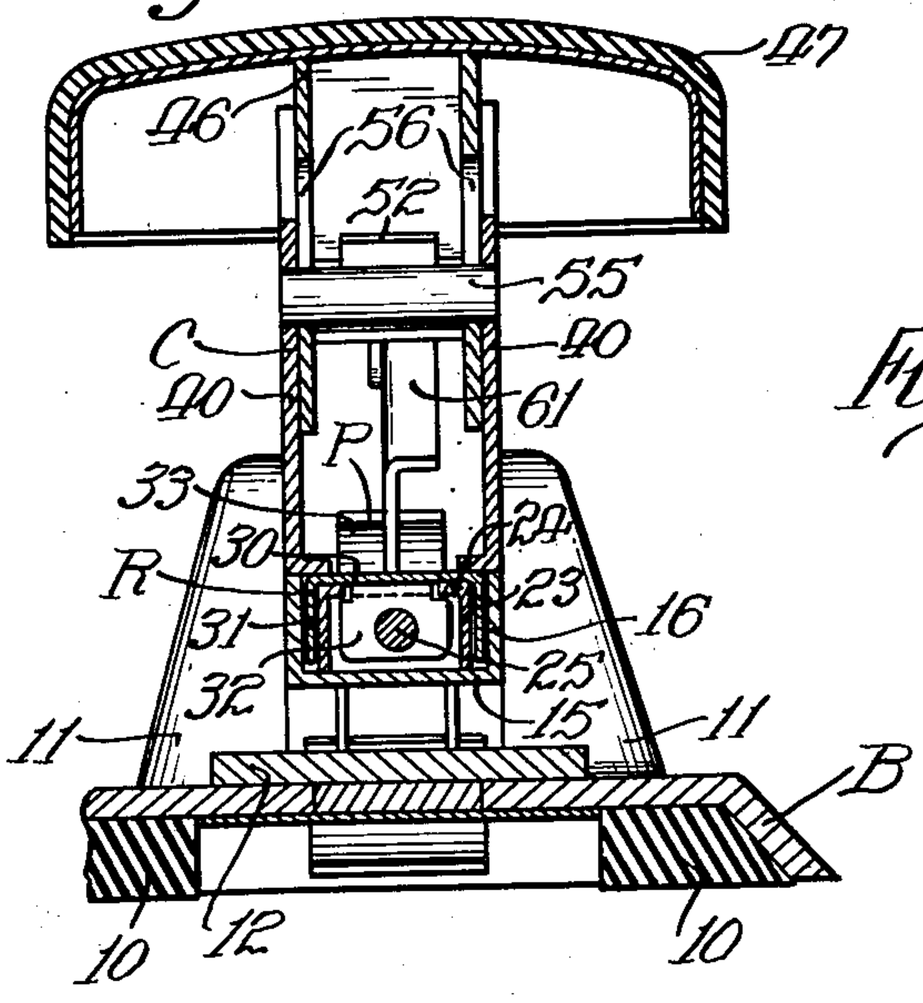


Fig. 3.



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DESK STAPLER

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8 Claims. (Cl. 1—3)

1

This invention relates to stapling machines and more particularly to the type known as a desk stapler.

It has for its objects to provide a greatly improved and simplified stapler in which the mere act of opening the cover automatically retracts the staple pusher means and fully exposes the staple magazine so that a new supply of staples may be placed therein.

Another object is to provide a means of retracting a staple pusher which is positive and trouble-free, and still another object is to provide a stapling machine of greater durability which is less costly to manufacture.

Other objects and advantages will become apparent from a consideration of the following detailed description taken in connection with the accompanying drawings wherein a preferred embodiment of my invention is shown. However, it will be understood that the invention is not limited to the details disclosed but includes all such variations and modifications as fall within the spirit of the invention and the scope of the appended claims.

Figure 1 is a perspective view of the present stapler;

Fig. 2 is a central longitudinal sectional view; and

Fig. 3 is a transverse sectional view, taken on line 3—3 of Fig. 2.

Referring now with greater particularity to the drawings, the stapler of this invention comprises three principal units, namely a base B, a magazine (staple) arm A and a cover C. The base B may be fitted with rubber feet 10 to prevent scratching of table and desk surfaces. A pair of spaced parallel ears 11 extend upwardly from the base B near the rear end thereof, and an anvil 12 of the usual type adapted for staple clinching is seated upon the base near the forward end thereof.

The arm A which is in the form of an upwardly facing channel having a bottom 15, sides 16, and a front end wall 17, is pivotally carried between the ears 11 by a pin 18. Adjacent the front wall 17 is a vertical transverse slot 19 extending through the bottom 15.

A staple rail R in the form of an upwardly facing channel with vertical walls 23 each having at its top an inturned flange 24, is positioned between and spaced away from the sides 16 of the arm A and extends from the slot 19 rearwardly for substantially the full length of the arm. A rod 25 extends longitudinally between the walls 23. The rearward end of the rod 25 is formed into an eye which encircles the pin 18, and its front end terminates short of the slot 19.

There is also provided a staple pusher P in the form of an inverted U having a top 30, sides 31, a lug 32 depending from the top 30 between the sides 31, and an upwardly projecting forwardly

2

facing hook 33. This pusher is arranged to ride upon the staple rail R with its sides 31 positioned between the rail walls 23 and the arm sides 16, and the depending lug 32 extended between the rail walls 23 and under the inturned flanges 24 so as to be confined thereby. An opening in the depending lug 32 is adapted to slidingly receive the rod 25, and a spring 35 encircling the rod 25 serves to urge the staple pusher forwardly in a manner common to the staple art.

The cover C is in the form of a downwardly facing channel having sides 40, a front wall 41, and a top 42 which slopes downwardly towards the rear. The cover is pivotally mounted on the pin 18 which extends between the ears 11. A staple driver D is positioned adjacent the inside of the front wall of the cover and in vertical alignment with the slot 19. This driver is affixed to the front side of a four-sided tubular post 46 which is arranged for vertical movement within the cover C. A knob 47 is mounted on top of the post.

A bracket 50 is secured between the sides 40 of the cover C medially of its ends, as shown in Fig. 2. Inserted in an opening in the bracket 50 is one end of a leaf spring 51 whose other end 52 engages the post 46 so that when the staple driver D is forced downwardly in response to pressure on the knob 47, the spring 51 exerts an upward tension which causes the staple driver to be raised following each stroke. The range of the staple driver is limited by a transverse pin 55 the ends of which are affixed to the sides of the cover for extension through vertical slots 56 in the sides of the tubular post 46, thereby restricting vertical movement of the staple driver D to the length of the slots 56.

Affixed to the under side of the cover top 42 and toward the rear thereof is a depending ear 60 to which is pivotally attached one end of an arm 61 which extends forwardly and downwardly to terminate in a downwardly and rearwardly facing hook 62 adapted for engagement with the forwardly facing hook 33 on the staple pusher. A spring 63 constantly urges the arm 61 downwardly. The arrangement is such that when the cover C is in its normal closed position the arm hook 62 will be adjacent the forward end of the staple rail R. When the cover is raised, the arm 61 automatically moves rearwardly, and in so doing the arm hook 62 engages the pusher hook 33 to move the pusher P rearwardly on the staple rail R as shown in dotted lines in Fig. 2. After a new supply of staples has been placed upon the now fully exposed staple rail, closing of the cover C automatically will cause the arm 61 to move forwardly, thus disengaging itself from the staple pusher P which, in turn, resumes its normal function of pushing the staples toward the staple driver D.

Mounted on the front end wall 17 of the arm A is a spring latch 70 adapted to engage and

retain the cover C in its closed position. A spring 71 near the rear of the cover C exerts an upward tension thereon.

To replenish the staple supply it is merely necessary to release the latch 70 after which the spring 71 will then automatically raise the cover C, and in so doing the arm hook 62 will engage the pusher hook 33 and move the pusher to the rear of the staple rail R. The operator then only has to place a new supply of staples on the rail, close the cover C, and the stapler is ready for use.

It will be observed from the foregoing description that my invention provides a particularly simple, compact and trouble-free staple pusher retraction means which operates automatically to expose the staple rail and hold the pusher in inoperative position during the time new staples are being inserted and automatically restores the pusher to operative position when desired.

It is also to be noted that the mechanism of my stapler is simple in construction, compactly arranged and so designed as to be capable of economical manufacture. The parts of the mechanism are designed for strength to insure long life and accessibility to aid in assembling the mechanism or removing the parts for repair or replacement.

The present embodiment is to be considered in all respects as illustrative and not restrictive, the scope of the invention being indicated by the appended claims rather than by the foregoing description, and all changes which come within the meaning and range of equivalency of the claims are therefore intended to be embraced therein.

I claim:

1. In a stapling machine, a base, an arm pivotally connected to said base, staple supporting means on the arm, a pusher slidably guided on the staple supporting means, a cover pivotally connected to said base, staple driving means at the front end of the cover, and a rigid arm pivotally connected to the cover and extended forwardly toward the front end thereof, and coacting means on the pusher and front end of the arm, operable when the arm is retracted in response to opening movement of the cover, to retract the pusher therewith and to disengage therefrom to free the same when the cover is returned to closed position.

2. A stapling machine comprising a base, a staple supporting arm having a pusher slidably mounted thereon, a cover mounted for movement through a fixed path to enclose or expose the staple supporting arm, and a hook swingably attached to the cover and adapted to engage the pusher and pull it rearwardly upon movement of the cover in one direction and to disengage the pusher upon movement of the cover in the other direction.

3. In a device of the type specified, a staple supporting member, a staple pusher slidably mounted thereon, a pivotally mounted cover over the staple supporting member, and rigid means connected with the cover depending therefrom and having an element for releasably engaging the pusher to retract the same when the cover is pivotally moved away from the staple supporting member and to disengage the pusher to free the same when the cover is moved back into position over the staple supporting member.

4. In a stapling machine, a base, a staple supporting arm, a staple pusher slidably mounted on the arm, a cover pivotally attached to the

base arranged for vertical swingable movement relative to the base, rigid means connected with the cover and depending therefrom and extending toward the staple pusher and having an element for engagement therewith, and operable, when the cover is swung away from the base, to retract the pusher, said engaging element being releasable from the pusher to free the same when the cover is swung toward the base.

5. In a stapling machine, a base, a staple carrying arm, a staple pusher on the arm, a lug on the pusher, a cover swingably mounted relative to the arm, means swingably depending from the cover and adapted at one end for engagement with the lug, the whole being arranged so that when the cover is swung away from the arm the depending means engages the lug to move the pusher rearwardly and when the cover is swung toward the arm the depending means disengages itself from the lug, said depending means constituting the sole means for moving the pusher rearwardly.

6. A stapling machine comprising a base, a staple supporting arm, a staple pusher slidably mounted on the arm, a cover movably guided relative to the supporting arm, a second arm pivotally secured at one end to the cover and depending downwardly and forwardly therefrom so that when the cover is moved toward the staple supporting arm the lower end of the second arm will slide forwardly along the staple supporting arm and conversely when the cover is moved away from the staple supporting arm the second arm will slide rearwardly along the staple supporting arm.

7. A stapling machine comprising a staple supporting arm in pivotal connection near one end with a cover therefor arranged to swing away therefrom to an open position, a staple pusher slidably mounted on the staple supporting arm, tension means normally urging the staple pusher to a forward position on the staple supporting arm, and a rigid one-way motion-transmitting separable connection between the cover and the staple pusher for retracting the pusher when the cover is swung to open position and operating when the cover is returned to closed position to disconnect from the pusher to free the same for forward advance in response to pressure of the tension means.

8. In a stapling machine comprising a base, a staple supporting arm for reception of a strip of staples and having a staple pusher slidably mounted therein; a cover for said staple supporting arm; means pivoting said arm and said cover for relative movement to and from each other to expose the staple supporting arm; and a hooked member swingably attached to the cover and engageable with the pusher for movement in one direction by the relative movement between the cover and staple supporting arm away from each other to expose the staple supporting arm, and to disengage the pusher upon relative movement of the cover and staple supporting arm toward each other to cover the staple supporting arm.

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The following references are of record in the file of this patent:

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