Sept. 9, 1924. 1,507,775

W. HOEHN

STAPLING MACHINE

Filed July 11, 1923

Fig. 1.

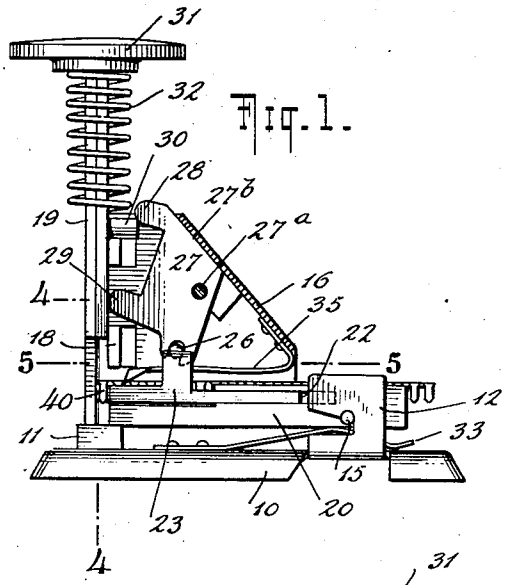


Fig. 2.

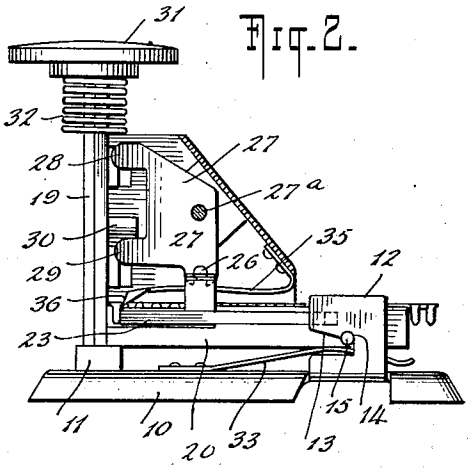


Fig. 3.

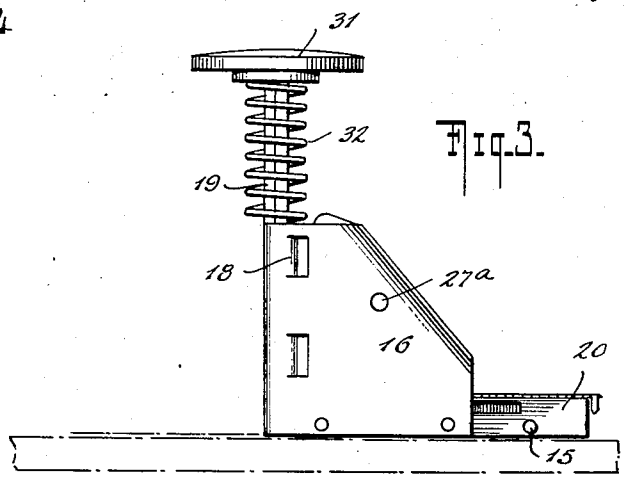


Fig. 4.

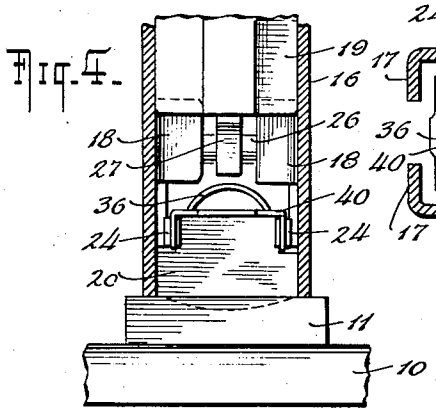
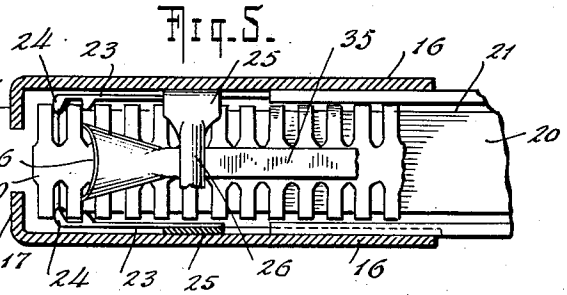


Fig. 5.



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WILLIAM HOEHN, OF BROOKLYN, NEW YORK.

STAPLING MACHINE.

Application filed July 11, 1923. Serial No. 650,794.

To all whom it may concern:

Be it known that I, WILLIAM HOEHN, a citizen of the Republic of Germany, residing at Brooklyn, county of Kings, and State of New York, have invented certain new and useful Improvements in Stapling Machines, of which the following is a specification.

This invention relates to stapling machines of the type designed for office use and wherein a metal staple is detached from a staple strip by the depression of a handle which is normally spring pressed to an upper position, and which handle carries at its lower end a hammer which engages the outermost staple to detach it from the staple strip, force it downwardly through the paper or other article to be stapled and against a block or anvil between which and the hammer the prongs of the staple are bent and compressed into firm engagement with the article to be stapled.

Devices of this character are subjected to the following objections:

1st. The severing of the end staple from the staple strip tends to turn the prongs of the staple inwardly towards the back of the machine out of a true vertical line, thus not only causing the staples to jam within and clog the groove leading to the anvil, but also preventing the pointed prongs of the staple from properly piercing and penetrating the article to be stapled.

2nd. The machines frequently fail to feed the staple strips uniformly and positively, and

3rd. The force of the reaction due to the severing of the outermost staple frequently causes the strip to be forced rearwardly in the machine so that a staple will not be presented to the hammer for the next blow thereof.

The principal object of this invention therefore is to provide a new and improved construction of a machine of the character described which will overcome the defects enumerated above.

Another object is to provide a simple construction of a machine of this character which may be manufactured and sold at a low price.

A further object is to provide a machine the operative or moving upper part of which may be quickly and easily detached from the lower parts so as to permit a staple to be driven into an article at a greater distance from the edges thereof than would be possible with the machine entirely assembled, as for example when it is desired to place a mailing or address card upon the center of a box or carton.

Another object is to so construct the feeding jaws that they form securing means in addition to the usual retaining pawl to hold the staple strip from being pushed rearwardly when the staple is severed from the strip by the actuation of the hammer.

For the accomplishment of these and such further objects as will hereinafter be apparent to those skilled in the art to which this appertains, the invention consists in the construction, combination and arrangement of parts herein specifically described and illustrated in the accompanying drawings, wherein is shown a preferred embodiment of the invention, but it is to be understood that changes, variations and modifications may be resorted to which fall within the scope of the claims hereunto appended.

In the drawings forming a portion of this specification:

Fig. 1 is a central vertical section through a machine embodying my invention showing the handle and hammer in normal elevated position.

Fig. 2 is a view similar to Fig. 1 showing the handle and hammer depressed.

Fig. 3 is a side elevation showing the upper part of the machine detached from the base.

Figs. 4 and 5 are sections on the lines 4—4 and 5—5 of Fig. 1 respectively.

As shown in the drawings, the numeral 10 indicates the base of the machine provided adjacent its front end with the anvil 11 and adjacent its rear end with the upwardly extending flanges 12. The flanges 12 are provided with the open end slots 13 terminating in the recesses 14 in which the pins 15 projecting laterally from the upper section are adapted to engage. A casing 16 to enclose the upper parts is preferably made of a single sheet of metal stamped out to the desired shape and size and having at its front edges the inwardly turned flanges 17 which cooperate with the inwardly bent struck out lugs 18 to form a guideway for the hammer 19.

Suitably secured within the casing 16 is a block 20 provided with the longitudinally extending grooves 21 to form a guideway and support for the staple strips. The side faces of the block 20 are channelled out as at

22 to form guideways for the spring metal feed slides 23 which extend forwardly and terminate in the double jawed feed dogs 24. A cross bar 25 connects the two feed slides 23 and extends above the top of block 20 in spaced relationship thereto as clearly shown in Fig. 4.

The central part of cross bar 25 is narrowed to form a substantially cylindrical section which engages within a notch 26 formed in the lower face of a cam 27 which is pivotally secured as at 27[a] within the casing 16.

Cam 27 is provided with the forwardly extending upper and lower projections 28 and 29 respectively which are adapted to be engaged by a pin 30 secured in and projecting rearwardly from the inner face of the hammer 19. A handle 31 is secured upon the upper end of the hammer 19 and a coil spring 32 which encircles the hammer abuts against the lower face of the handle and the upper edge of the casing 16 to normally hold the handle in its uppermost position.

A flat spring 33 has one end anchored to the base 10 and its free end bears against block 20 to normally hold the pins 15 which are secured in the block 20, within the recesses 14 to lock the upper and lower sections of the device together.

A retaining pawl to prevent backward movement of the staple strips consists of a flat spring metal piece 35 having its rear end anchored to the rear wall of casing 16 and its front end widened and curved as at 36 to engage the staple strip in the spaces between the adjacent staples.

It will be noted that the feed slides and cooperating parts are so proportioned and arranged that the front faces of the feed dogs 24 will be exactly in alignment with the front face of the block 20 when the parts are in the position shown in Fig. 1 and also that the feed dogs are in engagement with the full length of the prongs of the staple. This construction is of considerable importance because as the staple is severed from the staple strip, the combined action of the hammer with the holding of the connecting web between the adjacent staples will normally tend to rotate the staple in a counterclockwise direction unless the lowermost edges of the prongs of the staple are firmly supported.

It will also be noted that the top face 27[b] of the cam 27 engages the inclined inner face of the casing when the hammer is raised and thereby acts through the pin 30 and upper projection 28 of the cam to limit the upward movement of the hammer. By referring to the drawings it will be seen that the feed dogs 24 comprise a pair of jaws the outer one of which engages behind the prongs of the first staple and the inner one engages behind the prongs of the second staple consequently the inner jaw also performs the function assisting the retaining pawl 35 to prevent rearward movement of the staple strip under the force of the reaction due to the severing of the outer staple 40 by the hammer 19.

The operation of the device is as follows: Assuming the parts to be in the position shown in Fig. 1, when the handle is depressed, the lower face of the hammer will engage the end staple 40 and sever it from the staple strip, the retaining pawl 35 and the inner jaws of the dogs 24 preventing backward movement of the staple strip. The hammer 19 then carries the detached staple downwardly through the channel provided between the front face of block 20 and the inturned flange 17 of case 16 until the prongs of the staple are forced through the article to be stapled and the prongs are compressed between the hammer and anvil in the manner common to devices of this character. As the hammer approaches the end of its travel, pin 30 engages projection 29 and moves cam 27 in a counterclockwise direction, thereby moving feed slides 23 backwardly by means of the cross bar 25 and recess 26. As the feed slides recede feed dogs 24 will spring outwardly and then engage behind the next staple, the retaining pawl 35 preventing backward movement of the strip. As the hammer moves upwardly under the influence of spring 32, the pin 30 will engage the upper projection 28 as the hammer approaches the upper end of its travel, thus moving the cam 27 in the reverse or clockwise direction, the feed slides and dogs pushing the staple strip forward to bring another staple beneath the hammer.

If it is desired to drive a staple through an article at a distance from its edge portion which could not be reached when the upper section is attached to the lower section, it is only necessary to press downwardly against the rear edge of the block 20 so as to depress spring 33 sufficiently to permit the pins 15 to become disengaged from the recesses 14, the upper section may then be slid forwardly and the hammer placed over any desired point on an extended surface as shown in Fig. 3. I have found that the device may be used in the manner shown in Fig. 3 for a great variety of uses such as for securing address cards on cartons, etc. for which the usual machines can not possibly be employed.

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

1. In a portable hand operated stapling machine, the combination of a base provided with an anvil block and with vertical flanges having open ended slots terminating in pin receiving recesses, an upper section comprising the movable parts of the machine provided with pins adopted to detachably en-

gage the recesses of said flanges, and a spring secured at one end to said base and having its free end pressing upward against said upper section at its pivotal connection with said base.

2. In a portable hand operated stapling machine, the combination of a base, a die having channeled guideways at its side faces, spring metal feed slides terminating in double jawed feed dogs, a cross bar connecting said feed slides and extending above said die and having a cylindrical central portion, a casing carrying said die and pivotally connected with said base, and a cam pivotally mounted upon said casing and provided with a notch engaging the cross bar of said slides.

3. In a portable hand operated stapling machine, the combination of a base, a die having channeled guide ways on its sides, spring metal slides engaging said guideways and terminating in double jawed dogs, a cross bar connecting said feed slides and extending above said die, a casing carrying said die and pivotally connected with said base and provided with a hammer, and a cam pivotally mounted upon said casing engaging said hammer and provided with a notch engaging the cross bar of said slides and the face of said cam being adapted to engage the back wall of said casing and act as a stop for said hammer.

4. In a stapling machine of the class described, the combination of a base, a die provided on its sides with channeled guideways, spring metal slides engaging said guideway and terminating in double jawed dogs adapted to engage two prongs of a staple strip, a cross bar connecting said feed slides and extending above said die, a casing carrying said die and pivotally connected with said base and provided with a hammer, a cam pivotally mounted upon said casing engaging said hammer and provided with a notch engaging the cross bar of said slides and the face of said cam being adapted to engage the back wall of said casing and act as a stop for said hammer, and a retaining pawl of flat spring metal having its rear wall anchored to said casing and its front end widened and curved transversely to engage the staple strip.

In testimony whereof I have affixed my signature.

WILLIAM HOEHN.