(No Model.)

J. HELM.

STAPLING MACHINE.

No. 457,049. Patented Aug. 4, 1891.

Fig 1

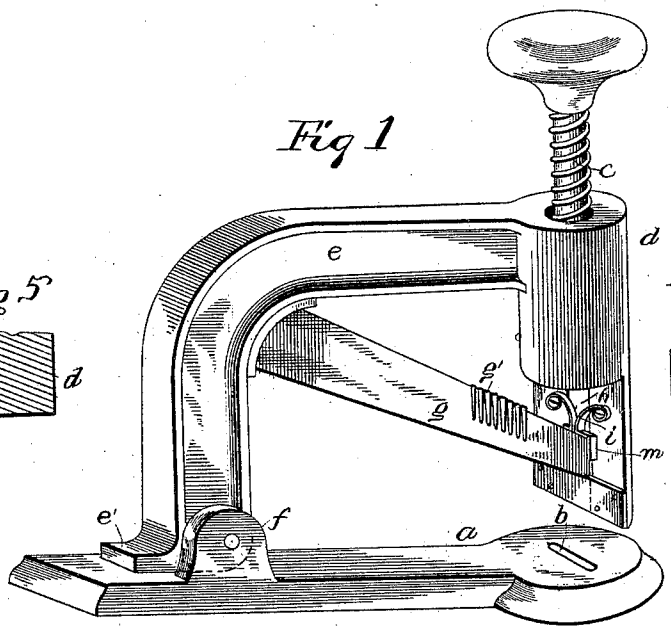


Fig 5

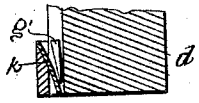


Fig 6

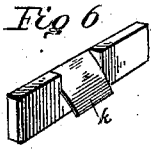


Fig 2

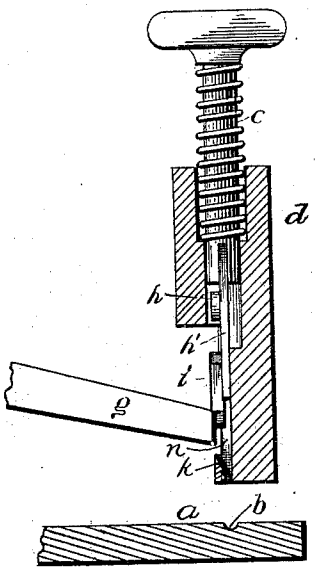


Fig 3

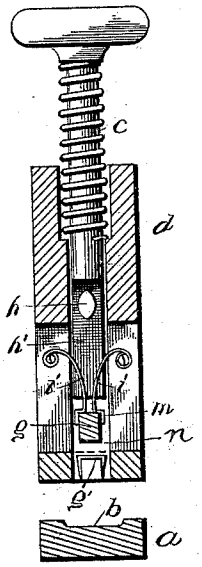
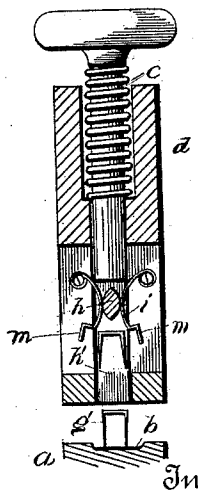


Fig 4



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UNITED STATES PATENT OFFICE.

JOHN HELM, OF SEATTLE, WASHINGTON.

STAPLING-MACHINE.

SPECIFICATION forming part of Letters Patent No. 457,049, dated August 4, 1891.

Application filed January 31, 1891. Serial No. 379,843. (No model.)

To all whom it may concern:

Be it known that I, JOHN HELM, a citizen of the United States, residing at Seattle, in the county of King and State of Washington, have invented certain new and useful Improvements in Stapling-Machines; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

My invention relates to a hand-stapling machine; and my object is to produce a self-feeding device which will be more cheap, simple, durable, and easy to operate.

With this purpose in view my invention consists in the peculiar features and combinations of parts more fully described hereinafter, and pointed out in the claims.

In the accompanying drawings, Figure 1 represents a perspective view of my device; Fig. 2, a sectional view of the plunger mechanism, and Figs. 3, 4, 5, and 6 detail views.

The reference-letter *a* is the base, which may be of any convenient form, and it is provided with an oblong cavity *b*, which receives and clinches the ends of the staples as they are forced down into it by a spring-plunger *c*, operating vertically in a head *d* on the free end of an overhanging arm *e*, which is pivoted to the base between lugs *f*. By being thus pivoted the arm *e* can be raised and lowered to adapt itself to various thicknesses of paper or material to be stapled. An inclined feeding bar or track *g* is fastened to the under side of the arm *e* and receives the staples *g'*, which are strung upon it and gravitate forward to the plunger, where they are held in check by the cut-off springs *i*, fastened upon opposite sides of the groove *n*, in which the lower end of the plunger reciprocates. The free ends *m* of the springs are made rectangular to fit over the corners of the track *g*. The plunger *c* is provided with the usual retracting-spring *c'* and a flat bar *h'* forming the lower end of the plunger. This bar operates in the vertical groove or chute *n*, across the bottom of which is placed a spring-apron or staple-holder *k*, onto which the staples drop and are held in an upright position, as seen in Fig. 5.

The cut-off springs *i* are opened and closed by an oval cam *h* on the side of the bar *h'*, as shown more clearly in Figs. 3 and 4.

The overhanging arm *e* is limited in its upward movement by a rearwardly-extending arm *e'*.

The preferred construction of my invention having been set forth, I will now proceed to describe its operation. The staples are first placed astride the feeding-track *g*, which is sufficiently inclined to make them slide forward against the cut-off springs *i*, and when so placed the descent of the plunger causes the oval cam *h* to spread apart the cut-off springs, which liberate one staple and allow it to fall down against the side of the bar *h'*, as shown in Fig. 4. Now when the plunger flies up this liberated staple will drop down through the chute *n* and upon the spring-apron *k*, which, being placed obliquely across the chute, holds the staple in an upright position to receive the end of the plunger. The paper having first been placed beneath the plunger the latter is given a sharp blow, which will send the prongs of the staple through the paper and into the cavity *b*, which clinches them. The upward recoil of the plunger withdraws the cam from between the springs, and the latter fly back to cut off the supply, while the staple, which has been liberated by the downward movement of the plunger, drops down upon the spring-apron and in position to be struck by the plunger. Hence it will be seen that every downward stroke of the plunger will simultaneously liberate a staple from the feeding-track and force another into the paper or material operated upon, while each upward stroke cuts off the feed, and thus the staples are automatically fed to the plunger and held in a position to be struck thereby, which leaves both hands of the operator free to adjust the paper or to strike the plunger.

Having thus described the preferred construction of my device, what I claim as new, and desire to secure by Letters Patent, is—

1. In a stapling-machine, the combination, with a plunger, an inclined track adapted to receive the staples and to feed them toward the plunger, a pair of cut-off springs located at the lower end of the track, and a cam upon the plunger for opening the springs, in the manner and for the purpose set forth.

2. In a stapling-machine, the combination, with a plunger, an inclined track adapted to receive and feed the staples to the plunger, a pair of cut-off springs having their upper ends fastened upon opposite sides of the plunger, and a cam upon the plunger for opening the springs, as and for the purpose set forth.

3. In a stapling-machine, the combination of a base having an overhanging arm pivoted thereto, a plunger operating therein, a spring apron or holder located beneath the plunger, an inclined track adapted to receive the staples, cut-off springs at the lower end of the track, and a cam upon the plunger and adapted to to actuate the springs, in the manner and for the purpose substantially as described.

In testimony whereof I affix my signature in presence of two witnesses.

JOHN HELM.

Witnesses:
GEO. H. KING,
J. W. CLISE.