(No Model.)

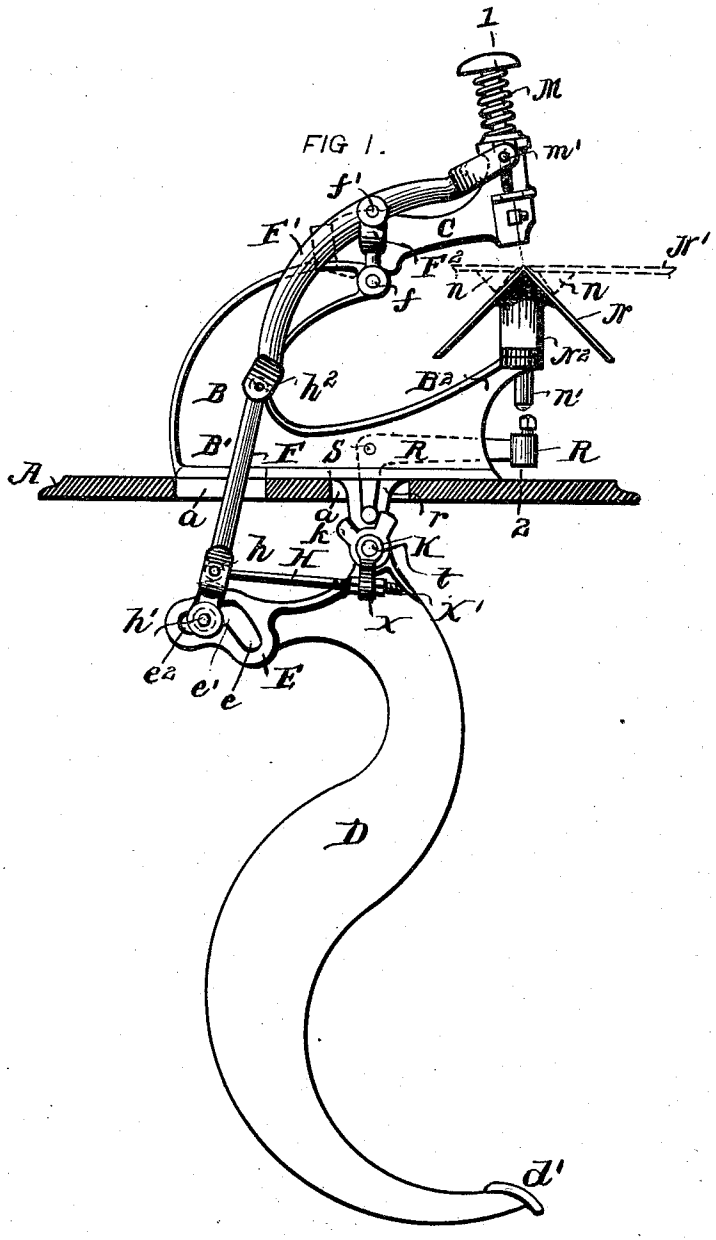
2 Sheets—Sheet 1.

W. J. BROWN.

STAPLING MACHINE.

No. 532,138. Patented Jan. 8, 1895.

FIG 1.



WITNESSES:

Joseph N. Shannon

Frank S. Bonsall

INVENTOR

William J. Brown

BY

Attorney.

ATTORNEY.

(No Model.)

2 Sheets—Sheet 2.

W. J. BROWN.

STAPLING MACHINE.

No. 532,138. Patented Jan. 8, 1895.

FIG 2.

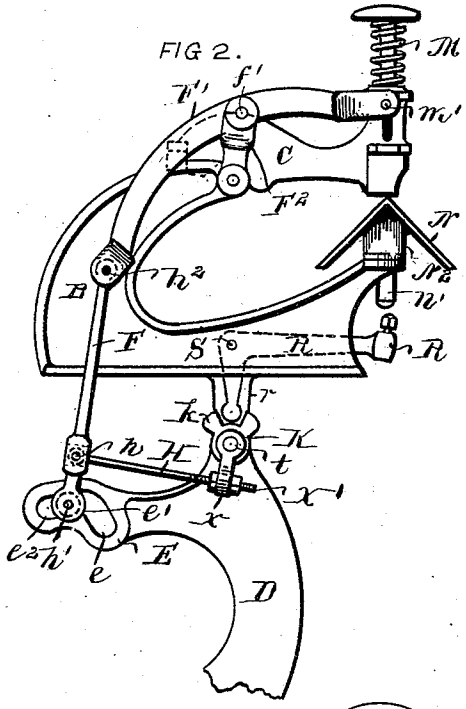


FIG 3.

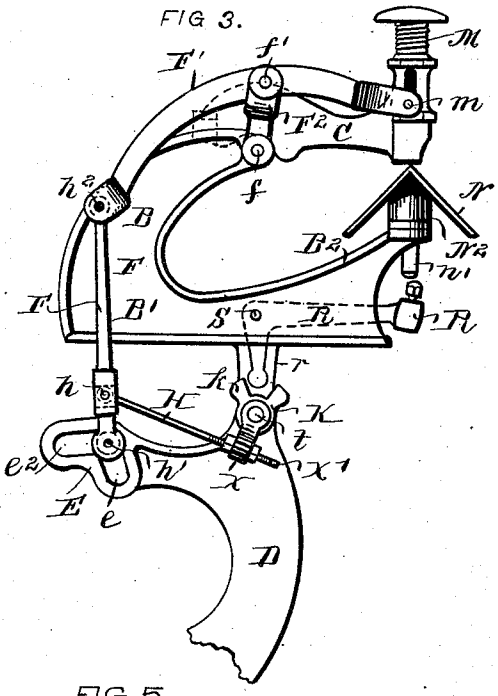


FIG 4.

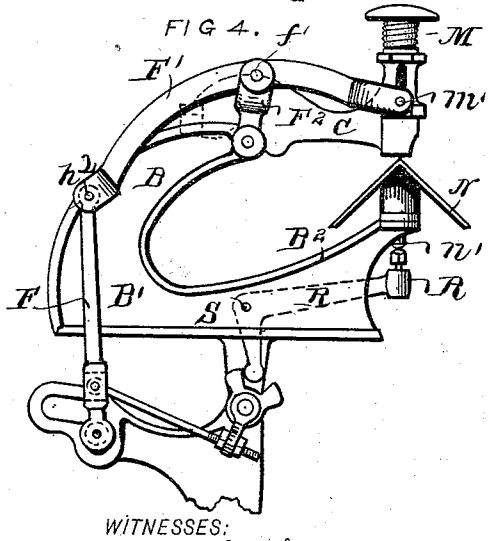
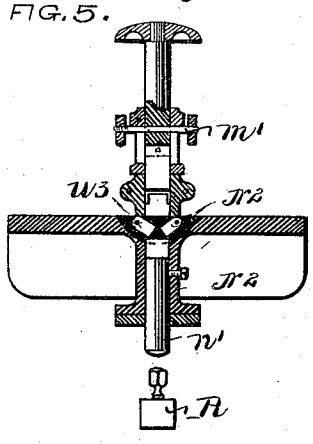


FIG. 5.



WITNESSES:

Joseph McShannon

Frank S. Bussen

INVENTOR

William J. Brown

BY

Thornton

ATTORNEY.

UNITED STATES PATENT OFFICE.

WILLIAM J. BROWN, OF PHILADELPHIA, PENNSYLVANIA.

STAPLING-MACHINE.

SPECIFICATION forming part of Letters Patent No. 532,138, dated January 8, 1895.

Application filed July 11, 1894. Serial No. 517,209. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM J. BROWN, a citizen of the United States, and a resident of the city of Philadelphia, State of Pennsylvania, have invented certain new and useful Improvements in Machines for Inserting and Clinching Metallic Staples, of which the following is a full, clear, and exact description, reference being had to the accompanying drawings, forming a part of this specification.

My invention relates to machines for inserting and clinching metallic staples in which a series of said staples is mounted in train upon a mandrel or bar contained within the magazine of the machine, the latter being provided with a driver blade to open and close the throat channel of the magazine and drive the staples ejected therefrom into such throat; the magazine being provided with mechanism to automatically feed the staples forward to the driving mechanism when and as required.

My present improvements relate to mechanisms for actuating the staple feeding and driving member, to adapt such machines to be operated by foot power; and consist of the combination with the frame or body of the machine upon which the staple feeding and driving member is mounted, of a vibrating centrally pivoted lever arm connected at one end to a link arm actuated by a cam upon the end of a swinging treadle bar; also of the combination with such swinging treadle bar and a pivoted clincher actuating arm, of means between the same to actuate said clincher arm alternately with the staple driving mechanism.

In the accompanying drawings illustrating my invention, Figure 1, is a side elevation, partly in section and partly in dotted lines, of the complete machine showing the several parts in their normal position. Fig. 2, is a side elevation of the machine with the lower end of the treadle broken off showing the position of the parts on the first partial movement of the treadle. Fig. 3, is a like view showing the second position of the parts on a further and continued swing of the treadle. Fig. 4, is also a like view of the machine showing the position of the parts on the completion of the backward swing of the treadle. Fig. 5, is a vertical lateral section on the line 1—2 of Fig. 1, showing the construction of the clinching mechanism.

The supporting table is represented at A, an ordinary table being sufficient for the purpose, it having holes a, a, provided in it to enable the dependent parts of the machine to pass through the same. The frame of the machine is shown with the flat base B′ resting upon the table and having a rear extended arm B curving upward and inward, and an upward projecting end B^2 substantially of the form shown and provided at its top with an integrally constructed saddle-back plate mounted upon and formed integrally with a pillar N^2 which is hollow for the purpose hereinafter described. The staple feeding and driving member C with its driver M need not be described; reference being hereby made to my pending application, Serial No. 497,987, for the preferred form of such member. This member is pivotally mounted at f upon the arm B of the frame. A lever arm F′ is secured at its forward end m' to the driver blade M as described in my aforesaid application, and this lever arm is centrally pivoted upon a link F^2 which has its lower end pivotally mounted at f in the arm B of the frame.

The lower end of the vibrating lever arm F′ is pivotally connected at h^2 to a link arm F which is provided at its lower end with a cam roller h'.

The base portion B′ of the frame of the machine has a lug r extending downward, and upon the same is pivotally mounted at t, a treadle D provided with a foot piece d' at its lower end, and its upper free end with a cam link E constructed and shaped as shown in the several figures, namely, with two courses or openings e and e^2 substantially at right angles to and opening into each other. This cam treadle is so shaped and weighted that by gravity it will assume the position shown in Fig. 1, viz., with the foot piece about on a vertical line with the clinching plate of the machine, and with the cam roller h' of the driving link F normally in the course or opening e^2 of the cam link. Upon the journal t which supports the treadle upon the lug r is mounted to swing loosely an eye link K to which is adjustably secured by jam nuts the screw threaded end of a rod H the other end

of which is pivotally secured at h to the link F. This is to adjustably regulate the throw of the said link F in the cam E; and at the top of the treadle D are provided two lugs k, k, between which the end of the pivoted clincher arm R depends, so that by vibration of the treadle said lugs k, k, will contact with and thus move the clincher arm R which is mounted pivotally at s against the side face of the base plate B′ of the machine.

In Fig. 1 is shown a saddle-back plate N. The flat plate N′ shown in dotted lines in Fig. 1, may be placed upon this saddle-back plate as it is provided with parallel conical ribs n, n, on its under face to adapt it to rest upon the angular sides of the saddle-back plate. The pillar N^2 (see Fig. 5) is made hollow so as to admit the free passage of a bar n' which when vertically reciprocated strikes the swinging clinching fingers n^3 as shown in Fig. 5.

The operation of the machine is as follows:—The normal position of the parts being as shown in Fig. 1, with the driving member held up from the clincher plate by the weight of the treadle, papers are placed upon the saddle-back or on the flat clincher plate, as the case may be, and the foot being placed upon the treadle at d' a slight movement backward thereof will bring the lower face of the staple feeding and driving member C down upon the top surface of the papers as shown in Fig. 2, and a further and continuous back movement of the treadle will bring the driver blade down upon the crown of the staple and drive it through the papers. The cam roller h' will then be upon the point e' between the two cam slots e, e^2, as shown in Fig. 3, and the further and continuous and final backward movement of the treadle will then cause the open cam slot e to pass upward for its full length on the roller h' which thus maintains the end of the driver blade fixedly against the crown of the driven staple while it is being clinched. The lug k will then contact with the lower end of the pivoted clincher arm R, driving its other end upward against the rod n' in the pillar N^2, and thus the clinching fingers n^3 will be actuated to bend and clinch the staple legs against the under side of the papers. This final movement is shown in Fig. 4. The foot being released from the treadle the latter will swing forward by gravity, and it, as well as the other parts, assume (as shown in Fig. 1,) their normal position, ready to repeat the operation of driving and clinching a staple as before described.

What I claim as new, and desire to secure by Letters Patent, is—

1. In a staple driving machine, having a feeding and driving member from which the staples are ejected and driven singly and in succession on the reciprocation of a contained driver, the combination with a supporting frame upon which the feeding and driving member is pivotally mounted, of a centrally pivoted rocking lever secured at one end to the driver blade, a weighted treadle bar pivotally mounted and provided at its free upper end with a slotted cam link E, and a connecting link F provided at one end with cam roller h' and pivotally secured at its other end to said rocking lever, whereby on the reciprocal swing of the treadle the driver blade will be reciprocated vertically and in unison with the described movement of the treadle; substantially as and for the purpose described.

2. The combination in a machine for driving and clinching staples having a feeding and driving member from which the staples are ejected and driven singly and in succession on the reciprocation of a contained driver, of a supporting frame B, B′, B^2, therefor, rocking lever F′ adapted to actuate the driver blade, a link F^2 by which said lever is mounted upon the supporting frame, a weighted treadle bar D pivotally mounted and provided at its upper free end with a slotted cam link E, a connecting actuating arm F provided with cam roller h', and adjusting devices to limit the swing of the actuating arm F consisting of the rod H between said arm F and the shaft upon which the treadle is mounted; substantially as described.

3. The combination with the supporting frame B, B′ B^2, a staple feeding and driving member C mounted thereon and adapted to automatically eject and drive staples singly and in succession on the vertical reciprocation of a contained driver, of actuating devices consisting of the centrally pivoted rocking lever F′, mounted upon the arm B of the frame, connecting arm F provided with cam roller, a pivotally mounted and weighted treadle bar D provided with cam link E, the adjusting arm H, a lug projection k upon the treadle bar, a pivoted clincher arm R adapted to contact with said lug projection, clinching mechanism consisting essentially of a clincher plate and a pair of clinching fingers n^3 n^3 mounted therein, with intermediate devices adapted to actuate the same through the clincher arm R upon the return reciprocal swing of the treadle; substantially as described.

In testimony whereof I have hereunto affixed my signature this 30th day of June, A. D. 1894.

WILLIAM J. BROWN.

Witnesses:
ANDREW ZANE,
HECTOR T. FENTON.