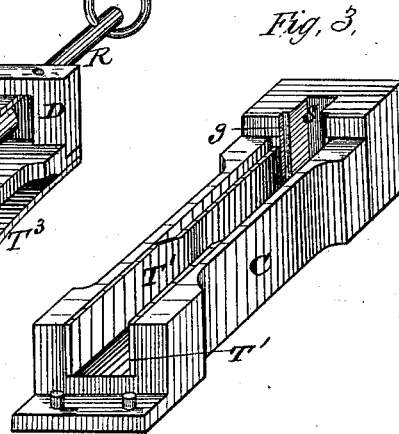
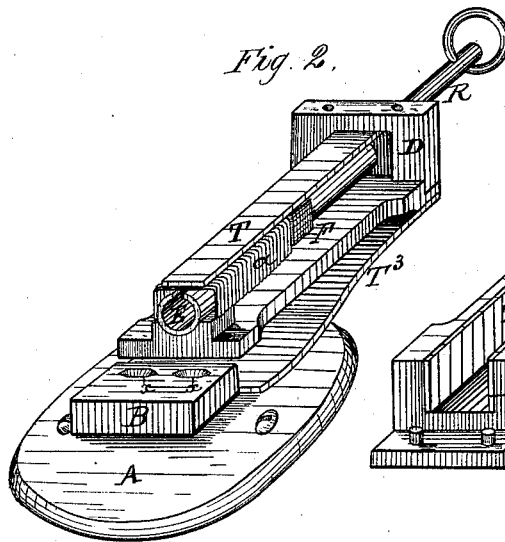
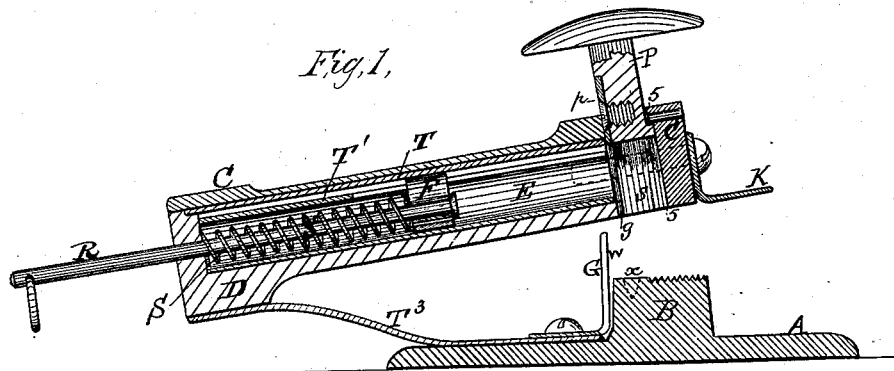


W. J. BROWN, Jr.  
Machine for Inserting and Clinching Metallic Staples.

No. 216,144.

Patented June 3, 1879.



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Fig. 4.

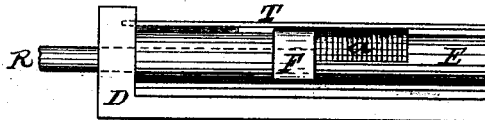


Fig. 5.

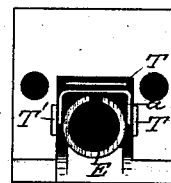


Fig. 6.

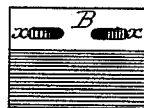


Fig. 7.

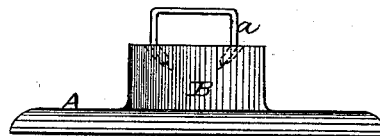
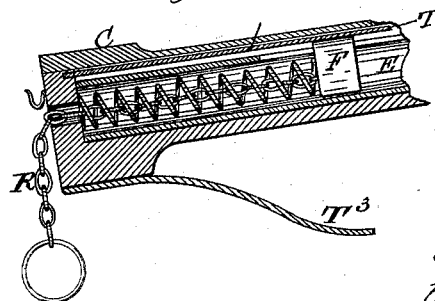


Fig. 8.



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# UNITED STATES PATENT OFFICE.

WILLIAM J. BROWN, JR., OF PHILADELPHIA, PENNSYLVANIA.

## IMPROVEMENT IN MACHINES FOR INSERTING AND CLINCHING METALLIC STAPLES.

Specification forming part of Letters Patent No. **216,144**, dated June 3, 1879; application filed November 26, 1878.

### *To all whom it may concern:*

Be it known that I, WILLIAM J. BROWN, Jr., of Philadelphia, in the county of Philadelphia and State of Pennsylvania, have invented certain new and useful Improvements in Machines for Inserting and Clinching Metallic Staples; and I do hereby declare that the following is a full, clear, and exact description of the invention, which will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, and to letters of reference marked thereon, which form a part of this specification.

This invention relates to certain improvements in that class of machines for inserting and clinching metallic staples where a series of such staples are contained within the body of the machine in position to be inserted in papers and other articles to be secured together and are adapted to be automatically fed forward as required.

The invention consists, first, in combining with the sheath, constructed in two parts, the forward part carrying a plunger for forcing the staples through the material, and being supported at its rear upon a flat spring, a tubular mandrel longitudinally slotted in its upper face, within which slot the central part of a follower works, said follower being connected to one end of a spiral spring and also to one end of a rod or chain extending longitudinally through the rear of the sheath, the follower acting to propel forward a series of staples strung upon the mandrel.

The invention also consists in securing at one end to the rear of the sheath a flat spring, which extends longitudinally along the upper face of the mandrel and holds the staples and the follower down in position, other guide-springs being secured at one end to each side of the sheath, their free ends extending longitudinally forward to hold the legs of the staples with an elastic pressure in proper position.

The invention also consists in constructing the sheath in two longitudinal parts, the lower one of which carries the mechanism for holding and propelling the staples, the upper part having at its front end staple-guiding grooves and a vertical slot, within which latter works

a plunger having a face-plate at its rear for projecting the staples and clinching them through the material to be fastened. A thumb or finger piece is secured to the outer front end of the upper half of the sheath to facilitate the pressing down of the sheath toward the work. The sheath and its contents are supported on the base by a flat spring, one end of which is secured to the under rear part of the sheath, the other end being secured to the base.

The invention also consists in forming the anvil-block and base in one piece, said block being corrugated on its face, and having vertical slots therein for the reception and bending inward of the points or legs of the staples.

The invention also consists in the combination, with the base, of a horizontally-adjustable gage-plate having upwardly-extending wings and a slotted base. By means of this gage-plate the position of the staple in the material to be fastened may be accurately determined.

In the accompanying drawings, Figure 1 represents a longitudinal section of the complete machine with the spiral spring retracted for the insertion of staples. Fig. 2 is a perspective view of the machine with the upper part or cover removed, and showing the staples in position. Fig. 3 is an under-side perspective view of the upper or cap piece. Fig. 4 is a longitudinal section of a portion of the body. Fig. 5 is a vertical section of the sheath on the line 5 5 of Fig. 1 with the plunger removed. Figs. 6 and 7 show, respectively, a plan and a front elevation of the anvil-block; and Fig. 8 is a sectional view, showing the application of a chain in lieu of the follower-rod.

A is the base, and B the anvil-block, both of which are cast or formed solid in one piece. The anvil-block is corrugated on its face, in which are formed two vertical slots, *xx*, within which, on the descent of the plunger, the staple-legs are driven and bent or converged inward by impact against the tapering sides of the slots.

The sheath for containing the working parts of the machine and the staples to be driven and inserted in the material to be fastened is made in two longitudinal parts. The upper part, C, serves as a cap to the lower part, and carries at its front end a plunger, P, for pro-

jecting the staples through the material, and a thumb or finger piece, K, to aid in pressing the sheath down to the work, as will be more fully described hereinafter. The lower part, D, contains the mechanism for holding and propelling the staples. These two parts are held together by a clamp, which is placed thereon so as to press against both the upper and under sides, and thus bind them firmly together.

E is a tubular mandrel, slotted longitudinally along its upper face, within which slot works the follower F, which propels the staples a strung along the upper face of the mandrel. One end of a spiral spring, S, is secured to the rear end of the lower part of the sheath, its other end pressing against the follower, and acting to propel it forward against the staples. The follower is preferably secured to one end of a rod, R, whose other end projects through a hole at the rear of the sheath, and has a ring thereon, so that on pulling the rod outward the follower will be drawn to the rear, the spiral spring compressed, and the mandrel left clear for loading a supply of staples thereon.

In lieu of the rod R, on which the spiral spring is coiled, I may use a chain of any suitable construction, one end of which is secured to the follower, while the other end projects through a hole at the rear of the sheath in the same manner as the rod, a ring or other suitable contrivance being attached to the rear end to facilitate its withdrawal. The application of such a chain is shown at Fig. 8 of the drawings.

T represents a flat metal spring, secured at one end to the rear portion of the sheath D, its free end extending longitudinally along the upper face of the mandrel and slightly above the same. The office of this spring is to press lightly upon the base of the staples and also upon the follower, and thus prevent their rising up out of place. T<sup>1</sup> T<sup>1</sup> represent two flat metal springs, one end of each of which is secured to the inner side walls of the sheath, their free ends extending along said walls and exerting a gentle elastic pressure against the legs of the staples to insure their regular feeding forward and prevent the entanglement of the legs with each other.

Within the forward end of the sheath, on each side, are formed vertical grooves g, within which the staples are forced one at a time by the pressure of the follower F on the plunger P being raised. A vertical recess, s, is also formed within the head or front part of the sheath, within which the plunger P slides. This plunger has on its rear face a plate, p, which slides in the grooves g, and pushes the staple therein down through the material to be fastened on the plunger being pressed down. A thumb-piece, K, is secured to the outer front end of the sheath, and affords a ready and convenient means for pressing the sheath down toward the work when a staple has to be clinched.

T<sup>2</sup> represents a flat metal spring for supporting the sheath upon the base A. The rearmost end of this spring is secured to the under side of the sheath, while its forward end is secured to the face of the base at the rear of the anvil B. The elasticity of this spring allows of the sheath being pressed down toward the material to be fastened, at the same time that it is sufficiently strong to support the sheath and its contents.

G represents a gage-plate for regulating the distance from the edge of the material at which the staples shall be inserted. This plate is slotted at its base to permit of longitudinal adjustment, and has wings w projecting upward on either side, between which the sheath passes on its descent to the anvil-block.

If preferred, in lieu of the dual clinching slots x x in the anvil-block, I may form therein only one slot of enlarged size having angular sides for bending the staple-legs.

The operation of the machine is as follows: If the securing-clamp is taken off and the part C of the sheath removed the tubular mandrel E, carrying the staple-follower F, will be exposed. If, now, the rod or chain R projecting from the rear end of the sheath, and furnished with a ring for that purpose, is drawn back, it will also draw back with it the follower F, and the follower will compress the spring S coiled behind it and within the back part of the tubular mandrel. In this position the whole may be retained by inserting a pin or other suitable article either in a hole drilled in the rod or in a link of the chain. Staples may then be placed upon the tubular mandrel in front of the follower and under the flat spring T. Replace the top part, C, of the sheath, secure the two parts C and D by the application of the clamp, then remove the pin from the rod or chain, and the rod with the spring and follower will press forward and the staples will be pressed toward the forward end of the machine, the front one resting against the plate p of the plunger P. If, now, the plunger P is raised, the pressure of the spiral spring will cause the follower to push the staples forward until the foremost one drops into the grooves g. Then, the material to be fastened being placed on the anvil-block, the sheath is depressed and a sharp blow administered to the plunger, which will cause the plate p to descend down the staple-guiding grooves g, and thereby force the staple out and through the material to be fastened and into the slots x x in the anvil-block. The staple-legs now protrude through the material with their points bent inward toward each other. Then draw the material forward onto the corrugated surface of the anvil-block, and either press the plunger down upon the staple or administer another sharp blow to the plunger and the staple-legs will be clinched flat against the surface of the material being fastened.

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

1. The combination, with the sheath constructed in two parts, C D, its forward part carrying the plunger P, and supported at its rear upon a flat spring, T<sup>3</sup>, of the tubular mandrel E, slotted longitudinally for the admission of the center part of the follower F, and for the containing in position of the spring S, the outer surfaces of the mandrel acting to guide the staple-legs, substantially as and for the purpose set forth.

2. The flat guide-spring T, secured at one end to the rear of the sheath and extending along the upper face of the mandrel E, to prevent the staples and follower rising out of place, substantially as described.

3. The flat guide-springs T<sup>1</sup> T<sup>1</sup>, one end of each being secured to the inner side walls of the sheath, while their free ends press gently against the staple-legs with an elastic side pressure, as and for the purpose set forth.

4. The anvil-block B, cast solid in one piece with the base A, said block being corrugated on its upper face to prevent the slipping of the staples while being clinched in the material, and having vertical slots *x x* formed therein, substantially as and for the purpose described.

5. The sheath consisting of the two parts

C D, the lower one, D, of which carries the mechanism for holding and propelling the staples, the upper part, C, having at its outer front end the thumb or finger piece K, and at its inner front end the staple-guiding grooves *g* and vertical slot *s*, as and for the purpose set forth.

6. The combination, with the sheath C D, containing within it the tubular mandrel E, follower F, spiral spring S, staple-guiding grooves *g*, flat guide-springs T T<sup>1</sup> T<sup>1</sup>, and plunger P *p*, of the anvil-block B and supporting-spring T<sup>3</sup>, substantially as described, and for the purpose set forth.

7. In a machine for inserting and clinching metallic staples, the combination, with the base A, of the horizontally-adjustable gage-plate G, having the upwardly-extending wings *w* and slotted base, substantially as and for the purpose set forth.

In testimony that I claim the foregoing as my own invention I affix my signature in presence of two witnesses.

WILLIAM J. BROWN, JR.

Witnesses:

J. M. DOWNING,  
STANISLAUS REMAK.