A. J. MICHEL & J. McD. JONES.

STAPLE SETTING TOOL.

APPLICATION FILED JUNE 15, 1910.

1,005,269. **Patented Oct. 10, 1911.**

FIG. 1.

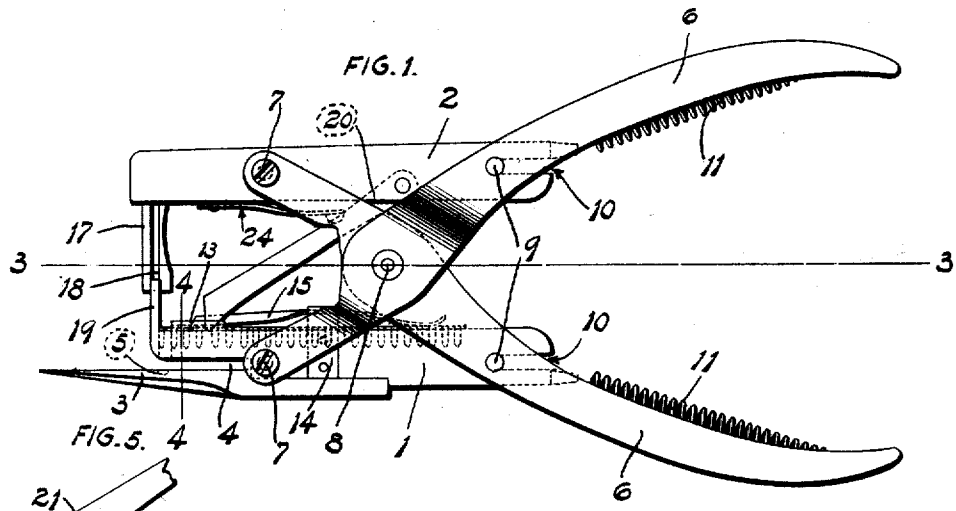


FIG. 5.

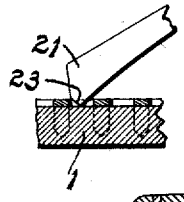


FIG. 2.

FIG. 3

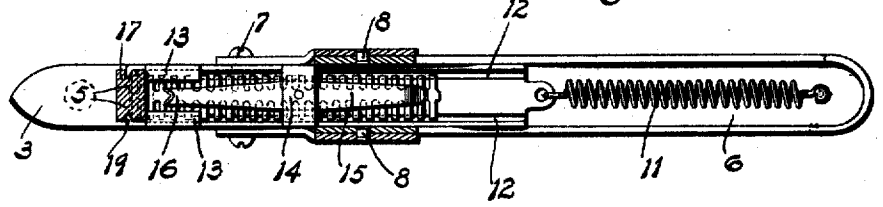
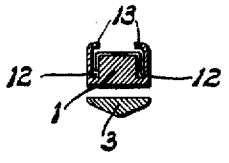


FIG. 4.



WITNESSES

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STAPLE-SETTING TOOL.

1,005,269. Specification of Letters Patent. Patented Oct. 10, 1911.

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To all whom it may concern:

Be it known that we, AMEDEE J. MICHEL and JOHN McD. JONES, citizens of the United States, residing at St. Louis, Missouri, have invented a certain new and useful Improvement in Staple-Setting Tools, of which the following is a full, clear, and exact description, such as will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, forming part of this specification.

Our invention relates to new and useful improvements in staple setting tools of the type wherein a pair of parallel jaws are moved toward one another by the manipulation of a pair of handles, and one of which jaws carries a strip of staples, and the opposite jaw being provided with a head or plunger which severs the outer staple of the strip and drives the same through a number of sheets of paper or like material.

The principal objects of our invention are first: to provide a simple staple setting tool which is operated with the pressure of the hand similar to the operation of a pair of pliers thereby eliminating the pounding movement usually employed in staple setting machines; to arrange on one of the jaws a projecting blade adapted to pierce a sheet of paper or an envelop preferably at a point adjacent the sealing flap, in order that a series of staples may be forced through the sealing flap and a portion of the envelop; to provide means for holding the staple strip in proper position upon one of the jaws and to feed said strip forward to bring the outer staple of the strip into position to be engaged by the hammer or plunger carried by the opposite jaw, and to provide a feeding dog or member which will automatically disengage from the strip of staples and slip over the tops of the forward staples of the strip whenever the device is partially actuated and the forward end of the strip of staples is in position to be engaged by the severing and driving head or plunger.

With these objects in view our invention consists in certain novel features of construction and arrangement of parts hereinafter more fully described, claimed and shown in the accompanying drawings, in which;—

Figure 1 is a side elevation of a staple setting tool of our improved construction. Fig. 2 is a vertical section taken through the center of our improved staple setting tool. Fig. 3 is a horizontal section taken on the line 3—3 of Fig. 1. Fig. 4 is a detail section taken on the line 4—4 of Fig. 1. Fig. 5 is an enlarged sectional view illustrating the lower end of the staple feeding dog, and a portion of the staple strip carrying jaw.

Referring by numerals to the accompanying drawings 1 and 2 designate the jaws of our improved tool, and formed on or fixed to the lower jaw 1 and projecting forwardly therefrom is a blade 3, the forward end of which is pointed, and the sides of which are provided with knife edges in order that said blade cam be readily inserted through a sheet of paper or the like.

The blade 3 projects from the under side of the forward portion of the jaw 1 and formed between the central portion of the blade and the forward end of the jaw 1 is a slot 4 adapted to receive the paper or material through which the staples are driven.

Formed in the top surface of the blade immediately below the forward end of the jaw 1 is a pair of depressions 5 into which the lower ends of the staple legs engage when driven, and said depressions are so formed as to deflect the ends of the staple legs upwardly, thereby clenching the same on the under side of the paper.

A pair of handles 6, such as are ordinarily used upon pliers and like tools, have their forward portions bifurcated in order to engage the sides of the jaws 1 and 2, and the forward ends of these bifurcated portions are pivotally mounted upon pins 7 seated in the sides of the jaws 1 and 2. The bifurcated forward ends of the handles 6 are pivotally connected to one another by means of pins or rivets 8 and seated in said handles 6 to the rear of the pivot pins or rivets 8 are transversely disposed pins 9 which pass through slots 10 formed in the rear ends of the jaws 1 and 2. The construction just described provides means whereby the jaws 1 and 2 are held parallel with one another, and maintain such relative positions during movement, to and from one another.

The forward ends of retractile coil springs

11 are connected to the rear ends of the jaws 1 and 2 and the opposite ends of said springs are connected to the outer portions of the handles 6. These springs normally hold the jaws 1 and 2 apart and oppose the movement of the handles 6 toward one another.

Formed in the top surface of the jaw 1 adjacent the side edges thereof is a pair of parallel grooves 12 which receive the legs of the staples, which latter, in strip form, lie immediately upon the lower jaw 1 between said grooves 12.

Formed integral with or fixed to the forward portion of the jaw 1 and projecting inwardly from the sides thereof are lips 13, which overlie the forward portion of the staple strip, thus preventing the forward portion of said strip from buckling or moving away from the top side of the jaw 1.

Fixed to the central portion of the jaw 1 and extending upward a short distance therefrom is an arch 14 carrying a longitudinally disposed flat spring 15 the rear end of which normally bears upon the rear portion of the staple strip, and the forward end of said spring being bent into inverted U-shape as designated by 16, and the points, formed by bending the forward end of this spring, engage between a pair of the staples adjacent the forward end of the strip, thereby preventing the strip from moving rearward during the rearward movement of the staple feeding dog hereinafter described.

Depending from the forward end of the jaw 2 is a head or plunger 17 which preferably occupies a position at right angles to the jaws 1 and 2. The rear side of this plunger 17 is adapted to move across the forward end of the jaw 1, and during this movement the rear lower corner of said plunger 17 combines with the upper corner on the forward end of the jaw 1, to shear or cut the forward one of the staples from the strip, and the continued downward movement of the plunger forces the legs of the severed staple through the thickness of paper or like material lying on top of the blade 3 and within the slot 4.

Formed in the sides of the plunger 17 are vertically disposed grooves 18 and formed on or fixed to the forward end of the jaw 1 and projecting upward from the sides thereof are fingers 19 which are adapted to ride in the grooves 18, when the jaws move toward and from one another. These fingers 19 are for the purpose of preventing the paper or material into which the staples are being driven from being inserted between the jaw 1 and the lower end of the plunger 17.

Pivotally mounted on the under side of the jaw 2 is the upper end of the feed dog 20 which as shown is in the form of a straight lever, the lower end of which is of inverted U-shape as designated by 21, and said lower end normally resting upon the top of the jaw 1 adjacent the forward end of the spring 15. The lower portions of the inverted U-shaped lower end of the feed dog are slightly rounded off or beveled as designated by 23 in order that the forward end of the feed dog will slip over the bodies of the staples at the time the jaws are moved toward one another, and the forward one of the staples is in position to be engaged, severed and driven by the plunger 17. The forward end of the feed dog 20 is normally forced downward by a spring 24 fixed to the underside of the jaw 2, and bearing on top of said feed dog.

The operation of our improved staple setting tool is as follows: When the handles 6 are manually engaged and moved toward one another in parallelism the plunger 17 moves in a straight line across the forward end of the jaw 1, and the forward one of the strip of staples upon said jaw is engaged by the plunger, is severed from the next adjacent staple, and said severed staple is forced downward through the layers of paper occupying the slot 4 between the jaw 1 and blade 3, and the legs of said severed staple are clenched on the under side of the paper.

After the pressure of the handles 6 is relieved the power stored in the coil springs 11 returns the parts to their normal positions as seen in Figs. 1 and 2.

The staple strip is moved forward upon the jaw 1 by the staple feeding dog 20, a point of which engages between a pair of staples of the strip, and which feeding movement is accomplished when the handles 6 are moved toward one another. During this feeding forward movement the curved or beveled lower ends 23 of the inverted U-shaped forward end of the staple feeding dog engage behind one of the staples, and as the jaws 1 and 2 are moved toward one another the lower end of the feeding dog moves forward, thus feeding the staple strip forward upon the jaw 1. Immediately after this staple feeding movement takes place the lower end of the plunger 17 engages the forward one of the staples and which forward staple projects beyond the end of the jaw 1. The feeding forward movement of the staple strip is stopped by the engagement of the forward one of the staples against the fingers 19, and during subsequent partial actuation of the handles and jaws 1 and 2 the lower end of the staple feeding dog will slip over the strip of staples by reason of the inclined or beveled lower ends 23.

In Fig. 2 we have shown the blade inserted through the body portion of an envelope adjacent the portion engaged by the sealing flap, and thus it will be seen that a numb

of staples can be inserted through the sealing flap and the body of an envelop, even after the envelop is sealed, and which action leaves only a small slit through the body of the envelop.

A staple setting tool of our improved construction is comparatively simple, is very compact, provides means for setting staples through the sealing flap of an envelop or through the doubled over ends of the wrappers of packages and bundles, and said tool is operated with a gripping movement of the hand in place of a pounding movement required by a number of staple setting devices now in general use.

We claim:

1. In a staple setting tool, a pair of parallel jaws, means for moving the same toward and from one another in parallelism, a pointed sharpened blade carried by one of the jaws, means actuated by the movement of the jaws toward one another for feeding a strip of staples upon said jaw, and means carried by the opposite jaw for severing and driving the forward one of the strip of staples.

2. In a staple setting tool, a pair of parallel jaws, means for moving the same toward and from one another in parallelism, a projecting blade carried by one of the jaws below the forward end thereof, means actuated by the movement of the jaws toward one another for feeding a strip of staples upon said jaw, and means carried by the opposite jaw for severing the forward one of the strip of staples, and forcing the same against the projecting blade.

3. In a staple setting tool, a pair of jaws adapted to move in parallelism, a pointed sharpened blade projecting from the lower one of said jaws, means carried by the upper jaw for feeding a strip of staples upon the lower jaw, and means carried by the upper jaw and moving at right angles to the plane occupied by the first mentioned jaw for successively engaging the staples and forcing the same against the projecting blade.

4. In a staple setting tool, a pair of jaws adapted to move in parallelism, a blade projecting from one of the jaws, means for maintaining a strip of staples on said jaw, staple strip feeding means carried by the opposite jaw, and staple severing and driving means carried by said opposite jaw.

5. In a staple setting tool, a pair of jaws adapted to move in parallelism, one of which jaws is adapted to receive a strip of staples, means carried by the opposite jaw for feeding the strip of staples forward upon the movement of the jaws toward one another, and means carried by said opposite jaw for successively engaging the staples.

6. In a staple setting tool, a pair of jaws adapted to move in parallelism, one of which jaws is adapted to receive a strip of staples, a plunger carried by the opposite jaw, and adapted to move at right angles across the end of the first mentioned jaw, and means for closing the space between the end of the plunger and the end of the first-mentioned jaw.

7. In a staple setting tool, a pair of jaws adapted to move in parallelism, a blade projecting from one of said jaws, means for feeding a strip of staples upon said jaw, a plunger carried by the opposite jaw for successively severing and driving the staples, and fingers projecting from the first mentioned jaw, and engaging the plunger, for closing the opening between the end of said plunger and the end of the first-mentioned jaw.

8. In a staple setting tool, a pair of parallel jaws, spring held handles pivotally connected to said jaws for moving the same toward one another in parallelism, means carried by the upper jaw for moving a strip of staples upon the lower one of the jaws, and means carried by the upper jaw and moving at right angles to the plane occupied by the lower jaw for successively severing and driving the staples.

9. In a staple setting tool, a pair of jaws adapted to move in parallelism, a blade projecting from one of the jaws, means for maintaining a strip of staples on one of said jaws, means carried by the opposite jaw for feeding the strip of staples forward, and means carried by said opposite jaw for successively severing and driving the staples.

10. In a staple setting tool, the combination with a pair of jaws adapted to move in parallelism, of means actuated by the movement of the jaws toward one another for feeding a strip of staples along one jaw, means for maintaining the strip of staples upon said jaw and holding said strip of staples against rearward movement and means carried by the opposite jaw for successively engaging, severing and driving said staples.

11. In a staple setting tool, the combination with a pair of jaws arranged to move in parallelism, of a feeding member adapted to move a strip of staples upon one of the jaws, the point of which feeding dog is so formed as to slip over the staples when the forward one thereof is in position to be severed, and driven, and a combined severing and driving member carried by the jaw opposite the jaw carrying the staples.

12. In a staple setting tool, the combination with a pair of jaws adapted to move in parallelism, of means actuated by the movement of the jaws toward one another for moving a strip of staples upon one of the jaws, means for maintaining the strip of staples upon said jaw and holding said strip of staples against rearward movement, a

blade projecting from said jaws, and staple severing and driving means carried by the opposite jaw.

13. In a staple setting tool, the combination with a pair of jaws adapted to move in parallelism, of means actuated by the movement of the jaws toward one another for moving a strip of staples upon one of the jaws, means for maintaining the strip of staples upon said jaw and holding said strip of staples against rearward movement, a blade projecting from said jaws, staple severing and driving means carried by the opposite jaw, and handles connected to said jaws for moving the same toward one another.

14. In a staple setting tool, the combination with a pair of jaws adapted to move in parallelism, of means pivotally connected to one jaw for feeding a strip of staples along the opposite jaw, means for holding the strip of staples flat upon said jaw, means carried by the opposite jaw for successively engaging, severing and driving said staples, and handles connected to said jaws for moving the same toward one another.

15. Is a staple setting tool, a pair of jaws adapted to move in parallelism, one of which jaws is adapted to receive a strip of staples, means for feeding a strip of staples upon said jaw when said jaws are moved toward one another, means on the opposite jaw for successively severing and driving the staples, and means on the first-mentioned jaw for holding the strip of staples flat upon the jaw as they are fed forward thereupon.

In testimony whereof, we hereunto affix our signatures in the presence of two witnesses, this 8th day of June, 1910.

AMEDEE J. MICHEL.
JOHN McD. JONES.

Witnesses:
M. P. Smith,
E. M. Harrington.