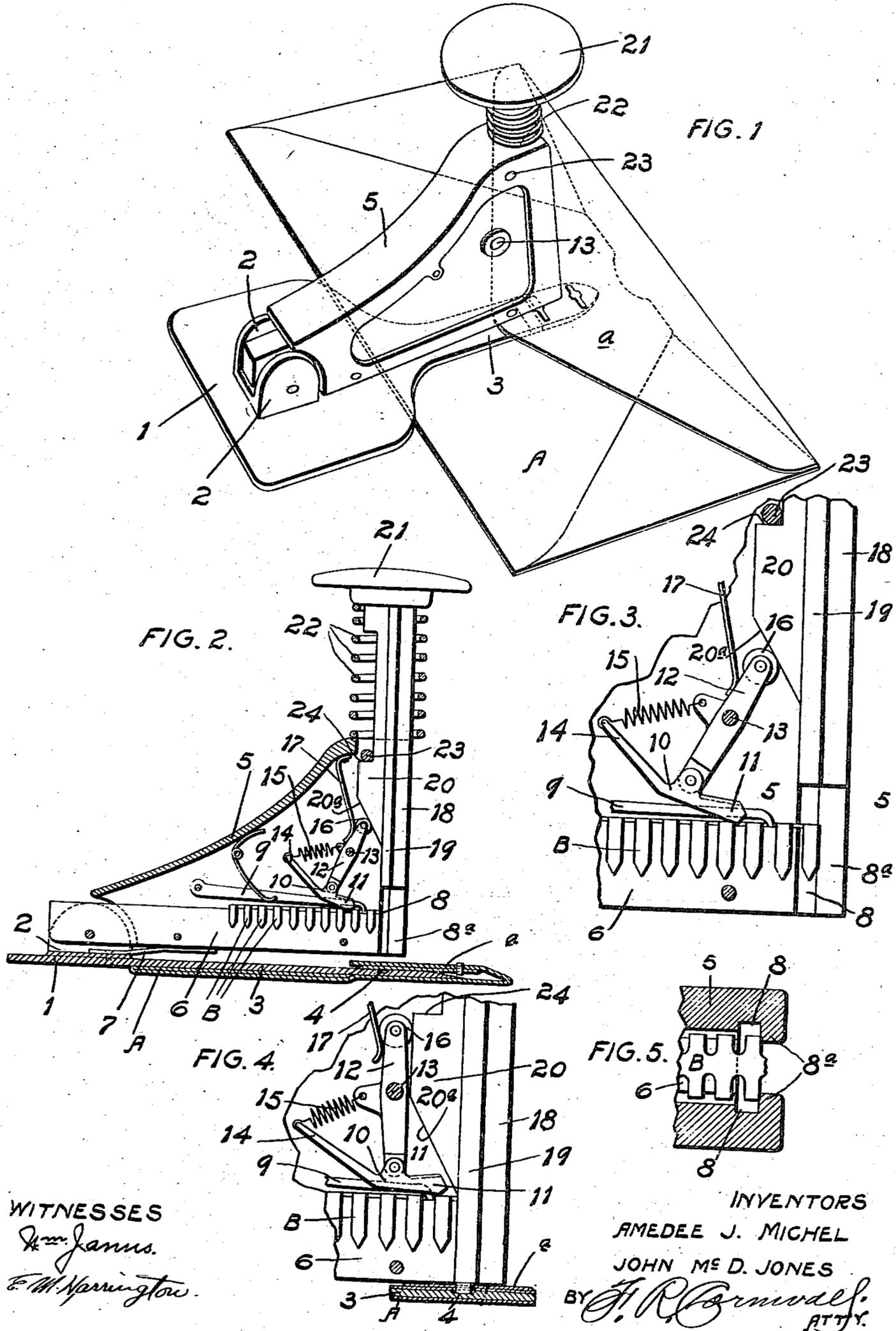


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 STAPLE SETTING MACHINE.  
 APPLICATION FILED JAN. 7, 1910.

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# UNITED STATES PATENT OFFICE.

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## STAPLE-SETTING MACHINE.

966,462.

Specification of Letters Patent.

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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 Machines, 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.

This invention relates to a new and useful improvement in staple setting machines of the type utilizing a strip of staples, which latter are severed one at a time and driven through two or more sheets of paper or the like by means of a plunger.

The principal objects of our invention are: first, to construct a device of the character described so that the anvil portion, in the form of a penetrating blade, can pierce the paper of the envelop, preferably at a point where it would be closed by its sealing flap, and a plurality of staples driven and clenched to securely fasten the securing flap in position at different points along its sealing edge without removing the anvil portion of the blade from the interior of the envelop; second, to provide simple means whereby the strip of staples is fed or moved forward on the down-stroke of the plunger in order to bring the outer staple on the strip in position where it will be severed from said strip and carried downward through the sheets of paper and clenched upon an anvil; third, to construct a feed dog which will automatically disengage from the strip of staples in case the plunger is accidentally moved downward after the staple strip has been moved forward to bring one of the staples beneath the plunger, thus preventing clogging of the staple chute and breakage of the feed dog.

The staples used in connection with our improved device are preferably in the form of a connected series of staples which, by appropriate feeding mechanism, are successively fed under a plunger which severs the end staple in line therewith from the strip of staples, forcing the legs thereof through the paper of the closing flap and the permanent flaps of the envelop, and into the deflecting recesses of the anvil, which turn the

staple legs inwardly and clench said legs on the inside of the envelop. By adjusting the anvil blade within the envelop, a plurality of staples can be driven and clenched at different points along the edge of the sealing flap.

With these objects in view, our invention consists in certain novel features of construction and arrangement of parts hereinafter more fully described and claimed.

Figure 1 is a perspective view of our improved staple setting device in cooperative relation to an envelop. Fig. 2 is a vertical section taken through the center of the device and showing its relation to the envelop. Fig. 3 is an enlarged detail elevation of the lower portion of the plunger and the staple-feeding means. Fig. 4 is a view similar to Fig. 3 and showing the positions assumed by the plunger and feed dog when the plunger is moved downward to set a staple. Fig. 5 is a horizontal section taken on the line 5—5 of Fig. 3.

In the drawings, A indicates an ordinary envelop, and *a* its sealing flap, which may, as usual, be provided with gum on its inner edge so that said edge may be moistened and pressed against the body of the envelop as usual.

1 is the base plate of the machine, which base plate has integral lugs 2 extending therefrom, said base plate being reduced in width and extended forward in the form of a tongue or anvil blade 3 having recesses 4 in its upper edge into which the legs of the staples are driven, the curved walls of said recesses deflecting said legs inwardly and causing them to clench upon the inside of the envelop.

5 designates the head casting, in the lower portion of which is fixed a guide block 6, upon which the staple strip or blank is positioned, said block being pivoted between the ears 2 on the base 1. A spring 7 is fixed on the base 1 and bears against the underside of the guide block 6, thus normally holding said block and the head housing in an elevated position free from the blade 3. The forward portion of the housing 5 is provided with a pair of vertically disposed grooves 8, and immediately in front of said grooves is formed a pair of vertically disposed ribs or flanges 8<sup>a</sup> which form shoulders against which the legs of the forward one of the staples engage when said strip is

moved forward to bring the forward one of these staples into position beneath the plunger.

B designates the staple strip or blank, which consists of a series of staples, the central portions of the bodies of which are united, and said strip is adapted to be positioned on top of the guide block 6 with the legs of the staples positioned against the sides of said guide block.

9 designates a spring-pressed retaining pawl which is pivoted at its rear end to the housing 5 and its forward end engaging between the staples at the forward end of the block 6, thus preventing backward movement of the staple strip when the feed dog 10 is returning to its normal position to engage a new staple after the machine has been operated. The feed dog 10 is provided on its forward end with a beveled or inclined shoulder 11 which normally engages between a pair of the staples at the forward end of the staple strip. The feed dog is pivotally mounted on the lower end of a carrier 12, which latter is pivoted upon a pin 13, the ends of which are seated in the housing 5. Formed on or fixed to the rear end of the feed dog 10 is an arm 14, and connecting the outer end of this arm with the central portion of the carrier 12 is a retractile coil spring 15.

Journalled in the upper end of the carrier 12 is an anti-friction roller 16, and bearing upon the upper portion of said carrier is the free lower end of a flat spring 17, the upper end of which is fixed to the upper portion of the housing 5.

18 designates the plunger which is arranged for operation in the forward portion of the housing 5, which plunger is provided on its sides with ribs 19 which operate in the grooves 8. Formed on the rear side of the plunger 18 is a rib 20, the lower end of which is provided with an inclined or beveled face 20<sup>a</sup> against which the roller 16 normally engages. The upper end of the plunger 18 is provided with a head 21, and interposed between said head and the upper portion of the housing 5 is an expansive coil spring 22 which tends to hold the plunger elevated at all times. A pin 23 is seated in the upper portion of the housing 5 and passes through a recess 24 formed in the rib 20, thus limiting the upward movement of said plunger.

In operation, the anvil blade is caused to pierce the envelop at some convenient point, preferably the point which will ultimately be sealed by the gummed closing flap. The blade can now be manipulated at different points, the head and blade of course moving together, and the head indicating the position where, by the operation of the plunger, a staple will be inserted and clenched. A plurality of staples may thus be inserted and

clenched along the closing edge of the gummed flap, each staple being clenched on the inside of the envelop and rendering it practically impossible for the envelop to be opened by steaming or otherwise, without the envelop itself showing that it has been tampered with. If desired, staples can be used to fasten the overlapping portions of the permanently adhering flaps.

The combined base plate and piercing device are on their under side plane or free from projections, the pivoting lugs for the staple-forming and driving member being above the plane of the under surface, so that there being no projection or offset on the under surface of the machine, it may be used with envelops of all sizes, and a firm steady base or support for the machine is always afforded.

In setting a staple, the plunger 18 is forced downward by a blow or pressure suddenly applied to the head 21, and during this downward movement and before the lower end of the plunger reaches the plane occupied by the top of the block 6, the carrier 12 will swing upon its pivot pin 13 by the engagement of the roller 16 with the inclined or beveled face 20<sup>a</sup>. This movement causes the dog 10 to swing forward and the beveled shoulder 11 engaging against one of the staples of the strip B will force said strip along the block 6 until the forward one of the staples of said strip occupies a position immediately beneath the descending plunger 18. The staple is severed from the end of the strip by the plunger and is carried downward through the lower portion of the staple chute, and the legs of said staple are forced through the thicknesses of paper and said legs clenched on the under side of the paper by engagement in the recess 3 in the anvil. As soon as this action takes place, the spring 22 returns the plunger to its elevated position and the springs 15 and 17 return the carrier and feed dog back to their normal positions. During the return of the feed dog to its normal position the staple strip is held against rearward movement by means of the spring-held pawl 9. During the downward movement of the plunger, after the staple has been severed, the carrier 12 occupies an approximately vertical position as seen in Fig. 4, and the roller 16 rides upon the rear side of the flange 20 immediately above the beveled or inclined face 20<sup>a</sup>. Should the plunger 18 be partially actuated or moved downward to such a degree as to cause the staple strip to be moved forward without cutting off the forward one of the staples, a subsequent partial movement of said plunger will swing the carrier 12 upon its pivot, and as the forward one of the staples is in position against the flanges 8<sup>a</sup>, and consequently held in a rigid position, the feed dog 10 will

swing upon its pivot and the beveled or inclined shoulder 11 will ride over the top of the staple against which it engages. This action effectually prevents clogging of the staple chute due to bending of the staple strip, and the plunger may be partially actuated or moved downward a part of its travel any number of times without shifting the staple strip and without breaking any part of the device.

A stapling device of our improved construction is comparatively simple and inexpensive, is positive in action, and when the staple on the forward end of the staple strip is in proper position beneath the plunger, the staple-feeding dog will be automatically thrown out of engagement with the staple strip during subsequent partial operation of the plunger.

While we have shown and described our improved staple setting device as being particularly adapted for use in fastening envelopes, it is obvious that it can be used for fastening sheets of paper together, just as an ordinary stapling machine is used.

We are aware that minor changes in the construction, arrangement, and combination of the several parts of our device can be made and substituted for those herein shown and described without departing from the nature and principle of our invention.

This application incorporates in one application the subject matter of an application filed by us February 28, 1908, Serial No. 418,407, an application filed by us April 9, 1909, Serial No. 488,842, and another application Serial No. 468,338, filed December 19, 1908.

Having thus described our invention, what we claim is:

1. In a device for sealing envelopes, the combination with a stapling machine, of a base plate provided with an integral projecting blade provided with a clenching recess, a pair of integral ears formed on the base plate, means for pivotally mounting the stapling machine thereon, and a spring member carried by the base plate to retain the stapling machine in elevation above the plate member; substantially as described.

2. A device of the class described, comprising, in combination with a stapling machine, a base plate provided with a blade member having a clenching depression within the same, a plurality of ears formed integral with and at substantially right angles to the said base plate, means for hingedly mounting the stapling machine upon the plate member, and a spring member secured to the said base-plate for retaining the stapling machine in raised position above the same; substantially as described.

3. In a device of the class described, the combination with a stapling machine, of a base plate member provided with a blade

having a recessed portion, integrally projecting ears formed at right angles to said plate member, means for pivotally mounting the stapling machine upon the said plate member, and means for retaining the said stapling machine in normal position above the base plate; substantially as shown and described and for the purpose set forth.

4. In a device of the class described, the combination of a base plate from which extends forwardly a thin straight blade-like portion having a free pointed end for insertion through the flaps of an envelop into the envelop after it has been sealed in the ordinary way, said base plate with its blade-like portion being flat on its under side, and constituting in one piece a support for the machine, the envelop piercing blade and the anvil, and means mounted wholly on the upper side of said base, and attached to the rear end therefor for feeding, successively driving, and clenching a plurality of staples, said means including a vertically movable plunger normally in position above the anvil-forming portion of the blade.

5. In a stapling device, an anvil, a staple strip carrier, staple severing and driving means, staple feeding means adapted to engage the staple strip and move the same upon the carrier, the staple engaging end of which feeding means is provided with an inclined shoulder which will automatically disengage from the staple strip when the staple feeding means is actuated and the forward end of the staple strip is in position to be severed and driven by the driving means.

6. In a stapling device, an anvil, a staple strip carrier, staple severing and driving means, a dog operated by the severing and driving means for moving the staple strip upon the carrier, the engaging end of which dog is provided with an inclined shoulder whereby it will automatically disengage from the staple strip when the feeding means is actuated and the forward one of the staples is in position to be severed and driven by the plunger.

7. In a stapling device, an anvil, a staple strip carrier, a plunger for severing and driving the staples, a pivoted carrier bearing against and actuated by the downward movement of the plunger, and a staple strip feeding dog mounted on the carrier, the forward end of which dog is provided with an inclined shoulder whereby it will automatically disengage from the staple strip when the forward one of the staples is in position to be severed and driven by the plunger.

8. In a stapling device, an anvil, a staple strip carrier, a plunger for severing and driving the staples, a carrier which is actuated by the downward movement of the plunger, an anti-friction roller on the carrier, which is engaged by the plunger, and a

staple feeding dog pivotally arranged on the carrier, the forward end of which dog is provided with a beveled shoulder which will automatically disengage from the staple strip when the plunger is actuated and the forward end of the staples is in position to be severed and driven by said plunger.

In testimony whereof, we hereunto affix

our signatures in the presence of two witnesses, this 4th day of January, 1910.

AMEDEE J. MICHEL.  
JOHN McD. JONES.

Witnesses:

M. P. SMITH,  
F. R. CORNWALL.