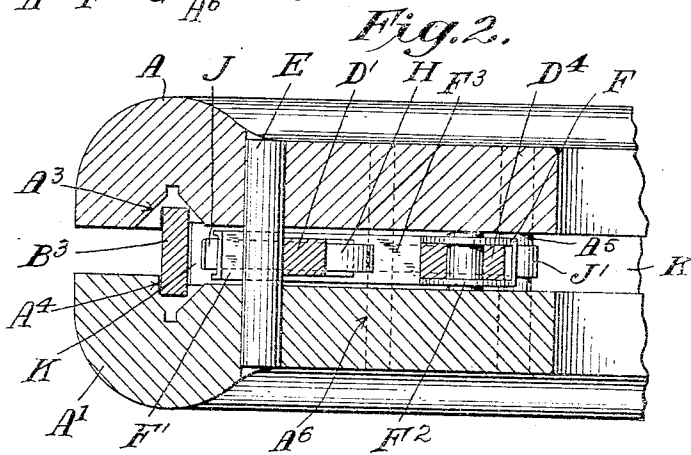
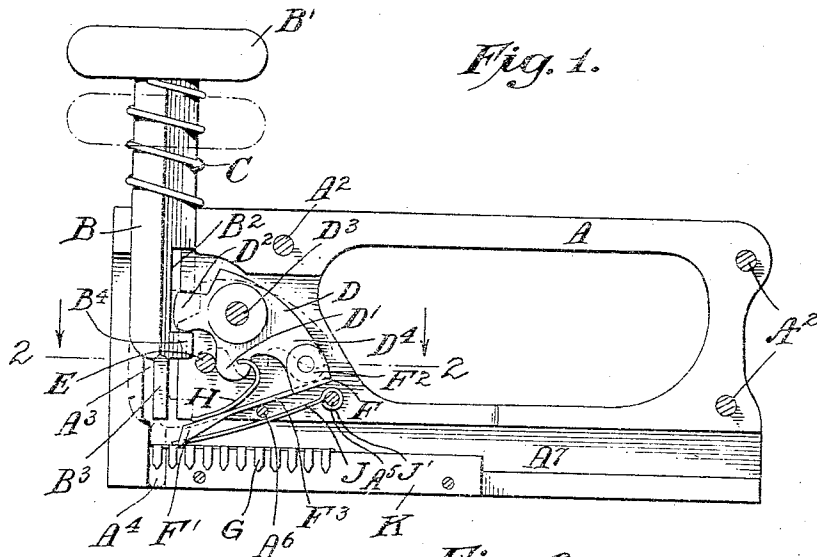


A. J. BECKLEY.
STAPLING MACHINE.
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1,123,221.

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UNITED STATES PATENT OFFICE.

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STAPLING-MACHINE

1,123,221.

Specification of Letters Patent.

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To all whom it may concern:

Be it known that I, ALBERT J. BECKLEY, a citizen of the United States, and a resident of the town of Westfield, in the county of Union and State of New Jersey, have invented certain new and useful Improvements in Stapling-Machines, of which the following is a specification.

The improvements relate to machines for stapling cloth, paper and other relatively thin material in the form of sheets, tags or any other form, and thus securing two or more thicknesses together or one or more to some other substance, as for instance the wood of a box to which paper or cloth tags are ordinarily attached by tacks or staples.

The objects of the improvements, among others, are to provide a machine for the purpose described which will be of relatively simple, strong and durable construction and more certain and positive action, and to so construct and arrange the parts that they may be easily made and assembled and the machine operated by persons unskilled in the use of mechanical devices.

I am aware that machines of this character have been in use for many years, and that many of them have been sold to and used by unskilled persons, but when used by such persons they have, I believe, frequently been rendered useless by carelessness in handling and defective construction, and even when used by those skilled in the handling of machines have required frequent repairs for the reason that the parts have been so constructed and arranged that sooner or later they become broken or lose their adjustment. This is due largely to the fact that they must be used under varying conditions and on materials of various character, as for instance paper, cloth, card-board and wool, as well as to the fact that other conditions calculated to interfere with the proper operation invariably arise. A machine of this character, in order to be successful and dependable under the varying conditions of use must be so constructed as to act with certainty, resist conditions calculated to interfere with its operation without breaking or becoming inoperative and maintain its adjustment in the hands of persons entirely unfamiliar with its mechanism. It is to accomplish these ends and overcome the objections to the machines formerly used that the improvements have been devised.

The invention consists in the construction,

combination and arrangement of parts hereinafter described and claimed and illustrated in the accompanying drawings.

In the said drawings Figure 1 is a side elevation of a stapling machine embodying the improvements with one of the two shells forming the casing or frame of the machine removed. Fig. 2 is an enlarged horizontal section of the same taken on the line 2—2 of Fig. 1 looking in the direction indicated by the arrows in that figure. Fig. 3 is a detail of a strip of staples adapted to be used in the machine.

The frame or casing of the machine consists of two complementary parts A, A' having corresponding recesses to receive the operating parts, and inclosing the same. They are secured together by screws, bolts or other fastening means passed through the holes A², both parts of the casing being provided with such holes and the holes being in alinement when the two parts are properly placed together. Within the vertical way A³—formed by opposing angular grooves in the frame parts—the driver B works. This driver is rectangular in cross section fitting the grooves of the casing and is prevented from having movement other than vertical by its rectangular form and the corresponding form of the way in which it works. It is held normally in its uppermost position and returned to such position after being depressed, by the compression spring C located between its knob B' and the top of the casing. On the rear side of the driver is a longitudinal recess B² in which the lug D² of the rocking piece D is located, and its lower extremity is formed into a staple-driving cutter B³ which works in the vertical grooves A⁴ of the casing, forming a restricted continuation of the way A³. The downward movement of the driver is checked at the proper point by the shoulder formed at the junction of A³ and A', and its upward movement is checked by contact of the lip B⁴ at the lower end of the recess B² with the projection of the rocking piece D which brings the depending lug D' of that member into contact with the stud E extending through the casing, after rocking that member and giving the staple moving means forward movement.

The rocking member D is pivoted at D³ and, in addition to the projections D' and D², has a rearwardly depending portion D⁴ to which the staple feeder F is pivoted. In

this manner the feeder is retracted when the member D is rocked by the downward stroke of the driver—bringing the shoulder at the top of the recess B² against the upper edge of the projection D²—and moved forward when the said parts are restored to their normal position while at rest, so that the feeding of the staples takes place on the upward stroke of the driver. It is not desirable, however, to have the feeder operate to advance the staples until the driver has been raised to a position above the path of the staples, and the longitudinal recess B² of the driver is, therefore, of such length that the lip B⁴ does not come in contact with the projection D² until this point in the upward movement of the driver has been reached. Nor should the lower end of the feeder be withdrawn from the staple strip until the end staple has been severed from the strip, and this is provided for by the downward free movement of the driver before it strikes the projection of the rocking piece D.

The feeder consists of the forked lower end or claw F', constituting the primary staple moving means, adapted to engage the staple strip G between the staples, the forked upper end F² by which it is pivoted to the part D⁴, and the intermediate portion F³. It is pressed against the staple strip by the volute spring H which has its upper end held in a slit in the depending lug D', and its lower end constantly in contact with the feeder F immediately above the staple-engaging fork. The spring, therefore, on account of its construction and arrangement with respect to the parts D and F, and the arrangement of these parts, not only acts to press the feeder against the staple strip but has a tendency to return the member D to its normal position, and at the same time to thrust the feeder forward. In this manner, a limited forward pressure is exerted upon the staple strip the moment the driver begins to ascend which, of course, occurs instantly when the driver has driven the detached staple. This action is of great advantage in preventing the staple strip from becoming displaced and insuring the complete movement of a staple into the path of the driver.

The staple moving claw F' is withdrawn from behind the staple, after the foremost staple has been severed, by the impact of the upper edge of the recess B² against the projection D² of the rocking piece D, thus causing that piece to rock and draw the said claw upward and backward from contact with the staple.

The spring staple holder J consists of a strip with a lower beveled edge and a looped upper end J' turned around the stud A⁵ to secure the said holder. The holder is constantly pressed against the upper surface of

the staple strip (see Figs. 1 and 2) by the pin A⁶ which holds it constantly flexed so that a strong pressure is exerted by its lower end upon the strip of staples, and the staples thus held against accidental movement when not engaged by the feeder. This pin A⁶ also acts to cause the feeding member to move upwardly and thus disengage the strip when the strip is retracted in withdrawing it from the magazine.

The way A⁷ is of slightly greater horizontal diameter than the staples, and the width of the die or anvil piece K located therein is slightly less than the distance between the prongs of the staple so that the staple strip will be confined between the said die and the surrounding walls and will be guided and prevented from having vertical or lateral movement thereby. The staples are cut off at the forward end of the die K when lower cutting end B³ of the driver B strikes them, in the usual manner, and are carried down through the grooves A⁴ and forced into the material. In using the stapler to bind together thicknesses of relatively soft material it is desirable to first place the material on a metallic surface so that the ends of the staples will be upset or clenched by the said surface, and the machine may be provided with an anvil piece to be placed beneath the material, in the usual manner. In using it, however, for such purposes as the attachment of tags to boxes it is not necessary to provide such an anvil piece, and the prongs of the staple will be turned inwardly after passing through the softer material and while embedding themselves in the harder material. In order to facilitate this action the points of the staple prongs are given a slight inward inclination, as shown in Fig. 3.

In operation, the machine is first supplied with a staple strip which is pushed forward until the outermost staple is in the path of the driver. The machine is then placed on the material to be stapled and the desired number of staples driven by striking the knob B' and causing the driver to descend, a new staple being thrust into the path of the driver as soon as one is severed and driven, by the action of the feeder F, which on account of its construction and arrangement, moves upward and backward and then downward and forward to its position behind each succeeding staple, as described.

What I claim is:

1. A device of the character described, comprising a driver, means for moving the staple into the path of the driver, a connection between the driver and said means so arranged that the said means is caused to move the staple while the driver is receding therefrom, and an independent means for

causing the staple moving means to act upon a staple before it is actuated by the driver, said independent means comprising a strip of spring metal bent and held under compression at all times and having a portion extending parallel with and bearing against the upper surface of the staple moving means in proximity to its staple engaging portion, the said staple moving means being mounted so as to be free to move from engagement with said staples when the said parts are in normal position but against the pressure of the said spring.

2. A device of the character described, comprising a driver, means for moving the staple into the path of the driver, a connection between the driver and said means so arranged that the said means is caused to move the staple while the driver is receding therefrom, and an independent means for causing the staple moving means to act upon a staple before it is actuated by the driver, said independent means comprising a strip of spring metal bent and held under compression at all times and having a portion extending parallel with and bearing against the upper surface of the staple moving means in proximity to its staple engaging portion, the said staple moving means being constructed and arranged so as to be free at all times to move from engagement with the staple with which it is in contact without pressing horizontally against the adjacent edge of the staple behind it and to permit the said staple to move forward freely and out of engagement with it.

3. A device of the character described, comprising a driver, a single means for moving the staple into the path of the driver and for holding it against movement in another direction, a connection between said means and the driver so constructed and arranged that the driver when in one position holds the said means against one of the staples, and yielding means normally holding the driver in said position, the portion of the said moving and holding means which is in contact with the staple being constructed to engage the said staple and resist the said movement in another direction, but the construction and arrangement of all of the said parts being such that the staple strip may be retracted from the magazine without injury to it or any of the said parts.

4. A device of the character described, comprising a driver, a single means for moving the staple into the path of the driver and

for holding it against movement in another direction, a connection between said means and the driver so constructed and arranged that the driver when in one position holds the said means against one of the staples, yielding means normally holding the driver in said position, the portion of the said moving and holding means which is in contact with the staple being constructed to engage the said staple and resist the said movement in another direction, an anvil-piece on which the staples travel toward the path of the driver, and additional means for resisting the movement of the staples in both directions comprising a spring member constantly pressing against the upper surface of a staple and holding it and confining it between the said last named means and the anvil-piece, the construction and arrangement of all of the parts being such that the staple may move backwardly without injury to it or any of the parts.

5. A device of the character described, comprising a driver, means for moving the staple into the path of the driver, a connection between the driver and said means so arranged that the said means is caused to move the staple while the driver is receding therefrom, and an independent means for causing the staple moving means to act upon a staple before it is actuated by the driver, said independent means comprising a strip of spring metal bent and held under compression at all times and having a portion extending parallel with and bearing against the upper surface of the staple moving means in proximity to its staple engaging portion, the said staple moving means being mounted so as to be free to move from engagement with said staples when the said parts are in normal position but against the pressure of the said spring, and an additional independent means for holding the staples against horizontal movement comprising a spring piece mounted independently of the said moving means and pressing constantly against the upper surface of the staples.

Witness my hand this 26th day of February, 1913, at the city of New York, in the county and State of New York.

ALBERT J. BECKLEY.

Witnesses:

RICHARD WATT,
O. M. RENNER.