W. C. JESSUP & J. MUTH.

STAPLING MACHINE.

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971,130. Patented Sept. 27, 1910.

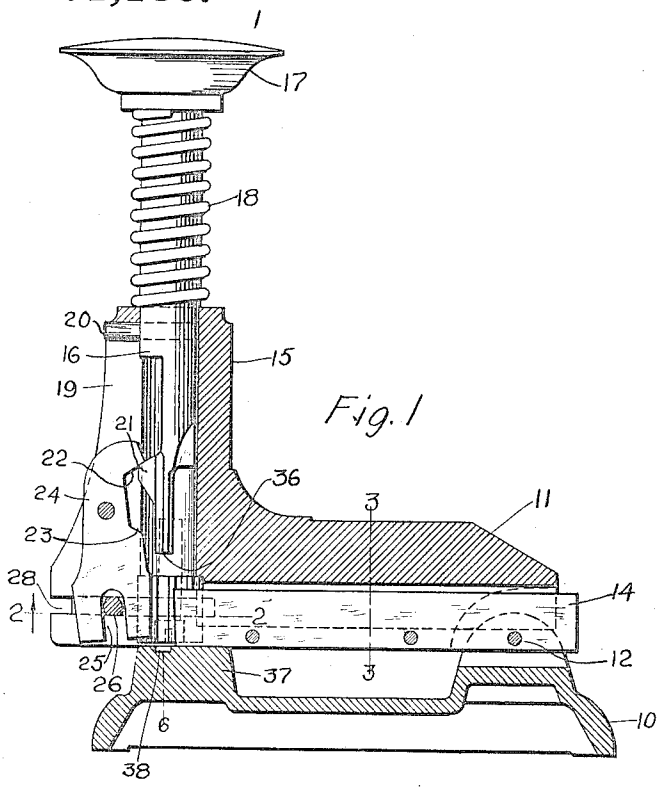


Fig. 1

Fig. 3

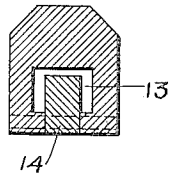


Fig. 2

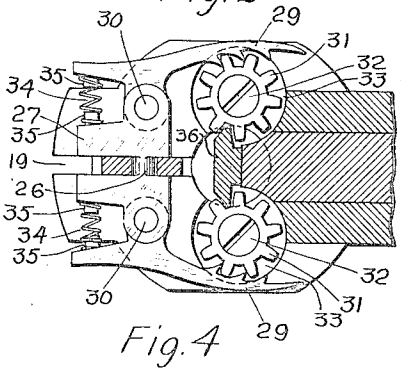


Fig. 6

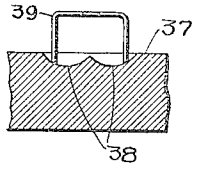


Fig. 4

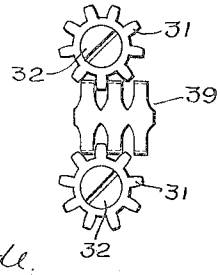


Fig. 5



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STAPLING-MACHINE.

971,130. Specification of Letters Patent. Patented Sept. 27, 1910.

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To all whom it may concern:

Be it known that we, WILLIAM C. JESSUP and JOHN MUTH, citizens of the United States, residing, respectively, at Norwalk and Westport, county of Fairfield, State of Connecticut, have invented an Improvement in Stapling-Machines, of which the following is a specification.

This invention relates to the class of stapling machines which use staples in strips and has for its object to produce an entirely novel mechanism which shall consist of relatively few parts, shall be simple and inexpensive to produce, shall have a positive feed and shall be durable and practically impossible to get out of repair.

With these and other objects in view the invention consists in certain constructions and in certain parts, improvements and combinations which will be hereinafter described and then specifically pointed out in the claims hereunto appended.

In the accompanying drawing forming a part of this specification: Figure 1 is a longitudinal vertical section of the machine complete showing the operative parts in elevation; Fig. 2 a horizontal section on an enlarged scale on the line 2—2 in Fig. 1 looking in the direction of the arrow; Fig. 3 a transverse section on the line 3—3 in Fig. 1; Fig. 4 a detail view illustrating the engagement of the toothed feed wheels with a staple strip; Fig. 5 an elevation of a staple strip, and Fig. 6 is a transverse section of the base on the line indicated by 6 in Fig. 1 showing the clenching recesses and a staple in elevation.

10 denotes the base and 11 the arm which is pivoted to the base as at 12. The arm is provided in its underside with a longitudinal recess 13 in which the carrying bar 14 upon which the staple strip slides is centrally located. At the forward end of the arm is a head 15 in which the plunger 16 slides vertically. At the upper end of the plunger is a hand piece 17. The plunger is held in the raised position by a spring 18 which bears against the hand piece and against the top of the head. The head is provided with a slot 19 which is engaged by a pin 20 seated in the plunger to retain the latter against other than vertical movement. The plunger is provided with a cam 21 which is adapted to engage contact wall 22 and 23 on a lever 24 which is pivoted in slot 19. The lever is provided in its lower end with a slot 25 which receives a cross piece 26 on a slide 27 which is adapted to reciprocate in a transverse slot 28 in the head.

29 denotes pawls which are pivoted on the slide as at 30 and are adapted to engage tooth feed wheels 31 which are pivoted as at 32 in sockets 33 in the underside of the head and extend into recess 13 and slot 28, the forward end of the carrying bar being shown as recessed to partly receive the feed wheels.

Springs 34 which bear against the slide and against the forward ends of the pawls act to retain the pawls in engagement with the feed wheels as will be more fully explained. The springs are shown as retained in position by lugs 35 upon the sides of the slide and the pawls. At the lower end of the plunger is a driver 36 which engages the feed wheels when the plunger is forced down as clearly shown in Fig. 2. At the forward end of the base is a block 37 provided in its upper face with concave clenching recesses 38 as clearly shown in Fig. 6.

39 denotes a staple strip which may be of any of the ordinary styles in use it being simply required so far as the present invention is concerned that there be spaces between the staples which are engaged by the teeth of the feed wheels as clearly shown in Fig. 4.

The operation is as follows: The strip of staples is passed inward from the rear over the carrying bar until it becomes engaged with the feed wheels as clearly shown in Fig. 4. The blow of the plunger cuts off a staple drives it through the material to be bound and clenches the staple by turning the arms thereof inward in recesses 38 and under the material to be bound, it being understood of course that the head and arm are raised and the material to be bound is placed upon block 37 over the clenching recesses and under the head in the usual manner. When the plunger descends driver 36 passes between the feed wheels, as clearly shown in Fig. 2, locking the feed wheels against movement. An instant later cam 21 on the plunger engages lower wall 23 on the lever and swings the lower end of the lever forward, which through the engagement of cross piece 26 on the slide with the slot in the lever moves the slide forward and drags the pawls forward over the teeth of the feed

wheels which are held locked by the driver. An instant later the clenching operation is performed as already described. The operator then removes his hand from the hand piece of the plunger and spring 18 returns the plunger to its normal position as in Fig. 1. As the plunger moves upward cam 21 engages upper contact wall 22 on the lever and swings the upper end of the lever forward and the lower end backward which carries the slide and the pawls backward, the engagement of the pawls with the feed wheels rotating the latter and drawing the staple strip forward just far enough to place the next staple under the driver in position to be cut off and driven at the next downward movement of the plunger. In other words a staple is cut off, driven and clenched at each downward movement of the plunger, and during the upward movement of the plunger the staple strip is moved forward placing another staple in position to be cut off, driven and clenched, the machine being adapted to repeat these operations at each actuation of the plunger until the strip of staples is used up.

Having thus described our invention we claim:

1. In a machine of the character described the combination with toothed feed wheels adapted to engage a staple strip, of a slide, pawls carried thereby and engaging the feed wheels, a lever engaging the slide and a plunger having a cam adapted to swing the lever and move the slide in one direction on the downward movement and drag the pawls over the feed wheels and to swing the lever and move the slide in the opposite direction on the upward movement and cause the pawls to actuate the feed wheels and feed the staple strip.

2. In combination toothed feed wheels adapted to engage a staple strip, pawls engaging the feed wheels, a slide by which the pawls are carried, a lever engaging the slide and having lower and upper contact walls and a plunger having a cam adapted to engage the lower wall on the downward movement and the upper wall on the upward movement, for the purpose set forth.

3. In combination toothed feed wheels adapted to engage a staple strip, pawls engaging the feed wheels, a slide by which the pawls are carried, a lever engaging the slide and having lower and upper contact walls and a plunger having a cam adapted to engage the lower wall on the downward movement and the upper wall on the upward movement, and a driver which engages and locks the feed wheels on the downward movement.

4. In combination toothed feed wheels adapted to engage a staple strip, pawls engaging the feed wheels, a slide by which the pawls are carried, and which is provided with a cross piece, a lever having a slot which receives the cross piece and upper and lower contact walls and a plunger having a cam adapted to engage said walls respectively on the downward and upward movements and a driver which engages and locks the feed wheels on the downward movement.

5. In combination toothed feed wheels adapted to engage a staple strip, spring controlled pawls engaging the feed wheels for the purpose set forth, a slide by which the pawls are carried, a lever engaging the slide and a plunger which swings the lever in opposite directions on the downward and upward movements.

6. The combination with a base and an arm pivoted thereto and provided with a carrying bar and a head, of toothed feed wheels adapted to engage a staple strip, a plunger carrying a driver which engages and locks the feed wheels in the downward movement and means actuated by the plunger for causing the wheels to feed the staple strip during the upward movement.

7. The combination with a base and an arm pivoted thereto and provided with a carrying bar and a head, of toothed feed wheels adapted to engage a staple strip, a plunger carrying a driver which engages and locks the feed wheels in the downward movement, pawls engaging the feed wheels, a slide by which the pawls are carried and a lever engaging the slide and engaged by the plunger to reciprocate the slide for the purpose set forth.

8. The combination with a base and an arm pivoted thereto and provided with a carrying bar and a head, of toothed feed wheels adapted to engage a staple strip, a plunger carrying a driver which engages and locks the feed wheels in the downward movement and a cam, pawls engaging the feed wheels, a slide by which the pawls are carried and a lever having contact walls which are engaged by the cam for the purpose set forth.

In testimony whereof we affix our signatures in presence of two witnesses.

WILLIAM C. JESSUP.
JOHN MUTH.

Witnesses:
WM. A. CURTIS,
GEORGE S. RAYMOND.