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2,704,844

TICKET STAPLING MACHINE

Filed March 14, 1951

3 Sheets-Sheet 1

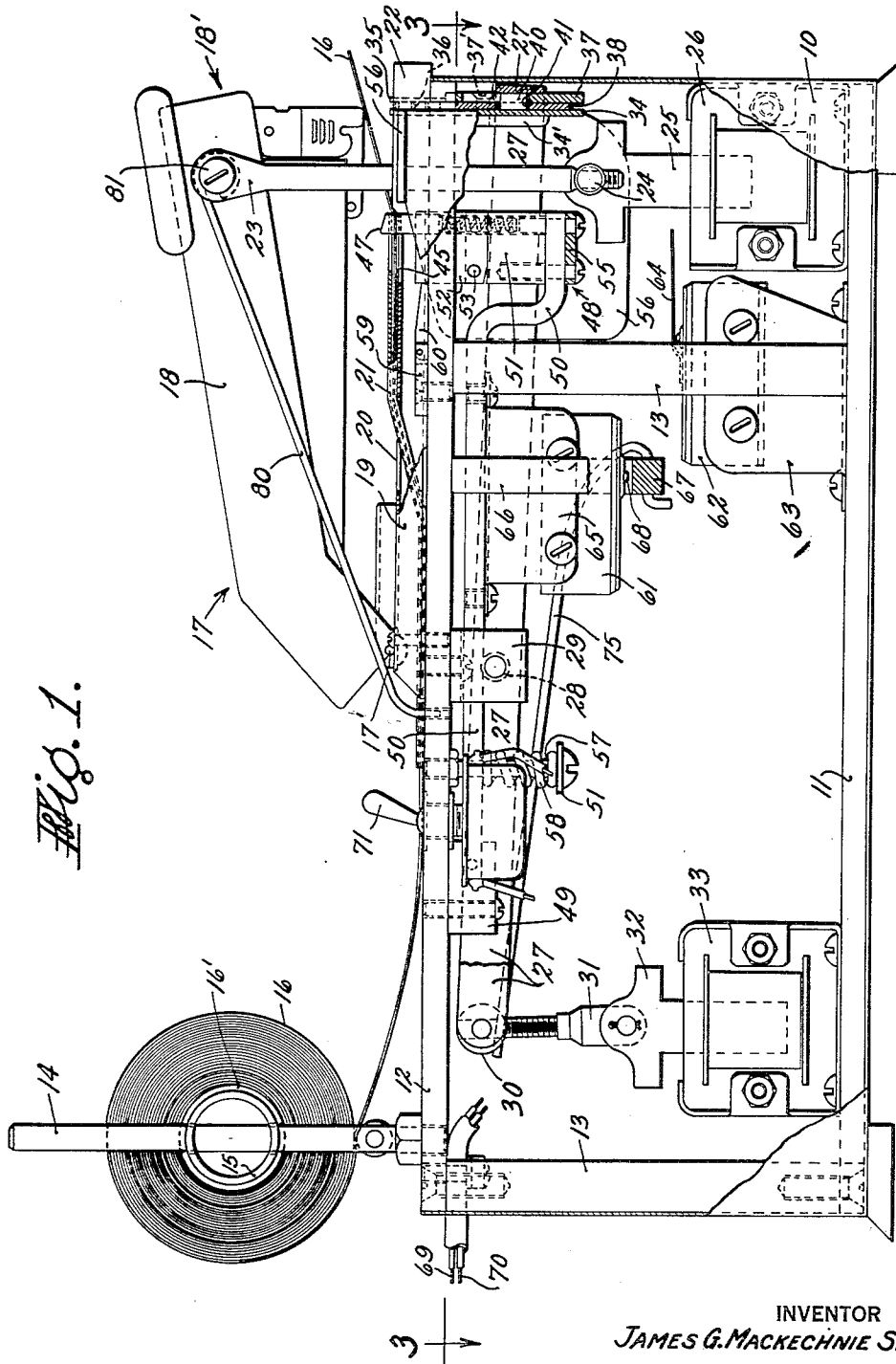


Fig. 1.

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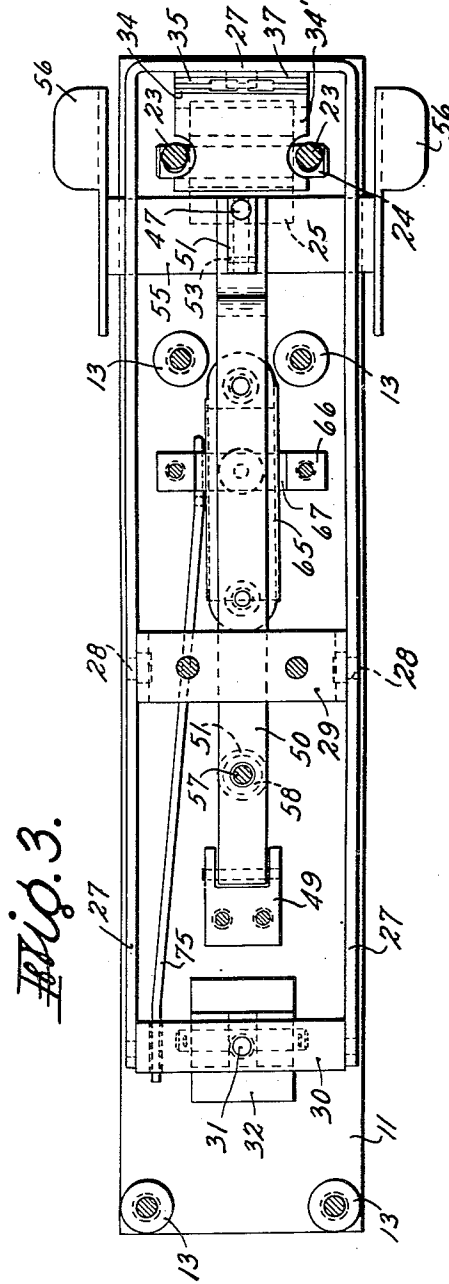
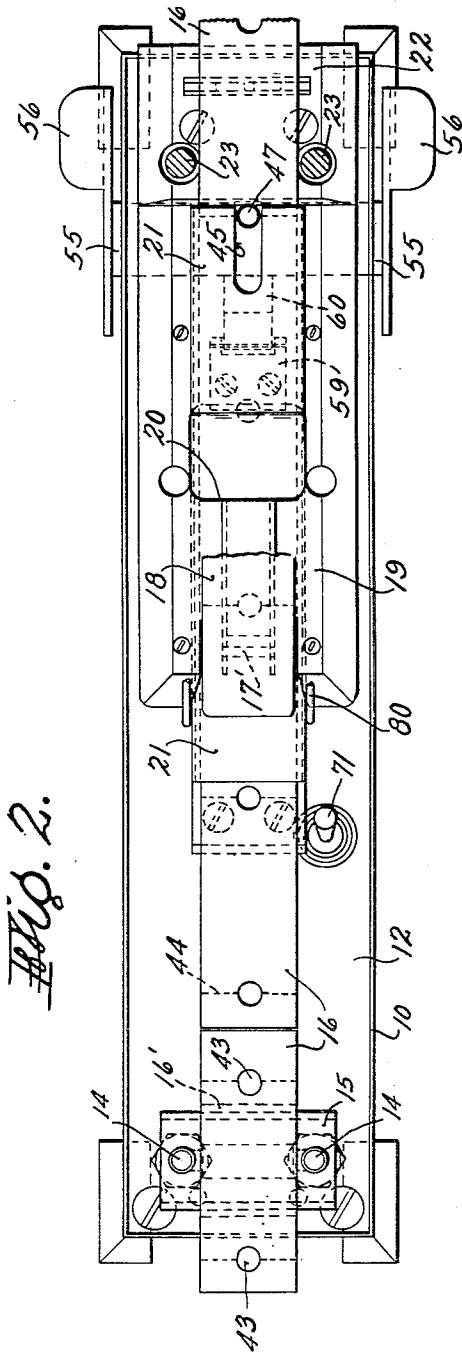
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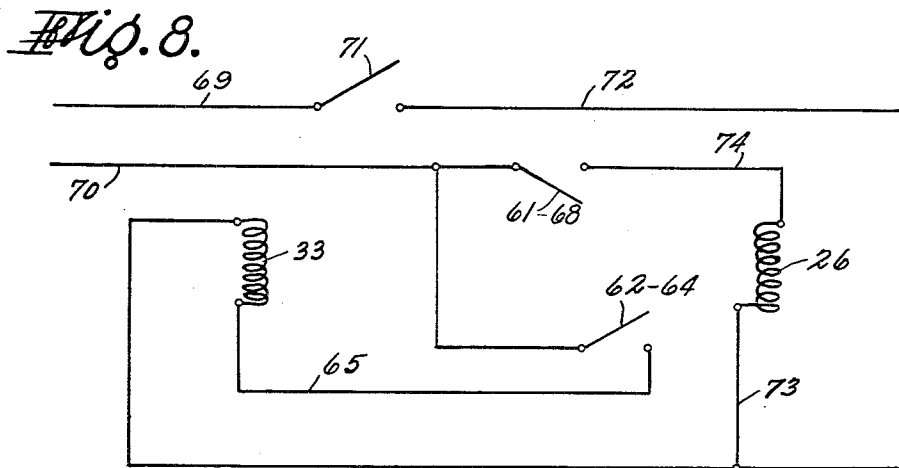
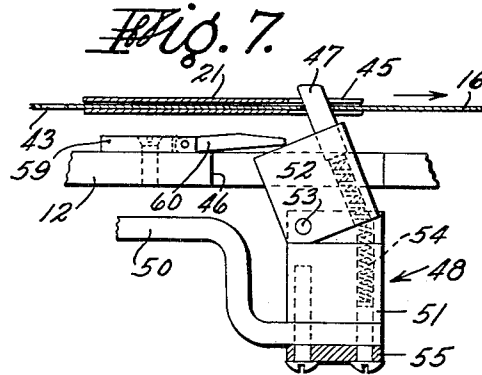
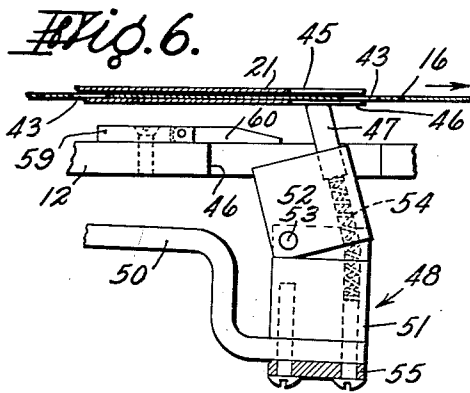
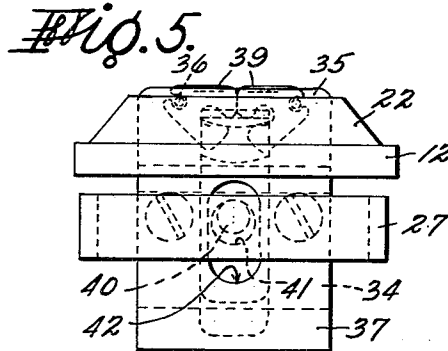
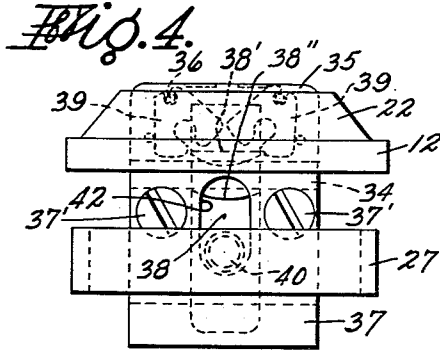
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TICKET STAPLING MACHINE

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3 Sheets-Sheet 3



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1

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TICKET STAPLING MACHINE

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Application March 14, 1951, Serial No. 215,588

5 Claims. (Cl. 1—3)

This invention relates to improvements in a wire stapler machine of the type which drives and sets preformed wire staples and has for an object to provide mechanism for the delivery of tags or tickets to be affixed by the stapler to an article.

An object of the invention is to provide new and useful means to operate the driving and setting mechanism of a stapling machine in proper timed relation.

Another object of the invention is to provide novel means to feed a perforated strip of tickets through the base of a stapling machine so as to overlie the work table for quick and easy affixation of a ticket to the material to be ticketed.

A further object of the invention is to provide a novel ticket holding and releasing device for the positive alignment and mechanical spacing of each ticket with relation to the work table.

This invention has been found particularly useful in laundry and dry cleaning establishments for affixing to each garment to be handled in the plant an identification ticket. The embodiment of the invention as disclosed herein represents a commercial model of the machine as successfully used in tagging such articles.

These and other objects, advantages and features will become more fully apparent from the accompanying drawings and the following description.

In the drawings:

Fig. 1 is a side view of the machine with casing walls broken away and various parts of the mechanism shown in section for purposes of clarity;

Fig. 2 is a plan view of the machine with the lever assembly thereof cut away;

Fig. 3 is a view on line 3—3 of Fig. 1 with parts omitted for clarity;

Fig. 4 is a front view of the staple setting mechanism in retracted position;

Fig. 5 is a view similar to Fig. 4 showing the staple setting mechanism in full set position;

Fig. 6 is a fragmentary detail in side elevation to show the ticket holding and releasing device in strip release position;

Fig. 7 is a view similar to Fig. 6 but with the device shown in ticket strip engaging position; and

Fig. 8 is a schematic wiring diagram of the machine.

Referring more particularly to the drawings, the machine has a casing 10, the side walls thereof being broken away in Fig. 1. The casing includes a lower plate 11 and an upper plate 12 held in spaced relation by upright columns 13 between the plates.

On the top of the upper plate 12 at one end thereof is mounted a pair of ticket roll guide posts 14 which slidably hold a spool 15 having a roll of tickets 16, the core 16' of the roll being free to turn on spool 15.

Also mounted on the top of upper plate 12 at the opposite end is a conventional hand operable stapler lever and magazine assembly 17 carrying a stick supply of preformed staples (not shown) all as will be readily understood. The lever 18 has at its forward end a conventional bonnet or head 18' with driver element (not shown) and the lever is pivoted at its rearward end as at 17' at the rear of a conventional arched base 19.

A slotted opening 20 is cut in the top of the base 19 intermediate the ends thereof and through opening 20 extends the inclined portion of a ticket strip guide channel 21. Channel 21 forwardly of slot 20 flatly overlies and is suitably affixed as by welding on the top of the base 19. At its other end the channel underlies base 19 and extends

2

rearwardly therebeyond, being fastened and lying flat on top plate 12. The free end of the strip of tickets 16 from the ticket roll is threaded forwardly through the guide channel 21.

At the front end of the base 19 underlying the driver head 18' a work table 22 is provided with movable anvil clincher mechanism as will be later described. The movable anvil mechanism shown is at the location of the conventional stationary clincher anvil of the ordinary hand operated staple fastener.

It should be noted also that the rearward edge of the table 22 (Fig. 1) is inclined immediately adjacent the mouth of ticket strip channel 21 to direct a ticket 16 at the free end of the strip into overlying position with respect to the table and in an upward direction under the "throat" mechanism of head assembly 18'.

Pivotaly attached to the lever member of the stapler head assembly are draw rods 23 which extend through work table 22 and are fastened to a plunger pin 24 rotatably held on a plunger 25 of a driver solenoid 26. The driver solenoid 26 is fixed on lower plate 11 and when energized actuates the plunger to pull the head 18' downwardly so as to drive a staple against the table through a ticket and the article to be tagged.

The staple setting or anvil clinching mechanism is actuated by the crosspiece of an elongated U-shaped clincher actuator bar 27, the near leg of the bar being cut away in the drawing of Fig. 1. A bracket 29 attached to the underside of top plate 12, and centrally thereof, pivotaly suspends the bar 27 intermediate its ends by means of a pivot pin 28 fixed in each of the forked legs.

A pivot stud 30 is rotatably fastened at the free ends of the clincher bar 27 rearwardly of the device and a connecting rod 31 links the stud 30 with a plunger 32 of clincher solenoid 33. As shown by Fig. 1 the solenoid 33 is de-energized. When the solenoid is energized, the plunger 32 is drawn downwardly to pivot bar 27 at 28 and raise the yoked end thereof at the front end of the device.

The clincher plate mechanism actuated by movement of the bar 27 is shown by Figs. 1, 4, and 5. A vertically disposed clincher plate 34, fixed to upper casing plate 12, as by an angle bracket 34', has fixed thereto a clincher holder plate 35 held in closely spaced relation by pins 36. A clincher drive rod retainer plate 37 is also fixed to the angle bracket below the plate 35. The assembly is held by screws 37'.

A clincher drive rod 38 is slidably held between the plates 34 and 37 and is free to reciprocate vertically toward and away from the clincher dogs.

Clincher dogs 39 (Figs. 4 and 5) are pivotaly mounted on the uppermost pins 36, normally hanging in the position shown in Fig. 4 with their outer sides against the lowermost pins and offering at their inner sides inclined sloping grooves to start the ends of a staple bending inwardly, all as will be readily appreciated by those skilled in the art.

Projecting rearwardly from the cross piece of bar 27 is a clincher driving pin 40 extending into an opening 41 of clincher drive rod 38 through a slot 42 (Figs. 4 and 5) in retainer plate 37. It will be obvious that downward pull on the opposite end of clincher bar 27 by solenoid 33 moves the cross piece of the bar upwardly until the clincher drive rod 38 pushes clincher dogs 39 to the uppermost position as shown by Fig. 5. This action of the clincher rod and dogs is well understood by those familiar with the art and the parts as shown are arranged in conventional manner. The top edge at 38' of the clincher rod 38 and a groove recessed in the side thereof adjacent the top edge (with the lower arcuate edge of the groove indicated at 38'') coact with the wings of the clincher dogs 39 to pivot the clinchers on the uppermost pins 36 between the position of Fig. 4 and the position of Fig. 5. The top edge 38' on its upward stroke bears against the lower edges of the upper wings of the clincher dogs 39 to pivot the dogs upwardly, and the recessed groove at 38'' receives the lower wings of the dogs, as shown in Fig. 5 in the upper position. On its downward stroke the upper arcuate edge of the groove bears against the inner tips of the lower wings of the dogs to pivot the dogs downwardly to the position of Fig. 4. The under-

side of plate 12 of the casing acts as a stop for the upper limit of bar 27.

The tickets 16 as shown by Figs. 1, 2, 6 and 7 are in a continuous strip of separable tickets divided by spaced holes 43 and weakened lines of perforated slits 44 extending laterally of holes 43 to the edge of the strip (see Fig. 2).

Adjacent the exit end of the guide channel 21 a slot 45 in channel 21 and a slot 46 in plate 12 are registered (Figs. 6 and 7). Through these slots extends a dove-tailed ticket pin 47 of a ticket holding and releasing device 48. The pin 47 is adapted to register with one of the holes 43 of the ticket strip 16 in holding position as shown by Figs. 1 and 7, and to withdraw from the same as shown by Fig. 6.

The ticket holding and releasing device 48 is mounted on a release bar 50 held by a bracket 49 fixed to upper plate 12 towards the rear thereof (Fig. 1). Pivotally attached to and fulcrumed at bracket 49 is a lever release bar 50. The bar 50 extends forwardly and at its front end is downwardly angled to provide a shelf on which is fastened a base block 51 (Fig. 6). A pin carrying member 52 is pivoted to block 51 adjacent the top rear edge thereof by a pivot 53. Ticket pin 47 is fixed to the upper front portion of member 52.

Member 52 and block 51 are drilled to provide oppositely located recesses in the fore sections thereof for a spring 54. Spring 54 is seated in the recesses and tends to bias the front of member 52 into the upwardly raised position shown by Figs. 6 and 7 with the pin 47 canted rearwardly.

Attached to the underside of release bar 50 beneath block 51 is a release bar trip as crossbar 55 (see also Figs. 2 and 3). At each end of the trip 55 are fixed trigger plates 56 for depressing the assembly on bar 50 and pin 47 as will be described.

Adjacent the rearward end of the release bar 50 and extending through an opening therein is a release bar spring stud 57 (Fig. 1). The upper end of stud 57 is fastened to upper plate 12. A spring 58 is positioned on the stud between and abutting the lower edge of bar 50 and a washer 51 (Fig. 1) at the lower headed end of the stud.

Spring 58 normally holds the release bar 50 in an upper position as shown by Figs. 1 and 7, and returns the release bar to said position after depression to the position shown by Fig. 6. Manual pressure exerted on the trigger plates 56 causes the lowering of bar 50 and parts to the position of Fig. 6.

Referring to Figs. 1, 6, and 7, it will be noted that a bracket 59 is fixed on plate 12 at the rear of slot 46 and pivotally attached thereto is a release pawl or flipper 60 overlying the slot. The forward edge of flipper 60 normally abuts the rear edge of member 52 of the releasing device 48 as in Fig. 1, and holds member 52 seated on block 51 counteracting and overcoming the pressure exerted by spring 54. In this position, ticket pin 47 projects through the hole 43 of the endmost ticket of strip 16 and holds the endmost ticket in position for the stapling operation.

When trigger plates 56 are depressed and release bar 50 is urged downwardly, the rear edge of member 52 slides past the front edge of flipper 60. Spring 54 forces member 52 into the rearwardly cocked position as shown by Fig. 6. In this position, dowel pin 47 is completely withdrawn from a ticket spacing hole 43.

On release of the plates 56, release bar spring 58 returns the bar 50 to its normal horizontal position. However, as the ticket pin 47 is rearwardly canted beyond the hole in the strip by the rearward tipping of member 52 it will hit the undersurface of the next succeeding ticket of the strip at the rear edge of hole 43 in which the pin was lodged. Pin 47 will remain in this position until the strip is advanced and the pin falls into the next succeeding hole 43. This occurs upon the operator pulling a stapled ticket forwardly and tearing the same from the strip. It will be noted that the tip of the pin is forwardly beveled (Fig. 1) so as to ride flatly under the ticket when in canted position (Fig. 6). Once dowel pin 47 has penetrated the next succeeding hole 43 (Fig. 7) further forward pulling on the ticket strip 16 forces pin 47 and member 52 into upright position overcoming pressure from spring 54 and with the pin forwardly of slots 45 and 46. Flipper 60 is thus permitted to fall into place abutting the rear edge of member 52 and lock-

ing member 52 into upright position (Fig. 1). The ticket strip is thus held fast against further movement.

Work table 22 is preferably dimensioned relative to the size of the individual tickets and the spacing of strip holes 43 and weakened lines 44 so that when pin 47 secures the strip against forward movement the forward edge of the table 22 provides a bearing surface for tearing the endmost ticket from the strip at the adjacent perforation line.

For actuating the parts of the stapling mechanism a microswitch 61 for the staple drive lever and a clincher microswitch 62 are provided to energize the two solenoids 26 and 33 in proper timed relation (Fig. 1).

The clincher microswitch 62 is mounted as by a bracket 63 on the lower plate 11 of the machine. An arm 64 of microswitch 62 overhangs solenoid 26 in the path of the cross head of plunger 25.

The staple driving microswitch 61 is fastened to the underside of release bar 50 as by a bracket 65. A U-shaped hanger 66 attached to the underside of upper plate 12 has its cross piece 67 underlying the switch button 68 of microswitch 61.

Electric current is brought to the machine from a suitable source via power lines 69 and 70 (see Fig. 8). Line 69 extends to one terminal of a main switch 71 on plate 12 (see Fig. 1). A lead 72 extends from the other terminal of switch 71 to one side of clincher solenoid 33. One side of the stapler driver solenoid 26 is also connected with lead 72 by wire 73. The other side of staple driver solenoid 26 is connected with one terminal of staple driving microswitch 61 via wire 74. The other side of clincher solenoid 33 is connected with one terminal of clincher microswitch 62 via wire 65. The opposite sides of each microswitch are connected with power supply line 70.

A leaf spring 75 (Fig. 1), anchored on cross piece 67 of staple driving microswitch hanger 66 and bearing against a groove in the clincher pivot stud 30, holds the rear ends of clincher bar 27 normally biased upwardly toward upper plate 12 in the position shown by Fig. 1, and returns it to this position when clincher solenoid 33 is deenergized. A U-shaped leaf spring 80 anchored at its yoked end to plate 12 and at its free ends to link pins 81 of the lever assembly bias the head assembly 18' in an upward direction and returns the same to said position when solenoid 26 is deenergized.

In operation of the machine the main switch 71 remains closed. The operator inserts the material to which a ticket is to be stapled (as the sleeve of a garment) under the upwardly extending free end of the ticket strip 16. Then holding the material on the work table 22, the operator depresses trigger plates 56. This forces release bar 50 downwardly withdrawing pivot pin 47 from a ticket spacing hole 43 of the ticket strip. The switch button 68 of staple driving microswitch 61 is also depressed. A circuit thus is completed through staple driving solenoid 26 energizing it and causing its plunger 25 to retract. Rods 23 are pulled downwardly and the pivoted head 18' drives the legs of a staple through the ticket and garment.

As plunger 25 of solenoid 26 is pulled downwardly arm 64 of clincher microswitch 62 is depressed to close this switch. The circuit is thus closed to energize clincher solenoid 33 and at the completion of the stroke of plunger 25. Plunger 32 is pulled downwardly and with it the rearward end of clincher bar 27. The bar 27 operates the clincher mechanism as previously described to set the staple and secure the ticket to the garment.

Release of pressure on the plates 56 opens switch 61 by the spring 58 raising bar 50. The system is thus de-energized with the parts returning to the normal position as in Fig. 1. The operator simultaneously with the release of the trigger plates is enabled to withdraw the article with ticket attached thereto, pulling the ticket strip outwardly until the next succeeding hole 43 is threaded by pin 47. The attached ticket may then be severed from the strip by downwardly tearing along the weakened line against the forward edge of table 22.

Having fully described the invention, I claim:

1. In a stapler machine having stapling means, solenoid operated mechanism for actuating the same and a manually movable actuating lever therefor, means for supporting a strip of tickets having a series of longitudinally spaced openings defining individual tickets of the strip and a guiding channel for passage of said ticket strip

5

having an exit adjacent said stapling means for manual advance of said strip from said channel to the stapling means, ticket strip holding means mounted on said lever for releasable engagement with the strip said lever being pivotally mounted with the outer end thereof in underlying spaced relation to said channel exit and a spring normally biasing said outer end of the lever upwardly in the direction of said exit, said holding means comprising a mounting block on said outer end of the lever and a ticket pin carrying member pivoted at its lower rearward edge on said block with a ticket pin mounted adjacent its upper forward edge and projecting toward said channel, a spring biasing said member for rearwardly pivoting the same relative to said channel exit, with said channel having a slotted portion at the exit end thereof for receiving said pin, a stationary support on said machine and a pawl pivoted adjacent the upper rearward edge of said pin carrying member and engaging said edge in forwardly pivoted position of said member when said lever is in its upwardly biased position, said lever when manually moved against said spring carrying said pin carrying member under said pawl and said pin out of the path of said ticket strip for rearward rocking movement of said pin, whereby the ticket strip may be released for manual withdrawal from the channel, said lever also carrying electric switch contact means for said solenoid operated mechanism, and switch contact means mounted in spaced relation thereto on said machine for closing a circuit to said mechanism when said lever is manually moved against its spring to operate said machine, said ticket pin upon releasing said lever engaging said ticket strip rearwardly adjacent an opening for projection into the next succeeding opening thereof as the strip is manually withdrawn, and said manual withdrawal being effective to rock said pin carrying member forwardly for re-engagement by said pawl in forwardly pivoted position, said pin in the latter position preventing further movement of said ticket strip.

2. The structure of claim 1 in which a work table is positioned forwardly of said channel exit and the outer end of the table is spaced from said ticket pin in forwardly pivoted position of the latter the length of an individual ticket with said outer end having a tearing edge for severing an endmost ticket from the strip following operation of said stapling means and the withdrawal of the strip to its limit of travel and said lever is provided with extensions for pivoting the same positioned at each side of said work table.

3. In combination a stapling machine having stapling means and mechanism for operating the same, a manually operable spring loaded release member having an

6

inactive position and movable against the spring loading to an active position and including means thereon to operatively engage said mechanism on movement to active position, means for supporting a strip of tickets provided with a series of longitudinally spaced apertures defining the individual tickets thereof and a guiding passageway on the machine receiving said strip and having a discharge exit facing said stapling means for permitting manual withdrawal of said strip from the passage to the stapling means, ticket strip holding means carried by said release member in a position adjacent the path of said strip and comprising a stop member pivotally mounted relative to said release member for limited rocking movement longitudinally of the strip and yieldable means urging the stop in a direction rearwardly of the strip, the stop member in its rearwardly urged position and in inactive position of the release member being disposed against the strip to intersect the path of the strip when registered with one of said apertures, the engagement of the stop member in an aperture of a strip on manual withdrawal of the strip forwardly in said passageway rocking said stop member to its forward limit of movement whereby movement of said strip is arrested, the stop member in active position of said release member being disposed outside the path of said strip and urged to its rearward limit of rocking movement by said yieldable means for engagement against said strip rearwardly of a previously engaged aperture therein when said release member is returned to inactive position.

4. The structure of claim 3 in which the release member is disposed below the elevation of said strip of tickets, the stop member is mounted on the release member underneath the strip for engagement from the underside thereof, and said release member includes manually engageable handles disposed adjacent said stapling means.

5. The structure of claim 3 in which said apertures of the ticket strip are spaced central openings and said stop member includes a post projecting into an opening in registration therewith for arresting manual withdrawal of the strip at its forward limit of movement.

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