Nov. 7, 1944. L. E. FRANCIS ET AL 2,362,261

MARKING MACHINE

Filed July 14, 1941 3 Sheets-Sheet 1

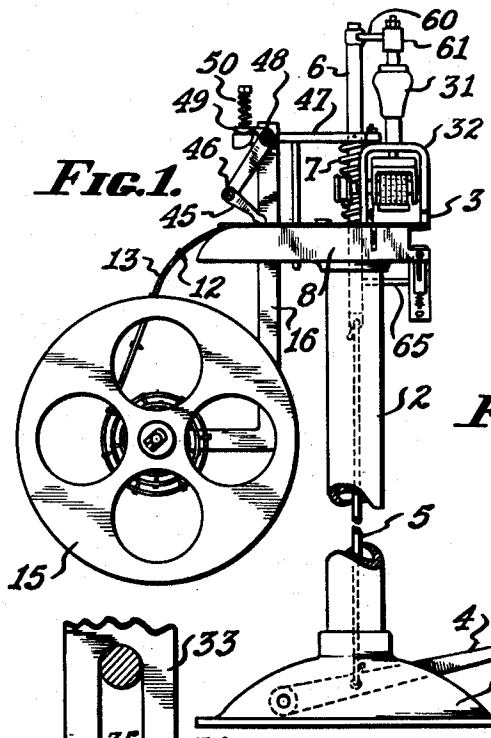


FIG. 1.

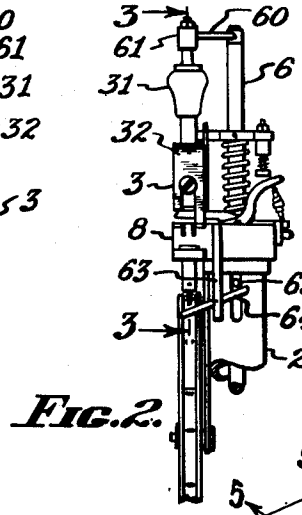


FIG. 2.

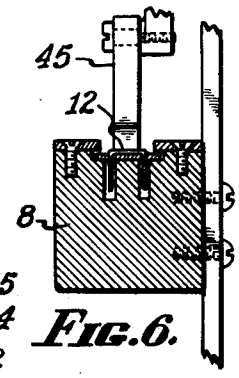


FIG. 6.

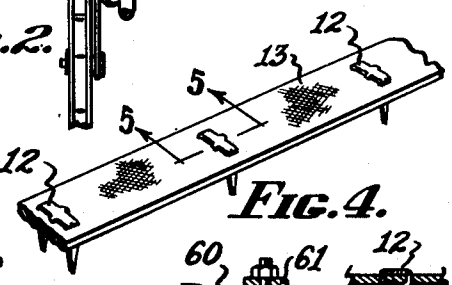


FIG. 4.



FIG. 5.

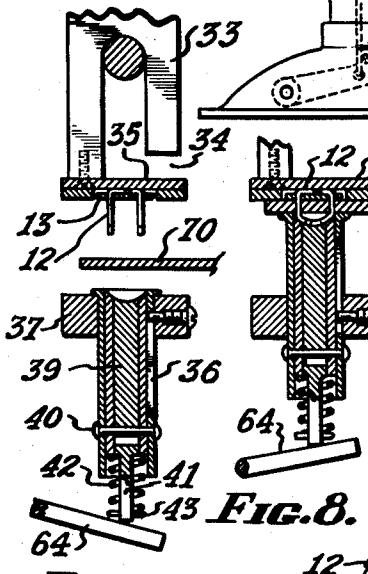


FIG. 8.

FIG. 7.

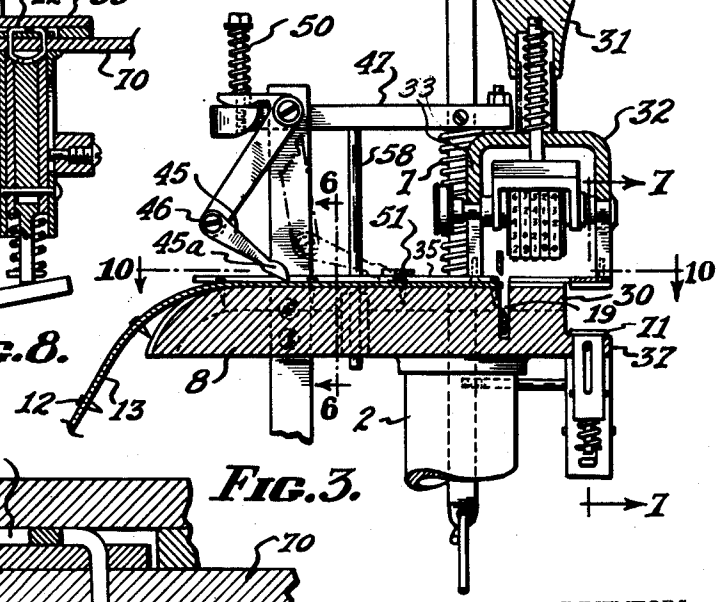


FIG. 3.

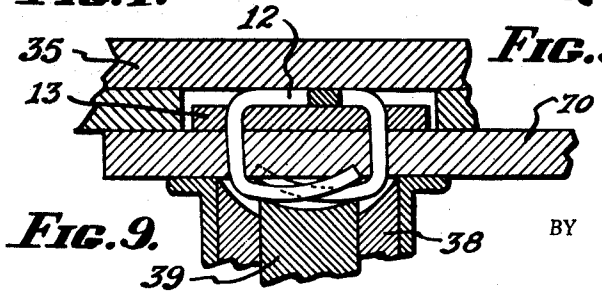


FIG. 9.

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MARKING MACHINE

Filed July 14, 1941 3 Sheets-Sheet 2

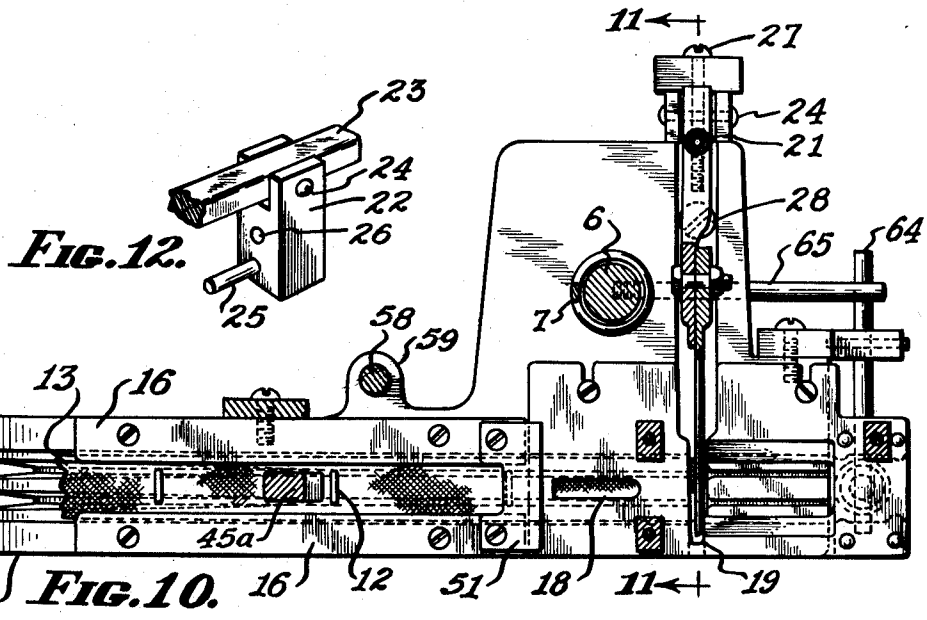


FIG. 12.

FIG. 10.

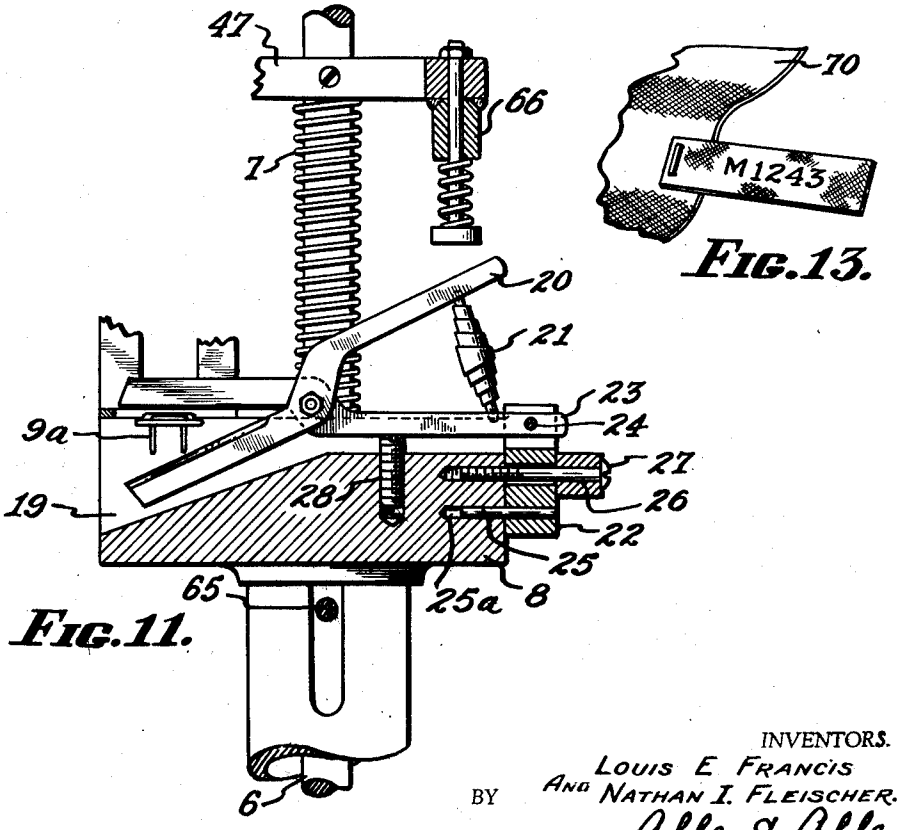


FIG. 11.

FIG. 13.

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MARKING MACHINE

Filed July 14, 1941 3 Sheets-Sheet 3

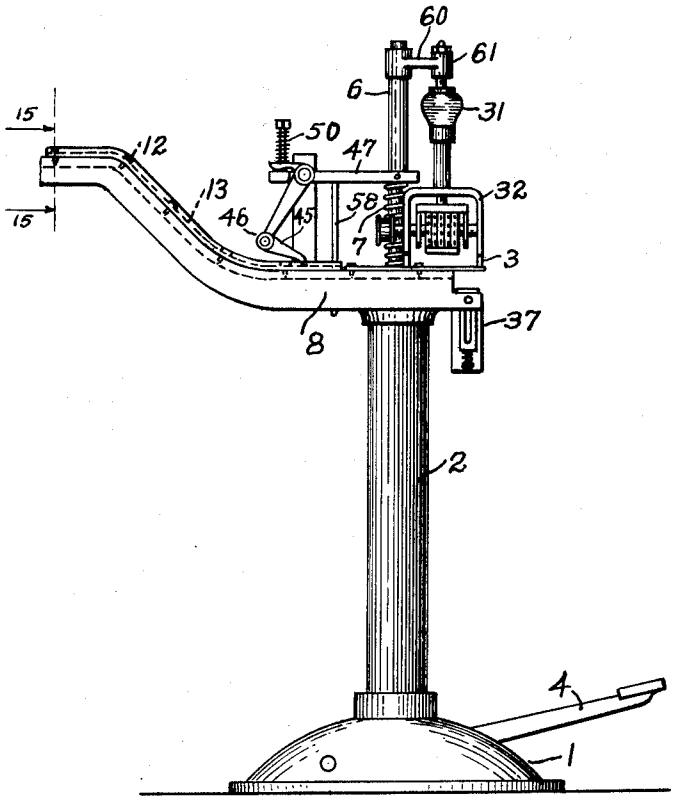


Fig. 14.

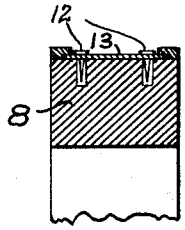


Fig. 15.

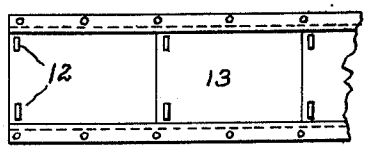


Fig. 16.

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UNITED STATES PATENT OFFICE

2,362,261

MARKING MACHINE

Louis E. Francis, Akron, and Nathan I. Fleischer, Cincinnati, Ohio

Application July 14, 1941, Serial No. 402,382

6 Claims. (Cl. 93—88)

Our invention relates to marking machines primarily used in the dry cleaning or laundry industries wherein a small tab containing indicia identifying the order is stapled to a portion of the goods. Heretofore in these industries it has been necessary to separately mark the tabs and manually attach them to the material. The indicia upon these tabs usually consists of a letter showing the day of the week when the tab was attached, together with a number indicating the customer to whom the material or the garment belongs. These tabs are usually placed upon the garment prior to dry cleaning or washing and are usually removed before the garment is returned to the customer although in many cases it is desirable to leave the tab upon the garment when it is returned.

It is an object of our invention to provide a machine which simultaneously marks the tab with the desired indicia and staples the same to the garment. This is preferably done by one operation of the operator.

A further object of our invention is to provide a continuous roll of tape wherein the fastening staples are fastened therein at predetermined intervals for feeding into said machine and the whole being so arranged that by a single actuating movement of the operator the machine feeds a predetermined portion of the tape through the machine, marks the tape with the desired indicia, staples the tape to the garment or material and cuts the tape at a predetermined position so as to leave the marked tape stapled to the material.

A further object of our invention is to provide a staple clincher which aligns and clinches the staples in a controlled manner so that while they do not tend to tear the material or catch on other portions of the material, are easily removed without the use of special instruments.

A further object of our invention is to provide a machine which has all of the above benefits and which carefully guides and insures the positioning and formation of the staple before clinching so as to insure a controlled and efficient binding onto the material. The machine, as heretofore stated, is operated by a single actuating movement either by hand or by foot power, thus leaving the operator with at least one hand free for holding the garment or material to which the tab is to be attached in the jaws of the machine.

These and other objects of our invention which shall be set forth hereinafter or will be apparent to one skilled in the art upon reading this specification, we accomplish by that certain construction and arrangement of parts of which we shall now describe an exemplary embodiment. Reference is now made to the drawings which form a part hereof and in which:

Figure 1 is a side elevation of our marking machine with a portion of the stand cut away to conserve space.

Figure 2 is a front elevation of the upper part of our machine.

Figure 3 is a vertical section of the upper portion of our machine taken on the section line 3—3 of Figure 2.

Figure 4 is a perspective view of a portion of our novel marking tape.

Figure 5 is a vertical cross section of a portion of our novel marking tape taken along the section line 5—5 of Figure 4.

Figure 6 is a vertical cross section of the rear portion of the head of our marking machine taken on the section line 6—6 of Figure 3.

Figure 7 is a vertical section of a portion of the head of our marking machine taken on the section line 7—7 of Figure 3 with the clinching plunger in its non-operative position.

Figure 8 is a cross section similar to Figure 7 with the clinching plunger in its closed or operating position.

Figure 9 is a cross section enlarged of the upper portion of Figure 8 showing the staple fully clinched.

Figure 10 is a horizontal cross section of the head of our machine taken on the section line 10—10 of Figure 3.

Figure 11 is a vertical cross section of a portion of the head of our machine taken on the section line 11—11 of Figure 10.

Figure 12 is a perspective view with a portion broken away of the scissor holder used in our machine.

Figure 13 is a perspective view of a piece of material to which the tab carrying the indicia has been stapled by means of our machine.

Figure 14 is a side elevation of a modified marking machine using separate tabs.

Figure 15 is a cross-section taken on the section line 15—15 of Figure 14.

Figure 16 is a plan view of a portion of the chute in Figure 14.

Briefly in the practice of our invention we provide a continuous roll of marking tape having the staples placed therein at predetermined intervals. The roll of tape is preferably mounted upon a reel to the rear of the machine and is fed over the bed of the machine by means of a pawl which con-

tacts the head of the staples and thus moves the tape forward a predetermined distance. The prongs of the staples ride and are guided in tapered grooves which are relatively wide at the beginning and which narrow down and thus insure the correct formation of the staples as they are fed along the bed of the machine. The tape is so fed that the leading staple is positioned over a clinching plunger with the tape immediately following and preceding the second staple positioned under a marker of the usual type. Just to the rear of the marker and forward of the second staple we provide a cutter for severing the tape in the form of scissors. A single actuating rod is actuated by a pedal or by hand and the pulling down of this rod feeds the tape, actuates the clinching plunger and the marker for placing the indicia upon the tape and severs the tape just ahead of the second staple. Thus in one operation it is apparent that the machine feeds, marks, cuts and staples.

Referring to the drawings, we preferably provide a base 1 carrying a vertical pipe or casing 2 upon the head of which is mounted the machine generally shown at 3. A pedal 4 is located in the base which upon depression pulls down a link 5 which terminates in a rod 6 which is journaled in the head of the machine for vertical reciprocation and is maintained in its upper position by means of a spring 7.

The bed of the machine 8 comprises a single piece of material with tapered grooves 9 cut therein below a track or depression 10. The grooves 9 are at their entering end of relatively great width while at their forward end 9a are just wide enough to accommodate the prongs 11 of the staples 12. Thus if the staple prongs 11 are slightly bent out of alignment the parallel grooves 9 which are spaced apart the same distance as the prongs 11 of the staples insure that the prongs are properly straightened.

Our novel marking tape comprises a continuous roll of tape 13 having the staples 12 imbedded therein and held in position by clinching prongs 14. The staples 12 are spaced apart a predetermined distance on the roll of tape 13 as may be readily seen in Figures 4 and 1. The roll of tape 13 is mounted for feeding in a reel 15 which is held to the head of the machine by a strap 16 or in any other convenient manner. The tape 13 feeds over the bed base 8 of the machine and on the track 10. Plates 16 are mounted on the base 8 and slightly project over the track 10 so as to insure the tape 13 staying on the track 10. In some cases it may be beneficial to make the plate 16 completely cover the track 10 with a small aperture 18 in a portion of the plate to permit the manual movement of the tape 13 by means of a pin or a knife point.

Transversely of the base 8 is a scissor receiving slot 19. In this slot one of the knives of the scissors 20 is positioned. The scissors 20 are held in an open position by the coil leaf spring 21 and they are mounted on the machine by means of a forked casting or block 22 which straddles the arm 23 of the scissors and to which the arm is pivoted by the pivot 24. The block 22 has a pin 25 which when the scissors are mounted in position projects into a hole 25a in the base 8. There is a second hole 26 in the block 22 through which a screw 27 is inserted and screwed into the base 8, thus holding the scissors 20 in position and as shown in Figure 11. A set screw 28 is screwed into the base 8 immediately below the arm 23 of the scissors and as it is apparent from Figure 11 the movement of the set screw 28 will control the vertical positioning of the scissors 20. The scissors are so positioned that when they are in their opened condition the tape 13 together with the staples 12 ride through the jaws of the scissors as is clear from Figure 11.

Beyond the scissors in reference to the movement of the tape 13 is an anvil or base 30 which is preferably formed from a portion of the base 8. Positioned above the anvil 30 is a marking machine of the usual type which will mark the material on the anvil 30 upon depressing of the handle 31 of the marking machine 32. The frame 33 of the marking machine 32 is cut out as at 34 so as to permit insertion of a slip of paper under the marking machine head so it may be independently marked.

Forward of the marking machine is a plate 35 which is above the clinching plunger 36. The clinching plunger 36 is journaled in a projection 37 of the base 8 so as to be held below the backing plate 35. The clinching plunger 36 is vertically reciprocable and comprises an outer shell 38 containing an inner plunger 39. The inner plunger 39 may be reciprocated in the shell 38 and is held in position by a pin 40 running through a slot in the plunger 39. Downwardly projecting from the plunger 39 is a nipple 41 which projects beyond the end of the shell 38. A spring 42 surrounds the nipple 41 and is pinned thereto by the pin 43 and thus maintains the plunger 39 in its lowermost position with reference to the shell 38. It is thus apparent that the whole clinching plunger 36 may vertically slide in the journal 37 and at the same time the inner plunger 39 may be forced upwardly through the shell 38 against the force of the spring 42 upon the nipple 41 being acted upon.

To the rear of the marker 32 and the scissors 20 is a tape feeding mechanism comprising a pawl 45 having a loose elbow at 46 as is clearly shown in Figures 1 and 3. The base end of the pawl 45 is pivoted to an arm 47 by means of a pivot 48. A projection 49 preferably integral with the base of the pawl 45 projects rearwardly therefrom and is resiliently held against the bar 47 by means of a spring 50.

Straddling the guide plates 16 and forward of the pawl 45 is a pawl abutment 51. This pawl abutment is so positioned that when the pawl end 45a carrying with it one of the staples 12 comes in contact with it the leading end of the tape 13 will be so positioned that the most forward staple is placed over the clinching plunger 36 and the second staple is just to the rear of the jaws of the scissors 20 with the intermediate portion of the tape 13 positioned below the marker 32. The actuating rod 6 of the machine has mounted thereon the strap 47. Projecting downwardly from the strap 47 is a rod 58 which is vertically slidable in a journal 59, an integral part of the base 8. This prevents the revolving of the shaft 6 upon its reciprocal motion and also insures the positioning of the base of the pawl 45 upon its downward stroke. Also projecting from the actuating rod 6 is a second rod 60. This rod terminates in a spring cap 61 which is positioned over and contacts the actuating handle 31 of the marker 32.

There is a strap 63 fastened to the base 8 and projecting downwardly alongside of the clinching plunger 36. This strap 63 is slotted and in the slot is pivoted a bar 64 for rocking movement. The bar 64 is so positioned that one end is di-

rectly under the nipple 41 of the clinching plunger 36 while the other end is just below a pin 65 projecting from and fastened to the actuating rod 6.

The arrangement of parts is such that when the machine is at rest as shown in Figure 1 and Figure 3 the pawl end 45a is directly behind the head of a staple 12 in the tape 13 and the scissors 20 are in their open position; the marker 32 in its non-operative position and the clinching plunger 36 in its lowered or non-clinching position. Upon actuation of the pedal 4 the actuating rod 6 is lowered by means of the link 5 against the compression of the spring 7. This lowering of the actuating rod 6 lowers the pawl 45 which due to its elbow forces the head 45a forwardly. The head 45a contacts the staple head 12 immediately in front of it and continues pushing the staple head which in turn feeds the tape 13 forward until the pawl end 45a contacts the abutment 51 as shown in broken lines in Figure 3. In this position the pawl head 45a may move no further but the rod 6 continues on downwardly and the spring 50 holding the pawl 45 in position is depressed thus permitting the pawl end 45a to remain against the abutment 51 and for the tape 13 to remain stationary throughout the remaining downward stroke of the actuating rod 6.

As the actuating rod 6 continues on downwardly an end of the bar 47 upon which is a spring abutment 66 is carried down until it contacts an arm of the scissors 20 as shown in Figure 11. This closes the jaws of the scissors 20 against the force of the leaf spring 21 and severs the tape 13 immediately in front of the second staple as is clear from Figures 11 and 3. At the same time the arm 60 and the spring abutment 61 on the head of the rod 6 forces down the handle 31 of the marker 32 and marks the tape immediately following the first staple and immediately in front of the second staple as can be seen from Figure 3.

The foremost staple after the tape has been fed by the pawl 45 is thus positioned above the clinching plunger 36 as is clear from Figure 7. The material 70 is placed between the staple 12 and the plunger 36 in the jaws 71 formed by the space between the acting face of the plunger and the backing plate 35 of the machine. As the tape 13 is being cut and marked the pin 65 projecting from the rod 6 contacts an end of the rocking bar 64 and rocks it in its support 63 so that the other end of the bar contacts the nipple 41 of the clinching plunger 36 and forces it upwardly against the material and against the staple prongs 11 as is clear in Figure 8. Upon further movement of the actuating rod 6 the center plunger 39 is forced upwardly through the shell 38 and forms the staple prongs 11 in a folded and rounded formation on the other side of the material 70 as is clear in Figure 9. Thereupon the treadle 4 is released and the actuating rod 6 returns to its upward position due to the spring 7 thus placing the machine in its first inoperative position but with the first staple 12 clinched in the material 70 and with the following tab severed from the roll of tape 13 and marked. The material then upon being moved forward pulls out the tab with it attached to the material as shown in Figure 13, the machine being ready to feed, cut, mark and clinch the next tab on a succeeding piece of material.

From the above it is apparent that our novel machine containing our novel continuous roll of tape having staples placed therein at predetermined intervals by a single actuating movement feeds the tape, severs therefrom a tab, marks the tab and clinches the staple attached to the tab to a piece of material or a garment held within the jaws of the machine.

It may be desirable to so modify our machine that instead of feeding a continuous roll of tape having staples placed therein at predetermined intervals it may be desirable to feed cut tabs having just one staple therein and similar to that shown in Fig. 13. In this case the tabs would be placed in a chute and fed into the track 10 so as to abut each other and so as to be fed by the pawl 45. In this case the scissors 20 of course could be eliminated, but in other respects the machine would work in substantially the same manner.

The upper face of both the inner core 39 and the outer casing 38 of the clinching plunger 36 is hollow or dish-shaped as shown in Figures 7 and 9. In the event the prongs 11 of the staples 12 should be tilted or spread, the dish-shaping of these surfaces of the plunger tends to center the prongs of the staple so that as outer casing 38 of the plunger rises, it commences the clinching of the staple on a curved path. Then the face of the core 39 travels further, as shown in Figure 9, and forms a curved clinch pressing the points of the prongs 11 into the material, as is shown in Figure 9. In other words, the dish-shaping of the surface of the plunger is what curves the projecting prongs and forces the points to enter the material, instead of merely flattening them against the material.

It is to be understood that different forms of our preferred form may be made without departing from the spirit of our invention.

Having thus described our invention what we claim as new and desire to secure by Letters Patent is:

1. In a marking machine, for use with a continuous roll of marking tape having staples therein, means abutting said staples for feeding said tape, means for cutting said tape, means for marking said tape, and means for clinching said staples to an article, said cutting means, marking means and clinching means acting simultaneously on the portion of the tape being attached to an article and all of said means actuated by a single actuating movement.

2. In a marking machine, for use with a continuous roll of marking tape having staples therein, means for feeding said tape, means for cutting said tape, means for marking said tape, and means for clinching said staples to an article, said cutting means, marking means and clinching means acting simultaneously on the portion of the tape being attached to an article and all of said means actuated by a single actuating movement, said tape feeding means acting before said cutting, marking and clinching means, said feeding means comprising a reciprocating pawl acting on the staples in said tape.

3. In a marking machine for use with marking tabs having a staple therein, means acting on said staples for feeding said tabs over a track, means for marking said tabs, and means for clinching said staples to an article, said marking means and clinching means acting simultaneously on the tab being attached to the article and all of said means actuated by a single actuating movement.

4. In a marking machine for use with marking tabs having a staple therein, means for feeding said tabs over a track, means for marking said tabs, and means for clinching said staples to an

article, said marking means and clinching means acting simultaneously on the tab being attached to the article and all of said means actuated by a single actuating movement, said feeding means comprising a reciprocating pawl acting on the staples in said tabs.

5. In a machine for feeding material containing a staple, a track for said material, and parallel grooves one for receiving each prong of said staple, said grooves being wider at the point where said staple prongs are received than at the point where said staple prongs leave said grooves.

6. A staple clinching plunger comprising an inner core and an outer casing reciprocating together for a determined distance, said outer casing having a beveled staple point contacting terminal for commencing the clinch, said inner core having a dished staple point contacting terminal for locking the clinch, said inner core traveling a further distance after said casing has ceased to move.

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