

April 11, 1950

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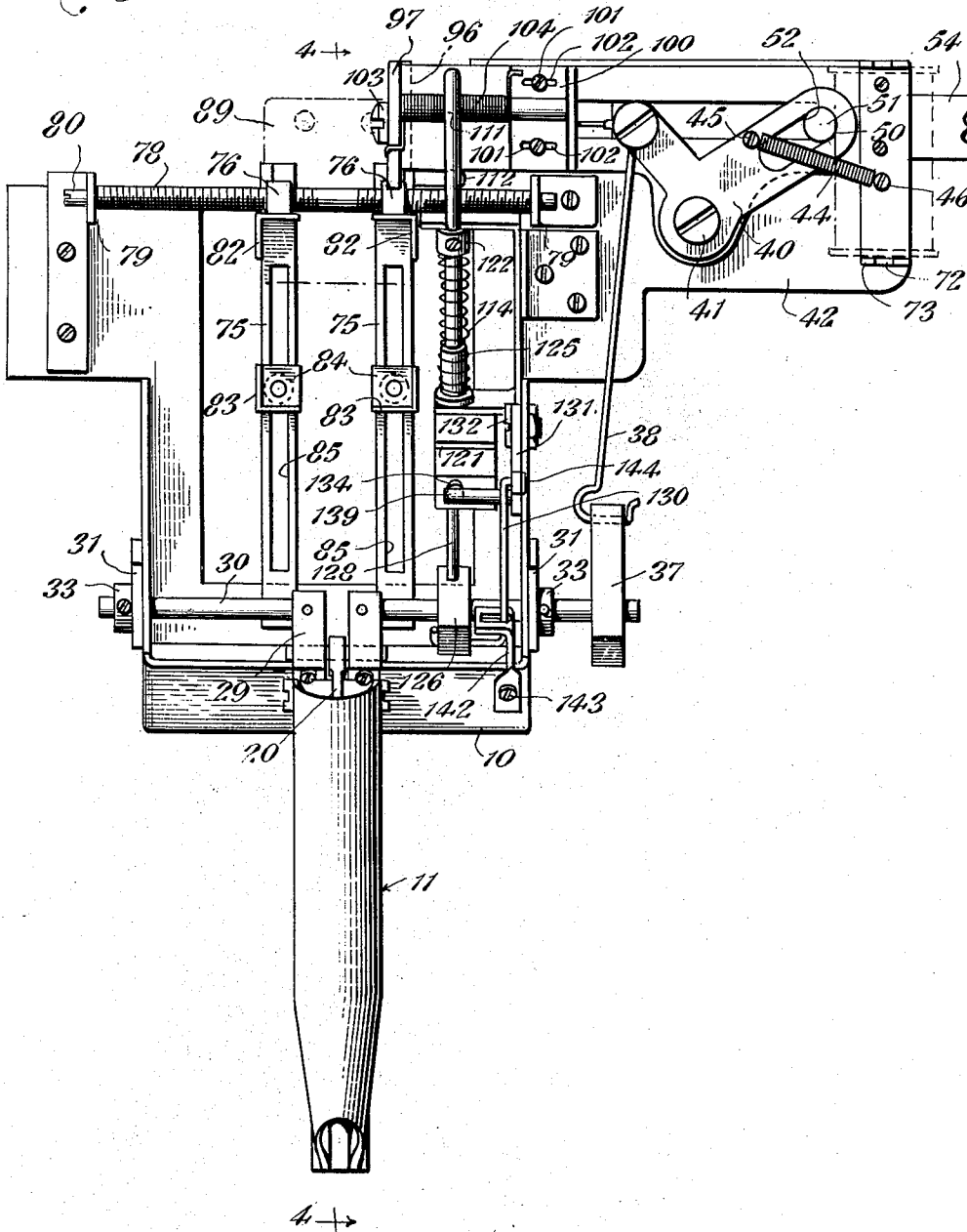
2,503,902

METHOD OF ATTACHING PRICE TAGS

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4 Sheets-Sheet 1

Fig. 1.



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4 Sheets-Sheet 2

Fig. 2.

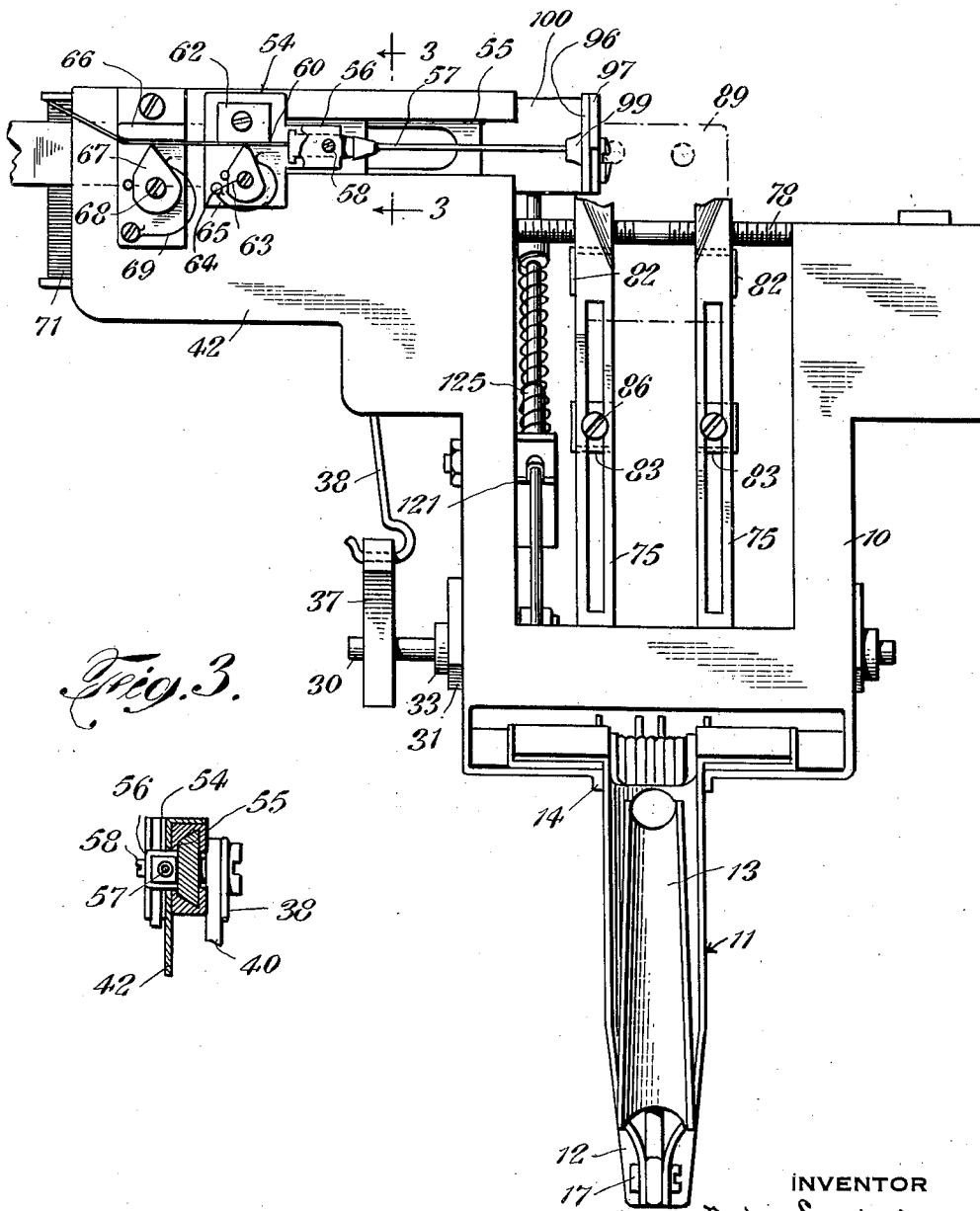
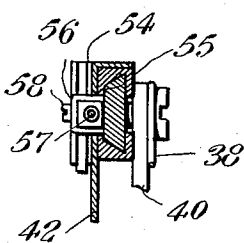


Fig. 3.



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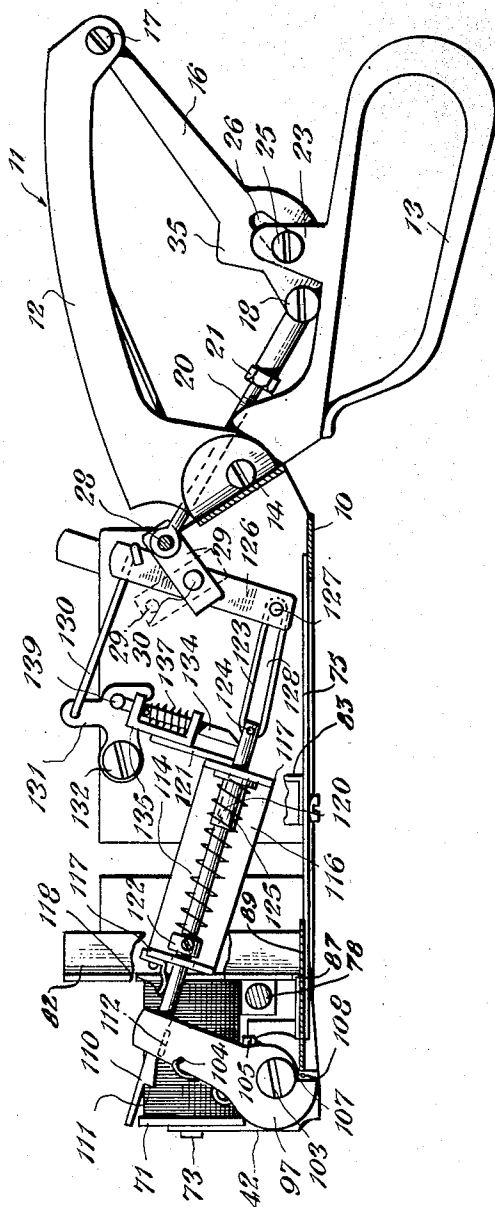
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4 Sheets-Sheet 3



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4 Sheets-Sheet 4

Fig. 5.

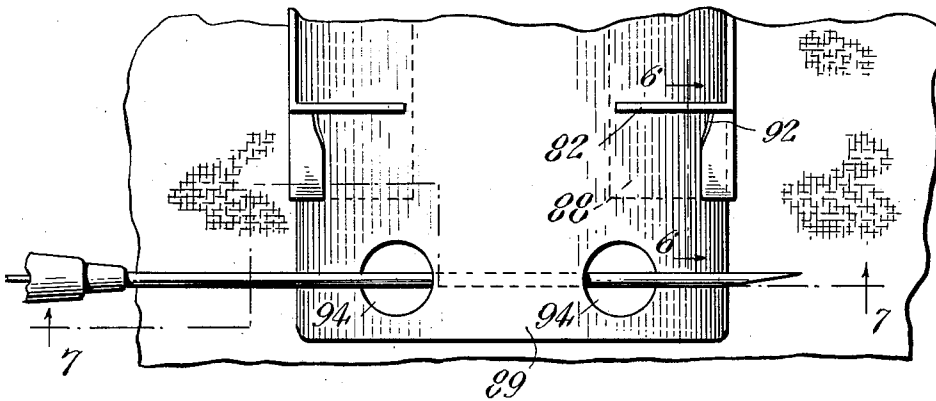


Fig. 6.

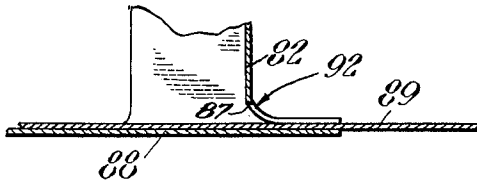


Fig. 7.

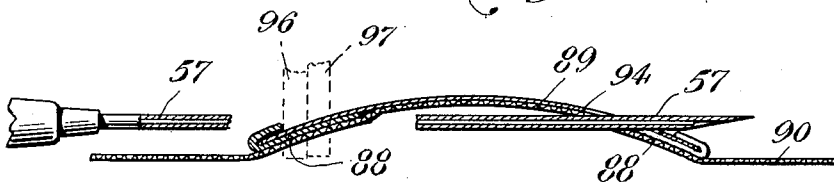


Fig. 8.



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METHOD OF ATTACHING PRICE TAGS

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4 Claims. (Cl. 112—265)

1

This invention relates to methods for pinning price tags to merchandise.

It has long been common practice to attach price tags to merchandise by means of ordinary straight household pins which are headed at one end and pointed at the other. In using such pins for attaching price tags, it was once the practice to apply them by hand, but so-called "pin-on" machines were subsequently devised to automatically insert such pins through the tag and merchandise. However, such pins are relatively expensive, and their pointed ends are a source of danger both to the merchandise and to persons handling the same.

According to the present invention, a continuous strand of pin stock, such as wire or plastic monofil or the like is utilized as a source of supply of pins, a free end of the pin stock being inserted through the tag and merchandise and then being cut-off to provide a pin of the desired length. In order to avoid the danger of pointed ends in such pins, they are preferably cut-off square, i. e. at right angles to the strand, thus providing blunt ends.

One feature of the invention relates to a method for inserting such blunt-ended pin stock through the tag and merchandise without risk of tearing or damaging the merchandise during the process of insertion. For this purpose the free end of the stock is housed in a hollow needle, and the needle is provided with a sharp point that pierces the merchandise without damage. The pin stock advances through the goods while enclosed within the needle, and then the needle is withdrawn while the stock is held against rearward movement and remains extending through the tag and the merchandise.

In the preferred procedure of the invention the tag is bowed and the merchandise arched up against the tag so that a needle advanced along a straight line can intersect the tag and merchandise at two points along the length of the bowed tag. This effect can be obtained by pressing the tag down at spaced points or holding it against a concave surface so as to cause the tag to bend.

One of the advantages of the bowed tag is that the resilience of the tag tends to restore it to a flattened condition after the bending force is removed and this sets up pressure against the pin and provides friction for holding the pin in place.

Other objects, features and advantages of the invention will appear or be pointed out as the specification proceeds.

2

In the drawing, forming a part hereof, in which like reference characters indicate corresponding parts in all the views,

Figure 1 is a top plan view of tag attaching apparatus for attaching tags to merchandise in accordance with the method of this invention.

Figure 2 is a bottom plan view of the apparatus shown in Figure 1.

Figure 3 is a detail sectional view taken on the line 3—3 of Figure 2.

Figure 4 is a side elevation of the apparatus shown in Figures 1 and 2.

Figure 5 is an enlarged fragmentary view of a portion of the structure shown in Figure 1 and illustrating the way in which a tag is pinned to merchandise by this invention.

Figure 6 is a sectional view on the line 6—6 of Figure 5.

Figure 7 is a sectional view taken along the line 7—7 of Figure 5.

Figure 8 is a sectional view through a tag after the needle for inserting the fastening element has been removed.

The apparatus shown in Figure 1 includes a frame 10 with a handle 11 at one end for placing the apparatus in position on merchandise to which a tag is to be connected, and for lifting the apparatus off the merchandise after the tag has been attached. The handle 11 includes an upper rigid portion 12 (Figure 4) and a lower grip portion 13 that is connected with the frame by a pivot 14.

A link 16 is connected at its upper end to the rigid portion 12 by a pivot 17. The lower end of the link 16 is connected by a pivot 18 to a connecting rod 20 made up of two sections, one of which is threaded into the other and held in any desired adjusted position by a lock nut 21. This construction makes the connecting rod 20 adjustable in length.

The link 16 is confined laterally by lugs 23 that extend up from the grip portion 13, and there is a bolt 25 extending between the lugs 23 and through a slot 26 in the link 16. The upper end of the connecting rod 20 connects with a crank-pin 28 of a crank 29 connected to a shaft 30.

Referring again to Figure 1, the shaft 30 has its opposite ends supported in bearing blocks 31 attached to opposite sides of the frame 10. There are collars 33 on the shaft 30 for preventing endwise displacement of the shaft.

An operator places his hand on the top of the rigid portion 12 (Figure 4) and puts his fingers through the loop of the grip portion 13. In order to operate the apparatus he closes his hand to

3

squeeze the grip portion 13 upward toward the fixed portion 12 of the handle. An abutment 35, extending from the upper side of the link 16, strikes against the fixed portion 12 to limit the movement of the grip portion 13 toward the upper fixed portion 12 of the handle.

Upward movement of the grip portion 13 shifts the connecting rod 20 and moves the crank 29 into the dotted line position indicated in Figure 4. This movement rotates the shaft 30 through an angle of somewhat less than 90 degrees in the construction illustrated in the drawing. At one end of the shaft 30 there is a crank arm 37 (Figure 1) which is pinned or otherwise secured to the shaft. This crank arm 37 is connected by a link 38 with one end of a bell crank 40 which is angularly movable about a screw 41. This screw extends up from an extension 42 that forms a rigid part of the frame 10. The bell crank 40 is urged into a retracted position by a spring 44 tensioned between a pin 45 on the bell crank and an anchor 46 on the frame extension 42.

When the crank arm 37 is operated to pull the link 38, the bell crank 40 is rocked in a counterclockwise direction about the screw 41. A roller 50 in a stud 51 extends up into a slot 52 in the bell crank 40. The stud 51 is rigidly connected with a slide 54 that moves in guides in the extension 42 of the frame. Counterclockwise movement of the bell crank 40 around the screw 41 causes the roller 50 and stud 51 to be shifted to the left in Figure 1 and moves the slide 54 in its guide 55, best shown in Figure 3.

The under side of the slide 54 is shown in Figure 2. At the forward end of the slide there is a socket 56 in which is held a hypodermic needle 57 by means of a set screw 58. A wire or thread 60 is led across the bottom of the slide 54 and into the hypodermic needle 57. The slide 54 includes a clutch for causing the wire or thread 60 to move to the right with the needle after the slide 54 has advanced a short distance but the clutch is so constructed that it releases automatically when the slide 54 retracts, that is, moves toward the left in Figure 2.

This wire clutch includes an anvil 62 and a pawl 63 which rotates about a pin 64 to jam the wire 60 against the anvil 62. A light coil spring 65 urges the pawl 63 toward the anvil, but this spring 65 is not strong enough to cause excessive friction of the pawl 63 against the wire during the rearward stroke of the slide 54. This clutch for gripping the wire or pin stock requires some movement of the slide 54 before gripping the wire. This movement is sufficient to move the needle over the exposed end of the wire that was left extending beyond the point of the needle after the previous cutting of the wire.

In order to limit retrograde or rearward movement of the wire or thread 60, there is another clutch connected with the underside of the frame extension 42. This clutch includes a fixed anvil 66 and a pawl 67 that moves about a pin 68 to jam the wire 60 against the anvil 66 whenever the wire begins to move rearwardly, that is, toward the left in Figure 2. A light spring 69 urges the pawl 67 against the wire 60. The needle has some forward and some rearward movement before the clutch pawls 63 and 67 move far enough to stop movement of the wire 60 with the needle.

The wire or thread 60 is supplied from a spool 71 supported on an axle 72 (Figure 1) extending between spaced supports 73 on top of the frame extension 42.

The price tags may be carried in a magazine

4

mounted on the frame 10, or the apparatus can be used for attaching tags that are individually placed in position on the merchandise to which they are to be connected. The apparatus illustrated in the drawing has a magazine comprising two bars 75 supported by blocks 76 at their forward ends. The rearward ends of the bars 75 rest on the frame 10. A supporting screw 78 threads through the blocks 76 and has end portions of circular section that rotate in bearings 79 attached to the frame 10. There is a slot 80 in the more accessible end of the supporting screw 78 for turning this screw 78 to adjust the distance between the bars 75. One of the blocks 76 contains right-hand threads and the other left-hand threads so that these blocks move closer together or further apart when the screw 78 is rotated in one direction or the other. The purpose of this adjustment is to change the width of the magazine to accommodate tags of different size.

There are angles 82 extending upward from each of the bars 75 immediately behind the blocks 76, and these angles form the corner for the forward end of the magazine.

There are other angles 83 extending upward from clamps 84 that are slidable along slots 85 in the bars 75. Each of these clamps 83 has a screw 86 (Figure 2) for holding it in adjusted position along the length of the bar 75 to which it is attached by the screw 86. The angles 83 form the rearward corners of the tag magazine, and their adjustment lengthwise of the bars 75 permits adjustment of the magazine to accommodate tags of different length.

The bars 75 are spaced to provide access to the bottom tag of a stack of tags located in the magazine, and the front wall of each of the angles 82 terminate a little above the surface of the bar 75 on which the bottom of the stack of tags rests so as to leave a slot 87 wide enough for the bottom tag of the stack to pass through so that it can be fed forward to advance its end beyond the front of the magazine and into position for cooperation with the needle. The tag may be fed forward by any suitable automatic feeding mechanism or by manual manipulation by the operator of the apparatus.

The forward portions of the bars 75 carry guides for bending the bottom tag as it is moved out from the magazine. These guides have curved bottoms 88 (Figures 6 and 7) that not only bend the tag 89 to a bowed shape, but also comprise the section of the apparatus by which it is supported when rested on merchandise to which a tag is to be attached. The curved surfaces 88 press down the merchandise 90 at both sides of the tag so that there is an arched-up portion of the merchandise directly under the tag in position to be intersected by the needle 57. The guides for the tag also include flared entrances 92 for guiding the front end of the tag into the guides.

The tag 89 may be pierced by the needle but preferably has prepunched holes 94 through which the needle 57 passes. The use of prepunched holes has the important advantage that the same hollow needle can be used over and over again without having its point dulled. The needle pierces the cloth merchandise 90 easily, but the point is worn rather rapidly if it is required to also pierce tags constructed of stiff paper board.

Figures 5 and 7 show the needle 57 in its extreme forward position that carries the wire or

5

thread 60 through both of the openings 94 in the tag 89, and through the merchandise 90 at two spaced locations adjacent the openings 94. As the needle 57 moves back toward the left the wire 60 travels with it until the end of the wire is back from the side edge of the tag 89 and by this time the retrograde movement of the wire 60 is sufficient to cause the clutch to jam and prevent further rearward movement of the wire. The needle continues to move leaving the wire in the tag with end in the position shown in Figure 8.

As the slide which supports the needle 57 travels to the limit of its rearward movement, the pointed end of the needle 57 moves back to the dotted line position indicated in Figure 7. This is somewhat beyond a face plate 96 through which the wire and needle pass, and a shear blade 97 that operates across the opening in the face plate 96 to shear the wire at a point slightly inward from the side edge of the tag. Thus both ends of the wire fastening or pin which holds the tag 89 to the merchandise 90 are within the area of the tag, and therefore less likely to catch on other merchandise when the tagged articles are being handled. Figure 8 shows the tag 89 attached to the merchandise 90 after the wire has been sheared off and the resilience of the tag has drawn out of the guides and has moved as far back as possible toward a flat condition.

The resilience of the tag tends to flatten it out as soon as it is removed from the influence of the side guides, but the wire or pin fastening prevents the tag from flattening completely. The tendency of the tag to flatten, however, sets up sufficient friction between the tag and the sides of the wire fastening to hold the fastening in place even though the fastening passes through large holes in the tag.

The positions of the face plate 96 and shear blade 97 with respect to the rest of the mechanism is shown in Figure 2. The face plate 96 supports a guide 99 through which the needle 57 passes. This guide 99 is long enough so that the point of the needle remains in the guide when the needle is at the rearward end of its stroke.

The face plate 96 extends downward from a bracket 100 that is connected to the frame by screws 101 (Figure 1) extending through slots 102 in the bracket 100, or with other provision that permits adjustment of the bracket 100 in the direction of movement of the needle. The purpose of this adjustment is to regulate the point at which the wire is sheared for tags of different width.

The shear blade 97 is supported by a pivot 103 connected to the face plate 96. A coil spring 104 urges the shear blade back against a stop 105, best shown in Figure 4. This stop is attached to the bracket 100.

At the lower end of the shear blade 97 there is a shearing surface 107 positioned just beyond the opening 108 through which the needle and wire pass through the face plate 96. Movement of the shear blade 97 about its pivot 103 causes the shearing surface 107 to shear the wire at the end of the opening 108.

The shear-operating mechanism includes a plunger 110 which has a shoulder 111 in position to contact with a stud 112 that extends from one side of the shear blade 97. When the shoulder 111 is up against the stud 112, and the plunger 110 moves toward the left in Figure 4, the shear blade 97 is rocked in a counterclockwise direction and operates to shear the wire.

6

The stud 112 moves along an arcuate path as the plunger 110 operates the shear blade. The shoulder 111 moves along a straight line, and after the shear blade 97 has rocked some distance beyond the position at which it cuts the wire, the stud 112 moves downward across the face of the shoulder 111 and beyond the lower end of the shoulder so that the shear blade 97 is released from the plunger 110 and is free to move back to its starting position against the stop 105.

The plunger 110 is operated by a compression spring 114 which surrounds an intermediate portion of the plunger 110. A bracket 116 is secured to and forms a part of the frame 10. This bracket has two extensions 117 through which the plunger 110 passes and by which the plunger is supported. The bearings for the plunger 110 in the extensions 117 are somewhat larger than the diameter of the plunger 110. This gives the plunger a limited vertical movement. A spring 118 urges the right-hand end of the plunger downward so that the shoulder 111 will engage behind the stud 112 when the plunger is retracted. The plunger extends some distance beyond the shoulder 111 so that even in its most retracted position, the end of the plunger cannot drop below the stud 112.

Near its rearward end the plunger 110 has a notch 120 in its upper surface, and there is a plate 121 just behind the extension 117 with an edge that provides a shoulder behind which the notch 120 latches when the plunger 110 is pulled rearwardly against the force of the compression spring 114. This spring 114 is confined between the rearward extension 117 and a collar 122 that is secured to the plunger 110 by a set screw. A loose sleeve 125 surrounds the portion of the plunger just ahead of the rearward extension 117 to prevent the notch 120 from catching in the convolutions of the spring 114 when the plunger 110 moves forward.

The structure for pulling the plunger 110 rearwardly includes a link 123 that is connected to the rearward end of the plunger 110 by a pivot 124. This link 123 is connected with a crank arm 126 by a pin 127 which extends through a slot 128 in the link 123. The purpose of this slot is to permit the pin 127 to move forward, that is, toward the plunger 110, while the plunger remains in its retracted position with the notch 120 engaging the edge of the plate 121.

The crank arm 126 is pinned, or otherwise rigidly connected to the shaft 30, and extends above the shaft 30 for the purpose of operating a link 130 which controls the release of the plunger 110. This control is effected through a bell crank 131 that rocks about a pivot 132 attached to the frame of the apparatus. There is a release element 134 located immediately above the plunger 110 and supported in a yoke 135 in which it has limited sliding movement. This release element 134 is urged upward by a spring 137 compressed between the lower branch of the yoke 135 and a pin extending from the side of the release element.

A stud 139 on one side of the bell crank 131 depresses the release element 134 when the bell crank 131 is rocked in a counterclockwise direction beyond a given limit. The parts are so proportioned that as the needle-operating slide approaches the rearward end of its stroke, the shaft 30 will turn into a position that causes the crank arm 126 to pull the link 130 far enough to cause the stud 139 to depress the release ele-

ment 134 and push the rearward end of the plunger 110 down far enough to disengage the notch 120 from the edge of the plate 121. When the notch 120 is thus released, the plunger 110 is thrust forward quickly by the energy in the compressed spring 114 and operates the shear plate 97 to cut-off the wire.

The link 130 is not connected to the crank arm 126, but merely extends around behind the crank arm, as shown clearly in Figure 1. A supporting bracket 142 is attached to the frame 10 by a screw 143 and provides a bearing for the rearward end of the link 130. The forward end of the link 130 is bent inward and extends through the upper end of the bell crank 131 to provide a pivot connection 144 between the link 130 and bell crank 131.

Although the invention has been described with wire for attaching the tags to merchandise, other material can be used, such as plastic monofil, preferably nylon. The only requirement for the wire or other stock that is to be sheared off to form a pin for holding the tag on the merchandise is that the stock be sufficiently stiff for the purpose, and that it be a material which can be sheared to leave a substantially clean-cut end.

The preferred embodiment of the invention has been described, but various modifications can be made and some features can be used without others without departing from the invention as defined in the claims.

I claim as my invention:

1. The method of pinning a tag to merchandise, which method comprises holding the tag against the merchandise, bending the tag and merchandise and while bent passing a hollow pointed needle through them at spaced regions and with an end portion of a length of unpointed pin stock enclosed within the needle, holding the pin stock with its end intermediate an edge of the tag beyond the pin stock and the second region of intersection of the tag by the needle, preventing retrograde movement of the pin stock by holding it at a region back of the needle, withdrawing the needle while the pin stock is thus held against retrograde movement to leave a substantial length of the end portion of the pin stock exposed, cutting off the exposed stock, at a point intermediate an edge of the tag nearest the needle and the first region of intersection of the tag by the needle, to make a pin.

2. The method of pinning a tag to merchandise, which method comprises holding the tag against the merchandise with the tag and merchandise bent, moving a hollow pointed needle forward and backward along a straight line that

intersects the tag and merchandise at two regions along the bend in said tag and merchandise, enclosing an end portion of an unpointed pin stock within the needle, moving the stock forward with the needle during the forward movement of the needle, preventing retrograde movement of the pin stock by holding it at a region back of the needle, during backward movement of the needle so that the end portion of the stock is left extending through the tag and merchandise when the needle is withdrawn, and then cutting off the stock at a location between an edge of the tag and the first intersection of the tag by said pin stock.

3. The tag pinning method that comprises passing a hollow pointed needle in one direction through a tag and through merchandise pressed against the tag, at a region of contact, and through said merchandise and tag from the opposite direction at another region of contact of the tag and merchandise, advancing a supply of unpointed pin stock through the tag and merchandise with the end portion of said stock enclosed within the needle, preventing retrograde movement of the pin stock by holding it at a region of the needle and withdrawing the needle while thus holding the pin stock with its end portion intersecting the tag and merchandise in position to fasten the tag to the merchandise, and then cutting off said end portion from the supply of pin stock behind it.

4. The method of pinning tags to merchandise, which method comprises intersecting the tag and adjacent merchandise at two spaced points with an end of a hollow pointed needle that encloses fastening means and that pierces the merchandise to provide openings for the fastening means, preventing retrograde movement of the fastening means by holding it at a region back of the needle, and while the pin stock is thus held against retrograde movement withdrawing the needle and leaving the fastening means in position to secure the tag to the merchandise.

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