April 4, 1939. L. FREEMAN 2,152,958

COMBINATION HAT PERFORATING AND LABELING DEVICE

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Fig. 1.

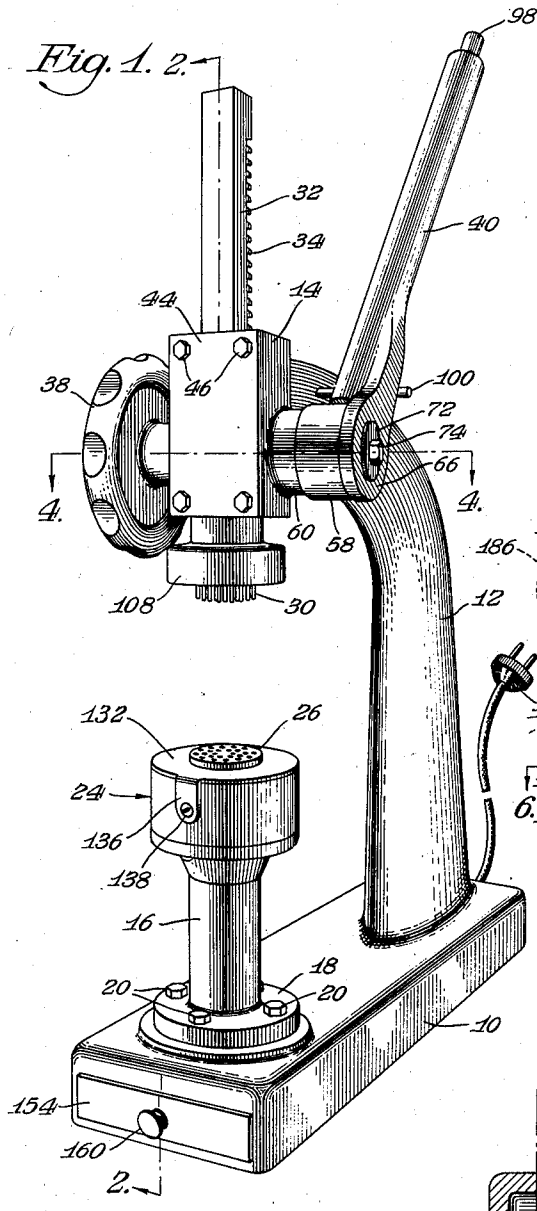


Fig. 2.

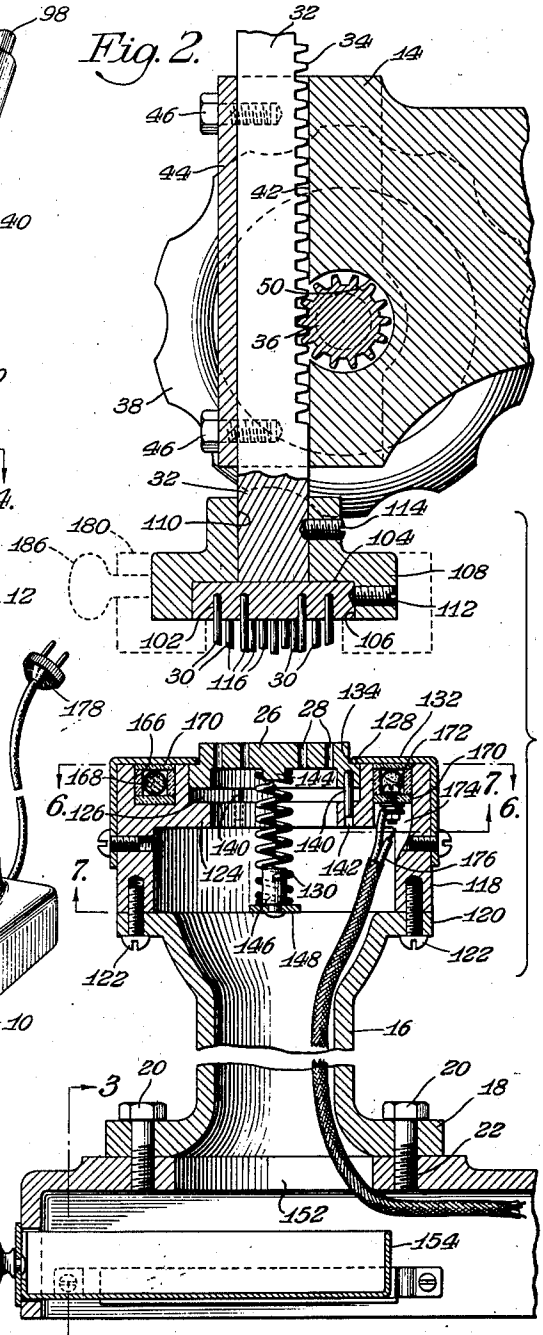
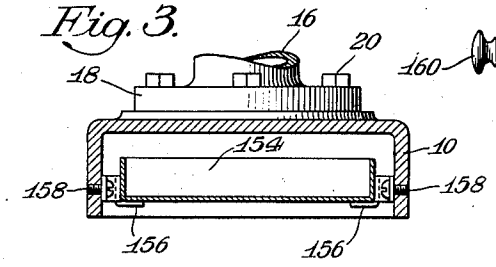


Fig. 3.



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Fig. 4.

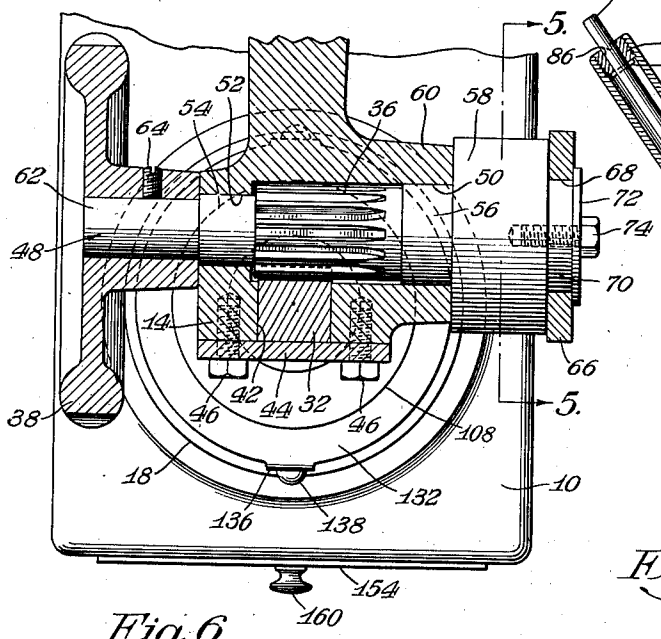


Fig. 5.

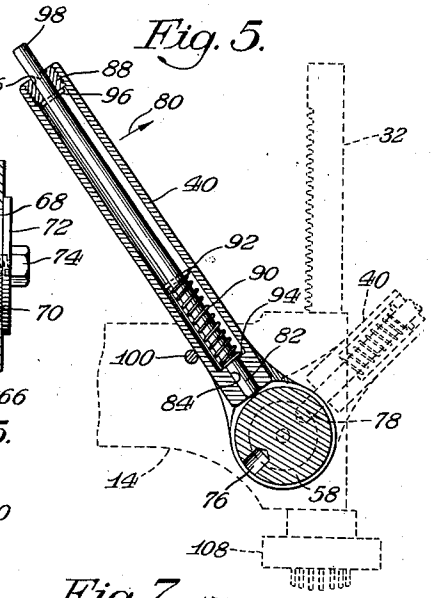


Fig. 6.

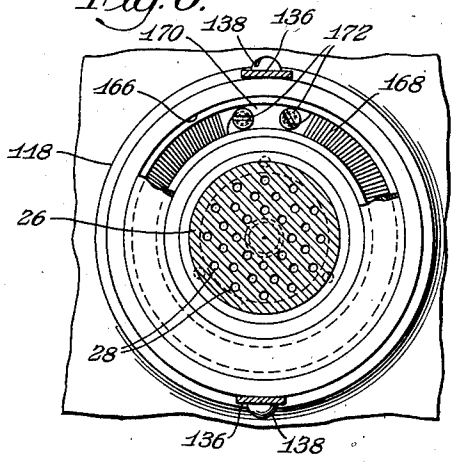


Fig. 7.

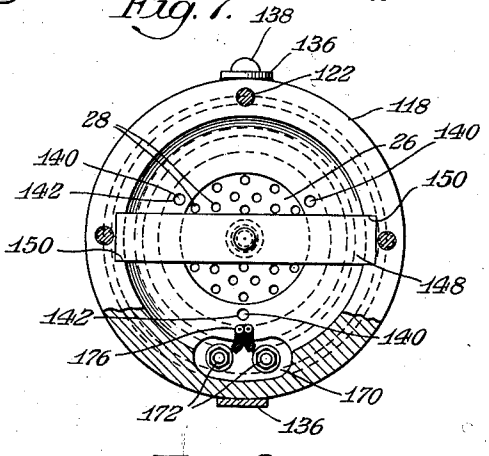


Fig. 8.

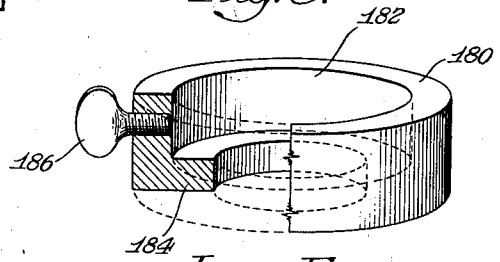
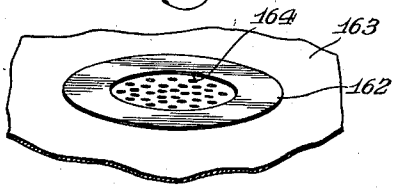


Fig. 9.



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Patented Apr. 4, 1939

2,152,958

UNITED STATES PATENT OFFICE

2,152,958

COMBINATION HAT PERFORATING AND LABELING DEVICE

Leon Freeman, Chicago, Ill.

Application March 1, 1937, Serial No. 128,510

3 Claims. (Cl. 216—1)

My invention relates to the art of labeling and perforating hats and includes among its objects and advantages the provision of an improved combination labeling and perforating machine.

An object of my invention is to provide a device of the type described in which novel means is employed for perforating the hat and in which the perforating means perform a label attaching function.

Another object is to provide a device of the type described in which a novel hat perforating and label attaching mechanism is employed and in which a heating element is effectively and compactly associated with the labeling feature.

A further object is to provide a combination perforating and label mechanism in which the perforating mechanism may be easily and quickly rendered inoperative.

Another object is to provide a hat perforating device in which a gang of perforating tools cooperative in a novel manner with a yielding die and in which the die is so arranged as to provide a guiding function for the label to be attached.

Another object is to provide a device of the type described in which a gang of perforating tools is associated with a reciprocatory element including novel manually actuated means for operating the element in a quick and easy manner.

Another object is to provide a device of the type described in which means is employed for catching material punched from the hat by the perforating elements.

In the accompanying drawings:

Fig. 1 is a perspective view showing the invention;

Fig. 2 is an enlarged sectional view along the line 2—2 of Fig. 1 with certain parts removed for the sake of compactness;

Fig. 3 is a sectional view along the line 3—3 of Fig. 2;

Fig. 4 is a sectional view along the line 4—4 of Fig. 1;

Fig. 5 is a sectional detail view of the lever for forcing the perforating tools through the hat;

Fig. 6 is a sectional view along the line 6—6 of Fig. 2;

Fig. 7 is a sectional view along the line 7—7 of Fig. 2;

Fig. 8 is a fragmentary perspective view of a collar which may be attached to the device for rendering the perforating tools inoperative; and

Fig. 9 is a fragmentary view of a hat showing the manner in which the crown is perforated and the location of the label with respect to the perforated area.

In the embodiment selected to illustrate my invention I make use of a base 10 cast integrally with a standard 12 terminating in a head 14. A shorter standard 16 is mounted upon the base 10 and is provided with a flange 18 provided with openings for the reception of bolts 20 which have threaded relation at 22 with the base 10.

A head 24 is carried by the upper end of the standard 16, which head is positioned in vertical alignment with the head 14 and includes a die 26 having perforations 28 arranged to receive the perforating tools 30 connected with a bar 32 mounted for reciprocatory action within the head 14.

Bar 32 is provided with gear teeth 34 having meshing relation with a gear 36 which may be rotated through the medium of a hand wheel 38 and the lever 40. I groove the head 14 at 42 to loosely receive the bar 32, which bar is held within the groove by a plate 44 removably connected with the head 14 by bolts 46.

Referring to Fig. 4, the gear 36 comprises an integral part of a shaft 48 rotatably mounted in a bore 50 in the head 14. Bore 50 terminates in a smaller bore 52 for accommodating the bearing reach 54 of the shaft 48. The bearing reach 56 in the bore 50 is larger in diameter than the reach 54 while the gear 36 is slightly smaller in diameter than the reach 56 but larger than the reach 54. Reach 56 terminates in a flange 58 which has abutting relation with the boss 60 cast integrally with the head 14. The hand wheel 38 is fixedly connected with the reduced shank 62 of the shaft 48 through the medium of a set screw 64. Removal of the hand wheel 38 from the shaft 48 permits the latter to be removed from the head 14 by pulling the shaft to the right when viewing Fig. 4.

One end of the lever 40 is enlarged at 66 and provided with an opening 68 for loosely receiving the reach 70 of the shaft 48. A washer 72 is positioned adjacent the end of the reach 70 and has a central opening for the reception of a bolt 74 having threaded relation with the shaft 48. Washer 72 holds the lever 40 in assembled relation with the reach 70, but the lever is loosely mounted on the reach. Because of the abutting relation between the reach 58 and the boss 60 and between the hand wheel 38 and the opposite side of the head 14, the shaft 48 is restrained from endwise movement but may be rotated.

To perforate the crown of a hat the crown is properly positioned on the head 24 and the tools 30 lowered by turning the hand wheel 38. If the hand wheel 38 is given a quick turn, its mo-

mentum together with the shaft 48 will carry the bar 32 downwardly and position the tools 30 in contact with the crown of the hat. With the tools 30 thus positioned, the bore 76 in the shaft part 58 will be positioned substantially as indicated in the dotted line position 78 of Fig. 5. The lever 40 is then pulled in the direction of the arrow 80, which brings the shaft 82 into alignment with the bore 76, at which time further rotation of the shaft 48 is consummated through the lever 40 for forcing the tools 30 through the material of the hat. Lever 40 is tubular and is offset with respect to the enlarged end 66 so as to bring the tubular part into proper alignment with the shaft part 58.

The shaft 82 is slidably mounted in an opening 84 in one end of the handle, and the opposite end of the shaft is slidably supported within a bore 86 in a plug 88 having threaded relation with the handle. A compression spring 90 is mounted on the shaft 82 with its ends abutting a pin 92 and the ledge 94. A second pin 96 is attached to the shaft 82 and is arranged to abut the plug 88 for normally holding the shaft in the full line position of Fig. 5. In bringing the shaft 82 into alignment with the bore 76, in its dotted line position 78, the shaft is pushed into the bore by applying pressure to its end 98 which projects beyond the plug 88. Thus, a positive connection between the lever 40 and the shaft 48 is maintained so long as the shaft 82 is held within the bore 76 against the tension of the spring 90. A pin 100 is carried by the standard 12 for supporting the lever 40 in the normal full line position of Figs. 1 and 5.

In Fig. 2, the tools 30 are in the nature of pins pressed into bores 102 in a circular plate 104 removably retained within the recess 106 in the collar 108 having a square opening 110 for the reception of one end of the bar 32. A set screw 112 fixedly connects the plate 104 with the collar 108 while the set screw 114 fixedly connects the collar 108 with the bar 32. The cutting ends 116 of the tools 30 are arranged in the form of a convex so that only a portion of the tools are cutting at a given time.

Referring to Fig. 2, the head 24 is illustrated in its vertical alignment with respect to the head 14, but the standard 12 has been broken away for the sake of compactness. Specifically, the head 24 comprises a cylindrical member 118 mounted upon the flange 120 cast integrally with the standard 16. Screws 122 fixedly connect the cylindrical body 118 with the flange 120. I provide the cylindrical body 118 with a flange 124 and a bore 126 within which the die 26 is positioned. The die includes a flange 128 which is loosely positioned within bore 126. A compression spring 130 urges the die 26 to its normal position of Fig. 2. To hold the die within the bore 126 I mount a plate 132 upon the upper end of the cylindrical body 118, which plate includes an opening 134 for loosely receiving the die. This plate projects over the flange 128 sufficiently far to constitute an abutment which holds the flange within the bore 126. The plate 132 may be provided with right angular ears 136 which embrace the cylindrical member 118 and are fixedly connected thereto by screws 138.

Pins 140 are fixedly connected with the flange 128 and are positioned loosely within openings 142 in the flange 124. While the die 26 may be depressed within the bore 126, the pins 140 prevent rotation of the die so as to hold the bores 28 in proper alignment with the tools 30. One end of the spring 130 embraces a lug 144 on the die 26 while the opposite end embraces a pin 146 riveted to a metal strap 148 having its ends housed within recesses 150 in the cylindrical member 118 (see Fig. 7).

Standard 16 is hollow and communicates with an opening 152 in the base 10 which is also hollow. Within the base 10 and underneath the opening 152 I mount a drawer which is slidably mounted on guides 156 fastened to the base by screws 158. Material punched from the hat is pushed through the openings 28 and falls into the drawer 154, which may be pulled out of the base 10 through the medium of a knob 160.

In operation, the crown of the hat rests on the die 26. As the tools 30 are pressed through the material of the hat, the die 26 is depressed in the bore 126 until it rests upon the flange 124, at which time the top surface of the die is flush with the upper face of the plate 132. The tools 30 are accommodated within the openings 28 so that the crown of the hat may be pressed between the plate 104 and the upper face of the die. The outer face of the plate 104 terminates flush with the lower face of the collar 108 so that these faces will also be brought into pressure relation with the crown of the hat extending over the plate 132. Since the die 26 is yieldingly mounted, effective pressure is attained for firmly securing the label to the hat with no danger of shearing the hat because of the die 26 which normally projects beyond the surface 132.

In Fig. 9, I illustrate a label 162 as having a central opening 164 of such diameter as to receive the projecting part of the die 26. The label 162 may be provided with a suitable adhesive on one face for connection with the crown 163 of the hat. Because of the opening 164, the die performs a centering or locating function for properly placing the label. Since the die is yieldingly mounted, the label will be pressed firmly against the crown 163 between the outer faces of the plate 104 and the collar 108 and the plate 132.

In cases where the adhesive is moistened, means is provided for facilitating attachment. In the upper end of the cylindrical body 118 I provide an annular groove 166 within which I mount an electrical heating element 168. The heating element 168 is enclosed within asbestos strips 170 which line the walls of the groove 166 and cover the plate 132. The ends of the heating element 168 are connected with screws 172 which are anchored in the lower horizontal strip 170. The cylindrical body 118 is bored at 174 to permit conducting wires 176 to be connected with the screws 172. Wires 176 pass downwardly through the standard 16 and to the interior of the pass 10 for connection with a suitable plug 178. Because of the heating element 168, the plate 132 may be heated to such a degree as to cause quick drying of the label.

In cases where it is necessary to label only, the perforating tools 30 may be rendered inoperative through the medium of a ring 180 (see Fig. 8) which includes a bore 182 for the reception of the ring 180. The ring 180 terminates in a flange 184 which extends over the lower faces of the collar 108 and the plate 104, as illustrated in dotted lines in Fig. 2. The flange 184 is of sufficient thickness to hold the tools 30 out of perforating relation with the hat, but the flange is so positioned as to depress the die 26 for bringing the lower face of the flange into pressure relation with the portion of the hat extending

across the plate 132. A set screw 186 has threaded relation with the ring 180 for securely fastening the ring to the collar 108.

Quick action is attained through the medium of the hand wheel 38, and the lever 40 is of sufficient length to give the operator such leverage on the bar 32 as to permit the perforating tools 30 to pass through the material of the hat with little effort on the part of the operator. The die 26 provides a centering or locating element for the label to be attached, and the relation of the parts is such as to apply an effective pressure on the label. Because of the locating function of the die 26, the label will be positioned in concentric relation with the perforated area so as to provide a balanced appearance. Because of the heating element, the label may be effectively dried by merely holding the label under sufficient pressure for a short period of time. Mere attachment of the ring 180 to the collar 108 renders the perforating tools 30 inoperative. The inner end of the set screw 112 lies within the recess in the plate 104 so that the plate will always be positioned in the same relative position, thus assuring proper alignment of the perforating tools 30 within the openings 28. Set screw 14 also lies within the recess in the bar 32 so as to assure proper connection of the collar 108 with the bar. Pins 140 prevent rotation of the die 26 but permit vertical adjustment of the die.

Without further elaboration, the foregoing will so fully explain my invention that others may, by applying current knowledge, readily adapt the same for use under various conditions of service.

I claim:

1. A combination hat perforating and labeling device comprising: a stationary head having a label supporting bed; a die resiliently mounted on said head and having a portion projecting beyond said label supporting bed; a support; pressure means movably related to said support and including perforating elements; and means for moving the pressure means toward the die for bringing the perforating elements into perforating relation therewith, said portion of the die constituting locating means for a label having an opening to receive the same, said pressure means depressing the die to bring the former into pressure relation with the label on the supporting bed, said portion of the die holding the label in symmetrical relation with the perforating elements.

2. A combination hat perforating and labeling device comprising: a stationary head having a label supporting bed; a die resiliently mounted on said head and having a portion projecting beyond said label supporting bed; a support; pressure means movably related to said support and including perforating elements; means for moving the pressure means toward the die for bringing the perforating elements into perforating relation therewith, said portion of the die constituting locating means for a label having an opening to receive the same, said pressure means depressing the die to bring the former into pressure relation with the label on the supporting bed, said portion of the die holding the label in symmetrical relation with the perforating elements; and auxiliary pressure means attachable to said first pressure means for rendering the perforating elements inoperative.

3. A combination hat perforating and labeling device comprising: a stationary head having a label supporting bed; a die resiliently mounted on said head and having a portion projecting beyond said label supporting bed; a support; pressure means movably related to said support and including perforating elements; means for moving the pressure means toward the die for bringing the perforating elements into perforating relation therewith, said portion of the die constituting locating means for a label having an opening to receive the same, said pressure means depressing the die to bring the former into pressure relation with the label on the supporting bed, said portion of the die holding the label in symmetrical relation with the perforating elements; and heating means in said stationary head arranged in heat transfer relation with the label supporting bed and encircling said die.

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