

Oct. 11, 1955

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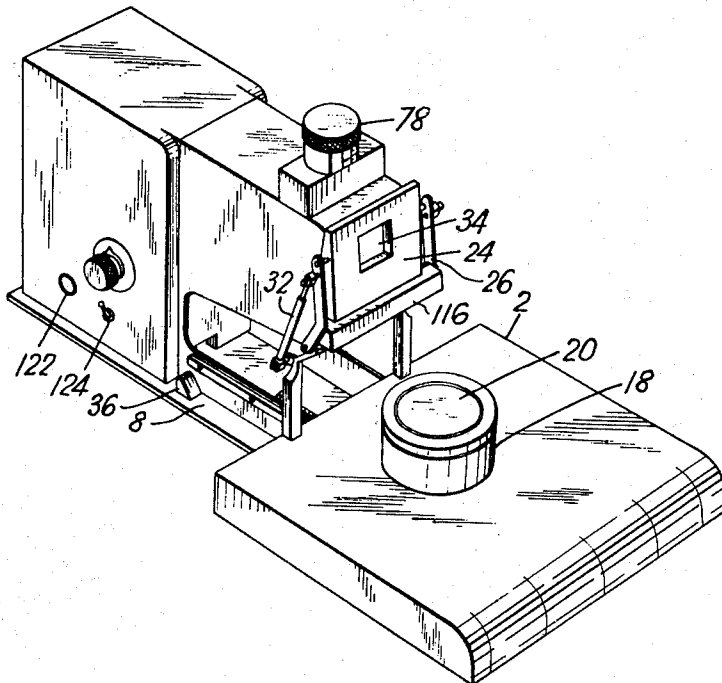
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PRESS

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4 Sheets-Sheet 1

Fig. 1.



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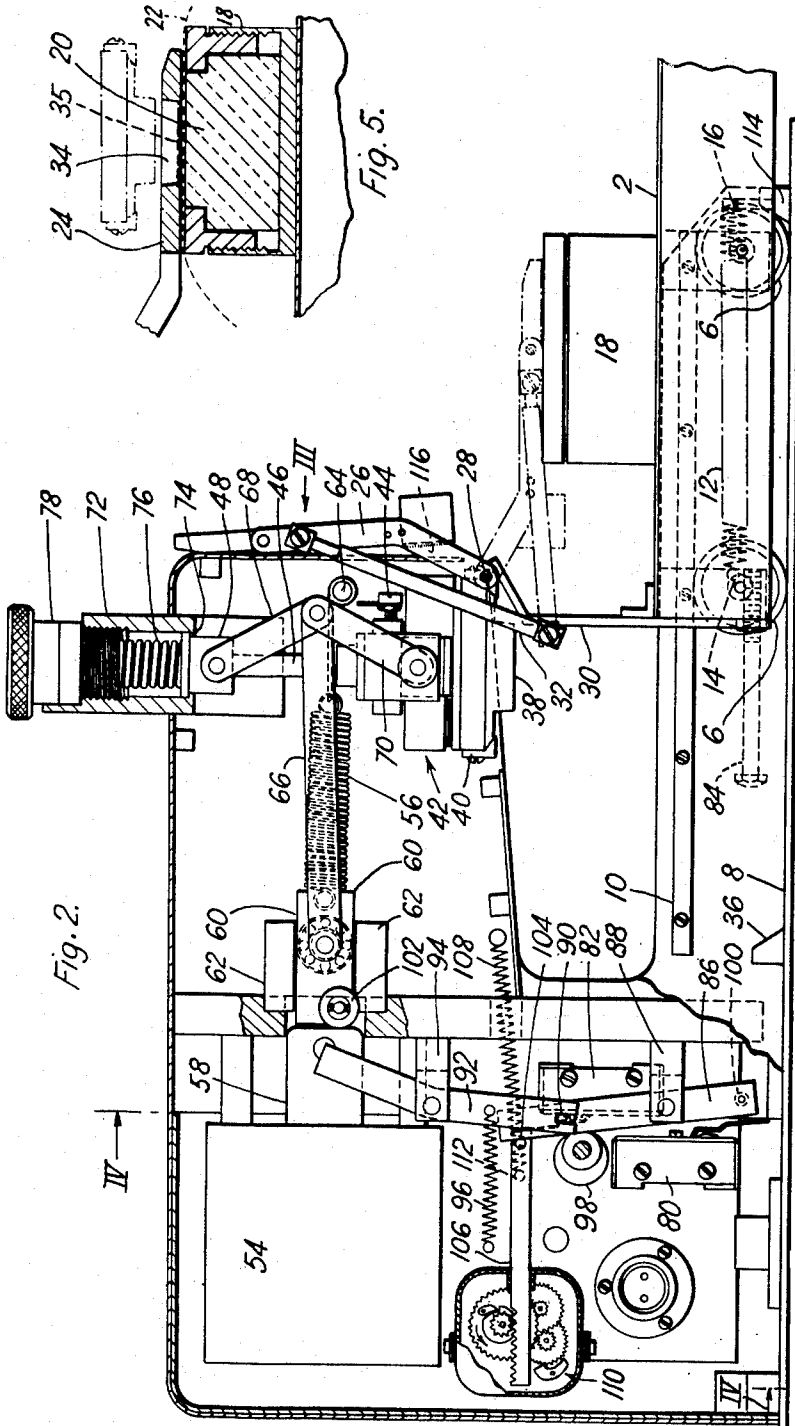


Fig. 2.

Fig. 5.

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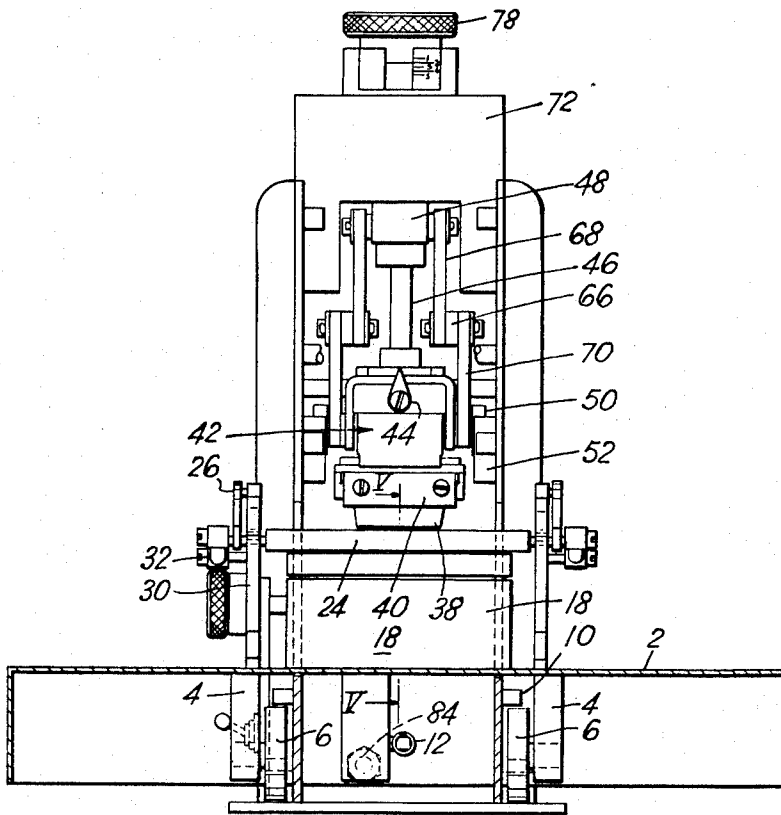
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Fig. 3.



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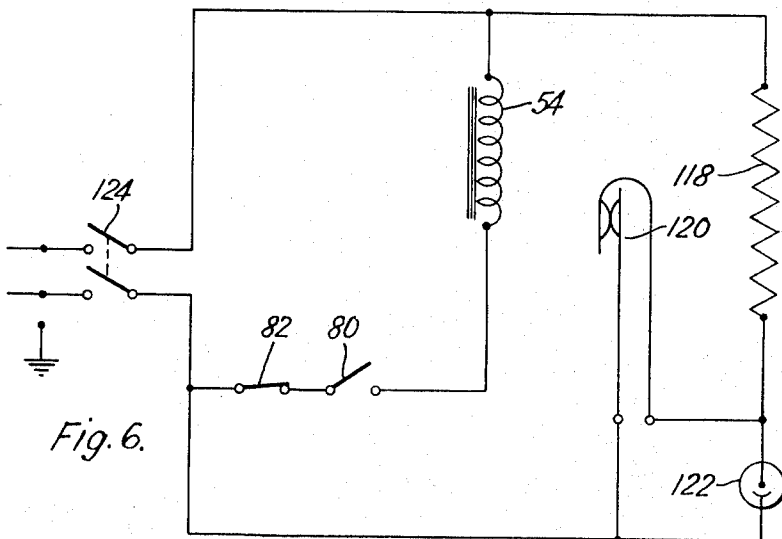
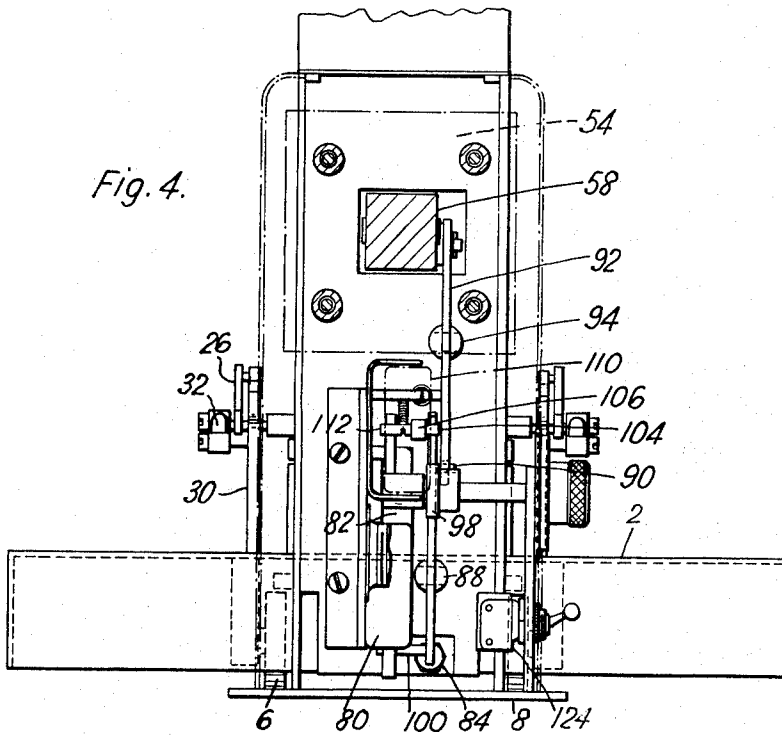
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4 Sheets-Sheet 4



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PRESS

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3 Claims. (Cl. 216—9)

It is possible to mark garments and other textile articles by means of a label with a fusible backing. The label is applied by a heated press, and according to the nature of the backing is held to the article permanently (for example as a maker's mark), or temporarily (for example as an identification mark in a laundry). This invention is concerned with a press which has been developed for applying such labels to garments, but which may be put to other uses.

It is an object of the present invention to provide means for controlling the cycle of operation of such a press.

It is a further object to arrange a press so that the act of moving an article into place in the press causes the press automatically to close for a predetermined time and thereafter open and discharge the article.

Essentially a press according to this invention comprises a plunger, a carriage which can be moved into and out of a position beneath the plunger, and which on reaching the position causes the plunger to move downwards to the carriage, and a timing device which is released by the carriage on reaching the position and after a predetermined period causes the plunger to rise, and which is reset on movement of the carriage out of the position. Preferably a spring which is stressed as the carriage is moved into position serves to move the carriage out of position when the plunger rises.

It is convenient to operate a press according to the invention electrically, and for this purpose the plunger may be arranged to be forced downwards by energising a solenoid and raised by a spring, the solenoid being in series with two switches one of which is closed by the carriage on reaching the position beneath the plunger and the other of which is opened by the timing device at the end of the predetermined period.

The accompanying drawings show one example of a press constructed in accordance with this invention. In these drawings:

Figure 1 is a perspective view;

Figure 2 is a side elevation with parts in vertical section;

Figure 3 is a front elevation seen in the direction of the arrow III in Figure 2 with a cover removed;

Figure 4 is a section on the line IV—IV in Figure 2;

Figure 5 is a fragmentary section on the line V—V in Figure 3; and

Figure 6 is a circuit diagram.

The carriage in this press takes the form of a table 2 with a flat upper surface. This table has internal frames 4 carrying rollers 6 which run between a base plate 8 and guide rails 10. The table is urged into the position shown in Figure 2 by a tension spring 12 which is anchored to part of the table frame at 14 and to the base plate 8 at 16.

A short pillar 18 is mounted on the table 2 and, as shown in Figure 5, the top of this pillar has a circular rubber insert 20. A garment to be labelled is laid over the pillar and table, as indicated at 22 in Figure 5, with the part to be labelled centred over the rubber insert.

The garment is then held in place by a plate 24 carried

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by arms 26 hinged at 28 to brackets 30 projecting upwards from the table 2. Telescopic spring-loaded links 32 serve to urge the plate 24 into one or other of the positions shown respectively in solid and broken lines in Figure 2.

5 In the centre of the plate 24 there is an opening 34 with slightly inclined sides into which a label 35 is placed by hand with its coated face downwards.

The table 2 is then pushed by hand to the left, as seen in Figure 2, until the leading rollers 6 engage stops 36.

10 In this position the opening 34 in the plate 24 lies immediately beneath a plunger head 38. This plunger head is secured by clips 40 to a plunger body 42 which contains an electric heater element together with a thermostat which can be adjusted by a screw 44. Figure 6 shows the arrangement of the heating element 118 and the thermostat 120 together with an indicator lamp 122 and main switch 124. The plunger body has a stem 46 which is a sliding fit in a collar 48 and in addition the plunger body carries rollers 50 which run between vertical guides

20 52. The plunger is reciprocated vertically by the combined action of a solenoid 54 and a tension spring 56. The armature 58 of the solenoid terminates in a cross head 60 incorporating a roller which runs between guides 62. The spring 56 is anchored between this cross head and a fixed pin 64. The cross head 60 is connected by links 66 to the central pivot of toggles made up of links 68 and 70. These toggles extend between the plunger body 42 and the collar 48. The collar 48 can slide in a housing 72 and its downward movement is limited by a lip 74. Upward movement of the collar is controlled by a compression spring 76 which bears against an adjustable screw 78. In the position shown in Figure 2 the cross head 60 is urged to the right by the spring 56 and thus the plunger body 42 and collar 48 are drawn together. Downward movement of the collar 48 being limited, the plunger body is thus raised so that the plate 24 will pass clear beneath the plunger head 38.

When the solenoid 54 is energised, the cross head 60 is moved to the left, as seen in Figure 2, and the plunger body 42 and collar 48 are thrust apart. When the plunger head 38 encounters resistance it can apply a force as great as that applied by the spring 76 but thereafter further movement of the cross head 60 causes the collar 48 to rise. Thus the pressure applied by the plunger head can be varied by adjustment of the screw 78.

The operation of the solenoid 54 is controlled by two microswitches 80 and 82 which, as indicated in Figure 6, are connected in series with the solenoid. With the mechanism in the position shown in Figure 2 the switch 80 is open and the switch 82 is closed, as shown in Figure 6. The table 2 carries a tappet 84 which, when the table is pushed beneath the plunger head, engages a lever 86. This lever is pivoted in a fork 88 and has a pin and slot connection 90 with a second lever 92 pivoted in a fork 94. The levers are urged into the position shown in Figure 2 by a spring 96. In this position the lever 86 engages an adjustable eccentric stop 98.

When the lever 86 is rocked clockwise by the tappet 84 a pin 100 strikes the operating arm of the switch 80 and closes that switch. Thereupon the solenoid 54 is energised. A roller 102 on the cross head 60 then engages the upper end of the lever 92 so ensuring that the switch 80 will not open if the table 2 should become slightly displaced from the position into which it has been pushed. At the same time the plunger head 38 enters the opening 34 in the plate 24 and causes the label to adhere to the garment.

In the position of the mechanism shown in Figure 2 a pin 104 on a bar 106 engages the lever 86. When the lever 86 is turned clockwise the bar 106 is moved to the right, as seen in Figure 2, by a spring 108, but the speed

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of the bar is limited by a clockwork mechanism contained in a housing 110 from which the bar projects. Just before the pin 104 again engages the lever 86 in its new position a second pin 112 engages the operating arm of the switch 82 and opens that switch so de-energizing the solenoid 54 and permitting the plunger head 38 to rise. The time during which the plunger head 38 is in engagement with the label is determined by the clockwork mechanism 110 and by the initial position of the bar 106 which depends on the setting of the eccentric stop 98.

As soon as the plunger head 38 clears the plate 24 the table 2 is moved to the right, as seen in Figure 2, by the spring 12 to a position in which the outer rollers 6 engage stops 114. Thereupon the spring 96 overcomes the spring 108 and returns the levers 86 and 92 and the bar 106 to their original positions. The clockwork mechanism does not oppose movement of the bar 106 in this direction. During this movement the switch 80 opens before the switch 82 closes.

The apparatus can be modified to handle different sizes of label simply by replacement of the plate 24 and plunger head 38. The setting of the thermostat adjustment 44 and of the eccentric stop 98 may also require alteration. The plunger head 38 is kept clean by a brush 116 which passes over the face of the plunger head each time the table is moved to and fro.

It will be clear that while the press described in detail is intended for applying labels to garments it is possible for the present invention to be applied to presses for other processes such, for example, as printing and embossing. Moreover in such presses the plunger need not be moved electrically but may be moved hydraulically or in some other way.

In presses for applying labels many detailed modifications may be made in the way in which the garment and label are located. Moreover arrangements may be made for feeding labels mechanically into position.

I claim:

1. A press comprising a plunger, a carriage movable into and out of a position beneath said plunger, means normally urging said plunger upwardly, a solenoid adapted when energized to overcome said means and urge said plunger downwardly, a first and second switch in series with said solenoid, timing means associated with at least

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said second switch controlling the time said plunger is in pressing position; operating means engageable by said carriage upon its movement to said position to close said first switch, thereby energizing said solenoid, and to initiate the operation of said timing means; said timing means causing said second switch to open at a predetermined time after the initiation of its operation, and means for resetting said timing means upon movement of said carriage out of said position.

2. A press as claimed in claim 1 including means for holding said first switch closed upon downward movement of said plunger.

3. A press as claimed in claim 1 wherein said timing means includes a reciprocally moveable member, a spring urging said member in one direction and clockwork mechanism restricting the speed of said member in said direction; and wherein said operating means includes a second movable member limiting movement of said first member in said direction, a second spring urging said second member to carry said first member in the reverse direction; and a stop, limiting movement due to said second spring, said second member extending into the path of said carriage to be displaced thereby against said second spring upon said carriage reaching said position; and wherein said second switch is arranged to be closed by said first member toward the end of the movement permitted to said first member upon displacement of said second member.

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