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A. E. SNOW

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PRESS

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Fig. 1.

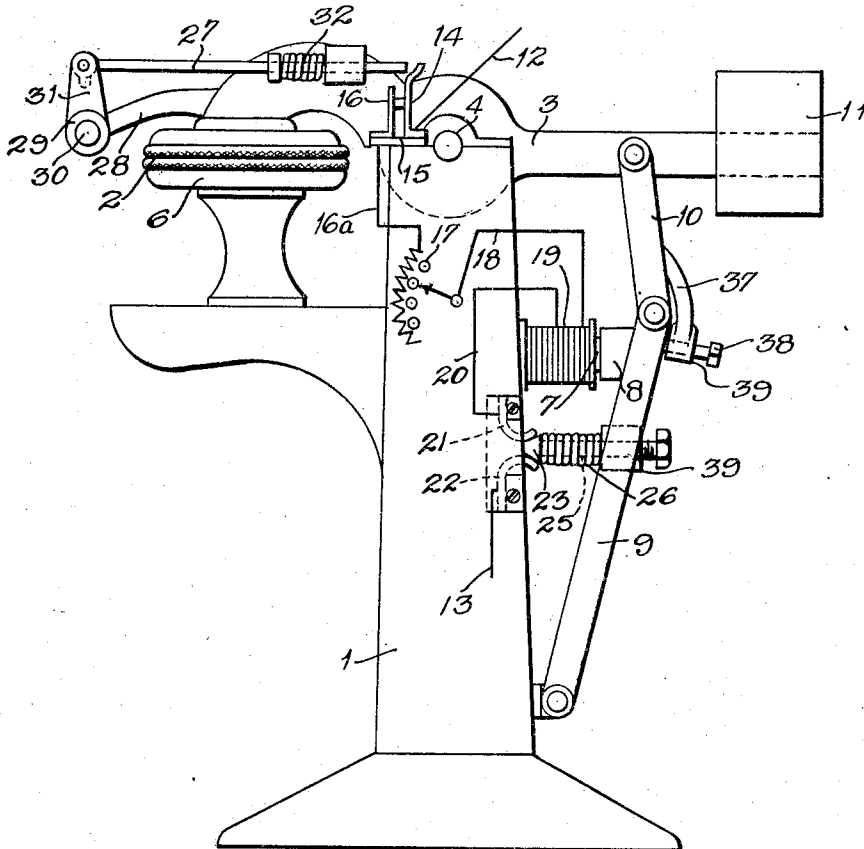
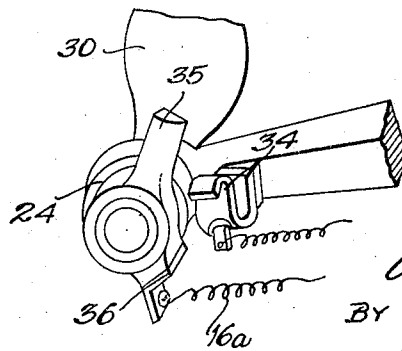


Fig. 2.



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PRESS

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My invention relates to the general class of presses and particularly to presses for garments and articles made from cloth fabrics.

It is the object of my invention to provide a press which shall be drawn into pressing position by an electromagnet, so that the necessity of physical manipulation, with its consequent tiring effect on the operator, may be avoided. It is further my object to so dispose the parts of the press and to arrange the electric control units that the press head may be manually manipulated if desired, or that it may be manually manipulated through most of its movement but in a certain position, approaching the pressing position, that it will be automatically connected so as to be actuated by the magnet. It is my object to dispose the control mechanism for the pressing head so that it will not be set in operation until the relative position between the pressing head and the buck is such that there will be no danger of the operator's hands being caught and injured during the pressing operation under influence of the magnet.

Specifically it is my object to provide in the manner illustrated in the preferred type of press shown in the drawings, a pressing head, carried by a rocking arm, an electromagnet removed from the pressing head which will affect the movement of the rocking arm, an electric switch which will control the electric current passing to the magnet, so arranged as to be closed with the manual movement of the pressing head to a position close to that of pressing engagement, and preferably a second switch which will control the electric current to the magnet, which switch will be in a position readily accessible to the operator of the press.

Referring to the drawings in which I have illustrated a preferred type of press embodying my invention:—

Figure 1 is a side elevation of a preferred type of press in which the magnet is horizontally mounted.

Figure 2 is a detail perspective of a modified type of operating switch.

Generally indicated at 1 is the standard on which the press is mounted. The pressing

head 2 is disposed on one end of a rocker arm 3, pivotally mounted as at 4 in the supporting standard. Extending preferably from the standard is the table 5 which, as shown, is mounted in position to be engaged by the pressing head, the buck 6.

A fixed core type magnet 7 is mounted in a horizontal position, and an expanded portion 8 of the lower link 9 of the two toggle links is disposed in position to be actuated by the magnet. The upper toggle link 10 is journaled at its upper end in the rocker arm 3 between the pivot 4 and a weight 11 which is so arranged as to slightly counterbalance the weight of the pressing head 2 so that some slight manual pressure will be required to bring the head down against the buck, and so that when the magnetic power is cut off the head will swing gradually open.

It is a feature of this type of toggle in which the actuating force is applied close to the juncture of the toggles that as the toggle links approach alignment and while at a very obtuse angle a comparatively weak force will result in a considerably magnified stress exerted upwardly so that by properly calculating the position of the magnet with relation to the joint of the toggle sufficient force can be exerted to bring the head down strong enough against the buck to perform a very satisfactory pressing operation.

As the head approaches the buck not only does the approach of the toggles to aligned position make a greater pressure upwardly on the upper toggle result from a given magnetic force, but as the expanded portion of the lower toggle approaches the electromagnet the magnetic pull becomes increasingly stronger.

By the use of an electromagnet and the application of the magnetic force to a toggle joint just before the toggle links reach an aligned position a pressing force is exerted which combines both an increasing application of force due to the mechanical principle involved in the toggle construction combined with a proportionately increasing magnetic pull as the expanded part of the toggle approaches the magnet.

Although the application of magnetic

power to a toggle joint, as indicated, makes a structure which is substantially safe for a pressing machine operator, in that sufficient downward pressure cannot be applied by the magnet to cause the press to close when an operator has part of his person, such as his hand or arm between the head and buck, I have further provided an electric control for the magnet which will prevent the turning on of the current as long as there is any obstruction between the head and buck.

Current is supplied to the press from the power feed lines 12, 13. The power feed line 12 is connected to one side 14 of a contact switch 15. From the other side 16 of the switch 15 a line 16a extends to the rheostat 17 which may be used to vary the pressure for different types of garments. From the contact arm side of the rheostat a line 18 extends to the winding 19 of the electromagnet. A line 20 extends from the other end of the winding to one side 21 of another contact switch. To the other side 22 of the contact switch I have connected the power feed line 13.

The lower toggle link carries a spring switch closing element 23 which may, as indicated, consist of a conical conductive head mounted on a plunger rod 25 which is pressed toward the switch contacts by a spring 26. When the press is almost closed the element 23 engages the sides 21 and 22 of the switch and thus closes the circuit at this point.

So that the operator may apply the current if he desires, the handle of the head is constructed so that by its rotation a circuit closing rod 27 may be retracted so that the switch 15 will remain closed. Arms 28 extend from the head and they have round bosses 29 in which the handle 30 is rotatably journaled. Fixedly mounted on the handle 30 is a crank arm 31 in which is pivoted the rod 27 which is spring pressed by a spring 32 which normally urges it to a position in which the switch is closed.

It will be noted that the member 14 of the switch 15 is curved backwardly at its top so that the switch closing rod 27 may be moved should the operator desire to open the switch prior to lowering the head.

A modified type of switch is illustrated in Figure 2. In this modification the handle 30 is mounted in the bosses 29 but instead of employing a switch 15, a switch is carried on the handle. The power line 12 connects to one side 34 of this switch which is made in the shape of a channel adapted to be engaged by a knife 35 fixedly mounted on the handle 30. The output line 16a in this modification is connected to the contact plate 36 which is in electrical connection with the knife 35. In this modification the operator can close the switch at any time he desires.

A bracket 37 extends back from the upper toggle link and an adjustment bolt 38 extend-

ing through a boss 39 at the end of the bracket may be so adjusted as to act as a stop when the toggle arms are drawn into as aligned relation as is required in accomplishing the pressing operation.

Having thus described my invention, what I claim as new and desire to secure by Letters Patent, is:—

1. A pressing machine comprising a bed, a movable head, toggle means operatively connected to the head and to a relatively fixed part and arranged to straighten with the closing of the head, manual means for closing the head, and means for affecting the pressing operation effective at substantially the knuckle of the toggle means, comprising magnetically permeable material on said knuckle, an electro-magnet on said frame, said electro-magnetic means being so spaced from said knuckle as to become effective when the toggle means have not quite straightened out so that the force exerted by the leverage of the toggle means and the magnetic attraction of the knuckle causes a relatively great proportionate increase in pressure as the head approaches the bed.

2. A pressing machine comprising a buck, a head mounted for engagement with said buck, a toggle connected with said head, a magnetically permeable member carried by said toggle, and an electro-magnet for magnetically attracting said member thereby actuating said toggle, to cause said head to engage said buck.

3. A pressing machine comprising a buck, a head mounted for engagement with said buck, a toggle connected with said head, and an electro-magnet for actuating said toggle to cause said head to engage said buck, said electro-magnet comprising a fixedly mounted core type magnet with the axis of the core substantially parallel with the surface of the buck, and said toggle carrying an armature adapted to be attracted by said magnet.

4. A pressing machine comprising a bed, a movable head, toggle means carrying an armature and operatively connected to the head and to a relatively fixed part and arranged to straighten with the closing of the head, manual means for closing the head, an electro-magnet for affecting the pressing operation by attracting the armature on said toggle means, said electro-magnet being so spaced relative to said armature on said toggle means as to become effective for attracting said armature only when said toggle means have not quite straightened out.

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