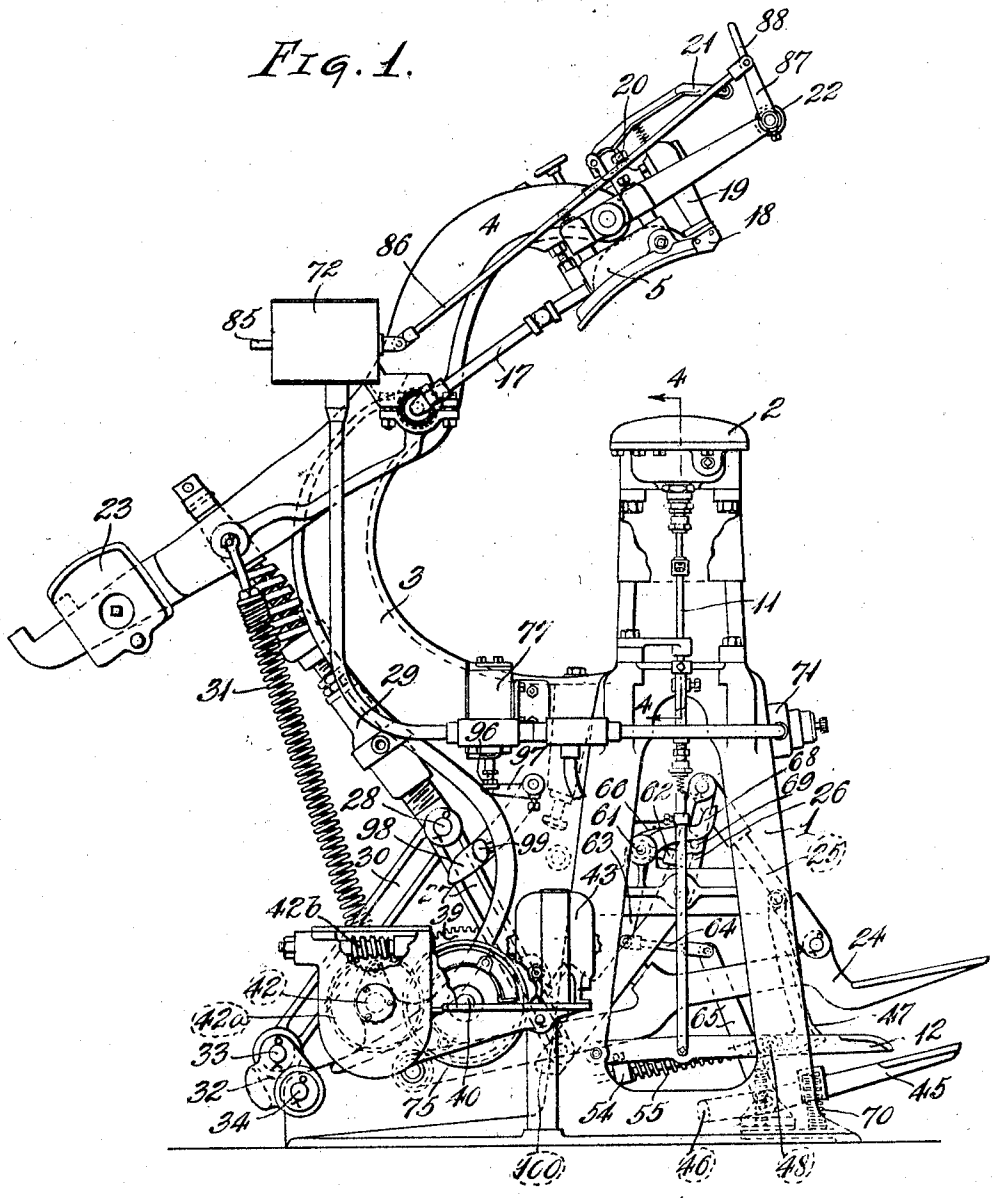
April 1, 1924. 1,489,227

D. H. BENJAMIN ET AL

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FIG. 1.



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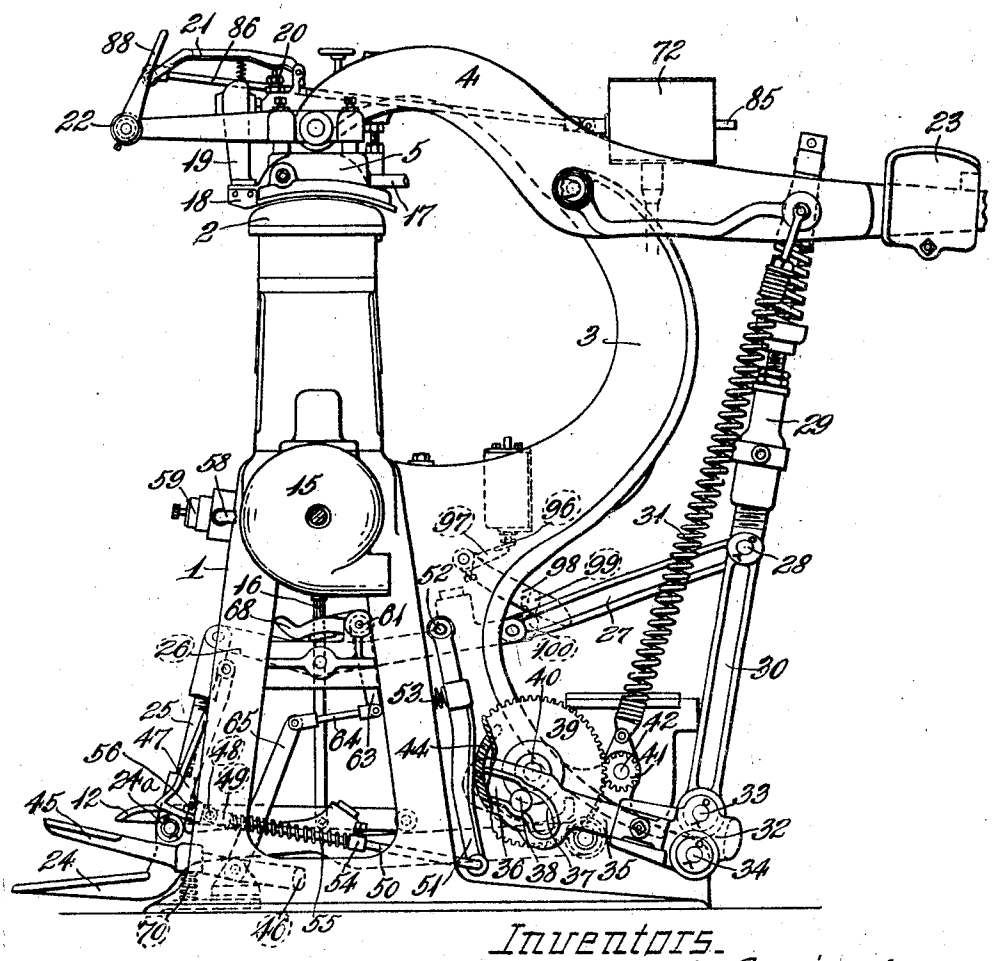
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FIG. 2.



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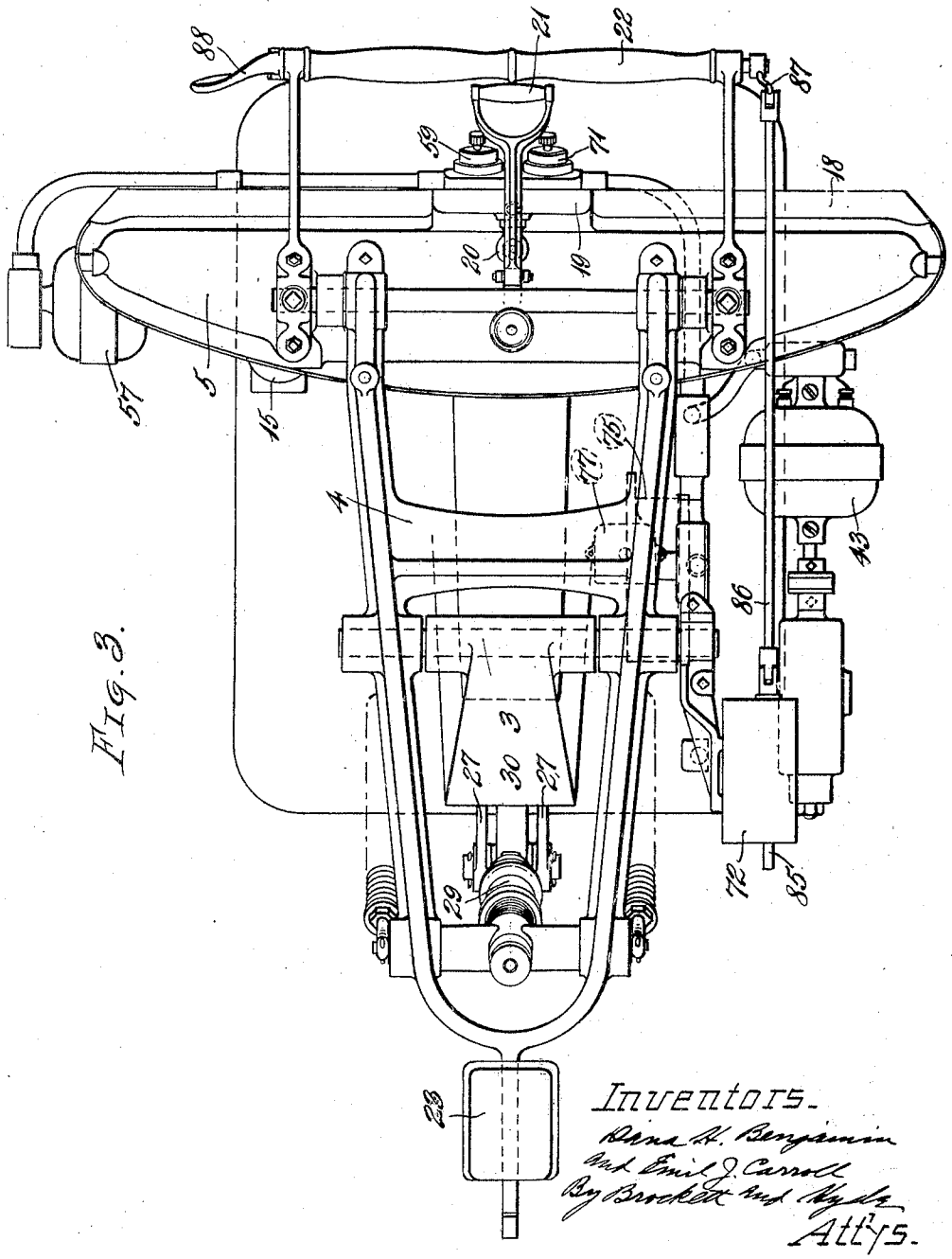


Fig. 3.

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FIG. 4.

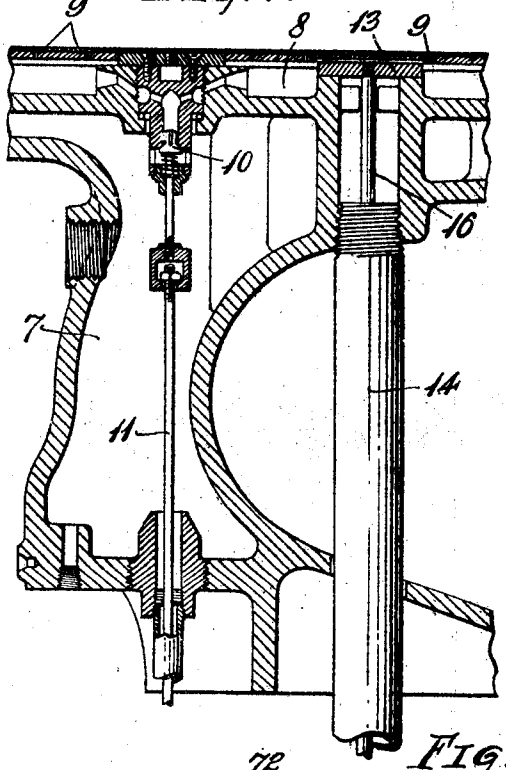


FIG. 5a.

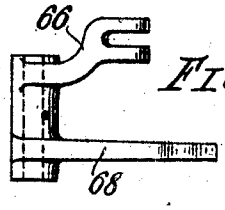


FIG. 5.

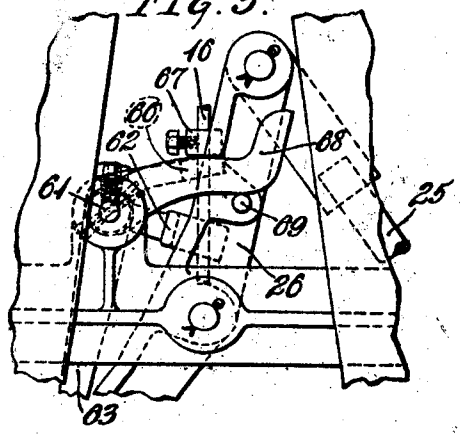


FIG. 6.

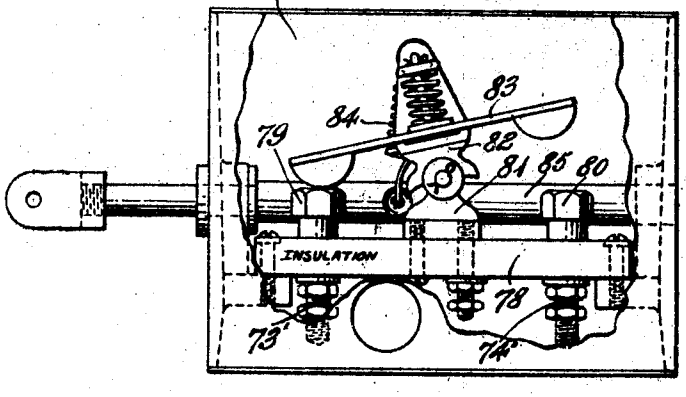
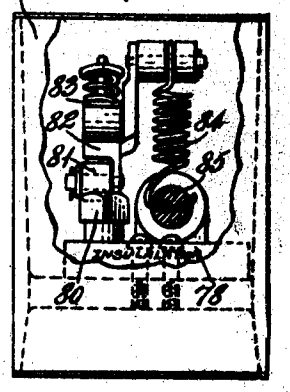


FIG. 7.



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Filed May 13, 1918 6 Sheets-Sheet 5

FIG. 11.

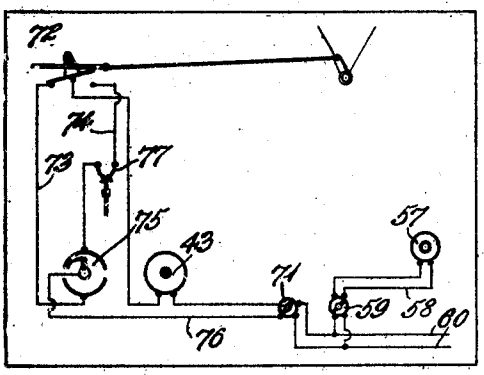


FIG. 12.

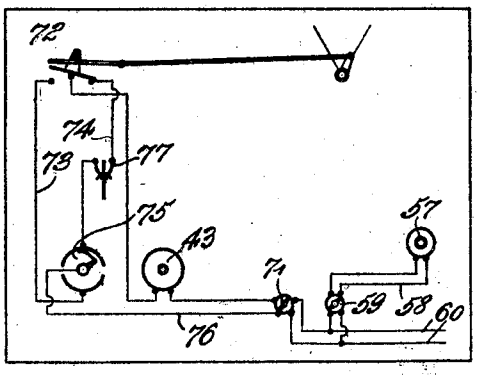


FIG. 13.

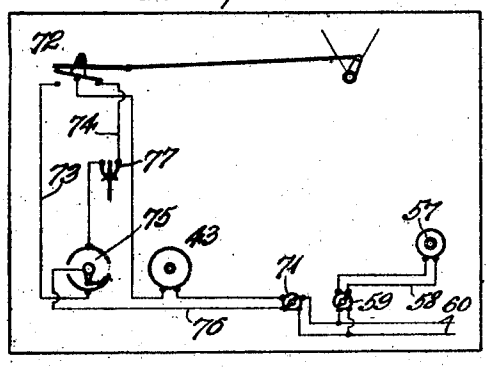


FIG. 14.

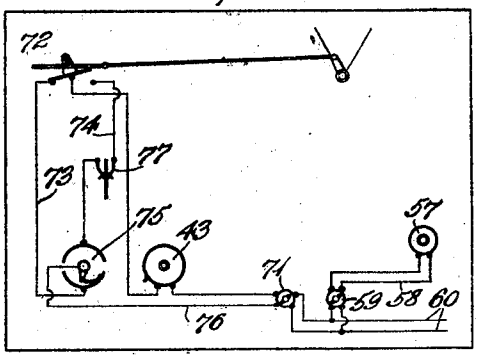
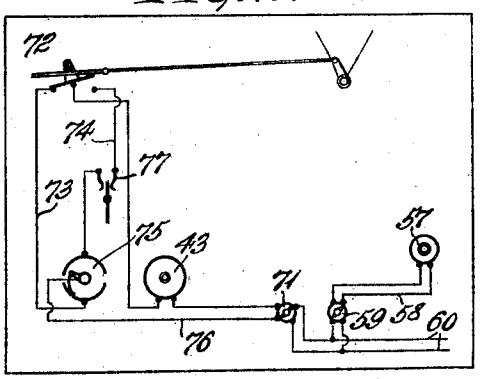


FIG. 15.



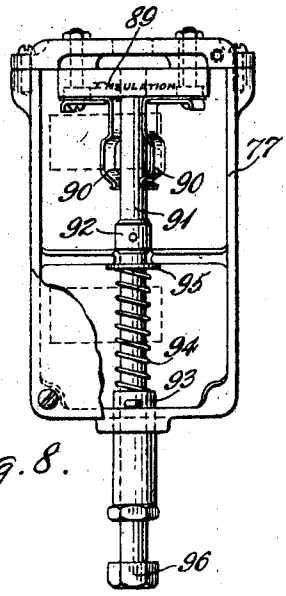


FIG. 8.

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D. H. BENJAMIN ET AL

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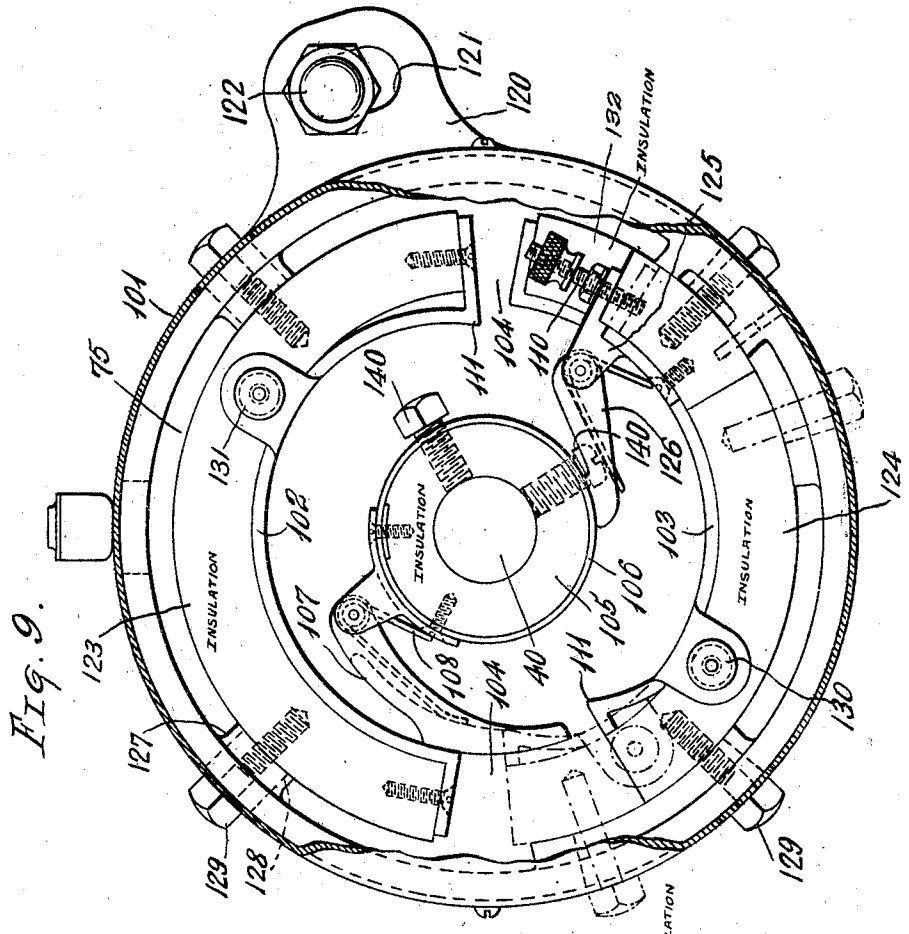


Fig. 9.

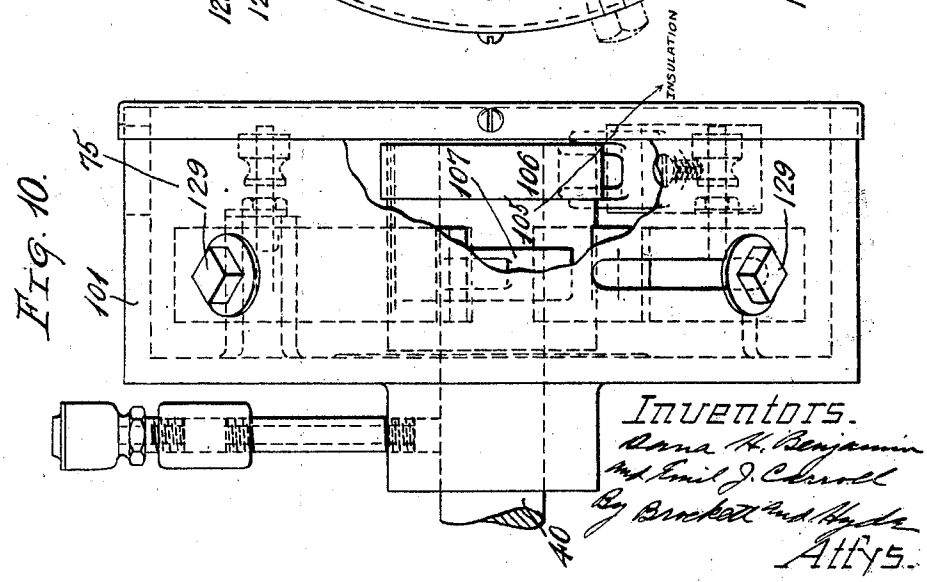


Fig. 10.

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Patented Apr. 1, 1924. 1,489,227

UNITED STATES PATENT OFFICE.

DANA H. BENJAMIN, OF CLEVELAND HEIGHTS, AND EMIL J. CARROLL, OF CINCINNATI, OHIO, ASSIGNORS, BY DIRECT AND MESNE ASSIGNMENTS, OF ONE-HALF TO THE AMERICAN LAUNDRY MACHINERY COMPANY, OF NORWOOD, OHIO, A CORPORATION OF OHIO, AND OF ONE-HALF TO METROPOLITAN TRUST COMPANY, TRUSTEE, OF NEW YORK, N. Y., A CORPORATION OF NEW YORK.

GARMENT PRESS.

Application filed May 13, 1918. Serial No. 234,258.

To all whom it may concern:

Be it known that we, DANA H. BENJAMIN and EMIL J. CARROLL, citizens of the United States, residing at Cleveland Heights and Cincinnati, respectively, in the counties of Cuyahoga and Hamilton, respectively, and State of Ohio, have invented certain new and useful Improvements in Garment Presses, of which the following is a specification.

This invention relates to pressing machines, such as are used for pressing garments or other articles of wearing apparel, or for pressing fabrics of any kind. The invention has more particular relation to what are known as power presses and is an improvement upon the machine shown, described and claimed in the patent of William E. Andree for garment press, No. 1,368,684, of February 15, 1921.

In this type of power press the two relatively movable pressing members are brought into fairly close neighboring relation either manually, by pulling down upon the head, or by pressing down upon the usual foot pedal. The power mechanism of the press then produces further relative movement of the pressing members to press the fabric or garment therebetween under heavy pressure.

The object of the present invention is to provide an improved pressing machine of this kind having power mechanism capable of manual control, thereby enabling it to be thrown into operation at the will of the operator, the control mechanism however being equipped with suitable safety devices to prevent actuation of the power mechanism by the manual control unless the pressing members are in such close neighboring relation that it is impossible for the fingers of the operator to lie therebetween and hence be subject to injury.

A further object of the invention is to provide control devices of the character described which enable the two pressing members to be relatively moved toward and from each other manually or by actuation of the foot treadle as often as may be desired, without tripping off or starting the power mechanism.

A further object of the invention is to provide a pressing machine of this kind whose control devices enable the operator to set the same so that the act of manually or otherwise bringing the pressing members into close neighboring relation—so close that the fingers cannot be between said members—will trip off the power mechanism and cause the press to perform its regular series of functions and operations. Further objects of the invention are in part obvious and in part will appear more in detail hereinafter.

In the drawings, which represent one embodiment of the invention, Fig. 1 is a side elevation of the left hand side of a press embodying the invention, the press being shown in open position ready for actuation by the operator; Fig. 2 is a right side view of said press, the press being shown in closed position; Fig. 3 is a plan view; Fig. 4 is a detail sectional elevation on the line 4—4, Fig. 1; Fig. 5 is an enlarged side detail view of the vacuum valve operating devices; Fig. 5ª is a detail plan view of a lever; Fig. 6 is a detail sectional elevation of one of the controlling switches, a portion of the casing wall thereof being broken out to expose interior parts; Fig. 7 is an end view from the right in Fig. 6, a portion of the casing wall being broken out to expose interior parts; Fig. 8 is a detail elevation, partly broken out and in section, illustrating a plunger switch; Fig. 9 is a similar view of the rotating timing switch; Fig. 10 is an end elevation thereof; Fig. 11 is a diagrammatic view illustrating the electrical connections from the motor to the various control switches, the positions of the parts corresponding to the open position of the machine illustrated in Fig. 1; Fig. 12 is a similar view of the parts while the power mechanism is producing heavy final pressure between the pressing members; Fig. 13 is a similar view of the parts when the machine has come to rest after the application of heavy pressure; Fig. 14 is a similar view illustrating the positions of the parts when the motor has again been started to release the press; and Fig. 15 illustrates the final portion of the opening movement just prior to the position shown in Fig. 11.

The general construction of the machine and its operating mechanism are not essential and may be chosen according to the

requirements for any desired class of work. The particular machine shown in the drawings is in many respects similar to the machine of the prior Andree patent above referred to, to which reference may be had for a more complete description of any portion of the mechanism not here described. A machine suitable for the purposes of this application, however, comprises a suitable frame 1 carrying a stationary lower pressing member or buck 2 and provided with an upwardly extending support 3 for a pivoted arm or lever 4 carrying a cooperating upper pressing member or head 5 adapted by swinging movement of said arm to be brought into co-operating pressing relation with the buck 2. The buck may be of hollow form having an inner chamber 7 to which steam is supplied for heating the buck in the usual manner, and, as shown in said Andree patent, may be provided with a steam chamber 8 arranged to discharge steam for moistening purposes through the perforations 9 in the face of the buck, said steam coming from the heating chamber by way of a valve 10 controlled by the valve rod 11 actuated by the steam treadle 12. Said steaming chamber may also communicate by way of a valve 13 with a pipe or conduit 14 leading to a suitable source of suction or vacuum, such as the motor driven fan or centrifugal pump 15. 16 represents the rod by which the valve 13 is actuated to connect the chamber 8 to the source of suction, when desired or necessary. The actuating means for said vacuum valve rod will be later described.

The head 5 is also heated, having an inner chamber through which steam is circulated by the usual pipes 17. Said head may also be provided with suitable means for supplying steam to the garment or fabric on the lower buck. Said means may be of substantially the same form shown, described, and claimed in a prior patent of William E. Andree for garment presses, granted July 29, 1919, No. 1,311,151, and as shown comprises a long conduit or channel 18 extending along the front edge of the head and from slots or openings in which steam is discharged in the form of a cloud traveling across or along the face of the head. Steam is supplied to said conduit from the chamber in the head by way of a pipe or conduit 19 in which is a valve 20 normally held closed by a suitable spring and capable of being opened at will be depressing the handle 21.

22 indicates a handle carried by the arm 4 for manually moving the arm and head toward or from the buck, the counter-weight 23 serving to partially balance the load. The head may also be actuated by pressure applied to the foot treadle 24, which is connected by a link 25 to one arm of an oscillating lever 26, the other arm of which is connected by a link 27 to the pivotal joint 28 between two toggle members 29, 30, one of which, such as member 29, is preferably adjustable as to length. 31 represents one of a pair of springs which normally hold the press open. By depressing lever 24 the toggle members may be straightened to thereby move the head toward the buck. The toggle members 29 and 30 when straightened as in Fig. 2, or when nearly straightened, together form a toggle member which co-operates with a third toggle member 32, the latter being pivotally connected at 33 to member 30 and at 34 to the stationary frame. This third toggle member is power actuated so as to close the head and buck into intimate contact under very heavy final pressure.

Secured to the toggle member 32 is an arm 35 provided with a longitudinally extending slot having a straight portion 36 and an arc shaped portion 37 in which rides a crank pin 38 secured to one side of a gear wheel 39 mounted upon a shaft 40 and driven by a gear 41 on the shaft 42 of a worm wheel 42^a driven by a worm 42^b on the shaft of the electric motor 43. Secured to the back of the gear 39, and preferably formed integral therewith, is a cam 44.

Let us assume that the parts are in the position shown in Fig. 1. In this position the crank pin 38 lies above the shaft 40 and substantially midway between the ends of the slot 36, 37. The gear 39 rotates in a clockwise direction, Fig. 2. When the head has been manually brought down into fairly close neighboring relation with the bed, the motor 43 is started and causes the crank pin 38 to travel approximately 180 degrees, moving through the straight portion 36 of the slot until the parts reach the position shown in Fig. 2. This motion fully straightens the first toggle 29, 30 and the effect of the third toggle is to close the head upon the bed with heavy final pressure. The motor then stops and when again caused to operate rotates the gear 39 through a second arc of 180 degrees, restoring the parts to their original positions and oscillating the arm 35 and toggle member 32 to the position shown in Fig. 1. This motion moves back the lower end of toggle member 30, so that the toggle 29, 30 breaks automatically and the press is fully opened by the springs 31. The degree of pressure produced by the press may be varied by adjusting the length of toggle member 29, and the setting of the toggle 29, 30, or the amount of movement of the pivot 28 may be adjusted by varying the length of the link 25.

Under some circumstances it may be desirable to actuate the press entirely by hand or foot, the motor being idle. This operation utilizes only the toggle members 29, 30

and said toggle is broken by depressing the release treadle 45 provided with a laterally extending arm 46 lying beneath the pressure treadle 24 and adapted to elevate the same.

Suitable mechanism may also be provided for holding the press closed under heavy final pressure until it is released automatically by actuation of the power motor. This mechanism comprises a swinging locking arm 47 whose lower end co-operates with a roller 24ª carried by the pressure treadle 24. Said arm is connected by a pin 48 to a sleeve 49 having sliding movement on a rod 50 connected at its rear end to an arm 51 pivoted at 52 to the frame and pressed by a spring 53 against the cam 44. Between the sleeve 49 and a collar 54 is a compression spring 55, while on the other side of the sleeve 49 the rod 50 is provided with adjustable abutment nuts 56.

Upon first closing the press the roller 24ª engages the arm 47 against the action of spring 55, and moves down past the same, said arm then advancing to position slightly above the roller. Then operation of the gear 39 by the motor will cause cam 44 to engage lever 51 and move the lock arm 47 to the position shown in Fig. 2 and thereby lock the press closed. It cannot be released until the motor is again operated through the second half of its cycle, which operation moves the cam 44 away from lever 51 and allows the spring 53 to move back the locking arm 47 and release the roller 24ª.

If the press is to be power actuated, it is not necessary for the operator to depress the treadle to its full extent so as to cause the toggles to move past center and become locked, but the locking of the treadle may be accomplished solely by the treadle lock 47. However, when the press is to be used as a foot power press, either continually or merely occasionally for a single foot operation, an additional downward movement of the main treadle, usually requiring pronounced foot pressure for the purpose, moves said main treadle to its full extent and causes the toggles to move slightly past straightened position to perform the locking function. In the latter case, the toggles are broken by ordinary actuation of the release treadle, whereas in the former case release or opening operation of the power mechanism moves back the lock 47 and the press is immediately opened by the effect of the springs 31 and counter-weight 23, because the toggles are not fully straightened and the mechanism is not otherwise locked.

The actuating mechanism for the vacuum valve is so arranged as to enable the vacuum to be rendered effective either automatically by the operating movement of the press when the press is power actuated or by operation of the release treadle when the press is operated manually without the motor. It will be understood of course that the motor 57 (Fig. 11), for actuating the fan or pump 15 is in a branch circuit 58 connected through a suitable switch 59 to the power leads 60, and when the vacuum is to be utilized the switch 59 is turned to a position to cause operation of the motor. In other words the fan is constantly operative and the valve 13 is actuated at the proper time to cause the vacuum produced by the fan to become effective in the buck chamber 8. Referring to Fig. 5 the machine is provided with suitable bearings to carry a transversely extending shaft 61 with which turns an arm 62 having a yoke portion embracing the stem 16 and an arm 63 connected by a link 64 to an arm 65 connected to turn with and to be actuated by the release treadle 45. Directly above the yoke portion of arm 62 is an arm 66 having a yoke beneath a collar 67 on the valve stem and mounted to turn on the shaft 61 with a cam arm 68, the members 66 and 68 operating as one piece. Cam arm 68 co-operates with a pin 69 on the lever 26.

When the press is power actuated the release treadle is not utilized and is held in the position shown in Fig. 1 by the spring 70. The swinging members 66, 68 are however actuated by the pin 69 which when the press opens engages the arm 68 and through member 66 lifts the valve 13 and applies the vacuum. The vacuum remains effective in the chamber 8 until the press is closed to move the pin 69 away from lever 68. When the press is not power actuated the vacuum is rendered effective by depressing the release treadle, which causes the arm 62 to lift the arm 66 and thereby open the vacuum valve.

Referring now to Figs. 11 to 15 the current lead wires 60 pass through a suitable switch 71, one of said lead wires running to the power motor 43 and thence to the center contact of a tumbler switch 72 shown in Figs. 6 and 7. From the two end contacts of this tumbler switch lead wires 73 and 74 extend to binding posts 130, 131 on the lower and upper segments of a rotating distributing or timing switch 75, shown in Figs. 9 and 10, and from the center contact of the timing switch a lead wire 76 extends to the switch 71. In one of the leads from the tumbler switch to the timing switch, such as lead 74, is a plunger switch 77. The several switches 72, 75 and 77 will first be described.

Tumbler switch 72 comprises an insulating block 78 on which are mounted two end contacts 79 and 80, connected respectively to the binding posts 73′, 74′. The center contact, to which the lead from the motor is connected, is a post 81 on which turns an upwardly extending arm 82 carrying the spring pressed contact blade 83, said arm having a rear post connected by a tension

spring 84 to a sliding rod 85, all parts being suitably insulated. Rod 85, Fig. 1, extends outwardly from the front of the switch casing and is connected by a link 86 to an arm 87 on the shaft of the operating handle 22, which at its opposite end carries a lever 88. This arrangement produces a quick make and break. By moving the lever 88 in one direction or the other the rod 85 is moved longitudinally in the switch casing and carries the lower end of the spring 84 past the pivot of the swinging arm 82, which therefore turns over with a quick snapping movement to break one contact and make the other, thereby changing the connection of the motor to one or the other of the leads 73, 74. Any other form of switch for shifting these contacts would however answer the purposes.

The plunger switch 77 is illustrated in Fig. 8 and comprises an insulating block 89 carrying two contacts 90, one connected to the lead 74 and the other to one of the segments of the switch 75. Between the two contacts 90 is located a sliding fibre rod 91 carrying a conducting ring contact 92. This rod projects downwardly from the bottom of the switch casing and within the said casing carries a collar 93 above which is a compression spring 94 whose upper end engages a washer 95 seated against a wall of the casing. As shown in Fig. 8 the spring 94 normally holds the switch open. The lower end of the rod 91 has a nut or bolt 96 adjustably connected thereto, and lies in position to be actuated by an arm 97 mounted to turn with an arm 98, the latter arm having an abutment 99 lying in the path of movement of a toe 100 of the swinging lever 27. When the press is closed manually, so as to bring the head and buck into close neighboring relation—so close in fact that the fingers could not be between them—the toe 100 actuates lever 98 and closes the plunger switch. As will hereinafter appear this switch must be closed before the power motor can be operatively connected to its source of current, as a consequence of which it is impossible to produce the final heavy pressure with the power motor unless the press has first been nearly closed manually. In any other position of the head, actuation of the manually controlled tumbler switch 72 will have no effect upon the machine.

The rotating timing switch may be of any suitable form. As illustrated it comprises a suitable casing 101 provided with a radially and outwardly extending ear 120 having circumferentially extending slot 121 through which a bolt 122 is screwed into the machine frame. The elongated slot 121 permits slight adjustment of the casing 101 around the axis of the shaft 40 at the center of said casing, the adjustability of said casing being for a purpose which will later appear. Casing 101 carries insulating blocks 123, 124 upon which are the upper and lower segments 102 and 103 of a distributing ring, the ends of said segments being separated by gaps 104. The timing switch casing surrounds the cam shaft 40, which extends across the frame, and said shaft within the switch casing carries an insulating block 105 provided with a continuous conducting ring 106 to which is electrically connected a swinging contact arm 107 whose shoe end is pressed outwardly against the segments 102 by a suitable spring 108. A third insulating block 132 is also provided with a post 125 carrying a similar contact arm 126 pressed against the ring 106 and electrically connected with the post 110 to which the lead wire 76 is connected. Both of the insulating blocks 123, 124 are adjustable rotatably in the casing 101, for a purpose which will later appear. Specifically, each of said insulating blocks on its outer face bears against and rests upon a pair of bosses 127 extending inwardly from the casing wall, said bosses having circumferentially extending slots 128 through which extend clamping bolts 129 for clamping the insulating blocks to the casing. The circumferentially extending slots enable the clamping bolts to be loosened up and the insulating blocks with the conducting segments carried thereby to be adjusted circumferentially of the casing.

Referring to Fig. 9 shaft 40 rotates in the clockwise direction, the arm 107 wiping in turn over each segment. The far end of each segment is curved inwardly, is at 111, so that as the shoe passes beyond the end of each contact it is lifted away from its normal path of movement and suddenly jumps off from one segment, producing a quick break, and then suddenly engages into ample electrical contact with the next segment.

The pressing machine described operates as follows: Let us assume that the press is fully open, as shown in Fig. 1, the several switches occupying the positions shown in Fig. 11. In this position plunger switch 77 is open so that actuation of the manually controlled handle 88 cannot connect the power motor to its source of current. Tumbler switch 72 connects the motor to the lead 73 and to the lower segment of the timing switch, whose rotating contact has just reached full connection with the upper segment. The operator first applies a garment to the press and then moves down the head manually or by depressing the pressure treadle 24. When the press is nearly closed the plunger switch is closed by the lever 27. The operator can then turn the manual control lever 88 to the position shown in Fig. 12. This connects the motor in series through the tumbler switch, the plunger switch and the upper segment of the timing switch. The motor thereupon

starts and rotates the cam shaft 40 through practically 180 degrees, straightening the third toggle 32 and producing heavy final pressure. The locking arm 47 locks roller 24ª so as to hold said pressure. Arm 107 of the timing switch finally leaves its upper segment and reaches the position shown in Fig. 13, thereby disconnecting the power motor from its source. The operator allows the garment to lie under pressure for the proper length of time and then turns the manual control switch lever 88 to the position shown in Fig. 14. This movement again connects the motor to its source through the tumbler switch and the lower segment of the timing switch. The motor thereupon begins to rotate and turns the cam shaft 40 through the second half of its cycle, as shown in Fig. 15, the parts finally reaching the position shown in Fig. 11. The first effect of the motor is to break the third toggle, and as soon as the cam 44 leaves the lever 51 the lock 47 moves back and releases the roller 24ª, as a result of which the springs 31 fully open the press. The applying, maintaining and releasing of final pressure may be considered together as constituting a cycle.

During the first closing movement of the press the pin 69 moves away from the lever 68, so that the vacuum valve closes. When the vacuum valve is closed and up to the time the head and buck are in full contact steam can be applied to the garment either by actuation of the steaming treadle 12 to discharge steam from the buck, or by actuation of the lever 21 to discharge steam from the head. As soon as the press opens, as before described, the vacuum valve is automatically opened and the moisture in the garment is withdrawn through the buck.

The purpose of adjustability of the switch casing 101 about the shaft 40 which it surrounds and of circumferential adjustment of the segments 123, 124 within the casing is as follows:—

The rotating timing switch determines the time of starting and stopping or, in other words, the duration of operation of the operating motor during both halves of the cycle. In other words, said motor operates so long as the rotating shoe 107 is in contact with either of the segments 102, 103, and said motor stops operating (excepting as to coasting hereinafter referred to) when said shoe drops off from the end of one of said segments and engages the other. The shoe 107 rotates with and always has a fixed time relation with the shaft 40, the circumferential position of which determines the position of the head. By circumferentially adjusting the two insulating blocks 123, 124 in the casing, nicety and accuracy as to starting and stopping of the operating mechanism may be secured and the two halves of the cycle may be terminated at the most efficient points. For example, segment 102 is the segment along which the shoe travels while pressure is being applied by the motor. This segment is made longer than segment 103 because the load on the motor increases as the shoe 107 reaches the end of the segment, as a result of which the motor cannot coast under load. By circumferentially adjusting segment 102, its far end can be made to assume a position in which the maximum pressure has been applied to the head, and with such adjustment the press will stop with the maximum pressure applied. Segment 103 is shorter than segment 102 because the shoe 107 is travelling over segment 103 while power pressure is being relieved and the load is decreasing. As a result, the motor has a tendency to coast at the end of this half-cycle. This segment however can also be adjusted so as to compensate for any coasting tendency and insure the press coming to rest with the head fully open.

The above two adjustments of the blocks 123, 124 enable the starting and stopping points to be individually determined for the two halves of the cycle. For additional adjustment and to also simultaneously adjust both segments, the casing 101 can be circumferentially adjusted relative to the frame, which has the effect of circumferentially adjusting both segments and changing the time of starting and stopping of both halves of the cycle as already determined by the positions of the segments in the casing, with respect to the position of the head at full open or full closed position.

It is, of course, obvious that the insulating block 105, which carries the rotating shoe 107, is capable of rotatable adjustment on the shaft 40 to time it with relation to the head, and said block can be secured to the shaft in any of its adjusted positions by the set screws 140.

The machine described materially reduces the labor of the operator and while giving him full manual control over the press prevents him from putting into effect its power features except when it is safe to do so.

What we claim is:—

1. A pressing machine, comprising substantially coextensive pressing members relatively movable toward and from each other for the pressing operation with relatively wide separation therebetween for access to and visibility of the work, operator-operated means for producing such movement to close the press, power means for producing final heavy pressure between said members, main controlling means and supplementary controlling means for said power means, said main controlling means being operatable by an operation distinct from the press-closing operation, and said power means being incapable of operation to

produce final pressure effect except by operation of said supplementary controlling means.

2. A pressing machine, comprising substantially coextensive pressing members relatively movable toward and from each other for the pressing operation with relatively wide separation therebetween for access to and visibility of the work, operator-operated means for producing such movement of said members to close the press, power means for producing and relieving final pressure, main controlling means and supplementary controlling means for said power means, said main controlling means being operatable by an operation distinct from the press-closing operation, and said power means being incapable of operation to produce final pressure effect except by operation of said supplementary controlling means.

3. A pressing machine, comprising substantially coextensive pressing members relatively movable toward and from each other for the pressing operation with relatively wide separation therebetween for access to and visibility of the work, operator-operated means for producing such movement of said members to close the press, power means for causing a cycle of pressure producing, maintaining and relieving effects, main controlling means and supplementary controlling means for said power means, said main controlling means being operatable by an operation distinct from the press-closing operation, and said power means being incapable of operation to produce final pressure effect except by operation of said supplementary controlling means.

4. A pressing machine, comprising substantially co-extensive pressing members relatively movable toward and from each other for the pressing operation with relatively wide separation therebetween for access to and visibility of the work, operator operated means for producing such movement to close the press, in combination with power mechanism including controlling means for operation after the press is closed, said mechanism comprising power means for producing power pressure between said members, a controller for said power means adapted for optional use by the operator for power pressure when the press is closed, means for preventing effective use of said controller when the press is in an open position, and automatic means for maintaining said controller in step with normal operation of the press and ready for the next power operation.

5. A pressing machine, comprising substantially co-extensive pressing members relatively movable toward and from each other for the pressing operation with relatively wide separation therebetween for access to and visibility of the work, operator operated means for producing such movement to close the press, in combination with power mechanism including controlling means for operation after the press is closed, said mechanism comprising power means for producing power pressure between said members, a controller for said power means adapted for optional use by the operator for power pressure when the press is closed, means controlled by the press closing means for preventing effective use of said controller when the press is in an open position, and automatic means for maintaining said controller in step with normal operation of the press and ready for the next power operation.

6. A pressing machine, comprising substantially co-extensive pressing members relatively movable toward and from each other for the pressing operation with relatively wide separation therebetween for access to and visibility of the work, operator operated means for producing such movement to close the press, in combination with power mechanism including controlling means for operation after the press is closed, said mechanism comprising power means for producing power pressure between said members, a controller for said power means adapted for optional use by the operator for power pressure when the press is closed, means for preventing effective use of said controller when the press is in an open position, and automatic means controlled by said power means for maintaining said controller in step with normal operation of the press and ready for the next power operation.

7. A pressing machine, comprising substantially co-extensive pressing members relatively movable toward and from each other for the pressing operation with relatively wide separation therebetween for access to and visibility of the work, operator operated means for producing such movement to close the press, in combination with power mechanism including controlling means for operation after the press is closed, said mechanism comprising power means for producing power pressure between said members, a controller for said power means adapted for optional use by the operator for power pressure when the press is closed, means for rendering said controller effective to produce pressure only when the press is closed, and automatic means for maintaining said controller in step with the operation of the press and ready for the next power operation.

8. A pressing machine, comprising substantially co-extensive pressing members relatively movable toward and from each other for the pressing operation with relatively wide separation therebetween for access to and visibility of the work, operator

operated means for producing such movement to close the press, said means being ineffective to produce power pressure effect, in combination with power mechanism including controlling means for operation after the press is closed, said mechanism comprising power means for producing power pressure between said members, a controller for said power means adapted for optional use by the operator for power pressure when the press is closed, means for preventing effective use of said controller when the press is open, and automatic means for maintaining said controller in step with the operation of the press and ready for the next power operation.

9. A duplex pressing machine, capable of optional use either as a man-press or a power-press, comprising substantially co-extensive pressing members relatively movable toward and from each other for the pressing operation with relatively wide separation therebetween for access to and visibility of the work, operator operated means for producing such movement to close the press and at the option of the operator to produce man-pressure upon the work, in combination with power means adapted at the option of the operator to produce power pressure upon the work, controlling means for said power means capable of optional use by the operator, means for maintaining a sequence of operations of the power means in step with all normal operations of the press, and means for maintaining said controlling means in step with said power means and immediately ready to effect initiation of the next succeeding power operation of the press.

10. A pressing machine, comprising pressing members relatively movable vertically toward and from each other for the pressing operation with relatively wide separation by such movement therebetween for access to and visibility of the work, means whereby the operator can produce such movement to initially close the press upon the work, power means for producing heavy pressure between said members when closed, controlling means for said power means optionally operative by the operator and by an operation distinct from the press closing operation, and means adapted to harmonize effectiveness of the controlling means upon the power means with the movement of the pressing members.

11. A pressing machine, comprising pressing members relatively movable vertically toward and from each other for the pressing operation with relatively wide separation by such movement therebetween for access to and visibility of the work, means whereby the operator can produce such movement to initially close the press upon the work, power means for producing and maintaining heavy pressure between said members when closed, controlling means for said power means optionally operative by the operator and by an operation distinct from the press closing operation, and means adapted to harmonize effectiveness of the controlling means upon the power means with the movement of the pressing members.

12. A pressing machine, comprising pressing members relatively movable vertically toward and from each other for the pressing operation with relatively wide separation by such movement therebetween for access to and visibility of the work, means whereby the operator can produce such movement to initially close the press upon the work, power means for producing, maintaining and relieving heavy pressure between said members when closed, controlling means for said power means optionally operative by the operator and by an operation distinct from the press closing operation, and means adapted to harmonize effectiveness of the controlling means upon the power means with the movement of the pressing members.

13. A pressing machine, comprising substantially coextensive pressing members relatively movable toward and from each other for the pressing operation with relatively wide separation therebetween for access to and visibility of the work, operator-operated means for producing such movement of said members to close the press, power means for producing final heavy pressure between said members, and a single operator-operated means for controlling the application and release of final pressure, said controlling means being capable of actuation by an operation distinct from the press closing operation and being itself controlled by said power means.

14. A pressing machine, comprising substantially coextensive pressing members relatively movable toward and from each other for the pressing operation with relatively wide separation therebetween for access to and visibility of the work, operator-operated means for producing such movements to close the press, power means effective upon said members when closed to produce definite successive pressure applying and relieving operations, single controlling means therefor operatable at will by the operator when the press is closed and by a movement distinct from the press closing movement, and means whereby said power means in performing each of said operations automatically renders said controlling means ready to effect initiation of the next succeeding power operation of the press.

15. A pressing machine, comprising sub-

stantially coextensive pressing members relatively movable toward and from each other for the pressing operation with relatively wide separation therebetween for access to and visibility of the work, operator-operated means for producing such movement of said members to close the press, power means for producing and effecting release of final heavy pressure between said members, means operatable by an operation distinct from the said operator operated means for controlling said power means, and means controlled by the power means and effective upon the controlling means so that the latter is effectively operatable only in step with each of the operations of said power means.

16. A duplex pressing machine, capable of optional use either as a man-press or a power-press, comprising substantially co-extensive press members relatively movable toward and from each other for the pressing operation with relatively wide separation therebetween for access to and visibility of the work, operator-operated means for producing such movement to close the press and at the option of the operator to produce man-pressure upon the work, in combination with power mechanism adapted at the option of the operator to produce power pressure upon the work, said mechanism including controlling means for operation after the press is closed and comprising power means for producing power pressure between said members, a controller for said power means and adapted for optional use by the operator for power pressure when the press is closed, means for preventing effective use of said controller when the press is in an open position, and means for maintaining said controller in step with normal operation of the press.

17. A duplex pressing machine, capable of optional use either as a man-press or a power-press, comprising substantially co-extensive press members relatively movable toward and from each other for the pressing operation with relatively wide separation therebetween for access to and visibility of the work, operator-operated means for producing such movement to close the press and at the option of the operator to produce and maintain man-pressure upon the work, in combination with power mechanism adapted at the option of the operator to produce power pressure upon the work, said mechanism including controlling means for operation after the press is closed and comprising power means for producing power pressure between said members, a controller for said power means and adapted for optional use by the operator for power pressure when the press is closed, means for preventing effective use of said controller when the press is in an open position, and means for maintaining said controller in step with normal operation of the press.

18. A duplex pressing machine, capable of optional use either as a man-press or a power-press, comprising substantially co-extensive press members relatively movable toward and from each other for the pressing operation with relatively wide separation therebetween for access to and visibility of the work, operator-operated means for producing such movement to close the press and at the option of the operator to produce man-pressure upon the work, in combination with power mechanism adapted at the option of the operator to produce power pressure upon the work, said mechanism comprising power means for producing power pressure between said members, a controlling means for said power means and adapted for optional use by the operator for power pressure, said controlling means being controlled by operation of the press, and means for maintaining said controlling means in step with normal operation of the press and without disturbance by the use of the press as a man-press.

19. A pressing machine, comprising relatively movable pressing members, lever mechanism for actuating the same, means for producing a flow of air through one of said members for drying the garment, a valve adapted when actuated to render said means effective, means whereby said lever mechanism opens said valve when the press is opened, a foot treadle, and operative connections between said treadle and valve.

20. A pressing machine, comprising relatively movable pressing members, an electric motor arranged when operated to produce final heavy pressure between said members, and a circuit to said motor including two switches, one of said switches being capable of operation by the operator, and the other of said switches being controlled in step with the movement of the pressing members.

21. A pressing machine, comprising relatively movable pressing members, an electric motor arranged when operated to produce pressure between said members, and a circuit to said motor including three switches, one of said switches being capable of operation by the operator, another of said switches being controlled by movement of the pressing members, and the third switch being controlled by the motor.

22. A pressing machine, comprising substantially coextensive relatively movable pressing members with relatively wide separation therebetween for access to and visibility of the work, an electric motor arranged when operated to produce final heavy pressure between said members, and a circuit to said motor including switch mechanism

capable of operation by the operator independently of press closing movement and also controlled in step with the movement of the pressing members.

23. A pressing machine, comprising relatively movable pressing members, mechanism for producing relative movement thereof including operator-operated means for closing the press, a rotatable member operable in timed relation with the pressure producing and relieving operations of said mechanism, motor means, a commutating switch centered about the axis of said rotatable member and operable thereby to effect arrest of said members at the conclusion of each of the pressure producing and pressure relieving operations, and control means for said motor means for initiating each of said pressure producing and pressure relieving operations.

24. A pressing machine, comprising relatively movable pressing members, mechanism for producing relative movement thereof including a rotatable member arranged to turn through a complete rotation to produce a complete cycle of pressure producing and pressure relieving operations of said mechanism, motor means, a commutating switch centered about the axis of said rotatable member and operated thereby to effect arrest of said members at the conclusion of each of the pressure producing and pressure relieving parts of the cycle, and control means for said motor means for initiating each of said pressure producing and pressure relieving parts of the cycle.

25. A pressing machine, comprising relatively movable pressing members, mechanism including motor means for producing and relieving pressure between said members, a switch operated by said motor means for stopping the same at the conclusion of each of said pressure producing and pressure relieving operations, said switch being adjustable to vary the position of the motor means at the conclusion of the pressure producing operation, and control means for said motor means for initiating each of said pressure producing and pressure relieving operations.

26. A pressing machine, comprising relatively movable pressing members, mechanism including a motor for producing and relieving pressure between said members, a switch operated by said motor for stopping the same at the conclusion of each of said pressure producing and pressure relieving operations, said switch being adjustable to vary the position of the motor means at the conclusion of the pressure relieving operation, and control means for said motor for initiating each of said pressure producing and pressure relieving operations.

27. A pressing machine, comprising relatively movable pressing members, mechanism including a motor for producing and relieving pressure between said members, a switch operated by said motor for stopping the same at the conclusion of each of said pressure producing and pressure relieving operations, said switch being adjustable to vary the position of the motor means at the conclusion of the pressure producing and pressure relieving operations, and control means for said motor for initiating each of said pressure producing and pressure relieving operations.

28. A pressing machine, comprising relatively movable pressing members, mechanism including a motor for producing and relieving pressure between said members, two circuits to said motor, one for the pressure producing and the other for the pressure relieving operations of said motor, and two switches, each of said switches being common to both of said circuits and adapted to close either circuit and simultaneously open the other, one of said switches being manually controllable to initiate each of the pressure producing and pressure relieving operations and the other switch being controlled by said motor to arrest its movement and thereby terminate each of said pressure producing and pressure relieving operations.

29. A pressing machine, comprising relatively movable pressing members, mechanism including a motor for producing and relieving pressure between said members, two circuits to said motor, one for the pressure producing and the other for the pressure relieving operation, and two switches, each common to both of said circuits and adapted to close either circuit and simultaneously open the other, one of said switches being manually operable to initiate said pressure producing and said pressure relieving operations, and the other of said switches being operated in timed relation with the movement of the pressing members to define the conclusion of the pressure producing and pressure relieving operations.

30. A pressing machine, comprising substantially coextensive pressing members relatively movable toward and from each other for the pressing operation with relatively wide separation therebetween for access to and visibility of the work, operator operated means for producing such movement to close the press, power means effective upon said members when closed to produce definite successive pressure applying and relieving operations, controlling means therefor operatable at will by the operator when the press is closed and by a movement distinct from the press closing movement, and electrical timing means whereby said power means in performing each of

said operations automatically ensures readiness of said controlling means to effect initiation of the next succeeding power operation of the press.

31. A pressing machine, comprising substantially coextensive pressing members relatively movable toward and from each other for the pressing operation with relatively wide separation therebetween for access to and visibility of the work, operator-operated means for producing such movements to close the press, power means effective upon said members when closed to produce definite successive pressure applying and relieving operations, single controlling means therefor operatable at will by the operator when the press is closed and by a movement distinct from the press closing movement, and electrical timing means whereby said power means in performing each of said operations automatically renders said controlling means ready to effect initiation of the next succeeding power operation of the press.

32. A duplex pressing machine, capable of optional use either as a man-press or a power-press, comprising substantially coextensive press members relatively movable toward and from each other for the pressing operation with relatively wide separation therebetween for access to and visibility of the work, operator-operated means for producing such movement to close the press and at the option of the operator to produce man-pressure upon the work, in combination with power mechanism adapted at the option of the operator to produce power pressure upon the work, said mechanism including controlling means for operation after the press is closed and comprising power means for producing power pressure upon said members, a controller for said power means and adapted for optional use by the operator for power pressure when the press is closed, means for preventing effective use of said controller when the press is open, and electrical timing means for maintaining said controller in step with the operation of the press.

33. A duplex pressing mechine, capable of optional use either as a man-press or a power-press, comprising substantially coextensive pressing members relatively movable toward and from each other for the pressing operation with relatively wide separation therebetween for access to and visibility of the work, operator operated means for producing such movement to close the press and at the option of the operator to produce man-pressure upon the work, in combination with power means adapted at the option of the operator to lock the press closed and produce power pressure upon the work, controlling means for said power means capable of optional use by the operator, means for maintaining a sequence of operations of the power means in step with all normal operations of the press, and means for maintaining said controlling means in step with said power means and immediately ready to effect initiation of the next succeeding power operation of the press.

34. A duplex pressing mechine, capable of optional use either as a man-press or a power-press, comprising substantially coextensive pressing members relatively movable toward and from each other for the pressing operation with relatively wide separation therebetween for access to and visibility of the work, operator operated means for producing such movement to close the press and at the option of the operator to produce man-pressure upon the work, in combination with power means adapted at the option of the operator to produce power pressure upon the work, controlling means for said power means capable of optional use by the operator, means for maintaining the press closed, and means for effecting release of the press either with or without the use of power accordingly as the press is used as a power-press or man-press, respectively.

35. A duplex pressing machine, capable of optional use either as a man-press or a power-press, comprising substantially co-extensive pressing members relatively movable toward and from each other for the pressing operation with relatively wide separation therebetween for access to and visibility of the work, operator operated means for producing such movement to close the press and at the option of the operator to produce man-pressure upon the work, in combination with power means adapted at the option of the operator to produce power pressure upon the work, controlling means for said power means capable of optional use by the operator, means for maintaining the press closed, and separate means for releasing the press when used as a man-press and a power-press, respectively.

36. A duplex pressing machine, capable of optional use either as a man-press or a power-press, comprising substantially coextensive pressing members relatively movable toward and from each other for the pressing operation with relatively wide separation therebetween for access to and visibility of the work, operator operated means for producing such movement to close the press and at the option of the operator to produce man-pressure upon the work, in combination with power means adapted at the option of the operator to produce power pressure upon the work, controlling means for said power means capable of optional use by the operator, means for maintaining the

press closed when used as a man-press, means for locking the press closed when used as a power-press, and separate means for releasing the press when used as a man-press and power-press, respectively.

37. A pressing machine, comprising substantially coextensive pressing members relatively movable toward and from each other for the pressing operation with relatively wide separation therebetween for access to and visibility of the work, operator operated means for producing such movement to close the press, electric power means effective upon said members when closed to produce definite successive pressure applying and relieving operations, an electric switch therefor operatable by the operator by a movement distinct from the press closing movement, and an automatic electric switch whereby said power means in performing each of said operations automatically ensures readiness of said operator-operated switch to effect initiation of the next succeeding power operation of the press.

38. A pressing machine, comprising substantially coextensive pressing members relatively movable toward and from each other for the pressing operation with relatively wide separation therebetween for access to and visibility of the work, operator-operated means for producing such movement to close the press, electric power means effective upon said members when closed to produce definite successive pressure applying and relieving operations, an electric switch therefor operatable by the operator by a movement distinct from the press closing movement, and an automatic electric switch whereby said power means in performing the pressure-relieving operation automatically ensures readiness of said operator-operated switch to effect initiation of the pressure producing operation.

39. A pressing machine, comprising substantially coextensive pressing members relatively movable toward and from each other for the pressing operation with relatively wide separation therebetween for access to and visibility of the work, operator operated means for producing such movement to close the press, in combination with power mechanism including controlling means for operation after the press is closed, said mechanism comprising electric power means for producing power pressure between said members, a main line switch for said power means, a controlling switch for said power means and adapted for optional use by the operator for power pressure, and automatic means for maintaining said controlling switch in step with the operation of the press and ready for the next power operation.

40. A pressing machine, comprising substantially coextensive pressing members relatively movable toward and from each other for the pressing operation with relatively wide separation therebetween for access to and visibility of the work, operator operated means for producing such movement to close the press, in combination with power mechanism including controlling means for operation after the press is closed, said mechanism comprising electric power means for producing power pressure between said members, a main line switch for said power means, a controlling switch for said power means and adapted for optional use by the operator for power pressure, and a third switch in circuit with said power means for automatically maintaining said controlling switch in step with the operation of the press and ready for the next power operation.

41. A pressing machine, comprising substantially coextensive pressing members relatively movable toward and from each other for the pressing operation with relatively wide separation therebetween for access to and visibility of the work, operator operated means for producing such movement to close the press, in combination with power mechanism including controlling means for operation after the press is closed, said mechanism comprising electric power means for producing power pressure between said members, a main line switch for said power means, a controlling switch for said power means and adapted for optional use by the operator for power pressure when the press is closed, means for preventing effective use of said controlling switch when the press is open, and means for automatically maintaining said controlling switch in step with the operation of the press and ready for the next power operation.

42. A pressing machine, comprising substantially coextensive pressing members relatively movable toward and from each other for the pressing operation with relatively wide separation therebetween for access to and visibility of the work, operator operated means for producing such movement to close the press, power means effective upon said members to produce pressure applying and relieving operations, a general control means for throwing said power means on and off, a second means operatable by a movement distinct from that of said operator operated means for controlling said power means in the application and relief of pressure, and a third control means for preventing effective operation of said second control means until said operating means has substantially closed the press.

43. A pressing machine, comprising substantially coextensive pressing members relatively movable toward and from each other for the pressing operation with relatively wide separation therebetween for access to

and visibility of the work, operator operated means for producing such movement to close the press, electric power means effective upon said members to produce pressure applying and relieving operations, a main line switch for throwing said power means on and off, a second electric switch operatable by a movement distinct from that of said operator operated means for controlling said power means in the application and relief of pressure, and a third switch for preventing effective operation of said second switch until said operating means has substantially closed the press.

44. A pressing machine, comprising relatively movable pressing members, mechanism including a motor for producing pressure between said members, a rotatable switch operated in timed relation to the movement of the press for stopping the motor at the conclusion of the pressure producing operation, said switch being adjustable to vary the time of stopping the motor, and control means for said motor for initiating said pressure producing operation.

45. A pressing machine, comprising relatively movable pressing members, mechanism including an electric motor for effecting pressure producing and pressure relieving operations of said pressing members, a commutating switch including concentrically arranged relatively rotatable contact members operated in timed relation to the movement of the press for stopping said motor at the conclusion of each of said pressure producing and pressure relieving operations, and control means for said motor for initiating said pressure producing and pressure relieving operations.

46. A pressing machine, comprising relatively movable pressing members, mechanism including an electric motor for effecting pressure producing and pressure relieving operations of said pressing members, a commutating switch including concentrically arranged relatively rotatable contact members operated in timed relation to the movement of the press for stopping said motor at the conclusion of each of said pressure producing and pressure relieving operations, said contact members being adjustable to vary the time of stopping the motor, and control means for said motor for intiating each of said pressure producing and pressure relieving operations.

47. A pressing machine, comprising relatively movable pressing members, mechanism including an electric motor for effecting pressure producing and pressure relieving operations of said pressing members, a commutating switch including contact members operated in timed relation to the movement of the press for stopping said motor at the conclusion of each of said pressure producing and pressure relieving operations, said contact members corresponding respectively to the pressure producing and pressure relieving operations and being individually adjustable to vary the time of each of said operations, and control means for said motor for initiating each of said pressure producing and pressure relieving operations.

48. A pressing machine, comprising relatively movable pressing members, mechanism including an electric motor for effecting pressure producing and pressure relieving operations of said pressing members, a commutating switch including contact members operated in timed relation to the movement of the press for stopping said motor at the conclusion of each of said pressure producing and pressure relieving operations, said contact members corresponding respectively to the pressure producing and pressure relieving operations and being adjustable as a unit to vary the time relation of the same with respect to the conclusion of the pressure producing operation, and control means for said motor for initiating said pressure producing and pressure relieving operations.

49. A pressing machine, comprising relatively movable pressing members, mechanism including an electric motor for effecting pressure producing and pressure relieving operations of said pressing members, a commutating switch including contact members operated in timed relation to the movement of the press for stopping said motor at the conclusion of each of said pressure producing and pressure relieving operations, said contact members corresponding respectively to the pressure producing and pressure relieving operations and being adjustable individually and as a unit to vary the time of each of said operations and the time relation of the switch with respect to the conclusion of the pressure producing operation, and control means for said motor for initiating said pressure producing and pressure relieving operations.

50. A pressing machine, comprising relatively movable pressing members, mechanism for producing relative movement thereof including a rotatable member arranged to turn through a single rotation to produce a complete cycle of pressure producing and pressure relieving operations of said mechanism, motor means, a commutating switch centered about the axis of said rotatable member and operated thereby for stopping said motor means at the conclusion of each of the pressure producing and pressure relieving parts of the cycle, said switch comprising a pair of curved contact segments concentrically mounted about the axis of the rotatable member, a contact ring mounted upon the rotatable member for rotation therewith, a contact shoe mounted

upon said rotatable member and in electric circuit with said contact ring, said shoe having wiping contact engagement successively with said contact segments, and a second contact shoe having fixed electric connection with one of said segments and adapted for wiping contact engagement with said contact ring, said segments corresponding to the pressure producing and pressure relieving operations respectively, and control means for said motor means for initiating each of said pressure producing and pressure relieving parts of the cycle.

51. A pressing machine, comprising relatively movable pressing members, mechanism for producing relative movement thereof including a rotatable member arranged to turn through a single rotation to produce a complete cycle of pressure producing and pressure relieving operations of said mechanism, motor means, a commutating switch centered about the axis of said rotatable member and operated thereby for stopping said motor means at the conclusion of each of the pressure producing and pressure relieving parts of the cycle, said switch comprising a pair of curved contact segments concentrically mounted about the axis of the rotatable member, a contact ring mounted upon the rotatable member for rotation therewith, a contact shoe mounted upon said rotatable member and in an electric circuit with said contact ring, said shoe having wiping contact engagement successively with said contact segments, and a second contact shoe having fixed electric connection with one of said segments and adapted for wiping contact engagement with said contact ring, said segments corresponding to the pressure producing and pressure relieving operations respectively, and the curvature of the far end portion of each of said segments, according to the direction of rotation, being of increased degree, and control means for said motor means for initiating each of said pressure producing and pressure relieving parts of the cycle.

In testimony whereof we affix our signatures.

DANA H. BENJAMIN.
EMIL J. CARROLL.