June 23, 1936. E. DAVIS 2,045,447

GARMENT OR IRONING PRESS

Filed March 25, 1930 2 Sheets-Sheet 1

FIG. 1.

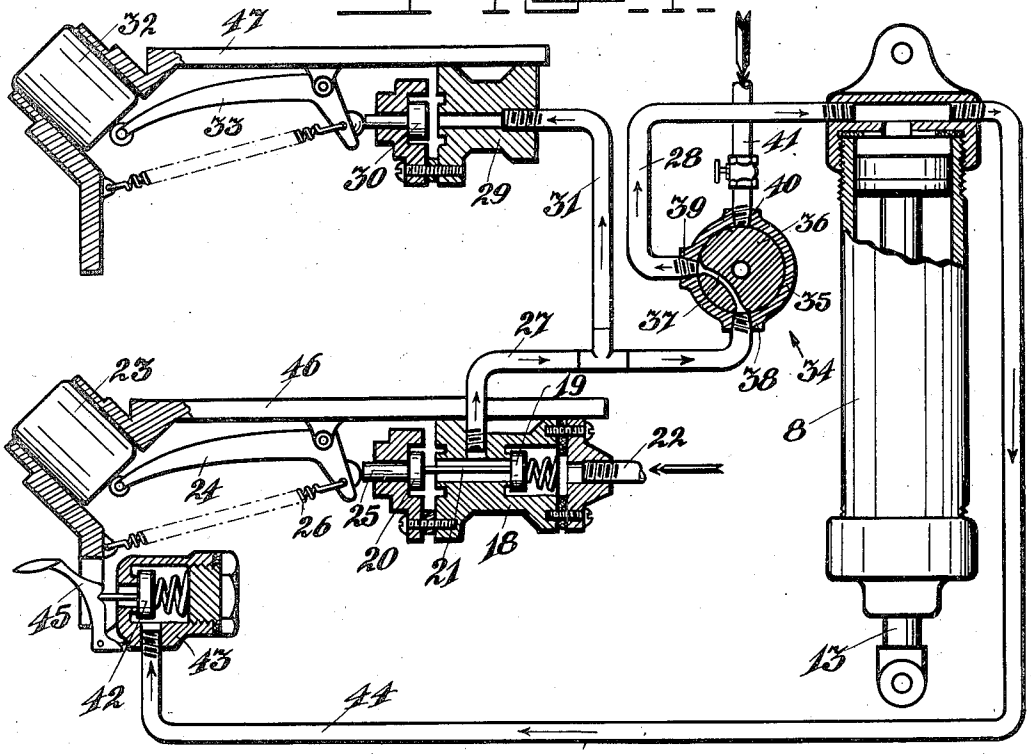
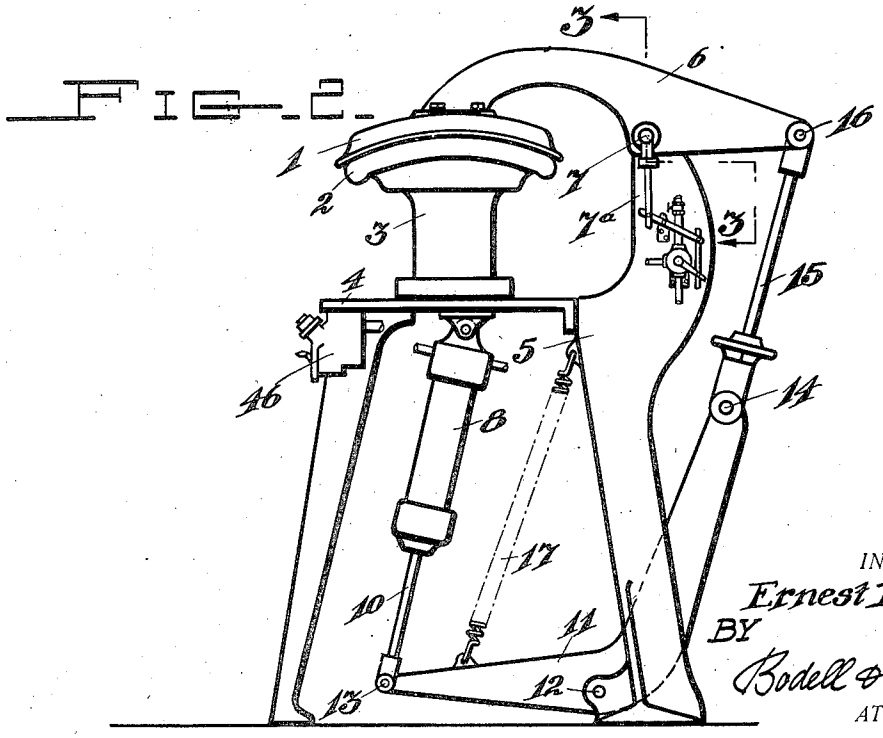


FIG. 2.



INVENTOR:
Ernest Davis,
BY
Bodell & Thompson
ATTORNEYS.

June 23, 1936. E. DAVIS 2,045,447

GARMENT OR IRONING PRESS

Filed March 25, 1930 2 Sheets-Sheet 2

FIG. 6.

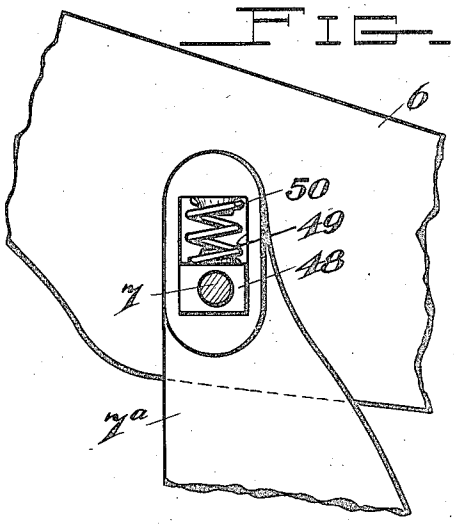


FIG. 3.

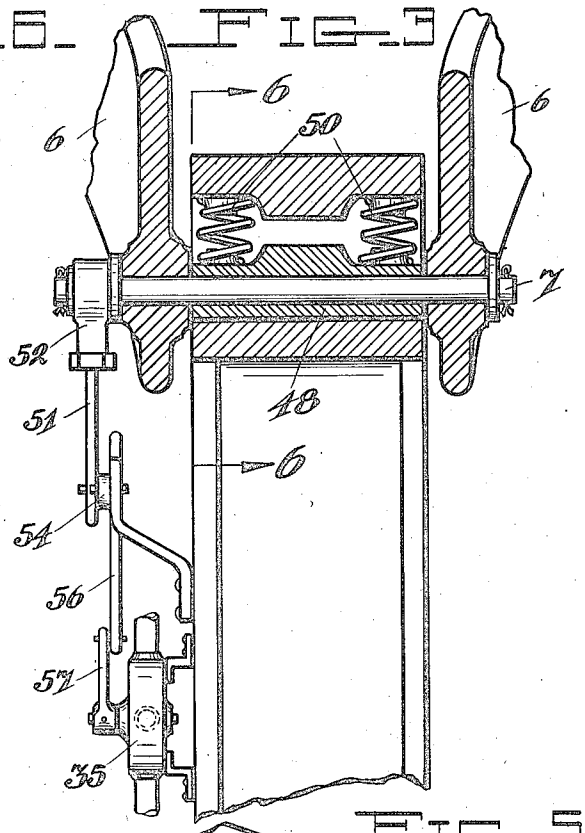


FIG. 4.

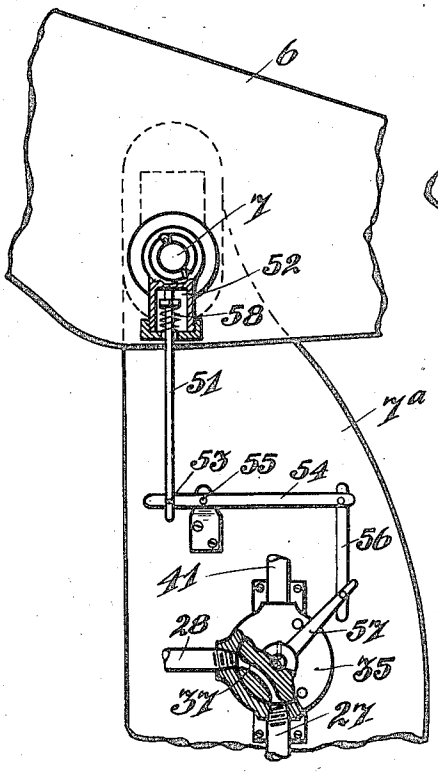
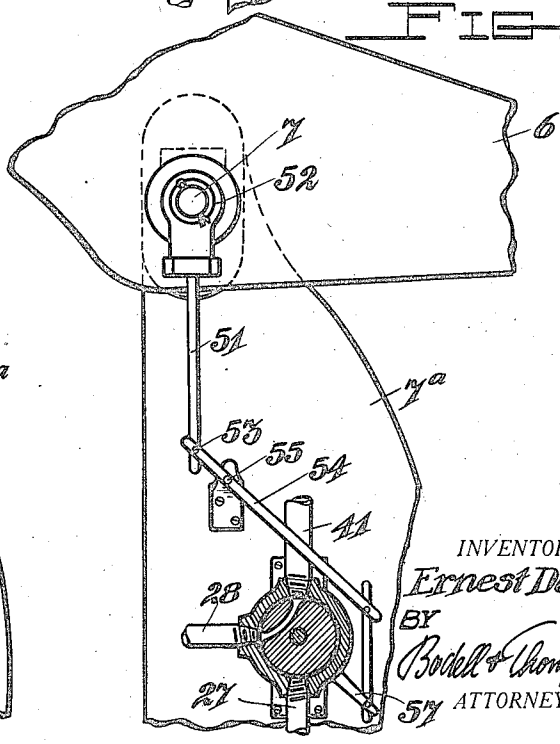


FIG. 5.



INVENTOR:
Ernest Davis,
BY
Bodell & Thompson
ATTORNEYS.

Patented June 23, 1936 2,045,447

UNITED STATES PATENT OFFICE

2,045,447

GARMENT OR IRONING PRESS

Ernest Davis, Syracuse, N. Y., assignor to The Prosperity Company, Inc., Syracuse, N. Y., a corporation of New York

Application March 25, 1930, Serial No. 438,865

12 Claims. (Cl. 68—9)

This invention relates to garment or ironing presses which are motor operated, and has for its object, a particularly simple and efficient control mechanism whereby both hands of the operator are required to close the press, and locking means operated by the closing of the press, and particularly when the press begins to apply pressure, for holding the press closed independently of the operation of manual controls, and thereby permitting the release of the two-hand control by the operator.

The invention consists in the novel features and in the combinations and constructions hereinafter set forth and claimed.

In describing this invention, reference is had to the accompanying drawings, in which like characters designate corresponding parts in all the views.

Figure 1 is a diagrammatic sectional view of the motor and the control means therefor in open-press position.

Figure 2 is a side elevation, parts being removed, of a pressing machine embodying this invention.

Figure 3 is an enlarged sectional view on line 3—3 of Figure 2.

Figures 4 and 5 are elevations of parts seen in Figure 3, the parts of the mechanism for holding the press closed being shown in their normal or open-press position in Figure 4, and in their operated or closed-press position in Figure 5.

Figure 6 is an enlarged fragmentary elevation showing the bearing for the pivot of the head carrying lever which functions to shift a control valve as the press closes.

I have here shown my invention as embodied in a type of pressing machine in which the head is movable up and down toward and from a stationary buck mounted on the frame, and in which the head is actuated by a fluid operated motor as a cylinder and piston therein, and in which the closing operation of the press by the motor is effected by a two-hand control requiring that both hands of the operator be employed while the press is closing.

Heretofore in machines of this type, the control valves were locked in their operated position after the head was closed a predetermined distance by which to maintain the cylinder open to the main line and the press closed by air pressure, and the pressure was released to open the machine by unlocking the valves. In my present invention, the two-hand control valves are not locked, but the air pressure is nevertheless held in the cylinder because the latter is connected in the main feed line around the two hand valves by a third valve mechanically operated by the closing of the press. In this embodiment of my invention, the third valve is operated only when the press head begins to apply pressure to the buck, so that the operator can not let go of either handle until the press begins to apply pressure.

The pressing machine comprises generally, cooperating pressing elements or jaws, as a head and a buck, one of which is movable toward and from the other, means for actuating the movable element including a motor, and motion transmitting connections between the motor and the movable element, a feed line for a motive power, a pair of manually operable controllers connected in the feed line in such a way that both controllers must be operated to effect the flow of power to the motor, the controllers being returnable automatically to their normal open-press position any time they are released, a third controller operable by the closing of the press and normally arranged in position to transmit the motive power to the motor when the first or two hand controllers are operated and movable out of operative position to cut out the first or two hand controllers by the closing of the press and to cut in the motor in a shunt line or by-pass around the two hand controllers, so that when the press is closed the motor remains energized.

The reference 1 designates the movable element or head of a platen garment and laundry pressing machine, and 2 is the buck which is mounted on a suitable bracket or bolster 3 which in turn is mounted upon the table 4 of a suitable frame 5. The head 1 is carried by a lever 6 pivoted between its ends at 7 to an upright 7a rising from the frame. In the illustrated embodiment of my invention, the motor is a fluid operated motor, and more specifically, a cylinder 8 having a piston 9 therein.

The motion transmitting means between the motor or the piston thereof, may be of any suitable form, size and construction, and the means here shown in addition to the head carrying lever 6 and the rod 10 of the piston, comprises an angle lever 11 pivoted at 12 at its angle to the base of the frame, and provided with a forwardly extending arm pivoted at 13 to the piston rod, and an upwardly extending arm pivoted at 14 to the lower end of a link 15 which is pivoted at its upper end at 16 to the rear arm of the lever 6. The piston 9 is single acting, and the press is opened by a spring 17 when the closing motor

8 is deenergized by venting the pressure to atmosphere.

As the motor is pressure operated, the power is a fluid under pressure, usually compressed air, and the controllers for controlling the flow of motive fluid to and from the cylinder, are valves. These valves may be of any suitable type or construction and 18 designates the casing of a manually operable control valve having a normally closed spring pressed intake valve 19, and a normally open exhaust valve 20 therein, these being connected together by a stem 21 so that they act as a unit. That is, the valve 18 is in effect, a two-way valve, or a combined intake and exhaust valve, normally arranged to prevent the flow of motive fluid therethrough to the cylinder, and returnable automatically when released to its normal open-press position. The intake end of the casing 18 is connected by a pipe 22 to a source of fluid or air pressure.

The valves 19 and 20 are operated by a manual, as a push button 23, coacting with a motion transmitting part or lever 24 having an arm which thrusts against the stem 25 of the exhaust valve 20. The lever 24 is acted upon by a returning spring 26. The valve casing 18 is connected between its valves 19 and 20 by a conduit 27, thru a third valve 35 to be presently described and a pipe 28, to the intake port of the cylinder 8.

29 designates the casing of a second control valve having a normally open exhaust valve 30 therein, this casing being connected by a pipe 31 to the pipe 27. The valve 30 also is returnable automatically to its open position, when released by the operator, by the back pressure through the pipe 31. The exhaust valve 30 is thus normally arranged to prevent the flow, or the effective flow, of motive fluid to the cylinder 8. The valve 30 is operated by a push button 32 and lever 33 similar to the push button 23 and lever 24. It is obvious that both push buttons 23 and 32 must be depressed in order to permit air to flow from the main line 22 to the cylinder 8, and that if only the push button 23 is depressed, the air will exhaust out through the pipe 27, pipe 31, valve casing 28, and through the vent port controlled by the exhaust valve 30, and that if only the push button 32 is depressed, no air at all will flow because the intake valve 19 remains closed.

The means mechanically controlled by the closing of the press for holding the press closed and cutting out the valves 18 and 29 operated by the push buttons 23 and 32, as here shown, comprises a third controller 34, this being a valve consisting of a casing 35 having a movable valve member 36 therein provided with a passage 37 which normally connects the pipes 27 and 28, when the press is open, these pipes being connected to inlet and outlet ports 38 and 39 in the valve casing 35. The valve here shown is a rotary valve but any type may be used.

In order that the valves 18 and 29 operated by the push buttons 23 and 32 may not only be cut out and the air pressure held in the cylinder 8, but also, that the cylinder may remain open to the main air supply, the mechanically-actuated valve member 36 also moves into a position to connect the cylinder with the main air line through a by-pass which is opened by the valve 36 when the press closes, and in order to effect this result, the valve casing 35 is provided with a port 40 connected by a pipe 41 in any suitable manner to the main air supply, the pipes 41 and 28 constituting a shunt by-pass, or cut-out passage around the valves 18 and 29 controlled by the push buttons 23 and 32. When the press closes and the valve member 36 is shifted, as will be presently described, the passage 37 of the valve member 36 moves into a position where it establishes communication between the ports 39 and 40 so that when the press is closed, the cylinder is still connected in the main air supply but through the pipes 28, passage 37, and pipe 41. The two pressure feed pipes 22 and 41 may of course be connected in common to one supply main.

To open the press, the air is exhausted from the cylinder by operating a normally closed spring pressed valve 42 in a casing 43 which is connected by a pipe 44 to the head of the cylinder. The valve 42 is operated by a trip lever 45. The trip lever 45 is grouped with one of the push buttons 23 and 32, it being here shown as being located below the push button 23.

The valve casings 18 and 29, and the push buttons 23 and 32 and coacting parts are suitably mounted in housings 46 and 47 mounted on the frame of the machine, or the front side thereof, and spaced far enough apart so that both push buttons can not be engaged with one hand.

The mechanical or press-actuated third valve controller 34 is here shown as mounted on the upright of the frame to which the lever 6 is pivoted. As before stated, the rotary member 36 of the valve 34 is operated only when the head 1 begins to apply pressure to the buck 2, and it is preferably operated by a relative movement of a part of the motion transmitting connections between the motor and the head, when the head 1 comes down into pressure coaction with the buck 2, one of such motion transmitting parts being capable of a bodily shifting movement at one of its pivotal points relatively to the part to which it is pivoted when the head begins to apply pressure to the buck 2.

In the illustrated embodiment of my invention, the head carrying lever 6 is mounted so that its pivot 7 has a radial shifting movement upwardly against the action of spring means 50, and the pivot 7 is journalled in a bearing block 48 mounted to slide vertically in a guide or slot 49 formed in the upper end of the upright 7a, the upward movement being against the action of said springs 50 pressing downwardly on the bearing block 48. Thus, when the head goes under pressure, the rear end of the lever 6 will be shifted upwardly against the action of the springs 50. The valve member 36 is operated by this relative or radial movement of the pivot 7, and such movement is transmitted to the valve member 36 through suitable motion transmitting means, as a link 51 having a pivotal bearing 52 on one end of the pivot 7 and connected at 53 to one end of a lever 54 pivoted between its ends at 55 to the frame or standard 7a, said lever being connected by a link 56 to a rock arm 57 on the rotary valve member 36.

It is obvious, that when sufficient pressure is applied to the rear arm of the lever 6 after the head 1 comes down on the buck 2 to move the pivot pin 7 upwardly in the slot 49, that the valve member 36 will be rocked from its open-press position shown in Figure 4 to that shown in Figure 5, thus cutting out the control valves 18 and 29 operated by the push buttons 23 and 32, and cutting in the by-pass consisting of the pipes 41 and 28. The link 51 is preferably connected to its pivot bearing 7 through a cushioning spring 58, as shown in Figure 4, so that the motion is transmitted through a yielding oper-

ating connection. The valve 30 operated by the push button 32 may be omitted, but for the complete carrying out of the invention in a press that is absolutely safe to the operator, this additional push button operated valve is highly desirable.

In use, after the operator lays the work on the buck 2, he depresses both push buttons 23 and 32, opening the intake valve 19 and closing the exhaust valves 29 and 30, so that air passes to the cylinder through the valve casing 18, pipe 27, passage 37 of the valve 34, and pipe 28, to the cylinder actuating the piston therein, and closing the press. When the press head comes down on the buck 2 and compresses the usual padding thereon, continued pressure applied by the piston through the motion transmitting connections, lifts the rear end of the lever 6 upwardly, the bearing block 48 for the pivot moving upwardly in the slot 49 against the action of the springs 50. This upward movement of the lever 6 is transferred to the rotary valve member 36 shifting it from the position shown in Figure 4 to that shown in Figure 5, so that the two hand valves operated by the push buttons 23 and 32 are now cut out, and the valve passage 37 connects the pipes 41 and 28 of the by-pass and thereby connects the cylinder with the main air supply independently of the two hand safety valves 18 and 29 so that the press is held closed by the pressure in the cylinder 8, and is also subject to the pressure in the supply line to produce jaw compression between the head and buck. Hence, full maximum pressure is delivered.

To open the press, the operator pulls up on the trip lever 45 thus relieving the air pressure in the cylinder 8, and the springs 50 react and return the bearing block 48 and pivot 7 to the lower end of the guide slot 49. This downward movement of the pivot 7 and the bearing block is transferred to the rotary valve member 36 to reset said valve member in its original open press position shown in Figures 1 and 4.

The opening of the press is then effected by reason of the fact that the by-pass valve passage 37, in the press-actuated valve 35, is shown to be comparatively small. Hence, the manual opening of the large port exhaust valve 43 quickly vents the cylinder 8 and permits the press-opening spring 17 to initiate the opening of the press before and faster than air pressure can enter the cylinder thru the restricted passage 37.

What I claim is:

1. In a garment and laundry pressing machine, cooperating pressing elements which open and close on the work; means for opening and closing the press including a cylinder, a piston movable therein, and motion transmitting means connecting the piston with a movable element; a feed line for a motive fluid, a pair of control valves connected in said feed line and normally arranged to prevent the flow of motive fluid to the cylinder, said pair of valves being connected in the line so that both valves must be operated from their normal position to effect the flow of motive fluid to the cylinder, manual means for operating each valve, said pair of valves and the manual means being returnable automatically to their normal position when released, a third valve connected in the feed line between the pair of valves and the cylinder and normally arranged in open position, and connections operated by pressure against one of the pressing elements during the closing of the press for closing the third valve, means for opening the third valve during the opening of the press, and means operable to release the motive fluid from the cylinder to open the press.

2. In a garment and laundry pressing machine, cooperating pressing elements to open and close on the work, means for opening and closing the press including a fluid operated motor, motion transmitting means connecting the motor with a movable element, a feed line for a motive fluid, a manually operable control valve in the feed line normally preventing the flow of motive fluid to the motor, means for returning the valve to its normal position when released, an additional valve in the feed line between the former valve and the motor, and normally arranged in position so that motive fluid will flow to the motor when the former valve is operated, and means operated in response to the resistance encountered by the movable element as it applies power to the other element for closing the additional valve, and operator-operated means for exhausting the motive fluid from the motor.

3. In a garment and laundry pressing machine, a buck, a head movable toward and from the buck, a head carrying lever, means for actuating the head comprising a motor, and motion transmitting mechanism between the motor and the head including said lever, operator-operated means for controlling the supply of power to the motor to close the press, a bearing block pivotally supporting the lever, said block being movably mounted and shiftable when the press head encounters resistance in closing on the buck, means controlled by the movement of the bearing block for holding the press in closed position, and operator-operated means for controlling the opening of the press.

4. In a garment and laundry pressing machine, a frame, cooperating pressing elements which open and close on the work, actuating means for opening and closing the press including a motor, and motion transmitting parts between the motor and a movable element including a lever pivoted to the frame, the pivot of said lever being mounted in the frame to shift relatively thereto when the movable element goes under pressure on the other element, operator-operated means for controlling the actuation of the motor to close the press, and means operated by the shifting of the pivot of said lever for holding the press closed, and operator-operated means for releasing the motor to open the press.

5. In a garment and laundry pressing machine, a frame, cooperating pressing elements, one of which is movable toward and from the other, motor means for actuating the movable element, motion transmitting means between the motor means and said element including a pivotally mounted part, the pivot being mounted to shift bodily when the movable element goes under pressure on the other element, means for controlling the flow of motive power to the motor means including a pair of manually operable controllers normally arranged in position to prevent the flow of motive power to the motor means and returnable automatically to their normal position when released, means by which both of said controllers must be operated to effect the flow of motive power to the motor means, a third controller normally in position to permit the flow of motive power to the motor when the first mentioned controllers are operated, and means operated by the shifting of said pivot to operate the third controller out of its normal position as the movable element goes under pressure and

thereby cutting out the first mentioned controllers.

6. In a garment and laundry pressing machine, the combination of cooperating pressing elements, one of which is movable toward and from the other, a fluid operated motor, motion transmitting connections between the motor and the movable element including a pivotally mounted part, the pivot of which is mounted to shift radially as the movable element goes under pressure on the other element, a feed line for a motive fluid, a manually operable control valve in the feed line normally preventing the flow of motive fluid to the motor and having means for returning it to its normal position when released, an additional valve in the feed line between the former valve and the motor and normally arranged in position to permit the flow of motive fluid to the motor when the former valve is operated, means operated by the shifting movement of said pivot for operating the additional valve to close the same, and operator-operated means for exhausting the motive fluid from the motor.

7. In a garment and laundry pressing machine, the combination of cooperating pressing elements, one of which is movable toward and from the other, means for actuating the movable element including a fluid operated motor, motion transmitting means between the motor and the movable element including a pivotally mounted part, the pivot being mounted to shift radially as the press closes and the movable element goes under pressure on the other element, a feed line for a motive fluid, a normally closed operator-operated valve in the feed line for initially controlling the flow of motive fluid to the motor and automatically returnable to its closed position when released, a by-pass around said valve, and an additional valve normally closing the by-pass and opening the feed line between the former valve and the motor, means operated by the radial movement of said pivot as the press goes under pressure for opening the by-pass and closing the feed line between the first valve and the motor and returning the additional valve to its normal position when the press opens, and operator controlled means for exhausting the motive fluid from the motor.

8. In a pressing machine, a frame, a buck mounted on the frame, a head movable toward and from the buck, a fluid operated motor, motion transmitting means between the motor and the movable element including a head carrying lever pivoted to the frame, the pivot of said lever being mounted to move radially in a vertical direction as the head goes under pressure on the buck, a feed line for a motive fluid, a normally closed operator-operated valve in the feed line for initially controlling the flow of motive fluid to the motor, said valve having means for returning it to its normal position when released, a by-pass around said valve, an additional valve normally closing the by-pass and opening the feed line between the former valve and the motor, connections operated by the radial movement of said pivot for operating the additional valve to open the by-pass and close the feed line between the former valve and the motor when the press head goes under pressure and to close the by-pass and open said feed line between the former valve and the motor when the press opens, and operator controlled means for exhausting the motive fluid from the motor.

9. A fabric or laundry press comprising, in combination, a frame; cooperating pressing jaws which open and close on the work; actuating means for opening and closing the press including a motor, means to open the press upon deenergization of the motor, motion transmitting parts between the motor and a movable pressing jaw, connections between parts of the actuating means, connections between parts of the actuating means and the frame, a connection between the motion transmitting parts and the aforesaid pressing jaw, and one of the connections having relative movement between the parts thereof which shift relatively to each other caused by the pressing jaws engaging with initial pressure; operator actuated means for controlling the actuation of the motor to close the press; means operated in response to the relative shifting between the parts of the relatively movable connection for holding the press closed against the action of the press opening means and independently of the operator actuated means; and operator actuated means for opening the press.

10. A fabric or laundry press comprising, in combination, a frame; cooperating pressing jaws which open and close on the work; actuating means for opening and closing the press including a fluid motor, motion transmitting parts between the motor and a movable pressing jaw, connections between parts of the actuating means, connections between parts of the actuating means and the frame, a connection between the motion transmitting parts and the aforesaid pressing jaw, and one of the connections having relative movement between the parts thereof which shift relatively to each other in response to the pressing jaws engaging with initial pressure, valve means for controlling the actuation of the motor to close the press; operator actuated means to operate the valve means; a second valve means operated by the relative shifting between the parts of the relatively movable connection for retaining fluid pressure in the motor independently of the operator actuated means and holding the press closed; and operator actuated means for opening the press.

11. A fabric or laundry press comprising, in combination, a frame; cooperating pressing jaws which open and close on the work; actuating means for opening and closing the press including a fluid motor, motion transmitting parts between the motor and a movable pressing jaw, connections between parts of the actuating means, connections between parts of the actuating means and the frame, a connection between the motion transmitting parts and the aforesaid pressing jaw, and one of the connections having relative movement between the parts thereof which shift relatively to each other in response to the pressing jaws engaging with initial pressure; a first valve means for controlling the actuation of the motor to close the press; operator actuated means for operating the valve means; a second valve means operated by the relative shifting between the parts of the relatively movable connection and adapted to be connected with a source of fluid supply to by-pass the first valve means and retain pressure upon the motor independently of the operator actuated means to hold the press closed; and operator actuated means for exhausting the fluid from the motor to open the press.

12. A fabric or laundry press comprising, in combination, a frame; cooperating pressing jaws which open and close on the work; actuating means for opening and closing the press including a motor, and motion transmitting parts between

the motor and a movable pressing jaw, the motion transmitting parts including a jaw carrying lever having a pivotal connection with the frame, the pivotal connection having relative movement with respect to the frame and shifting relatively thereto when the pressing jaws engage with initial pressure; operator actuated means for controlling the actuation of the motor to close the press; means operated by the relative shifting of the parts of the connection for holding the press closed, and operator actuated means for opening the press.

ERNEST DAVIS.