Aug. 14, 1945. F. C. LORNITZO 2,382,323

LATCH CONTROL FOR PRESSING MACHINES

Filed Jan. 31, 1941 5 Sheets-Sheet 1

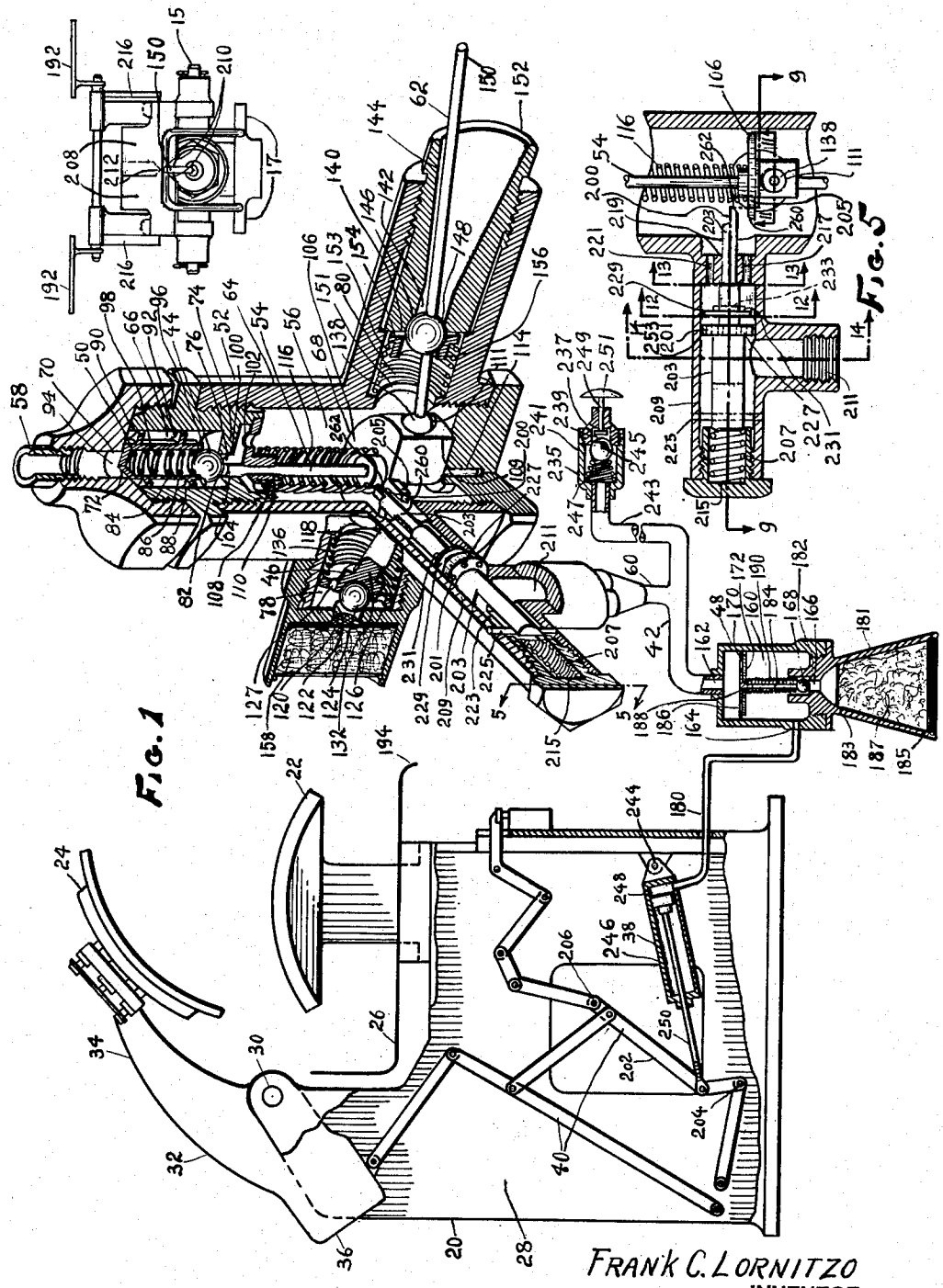


FIG. 1

FIG. 5

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LATCH CONTROL FOR PRESSING MACHINES

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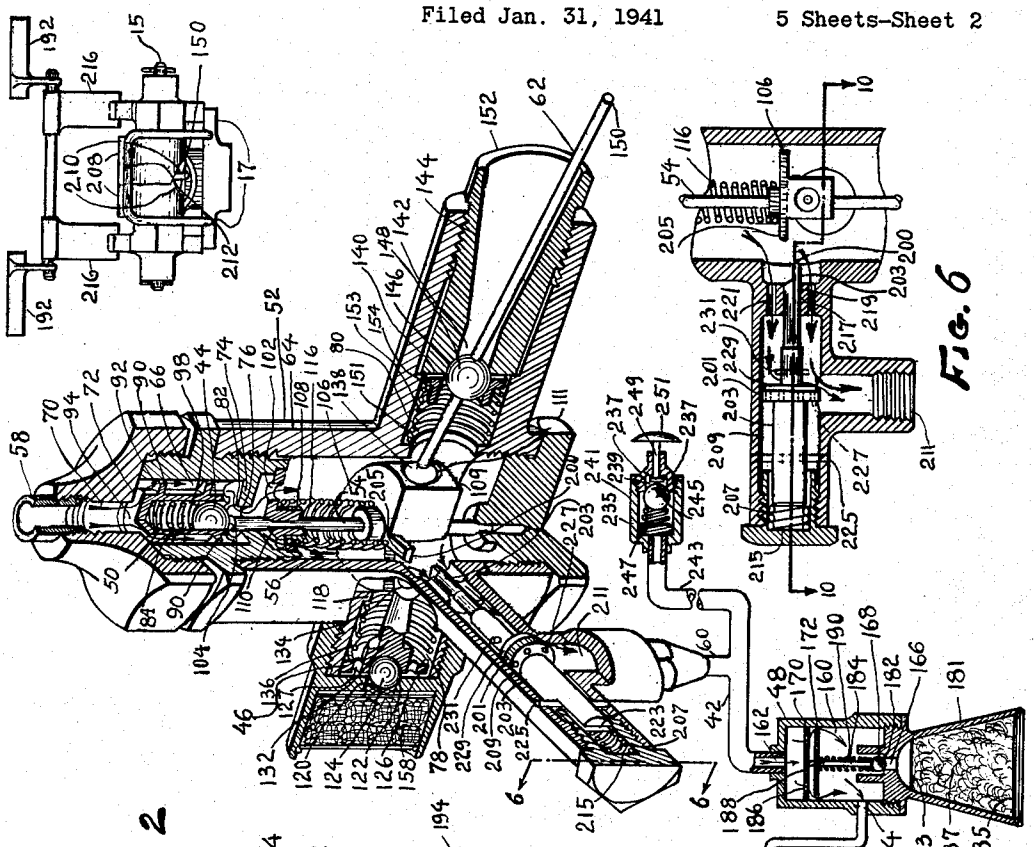


Fig. 6

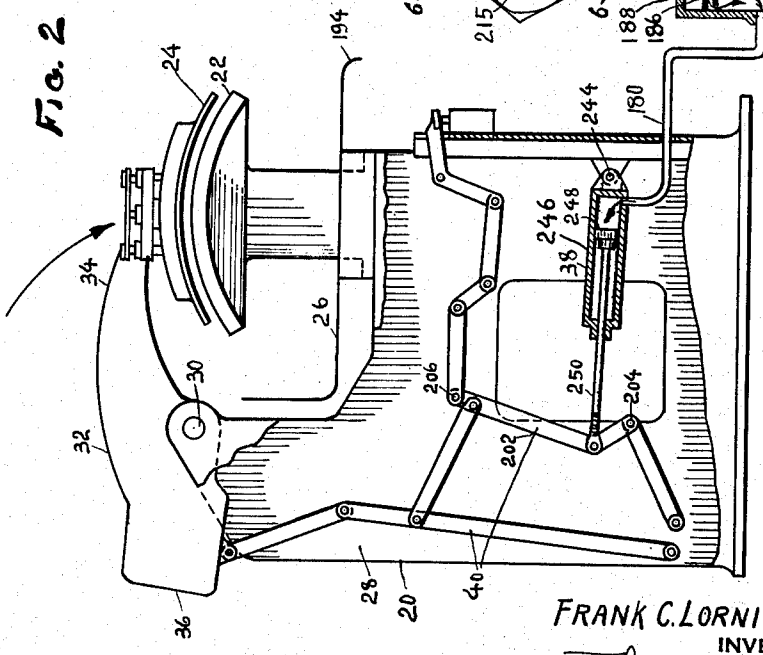


Fig. 2

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LATCH CONTROL FOR PRESSING MACHINES

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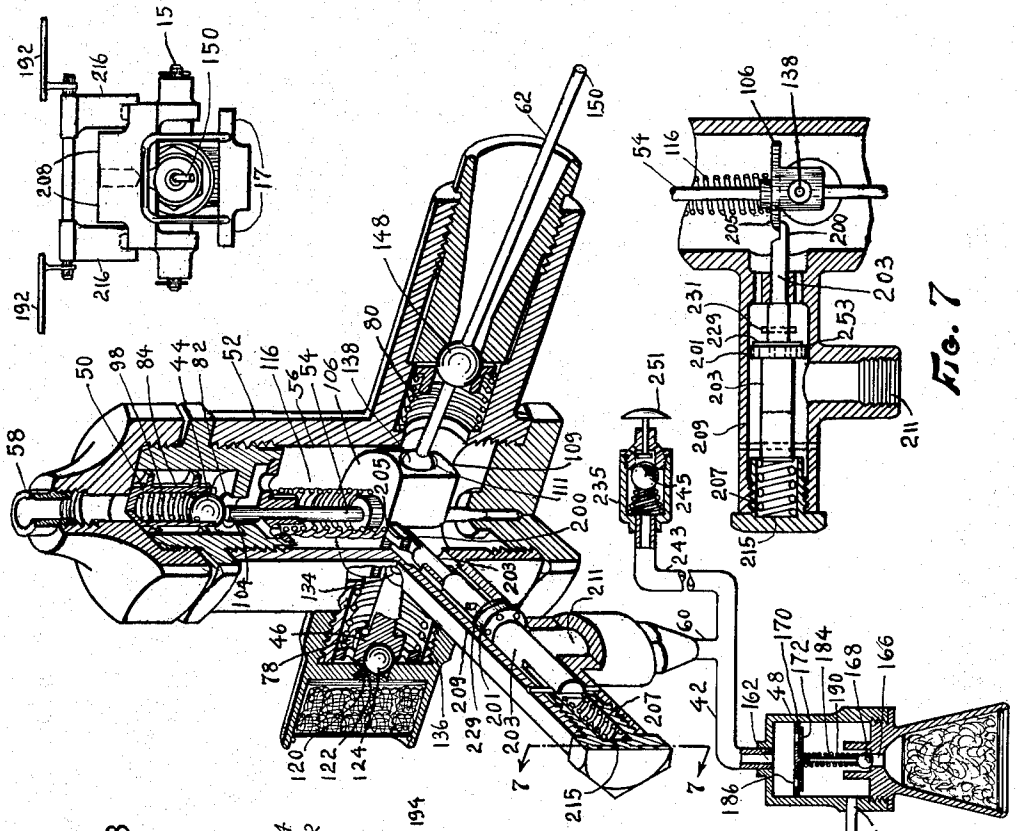


FIG. 7

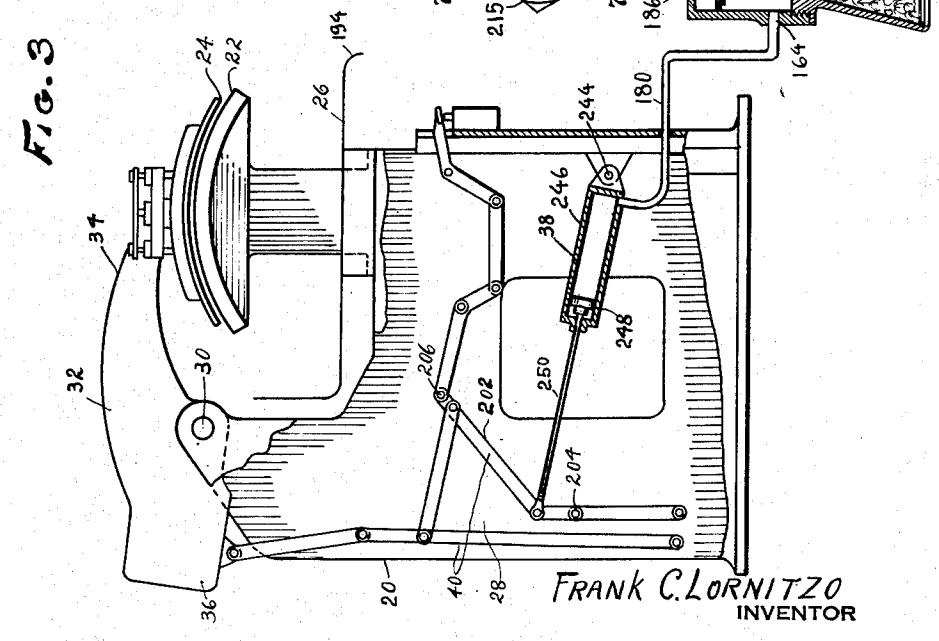


FIG. 3

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LATCH CONTROL FOR PRESSING MACHINES

Filed Jan. 31, 1941 5 Sheets-Sheet 4

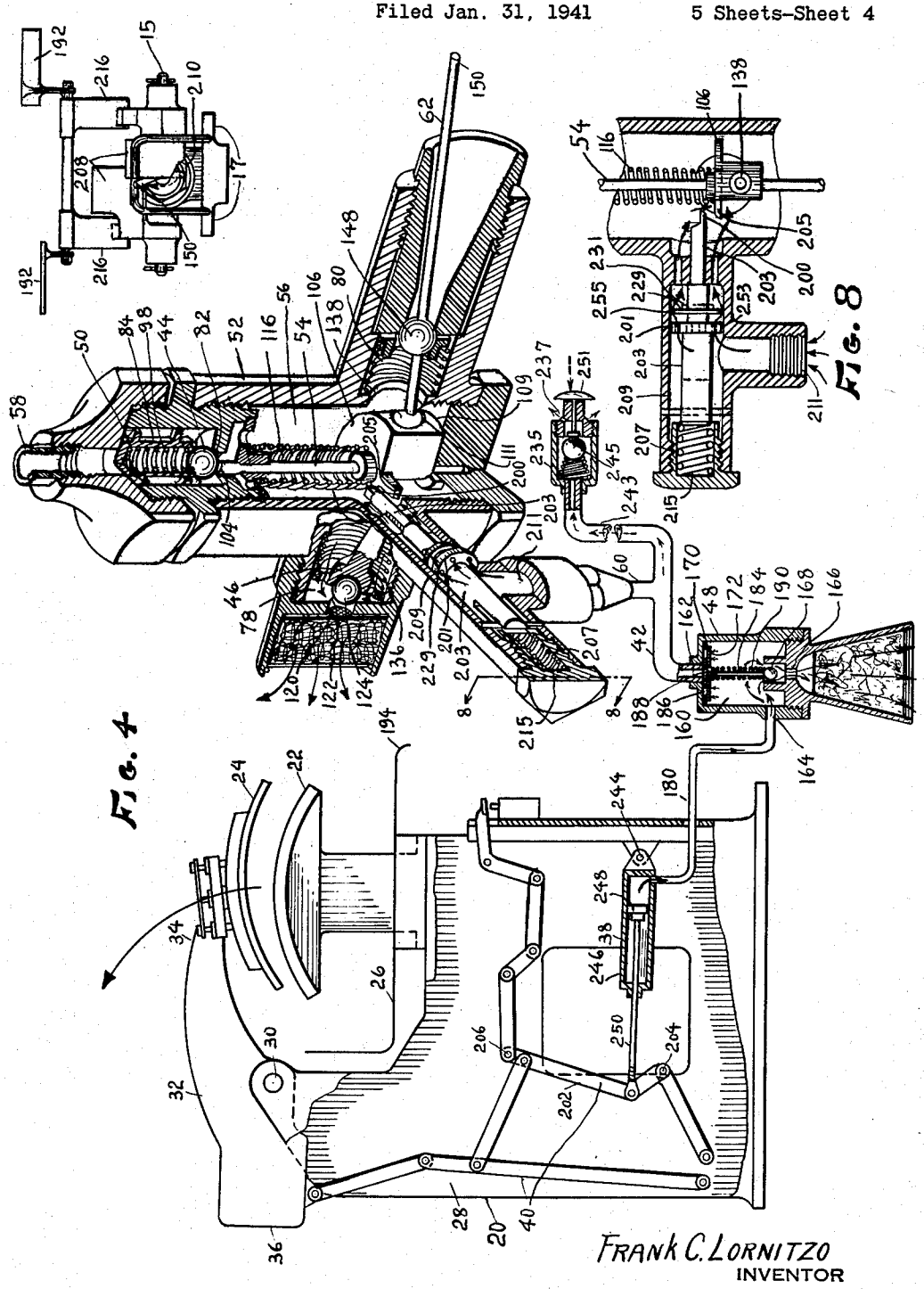


Fig. 8

Fig. 4

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LATCH CONTROL FOR PRESSING MACHINES

Filed Jan. 31, 1941 5 Sheets-Sheet 5

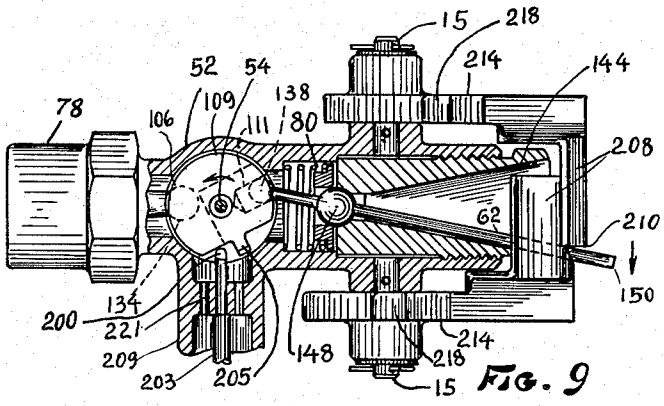


FIG. 9

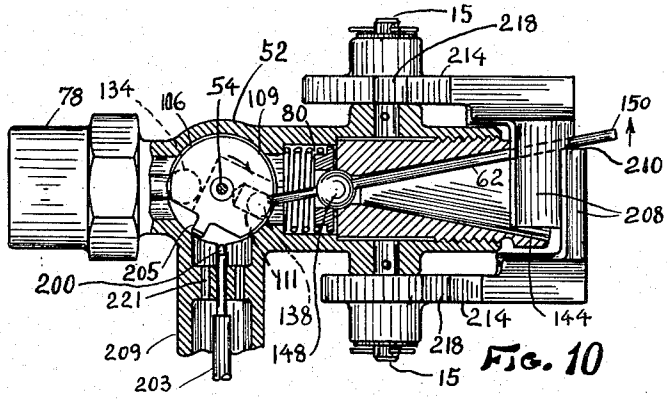


FIG. 10

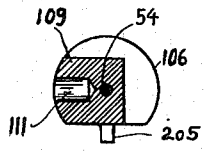


FIG. 11

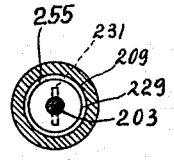


FIG. 12

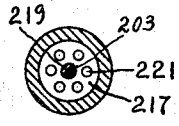


FIG. 13

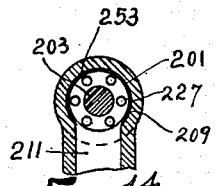


FIG. 14

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Patented Aug. 14, 1945 2,382,323

UNITED STATES PATENT OFFICE

2,382,323

LATCH CONTROL FOR PRESSING MACHINES

Frank C. Lornitzo, Pawtucket, R. I., assignor to Pantex Pressing Machine, Inc., Central Falls, R. I., a corporation of Delaware

Application January 31, 1941, Serial No. 376,860

16 Claims. (Cl. 121—38)

My invention relates to improvements in safety controls for pressing machines, preferably to pressing machines adapted for use in pressing garments and having fluid pressure actuated operating means, although certain features thereof and subcombinations thereof may be readily adapted for other uses. In certain aspects of my invention, it covers improvements on the inventions disclosed in my co-pending application for Safety control for pressing machines, Ser. No. 364,287, filed October 28, 1940, and in certain other features of my invention it covers improvements on the inventions disclosed in my co-pending applications for Control for pressing machines, Ser. No. 376,286, filed January 28, 1941, and Flow control for pressing machines, Ser. No. 377,018, filed February 1, 1941.

An object of my invention is to provide a safety control for a pressing machine wherein both hands of the operator are occupied until the pressing members have been brought into pressing juxtaposition and in which a separate handle is provided for each hand movable for actuating purposes in a single direction only and preferably also so constructed that in case one of the hands should slip off, movement of one handle alone will automatically cause the device to separate the pressing members so that there is no possibility of accident to the other hand. In my preferred embodiment each handle is actuated in the same direction to close the pressing machine, the actuation of one handle only in the same direction being operable to open the pressing machine to separate the pressing members so that there can be no possibility of accident.

A further object of my invention is to further insure the safety of the operator's hands by providing a latch which will not only not latch to keep both hands occupied until both manual means are each moved to an actuating postion, but also one which will not take effect until they are then conjointly released, thereby keeping the operator's hands occupied until a definite mental step is necessary to effect the actuation of the latch.

A main feature of the present invention is that I substitute for the latch shown in said application Safety control for pressing machines, aforesaid, a latch controlled in its action by the flow of fluid itself in the feed line to the fluid motor, which latch is preferably constructed by modifications of, and additions to the master valve shown in said application. The pressing members are usually brought together with a quick motion involving a rapid flow of fluid through the feed line, and when they approach a pressing position in contact with each other, it is obvious that a diminution of flow occurs in the feed line, and I preferably so construct my improved latch that it will automatically latch on a diminished flow of actuating fluid in the feed line, thereby permitting the release of the operating handles during the application of ironing pressure, whether it be an increased pressure or a sustained pressure, an increased pressure being provided by a leakage around the actuating means for the latch, as shown.

A further object of my invention is to eliminate the necessity of providing supplemental means such as an external cam or modified linkage to provide an increased ironing pressure, the flow system in my invention being constructed to provide all the necessary increased ironing pressure by the flow of fluid alone.

Further features of my invention relate to improvements in the control means for controlling the flow of fluid to the fluid motor for bringing the pressing members into pressing juxtaposition.

These features specifically relate to modifications of the broad principles shown in my co-pending application for patent for Control for pressing machines, Ser. No. 376,286, filed January 28, 1941, which employs a flow control member specifically in the specific embodiment shown in said application, a valve closure automatically actuated by the flow of fluid to one of its flow controlling positions. In place of the valve itself movable by the flow as shown in said application, I employ as such a flow control member, an actuator for controlling other mechanism, such as another valve or a latch, automatically movable by the flow to one of its positions, and if desired, automatically returnable by suitable resilient or other means to its other position with the flow functioning against said automatic returning means. If, however, my device be constructed to permit a backflow, the specific control member may be automatically returned to its other position by the backflow, and thus be moved to one position by the flow and to its other position by the backflow. If desired, as shown in the instant application, two flow control members may be employed in association with each other, namely a piston movable to one of its flow control positions by the flow, but having vent means therein and a relief or check valve also controlled by the flow for respectively closing or opening said vent means. While I have shown in said prior

application a valve stem as part of the handle to move the valve, in the embodiments shown in this application I preferably integrally attach said stem as a piston rod to said piston and make it capable of controlling other mechanism, and in the embodiments shown in this application, maintain said piston within the flow line.

Another feature of the present invention is that I may also employ, as shown in said application for Control for pressing machines, manually controlled priming means remote from the flow control member to initiate a flow of fluid in the flow line to automatically move said flow control member to its desired position. In this instance, the manually controlled priming means comprises the usual handles described in my application Safety control for pressing machines, operative to control the flow through the medium of the inlet and exhaust valves to control the movable flow control member, namely the piston actuating the latch at a distance therefrom in the flow line, and to also control the movable flow control member in the quick acting flush valve also at a distance therefrom in the flow line.

A further feature of the present invention is that I preferably incorporate the flow actuated latch as a part of the master valve.

A further feature of my invention resides in the fact that both the inlet and exhaust valves of the master valve and the inlet and the exhaust portions of the quick acting flush valve are self-closing so that in order to cause actuation of all of said valves simultaneously to actuate the fluid motor to bring the pressing members into pressing juxtaposition, or to evacuate said fluid motor to separate said pressing members, a single movement of the movable control member in a single direction only is necessary, in the embodiment shown, the movable control member and the various valves being self-movable to positions evacuating the fluid motor when the movable control member is no longer restrained or moved to a position actuating the fluid motor to bring said pressing members into pressing juxtaposition.

Another feature of my invention is to provide a quick acting latch which will move sharply into a latching position. It is obvious that the instant actuation of a flow actuated latch is highly desirable in the event the addition of a timing mechanism to the pressing machine is desired.

Further features of my invention relate to improvements in the detailed construction of the handle operated actuating means, the specific construction of the master valve to embody the latch therein and the specific construction of the various parts of my invention to make them practical for use in a specific type of fluid motor actuating means for bringing the pressing members of a garment pressing machine into pressing juxtaposition and later applying a greater ironing pressure.

A further feature of my invention is to provide a latch which will be jam proof without danger of breaking the various parts thereof.

Further features of my invention relate to the specific construction of the various valves which make the feed line for the fluid motor substantially leak proof, particularly the specific construction of the leak proof master valve.

Further features of my invention relate to improvements in the specific construction of the valves and flow control members, over the flow control members shown in said application for Control for pressing machines, and otherwise.

These and such other objects of my invention as may hereinafter appear will be best understood from a description of the accompanying drawings which illustrate an embodiment thereof applied to a garment pressing machine.

In the drawings, Fig. 1 is a diagrammatic view with the various valve portions or means to control the fluid motor in a static position maintaining the pressing members in open position and illustrating a side elevation of a garment pressing machine showing the feed line at right angles thereto with the quick acting flush valve in section and the master valve modified to include the latch in perspective, partially broken away to show portions thereof in section, and the actuating handles therefor in elevation at right angles to said pressing machine, the parts being so distorted as to illustrate diagrammatically the operation of the device.

Fig. 2 is a view similar to Fig. 1 after both of the handles have been jointly actuated to move the control member into a position actuating the fluid motor to bring the pressing members into pressing juxtaposition, and showing the latching bolt moved by the flow free from contact with the keeper finger.

Fig. 3 is a view similar to Fig. 1 after the spring has functioned to move the latching bolt into engagement with the keeper finger on diminution of flow in the feed line after the pressing members have been brought into pressing juxtaposition to latch the parts in the position shown in Fig. 2. after release of the handles to permit further actuation of the fluid motor to apply the ironing pressure with the handles released if desired during the application of the ironing pressure.

Fig. 4 is a view similar to Fig. 1 illustrating the actuation of a single handle to release the control member from the latching bolt to permit the quick acting flush valve to quickly evacuate the fluid motor to separate the pressing members.

Fig. 5 is a vertical sectional view taken along the plane 5—5 of Fig. 1.

Fig. 6 is a vertical sectional view taken along the plane 6—6 of Fig. 2.

Fig. 7 is a vertical sectional view taken along the plane 7—7 of Fig. 3.

Fig. 8 is a vertical sectional view taken along the plane 8—8 of Fig. 4.

Fig. 9 is a horizontal sectional view taken along the line 9—9 of Fig. 5, but with one handle only depressed.

Fig. 10 is a horizontal sectional view taken along the line 10—10 of Fig. 6, but with the opposite handle only depressed.

Fig. 11 is a sectional view taken along the line 11—11 of Fig. 5.

Fig. 12 is a sectional view taken along the line 12—12 of Fig. 5.

Fig. 13 is a sectional view taken along the line 13—13 of Fig. 5.

Fig. 14 is a sectional view taken along the line 14—14 of Fig. 5.

In the drawings, wherein like characters of reference generally indicate like parts throughout, I have shown my invention applied to a standard type of garment pressing machine 20. In General, the various parts of my device are similar to those shown in Figs. 1–4 of my copending application for Safety control for press-

ing machines, showing a modification of the quick acting flush valve shown therein, and a flow controlled latch in place of the gravity actuated latch shown in said application. Said pressing machine includes the relatively movable pressing members 22 and 24, in the embodiment shown, comprising the usual stationary buck 22 monted on the pressing machine above the usual table 26 and the movable pressing head 24 pivotally mounted on the machine frame 28 as at 30, in the embodiment shown, being mounted on the end of the power arm 34 of a lever of the first class 32 having a weight arm 36 extending rearwardly therefrom, weighted to normally pivot the pressing head 24 to an open position.

Suitable means are provided for moving the movable pressing head 24 into pressing juxtaposition with the buck 22, including a fluid motor 38 and means controlled by the fluid motor 38 for moving said lever 32 for this purpose, in the preferred embodiment shown, comprising the specifically constructed linkage 40. Means are provided for controlling the flow of fluid to said fluid motor 38, including a feed line 42 for said fluid motor, an inlet valve 44 in said feed line and an exhaust valve 46 in said feed line and means to effect opening of said inlet valve 44 and closing of said exhaust valve 46 substantially simultaneously to actuate said fluid motor 38 to pivot said pressing head 24 into pressing juxtaposition over the buck 22 and alternatively to close said inlet valve 44 and open said exhaust valve 46 substantially simultaneously to evacuate said fluid motor 38 to permit said weight arm 36 to pivot said pressing head 24 away from said buck. In order to quickly evacuate the fluid motor to permit rapid movement of the pressing head 24 away from the pressing buck 22 I also interpose in said feed line, preferably adjacent said fluid motor a quick acting flush valve 48 and where said quick acting flush valve is employed, the exhaust valve 46 becomes a trigger exhaust valve to cause a drop of pressure in said feed line 42 beyond said trigger exhaust valve 46 to cause the actuation of the flush valve 48 by the backflow in the automatic manner to be explained. If desired, however, the quick acting flush valve 48 may be dispensed with, but if it be employed, a trigger exhaust valve 46 in the feed line is necessary to initiate the actuation of the quick acting flush valve 48 in the manner to be explained. Where a plurality of pressing units 20 are actuated by a single source of fluid supply, I also preferably employ in the feed line 42, a check valve 50 to prevent actuation of one unit from affecting the actuation of the other pressing units 20 in the system. While I have shown my invention applied to a garment pressing machine, it may be employed in any type of a pressing machine, such as a metal stamping machine, or a plastic molding machine.

A further feature of my invention, which is particularly desirable in pressing machines, is that of locating the bleeding trigger exhaust valve 46, the inlet valve 44, and the check valve 50, where employed, in a master control valve 52, the movement of all three of these valves being controlled by the movement of a single control member 54. In the embodiment shown, the inlet valve 44 is of a self-closing type, the check valve 50 is of a self-closing type and the bleeding trigger exhaust valve 46 is of a self-closing type with the self-closing check valve 50, the self-closing inlet valve 44 and the self-closing bleeding trigger exhaust valve 46 being so arranged in the master valve 52 that a single movement of the control member 54 in one direction is all that is necessary to respectively open the inlet valve 44, open the check valve 50 and permit self-closing of the trigger exhaust valve 46, the control member 54 being normally spring urged to a position opening the exhaust valve 46 and permitting self-closing of said inlet valve 44 and check valve 50. The master valve 52 is thus so constructed that a single movement of the control member 54 away from its self-closing position will function to open the inlet valve 44, open the check valve 50 and permit self-closing of the bleeding trigger exhaust valve 46. As explained, the quick acting flush valve 48 is automatically self-opening when a drop in pressure occurs in the feed line 42 due to opening of the bleeding trigger exhaust valve 46. One feature of my invention is that the master valve is substantially leak proof for the self-closing of the exhaust valve 46 takes place just prior to the actual opening of the inlet valve 44 and the self-closing of the inlet valve 44 takes place just prior to the opening of the exhaust valve 46.

In the preferred form of master control valve 52 shown, said valve is provided with a chamber 56, and the feed line 42 includes an inlet line 58 connecting said chamber 56 with the source of fluid pressure supply and an outlet line 60 connecting said chamber 56 with the fluid motor 38, or with the quick acting flush valve 48 where employed. The inlet valve 44 is provided at the inlet port of said chamber 56, the bleeding trigger exhaust valve 46 is also provided in said chamber 56 and the control member 54 also is movable from a closed position in said chamber 56 free of said inlet valve 44 and retaining said exhaust valve 46 in open position, to an open position opening said inlet valve 44 and permitting closing of said exhaust valve 46. Means such as the operating lever 62 operable from without said master control valve is provided to move said control member 54 to said open position and spring means 116 is provided to normally urge said control member 54 to a self-closing position when said operating lever 62 is free. As also stated, in the preferred embodiment shown, the inlet and check valves 44 and 50 are of a self-closing type, the bleeding trigger exhaust valve 46 is also of a self-closing type and the control member is normally urged to a closed position opening said exhaust valve and permitting self-closing of said inlet and check valves 44 and 50. It is thus obvious that said operating lever 62 can be moved to an open position from without said master valve 52 against the spring pressure normally retaining it and said control member 54 in closed position, moving said control member 54 to a position opening said inlet valve 44 and permitting self-closing of said exhaust valve 46 and that the means normally urging said control member to a closed position will automatically function when pressure is removed from said operating lever 62 to move said operating lever and control member back to a closed position opening the exhaust valve 46 and permitting self-closing of said inlet and check valves 44 and 50.

In the preferred embodiment shown, my preferred type of master control valve is preferably constructed as follows: Said valve includes a casing 64 having a chamber 56 divided into an inlet chamber 66 and an exhaust chamber 68. Said inlet chamber 66 has an inlet port 70 connected by the pipe 58 to the source of fluid pressure supply and a check valve seat 72 surrounding said

inlet port 70. The exhaust chamber 68 is connected to said fluid motor 38, or to said quick acting flush valve 48 by the pipe 60, as explained. The partition 74 extends between said inlet chamber 66 and said exhaust chamber 68 and is provided with suitable passage means 76 connecting said inlet and exhaust chamber 66 and 68. The exhaust chamber is provided with the exhaust valve branch 78 and the operating lever branch 80 projecting radially therefrom, in the embodiment shown, being in diametric alignment. The inlet valve 44 includes an inlet valve seat 82 in the lower end of said inlet chamber 66 around the upper end of said passage means 76. The check valve 50 includes a hollow cylindrical valve guide socket 84 having a side wall 86 slidably mounted in the cylindrical upper chamber 66 at a spaced distance from the wall 88 thereof by means of the annular flanges 90 rigidly mounted at spaced distances on said chamber wall and provided with the plurality of perforations 92 therein, as shown in more detail in said application. Said valve guide socket 84, in the embodiment shown, is provided with an upper end 94 forming the check valve 50 normally extending to said inlet port 70 and slidable to a closed position on said check valve seat 72 closing said inlet port 70. Said guide socket 84 is also provided with the open lower end 96 located immediately above said inlet valve seat 82. Spring means 98 comprising the helical spring 98 is contained within said socket 84. The inlet valve 44 comprises a suitable valve, in the embodiment shown, a ball valve normally urged to a seated position on said inlet valve seat by said seating spring means 98. Said seating spring means 98 also functions to normally move said socket 84 to seat its upper end 94, comprising the check valve 50 in a self-closing manner on its check valve seat 72. In the embodiment shown, said passage means 76 comprises a cylindrical bore 100 of substantial diameter at the upper end thereof and a plurality of passages 102 discharging radially outwardly and downwardly in the upper end of said lower exhaust chamber 68.

An inlet valve stem or control member 54 is provided for vertical reciprocation within said exhaust chamber 68. Said valve stem 54 has an upper end 104 adapted to abut said ball inlet valve 44 to raise it against the pressure of the spring 98 to unseat said ball inlet valve 44 to open said inlet valve. Said valve stem 54 is provided at a point intermediate the ends thereof with the flange means 106 projecting radially therefrom, in the preferred embodiment comprising a disk 106. The control member or inlet valve stem 54 is reciprocatably mounted in said exhaust chamber 68 with the upper end 104 extending through said passage bore 100 and into said inlet valve chamber 66 to unseat said ball inlet valve 44. Means are provided to vertically align said control member, or valve stem for vertical reciprocation within said exhaust chamber 68 and passage means 76, in the preferred embodiment, said means comprising a hollow stud 108 having a central bore 110 discharging into said passage bore 100 for containing the upper end of said control member or inlet valve stem 54 and projecting vertically downwardly from the upper end of said exhaust chamber 56 between the lower ends of said passages 102. Said aligning means also includes, in the embodiment shown, the bore 114 in the thick bottom wall of the casing 64 to receive the lower end of said inlet valve stem or control member 54. A helical spring 116 is provided in said lower exhaust chamber 68 abutting said disk 106 or flange means and the upper wall of said lower chamber between said radial passages 102 to normally urge said valve stem or control member 54 to closed position free of said inlet valve 44 to permit the normal self-closing or seating of said inlet valve 44 and said check valve 50 by said expansion seating spring means 98.

A self-seating exhaust valve 46 is provided in the exhaust valve branch 78 of said exhaust chamber 66. Said exhaust valve 46 includes a peripheral shoulder 118 projecting radially inwardly in the inner end of said exhaust branch 78 and an exhaust port 120 in the outer end of said exhaust branch 78 having an exhaust valve seat 122 at the inner end thereof. The exhaust valve proper 46 has a surface 124 seatable on said exhaust valve seat, in the preferred embodiment, comprising a partially spherical surface 124 comprising a ball surface to cooperate with said valve seat 122. In the embodiment shown, the exhaust valve 46 has an annular disk 126 perforated as at 127 projecting radially outwardly therefrom. An exhaust valve stem 132 projects inwardly from said valve 46 terminating in an inner end 134 preferably spherically enlarged, as shown, contacting the disk 106 of said inlet valve stem 54. Spring means, such as the helical spring 136 is provided in said exhaust branch 78 surrounding said valve stem 132 and having an inner end abutting said peripheral shoulder 118 and an outer end abutting said perforated exhaust valve disk 126 to normally urge said exhaust valve 46 to a seated position on its valve seat 122 with the outer edge of the disk substantially abutting the outer end of said exhaust branch 78 exterior of said exhaust port 120 when the enlarged inner rod end 134 is free of said inlet valve stem disk 106.

Said master valve also includes an operating lever 62 non-leakably universally pivotally mounted in the end wall 140 of said operating lever branch 80 having an inner end 138, preferably spherically enlarged, as shown, engaging said inlet valve stem disk 106. For this purpose, a port 142 is provided in the end wall 140 of said outlet branch having an outwardly diverging wall 144 and a partially spherical socket 146 in the inner end thereof. In the embodiment shown, the outwardly diverging portion 144 comprises a separate extension from the outer wall 140 of said operating lever branch 80. The control lever 62 has a spherical pivot enlargement 148 centrally thereof seated in said partially spherical socket 146 for universal movement of said control lever therein. The enlarged spherical inner end 138 of said control lever 62 contacts said valve stem disk 106. The outer end 150 of said operating lever thus projects outwardly through and beyond the outwardly diverging internal wall 144 of said outlet port 142 or extension 152, through and beyond the end of said port or extension 152 abutting the wall of said port or extension to limit the universal movement of the outer end 150 of said operating lever 62. To render the operating lever branch leakproof I preferably provide the inner end of said operating lever branch with a peripheral shoulder 151, and provide a washer 154 having a central hole 156 adapted to overlie the inner end of the spherical enlargement 148 and a sealing spring 153 interposed between said shoulder 151 and washer 154 to normally urge said washer outwardly to continuously abut and cover the

inner surface of said spherical lever pivot portion 148 to positively prevent leakage of air through said port 142 into said operating lever branch 80.

Any suitable type of means may be provided to operate said master control valve 52 by the depression of the outer end 150 of said operating lever 62. The exhaust valve branch 78 exterior of said exhaust port 120 may be provided with suitable sound deadening means 158, such as felt, or otherwise, to muffle the changes in the flow or air through said valve.

As stated hitherto, I preferably employ a quick acting flush valve 48 interposed in said feed line 42 beyond said trigger exhaust valve 46. The embodiment of the quick acting flush valve shown in this application is exactly similar to that shown in said application for Safety control for pressing machines, with the exception that it is inverted. This provides a normally closed flush valve instead of the normally open flush valve shown in said application, it being obvious that gravity aids to maintain it in its respective open or closed position in either embodiment. I have moreover alternatively illustrated it in inverted position to illustrate the fact that it may assume any desired position in use. Said flush valve includes a chamber 160 having an inlet port 162, an outlet port 164 and an exhaust port 166, an exhaust valve closure 168 to close said exhaust port 166 normally urged to closed position, an inlet valve 170 connected to said exhaust valve controlled by a drop of pressure from said inlet port 162 caused by bleeding of said trigger exhaust valve 46 to permit back flow from said fluid motor 38 to move said inlet valve 170 to rapidly close said inlet port 162 and open said connected exhaust valve 168 and a self-closing combination check and differential valve 172 in front of said exhaust valve 168 and in rear of said inlet valve 170 to prevent back pressure in said line 42 and effective on sustained pressure in said line to admit fluid flow through to said fluid motor 38.

In the preferred embodiment, said quick acting flush valve is preferably constructed as follows: The chamber 160 comprises a cylinder of uniform diameter throughout its height which may be an enlargement of the feed line, being no longer divided into separate portions connected by a passage means, as shown in said application. The chamber 160 has the inlet port 162 in the upper wall thereof connected to the exhaust chamber 68 of said master valve by the pipe portion 60 of said feed line 42. The chamber 160 has the outlet port 164 therein and the exhaust port 166 in the lower wall thereof in vertical alignment with the inlet port 162 in said upper wall. The outlet port 164 is connected to said fluid motor 38 by the pipe 180 forming part of the inlet or feed line 42. The exhaust port 166 is provided with the exhaust valve seat 182, extending around said exhaust port. The valve stem 184 is mounted for vertical reciprocation within said chamber 160 and projects vertically upwardly through said chamber 160. Said valve stem 184 is provided with the inlet valve 170 on the upper end thereof adjacent said inlet port 162 comprising, in the preferred embodiment shown, a disk valve or piston 170 of substantially the circular or other area of said chamber 160 adjacent said inlet port 162 having a plurality of vents 186 therein exterior of said inlet port 162 preferably arranged in annular formation exterior of said inlet port 162, as shown in said application, providing a solid central port 188 for sealing said inlet port 162 to provide an inlet valve. The exhaust valve 168 is mounted on the opposite lower end of said stem 184 in said chamber 160 and preferably comprises a spherical valve 168 adapted to seat on said valve seat 182 surrounding said exhaust port 166. In the embodiment shown, I provide a funnel 181 projecting downwardly from said chamber 160 surrounding said exhaust port 166. Said funnel 181 is provided with the screens 183 and 185 at the upper and lower ends thereof, between which is interposed a suitable sound deadening material 187. It is apparent that gravity will normally cause said exhaust valve closure 168, said connected valve 184 and said flush valve inlet valve closure 170 to normally drop to a position closing said exhaust valve and opening said inlet valve. It is apparent that fluid flow from said inlet line 42, on opening of said inlet valve 44, will force said flush valve inlet valve 170, said connected valve stem 184 and said connected exhaust valve 168 downwards to a position closing said exhaust port 166 and that said inlet valve 170, connected valve stem 184 and said connected exhaust valve 168 will be lifted by the back flow from said fluid motor on reduction of pressure in said feed line to open said exhaust port 166 and close said inlet port 162. I also provide a combination check and differential valve 172 in said chamber 160 preferably of flat annular formation and of a size to seal said vent means 186 in said inlet valve 170. I also provide spring means 190 in said chamber 160 abutting said check valve 172 of a strength to normally urge said check valve 172 to a position sealing said vent means 186, namely, with said check valve 172 covering and closing said vent means 186, said spring means 190 being yieldable, however, to permit sustained pressure in said line to lower said check and differential valve 172 against the pressure of said spring 190 to permit fluid to flow through said vent means 186 around said spring 190 in said chamber 160 and out through said outlet port 164 and through said pipe 180 to actuate said fluid motor 38. Exhausting of pressure in said feed line 42 due to opening of said bleeding trigger exhaust valve 46 will inevitably permit raising of said inlet valve 170, valve stem 184 and connected exhaust valve 168 by the back flow to permit rapid evacuation of fluid from said fluid motor 38 through said pipe 180, outlet port 164, chamber 160 and exhaust port 166. In the embodiment shown the other end the spring abuts the upper surface of the ball exhaust valve 168. If desired, the entire flush valve may be inverted, as shown in said application.

As also stated hitherto, it is apparent that insofar as certain aspects of my invention are concerned, the quick acting flush valve 48 may be omitted if desired.

As stated hitherto, my invention also includes safety means, including a pair of handles 192 for actuating the fluid or other motor employed to bring the pressing members 22 and 24 into pressing juxtaposition. Features of my invention reside in the fact that the handles 192 are only effective on a single movement thereof in a single direction to affect the controlling means for the fluid motor and that they are operable to actuate the controlling means for the motor to bring said members 22 and 24 in pressing juxtaposition only when both of said handles 192 are moved together, movement of one of said handles 192 only being operable to affect said controlling means to separate said pressing members. It is thus obvious that during the dangerous period of relative

movement of said pressing members 22 and 24 to pressing juxtaposition, both of the operator's hands are employed on the respective handles 192 to cause such movement and that if anything should happen causing the removal of a hand from one of the handles, the device will automatically function to positively effect relative opening movement of said pressing members.

A further desirable feature of my preferred embodiment therefore is that each of the actuating means is moved in the same direction to release to safety position as to move the device to a pressing position, both of the handles, however, being required to effect movement of the machine to a pressing position. Insofar as this feature of my invention is concerned, it is apparent that any type of motor may be employed to move the members 22 and 24 to and from pressing positions. As stated hitherto, I preferably employ the fluid motor 38 for this purpose. As most types of pressing machines are provided with a table 26, I have found that an ideal place for the mounting of the handles is below the front end of said table where they will not catch upon the clothes or other material being operated on. The respective handles 192 are preferably provided of a relatively large area so that they may be accessible from various points along the front of the machine. If desired, guard means, such as the flange 194 projecting integrally downwardly from the front end of the table 26 may be provided to further protect the handles, as shown in said application. Any suitable type of handles, however, may be employed. As stated, one feature of my invention consists in the fact that movement of both handles in a single direction is required to actuate the controlling means to bring the pressing members into pressing juxtaposition, and while movement of one handle only is preferably employed to release said members from pressing juxtaposition, other types of means to release said members or to evacuate the fluid motor for this purpose, such as shown in my co-pending application for patent for Control for pressing machines, Ser. No. 376,286, filed January 28, 1941, may be employed. While any type of means may be employed to move the movable control member 54 to actuate the inlet valve 44 and the exhaust valve 46 and any type of means for controlling the motor or the flow of fluid to a fluid motor may be employed with my improved handles just described, best results may be obtained when my improved handle means are employed to regulate the inlet valve 44 and exhaust valve 46 through the movement of the movable control member 54 in association with the specific controlling means shown and to be described. In the embodiment shown, both the fluid flow controlling means and the handle means for controlling the movement of the movement control member 54 are particularly designed to cooperate with each other for use in a garment pressing machine and hence, in the preferred embodiment shown, the respective handles 192 are designed and constructed to actuate the movable control member 54 of the master valve 52 through the medium of the operating lever 62. When employed for this purpose, the respective inlet valve 44, check valve 50 and trigger exhaust valve 46 are preferably self-closing in the manner previously described, so that when both handles 192 are not actuated, the operating lever 62 will be immediately released to a safety position closing the inlet valve 44 and permitting opening of the outlet valve 46 permitting immediate separation of said pressing members 22 and 24.

Another feature of my improved combination is that I preferably provide in combination with the handles, or other manually operated means hitherto described, means preferably comprising flow actuated latch means 200 automatically controlled by the actuating means for bringing the pressing members 22 and 24 into pressing juxtaposition, substantially when said pressing members 22 and 24 have been brought into pressing juxtaposition, to permit said controlling means to continue to function to permit actuation of said fluid motor to apply ironing or other pressure without further actuation of said respective handles 192, freeing the hands for other uses on other machines, if desired, while the ironing pressure is being applied.

Any means may be provided to release the movable control member 62 to free it from said latch 200 to exhaust the fluid motor 38 to separate said pressing members.

If desired, means may be provided to bring said members 22 and 24 to a pressing juxtaposition with relatively light pressure and to automatically apply a greater predetermined ironing pressure to said pressing members after they have been brought into pressing juxtaposition. My invention is particularly applicable to a pressing machine employing this greater ironing pressure, for not only are both hands kept occupied during the dangerous period of bringing the members into pressing juxtaposition, but also said members are brought together with relatively light pressure during this dangerous period. To assist in achieving this result I preferably employ a modification of the linkage system shown in Patent No. 1,897,689 for Actuating mechanism for garment pressing machines and Patent No. 2,026,264 for Garment pressing machine, in association with the fluid motor 38, wherein one link 202 is pivotable on one fulcrum 204 to bring said members to pressing position with relatively light pressure and automatically pivotable after a predetermined amount of its movement on a different fulcrum 206 to apply a greater predetermined ironing pressure to said pressing members.

As stated hitherto, my invention includes a type of latch means controlled by the flow of fluid through the flow line to latch the inlet valve 44 open and the exhaust valve 46 closed when the pressing members 24 and 22 have been brought into pressing juxtaposition, in place of the gravity actuated latch means shown in said application. As stated, I believe it is new to provide a latch or locking means controlled by the flow of fluid through the feed line to function to retain the pressing members in pressing juxtaposition so that the operating handles 192 may be released during the application of ironing pressure, with the fluid motor functioning to maintain a sustained or an increased pressure of the pressing members during an ironing operation. I have realized that normally the pressing members are brought into a pressing juxtaposition with a rapid flow through the feed line, which rapid flow may cease altogether to provide a sustained pressure on the pressing members during the pressing operation, or may be diminished to permit an increased pressure on the members during the ironing operation, and in the design of the particular latch means shown, I have employed a latch means which functions on the diminution in rate of flow

through the feed line after the pressing members are brought into pressing juxtaposition, and I employ the words "diminished flow" to signify a lessened flow as shown in the embodiment shown herein or a total stoppage of flow. It is obvious that this diminution of flow will occur substantially at the instant that the pressing members 22 and 24 are brought into pressing juxtaposition, and the fulcrum of the link 202, where employed, has changed from 204 to 206, ceasing the application of relatively light pressure to said pressing members 22 and 24 through the fulcrum 204 and initiating the period of heavy ironing pressure to said members through the fulcrum 206. It is also obvious that at this instant a diminution of the flow occurs in the feed line, which I employ in the manner to be explained to control the operation of the latch and that the latch will then operate to supply a diminished flow of fluid to said fluid motor to exert a greater predetermined ironing pressure and permitting the release of the handles 192, the latch in this embodiment also functioning only when both of said handles 192 have been released together in similar fashion to the gravity actuated latch shown in said application. Since the device has been latched, it is then obvious that if one of the handles 192 be only moved, as shown in Fig. 4, it will function to knock the outer end 150 of the operating lever 62 laterally to free the control member 54 from the latch to permit self-closing of said inlet valve 44 and check valve 50 in the manner explained and immediate actuation of said trigger exhaust valve 46 and quick acting flush valve 48, where employed, to cause immediate relative separation of said pressing members 22 and 24. It is obvious that the effect of the leakage in flow to provide a greater ironing pressure and the effect of the link 202 to provide a greater ironing pressure are cumulative, and that either or both may be dispensed with, and a simpler linkage applying a more uniform pressure may be employed.

It is obvious that so far as the means preferably comprising latch means for holding the master valve or inlet valve open to actuate the fluid motor 38 is concerned, any type of control means for moving the outer end 150 of the operating lever 62 may be employed, but that greater safety can be effected if the pair of handles 192 hitherto described be employed, operable when both are moved to actuate the fluid motor to bring the pressing members into pressing juxtaposition and operable when one only is moved to evacuate the fluid motor to permit the separation of said pressing members. Inasmuch as all of these safety features are preferably employed together, I will now describe in detail the specific type of handles, specific type of linkage and the specific type of latching means preferably employed by me.

As stated hitherto, means are provided to depress the outer end 150 of said operating lever 62 to raise said inlet valve stem or control member 54 through the medium of the disk 106 against the pressure of the spring 116 to raise said inlet valve stem 54 to abut said inlet valve 44 to open the inlet valve to permit flow of fluid to the fluid motor 38 and to permit self-closing of said exhaust valve 46, to cause said fluid motor 38 and linkage 40 where employed, to relatively move said pressing members 22 and 24 to said closed pressing position. Said means includes a pair of cams 208 having upwardly tapered inner edges 210 forming, when in raised position, a crotch 212 between them in which the outer end 150 of the operating lever 62 is adapted to lie with the overlapping inner cam ends normally overlying said outer end 150 when it is in its raised position. Said cams are each mounted on respective arms 214 projecting forwardly from and pivotally mounted on the master control valve 52 as at 15. If desired, as in the embodiment shown, stop means such as the shelf 17 may be provided to limit the downward movement of said cams 208. The pair of control handles 192 is provided, each extending underneath the front end of the table 26 and each connected to a pivotally mounted cam arm 214 by an arm 216 having the lower end thereof engaged within a suitable groove 218 in said cam arm 214. With this construction, it is obvious that when both said handles 192 are raised, said cams 208 are conjointly lowered to depress the outer end 150 of the lever 62 in the crotch 212 between them to move said control member 54 to open the inlet valve 44 and permit self-closing of said exhaust valve 46 to cause flow of fluid to said fluid motor 38 to relatively move said pressing members to closed position. It is also obvious that when either handle 192 is raised alone, no crotch 212 will be provided to become effective to lower the outer end 150 of the operating lever, but that the operating lever end 150 will be merely pivoted sidewise so that the spring 116 may function to maintain or move the control member 54 and operating lever in or to a closed position closing the inlet valve and opening the exhaust valve to evacuate the fluid motor 38 to permit the weight arm 36 to raise the pressing head 24 to open position (Figs. 9 and 10).

As stated hitherto, I also provide the latch means 200 effective to latch the control member 54 in a raised open position maintaining the inlet valve 44 open and the exhaust valve 46 closed to continue to apply fluid pressure to the fluid motor 38 as shown in Fig. 3 to apply the ironing pressure.

As stated heretofore, in place of the mechanically operated latch shown in said prior application, I preferably employ latch means controlled by the flow through said feed line, in my preferred embodiment controlled by a diminution of flow through said feed line as said pressing members 22 and 24 are brought into pressing juxtaposition, effective on release of said handles 192 to latch said movable control member 54 in a raised open position, opening the inlet valve 44 and permitting self-closing of the outlet valve 46. In the preferred embodiment shown, I have constructed said latch means to employ the principles shown in my said application Control for pressing machines, and I employ a sliding latch bolt 203 controlled in its action in accordance with said principles, and in a similar manner to the control of the valve stem 184 for controlling the inlet and exhaust valves 170 and 168 in my quick acting flush valve 48 in the manner hitherto described, employing an enlarged piston 201 in said flow line having a piston rod 203 forming a slidable bolt latch member and having its free end functioning to cooperate with a keeper finger 205 projecting from the disk 106 in the manner to be explained. In the preferred embodiment, said latch bolt 203 for said movable control member 54 is normally biased to a latching position by a suitable spring 207 and is moved by the flow of fluid through said line to an unlatching position, the tension of the spring being

such that it is enabled to move the slidable bolt member 203 to a latching position in engagement with said keeper finger 205 only on a diminution in the rate of flow through said feed line after said members have been brought into pressing juxtaposition.

It is obvious that my invention also includes a plurality of valve means 44 and 46 and manual means for actuating said plurality of valve means to permit flow of fluid through said feed line to said fluid motor and to exhaust fluid from said fluid motor, and a slidable latch bolt 203 controlled by the flow of fluid in said feed line to permit the flow of fluid to affect at least one of said valve means to retain said fluid motor in actuating position during the application of the ironing pressure, after release of said manual means.

In my preferred embodiment I preferably modify the master valve shown in said prior application Safety control for pressing machines, and hitherto described, to provide said latch means. For this purpose I preferably cut off a portion of said disk 106 intermediate the enlarged inner end 134 of said exhaust valve stem 132 and the enlarged inner end 138 of said operating lever 62, and I provide the keeper finger 205 projecting radially outwardly in said cutout portion. I also thicken a portion of said disk 106 normally adjacent said enlarged portion 138 of the operating lever to provide a cylindrical portion 109 projecting integrally downwardly therefrom having a cylindrical socket 111 therein to receive the enlarged portion 138 of said operating lever 62 therein. It is obvious that with this construction the movable control member 54 rigidly secured to said disk may be given a partially rotative as well as a vertical axial movement. The control member 54 is normally urged by the spring 116 to a closed lower axial position in said chamber, permitting self-closing of said inlet valve 44, and retaining said exhaust valve 46 in open position, and is movable axially by said operating lever 62 vertically upwards in said chamber to an open position opening said inlet valve 44 and permitting self-closing of said exhaust valve 46. It is obvious that the position of the keeper finger 205 will depend on the manner in which the outer end 150 of the operating lever is moved laterally by the cams 208. It is thus obvious that when in open position the spring 116 will force the outer end 150 of the operating lever to its highest vertical position centering the keeper finger 205 in a position at right angles to said exhaust valve stem 132 and operating lever 62. In the embodiment shown, I provide an outlet branch 209 in radial alignment with said keeper finger when in open position, that is at right angles to the diametric line formed by said operating branch 80 and said exhaust branch 78. Said outlet branch 209 of the outlet line is provided with an outlet port 211 substantially centrally thereof to which the outlet line 60 may be attached. The inner end of the latch bolt comprising the piston rod 203 is axially movable in said outlet line to and from positions underlying the keeper finger 205 when in raised position on depression of the outer end 150 of the operating lever 62. A flow controlled member or piston 201 is provided in said outlet branch 209 connected, in the embodiment shown, integrally to said latch bolt or piston rod 203 and is actuated by the flow of fluid through said outlet branch after initiation of axial movement of said movable control member 54 to open position to radially move said latch bolt 203 out of alignment with said keeper finger 205. Spring means 207 are provided in said outlet branch abutting the closed outer end 215 thereof, and said piston 201, to urge said latch bolt 203 to a latching position underlying said keeper finger 205 when it has been raised to open position caused by joint depression of said handles 192 and on release thereof to cause contact of the inner end of said latch bolt 203 with the lower surface of said keeper finger 205 after the pressing members 22 and 24 have been brought into pressing juxtaposition, causing a diminution of flow through said flow line, permitting said spring 207 to urge said inner end to such position (Fig 3). In the embodiment shown, the piston 201 is so mounted on the latch bolt or piston rod 203 relative to said outlet port 211 that on the rapid flow of fluid through said line it will permit the flow through the inner end of said outlet branch 209 and through said outlet port 211. The device functions on a diminution or stoppage of flow to permit the spring 207 to urge the latching bolt or piston rod 203 and connected piston 201 to a position shutting off said outlet port 211.

The piston 201 is preferably of a slightly smaller diameter than the diameter of the outlet branch 209 to permit a continued diminished flow of fluid in the channel 253 formed around the outer edge thereof for the application of an increased ironing pressure, although, if desired, it may be made substantially a close non-leakable fit in the event that sustained pressure only is desired on the pressing members during the application of ironing pressure.

In the embodiment shown, to align the inner end of the latching bolt 203 with the keeper finger 205 when in open position, I insert the perforated disk 217 in said feed line, having a central bore 219 for slidably receiving the inner end of the latch bolt therein to properly align it and the vent means 221 exterior of said central bore. If desired, the outer end of the latch bolt 203 may be provided with a vertical slit 223 to receive the aligning pin 225 therein projecting vertically diametrically of said outlet branch 209.

It is apparent that suitable means must be provided for bypassing a continuous back flow of fluid through said outlet line to said lower master valve chamber 68 for exhausting the fluid motor through its exhaust valve 46 when my improved flow actuated latch means is employed, particularly if the quick acting flush valve 48 is omitted. For this purpose I provide the piston 201 with suitable vent means 227, in the embodiment shown comprising the vents 227 aligned in annular formation axially through said piston 201 exterior of said latching bolt or piston rod 203 and a check valve 229 normally biased by the flow of fluid in said line, however small it may be, to a position closing said vent means 227, said check valve 229 being also automatically movable by the back flow of fluid in said line to a back flow permitting position opening said vent means 227 for exhausting said fluid motor through said exhaust valve 46, in the embodiment shown comprising an annular check valve 229 having a central hole therein for mounting on the piston or latching bolt 203 of a diameter slightly less than that of the internal diameter of the inner portion of said outlet branch 209 to permit the back flow of fluid in the annular passage 255 formed between the outer peripheral edge of said check valve and the inner peripheral edge of said

exhaust chamber to the chamber 68 of said master valve and out through the open exhaust valve 46 thereof. Suitable means such as the stop pin 231 projecting radially through a suitable diametric hole 233 in said piston or latching bolt is provided to limit the axial movement of said check valve 229 on said latching bolt caused by the back flow. It is apparent that the check valve 229 and vent means 227 provide means for bypassing the back flow of fluid around said piston 201 and latch bolt 203 to said master valve 52 to be exhausted through the exhaust valve 46 thereof when the control member 54 is moved to closed position.

It is also apparent that if a single cam 208 be depressed by raising one operating lever 192 only, it will function to knock the outer end 150 of the operating lever 62 laterally to cause the spherical inner end 138 thereof abutting the side wall of the socket 111 to rotate the disk 106 to move the keeper finger 205 out of alignment with the inner end of the latch bolt 203 to permit the spring 116 to lower the control member 54 to a closed position opening said exhaust valve 46 and permitting self-closing of said inlet valve 44 (Figs. 9 and 10).

I have shown in the drawings supplemental means to unlatch said latch bolt without the actuation of one of said handles 192 to exhaust said fluid motor, said means comprising a supplemental exhaust valve 235 connected to said outlet line 60 beyond said latch bolt 203 to permit flow of fluid through said outlet line to readily move said latch bolt 203 out of alignment with said keeper finger 205 to permit the spring actuation of said control member 54 to said closed position, opening the exhaust valve 46 and permitting self-closing of the inlet valve 44 to exhaust the fluid motor and also to initiate the functioning of the quick acting flush valve 48, where employed, to more quickly evacuate the motor. In the embodiment shown, said means comprises a valve body 241 connected by the pipe 243 to said outlet line 60, having one or more exhaust vent means 237 in the outer end thereof leading to a common exhaust port 239 in the outer end of said body 241. Said common exhaust port 239 is normally closed by a ball valve 245, normally urged outwardly in closed position against said port by the spring 247. A valve stem 249 is slidably mounted on the outer end of said body provided with the handle 251, adapted on depression of the handle 251 to unseat the ball valve 245 against the pressure of the spring 247 to permit exhaust of air out through said exhaust port 239 and exhaust vents 237 to permit a supplemental influx of air through said then open inlet valve 44 to move said check valve 229 to close said valve means 227 in said piston, and also move said piston 201 to move the inner end of the latching bolt 203 out of radial alignment with the keeper finger 205 to permit the spring 116 to urge the disk 106 downwards to an open position opening the exhaust valve 46 and permitting self-closing of the inlet valve 44 to exhaust the fluid motor, and also initiating the opening of the quick acting exhaust valve 48 in the manner described for the quick evacuation of the motor. It is apparent, however, that in place of the specific means controlled by the flow of fluid for latching the inlet valve 44 in open position and the outlet valve 46 in closed position, any other suitable type of means for this purpose, controlled by the flow, may be alternatively employed.

Employing the specific construction of the cams as shown, regardless of whatever type of actuating handle may be employed therefor, it is apparent that movement of either handle alone before or after latching will function to release the press, the depression of one handle alone prior to latching causing the end 150 of the operating lever 62 to ride up the single cam surface and the actuation of a single handle after latching, similarly functioning to permit the spring 116 to urge the outer end 150 of the operating lever 62 upwards, the respective cam surface in this instance also functioning to move said control member 54 laterally free of said latch bolt 203 to permit said spring 116 to force it downwards. It is obvious that the specific structure of the internal wall 144 of the exhaust branch port 142 permits and limits the necessary movements of the end 150 of the operating lever 62 for this purpose.

I have shown in Fig. 1 my device in a static position with the pressing members in relatively open position. In general, the functioning of my device with the flow actuated latch is similar to the functioning of the device described in my aforesaid application safety control for pressing machines. The static position of the latch bolt 203 is shown in Fig. 1 with the spring 207 urging said inner end of said latch bolt in a position overlying said keeper finger 205. When both operating handles 192 are moved, as shown in Fig. 2, the outer end 150 of the operating lever will be lowered by the cams 208 to raise the control member 54 to open the inlet valve 44 against the pressure of the springs 116 and 98 and raise the disk 106 free of the exhaust valve stem 132 to permit self-closing of said trigger exhaust valve 46. In order that the keeper finger 205 and connected disk 106 may be free to initially rise past the inner end of the latch bolt 203, the upper surface 260 of the outer end of the keeper finger 205 is made of inclined or arcuate formation as at 260 and the lower surface of the inner end of the latch bolt 203 is made of cooperating tapered or arcuate formation as at 262 so that as the disk 106, control member 54 and keeper finger 205 are initially raised upwardly the inclined surface 260 of the keeper finger 205 will abut the cooperatingly inclined surface 262 on the inner end of the latch bolt to temporarily urge the latch bolt outwardly against the pressure of the spring 217 until the keeper finger 205 passes the inner end of the latch bolt 203 in its upward course when the spring 217 will again push the latch bolt inwardly to the position shown in Figs. 4 and 8. Fluid will then flow out through said outlet branch 209, forcing said check valve 229 to close said vent means 227 in said piston 201, and urging the piston 201 outwards against the pressure of the spring 207 until it has gone beyond the outlet port 211, leaving a passage now open through the master valve 52 and pipe 60 to the flush valve 48, and the pressure in the inlet pipe 58 will further compress the spring 98 to permit the socket 84 to slide to open the check valve 50 to permit fluid to be passed to the flush valve 48 as indicated in Fig. 2 by the arrows. Fluid flowing through the inlet port 162 of the flush valve 48 will then flow against the inlet valve 170 and differential valve 172 to open it and maintain the connecting valve stem 184 and connected exhaust valve 168 in a position closing exhaust port 166. Sustained pressure through said inlet line will then lower the differential valve 172 free of the vent means 186 compressing the spring 190 for this purpose so

as to permit flow of fluid through the flush valve 48 out the outlet port 164 thereof and pipe 180 to the fluid motor 38 pivotally mounted on the pivot pin 244 on the front end of the machine frame 28. The fluid motor 38 comprises the cylinder 246 pivotally mounted as at 244 on said frame and the piston head 248 axially movable in said cylinder to actuate the piston rod 250 connected to the linkage 40. The flow of fluid to the fluid motor 38 will urge the piston rod 250 outwards, the link 202 functioning on its fulcrum 204 to move the pressing head 24 rapidly towards the buck with light pressure. When the pressing head is brought into pressing juxtaposition with the buck 22, on the consequent diminution of flow through said outlet branch 209 and outlet line 60, the spring 207 will function to urge the latch bolt 203 to a position underlying the keeper finger 205 which is then in its uppermost position and in vertical alignment therewith, so that on release of the handles 192, the spring 116 may force said keeper finger 205 vertically downwards to abut and contact the inner end of the latching bolt to retain the control member in raised open position to continuously maintain the inlet valve 44 in open position and the outlet valve 46 closed, fluid bleeding around the annular space 253 between the inner periphery of the outlet branch 209 and the outer periphery of the piston 201 to supply an increased ironing pressure to the pressing members, and to permit release of the handles 192 as shown in Fig. 3 with the inner end of said latching bolt 203 abutting said keeper finger 205 to retain the master valve 52 and flush valve 48 in a position permitting the ingress of supplemental fluid to said fluid motor 38 to urge the piston thereof to the position shown in Fig. 3, the link 202 pivoting on the point 206 as a fulcrum to apply the ironing pressure substantially at the instant that the flow is diminished. When the piston 248 has reached the outer end of its stroke in the cylinder, the differential valve 172 in the flush valve will then be raised by the spring 190 due to a substantial equalization of pressure in the cylinder 246 and inlet line 42, to cause said valve 172 to function as a check valve.

When it is desired to release the pressing members, one handle 192 may be raised, as shown in Fig. 4, to permit the cam surface 210 thereof to knock the outer end 150 of said operating lever 62 laterally to rotate the disk 106 and its keeper finger 205 out of alignment with the inner end of the latching bolt 203 to cause the spring 116 to lower the control member 54 to its closed position opening the exhaust valve 46 and permitting self-closing of the inlet valve 44 and raise the outer end 150 of said operating lever to its upper static position, the keeper finger 205 thereupon preferably vertically aligning itself with the inner end of the latching bolt 203, as shown in Fig. 4. As the valve stem or control member 54 is urged downwards, it is apparent that the disk 106 thereof will abut the exhaust valve stem 134 to tilt the exhaust valve to the open position shown and that the control member 54 will be lowered free of the inlet valve 44 so that the spring 98 will immediately function to close the inlet valve 44 and simultaneously close the check valve 50. With the exhaust valve 46 open, it is obvious that the fluid in the outlet line 60 between said exhaust valve 46 and flush valve 48 will tend to flow backwards therethrough, and the check valve 229 is of such a light weight that it may be readily moved to the position shown in Fig. 8 by said back flow against the stop pin 231, permitting the back flow of fluid through said vent means 227, and in the annular space 255 between the outer periphery of the check valve 229 and the inner periphery of said valve outlet branch 209 to lower the pressure in said outlet line in front of said exhaust valve 46 to permit the back flow from the fluid motor to raise the inlet valve 170 to a closed position, also raising the integral valve stem 184 and exhaust valve 168 to a position opening the exhaust port 166 of the quick acting flush valve 48 to rapidly exhaust the motor 38. As pressure in the master valve 52 is released by the trigger exhaust valve 46, pressure will fall in the pipe 60 in such a degree as to permit the spring 190 in the exhaust valve 48 to urge the differential valve 172 to close the inlet vent means 186 in said inlet valve 170 and said back flow of fluid will force the inlet valve 170, the connected valve stem 184 and exhaust valve 168 upwards to open the exhaust port 166 in the flush valve 48 permitting the rapid discharge of fluid from the cylinder 246 backwards through the connecting pipe 180 and out through the exhaust port 166 to permit the weighted lever arm 36 to lower the linkage 40 to move the piston 248 within the cylinder 246 to exhaust the fluid out of the fluid motor 38 and out said exhaust port 166.

It is thus apparent that I have provided a novel type of safety control for pressing or other machines, preferably one employing a fluid motor with the advantages described above, embodying a latch for latching pressing members in pressing position entirely controlled in its action by the flow through the feed line.

It is understood that my invention is not limited to the specific embodiment shown and that various deviations may be made therefrom without departing from the spirit and scope of the appended claims.

What I claim is:

1. In a pressing machine, relatively movable pressing members, actuating means to relatively move said pressing members to a pressing position and thereafter apply pressure, including a fluid motor, a feed line, means for controlling the flow of fluid through said feed line to said fluid motor, including a movable control member and manually actuated means for moving said movable control member to a position to admit fluid to said fluid motor to relatively move said pressing members to pressing juxtaposition, and latch means for said movable control member normally biased to a latching position movable by the flow of fluid through said line to an unlatching position.

2. The combination in a pressing machine comprising cooperating pressing elements, one movable toward and from the other, and motion transmitting mechanism for actuating the movable element, of power means for actuating said mechanism comprising a fluid operated motor, a feed line to said fluid motor and means for controlling the flow of motive fluid to and from the motor through said feed line, including a normally closed self-closing intake valve in said feed line, a normally open self-closing exhaust valve in said feed line, manual means for opening the intake valve and permitting the self-closing of said exhaust valve and latch means having at least a portion normally biased to a latching position movable by the flow of fluid through said feed line to an unlatching position and movable thereafter on a diminished flow to a latching position for holding said intake valve open and permitting con-

tinued self-closing of said exhaust valve after the actuation of the same has been effected by the manual means.

3. In a pressing machine, relatively movable pressing members, actuating means to relatively move said pressing members to a pressing position and thereafter apply pressure, including a fluid motor, a feed line, means for controlling the flow of fluid through said feed line to said fluid motor including a movable control member normally urged to a position exhausting said fluid motor, manual means for actuating said control member to permit flow of fluid through said feed line to said motor, and latch means automatically controlled by the flow of fluid in said feed line to latch said movable control member in a position actuating said fluid motor to apply said pressure after said pressing members are brought into pressing juxtaposition to permit release of said manual means during the application of said pressure.

4. In a pressing machine, relatively movable pressing members, actuating means including a fluid motor for bringing said members into pressing juxtaposition, means for controlling the flow of fluid to said fluid motor including a feed line for said fluid motor, a master control valve interposed in said feed line having a chamber, an inlet line connecting said chamber with the source of fluid pressure supply, an outlet line connecting said chamber with said fluid motor, a self-closing inlet valve at the inlet port of said chamber normally urged to a closed position, a normally self-closing exhaust valve in said chamber, a control member axially movable and rotatable in said chamber normally urged to a closed axial position in said chamber permitting self-closing of said inlet valve and retaining said exhaust valve in open position movable axially to an open position opening said inlet valve and permitting self-closing of said exhaust valve and having a keeper finger projecting radially therefrom, said outlet line projecting radially from said master valve in alignment with said keeper finger when in open position, a latch bolt axially movable in said outlet line, means normally urged by said control member to said closed position operable from without said master control valve to axially move said control member to said open position and to rotate said control member, means actuated by the flow of fluid in said outlet line on axial movement of said movable control member to open position for radially moving said latch bolt out of alignment with said keeper finger, means effective on the dimunition of flow in said line when said pressing members are brought into pressing juxtaposition to urge said latch bolt to a latching position underlying said keeper finger when in open position, said means operable from without said master control valve being also operable to rotate said keeper finger to a position free of said latch bolt to permit actuation of said control member to a closed position opening said exhaust valve and permitting self-closing of said inlet valve and a supplemental exhaust valve connected to said outlet line beyond said latch bolt to permit flow of fluid through said outlet line to radially move said latch bolt out of alignment with said keeper finger to permit actuation of said control member to said closed position.

5. In a pressing machine, relatively movable pressing members, actuating means including a fluid motor for bringing said members into pressing juxtaposition, means for controlling the flow of fluid to said fluid motor including a feed line for said fluid motor, a master control valve interposed in said feed line having a chamber, an inlet line connecting said chamber with the source of fluid pressure supply, an outlet line connecting said chamber with said fluid motor, a self-closing inlet valve at the inlet port of said chamber normally urged to a closed position, a normally self-closing exhaust valve in said chamber, a control member axially movable and rotatable in said chamber normally urged to a closed axial position in said chamber permitting self-closing of said inlet valve and retaining said exhaust valve in open position movable axially to an open position opening said inlet valve and permitting self-closing of said exhaust valve and having a keeper finger projecting radially therefrom, said outlet line projecting radially from said master valve in alignment with said keeper finger when in open position, a latch bolt axially movable in said outlet line, means normally urged by said control member to said closed position operable from without said master control valve to axially move said control member to said open position and to rotate said control member, means actuated by the flow of fluid in said outlet line on axial movement of said movable control member to open position for radially moving said latch bolt out of alignment with said keeper finger, and means effective on the dimunition of flow in said line when said pressing members are brought into pressing juxtaposition to urge said latch bolt to a latching position underlying said keeper finger when in open position, said means operable from without said master control valve being also operable to rotate said keeper finger to a position free of said latch bolt to permit actuation of said control member to a closed position opening said exhaust valve and permitting self-closing of said inlet valve.

6. In a pressing machine, relatively movable pressing members, actuating means including a fluid motor for bringing said members into pressing juxtaposition, means for controlling the flow of fluid to said fluid motor including a feed line for said fluid motor, a master control valve interposed in said feed line having a chamber, an inlet line connecting said chamber with the source of fluid pressure supply, an outlet line connecting said chamber with said fluid motor, a self-closing inlet valve at the inlet port of said chamber, a self-closing exhaust valve in said chamber, a control member axially movable and rotatable in said chamber normally urged to a closed axial position in said chamber permitting self-closing of said inlet valve and retaining said exhaust valve in open position movable axially to an open position opening said inlet valve and permitting self-closing of said exhaust valve and having a keeper finger projecting radially therefrom, said outlet line projecting radially from said master valve in alignment with said keeper finger when in open position, a latch bolt axially movable in said outlet line, means normally urged by said control member to said closed position operable from without said master control valve to axially move said control member to said open position and to rotate said control member, a piston in said outlet line actuated by the flow of fluid in said outlet line after axial movement of said movable control member to open position connected to said latch bolt to radially move said latch bolt out of alignment with said keeper finger and spring means in said outlet line effective on the diminution of the flow in said line when said

pressing members are brought into pressing juxtaposition to urge said latch bolt to a latching position underlying said keeper finger when in open position, said piston having vent means and a check valve normally biased by the flow of fluid in said line to a position closing said vent means automatically movable by the backflow of fluid in said line to a backflow permitting position opening said vent means for exhausting said fluid motor through said exhaust valve, said means operable from without said master control valve being also operable to rotate said keeper finger to a position free of said latch bolt to permit actuation of said control member to a closed position opening said exhaust valve and permitting self-closing of said inlet valve.

7. In a pressing machine, relatively movable pressing members, actuating means including a fluid motor for bringing said members into pressing juxtaposition, means for controlling the flow of fluid to said fluid motor including a feed line for said fluid motor, a master control valve interposed in said feed line having a chamber, an inlet line connecting said chamber with the source of fluid pressure supply, an outlet line connecting said chamber with said fluid motor, a self-closing inlet valve at the inlet port of said chamber, a self-closing exhaust valve in said chamber, a control member axially movable and rotatable in said chamber normally urged to a closed axial position in said chamber permitting self-closing of said inlet valve and retaining said exhaust valve in open position movable axially to an open position opening said inlet valve and permitting self-closing of said exhaust valve and having a keeper finger projecting radially therefrom, said outlet line projecting radially from said master valve in alignment with said keeper finger when in open position, a latch bolt axially movable in said outlet line, means normally urged by said control member to said closed position operable from without said master control valve to axially move said control member to said open position and to rotate said control member, a piston in said outlet line actuated by the flow of fluid in said outlet line after axial movement of said movable control member to open position connected to said latch bolt to radially move said latch bolt out of alignment with said keeper finger and spring means in said outlet line effective on the diminution of the flow in said line when said pressing members are brought into pressing juxtaposition to urge said latch bolt to a latching position underlying said keeper finger when in open position, and means for bypassing a continuous backflow of fluid through said outlet line for exhausting said fluid motor through said exhaust valve, said means operable from without said master control valve being also operable to rotate said keeper finger to a position free of said latch bolt to permit actuation of said control member to a closed position opening said exhaust valve and permitting self-closing of said inlet valve.

8. In a pressing machine, relatively movable pressing members, actuating means to relatively move said pressing members to a pressing position and thereafter apply pressure, including a fluid motor, a feed line to said fluid motor, an inlet valve in said feed line, an outlet valve in said feed line, latch means for retaining the inlet valve in open position and the exhaust valve in closed position, and means having at least a portion thereof movable in said flow line and actuated by the flow of fluid in said line when said members are brought into pressing juxtaposition for actuating said latch means into latching position during the application of pressure.

9. In a pressing machine, relatively movable pressing members, actuating means to relatively move said pressing members to a pressing position and thereafter apply pressure, including a fluid motor, a feed line to said fluid motor, an inlet valve in said feed line, an outlet valve in said feed line, latch means for latching the inlet valve in open position and the exhaust valve in closed position, and means having at least a portion thereof movable in said flow line on the diminution of the flow of fluid in said line when said members are brought into pressing juxtaposition for actuating said latch means into latching position during the application of pressure.

10. In a pressing machine, relatively movable pressing members, a fluid motor for bringing said members into pressing juxtaposition, means for controlling the flow of fluid to said fluid motor, including a feed line to said fluid motor, a self-closing inlet valve in said feed line, a self-closing exhaust valve in said feed line, a movable control member in said feed line movable from an open position opening said inlet valve and permitting self-closing of said exhaust valve to a closed position opening said exhaust valve and permitting self-closing of said inlet valve, manually actuated means for moving said movable control member to open and closed positions, latch means for latching said control member in closed position, means in said feed line normally biased to a latching position movable by the flow of fluid through said feed line to an unlatching position and movable thereafter on the diminution of the flow of fluid in said line when said members are brought into pressing juxtaposition to a latching position for actuating said latch means into latching position during the application of pressure and means for bypassing the backflow of fluid around said last mentioned means in said feed line to be exhausted through said exhaust valve when said control member is moved to an open position.

11. In a pressing machine, relatively movable pressing members, a fluid motor for bringing said members into pressing juxtaposition, means for controlling the flow of fluid to said fluid motor, including a feed line to said fluid motor, a self-closing inlet valve in said feed line, a self-closing exhaust valve in said feed line, a movable control member in said feed line movable from an open position opening said inlet valve and permitting self-closing of said exhaust valve to a closed position opening said exhaust valve and permitting self-closing of said inlet valve, manually actuated means for moving said movable control member to open and closed positions, latch means for latching said control member in open position, and means in said feed line releasable by the diminution of the rate of flow of fluid in said line when said members are brought into pressing juxtaposition for actuating said latch means into latching position during the application of pressure.

12. In a device of the class described, the combination of a press having a head and a buck, a fluid operated cylinder, a piston reciprocably mounted in said cylinder, a piston rod, means connecting said piston rod and said head, a valve, a control element for said valve and a pair of independently movable manually operated con-

trollers normally free of said control element arranged when both are moved to actuating position to abut said control element to actuate said valve to bring the head and buck together, and locking means for said control element having a portion movable in said flow line by the flow of fluid in said line that will operate only by the diminution of flow of fluid to said fluid motor after said head and buck have been brought into pressing juxtaposition to permit removal of the hands from said controllers during the application of ironing pressure.

13. In a garment pressing machine, relatively movable pressing members, actuating means to relatively move said pressing members to a pressing position and thereafter apply pressure, including a fluid motor, a feed line, means for controlling the flow of fluid through said feed line to said fluid motor, including a movable control member and manually actuated means for moving said movable control member to a position to admit fluid to said fluid motor to relatively move said pressing members to pressing juxtaposition, and latch means for said movable control member normally biased to a latching position movable by the flow of fluid through said line to an unlatching position and movable thereafter on a diminished flow to said latching position.

14. In a garment pressing machine, relatively movable pressing members, actuating means to relatively move said pressing members to a pressing position and thereafter apply pressure, including a fluid motor, a feed line, means for controlling the flow of fluid through said feed line to said fluid motor, including a movable control member and manually actuated means for moving said movable control member to a position to admit fluid to said fluid motor to relatively move said pressing members to pressing juxtaposition, and latch means for said movable control member normally biased to a latching position movable by the flow of fluid through said line and movable on a diminished flow to said latching position.

15. The combination in a pressing machine comprising cooperating pressing elements, one movable toward and from the other, and motion transmitting mechanism for actuating the movable element, of power means for actuating said mechanism comprising a fluid operated motor, a feed line to said fluid motor and means for controlling the flow of motive fluid to and from the motor through said feed line, including a normally closed self-closing intake valve in said feed line, a normally open self-closing exhaust valve in said feed line, manual means for opening the intake valve and permitting the self-closing of said exhaust valve and latch means having at least a portion normally biased to a latching position movable by the flow of fluid through said fluid line to an unlatching position.

16. The combination in a pressing machine comprising cooperating pressing elements, one movable toward and from the other, and motion transmitting mechanism for actuating the movable element, of power means for actuating said mechanism comprising a fluid operated motor, a feed line to said fluid motor and means for controlling the flow of motive fluid to and from the motor through said feed line, including a normally closed self-closing intake valve in said feed line, a normally open self-closing exhaust valve in said feed line, manual means for opening the intake valve and permitting the self-closing of said exhaust valve and latch means having at least a portion normally biased to a latching position movable by the flow of fluid through said feed line and movable on a diminished flow to a latching position for holding said intake valve open and permitting continued self-closing of said exhaust valve after the actuation of the same has been effected by the manual means.

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