Oct. 21, 1930. M. M. TITTERINGTON 1,779,151

POWER PRESS

Original Filed Dec. 1, 1923 3 Sheets-Sheet 1

Fig. 7.

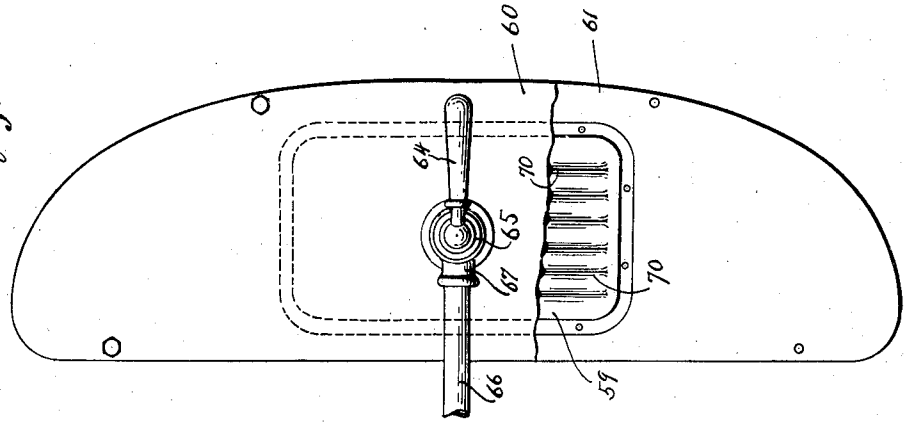
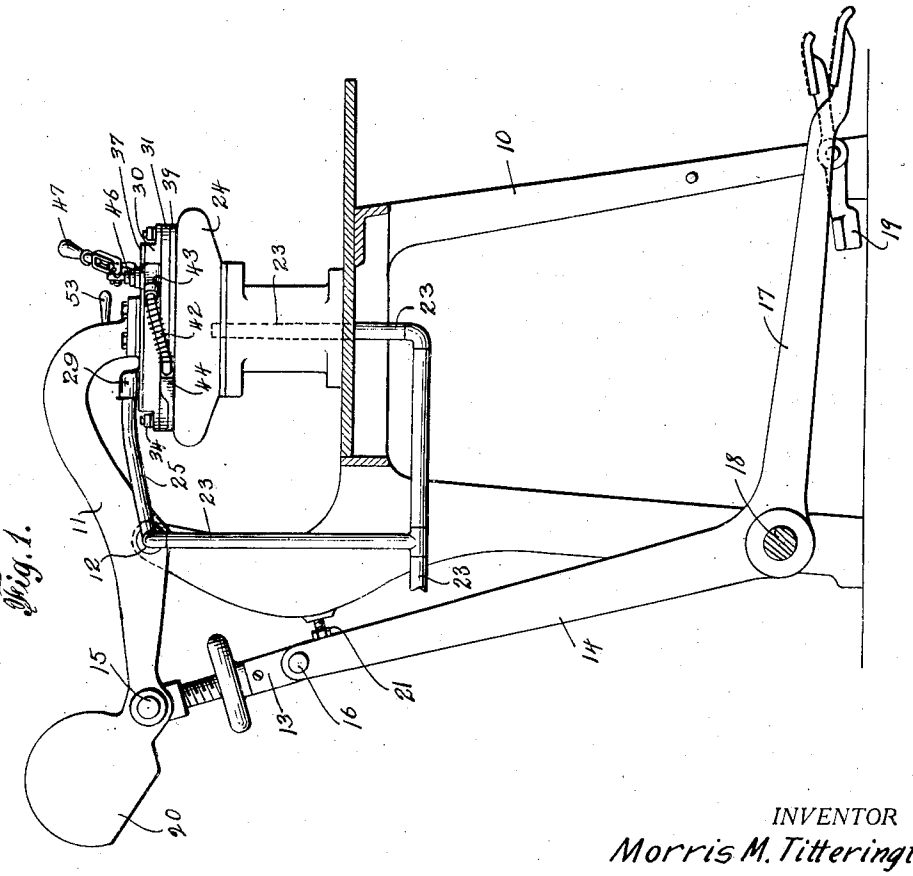


Fig. 1.



INVENTOR
Morris M. Titterington
BY
Bakewell & Gilbertson
ATTORNEYS

Oct. 21, 1930. M. M. TITTERINGTON 1,779,151

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Fig. 2.

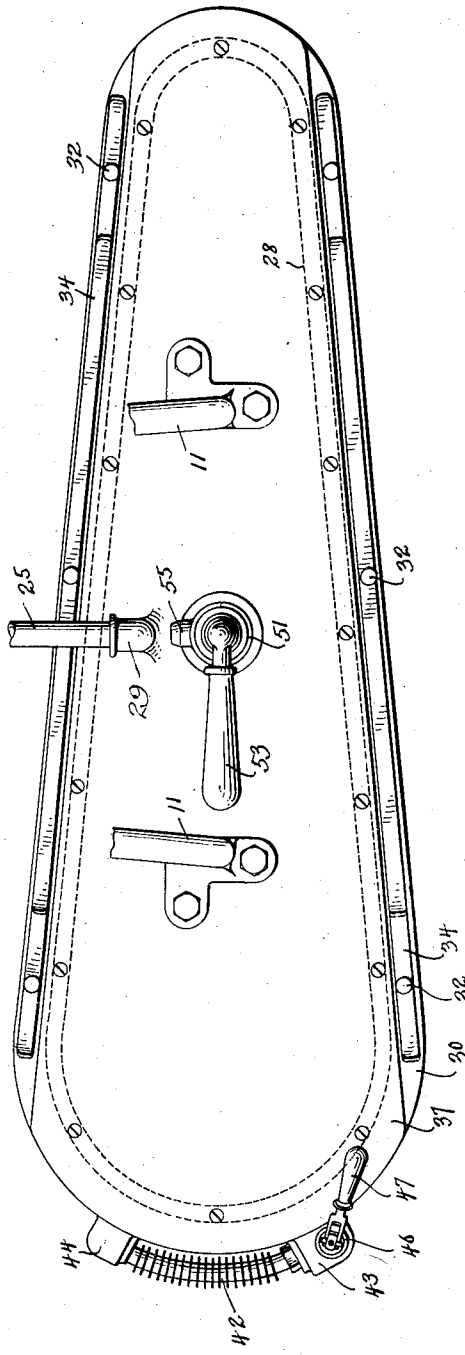
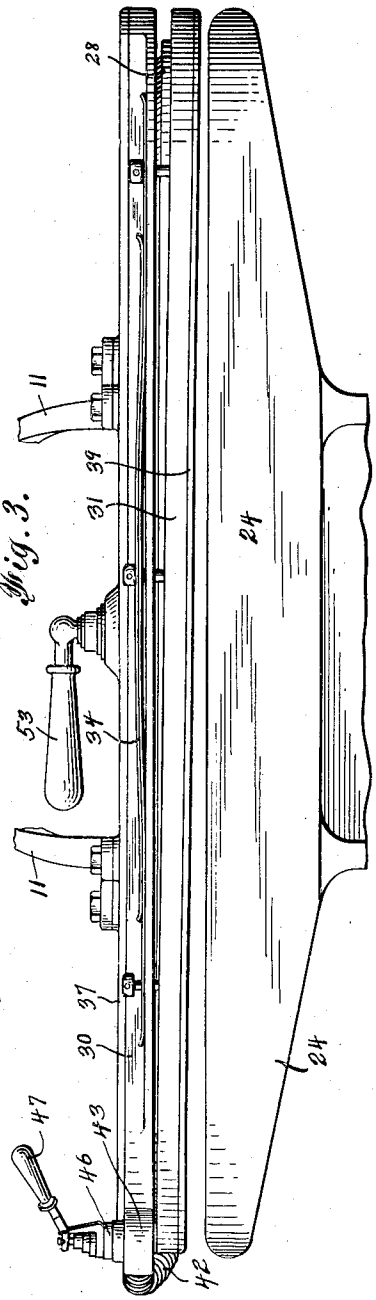


Fig. 3.



INVENTOR
Morris M. Titterington

BY
Goldsborough & Albetter
ATTORNEYS

Oct. 21, 1930. M. M. TITTERINGTON 1,779,151

POWER PRESS

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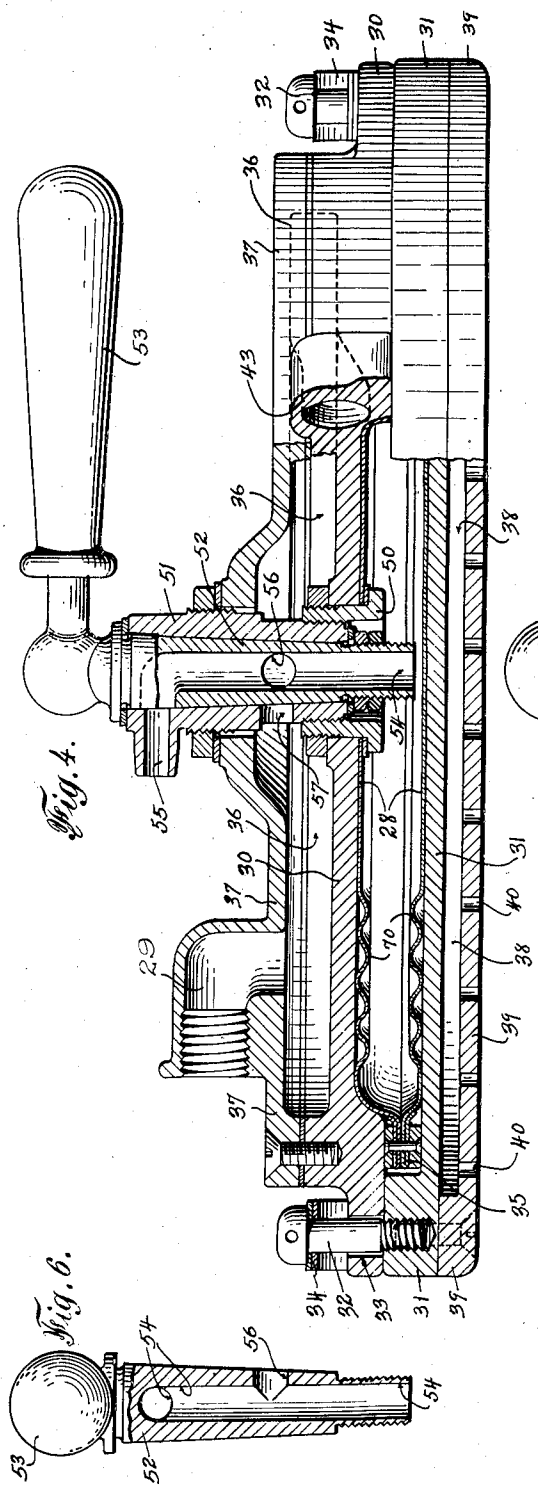


Fig. 4.

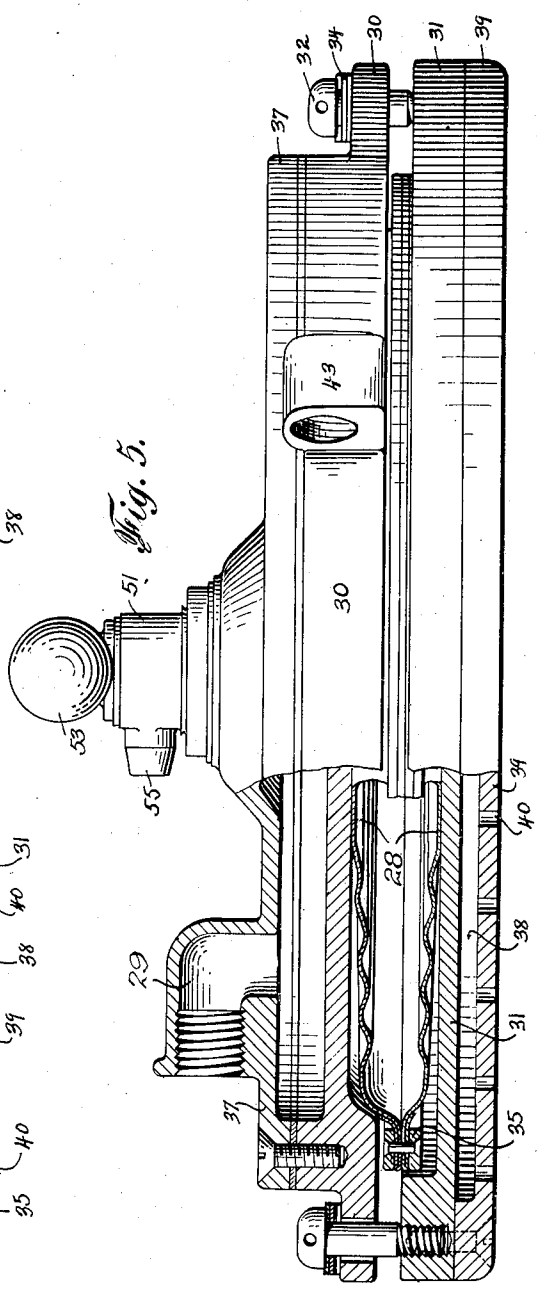


Fig. 5.

Fig. 6.

INVENTOR
Morris M. Titterington
BY
Dobkeber & Godbetter
ATTORNEYS

Patented Oct. 21, 1930 1,779,151

UNITED STATES PATENT OFFICE

MORRIS M. TITTERINGTON, OF BROOKLYN, NEW YORK, ASSIGNOR, BY MESNE ASSIGNMENTS, TO THE PROSPERITY COMPANY, INC., OF SYRACUSE, NEW YORK, A CORPORATION OF NEW YORK

POWER PRESS

Application filed December 1, 1923, Serial No. 677,928. Renewed August 14, 1929.

This invention relates to power pressing machines designed principally for all character of work requiring considerable pressure, such for example as pressing garments or other materials, and for laundry pressing work.

A primary object of the invention is to simplify the design and construction of high power pressing machines whereby heat and pressure is simultaneously applied to the work; and furthermore, an object of the invention is to construct a power pressing machine without resorting to the use of power developing devices such as electric motors, steam or air cylinders, cams, gears, or similar generating and transmission elements so commonly used to produce pressure and which elements are usually located remotely from the press jaws.

A further feature and object of the invention resides in the capacity of my improved press to generate pressure by utilizing power derived from fluid heating medium to operate a pressure creating means, that is to say I utilize a portion of the steam ordinarily used to heat the pressing members and thereby produce pressure by employing a medium of power which is already present and available in the pressing machine thereby saving the expense of providing special electrical transmission lines as employed by electric motor presses.

Another object of the invention is to produce improvements in the general combination as well as to produce novel pressing jaw members such as the head and buck possessing a new mode of operation.

A still further object is to produce new and improved cooperating press jaws or pressing members, either the head or buck or both, whereby the meeting pressing faces equalize upon, over, and across the work by virtue of an inherent ability to move about the longitudinal or transverse axis of the elongated head or buck member, which is to say that one or the other or both of the pressing faces of my improved head or buck may wobble, so to speak, over the garment or over the work thereby readily and effectively pressing work which is of uneven and variable thickness, for it is appreciated by those skilled in the art that various commodities to be pressed, such for example as heavy and light garments, may be thin at one end and thick at the other; and inasmuch as the working face of my pressing members are universally flexible and yieldable to uneven surfaces, it follows that the ability of the machine is largely increased to more rapidly turn out well pressed work.

Furthermore, with reference to the capacity of compensation, or the adjustability and adaptability thereof to uneven and irregular surfaces, the structural improvements herein described render it unnecessary to employ expensive construction in mounting the press head or buck on adjustment springs heretofore widely employed in pressing machines.

The accompanying drawings illustrate preferred embodiments of the invention serving to illustrate the principle of the invention and serving to illustrate in certain respects the structure thereof. It is to be appreciated that variation in design of parts and mode of operation thereof may be made without departing from the scope of my invention.

It is to be understood that my improved head or buck pressing member may be embodied in duplicate in a pressing machine whereby each member is constructed in accordance with the principle of this invention, but this is not strictly necessary for a pressing machine in reality requires only one pressing member embodying my invention. It is further understood that either the upper or lower pressing members, that is the head or buck, may be constructed in accordance with this invention, but for the purposes of the present application, a description of the head will herein be given.

Figure 1 shows a typical pressing machine in side elevation with the improvements of my invention mounted thereon in the form of a pressing head. The press is shown in closed position with a combined closing and locking mechanism to hold the head down during the high pressure operation.

Figure 2 shows a plan view of the pressing

member for example, the head as removed from the pressing machine.

Figure 3 shows a front elevation of the improved pressing head spaced slightly above the buck. In this view its characteristic ability to compensate, by wobbling relatively to the buck on the bias or obliquely thereto, is illustrated; and it is observed that one end of the press head is working closer to the buck than the other end thereof.

Figure 4 shows a partial cross section of the head with a portion thereof illustrated in elevation. The high pressure generating device, being a fluid actuated diaphragm, is normally unexpanded and is so shown in this view. This view shows how I combine a heating chamber and spray chamber with the high pressure head.

Figure 5 shows a view similar to Figure 4 except the high pressure diaphragm is shown expanded and forcing down the pressure plate.

Figure 6 is a longitudinal sectional view through a control valve which may be used in stopping and starting the action of the high pressure diaphragm element.

Figure 7 is a plan view of a head or buck pressing member of the same general character as heretofore mentioned except that it is of simplified structure provided with the small size rectangular or square diaphragm and made without a heating or spray chamber.

Referring now more in particularity to the drawings for a detail description of the invention, it is observed that a suitable form of pressing machine frame 10 carries a press lever 11 pivoted at 12; and a toggle comprising links 13 and 14, is pivoted at 15 on the rear end of the lever 11. The toggle links are pivoted together at 16, and the link 14 in fact constitutes one arm of a bell crank, the other element of which is designed as a pedal 17. The bell crank pedal 17 and lower toggle member 14 are pivoted on the frame at 18. A kick off pedal 19 is pivoted on the frame and adapted to thrust upwardly against the pedal 17 to break the toggle 13—14 rearwardly to swing the press lever 11 and lift the press head to produce a wide opening motion of the press. As a means of counter balancing the opening and closing mechanism, a weight 20 may be carried on the rear end of the press lever 11 for quickly opening the press after the kick off pedal 19 is actuated, and the weight serves to hasten the press opening operation after the toggle is broken. Furthermore, I provide a rest or toggle stop 21 on the frame against which the toggle rests after reaching an over straightened position thereby supporting the toggle against the compressional strain ensuing during the high pressure operation as will be explained. A description will now be given of the high pressure, or final pressure creating means.

This improved pressing machine embodies a diaphragm power generating element which operates under fluid pressure and the device draws, for example, steam under pressure from the steam supply pipe ordinarily utilized for heating one or more of the pressing members as well as for steam treating the work to be pressed.

A main supply pipe 23 conveys steam to one or both press jaws or pressing members for the purpose of heating and steam spraying the garment where such spaying operation is desirable. Certain types of pressing machines provide heating means only. On the other hand many pressing machines, as for example tailor presses, preferably have steam spraying chambers in addition to the steam heating chambers. My improvements are intended to be used in connection with all types of pressing machines including the two kinds named, and so the steam pipe 23 supplies fluid pressure for example steam to the buck or lower jaw 24 for heating said buck as well as supplying steam thereto for spraying a garment if desirable; and a branch pipe 25 working through the steam pivot joint at 12 supplies steam to the head. Thus, steam is supplied to both the jaws or head and buck for such purposes as desirable, that is for heating one or both of the members as well as for steam spraying the garment from one or both of the members. For the purposes of this application, a description will be given of the steam heating and spraying functions as embodied in the head for I have chosen the head to illustrate my invention; and a description will now be given of the said head as the improved high pressure developing pressing member.

The upper jaw or press head is made elongated in shape such as for example as outlined in Figure 2 or 7 or is made in some other shape depending on the particular exigencies of the case and depending somewhat on the character of the work to be done for it is to be appreciated that in garment pressing machines the pressing members are preferably elongated while for other characters of work the pressing members may be somewhat smaller in size and of various shapes.

Mating plate sections in the form of a head plate 30 and pressure plate 31 are placed together and adapted to undergo relative separating and retracting motions as shown in Figures 4 and 5; and suitable retentive guide means are employed to hold the parts together, as for example guide and retaining screws 32 are fastened to one member and move relatively through a loose bearing 33 in the other member. The screws 32 are shown anchored to the pressure plate 31 and slidable up and down through the head plate 30, thus forming a loose-motion connection between the press plate 39 and the swingable

jaw-carrying member 11. This feature affords a free rocking and equalizing pressing or ironing action of the press plate 39 on the work to iron uneven pieces of goods which may have seams or folds in them. Retracting means of appropriate form such as leaf springs 34 are placed under the screw heads with the outer ends thereof bearing on the head plate 30 thereby pulling upwardly on one or more of the screws to draw the head and pressure plate together. Thus it is appreciated that the ironing or press plate 31—39 may, if need be, undergo a rather irregular and equalizing ironing movement because one end thereof may move further away from the head plate than the other, or in a similar manner one longitudinal or lengthwise edge of the pressure plate may move further from the head plate 30 than the other edge thereof. In other words the pressure plate 31 in fact possesses a characteristic wobbling motion lengthwise or crosswise relatively to the head plate 30. This feature of my improved construction enables the pressing machine to adapt itself to uneven work for example, if work such as a garment of unequal thickness is placed on the buck 24 the pressure plate 31 delivers pressure uniformly to the work crosswise and lengthwise whereas a rigidly composed head would deliver more pressure to the thick garment parts than to the thin portions thereof.

The head and pressure plates are grooved out or provided with a marginal shoulder rib to provide in effect a hollow receptacle for the reception of a high pressure diaphragm 28. The diaphragm is composed of mating flexible diaphragm plates 28 secured together at the edges in any suitable manner to provide a fluid pressure or steam type expansible member 28 in order that said diaphragm may swell or expand when fluid pressure is discharged thereinto. In the present instance the margin of the diaphragm 28 is reinforced so as to provide a thoroughly strong and fluid tight pressure element; furthermore the joined marginal edge of the diaphragm plates 28 as shown at 35 is made relatively thick so as to form a shoulder abutment with one or both of the plates, to maintain the diaphragm in proper position between the plates to prevent it from possibly working out of place when the head plates 30 and 31 are forcibly spread apart as shown in Figure 5.

A heating chamber 36 is formed by fitting a plate 37 on to the head plate 30, thus providing the space or chamber 36 for the reception of steam or other heating medium. The plate is preferably provided with a pipe connection duct 29 by which the aforesaid pipe 25 is connected with the press head to supply steam to the chamber 36 for raising the temperature of the pressing member.

A steam spray chamber 38 is formed in the head, in this instance on the pressure plate, by fitting a foraminous plate 39 on to the plate 31 thereby providing the said space 38 which connects outwardly with the work through the perforations 40. Necessarily, means are provided for discharging a spraying medium such as live hot steam to the spray chamber 38 and for the purposes of illustrating this feature, I have shown a relatively movable flexible tube 42 connecting both chambers 36 and 38. For example a flexible tube or pipe connection duct 43 is cast integrally with the head plate 30 and connects with the hollow space 36 for the purpose of supplying steam from said heating chamber 36 outwardly through the tube 42 to the spray chamber 38; and similarly the foraminous spray plate 39 is cast with a duct 44 for connection with the flexible tube 42.

This structure enables the upper and lower head sections to relatively move one to the other, and at the same time steam may be fed from the heating chamber to the spray chamber.

A valve 46 opened and closed by a valve handle 47 is mounted over the upper chamber duct 43 to cut off the flow of steam to the spray chamber 38. The valve 47 is placed in a position convenient to the operator and by its use he may discharge live hot steam under pressure to the spray chamber 38 at any time thus treating the garment or other work with steam simultaneously with the application of heat and pressure if the condition of the work being treated so requires.

Manual control means are provided for supplying steam to the diaphragm and exhausting it therefrom for the purpose of starting and stopping the high pressure developing mechanism; and this may be a valve located on the press head convenient to the operator's hand. The plate 30 is ordinarily fitted with a flanged nipple 50 into which is threaded a valve housing 51 within which a core 52 is rotated by a handle 53. This valve is intended to supply steam under the control of the operator to the diaphragm 32 for the purpose of producing high pressure and for the purpose of discharging steam therefrom after the high pressure operation is complete. A steam passage 54 is made in the valve core 52 and connects at the top with the exhaust port 55 leading to atmosphere, or the exhaust port 55 is connected with a discharge pipe, not shown, to carry the steam away from the pressing machine. Similarly the steam passage 54 connects at the bottom thereof with the inside of the diaphragm 28. Also the passage 54 has a port 56 which registers with a valve housing passage 57 and thus connects the chamber 36 with the diaphragm chamber 28.

One setting of the valve handle 53 closes off the exhaust port 55 and connects the valve

port 56 with the steam chamber 36 and diaphragm 28 thus feeding steam from the pipe 25 and chamber 36 directly to the diaphragm which causes the same to expand thereby moving downwardly the lower head section 31—39 with great force upon the work supported by the buck 24. The valve handle 53 is left in this position as long as it is desired to continue the high pressure operation, whereupon the valve is turned to the next operative position which closes off the passage 57 and connects the diaphragm 28 with the discharge port 55 whereupon the internal pressure within the diaphragm is released permitting the retracting springs 34 to pull the head section 31—39 back to its original non-pressing position.

It is observed how, for the convenience and rapidity of manipulation by the operator, the steam control handles 53 and 47 are placed on the head of the pressing machine thus giving the operator complete control of the high pressure mechanism as well as the garment steam spraying facilities.

In Figure 7 there is illustrated a relatively small fluid pressure diaphragm 59 disposed between a head plate 60 and movable plate 61. The pressing member 60—61 is, as heretofore explained, composed of two separable plates 60 and 61 with the diaphragm 59 interposed thereinbetween, and may or may not incorporate steam heating and spraying chambers as the case may be. A valve handle 64 is adapted to operate a valve 65 which connects with a steam supply pipe 66. The pipe 66 is connected with a duct 67 forming part of the valve casing and is adapted to supply steam through the valve to the diaphragm 59, as well as exhaust the steam therefrom.

Having described in a general way the organization of the pressing machine opening and closing mechanism, as well as having described my invention as combined therewith, it is now important to note that the toggle 13—14 constitutes a locking mechanism which braces against the press lever 11 when the high pressure plate 31 or 61 jams down with great force upon the buck 24; and thus the pedal mechanism which opens and closes the press steadfastly holds the head and buck in close relation during the high pressure operation.

Having completed the pressing operation, the operator exhausts the steam from the diaphragm 28 by bringing the valve handle 53 to that position shown in Figure 4 whereupon the high pressure is released thus enabling the operator to kick down on the front end of the short pedal 19 to lift the pedal 17 and break the toggle rearwardly, thus opening the press.

The arrangement of the press closing and opening toggle 13—14 is such that a wide opening movement is secured with a relatively short pedal stroke; and it is observed that light initial pressure may be obtained if desired by closing the press down onto the work, while heavy and final pressure is obtained by substantially bringing the diaphragm into operation.

In order to derive the best operating results from the diaphragms such as are employed in Figures 1 and 7, I corrugate the flexible sheet metal plates, as at 70, which increases the expansibility of the devices so they may rapidly swell and contract under the pressure of the steam flowing into the diaphragm chamber and exhausting therefrom.

It is to be appreciated that super-pressure is derived from a press of this construction for the reason that the diaphragms have substantially a large working surface against which the steam expands. While in Figure 1, I have shown a diaphragm nearly equal in area to the press head or buck itself in order that the extremely high pressure procurable be realized by those conversant with the art; I have in Figure 7 shown a diaphragm of smaller working area than the pressing member; and in actual practice the diaphragm of small size may be more suitable in order that unnecessary and abnormally high pressure be avoided.

Still another advantage inherent in this construction resides in the fact that steam of less pressure than heretofore used may now be employed, thus eliminating high steam pressure boilers and pipe lines, for, by reason of the large area against which the steam works, there results as much final pressure in my press as could be ordinarily procured by using very high steam pressure in a cylinder type press. Furthermore, cylinders and pistons leak and for that reason such pressing machines are objectionable.

My improved pressure developing diaphragm has no external relative moving parts, it is steam tight, it is encased within the head or buck and protected from damage, it requires no lubrication whatsoever; and finally its use enables presses of lighter weight, simpler construction and fewer parts to be manufactured, for in power presses of present-day use, it is common practice to install power means such as an electric motor, steam cylinders, and transmission parts on the frame to work the head thereby filling the frame with electric or steam machinery, while in my improvements no such machinery is employed. This press, having no operating machinery or transmission parts, is unlikely to get out of working order.

Another fundamental advantage of my invention resides in its mode of operation wherein the pressure goes on and comes off easily without producing strain and reaction which is common in presses now used and so much so that presses capable of producing high pressure are quite noisy because

they suddenly open when released. In my invention the steam is first exhausted from the diaphragm which removes the high pressure leaving the pressing members engaged under light contact. No noise results in breaking the toggle and lifting the head after high pressure has been removed.

The press lever 11 is one example of press-jaw operating means, or a movable head-support or jaw-carrying member suited for raising and lowering the press head or entire upper jaw 30—39 for opening and closing the press; and the ironing pressure for finishing the work is exerted through the agency of the force-applying means inherent for example in the diaphragm 59—70, or 28, or other equivalent means, which is also carried with and moved with the head-carrying member 11 and reacts thereagainst downwardly to push or thrust the movable ironing plate 31—39 against the buck after the press is closed. The spaced leaf springs 34 and the retaining screws 32 form a loose-motion yieldable connection between the press plate 31—39 and the movable press lever 11 and thereby affords a wobbling or biased compensating, rocking or equalizing action to take place in the press plate 39 to equalize or press over rough, uneven, seamed or folded work.

What I claim is:—

1. A jaw for power presses comprising, a pair of jaw plates, retentive guide bolts anchored in one plate and loosely movable in guide holes formed in the other plate to loosely connect the plates together for relative motion, springs cooperating with the bolts and with the plates to normally hold the plates close together in non-pressing position, and power means disposed between the plates to overcome the springs and force one plate against work to be treated and away from the other plate.

2. A press jaw for use in connection with power presses comprising, a pair of mating plates and means to loosely attach them together for relative movement, means disposed therein between for forcing said plates apart, one of the plates being provided with a heating means, and the other plate being provided with a spray chamber having one foraminated enclosing wall.

3. A press jaw comprising, a pair of mating plates movable in relation to each other and one of which is used as a press plate to engage work, each of said mating plates being provided with a fluid chamber one of which is a heating chamber to warm the jaw and the other of which has one of its enclosing walls foraminated to form a spray chamber to spray the work, power means disposed between the plates to act against the same and force them apart, and a movable fluid connection made between the two chambers to convey fluid from the heating chamber to the spray chamber.

4. A press jaw comprising, a pair of mating plates movable in relation to each other and one of which is used as a press plate to engage the work, each of said mating plates being provided with a fluid chamber one of which is a heating chamber to warm the jaw and the other of which has one of its enclosing walls foraminated to form a spray chamber to spray the work, power means disposed between the plates to act against the same and force them apart, and a flexible tube having its ends connected to the respective chambers and extending along the edges of the two plates.

5. A press jaw comprising, a pair of mating plates one of which is a rigid press plate to engage work to be treated, means mounting the pair of plates in movable and guided wobbling relation to each other, and a fluid pressure expansion diaphragm placed between the plates to act against the same and force the press plate against the work.

6. A press jaw for use in the connection with power presses, comprising a pair of mating plates attached together and being relatively movable, means disposed thereinbetween for forcing said plates apart, and a retracting means comprising leaf springs mounted on the jaw in spaced relation, and retentive guide means to hold the plates together for relative motion, and the springs and retentive guide means being connected together so that the springs normally urge the plates together.

7. A power press comprising, press jaws adapted to open and close on the work, operating means for carrying out the jaw opening and closing operation, a diaphragm in one jaw working under fluid pressure for executing high pressure on the work after the press has closed, a press plate actuated by the diaphragm to produce jaw compression, a heating chamber containing heating means embodied in said one jaw to heat the work, a steam spray chamber formed in said one jaw, and means for supplying steam from the heating chamber to the spray chamber and to the diaphragm, and steam controlling means for said chamber and diaphragm.

8. A power press comprising, press jaws adapted to open and close on the work, operating means connected therewith for carrying out the opening and closing operation, an expansible diaphragm working under fluid pressure carried in one of the jaws for execution of high pressure on the work after the press has closed, a press plate actuated by the diaphragm to produce jaw compression, a chamber above the diaphragm containing heating means in said one jaw to heat the work, a steam spray chamber formed in said one jaw below the diaphragm, and

a fluid connection between the heating chamber and spray chamber.

9. A pressing jaw for use in connection with power presses comprising, a pair of mating plates attached together and relatively movable one on the other, a steam operated diaphragm disposed thereinbetween for forcing said plates apart, said jaw being provided with a steam heating chamber and a steam spray chamber, and means for feeding steam from the heating chamber to operate the diaphragm for forcing the plates apart.

10. A pressing machine comprising cooperating press jaws, an operator actuated mechanism adapted to open and close the press, a rigid pressure plate carried on one of the press jaws and movable in relation thereto after the press is closed, power means for forcing said plate into compression with the other jaw to produce final pressure, and means attaching the rigid pressure plate to the press jaw allowing it to rock and compensate for work having uneven and irregular surface.

11. A pressing machine comprising cooperating press jaws, operating means to open and close the press, a rigid pressure plate carried by one of the press jaws and movable in relation thereto, means attaching the rigid pressure plate to the press jaw permitting the plate to rock and compensate for uneven and irregular surface work, and a fluid pressure diaphragm disposed between the rigid pressure plate and press jaw adapting the plate to move on the bias or obliquely with great force against the other press jaw, and valve control means governing the operation of the diaphragm.

12. A press jaw comprising, two members one of which is a support and the other a pressure plate, means movably connecting the pressure plate to the support whereby the pressure plate is capable of pressure movement in relation to the support along a separating plane between the support and pressure plate, said pressure plate being provided with a fluid receiving chamber, and a flexible fluid connection disposed across the separating plane and having its ends fixed and joined to the support and to the fluid chamber of the pressure plate.

13. A press jaw comprising two pressing members and means to connect them together for relative movement along a separating plane therebetween, each member being provided with a fluid receiving chamber, and a flexible tubular fluid connection having its ends fixed and joined to the chamber of each member and crossing the separating plane whereby the fluid connection gives between its fixed ends during the relative movement between the two pressing members.

14. A press jaw comprising, pressing members and means attaching them together for relative movement, one of the members being adapted for use as a pressure plate which is supported on the other member, a fluid pressure operated diaphragm disposed between the members to force them apart, said pressure plate being provided with a perforated spray chamber, a flexible tube connection having one end thereof joined to the spray chamber and the other end thereof attached to said other member whereby flexure occurs in the flexible tube between the members when relative motion occurs between said members, and means connected to the last named end of the flexible tube to supply a spray medium thereto.

15. A press jaw comprising, a support member and a pressure plate mounted thereon, means to movably connect the pressure plate to the support member for relative motion therebetween, the pressure plate being provided with a fluid receiving chamber, a fluid pressure operated diaphragm disposed between the support and the pressure plate to move the latter in relation to the support, and the press jaw being provided with a fluid passage which connects the diaphragm to the fluid receiving chamber.

16. A press jaw as defined in claim 15 wherein means is provided to control the flow of fluid pressure thru the fluid passage.

17. A press jaw as defined in claim 15 wherein a valve is mounted in the fluid passage to control the flow of fluid pressure therethrough.

18. A jaw construction for motor-actuated garment or ironing presses comprising jaw plates, one being movable in relation to the other and one of which is adapted as a rigid press plate to engage and press against the work, pivotally supported mounting means holding the other plate stationary while the rigid press plate is actuated and to swing the jaw to open and close the press, and motor means swinging with the jaw construction and being confined between and engaging and acting against the two plates and reacting against the stationary plate and its mounting means to force the rigid press plate away from the stationary plate to produce compression on the work.

19. A unitary press jaw for power garment or ironing presses comprising jaw plates, retentive guide means to loosely hold them together for relative motion, including means affording a rocking motion over uneven work to be pressed, one of which plates is adapted as a rigid press plate to press against work to be treated, an actuating member attached to the other plate to swing the jaw plates to open and close the press, and motor means disposed between and in engagement with the plates to swing with the unitary press jaw and force the plates apart and hence move said rigid press plate

against the work to produce compression thereon.

20. In a garment or ironing press, coacting jaws and operating means to open and close a jaw, one of the press jaws being provided with fluid-operated motor means, and including three chambers, one of which is a perforated spray chamber, another a fluid receiving chamber, and the third forms a housing in which said motor means is mounted within the press jaw, a throttle valve handle mounted on the jaw and including a valve core which reaches from the handle thru the jaw surface into the fluid receiving chamber and thence reaches to the motor means to transmit fluid thereto for operating the same, ports in the valve core adapted to be opened and closed by the handle, means including a valve to convey fluid from the receiving chamber to the spray chamber, and a rigid press plate relatively movable on the jaw and in which said perforated spray chamber is formed.

21. In a garment or ironing press jaw, a support and a rigid press plate movably mounted thereon, and having a heating chamber, a diaphragm interposed between the support and press plate and including a fluid expansion chamber, a valve having a core with means to transmit fluid from the heating chamber to the expansion chamber and being mounted on the jaw and projecting into the expansion chamber, means to supply fluid pressure to the heating chamber and to the valve and hence to the expansion chamber, and means to operate the valve core to regulate the flow of fluid pressure into the expansion chamber to actuate the diaphragm.

22. In a garment or ironing press jaw containing a built-in fluid motor means, a movable support and a relatively movable rigid press plate mounted thereon, a diaphragm motor means interposed between the movable support and its relatively movable press plate and including a fluid expansion chamber, a control valve having a core with means to transmit fluid and being mounted on the jaw accessible to the press operator and projecting into the expansion chamber, said diaphragm motor means including a flexible sheet and the valve core projecting therethru, means to seal the valve core against leakage of fluid pressure around the flexible sheet of the diaphragm where said core projects thru the sheet, means to supply fluid pressure to the valve and hence to the expansion chamber, and means to operate the valve core to regulate the flow of fluid pressure into the expansion chamber to actuate the diaphragm which reacts against the movable support to thrust the rigid press plate against the work.

23. In an ironing or garment press, coacting press jaws including a press plate and buck, operating means to actuate the press plate in relation to the buck to open and close the press including a movable jaw-carrying member, means loosely attaching the press plate for limited pressing motion in relation to the movable jaw-carrying member, spring means mounted on the movable jaw-carrying member and connected with the press plate to urge said press plate away from the work to be pressed; and force-applying means mounted on the movable jaw-carrying member, being movable therewith during opening and closing motion of the press, reacting against said movable jaw-carrying member after the press is closed, engaging the relatively movable press plate, to overcome the spring means, and to force the press plate against the buck to press the work thereon.

24. In an ironing or garment press, coacting press jaws including a press plate and buck, operating means to actuate the press plate in relation to the buck to open and close the press including a movable jaw-carrying member, means attaching the press plate for limited motion in relation to the movable jaw-carrying member, said last-named means including a loose connection whereby the press plate hangs freely from the movable jaw-carrying member thereby affording a rocking action against uneven work on the buck, and force-applying means carried by the movable jaw-carrying member and the press plate and movable therewith as the press opens and closes and reacting downwardly therefrom after the press is closed to engage and force the press plate against the buck to press the work.

25. In an ironing or garment press, coacting press jaws including a press plate and buck, operating means to actuate the press plate in relation to the buck to open and close the press ineluding a movable jaw-carrying member, means attaching the press plate for limited motion in relation to the movable jaw-carrying member, leaf spring retracting means mounted on and movable with the movable jaw-carrying member to lift upwardly on the press plate and away from the buck, and means mounted on the movable jaw-carrying member and disposed proximate the leaf spring means to react against said movable member and to thrust downwardly therefrom on the press plate.

26. In an ironing or garment press, coacting press jaws including a press plate and buck, operating means to actuate the press plate in relation to the buck to open and close the press including a movable jaw-carrying member, means attaching the press plate for limited motion in relation to the movable jaw-carrying member, force-applying means carried in between the jaw-carrying member and the press plate and movable therewith and reacting downwardly

from and against the movable jaw-carrying member when the press is closed and also engaging the plate to force the latter against the buck to press the work; and a pair of spaced leaf springs carried with the movable jaw-carrying member, and being yieldingly attached to the press plate, adapted to give when the force-applying means actuates the press plate downwardly against the buck, and being adapted to flex and lift the press plate upwardly off of the buck when the force-applying means is released to remove the ironing pressure from the work.

27. In an ironing or garment press, coacting press jaws including a press-plate member and buck, operating means to actuate the press-plate member in relation to the buck to open and close the press including a movable jaw-carrying member, means loosely attaching the press-plate member for limited pressing motion in relation to the movable jaw-carrying member and said means also being connected with the press-plate to urge the latter away from the work to be pressed, force-applying means mounted in between the two members and movable therewith during opening and closing motion of the press, and said force-applying means reacting against the two members after the press is closed to overcome the spring means and force the press plate member against the buck.

In testimony whereof I affix my signature.

MORRIS M. TITTERINGTON.