Nov. 29, 1949 R. J. GABLER 2,489,960

PRESSURE APPLYING MECHANISM FOR GARMENT PRESSES

Filed May 16, 1946 2 Sheets-Sheet 1

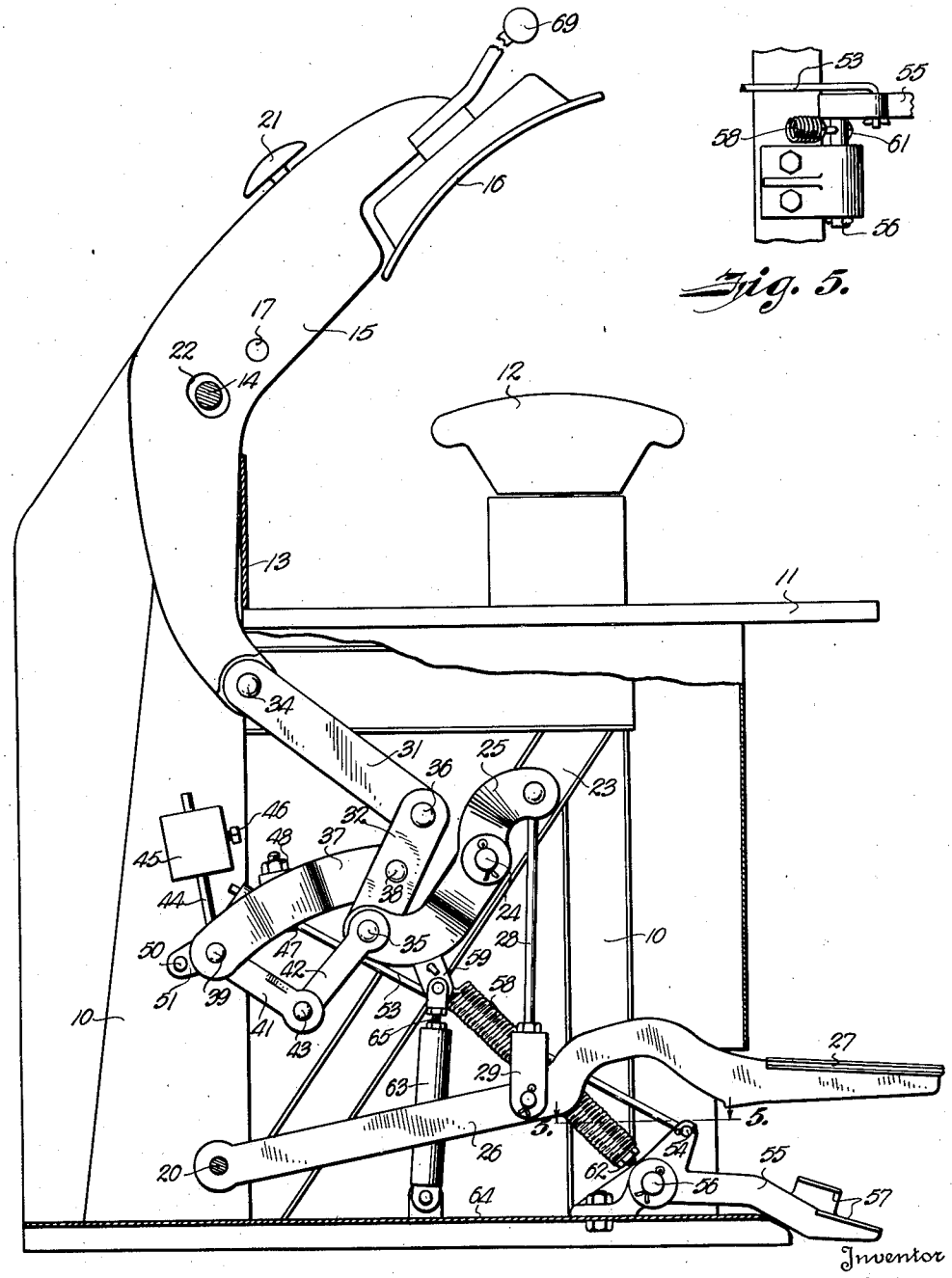


Fig. 1.

Fig. 5.

Inventor
Raymond J. Gabler

By Thos. E. Scofield
Attorney

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Filed May 16, 1946 2 Sheets-Sheet 2

Fig. 3.

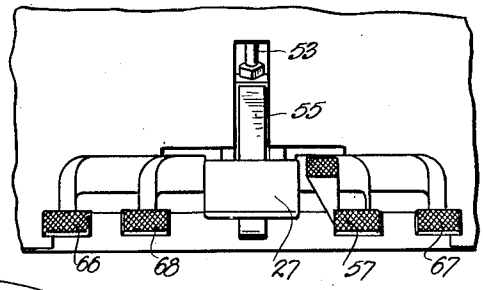
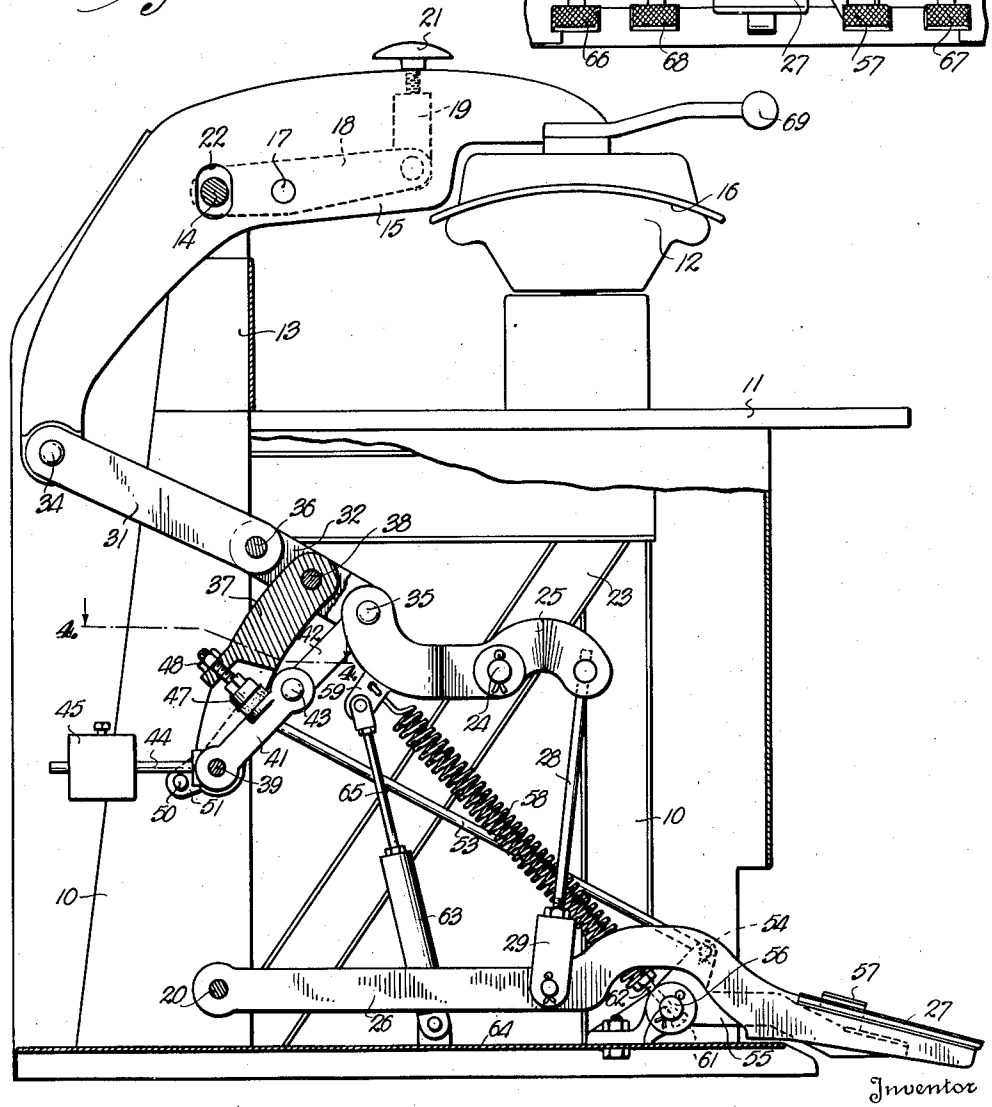


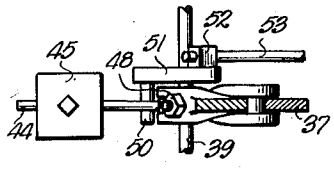
Fig. 2.



Inventor

Raymond J. Gabler

Fig. 4.



By Thos. E. Scofield

Attorney

Patented Nov. 29, 1949 2,489,960

UNITED STATES PATENT OFFICE

2,489,960

PRESSURE APPLYING MECHANISM FOR GARMENT PRESSES

Raymond J. Gabler, Kansas City, Mo., assignor to Butler Manufacturing Company, Kansas City, Mo., a corporation of Missouri

Application May 16, 1946, Serial No. 670,228

4 Claims. (Cl. 38—36)

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This invention relates to improvements in pressing machines and more particularly to presses of the class designed for use in garment and laundry work.

Machines of this general character are, of course, well known. Ordinarily they include a stationary pressing element or buck on and around which the material is placed, and a pivoted pressing head adapted to be moved into engagement with the exposed side of the material to apply heat and pressure thereto.

It is an object of my invention to provide an improved mechanism whereby a pressing machine may be opened and closed rapidly without bumping or jarring.

Another object is to provide a foot-operated mechanism for closing the machine which requires a relatively short vertical travel of the foot pedal and wherein adequate pressure at the head is obtained with but nominal foot pressure.

One feature of the invention resides in the provision of a double toggle linkage including a controlled locking toggle which controls a non-locking toggle, the latter toggle in turn actuating the pressing head.

Another feature lies in the provision of a guide link for the non-locking toggle to assist in securing quick opening of the press. Another feature resides in the application of spring pressure to the head indirectly through the toggle linkage for the purpose of opening the head.

Other objects and features will be clear from the following description of a preferred embodiment of the invention.

In the accompanying drawings which form a part of the instant specification and are to be read in conjunction therewith and in which like reference numerals are used to indicate like parts in the various views,

Fig. 1 is a side view of a pressing machine in open position, with part of the skirt cut away to show in elevation a linkage system embodying my invention,

Fig. 2 is a side view, partly in elevation and partly in cross section, showing the same pressing machine in closed position,

Fig. 3 is a fragmentary front elevation of the machine showing the arrangement of the pedals,

Fig. 4 is a sectional view taken along the line 4—4 of Fig. 2 in the direction of the arrows, and

Fig. 5 is a sectional view taken along the line 5—5 of Fig. 1 in the direction of the arrows.

Referring more particularly to the drawings, the numeral 10 designates the frame of the pressing machine. This supports the table 11 and,

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above the table, the usual buck or stationary pressing element 12. At the rear of the machine an upwardly extending portion of the frame forms a column 13 and this supports a shaft 14 at its upper end. A rocker arm 15 carrying a pressing head 16 at its forward extremity is arranged, in the operation of the machine, to rotate about the axis of shaft 14. The rocker arm is not mounted directly on the shaft, however; instead, it is pivoted at 17 on an adjustment link 18 which in turn is hinged to shaft 14. At the forward end of the adjustment link is an internally threaded stud 19 which receives the threaded shank of a knob or handwheel 21. Manual rotation of the handwheel moves the rocker arm slightly about its pivot 17 relative to the adjustment link 18 thereby raising or lowering the pressing head 16 to regulate the pressure exerted by the latter on buck 12 when in closed position. An opening 22 in the rocker arm, through which shaft 14 extends, is somewhat elongated to permit this adjustment of the rocker arm relative to the link.

The frame is provided with a diagonal brace 23 having rigidly affixed thereto a stub shaft 24. A lever 25 is pivotally mounted on this stub as shown. Near the bottom of the frame is an elongated foot lever 26 hinged at its rear end to a shaft 20 which is mounted on the back of the frame. At its forward end the foot lever carries a pedal 27. A pull rod 28 having one end connected to the lever 25 and the other end connected to a U-shaped clevis 29 hinged to the foot lever is adapted to rotate lever 25 about its shaft 24 under control of the foot pedal. The pull rod is threaded at its lower end and fastened to the bracket 29 by suitable nuts, whereby its length may be adjusted easily to secure the best operation of the linkage.

Between the rear end of lever 25 and the lower end of the rocker arm 15 is the main toggle. This is made up of links 31 and 32, the former link being hinged to the rocker arm at 34, the latter being hinged to the lever 25 at 35 and the two links being pivotally connected to one another at 36. Upon rotation of the lever 25, the movement of the main toggle 31—32 is guided by a link 37 having one end hinged to an intermediate point 38 on link 32. The other end of the guide link is pivoted on a shaft 39 carried by the rear column of the frame; this end is bifurcated and the two branches thus formed straddle a link 41 which also is pivoted on shaft 39. The free end of link 41 is pivotally connected at 43 to one end of a link 42 whose other end is hinged

to the lever 25 at 35. Links 41 and 42 form an auxiliary or locking toggle, the function of which will be made clear presently.

Integral with link 41 is a rearwardly extending bar 44 carrying a counterweight 45. The weight is adjustable to different positions along the bar in order to regulate the turning moment produced thereby, but normally it is held in a particular position on the bar by a locking or set bolt 46 of conventional character. A padded bumper or stop 47 for the link 41 is provided on the guide link 37. This bumper has a threaded shank which screws into a tapped hole in the guide link, and lock nut 48 is arranged thereon to prevent it from creeping as a result of vibration or impact.

Pivotally mounted on shaft 39, adjacent to the guide link and the lower link 41 of the locking toggle, is a bell crank 51. One arm of the bell crank carries a pin 50 arranged parallel to the shaft so that it projects underneath bar 44. The remaining bell crank arm is connected through a hinge 52 to one end of a pull rod 53, the other end of which is hinged at 54 to a kickoff lever 55. This lever is pivoted on a stub shaft 56 and has at its outer end a suitable foot pedal 57.

A coiled spring 58 tends to rotate lever 25 in a counter-clockwise direction. This spring is connected at one end to a projection 59 on the lever 25 and at the other end to the stub shaft 56. Adjustment of its tension may be made by means of a nut 61 on the adjustment screw 62 passing through the shaft stub. A dashpot shock absorber 63 has its casing pivotally mounted on the base plate 64 of the frame and its piston shaft 65 connected to the projection 59.

The operation of the machine now will be described. It will be understood that the pressing elements are heated in the usual way, and that the machine is provided with pedals 66 and 67 for controlling the steam to the head and buck, respectively. A conventional vacuum pedal 68 also is provided. Assuming first that the press is open, as shown in Fig. 1, and that a garment has been arranged on the buck, the operator may close the press by means of the handle 69. Alternatively, if his hands are occupied, he may do it by stepping on pedal 27. This moves the foot lever 26 downwardly about its axis 20 and, through pull rod 28, rotates lever 25 in a clockwise direction. The weight 45, acting through toggle links 41 and 42, assists in this rotation of lever 25 while at the same time guide link 37 pivots upwardly about shaft 39 causing the main toggle 31—32 to become progressively straighter as the pivot 35 moves in an arc around the stub 24 as a center. This, of course, swings the rocker arm 15 about its pivot 14 and thereby brings pressing head 16 down toward the buck 12.

As the head engages the material arranged on the buck (which occurs just before the main toggle 31—32 becomes completely straight) the auxiliary or locking toggle 41—42 reaches a fully extended condition and the lower link thereof engages bumper 47, as shown in Fig. 2. This prevents the main toggle from reaching dead center, and thus halts the movement of the apparatus with a minimum of jarring or bumping. It will be noted that weight 45 now maintains the toggle 41—42 straight, or locked, so that the pressing head is retained under pressure against the buck.

In order now to open the press the operator will step on pedal 57. This rotates the kickoff lever 55 about its pivot 56 and through pull rod 53 turns the bell crank 51 clockwise about shaft 39. Pin 50 thereupon lifts the weight 45 and rotates link 41 clockwise about shaft 39, whereupon the locking toggle 41—42 begins to fold. Spring 58 which was stretched by the closing of the press now rotates lever 25 counterclockwise about its pivot 24 and hence restores all parts to their Fig. 1 positions. The shock absorber 63 prevents jarring or bumping as the head comes to its full open position.

It will be observed that the mechanism described above attains the desired objects, in that it permits the machine to be operated easily and rapidly thereby to expedite the pressing of garments. Relatively short vertical foot travel is required to close the head, and adequate pressure on the garment is obtained with but nominal foot pressure. Subsequent operation of the kickoff lever causes the head to open quickly, and all movements of the mechanism are executed with a minimum of bumping and jarring.

It will be understood that certain features and sub-combinations are of utility and may be employed without reference to other features and subcombinations. This is contemplated by and is within the scope of the claims. It is further obvious that various changes may be made in details of the mechanism without departing from the spirit of the invention. It is, therefore, to be understood that the invention is not to be limited to the specific details shown and described.

Having thus described my invention, I claim:

1. In a pressing machine, a frame, a buck supported by said frame, a lever mounted on said frame for rotation about a fixed center, a pressing head carried by said lever in operative relationship to said buck, a second lever mounted on said frame for rotation about a second fixed center, means for rotating said second lever in either direction about its center, means controlled by the rotation of said second lever for rotating said first lever in a corresponding direction around its center thereby to actuate said pressing head, said last means comprising a toggle including two interjointed links, one of which links is connected to said first lever and the other of which links is connected to said second lever, a guide link mounted on said frame for rotation about a fixed axis and having its free end connected to one of said interjointed links at a point intermediate the two ends of that link thereby to cause said toggle to fold when said second lever is rotated in one direction and to unfold when said second lever is rotated in the other direction, and an auxiliary toggle including two interjointed links one of which is pivoted to said frame for rotation about the same fixed axis as said guide link and the other of which is so connected to said lever as to fully unfold said auxiliary toggle just before said first toggle is completely unfolded.

2. In a pressing machine, a frame, a buck supported by said frame, a lever mounted on said frame for rotation about a fixed center, a pressing head carried by said lever in operative relationship to said buck, a second lever mounted on said frame for rotation about a second fixed center, means for rotating said second lever in either direction about its center, means controlled by the rotation of said second lever for rotating said first lever in a corresponding direction around its center thereby to actuate said pressing head, said last means comprising a toggle including two interjointed links, one of which

links is connected to said first lever and the other of which links is connected to said second lever, a guide link mounted on said frame for rotation about a fixed center and having its free end connected to one of said interjointed links thereby to cause said toggle to fold when said second lever is rotated in one direction and to unfold when said second lever is rotated in the other direction, an auxiliary toggle including two interjointed links one of which is pivoted to said frame and the other of which is so connected to said second lever as to fully unfold said auxiliary toggle just before said first toggle is completely unfolded, a bumper on the guide link engaged by said auxiliary toggle responsive to same reaching fully unfolded condition, a kickoff lever operable when the auxiliary toggle is fully unfolded, a connection between the kick-off lever and the auxiliary toggle to initiate folding of said auxiliary toggle responsive to the operation of said kick-off lever, and a spring having one end connected to said frame and the other end connected to said second lever to complete the folding of auxiliary toggle when thus initiated.

3. In a pressing machine, a frame, a buck supported by said frame, a rocker arm fulcrumed to said frame and carrying a pressing head, a lever mounted for rotation about a fixed pivot on said frame and carrying a pivot pin at its free end, two toggles each including a pair of interjointed links, one link of each toggle being connected to the pivot pin at the free end of said lever, the remaining link of one toggle being connected to said frame to limit the rotation of said lever and the remaining link of the other toggle being connected to said rocker arm to actuate said pressing head, and a guide link mounted on said frame for rotation about a fixed center and having its free end connected to one

of the interjointed links of said other toggle to guide the movement of said other toggle.

4. In a pressing machine, a frame, a buck supported by said frame, a rocker arm fulcrumed to said frame and carrying a pressing head, a lever mounted for rotation about a fixed pivot on said frame, a spring connected to said lever tending to rotate it in one direction about said pivot, means for at times rotating said lever in the opposite direction about said pivot against the force of said spring, two toggles each including a pair of interjointed links, one link of each toggle being connected to said lever, the remaining link of one toggle being connected to said frame to limit the rotation of said lever in said opposite direction and the remaining link of the other toggle being connected to said rocker arm to actuate said pressing head, a guide link mounted on the frame for rotation about a fixed center and having its free end connected to one of the interjointed links of said other toggle to guide the movement of said other toggle, a bumper on said guide link in the path of said one toggle, and a weight connected to said one toggle to lock that toggle in extended condition and against said bumper when said lever reaches its limit position after rotation in said opposite direction.

RAYMOND J. GABLER.

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