Fig. 2.
This invention relates to garment presses, useful either for outer garments or for laundry work. The press is of the receding buck type, that is to say, one in which the buck has a pressing position in registration with a head and an open or loading position out of registration with the head, so that the buck, when loaded with work to be pressed, moves away from the operator into registration with the head.

This type of press has several advantages, one being that the operator is not subjected to severe heat from the head, and another being that the operator is less likely to have his hands caught between the buck and head where the buck is moving away from him.

One object of the invention is to provide one power means for swinging the buck from open position into registration with the head and for closing the press.

Another object of the invention is to perform the above operations by one stroke of the power means so as to increase the rapidity of the pressing operation and reduce the number of working parts.

A further object of the invention is to positively retain the buck and head in registration while the press is closing.

A still further object is the maintaining of the buck in a generally horizontal plane in both the open and closed positions of the press.

Other objects and advantages will be set forth in the following description and disclosed by the drawings, and the essential features of my invention are summarized in the claims.

In the drawings, Fig. 1 is a side elevation of the press, partly broken away, showing the press in open position; Fig. 2 is a similar view, showing the press closed; while Fig. 3 is a front elevation with the outer case in section; Figs. 4 and 5 are sectional views along lines 4—4 and 5—5 of Fig. 3.

In general, my improved press comprises a frame supporting a head, arms pivoted on the frame below the head and swinging in substantially vertical planes, and a buck carried by said arms and adapted to move laterally into and out of registration with the head. The power element has a substantially linear stroke, there being an operative connection between the power element and the buck so as to swing the buck from open position into registration with the head during the first part of the power stroke and the parts being so arranged that the power element closes the press during the latter portion of its stroke.

The power means illustrated includes a vertically extending cylinder beneath the head adapted to impart an upward stroke to a piston and piston rod, there being a follower on the piston rod adapted to cooperate with a cam slot in the swingable arms. The cam is so arranged that the piston rod during the first part of its upper stroke swings the arms and the buck carried thereby from open position into registration with the head and during the latter part of its stroke, the follower on the piston rod holds the buck in registering position while the rod contacts a member associated with the buck to press the buck against the head.

The structure illustrated comprises a frame having transverse members 1 supporting longitudinal frame members 7 in the form of parallel channels and an upper longitudinally extending frame member 8 carried by vertical frame members 9 at the ends. The head 10 is supported from the upper frame members 8 in a rigid manner, as disclosed, and is usually heated by any means known to the art.

The buck 11 is substantially coextensive with the head and is mounted in the frame to move laterally out of registration with the head and its support shown comprises arms 12 pivotally mounted on the lower part of the frame, specifically, on angle members 13 supported on the channels 1. The arms preferably are arranged in pairs in parallel ruler arrangement. That is to say, the arms of each pair are of equal length between the upper and lower pivots so that the upper ends of those arms always lie in a plane parallel to the lower pivots, in this case the planes being horizontal.

On the upper ends of the arms 12 is a buck support 14 and the buck is carried by this support in a manner permitting it to move upwardly from the support. The arrangement shown comprises a central plate 15 secured to the buck and having a downwardly extending stem 18 adapted to move vertically in a central bearing 17 carried by the buck support. The buck may be prevented from turning about the shaft 16 by making the shaft polygonal in section or by a suitable depending dowel pin 18 rigid with the plate 15 and adapted to slide in a hole in the buck support 14.

For swinging the buck laterally from open position into registration with the head and for closing the press, I have provided a cylinder 19 carried by the lower frame members and having a fluid pressure actuated piston therein connected with the piston rod 20. This rod is provided with a cross head 21 for carrying pins or followers 22 adapted to move freely in vertical
slots 23 in the angles 13. The followers 22 also ride in suitable slots 24 in cam plates 25 mounted on the swinging arms 12. Fluid pressure is admitted to the lower part of cylinder 19. During the first portion of the stroke of the piston rod, the followers, travelling in the portion 26 of the slots, swing the arms and therefore the buck from open position into registering position, with the head, and thereafter the followers, travelling in the 27 portion of the cam slots, hold the buck and head in registration.

For closing the press after the parts are in registration, I utilize the latter part of the same power stroke which moves the buck from open position into registering position. While this might be accomplished in various ways, I have illustrated the upper end 28 of the piston rod positioned in a manner to contact the lower end of stem 16 when the head and bed are in registration. Therefore, the rod, during the latter part of the power stroke, presses the buck against the head. For controlling the fluid pressure, I have illustrated a duplex valve 29 of a standard type with an operating handle 30 easily accessible to the operator.

For opening the press and moving the buck to the loading position, the cylinder 19 might be made double acting so that the press would be opened by applying pressure to the upper end of the cylinder 19 and thus quickly return the parts to position by movement of the piston 20 and followers 22 downwardly in the cam slots 24. I have chosen, however, to illustrate mechanism 35 for relieving the pressure beneath the piston and opening the exhaust by means of the valve 29 and thereafter permitting the parts to return to the position shown in Fig. 1 by their own weight.

The construction of valve 29 is shown in detail in Figs. 4 and 5. The main chamber 45 has an inlet port 46 closed by valve 47, and an exhaust port 48 adapted to be closed by valve 49. The exhaust port communicates with exhaust conduit 50. The inlet port communicates by the lateral chamber 51, through needle valve 52, with the inlet conduit 53. The valve chamber 45 communicates through port 54 and conduit 55 with the lower side of the piston 19.

Vent conduit 56 connects the upper part of cylinder 19 with the exhaust conduit. When valve 49 is closed and valve 47 is open, fluid pressure controlled by needle valve 52 enters cylinder 19, and raises the piston. When the valves are reversed, the pressure is relieved through conduit 55, chamber 45, port 48 and conduit 50. The escaping pressure may flow by conduit 56 to the space above piston 19, thereby equalizing the pressure on each side and allowing free opening movement.

For counterweighting the parts, I provide weights 31 rigidly carried on a rock shaft 32 pivotally supported in brackets 33 mounted on the frame. The rock shaft is connected to the moving buck by a link 34 rigid with the shaft and a link 35 pivoted to the arm 12.

Additional means is provided for holding the buck in registration with the head during the closing of the press. The means shown comprises levers 34, adjoining the buck from inner ends, these levers being rigidly mounted adjacent their central portions on rock shaft 33 which is pivotally supported on the brackets 33.

The outer ends of the levers are pressed by springs 38 against the shaft 32. Pins 40 on the buck carrying arms are adapted to enter the notches 37 when the parts come into registering position, the ends 41 of the levers being bevelled to facilitate the movement of the pins into the notches. For unlatching this holding device when the press is opened, the rock shaft 33 is provided with an operator 42, spring pressed or otherwise arranged to move idly about the shaft 33 in a counterclockwise direction, but adapted to rotate with the shaft when the latch is moved 10 in a clockwise direction. A projection 43 on the piston rod is arranged to contact the rock shaft, this projection moving the latch idly about its shaft during the upward movement of the piston rod, but acting to depress the levers 38 upon the downward movement of the piston rod, thus releasing the pins 40 from the notches 37.

The press and its working parts may be enclosed in a casing 44, which completely surrounds the machine except for an opening in the upper portion of the front panel which provides access to the buck.

The operation of the machine is as follows:—

With the parts in the position of Fig. 1, the operator arranges the lay of the work on the buck 25 11. The control lever 30 is moved upwardly, admitting fluid pressure through valve 29 to the lower side of the piston. The rod 20 moves downwardly carrying the followers 22 along the portions 26 of the cam slots 24, thus moving the parallel arms 12 to vertical position so that the buck is in registration beneath the head. The pins 40 on arms 12 enter the notches 37 in levers 36 to hold the pressing elements in registration. During the further upward travel of the piston, while followers 22 move in portions 27 of the cam slots, the upper extension of the piston rod 20 contacts the stem 16 of the buck and raises the buck from its support 14 into pressing engagement with the head.

When the work is sufficiently pressed, the operator reverses the control lever, thus relieving the pressure from the lower side of the piston. The rod 20 moves downward, lowering the buck onto its support. The projection 43 contacts the operator 42 which depresses levers 36 and releases pins 40 from their notches. The buck then swings laterally from the head in position for another stroke of the press.

I have thus devised a press of the receding buck type in which one power mechanism is employed to move the buck from open position into registration with the head and to close the press, and this may be done quickly by utilizing one power stroke of the power mechanism. The reverse stroke of the mechanism is adapted to open the press and return the buck to loading position. The operator, by the movement of one valve, easily controls the entire operation of the press. My improved press is therefore faster and more easily operated than presses now in use.

Two means are provided for holding the buck and head in registration during the closing of the press, one being the power levers 34, the other being the interlock between the frame and the swinging arms. The machine also requires but a small amount of floor space. An additional advantage will be seen from an inspection of Fig. 2, showing the interlock 44, spring pressed or 70 being applied through straight rods, thus permitting a very light construction of the frame.

What I claim as my invention is:—

1. In a press of the class described, the combination of a head, a buck movable laterally from the buck, and a means for holding the head and buck in registration during the closing of the press, the buck comprising:—

(a) Means for holding the buck in registration with the head during the closing of the press.

(b) Means for closing the press after the parts are in registration, comprising:—

(i) A rock shaft pivotally supported in brackets mounted on the frame.

(ii) A link rigid with the rock shaft.

(iii) A link pivotally supported to the arm.

(iv) Weights rigidly carried on the rock shaft.

2. In a press of the class described, the combination of a head, a buck movable laterally from the buck, and a means for holding the head and buck in registration during the closing of the press, the buck comprising:—

(a) Means for holding the buck in registration with the head during the closing of the press.

(b) Means for closing the press after the parts are in registration, comprising:—

(i) A rock shaft pivotally supported in brackets mounted on the frame.

(ii) A link rigid with the rock shaft.

(iii) A link pivotally supported to the arm.

(iv) Weights rigidly carried on the rock shaft.

3. In a press of the class described, the combination of a head, a buck movable laterally from the buck, and a means for holding the head and buck in registration during the closing of the press, the buck comprising:—

(a) Means for holding the buck in registration with the head during the closing of the press.

(b) Means for closing the press after the parts are in registration, comprising:—

(i) A rock shaft pivotally supported in brackets mounted on the frame.

(ii) A link rigid with the rock shaft.

(iii) A link pivotally supported to the arm.

(iv) Weights rigidly carried on the rock shaft.

4. In a press of the class described, the combination of a head, a buck movable laterally from the buck, and a means for holding the head and buck in registration during the closing of the press, the buck comprising:—

(a) Means for holding the buck in registration with the head during the closing of the press.

(b) Means for closing the press after the parts are in registration, comprising:—

(i) A rock shaft pivotally supported in brackets mounted on the frame.

(ii) A link rigid with the rock shaft.

(iii) A link pivotally supported to the arm.

(iv) Weights rigidly carried on the rock shaft.
said head, one power means adapted to move said buck from open position into registration with said head and to close the press, and two means for insuring registration of the buck and head during the closing of the press, one of the last-named means being connected with the power means, and the other of said means being connected with the frame.

2. In a press of the class described, the combination of a frame, a stationary head carried by the frame, arms pivoted to the frame below the head, a buck carried by the arms and adapted to move vertically upward from said arms, a power element adapted to move in a straight line vertically, there being an operative connection between the power element and the arms adapted to swing the buck into registration beneath the head during the first part of its movement, and the power element being adapted to raise the buck vertically above the arms during the latter part of its movement.

3. In a press of the class described, the combination of a frame, a stationary head carried by the frame, a plurality of pairs of arms spaced longitudinally beneath the head, a buck carried by the pairs of arms, each pair of arms being pivoted to the frame and buck on laterally spaced pivots in a parallel ruler arrangement, and one power means for moving said buck from open position into registration with said head and for closing the press.

4. In a press of the class described, the combination of a frame, a stationary head carried by the frame, a plurality of pairs of arms spaced longitudinally beneath the head, a buck support carried by the pairs of arms, each pair of arms being pivoted to the frame and buck support in a parallel ruler arrangement, a buck carried by the buck support and movable vertically with respect thereto, a vertically extending cylinder located beneath the head, a piston and piston rod operating in the cylinder, cam and follower members, one of said members carried by the piston rod and the other carried by the arms, said cam and follower being arranged to swing the arms to vertical position when the piston is raised, and said piston rod being adapted to raise the buck when the latter is in registration with the head.

5. In a press of the class described, the combination of a frame, a head carried by the frame, a buck adapted to cooperate with the head in a pressing operation, support means for moving the buck laterally out of registration with and substantially clear of the head while maintaining the buck surface substantially horizontal, and one power means for moving said buck into registration with said head and for thereafter causing relative pressing approach between said head and buck.

6. In a press of the class described, the combination of a frame, a stationary head carried by the frame, a buck support movable into and out of registration with the head, an arm pivoted to the frame and connected with the support for causing said registering movement, a buck mounted on the support for vertical movement relative thereto, a fluid pressure actuated piston motor mounted beneath the path of travel of said support with its piston rod arranged to lift said buck when the buck is in registering position, said piston rod carrying a yoke, and a connection between said yoke and arm adapted to move said arm about its pivot and thereby to move said support toward registering position during the first part of a power stroke of the piston.

7. In a press of the class described, the combination of a frame, a stationary head carried by the frame, a buck support movable into and out of registration with the head, an arm pivoted to the frame and connected with the support for causing said registering movement, a buck mounted on the support for vertical movement relative thereto, a fluid pressure actuated piston motor mounted beneath the path of travel of said support with its piston rod vertically positioned beneath and arranged to lift said buck when the 35 buck is in registering position, and a connection between said piston motor and arm adapted to move said arm about its pivot and thereby to move said support toward registering position during the first part of a power stroke of the piston.

8. In a press of the class described, the combination of a frame, a stationary head carried by the frame, a buck support movable into and out of registration with the head, an arm pivoted to the frame and connected with the support for causing said registering movement, a buck mounted on the support for vertical movement relative thereto, a fluid pressure actuated piston motor mounted beneath the path of travel of said support with its piston rod arranged to lift said buck when the buck is in registering position, said piston rod carrying a yoke, and a connection between said yoke and arm adapted to move said arm about its pivot and thereby to move said support toward registering position during the first part of a power stroke of the piston.

9. In a press of the class described, the combination of a frame, a stationary head carried by the frame, a buck support movable into and out of registration with the head, an arm pivoted to the frame and connected with the support for causing said registering movement, a buck mounted on the support for vertical movement relative thereto, a fluid pressure actuated piston motor mounted beneath the path of travel of said support with its piston rod arranged to lift said buck when the buck is in registering position, said piston rod carrying a yoke, and a connection between said yoke and arm adapted to move said arm about its pivot and thereby to move said support toward registering position during the first part of a power stroke of the piston.

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