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INFLATABLE CHEST FOR PRESSING MACHINES

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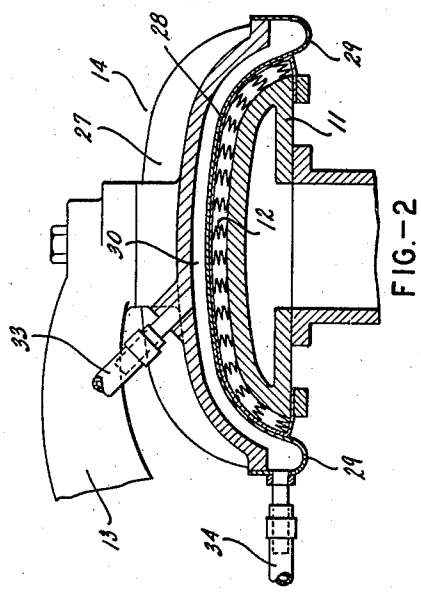


FIG. - 2

FIG. - 1

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INFLATABLE CHEST FOR PRESSING MACHINES

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4 Claims. (Cl. 38—35)

This invention relates to a pressing machine and more particularly to a novel arrangement of one of the pressing members and control mechanism therefor.

My invention provides an improvement in pressing machines used in laundry and garment work in which a concave pressing head or chest coacts with a convex pressing bed or buck. I have improved the head member in such a press by providing a chamber on the head member, the pressing surface of which comprises a flexible metallic sheet forming one wall of the chamber and adapted to be expanded by pressure fluid to cause an ironing operation. The pressing members are first moved into juxtaposition and locked there and pressure fluid is then supplied to the chamber in the head.

My invention also contemplates the provision of a heated pressure fluid to this novel head pressing member so as to simultaneously heat the flexible metallic sheet and press the same into contact with an article lying upon the coacting bed.

Other features of my invention include a novel arrangement and construction of the head member together with suitable control means therefor including mechanism by which the head member is automatically expanded as the press closes.

I have illustrated one embodiment of my invention in the drawing, in which Fig. 1 is an end elevation partly in section of a pressing machine of a well known type showing my improvements embodied therein, the control mechanism being shown diagrammatically; Fig. 2 is a sectional view through the coacting pressing members of Fig. 1 showing them in their closed position during a pressing operation.

In the embodiment illustrated upon a frame 10 is provided a stationary pressing bed 11 which may be suitably provided with padding, such as the spring padding 12. Pivotally mounted on the frame is a head lever 13 upon which is mounted a head 14 adapted to coact with the pressing bed. For moving the head from the open position of Fig. 1 to the closed position of Fig. 2 I provide a pair of toggles 15 and 16 pivotally connected together at their knuckle 17 and pivotally connected at the upper end to the rear portion of the head lever and at the lower end to the frame 10. A suitable motor 18 is provided for moving the toggles to straightened position to close the press. This motor has a piston 19 and a piston rod 20 which is suitably connected to the toggles. The supply of motive fluid to motor 18 may be conveniently arranged with two manuals requiring the use of both hands of the operator for safety. This control mechanism is shown as comprising valve casings 21 and 22 connected in series by conduit 23. Motive fluid is supplied through conduit 24 and is conducted to motor 18 through conduit 25. Casings 21 and 22 house normally closed inlet valves 21*a* and 22*a* and normally open outlet valves 21*b* and 22*b* which are mounted on stems 21*c* and 22*c* for actuation by manuals 21*d* and 22*d*. A spring 26 biases the toggles to broken position, which corresponds to the open position of the pressing head.

The pressing head comprises a frame or base member 27 to which is secured in spaced relation a non-corrodible flexible metallic sheet 28. This sheet is preferably preformed to substantially a complementary contour with respect to the bed 11. The sheet 28 is secured in any suitable manner at its free edges to the frame 27 to form a fluid tight connection therewith. The sheet 28 preferably extends beyond the engaged pressing surfaces (best seen in Fig. 2) so as to provide an excess material at the points 29 to allow for expansion. It is possible with this construction of the pressing head to provide a head member pressing surface of considerable concavity which is adapted to coact with the convex surface of the pressing bed to provide a pressing operation not only on the substantially flat central portions of the pressing members but extending downward at an angle on either side thereof and on depending side portions so that side ironing may be accomplished in ironing articles, for instance, such as men's shirts.

Motive fluid is supplied to the chamber 30 which is formed between the sheet 28 and the frame 27 so as to press the sheet 28 into engagement with work lying upon the bed. This fluid may be heated or not as desired, but ordinarily heat is desirable in the head pressing member and may be supplied by introducing a heated pressing fluid to the chamber 30 which may be heated air, steam or other suitable medium. I have illustrated a preferred arrangement which contemplates the use of steam. To this end a steam supply conduit 31 communicates by way of valve casing 32 with a conduit 33 which leads to the chamber 30 in the head. Casing 32 houses a normally closed inlet valve 32*a* biased toward closed position by spring 32*b* and the valve stem 32*c* is arranged in the line of movement of a lug 15*a* on toggle 15 so that upon movement of the pressing members to safe closed position which corresponds to the substantially straightened

toggles indicated in broken lines in Fig. 1, lug 15a will engage stem 32c and open valve 32a. It will be understood that pressure fluid might be supplied to the head member by an additional manual operation but I prefer the automatic arrangement shown.

When steam is used in chamber 30 it is necessary to take care of exhaust steam and condensate and to this end I provide an outlet and drainage conduit 34 which preferably connects with the lower rear portion of the chamber 30 so that when the head is in the open position of Fig. 1 there is a natural drainage by gravity to conduit 34. This conduit communicates by way of casing 35 with an exhaust conduit 36. In casing 35 is a normally open outlet valve 35a biased toward normal position by a spring 35b and having a stem 35c which is positioned to be engaged by lug 16a on toggle 16 when the toggles reach substantially straightened position in all respects like that described in connection with lug 15a and the stem 32c.

Suitable means is provided for holding the pressing head locked in position adjacent the bed while sheet 28 is being expanded into engagement with the work lying on the bed. For this purpose I have illustrated a mechanical latch which comprises a latch member 37 pivotally mounted on the frame and adapted to engage a pin 38 on one of the toggles when the toggles reach the substantially straightened position indicated in broken lines in Fig. 1. Connected with latch 37 is a suitable linkage leading to the front of the machine which comprises a link 39, bellcrank 40 and link 41 which is connected to treadle 42. A spring 43 biases the latch to its position adapted to engage pin 38.

The operation of the mechanism with the parts in the position of Fig. 1 is as follows: The operator arranges the work upon the bed 11 and actuates manuals 21d and 22d. This supplies motive fluid to motor 18 which makes a stroke rearwardly straightening the toggles and bringing the head into position close to the bed. As soon as latch 37 engages pin 38 the operator may release the manuals. When the toggles reach the broken line position of Fig. 1 valve 35a is closed and simultaneously valve 32a is opened. This is effective to supply pressure fluid to chamber 30 which thus expands the chamber so as to cause pressure contact between the sheet 28 and work lying upon the bed. At the same time if the pressure fluid is heated the sheet 28 transmits this heat to the article being processed. Upon completion of the pressing operation the operator depresses pedal 42 thus raising latch 37 and permitting spring 26 to break the toggles and open the press. The first movement of the toggles away from their straightened position closes valve 32a and opens valve 35a and when the head reaches its open position any condensate in chamber 30 will drain by gravity by way of conduits 34 and 35.

What I claim is:

1. In a pressing machine, a pair of relatively movable pressing members having coacting pressing surfaces, one of said pressing members comprising a chamber having a wall forming a pressing surface of said member, said wall being a flexible metallic sheet, means for relatively moving said pressing members to place their pressing surfaces in juxtaposition and to hold them there, and means for thereafter supplying a heated pressure fluid to said chamber whereby simultaneously to heat said sheet and to press the same into engagement with the coacting pressing surface.

2. In a pressing machine, a pair of relatively movable pressing members having coacting concave and convex pressing surfaces respectively, said concave member comprising a chamber having a wall forming the pressing surface of said member, said wall being a flexible metallic sheet concavely formed to substantially the contour of the coacting convex pressing surface, means for relatively moving said pressing members to place their pressing surfaces in juxtaposition and to hold them there, and means for thereafter supplying a heated pressure fluid to said chamber whereby simultaneously to heat said sheet and to press the same into engagement with the coacting pressing surface.

3. In a pressing machine, head and bed pressing members having coacting central pressing portions and coacting side pressing portions, said head member comprising a base member and a flexible metallic sheet spaced therefrom and secured at its free edges thereto to form a fluid-tight chamber, said sheet being preformed to provide central and side pressing portions substantially conforming to the said coacting bed portions, there being portions of said sheet extending beyond the engaged pressing surfaces and providing more than sufficient sheet material for attachment to said base member whereby to accommodate expansion, means for relatively moving said members to place and to hold said pressing members in juxtaposition, and means for thereafter supplying pressure fluid to said chamber to move said sheet into pressure contact with the coacting pressing portions of said bed member.

4. In a pressing machine, a frame, a pressing bed on said frame, a head lever pivotally mounted on said frame, a pressing head carried by said lever for movement into and out of position adjacent said bed, said head comprising a chamber, one wall of which forms the pressing surface of said head, said wall being a flexible metallic sheet, mechanism for moving said head from open position to a position adjacent said bed and for holding it there, steam supply means for said chamber when said head is adjacent said bed, steam and condensate exhaust means for said chamber including a conduit communicating with the lower rear portion of said chamber when said head is in open position, a normally open outlet valve in said conduit, and operative connections between said mechanism and said valve for closing said valve as said mechanism moves said head to position adjacent said bed.

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