Oct. 9, 1934. A. B. PIERCE 1,976,578

VALVE FOR GARMENT PRESSING MACHINES

Filed Nov. 29, 1932

Fig. 1.

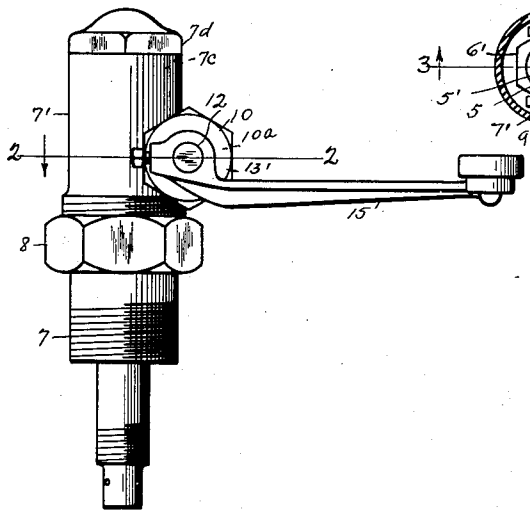


Fig. 2.

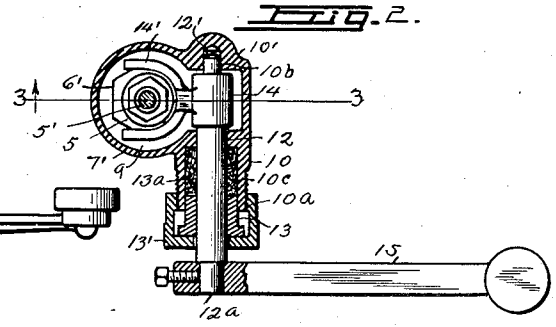


Fig. 4.

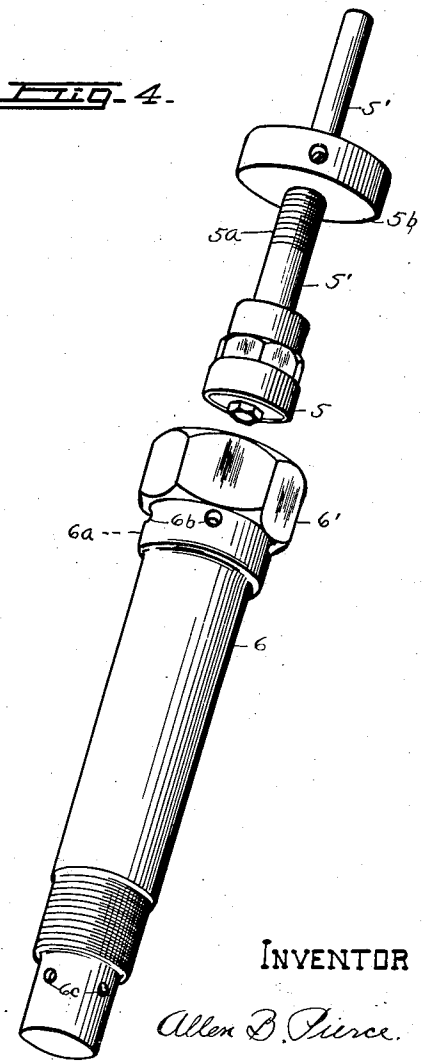
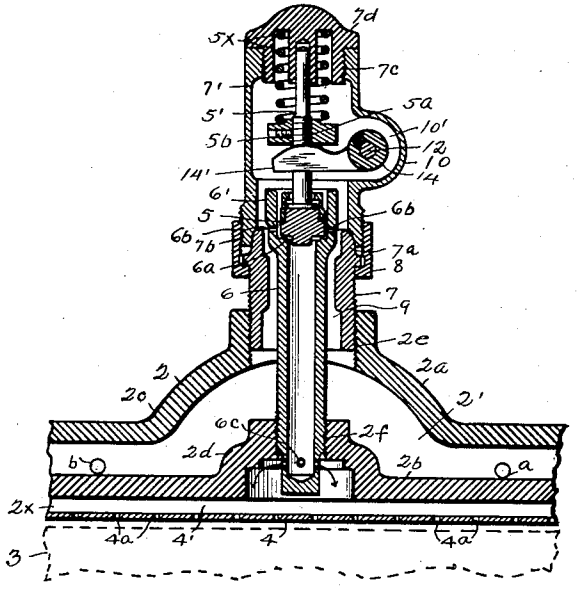


Fig. 3.



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VALVE FOR GARMENT PRESSING MACHINES

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5 Claims. (Cl. 251—134)

This invention relates generally to garment pressing machines designed for use by laundries, tailors, and the like. The invention relates particularly to novel means for controlling the use of live steam for spraying certain garments while the latter are being pressed between the usual stationary bucks and the movable heated presser heads.

The object of the invention is to provide a valve for effecting the spraying, which is mounted in a housing that rises from the presser head, the valve being supported by a tubular body that passes loosely through the housing and through the steam chamber of the head and sprays the hot vapor over the garments carried by the buck; the housing being in direct communication with said steam chamber and being constantly charged with the steam, and the housing and valve support being entirely separated and so arranged that the portion of the steam employed for spraying freely rises from said chamber, envelops the valve support and normally exerts its pressure for seating the valve. A further object is to provide means complementary to the steam pressure for automatically depressing and closing the valve after each pressing operation; the valve and its seat being disposed near the top of the housing and being removable therefrom without disturbing its support or the housing proper. By this novel construction and arrangement, the expansion and contraction of the housing, and the valve and related parts are so localized as to forestall leakage at the valve or at the several joints of the housing. And a further object is to provide a novel valve lifter which may be rocked manually against the resistance of the automatic valve closing means to effect the spraying of the garments.

I attain these objects by the means set forth in the detailed description which follows and as illustrated by the accompanying drawing, in which—

Figure 1 is a front elevation of the valve housing and related parts. Fig. 2 is a horizontal section taken on line 2—2 of Fig. 1. Fig. 3 is a central vertical section taken on line 3—3 of Fig. 2. And Fig. 4 is an enlarged exploded elevational view of the valve and its tubular support.

In the drawing, 2 represents the movable head of the garment pressing machine, which, during the pressing operations, overlies the usual stationary buck, as 3, shown in Fig. 3. The head 2 is formed with a relatively large heating chamber 2′, which lies between top and bottom walls, as 2*a*—2*b*. In practice, the chamber 2′ is charged with live steam, by which the head is suitably heated for effecting various pressing and ironing operations. At convenient coinciding points, the walls 2*a*—2*b* are bulged upwardly, as at 2*c*—2*d*, and the top extremities of these portions are preferably cylindrical and are respectively bored and threaded, as at 2*e*—2*f* (see Fig. 3). The bottom 2*b* of the head is preferably formed with a continuous depending flange 2*x*, to which is detachably secured the usual foraminous plate 4, that constitutes the pressing surface or face of the head. This provides a clear, shallow chamber 4′ between the bottom 2*b* and the plate 4 for the proper distribution of the spraying fluid throughout the area of the said plate, the openings 4*a* in the plate 4 facilitating the spraying of the garments (not shown) that overlie the buck 3.

The valve that controls the spraying of the garments consists of a disc 5, which is mounted upon the lower end of a stem 5′, the latter being threaded medially, as at 5*a*, to receive and adjustably support a disc-shaped stop 5*b*, by which opening, as well as other movements of the valve may be gauged. The valve is normally supported by an upright removable tubular member 6 whose top end 6′ is formed cup-shaped to receive and guide the valve, the bottom 6*a* of the cup providing an annular seat for the valve. The walls of this cup are preferably perforated radially, as at 6*b*, substantially in the plane of seat 6*a* for the admission of the spraying vapor to the bore of member 6 whenever the valve is lifted away from its seat. The member 6 extends downwardly across the steam chamber 2′, its lower end being threaded and passing through the opening 2*f* and discharging the spraying fluid into the chamber 4′ through a series of radial openings 6*c*, shown in Figs. 3 and 4. The upper portion of the support 6, valve 5 and stem 5′ are disposed concentrically and loosely in a housing comprising a hollow cylindrical member 7 and an enlarged co-axial cylindrical hood 7′, whose meeting ends are coupled by means of a gland-nut 8 that engages external threads of the hood 7′. The end 7*a* of the member 7 and the lower end 7*b* of the hood constitute a ball-and-socket structure that renders this joint steam-and-pressure tight, without the use of any packing. The lower end of member 7 is screwed into the threaded portion 2*e*. The support 6 and the housing 7—7′ are entirely separated and are so arranged as to provide a clear passage or chamber, as 9, that entirely surrounds the member 6 and carries the steam upwardly from chamber 2′ of the head to the top of hood 7′, where its pressure is normally

exerted to depress and seat the valve 5, as well as to dispense the spraying fluid when the valve is opened, as explained. The top end of the hood 7' is formed with a relatively large threaded opening 7c that affords access to the hood for the inspection or removal of the valve, without disconnecting the hood from member 7. The opening 7c is closed by a screw-plug 7d, which is counter-bored to receive and guide the top end of the valve stem 5', as well as to provide an annular seat for the top end of a compression spring 5x, whose lower end rests upon the stop 5b and exerts a complementary tension for depressing and closing the valve 5, as shown in Fig. 3.

Near its lower end, the hood 7' is formed with a transverse hollow rib 10, having a closed end 10' and an open chambered and externally threaded end 10a, that projects beyond the hood. Within this rib is disposed a shaft 12, its inner end being reduced at 12' and journaling in a socket 10b, while its outer end portion is journaled in a threaded bushing 13 comprising one member of a stuffing-box that includes said bushing and a gland-nut 13'. The chamber 10c is preferably filled with packing 13a, which prevents leakage of the steam from the hood. Near its inner end the shaft 12 is fitted with a collar 14 which supports a fork 14' that extends into the hood, as shown in Figs. 2 and 3. This fork coincides with the valve 5 and loosely receives the valve stem 5' and is in constant engagement with the stop 5b. The outer end 12a of shaft 12 is fitted with a hand lever 15, by which the shaft may be rocked in the direction for lifting the stop 5b and unseating the valve against the tension of spring 5x, as may be understood by consulting Fig. 3. The fork 14' is preferably broad enough to permit the valve 5 and stem 5' to be removed bodily from the hood by passing them through the fork and the opening 7c.

The steam for heating the head may be supplied to the chamber 2' by a port a and may be discharged from said chamber through a port b (see Fig. 3). By this arrangement, the steam is constantly in motion and maintains a steady heat throughout the head 2 and the valve housing. In practice, the housing 7—7' extends five or six inches above the normal top plane of the head 2, so that the steam confined in the hood is relatively dry. This tends greatly to minimize the moisture of the spraying fluid and obviates all danger of over-wetting the garments. Due to the fact that the lower end of the housing 7 is normally open, as shown in Fig. 3, all condensation that occurs in the hood 7', as well as in the leg 7, drains back into the chamber 2'. And furthermore, any condensation that tends to collect in the cup 6' of the support 6 also drains through the ports 6b into the passage 9. The small amount of steam that remains in the tubular support 6 following each spraying operation, will ordinarily be quickly dissipated by the high temperature that obtains within the housing, so that there is no danger of any drip from condensation finding its way into the chamber 4'.

The complete separation of the housing and tubular valve support, as herein shown and described, not only greatly facilitates the construction and assembling of said parts, but tends to so localize the expansion and contraction as to obviate all danger of such thermal changes causing leakage at the several joints or otherwise interfering with the proper functioning of the composite structure.

Obviously, the valve 5 may be mounted on the buck, if desired, and the pressing surface of the latter may also be perforated to facilitate emission of the spraying fluid.

Having thus described my invention, what I claim, is—

1. In a valve of the type set forth, a chambered support, a housing composed of a lower section connected to the support and communicating with the chamber, an upper section removably connected to the lower section, a removable closure for the upper end of the upper section having a guide therein, a tubular member connected at its lower end to the support and having ports for discharging fluid beneath the support, said member being spaced from the housing to form a passage and having its upper end formed with an open-ended cup-shaped part disposed above the upper end of the lower section and having radial ports adjacent the bottom of the cup-shaped part, a valve slidable in the cup for controlling the entry of fluid into the member seating against the bottom of the cup, a spring tensioned stem in the housing engaged at its upper end in said guide of the closure, and means for operating the stem having a part in the upper section of the housing engaged with the stem between the ends of the stem.

2. In a valve of the type set forth, a chambered support, a housing connected to the support and communicating with the chamber, a tubular member connected at its lower end to the support and having ports for discharging fluid below the support, said member being spaced from the housing to form a passage and having its upper end open and communicating with the passage whereby fluid in the chamber will enter the member, a valve for controlling the entry of fluid into the member, a stem for the valve having an abutment, a removable closure for the upper end of the tubular member, a spring on the stem engaged with the closure and with the abutment of the valve stem, and means for operating the valve including a forked member straddling the stem and engaged with the abutment thereof and having the space between the tines of the forked member greater than the diameter of the valve whereby to permit the valve to be slid past the forked member and with its associated parts removed from the tubular member upon removal of the closure.

3. In a valve of the type set forth, a chambered support, a housing composed of a pair of superposed sections the lower of which is connected to the support and communicates with the chamber, means to removably connect the adjacent ends of the sections together, a tubular member connected at its lower end to the support and having ports for discharging fluid below the support, said member being spaced from the housing to form a passage and having its upper end disposed adjacent to the upper end of the lower section and formed with an open-ended cup-shaped part and having radial ports adjacent the bottom of the cup-shaped part, a valve controlling the entry of fluid into the member slidable in the cup and seating against the bottom of the latter, a spring tensioned stem in the housing carrying the valve and guided in the upper end of the housing, and means for operating the stem having a part in the housing engaged with the stem between the ends of the stem.

4. In a valve of the type set forth, a chambered support, a sectional housing connected to the support and communicating with the chamber, means to removably connect the housing sections

together, a tubular member connected at its lower end to the support and having ports for discharging fluid below the support, said member being spaced from the housing to form a passage and having its upper end formed with a cup-shaped part, disposed adjacent to the points of connection of the sections, that has open ends, said cup-shaped part having its top communicating with said passage and also having ports which communicate with the passage, a valve for controlling the entry of fluid into the member having seating engagement with the lower end of the cup-shaped part, and means to operate the valve.

5. In a valve of the type set forth, a chambered support, a sectional housing connected to the support and communicating with the chamber, means to removably connect the sections together, a tubular member connected at its lower end to the support and having ports for discharging fluid below the support, said member being spaced from the housing to form a passage and having its upper end open and disposed adjacent to the points of connection of the sections and communicating with the passage whereby fluid in the chamber will flow through the passage and over the top of and into the member, a valve for controlling the entry of fluid into the member, and means for operating the valve.

ALLEN B. PIERCE.