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PUFF IRON ASSEMBLY

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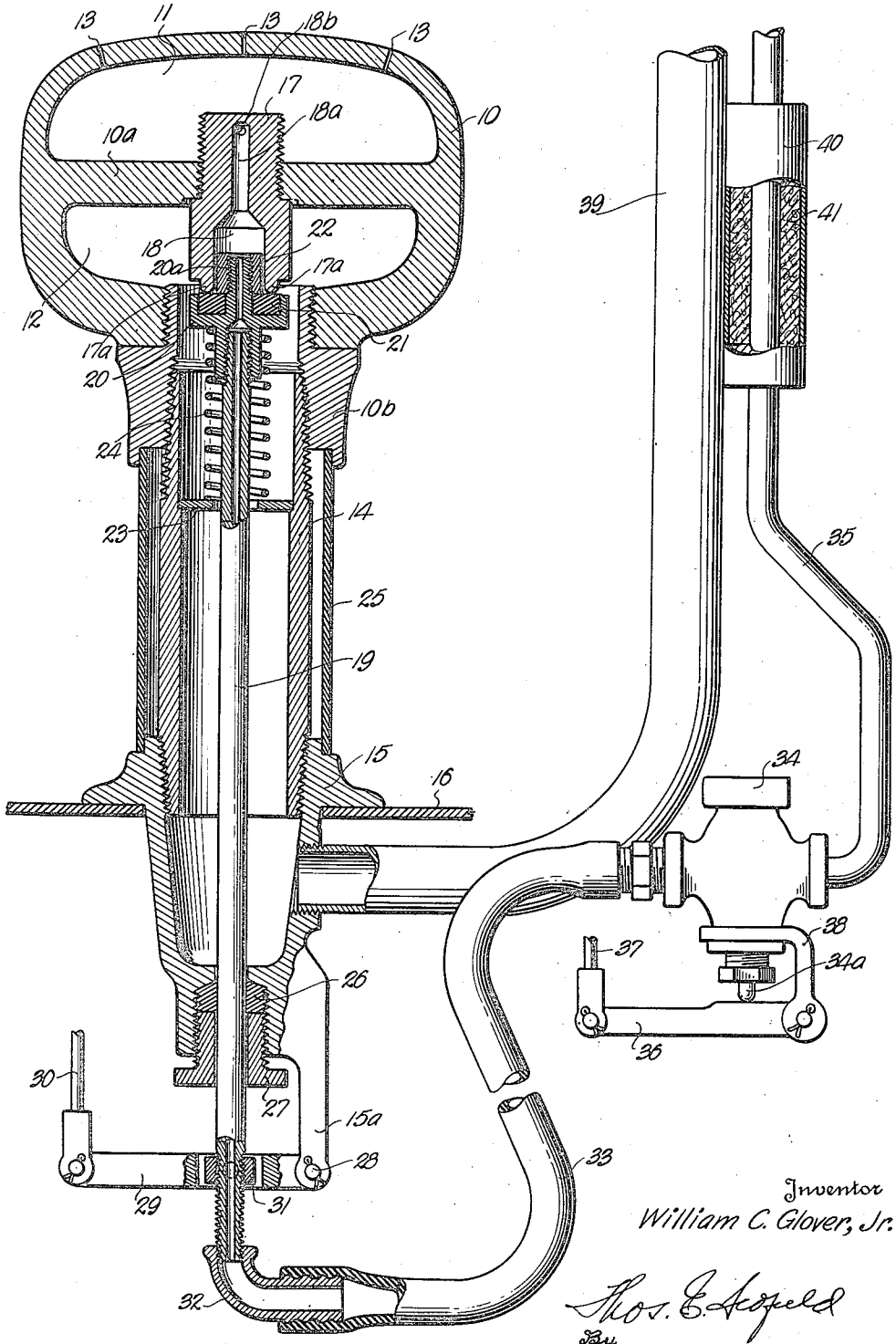

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PUFF IRON ASSEMBLY

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This invention relates to dry cleaners' puff irons and refers more particularly to a puff iron assembly used in dry cleaning establishments for puffing or ballooning parts of garments to remove wrinkles and give the material or fabric a smooth, ironed appearance after dry cleaning or washing.

A salient feature of novelty resides in mechanism for separately introducing steam and heated air into the head of the iron from which they are discharged through small holes or perforations into the fabric of the garment. The arrangement for maintaining the puff iron head at a relatively constant temperature while either steam or air is discharged from the perforated head is also a unique feature.

The conventional puff iron now used in the dry cleaning industry has a hollow head whose shape is substantially that of an ovate spheroid. A steam pipe is connected into the head and by means of a manually operated valve, live steam is injected into the hollow head from which it is discharged through perforations in the wall of the head. The iron is rapidly heated and rapidly cooled so steam condensation and difficulty from moisture being discharged from the holes of the puff iron is a constant aggravation. Also, there is no provision for alternately discharging steam and heated air from the head of the puffer iron.

An object, therefore, of the invention is to provide an iron which has separate compartments divided by a central partition affording means for maintaining the iron at proper temperatures and substantially eliminating condensation difficulty.

Another object is to provide a valve arrangement whereby steam and air may be discharged from the holes in the perforated head by actuating separate manual controls.

A further object is to provide heat exchange between the air and steam supply pipes for transferring heat from the steam to the incoming air.

Other and further objects will appear from the following description.

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 indicate like parts,

The single figure is a sectional elevational view of a puff iron assembly showing the invention.

In the drawings, where for the purpose of illustration is shown a preferred embodiment of the invention, at 10 is shown a puff iron head having a central partition 10a dividing the head into an upper compartment 11 and a lower compartment 12. In the wall of the upper compartment are a plurality of exhaust or discharge holes 13.

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Into the throat of the head or steam inlet adapter 10b is screwed the threaded end of steam pipe 14. The lower end of the steam pipe is screwed into base portion 15 supported on any convenient working surface diagrammatically shown at 16.

Partition 10a of the head is drilled and threaded to receive valve seat 17. This valve seat is centrally bored to form a lower enlarged duct 18 tapering into a duct 18a of smaller diameter. Lower duct 18 communicates with the lower compartment 12 of the head when the valve is open, as will hereinafter be explained. Upper duct 18a has free communication with the upper compartment of the head 11 through a plurality of radial holes 18b. At the lower end of member 17 is formed an annular valve seat 17a. Extending longitudinally of the steam pipe 14 is a hollow valve stem 19. On the upper threaded end of the stem is screwed a disk-holding body 20. The upper surface of the body has an annular groove into which fits an annular disk or gasket 21. Extending upwardly from the top of the body is a threaded projection 20a having a central duct which communicates through the body with the duct or channel in the valve stem. A disk-holding nut 22 screwed onto the extension 20a fits against the disk 21 and holds it in its groove in the body 20.

Seated on a shoulder in steam pipe 14 is a centrally apertured plate 23 through which the valve stem passes. Between plate 23 and the lower shoulder of the disk-holding body 20 is a compression spring 24 which mechanically urges the valve against seat 17a, thereby sealing the upper and lower compartments from each other, but allowing free communication between the hollow valve stem through radial holes 18b to the upper compartment 11. Surrounding the steam pipe and fitting into shoulders in the base 15 and inlet adapter 10b is a plastic protector tube 25 which affords the operator effective insulation from the heat of the steam pipe.

The lower end of hollow valve stem 19 extends through a hole in the bottom of the base 15 where it is sealed against leakage by graphite packing 26 held in place by means of packing nut 27. In order to raise the valve stem against the force of compression spring 24 to unseat the valve, there is provided a manually operated actuating mechanism. It consists of a bracket 15a extending below the base 15 and to which is pivoted at 28 an arm 29. An actuating link 30 communicating with a handle or pedal is connected to the opposite end of the arm. The pivoted arm 29 is attached to the lower threaded

end of valve stem 19 by a nut 31. Also screwed to the lower end of the valve stem is an elbow 32 which has communication through a flexible hose 33 with the discharge connection of air valve 34. To the inlet side of the air valve is connected the air supply pipe 35. Air valve 34 is of the spring actuated type opened by raising valve pin 34a. The valve pin is operated by lifting valve actuating arm 36 by means of link 37 which has connection with a manually operated lever or pedal not shown. The actuating arm 36 is pivoted upon bracket 38 attached to the lower portion of the valve body. With lowering of the actuating arm the air valve automatically closes.

Steam is supplied to the assembly through pipe 39 connected into the base 15 below support 16, or at any other convenient location along the steam pipe. Surrounding the air pipe 35 and in heat exchange relation with steam pipe 39 is a casing 40 having thin metal walls conducive to the transfer of heat from the walls of the steam pipe to their air pipe. Within the casing and surrounding the air pipe is packed noncorrosive metallic wool, such as copper, bronze, Monel metal or stainless steel shavings 41. This metal wool or metal shavings affords an extended surface for the transfer of heat from the walls of the steam pipe to the air pipe. Thus, it will be seen by means of this heat exchange arrangement, heat from the steam is transferred to the air passing through air pipe 35 prior to its introduction to the puff iron.

To operate the iron, the air and steam pipe connections are made, the latter providing steam continuously to the lower compartment 12 of the head through the steam pipe 14. To discharge steam into the upper compartment 11 and out through holes 13, link 30 and pivoted arm 29 are depressed sliding valve stem 19 longitudinally of the steam pipe 14 and unseating valve disk 21 from its seat 17a. With the opening of the valve, steam enters ducts 18 and 18a of member 17 and is discharged through radial ducts 18b in the upper compartment 11, thence through holes 13 into the garment or fabric held over the head. Unseating of the valve is accomplished against the force of compression spring 24 so when arm 29 is released, the spring again takes effect, seating the valve and shutting off the steam supply to the upper compartment. When the operator wishes to remove moisture produced by steaming or prefers to puff or iron the garment with the aid of heated air alone, the steam valve is permitted to close and pivoted arm 36 below air valve 34 is actuated to admit heated air from pipe 35. With the opening of valve 34 the heated air is discharged through hose 33, into the hollow valve stem 19. Since the valve stem is located within steam pipe 14 the air is further heated before being discharged into the duct in extension 20a of valve body 20. From this duct it passes into channels 18 and 18a of member 17, thence through radial ducts 18b into the upper compartment 11 of the head, and out through holes 13 into the garment.

Thus it will be seen there is provided a puff iron assembly which provides a head maintained at relatively constant temperature. In addition to the heated head there may be alternately discharged from the upper compartment either live steam or heated air at the will of the operator. The optional use of air and steam gives the apparatus increased flexibility and a considerably greater range of uses. It obviates to a great extent the difficulties of condensation in the head and provides a drying media in the form of heated air which may be used alternately with steam to obtain better results in ironing portions of garments not easily worked with the conventional puffer.

From the foregoing it will be seen that this invention is one well adapted to attain all of the ends and objects hereinabove set forth, together with other advantages which are obvious and which are inherent to the device.

It will be understood that certain features and subcombinations are of utility and may be employed without reference to the other features and subcombinations. This is contemplated by and is within the scope of the claims.

As many possible embodiments may be made of the invention without departing from the scope thereof, it is to be understood that all matter herein set forth or shown in the accompanying drawings is to be interpreted as illustrative, and not in a limiting sense.

Having thus described my invention, I claim:

1. A puff iron assembly for dry cleaners comprising a hollow puff iron head separated into upper and lower compartments with a partition therebetween, said head mounted upon the upper end of a vertical pipe through which steam is supplied to the lower compartment, exhaust holes in the upper compartment of the head, a port in the partition providing communication between the upper and lower compartments of the head, a valve for the port having a valve seat carried by the partition, means normally urging the valve against said seat, a hollow valve stem extending downwardly from the valve and having a connection at its lower end to an air supply pipe, said stem providing communication between said air supply pipe and the upper compartment, and separate actuating mechanisms for introducing air to the valve stem and for unseating the valve.

2. A puff iron assembly as in claim 1 including a heat exchanger in the air supply pipe mounted adjacent the steam supply pipe for transferring heat to the air.

3. A puff iron assembly as in claim 1 wherein said valve stem extends through said vertical pipe.

4. A puff iron assembly comprising a hollow head divided by a partition into upper and lower compartments, exhaust holes in the wall of the upper compartment, a steam connection to the lower compartment, the partition having a port through which steam can pass from the lower compartment to the upper compartment, a valve seat associated with the port, a valve mounted on a hollow stem normally seated on the valve seat to close said port, said stem having free communication at one end with the upper compartment and at its opposite end with a source of heated air, separate actuating mechanisms for moving the valve from its seat to pass steam from the lower to the upper compartment of the iron and introducing heated air to the hollow valve stem respectively.

5. A puff iron assembly comprising a hollow head, a partition in said head dividing same into two compartments, a valve in the partition, exhaust apertures in the exterior wall of one compartment, a steam line communicating with the other compartment, mechanism for opening and closing the valve thereby to control the passage of steam from said other compartment to said one compartment, an air line communicating with said one compartment at all times, and a

valve in the air line for controlling the flow of air therethrough into said one compartment.

6. A puff iron assembly as claimed in claim 5 wherein at least part of said air line is within said steam line in heat exchange relation to the steam therein.

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