

May 26, 1942.

A. J. WEBER ET AL

2,284,313

STEAM PUFF IRON

Filed April 11, 1941

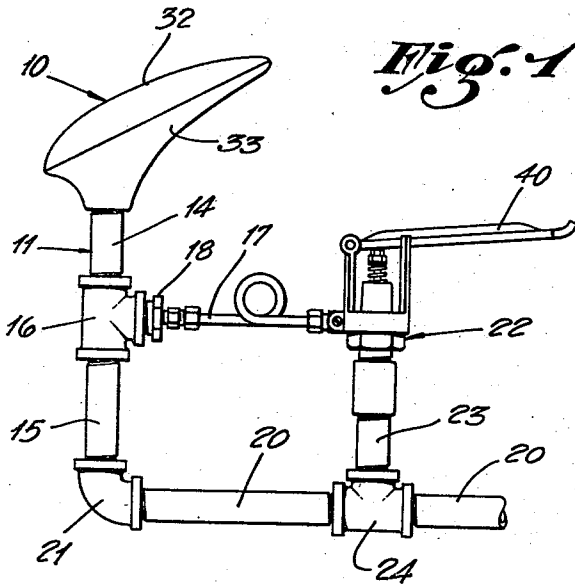


Fig. 1

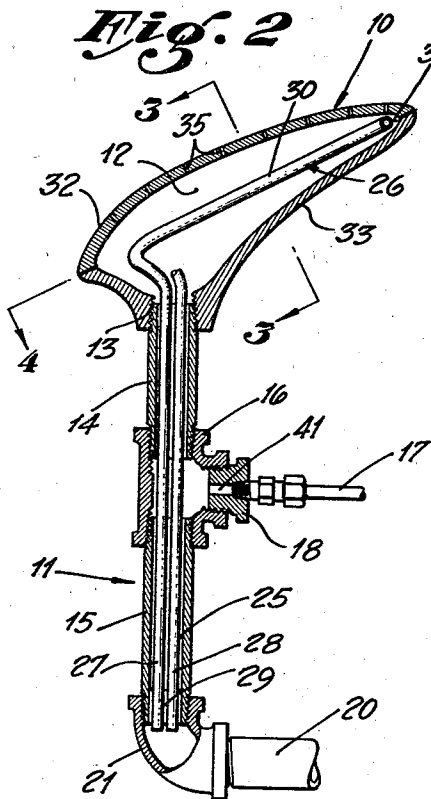


Fig. 2

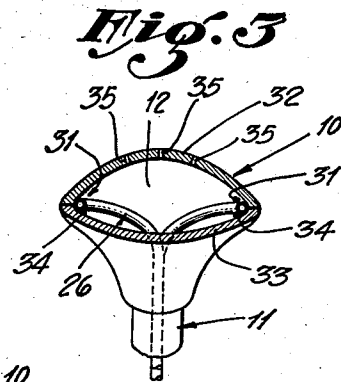


Fig. 3

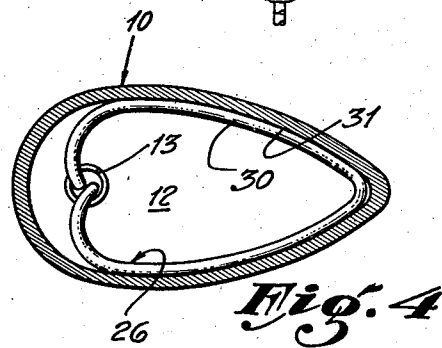


Fig. 4

ALBERT J. WEBER and
COLLIN P. McCracken,
Inventors;

38

Albert J. Weber

Attorney.

UNITED STATES PATENT OFFICE

2,284,313

STEAM PUFF IRON

Albert J. Weber and Collin P. McCracken,
Los Angeles, Calif.

Application April 11, 1941, Serial No. 338,068

2 Claims. (Cl. 68—6)

Our invention relates to a steam puff iron of the type employed for the puff ironing of portions of garments which are not readily ironable on an ironing board or mangle, such as sleeves, shoulders, gathers, etc.

It is an object of our invention to provide a simple steam puff iron which may be manufactured and installed at relatively low cost without sacrifice of the qualities of safety and effectiveness, but having advantages, as will be hereinafter pointed out, over the standard forms of steam puff irons now in use.

An object of the invention is to provide a steam puff iron of simple and inexpensive manufacture which is free from all danger of bursting even though it may be connected to a steam supply pipe in which a relatively high pressure is maintained. A further object of our invention is to accomplish this desired result by heating the head of the puff iron through use of a steam tube of relatively small diameter disposed within the head of the puff iron in heat exchanging relation to the walls thereof. In ordinary practice of puff iron construction, the puff iron head of desired shape is cast from metal with a steam chamber therein. Very careful supervision of these castings must be maintained so as to minimize the danger of placing in service, exposed to high steam pressures, a puff iron head having flaws therein which will result in bursting of the head. In our invention the puff iron head may be cast from a metal of high heat conductivity but of little strength for the reason that the head is not exposed to the pressure of the steam employed to heat the same. This heat is carried to the walls of the head through a tube of relatively small diameter, for example, a copper tube having a bursting strength sufficient to resist steam pressure in excess of one thousand pounds per square inch, this tube being brought into a heat exchanging relation or contact with the wall of the puff iron head, preferably by soldering the tube to the head so that there will be a direct and ample metal communication between the tube and the wall of the head. The high pressure steam is delivered into this tube and heat from the steam is transmitted from the tube directly to the walls of the puff iron head, relieving the head of steam pressure and thereby avoiding all danger of injury to workmen as a result of the bursting of the head.

A further object of the invention is to provide a puff iron head so constructed that during the steaming of a fabric by passage of live steam through the openings in the head to the fabric,

the possibility of delivering drops of water to the fabric is avoided. An object and feature of our invention resides in the employment of means within and associated with the puff iron head for accumulating and revaporizing any condensation which may occur within the head.

It is a further object of the invention to provide a puff iron head which is hollow and has an opening at the lower part thereof, with a tubular supporting member extending downwardly from the head, the upper portion of this tubular member communicating with the opening of the head, and the lower portion of the tubular member constituting a well or receptacle in which condensation may accumulate, and it is a further object of the invention to provide within this hollow column or tubular member means for revaporizing any moisture which may accumulate in the well or receptacle formed thereby.

A further object of the invention is to provide a puff iron structure of the character set forth in the preceding paragraph, having a steam tube extending through the well into the interior of the puff iron head, whereby steam which enters the steam tube may transmit heat to the walls of the puff iron head, and valve controlled means for delivering live steam into the interior of the puff iron head so that such live steam may pass through ports or openings in the puff iron head to the garment or fabric being ironed. It is a preferred practice of my invention, having advantages which will be referred to hereinafter, to deliver this live steam into the hollow column which supports the puff iron head so that the steam may pass upward therethrough into the cavity of the head and then through the discharge ports or openings of the head, and during this upward travel may freely separate from any condensation, thereby avoiding the possibility of drops of water being carried through the discharge ports or openings of the puff iron head to the fabric which is being ironed.

An especial feature of our invention is that it avoids the use of small and unreliable steam valves for control of the flow of steam through the discharge ports or openings of the puff iron head to the fabric, but instead makes possible the use of rugged valve means for this purpose.

Further objects and advantages of our invention will be brought out in the following part of the specification.

Referring to the drawing, which is for illustrative purposes only:

Fig. 1 is an elevational view of a preferred form of our invention.

Fig. 2 is an enlarged sectional view through the puff iron head and its supporting column.

Fig. 3 is a cross section taken as indicated by the line 3—3 of Fig. 2.

Fig. 4 is a sectional view taken as indicated by the line 4—4 of Fig. 2.

In Fig. 1 we show a puff iron head 10 supported at the upper end of a column or pipe means 11. As best shown in Fig. 2, this head 10 is hollow and has an interior cavity 12 which communicates with a downwardly faced threaded opening 13. The supporting column 11 may consist of upper and lower nipples 14 and 15 connected by a T fitting 16 to which a steam delivery duct or tube 17 is connected by means of a bushing 18.

The lower end of the nipple 15 is connected to a steam supply pipe 20 by means of a suitable fitting such as an elbow 21, and the steam delivery tube 17, as shown in Fig. 1, extends to a rugged steam control valve 22 of a type readily obtainable on the market and which is so constructed that it may be used for long periods of time without service. The inlet of this valve 22 is connected by piping 23 with a fitting 24 which is inserted in the steam supply pipe 20 which ordinarily is connected directly with a boiler, not shown, so as to receive steam therefrom.

For heating of the head 10, and also for vaporization of any condensation products which will from time to time accumulate in the well or receptacle 25 formed by the lower interior portion of the pipe means represented by the nipples 14 and 15 and the fitting 16, we provide a steam tube 26 which may consist of a length of copper tubing bent into substantially the shape shown in Figs. 2, 3, and 4, with the ends 27 and 28 thereof disposed at the lower end of the pipe means or column 11, and with the intermediate portion of this steam tube 26 extending up through the pipe means and into the interior 12 of the head 10, that portion of the steam tube 26 which lies within the head 10 being disposed so as to have heat exchanging relation with the wall of the head 10. Means 29 are provided, as shown in Fig. 2, to close the lower end of the pipe means or column 11 around the lower ends 27 and 28 of the steam tube 26, so that steam from the supply piping 20 cannot pass upwardly inside the column 11 around the exterior of the end portions of the steam tube 26, thereby preventing the passage of steam under pressure from the elbow 21 through the column 11 to the interior of the head 10. However, the interior of the steam tube 26 may receive steam from the elbow 21 through the open ends thereof which are exposed to direct communication with the interior of the elbow 21. Accordingly, this steam which passes into the steam tube 26 will heat the tube and heat from the tube will pass to the walls of the head 10 to heat the same to an ironing temperature.

That portion of the steam tube 26 which extends within the head 10 is formed into a loop 30 of such size that the portions of the tube 26 within the head 10 will lie in the corner space 31 formed by the meeting of the edges of the upper and lower wall members 32 and 33 of the head 10. In preferred practice, the head 10 is made in several parts, such as the upper part 32 and the lower part 33, to facilitate placing of the loop 30 of the steam tube 26 therein and the meeting edges of these parts 32 and 33 are joined as, for example, by use of solder. The loop 30 of the steam tube 26 is connected to the wall

of the head 10 in heat exchanging contact, preferably by application of solder as indicated at 34, Fig. 3, this solder being used onto the adjacent surfaces of the steam tube 26 and the wall of the head 10 so as to form a metal bridge between the steam tube 26 and the wall of the head 10, through which heat from the tube 26 will be readily transmitted to the wall of the head. As shown in Figs. 2 and 3, steam discharge ports or openings 35 of relatively small diameter are formed in the upper wall of the head 10, through which steam, without condensed moisture, may be delivered to the fabric which is being ironed by contact with the upper face of the head 10.

As previously indicated herein, steam within the steam tube 26 will result in the transmission of heat directly from the loop 30 to the walls of the head 10 to heat the same. Likewise, heat radiated from the portions of the tube extending through the column 11 will heat the interior of the column. During the use of the puff iron, the fabric to be ironed is applied to the external face of the head 10, and as desired, the valve 22 is operated by pressing down on the handle 40 thereof so that controlled amounts of steam will pass through the tube 17 into the hollow column 11, to rise through the nipple 14 into the interior space 12 of the head 10, from which it will pass through ports or openings 35 to the fabric being ironed. The distance from the point of admission 41 of this steam from the discharge port 35 is such that any condensation product carried with the steam will have ample opportunity to separate from the steam before it passes through the port 35 to the fabric. Such condensation may come into direct contact with the portions of the steam tube 26 within the column 11 and be immediately vaporized, or it may pass down into the well 25 to there receive heat from the lower portions of the tube 26 which will vaporize the same. It will be perceived, accordingly, that the arrangement of parts is such that the steam which is delivered through the discharge ports 35 for the steaming of the fabric is dry due to the fact that it is carried through a path of movement in such a manner that condensation is effectively separated therefrom, for example, the supply piping 20 and the steam tube 26, are tubular and accordingly of such character as to safely carry the steam pressures applied therein.

We claim as our invention:

1. In a steam puff iron of the character described, the combination of: a hollow head of heat conductive material having an opening in the lower part thereof; pipe means communicating with said opening and extending down from said head; a steam tube having the ends thereof disposed in the lower part of said pipe means and the intermediate portion thereof extending through the upper portion of said pipe means into said head in heat exchanging relation to the walls of said head; means for closing the lower part of said pipe means around the ends of said steam tube so that the openings in the ends of said steam tube will be exposed; and means for connecting the lower part of said pipe means to a steam supply pipe so that the openings in the ends of said steam tube will communicate with the interior of said steam supply pipe.

2. In a steam puff iron of the character described, the combination of: a hollow head of heat conductive material having an opening in the lower part thereof, said hollow head having at least one steam outlet port therein; pipe means

communicating with said opening and extending
down from said head; a steam tube having the
ends thereof disposed in the lower part of said
pipe means and the intermediate portion there-
of extending through the upper portion of said
pipe means into said head and being soldered to
the wall of said head in heat exchanging relation
to the walls of said head; means for closing the
lower part of said pipe means around the ends of
said steam tube so that the openings in the ends
of said steam tube will be exposed; means for

5 connecting the lower part of said pipe means to
a steam supply pipe so that the openings in the
ends of said steam tube will communicate with
the interior of said steam supply pipe; and
means for feeding controlled amounts of steam
into said pipe means at a point above the bottom
thereof, so that such steam may pass through
said head and said outlet port to the fabric being
ironed.

ALBERT J. WEBER.
COLLIN P. McCRACKEN.