

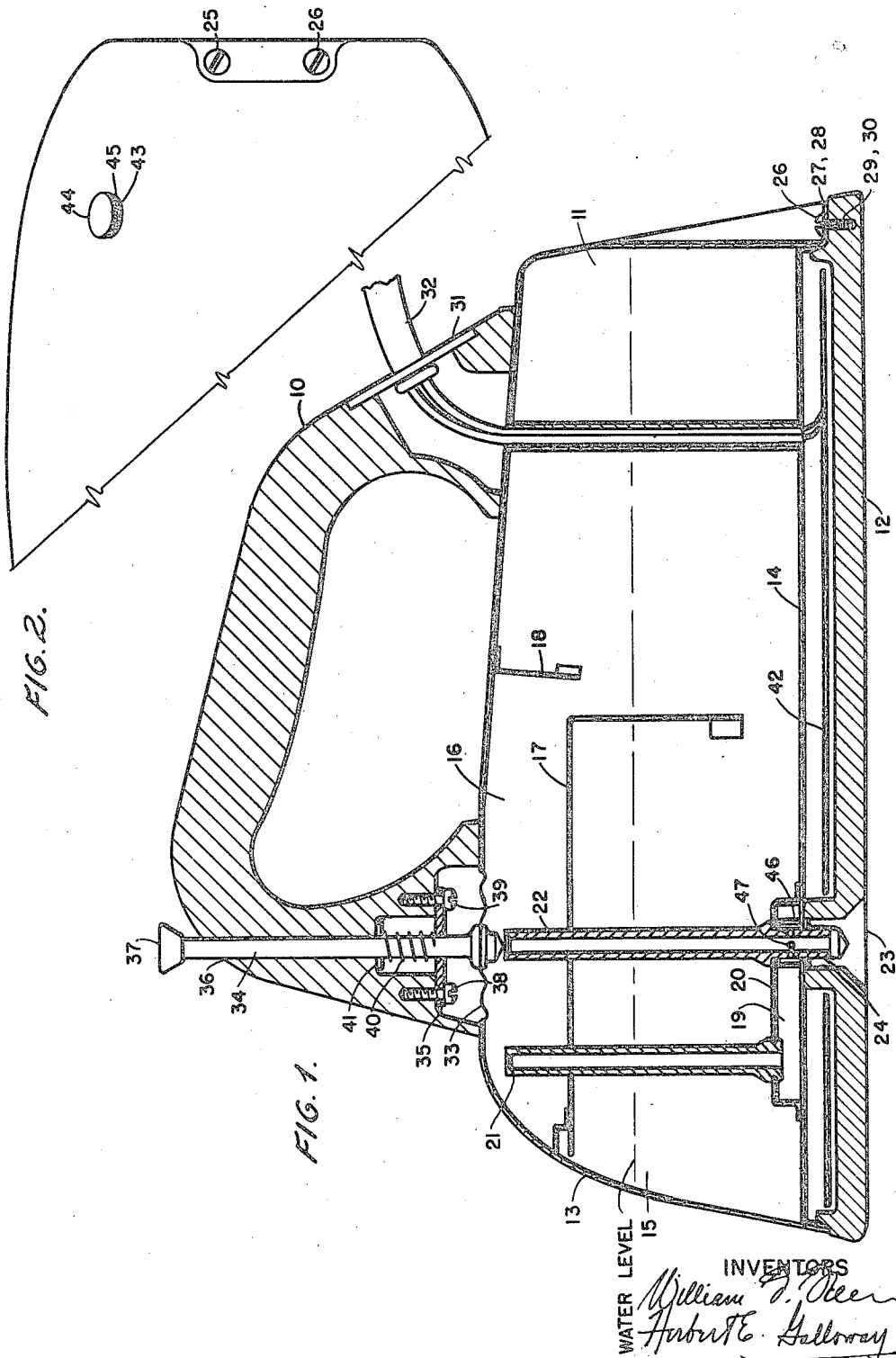
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STEAMING AND PRESSING IRON

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STEAMING AND PRESSING IRON

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This invention relates to pressing irons, and has for its object the provision of an improved pressing iron, so arranged that it may be used to generate steam for use as a "steam" iron, or may be used as a conventional "dry" iron.

More particularly, this invention relates to a steam iron provided with a water reservoir and steam generating chamber, and contemplates the provision of a steam iron of this character having an improved organization of parts. This improved organization of parts includes suitable means of controlling the character of the iron during use, whereby it may be used as a "steam" iron or a "dry" iron. Irons of this type eliminate the need of preliminary sprinkling or the use of a damp cloth during pressing operations.

Pressing irons of this type should, to be capable of efficient use, be provided with some means of controlling the flow of steam, in order that the article being pressed may not be subjected to a continuous flow of damp steam, especially when it is desirable to finish "dry." One object of the present invention, therefore, is to provide a means of directing the flow of steam through a superheater for the purpose of drying the damp steam before emission, by means of an integral valve construction controllable by means of an operating element arranged in convenient relation with respect to the handle of the iron.

Among the objects of this invention is to provide a construction that will prevent water or damp steam from flowing out of the iron upon the article being pressed.

Another object is the construction of an iron which will be simple and durable and which may be manufactured and sold at a reasonable cost.

For further comprehension of the invention, and of the objects and advantages thereof, reference will be had to the following description and appended claims, and to the accompanying drawing, wherein the various novel features of the invention are more particularly set forth.

For a better understanding of the present invention reference may be had to the accompanying drawings in which:

Fig. 1 is a sectional view of a pressing and steaming iron embodying the present invention; and

Fig. 2 is a top fragmentary view in order to illustrate the water filler opening for the pressing iron of Fig. 1.

As shown in the enclosed drawing, the electric iron illustrating the principles of this invention, is comprised exteriorly of a handle 10, a body 11, and a sole plate or pressing surface 12. The body

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11 is made up of a shell 13, and a bottom plate 14, and contains within itself a water chamber 15 and a steam dome or chamber 16 operatively separated by a baffle plate 17 and a splash shield 18, and a superheater chamber 19, operatively separated by the superheater shell 20. These parts are manufactured by stamping and forming from sheet metal, for instance, stainless steel, assembled in position by welding or other means which will make steam and water tight joints where necessary.

Extending upwardly from the superheater shell 20 and through the baffle plate 17, is the superheater steam supply tube 21. Extending upwardly through the bottom plate 14, the superheater shell 20, and the baffle plate 17 is the combination steaming tube and fastening stud 22.

The sole plate 12 is secured to the body 11 forwardly by means of the combined fastening nut and steam port 23, which seats against a prepared surface in the soleplate and fastens to the lower portion of the combined steam tube and fastening stud 22 by means of a screw thread 24, thus drawing the parts into the proper relationship and there securing them. Rearwardly the sole plate 12 and body 11 are secured together by means of the two screws 25, 26 fitting through punched or drilled holes 27, 28 in the body 11 and into tapped holes 29, 30 in the sole plate 12.

The handle 10, is preferably moulded in one piece of some one of the plastic materials, such as Ethocel, Tenite, or similar product, and having the forwardly depending portion made hollow to house a part of the steam controlling mechanism, and the rearwardly depending portions made hollow and provided with a closure 31 to permit installation of the electric cord 32. The installation and connections of this cord are made in a manner known to the art and need not be further described here.

In the top forward part of the shell 13, and directly under the hollow forwardly depending portion of the handle 10, is a flexible diaphragm 33 preferably made of thin corrugated metal such as brass and preferably secured in place by spinning, the other types of diaphragms and means of securing in place may be used. Through the center of and securely fastened to the diaphragm passes the stem of the steam controlling needle valve 34. The lower end of this needle valve stem 34 is so shaped that it may firmly and tightly seat in the upper end of the steam tube 22, which is so shaped that a steamtight closure is formed when the corresponding ends of the stem 34, and the tube 22 are brought into intimate contact.

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The stem 34 passes upwardly through a hole in the springplate 35 and through the hole 36 in the upper part of the handle, terminating in a thumb piece 37.

Spring plate 35, is set against a shoulder in the hollow forwardly depending portion of the handle 10 and is held in place by the retaining screws 38 and 39. Above the plate is a return spring 40, which is slidably coiled around the stem 34, and bears against the spring plate 35 and a pin 41 driven through the stem 34.

Between the bottom plate 14 of the body 11 and the sole plate 12 in a space provided, is the heating means, for instance an electrical resistance coil 42. Such coils and their methods of operation are well known to the art and need not be here described.

The operation of the iron may be described as follows:

Water is introduced in the water chamber 15 through the filler hole 43, which is then closed by means of the screw plug 44 and gasket 45. Heat is then applied, by means previously described, and the water brought to the boiling point, generating steam, which collects in the steam dome 16. To dampen and iron an article, the thumb piece of the needle valve 34 is lifted up, thereby allowing steam to pass down through the tube 22 and the ports in the nut 23, and thence to the article being ironed, thus dampening while ironing, and securing the effect of steaming. For finish ironing, the thumb-piece 37 is depressed, thereby seating stem 34 in tube 22 and stopping the flow of steam through tube 22. The steam, however, must escape somewhere, and therefore now travels down the superheater tube 21 to the superheater chamber 19. The bottom of the superheater chamber 19 being hot and dry by reason of close association with the heating means causes the damp steam to instantly flash into dry superheated steam. The dry and superheated steam passes through the openings in the collar 46 and through holes 47 into the lower part of the steam tube 22 and the ports in the nut 23, and out upon the article being ironed. The superheated steam, of course, must not be too hot, lest it should scorch the article being ironed. This object may be achieved by several means, but preferably by limiting the size of the superheater chamber 19 as may be found desirable, and thereby limiting the amount of superheat that may be introduced.

While we have shown and described a particular embodiment of our invention, it will be obvious to those skilled in the art that various changes and modifications may be made without departing from our invention in its broader aspects and we, therefore, aim in the appended claims to cover all such changes and modifications as fall within the true spirit and scope of our invention. We claim:

1. A steaming and pressing iron comprising a sole plate provided with at least one opening for discharging steam into the material to be pressed, means for heating said sole plate, structural means defining a liquid storage and steam generating chamber arranged in heat transfer relationship with said heating means, means defining a steam superheating chamber arranged in heat transfer relationship with said heating means and communicating with said opening to discharge superheated steam therethrough, a first elongated tubular member connecting said steam generating chamber with said opening to discharge wet steam through said opening, a second elongated tubular member connecting said steam

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chamber and said superheating chamber to transmit steam from said steam chamber to said superheating chamber for drying and thence through said opening to the material to be pressed, and valve means cooperating with at least one of said tubular members for causing steam generated in said steam chamber to be discharged through said opening either directly through said first tubular member or through said second tubular member and said superheating chamber.

2. A steaming and pressing iron comprising a sole plate provided with at least one discharge opening for discharging steam into the material to be pressed, means for heating said sole plate, structural means defining a liquid storage and steam generating chamber arranged in heat transfer relationship with said heating means, means defining a steam superheating chamber arranged in heat transfer relationship with said heating means, a first elongated tubular member extending through said superheating chamber and connecting said steam generating chamber with said discharge opening to discharge wet steam through said opening, said tubular member having at least one opening through the wall thereof disposed in said superheating chamber to conduct superheated steam from said superheating chamber to said discharge opening, a second tubular member connecting said steam chamber and said superheating chamber to transmit steam from said steam chamber to said superheating chamber for drying and thence through said openings to the material to be pressed, and valve means cooperating with at least one of said tubular members for causing steam generated in said steam chamber selectively to be discharged through said discharge opening either directly through said first tubular member or through said second tubular member, said superheating chamber and the wall opening in said first tubular member.

3. A steaming and pressing iron comprising a sole plate provided with at least one discharge opening for discharging steam into the material to be pressed, means for heating said sole plate, structural means defining a liquid storage and steam generating chamber arranged in heat transfer relationship with said heating means, means defining a steam superheating chamber arranged in heat transfer relationship with said heating means, a first elongated tubular member extending through said superheating chamber and connecting said steam generating chamber with said discharge opening to discharge wet steam through said opening, said tubular member having at least one opening through the wall thereof disposed in said superheating chamber to conduct superheated steam from said superheating chamber to said discharge opening, a second tubular member connecting said steam chamber and said superheating chamber to transmit steam from said steam chamber to said superheating chamber for drying and thence through said openings to the material to be pressed, the resistance to fluid flow afforded by said second tubular member, said superheating chamber and the wall opening in said first tubular member being greater than the resistance to fluid flow afforded by said first tubular member, whereby wet steam is normally delivered to said discharge opening directly from said steam chamber, and valve means selectively operable to block the admission of steam to said first tubular member, thereby to force steam generated in said steam chamber to be discharged through said

discharge opening over a path which includes said second tubular member, said superheating chamber and the wall opening in said first tubular member.

4. A steam iron comprising a sole plate having means defining an opening for discharging steam onto material to be pressed, heating means for heating said sole plate, a body member comprising a liquid storage and steam chamber disposed in heat transfer relationship with said sole plate, a superheater chamber in close proximity to said heating means and connected to said opening for discharging superheated dry steam through said opening to the material to be pressed, an elongated tubular connecting member for connecting said steam chamber with said opening to permit wet steam to pass from the steam chamber through said opening to the material to be pressed, another elongated tubular member interconnecting said steam chamber with said superheater chamber for permitting steam to pass into said superheater chamber from said steam chamber to be heated and dried and subsequently forwarded to said opening in the soleplate and thence to the article being pressed, a steam controlling means for controlling the flow of steam through said tubular members comprising a manually actuatable plunger for blocking passage of steam from said steam chamber into one of said tubular members, and a spring mechanism for biasing said plunger away from its blocking position, said manually actuatable plunger being controllable by an operator to close the passageway through said one tubular member and thus block the passage of steam directly through said passageway onto the material to be pressed and forcing the steam to pass through the other tubular member into the superheater chamber and thence to the material to be pressed.

5. A steaming and pressing iron comprising a sole plate provided with at least one opening for discharging steam onto the material to be pressed,

heating means for said sole plate, means defining a liquid storage chamber disposed in heat transfer relationship with said heating means and said sole plate, a steam chamber disposed in said liquid storage chamber causing wet steam to collect in said steam chamber, a superheating chamber in good heat transfer relationship with said sole plate and operative to convert wet steam from said steam chamber into dry steam, and means for selectively transmitting steam from said steam chamber through said opening either directly from said steam chamber in wet form or after operation of said superheating means to convert the wet steam into dry steam.

6. A steaming and pressing iron comprising a sole plate provided with at least one opening for discharging steam onto the material to be pressed, heating means for said sole plate, means defining a liquid storage chamber disposed in heat transfer relationship with said heating means and said sole plate, a steam chamber disposed in said liquid storage chamber, means defining a steam superheating chamber also disposed in said liquid storage chamber and in good heat transfer relationship with said heating means, and means for selectively discharging steam from said steam chamber either directly through said opening or through said superheating chamber and then through said opening.

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