

March 7, 1944.

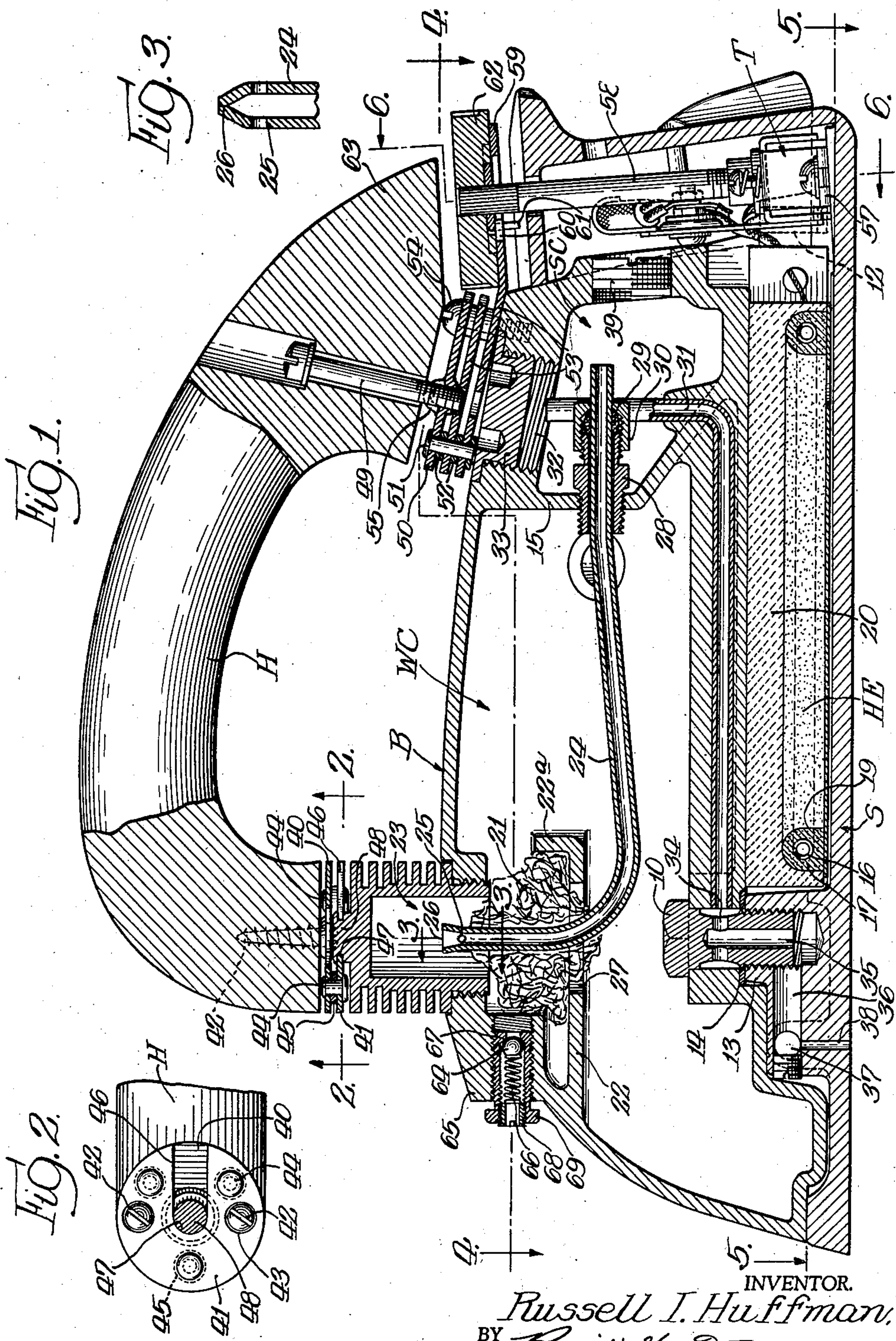
R. I. HUFFMAN

2,343,555

STEAM GENERATING SADIION

Filed March 5, 1941

2 Sheets-Sheet 1



INVENTOR.
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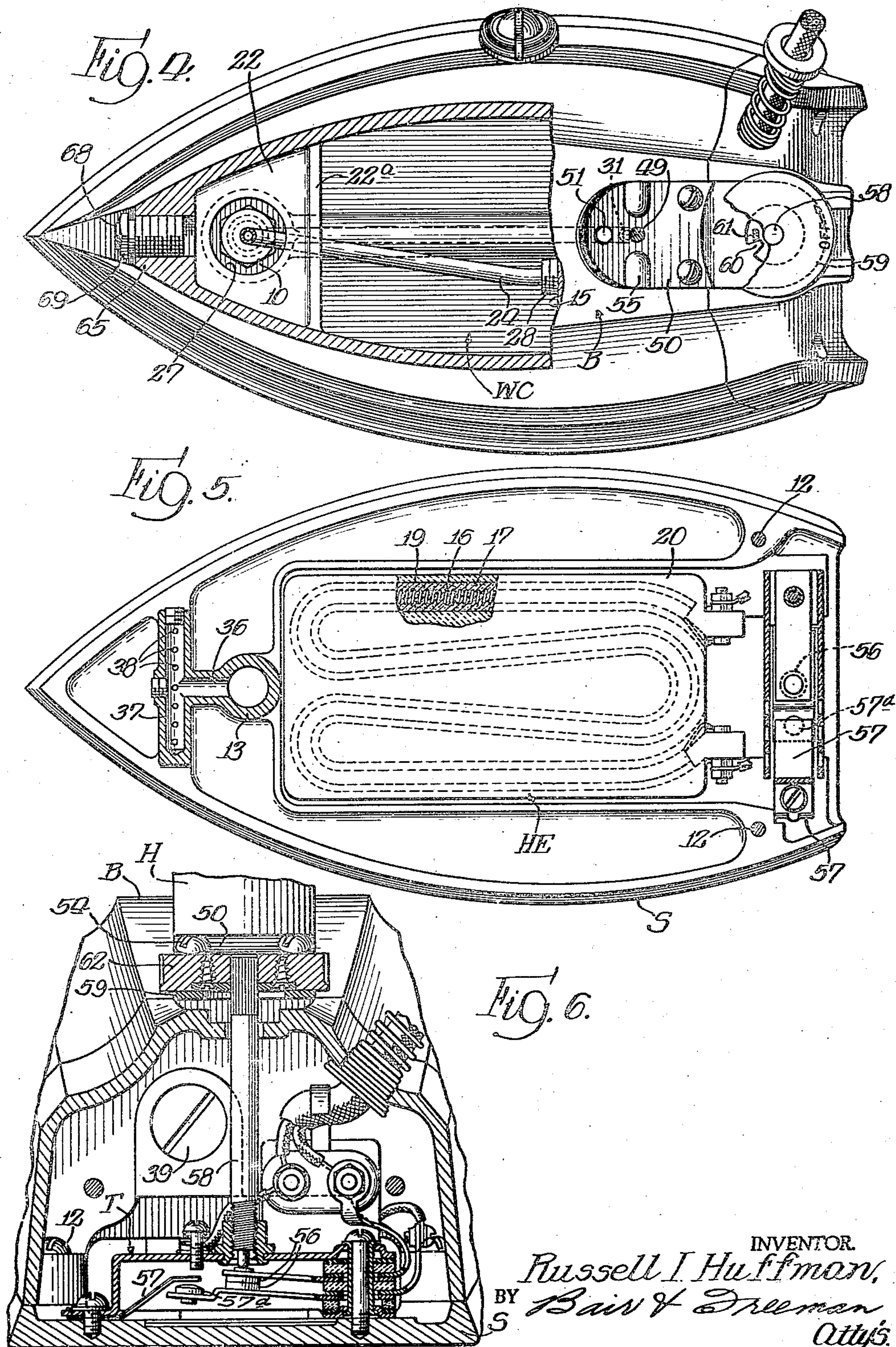
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STEAM GENERATING SADIRON

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Application March 5, 1941, Serial No. 381,871

3 Claims. (Cl. 38-77)

My present invention relates to a sad iron wherein steam is generated by electricity and discharged through steam emitting openings in the lower surface of the sole plate.

One object of the invention is to provide an iron wherein a steam dome receives steam from a water chamber and transfers it to a steam chamber through a steam tube, the dome being provided with heat radiating fins to minimize transmission of heat to a handle having its forward end connected with the steam dome.

Another object is to provide a novel means of connecting the handle to the steam dome so that it can be merely hooked thereon and the rear end of the handle then fastened to another set of heat radiating fins, which latter fastening will retain the front end of the handle connected with the steam dome.

A further object is to provide a relief valve for excess steam pressure which is located to project the steam forwardly at the front end of the iron so that it does not come in contact with the user's hand during ironing operations.

Still a further object is to provide a novel trap plate arrangement in the forward end of the iron to prevent splashing of the water into the steam dome and to provide an opening in the trap plate through which a steam collecting tube may extend.

Still a further object is to provide an effective steam-tight joint between the steam delivery tube and a partition wall within the body of the iron, which joint is accessible through a removable plug overlying it.

An additional object is to provide a thermostat with an operating knob located just under the rear end of the handle for the iron, the handle itself serving to retain the adjusting knob in its assembled position.

With these and other objects in view, my invention consists in the construction, arrangement and combination of the various parts of my device whereby the objects contemplated are attained, as hereinafter more fully set forth, pointed out in my claims and illustrated in the accompanying drawings. Although the invention is susceptible of a variety of embodiments, it is unnecessary to fully describe and illustrate more than one in order to give a full understanding of the invention both from its structural and functional standpoints. Accordingly, I have illustrated a preferred and desirable embodiment of the invention in the accompanying drawings, in which:

Figure 1 is a vertical longitudinal sectional view through a steam generating sad iron embodying my present invention;

Figure 2 is a sectional view on the line 2-2 of Figure 1, showing connection of the front end of the handle to the steam dome of the iron;

Figure 3 is an enlarged sectional view on the line 3-3 of Figure 1, showing the formation of the intake end of a steam delivery tube;

Figures 4 and 5 are horizontal sectional views on the lines 4-4 and 5-5, respectively, of Figure 1, and

Figure 6 is a vertical sectional view on the line 6-6 thereof.

On the accompanying drawings, I have used the reference character S to indicate a sole plate and B to indicate in general a hollow body. The hollow body B is retained on the sole plate S by a hollow cap screw 10 at the forward end and a pair of screws 12 at the rear end. The cap screw 10 extends into a threaded boss 13 of the sole plate S and a gasket 14 is interposed between the two to prevent steam leakage at this point.

The front portion of the body B constitutes a water chamber WC while the rear portion thereof constitutes a steam chamber SC. The chambers WC and SC are divided by a partition 15.

Steam is adapted to be generated in the water chamber WC by a heating element HE consisting of a resistance wire 16 embedded in insulating material 17 in a groove 19 of a block of insulation 20.

The steam generated in the water chamber WC passes through a quantity of brass wool or the like 21 supported on a trap plate 22 and enters a steam dome 23. The trap plate 22 has a vertical flange 22a to retain the brass wool 21 in position. The steam dome 23 is threaded into the body B adjacent the front end thereof and the steam received therein is adapted to enter a steam tube 24 through perforations 25 thereof. The perforations 25, as shown in Figure 3, are adjacent a closed upper end 26 of the tube 24. The tube curves downwardly through a relatively large opening 27 in the trap plate 22 and then extends rearwardly through a fitting 28. The fitting 28 is threaded into the partition 15 and a steam-tight joint is then provided by means of a bushing or ferrule 29 compressed around the tube 24 by a compression nut 30. A plug 31 in the back of the body B permits access to the nut 30.

The opening 27 is adapted to receive a socket wrench for the cap screw 10. Steam from the tube 24 is discharged into the steam chamber SC and from there it passes through a second steam tube 31 to the cap screw 10. The tube 31 has its rear end adjacent the top of the steam cham-

ber SC within a threaded opening 32 thereof which receives a closure plug 33. The tube 31 is cast in the body member B and terminates in communication with openings 34 and a bore 35 of the cap screw 10. The bore 35 in turn communicates with a passageway 36 and a manifold space 37. The sole plate S is provided with a plurality of steam emission openings 38 communicating with the manifold space 37. A handle H is provided for my sad iron and it is connected at its forward end to the steam dome 23 by means of a pair of fin members 40 and 41. The fin member 40 is directly secured to the handle H by a pair of screws 42, to which access is had through enlarged openings 43 of the fin 41. The fins 40 and 41 are secured together in spaced relation by rivets 44 and washers 45, and the lower fin 41 is provided with a notch 46. The notch 46 is adapted to be hooked into an annular groove 47 of a headed element 48 on the top of the steam chamber 23.

The rear end of the handle H is secured by a single screw 49 to a fin plate 50. The fin plate 50 is secured by rivets 51 and washers 52 to a pair of fin plates 53. The entire assembly of plates 50 and 53 is then secured to the top of the body B by a pair of screws 54 in a position overlying the closure plug 33. The fin plate 50 is provided with a pair of projections 55 to space the handle H from the plate. When the screw 49 is in position, it prevents disassembly of the notch 46 of the fin 41 from the steam dome 23.

At the rear end of the iron, a thermostat T is provided which includes a pair of contacts 56 in series with the heating element HE, in the usual manner, and a bimetal element 57 responsive to heat of the sole plate S and operable to engage an insulation element 57a and thereby depress the lower contact 56 to separate it from the upper one when a predetermined temperature is reached. The setting of the thermostat T may be adjusted by a screw threaded shaft 58 in the usual manner.

The shaft 58 extends upwardly through an extension 59 from the rear end of the lower fin plate 53. This extension has a stop lug 60 adapted to coact with a stop finger 61 of an adjusting knob 62 for the shaft 58. The knob 62 has a knurled bore coacting with a knurled upper end of the shaft 58 and is retained on the shaft by a tailpiece 63 of the handle H overlying the knob.

At the forward end of the body B a boss 65 is provided, in which I mount a relief valve 64. The valve 64 is seated normally by a spring 66 against a seat 67 and the tension of the spring may be adjusted by a tubular set screw 68. The element 69 is a lock nut for the set screw 68. It will be noted that the relief valve 64 discharges in a forward direction whenever it is open.

The steam generating sad iron herein disclosed has a number of improved features when compared with the copending applications of Stiller and Altman, Serial No. 251,209, filed January 16, 1939, now Patent No. 2,262,661, issued November 11, 1941, and Serial No. 342,132, filed June 24, 1940. Such features consist of the handle arrangement whereby fins at both the front and rear keep the handle relatively cool and accordingly more comfortable to operate. The relief valve 64 discharges in a forward direction, so that there is no danger of the operator's hand being burned while using the iron. The trap plate 22 is arranged so that due to its construction, including the flange 22a, it will retain the

brass wool 21 in position. The steam tube joint at 28—29—30 is an improvement over the former applications, and the handle is used to retain the thermostat knob in position. All of these features contribute to the making of a steam iron which is more efficient and less expensive to manufacture on a commercial scale.

Some changes may be made in the construction and arrangement of the parts of my device without departing from the real spirit and purpose of my invention, and it is my intention to cover by my claims any modified forms of structure or use of mechanical equivalents which may be reasonably included within their scope without sacrificing any of the advantages thereof.

I claim as my invention:

1. In a steam iron, a sole plate having steam emission openings, means to heat said sole plate, a hollow body superposed on said sole plate and constituting water and steam chambers, said water chamber being ahead of the steam chamber and having therein a trap plate extending in a substantially horizontal plane, said trap plate having a vertical flange extending upwardly from its rear edge, said trap plate having an opening, a first steam tube extending through a partition between said water and steam chambers, through said opening and upwardly, a steam dome enclosing the upper end of said steam tube, a second steam tube extending from the upper portion of said steam chamber to said steam emission openings, and a quantity of metallic wool on said trap plate and retained thereon by said flange and said steam dome, said metallic wool bridging the space between said first steam tube and the inner edge of said opening.

2. In a steam generating said iron of the character disclosed, a sole plate, a hollow body superposed thereon, water and steam chambers within the front and rear respectively of said body, a partition between said chambers, a steam dome for said water chamber, a trap plate therebelow having an enlarged opening therethrough a steam tube extending through said opening and having an intake end located in said steam dome and an outlet end mounted in said partition, loose water trapping material on said trap plate surrounding the intake end of said steam tube and spanning the distance between said trap plate and said steam dome a second steam tube having an intake end terminating in said steam chamber adjacent the top thereof, steam emission openings in said sole plate communicating with the other end of said second steam tube, and a heating element between the bottom wall of said body and said sole plate.

3. In a steam iron, a sole plate having steam emission openings, heating means for said sole plate, a hollow body superposed on said sole plate and constituting a steam generating chamber, said chamber having therein a trap plate extending in a substantially horizontal plane, said trap plate having an opening, a steam tube substantially smaller than said opening extending upwardly through it, a steam dome spaced above said trap plate and enclosing the upper end of said steam tube, means of communication from said steam tube to said steam emission openings, and a quantity of loose water trapping material supported on said trap plate, covering that portion of said opening around said steam tube and extending into said steam dome to terminate below the upper end of said steam tube therein.

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