Aug. 31, 1943. H. E. BREMER 2,328,124

STEAM GENERATING ELECTRIC IRON

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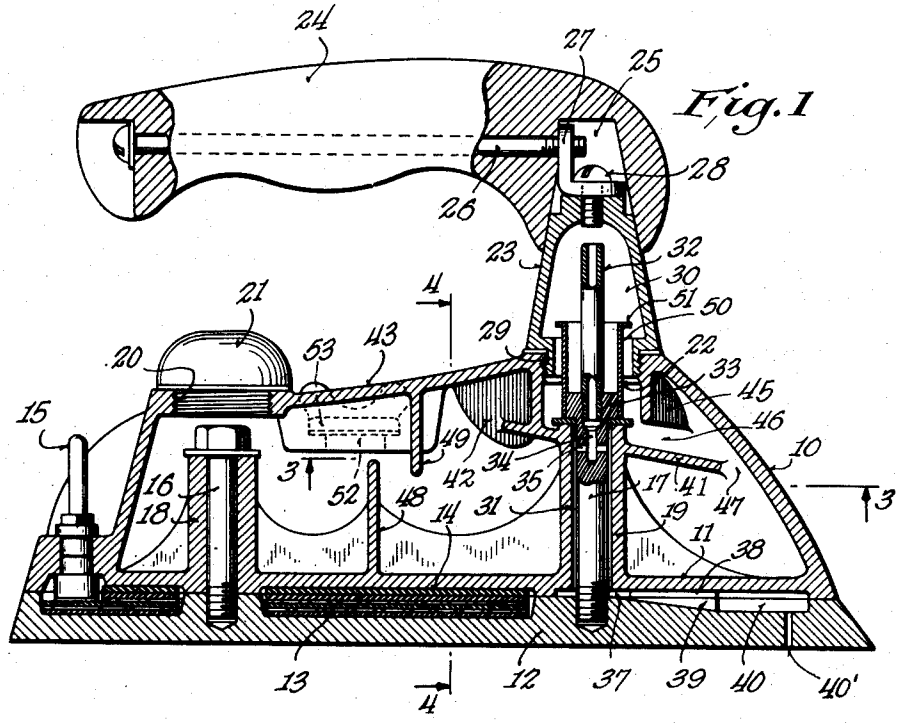


Fig. 1

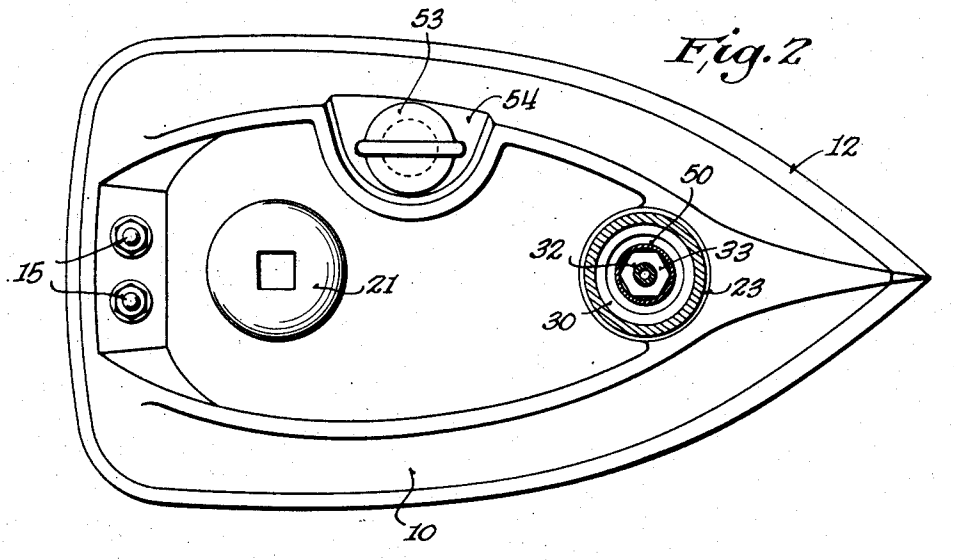


Fig. 2

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Fig.3

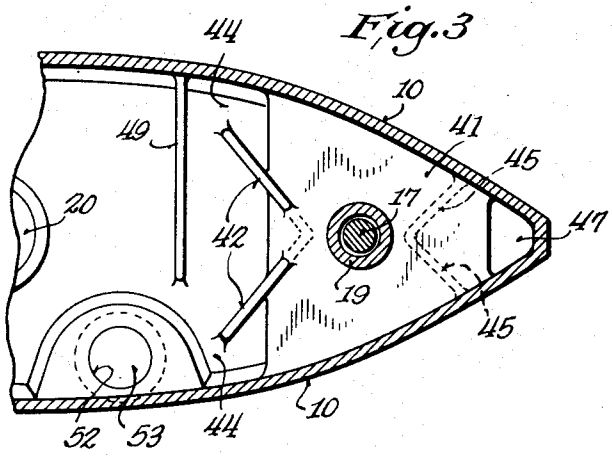


Fig.4

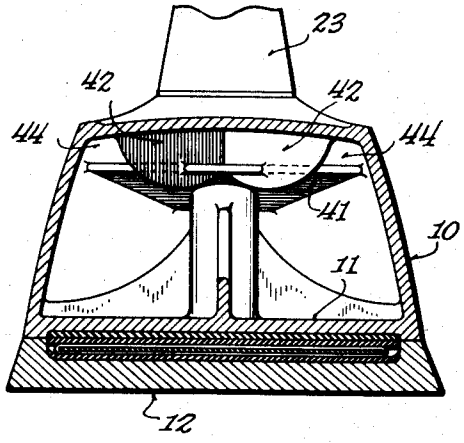
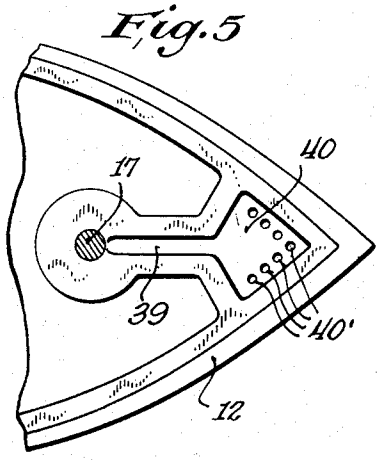


Fig.5



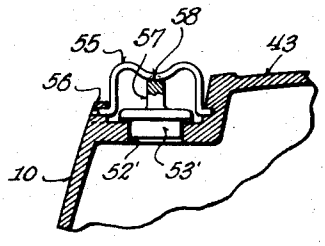


Fig.6

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STEAM GENERATING ELECTRIC IRON

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7 Claims. (Cl. 38—77)

This invention relates to steam-generating electric irons.

In electric irons of the character mentioned the body of the iron ordinarily constitutes a water reservoir in which steam is generated by the heat of the iron and from which steam is directed through the base of the iron, usually adjacent the point, in such manner as to apply steam to the goods during pressing thereof. The use of such irons eliminates the need for sprinkling before ironing or the use of damp cloths during pressing operations.

As heretofore designed, however, such irons have not proven entirely satisfactory because of an inability to insure against objectionable leakage and discharge of water through the steam outlet. To prevent leakage or discharge of water from such irons is a serious problem aggravated by surging of the contained water as a result of back and forth shifting of the iron during normal use.

One object of the present invention is to provide a steam generating iron so designed as to effectively prevent objectionable discharge of liquid therefrom.

Another object is to simplify and otherwise improve the construction and performance of irons of the character mentioned.

Other more specific objects and advantages will appear, expressed or implied, from the following description of a steam generating electric iron constructed in accordance with the present invention.

In the accompanying drawings:

Figure 1 is a longitudinal sectional view of a steam-generating electric iron embodying the present invention.

Fig. 2 is a top plan view thereof with the handle removed and the steam dome shown in section.

Fig. 3 is a fragmentary section taken along the line 3—3 of Fig. 1.

Fig. 4 is a transverse sectional view taken along the line 4—4 of Fig. 1.

Fig. 5 is a fragmentary top plan view of the forward end of the sole plate.

Fig. 6 is a fragmentary sectional view showing a modified form of closure for the filler opening.

The steam-generating electric iron selected for illustration comprises a closed hollow body portion 10, preferably cast in one piece to form a liquid tight water reservoir, and having a substantially flat bottom 11 tightly seated against the top face of a sole plate 12 to which the body portion is releasably secured preferably in the manner hereinafter described.

In this instance the bottom 11 of the body portion and the sole plate 12 are provided with mating recesses to accommodate a conventional electrical heating element 13 preferably separated from the bottom 11 by an appropriate pad 14 of heat insulating material such as asbestos. Conventional electrical terminals are shown at 15 mounted at the rear end of the body portion 10 and connected to the element 13 in the usual manner.

The body portion 10 is secured to the sole plate 12 by two bolts 16 and 17 which extend downward through hollow posts 18 and 19 within the body portion and which are screwed into the sole plate. The posts 18 and 19 are preferably formed integral with the bottom 11 and extend upwardly above the water level in the body portion so as to avoid any possibility of water seeping therethrough from the water reservoir to the element 13 therebeneath. The post 18 and coacting bolt 16, arranged within the rear of the body portion, are accessible through an opening 20 in the top of the body portion normally closed by an appropriate screw plug 21. The other post 19 and coacting bolt 17, disposed within the forward end of the body portion, are accessible through a separate opening 22 in the top of the body portion normally closed by a vertically extended hollow fitting 23.

The hollow fitting 23 also serves additionally as a steam dome and as a support for an appropriate handle 24 preferably removably attached thereto. The handle shown is provided with a socket 25 fashioned to fit snugly over and about the upper end of the fitting 23 to which it is releasably secured by a tie bolt 26. The bolt 26 is shown extending longitudinally through the handle and screwed into the upright leg of an angle bracket 27 attached by a screw 28 to the top of the fitting.

The hollow fitting 23 communicates through its reduced lower end 29 with the interior of the body portion 10, and thus forms an elevated chamber 30 for receiving steam generated from water within the reservoir.

It will be noted that the bore in the post 19 is somewhat larger than the bolt 17 so as to provide a clearance space 31 therebetween. A steam conducting tube 32, projecting upwardly from the head 33 of the bolt 17 to a point near the top of the chamber 30, communicates with the space 31 through a channel 34 and radial ducts 35 in the bolt 17. A shallow circular re-

cess 37 and communicating shallow channel 38, formed in the bottom face of the body portion 10, cooperate with a mating channel 39, formed in the top face of the sole plate 12, to provide communication between the space 31 and a shallow chamber 40, formed by mating recesses in the sole plate and body portion. A plurality of narrow discharge ducts 40' lead from the chamber 40 through the sole plate 12. A simple and inexpensively formed system of passages is thus provided for conducting steam from the elevated steam dome 30 and discharging the same through the bottom of the iron near the point thereof.

Provision is made for effectively preventing the admission of water from the interior of the iron to this system of passages. In this connection it will first be noted that the dome 30 is arranged near the front or pointed end of the iron where it will not be flooded when the iron is tilted backward upon its heel into the position of rest so commonly assumed in normal use of an iron. In addition to this however a system of baffles has been provided for preventing surging of water into the dome 30 during normal back and forth movements of the iron.

The system of baffles shown has proven quite effective. It includes a substantially flat baffle 41 extending horizontally across the interior of the iron below and spaced from the lower open end of the dome 30 and preferably slightly inclined downwardly toward the front of the iron, so as to insure prompt drainage of any water deposited thereon. A V-shaped baffle having rearwardly divergent wings 42 extends downwardly from the roof 43 of the iron immediately behind the dome inlet and joins with the rear of the baffle 41 to form a force dissipating trap for the water as it surges forwardly within the iron. The small quantities of water which flow past the outer ends 44 of the wings, during such forward surging, are free to drain downward over the baffle 41 and consequently do not enter the dome.

A second V-shaped baffle having forwardly divergent wings 45 is preferably provided immediately in front of the lower open end of the dome 30. This baffle extends downwardly from the roof of the iron toward the baffle 41, leaving a drainage space 46 therebetween. The wings 45 of this baffle extend into the side walls of the iron and provide a force dissipating trap for any water that may surge upwardly through the rather restricted space 47 between the forward end of the baffle 41 and the front of the iron.

Additional upright transverse baffles 48 and 49 are preferably provided so positioned as to discourage the surging of water within the iron. Baffle 48 extends from one wall to the other and upwardly from the bottom of the iron to a point slightly below the normal water level, and the baffle 49 disposed forwardly of the baffle 48 extends downwardly from the roof to a level below the upper edge of baffle 48, so that the force of water surging over the baffle 48 is partially broken and dissipated by the baffle 49.

Although the baffles above described are effective to prevent surging of water upwardly into the dome 30, they alone are incapable of preventing bubbles from climbing up into the open end of the tube 32. To prevent this, an appropriate guard is provided. The guard shown comprises a thin-walled sleeve 50 closely fitted over the bolt head 33 and extending upwardly through the lower open end of the dome 30. The sleeve 50 surrounds the lower portion of the tube 32 and is spaced therefrom and from the walls of the dome. At its upper end the sleeve 50 is preferably provided with an outwardly directed flange 51 which functions as a deflector for any bubbles which tend to climb up the sleeve.

Water is admitted to the interior of the iron through a filler opening 52 closed by an appropriate plug 53 and preferably formed in the bottom of a depression 54 provided in the roof of the iron. The elevation of the filler opening of course determines the maximum water level in the iron, and in the depressed position thereof shown, the water level is so limited as to assure steam space of ample capacity thereabove. The plug shown at 53 in Figs. 1, 2 and 3 is screwed into the filler opening 52.

The plug shown at 53' in Fig. 6 is resiliently retained in closed position in such manner as to permit the same to yield and thus relieve excessive steam pressures within the body portion 10. For this purpose a resilient bale 55 is provided with its ends rockably engaged in sockets, formed in the roof 43 and in an ear 56, disposed at opposite sides of the filler opening 52'. A lug 57 projecting upwardly from the plug 53' is provided with a notch 58 adapted to receive an intermediate depressed portion of the bale 55, by which the plug 53' is resiliently retained on its seat.

Various changes may be made in the embodiment of the invention hereinabove specifically described without departing from or sacrificing the advantages of the invention as defined in the appended claims.

I claim:

1. In a steam-generating electric flatiron the combination of a hollow body portion closed to form a liquid reservoir and steam generating chamber, means forming a steam collecting chamber having an inlet disposed in the top of said generating chamber, steam discharge means communicating with said collecting chamber, and means including a V-shaped baffle having substantially vertical divergent wings with the apex adjacent said inlet to prevent liquid from surging into said steam collecting chamber.

2. In a steam-generating electric flatiron the combination of a hollow body portion closed to form a liquid reservoir and steam generating chamber, means forming a steam collecting chamber having an inlet disposed in the top of said generating chamber, steam discharge means communicating with said collecting chamber, and means including two oppositely directed V-shaped baffles disposed at opposite sides of said inlet to prevent liquid from surging into said steam collecting chamber.

3. In a steam-generating electric flatiron the combination of a hollow body portion closed to form a liquid reservoir and steam generating chamber, means forming a steam collecting chamber having an inlet disposed in the top of said generating chamber, steam discharge means communicating with said collecting chamber, and a system of baffles below said collecting chamber for preventing surging of liquid into said steam collecting chamber, said system including a baffle spaced below the top of said body portion but spanning said inlet, and a substantially vertical V-shaped baffle adjacent said inlet and having substantially vertical divergent wings, said V-shaped baffle being disposed in the space between said first named baffle and the top of said body portion and cooperating with said first named

baffle to form a force dissipating trap for the surging liquid.

4. In a steam generating electric flat iron the combination of a hollow body portion closed to form a liquid reservoir and steam generating chamber, means forming a steam collecting chamber having an inlet disposed in the top of said generating chamber adjacent one end thereof, steam discharge means communicating with said collecting chamber, and a system of baffles for preventing surging of liquid into said steam collecting chamber, said system including a substantially horizontal baffle spaced below the top of said body portion and spanning said inlet, said baffle being inclined downwardly toward the adjacent end of said body portion and having an opening at the lower end thereof, and a substantially vertical V-shaped baffle disposed between the opposite end of said first named baffle and the top of said body portion and substantially closing the opening therebetween, said vertical baffle having wings diverging away from the end of said body portion adjacent said first named baffle.

5. In a steam generating electric flat iron the combination of a hollow body portion closed to form a liquid reservoir and steam generating chamber, means forming a steam collecting chamber having an inlet disposed in the top of said generating chamber adjacent one end thereof, steam discharge means communicating with said collecting chamber, and a system of baffles for preventing surging of liquid into said steam collecting chamber, said system including a substantially horizontal baffle spaced below the top of said body portion and spanning said inlet, said baffle being inclined downwardly toward the adjacent end of said body portion and having an opening at the lower end thereof, and a substantially vertical V-shaped baffle extending downwardly from the top of said body portion above said first named baffle but spaced therefrom, said V-shaped baffle being disposed in the path of liquid surging through said opening and having wings diverging toward the adjacent end of said body portion.

6. In a steam-generating electric flatiron the combination of a hollow body portion having a base and forming a liquid reservoir and steam generating chamber, a steam collecting dome at the top of said generating chamber, steam discharge means in the base of said body portion, means including a tube extending upwardly into said dome for conducting steam therefrom to said discharge means, means including a tubular member surrounding and spaced from said tube, means including an opening for admitting steam from said generating chamber to said collecting dome around the outside of said tubular member, said tubular member forming a cup open at the top to said dome for preventing entry of bubbles from said chamber into said tube.

7. In a steam-generating electric flatiron, the combination of a hollow body portion forming a liquid reservoir and steam generating chamber, a sole plate therebeneath, means integral with the bottom of said body portion and extending upwardly above the water level therein, means concealed within said body portion and extending downwardly through said last named means and engaged with said sole plate for securing the latter to said body portion, and means for transmitting steam from said chamber to and through said sole plate.

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