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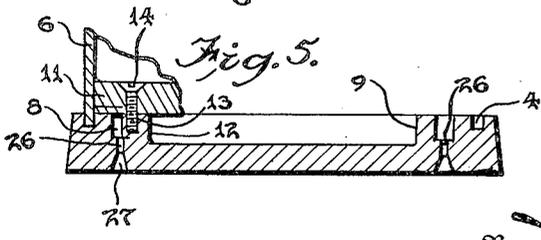
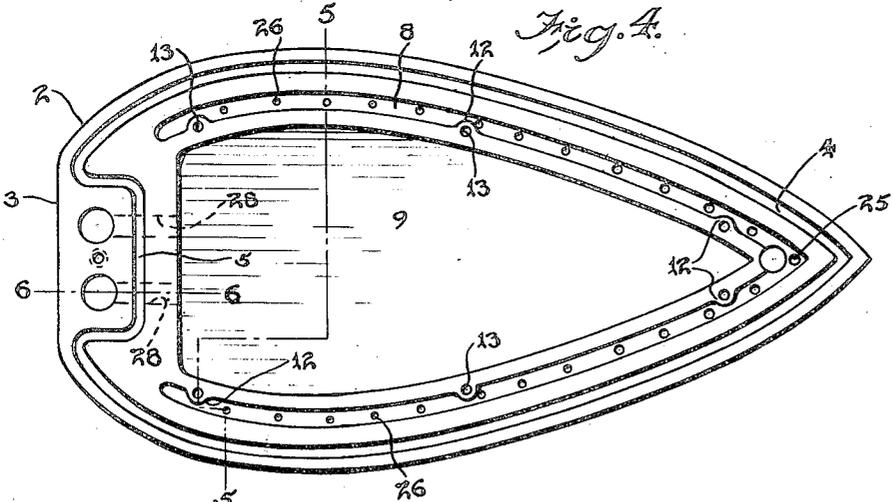
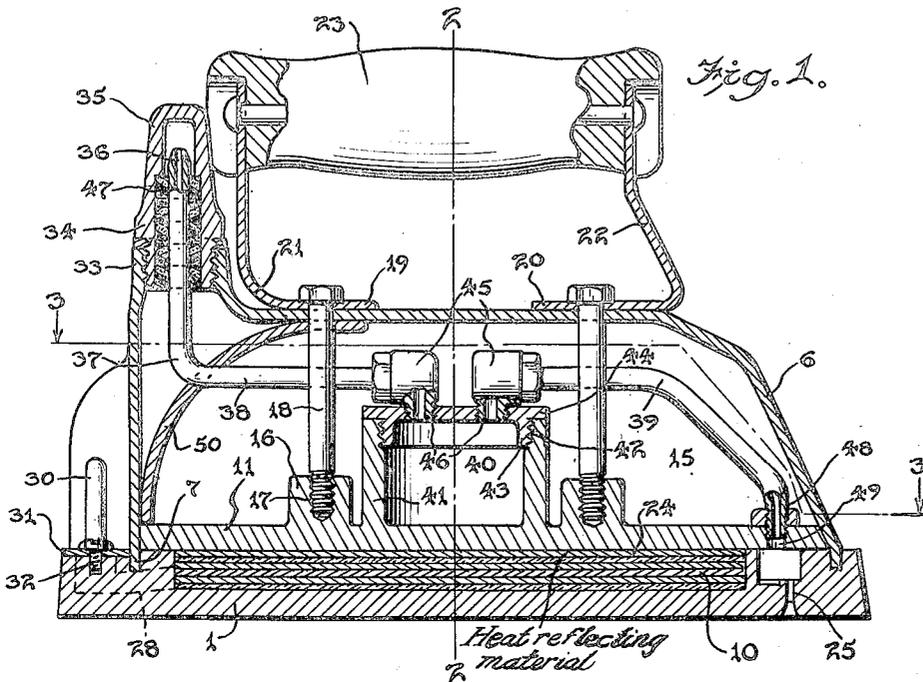
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2,027,767

ELECTRIC IRON AND DAMPENER

Filed Nov. 24, 1934

3 Sheets-Sheet 1



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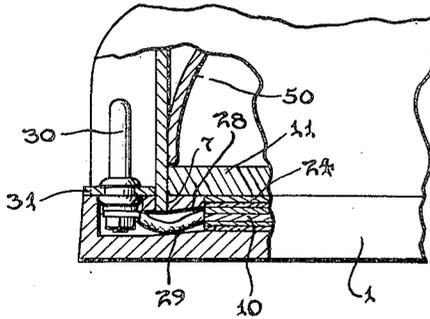
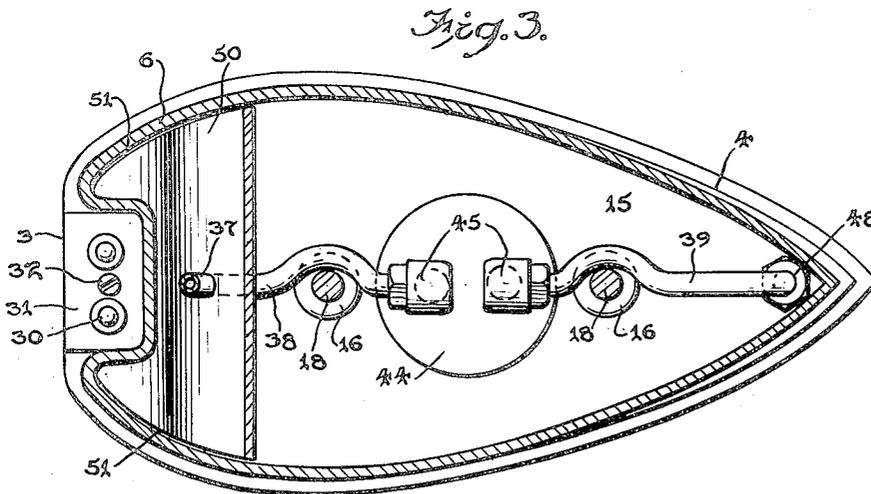
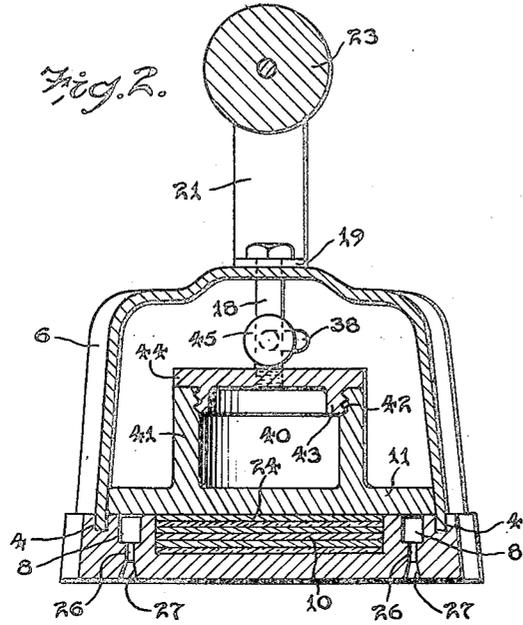
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ELECTRIC IRON AND DAMPENER

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3 Sheets-Sheet 2



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ELECTRIC IRON AND DAMPENER

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3 Sheets-Sheet 3

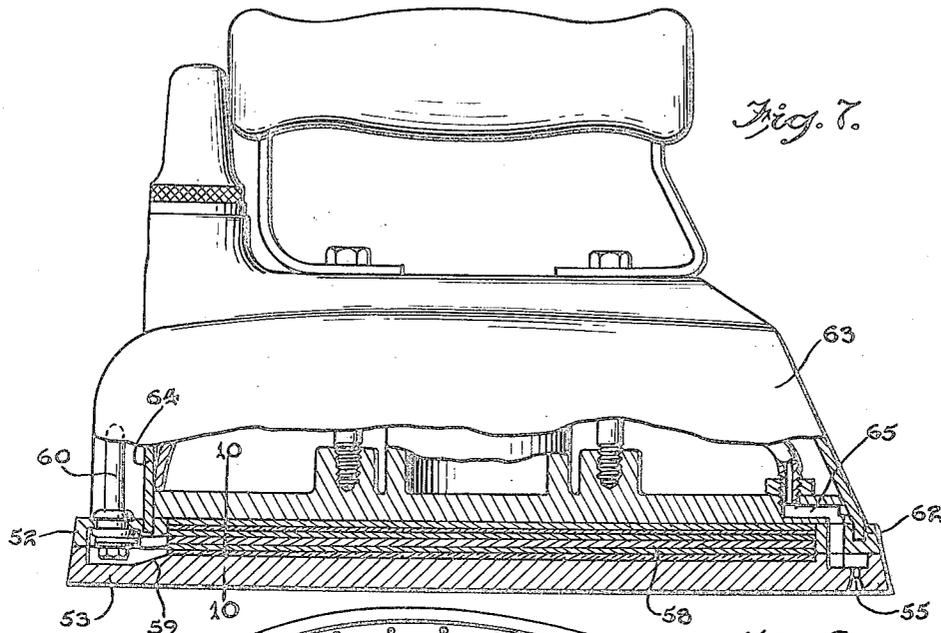


Fig. 7.

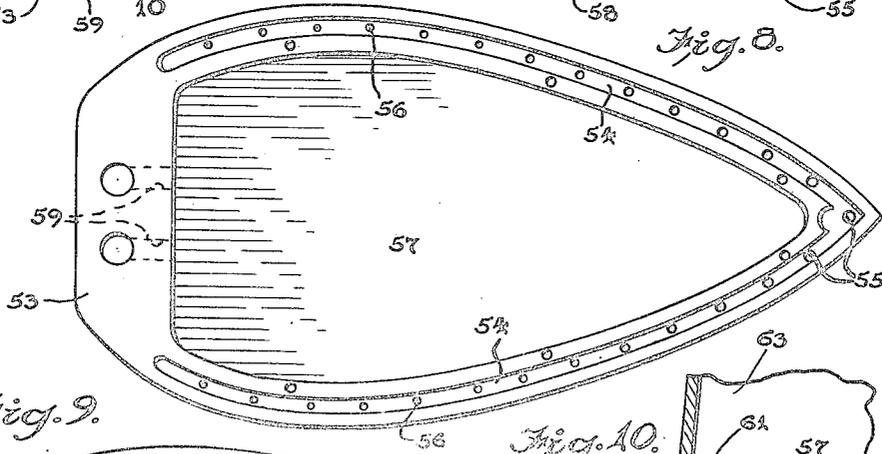


Fig. 8.

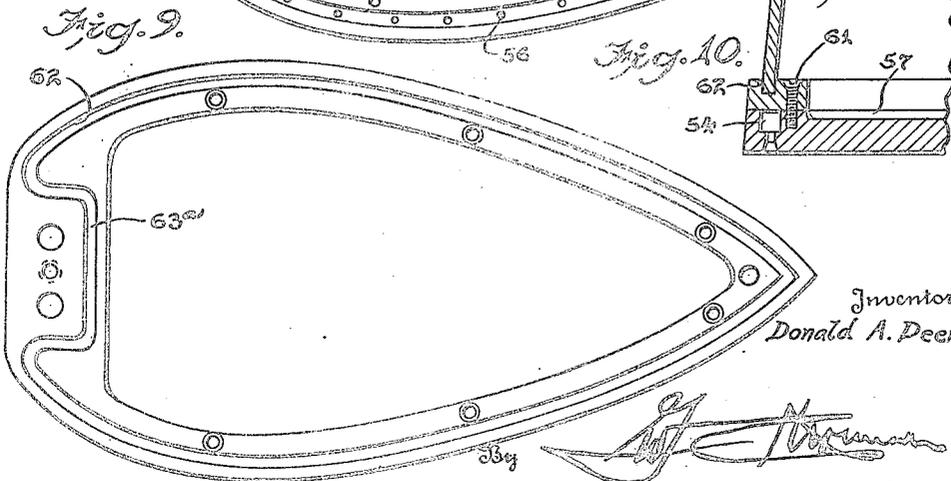


Fig. 9.

Fig. 10.

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UNITED STATES PATENT OFFICE

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ELECTRIC IRON AND DAMPENER

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Application November 24, 1934, Serial No. 754,630

18 Claims. (Cl. 68—26)

The invention relates to an electric iron and dampener.

The object of the present invention is to provide a simple practical and highly efficient electric iron and dampener of strong and durable construction adapted to be easily manufactured at a minimum cost and readily assembled.

A further object of the invention is to provide an electric iron and dampener of this character which will not require any heat adjustment for adapting it for ironing different materials and which if left unattended on a garment or other fabric will not burn the same as long as there is any water in it.

Another object of the invention is to provide an electric iron and dampener adapted for both laundry work and for pressing garments, such as coats, suits and the like, and capable of discharging steam or heated vapor upon the goods being ironed simultaneously with the ironing of the same.

It is also an object of the invention to control without valve mechanism the water contained within the electric iron so as to prevent water from passing through the steam or vapor line and being discharged upon clothes or other articles during the ironing of the same.

Another object of the invention is to provide an electric iron and dampener having an interiorly arranged reservoir of increased capacity to enable it to be continuously used for a maximum period of time without refilling the reservoir.

A further object of the invention is to interpose a heat repellent element between the reservoir and the shoe or base of the iron adapted to enable a greater amount of heat from the heating element to be utilized for the effective portion of the iron; namely, the shoe or bottom thereof, and thereby lessen the consumption of the electric current and at the same time prevent the upper portion of the electric iron containing the handle from being excessively heated.

The invention also has for its object to utilize a single heating element for heating the iron and also for heating the water for supplying the steam employed for dampening purposes.

Another object of the invention is to extend the rear portion of the iron to increase the drying surface and enable the electric iron and dampener to iron a garment so that the same will be completely dry when finished without the necessity of providing means for shutting

off the discharge of steam to accomplish this result.

Another object of the invention is to shape the rear extension so that the iron in its backward movement will slide freely over the goods being ironed without causing the wrinkle or ripple which is ordinarily produced by the backward movement of an iron having the ordinary square or straight rear end.

With these and other objects in view, the invention consists in the construction and novel combination and arrangement of parts herein-after fully described, illustrated in the accompanying drawings and pointed out in the claims hereto appended, it being understood that various changes in the form, proportions and minor details of construction may be resorted to without departing from the spirit or sacrificing any of the advantages of the invention.

In the drawings:

Figure 1 is a longitudinal sectional view of an electric iron and dampener constructed in accordance with this invention.

Figure 2 is a transverse sectional view of the same taken on the line 2—2 of Figure 1.

Figure 3 is a horizontal sectional view of the electric iron and dampener taken on the line 3—3 of Figure 1.

Figure 4 is a plan view of the shoe.

Figure 5 is a detail sectional view taken on the line 5—5 of Figure 4.

Figure 6 is a similar view taken on the line 6—6 of Figure 4.

Figure 7 is a side elevation partly in section illustrating another form of the invention.

Figure 8 is a plan view of the shoe plate of Figure 7.

Figure 9 is a plan view of the shoe shown in Figure 7.

Figure 10 is a detail sectional view taken on the line 10—10 of Figure 7.

Referring particularly to the form of the invention illustrated in Figures 1 to 6 inclusive, the electric iron and dampener comprises in its construction a relatively thick shoe 1 constructed of suitable metal and preferably consisting of a gray iron casting coated or plated to render it rustproof but any other suitable material may, of course, be employed in the construction of the shoe. The shoe tapers forwardly from a point intermediate its ends similar to a conventional sadiron and the rear portion 2 of the shoe is extended and tapered or rounded to increase the drying surface of the electric iron and at the same time enable the electric iron to

be moved rearwardly without causing the ripple or wrinkle which is produced in a garment or fabric when an iron of the ordinary construction having a square or straight rear end is moved backwardly. The side edges of the shoe are curved and the rear extension is provided at the rear end of the shoe with a relatively short straight transverse edge 3 which will enable the electric iron to be set up on end. The straight rear edge portion 3 is materially less than the maximum width of the shoe which is provided at each side of the straight edge with the curved edge portions produced by the rear taper of the shoe so that there is no liability of the straight edge 3 causing a ripple or wrinkle when the iron is moved backwardly.

The shoe is provided in its upper face adjacent its side edge with a continuous marginal groove 4 arranged in parallelism with the side edges of the shoe and provided at the rear end of the shoe with an inwardly or forwardly offset portion 5 as clearly illustrated in Figure 4 of the drawings. The continuous marginal groove receives the lower edge of a shell or casing 6 conforming to the configuration of the shoe except that the rear end thereof where it is provided with an inset recess forming portion 7 which conforms to the configuration of and fits tightly within the rear portion 5 of the continuous marginal groove 4. The shell 6, which forms a hollow casing and provides a water chamber or reservoir, tapers upwardly at the front portion and in practice suitable waterproof material will be provided at the marginal groove for forming a water-tight joint between the shell or casing and the shoe but any other suitable means may, of course, be provided for this purpose.

The shoe is provided at opposite sides with a curved groove 8 arranged in substantial parallelism with the marginal groove and also with a recess 9 which covers the major portion of the area of the shoe and receives a heating element 10 comprising all of the layers of material shown in the recess 9 except the top layer 24 hereinafter fully described. As the particular construction of the electric heating device does not constitute a part of the present invention and as any desired construction of heating device may be employed further description thereof is deemed unnecessary. The recess is tapered and conforms generally to the configuration of the base as clearly illustrated in Figure 4 of the drawings. The recess and the groove or channel 8 are covered by a shoe plate 11 conforming to the configuration of the shoe and the lower portion of the hollow casing 6 and forming a water-tight closure for the groove 8 and the recess 9. The shoe and shoe plate constitute the base of the electric iron, which base is divided horizontally to afford access to its interior. The upper face of the shoe and the lower face of the shoe plate are machined to provide a tight fit and a water-tight connection and the shoe is provided at the inner side of the groove 8 at spaced points with bosses 12 and it has threaded sockets 13 located at the said bosses for the reception of screws 14 for securing the shoe plate to the shoe.

The casing forms an interior reservoir or water chamber 15 and the shoe plate constitutes the bottom wall of the reservoir and is provided at spaced points with front and rear bosses 16 having threaded sockets 17 for the reception of vertical screws 18 which pierce the top of the cas-

ing 6 and also terminal portions 19 and 20 of handle carrying straps 21 and 22 and secure the handle 23, the casing 6 and the base of the electric iron in assembled relation.

A heat repellent or reflecting element 24 is arranged at the top of the recess 9 for reflecting the heat of the heating element 10 downwardly so as to partially insulate the upper portion of the electric iron from the intense heat of the heating element and thereby utilize an increased or maximum amount of the heat of the heating element for heating the effective portion of the electric iron; namely, the shoe thereof. The heat repellent or reflecting element may consist of a polished plate of metal or it may consist of heat insulating material and by partially insulating the upper portion of the electric iron from the heat of the heating element and utilizing more of the same for heating the working face of the iron a current of less power may be employed for operating the iron and there will also be a corresponding decrease in the consumption of the electric current. A polished metal plate has been found exceedingly efficient and while such metal plate may conduct a certain amount of heat its polished lower face will reflect a relatively large amount of heat downwardly.

The shoe is provided in the groove 8 with front and rear ports 25 and 26 consisting of perforations extending from the bottom wall of the groove 8 through the shoe to the ironing or working face of the same. The front perforations 25 which are of greater size than the rear perforations 26 discharge steam in the normal operation of the electric iron while the same is in use and they consist of substantially cylindrical upper portions and lower downwardly flared portions 27 which permit the ready escape of the steam and the spreading of the same in the fabric to effectively dampen the fabric and at the same time prevent the steam from backing up in the perforations, condensing into water and wetting the fabric.

In practice the steam will be discharged through the front perforations during the operation of ironing. The small rear perforations which may or may not have lower flared portions are provided to permit the passage of a sufficient amount of steam to prevent the electric iron from burning a fabric should the electric iron be left unattended and resting upon a fabric. By this construction there is no liability of the electric iron burning a fabric so long as there is any water in the electric iron. When the electric iron is lifted from a garment or fabric the steam will discharge through the perforations and the discharge of the steam from the ports or perforations of the base will enable the electric iron to be placed on the various kinds of material, such as wool, silk, linen and the like, without requiring a heat adjusting device and without liability of burning the material.

The shoe is provided in rear of the chamber forming recess 9 with horizontal bores 28 for the passage of the terminals 29 of the heating element 10 and the said terminals 29 are connected to contact elements 30 arranged exteriorly of the casing 6 and located in the recess thereof and mounted upon a plate 31. The plate 31 which carries the contact elements 30 is detachably secured to the shoe by means of a screw 32 tapped into the shoe. The electric contact elements 30 are adapted to be connected

by an electric cord with the house current in the usual manner.

The casing 6 is provided at the back of the electric iron with an upwardly extending tubular portion 33 forming a neck and constituting a filling orifice and interiorly threaded for the reception of a closure cap 34. The closure cap which is of tubular formation is closed at its upper end and its upper portion forms a steam dome 35 into which extends the steam inlet terminal 36 of a steam line conduit 37 which communicates at its other end with the steam channels of the shoe. The steam line 37 is composed of two pipe sections 38 and 39 extending longitudinally of the electric iron and connected at their adjacent ends at the central portion of the electric iron with a hot spot water trapping and vaporizing chamber 40 which intersects the steam line centrally thereof as clearly illustrated in Figure 1 of the drawings. The hot spot water trapping and vaporizing chamber 40 is formed by vertical walls 41 preferably formed integral with and rising from the shoe plate. The vertical walls 41 are of cylindrical formation and are interiorly threaded at their upper edges at 42 to receive an exteriorly threaded annular flange 43 of a closure cap 44 constituting the top wall of the chamber 40. The steam pipe sections 38 and 39 are coupled at their adjacent ends to elbows 45 which are tapped at 46 into the closure cap 44. The pipe section 38 is approximately L-shaped and consists of a horizontal portion and a vertical portion which extends upwardly through the neck 33 and into the tubular cap 34.

A water filter 47 consisting of a plurality of rings of sponge rubber is arranged within and carried by the tubular closure cap 34. These filter rings which surround the upwardly extending portion of the pipe section 38 permit the passage of steam from the reservoir to the steam dome 35 and exclude water from the steam dome. Should, however, any water enter the steam line it will be prevented from passing through the same to the discharge ports of the shoe by the hot spot trapping and vaporizing chamber 40 so that there will be no liability of water passing through the steam line and being discharged through the front ports 25 of the shoe and wetting a fabric. Any other suitable means may, of course, be employed for permitting the passage of steam to the steam dome and for excluding water from the same.

The front pipe section 39 which is of angular formation consists of a horizontal portion and a downwardly extending inclined portion and its lower terminal 48 which is substantially vertical is threaded into an opening 49 formed in the shoe plate and communicates with the side steam channels at the connected front terminals of the same so that the steam passing through the steam line will be equally distributed to the said steam channels and will be delivered to the same at the front end of the electric iron so that the fabric will be dampened by the front portion of the electric iron and dried by the rear portion of the same. The steam entering the channels 8 of the shoe escapes through the enlarged front openings before reaching the relatively small rear perforations 26.

In order to prevent the water within the reservoir from splashing upwardly into the neck 33 of the casing when the electric iron is in use and is moved back and forth over a fabric, the electric iron is provided within the casing 6 with

a curved shield 50 consisting of a metal plate extending upwardly and forwardly from the rear end of the shoe plate and presenting a lower or front concave face and an upper or rear convex face. The shield which may be retained in place by one of the bolts 18 is illustrated in Figure 1 of the drawings conforms to the configuration of the rear portion of the casing 6 as illustrated in Figure 3 of the drawings. The side edges of the shield are spaced a sufficient distance from the sides of the casing 6 to provide sufficient space at 51 to permit the passage of water past the shield when water is supplied to the reservoir through the filling orifice. By forming the reservoir by means of the casing 6 and the base of the electric iron a reservoir of maximum capacity is obtained and the electric iron may be continuously used for a considerable period of time without requiring a refilling of the reservoir. Also the reservoir is distributed over practically the entire area of the base of the electric iron and is adapted to absorb the heat and prevent the upper portion of the electric iron from being excessively heated.

In Figures 7 to 10 inclusive is illustrated a modification of the invention in which the shoe plate 52 is of greater thickness than the shoe plate heretofore described and the shoe 53 is of less thickness, the shoe plate 52 and the shoe 53 forming a base for the electric iron of substantially the same thickness as the base formed by the shoe 1 and the shoe plate 11 heretofore described. The shoe 53 is provided at opposite sides adjacent its side edges with side grooves 54 forming steam channels and provided in their bottom walls with front and rear sets of ports 55 and 56 arranged at intervals. The front set of ports 55 which are of greater diameter than the rear set of ports 56 and the said rear set of ports 56 are constructed the same as the front set of ports 25 heretofore described. The shoe is also provided with a chamber forming recess 57 extending over the major portion of the area of the shoe and adapted to receive a heating element 58 having terminal portions extending through bores or passages 59 in the rear portion of the base of the iron and connected to contact elements 60. The shoe plate which is secured by screws 61 to the shoe is provided adjacent its side edges with a continuous groove 62 for the reception of the lower edge of the reservoir forming casing 63. The marginal groove 62 is provided at the rear end of the shoe plate with an inset portion 63^a which receives and conforms to the configuration of the rear portion of the casing. The rear portion of the casing is provided at the back with an inset portion 64 constructed the same as that heretofore described and forming a recess to receive the contact elements 60. The shoe plate is provided at its front portion with a steam passage 65 which communicates with the front terminal portions of the steam channels of the shoe. The rest of the construction of the electric iron is the same as that heretofore described and further description of the same is deemed unnecessary.

What is claimed is:

1. An electric iron and dampener including a base having steam channels therein and outlet ports opening from said channels through the lower surface of the base, a casing on the base forming therewith a water reservoir and having a steam dome, means forming a hot spot water trapping and vaporizing chamber on the base within the reservoir, means for heating the base

as well as the water in said reservoir and in the vaporizing chamber, a steam pipe leading from the steam dome to said chamber, and a steam pipe leading from the said chamber to the steam channels of the base.

2. An electric iron and dampener comprising a base having steam channels therein and outlet ports opening from said channels through the lower surface of the base, a casing on the base forming therewith a water reservoir and having a steam dome, means for heating the base and the water in said reservoir, and means for conveying steam from the steam dome to the said channels of the base including means for vaporizing any water in the steam so conveyed from the steam dome.

3. An electric iron and dampener including a base having steam channels therein and outlet ports opening from said channels through the lower surface of the base, a casing on the base forming therewith a water reservoir having an upper steam space, means for conveying steam from the said steam space to the steam channels of the base, means for heating the base and the water in said reservoir, and means for reflecting the major portion of heat downwardly into the base and the steam channels thereof.

4. An electric iron and dampener comprising a base provided with a steam channel extending longitudinally of the base and having ports leading from the channel to the lower face of the base and consisting of front and rear sets of spaced perforations, the front perforations being of greater diameter than the rear perforations and acting to discharge the steam at the front portion of the electric iron during normal movement and operation thereof, means for heating the base, and means for supplying steam to the steam channel adjacent to the front perforations of the base.

5. An electric iron and dampener comprising a base provided at opposite sides with steam channels and having ports leading from the channels to the lower face of the base, said base being provided between the steam channels with an interior chamber extending over the major portion of the area of the base, a water reservoir located above the base which constitutes the bottom wall of the reservoir, a heating element arranged within the said chamber for heating the base and also water within the reservoir, means located within the said chamber and interposed between the heating element and the reservoir for shielding the upper portion of the electric iron from intense heat and for directing the major portion of the heat downwardly, and means for conducting steam from the reservoir to the steam channels of the base.

6. An electric iron and dampener comprising a base provided at opposite sides with steam channels and having ports leading from the channels to the lower face of the base, means forming a water reservoir above the base, a heating element for heating the base and also water within the reservoir, means for conducting steam from the reservoir to the channels of the base and a heat reflector above said heating element for directing the major portion of the heat thereof downwardly into the base and the steam channels thereof.

7. An electric iron and dampener comprising a base provided at opposite sides with longitudinally disposed steam channels and having front and rear sets of spaced perforations leading from the channels to the lower face of the base,

the front set of perforations being of greater diameter than the rear sets of perforations for causing the discharge of steam at the front portion of the electric iron during the ironing operation thereof and the rear sets of perforations permitting the passage of steam when the electric iron is stationary on a fabric to prevent burning of the same, means forming a water reservoir above the base, a heating element for heating the base and water within the reservoir, and a steam pipe line communicating at one end with the reservoir and at the other end with the steam channels adjacent to the forward set of perforations.

8. An electric iron and dampener comprising a base provided at opposite sides with longitudinally disposed steam channels and having front and rear sets of perforations leading from the channels to the lower face of the base, the front set of perforations being of greater diameter than the rear set of perforations for causing the discharge of steam at the front portion of the electric iron during the ironing operation thereof and the rear set of perforations permitting the passage of steam when the electric iron is stationary on a fabric to prevent burning the same, a water reservoir located above the base, means for heating the base and water within the reservoir, and a steam pipe line communicating at one end with the reservoir and at the other end with the steam channels.

9. An electric iron and dampener comprising a base having a steam channel and provided with ports leading from the steam channel to the lower face of the base, a hollow casing secured to the base and forming a water reservoir above the base and having an upwardly extending open neck constituting a filling orifice, a tubular closure cap secured to the neck and forming a steam dome, a heating element for heating the base and the water in said reservoir, and a steam line conduit communicating at one end with the steam channel and having an inlet terminal extending into the steam dome.

10. An electric iron and dampener comprising a base having a steam channel and provided with ports leading from the steam channel to the lower face of the base, a hollow casing secured to the base and forming a water reservoir above the base and having an upwardly extending neck constituting a filling orifice, a tubular closure cap secured to the neck and forming a steam dome, a heating element for heating the base and the water in said reservoir, a steam line conduit communicating at one end with the steam channel and having an inlet terminal extending into the steam dome, and filtering means carried by the closure cap for permitting the passage of steam from the reservoir to the steam dome and for excluding water therefrom.

11. An electric iron and dampener comprising a base having a steam channel and provided with ports leading from the steam channel to the lower face of the base, a hollow casing secured to the base and forming a water reservoir above the base and having an upwardly extending neck constituting a filling orifice, a tubular closure cap secured to the neck and forming a steam dome, a heating element for heating the base and water within the reservoir, a steam line conduit communicating at one end with the steam channel and having an inlet terminal extending into the steam dome, said conduit being adapted to conduct steam from the steam dome to the steam channel of the base, and filtering

means carried by the closure cap and surrounding the inlet of the steam conduit for permitting the passage of steam from the reservoir to the steam dome and for excluding water from the steam dome.

5 12. An electric iron and dampener comprising a base having a steam channel and provided with ports leading from the steam channel to the lower face of the base, a casing consisting of a shell secured upon the base and forming a water reservoir with the base and provided with a steam dome, a heating element for heating the base and water within the reservoir, a steam pipe line communicating at one end with the steam channel and at the other end with the steam dome for conducting steam to the said channel, and a hot spot water trapping and vaporizing chamber intersecting the steam pipe line and adapted to prevent water from passing through the steam pipe line and being discharged through the said ports.

10 13. An electric iron and dampener comprising a base having a steam channel and provided with ports leading from the steam channel to the lower face of the base, a casing consisting of a shell secured upon the base and forming a water reservoir with the base and provided with a steam dome, a heating element for heating the base and water within the reservoir, a hot spot water trapping and vaporizing chamber having walls extending upwardly from the base, said chamber being also provided with a removable closure at the top constituting the top wall of the chamber, and a steam pipe line composed of front and rear pipe sections communicating at their adjacent ends with the interior of the water trapping and vaporizing chamber, the front pipe section being connected at its outer end with the steam channel and the rear pipe section having its outer terminal portion arranged within the steam dome.

15 14. An electric iron and dampener comprising a base having a steam channel and provided with ports leading from the steam channel to the lower face of the base, a casing conforming to the configuration of and mounted upon the base and forming a water reservoir with the base of substantially the same area as the base, said casing being provided at the back with an upwardly extending neck, a heating element for heating the base and water within the reservoir, an imperforate shield inclined within the casing at the rear portion thereof from the bottom to the top of the reservoir with its side edges slightly spaced from the side walls of the casing, said shield being located below the neck and acting to prevent water from splashing upwardly into the neck as the electric iron in use is moved forwardly and rearwardly, and means for conducting steam from the reservoir to the steam channel.

20 15. An electric iron and dampener including a

base presenting an upwardly opening marginal channel and having steam channels therein inwardly beyond the marginal channel, with steam ports opening from the steam channels through the lower face of the base, a shell having its lower edge secured in the marginal channel of the base and forming with the latter a water reservoir, a heating element for heating the base and the water in said reservoir, and means for conducting steam from the upper portion of the reservoir to the said steam channels of the base.

25 16. An electric iron and dampener including a base provided at opposite sides with longitudinally disposed steam channels and having ports leading from the steam channels to the lower face of the base, means forming a centrally arranged hot spot water trapping and vaporizing chamber on said base, a casing forming with the base a water reservoir, and having a steam dome, heating means for heating the base and water within the reservoir, a rear pipe connecting the steam dome with the hot spot water trapping and vaporizing chamber, and a front pipe connecting the said chamber with the steam channels.

30 17. An electric iron and dampener including a base composed of a shoe provided with a marginal channel and having steam channels located at opposite sides of the base and arranged in substantial parallelism with the marginal channel in spaced relation with the inner walls thereof, said base being provided between the steam channels with a recess and having ports leading from the steam channels to the lower face of the shoe, a shoe plate secured to the shoe and covering the steam channels and the recess and forming a top wall for the recess to provide an interior chamber, a shell forming a hollow casing and secured in the marginal channel of the shoe and providing a water reservoir located above the base, a heating element arranged within the said chamber of the base, and means for conducting steam from the reservoir to the steam channels.

35 18. An electric iron and dampener including a base comprising a shoe provided at opposite sides with steam channels and having ports leading from the steam channels to the lower face of the base, said shoe being provided between the steam channels with a recess and a shoe plate secured upon the shoe and covering the steam channels and the said recess and forming the top wall for the recess to provide an interior chamber, said shoe plate being provided in its upper face with a continuous marginal channel, a hollow casing fitted in the channel of the shoe plate and secured to the base and forming a water reservoir, a heating element arranged within the interior chamber of the base, and means for conducting steam from the water reservoir to the steam channels.

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