Nov. 3, 1953 C. H. SPARKLIN ET AL 2,657,484

SOLE PLATE AND HOOD CONSTRUCTION FOR ELECTRIC IRONS

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Fig. 1.

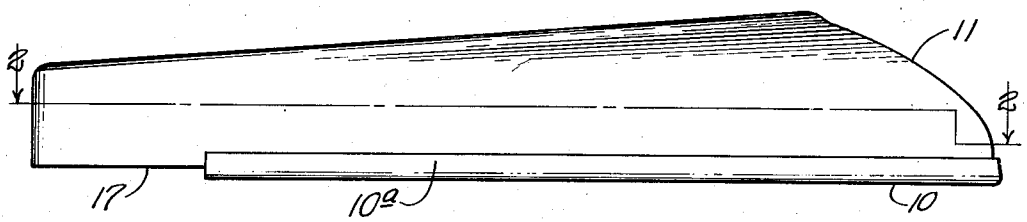


Fig. 2.

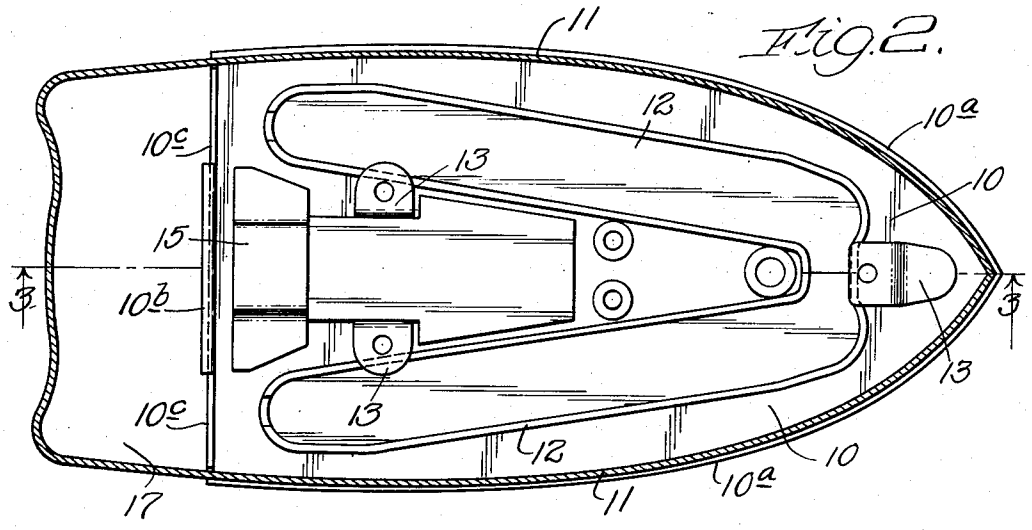


Fig. 3.

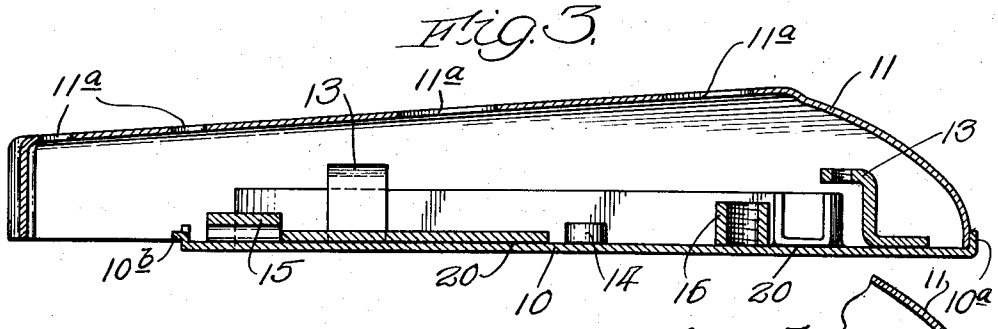


Fig. 4.

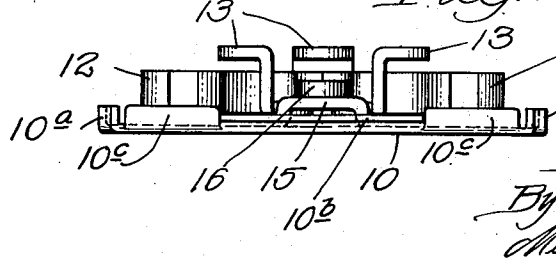
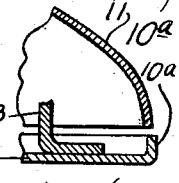


Fig. 5.



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SOLE PLATE AND HOOD CONSTRUCTION FOR ELECTRIC IRONS

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2 Claims. (Cl. 38—88)

1

The present invention relates to electric irons, and particularly to a new sole plate and associated structure.

Electric irons have ordinarily been made with relatively thick sole plates of cast metal, such as aluminum. These sole plates were relatively thick and increased the weight of the iron. Certain of these sole plates had attached thereto fastening and locating elements for the remainder of the iron structure, and sometimes had formed in the sole plate channels bounded by upstanding flanges for the reception of electric resistance elements. We have discovered that the weight of the iron may be considerably reduced by employing a new type sole plate. This new sole plate is of thin sheet metal that does not require casting and that may be made much cheaper than the prior cast plates.

The new sheet metal sole plate is preferably provided with upturned flanges along at least the longitudinal edges thereof with these flanges being of substantially uniform width to give the illusion in the finished iron of a relatively thick sole plate. The elements that are normally associated with ordinary sole plates are separate pieces attached to the top surfaces of the sheet metal sole plate, preferably by brazing. One of these elements is a sheet metal channel having upstanding sides. This channel is used for holding the resistance heating element that is employed in this type iron. As the channel is also made of relatively thin sheet metal, the over-all weight of the iron is further reduced.

In the preferred construction of the iron, there is provided a hood of sheet metal over the sole plate and serving to house the heating element, thermostat, controls, gears and the like. This hood has edge portions located within and bearing against the flanges, and these edge portions are preferably urged out against the inner surfaces of the flanges. When the iron is assembled with the thin sheet metal sole plate and the hood, the iron is much lighter in weight and gives an illusion of having the usual thick sole plate. Because of the thinness of the sole plate and channel housing the resistance element, there is a better heat transfer through the sole plate into the material being ironed.

The invention will be described as related to the embodiment shown in the accompanying drawings. Of the drawings: Fig. 1 is a side elevation of the new sole plate with the hood in assembled relationship; Fig. 2 is a section taken substantially along line 2—2 of Fig. 1; Fig. 3 is a section taken substantially along line 3—3 of

2

Fig. 2; Fig. 4 is a rear elevation of the new sole plate with the hood removed; and Fig. 5 is a fragmentary view of the sole plate and hood before assembly with the hood undistorted.

In the embodiment shown in the accompanying drawings, the new sole plate 10 is of relatively thin sheet metal and is provided with upstanding flanges 10a along the sides and the tip thereof. These flanges are of substantially uniform height to give an illusion of a relatively thick sole plate. This height is preferably at least twice the thickness of the sheet metal. Associated with the sole plate 10 is a hood 11 of thin sheet having edges positioned within the flanges 10a, as shown in Fig. 3. The hood is normally dimensioned (see Fig. 5) so that these edges cover an area slightly greater than the area enclosed by the flanges so that the edges of the hood will be forced outwardly against the flanges when the hood is in position. The hood is provided with the normal openings 11a for the reception of adjustment controls, handle posts, indicators and the like.

Attached to the sole plate 10 is a pair of sheet metal channels 12 located inwardly of the flanges 10a and brazed to the top surface of the sole plate. These channels are arranged in converging relationship and are joined at their converging ends to provide a continuous receptacle for the location of a pair of electric resistance heating elements. The sole plate also has attached thereto by brazing various fastening and locating elements normally associated with the sole plate. These include mountings 13 for the gears used to adjust the thermostat of the iron, thermostat mounting studs 14, a cover 15 for a coiled thermostatic temperature indicating element and an internally threaded annular stud 16 for holding the lower end of the front handle post and the like. The type and location of these various fastening and locating elements will, of course, depend upon the particular iron being constructed, and those shown are given merely by way of example.

In the embodiment shown, the rear edge of the sole plate 10 is located a considerable distance short of the rear edge of the hood 11. The resulting space, here indicated as 17, is normally closed by a removable plate (not shown) and provides access to the interior of the hood at the rear thereof. The rear edge of the sole plate is provided with a flange having an outwardly turned center portion 10b and upwardly turned side portions 10c on either side thereof. These

portions cooperate with the closure plate to hold it in place.

The channels 12 and various fastening and locating elements 13, 14, 15 and 16 are attached to the sole plate by brazing in the conventional manner. In the brazing operation pure copper is preferably used as the brazing element, although an alloy of copper and zinc may be used, if desired. This brazing medium may be either wire, chips, paste, sheet metal or the like. In one example of the brazing operation, the brazing medium is arranged between the sole plate and the channels and fastening and locating elements. These are held in position by any means desired, such as by spot welding. The assembly is then placed in an electrically heated furnace operating at about 2100° F. in a hydrogen atmosphere. This temperature is maintained for about fifteen minutes during which the brazing metal becomes melted and the assembly is then slowly cooled for about thirty minutes to a temperature of about 150° F. At the end of this time the brazing will be complete and the channels, fastening and locating elements will be firmly attached to the sole plate by the brazing metal, here indicated at 20.

The brazing permits fastening the various elements to the sole plate without danger of the plate becoming warped. In a typical embodiment of the invention, the sole plate 10 was approximately $\frac{1}{16}$ inch thick and the hood 11 was somewhat thinner than this. When the electric iron was assembled, it was found to have a better heat transfer to the material being ironed and was found to be considerably lighter than prior irons of corresponding size and heat capacity.

In the final manufacture of the electric iron, the heating elements were held in the channels by arranging them in beds of powdered insulating material, such as zirconium silicate. These

beds were compressed by plates of sheet metal arranged across the top of the channels 12 and held there by any means desired.

Having described our invention as related to the embodiment shown in the accompanying drawings, it is our intention that the invention be not limited by any of the details of description unless otherwise specified, but rather be construed broadly within the spirit and scope as set forth in the accompanying claims.

We claim:

1. In an electric iron, a sole plate structure having upturned flanges along its longitudinal edges, a thin generally outwardly convex sheet metal hood having edge portions within the flanges and bearing thereagainst, said hood being dimensioned so that these edge portions, when unrestrained by the flanges, cover an area slightly greater than the area enclosed by the flanges in order that said edge portions are forced outwardly against the flanges, and a handle attaching member connected to the sole plate, the hood containing an opening adapted to receive parts of the handle structure for engagement with said attaching member.

2. The electric iron of claim 1 wherein said edge portions within the flanges bear downwardly against the sole plate structure to give rigidity to the assembly.

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PHILIP J. MORE.

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