

Sept. 11, 1945.

E. P. SCHREYER

2,384,644

PRESSING IRON

Filed May 8, 1941

4 Sheets-Sheet 1

Fig. 2.

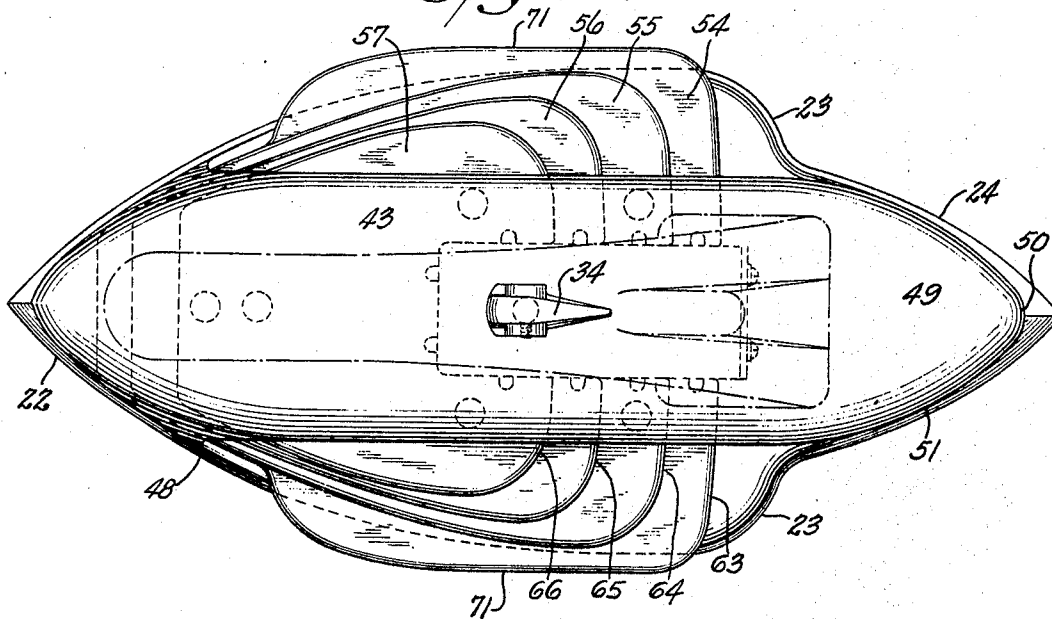


Fig. 1.

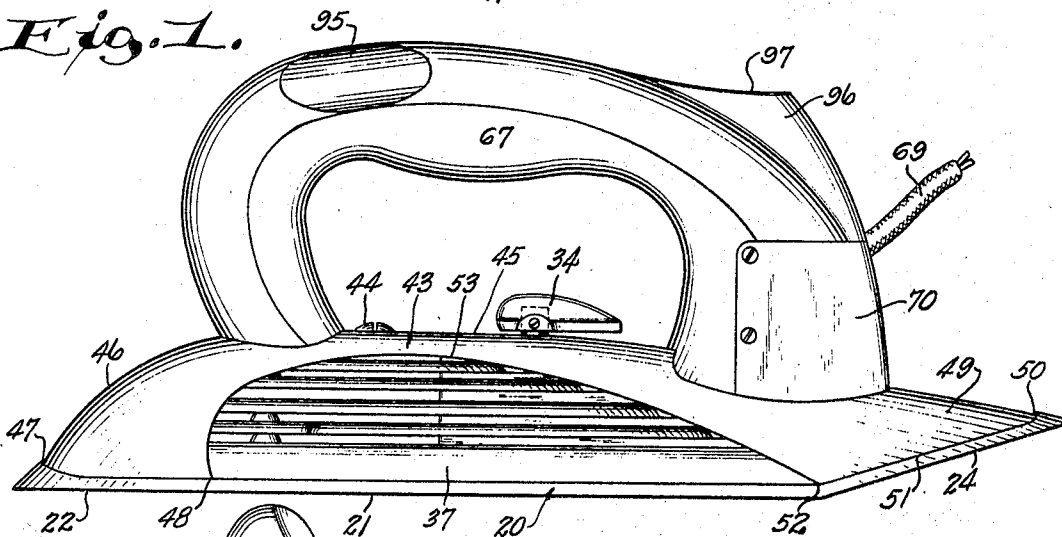
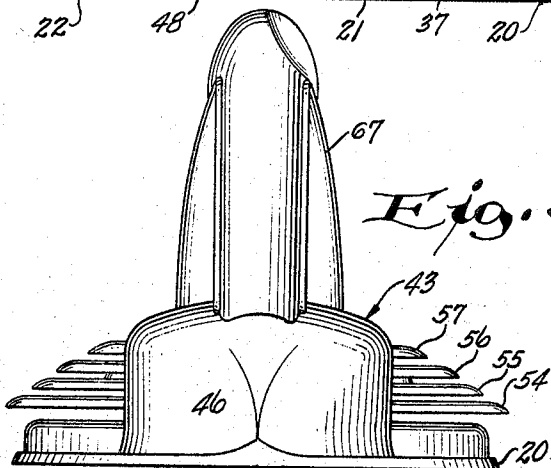


Fig. 3.



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Fig. 4.

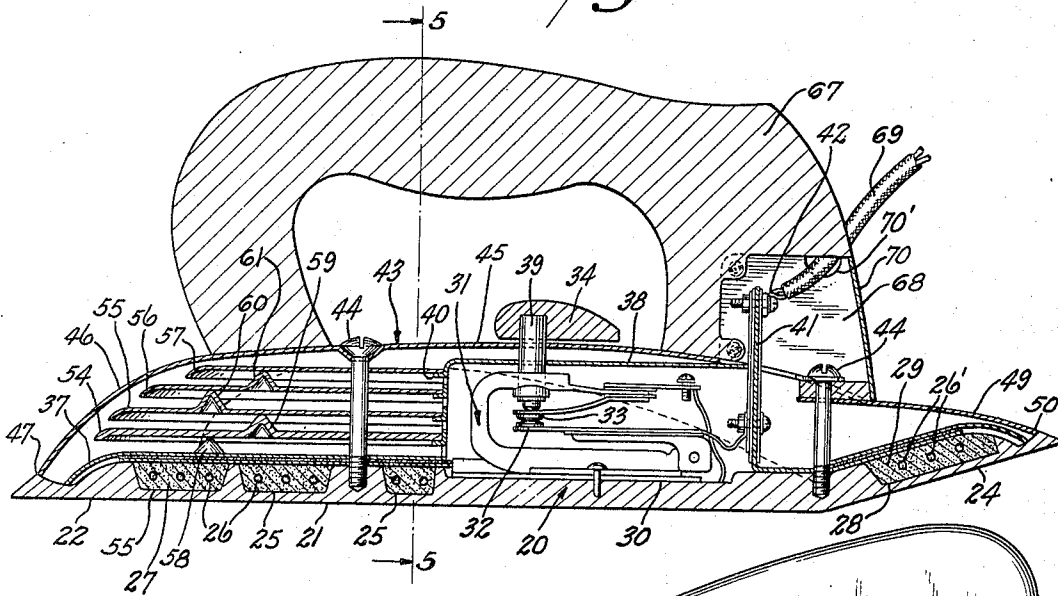


Fig. 8.

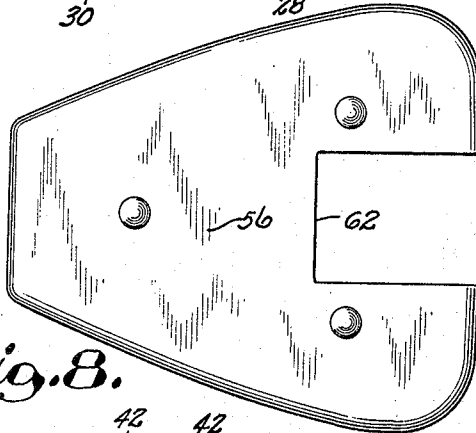


Fig. 5.

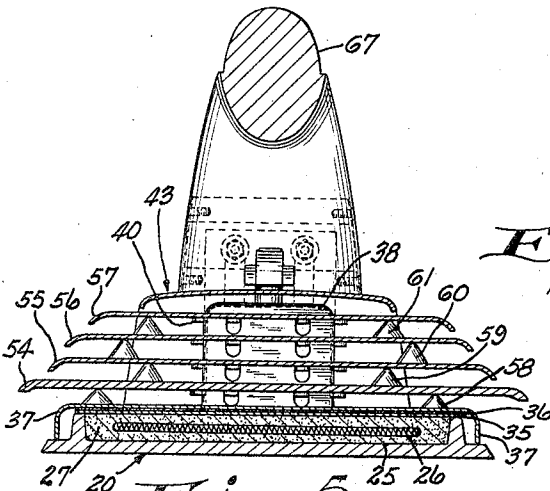


Fig. 7.

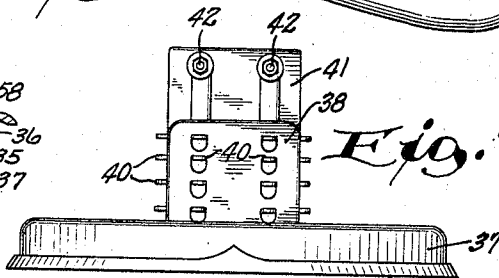
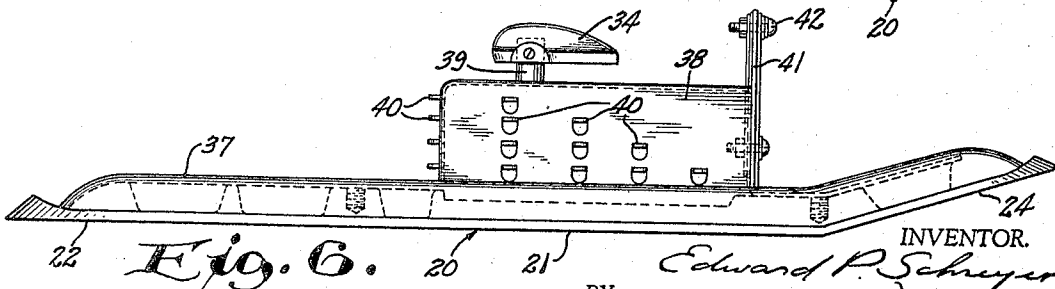


Fig. 6.



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Fig. 11.

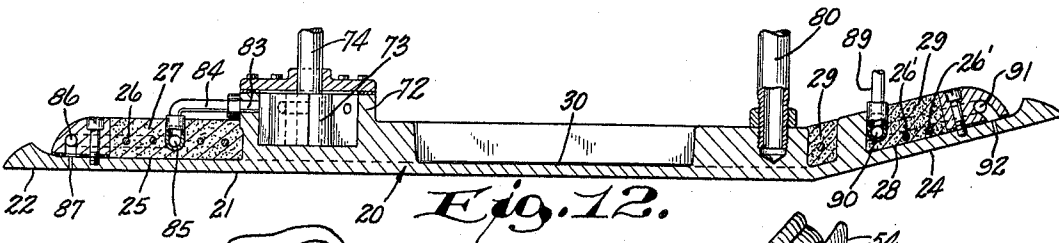
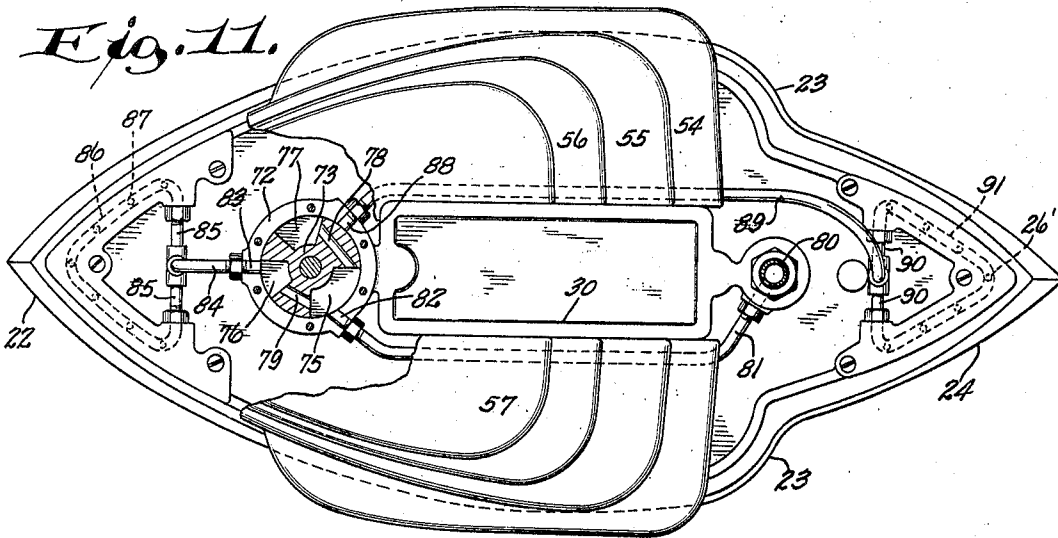


Fig. 12.

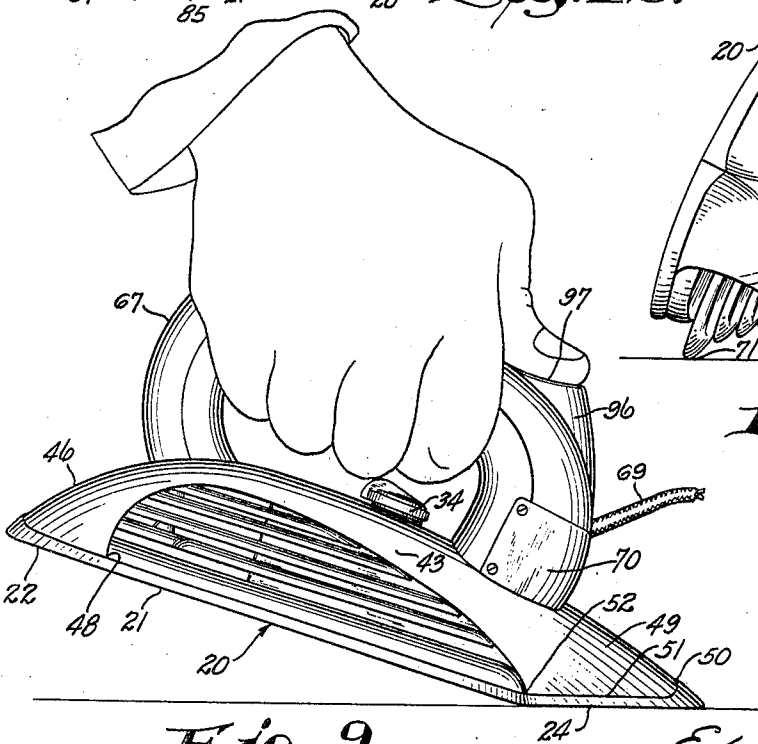


Fig. 9.

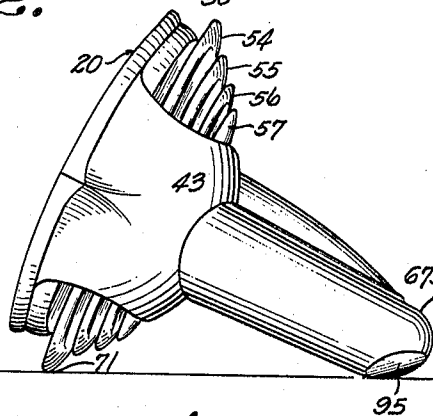


Fig. 10.

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Fig. 14.

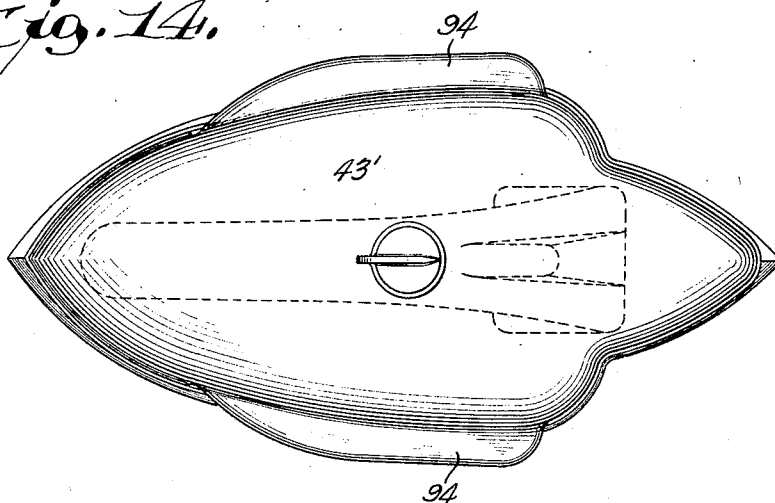


Fig. 13.

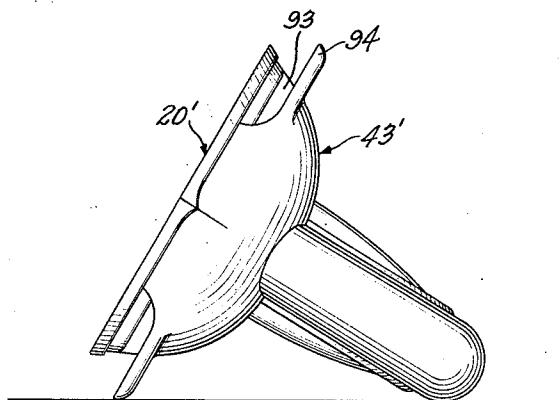
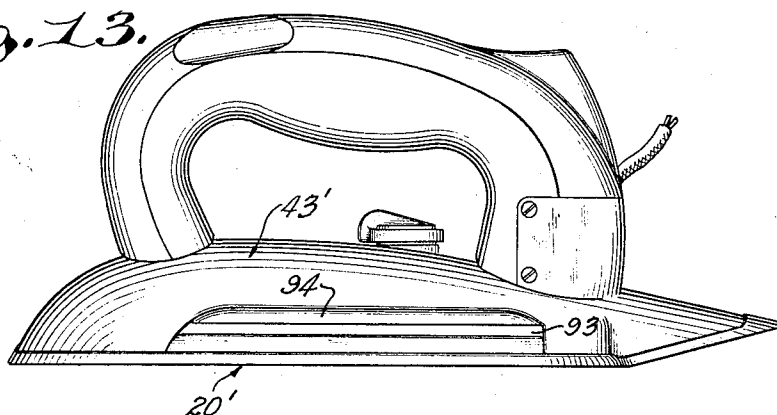


Fig. 15.

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UNITED STATES PATENT OFFICE

2,384,644

PRESSING IRON

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Application May 8, 1941, Serial No. 392,501

6 Claims. (Cl. 38—89)

It is among the objects of the present invention to provide an electric pressing iron which imposes no undue strain upon the hand and wrist in various uses thereof and is efficacious and convenient for pressing both large flat surfaces and small or restricted surfaces such as corners and the regions of armholes and sleeves; which pressing iron has facilities for resting it in stable position during the frequent rest intervals between successive ironing operations and for inherently and substantially cooling the heat resistant handle particularly during such rest intervals, so that the handle never becomes uncomfortably warm though it is directly connected to the metal parts of the iron; and in which iron, the presence of each of said facilities involves no protruding plates or sharp corners or edges at the front or rear of the implement apt to foul the fabric being pressed, no do such facilities render the iron ungainly or bulky, but on the contrary, they contribute to the neat, ornamental appearance and to the modernistic styling thereof.

According to the invention, the sole plate is pointed at both ends, one of said ends extending at an obtuse angle to the main area of the sole plate, and serving particularly for the ironing of restricted areas such as armholes and sleeves. The non-metallic heat resistant handle is attached to the nose or cowl ends of the cover shell which rests at its peripheral edge on the rim of the sole plate. From lateral openings in the cover shell which extend preferably the wide length of the iron between the tapered, pointed ends thereof, there protrude one or more lateral heat dissipating plates that are spaced from the sole plate. Such plates may be unitary with the upper rims of the respective lateral openings in the shell, but preferably a plurality of parallel spaced plates protrude laterally through the cover shell openings, one of said plates, desirably the lowermost one, projecting beyond the edge of the sole plate and serving in cooperation with the handle as a stable lateral rest for the iron during the intervals between ironing operations. In such lateral resting, the hot air will rise transversely between the plates through the openings in the sides of the cover shell by a flue action and the hot air will thereby be entrained from the pockets between the pointed ends of the sole plate and the corresponding cowls of the cover shell, thereby effectively cooling the heat resistant non-metallic handle.

With the above and other objects in view, the invention consists of the improved pressing iron

and all its parts and combinations as set forth in the claims, and all equivalents thereof. In the accompanying drawings, illustrating several preferred embodiments of the invention, in which the same reference numerals designate the same parts in all of the views:

Fig. 1 is a side elevational view of the improved iron;

Fig. 2 is a plan view thereof, the handle being shown in dot-and-dash lines;

Fig. 3 is a front elevational view;

Fig. 4 is a vertical longitudinal sectional view;

Fig. 5 is a transverse sectional view taken on line 5—5 of Fig. 4;

Fig. 6 is a side elevational view of the sole plate assembly, with the casing, cooling fins and handle removed;

Fig. 7 is a front view of said sole plate assembly;

Fig. 8 is a plan view of one of the cooling fins;

Fig. 9 is a view showing how the rear pressing point is utilized;

Fig. 10 is a view looking at the front of the iron while the latter is supported in idle position on its side rest;

Fig. 11 is a plan view of a modified form of construction equipped to discharge steam, with the outer casing removed and parts being broken away and shown in section;

Fig. 12 is a longitudinal sectional view through the sole plate assembly of the form of the invention of Fig. 11;

Fig. 13 is a side elevational view of a modified construction;

Fig. 14 is a plan view thereof with the handle shown in dotted lines, and

Fig. 15 is a front view illustrating the iron supported on its side in idle position.

Referring more particularly to the drawings, the numeral 20 designates a metal sole plate having a main pressing surface 21 lying in the same plane as the front pointed portion 22. Near the rear of the sole plate the sides curve inwardly as at 23 to merge with a relatively small pointed portion 24 (see Fig. 2). The portion 24 is in a plane disposed at an obtuse angle with respect to the plane of the main pressing portion 21.

The upper surface of the sole plate above the forward portion of the main pressing surface 21 is formed with a recess 25, and within said recess is an electric heating element 26, which element is embedded in refractory cement 27 filling the recess. A smaller recess 28 over the rear point 24 contains a heating element section 26' which is preferably a continuation of the

heating element 26. The recess 28 is also filled with refractory cement 29 surrounding the heating element portion 26'. The beginning of the heating element 26 in the forward portion of the sole plate is somewhat rearwardly of the forward point of the iron, and the arrangement is such as to provide a relatively cool point so that cloth may be stretched if desired before it is set by the high heat. This eliminates the possibility of shrinkage.

At the rear point 24 the heat is so applied as to provide a hotter point so that if a hot point is desired one is available. The place where the rear point 24 is ordinarily used, that is in corners and adjacent armholes and sleeves, presents no particular problem with respect to shrinkage, so a hotter point can be safely used. In certain types of two-pointed irons it might be desirable to have the front point the hotter, and this invention therefore contemplates broadly a difference in temperature between the two points.

Mounted on the sole plate in a recess 30 is a thermostat 31, which thermostat is affected by the temperature of the base plate and is in the circuit to the heating element 26—26'. The thermostat preferably embodies a thermostatically movable contact 32 and a contact 33 which is adjustable through an exteriorly located knob 34 to vary the thermostat setting.

Positioned over the upper surface of the sole plate is a layer of asbestos 35, a metal cover 36, and an inner metal shell 37. These layers of material are cut out around the thermostat 31 so that the latter may project upwardly there-through.

A thermostat housing 38 has its lower edges suitably connected to the sole plate and has its top portion formed with an opening through which the operating shaft 39 of the control knob 34 projects.

The sides and front of the thermostat housing 38 are formed with fin supporting lugs 40. These lugs are preferably bent outwardly from the material of the housing itself.

The rear end of the thermostat housing 38 is closed by a vertical plate 41 which projects upwardly and which carries terminals 42 at its upper end which are in the circuit with the thermostat and heating element 26—26'.

A hollow convex outer casing 43 is connected by bolts 44 with the sole plate 20, and this casing forms a cover for the sole plate and heating element. The casing has a central upper portion 45 provided with an opening through which the thermostat shaft 39 rotatably projects. The casing also has a forwardly and downwardly curved nose portion 46 which meets the sole plate in the front, as at 47, and also for a limited distance rearwardly on the sides to the point 48 (see Fig. 1). The rear portion of the casing is rearwardly and downwardly curved, as at 49, to meet the rear point at 50 and the sides of the rear pointed portion of the sole plate at 51. From the point 52 to the point 48 each side of the casing is cut away as at 53 for a distance which is preferably equal to more than half of the total length of the iron.

A plurality of metal plates or fins 54, 55, 56, and 57 are mounted within the casing in the manner illustrated in Figs. 1 to 5. The bottom-most fin 54 is supported in spaced relationship above the inner sole plate enclosing shell 37 on projections 58 or other suitable means stamped upwardly from said shell. Projections 59, 60, and 61 stamped upwardly from the fins 54, 55,

and 56 support the fins in spaced relationship above one another, as shown in Fig. 5. If desired, each of the fins may have the projections extending downwardly instead of upwardly.

A plan view of the fin 56 is shown in Fig. 8, and it will be seen that the rear portion of the fin is formed with a rectangular cut-out 62 to fit around the thermostat housing 38. The fins 54, 55, and 56 are formed with similar cut-outs, and the edges of the material surrounding the cut-out 62 on the fins 54, 55, 56, and 57 rest on top of the tongues 40 which project from the sides and front of the thermostat housing.

The front portions of the fins project into the enclosed front portion of the casing 43, as shown in Figs. 2 and 4, and the front ends of the fins are progressively shorter in length to conform to the curvature of the front of the casing. The rear edges of the several fins are also progressively shorter so that said rear edges may project laterally from the side openings 53 of the casing as at 63, 64, 65, and 66 (Fig. 2).

Mounted in any suitable manner on the top of the casing is a handle 67 of heat resistant material having its rear leg portion formed with a recess 68 into which the terminal support 41 projects. The terminals 42 therein may be connected with a suitable outlet cord 69 which extends out through an opening 70 in a removable cover 70 for the handle recess.

The side edges of the fins 55, 56, and 57 taper forwardly to conform in general to the lines of the sole plate. The side edges of the bottom fin 54, however, project laterally beyond the edges of the sole plate, and said side edges are formed with straight portions which are substantially parallel to the longitudinal axis of the handle. The bottom fin 54 is preferably formed of heavier gauge metal than the fins 55, 56, and 57 so that the edges 71 thereof may cooperate with the handle to form a side rest for the iron, as indicated in Fig. 10.

The straight edge portion 71 of the fin 54 projects a sufficient distance beyond the sole plate to prevent any scorching of the ironing board from the heat of the sole plate. The fin itself is at an entirely safe temperature because there is an air space entirely through the casing between the side openings 53 which air space separates the fin from the sole plate and heating element. Similar air spaces communicating with the side openings 53 separate all of the fins from each other and separate the top fin 57 from the central upper portion 45 of the casing 43. Thus the fins provide for air cooling of the iron and quickly dissipate excessive heat laterally so that the top of the casing is maintained relatively cool. There is, therefore, no excessive heat adjacent the user's hand. In addition, the air cooling feature makes it possible to utilize one of the fins, in conjunction with the handle, for a side rest. This is important because in an iron having points at both the front and rear it is impossible to use the usual heel rest. It is also important to note that the side rest is formed in a manner which does not impair the appearance of the iron. As a matter of fact, the side openings with the fins projecting therefrom actually enhance the streamlined effect and produce an iron having an entirely new and pleasing appearance.

In the usual ironing operation, the iron must be frequently rested during the intervals between the adjustments in positioning the article or articles being ironed. The iron is laid on its side as best shown in Fig. 10 for such purpose. The iron thus

rests in stable position between the protruding plate edge 71 and the handle portion 95, thereby maintaining the sole plate elevated from the support. While the iron is thus rested, air will rise by a ventilating or flue action along opposite sides of the plates 54, 55, 56, and 57 and between the fins, thereby effectively cooling the iron. By reason of the upwardly inclined disposition of the cowl walls at the ends of the iron when rested as shown in Fig. 10, this ventilating or flue action will entrain the hot air therefrom and thus effectively cool the portions at which the handle is attached to the metal parts, so that the handle becomes effectively cooled during such intervals and will at no time become uncomfortably warm.

In Figs. 11 and 12 there is illustrated a construction wherein the double pointed iron is adapted for use in connection with steam. Except for the steam valve and steam conducting mechanism, the structure of the iron of Figs. 11 and 12 is the same as the construction heretofore described, and the same reference numerals are applied to the same parts. The sole plate of this form of iron is formed with a cup-shaped projection 72 forming a casing for a rotary valve 73. The valve 73 may be rotated by manipulation of a shaft 74 which projects upwardly through the top of the casing and which may be equipped with a suitable control knob. The valve is formed with peripheral recesses 75, 76, and 77, with a port 78 connecting the recesses 75 and 77, and with a port 79 connecting the recesses 75 and 76.

Steam may be admitted from an outside source to an inlet pipe 80, and said steam will flow through a tube 81 into the valve where it enters port 82. Port 82 may, of course, be closed off by the valve, if desired, to prevent any flow of steam. When the valve is in the position of Fig. 11, the steam will enter the recess 75, will flow through port 79 into recess 76, out of port 83 into an outlet tube 84 and branches 85 leading to a channel 86 which communicates with openings 87 in the sole plate, the steam being discharged from said openings. Thus when the valve is in the position of Fig. 11 steam will be discharged only from the forward portion of the iron. This is because the casing port 88 which communicates through tube 89 with the rear of the iron is shut off by the valve.

The tube 89 leads to branches 90 which communicate with a steam channel 91 over the rear pointed portion of the iron, there being apertures 92 in the sole plate through which steam may be discharged from the channel 91.

It is apparent that the valve may be turned to such a position as to cause steam to flow simultaneously to both the front and rear portions of the iron, and that it may also be turned to a position to shut off the flow of steam to the front of the iron with the steam being discharged only from the rear.

In the form of the invention of Figs. 11 and 12 the fins are constructed in the same manner as in the form of Fig. 4, but suitable openings must be provided to receive the valve casing 72 and the valve operating stem 74.

Figs. 13, 14, and 15 disclose a slight modification for producing a heat insulating side rest in double pointed irons. In this form of the invention the sole plate 20' and assembly thereon is identical in construction to the form of the invention illustrated in Figs. 1 to 8, the casing 43', however, having side openings 93 which are not as high as the side openings 53 in the casing of the main form of the invention, and the metal

from these side openings is bent outwardly on the upper edges of the openings to form laterally projecting fins 94. These fins project beyond the edges of the sole plate and are adapted to cooperate with the handle in forming a side rest. Air, of course, may circulate through the side openings 93 of the casing beneath the fins 94 to maintain the fins at a safe temperature for contact with the ironing board.

The handles of all of the irons are preferably formed with a forwardly located flattened spot 95 serving as a thumb rest and also with a projection 96 at the rear having a concave upper portion 97 serving as a thumb rest when the iron is being pushed rearwardly, as shown in Fig. 9, and serving to facilitate tilting onto the rear point. The arrangement of the handle is such, with respect to the angle of the rear pressing area 24, that there is no strain on the hand or wrist when used in the position of Fig. 9. It is apparent that all forms of the iron may be used either in the conventional manner with the rear ironing area 24 out of contact with the material being pressed, or may be used in the manner shown in Fig. 9 with the main ironing surface 21 out of contact with the material being pressed. When used in the manner shown in Fig. 9 it is obvious that the point may be pushed into restricted places to press otherwise inaccessible portions of the garment without having the main ironing surface dragging over bunched or gathered material to produce undesired creases.

Obviously the type of iron with which this invention is concerned cannot use the ordinary heel rest. Side rests have heretofore been proposed, but these rests do not conform to present-day styling requirements. With the present invention the iron is provided with an integral side rest formed by entirely new construction which enhances the appearance of the iron and adds to the streamlined effect produced.

In addition to the above, the cooling fins in conjunction with air circulation through the sides of the iron beneath the fins, as employed in all forms of the invention, including the form of Figs. 13, 14, and 15, is very desirable whether or not it is used in conjunction with an iron having a rear ironing point. This air cooling, however, has particular cooperation with the type of iron illustrated, as it provides for the use of the fins as a side rest in a type of iron not otherwise adapted for an integral rest.

By having the finned construction in combination with a convex casing formed with a downwardly and forwardly curved nose portion 46, the fins do not get caught in the garments during pressing. Instead, the forward portion of the fins, which extend into the hollow nose, are shielded by said nose portion.

Various changes and modifications may be made without departing from the spirit of the invention, and all of such changes are contemplated as may come within the scope of the claims.

What I claim is:

1. In an iron having a handle, a sole plate, a heating element supported on said sole plate, a hollow convex shell forming a cover for the sole plate and heating element supported on the sole plate and having a central upper portion spaced above the heating element and sole plate, said shell having an integral nose portion which curves forwardly and downwardly at the front and forward side portions of the iron and having an integral rear portion which curves rearwardly

and downwardly forming a closed front and rear for the iron, said shell having oppositely disposed longitudinally extending side openings which extend from the closed rear portion to the closed front portion of the shell to provide for transverse circulation of air through an intermediate portion of the length of the shell, and a cooling fin extending longitudinally adjacent at least one of said side openings and projecting laterally therefrom beyond the side edges of the sole plate and in a plane spaced above the sole plate, all portions of the fin being below the top of the central upper portion of the shell whereby air may circulate transversely beneath said fin and through the shell, the laterally projecting edge of said fin being formed to cooperate with the handle when the iron is idle to form a heat insulating side support.

2. The combination recited in claim 1 in which the cooling fin is integral with the shell, and projects laterally from the upper margin of at least one of said side openings.

3. In an iron having a handle, a sole plate, a heating element supported on said sole plate, a hollow convex shell forming a cover for the sole plate and heating element supported on the sole plate and having a central upper portion spaced above the heating element and sole plate, said shell having integral side portions which extend downwardly toward the sole plate, and said side portions being cut out to provide a longitudinal opening on each side which is of less height than the height of the central portion of the shell and of less length than the length of the shell, the remaining portions of the length of the shell being closed over the sole plate, and a cooling fin extending longitudinally adjacent at least one of said side openings of the shell and projecting laterally therefrom beyond the side edge of the sole plate and in a plane spaced above the sole plate, all portions of the fin being below the top of the central upper portion of the shell whereby air may circulate transversely beneath said fin and through the shell, the laterally projecting edge of said fin being formed to cooperate with the handle when the iron is idle to form a heat insulating side support.

4. In an iron having a handle, a sole plate having a main pressing surface, all portions of which are disposed in one plane, said main pressing surface having a pointed front end and a relatively broad rear end, said sole plate also having a rear auxiliary pressing surface in a plane at an angle to the plane of the main pressing surface and of less maximum width than said broad rear end of the main pressing surface, said auxiliary pressing surface having a rearwardly directed point, a hollow convex shell forming a substantial closure over the sole plate at the front nose portion of the iron and a closure over the portion of the sole plate forming the auxiliary pressing surface, the remainder of the shell intermediate said two portions of the iron being of less width than the sole plate and of approxi-

mately the same width as the maximum width of the auxiliary pressing surface, the sides of said intermediate portion of the shell being cut out to provide for circulation of air transversely through the iron, and a fin projecting laterally from at least one of the cut out sides of the shell beyond the side edge of the sole plate, said fin being of less length than the length of the shell the laterally projecting edge of said fin being formed to cooperate with the handle when the iron is idle to form a heat insulating side support.

5. In an iron having a handle, a sole plate having a main pressing surface, all portions of which are disposed in one plane, said main pressing surface having a pointed front end and a relatively broad rear end, said sole plate also having a rear auxiliary pressing surface in a plane at an angle to the plane of the main pressing surface and of less maximum width than said broad rear end of the main pressing surface, said auxiliary pressing surface having a rearwardly directed point, a hollow convex shell forming a substantial closure over the sole plate at the front nose portion of the iron and a closure over the portion of the sole plate forming the auxiliary pressing surface, the remainder of the shell intermediate said two portions of the iron having sides formed with longitudinal openings to provide for circulation of air transversely through an intermediate portion of the shell, and a fin projecting laterally from at least one of said side openings beyond the edge of the sole plate, the length of the fin being less than the length of the shell the laterally projecting edge of said fin being formed to cooperate with the handle when the iron is idle to form a heat insulating side support.

6. In an iron having a handle, a sole plate having a main pressing surface formed with a pointed front end and with a relatively broad rear end, said sole plate also having an auxiliary pressing surface of less maximum width than said broad rear end of the main pressing surface and provided with a rearwardly directed point, a hollow convex shell forming a substantial closure over the sole plate at the front nose portion of the iron and a closure over the portion of the sole plate forming the auxiliary pressing surface, the remainder of the shell intermediate said two portions of the iron being of less width than the sole plate and of approximately the same width as the maximum width of the auxiliary pressing surface, the sides of said intermediate portion of the shell being cut out to provide for circulation of air transversely through the iron, and a fin within the shell and projecting laterally from the cut out sides of the shell beyond the edges of the sole plate, said fin being spaced above the sole plate, the laterally projecting edges of said fin being formed to cooperate with the handle when the iron is idle to form a heat insulating side support.

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