

[54] **INFRARED PRESSING IRON WITH  
DETACHABLE THROWAWAY SOLE PLATE  
AND OPTIONAL ULTRAVIOLET SOURCE**

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21/DIG. 2, 102 R; 73/343 F

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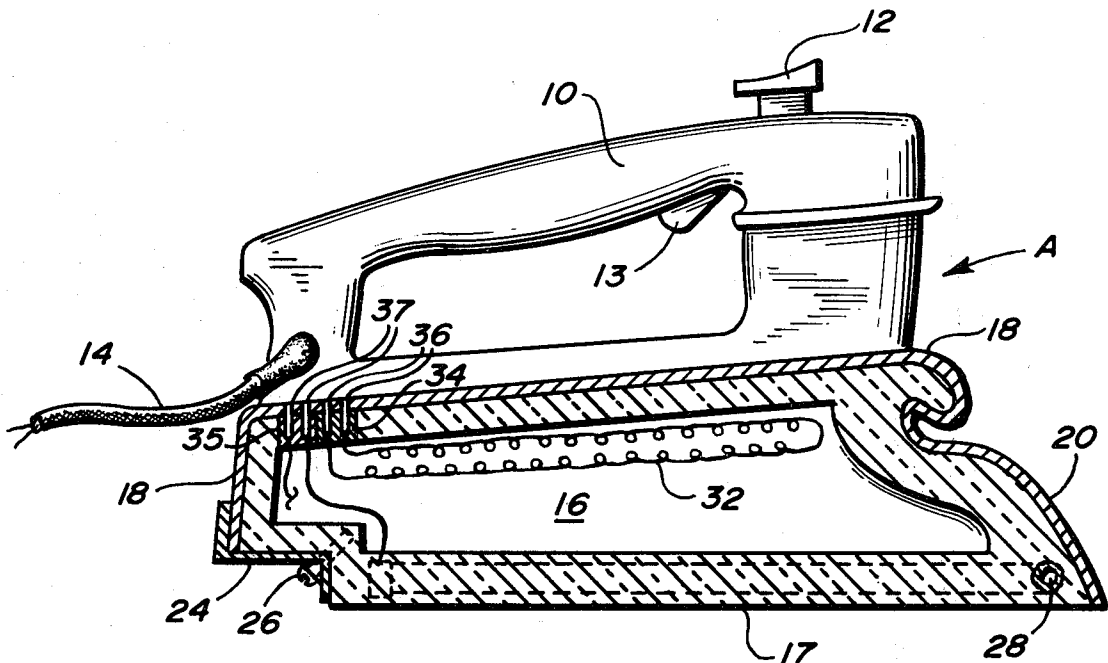
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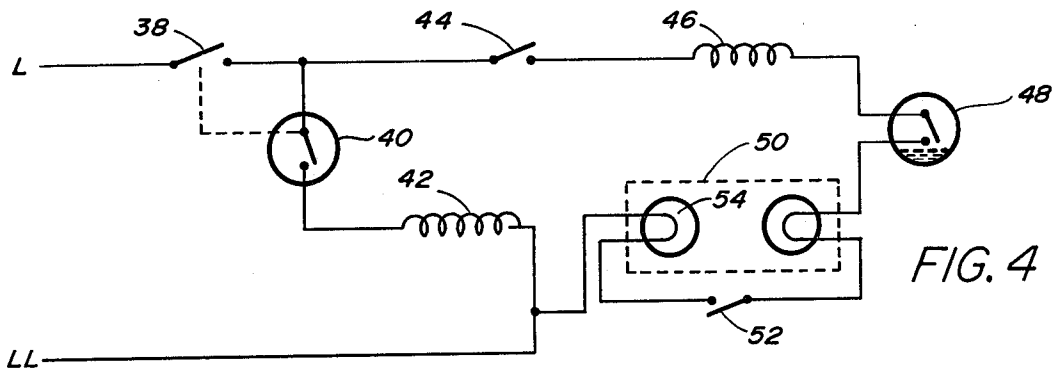
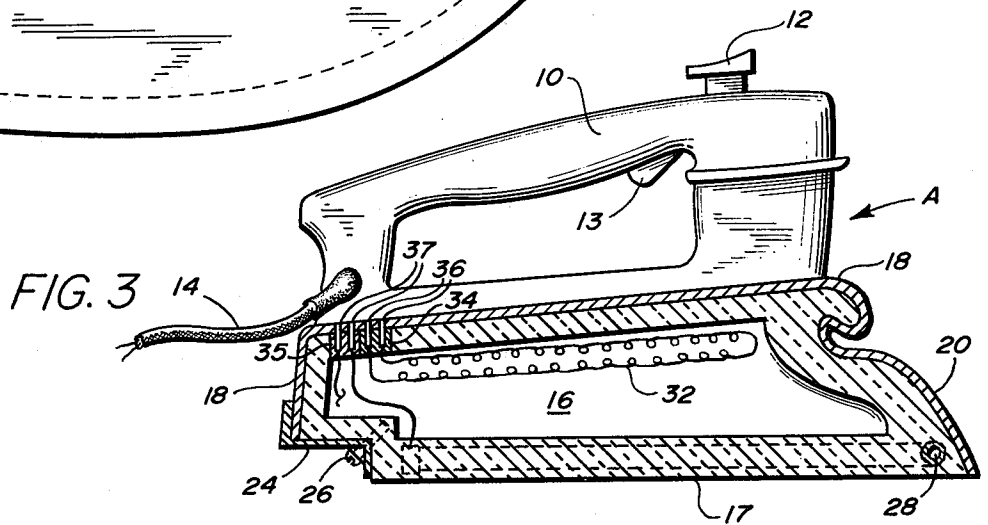
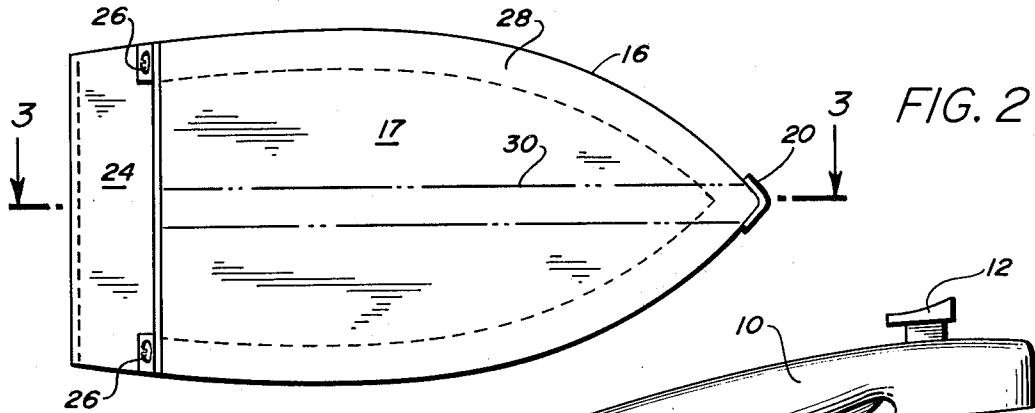
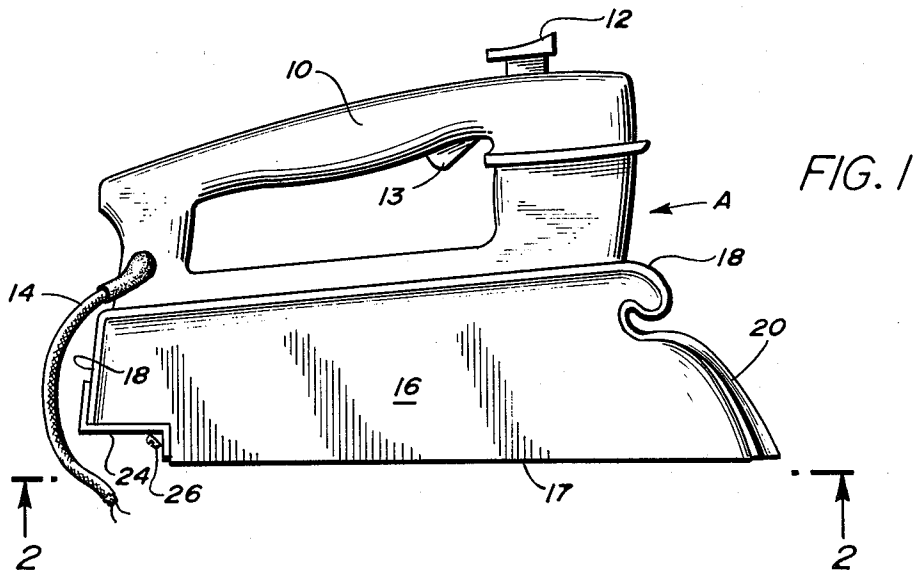
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[57] **ABSTRACT**

The pressing iron of this invention has a detachable, throwaway sole plate of hollow, evacuated glass which contains an infrared heating element. The entire wiring means for the unit is contained within the iron handle and the sole plate is operatively wired to the handle by plug-in, male/female terminals. The handle and sole plate are held together by simple means such as clamping and/or bolting to allow ease of changing units. An important optional feature is an ultraviolet lamp unit molded as an integral part of the sole plate bottom. The ultraviolet lamp is also connected to wiring in the handle by plug-in male/female terminals and is wired in parallel with the infrared unit. The ultraviolet unit is hand triggered and, as a safety measure, a mercury switch in the circuit automatically shuts the ultraviolet unit off when the iron is upright. The sole plate is easily changed by simply unclamping or unscrewing the sole plate, unplugging it from the handle wiring, and re-inserting the new unit.

10 Claims, 4 Drawing Figures





# INFRARED PRESSING IRON WITH DETACHABLE THROWAWAY SOLE PLATE AND OPTIONAL ULTRAVIOLET SOURCE

## BACKGROUND OF THE INVENTION

### A. Field of the Invention

This invention pertains to radiant energy and more particularly to heat generation combined with ray generation.

### B. Prior Art

Pressing irons, with steel sole plates and heated by electrical resistance, are in common usage today. There are, however, many disadvantages associated with their use. Repair or replacement of the sole plate unit is largely mechanically infeasible as the irons are constructed essentially as a single permanent device and repair and replacement of the sole plate is impractical if not in fact impossible. The housewife when confronted with a broken sole plate is forced to purchase another iron. There are further disadvantages. Present day irons require a warming up period before they can be used if one wishes to iron at the proper temperature for the setting on the thermostat. Another disadvantage associated with conventional irons, is the high wattage requirements demanded in the operation of the electrical resistance heating elements of the sole plate. With electricity at a premium price in this period of the "energy crunch" in our nation's history, heating by this method has changed from an asset to a liability.

Finally, although the germ killing virtues of ultraviolet rays are known and utilized in many capacities no one heretofore has been able to combine this feature with the pressing iron and thus the benefits of these bactericidal and microbicidal features are largely denied to the housewife or others engaged in cleaning and pressing clothing, diapers, and other garments and materials designed primarily for home use.

Accordingly, it is an object of this invention to provide a pressing iron with a detachable throwaway, sole plate.

It is another object of this invention to replace the conventional metal, electrical resistance, high wattage heating unit of the pressing iron with a low wattage, instant heating unit.

It is still another object of this invention to provide an optional germicidal, ultraviolet ray unit as an integral part of a pressing iron.

These and other objects may be more fully appreciated by reference to the following description and accompanying drawing.

## SUMMARY OF THE INVENTION

Briefly summarized, I have discovered that the objects of this invention may be realized by providing a pressing iron in which the sole plate is composed of a glass such as quartz and the heating unit contained therein is of the infrared (hereinafter referred to as IR) type. The entire glass sole plate is detachably mounted to a handle which contains the entire wiring circuit, thus permitting the sole plate to be easily removed, as by unclamping or unscrewing, and replaced. By the use of glass for a sole plate, I am able to reap the further advantage of embedding within the sole plate bottom, an ultraviolet (hereinafter referred to as UV) unit which may be hand triggered by the user when desired. The infrared unit and the ultraviolet unit are wired in parallel, thus permitting one unit to be used without the

other. A mercury switch in the ultraviolet circuit automatically shuts off this element when the iron is in the upright rest position so that there is complete protection from any possible detrimental exposure of the person to the ultraviolet rays.

## BRIEF DESCRIPTION OF THE DRAWINGS

FIG. 1 shows a side view of the pressing iron of this invention.

FIG. 2 is a section taken on line 2—2 of FIG. 1 and shows alternate configuration for the ultraviolet tube.

FIG. 3, taken along 3—3 of FIG. 2, shows a side view of the iron with a cross section of the sole plate.

FIG. 4 is a diagrammatic representation of the wiring of the device of this invention.

## DETAILED DESCRIPTION OF THE INVENTION

Referring now to the drawing, which illustrates a preferred embodiment of this invention, FIG. 1 shows a pressing iron, generally A, with handle 10, including a temperature control 12, finger trigger means 13 for the ultraviolet unit, cord 14, glass sole plate 16, fastening means 18 including spring 20, and right angle bracket 24 with bolt 26.

FIG. 2, taken on line 22 of FIG. 1 shows sole plate 16 from the bottom, ultraviolet tube 28, embedded therein tracing the perimeter of sole plate bottom 17 and the flange end of spring 20. FIG. 2 shows also, as an alternative UV design, ultraviolet tube 30 positioned longitudinally along the sole plate bottom from the midpoint of the sole base to the nose point.

FIG. 3, taken on line 3—3 of FIG. 2, shows the sole plate in cross section. Sole plate 16 is constructed of glass of the type suitable for infrared and ultraviolet radiation such as quartz as is well known in the art. The sole plate is a hollow evacuated shell containing infrared unit 32, ending in female terminals 34. Shown operatively connected to handle 10, female terminals 34 mate with male terminals 36 contained in handle 10. Sole plate 16 also contains UV unit 28 ending in female terminals 35, which mate with male terminals 37 also in handle 10. FIG. 3 illustrates the position of the UV unit which is an integral embedded part of the sole plate bottom, whereas the IR element is contained within the evacuated sole plate hollow.

FIG. 4 illustrates a wiring diagram of the invention in which incoming current L passes through master switch 38 to thermostat 40 and then to IR element 42 and out at LL. Connected in parallel with the IR unit is UV trigger switch 44 and ballast 46. Continuing along the UV circuit following ballast 46 is mercury switch 48 and UV element 50. UV element 50 may contain initial automatic switch 52 which is closed initially to allow UV filament 54 to heat to ionize the gas prior to ignition, as is well known in the art. If a "rapid start" UV filament is utilized, switch 52 may be unnecessary. The circuit completes at LL.

In the operation of the pressing iron of this invention, a user would connect the iron to a conventional power source, for example, 110 volts and set the thermostat in the conventional manner to the desired heat intensity. Infrared, as is well known in the art, produces instant heat so the iron is immediately ready to use. The ultraviolet unit is controlled separately, as by hand trigger, for example, and should the user desire to use this unit, he or she would press the thumb trigger to activate this source of disinfecting rays.

The means for attaching the sole plate to the handle, while shown as a combination of spring clamp on the sole plate nose piece and right angle iron with bolts on the side plate back, should be understood to be merely illustrative, and any clamping or securing means which would satisfactorily achieve the same results is within the scope of this invention.

Since the sole plate is of glass it is desirable, but not essential that the sole plate, with the exception of the bottom be provided with a reflective coating to direct all rays downward toward the material being pressed. The type of glass suitable for this invention is preferably quartz, but may vary. Satisfactory glass types are easily selected by a study of a chart plotting ray emission versus the wave length curve, as is known in the art.

The pressing iron of this invention has many advantages. Already mentioned is the ease of replacing the sole plate unit.

In this age where the corner "fix-it" store no longer exists a broken or inoperative sole plate has necessitated the purchase of new iron. Now the housewife can buy only the unit, either sole plate or handle, that is needed and change it herself. As to possible breakage, heavy duty glass is itself very durable and today's irons, when dropped, seldom work again, even where the steel plate does not break. So the end result is the same — a new iron.

A second major advantage of the iron of this invention would bring the salutary benefits of UV to the household by allowing the disinfecting of diapers, sheets and other garments and materials which may come in contact with babies or ill persons. Heretofore the advantages of UV disinfecting was available only to industry or hospitals, but not to the homemaker.

Furthermore, the iron of this invention is easily adaptable to the varying voltage experienced in this country and abroad making it easily adaptable to the traveller.

Finally, a conventional iron draws about 1000 watts or more, whereas the pressing of this invention draws considerably less thus effecting a savings in power and which is appreciated by all who are interested in saving money and helping the economy.

While the invention has been thus illustrated and described in detail, such description is not intended to be exhaustive of the various combinations encompassed within the scope of this invention. Rather the scope is meant to be limited only by a reasonable interpretation of the appended claims.

I claim:

1. A pressing iron comprising:

- a. a detachable, disposable sole plate, said sole plate including a molded, hollow, evacuated glass shell having a generally flat bottom portion to engage the material to be pressed and generally curving upward therefrom to form an upper portion shaped to mate with a handle;
- b. an infrared heating element disposed within said hollow shell operatively connected to a power source through a terminal mounted within said shell wall proximate said upper shell portion, said terminal means and said shell wall forming together a continuous, integral, sealed sole plate unit;

- c. a handle removably engaged with said sole plate;
- d. wiring means disposed within said handle and adapted to connect with a power source at one terminal and to mate with the infrared heating element at the other terminal; and
- e. fastening means to hold together said handle and said sole plate.

2. A pressing iron according to claim 1 further comprising:

- f. an ultraviolet ray lamp embedded within the flattened lower shell portion of said glass sole plate wall, operatively connected to a power source through the upper shell portion terminals by wiring means located within said handle to provide thereby a source of disinfecting radiation directable to the material being pressed.

3. A pressing iron according to claim 2 in which the flattened shell bottom portion has a cross section generally shaped like an isosceles triangle wherein the matching sides are convex and wherein said ultraviolet ray lamp is tubular in design and is disposed in the perimeter of the convex sides in a plane parallel to said flattened bottom.

4. A pressing iron according to claim 2 in which the flattened shell bottom portion has a cross section generally shaped like an isosceles triangle wherein the matching sides are convex and wherein said ultraviolet ray lamp is tubular in design and is disposed in a plane parallel to said flattened bottom, extending in a straight line from a point bisecting the triangle's base to the angle at the triangle's apex.

5. A pressing iron according to claim 1 in which the flattened shell bottom portion has a cross section generally shaped like an isosceles triangle wherein the matching sides are convex and in which said fastening means comprises:

- a. A first bracket extension depending from said handle extending along the sole plate shell wall to, and under, the nose point of the sole plate to form a flange;
- b. a spring mounted at one of its ends on the first bracket, on its other end adapted to secure said first bracket flange against said sole plate bottom;
- c. a second bracket extension depending from said handle extending along the sole plate back;
- d. an L-shaped bracket terminating at one end in a lip adapted to secure the second bracket extension against the sole plate side and bottom.

6. A pressing iron according to claim 2 in which the wiring means for the ultraviolet and the infrared are connected in parallel.

7. A pressing iron according to claim 1 wherein the sole plate is operatively connected to the handle by male/female terminal connectors.

8. A pressing iron according to claim 2 wherein the sole plate is operatively connected to the handle by male/female terminal connectors.

9. A pressing iron according to claim 2 wherein the ultraviolet element is finger triggered.

10. A pressing iron according to claim 2 wherein the wiring means for the ultraviolet element includes a mercury switch adapted to automatically open when the iron is upright.

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