May 1, 1945. L. F. BLACK 2,374,662

INDUCTION FLAT IRON

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FIG. 1.

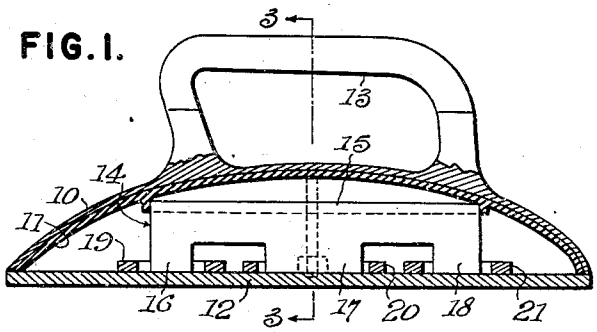


FIG. 3.

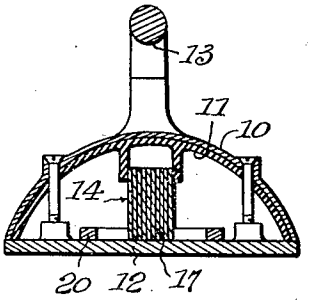


FIG. 2.

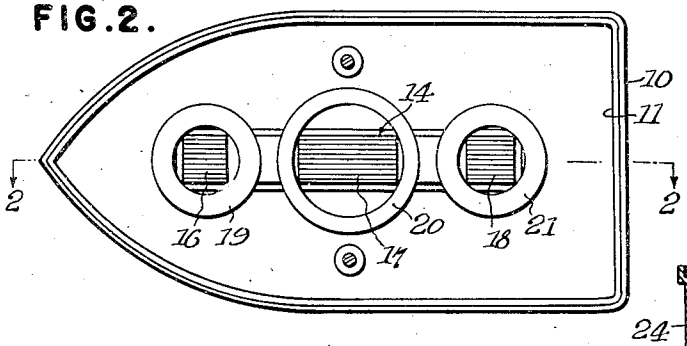


FIG. 6.

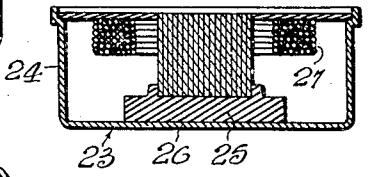


FIG. 4.

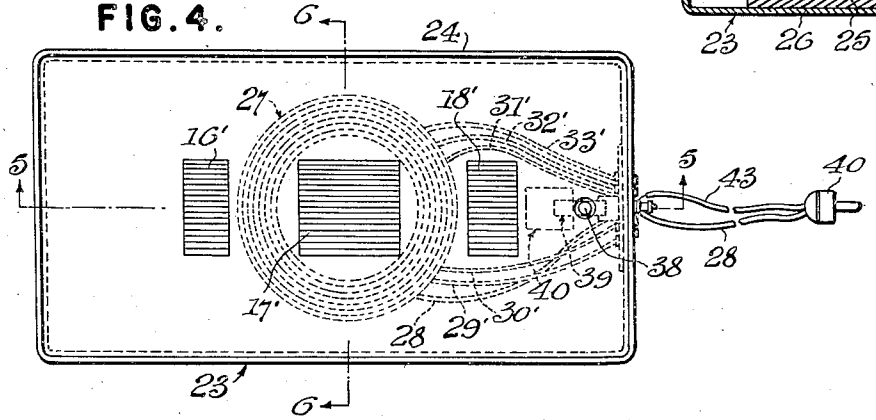
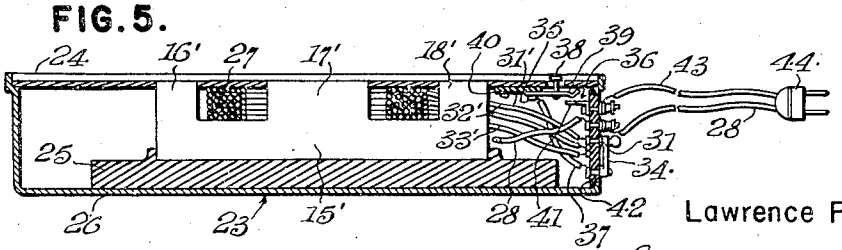


FIG. 5.



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FIG.7.

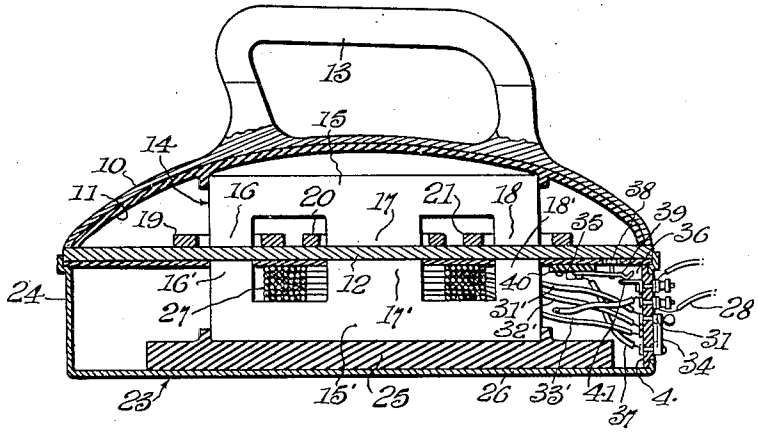


FIG.8.

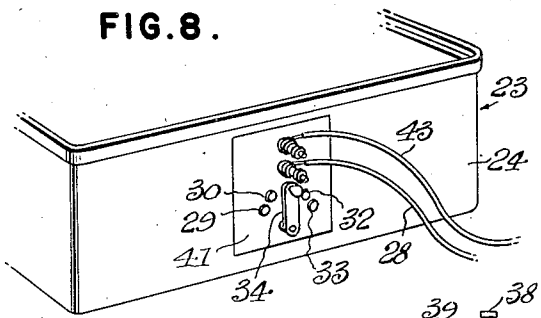
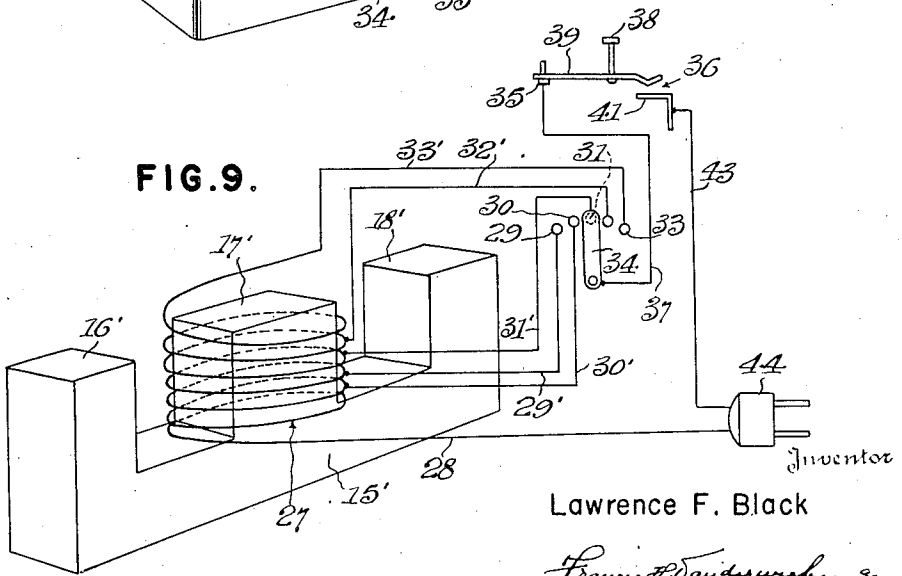


FIG.9.



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UNITED STATES PATENT OFFICE

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INDUCTION FLATIRON

Lawrence F. Black, United States Army

Application August 3, 1942, Serial No. 453,403

3 Claims. (Cl. 219—25)

(Granted under the act of March 3, 1883, as amended April 30, 1928; 370 O. G. 757)

The invention described herein may be manufactured and used by or for the Government for governmental purposes, without payment to me of any royalty thereon.

The present invention relates generally to electric heating devices but more particularly to a flat iron heated by induced current.

One object of the invention is to provide an electrically heated iron with which it is unnecessary to use a current supply cord, thus allowing free movement of the iron in any direction, thereby permitting greater speed and ease of manipulation by the operator.

Another object of the invention is to provide an inductively energized iron having a pressure operated switch to facilitate ease in operation.

Another object of the invention is to provide an iron which becomes heated inductively when contacting a base plate and which on removal from said plate cuts off energization of the primary coil in said plate.

It is a further object of this invention to provide an iron having an inductively energized heating element adapted to heat the sole plate uniformly and with maximum efficiency.

Still another object of the invention is to provide an electric iron which is simple in construction, certain in operation and highly economical and efficient in converting electrical energy into heat.

With these and other objects in view, this invention consists in certain novel details of construction, combination and arrangement of parts to be more particularly hereinafter described and claimed.

Referring to the figures in which like parts are indicated by similar reference characters—

Fig. 1 is a side elevation of the iron partially sectionized on the line 2—2 of Fig. 2;

Fig. 2 is a bottom plan view of the iron shown in Fig. 1 with the sole plate removed;

Fig. 3 is a sectionized view taken on the line 3—3 of Fig. 1;

Fig. 4 is a top plan view of the iron support showing primary coil core, switches, lead-in wires;

Fig. 5 is a sectionized view of the iron support taken on the line 5—5 of Fig. 4;

Fig. 6 is a sectionized view of the iron support taken on the line 6—6 of Fig. 4;

Fig. 7 is an assembly view of the iron and stand as shown in Figs. 1 and 5;

Fig. 8 is a perspective view of one end of the iron support showing the rotary switch and connecting terminals;

Fig. 9 is a diagrammatic sketch partially in perspective, showing the laminated core, the primary and connecting leads to the switches, and to the power circuit plug.

Briefly stated, the instant invention comprises a flat iron and stand adapted to support the iron when not being used, the stand containing a primary coil energized from an electric light circuit, and the flat iron secondary rings which are inductively energized by the coil.

Referring to Figs. 1 to 3 inclusive which illustrate the construction of the iron, the numeral 10 indicates the sad iron casing, provided with insulating lining 11; 12 the sole plate, 13 a handle formed of insulating material, and 14 laminated E shaped plates forming a core having a longitudinal portion 15 and three downwardly projecting members 16, 17 and 18 which are supported on the upper surface of the sole plate 12. The members 16, 17 and 18 are surrounded by copper rings 19, 20 and 21 adjacent the sole plate, the rings functioning as secondary members which are inductively energized from the primary coil 27 of the support 23.

The stand or support 23, Figs. 3 to 6 inclusive, is formed with a housing or casing 24 which contains a similar core formed of laminated E shaped plates having a longitudinal portion 15' and three upwardly projecting members 16' and 17' and 18' which are supported upon an insulating plate 25 attached to the upper surface of the bottom plate 26 of the housing. The central member 17' of the laminated plates is surrounded by the primary coil 27, one end of which is connected to a lead 28 of an electric light circuit. The turns of the coil are connected at various lengths to switch terminals 29, 30, 31, 32 and 33 through lead-wires 29', 30', 31', 32' and 33'. The switch terminals are arranged arcuately around the pivotal point of a switch blade 34 which is connected to the terminal 35 of an automatic switch 36 by a conductor 37.

The automatic switch 36 comprises a normally elevated depressible member 38 which is retained in elevated position by means of a spring contact member 39.

The spring contact member 39 which is mounted upon an insulating plate 40 attached to the stand, is connected through terminal 35 to the conductor 37 and is adapted when depressed to contact a stationary contact member 41 which is mounted upon an insulating plate 42 and is connected through conductor 43 and plug connector 44 to the electric supply line. When the base is not being used to support the sad iron, the depressible member 38 is in elevated position and

when the sad iron is placed upon the base it depresses member 33 to complete a circuit through the primary coil 27 within the base or support and thus inductively energize the secondary rings within the sad iron.

To operate the iron it is placed upon the stand in which position it depresses the automatic switch to energize the primary coil 27, the degree of energization being controlled by the rotary switch. By induction the primary coil 27 energizes the secondary rings in the sad iron thus generating heat within the core which is transmitted to the sole 12. After the sad iron is sufficiently heated it is removed from the base by the operator for pressing purposes.

Having described my invention, what I claim as new and wish to secure by Letters Patent is:

1. A device of the character described comprising a flat iron including a sole, a shell, and a handle, a laminated core enclosed within said shell, said core having three downwardly projecting members, secondary rings surrounding said members adjacent said sole; and a stand adapted to support said iron, said stand comprising a casing containing a laminated core enclosed within said casing, said core having three upwardly projecting members, a primary coil surrounding said central member, and means comprising a pressure operated switch and a rotary switch attached to said stand adapted to connect said primary coil with a source of power when the flat iron is placed upon said stand and to regulate the energization thereof to thereby control the temperature of said iron.

2. A device of the character described comprising a flat iron including a sole, a shell, an insulating lining within said shell, and a handle, a laminated core enclosed within said shell, said core having three downwardly projecting members, secondary rings surrounding said members adjacent said sole; and a stand adapted to support said iron, said stand comprising a casing, an insulating plate mounted within said casing, a laminated core mounted upon said insulating plate, said core having three upwardly projecting members, a primary coil surrounding the central member of said core, means comprising a pressure operated switch and a rotary switch attached to said stand adapted to connect said primary coil with a source of power when the flat iron is placed upon said stand and to regulate the energization thereof to thereby control the temperature of said iron.

3. A device of the character described comprising a flat iron including a sole, a shell, an insulating lining within said shell, and a handle, a laminated core enclosed within said shell, and insulated therefrom, said core having three downwardly projecting members, secondary rings surrounding said members adjacent said sole, and a stand adapted to support said iron, said stand comprising a casing, an insulating plate mounted within said casing, a laminated core mounted upon said insulating plate, said core having three upwardly projecting members spaced equally and corresponding in alignment with said three downwardly projecting members of the core enclosed within the shell of said iron when the iron is supported upon said stand, a primary coil surrounding the central upwardly projecting member of the core within said stand, and means comprising a pressure operated switch connected with said stand adapted to connect said primary coil with a source of power when the iron is placed upon said stand.

LAWRENCE F. BLACK.