R. W. BAKER.

ELECTRICALLY HEATED FLAT IRON.

APPLICATION FILED APR. 30, 1912.

1,039,882. Patented Oct. 1, 1912.

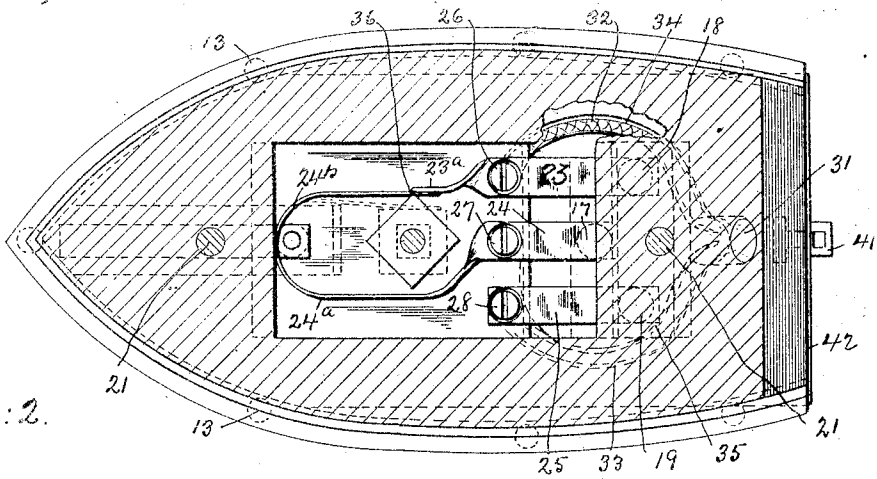


Fig. 2.

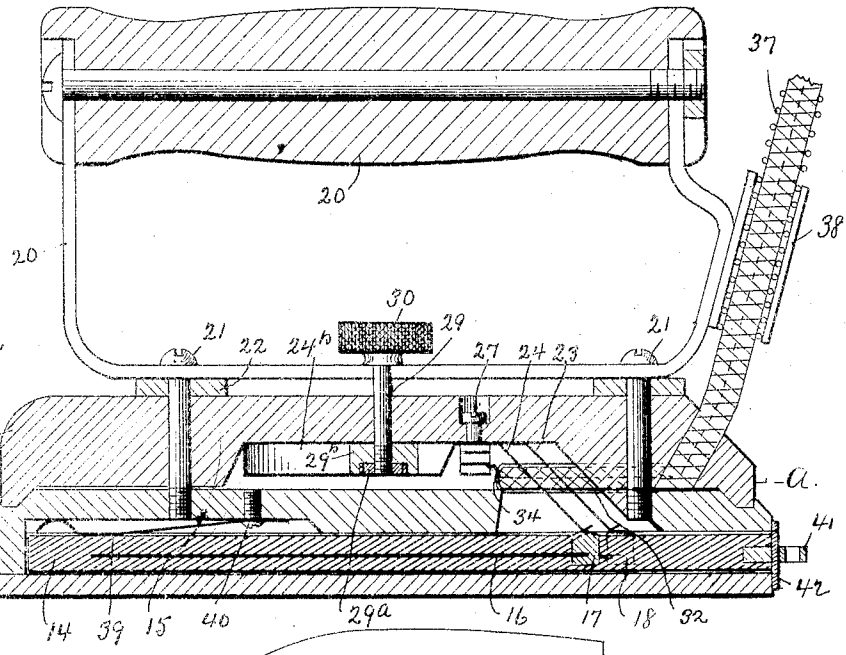


Fig. 1.

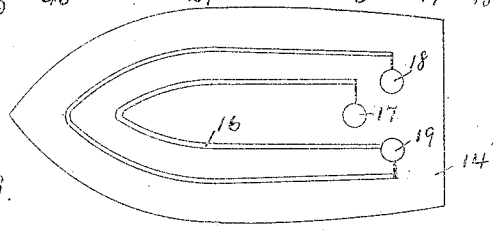


Fig. 3.

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UNITED STATES PATENT OFFICE.

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ELECTRICALLY-HEATED FLAT-IRON.

1,039,882. Specification of Letters Patent. Patented Oct. 1, 1912.

Application filed April 30, 1912. Serial No. 694,058.

To all whom it may concern:

Be it known that I, RAYMOND W. BAKER, of the city of Newark, county of Essex, and State of New Jersey, have invented a new and useful Improvement in an Electrically-Heated Flat-Iron, of which the following is a full, clear, and exact description.

My invention relates to improvements in electrically heated flat-irons in which the heat is generated in a heater contained within the iron itself.

One of the objections to such flat-irons as at present made is that the face of the iron is unevenly heated, and one of the objects of my invention is to produce an iron in which the surface or face of the iron will be uniformly and evenly heated.

As it is necessary in laundry work to have irons heated to different degrees for different kinds of work, another object of my invention is to produce an iron in which the heat generated can be regulated by a device contained within the iron itself, and so that the iron can be used when a greater heat is desired or when less heat is to be used. To accomplish this I provide a flat-iron which contains a heater which can be slipped in and out as occasion may require, which heater is composed of a material which is a good conductor of heat, and a poor conductor of electricity when hot. Embedded in this heater are heating elements in filament form which are connected with a source of current supply. In order to vary the amount of heat used, I provide two heating elements, and means for controlling the electric connections so that one or both may be connected with the current, and in this way permit of a greater or less degree of heat being applied to the iron.

Reference is to be had to the accompanying drawings forming a part of this specification, in which similar reference characters indicate corresponding parts in all the views.

Figure 1 is a sectional elevation of the flat-iron embodied in my invention. Fig. 2 is a top view on the lines *a*—*a* of Fig. 1, and Fig. 3 is a top view of the heating elements contained within the heater.

The flat-iron as shown in Fig. 1 is composed of a body portion 10 which is made of cast iron or other suitable material. Secured to this body portion 10 is a top portion 11 of porcelain or other electric insulating material. I provide a face plate 12 which is secured to the body portion 10 by the screws 13. The body portion 10 is chambered out as shown in Fig. 1, and contains between it and the face plate 12 a heater 14 which can be slipped in and out of the chambered portion as occasion may require. The heater 14 is composed of material which is a very good conductor of heat, and is a poor conductor of electricity when hot. It is preferably made of carborundum in a finely divided state, which is mixed with a liquid binder, and which when pressed into the desired shape and dried, forms a slab which in addition to being a good conductor of heat and a poor conductor of electricity, is hard and forms a heater which cannot be easily broken.

Embedded in the heater are heating elements 15 and 16, which are in filament form, the heating element 15 being connected with the terminals 18 and 19, and the heating element 16 being connected with the terminals 17 and 19. The heating elements 15 and 16 are preferably what is known to the trade as a Helion filament, composed of a combination of carbon and silicon. The handle 20 is secured to the iron by screws 21 which pass through the top portion 11 and are secured in place in the body portion 10. Between the handle and the top portion 11 I provide heat insulating washers 22.

Supported in the insulating top portion 11 are spring contacts 23–24 and 25, which are held in place by the binding posts 26, 27 and 28 respectively. The spring contact 24 is twisted at a right angle as shown in Fig. 2 and carried toward the front of the iron as shown at 24^a and bent back as shown at 24^b. The spring contact 23 is twisted at a right angle and carried forward as shown at 23^a in Fig. 2. These spring contacts 23, 24 and 25 are each bent down at their other end, and are adapted to contact with the terminals 18, 17 and 19 respectively. In order to make and break the connection between the spring contacts 24^a and 23^a, I provide a bolt 29 which extends down through the top portion 11 and is provided with a nut 29^a which sets into the lower surface of a square piece of porcelain or other insulating material 29^b. The bolt 29 has at its upper end a head or knob 30. It is apparent, therefore, that when the knob 30 is turned, the square

piece of porcelain 29[b] will turn, and when it is in the position shown by the full lines in Fig. 2, the corner of it will engage the spring contact 24[b] and bring it into contact with the spring contact 23[a], forming a connection between the contact 23 and 24. When the piece of square porcelain is turned as shown by dotted lines in Fig. 2, the contact between the springs 24[b] and 23[a] will be broken.

The current supply is led in through the hole 31 in the top near the back of the insulation part 11, and connects with the binding posts 26 and 28 by the wires 34 and 35 leading through the sockets 32 and 33. The electric connections with the heating elements 15 and 16 in the heater are as follows. The current will enter by the wire 34 through the socket 32, to the binding post 26, from thence through the spring contact 23 to the terminal 18, and from thence through the heating element 15 to the terminal 19, through the spring contact 25 to the binding post 28, and from thence out through the wire 35. In this way of connecting the heating element, the heating element 15 will alone be heated, but when the square piece of porcelain 29 is turned into the position shown by the full lines in Fig. 2, the spring contacts 24[b] will engage the contact 23[a], and the electric connections will be as follows. In addition to the path of the current above described, the current will also pass from the binding post 26 to the spring contact 23[a], from there through the spring contact 24[b], 24[a] and 24 to the terminal 17, and from thence through the heating element 16 to the binding post 19 and out through the spring contact 25 and the wires 35. When the connections are made in this way the current will pass through both the heating elements 15 and 16.

In order that the square piece of porcelain 29 may be locked in place against accidental displacement, the contact 24[b] is notched at 36 so as to engage the corner of the square 29. The leading-in wires may be secured in any desired way. In the drawings I have shown them as surrounded by a wire spring 37 to avoid accidental bending or breaking, this wire spring being supported in place by a tube 38 which is secured to the handle 20. Any usual flexible connection can be used to carry the wires 34 and 35. In order to hold the heater in place against the face plate, I provide a spring 39 which is secured to the body portion 10 by the screw 40, and is bent as shown in Fig. 1 so as to contact with the upper surface of the heater 14. At the other end of the heater the spring contacts 23, 24 and 25 hold the heater in close contact with the face-plate 12. In order that the heater may be withdrawn if desired, I provide a lug 41 which is secured to the end of the heater, and to a plate 42 which covers the opening to the iron and gives a finish to the rear end.

It is apparent, therefore, that I provide an electrically heated flat-iron in which as the heater contacts with almost the entire surface of the face-plate, the surface of the iron will be uniformly and evenly heated, and one in which the amount of heat generated in the heater can be very easily regulated. As the material composing the heater is a good conductor of heat and a poor conductor of electricity even when hot, there will not only be an even distribution of heat, but there will be no short circuiting in the heating element. This arrangement insures a very quick heating of the iron, as the whole bottom surface of the heater is in actual contact with the bottom portion of the iron.

The heater itself is very tough and hard, so that even if the iron is put to very rough use there is no danger of the heater breaking and the heating elements embedded in it being injured.

It is apparent that changes can be made in the construction of the iron, such as in the number of heating elements used, or the material of which the heater is made, without departing from the principle of my invention.

As stated, the heater itself is composed of powdered carborundum held together with a binder and formed into the shape desired and dried, but I do not claim this composition as part of my invention.

I claim:—

1. A flat-iron having a chambered portion, a heater fitting within the chamber and in actual contact with the bottom thereof, the heater being composed of material which is a good conductor of heat and a poor conductor of electricity when hot, heating elements in filament form contained within the heater, and electric connections for the heating elements.

2. A flat-iron having a chambered portion, a heater fitting within the chamber, heating elements in filament form contained within the heater, a top portion of electric non-conducting material secured to the chambered portion, and electric connections carried in the top portion and connecting with the heating elements in the heater.

3. A flat-iron comprising a chambered body portion, a face-plate secured to the body portion, a heater supported between the face-plate and the body portion and in contact with the face plate, the heater being composed of material which is a good conductor of heat and a poor conductor of electricity when hot, heating elements in filament form in the heater, a top portion secured to the body portion, and electric connections carried in the top portion and connecting with the heating elements.

4. A flat-iron comprising a chambered body portion, a face plate secured to the body portion, a heater removably supported between the face plate and the body portion and in contact with the entire inner surface of the face plate, a plurality of heating elements in filament form embedded within the heater, a top portion of insulating material secured to the body portion, spring contacts supported in the top portion and engaging the terminals of the heating elements, and means supported in the top portion for connecting one or more of the heating elements with the current supply.

5. An electric flat-iron having a body portion with a chamber near and parallel with the face, a flat removable heater contained in the chamber in actual contact with the bottom thereof and composed of a good conductor of heat and a poor conductor of electricity with heating elements embedded therein, terminals on the top of the heating elements, spring contacts contained in the iron and pressing on the terminals thereby serving the purpose of current connectors and for holding the heater in place, and suitable connections for the spring contacts.

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