No. 890,856. PATENTED JUNE 16, 1908.

W. S. HADAWAY, Jr.

ELECTRIC HEATING DEVICE.

APPLICATION FILED JULY 3, 1907.

Fig. 1.

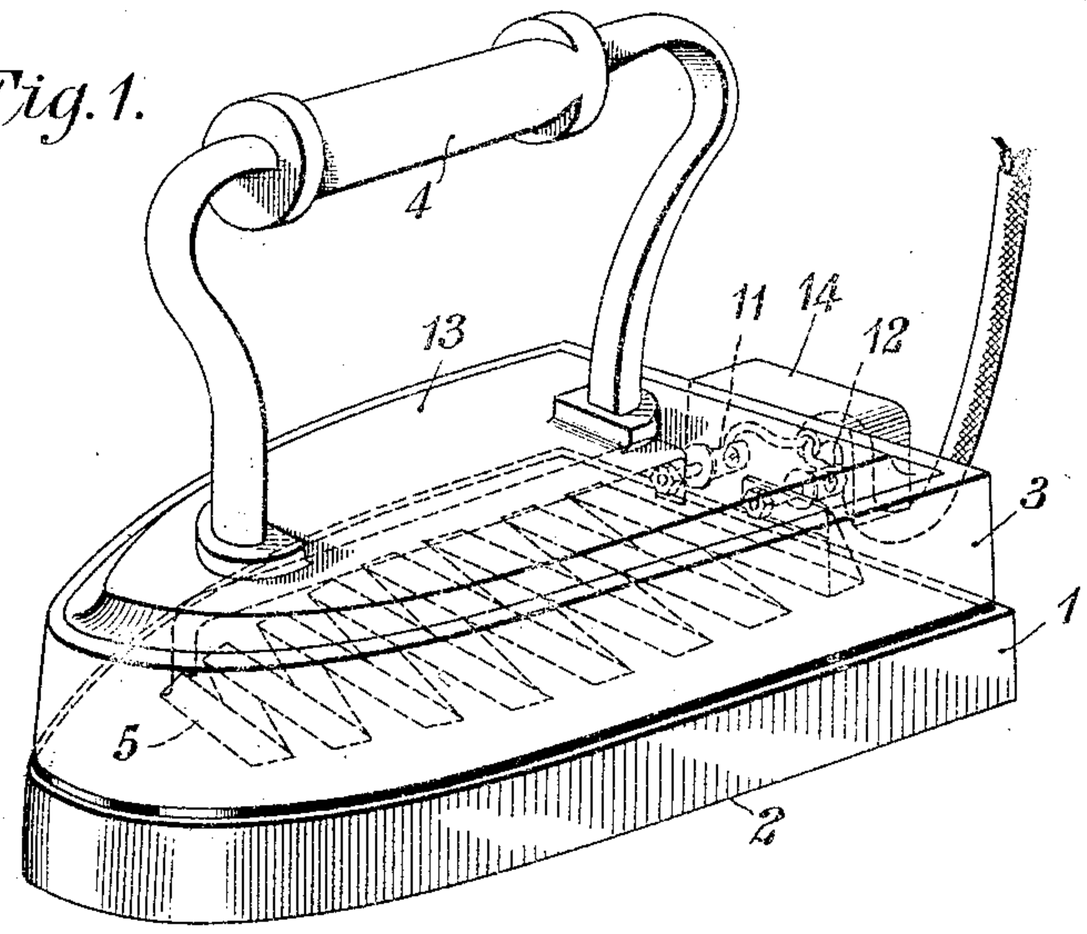


Fig. 2.

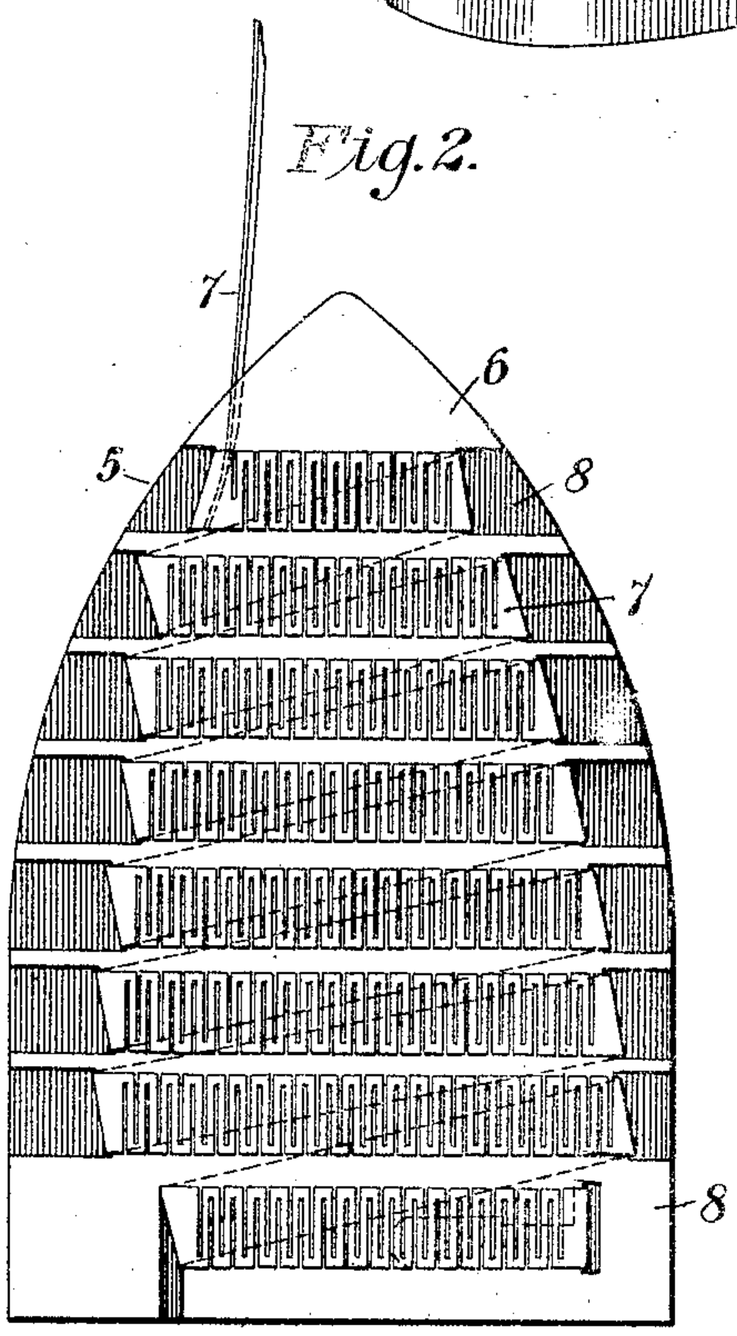


Fig. 3.

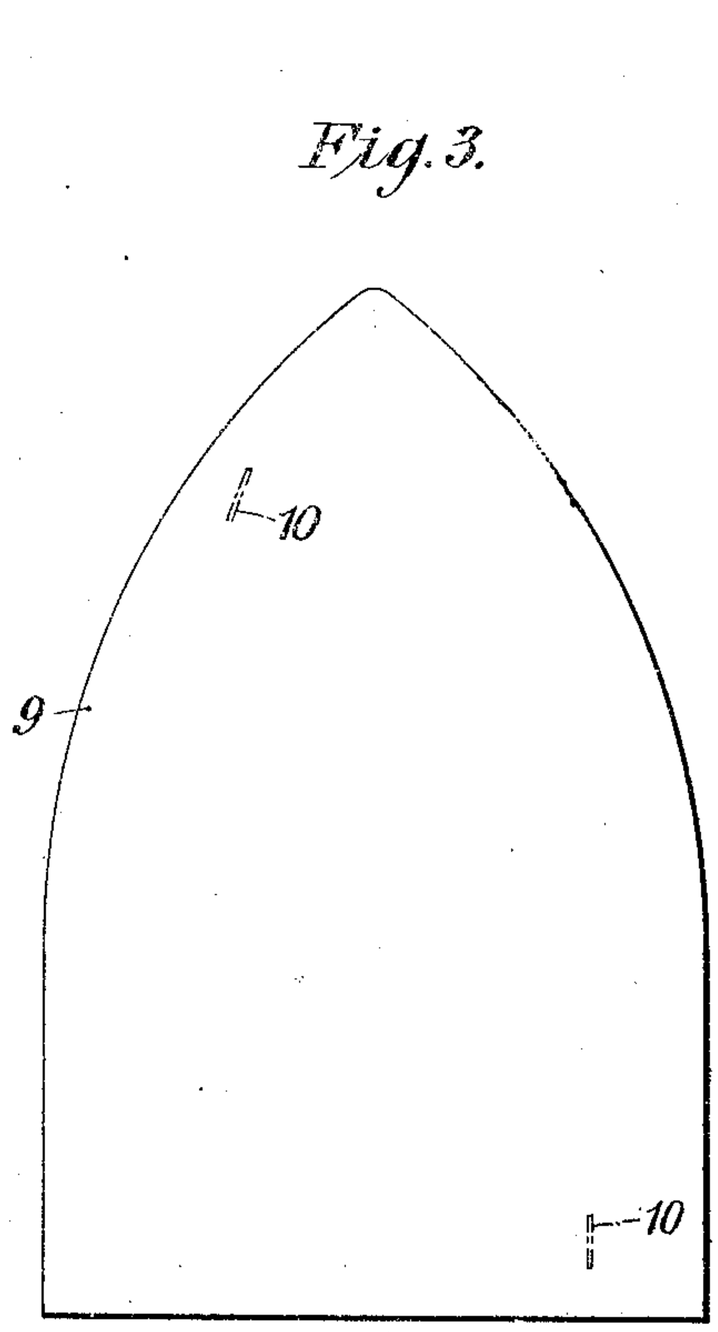
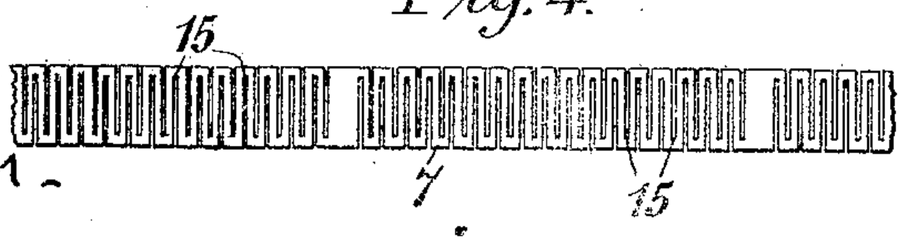


Fig. 4.



WITNESSES:

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ELECTRIC HEATING DEVICE.

No. 890,856. Specification of Letters Patent. Patented June 16, 1908.

Application filed July 3, 1907. Serial No. 382,395.

To all whom it may concern:

Be it known that I, WILLIAM S. HADAWAY, Jr., a citizen of the United States, and a resident of East Orange, in the county of Essex and State of New Jersey, have invented a new and useful Improvement in Electric Heating Devices, of which the following is a specification.

My invention relates to devices in which it is desirable to maintain a substantially constant heat and it has for its object to provide, in sadirons or other devices of the class above indicated, means for electrically heating a body of iron or other heat-conducting material that shall be simple and durable in construction and efficient in the transformation of electrical energy into heat.

In sadirons and similar devices it is essential that a relatively large mass of heat-conducting material be used in order that the temperature of the device may be more readily maintained at a substantially constant temperature. Resistance units that are adapted for heating such devices are obviously subjected to heat conditions which are damaging to ordinary forms of insulation.

According to my present invention, I provide a novel resistance unit which is specially compact in form and which employs an insulation that is admirably adapted to the service conditions to which the resistance unit is subjected. Furthermore, I combine the resistance with a sadiron in an improved manner, whereby the best results are obtained with a minimum expenditure of energy.

Figure 1, of the accompanying drawings, is a perspective view of an electrically heated sadiron constructed and arranged in accordance with my invention. Fig. 2 is a plan view of the resistance unit and one of the insulating plates employed in the device shown in Fig. 1. Fig. 3 is a plan or face view of one of the insulating plates and Fig. 4 is a detail view of the unit shown in Fig. 2.

Referring to the drawings, the device here illustrated comprises a relatively thick plate 1 of iron or other suitable material having a smooth ironing surface 2, a body member 3 having a handle 4, and a resistance unit 5.

The resistance unit comprises a notched insulating plate 6 around which a resistance ribbon 7 is wound in the form of a flattened helix, and insulating plates 8 and 9 upon the respective sides of the flattened helix.

The plate 9 is provided with slots 10 through which the extremities of the esistance ribbon project, to be attached to terminals 11 and 12.

The assembled resistance unit is interposed between the plate 1 and the body 3 of the sadiron and the insulating plates are preferably built up of relatively small overlapping pieces of sheet mica held together by a suitable insulating shellac, in order that the plates may soften under the heat and pressure, which are applied in assembling the iron and thereby act as a gasket or cushion to equalize the pressure.

The body 3 is recessed to receive the resistance unit leads and a cover plate 13, to which the handle 4 is affixed, is removably attached to it after the other parts are assembled.

A terminal block 14 is secured to the heel of the iron and serves to support the terminals 11 and 12 and to insulate them from each other.

The resistance ribbon is provided with a plurality of lateral slots 15 which are alternately opened at opposite sides of the ribbon to produce a zig-zag path for the current, whereby a considerable length of conductor is obtained in a relatively short length of ribbon. The slots are omitted from the ends of the ribbon and from the portions which are bent in the formation of the flattened helix, the maximum conductivity being thus provided at the bends and at the terminals, which would otherwise be most likely to fuse, in the operation of the unit as a heating coil.

Although the slots in the resistance ribbon are shown as of uniform width and as uniformly spaced, it may be desirable, in some cases, to vary the widths or spacings in order to concentrate the heat at predetermined points.

It is conceivable that modifications of size and arrangement of details may be effected without departing from the spirit of my invention and I desire that only such limitations be imposed as are indicated in the appended claims.

I claim as my invention:

1. A resistance element comprising a conducting ribbon having a plurality of groups of slots alternately open at opposite edges, said groups being separated by material lengths of ribbon having a relatively large current-conducting capacity.

2. A resistance element comprising a conducting ribbon having a plurality of groups of lateral slots alternately open at opposite edges to increase the length of the current-conducting path therethrough, said groups being separated by material lengths of ribbon having a relatively large current-conducting capacity.

3. A resistance unit comprising a conducting ribbon wound into a flattened helix and provided with a plurality of groups of slots successively open at opposite edges of the ribbon, said groups being separated by material lengths of ribbon having a relatively large current-conducting capacity and forming the bends of the flattened helix.

4. A resistance unit comprising an insulating plate and a conducting ribbon wound thereon in the form of a flattened helix and slotted to provide a zigzag path for the current, said slots being only disposed between the bends of the flattened helix.

5. A resistance unit comprising a notched insulating plate, a conducting ribbon wound around the plate into a flattened helix, said ribbon having low-resistance sections at the bends of the helix, and a pair of thin insulating plates fitted to the respective sides of the helix.

6. A resistance unit comprising a notched insulating plate, a conducting ribbon wound around the plate into a flattened helix, and a pair of thin insulating plates fitted to the respective sides of the notched plate, said ribbon being slotted between the bends of the helix to produce a zigzag path for the current, while a relatively low resistance is maintained in the ribbon at the bends of the helix.

7. A resistance unit comprising a notched insulating plate, a conducting ribbon wound around the plate into a flattened helix, and a pair of thin insulating plates fitted to its respective sides, said ribbon being provided with a plurality of groups of slots that are successively open at opposite edges of the ribbon, said groups being separated by a material length of low-resistance ribbon disposed at the bends of the flattened helix.

8. In an electric sad-iron, the combination with relatively thick metal plates, and a resistance unit interposed between the plates, said unit comprising a flattened helix of resistance material, and plates of insulating material capable of softening under heat and pressure to form a gasket or cushion between the metal plates.

9. In an electric sad-iron, the combination with a relatively thick metal plate having an ironing surface, a body member secured to said plate, and a resistance unit between the body member and the plate, said unit comprising a conducting ribbon wound into a flattened helix and having a series of slots which are open alternately at opposite edges to increase the length of the current-conducting path, and a pair of plates of insulating material having the property of softening under heat and pressure to form a gasket between the metal plate and the body member.

10. In an electric sad-iron, the combination with a relatively thick metal plate having an ironing surface, a body secured to said plate and a resistance unit interposed between the body member and the plate, said unit comprising a conducting ribbon wound into a flattened helix and provided with a plurality of groups of slots successively open at opposite edges of the ribbon to increase the length of the current-conducting path, said groups being separated by ribbon sections of relatively low resistance disposed at the bends in the helix.

11. In an electric sad-iron, the combination with a relatively thick metal plate having an ironing surface, a body member secured to said plate and a resistance unit interposed between the body member and the plate and comprising plates of insulating material having the property of softening under heat and pressure to form a gasket between the metal parts, an intermediate insulating plate and a conducting ribbon wound thereon in the form of a flattened helix, said ribbon being slotted between the bends in the helix to produce a zigzag path for the current.

12. In an electric sad-iron, the combination with a relatively thick metal plate having an ironing surface, a body member secured to said plate, and a resistance unit interposed between the body member and the plate and comprising a notched insulating plate, a conducting ribbon wound around said insulating plate into a flattened helix, and a pair of thin insulating plates fitted to the respective sides of the notched plate, said ribbon being provided with groups of slots to produce a zigzag path for the current, and said groups being separated by sections of ribbon having relatively low-resistance and disposed at the bends in the helix.

In testimony whereof, I have hereunto subscribed my name this 29th day of June, 1907.

WILLIAM S. HADAWAY, Jr.

Witnesses:
Wm. H. Capel,
F. Lowenhaupt.