Nov. 14, 1933. L. L. VALENTINE 1,934,894

HEAT REGULATOR FOR ELECTRIC IRONS

Filed Jan. 12, 1932

Fig. 1

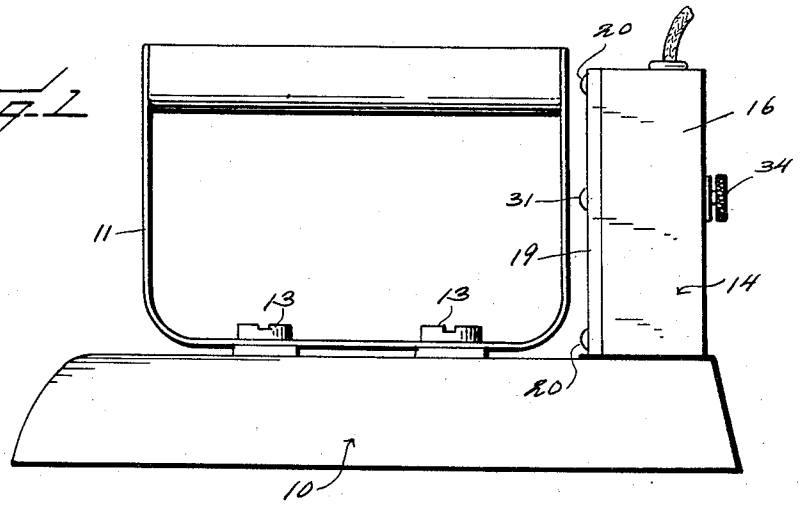


Fig. 2

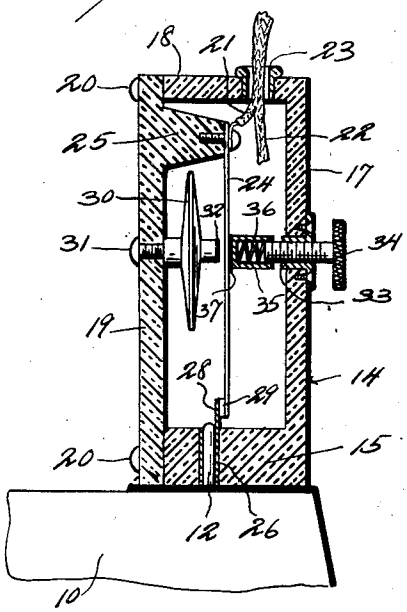
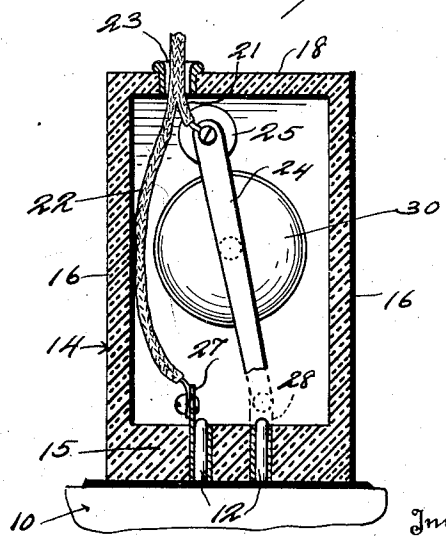


Fig. 3



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HEAT REGULATOR FOR ELECTRIC IRONS

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3 Claims. (Cl. 200—140)

The present invention relates to heat control or regulating devices and more particularly to a heat regulating device which is adapted to be positioned on a flat iron or the like.

An object of this invention is to provide a heat regulating device which may be removably attached to any conventional electric flat iron and which, when mounted on the iron, will effectively control the temperature of the iron.

Another object of this invention is to provide a device of this kind which may be readily attached to the iron without in any way interfering with the normal use of the iron and which will not require the use of separate means for attaching the heat control device to the iron.

A further object of this invention is to provide a thermatic heat controlling member which may be constructed in relatively small and compact form so that it may be readily mounted on the present parts of the electric iron.

The above and various other objects and advantages of this invention will in part be described and in part be understood from the following detailed description of the present preferred embodiment, the same being illustrated in the accompanying drawing wherein:—

Figure 1 is a detail side elevation of a device constructed according to the preferred embodiment of this invention mounted on a conventional electric flat iron;

Figure 2 is a vertical longitudinal section taken substantially through the center of the device; and

Figure 3 is a vertical transverse section taken substantially through the center of the device.

Referring to the drawing wherein like numerals of reference designate corresponding parts throughout the several views, the numeral 10 designates generally an electric flat iron having a conventional handle 11 with is mounted on the iron and held in position by screws or bolts 13 or the like. The iron 10 is provided with a pair of spaced contact terminals 12 which extend outwardly of the body of the iron 10.

In the irons at present in use, the connecting plug is removably mounted on the terminals 12. In order to provide an automatic heat controlling device or unit for electric irons of ordinary construction I have provided a thermal unit which comprises a casing 14, the casing 14 being constructed of insulating material. The casing 14 comprises a base portion 15, side wall members 16, an outer plate 17, and a top plate 18. An inner plate or wall 19 is secured to the base 15 and the top 18 and engages against the side walls 16, being held in adjusted position by means of bolts or screws 20 or the like.

An electric cord comprising a pair of wires 21 and 22 is extended through an aperture 23 in the casing 14, the wire 21 being connected to a spring contact arm 24 which is mounted in depending relation on an outstanding lug 25.

A terminal engaging member 26 is mounted in the base 15 and is adapted to engage one of the terminals 12 of the flat iron 10. The wire 22 is connected to another terminal engaging member 27. An upstanding fixed contact 28 is mounted on the base 15 and connected to the terminal engaging member 26, the fixed contact 28 being adapted to be engaged by the lower end 29 of the resilient or movable contact arm 24. When the movable contact arm 24 engages the fixed contact 28, the electric circuit is closed so as to heat the iron.

A thermal unit or member 30 comprising an expansible casing of disc-like form is secured to the inner wall 19 of the casing 14 by means of a bolt 31 or the like. The thermal member 30 is of relatively flexible or expansible construction and expansible gas or vapor may be inserted within the unit so as to readily expand or contract the walls of the unit upon increase or decrease of the temperature. The thermal member 30 is provided with an axially disposed insulating pin 32 which is diametrically opposed to the bolt 31 and is adapted to engage against one side of the movable contact arm 24. A threaded sleeve or bushing 33 is mounted in the outer wall 17 of the casing 14 and a threaded knurled bolt 34 is adapted to threadably engage the interior of the bushing 33.

A sleeve or solenoid 35 is mounted within the casing 14 and is positioned about a tensioning spring 36, the spring 36 engaging at one end against the bolt 34 and at the opposite end against a washer 37 or the like which is positioned on the inner end of the sleeve 36.

If desired, the sleeve 36 may be constructed integrally with the washer 37 and the outer end of the sleeve 36 slidably mounted on the bolt 34 or upon the periphery of the bushing 33, the bushing 33 being extended through the wall 17 so as to provide a slidable support for the sleeve 36.

In the operation of this device, the wires 21 and 22 may be connected to an electric circuit by the conventional plug means and the casing 14 slipped over the terminal members 12 so that the contacts 16 and 17 within the casing 14 will engage the terminals 12 of the flat iron.

When the casing 14 is relatively cold or first placed on the iron 10, the thermal member 30 will be in contracted form so that the contacting point 32 will be out of engagement with the movable contact arm 24 so as to permit the contacting end 29 of the arm 24 to engage the fixed contact 28 and thereby close the electric circuit for heating of the iron 10. The adjustable thumb bolt 34 may be turned so as to properly tension the spring 36 so as to hold the contact point 29 into engagement with the contact 28 until the iron 10 and cooperatively the casing 14 have become heated thereby expanding the thermal member 30 so as to force the movable contact arm 24 away from the fixed contact 28 and against the tension of the spring 36.

It will of course be understood that the tension of the spring 36 may be so adjusted that the iron will be heated to any desired temperature before the thermal member 30 breaks the circuit. While the thermal member 30 has been described as constituting a substantially closed or sealed member, I do not wish to be limited to this construction as any desired thermal or expansible member may be used which will expand and contract readily upon variation of the temperature.

It will be obvious from the foregoing that a relatively simple heat controlling device has been disclosed which may be removably mounted on any conventional flat iron which is heated by electricity and that this heat controlling device may be so adjusted as to heat the iron to a predetermined temperature and maintain the iron at the predetermined temperature during the entire time that the iron is interposed in the electric circuit.

It is, of course, understood that various changes and modifications may be made in the details of construction and design of the above specifically described embodiment of this invention without departing from the spirit thereof, such changes and modifications being restricted only by the scope of the following claims:

What is claimed is:—

1. A combined heat regulating device and electric connector of the character described comprising a pair of fixed contacts adapted for removable engagement with a pair of spaced terminals, means for connecting one of said contacts in an electric circuit, a movable circuit closer, means for connecting said movable circuit closer to the other side of the electric circuit, manually controlled tensioning means engaging said circuit closer whereby to normally urge said circuit closer into engagement with the other of said fixed contacts, and thermal means engaging said circuit closer whereby to move said circuit closer out of engagement with said other contact at a predetermined temperature.

2. A combined heat regulating device and electric connector of the character described comprising an insulated casing, a pair of fixed contacts mounted in the casing and adapted for engagement with a pair of terminals, means for connecting one of said fixed contacts to one side of an electric circuit, a resilient movable circuit closer mounted in the casing, means for connecting said movable circuit closer to the other side of the electric circuit, adjustable tension means mounted within the casing and engaging said circuit closer whereby to normally urge said circuit closer into engagement with the other of said fixed contacts whereby to close the circuit, and a thermal member mounted within the casing and adapted to engage the circuit closer at a predetermined temperature whereby to break the circuit.

3. A combined heat regulating device, and electric connector of the character described comprising an insulated casing, a pair of fixed contacts mounted within the casing, means for connecting one of said contacts to one side of an electric circuit, a movable circuit closer, adjustable tensioning means mounted in the casing and engaging said circuit closer whereby to normally urge said circuit closer into engagement with the other of said fixed contacts, said tensioning means comprising a threaded bushing mounted in the casing, a thumb bolt threadedly engaging the bushing, a sleeve slidably mounted in the casing and engaging about the inner end of said thumb bolt, an expansible spring mounted within the sleeve and contacting at one end with one end of the bolt and a washer mounted on the inner end of said sleeve and engaging the inner end of said spring, and thermal means mounted within the casing and adapted to move said circuit closer out of engagement with the other of said fixed contacts against the tension of said spring.

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