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F. KUHN ET AL
ELECTRIC HEATING DEVICE

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2,200,557

FIG. 1.

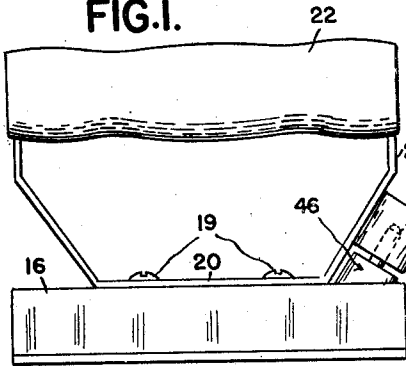


FIG. 5.

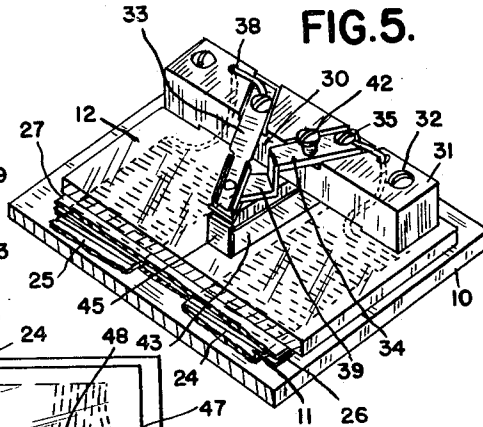


FIG. 2.

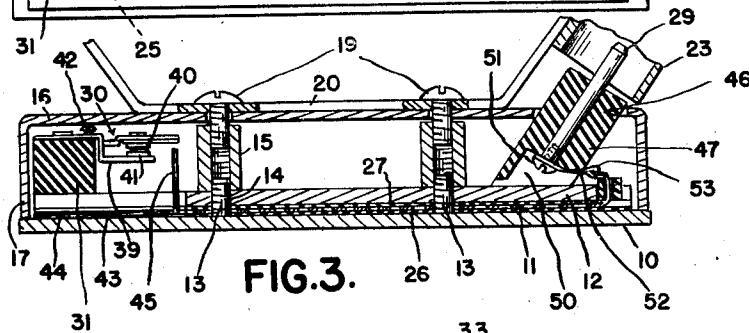
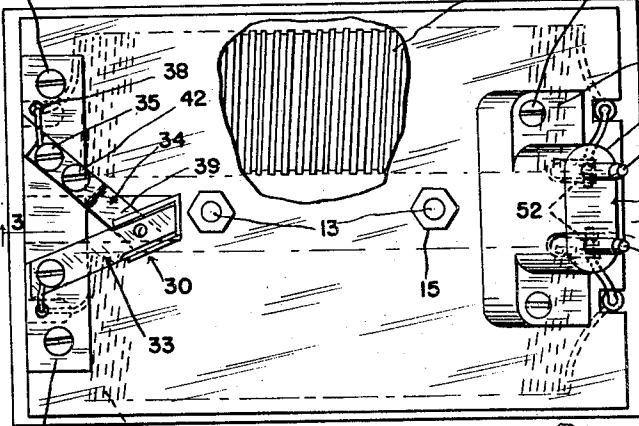


FIG. 6.

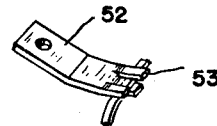


FIG. 3.

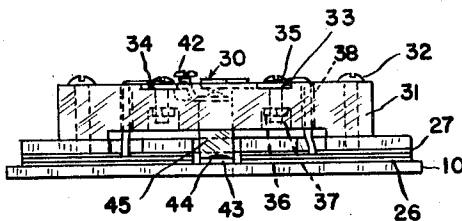


FIG. 4.

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UNITED STATES PATENT OFFICE

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ELECTRIC HEATING DEVICE

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Application January 9, 1939, Serial No. 250,034

5 Claims. (Cl. 219-25)

The invention relates to electrical heating devices and more particularly to a construction designed primarily to be used for mounting photographic prints on suitable backing material.

5 The mounting of photographic prints has been improved in recent years by the use of mounting tissue which is placed between the print and the backing material and caused to form an adhesive bond between the two by the application of
10 heat. The ordinary electric iron used for laundry purposes is not well adapted as the means for supplying the heat because it is usually operated at much higher temperatures than necessary for print mounting, and also it is usually of
15 a shape and size designed for laundry work.

The object of the present invention is to obtain an electrical heating device so constructed and designed as to furnish the right amount of heat for print mounting. It is also the object of the
20 invention to obtain a construction which is compact, light in weight, and otherwise ideally suitable for print mounting.

To accomplish this purpose, we have provided the construction hereinafter more fully described
25 and illustrated in the accompanying drawing, wherein

Figure 1 is a side elevation of the heater;

Figure 2 is a top plan view thereof with the cover removed and shown partly in section;

30 Figure 3 is a vertical section on the line 3-3 of Figure 2;

Figure 4 is an end view with cover removed;

Figure 5 is a perspective view illustrating the construction of the thermostat;

35 Figure 6 is a perspective view of a terminal connection.

In the preferred construction as illustrated in the drawing, 10 represents the base plate having a smooth bottom surface which is preferably electroplated with chromium or some other suitable metal. The plate is rectangular in shape. 11 is the resistor unit which is held in contact with the upper surface of the base plate by a clamping plate 12 of slightly smaller dimensions than the base plate. The parts are held in assembled
40 relation by two studs 13 projecting up from the base plate and preferably welded thereto, which studs pass through apertures 14 in the clamping plate and engage the elongated hexagonal nuts
45 15. 16 is a rectangular cover plate having downturned peripheral flanges 17 engaging the base plate and fitting over the periphery of the clamping plate. The cover is retained in position by screws 18 which pass through the handle
50 bracket 20 and the cover 16 and engage the

threaded nuts 15. The bracket 20 has the upstanding arms 21 to which the handle 22 is secured, and it is also provided with an elliptical guide 23 through which the plug of the electric cord passes.

The resistor unit 11 consists of two sections 24 and 25, each of which has flat ribbon windings. The two sections are enclosed by overlying sheets of mica 26 and 27. The ends of the ribbons in sections 24 and 25, respectively, are connected to
10 the terminal pins 28 and 29. At the opposite ends of the sections the ribbons are connected to the thermostat 30. This form of connection results in the two sections 24 and 25 being connected in series whenever the thermostatic switch
15 is closed.

31 is an insulator block secured to the upper plate 12 by retaining screws 32. 33 and 34 are spring bars arranged at an angle to one another and secured to the insulator block by the set
20 screws 35 which engage nuts 36 in the counterbores 37 of the insulator. The block is also provided with holes 38 through which the ends of the resistor ribbons are brought in order that they may be connected to the spring bars beneath the heads of the set screws 35. The spring bar 34 has an offset outer end portion 39 extending beneath the other spring bar 33, the arrangement being such that the cooperating contacts
25 40 and 41 carried by the respective bars are normally in engagement. An adjusting screw 42 extends through a threaded aperture in the bar 34 and engages the insulator block for the purpose of making such initial adjustment in tension as is necessary so that the contacts will
30 operate at the proper temperature. 43 is a bimetallic thermostatic bar having one end secured to the base plate 10, preferably by welding at the point 44. The other end of the thermostatic bar has a laterally extending portion 45
40 terminating just beneath the outer end of the upper spring bar 33. When the temperature of the thermostatic bar rises it warps upwardly, and at a predetermined temperature it raises the spring bar 33 and breaks connection between
45 the contacts 40 and 41.

At the opposite end from the thermostatic switch there is secured to the upper plate 12 the terminal insulating block 46. This block extends at an incline and is provided with the base portion 47 through which the retaining screws 48
50 engage the upper plate. It also has an upper portion 49 extending through a suitable aperture in the cover 16 into alignment with the guide 23. The terminal pins 28 and 29 are molded into the

insulator block and project upwardly within the guide 23. The block has a recess 50 formed therein for receiving the heads of the clamping screws 51 which threadedly engage the terminal pins. Conducting strips 52 are secured to the terminal pins by the contact screws and extend rearwardly through the aperture 50 and are provided at the rear end with prongs 53 between which are pinched the terminal windings of the resistor sections.

The heating device, as above described, when used for mounting photographic prints is preferably designed to have an operating temperature of about 250° F. The device as described is of light weight and of a size and shape which is adapted to be conveniently used in the mounting of photographic prints. It is automatically maintained at the desired temperature by a thermostat which, while of simple construction, responds quickly to changes in temperature of the working surface. On the other hand, the thermostatic switch is so constructed as to avoid fluttering and consequently the device may be operated with a minimum amount of electrical disturbance created by the opening or closing of the contacts.

What we claim as our invention is:

1. An electric heating device comprising a base plate, a clamping plate, a pair of laterally spaced resistor units extending longitudinally between said plates, a thermostatic switch at one end of said clamping plate connected to the terminals of the respective resistor units, a terminal block at the opposite end of said clamping plate, terminal bars connected to the opposite terminals of said resistor units, and a box cover having its edges engaging said base plate and secured to said clamping plate.

2. An electric heating device comprising a base plate, a clamping plate, a resistor between said plates, an insulating block at one end of said clamping plate extending upward therefrom, converging spring bars secured to the top of said block at laterally spaced points and having free ends in registration, cooperating contacts on the

respective bars, a thermostatic member secured at one end to said base plate, and means extending upward from the free end of said thermostatic member for engaging one of said spring bars when said thermostatic member is warped by increased temperatures whereby said contacts are separated.

3. An electric heating device comprising a base plate, a clamping plate having openings at one end thereof, a resistor between said plates having terminal wires projecting through said openings, a terminal insulator block secured to said clamping plate having two inclined terminal conducting pins protruding therefrom, said block having a recess adjacent said clamping plate, conducting clips secured to said terminal pins within said recess and projecting through said recess, and clamping means for electrically connecting said terminal wires to the projecting ends of said clips.

4. An electric heating device comprising a member to be heated, an electric resistor for heating the same, an insulating block supported by and extending upwardly from said member to be heated, a pair of bars having fixed ends secured to said insulating block in laterally spaced obliquely extending guide grooves and having converging free ends in registration, cooperating contacts on the respective bars, a thermostatic member movable by heat from said device, and means operable by said thermostatic member for engaging one of said bars whereby said contacts are separated at a predetermined temperature.

5. An electric heating device comprising a base plate, a clamping plate, a resistor between said plates having spaced longitudinally extending portions with terminals at the opposite ends of each portion, a thermostatic switch connected between the terminals at one end of said resistor portions, and external circuit connections at the opposite ends of said portions.

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