Dec. 20, 1938. R. J. SPRINGALL 2,140,817

SOLDERING IRON HEATER

Filed June 14, 1937

Fig. 1

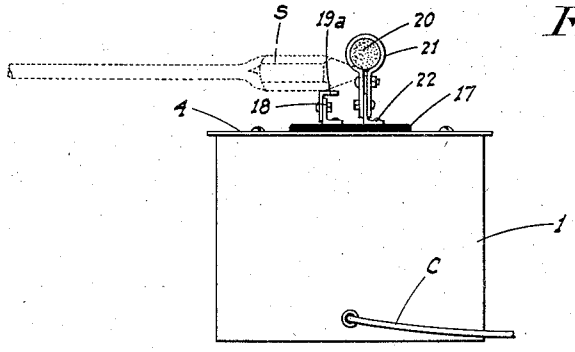
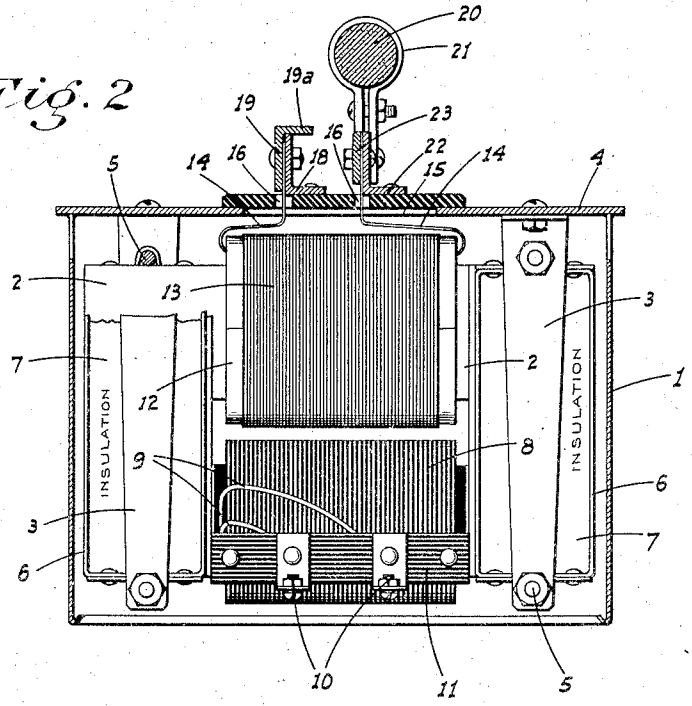


Fig. 2



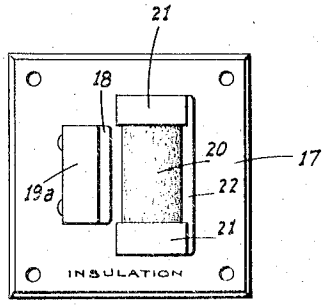


Fig. 3

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SOLDERING IRON HEATER

Raymond J. Springall, deceased, late of Sacramento, Calif., by Ramona D. Springall, administratrix, Sacramento, Calif., now by judicial decree to Ramona D. Springall, widow

Application June 14, 1937, Serial No. 148,130

3 Claims. (Cl. 219—23)

This invention relates generally to a heater for soldering irons and in particular is directed to an electrically actuated heater for such purpose.

The principal object of the invention is to provide a compact and readily portable electrically actuated soldering iron heater; the soldering iron when engaged with the heater being disposed in the electric circuit and the heater being constructed in such manner that a soldering iron may be heated very rapidly and with a minimum consumption of electric current.

A further object of the invention is to produce a simple and inexpensive device and yet one which will be exceedingly effective for the purpose for which it is designed.

These objects are accomplished by means of such structure and relative arrangement of parts as will fully appear by a perusal of the following specification and claims.

In the drawing similar characters of reference indicate corresponding parts in the several views:

Figure 1 is a side elevation of the heater, showing a soldering iron in heating position thereon.

Figure 2 is a sectional elevation of the heater.

Figure 3 is a top plan of the iron-supporting contacts and their mounting base.

Referring now more particularly to the characters of reference on the drawing, the device comprises an open bottom, box-like case 1 preferably of metal. A transformer including a continuous core 2 formed of metal laminations is disposed within the case and spaced from the walls thereof. Arms 3 are secured to the top 4 of the case and depend on both sides of the core adjacent each end; tie bolts 5 extending between corresponding arms above and below the core. Rectangular frames 6 are disposed between the arms and adjacent portions of the core in order to maintain the core laminations firmly engaged together over substantially the entire end portions of the core. An insulating sheet 7 is mounted between each frame and adjacent core portion.

The core 2 is wound with a primary coil 8 preferably including approximately 185 ft. of 16 guage copper wire suitably insulated, as by enamel, and with each row of turns separated by fish paper. The leads 9 from the primary coil extend to terminal posts 10 which are mounted on a rigid insulating strip 11 secured to and extending between the frames 6 on one side of the core. A two-wire current supply cable C extends through a side opening in the case and connects with terminal posts 10.

The core 2 is also wound with a secondary coil comprising a plurality of turns of sheet or strip copper 12, such sheet or strip of copper preferably being of 28 guage, 3 in. wide and 12 ft. long. The turns of said copper sheet are insulated from each other by enameling or the like and the turns are also separated by fish paper. Such copper sheet secondary coil is maintained in place by a shellacked cord winding 13 encircling the same. Leads 14 from such secondary coil extend upward through an opening 15 in the top 4 of the case and through slots 16 in a dielectric plate 17 mounted on the top of the case over said opening; the leads also being of copper sheet.

A metallic soldering iron rest includes a base member 18 secured on plate 17, and a soldering iron supporting member 19, having a horizontal flange 19*a*, mounted on the member 18; one of the leads 14 being secured between the engaged portions of the members 18 and 19 which are bolted together in the manner shown. The members 18 and 19 are preferably of iron.

A relatively short carbon rod 20, circulator in cross section, is adjustably and removably mounted in horizontal position a short distance from and above the plane of the soldering iron rest flange 19*a* by means of spaced clamps 21 which are bolted at their lower ends to a supporting base 22 fixed on the dielectric plate 17. The other lead 14 is connected to the supporting base 22 by means of a clamping plate 23.

In use the electric supply cable C is connected with any suitable source of 110 v. A. C. current. The soldering iron S to be heated is then placed with the body on the soldering iron rest and with the point engaging beneath the carbon rod 20 in the manner shown in dotted lines in Fig. 1. When the soldering iron S makes contact between the metallic soldering iron rest and the carbon rod, the circuit through the secondary coil is closed. With the secondary circuit thus closed, the soldering iron will heat rapidly on account of the employment of the carbon rod which has low conductivity and high resistance characteristics. The speed of heating results from the proper combination of low voltage and high amperage obtained from the transformer, which is of the step-down type.

The soldering iron will become hot enough for use within one or two minutes and when the iron is removed from the heater and the secondary circuit broken the transformer will be substantially inactive even though the cable C remains connected with the source of current. Due to this fact the device is quite inexpensive to operate and as the transformer is of the step-down type

and the voltage at the contacts is low, the device is also very safe.

When the carbon rod **20** becomes pitted and burned away on one side, the clamps **21** may be loosened and the rod turned so that a new surface will engage the soldering iron, or a new carbon rod may be inserted in place of the burned one.

From the foregoing description it will be readily seen that there has been produced such a device as substantially fulfills the objects of the invention as set forth herein.

While this specification sets forth in detail the present and preferred construction of the device, still in practice such deviations from such detail may be resorted to as do not form a departure from the spirit of the invention, as defined by the appended claims.

Having thus described the invention, what is claimed as new and useful and desired to be secured by Letters Patent is:

1. An electrically actuated soldering iron heater including a base, contact means rigidly mounted on and above the base and spaced therefrom, and a soldering iron rest mounted on and above the base in horizontally offset relation to the contact means and at such level that when the tip of a soldering iron is engaged with said contact means from beneath, the rest supports the body of the iron as a fulcrum and adjacent the inception of the tip.

2. An electrically actuated soldering iron heater including a base, one contact element rigidly mounted on and above the base and spaced therefrom, and a combination contact element and soldering iron rest mounted on and above the base in horizontally offset relation to said one contact element and at such level that when the tip of a soldering iron is engaged with said one contact element from beneath, the rest supports the body of the iron as a fulcrum adjacent the inception of the tip.

3. A device as in claim 2 in which said one contact element is of carbon and the combination contact element and rest is of metal whereby to effect heating at and from the tip.

RAMONA D. SPRINGALL.
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