

C. B. INGERSOLL.
ELECTRICAL HEATING DEVICE.
APPLICATION FILED NOV. 26, 1921.

1,436,657.

Patented Nov. 28, 1922.

2 SHEETS—SHEET 1.

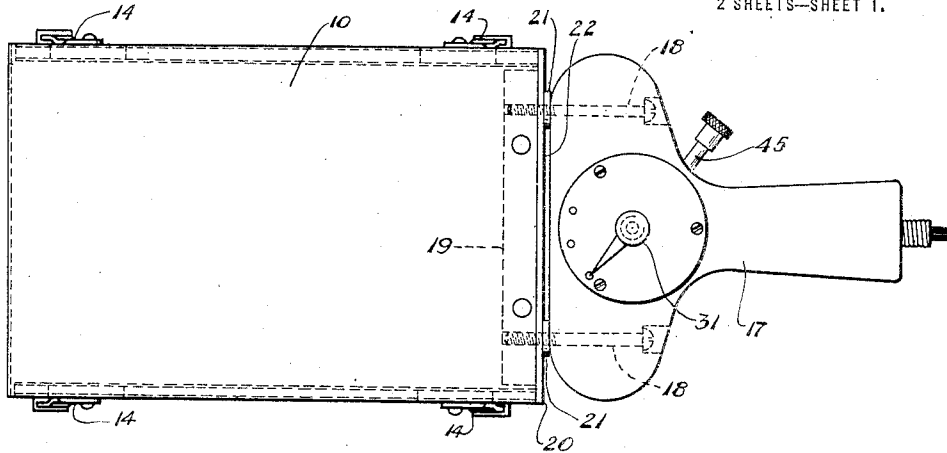


Fig. 1

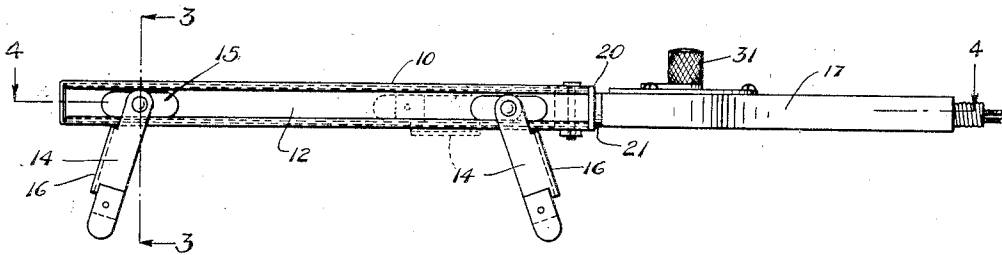


Fig. 2

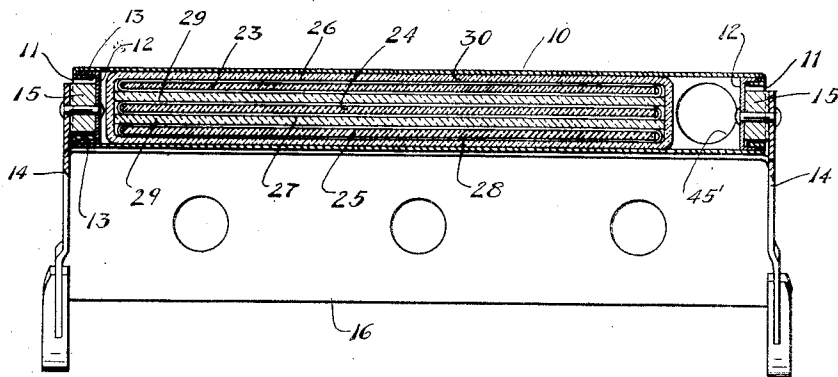


Fig. 3

Witnesses:

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C. E. Cheek

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By Joshua H. Rott

His Attorney

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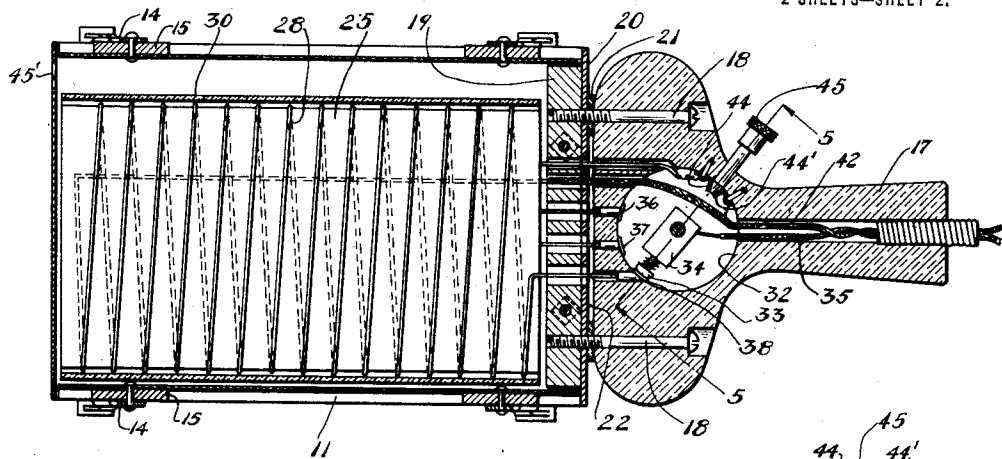


Fig. 4

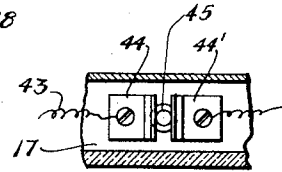


Fig. 6

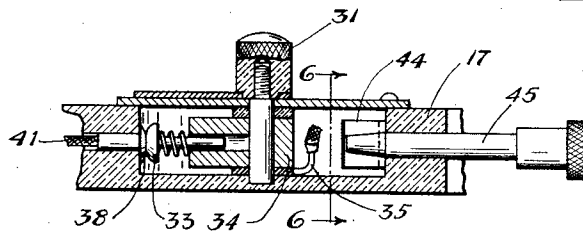


Fig. 5

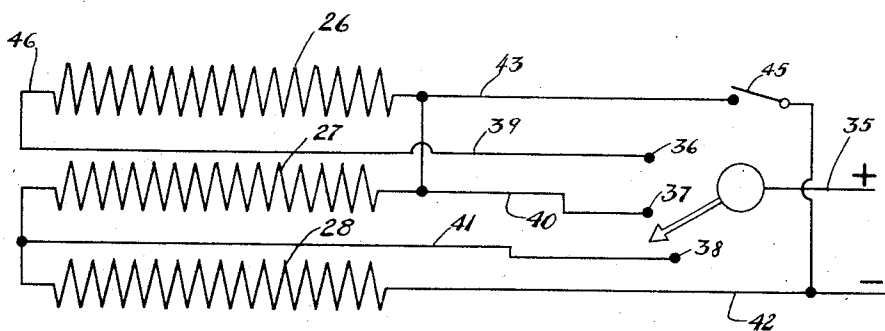


Fig. 7

Witnesses:

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UNITED STATES PATENT OFFICE.

CLARENCE B. INGERSOLL, OF CHICAGO, ILLINOIS.

ELECTRICAL HEATING DEVICE.

Application filed November 26, 1921. Serial No. 517,865.

To all whom it may concern:

Be it known that I, CLARENCE B. INGERSOLL, a citizen of the United States, and a resident of the city of Chicago, county of Cook, and State of Illinois, have invented certain new and useful Improvements in Electrical Heating Devices, of which the following is a specification.

My invention relates to improvements in electrical heating devices, and has for its principal object the provision of a portable electrical heater which will be of durable and economical construction, and efficient in use.

Other objects will appear hereinafter.

The invention consists in the combinations and arrangements of parts hereinafter described and claimed.

The invention will be best understood by reference to the accompanying drawings forming a part of this specification, and in which,

Fig. 1 is a plan view of a heating device embodying the invention,

Fig. 2 is a side view of the same,

Fig. 3 is a sectional detail view taken substantially on line 3—3 of Fig. 2,

Fig. 4 is a sectional detail view taken substantially on line 4—4 of Fig. 2,

Fig. 5 is a sectional detail view taken substantially on line 5—5 of Fig. 4,

Fig. 6 is a sectional detail view taken substantially on line 6—6 of Fig. 5, and

Fig. 7 is a diagrammatical layout of the circuit connections embodied in the invention.

The preferred form of construction as illustrated in the drawings comprises a housing or body 10, preferably formed of aluminum, said housing being of comparatively thin, flat, rectangular form, the top, bottom and ends being formed of a single sheet of material which is bent upon itself in the manner clearly shown in Fig. 3. At the lateral edges of the housing 10 are provided co-extensive recesses 11 which are formed by channel members 12, the opposite sides of which are engaged by inwardly turned flanges 13 provided at the lateral edges of the top and bottom of the housing 10. Supporting legs 14 are pivotally connected to the channel members 12 by riveting the same thereto or in any other suitable manner, there being rectangular shaped filler blocks 15 interposed between the adjacent sides of the channel members and supporting legs 14 so arranged as to reenforce the pivotal

connection. Extending transversely of the housing 10 adjacent the underside thereof and integrally formed with each of the opposite corresponding legs 14 are rectangular portions 16 the upper edges of which are adapted to engage the bottom of the housing limiting the pivotal movement of the legs and to co-operate with the legs in supporting the housing. Mounted on one end of the housing 10 is a handle 17 preferably formed of a non-conductive material. The handle 17 is fixedly secured to the housing 10 by means of screw-threaded bolts 18 which are screw-threaded into a reenforced member 19 also preferably formed of a non-conductive material and which is positioned adjacent the inner side of the end wall 20 of the housing as shown in Fig. 4. Interposed between the inner end of the handle 17 and the adjacent end wall 20 of the housing are asbestos washers 21, through which the bolts securing the handle to the housing pass. This arrangement provides an air gap 22 between the adjacent ends of the housing and handle for the passage of cold air therethrough preventing the handle from burning or becoming heated when the housing radiates heat as would otherwise be the case should the adjacent ends of the handle and housing contact with each other.

The heating elements, positioned within the housing, comprises three rectangular shaped cores 23, 24, and 25 formed of asbestos, and around each of which are wrapped conductor wires 26, 27 and 28. The conductor wire 26 is of comparatively high electrical resistance and of a heavier gauge than the other conductor wires 27 and 28, this arrangement being such that when the conductor wire 26 is energized a higher temperature of heat will be radiated therefrom, than from the other of the conductor wires 27 and 28 when the same are energized, the conductor wires 27 and 28 being of a smaller gauge than the conductor wire 26. The conductor wires are separated from each other by rectangular formed asbestos sheets 29 and the heating elements as a whole are enclosed in an asbestos wrapping 30 as clearly shown in Fig. 3.

Means is provided whereby the heating element can be connected in a series or be energized individually. This means comprises a distributing switch 31, of suitable construction, and is positioned in an annular recess 32 formed in the handle 17, as shown

in Fig. 4, said switch being provided with a resilient actuated contact member 33, slidably mounted on the distributing pole 34, of the distributing switch 31, and to which is connected one of the feed wires 35. Mounted on the side walls of the recess 32, in spaced relation with respect to each other, is a number of contact points 36, 37 and 38, each of which are connected to the ends 39, 40 and 41 of the conductor wires 26, 27 and 28 respectively, the other ends of the conductor wires being connected to the other feed wire 42, as shown in Fig. 7. As clearly shown by the diagrammatical layout of the circuit connections as shown in Fig. 7, it is obvious that all the heating elements can be connected in a series or one or two together, or a single heating element can be utilized as desired. I have also provided a circuit connection whereby the heating element and conductor wire 26, which is of a comparatively high electrical resistance, can be utilized independent of the others. The circuit connection consists of connecting the end 43 of the conductor wire, to a plug switch contact member 44 and by connecting the feed wire 42 to a co-operating plug switch contact member 44', the circuit being opened and closed through the medium of a switch plug 45 which is removably positioned in an opening provided in the handle 17, as clearly shown in Fig. 5 of the drawings. The other end 46 of the conductor wire 26 remains connected to the contact point 36 and as will be readily understood when the heating element and the conductor wire is energized a higher temperature of heat will be radiated than from the other heating elements and conductor wires. With the construction of an electrical heater as herein set forth, when the conducting and heating elements are utilized in the manner herein set forth, the temperature of heat degrees varies from 110° to 240°.

In use, my improved heating device is especially adapted for use in the heating of pots, dishes or other devices which may be placed upon the upper side thereof. The device is also especially adapted for use, by covering the housing with a damp cloth or the like, for applying hot damp applications as for instance to the body, the cloth being securely held in position about the housing in any suitable manner, the latter serving to maintain the cloth at any desired temperature within the range of the device. By covering the housing with the cloth, as stated, the device is adapted to serve in the same capacity as the ordinary waterbag, and in this capacity, the device can be especially adapted to practical use in hospitals or other places where the device can be used upon different people; when such is the case, a new cloth covering can be applied for each patient and thus conduce to cleanliness and

sanitation. Means is also provided whereby a curling iron or the like may be heated by the heat radiated from the housing. This is accomplished by the insertion of a curling iron through an opening 45' provided in one end of the housing as clearly shown in Fig. 3. Because of the convenient form, size and weight of the device, the latter being reduced because of the employment of aluminum in the construction of the metallic parts thereof, the same is rendered advantageous and useful in many other ways than those above specified, as will be readily understood.

While I have illustrated and described the preferred form of construction for carrying my invention into effect, this is capable of variation and modification without departing from the spirit of the invention. I, therefore, do not wish to be limited to the precise details of construction set forth, but desire to avail myself of such variations and modifications as come within the scope of the appended claims.

Having described my invention, what I claim as new and desire to secure by Letters Patent is:

1. In an electrical heating device, the combination of a comparatively thin flat housing; heating elements positioned in said housing, each of said elements comprising a rectangular core of insulating material arranged one above the other, having a conductor wrapped therearound; layers of insulating material separating the adjacent sides of said heating elements; and means for utilizing all or any number of said heating elements, substantially as described.

2. In an electrical heating device comprising a comparatively thin flat housing having a handle fixedly secured to one end thereof; heating elements positioned in said housing, said heating elements comprising flat cores of insulating material arranged one above the other, each of which having a conductor wrapped therearound; a flat layer of insulating material separating each of said elements; an asbestos covering enclosing said elements; and means for utilizing all or any number of said heating elements, substantially as described.

3. In an electrical heating device comprising a comparatively thin flat housing; heating elements positioned in said housing said heating elements comprising flat cores of insulating material arranged one above the other each of which having a conductor wrapped therearound, one of said elements being of a comparatively higher electrical resistance than the others; and means for utilizing all or any number of said heating elements, substantially as described.

4. In an electrical heating device, the combination of a comparatively thin flat housing; a handle fixedly secured to said hous-

ing, said handle being separated from said housing to provide a passage for cold air between the adjacent ends of said handle and said housing; heating elements positioned in said housing; said heating elements comprising flat cores of insulating material arranged one above the other each of which having a conductor wrapped therearound, one of said elements being of a comparatively higher electrical resistance than the others; and means for utilizing all or any number of said heating elements, substantially as described.

5. In an electrical heating device, the combination of a comparatively thin flat housing; a handle fixedly secured to said housing, said handle being separated from said housing to provide a passage for cold air between the adjacent ends of said handle and said housing; heating elements positioned in said housing, one of said heating elements being of a comparatively higher electrical resistance than the other; means carried by said handle for utilizing all or any number of said heating elements, substantially as described.

6. In an electrical heating device, the combination of a comparatively thin housing; a handle fixedly secured to said housing but not in contact therewith; heating elements positioned in said housing, said heating elements comprising rectangular shaped cores arranged one above the other each of which having a conductor wound therearound, the heating element adjacent the underside of the top of the said housing being of a comparatively higher electrical resistance than the other of said heating elements; and means carried by said handle for utilizing all or any one of said heating elements, substantially as described.

7. In an electrical heating device, the combination with a housing, of heating elements in said housing, arranged one above the other; a handle fixedly secured to said housing; and an air gap between the adjacent ends of said handle and said housing for the passage of cold air therebetween, substantially as described.

8. In an electrical heating device, the combination with a housing, of heating elements in said housing; means for utilizing all or any number of said heating elements; a handle fixedly secured to said housing, there being a passage between the adjacent ends of said handle and said housing for the passage of cold air therebetween, substantially as described.

9. In an electrical heating device, the combination with a housing, of heating elements in said housing arranged one above the other, one of said heating elements being of a comparatively higher electrical resistance than the other of said heating elements; means for utilizing all of said heating elements; means for utilizing said heating element of high electrical resistance independently of the other; a handle for said housing; a recess in said handle; a distributing switch mounted in said recess for utilizing all or any number of said heating elements, substantially as described.

10. In a portable electrical heating device, the combination of a flat metallic housing; an electrical heating element arranged in said housing; supporting members pivotally mounted on said housing adjacent each end thereof; and a handle fixedly secured to said housing but not in contact therewith, substantially as described.

11. In a portable electrical heating device, the combination of a comparatively thin flat housing; a plurality of electrical heating elements arranged in said housing; supporting members pivotally mounted on said housing adjacent the opposite ends thereof; a handle fixedly secured to said housing but not in contact therewith; and a distributing switch carried by said handle for utilizing all or any number of said heating elements, substantially as described.

12. In a portable electrical heating device, the combination of a rectangular shaped housing; three electrical heating elements arranged in said housing one above the other, one of said heating elements being of a comparatively higher electrical resistance than the other of said heating element; a flat layer of insulating material positioned between each of said heating elements; a handle fixedly secured to said housing but not in contact therewith; means for utilizing said heating element of comparatively high electrical resistance independently of the other of said heating elements; means for utilizing two of said heating elements, said means also arranged to utilize all of said heating elements or any one of said heating elements, substantially as described.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

CLARENCE B. INGERSOLL.

Witnesses:

JOSHUA R. H. POTTS,
FREDA C. APPLETON.