

W. O. BUNNELL AND Q. A. GATES.
ELECTRIC HEATER.
APPLICATION FILED MAR. 27, 1916.

1,346,793.

Patented July 13, 1920.

Fig. 1.

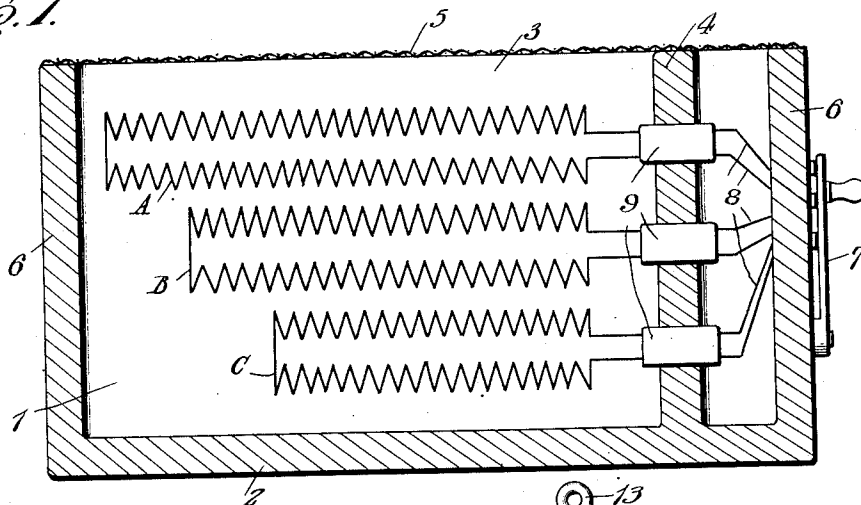


Fig. 2.

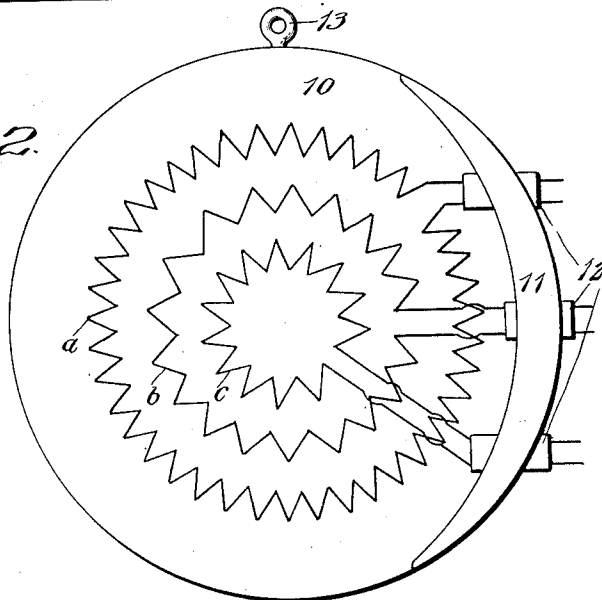
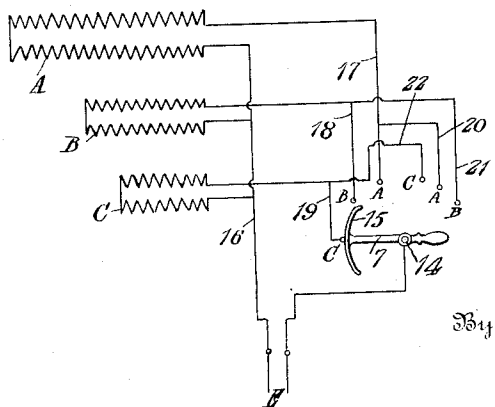


Fig. 3.



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ELECTRIC HEATER.

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Specification of Letters Patent.

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To all whom it may concern:

Be it known that we, WILLIAM O. BUNNELL and QUINCY A. GATES, citizens of the United States, residing at Wilkes-Barre, in the county of Luzerne and State of Pennsylvania, have invented certain new and useful Improvements in Electric Heaters, of which the following is a specification.

The present invention relates to electric heating and more particularly to new and useful improvements in electric cooking stoves and circuit controllers therefor.

The primary object of our invention is to provide in an electric heater a plurality of heat generating elements of various strengths whereby to furnish various degrees of heat.

Another object of our invention is to provide means for controlling said heating elements for interconnecting the elements independently or collectively to produce various degrees of heat.

Other objects and advantages to be derived from the use of our improved electric heater will appear from the following detail description and the claim, taken with an inspection of the accompanying drawing, in which—

Figure 1 is a longitudinal sectional view of one form of a heater embodying the improvements of our invention, the heating elements being diagrammatically illustrated,

Fig. 2 is a plan top view of a modified form of our invention, and

Fig. 3 is a diagrammatic view of the heating elements and the controlling circuits therefor.

Referring more particularly to the drawing, wherein similar characters of reference designate like and corresponding parts throughout the various views, 1 designates a containing body having a base 2 and side walls 3, a partition 4 is provided extending upwardly from the base 2 and serves to carry the heating elements hereinafter set forth. The form of the invention illustrated in Fig. 1 is particularly adapted for use as a stove, a screen 5 being placed over the open top portion thereof to receive articles to be cooked. The body 1 is provided with end walls 6, one of the end walls having mounted thereon a regulating switch 7 controlling the amount of heat to be generated by the heating elements. The heating ele-

ments of this form of our invention are designated A, B and C and the terminals of the heating elements designated 8 extend through suitable insulating bushings 9 arranged in the partition 4. The electrical circuits employed are best shown in Fig. 3 and will be described later.

The heating elements A B and C are arranged one above the other in consecutive order as to their resisting power, or with the larger resisting element A nearest the supporting screen 5, the smaller resisting element C at the greatest distance from the member 5, while the intermediate resisting element is at an intermediate distance, or between the media A and C. Thus the degree of heat radiating from the heating elements may be accurately controlled and supplied to the articles to be heated at the same place.

It will thus not be necessary to move the article to be heated from place to place upon the support 5 as the heat is raised and lowered.

The body or casing defined by the walls 3, ends 6, and top 5, constitute an inclosing casing or chamber in which the air freely circulates, and which is heated in mass, and rises through the foraminous top 5.

In Fig. 2 we have illustrated a modified form of our invention in which a disk-like body 10 is provided having a thickened portion 11 through which bushings 12 extend, said bushings supporting the heat elements a, b and c, respectively. The switch elements (not shown) may be placed on the body 10 in any suitable convenient position. A loop 13 is carried by the body 10 for hanging the same up when not in use.

In Fig. 3 we have illustrated a preferred arrangement of electric circuits, the switch circuit 7 comprising an arm to which one side of an electrical circuit E is connected as at 14. The arm 7 carries a bridging plate 15 for a purpose which will hereinafter appear. The heating elements are designated a, b and c and may be of any shape desired. The heating elements are preferably of different sizes for a purpose which will hereinafter appear, the heating elements all having a common return conductor 16 leading to the other side of the electrical circuit supply circuit E. The free ends of the heating elements a, b and c are connected by means of conductors 17, 18 and 19 to con-

tact plates disposed in a circle adjacent the path of movement of the bridging plate 15. The contact points have been designated A, B and C to coincide with the heating elements. Bridging conductors 20, 21 and 22 lead from the conductors 17, 18 and 19 respectively, terminating in contact points for a purpose which will hereinafter appear.

In use, assuming that it is desired to obtain heat from the coil C the contact plate is placed in the position shown in Fig. 3. In order to obtain the combined heat of the coils B and C the plate 15 is moved to bridge the corresponding points B and C. To obtain the combined heat of the coils B and A the plate 15 is engaged to connect with the points B and A. To obtain the heat of the coils independently the plate 15 is moved to contact with the point corresponding with the coil which it is desired to connect. By moving the plate 15 to contact with the point A and the end of the conductor 22 the combined heat of the coils A and C may be obtained. By moving the plate to bridge the contact points forming the terminals of the conductors 20, 21 and 22 the combined heat of all of the coils may be obtained.

From the above description taken in connection with the accompanying drawing, it is thought that a clear and comprehensive understanding of the construction, operation and advantages of our invention may be had, and while we have shown and described our invention as embodying a specific structure, we desire that it be understood that we may make such changes on said structure as do not depart from the spirit and scope of the invention as claimed.

What we claim as new and desire to secure by Letters-Patent is:—

A heater of the class described including a support for the articles to be heated, a medium capable of radiating heat to a relatively great degree located in relatively close proximity to the support, a medium capable of radiating heat to a less degree and located at a relatively greater distance from the support, and means for independently or collectively causing heat to be imparted to said radiating media.

In testimony whereof we affix our signatures hereto.

WILLIAM O. BUNNELL.
QUINCY A. GATES.