

G. B. JONES.
ELECTRIC HEATING ELEMENT.
APPLICATION FILED SEPT. 30, 1915.

1,234,670.

Patented July 24, 1917.

Fig. 1.

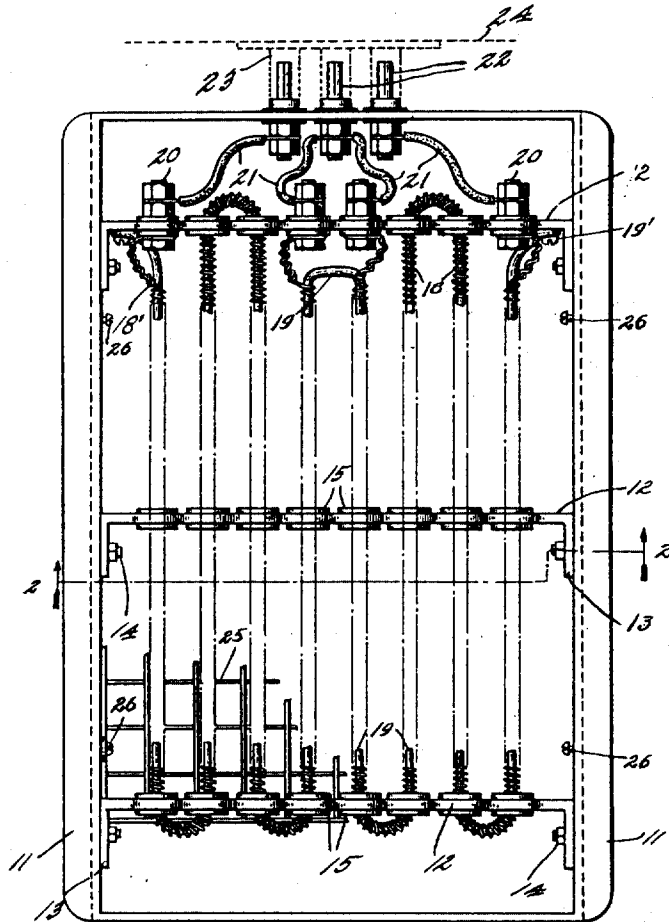


Fig. 2.

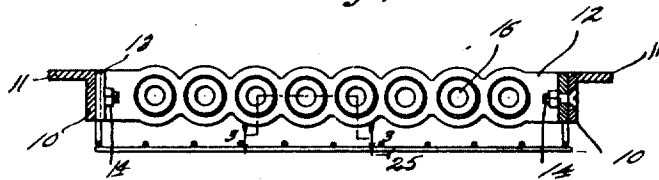
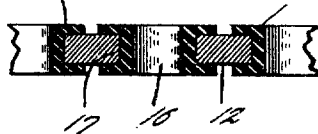


Fig. 3.



WITNESSES:
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ELECTRIC HEATING ELEMENT.

1,234,670.

Specification of Letters Patent.

Patented July 24, 1917.

Application filed September 30, 1915. Serial No. 53,331.

To all whom it may concern:

Be it known that I, GEORGE B. JONES, citizen of the United States, residing at Kokomo, county of Howard, State of Indiana, have invented certain new and useful Improvements in Electric Heating Elements, of which the following is a specification.

This invention relates to improvements in the construction of electric heating elements, and particularly to the supporting means for the exposed resistance coils.

The objects of my invention are:

First, to provide an improved insulation support for such coils.

Second, to provide in conjunction with such support an improved supporting core for the coils.

Further objects, and objects relating to details and economies of construction and operation will definitely appear from the description to follow.

I accomplish the objects of my invention by the devices and means described in the following specification. The invention is clearly defined and pointed out in the claims.

A structure constituting a preferred embodiment of my invention is illustrated in the accompanying drawing forming a part of this specification, in which:

Figure 1 is a plan view of an improved electric heating element embodying my invention.

Fig. 2 is a sectional view taken on a line corresponding to line 2—2 of Fig. 1.

Fig. 3 is an enlarged detail sectional view taken on a line corresponding to line 3—3 of Fig. 2.

In the drawing similar reference characters refer to similar parts throughout the several views, and the sectional views are taken looking in the direction of the little arrows at the ends of the section lines.

Considering the numbered parts of the drawing, the heating element is in the form of a unit comprising an outer metallic frame 10 of rectangular shape. Its outer edges are provided with projecting flanges 11 whereby the unit may be supported on the side ledges of the walls of an oven or other heating chamber. A number of cross bars 12 extend from side to side of the frame 10, such cross bars being preferably parallel to each other. The cross bars have their ends turned at an angle 13, and are secured by suitable stove

bolts 14. The cross bars are of cast metal and support a series of insulating bushings 15.

These bushings 15 are short sections of tubes having central bores 16 and flanged to spool-like shape, such flanges being formed by circumferential grooves 17. These bushings are placed in the mold used for casting the cross bars 12 and the metal of the cross bars is poured in and fills the grooves 17, and thereby simply and effectively locate the insulating bushings firmly in place in the cross bars. These bushings are preferably alined in the different cross bars, as seen in Fig. 1.

Heating coils 18 are disposed through the bushings and are connected at their ends 18' to suitable binding posts 20, which binding posts are connected by suitable conductors 21 to terminal binding posts 22 which are provided with terminal pins and inserted into suitable terminal sockets 23 carried by suitable back wall 24, here indicated by dotted lines.

Within the resistance heating coils 18 is disposed an asbestos cord 19 extending through all of the coils and connected by suitable screw 19' at each end to one of the end cross bars 12.

Beneath the heating element is disposed a wire rack 25 supported by screws 26 at each side to support the heated resistance coils in the event of breakage and also prevent their injury and also to prevent damage by burning or electric current to articles that might come in contact therewith.

The invention has been described in detail, but the structure can be modified considerably without departing therefrom.

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

1. An electric heating element, comprising a frame, a plurality of integral cast metallic cross bars having alined apertures therein mounted in said frame, a plurality of tubular insulating bushings having circumferential grooves and secured in the apertures in said cross bars with the metal of the cross bars filling such grooves, and electric conductors which are mounted in said bushings and extend from one cross bar to another.

2. An electric heating element, comprising a frame, a plurality of integral cast

metallic cross bars having alined apertures therein mounted in said frame, a plurality of tubular insulating bushings secured in the apertures in said cross bars, and electric
5 conductors which are mounted in said bushings and extend from one cross bar to another.

3. In an electric heating unit, the combination of an integral cast metal cross bar,
10 an insulating bushing disposed in an aperture in said bar and retained by the metal of the bar entering depressions therein.

4. An electric heating element comprising a frame, a plurality of cross bars with insulating bushings therein, resistance coils dis-
15 posed through the bushings, and an asbestos

core cord within the said resistance coils, as specified.

5. In an electrical heating unit, the combination of an integral cast metal cross bar
20 having apertures therein, with insulating spool-shaped bushings disposed in said apertures and having lateral extensions at each end bearing against the faces of said cross bar.

In witness whereof, I have hereunto set my hand and seal in the presence of two witnesses.

GEORGE B. JONES. [L. s.] 25

Witnesses:

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Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents, Washington, D. C."