

May 17, 1927.

1,628,876

K. EHROGOTT
ELECTRIC HEATING UNIT
Filed April 21, 1924

Fig. 1.

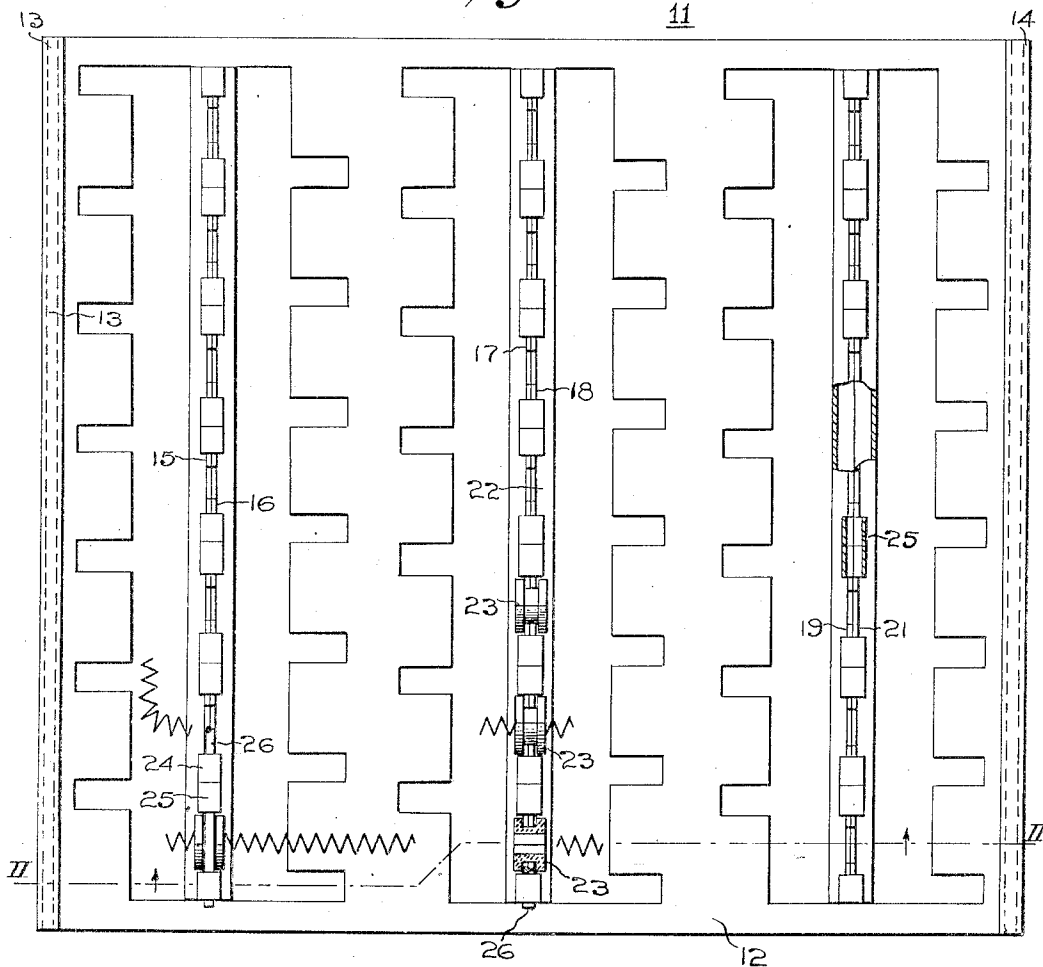


Fig. 2.

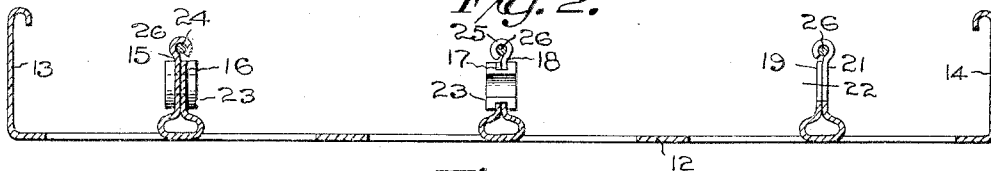
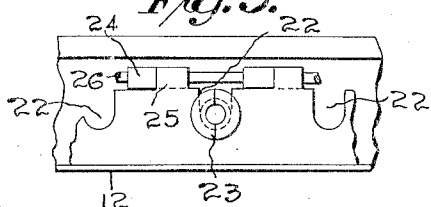


Fig. 3.



WITNESSES:

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KARL EHBGOTT, OF EAST PITTSBURGH, PENNSYLVANIA, ASSIGNOR TO WESTINGHOUSE ELECTRIC & MANUFACTURING COMPANY, A CORPORATION OF PENNSYLVANIA.

ELECTRIC HEATING UNIT.

Application filed April 21, 1924. Serial No. 707,827.

My invention relates to electric heating devices and particularly to electric heating units.

The object of my invention is to provide a relatively simple and light-weight heating unit that shall permit of easy and quick assembly and disassembly.

In practicing my invention, I provide a plate of sheet metal, and form therefrom a plurality of pairs of cooperating flanged portions that are substantially co-extensive and are bent to lie closely adjacent to each other. They are provided with a plurality of spaced openings in the edges thereof to receive perforated thimbles of refractory electric-insulating material for supporting a resistor member. Each flange portion has a plurality of integral lugs at the edge thereof, the respective lugs being bent to substantially arcuate shape and alined to permit of locating therein a rod that interfits therewith to hold the flanged portions and the refractory thimbles in their proper operative positions relatively to each other.

In the single sheet of drawings,

Figure 1 is a top plan view of a heating unit embodying my invention, portions thereof being shown in section,

Fig. 2 is a view, in lateral section there-through, taken on the line II—II of Fig. 1, and

Fig. 3 is a view, in side elevation, of a portion of a heating unit embodying my invention.

A heating unit 11 comprises a sheet 12 of any suitable metal that may be of any suitable or desired contour and dimensions, but is here shown as being substantially rectangular in shape. It is provided, at each side thereof, with integral and bent-over flange portions 13 and 14 to stiffen the plate 12.

A plurality of flange portions 15 and 16, 17 and 18, and 19 and 21 are punched out of the plate 12 and bent in opposite directions, substantially as illustrated in Fig. 2 of the drawings.

As the co-operating pairs of flanged portions are similar, only one pair thereof will be described in detail. The flange portion 15 is punched out of the metal plate 12. The right hand portion thereof remaining in-

tegrally connected to the plate 12, while the flange portion 16 is punched out and bent in an opposite direction so that its left-hand portion remains integral with the plate 12 and, when finally bent, the two flange portions have their outer portions located closely adjacent to each other and substantially co-extensive. As illustrated more particularly in Fig. 2 of the drawings, the inner portions of the respective flanges are bent to arcuate shape in order that the stress in the material may not become so great as to cause the flange portions to be torn away from the plate 12.

Each flange portion is provided with a plurality of spaced openings 22 in the outside edge thereof, as is illustrated more particularly in Fig. 3 of the drawings. A thimble 23, of refractory electric-insulating material, is located in each of the openings 22 and comprises a perforated member having an intermediate portion of reduced diameter in order that it may fit into and interlock with the opening 22 in which it is located. I preferably employ a thimble that is made up of two co-operating halves in order that a broken thimble may be easily and quickly replaced.

The flange portion 15 is provided with a plurality of integral and spaced lugs 24 at its outer edge, that are bent to substantially arcuate form, as illustrated more particularly in the left-hand side of Fig. 2 of the drawings. The flange portion 16 is provided with a plurality of substantially similar lugs 25, that are bent to substantially arcuate form, but in the opposite direction to that in which the lugs 24 are bent.

The set of lugs 24 and 25 are in alinement with each other, and a metal rod 26 extends therethrough and is substantially co-extensive with the flange portions 15 and 16. The metal rod 26 serves not only to hold the outer edges of the flange portions 15 and 16 in their proper operative positions relatively to each other, but serves also to hold the thimbles 23 in their proper operative positions in the openings 22 in the respective co-operating flanges. A resistor member 27 that comprises a helically wound resistor wire extends through the perforated thimbles 23 and therebetween in any suitable or desired con-

figuration, relatively to the surface of the plate 12. While I have shown the openings 22 as alined laterally of the plate 12, this is not necessary, as any suitable or desired location of the openings in the respective pairs of flange portions may be employed.

In case one of the thimbles 23 should become defective, it is only necessary to pull out the rod 26 associated therewith to a sufficient distance to permit of removing the damaged thimble and of replacing it by a new thimble, an operation that is easily and quickly effected where, as hereinbefore stated, a split thimble is employed. After the replacement of the thimble, the rod 26 may be moved back to its proper operative position as hereinbefore described.

Various modifications and changes may be made without departing from the spirit and scope of the invention, and I desire therefore that only such limitations shall be placed thereon as are imposed by the prior art.

I claim as my invention:

1. In an electric heating unit, in combination, a metal member having a pair of integral laterally extending portions each having an opening therein adjacent to one edge thereof, each portion having an integral lug at said edge, the two lugs being bent to oppositely curved shape, a thimble of refractory material in said openings, and a rod interfitting with said curved lugs to maintain them and the thimble in proper operative positions.

2. In an electric heating unit, in combination, a pair of metal members having an opening therein adjacent to an edge thereof, said metal members having oppositely extending curved lugs at said edge, a refractory thimble in said opening, and a rod extending through said curved lugs for holding the outer edges of said metal members in proper operative positions relatively to each other.

3. In an electric heating unit, in combination, a pair of metal members having an opening therein adjacent to an edge thereof, said metal members having oppositely extending curved lugs at said edge, a refractory thimble in said opening, and a rod extending through said curved lugs for holding the outer edges of said metal members in proper operative positions relatively to each

other and for holding said thimble in said opening.

4. In an electric heater, in combination, a sheet metal plate having a pair of punched-out flange portions located in closely adjacent positions relatively to each other and having an opening at the outer edge thereof, and each flange portion having an integral and oppositely-extending arcuate lug at the edge thereof, a perforated refractory thimble in said opening, means in said arcuate lugs for holding said flange portions together and for holding said thimble in said opening, and a resistor member extending through said thimble.

5. In an electric heating unit, in combination, a pair of co-operating flange portions having a plurality of spaced openings in their outer edges, spaced pairs of integral and oppositely-bent arcuate lugs on said flange portions, refractory thimbles in said openings, and a rod extending through said arcuate lugs for holding said flange portions and for holding said refractory thimbles in said openings.

6. In an electric heating unit, in combination, a pair of co-operating flange portions, each flange having a plurality of spaced openings and a plurality of spaced integral lugs at the edge thereof bent to substantially arcuate form and in substantial alinement with each other, perforated refractory thimbles in said openings, a rod extending through said alined lugs to hold said flange portions and said thimbles in said openings, and a resistor member extending through said perforated thimbles.

7. In an electric heating unit, in combination, a metal member having a plurality of pairs of integral laterally extending portions, each having an opening therein adjacent to one edge thereof, each portion having an integral lug at said edge, the two lugs being bent to oppositely curved shape, a thimble of refractory material in said openings, and a rod extending through said curved lugs for holding the other edges of said metal members in proper operative positions relatively to each other.

In testimony whereof, I have hereunto subscribed my name this 16th day of April, 1924.

KARL EHROTT.