F. KUHN & J. A. HAND.

ELECTRIC AIR HEATER.

APPLICATION FILED APR. 6, 1918.

1,282,243.

Patented Oct. 22, 1918.

Fig. 1.

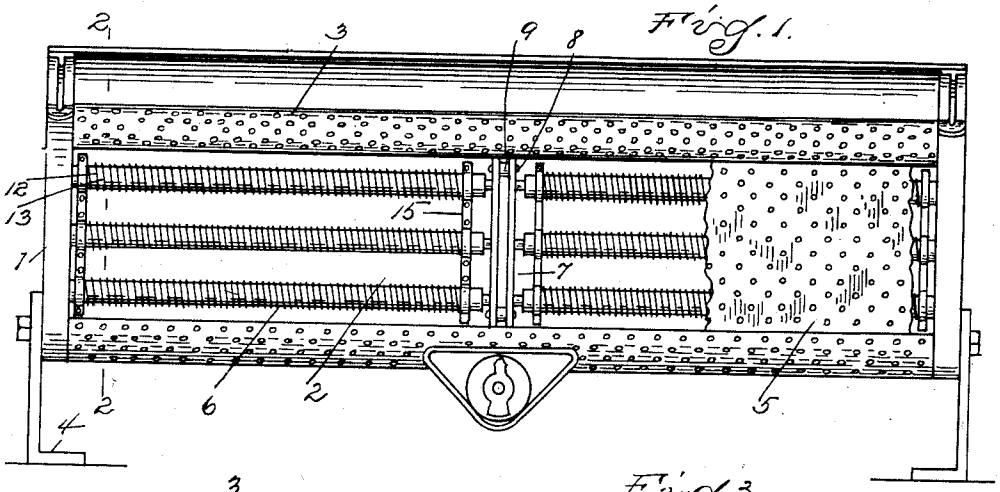


Fig. 2.

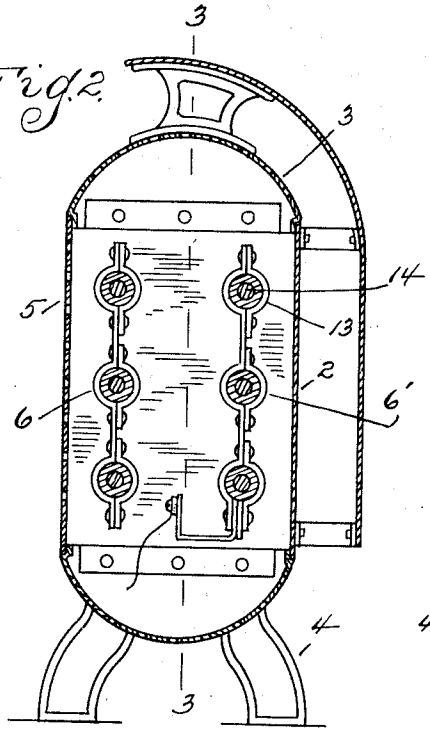
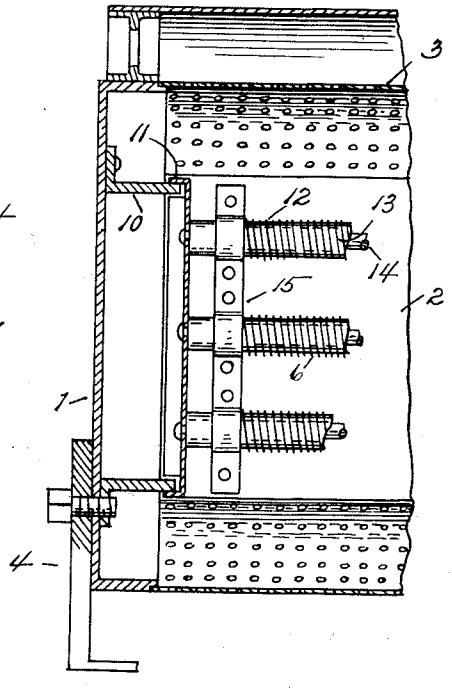


Fig. 3.



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UNITED STATES PATENT OFFICE.

FRANK KUHN AND JAY A. HAND, OF DETROIT, MICHIGAN, ASSIGNORS TO AMERICAN ELECTRICAL HEATER COMPANY, OF DETROIT, MICHIGAN, A CORPORATION OF MICHIGAN.

ELECTRIC AIR-HEATER.

1,282,243. Specification of Letters Patent. Patented Oct. 22, 1918.

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To all whom it may concern:

Be it known that we, FRANK KUHN and JAY A. HAND, both citizens of the United States of America, residing at Detroit, in the county of Wayne and State of Michigan, have invented certain new and useful Improvements in Electric Air-Heaters, of which the following is a specification, reference being had therein to the accompanying drawings.

This invention relates to electric air heaters and consists in the structural features hereinafter set forth.

In the accompanying drawings:

Figure 1 is a front view of the heater;

Fig. 2 is a transverse sectional view taken on line 2—2 of Fig. 1;

Fig. 3 is a sectional view of an end portion of the heater, the section being taken on line 3—3 of Fig. 2.

In these views the reference character 1 designates the end heads of a frame, said heads being rigidly connected by a plate 2 forming the back of the frame and perforated semi-cylindrical plates 3 forming respectively the top and bottom. To each of the end heads there is secured a bracket 4 adjustable at various angles with respect to the frame and adapted to secure the same to a floor, wall or other support. 5 is a perforated guard plate extending between the members 3 and the front of the frame and detachably secured to one of said members. Within said frame there is mounted a heating unit comprising sections 6 and 6′, each unit having a pair of end heads 7, said units being mounted in an end to end relation and being rigidly connected by bolts 8 passing through the adjoining heads 7 and carrying spacing collars 9 intermediate said adjoining heads so as to provide for a circulation of air between the two units. The heads 1 of the frame have horizontal flanges 10 upon their inner faces which are engageable by flanges 11 upon the end heads of the heating unit, whereby the latter is properly supported within the frame and may be removed therefrom after detachment of the guard plate 5 by sliding said unit forwardly.

Between the heads 7 of each section of the heating unit there are extended resistors 12 which are coiled upon bushings 13 mounted upon a plurality of rods 14 establishing a rigid relation between the heads 7. The corresponding ends of the bushings 13 of each section have metallic strips 15 clamped thereto establishing the desired electrical connection between the ends of the resistors.

The detachability of the heating unit as above described permits ready repair or renewal of the same. The sectional construction of the units permits the same materials to be employed in manufacturing heaters designed for widely varying heating effects and makes possible the removal of one or more sections of a unit for repairs or other purposes without affecting the operativeness of the remaining sections. Furthermore, when the heater is being installed the connection of conductors with the resistors would be difficult and laborious were it not for the ready detachability of the unit.

What we claim as our invention is:—

1. An electric heater, comprising a frame having end heads, a supporting bracket for said frame, and a heating unit detachably mounted in said frame and having end heads adapted to slidably engage those of the frame.

2. An electric heater, comprising a frame having end heads, a supporting bracket for said frame, a detachable front guard, and a heating unit having end heads adapted for sliding engagement with those of the frame and removable through the front of the frame when the guard is detached.

3. An electric heater, comprising a frame having flanged end heads, a supporting bracket for said frame, and a heating unit having flanged end heads, the flanges of the heads of said frame and unit being interengaged to support the unit in the frame and adapt it to be shifted forwardly out of the frame.

4. An electric heater, comprising a frame having end heads, a supporting bracket for said frame and a heating unit detachably mounted in said frame comprising a plurality of sections each having end heads and resistors extended therebetween, the end heads of adjacent sections being rigidly connected and those at each end of the unit being mounted upon the end heads of the frame.

5. An electric heater, comprising a frame having end heads, and a heating unit mounted between said heads and detachably engageable therewith.

6. An electric heater, comprising a frame

having end heads, a supporting bracket for said frame, a heating unit detachably mounted in said frame having end heads, resistors extending between said heads, insulatory supports for said resistors, and a mechanical connection between the insulatory supports establishing electrical connection between the resistors thereon.

In testimony whereof we affix our signatures.

FRANK KUHN.
JAY A. HAND.