Sept. 27, 1932. E. W. BALLENTINE 1,879,019

ELECTRIC AIR HEATER

Filed Aug. 3, 1931 2 Sheets-Sheet 1

Fig. 1.

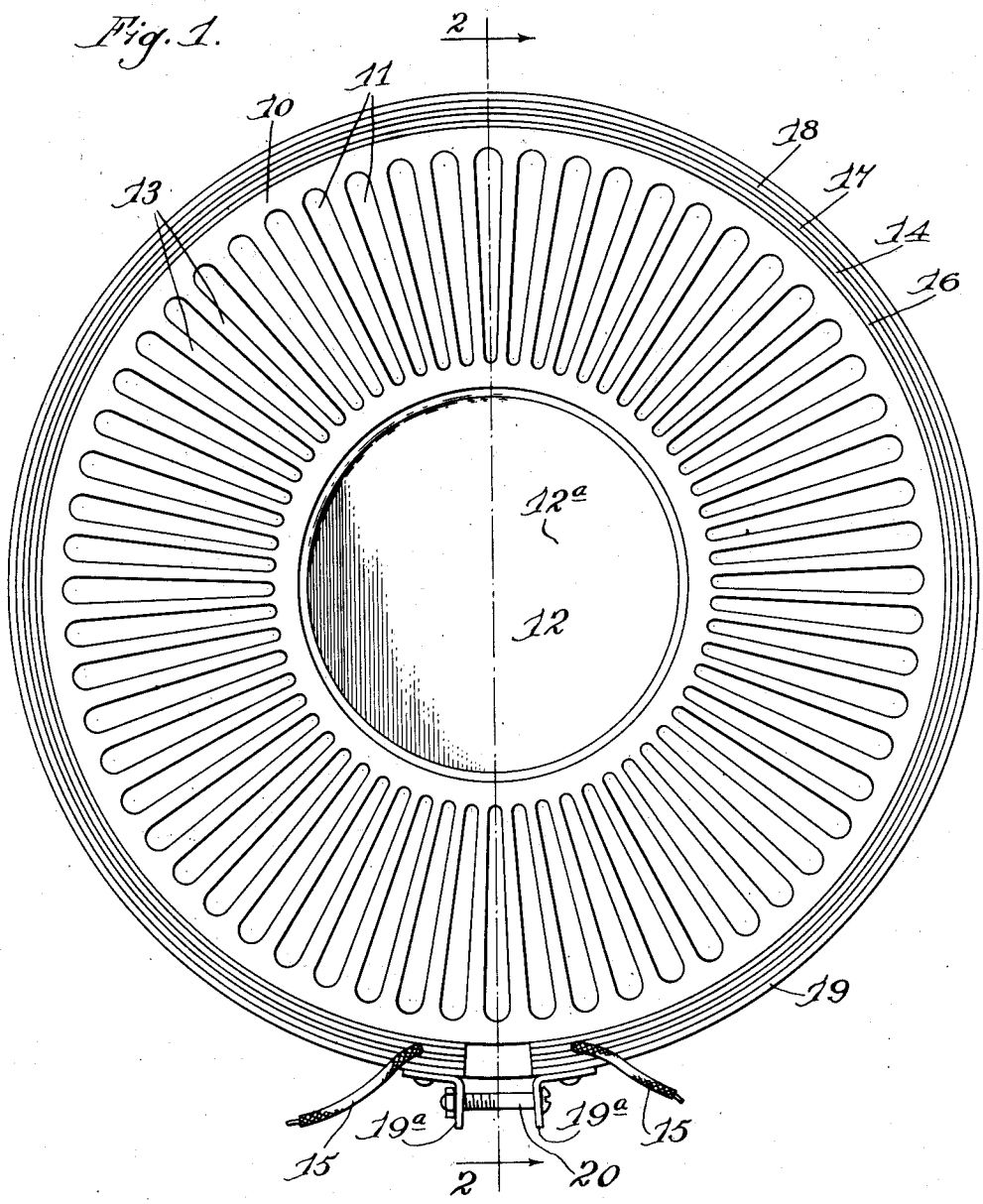

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Fig. 2.

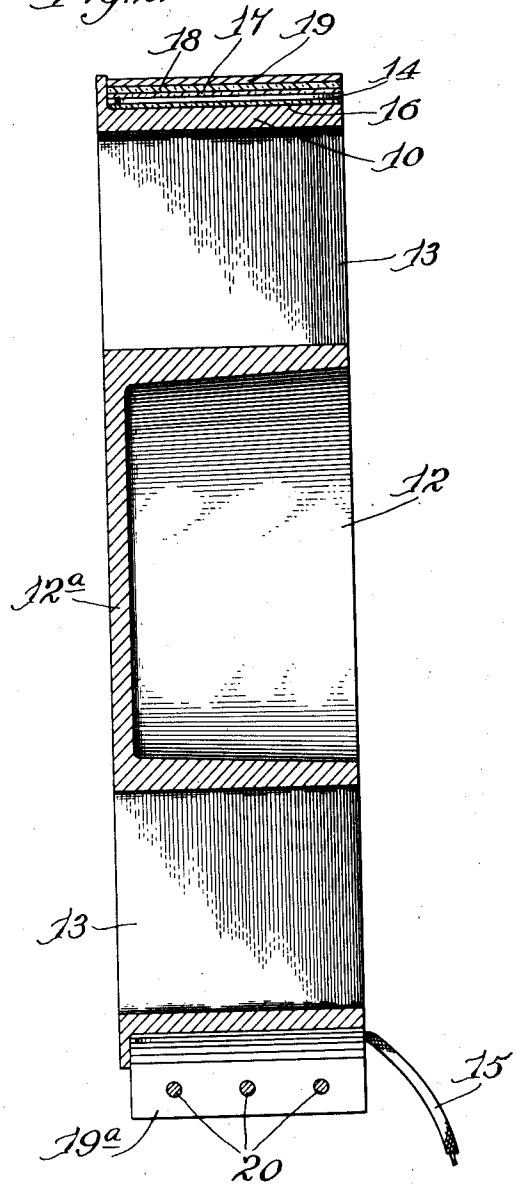
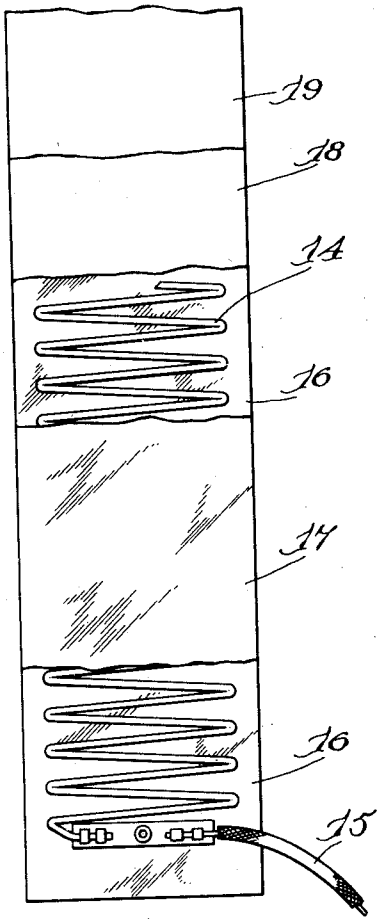


Fig. 3.



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Patented Sept. 27, 1932 1,879,019

UNITED STATES PATENT OFFICE

EARLE W. BALLENTINE, OF CHICAGO, ILLINOIS, ASSIGNOR TO SOLAR INDUSTRIES, INC., A CORPORATION OF ILLINOIS

ELECTRIC AIR HEATER

Application filed August 3, 1931. Serial No. 554,911.

This invention relates to improvements in heaters and, more especially, an electric heater adapted for heating air.

Among the features of my invention is the provision of such a heater that can be easily and cheaply manufactured. My heater is also strong and rugged in construction and efficient in operation and use.

My improved heater is also well adapted for use in connection with forced air drafts from fans. It is circular in shape, thus well suiting it for this use. The central part of the heater is not very effective from a heating point of view and, consequently, it is well suited for use with a fan having a centrally arranged motor which blanks off the central part of the air stream.

Other features and advantages of my invention will appear more fully as I proceed with my specification.

In that form of device embodying the features of my invention shown in the accompanying drawings—

Figure 1 is a view in front elevation; Fig. 2 is a view taken as indicated by the line 2 of Fig. 1; and Fig. 3 is a fragmentary view with portions broken away showing the construction of the heating element.

As shown in the drawings, 10 indicates a circular support provided with air openings in the form of radial slots 11. The support, as here shown, has a central opening 12, here shown as closed at one side by the wall 12ª. The walls between the air openings 11 are indicated by 13, 13 and they form radial radiating fins. The central support above described can be made in any suitable manner out of any suitable material. For example, it may be cast aluminum.

The fins 13 are heated by applying heat to the outer wall of the support. This is accomplished by laying an insulated resistor adjacent such outer wall. As here shown, the insulated resistor includes the reflexed flattened resistor or resistance wire or element 14 with the terminals 15, 15 insulated from the outer wall of the support 10 by a thin sheet of mica 16. Outside of the wire 14 there is preferably another sheet of mica 17 and outside of that there may be a sheet of asbestos 18.

Outside of the insulated resistor above described there is placed a band or strip of metal 19. For example, this may be a band of aluminum. The ends of this band are somewhat separated and bent outwardly to form lips 19ª engaged by the bolts 20 which are tightened to contract the band. This contraction of the band tightly presses the insulated resistor against the wall of the support giving a very good contact and thus aiding in the dissipation and transmission of heat from the resistor 14 to the wall 10 of the support and thence to the radiating fins 13. By using a band of this kind around the device, the tensile strength of the metal band may be utilized to obtain a uniform and heavy radial pressure inwardly at all points against the insulated resistor to hold it tightly against the wall of the support which contains the radiating fins 13.

While I have shown and described certain embodiments of my invention, it is to be understood that it is capable of many modifications. Changes, therefore, in the construction and arrangement may be made without departing from the spirit and scope of the invention as disclosed in the appended claims, in which it is my intention to claim all novelty inherent in my invention as broadly as permssible, in view of the prior art.

What I regard as new, and desire to secure by Letters Patent, is:

1. An electric heater, including; a circular support with air openings therethrough; an insulated resistor adjacent the outer wall of the support; and a band around the insulated resistor, said band being contracted to press the insulated resistor tightly against the wall of the support.

2. An electric heater as claimed in claim 1, in which the air openings in the circular support are in the form of radial slots.

3. An electric heater as claimed in claim 1, in which the resistor is insulated from the wall of the support by a thin sheet of mica.

In witness whereof, I have hereunto set my hand, this 1st day of August, 1931.

EARLE W. BALLENTINE.