

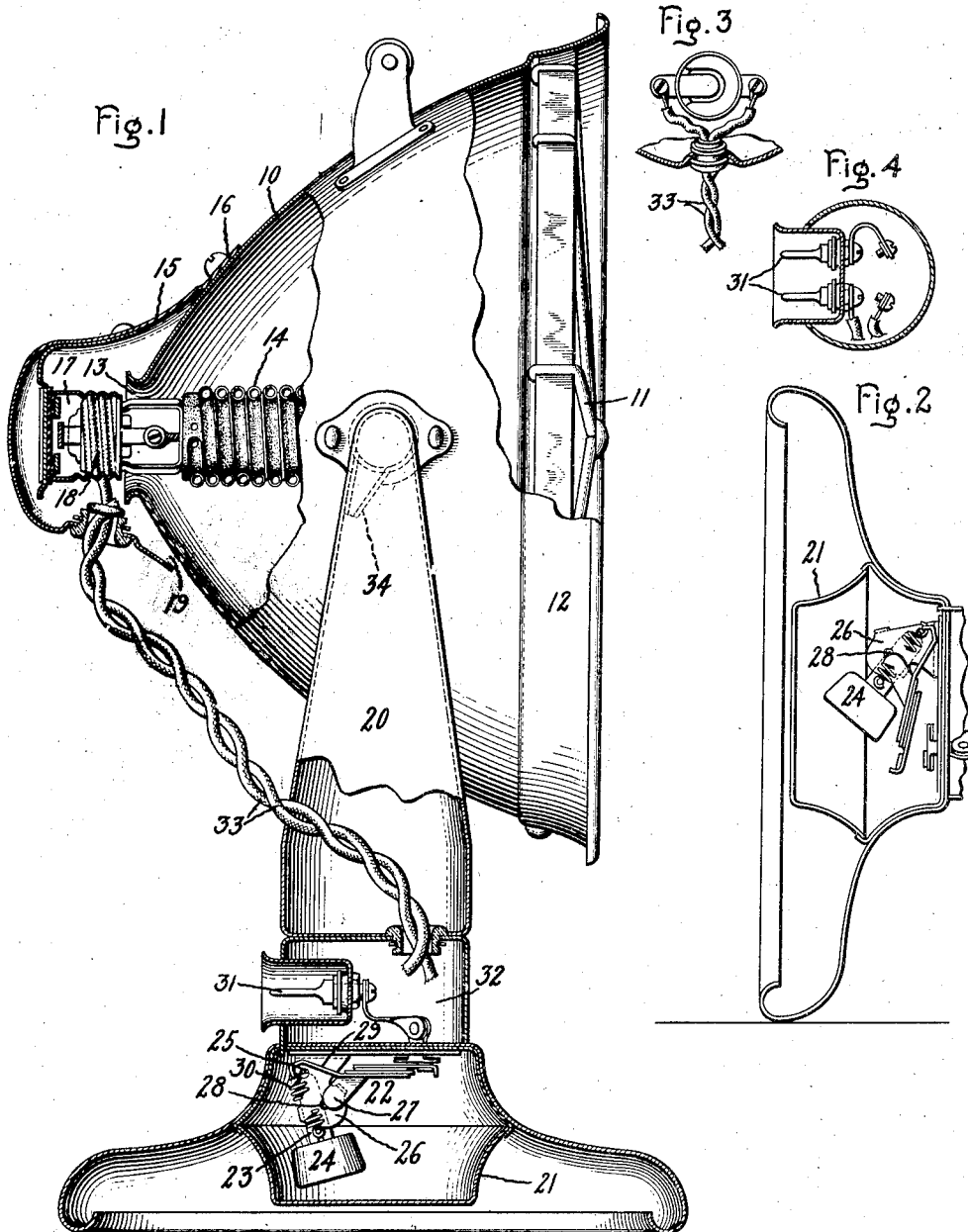
July 17, 1923.

1,462,380

E. H. RICHARDSON

ELECTRIC HEATER

Filed April 2, 1920



Inventor:
Earl H. Richardson,
by *Allen G. Davis*
His Attorney

UNITED STATES PATENT OFFICE.

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ELECTRIC HEATER.

Application filed April 2, 1920. Serial No. 370,734.

To all whom it may concern:

Be it known that I, EARL H. RICHARDSON, a citizen of the United States, residing at Ontario, county of San Bernardino, State of California, have invented certain new and useful Improvements in Electric Heaters, of which the following is a specification.

My invention relates to electric heaters and has for its object the provision of an improved device of this character, which is simple in construction and reliable, safe and efficient in operation.

My invention relates more specifically to electric heaters of the reflector type in which a heating unit, which is preferably run at a red heat, is mounted within a reflector and which reflects the heat in the form of a beam, i. e. with the rays substantially parallel. Devices of this general character are now in common use, but they generally take the form of a shallow reflector, parabolic or spherical in shape. In this form of heater there is quite a loss in efficiency of the reflector due to the currents of air which circulate over the heating unit so that the heat generated in the heating unit is not all reflected outward from the surface of the reflector. I have found that if the reflector is made considerably deeper and the heating unit set well back into the reflector that its efficiency as a beam heater is greatly increased. This is particularly true where the reflector has a true parabolic reflecting surface.

One of the difficulties with a heater of the deep reflector type is due to the excessive heating of the reflector at its extreme rear. In the case of the deep parabolic reflector, for instance, where the heating unit is located well back toward the smallest end of the reflector, the heat in the rear is excessive, so that the lacquer on the reflector is destroyed and the reflecting surface impaired.

In carrying out my invention, I provide a heater of the deep reflector type in which this difficulty of excessive heating is overcome. I have found that by providing an opening through the reflector and having the heating unit supported at the rear of the opening so that the unit is spaced from the reflector that the temperature of the reflector would be kept within the proper limits.

Another important feature of my invention is the provision of an automatic switch which will cut off the heat from the heating

unit when the heater is tilted from its normal position. It has been found that the heat reflected from one of these heaters connected to an ordinary lighting circuit is so concentrated that if the heater should be overturned there is great danger of setting fire to the rug or scorching the bare floor. In order to overcome this difficulty, I provide a gravity switch which, when the heater is overturned, will operate to cut off the current from the heating unit. Other objects and purposes of my invention will appear in the course of the following specification in which I have shown my invention embodied in concrete form for purpose of illustration.

In the accompanying drawing, Fig. 1 shows an assembly view of my electric heater in its normal position; Fig. 2 shows a partial view showing the operation of the gravity switch when the heater is overturned; Fig. 3 is a face view of the socket support; and Fig. 4 is a plan view of the switch connections.

Referring first to Fig. 1, it will be seen that I have provided a deep reflector 10 which, as shown, has a true parabolic reflecting surface. This reflector may be of copper, or copper plated, or in fact, of any metal which will take a good high polish. On the front of the reflector is a wire guard 11 which is mounted in an enlarged or flared portion 12 of the reflector. An axial opening 13 through the reflector is provided, this being flared somewhat as shown in the drawing. This opening is somewhat larger than the heating unit 14, or at least larger than the part which passes through it, so that there is an annular space between the heating unit or its support and the reflector. A casing 15 secured to the reflector at 16 surrounds the opening and is spaced from it. This casing provides a support at the rear of the opening for the heating unit, and to this end is provided with a socket 17 into which the plug 18, which may be the standard threaded lamp base type, is screwed. The casing 15 is spaced from the reflector, as shown at 19, so as to allow for a slight ingress of air to keep the space within the casing and at the rear of the reflector cool.

The reflector is mounted on a pedestal 20 which, as shown, is provided with a yoke in which the reflector is trunnioned. In the bottom of this pedestal and completely en-

closed by a casing 21 is a gravity switch 22 which controls the circuit to the heating unit 14. The specific construction of this switch is of no particular importance, since this construction may be modified without departing from the spirit of my invention. The particular switch shown, however, is of very simple construction and is found to be very effective in service. It consists simply of an arm 23 having at its end a weight 24. This arm is pivoted at 25 to bracket 26 and the switch arm 27 has a pivotal connection at 28 with the bracket. The switch arm has an extension 29 and a tension spring 30 which connects the end of this extension with the pivoted arm. When the parts are in the position shown in Fig. 1, the tension of the spring will be on one side of the pivot which tends to force the switch into its closed position, as shown in Fig. 1, whereas when the pedestal is tilted the weight will swing over to the position shown in Fig. 2, carrying the spring to the other side of the pivotal point 28, forcing the switch member to open position, as shown in Fig. 2. The terminal pins 31 for making connection to the electric circuit are located in the casing 32 just above the automatic switch and the leads 33 are brought down from the heating unit to these terminals, as shown in Fig. 4, so that when the automatic switch operates to open the circuit, it opens the connection between the terminal pins 31 and the heating unit. A stop 34 limits the rotation of the reflector on the pedestal 20.

While I have described my invention as embodied in concrete form and as operating in a specific manner in accordance with the provisions of the patent statutes, it should be understood that I do not limit my invention thereto since various modifications thereof will suggest themselves to those skilled in the art without departing from the spirit of my invention, the scope of which is set forth in the annexed claims.

What I claim as new and desire to secure by Letters Patent of the United States, is:—

1. An electric heater comprising a concave

reflector having an axial opening there-through, a support at the rear of the opening and a heating unit within the reflector and carried by said support, the part passing through the opening being spaced from the reflector.

2. An electric heater comprising a reflector of substantially parabolic form having an axial opening therethrough, a support at the rear of the opening and an electric heating unit located in said axis and carried by said support, the part passing through the opening being spaced from the reflector.

3. An electric heater comprising a concave reflector having a depth substantially equal to one-half of its greatest diameter and an axial opening therethrough, a support at the rear of the opening and a heating unit within the reflector and carried by said support, the part passing through the opening being spaced from the reflector.

4. An electric heater comprising a parabolic reflector having a depth substantially equal to one-half of its greatest diameter and an axial opening therethrough, a support at the rear of the opening and a heating unit within the reflector carried by said support, the part passing through the opening being spaced from the reflector.

5. An electric heater comprising a concave reflector having an opening therethrough, an enclosing casing at the rear of the opening and spaced from it, and a heating unit within the reflector and carried in said casing, the part passing through the opening being spaced from the reflector.

6. An electric heater comprising a parabolic reflector having a depth substantially equal to one-half of its greatest diameter and an axial opening therethrough, an enclosing casing at the rear of the opening and spaced therefrom and an electric heating unit within the reflector and carried by said casing, the part passing through the opening being spaced from the reflector.

In witness whereof, I have hereunto set my hand this 26th day of March, 1920.

EARL H. RICHARDSON.