

R. G. LEDIG.
ELECTRIC RADIATOR.
APPLICATION FILED AUG. 7, 1917.

1,255,840.

Patented Feb. 5, 1918.
3 SHEETS—SHEET 1.

Fig. 1.

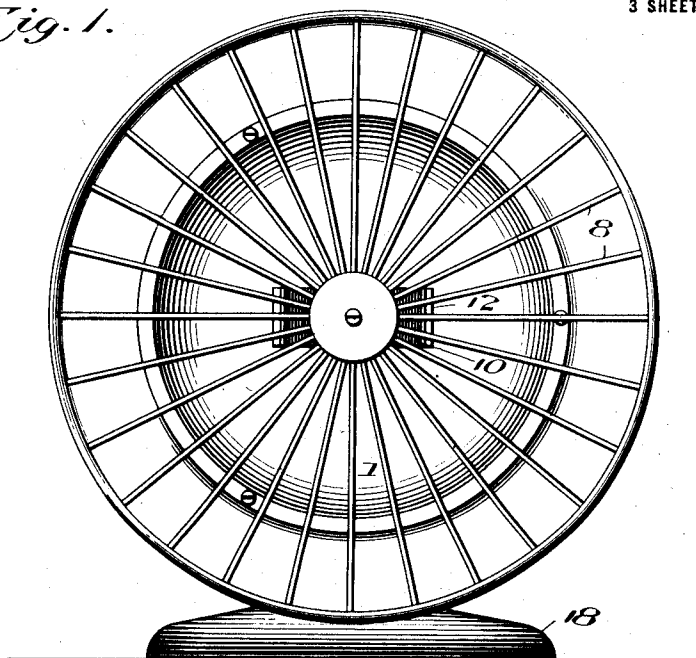


Fig. 2.

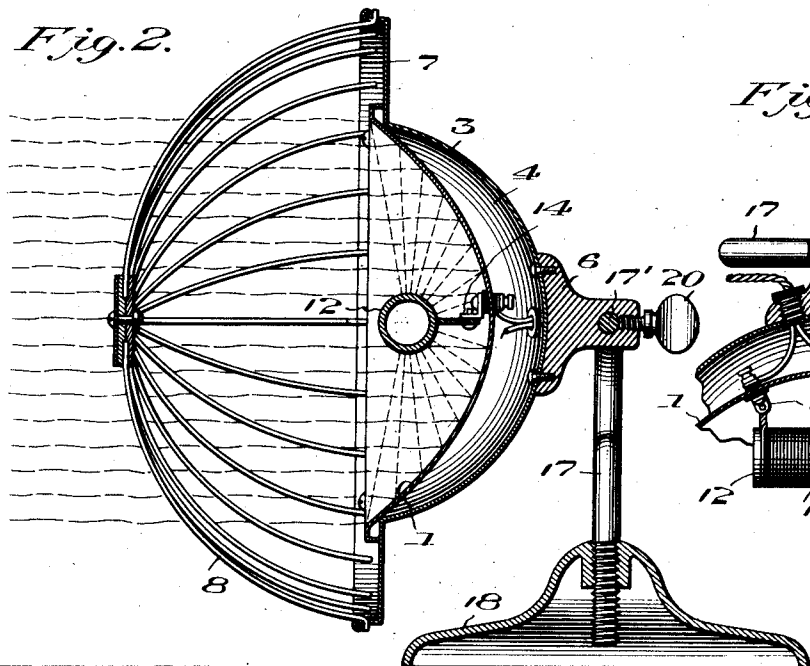
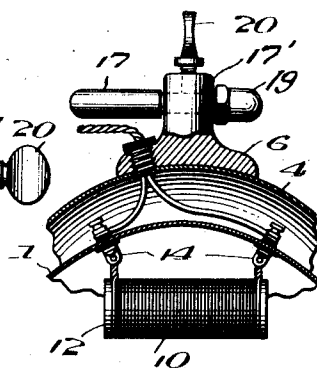


Fig. 3.



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3 SHEETS—SHEET 2.

Fig. 4.

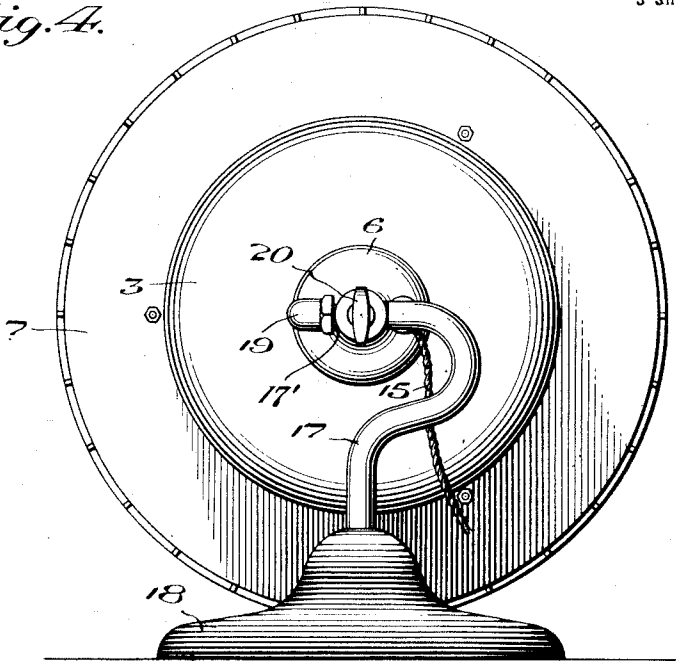


Fig. 5.

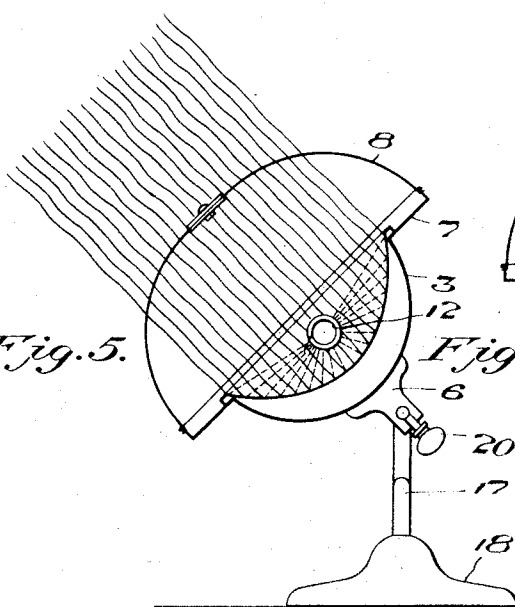
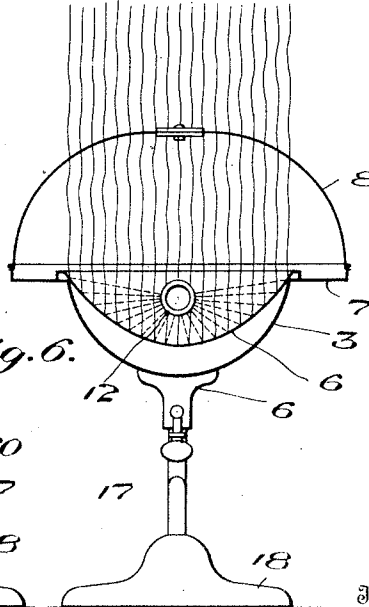


Fig. 6.



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3 SHEETS—SHEET 3.

Fig. 7.

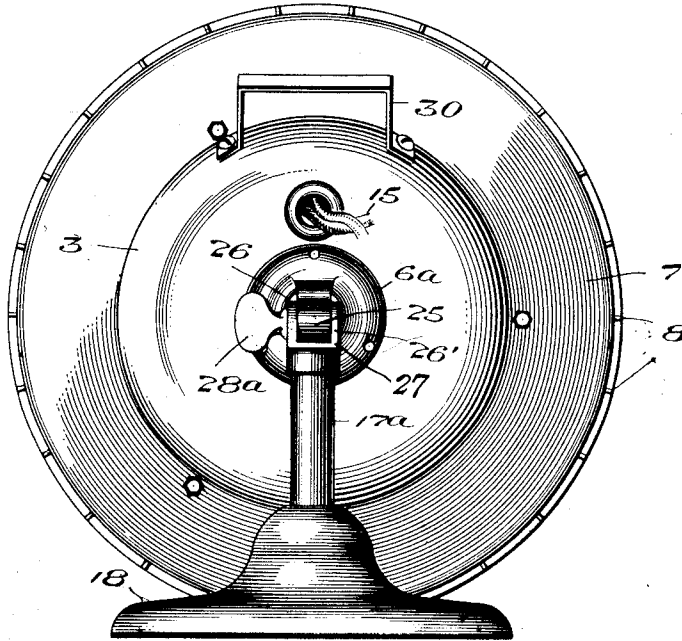
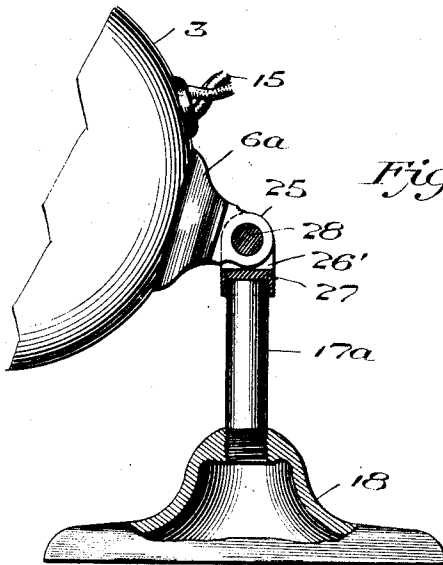


Fig. 8.



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UNITED STATES PATENT OFFICE.

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ELECTRIC RADIATOR.

1,255,840.

Specification of Letters Patent.

Patented Feb. 5, 1918.

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To all whom it may concern:

Be it known that I, RICHARD G. LEDIG, a citizen of the United States, residing at Philadelphia, in the county of Philadelphia and State of Pennsylvania, have invented certain new and useful Improvements in Electric Radiators, of which the following is a specification.

The invention relates to electric heaters or radiators in which the heat waves generated by a resistance coil are directed by means of a polished metal reflector.

I prefer to employ a radiator in which the heat waves generated by the resistance unit or coil are reflected from a highly polished parabolic reflector which directs the heat waves outwardly in the form of a heated column or shaft. One of the objects of my invention is to combine with a parabolic heat reflecting surface, means for changing the direction of the heated column or heated currents, so that the heat may be utilized to the greatest advantage under varying conditions of use and to suit the convenience of the person using the same.

In the accompanying drawings, Figure 1 is a front elevation of an electric radiator embodying my invention; Fig. 2 is a side elevation, partly in section of the same; Fig. 3 is an enlarged sectional detail; Fig. 4 is a rear elevation of my heater; Figs. 5 and 6 are diagrammatic illustrations showing the manner of directing the heated column at different angles as desired; Fig. 7 is a rear elevation of another embodiment of my invention; and Fig. 8 is a fragmentary side elevation of the same, certain portions being broken and shown in section.

The parabolic reflector 1 preferably consists of a highly polished metal surface which is secured by bolts or in any other suitable manner to a concavo-convex metal backing member 3, spaced therefrom to leave an intervening air chamber 4 and bolted or otherwise secured to a hub 6. The backing member 3 may be extended outwardly into an annular rim or flange 7 to which the guard wires 8 are fastened.

The heating unit consists of a coil of resistance wire 10 wound upon an insulating spool of porcelain or other suitable material 12 and supported upon standards 14 which may also form the electrical conductors to the coil and which are insulated from the reflector plate 1 and connected in a suitable

manner with the cord terminals 15 adapted to be connected in the usual manner with an electric circuit. The heating unit is concentrated within as small space and comprises a coil of resistance wire wound upon a short spool having an axis which passes substantially through the focal point of the reflector and transverse to the axis of the reflector. This construction is for the purpose of concentrating the source of heat waves as nearly as possible at or about the focal point of the reflector to thereby bring about such a coöperative relation between the heating unit and the curvature of the reflecting surface as to cause the projected heat waves to traverse substantially parallel lines, this relationship being illustrated in Figs. 2, 5, and 6. By means of this construction and coöperative relationship of parts I am enabled to greatly increase the efficiency of electric heaters of this type.

In order that the column or shaft of reflected heat waves may be directed at varying angles as desired, I provide a swivel joint between the parabolic reflector and the support or stand 17 which is mounted in a suitable base 18. I have indicated in Figs. 2, 3 and 4, one method of constructing a swivel joint. The upper portion of the support 17 may be bent to form a horizontal terminal portion and the latter may be provided with a reduced outer end 17' and threaded to receive a nut 19. The hub 6 is provided with a transverse aperture which may be slid over the reduced end 17' and prevented from moving laterally therefrom by the nut 19. The reflector may be swung in a vertical plane to any desired angle and then secured in position by the thumb screw 20.

In Figs. 7 and 8, I have shown another hinge construction. The boss 6^a secured to the backing member 3 is provided with a projecting perforated ear 25 adapted to socket between the ears 26, 26' of a forked socket member 27 secured to the top of the standard 17^a. A pivot pin 28, having a thumb piece 28^a passes through apertures in the ears and is threaded in the ear 26' so that the hinge may be tightened to adjust the reflector at any desired angle upon the standard. A handle 30 provides a convenient means of carrying the heater.

I have found that it is desirable to be able to control the direction of the heat

waves reflected from the polished surface of the reflector and that it is desirable to be able to vary the angular relation of the reflector with respect to the supporting standard when the heater is moved from one place to another to suit varying conditions. The ventilation of a room may be instantly and largely controlled by directing the heat waves which control the currents of air circulating in the room. By employing a parabolic reflecting surface and placing the heating unit substantially at the focal point, the heat waves will be projected outwardly from the surface in substantially parallel lines in what I may term a column or shaft of heat, as indicated in Fig. 2. By varying the angle of the support upon the standard I am enabled to direct the heat waves as desired to suit the varying conditions. I have shown the radiator in Fig. 2 in a position to direct the heated column horizontally. In Fig. 5 the reflecting surface has been adjusted in a manner to direct the heat waves upwardly at an angle of 45 degrees from the horizontal; while in Fig. 6 the heated column is directed vertically upward.

The advantages of my invention will be apparent and will be especially appreciated by heating engineers and those who are familiar with the laws governing the flow of heated currents of air. As previously pointed out, I am enabled to definitely direct the path of the heat waves issuing from the parabolic reflecting surface and to thereby efficiently control the heating of any room or space and to also control the ventilation resulting from the air currents in an efficient manner.

I have described in detail the particular construction illustrated in the accompanying

drawings for the purpose of disclosing one embodiment of my invention, but it will be understood that this is merely illustrative of one form and that various changes and modifications may be made within the scope of my claims.

I claim:—

1. An electric radiator, comprising a stand or support, a parabolic reflector, having a highly polished reflecting surface, pivotally secured thereto, an electric heating device supported in spaced relation to said surface and comprising a resistance wire coiled about a short axis passing substantially through the focal point of the parabolic reflector and transverse to the axis thereof, and means for adjusting said reflector in a vertical plane to thereby control the angular direction of the heat waves reflected from said surface.

2. An electric radiator, comprising a stand or support, a concavo-convex reflector, having a highly polished reflecting surface, pivotally secured to said support, an electric heating device supported in spaced relation to said concave surface and comprising a resistance wire coiled about a short axis passing substantially through the focal point of the reflector and transverse to the axis thereof, and means for varying the inclination of said reflector in a vertical plane to thereby control the direction of the heat waves projected from said reflecting surface.

In testimony whereof I affix my signature in the presence of two witnesses.

RICHARD G. LEDIG.

Witnesses:

WM. H. RUETER,
MARIE LYTTLE.