

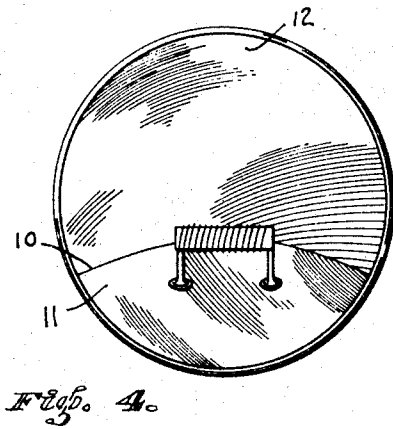
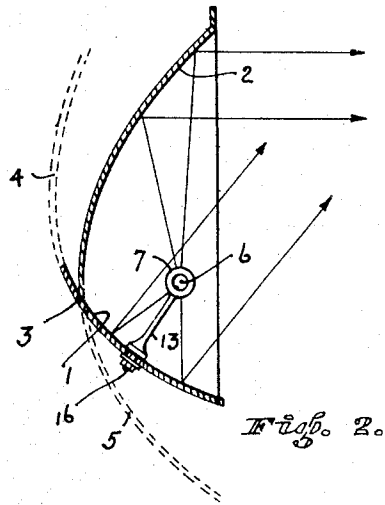
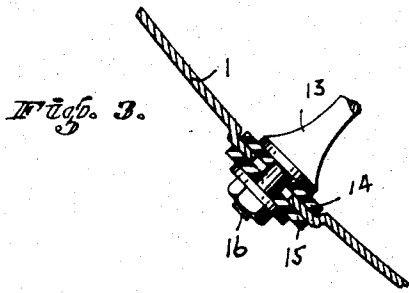
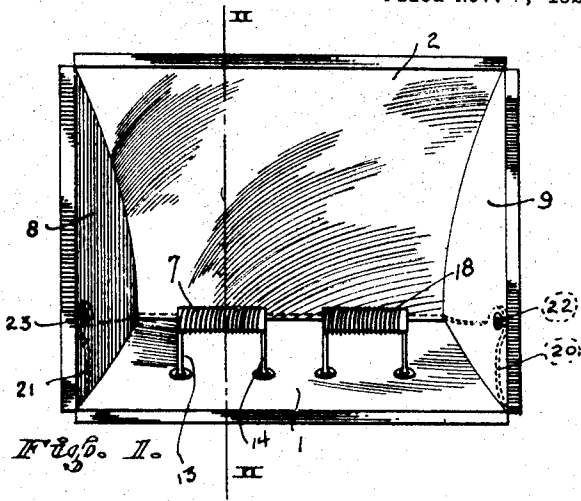
Dec. 2, 1924.

1,517,759

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REFLECTING HEATER

Filed Nov. 7, 1923



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REFLECTING HEATER.

Application filed November 7, 1923. Serial No. 673,388.

To all whom it may concern:

Be it known that I, MILTON H. SHOENBERG, a citizen of the United States, and a resident of the city and county of San Francisco, State of California, have invented new and useful Improvements in Reflecting Heaters, of which the following is a specification.

My invention has for its object a plurality of reflecting surfaces adapted to reflect radiant energy as from heating or lighting elements whereby there will be reflected radiant energy in a plurality of beams in separate paths, but wherein the distribution within each of said paths will be in substantially parallel lines; thus in accomplishing its distribution, any two beams will converge or diverge with respect to each other, but wherein the beams with respect to each of their own boundaries in one plane, do not substantially diverge. In this way the radiant reflected energy may be directed horizontally or otherwise from one of the beams, and that from the other beam given an upward or any other direction, thus preventing a useless expenditure of misdirected energy and confining the radiant emanations to those portions of a room where it will be most effectively employed.

These objects I accomplish as follows:

It is well known that a source of radiant energy mounted at the focus of a parabola will transmit a radiant beam which being received upon the surface of the parabola will be reflected out and parallel with the axis of the parabola.

These principles I have employed in other heaters which have been made the subjects of certain other patents heretofore issued to me.

In my present invention, I employ a plurality of curved surfaces, preferably of parabolic or paraboloid form, each of which reflects its own beam, and following the above recited optical principles, reflects the energy from a radiant energy source positioned about the focus of the curved surfaces.

These reflecting surfaces are preferably arranged with a common focus, and the axis of each while displaced with the axis of the other, is positioned to pass thru the said common focus about which my heat element is to be substantially mounted. One or both of the reflectors may be relatively adjustable.

By referring to the accompanying drawing, my invention will be clear.

Fig. 1 is a front view of my reflecting heater with the outer framework and supporting elements which form no part of my invention left out.

Fig. 2 is a cross section of Fig. 1 on the line II—II thereof.

Fig. 3 is an enlarged cross section of a portion of Fig. 2 for the purpose of showing the energizing connections passing thru the reflector, and the manner in which the standards for the heating elements are mounted thereon.

Fig. 4 is similar to Fig. 1, but of a different form of reflecting surfaces.

Thruout the figures, similar numerals refer to identical parts.

At 1 is shown a lower curved surface and at 2 an upper curved surface. These are merged together at the line 3, and may be formed of a single sheet bent to the curvatures 1 and 2 respectively, or it may be formed of two surfaces in separate sheets 1 and 2, and they may be joined in any conventional way along the line 3, or mounted adjustably with respect thereto.

The surface which terminates in the line 3, or the parabola of which it is a part, if extended would follow the dotted line 4. The surface 2 likewise effectively terminates at the line 3, but the balance of the curve of which it forms a part, if extended would be indicated by the dotted line 5. The focus of each of these curves is shown at 6, and around the said common focus is positioned my heating element which may be of any conventional form, and this may be divided into a plurality of heating units as shown at 7, 18, respectively. The surfaces 1, 2, are connected on their ends by curved or flat shield plates 8, 9, whereby the entire reflector is assembled and appears as a curved rear portion in a box structure.

While I have shown this formed as a rectangular box structure, it will be apparent that it may be made circular or otherwise, and that the curves instead of being generated by a line at right angles to the axis moving in a curved or parabolic path, may be formed as parabolas, hyperbolas, or other curves about the axis of curvature of revolution, in which case the line 3, instead of being straight as shown in Figs. 1 and 2, will itself be of a conic

section form as shown at 10 in Fig. 4. In this case the lower surface 11 then will be one portion of a parabola of revolution and the upper surface 12 a portion of another surface of a parabola of revolution.

The heating elements are supported from the stands as 13, 16, and these are insulated from the reflector by insulating washers 14, 15, in any conventional manner. The heating elements are then energized thru electrical connections from the rear of the reflector, one of which is shown at 16.

Where the reflectors are relatively adjustable, one or both is to be pivoted, preferably on the axis passing through the focus as by the side members 20, 21, pivoted to the sides 9, 8 respectively at 22, 23. This permits the relative divergence of the beams to be adjusted to suit individual situations and requirements, while retaining at all times the efficiency of reflection.

It will be observed that the parabolic surfaces 1 and 2 are formed by bending a plane surface into parabolic form and that the elements of the surface at right angles to the parabolic axis, are straight lines; and also that plane sections parallel with the parabolic axis will intersect said surface on equal parabolas the locus of whose foci will be a line parallel with the first mentioned surface elements. Such a surface I call a plano-parabolic surface.

I claim:

1. A reflector for radiant energy comprising a pair of curved surfaces merging together along a portion of the periphery of each and having a substantially common focus.

2. A reflector for radiant energy comprising a pair of curved surfaces merging together along a portion of the periphery of each and having a substantially common focus in combination with radiant energy means positioned about said focus.

3. In a radiant heater a pair of curved surfaces merging together along a portion

of their peripheries and having a substantially common focus, and an electrical heating means positioned about said focus.

4. The combination set forth in claim 1 wherein the said surfaces are of parabolic form.

5. The combination set forth in claim 2 wherein the said surfaces are of parabolic form.

6. The combination set forth in claim 3 wherein the said surfaces are of parabolic form.

7. A reflector for radiant energy comprising a pair of curved surfaces merging together along a portion of the periphery of each and having a substantially common focus, one of said surfaces being adjustable substantially about an axis passing through said focus with respect to the other surface.

8. A reflector for radiant energy comprising a pair of curved surfaces merging together along a portion of the periphery of each and having a substantially common focus in combination with radiant energy means positioned about said focus, one of said surfaces being adjustable substantially about an axis passing through said focus with respect to the other surface.

9. In a radiant heater a pair of curved surfaces merging together along a portion of their peripheries and having a substantially common focus, and an electrical heating means positioned about said focus, one of said surfaces being adjustable substantially about an axis passing through said focus with respect to the other surface.

10. The combination set forth in claim 7 wherein the said surfaces are of parabolic form.

11. The combination set forth in claim 8 wherein the said surfaces are of parabolic form.

12. The combination set forth in claim 9 wherein the said surfaces are of parabolic form.

MILTON H. SHOENBERG.