March 9, 1937. S. P. MORSE 2,073,582

REFLECTOR FOR ELECTRIC HEATERS

Filed Dec. 9, 1935

Fig.1.

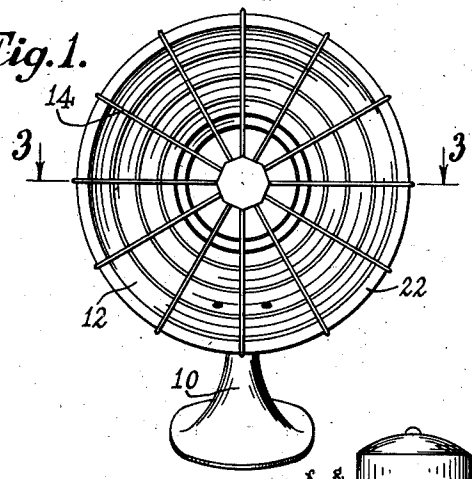


Fig.2.

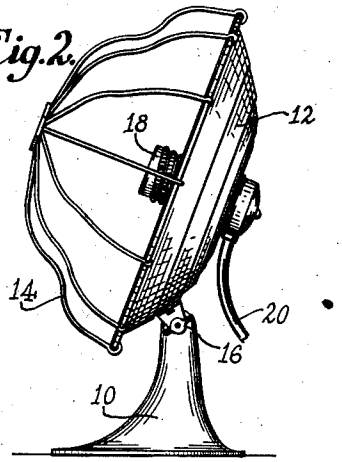
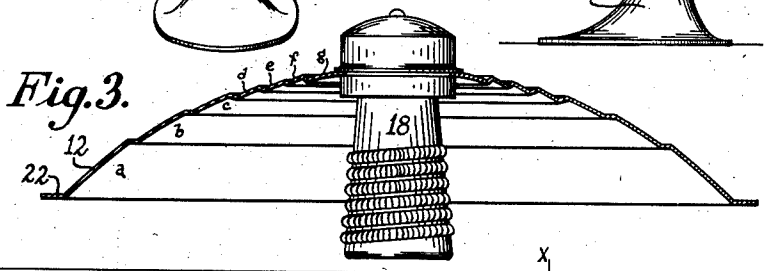


Fig.3.



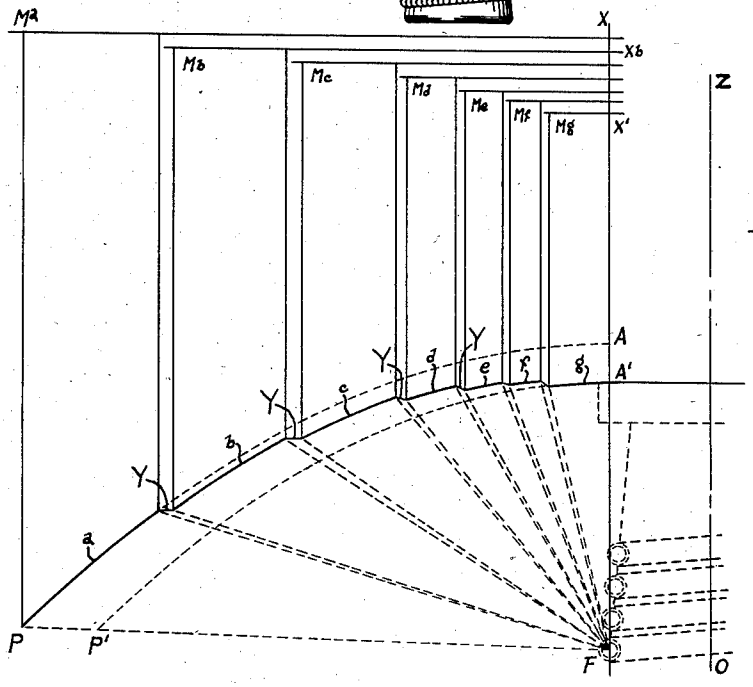


Fig.4.

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Patented Mar. 9, 1937 2,073,582

UNITED STATES PATENT OFFICE

2,073,582

REFLECTOR FOR ELECTRIC HEATERS

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Application December 9, 1935, Serial No. 53,586

4 Claims. (Cl. 219—34)

This invention relates to reflectors and more particularly to an improved type of reflector for electric heaters.

It is an object of the invention to provide a new and improved reflector. More particularly it is an object of the invention to produce an improved reflector for an electric heater, which reflector shall give the heater a new, novel and improved appearance, shall be cheaper to manufacture, and shall not occupy as large a space as would a corresponding reflector of the old type. These and further objects of this invention will become apparent from the following specification taken in connection with the accompanying drawing.

In accomplishing the above objects, the usual parabolic type of sheet metal reflector is exchanged for a reflector composed of a plurality of annular sections, each of which sections is generated by a portion of a parabola, the parabolas generating the successive sections, being chosen to have different characteristics resulting in a decrease in the depth of the reflector over one having the same overall diameter and generated by a single parabolic curve.

Attention is now invited to the accompanying drawing in which Figs. 1 and 2 constitute front and side views respectively of an electric heater constructed in accordance with the present invention;

Fig. 3 is a cross-section of the reflector of the heater shown in Figs. 1 and 2; and

Fig. 4 is a diagram showing the construction of the system of parabolas constituting the generatrix of the reflector.

With particular reference now to Figs. 1 and 2, the heater comprises the base **10** upon which is mounted the reflector **12**. In the center of the reflector is disposed a heating element **18** and, enclosing the front of the heater, to prevent accidental contact of any combustible material, with the heater element, is the wire guard **14**. The reflector is mounted for pivotal motion by the bracket **16** and current is supplied to the heater element through the electric cable **20**.

Attention is now invited to Fig. 3 which shows, more in detail, a reflector **12**, constructed in accordance with the invention. This reflector is composed of a series of concentric annular surfaces, *a*, *b*, *c*, etc., which are arranged to reflect the heat generated by the heating element **18**. The edge of the reflector is bounded by the annular flange **22**.

Attention is now invited to Fig. 4. In this figure FX is the axis of each of the parabolic sections which constitute the generatrix of the reflector. F is the focus which is a point on the surface of the heating element at about the center thereof. The axis OZ of the reflector is parallel to the axis FX and passes through the center of the heating element. The generatrix is composed of sections *a*, *b*, *c*, etc., the exact number of which constitute no part of the present invention. The line M_aX is the directrix of the parabola PA which includes section *a* and the dotted line extending between *a* and A. The section *b* is a section of a parabola of which the directrix is the line M_bX_b. Similarly sections *c*, *d*, *e*, etc. are portions of parabolas having directrixes each successively closer to the focus F. The final or inner annular surface *g* of the reflector is based upon the directrix M_gX'. This parabola, if extended to a point on the line PF as shown by the dotted line A'P', would give a reflector having a radius OP' which is considerably less than the radius of the reflector obtained in accordance with the present invention. The generatrix of the reflector includes, in addition to the parabolic sections *a*, *b*, *c*, etc., the small connecting sections Y. Y. Y. The exact extent and number of the parabolic sections forming the generatrix of the reflector, as well as the exact characteristics of the connecting sections Y constitute no important part of the present invention, the object of the invention being served provided the generatrix comprises two or more parabolic sections.

A reflector constructed in accordance with this invention as just described may be made with a die having a considerably less depth than that required to form as large a reflector based on a single parabola and as a result not only is the cost of the die itself greatly lessened but the number of steps necessary to properly draw the sheet material from which the reflector is made is also decreased. In fact, satisfactory reflectors are made in accordance with this invention with a single drawing step.

It is obvious that a reflector constructed in accordance with this disclosure, while primarily intended for reflecting heat, will reflect light and sound equally well and that therefore the invention is to be interpreted as applicable to light and sound reflection.

It is to be understood that many modifications of the reflector shown and described in this specification may be made and that the invention is not to be limited by the exact embodiment shown but by its scope as set forth in the following claims.

I claim:

1. In a reflector, a reflecting surface composed of two or more concentric annular rings, each of said rings having a generatrix comprising a portion of a different parabolic curve, said curves having common axes, and the axis of said annular rings being parallel to and spaced from the axis of said parabolic curves.

2. In a reflector, a reflecting surface composed of two or more concentric annular rings, each of said rings having a generatrix comprising a portion of a different parabolic curve, said parabolic curves having common axes and common foci, and the axis of said annular rings being parallel to and spaced from the axis of said parabolic curves.

3. In a reflector, a reflecting surface composed of two or more concentric annular rings, each of said rings having a generatrix comprising a portion of a different parabolic curve, said parabolic curves having common axes and common foci and directrixes which are parallel to and spaced at different distances from the apex of the respective parabolas, the axis of said annular rings being parallel to and spaced from the axis of said parabolic curves.

4. In a reflector, a reflecting surface composed of two or more concentric annular rings, each of said rings having a generatrix comprising a portion of a different parabolic curve, said parabolic curves having common axes and common foci and directrixes which are parallel and spaced at different distances from the apex of the respective parabolas, the directrix for the outer annular ring being further from said focus than the directrix for the inner of said annular rings, and the axis of said annular rings being parallel to and spaced from the axis of said parabolic curves.

SHIRLEY PUFFER MORSE.