

E. N. BROWN AND M. H. SHOENBERG.
 MULTIPLE REFLECTOR,
 APPLICATION FILED NOV. 4, 1920.

1,400,859.

Patented Dec. 20, 1921.

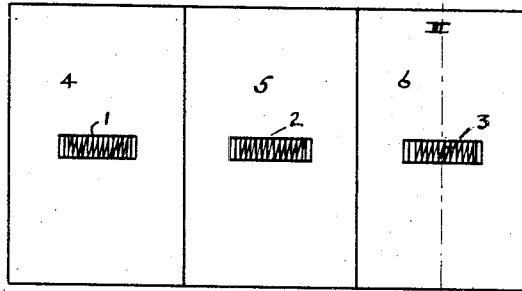


FIG. 1

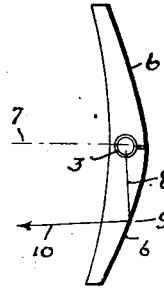


FIG. 3

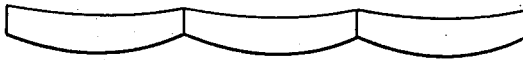


FIG. 2

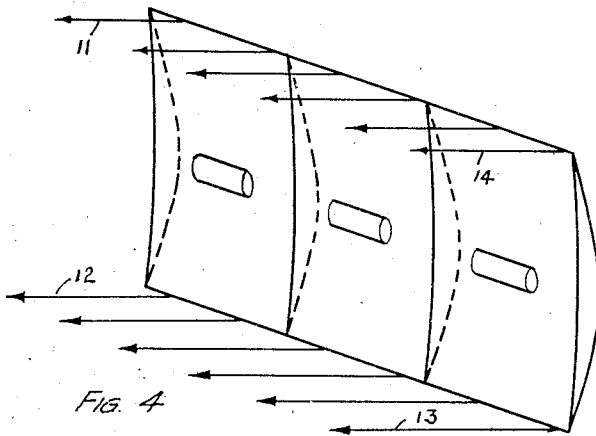


FIG. 4

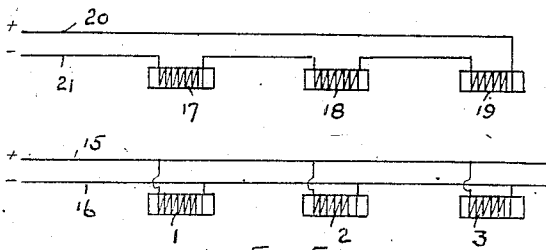


FIG. 5

FIG. 6.

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MULTIPLE REFLECTOR.

1,400,859.

Specification of Letters Patent.

Patented Dec. 20, 1921.

Application filed November 4, 1920. Serial No. 421,710.

To all whom it may concern:

Be it known that we, EDMUND N. BROWN and MILTON H. SHOENBERG, citizens of the United States, and residents of the city and county of San Francisco, State of California, have invented new and useful Improvements in Multiple Reflectors, of which the following is a specification.

Our invention has for its object the reflection of heat rays in an efficient beam of considerable width and from a plurality of heat sources whereby the temperatures of the rays of the reflector adjacent to any particular heat unit are kept within commercial limits of safety and at the same time from a minimum of space and from a single structure we attain the reflection of a much larger quantity of radiant energy for the purpose of heating the objects on which it impinges than has heretofore been attained.

This is accomplished by a plurality of concave surfaces which we prefer to form of spun metal and the outer margins we trim so that the individual reflectors for each of the heat units are of rectangular form, having a heat unit located approximately at a focus within each of the reflector surfaces and join the said reflectors edge to edge, thus obtaining a unitary reflecting surface having a plurality of concavities and a heat unit located in each of the said concavities at such a focal point as will produce an emanating beam of radiant energy in any desired direction. We prefer to form the concave surface as segments of a parabola or other regular curve and it will be noted that we employ all of that portion of each reflecting surface on which the greater part of the radiant energy emanating from the reflector side of the heat unit is received and is reflected therefrom.

By referring to the accompanying drawings our invention will be made clear.

Figure 1 is a front view somewhat diagrammatic of a multiple reflector with the heating units located within the curvature of each of the plurality of surfaces.

Fig. 2 is a plan view of Fig. 1.

Fig. 3 is a cross section of Fig. 1 on the line III-III.

Fig. 4 is a perspective view of reflector Fig. 1.

Fig. 5 is a diagrammatic showing of the

connections of the three heating elements of Fig. 1 connected in parallel.

Fig. 6 is similar to Fig. 5 with the heating units connected in series.

Throughout the figures the same numerals refer to identical parts. The heating units are shown by the numerals 1, 2, 3, respectively, and the reflecting surfaces for each of these units are shown at 4, 5 and 6 respectively. It is to be understood that the surfaces 4, 5, 6, are surfaces of revolution, as would be formed by a regular curve rotated about the axis 7, see Fig. 3, and if these surfaces be formed as parabolas the heating units 1, 2, 3, are then to be located each around the focus of its respective parabola. As for example the heating unit 3 is to be located closely around the focus of parabola 6. In this way the rays of radiant energy emanating from the back and sides of the said heat unit, as at 8, will be received upon the surface of the parabola 6 as at the point 9 and be reflected therefrom as one of the rays 10 going to make up the beam of radiant energy which will emanate from the said reflecting surface, and when received upon other matter will generate heat therein. There will accordingly be distributed from our multiple reflector a beam of radiant energy having the proportions indicated by the rays 11, 12, 13 and 14 of Fig. 4. With modern municipal supply circuits utilizing relatively low voltages the preferred method of connecting the heat units 1, 2, 3 is in multiple, as indicated in Fig. 5 where each of the said heat units is cut in on the two main leads 15 and 16, whereas when higher voltages, with respect to the resistances of the heating units, are employed they may advantageously be connected in series as indicated at 17, 18 and 19 from the leads 20 and 21 of Fig. 6.

We claim:

1. A multiple reflector for heaters comprising a plurality of concave elements each consisting of a surface of revolution about an axis perpendicular to said surface, said elements connected adjacent each other and adapted to contain heat generating means located on said axis and substantially about the focus of said concavity.

2. A multiple reflector as set forth in claim 1 in combination with a plurality of

heating elements disposed about the focus of the elements.

3. A multiple reflector as set forth in claim 1 wherein the axes of curvature of the
5 respective elements are parallel of each other.

4. A multiple reflector as set forth in claim 1 wherein the axes of curvature of the respective elements are parallel and a heating
10 element of cylindrical form mounted substantially about the focus of each element.

5. A multiple reflector for electric heaters comprising a plurality of parabolically concave
15 elements of rectangular outline and connected adjacent each other with the axes of the parabolas parallel to each other.

6. A multiple reflector as set forth in claim 5 in combination with a plurality of heating elements disposed about the focus of the elements.

7. A multiple reflector as set forth in claim 5 wherein the axes of curvature of the
20 respective elements are parallel to each other.

8. A multiple reflector as set forth in claim 5 wherein the axes of curvature of the
25 respective elements are parallel and a heating element of cylindrical form mounted substantially about the focus of each element.

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