

T. C. HEISEY & A. J. SANFORD.

ILLUMINATOR.

APPLICATION FILED AUG. 16, 1910.

1,028,721.

Patented June 4, 1912.

2 SHEETS—SHEET 1.

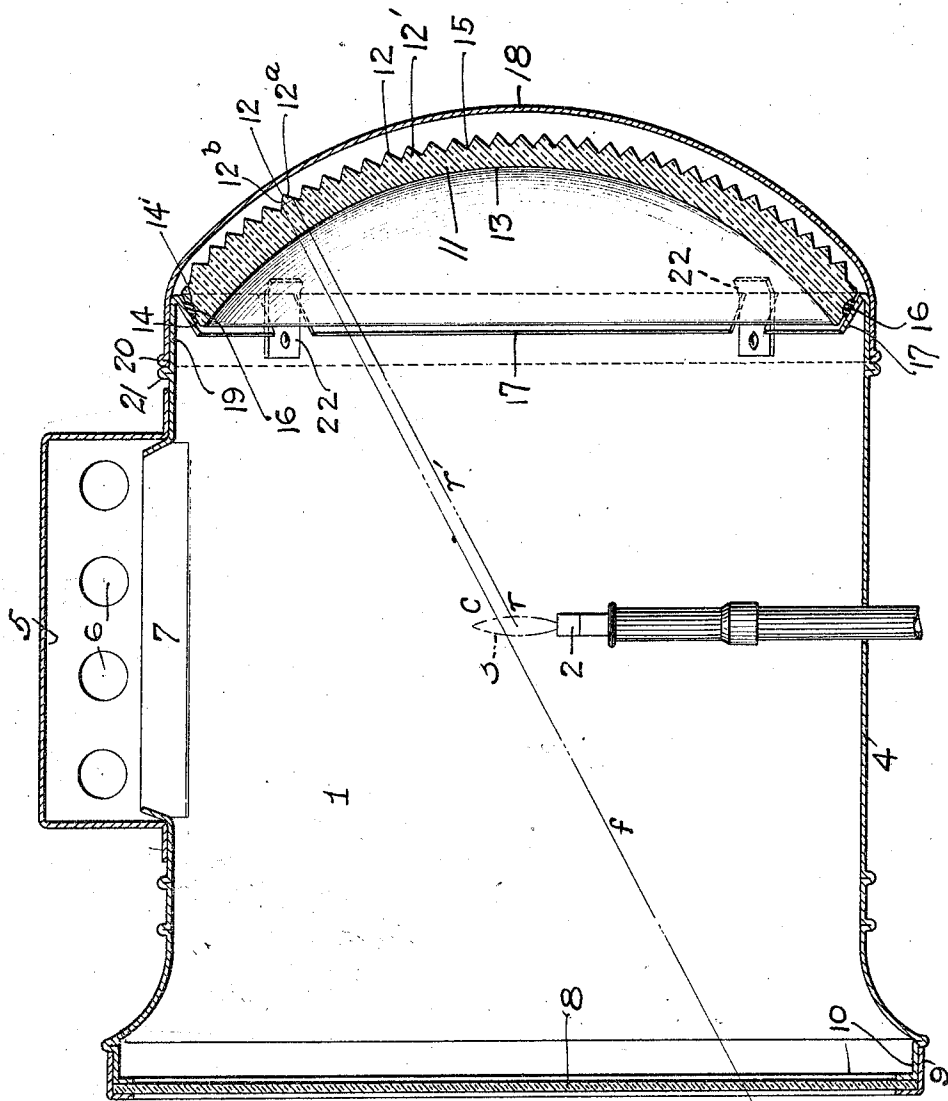


FIG. 1

WITNESSES.

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2 SHEETS—SHEET 2.

FIG. 3

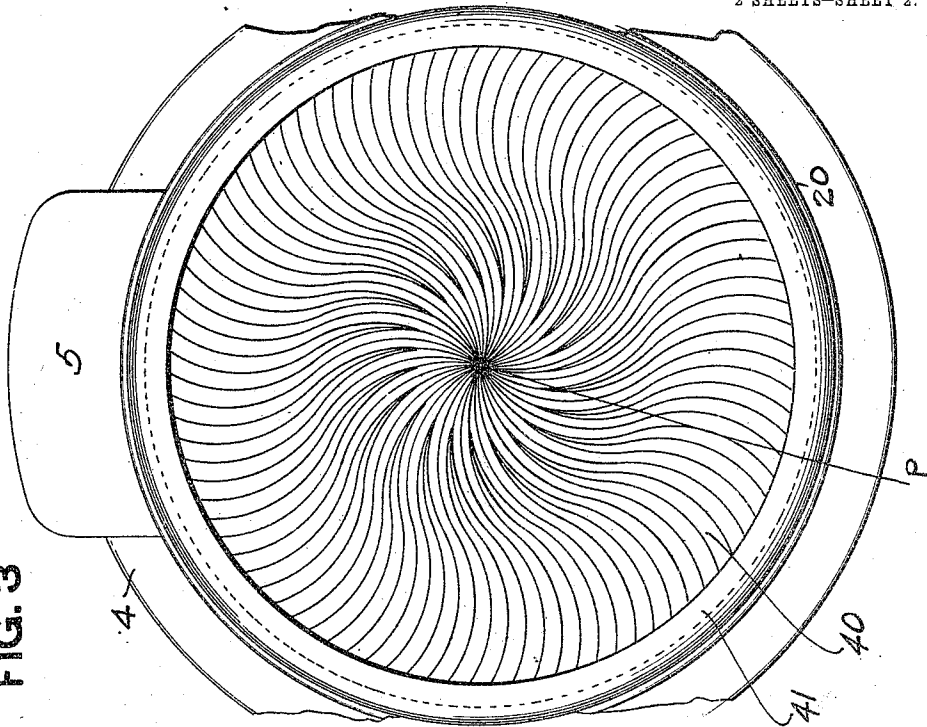
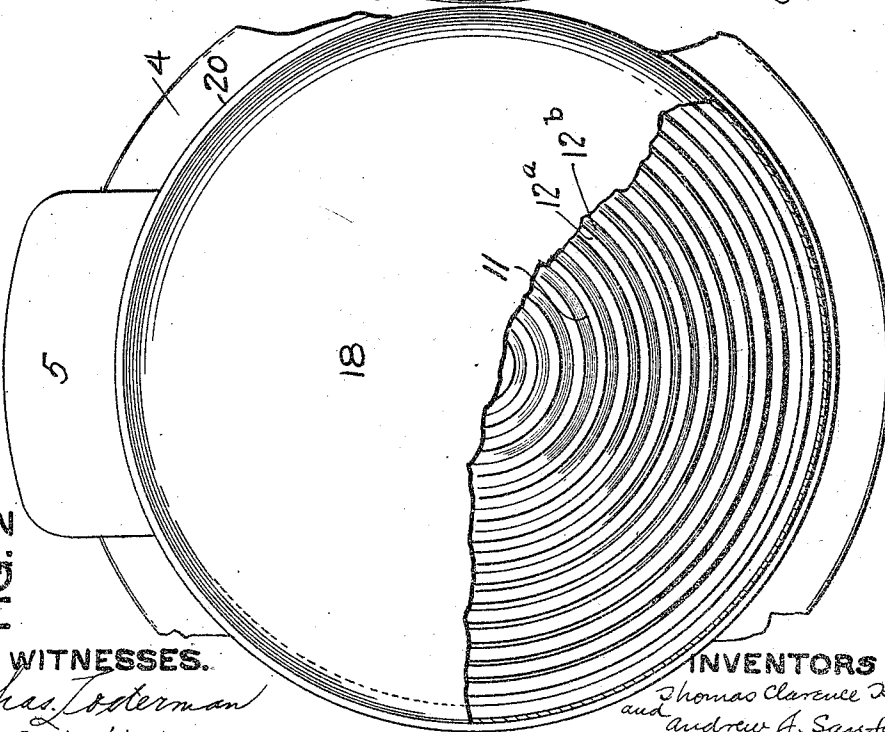


FIG. 2



WITNESSES.

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UNITED STATES PATENT OFFICE.

THOMAS CLARENCE HEISEY AND ANDREW J. SANFORD, OF NEWARK, OHIO, ASSIGNORS
TO A. H. HEISEY & CO., INC., OF NEWARK, OHIO, A CORPORATION OF WEST VIR-
GINIA.

ILLUMINATOR.

1,028,721.

Specification of Letters Patent.

Patented June 4, 1912.

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To all whom it may concern:

Be it known that we, THOMAS CLARENCE HEISEY and ANDREW J. SANFORD, residents of the city of Newark, in the county of Licking and State of Ohio, have invented a new and useful Improvement in Illuminators; and we do hereby declare the following to be a full, clear, and exact description thereof.

Our invention relates to illuminators in general, and particularly to that class of illuminators used as head lights or search lights for automobiles, motor boats or locomotives. Its object is to dispense with the metallic or mirrored reflector hitherto employed in the rear of the source of light to direct the rearwardly emitted rays forwardly through the glass pane or other diffusing device employed, and to substitute therefor a reflector which dispenses entirely with a mercury or other mirror, and has a relatively indestructible reflecting surface.

To this end our invention comprises an illuminator having a casing with an annular flange at its rear portion, a reflector provided with an annular edge similar in shape to said flange, and a gasket of elastic material between the flange and the reflector edge; as well as other improvements as hereinafter set forth.

In the drawings illustrating our invention, Figure 1 is a vertical longitudinal section of a head light of a type generally employed in motor cars illustrating a glass reflector embodying my invention. Fig. 2 is a rear elevation partly broken away showing the prismatic surface employed in Fig. 1 in the reflector, and Fig. 3 is a like view showing another form of reflector.

The illuminator 1, illustrated in Fig. 1, has the burner, 2, adapted to, admit acetylene or like gas, or act as a conduit for electric wires, to produce the light, 3, which is intended to represent diagrammatically any source of light, gas, incandescent or any other. It has the casing 4, of brass or other metal provided with the ventilator, 5, having holes 6, which admit air through the aperture, 7. It is also shown as provided with the glass pane, 8, carried by the annular sleeve, 9, which fits the annular flange, 10, attached to the casing 4, of the illuminator or head light. These parts, however, in themselves, form no part of our invention,

and it will be understood that they may be varied to suit the particular purpose desired.

The transparent reflector, 11, is composed of glass having the prismatic outer surface, 12. The inner surface, 13, is preferably of smooth curved form. The reflector, 11, is preferably provided with the annular edge portion, 14, provided with the annular groove, 14'. The gasket, 16, of rubber, asbestos or other padding material fits within and is secured to the flanged sleeve, 17, of the illuminator 1, said sleeve being set at an angle corresponding to the inclination of the edge, 14, of the reflector, 12, relative to the axis of the illuminator. The reflector, 12, is inserted within the sleeve, 17, in setting up the device by hand pressure and is securely held therein by friction with the gasket, 16, which fits within the groove, 14', of its edge, 14. The reflector is preferably secured therein by the end casing or cap, 18, which fits over the annular flange, 19, of the casing, 4, being provided as shown with the bead, 20, which abuts against the like bead, 21, carried by the said casing. The reflector is attached securely thereto by the spring clips, 22, as illustrated. The casing or cap, 18, shown, extends entirely across the rear of the reflector, so that, in conjunction with the gasket, 16, it prevents the entrance and collection of moisture, dust and dirt behind the reflector, 11. The spring clips, 22, riveted to the casing, 4, bear against the margin of the reflector 11, and hold it accurately in position. As illustrated in Fig. 3, the reflector, 40, may be carried in rearwardly exposed position, the attaching cap, 41, being in the form of an annular flange embracing the reflector, 40, only at its edge portion and being attached to the casing, 4, of the illuminator in a manner similar to that illustrated in Fig. 1.

The reflector, 11, illustrated has the prismatic surface, 12, each prism, 12, having the faces 12^a and 12^b which are preferably at an angle of about 45° with a radius r drawn from the mean source of light 3. The inner curved surface of the reflector is preferably concave relative to the source of light, being approximately that of a sphere having a radius and center slightly different from but near to the curved surface, 15,

which forms the pitch surface for the prisms, 12. The effect of this prismatic construction of glass reflector is to completely reflect substantially all the rays of light emitted in a rearward direction from the source of light, 3. This occurs in all cases where any pair of prismatic faces, 12^a and 12^b are set at a greater angle with a perpendicular to a radius r from the source of light c drawn to any given point of such surface than the greatest angle at which light striking said surface will pass there-through, or the angle of total reflection.

In practice we prefer to employ prisms of the nature illustrated, the smooth inner surface, 11, acting to refract the rays only in a very slight manner and so as to provide for their reflection by the outer prismatic surface, 12, in the desired direction. As illustrated in Fig. 1, the reflected rays of light would be directed backwardly substantially parallel and opposite to their direction of original incidence. Thus a ray of light r' striking the prismatic faces, 12^a and 12^b of the prism 12'', would be reflected as illustrated in dotted lines backwardly through the source of light 3, and emitted in nearly the same direction as a ray f thrown out originally from the mean source of light c in a direction opposite to that of the ray r' .

What we claim is:

1. An illuminator provided with a source of light and a casing around the same, an inwardly extending annular flange formed integral with said casing, a reflector provided with an annular edge engaging said flange, and a gasket of elastic material between said flange and said annular edge.

2. An illuminator having a source of light and a casing surrounding the same and having an annular inclined flange in its rear portion, a reflector provided with an annular inclined edge having a groove therein and a gasket of elastic material

seated in said groove and holding said reflector within said flange.

3. An illuminator having a source of light and a casing around the same, said casing having an annular inclined flange in its rear portion, a reflector provided with an annular inclined edge adapted to mate within said flange and having a groove in said edge, a gasket of elastic material carried within said groove and adapted to support said reflector within said flange, and further means for securing said reflector to said casing.

4. An illuminator having a source of light and a casing around the same; said casing having an annular inclined flange in its rear portion, a reflector provided with an annular inclined edge adapted to mate within said flange and having a groove within said edge, a gasket of elastic material carried within said groove and adapted to support said reflector within said flange, and a cap around said reflector and provided with means attaching it to said casing.

5. An illuminator having a source of light and a casing around the same, said casing having an annular inclined flange in its rear portion, a reflector provided with an annular inclined edge adapted to mate within said flange and having a groove within said edge, a gasket of elastic material carried within said groove and adapted to support said reflector within said flange, and spring clips attached to said casing and pressing on said reflector to secure the same in place.

In testimony whereof, we, the said THOMAS CLARENCE HEISEY and ANDREW J. SANFORD have hereunto set our hands.

THOMAS CLARENCE HEISEY.

ANDREW J. SANFORD.

Witnesses:

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RAY MARTIN,

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