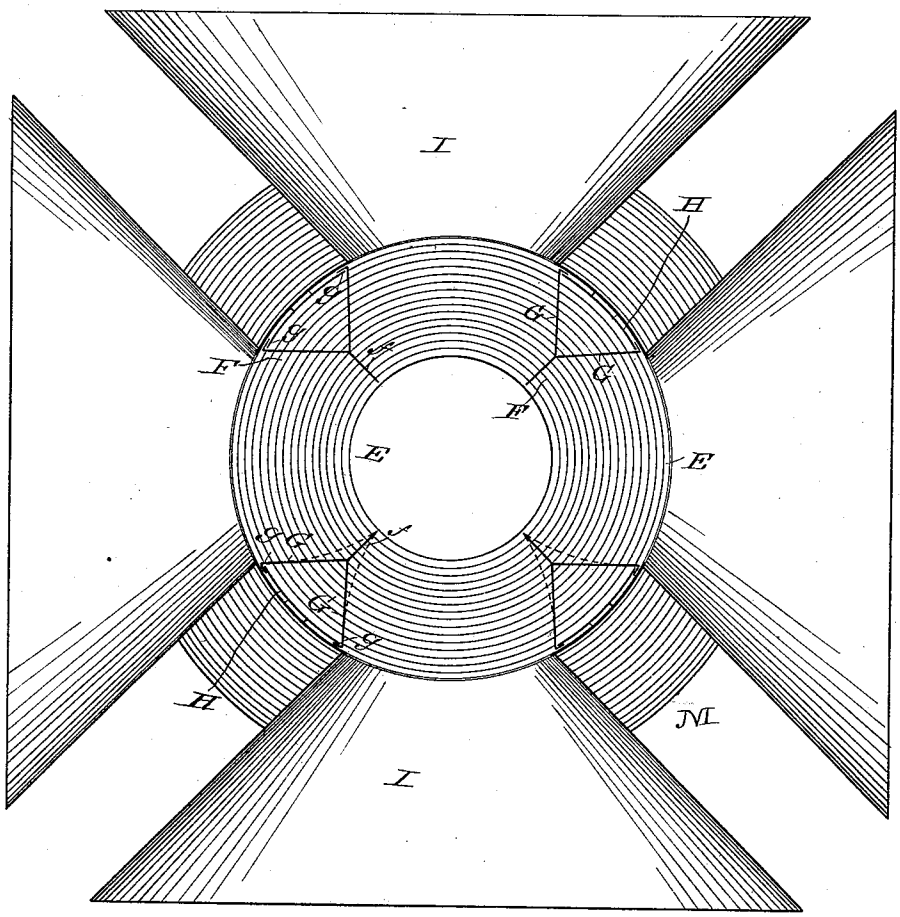
(No Model.) 4 Sheets—Sheet 1.

G. W. & L. A. SCOVIL.

REFLECTOR.

No. 330,742. Patented Nov. 17, 1885.

Fig. 1.



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Fig. 2.

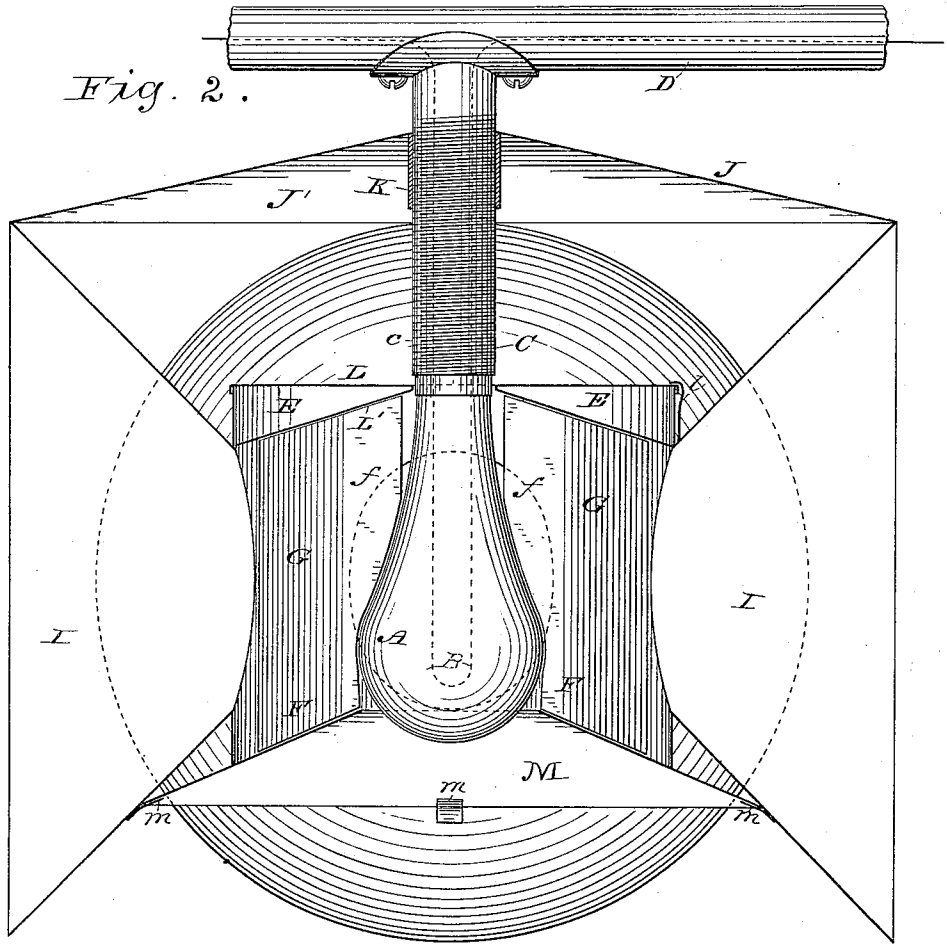
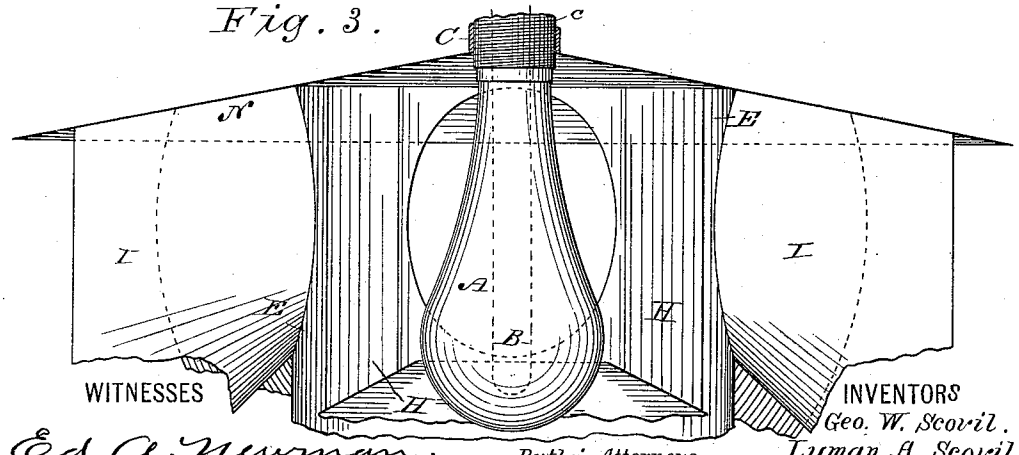


Fig. 3.



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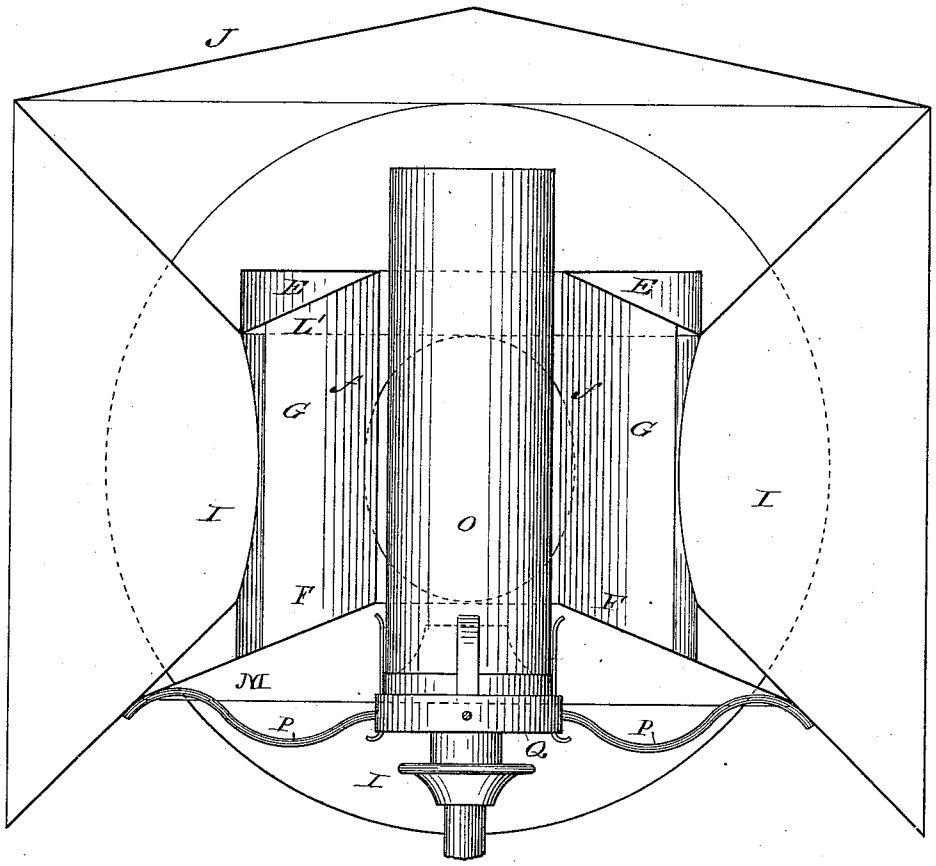
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Fig. 4.



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Fig. 5.

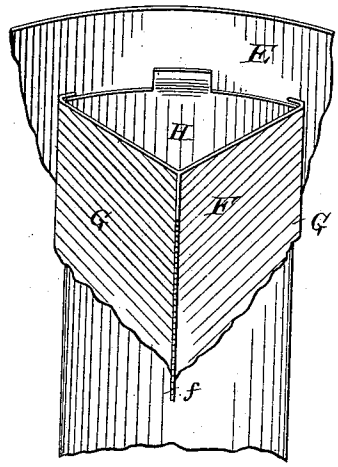
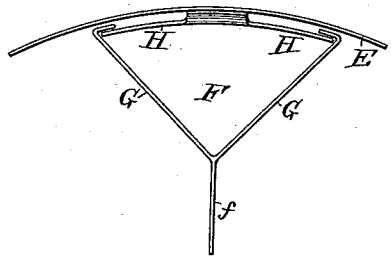


Fig. 6.



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UNITED STATES PATENT OFFICE.

GEORGE W. SCOVIL AND LYMAN A. SCOVIL, OF CIRCLEVILLE, OHIO.

REFLECTOR.

SPECIFICATION forming part of Letters Patent No. 330,742, dated November 17, 1885.

Application filed May 16, 1885. Serial No. 165,744. (No model.)

To all whom it may concern:

Be it known that we, GEORGE W. SCOVIL and LYMAN A. SCOVIL, both of Circleville, in the county of Pickaway and State of Ohio, have invented certain new and useful Improvements in Reflectors, of which the following is a specification.

Our invention relates to improvements in reflectors adapted for use in connection with electric lights and other lights.

Our object is to provide improved reflectors of the class in which there is employed a light-surrounding chamber or cylinder, provided with a number of reflectors.

The subject-matter deemed novel will be designated by the claims, after first describing our improvements by reference to the annexed drawings, which show a suitable adaptation of our invention to an Edison electric light of ordinary and well-known construction, and some modifications of our improvements.

Figure 1 is a view partly in plan and partly in central horizontal section. Fig. 2 is a view partly in elevation and partly in central vertical section. Fig. 3 is a view partly in elevation and partly in vertical central section, with parts detached and portions being broken away, showing a modification. Fig. 4 is a view partly in elevation and partly in central vertical section, showing a modification of our invention adapted for use in connection with a gas-light in which there is employed an Argand burner. Fig. 5 is a perspective view of a section of the light-inclosing clamber—the thickness of the parts being exaggerated—seen from the interior, and showing the method of detachably connecting an internal vertical reflector to the wall of the chamber. Fig. 6 is a top or plan view of the same.

The electric light in this instance shown has the bulb A provided with the carbon-loop B, the holder or suspending-tube C, with an external screw-thread, *c*, and the supporting-bar D, all of which are of suitable well-known construction, not here requiring detailed description.

A hollow cylinder or chamber, E, partially inclosing or surrounding the light, and of a diameter sufficiently in excess of the greatest diameter of the light-bulb to provide for the location of reflectors inside of the cylinder and between it and the light, is constructed of suitable material, and has attached to it both external and internal reflectors, by means of which the rays of light are divided and directed as desired.

The cylinder E has suitable supporting-connection with the light-holder C, and each of the internal reflectors, F, of which, in this instance, there are four, is shown as of angular construction, being formed with four reflecting-surfaces, as follows, viz: A plate, *f*, the opposite sides or surfaces of which constitute reflectors, is arranged radially to the light-center, and joins with two angularly-arranged reflecting-surfaces, G G, diverging from their common point of contact with the surface *f* outward to the inner surface of the cylinder. The reflecting-surfaces *f* G G of an internal reflector, F, are rigidly connected with each other, forming, as it were, a single piece, and have removable supporting-connection with the cylinder by means of vertical flanges or lips *g g*, adapted to slide in and out in guide-ways formed by a plate, H, secured to the inside of the cylinder. The plates constituting the reflecting-surfaces *f* serve to divide as well as reflect the light. The light reflected from the opposite reflecting-surfaces of the internal reflectors, F, is directed outward and around through openings *e* of the cylinder E.

It will be observed that the internal reflectors, F, cover or obscure a large portion of the internal surface of the light-inclosing chamber, the internal reflectors serving to collect, concentrate, and throw out rays of light within the chamber, which rays would otherwise, in considerable measure, fail to pass out of the openings *e*.

External reflectors, I, corresponding in number with the number of internal reflectors, are secured at their inner ends around the openings *e* in the cylinder between the internal reflectors. These external reflectors are shown as of cone-like form, or with their reflecting-surfaces constituting inclined planes, instead of being curved. Their inclination, as well as the inclination of the opposite reflecting-surfaces G G of the internal reflectors, may be varied as desired, and in some instances curved-surfaced reflectors may be employed in lieu of all or some only of the internal and external reflectors, according to the degree of

concentration of the light which may be desired.

As shown in Fig. 2, the supporting-connection of the cylinder E with the holder C is formed by means of a circular hood or protector, J, attached at its edges to contiguous upper edges of the outer ends of the external reflectors. This protector is inclined for an obvious purpose, and it is provided at its center with a threaded sleeve, K, by which it is adjustably connected with the threads *c* of the holder C. In this way it will be seen that the reflector may be readily adjusted in position and detached.

The cylinder E is shown in Fig. 2 as provided with a top, L, having a central opening for the passage of the terminal end of the lamp-bulb. This top serves as a protection to the light, and may either be fixed in place or be detachably supported, as by one or more spring-catches, *l*, of obvious construction. A reflector, L′, is attached to the under side of the top L. When the top is omitted, the under surface, J′, of the hood J is made to serve as a top reflector.

A bottom reflector, M, for directing light both upward and downward, is provided at the bottom of the cylinder, and is shown as secured in position by connection with the outer under surfaces of the external reflectors, I. (See Fig. 2.) This bottom reflector may be either fixed in position, as by soldering or riveting, or may be detachably supported by suitable connection with the reflectors I—such, for instance, as would be provided by spring-engaging lips *m*, as will readily be understood. The top surface of that portion of the bottom reflector which extends inside the cylinder reflects light upward and outward, while the under surface of this reflector directs light downward and outward.

Fig. 3 shows a modification of our improvements whereby the protecting-hood and the cylinder-top are dispensed with, and in lieu of them is employed a top reflector, N, to which are connected and supported the cylinder and its attachments. This top reflector has screw-connection with the holder, as will readily be understood. As shown, when this top reflector is employed, the upper surfaces of the external reflectors, I, terminate at their junction with the inclined under surface of the top reflector, and in this way the rays of light, which would otherwise pass upward, are directed downward and outward, as will be readily understood.

Fig. 4 is a view of a modification showing a suitable adaptation of our invention to a gas-light in which there is employed an Argand burner. In the construction of the reflector there is no material variation, the only alteration of the parts to which attention need be directed being that the plates *f*, instead of being curved at their inner edges, as before, to adapt them to fit closely to the surface of the electric-light bulb, are now made straight at such edges, the chimney O being of cylindrical form in this instance. The reflector is supported by a removable bracket, consisting of arms P and collar or ring Q of well-known form. The outer ends of the bracket-arms are secured to the under surfaces of the external reflectors, I, in suitable way, as by riveting or soldering. The chimney O may be provided with the usual lantern appliances, whereby the light is protected against drafts and the escaping products of combustion prevented from impinging against the top reflector.

It should be noticed that the top and bottom reflectors are so located relatively to the external reflectors, I, that portions of the outer surfaces of these external reflectors direct rays of light.

Should it be desired to substitute for the light-bulb a larger bulb, the terminal end of this bulb, when the reflector is constructed as represented in Fig. 2, would extend above the cylinder-top, as will be obvious.

As will readily be understood, our improvements may be modified in various ways to adapt the reflector for use in connection with bulbs or chimneys of different forms in cross-section, and of varying diameters at different portions of their length.

If preferred, the chimney may pass through a central opening in the top reflector and have a cap constituting a portion of an ordinary lantern appliance secured above it.

Although we have designated the light-inclosing chamber E a "cylinder," it is obvious that this chamber may be of other than hollow cylindrical form. For instance, it may be of globular or tapering form, or, if preferred, of polygonal form in cross-section; and we do not wish to be understood as limiting ourselves strictly to the employment of a cylinder to constitute the light-inclosing chamber.

From the above description it will seen that the internal reflectors may be removed and others of different dimensions substituted for them, according to the size of the light and the bulb or chimney in connection with which our invention is to be employed. Further, it will be understood that by variations in the inclinations of the external reflectors, I, the rays of light directed by them may be caused to cross each other at any desired distance from the reflector, or that light may be so directed by these reflectors as not to cross each other, thus depending for light at points to which the rays directed by the external reflectors would not reach upon rays of light directed by the internal reflectors and by the top and bottom reflectors.

A modification of our invention whereby curved-surfaced internal reflectors may be substituted for those shown by full lines is indicated by dotted lines in Fig. 1, these internal reflectors being so arranged, as before,

that light is directed outward entirely around the light-inclosing chamber by way of the openings *e* in the walls of this chamber.

We claim as of our own invention—

1. The combination of the light-surrounding chamber having openings in its walls, the internal reflectors, F, between the openings in the walls of the light-surrounding chamber, and constructed, as described, with the opposite reflecting-surfaces, and the external reflectors, I, secured at their inner ends around the openings in the walls of the light-surrounding chamber, substantially as and for the purpose set forth.

2. The combination of the light-surrounding chamber having openings in its walls, the internal reflectors, F, having supporting connection with the light-surrounding chamber between said openings, and provided with the opposite reflecting-surfaces, the external reflectors, I, secured at their inner ends around said openings and the bottom reflector, M, substantially as and for the purpose set forth.

3. The combination of the light-surrounding chamber having openings in its walls, the internal reflectors, F, having supporting connection with the light-surrounding chamber between said openings, and provided with the opposite reflecting-surfaces, the external reflectors, I, secured at their inner ends around said openings and a top reflector, substantially as and for the purpose set forth.

4. The combination of the light-surrounding chamber having openings in its walls, the internal reflectors, F, having supporting connection with the light-surrounding chamber between said openings, and provided with the opposite reflecting-surfaces, the external reflectors, I, secured at their inner ends around said openings, the bottom reflector, M, and a top reflector, substantially as and for the purpose set forth.

5. The combination of the light-surrounding chamber, the internal reflectors, and the guideways by which they are removably secured to the chamber, substantially as set forth.

In testimony whereof we have hereunto subscribed our names.

GEORGE W. SCOVIL.
LYMAN A. SCOVIL.

Witnesses:
JOHN A. LUTZ,
P. G. BOSTWICK.