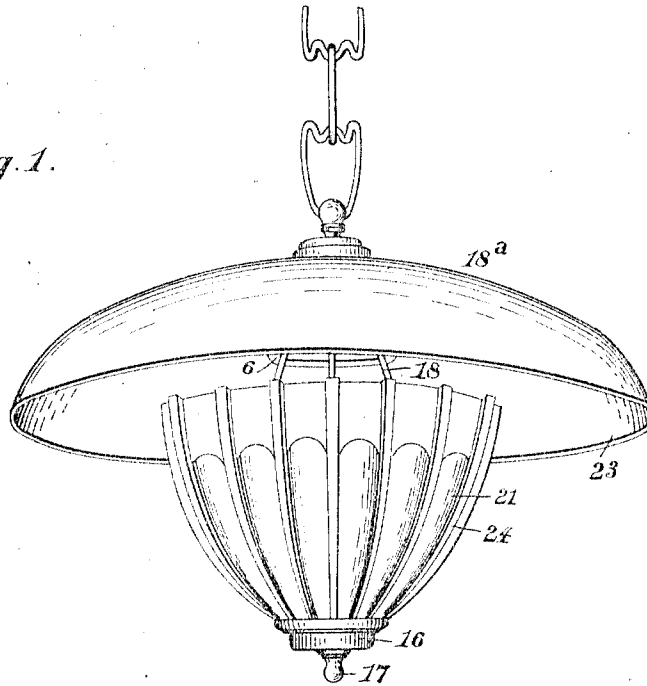


H. PICKHARDT.  
 COMBINED REFLECTOR AND REFRACTOR FOR LAMPS.  
 APPLICATION FILED JULY 10, 1913.

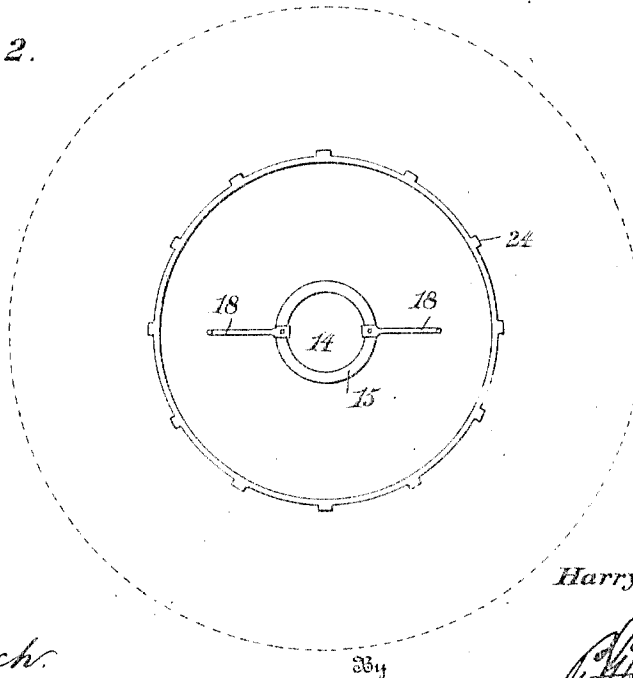
1,088,838.

Patented Mar. 3, 1914.  
 2 SHEETS—SHEET 1.

*Fig. 1.*



*Fig. 2.*



Witnesses  
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*[Signature]*

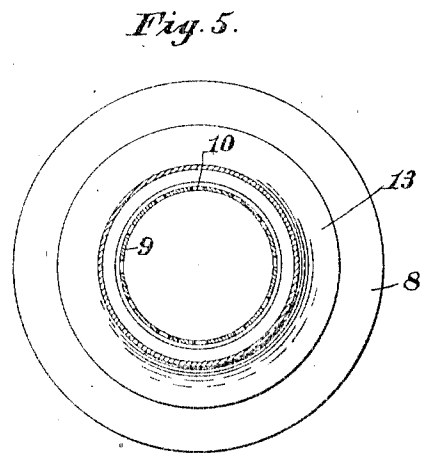
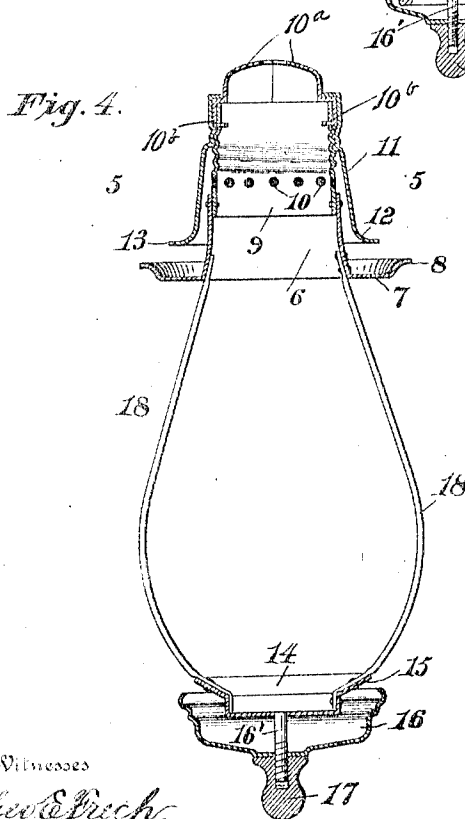
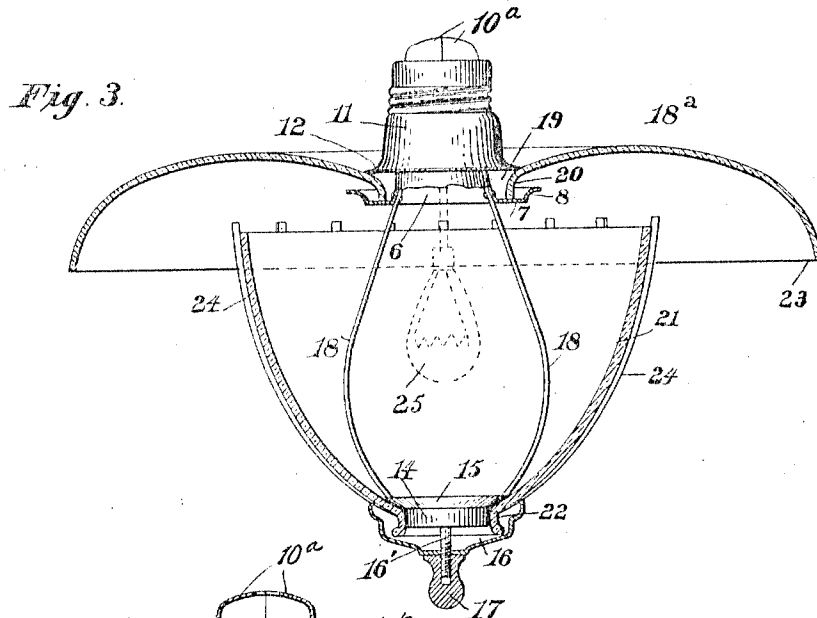
Attorney

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Witnesses

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# UNITED STATES PATENT OFFICE.

HARRY PICKHARDT, OF NEW YORK, N. Y., ASSIGNOR TO PHOENIX GLASS CO., OF PITTSBURGH, PENNSYLVANIA, A CORPORATION OF WEST VIRGINIA.

## COMBINED REFLECTOR AND REFRACTOR FOR LAMPS.

1,088,888.

Specification of Letters Patent.

Patented Mar. 3, 1914.

Application filed July 10, 1913. Serial No. 778,283.

*To all whom it may concern:*

Be it known that I, HARRY PICKHARDT, a citizen of the United States, residing at New York, in the county of New York and State of New York, have invented new and useful Improvements in Combined Reflectors and Refractors for Lamps, of which the following is a specification.

The present invention relates more particularly to combination refractors and reflectors for lamps, and while particularly intended for electric lighting, is not necessarily limited thereto.

One of the primary objects of the invention is to provide means that will hold the refractor and reflector elements securely and positively in correct relation to the lamp and to each other, in order to give the maximum amount of light downward and in the most useful direction below the light source.

A further and important object is to so arrange the parts that the heavier member is supported from the upper side of the holder, so that it cannot work loose and fall, while both elements are easily installed or taken down.

Another and important object is to provide means that is exceedingly simple in its character, thereby reducing the cost without decreasing the utility.

In the accompanying drawings, the preferred embodiment of the invention is illustrated, Figure 1 being a perspective view of the device complete. Fig. 2 is a plan view of the lower reflector and refractor, with a portion of its support. Fig. 3 is a vertical sectional view. Fig. 4 is a similar view with the reflectors and refractors detached, and Fig. 5 is a sectional view on the line 5-5 of Fig. 4.

Similar reference numerals designate corresponding parts in all the figures of the drawings.

In the embodiment illustrated, an upper shade-clamping member is employed, preferably in the form of a tubular body 6, having a flange 7, the marginal portion of which is flared as at 8. This body carries a screw-threaded extension 9, having suitable vent openings 10 therein. It is provided with a cap or hood portion comprising leaves 10<sup>a</sup> hinged to the extension, as shown at 10<sup>b</sup>. Said hood can thus be opened to permit the introduction of a standard socket and will

close over the same. Another shade-clamping member 11 is threaded upon the extension 9, being provided with a flared neck 12, terminating in an outstanding flange 13 that is arranged to bear upon the upper shade, as hereinafter explained. The upper end of this member 11 is intumed to bear upon the leaves 10<sup>a</sup> and thus hold the same closed. A lower oppositely disposed shade-clamping member 14 is also employed having a flared marginal flange portion 15, and the member 14 is provided with a central depending stem 16, that is threaded. On this stem is detachably mounted a coating shade-clamping element 16 of sheet metal that is held in place by a thumb nut 17 detachably threaded on the lower end of the stem. The upper and lower shade-clamping means thus produced, are permanently connected by outwardly bowed rods 18, the ends of which are respectively riveted to the inner side of the body 6 and the inner side of the member 14. It will of course be understood that any number of the rods may be employed as desired, though two have been found sufficient.

An upper overhanging and outstanding shade 18<sup>a</sup> is employed that is upwardly convex, being provided with a central opening 19, through which the extension 9 of the upper clamping member is passed. The margin of the shade 18 around the opening 19 is downturned, as illustrated at 20, and the inner edge of the shade rests upon the flat flange 7 of the upper member 6. The upper clamping member 11 is threaded down upon the extension 9, and its lower edge bears upon the upper surface of the shade 18<sup>a</sup>, directly adjacent to the downturned portion 20. A lower shade and refractor 21 is also employed, that is substantially concavo-convex. This shade has a lower contracted neck portion 22, surrounding a central opening that receives the lower clamping member 14. The coating member 16 is arranged below the shade, and its upper edge bears against the same, being held in place, as already explained, by the nut 17. The shade and refractor 21 has its larger end of less diameter than the diameter of the shade 18<sup>a</sup>, and said end extends above the outer edge 23 of said shade 18<sup>a</sup>, but is located between the inner and outer edges of the latter. As a matter of fact, the upper

edge of said shade 21 is preferably located substantially beneath the highest point of the shade 18. Said shade 21 may be provided with longitudinal ribs 24.

5 The upper and lower reflectors and refractors are designed in shape to reflect the light scientifically. Preferably they are made of glass that is dense in its nature and the under face of the upper reflector is preferably roughened, though all the surfaces  
10 may be polished. Translucent glass is preferably employed. As a result, the members 18 and 21 reflect a large part of the light that falls on them, but transmit a small  
15 portion, and that part, which is transmitted through the glass, is extremely mild and harmless to the eyes. Both of these members are specially designed in shape to reflect the light in the most advantageous  
20 manner. It will of course be understood that any lamp, as indicated in dotted lines at 25, in Fig. 3, may be employed, and the light emitted by such lamp may be considered as follows. First, that which goes  
25 through both the upper and lower members. As above stated, this will be mild, and is well diffused by passing through. Second, that which falls on the lower reflector, and it is redirected toward the upper. The  
30 direction of reflection is at such an angle that it will be again reflected downward and outward. Third, that which strikes the upper reflector either from the lamp direct or from the lower reflector and is reflected out-  
35 ward and downward so as to be most effective and yet is sufficiently diffused so that it will not be harmful to the eyes.

From a structural standpoint, it will be obvious that the device is comparatively  
40 simple, so that it can be easily and cheaply manufactured. The upper reflector and refractor is so mounted that it cannot fall from its retaining means, even though the latter should become loosened, yet it may be  
45 easily removed if desired. In like manner, the lower member 21 can be easily detached and replaced.

From the foregoing, it is thought that the construction, operation and many advantages of the herein described invention  
50 will be apparent to those skilled in the art, without further description, and it will be understood that various changes in the size, shape, proportion and minor details of construction may be resorted to without departing  
55 from the spirit or sacrificing any of the advantages of the invention.

Having thus fully described my invention, what I claim as new, and desire to secure by  
60 Letters Patent, is:—

1. In apparatus of the character set forth, the combination with an upper and a lower shade-clamping member, said members being  
65 oppositely disposed, of means connecting the said members for holding them in spaced

relation, a removable shade-clamping member detachably mounted over the upper clamping member and coacting therewith, and a removable clamping member located below the lower clamping member and co-  
70 acting therewith.

2. In apparatus of the character set forth, the combination with an upper shade-clamping member and a lower oppositely disposed shade-clamping member, of spaced devices  
75 connecting the members for holding them in spaced relation, a removable shade-clamping member having a detachable threaded connection with the upper portion of the upper clamping member, and another re-  
80 movable clamping member having a detachable threaded engagement with the lower portion of the lower member and coacting with said member.

3. In apparatus of the character set forth, the combination with an upper flared shade-clamping plate and a lower flared shade-clamping plate, of spaced rods connecting  
85 the plates, a removable shade-clamping plate detachably mounted on the upper portion of the upper plate, and a removable shade-clamping plate detachably mounted on the  
90 lower portion of the lower plate.

4. In apparatus of the character set forth, the combination with an upper shade-clamp-  
95 ing plate having an upstanding tubular extension and a coacting removable shade-clamping plate threaded on said extension, of a lower shade-clamping plate having a depending stem, a coacting plate detachably  
100 mounted on the stem, and spaced rods secured to the said upper and lower plates and maintaining the same in predetermined relation.

5. In apparatus of the character set forth, the combination with upper and lower oppo-  
105 sitely disposed shade-clamping members, the upper member having an upstanding extension and cap leaves hinged thereto, of spaced connections between the upper and lower  
110 members, a removable shade-clamping member detachably mounted on the extension and engaging the leaves to hold the same closed, and another shade-clamping member detachably mounted on the lower portion of  
115 the lower shade.

6. In apparatus of the character set forth, the combination with upper shade-holding means, of lower shade-holding means, a sup-  
120 porting connection for the lower shade-holding means connected thereto and supported from the upper shade-holding means, and separate means carried by the upper shade-holding means for detachably sus-  
125 pending the apparatus.

7. In apparatus of the character described, the combination with upper shade-holding means, of lower-shade-holding means, a sup-  
130 porting connection between the two means, means carried by the upper holding means

for detachably suspending the apparatus, an upwardly extending light surrounding shade carried by the lower means, and an overhanging upper shade carried by the upper means, said upper shade extending beyond the lower shade and being spaced from the same.

In testimony whereof I have hereunto set my hand in presence of two subscribing witnesses.

HARRY PICKHARDT.

Witnesses:

E. H. PECK,  
F. H. BAKER.