

Dec. 18, 1923.

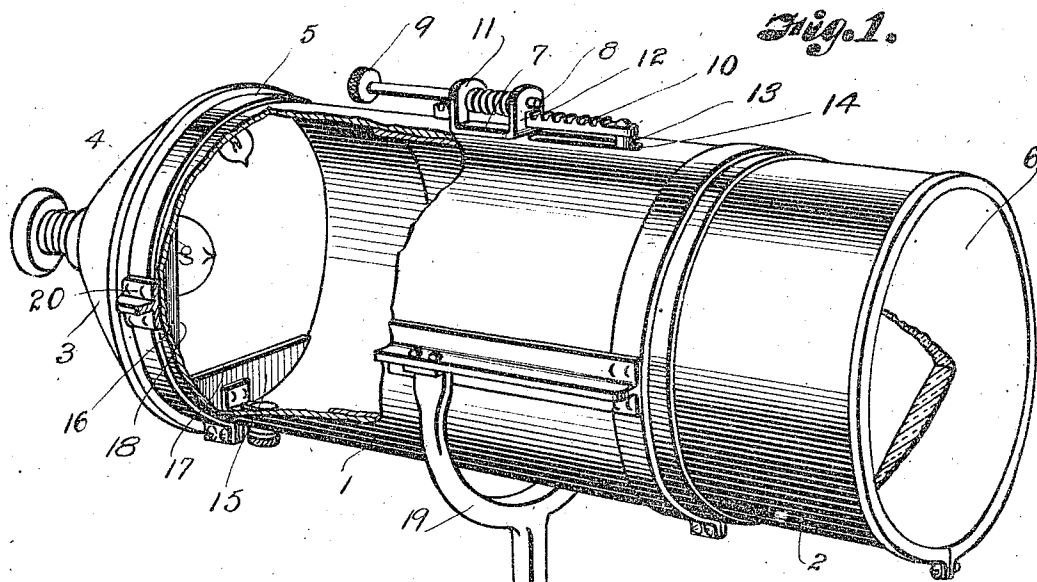
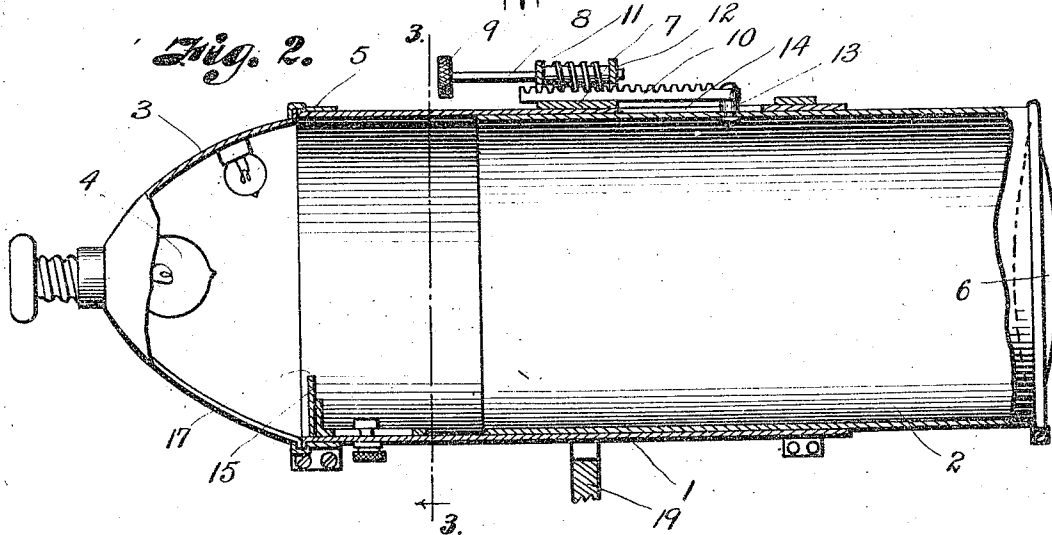
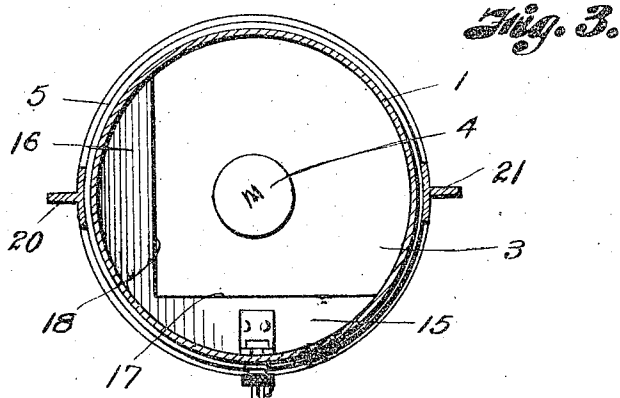
W. A. LUBY

1,478,236

LAMP

Filed July 14, 1922

2 Sheets-Sheet 1



INVENTOR
William A. Luby.
BY *Wm. B. Brown*
ATTORNEY

Dec. 18, 1923.

1,478,236

W. A. LUBY

LAMP

Filed July 14, 1922

2 Sheets-Sheet 2

Fig. 4.

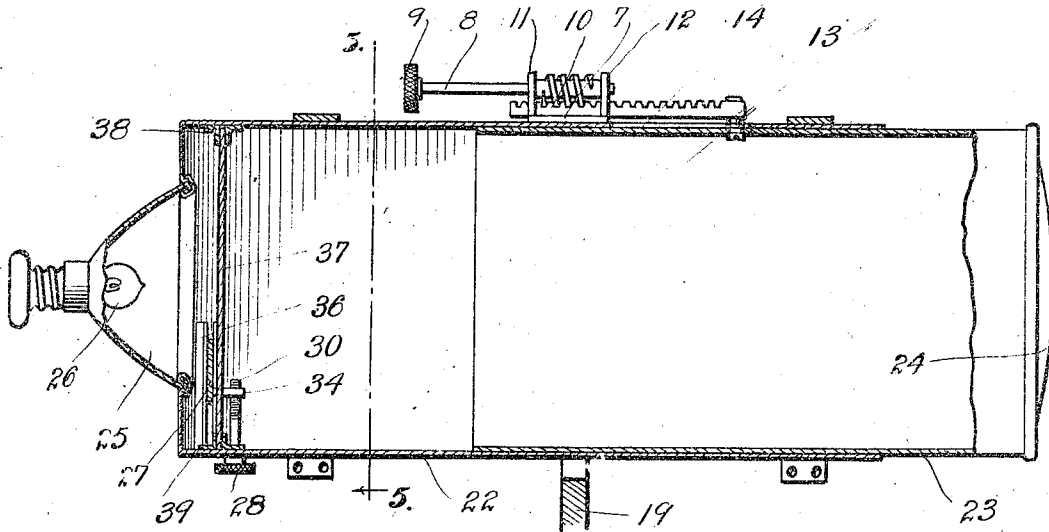


Fig. 5.

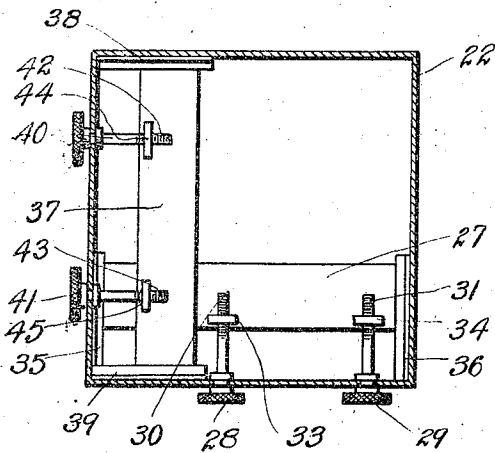
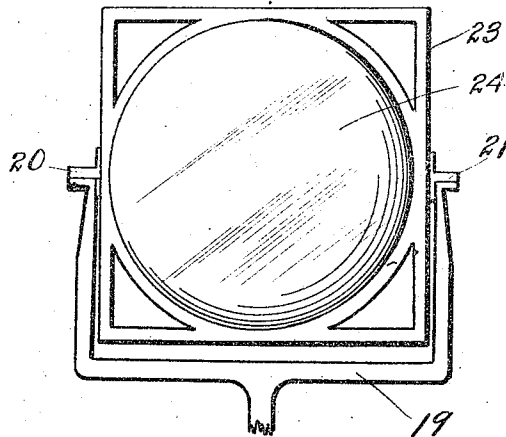


Fig. 6.



INVENTOR
William A. Luby.
BY *Arthur B. Conn*
ATTORNEY

UNITED STATES PATENT OFFICE.

WILLIAM A. LUBY, OF KANSAS CITY, MISSOURI.

LAMP.

Application filed July 14, 1922. Serial No. 575,076.

To all whom it may concern:

Be it known that I, WILLIAM A. LUBY, a citizen of the United States, residing at Kansas City, in the county of Jackson and State of Missouri, have invented certain new and useful Improvements in Lamps; and I do declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, and to the figures of reference marked thereon, which form a part of this specification.

This invention relates to lamps and particularly to headlights used on motor vehicles, the invention being also applicable as a spot light.

The primary object of the invention is to provide a lamp in which the beam of light can be screened off so that the light rays will not be projected into the eyes of the occupants of a vehicle coming toward the vehicle on which the lamp or lamps are in use.

The primary object of my invention is to utilize the full value of the light source so that the light beam thrown upon the ground will be intense but whereby the upper portion of the beam will be screened off by a diaphragm so that the light rays will be confined below the line of vision of the driver of an approaching vehicle.

In carrying out my invention I employ a tubular lamp casing, at one end of which is a reflector. Within the casing is a lens and between the reflector and the lens is a diaphragm to cut out the rays of light at the top of the lens or at the side as desired.

The peculiarly novel construction of my invention as well as the advantages accruing therefrom will be specifically described hereinafter, reference being had to the accompanying drawings, in which

Fig. 1 is a perspective view of my invention, parts being broken away to better illustrate other parts.

Fig. 2 is a vertical, longitudinal, sectional view through the lamp, the ends of the reflector and the lens holder being shown in elevation.

Fig. 3 is a cross sectional view on the line 3—3 of Fig. 2.

Fig. 4 is a longitudinal, sectional view

through a slightly modified form of lamp, the lamp casing at the lens end being shown in elevation.

Fig. 5 is a cross sectional view on the line 5—5 of Fig. 4, and

Fig. 6 is a front end view of the modified form of lamp shown in Fig. 4.

The lamp casing is shown as consisting of two telescoping tubular members 1 and 2. At the end of the member 1 is a parabolic reflector 3, in which is a light source illustrated as an incandescent electric lamp 4. The parabolic reflector can be secured to the end of the tube 1, by any suitable means, as for example, by a band 5. At the opposite end of the casing and carried by the tubular member 1 is a spherical lens 6. The members 1 and 2 may be telescoped to make the necessary focal adjustment.

I have shown a simple form of effecting the adjustment and by reference to Figs. 1 and 2 it will be observed that the member 1 carries a bracket 7, in which is a worm shaft 8 controlled by the knurled button 9. The worm engages the teeth of a rack 10, which projects through the arms 11 and 12 of the bracket 7, the rack having engagement with the tubular member 2 at one end, as indicated at 13. Therefore, when the button 9 is turned, the worm shaft 8 will be turned so that the worm will move the rack bar 10 back and forth and impart a similar movement to the member 2 to bring the lens to the proper position. The connection 13 extends through an elongated slot 14 in the member 1 so that there will be sufficient play to effect the adjustment, as will be well understood by reference to Figs. 1 and 2.

The parabolic reflector 3 would ordinarily reflect the rays of light from the light source 4 through the lens 6 in the form of a beam a considerable distance from the lamp. The intensity of all such light, however, is disconcerting to the occupants of a vehicle traveling toward the lamp. In order to eliminate this objection I provide a diaphragm between the lens and the reflector. This diaphragm in connection with the lens so modifies the emerging beam that its upper surface is perfectly flat. This makes it possible to so direct the resulting beam that its flat upper surface is horizontal or di-

rected slightly below the horizontal as desired.

In Figs. 1, 2 and 3 I have shown the diaphragm as consisting of two segments 15 and 16, the segment 15 being at the bottom of the casing and having a straight edge 17. The segment 16 is to one side of the casing and it is provided with a straight edge 18. When the filament of the lamp 4 is energized, the light rays passing through the lens are inverted. Hence the upper and right hand boundaries of the beams of light as viewed from the seat of the car on which the lamp is placed will be flat surfaces at right angles to each other; consequently, the beam may be so directed that liability of the driver of the oncoming vehicle being blinded by the light beam will be eliminated.

I may find it convenient to dispense with the segment 16 and construct only the diaphragm 15. The width of either the diaphragm 15 or 16 can be varied so as to give the maximum illumination of the roadway and still not shine in the eyes of an approaching driver.

The lamp may be supported by any suitable means as, for example, by a yoke 19, the ends of which may be connected to the bars 20 and 21 rigid with the member 1. The manner of mounting the lamp, however, may vary according to the desires of the manufacturer without affecting the essential features of the invention.

In Figs. 4, 5, and 6 I have shown a slightly modified form of lamp in which the same generic features are followed out.

In the modified form the tubular members 22 and 23 may be adjustably co-related in substantially the same manner as are the tubes 1 and 2 in the preferred form. The tubes 22 and 23, however, are shown as substantially rectangular in cross section and the tube 23 is provided with a lens 24 conforming to the lens 6 of the tube 2. A reflector 25 corresponding to the reflector 3 is also provided with a light source 26. In the modified form shown in Figs. 4, 5, and 6, the lower diaphragm member 27 is adjustably secured to the member 22 by adjusting screws 28 and 29 which are mounted in the bottom of the tube 22 and which have threaded ends 30 and 31 which engage threaded lugs 33 and 34 in the member 27. The member 27 may be guided in guides 35 and 36.

A vertical diaphragm member 37 may be similarly guided in guides 38 and 39 and adjusted laterally by the adjusting screws 40 and 41, which have threaded ends 42 and 43 to engage the threaded lugs 44 and 45 on the member 37. Therefore, the effective portion of the light beam can be varied by adjusting the members 27 and 37, as will be well understood by reference to Fig. 5.

The rear faces of the diaphragms may be

silvered or polished to provide reflecting surfaces so that the rays of light projected against them can be reflected back into the parabolic reflector. Hence the rays originally projected against the reflector will not be entirely lost as might be the case where the rear face of the reflector had a dull finish or a light-absorbing surface.

I reserve the right to make such other changes in the form, proportion and minor details of construction as properly come within the scope of the appended claims, the essential feature of the invention being the arrangement of the lamp parts whereby there is a diaphragm interposed between the reflector and the lens so that a segment or segments of the beam can be rendered ineffective for illuminating purposes and in this connection attention is called to the fact that the diaphragms are eccentric to the axis of the lens and the axis of the reflector. In this respect it materially differs from those lamps in which so-called iris diaphragms are arranged with the parts manipulated so that the light beam at all times is concentric with the axis of the lens and the axis of the reflector and whereby the diaphragm is controlled to constrict and expand the light beam.

In actual practice the interior of the tube should be blackened by some suitable means to prevent the tube surface from acting as a reflector.

What I claim and desire to secure by Letters-Patent is:

1. A light projector comprising an elongated tubular casing, a parabolic reflector at the rear end of the casing, a light source in the focus of the reflector, a condensing lens at the front end of the casing of a diameter substantially equal to the diameter of the mouth of the reflector, the length of the casing being such that the focus of the lens is within the rear of the casing just outside the mouth of the reflector, and an opaque segmental diaphragm located in the lower part of the casing below the axis of the reflector and in the focal plane of the lens, the rear side of the diaphragm having a reflective surface so that the major portion of the light reflected back to the reflector will, on reflection therefrom, pass above the diaphragm through the lens, the inner surface of the casing being light absorbing.

2. A light projector comprising an elongated tubular casing, a parabolic reflector at the rear end of the casing, a light source in the focus of the reflector, a condensing lens at the front end of the casing of a diameter substantially equal to the diameter of the mouth of the reflector, the length of the casing being such that the focus of the lens is within the rear of the casing just outside the mouth of the reflector, and an opaque diaphragm, consisting of two segments hav-

ing their straight edges at right angles to each other, adjustably positioned within the casing near the mouth of the reflector and in the focal plane of the lens so as to cover the lower and side portions of the mouth of the reflector, the rear side of the diaphragm having a reflective surface so that the major portion of the light reflected back to the reflector will, on reflection therefrom, pass the diaphragm and go through the lens, the inner surface of the casing being light absorbing. 10

In testimony whereof I affix my signature.

WILLIAM A. LUBY.