

E. M. ROSENBLUTH.
LAMP.

APPLICATION FILED JAN. 24, 1907.

965,749.

Patented July 26, 1910.

FIG. I.

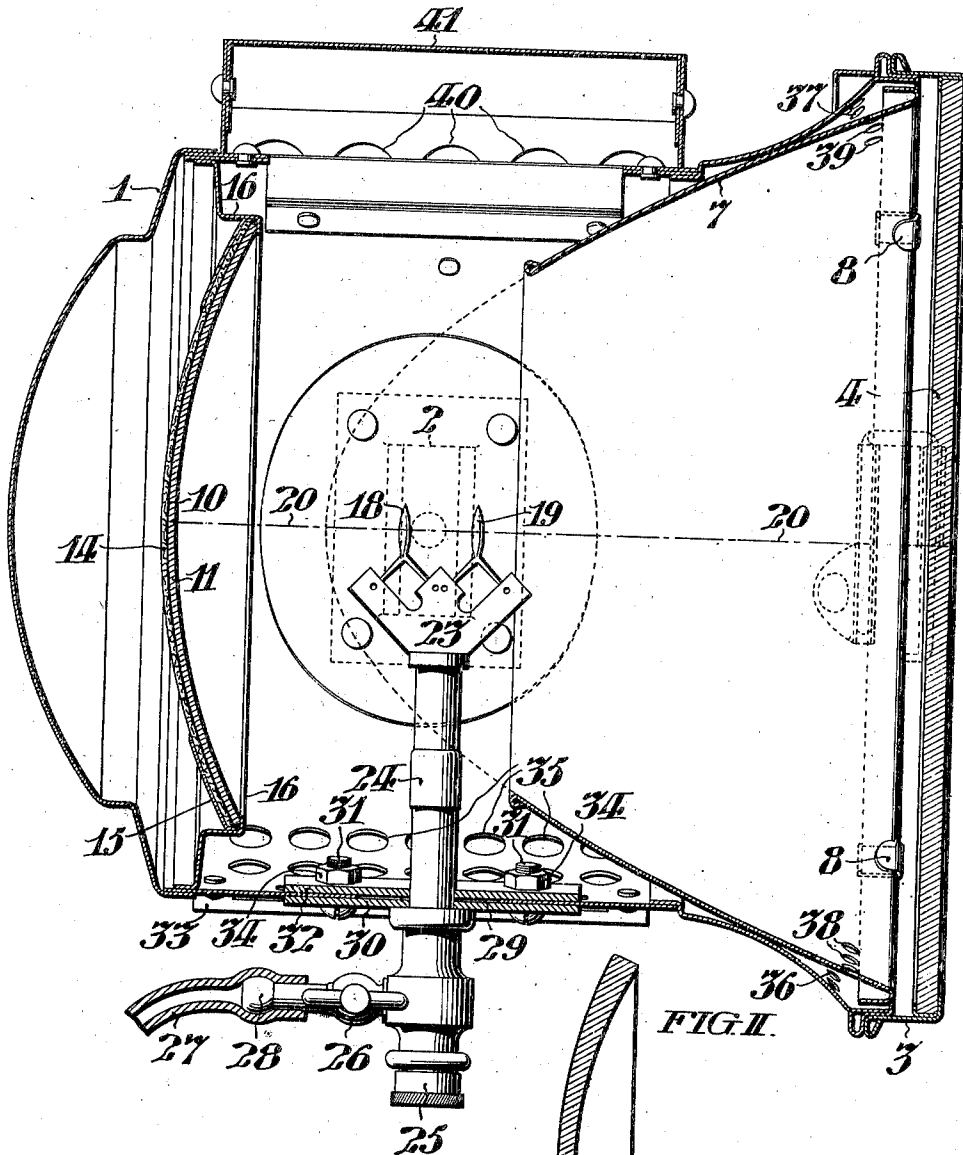
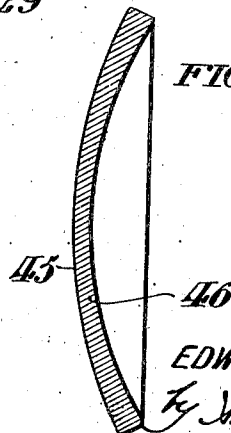


FIG. II.



WITNESSES:

Clifton C. Halliwell
Thomas H. Kerr

INVENTOR:

EDWIN M. ROSENBLUTH,
By Nathan E. Paige
Atty.

UNITED STATES PATENT OFFICE.

EDWIN M. ROSENBLUTH, OF PHILADELPHIA, PENNSYLVANIA.

LAMP.

965,749.

Specification of Letters Patent.

Patented July 26, 1910.

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To all whom it may concern:

Be it known that I, EDWIN M. ROSENBLUTH, of Philadelphia, in the State of Pennsylvania, have invented a certain new and useful Improvement in Lamps, whereof the following is a specification, reference being had to the accompanying drawings.

My invention relates to that class of lamps known as search lights, whereby the major portion of the light generated in the lamp casing is condensed and projected therefrom substantially parallel with the focal axis of the lamp casing.

It is an object of my invention to provide a single lamp structure which may be advantageously employed as a head light for an automobile, motor boat or other vehicle, being provided with means to produce and project a central beam of light substantially parallel with the focal axis of the lamp casing, to illuminate objects at a distance, and to produce and project a broad field of diffused light local to the region immediately in front of the lamp casing.

My invention comprises a lamp casing containing two reflectors and means arranged to produce two separate flames, one of said flames being local to the focal center of one of said reflectors, and the other of said flames being local to the focal center of the other of said reflectors.

In the form of my invention hereinafter described, said two reflectors are located respectively at the front and rear of said casing, and have a common focal axis, the front reflector being parabolic and the rear reflector spherical, and, the two flames are produced by a single burner extending between said two reflectors, the front flame being local to the focal center of the rear reflector and the rear flame being local to the focal center of the front reflector. The front flame being in front of the focal center of the front reflector, the cone of light radiating therefrom, at the front thereof, through the front aperture of said front reflector, is not condensed, but is diffused so as to form a field local to the front of the lamp casing independently of the central beam of light condensed parallel with the focal axis common to the two reflectors.

My invention comprises the various novel features of construction and arrangement hereinafter more definitely specified.

In the drawings; Figure I, is a longitudinal, vertical, sectional view of a lamp

embodying my improvements. Fig. II, is a vertical sectional view of a modified form of reflector having a different index of refraction at its center than at its circumference.

Referring to Fig. I; the lamp casing 1, which is cylindrical, is provided upon opposite sides with brackets 2, whereby it may be supported in connection with the vehicle, and is normally closed at the front by the door 3, comprising the plane glass panel 4. Said casing 1, is provided at its front with the parabolic reflector 7, conveniently formed of sheet aluminum, secured in rigid relation with said casing by the clips 8, soldered to said casing and bent over the edge of said reflector. Said casing 1, is provided at its rear with the reflector 10, which as indicated in Fig. I, conveniently consists of a metallic film upon the back of a concave spherical segment of glass 11, of uniform thickness. Said reflector 10, is conveniently backed with a disk 14, of asbestos paper which with the reflector is conveniently supported between the two metal rings 15 and 16; the former being soldered to the latter and the latter being soldered or otherwise secured in rigid relation with the casing 1. Between said two reflectors the casing is provided with means to produce two flames 18, and 19, local to the common focal axis 20, of said reflectors. As indicated, the means for producing said two flames conveniently consists of the single burner 23, rigidly mounted upon the top of the burner tube 24, which is conveniently provided at its lower end with the removable cap 25, and has the valve 26, controlling the supply of gas through the tube 27 and nipple 28 to said burner 23. Said burner tube 24, extends through the slot 29, in the bottom of the casing 1, and is rigidly secured in the plate 30, fitted to the outside of the casing 1. Said plate 30, is provided with bolts 31, which extend through corresponding slots in said casing 1, in connection with the plate 32, which is fitted to the inside of said casing 1, the arrangement being such that when the nuts 34, are loosened on said bolts 31, the burner may be adjusted in the casing with respect to the reflectors and be rigidly secured in adjusted position by tightening said nuts. Said flames 18, and 19, are supplied with air through the air inlet apertures 35, in the bottom of said casing 1, which are inclosed, exterior to the casing, by the later-

ally open shield 33. Said casing is also provided at the front thereof with air inlets 36, and outlets 37, respectively local to inlets 38, and outlets 39, in the reflector 7. The products of combustion from the flames 18, and 19, escape through the openings 40, in the chimney cap 41. It is to be noted that both of said flames 18, and 19, are local to the common focal axis 20, of the two reflectors 7, and 10, and, that the rear flame 18, is local to the focal center of the front parabolic reflector 7, and the front flame 19, is local to the focal center of the rear spherical reflector 10.

Although I find it convenient to employ a spherical reflector mounted on a refractory medium of uniform thickness, as described, and having a uniform index of refraction throughout its area; such a reflector will not reflect, parallel with the focal axis 20, all of the light received from the flame 19. However, I may employ a more costly reflector, capable of refracting all of the reflected rays to substantially parallel relation, such a reflector being shown in Fig. II, and comprising the metallic film 45, mounted upon the glass refracting medium 46, which has a different index of refraction at its center than at its circumference, the concave face toward the burner having a curvature different from the reflecting surface, so that said medium is thinner at its center than at its circumference.

It may be noted that Fig. II, is drawn on a smaller scale than Fig. I; it being intended that a reflector constructed as shown in Fig. II, but of the same diameter as the reflector 10, shall be substituted for the latter in the modified form of the invention.

I do not desire to limit myself to the precise details of construction and arrangement herein set forth, as it is obvious that various modifications may be made therein without departing from the essential features of my invention, as defined in the following claims.

I claim:—

1. The combination with a lamp casing having a concave spherical reflector at the rear thereof; of means arranged to produce a flame at the focal center of said reflector; means arranged to produce a second flame on the central axis of said reflector, but nearer to said reflector than its focal center; whereby the rays from said first flame are projected parallel with said axis, and the rays from said second flame are projected divergently with respect to said axis; and, a parabolic reflector in front of said flames, having its focal center coincident with said second flame; whereby the rays from said second flame are projected parallel with said axis, and the rays from said first flame are projected divergently with respect to said axis.

2. The combination with a lamp casing

having a condensing reflector at the rear thereof; of means arranged to produce a flame at the focal center of said reflector; means arranged to produce a second flame on the central axis of said reflector, but nearer to said reflector than its focal center; whereby the rays from said first flame are projected parallel with said axis, and the rays from said second flame are projected divergently with respect to said axis; and, a condensing reflector in front of said flames, having its focal axis coincident with said second flame; whereby the rays from said second flame are projected parallel with said axis, and the rays from said first flame are projected divergently with respect to said axis.

3. The combination with a lamp casing, of condensing reflectors respectively at the front and rear thereof, the focal center of the rear reflector being in front of the focal center of the front reflector; and, means arranged to produce two separate flames respectively at the focal centers of said reflectors.

4. The combination with a lamp casing, of condensing reflectors respectively at the front and rear thereof, the focal center of the rear reflector being in front of the focal center of the front reflector; and, means arranged to produce two separate flames respectively at the focal centers of said reflectors, comprising a single burner.

5. The combination with a lamp casing having a condensing reflector at the rear thereof; of means arranged to produce a flame at the focal center of said reflector; means arranged to produce a second flame at the central axis of said reflector, but in the rear of its focal center, whereby the rays from the front flame are projected parallel with said axis, and the rays from said rear flame are projected divergently with respect to said axis.

6. The combination with a lamp casing having a condensing reflector at the front thereof; of means arranged to produce a flame at the focal center of said reflector; means arranged to produce a second flame at the central axis of said reflector, but in front of its focal center, whereby the rays from said first flame are projected parallel with said axis and the rays from said second flame are projected divergently with respect to said axis.

7. The combination with a lamp casing, of a concave spherical reflector at the rear thereof, and a concave parabolic reflector at the front thereof, having a common focal axis, and, so disposed that the focal center of the rear reflector is in front of the focal center of the front reflector; and, means arranged to produce two flames respectively at said focal centers, whereby the rays from said flames are respectively projected parallel with said

axis by one reflector, and projected divergently with respect to said axis by the other reflector.

8. The combination with a lamp casing, of
5 two reflectors secured in spaced relation in said casing; having a common central axis; and, two sources of light arranged in spaced relation on said central axis, the front source being at the focus of the rear reflector and
10 the rear source being at the focus of the front reflector; whereby the rays from both

sources are respectively projected parallel with said axis by one reflector, and projected divergently with respect to said axis by the other reflector.

In testimony whereof, I have hereunto
signed my name at Philadelphia, Pennsylvania, this 21st day of January, 1907.

EDWIN M. ROSENBLUTH.

Witnesses:

ARTHUR E. PAIGE,

MARION R. WHITTAKER.