

1,273,084.

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Patented July 16, 1918.
2 SHEETS—SHEET 2.

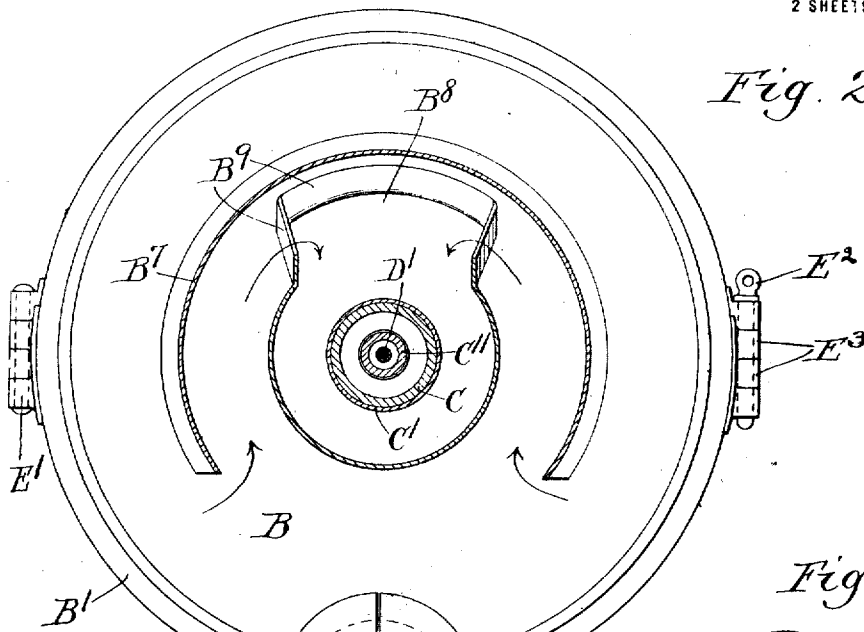


Fig. 2.

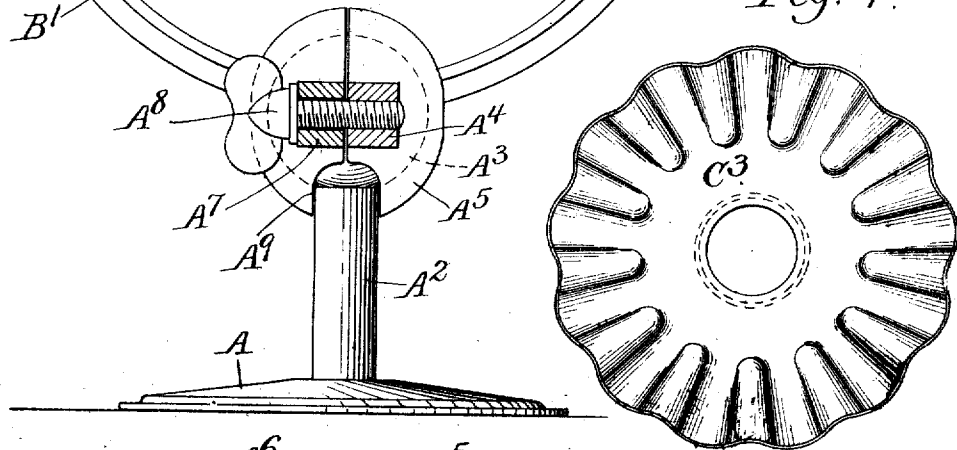


Fig. 4.

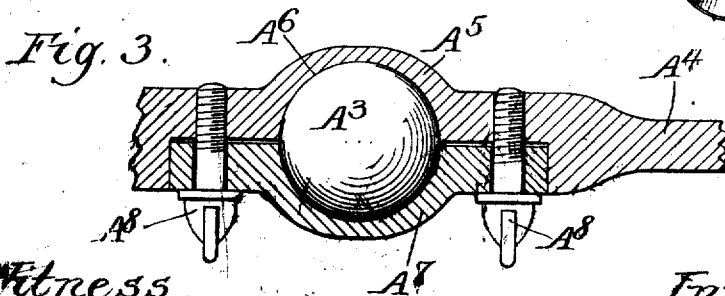


Fig. 3.

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UNITED STATES PATENT OFFICE.

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SEARCH-LIGHT.

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To all whom it may concern:

Be it known that I, OLE MOMB, a citizen of the United States, residing at West Duluth, in the county of St. Louis and State of Minnesota, have invented a certain new and useful Improvement in Search-Lights, of which the following is a specification.

My invention relates to improvements in search lights, particularly such as are used in docks and steam boat decks for loading and unloading purposes, or used for lighting any situation where work is taking place at night, and where a permanent system of lighting units arranged throughout the entire area is not feasible. One object of my invention is to provide a search light which will adequately illuminate the surface upon which it shines but which will be free from glare and which will not be of such dazzling brightness as to make it difficult for the operator to see when facing the light and when he has faced the light. Another object is to provide a new and improved form of reflector which will break up the ray so as to provide an evenly distributed cone or flood of light. Another object is to provide a new and improved form of housing and supporting and adjusting apparatus for controlling and containing the light, means being also provided for ventilating the interior of the housing so as to enable the use of high power high heat electric light bulbs. Another object of my invention is to provide a reflector which will give a diffused though effective illumination such as may be used on automobiles and the like for lighting the road without giving a dangerous, dazzling or blinding glare. Other objects will appear from time to time in the specification.

My invention is illustrated more or less diagrammatically in the accompanying drawings, wherein—

Figure 1 is a vertical section along the axis of the device, showing parts in elevation;

Fig. 2 is a section along the line 2—2 of Fig. 1;

Fig. 3 is a section along the line 3—3 of Fig. 1;

Fig. 4 is a front elevation in detail of a part of the reflector.

Like parts are indicated by like characters in all the drawings.

A is a flat space or foot adapted to be screwed or otherwise attached to a foundation not here shown. Rising upwardly from

it is a mast or rod A^2 which terminates in a ball A^3 . A^4 is a clamp or foundation bar. It is enlarged at one point as at A^5 , and there contains a semi-spherical bearing A^6 adapted to rest upon and ride upon the ball A^3 . A^7 is a clamp member having a somewhat similar semispherical bearing adapted also to engage the ball A^3 . Thumb screws A^8 are provided for clamping these two parts together upon the ball so as to provide a free ball and socket connection between the supporting bar A^4 and the ball A^3 .

It will be noted that the clamping members are cut away as at A^9 , so that the rod A^2 may pass up into the ball and socket joint, and thus movement in every direction is permitted. The thumb screws of course may be tightened up to clamp the parts together, so as to prevent relative movement, or they may be released slightly so as to permit a frictional control, and by completely withdrawing them the parts may be completed and assembled.

B is a conical housing. It is attached at its front end or base to a ring B^1 . This ring is mounted on the forward end of the member A^4 and is riveted or otherwise firmly attached to both the member and the housing. The conical housing is truncated just at its apex, and bent inward to form a flange B^2 . B^3 is a hollow screw-threaded sleeve having a conical flange B^4 adapted to engage the inner side of the housing B and the flange B^2 . This sleeve is screw-threaded into an enlarged ring B^5 located at the upwardly turned end of the member A^4 . The lamp is assembled by rotating the housing with the front ring until the flange B^4 , together with the rear wall B^6 of the apron B^7 which overlies the upper portion of the rear end of the housing, is clamped tight between the collar B^4 and the ring B^5 , thus holding the parts firmly in position. The ring is then riveted in place at the front end of the frame A^4 thus holding the parts in firm relation. It will be noted that the apron B^7 is open at the bottom, and covers the opening B^8 in the upper wall of the housing. This opening B^8 is surrounded by an upwardly extended flange B^9 . Thus an indirect opening is provided between the outside air through the apron, around the flanges, and through the hole in the housing to the inside of the housing.

C is a hollow cylindrical sleeve extending forwardly from the front side of the

flange B⁴. Mounted upon it is a tube C¹, which tube extends forwardly beyond the front boundary of the opening B³. This tube is flared as at C² at its forward end, and carries soldered or otherwise attached thereto, the conical corrugated or scalloped reflector C³. The corrugations, it will be noted, commence in the surface of the reflector only at a point removed from its point of attachment to the tube, so that immediately adjacent the point of attachment it forms a plane cone, but as it extends out therefrom the scallops or corrugations become more accentuated. C⁴ is a conical reflecting surface attached to the inner side of the housing. I have shown it here as separate material, but of course obviously it might be dispensed with and the housing itself be polished on the inside to form the reflector. This reflecting surface extends inwardly beyond the scalloped cone reflector. C⁵ is the usual type of electric light bulb, provided with a base C⁶, having holding pins C⁷ adapted to engage in the holding slot C⁸ in the socket C⁹. This socket C⁹ is screw-threaded into a cup C¹⁰, which cup is in turn screw-threaded on a hollow rod C¹¹. This rod is slidable within the sleeve B³. C¹² is a pin located within the sleeve B³, and adapted to be in frictional contact with the rod C¹¹. C¹³ is a collar screw-threaded on the sleeve B³ having an inclined conical or cam surface C¹⁴, adapted to engage the inclined upper end of the pin C¹², so that when the nut is rotated, this pin will be clamped against the rod C¹¹ and hold it against longitudinal movement.

D is a manipulating hand piece screw-threaded on the end of the rod C¹¹. D¹ is a conductor wire passing in through the rod, to a terminal D², into which it is clamped by the screw D³. This terminal communicates with the lamp by means of a conducting member D⁴, the return circuit coming by way of the metallic parts of the lamp.

E is a door ring. It is supported on the ring B¹ by means of a hinge E¹, and adapted to be locked in position with the door closed by means of a pin E² engaging the hinge member E³. E⁴ is a door held in the ring by means of a clamping or locking member E⁵. E⁶ are perforations in the lower part of the door ring adapted to permit the ingress of air and thus assist in the ventilation of the lamp.

It will be evident that while I have shown in my drawings an operative device, still many changes might be made both in size, shape and arrangement of parts, without departing materially from the spirit of my invention. I wish, therefore, that my drawings be regarded as in a sense diagrammatic.

I have shown in my drawings arrows indicating the direction in which the air travels as it passes through and ventilates the system. It is obvious that under some circumstances the direction of movement of the air currents might be opposite without changing in any essential manner the operation of the device because in either event the air current will have to pass over the heated parts and cool them.

I claim:

1. A searchlight comprising a conical reflector, a source of light located therein between the apex and the base thereof, and a fixed auxiliary reflector located within the conical reflector between the source of light and its apex, said reflector being conical in shape, but having its sides not as sharply inclined to the major axis as the sides of the conical reflector.

2. A searchlight comprising a conical reflector, a source of light located therein between the apex and the base thereof, and a fixed auxiliary reflector so located within the conical reflector as to act in combination with it and leave it unobstructed between the source of light and its apex, said auxiliary reflector being in contact with the conical reflector about its periphery.

3. A searchlight comprising a conical reflector, a source of light located therein between the apex and the base thereof, an auxiliary reflector located within the conical reflector between the source of light and its apex, said auxiliary reflector being provided with radial corrugations extending outwardly from a point removed from the center of the auxiliary reflector.

4. A searchlight having a conical housing apertured on its upper side adjacent the apex thereof, a cylindrical apron open at the bottom of lesser diameter than the housing at its base, and inclosing the opening, a plane wall closing said apron in line with the rear extremity of the housing.

5. A searchlight having a conical housing apertured on its upper side adjacent the apex thereof, a cylindrical apron open at the bottom of lesser diameter than the housing at its base, and inclosing the opening, a plane wall closing said apron in line with the rear extremity of the housing, a sleeve in the end of the housing having a flange to engage the inner wall of the housing at its end, the end of the housing being truncated to provide a passage for the sleeve, the sleeve extending outwardly beyond the end of the housing.

6. A searchlight having a conical housing apertured on its upper side adjacent the apex thereof, a cylindrical apron open at the bottom of lesser diameter than the housing at its base, and inclosing the opening, a plane wall closing said apron in line with the rear extremity of the housing, a sleeve in

the end of the housing having a flange to engage the inner wall of the housing at its end, the end of the housing being truncated to provide a passage for the sleeve, the sleeve extending outwardly beyond the end of the housing, the housing being provided with flanges about the opening therein extending upwardly toward the apron.

7. A searchlight comprising a conical reflector, a sleeve at the apex thereof, a tube carried by the sleeve and extending inwardly toward the front of the reflector, an auxiliary reflector carried by the tube, a source of light in front of the auxiliary reflector, and means located within the tube for supporting such light source.

8. In a searchlight the combination with a reflector and a source of light of a support thereof, said support comprising a sleeve, a rod slidable in the sleeve upon which the source of light is mounted, and means for holding the rod against movement comprising a pin in the sleeve in frictional engagement with the rod, a nut screw threaded on the sleeve and having a cam surface adapted to engage the pin and thrust it against the rod.

9. A searchlight comprising a conical housing, a frame member outside the housing parallel with the axis thereof anchored to the housing at one side of the base of the cone, an arm projecting upwardly from the frame member to the apex of the cone and attached to the cone, and means for supporting the frame.

10. A searchlight comprising a conical housing, a frame member outside the housing parallel with the axis thereof anchored to the housing at one side of the base of the cone, an arm projecting upwardly from the frame member to the apex of the cone and attached to the cone, and means for supporting the frame, said means comprising a ball and socket joint and means for controlling the frictional engagement of the surfaces to lock the parts in adjustable position.

11. A searchlight having a housing, a reflector therein, an auxiliary reflector within the main reflector, an air vent in the wall of

the housing behind the auxiliary reflector, air passages between the two reflectors, and an air passage in the front of the housing toward the bottom.

12. A searchlight comprising a conical reflector, a source of light located therein between the apex and the base thereof, an auxiliary reflector located within the conical reflector between the source of light and its apex, said auxiliary reflector being provided with a series of radial corrugations increasing in depth outwardly toward the periphery thereof.

13. A searchlight comprising a conical reflector, a source of light located therein between the apex and the base thereof, an auxiliary reflector located within the conical reflector between the source of light and its apex, said auxiliary reflector being provided with a series of radial corrugations increasing in depth outwardly toward the periphery thereof, the auxiliary reflector being in contact about its periphery with the conical reflector, the corrugations being raised above the contact line to make an air passage between the two reflectors.

14. A search light comprising a reflector, a light source at the focal center thereof, and an auxiliary reflector interposed on the rear side of the light source between it and the main reflector, said auxiliary reflector being in contact with the main reflector and having its surface corrugated.

15. A search light comprising a reflector, a light source at the focal center thereof, and an auxiliary reflector interposed on the rear side of the light source between it and the main reflector, said auxiliary reflector being in contact with the main reflector and having its surface corrugated, said corrugations extending radially and located between the center of the auxiliary reflector and its periphery.

In testimony whereof, I affix my signature in the presence of two witnesses this 18 day of Nov., 1916.

OLE MOMB.

Witnesses:

S. M. STRAIN,
F. C. CARPENTER.