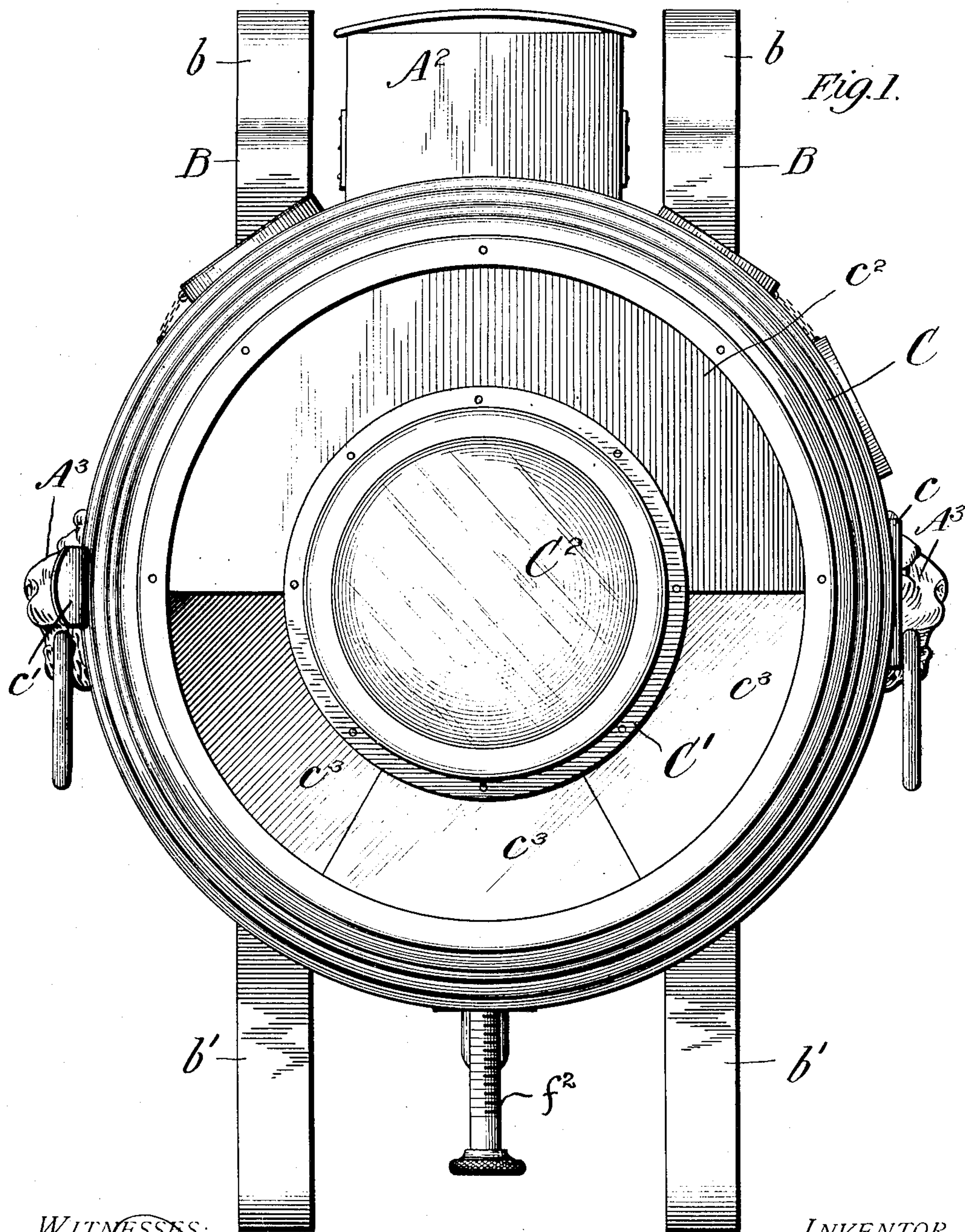


No. 869,548.

PATENTED OCT. 29, 1907.

F. P. COBHAM.
HEADLIGHT OR LANTERN.
APPLICATION FILED JAN. 3, 1907.

3 SHEETS—SHEET 1.



WITNESSES:
W. F. Doyle.
J. K. Moore.

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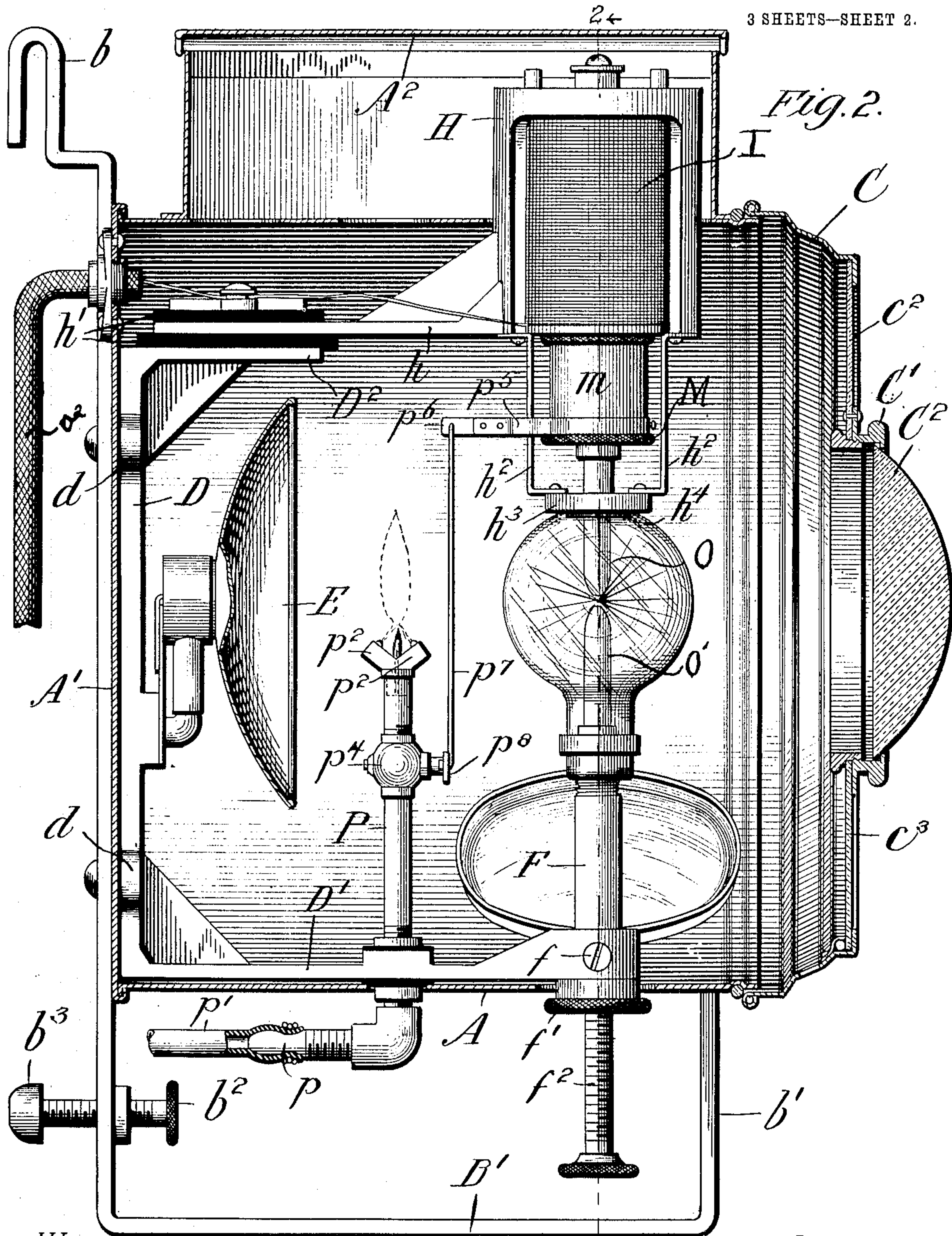
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3 SHEETS—SHEET 2.



WITNESSES:

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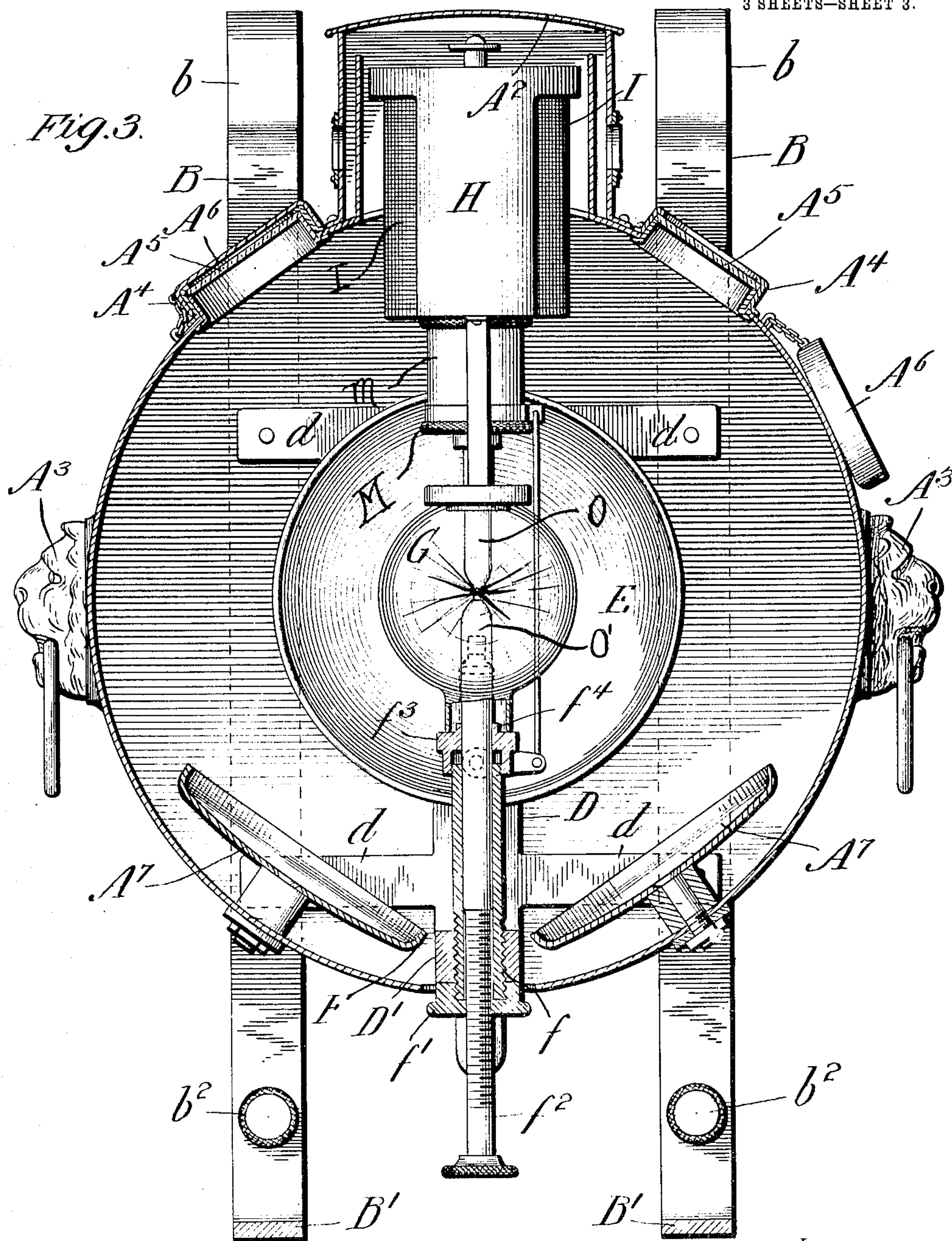
Blitzkow & Keweenaw Attorneys

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3 SHEETS—SHEET 3.



~~WITNESSES:~~

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UNITED STATES PATENT OFFICE.

FREDERICK P. COBHAM, OF JAMESTOWN, NEW YORK, ASSIGNOR OF ONE-HALF TO
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HEADLIGHT OR LANTERN.

No. 869,548.

Specification of Letters Patent.

Patented Oct. 29, 1907.

Application filed January 3, 1907. Serial No. 350,650.

To all whom it may concern:

Be it known that I, FREDERICK P. COBHAM, a citizen of the United States, residing at Jamestown, in the county of Chautauqua and State of New York, have invented certain new and useful Improvements in Headlights or Lanterns; and I do hereby 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.

My invention consists in the novel features hereinafter described, reference being had to the accompanying drawings which illustrate the best form in which I have contemplated embodying my invention and said invention is fully disclosed in the following description and claims.

Referring to the said drawings, Figure 1 is a front elevation of a lantern or head light embodying my invention. Fig. 2 is a vertical central longitudinal sectional view of the same, certain of the interior parts being shown in elevation. Fig. 3 is a transverse vertical sectional view of the same, certain parts being shown in elevation.

The object of my invention is to provide a head light adapted especially for use on high speed electric cars, but capable of use with other types of cars or vehicles, in which the two lighting means are employed, the one electric and produced by the current which operates the car, and the other a different form of light (in this instance an acetylene gas burner), certain automatic devices being provided whereby only one source of light is operated at a time, and whereby on the failure of the electric current for any cause such as the slipping of the current collector off of the conductor, accidentally or otherwise, will cause the other form of lighting device to be brought instantly into operation so that a continuous and brilliant light is at all times assured.

My invention also comprises certain details in construction and combination of parts hereinafter fully described whereby the light is thrown in the most effective manner, and whereby auxiliary beams of light are provided which may be used in case of fog or for signaling purposes as hereinafter more fully pointed out.

In the drawings A represents the main body or casing of the lantern which is preferably of cylindrical form and disposed so that its axis is horizontal, the casing proper being open at the front where it is provided with a door to give access to the interior, and closed at the rear by a back plate A'.

B, B represent two bars of metal, secured to the back plate A', and extending above and also below

the body A. At their upper ends, the bars B B terminate in hook portions *b* which may be dropped over the dash board of the car, or a suitable bracket, hanger or other support for the head light with which the car or vehicle body may be provided. At their lower ends the bars B B are bent forward and have portions which extend horizontally beneath the body A, as at B', B', which horizontal portions are bent upward beneath the forward part of the body A as at *b'* *b'* and are secured to the body A by rivets or in any other desired manner. I term these bars B B the supporting bars of the head light, and it will be obvious that when the head light is detached it can be rested upon the horizontal portions B' B' of said bars which will support it so as to avoid injury to the mechanism. To facilitate the hanging of the head light on the car, so that it shall maintain a vertical position, I provide the bars B B near the lower ends of the same with adjustable screws *b*², extending through and rearwardly from the bars and having their rear ends provided with rubber or other elastic buffers *b*³ to engage the front wall or dash, of the car or other support upon which the lantern is carried. The adjustment of the screws *b*² *b*² secures the vertical positioning of the main body A.

The front aperture of the body A is closed by a hinged door, which comprises a metal ring C hinged at one side to the main body as shown at *c*, and held in position when closed by a spring catch *c'* on the side opposite the hinge, (see Fig. 1).

The center portion of the door opening is occupied by a circular lens frame C' carrying a plano-convex lens C² of high power and of smaller diameter than the door. This lens frame is supported in the door frame by means of a semi annular sheet of opaque material *c*² such as sheet metal, copper being ordinarily used, which is riveted or otherwise secured to the door frame and to a flange on the lens frame, so as to close the opening between the two, above the horizontal center of the door. The lower half of the opening between the lens frame and door frame is provided with glass, preferably by fitting several plates of clear glass *c*³ *c*³ *c*³ therein as shown, so that a certain amount of light is thrown downward upon the roadway immediately in front of the car or vehicle, while the major part of the light rays are projected in a narrow concentrated beam far ahead of the car. The closing of the upper portion of the space between the lens frame and door frame prevents the light from being diffused upwardly when it might interfere with the operator of the car or vehicle. The main body A is also provided at its upper portion with a ventilating top A² of usual or preferred construction, and its sides are provided with ornamental handles, such as the ring handles A³ A³.

Within the rear part of the main body A is a heavy metal frame D having arms $d\ d$ extending laterally therefrom and connected by screws or bolts to the supporting bars B, B, as shown in Figs. 2 and 3. This frame D has at its lower end a forwardly extending portion D', carrying the lighting apparatus, and at its upper end, a short forwardly extending arm D² as shown for a purpose hereinafter described. The frame D carries a large concave reflector E, the axis of which is in line with the axis of the front lens C².

At its forward end the horizontal part or foot D' of the frame D is provided with a boss having a circular threaded aperture in which is fitted a vertical tube F, for containing the lower carbon of an arc light, said tube having its lower end threaded and being secured against turning in said boss by a set screw f , and having its lower end provided with a screw cap f' which extends through an aperture in the main body A, so that it can be operated from the exterior of the same. The cap f' is provided with a central threaded aperture through which extends an adjusting screw f^2 for the lower carbon pencil. It is obvious that by simply unscrewing the cap f' , the carbon can be allowed to drop out and a new carbon inserted. The upper end of the tube F is also threaded and receives the hollow globe holder f^3 which is screwed thereon and is provided on its upper face with a nipple f^4 which extends into the lower end of the globe G of the electric arc light.

The arm D² at the upper end of the frame D supports a horizontal arm h , insulated therefrom by blocks h' h' of fiber or other insulating material, and said arm h carries on its outer end an open solenoid case H, which is in the form of a cylinder, having a threaded opening at its upper end, and having a portion of its side walls cut away as shown. The case H contains the solenoid for regulating the upper or movable carbon of the arc light, and the mechanism connected therewith, and is also provided at its lower end or face with downwardly projecting arms $h^2\ h^2$ carrying an annular globe holder h^3 , having its lower face provided with an annular nipple h^4 extending into the upper aperture in the globe G.

It will be seen that the upper globe holder is stationary but the tube F is sufficiently provided with threads at its upper end, so that the lower globe holder f^3 may be screwed downward on said tube to permit the removal and insertion of the globe. When the globe is in position, the lower globe holder is screwed upward on the tube F so as to hold the globe firmly between the upper and lower globe holders, as shown in Figs. 2 and 3.

The arc light may be constructed to use a direct electric current, or an alternating current, according to the conditions in which it is to be employed. The solenoid case H is provided with a solenoid I, within which is a movable core (not shown) having a tubular extension m , at its lower end carrying the movable clutch member M for gripping the upper carbon O and holding it in proper position with respect to the lower carbon O'. The particular form of the clutch mechanism, solenoid and core, and the electrical connections form no part of my present invention and will not, therefore, be particularly described herein. Current is supplied to the arc light by means of a wire or conductor o^2 thence to the solenoid I and upper carbon O, thence

to lower carbon O' and thence through the frame D to the hooks $b\ b$, from which it may be conducted to the return conductor of the electric system in any desired manner.

In the rear of the arc light is located an auxiliary burner, which is not dependent upon the electric current supplying the arc light. This auxiliary burner is preferably a gas burner, and I prefer to employ acetylene gas for the same as it produces a brilliant white light. P represents the acetylene burner, which is supported in the horizontal foot D' of the frame D, insulated therefrom by suitable washers of fiber, as shown, and provided with a nipple p connected by the usual rubber tubing p' with an acetylene gas generator of ordinary or preferred construction, carried on the vehicle. The burner P is provided with an angle tip p^2 having two burner orifices disposed angularly to each other as is usual with acetylene burners, and said tip is also provided with a central vertical burner orifice p^3 , indicated in dotted lines in Fig. 2, which acts as a pilot burner for lighting the other jets. p^4 represents a gas valve, of well known type which may be thrown into full open position, and also to a position in which the gas is nearly but not quite shut off, the small flow of gas permitted, being passed through the vertical orifice p^3 and maintaining the pilot flame, as indicated in full lines. When the valve is turned to open position the full flame is lighted by the pilot, and the burner is so located that the gas flame will be substantially in line with the center of the reflector E and lens C².

Means are provided by which the acetylene or gas burner will be fully lighted if for any reason the current through the arc light is broken, as in crossing other lines, or switches, or by the current collector leaving the conductor accidentally or otherwise. In this instance I have shown a clamp ring p^5 secured upon the tubular section m , and a rod or link p^7 to an arm p^8 connected with the gas valve p^4 so that the dropping of the movable core piece of the carbon controlling device of the arc light for any reason, instantly opens the valve p^4 and the acetylene flame supplies the light until the circuit is again made through the arc light when the lifting of the core piece and the clutch member connected therewith moves the valve to cut off the gas burner, except for the pilot flame.

The main body or casing A of the head light is also provided on its upper side on opposite sides of its center with apertures or tubular projections A⁴ A⁴ provided with lenses A⁵ A⁵ and caps A⁶ A⁶ are provided adapted to fit over said tubular projections and lenses, said caps being preferably connected by chains or otherwise to the body A to prevent their loss. The bottom portion of the casing A is provided with reflectors A⁷ A⁷, each of which is arranged with its center in line with the center of the arc, and the center of the lens A⁵ on the opposite side of the head light, as clearly shown in Fig. 3. These auxiliary lenses may be employed in various ways, for example, in case of fog both of the caps A⁶ A⁶ may be removed thus causing two diverging rays to be thrown upwardly which can be seen at a considerable distance from the front, rear or sides of the car. Again, these auxiliary lenses may be used for signaling purposes, by uncovering one or the other. For example, if the car is approaching a

point where the track branches, the operator may remove one or the other of the caps A⁶ A⁶ to throw a vertical ray at the right or left of the car to indicate the direction in which the car is to proceed after passing the switch.

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

1. In a head light or lantern the combination with a main electric burner, of an auxiliary gas burner, adjacent thereto, and connections between said burners, for bringing the gas burner into operative condition, when the current for the electric burner is interrupted, substantially as described.
2. In a head light or lantern, the combination with a main electric burner, of an auxiliary gas burner and a pilot therefor, a valve controlling said auxiliary burner and pilot, an electrically operated device in circuit with the main burner, and connections from said electrically controlled device to said valve, for bringing the auxiliary burner into operative condition when the circuit through the main burner is interrupted, substantially as described.
3. In a head light or lantern, the combination with a main electric burner, an electric controlling device in circuit therewith, and including an electric coil and a movable part operated thereby, of an auxiliary gas burner, and connections between said movable part and said gas burner for lighting the said gas burner, when the current through the electric burner is interrupted, substantially as described.
4. In a head light or lantern, the combination with a main electric arc light burner, and an electric controlling device for the movable carbon thereof, an auxiliary burner for gas, located adjacent to the arc light and provided with a pilot, a valve controlling said gas burner and pilot, and operative connections between said electric controlling device and said valve, for bringing the gas burner into operative condition when the current through the arc light is interrupted, substantially as described.
5. In a head light or lantern, the combination with a lens and reflector for throwing a beam of light, of a main electric arc light burner, located in operative relation with said lens and reflector, an auxiliary gas burner located in operative relation with said lens and reflector and provided with lighting means, a controlling device for said gas burner and its lighting means, and a connection between said controlling device, and the controlling mechanism for the movable carbon of the arc light for lighting the gas burner, when the current through the arc light is interrupted, substantially as described.
6. In a head light or lantern, the combination with a lens and a reflector, of a main arc light burner located in operative relation therewith, and provided with an electric

controlling device, including an electric coil, a movable core and a carbon engaging clutch connected therewith, an auxiliary gas burner provided with a pilot for lighting the same, a valve controlling said gas burner and pilot, and a link connected to said valve and to said movable core, for lighting the gas burner, when current through the arc light is interrupted, substantially as described.

7. In a head light or lantern, the combination with a main body open at the front, a circular frame fitting said opening, a lens frame of smaller diameter than said frame, located centrally therein, a lens in said lens frame, a semi-annular sheet of opaque material permanently located in the upper portion of the space between said lens frame and said circular frame and transparent material located in the remaining portion of the space between said frames, substantially as described.

8. In a head light or lantern, the combination with the main body provided with a front opening, of a circular frame fitting said opening, a semi-annular sheet of opaque material in the upper portion of said frame, and permanently secured thereto, a circular lens frame concentric with and of smaller diameter than said circular frame, secured to the inner edge of said opaque sheet to support said lens frame, and transparent material fitted between said lens frame and the circular frame below said opaque material, substantially as described.

9. In a head light or lantern, the combination with the main body provided with a front aperture, and a main reflector in line therewith, two auxiliary light apertures in its upper portion on opposite sides of its center, and at its lower portion with reflectors located on opposite sides of its center, each of said reflectors being in line with one of said upper light apertures, of a lighting device located between the front aperture and the main reflector and in line with said auxiliary light apertures and the reflectors therefor, substantially as described.

10. In a head light or lantern, the combination with the main body provided with a front aperture and a main reflector in line therewith, two auxiliary light apertures in its upper portion on opposite sides of its center, and at its lower portion with reflectors located on opposite sides of its center, each of said reflectors being in line with one of said upper light apertures, of a lighting device located between the front aperture and the main reflector and in line with said auxiliary light apertures and the reflectors therefor, and a closure for each of said auxiliary light apertures, substantially as described.

In testimony whereof I affix my signature, in the presence of two witnesses.

FREDERICK P. COBHAM.

Witnesses:

M. LAVERN CLAPP,
G. H. WADE.