

June 5, 1934.

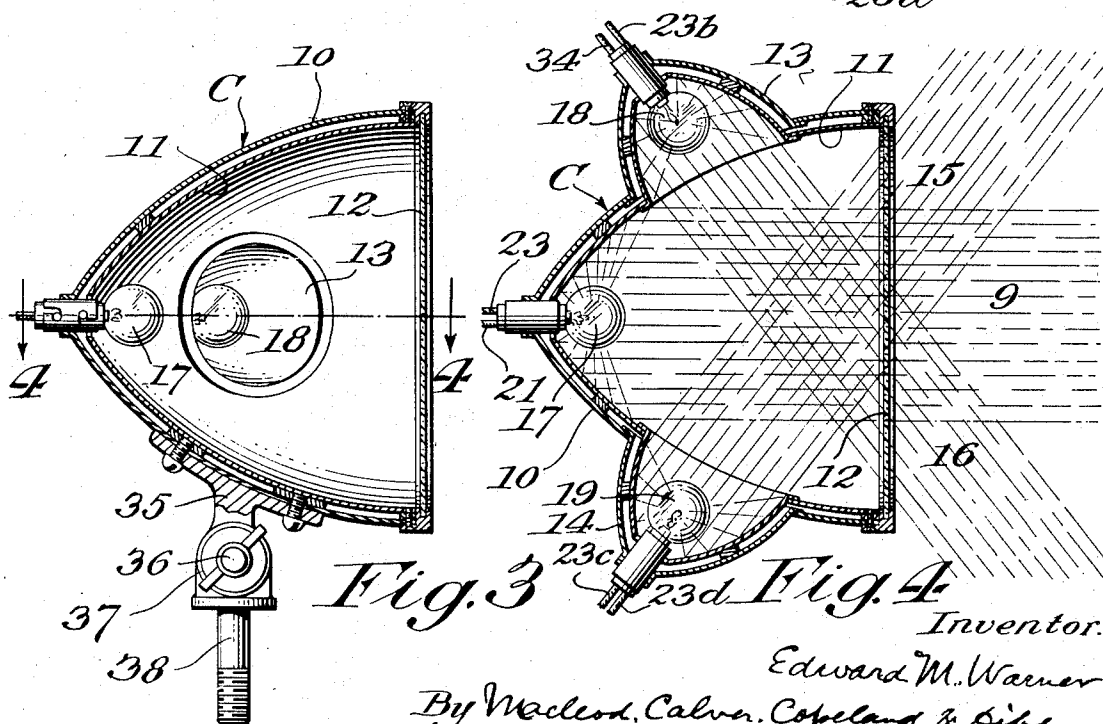
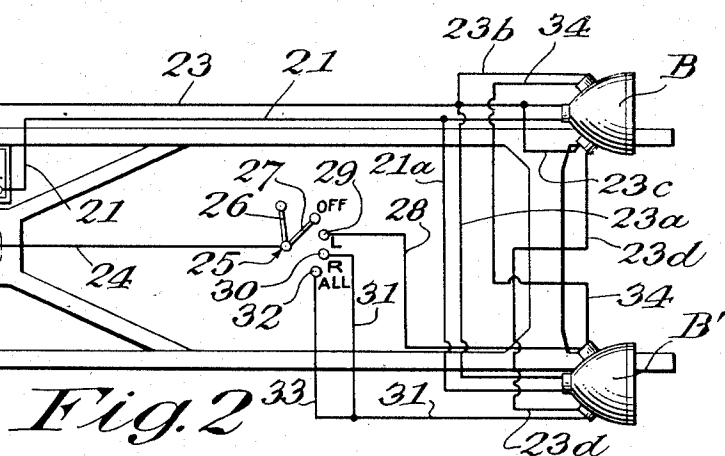
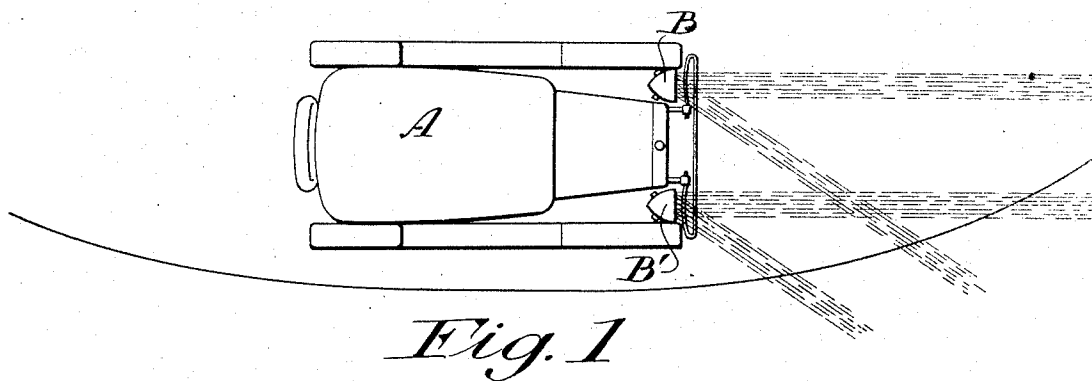
E. M. WARNER

1,961,836

HEADLIGHT

Filed Nov. 15, 1933

2 Sheets-Sheet 1



Inventor:
Edward M. Warner
By Wadsworth, Calver, Copeland & Sipe
Attorneys.

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2 Sheets-Sheet 2

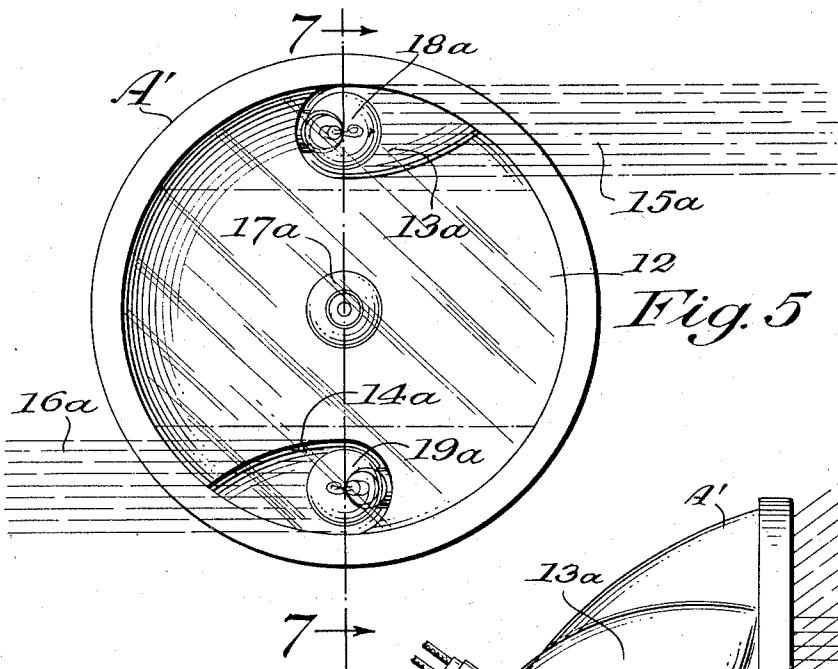


Fig. 5

Fig. 6

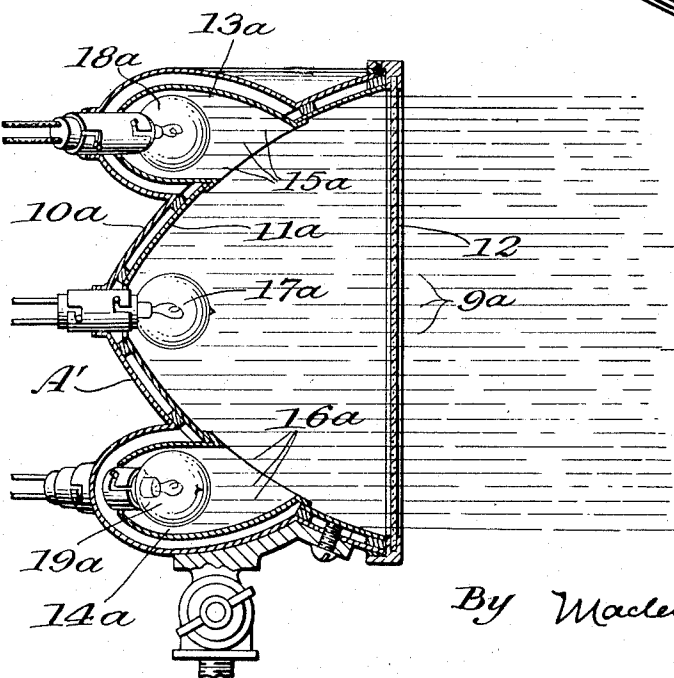
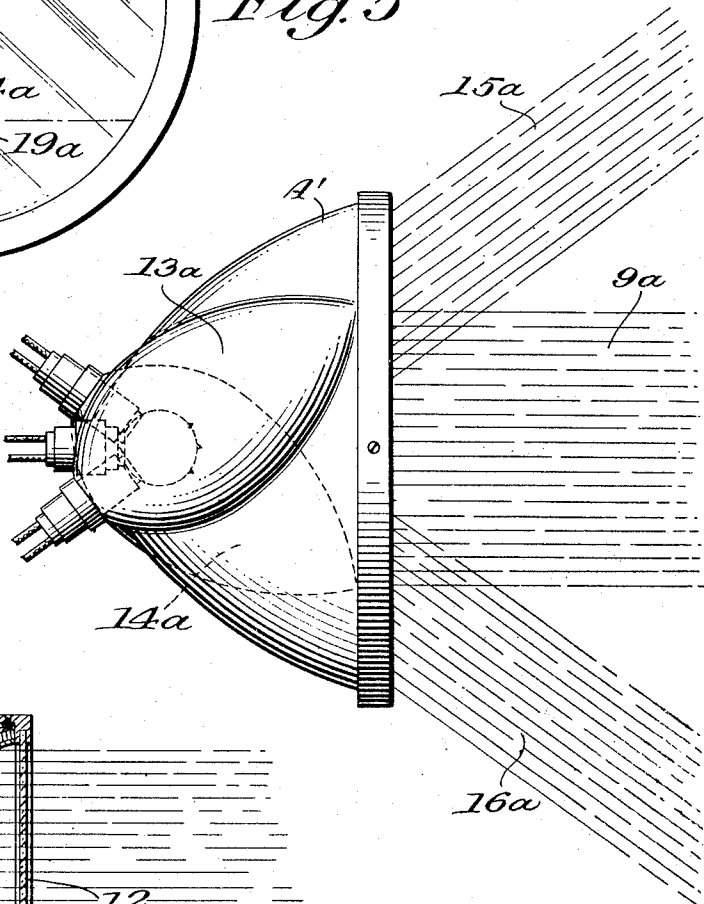


Fig. 7

Inventor:

Edward M. Warner

By Macleod, Calver, Copeland & Dike

Attorneys.

UNITED STATES PATENT OFFICE

1,961,836

HEADLIGHT

Edward M. Warner, Boston, Mass.

Application November 15, 1933, Serial No. 698,134

6 Claims. (Cl. 240—41.2)

This invention relates to a new and useful improvement in head lamps. It is especially intended for use on motor vehicles but may be employed on other than motor vehicles or for stationary use. The object of the invention is to give a broader beam of light than is given by any of the lamps now in use and also to throw the light to either or both sides, as desired, as well as to the front. Another object is to so arrange the lights and reflecting surfaces that the rays from the several lights will not intersect each other.

The ordinary head light takes care of the front view but a head light made in accordance with my invention will throw the light so as to provide for roads leading off to either side, also to throw the light on ditches and curves so that a person standing on a curve or sidewalk can be seen by the driver of the approaching car. Also on turning corners either to the right or to the left a lamp embodying my invention will throw the light on both sides without the necessity of manipulating or swivelling the light as has heretofore been the practice.

The invention will be fully understood from the following description when taken in connection with the accompanying drawing and the novel features thereof will be pointed out and clearly defined in the claims at the close of this specification.

In the drawing:

Fig. 1 is a diagrammatic plan view of a motor vehicle equipped with two head lamps, each embodying my invention.

Fig. 2 is a view showing in diagram one form of wiring.

Fig. 3 is a vertical section of a lamp embodying the invention.

Fig. 4 is a horizontal section on line 4—4 of Fig. 3 and showing the direction of the rays when all the electrical contacts are closed.

Fig. 5 is a front elevation of a modified form of construction of the reflector and arrangement of the lamps.

Fig. 6 is a plan view of the modified form shown in Fig. 5.

Fig. 7 is a vertical longitudinal section on line 7—7 of Fig. 5.

Before explaining in detail the present invention it is to be understood that the invention is not limited in its application to the details of construction and arrangement of parts illustrated in the accompanying drawing, since the invention is capable of other embodiments and of being practiced or carried out in various ways.

Also it is to be understood that the phraseology or terminology employed herein is for the purpose of description and not of limitation, and it is not intended to limit the invention claimed herein beyond the requirements of the prior art.

Referring to the drawing, there is shown at A an automobile equipped with two lamps B, B', each embodying the invention, one on the right and one on the left front.

There is shown at C the main shell of the reflector which may be of any suitable material, preferably having an outer shell or frame 10 and an inner shell 11, the inner shell having a suitable reflecting surface. The general contour of the shell 11 is conical with an outwardly bulging convex wall and with a transparent front 12. The shell C has two outwardly extending cone shaped chambers 13, 14, said chambers being on opposite sides of the axis of the shell. Said chambers preferably have outwardly bulging convex walls similar in form to the substantially conical shape of the main shell C and open into the chamber of said main shell C. These chamber portions 13, 14 have their axes disposed at such an angle to each other and to the main shell that their axes will cross each other and the rays 15, 16 reflected from the reflecting surfaces of the chambers 13, 14, will cross each other and cross the rays 9 reflected from the main body of the shell at an angle as shown in Fig. 4.

Mounted in the apex of the main body of the shell is an electric bulb 17. Mounted in the apices of the respective auxiliary chamber members 13 and 14 are the electric bulbs 18, 19.

The car is provided with a suitable battery for electrifying the lamps and with suitable wiring and switches so that the operator can readily have the main bulb 17 lighted and also at the same time have either one or both of the auxiliary side bulbs 18 and 19 lighted. Any suitable arrangement of wires and control may be used. One arrangement is shown in diagram in Fig. 2, in which four circuits are illustrated: The first circuit connects a battery 20 with the center bulbs 17 of both head lamps B and B'. The second circuit connects said battery 20 to the left side bulbs 18 of both head lamps B and B' through switch 25. The third circuit connects said battery 20 to the right side bulbs 19 of the head lamps B and B' also through said switch 25; and the fourth circuit connects all the bulbs 18 and 19 of both head lamps B and B'.

Switch 25 can be located at any convenient place in the car, and is of the double-arm type. It is also provided with three contacts: One marked

to close the circuit of the left side bulbs 18, a second one marked R to close the circuit of the right side bulbs 19 and a third marked ALL which closes the circuits of all left and right bulbs when this is so desired.

The first circuit is formed in the following manner: Wire 21 connects the positive pole of battery 20 with one terminal in the socket of center bulb 17 in lamp B and a wire 23 connects the negative pole of said battery with the other terminal of said bulb 17 in lamp B. In the same manner a wire 21a leads from wire 21 to one terminal of bulb 17 in lamp B' and wire 23a leading from wire 23 connects to the other terminal of said bulb.

The second circuit is formed by wire 24, arm 27, contact 29 and wire 28 to one terminal in socket of left side bulb 18 in lamp B', the other terminal of this bulb being connected through lead 34 to one terminal of left side bulb 18 in lamp B. A wire 23b from the second terminal of this bulb connects with wire 23 which leads to the negative pole of battery 20, thus completing the circuit.

The third circuit is formed by wire 24, arm 27, contact 30 and wire 31 to one terminal of right side bulb 19 in head lamp B'; the second terminal of this bulb 19 is connected through wire 23d to one terminal of right side bulb 19 of lamp B and the other terminal of this bulb is connected to wires 23c and 23 which lead to the negative pole of the battery to complete this circuit.

The fourth circuit is accomplished merely by throwing both arms of the switch in contact. In this way, arm 26 will close the circuit of the left side bulbs as described before and arm 27 at the same time will close the circuit of the right side bulbs through contact 32, leads 33, and 31 and so on.

Each lamp B, B' is preferably adjustably mounted as a unit so that it may be set either in a horizontal position as shown in Fig. 3 or it may be adjusted to incline upwardly or downwardly. This is provided for by mounting it on an upright arm 35 which is pivotally mounted on a horizontal stud 36, said stud 36 being rotatably adjustable in the head 37 of a stud 38 to be affixed to the car.

According to my invention a unitary lamp will take the place of several spot lights as now used by reason of the several reflectors reflecting the light in different directions. Instead of being reflected straight ahead only, they will reflect also divergently from the same line. The master reflector has a lamp in the center and there are provided any desired number of smaller reflectors located according to the different directions in which you wish to reflect the light.

In the modified form shown in Figs. 5, 6 and 7 the shell A' has the two auxiliary chambers 13a and 14a located one above and one below the axis of the shell.

Said chambers preferably have outwardly bulging convex walls 10a and 11a similar in form to the substantially conical shape of the main body of the shell and open into the main chamber of said shell. These auxiliary chamber portions 13a, 14a have their axes so disposed with relation to each other and to the main chamber that their axes will be at an angle to each other when viewed in plan as in Fig. 6 but as they are in planes at different elevations from each other they will not actually intersect. The rays 9a, 15a, 16a reflected from the reflecting surfaces of the main chamber and chambers 13a, 14a will also lie in planes at different elevations from each other and, therefore, do not intersect each other.

Mounted in the apex of the main body of the shell is an electric bulb 17a. Mounted in the apices of the respective auxiliary chambers 13a, 14a are the electric bulbs 18a, 19a.

As plainly shown in Figs. 5 and 7, the rays from the several lamps 17a, 18a, 19a do not intersect each other but extend in parallel planes. As shown in Fig. 6 the rays from the several lamps are in plan view and appear to be at an angle to each other but being in different planes they do not actually intersect.

The invention is not confined to use with an automobile or other vehicle but may be used wherever flood lights are desired, whether mounted on a movable automobile or other vehicle, or whether the support is stationary.

What I claim is:

1. A light reflector consisting of a concave shell having a reflecting inner face, a main reflecting bay on the focal axis, a supplemental reflecting bay at some elevation above the main focal axis, and a supplemental reflecting bay below the main axis, in combination with a lamp located in the main bay at such position that its rays will be reflected directly toward the front, a lamp located in the focal axis of each of the other two bays, said supplemental lamps being so disposed that the rays of the upper supplemental lamp will be reflected laterally toward one side and the rays of the lower supplemental lamp will be reflected laterally toward the opposite side without intersection of the rays from either supplemental lamp with the rays from the main lamp.

2. A light reflector consisting of a concave shell having a reflecting inner face, a main reflecting bay on the focal axis, a supplemental reflecting bay at some elevation above the main focal axis, and a supplemental reflecting bay below the main axis, in combination with a lamp located in the main bay at such position that its rays will be reflected directly toward the front, a lamp located in the focal axis of each of the other two bays, said supplemental lamps and reflectors being so disposed that the rays of the upper supplemental lamp will be reflected at an angle laterally toward one side and the rays of the lower supplemental lamp will be reflected at an angle laterally toward the other side without intersection of the rays from one supplemental lamp with the rays from the other supplemental lamp or with the rays of the main lamp, and means for at will controlling the lighting of one or more of the lamps as desired.

3. A light reflector having a main reflecting portion shaped to focus a light, supplemental recessed reflecting portions located respectively above and below the focal axis of the said main reflecting portion, each of said supplemental reflectors having its focal axis extending laterally at an angle to the focal axis of the main reflector, one toward the left and the other toward the right, in combination with a lamp located in the focal axis of the main reflector and a lamp located in the focal axis of each of said upper and lower reflecting portions.

4. A light reflector having a main reflecting portion shaped to focus a light, supplemental recessed reflecting portions located respectively above and below the focal axis of the said main reflecting portion, each of said supplemental reflectors having its focal axis extending laterally at an angle to the focal axis of the main reflector, one toward the left and the other toward the right, the focal axes of all these reflectors being in planes parallel with each other but at different

elevations, in combination with a lamp located in the focal axis of the main reflector and a lamp located in the focal axes of said upper and lower reflecting portions.

- 5 5. A light reflector having a main reflecting portion shaped to focus a light, supplemental reflecting portions located respectively above and below the focal axis of the said main reflecting portion, in combination with a lamp located in the focal axis of the main reflector and a lamp located in the focal axis of each of said upper and lower reflecting portions, said lamps and reflecting portions being so positioned with relation to each other that the focal axes of all three of said reflectors are in parallel planes at different elevations with relation to each other so that the
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rays from any one of said lamps do not intersect the rays from either of the other lamps.

6. A light reflector having a main reflecting portion shaped to focus a light and two supplemental reflecting portions so located that the focal axes of all three reflecting portions are in parallel horizontal planes at different elevations from each other, in combination with a lamp located in the focal axis of each reflector, the focal axis of the main reflector extending directly to the front, the focal axis of one of the supplemental reflectors extending laterally toward the right and the focal axis of the other supplemental reflector extending laterally toward the left.

EDWARD M. WARNER.

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