J. F. ERNST.

SIGNAL INDICATING AND LIGHT DIMMING MEANS.

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1,199,534. Patented Sept. 26, 1916.

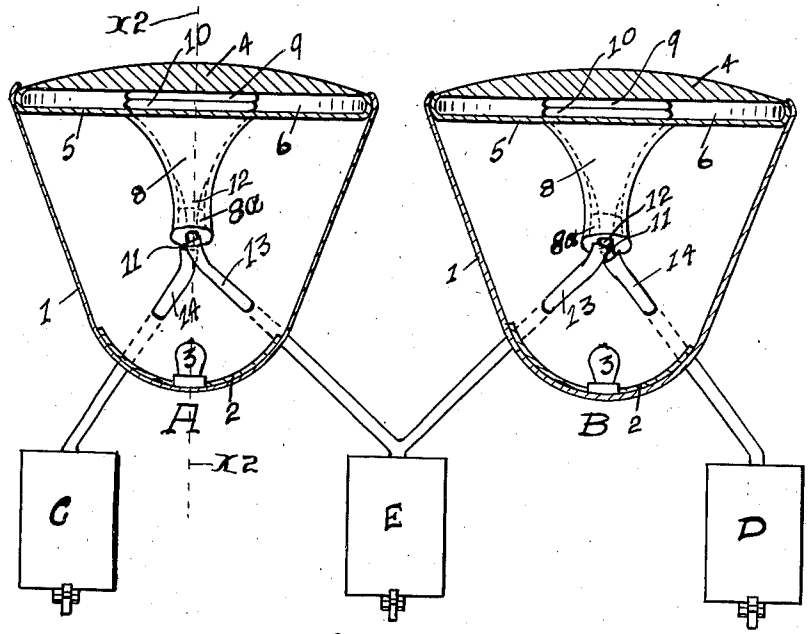


Fig. 1.

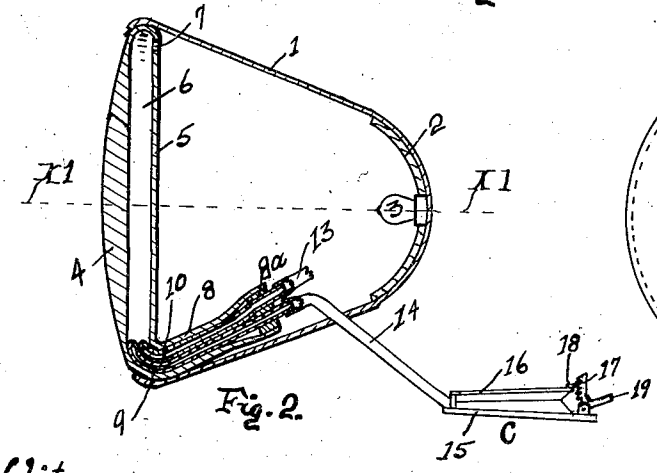


Fig. 2.

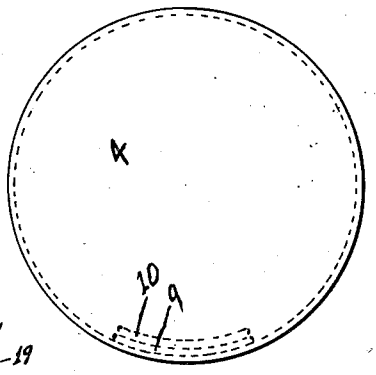


Fig. 3.

Witnesses.
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SIGNAL-INDICATING AND LIGHT-DIMMING MEANS.

1,199,534. Specification of Letters Patent. Patented Sept. 26, 1916.

Application filed January 27, 1916. Serial No. 74,651.

To all whom it may concern:

Be it known that I, JOSEPH F. ERNST, a citizen of the United States, residing at No. 309 South Eighth street, in the city of Minneapolis, in the county of Hennepin, State of Minnesota, have invented a new and useful Signal-Indicating and Light-Dimming Means, of which the following is a specification.

My invention relates to means whereby the light issuing from any illuminating means such as the light projecting means commonly used with motor vehicles may be readily dimmed and whereby in connection therewith means may be provided for rendering signals from such illuminating means so that I therefore style my invention a signal indicating and light dimming means.

The principal objects of my invention are, to provide an efficient means whereby an operator may dim at will headlights or any lights such as those of a motor vehicle; to provide a means whereby such dimming may be readily accomplished by gradations according to the desire of the operator and the need of the conditions of travel or the regulations of traffic; to provide a means whereby dimming means may be operated and controlled from a vehicle driver's seat; to provide a means whereby signals may be given in warning or notice of a driver's change of course or travel; to provide a means whereby such signal means may be operated or used in connection with ordinary light projecting means as commonly used as a headlight; and in general to supply the need of an efficient, simple, variable, light signaling and dimming means.

The principal devices and combinations of devices constituting my invention are as hereinafter described and more particularly defined in the appended claims.

In the accompanying drawings which illustrate my invention, like characters refer to like parts throughout the several views.

Referring to the drawings: Figure 1, is a view chiefly in horizontal cross section on the line X^1 X^1 of Fig. 2, showing my light dimming and signaling means as it would be commonly applied to two headlights or other lights, some parts being shown in full plan view. Fig. 2, is a vertical cross section on the line X^2 X^2 of Fig. 1, this cross-section being that of one of the particular signaling and dimming appliance, some parts being shown in full side elevation in connection therewith. Fig. 3, is a detail front view of one glass lens 4 with its allied parts.

The devices comprising my invention are shown as applied to two of the commonly used headlights, a left headlight A and a right headlight B. The numerals 1 each indicate the body of a headlight having each related mirrors 2 and any light source 3, one in each headlight, this comprising the ordinary or commonly used form of light projecting means, in connection with which I have illustrated my signaling and dimming means.

The numerals 4 indicate a glass or other translucent light transmitting means or lens which has embodied with it the dimming and signaling appliances hereinafter described and is applied upon the front end of each headlight body 1, in such position that light may be focussed from the light source 3 and mirror 2 upon it.

The lens 4 has constructed integrally with it of the same glass or other translucent material a flat thin wall 5 slightly removed from its rear side and united with the perimeter of the lens 4 at its perimeter by the same glass as shown, whereby a thin chamber 6 circular in form and generally inclosed on all sides except as herein denoted is formed directly behind the lens 4 between it and the translucent wall 5. Several small apertures 7 are formed in the translucent wall 5 near its upper edge whereby the chamber 6 has at its top free communication with the atmosphere through the interior of the body 1 for the purpose hereinafter described.

The wall 5 has formed with it near its lower edge a so-called sack-receptacle 8 which is in a general horizontal plane flat and broad, and shallow in the vertical plane but recedes rearwardly into a tube-like form wherein a rubber or other tube-holding-plug 9 is inserted. The sack-receptacle 8 at its forward edge connecting with the wall 5 opens into the chamber 6, the edges about the aperture to the chamber being of a smooth curving form to facilitate the movement of the sacks as hereinafter described.

In the sack-receptacle 8 two film-sacks 9 and 10 respectively are placed, each normally lying spread flatly in the sack-receptacle 8, the front edge or end of each barely protruding into the lower part of the chamber 6, the film-sack 10 lying normally approximately just above the film-

sack 9 in the sack receptacle. The film sacks 9 and 10 are each made of a material such as rubber having an elastic and semi-translucent character and containing a fluid, the lower film-sack 9 having preferably a green tint or color and the film-sack 10 having preferably a red tint or color for the purpose hereinafter described, it being understood however that these film sacks may have any color or character of signal markings thereon on either. Each sack 9 or 10 is wholly fluid containing except at its rear where its form is drawn into the shape of a tube 11 and 12 respectively, each of which is stationed in a hole in the tube-holding-plug 8^a and is securely connected to an independent and individual rubber or other conduit 13 and 14 respectively, whereby connection is made with the interior chamber of bellows as hereinafter described.

The conduit 14 connecting with the film-sack 9 in the head-light A is connected independently to a small bellows C; the conduit 14 connecting with the film-sack 9 in the head-light B is connected independently to a small bellows D. Each of the conduits 13 connecting with the film-sacks 10 is connected with a common bellows E. Each bellows C, D, and E may be of any form but is preferably constructed in the usual manner with a base 15 having a relatively hinged or movable top 16 which have between them a variable chamber formed by flexible inclosing sides as rubber or leather. Each bellows has a spring-lock 17 having means as notches in its side as shown and is pivotally attached to the base 15 and adapted to catch and secure in variable positions the catch 18 attached to the movable top 16 of the bellows and has a horizontally projecting foot release 19 whereby the bellows top may be released by the operator.

In the use and operation of my signal indicating and light dimming means, the film-sacks 9 and 10 in each sack-receptacle normally are contracted or retracted, so that they lie almost wholly as shown or wholly within the sack-receptacle 8, the fluid within the sacks and their connecting conduits and bellows being normally under such slight pressure or without greater than atmospheric pressure. The fluid so contained within the sacks and connecting appliances may be any fluid as air, ether, alcohol, or whatever fluid may be best adapted for the purpose. Suppose now that the operator desires to distend the sacks 10 (which are preferably green in color) so as to dim each of the headlights A and B, he then depresses the bellows E whereby the contained fluid is expelled or partially expelled through conduits 13 to the connected sacks 10, each of which is then distended according to the pressure of the fluid within the sacks and connecting bellows E, the air in the chamber 6 being expelled through the apertures 7 during the distention of the sack. This pressure may depend upon the degree to which the operator depresses the bellows E, the locking means described retaining it in various positions of compression. Depending on the degree of the compression the sacks 10 will be distended and will each rise into its related chamber 6, spreading in a uniformly thin section vertically and horizontally through the chamber. Thus the sacks 10 may be caused to fill a lower one-third, one-half or approximately the whole of each chamber 6, as controlled by the operator through the bellows E. The operator may if he desires cause a retraction of each sack 10 into its sack receptacle 8 by releasing the retaining lock whereby the bellows E will assume its normal expanded position and withdraw fluid from the sacks 10.

Suppose now the operator desires to cause a signal to be shown from either light A or B by displaying red or whatever signal indicia or markings may be upon the sack 9, he then depresses the bellows C or D depending on which light should show the signal, whereby the lower film-sack 9 in the related sack-receptacle 8 is caused to distend, and it rises into the chamber 6 in a flattened broad form of thin cross section to a height in the chamber depending on the degree of compression in the bellows C or D. If the film-sacks 10 should at this time be distended the film-sack 9 would rise in front of the film-sack 10 between it and the lens 4 whereby the light emanating from lens 4 would be red or otherwise have a character according to the marking or tinting of the sack 9 in such portion of it as determined by the degree of distention of the film-sack 9. It is to be noted here that the film-sack 9 or 10 in each receptacle 8 and chamber 6 may be so disposed that either one may be caused to occupy any part of the chamber as desired. Either film-sack 9 may be caused to retract by releasing of the compression in the bellows C or D as in the case of the film-sacks 10.

I contemplate that while I have shown the lens 4 and wall 5 and retaining sides constructed integrally, they may be constructed separately and held in their relative proximity by a metal or other rim forming the inclosing edge of the chamber 6. Also I contemplate that while I have shown the sacks 9 and 10 disposed in a single sack-receptacle 8, they may be disposed in separate receptacles or in separate chambers 6 each working independently of the other in its chamber 6.

While I have shown particular devices and combinations of devices comprising my invention in the preferred form as I have shown it, I contemplate that other detailed devices and combinations of devices may be used as a part of my invention without de-

parting from the spirit and scope of my invention.

I contemplate further that my device may be used with or without the sacks as shown, in such case the fluid alone, according to its character or nature, causing the dimming or variation of the light rays from the light source, the fluid in such case entering the translucent chamber directly and without limitation by the sacks as shown.

What I claim is:

1. In a device of the character described, a lens, a chamber adjacent to the lens, a sack-receptacle connecting with the chamber, a sack normally contracted in the sack-receptacle, and means whereby the sack may be caused to distend and occupy the chamber.

2. In a device of the character described, a lens, a chamber adjacent to the lens, a sack adapted to occupy the chamber and means whereby the sack may be caused to distend and contract.

3. In a device of the character described, a lens, a shallow chamber adjacent to the lens, a sack adapted to distend in the chamber and means whereby the sack may be caused to distend and contract.

4. In a device of the character described, a light source, a chamber formed of a translucent wall inclosure imposed in the path of the propagation of light-rays from the light source, a sack adapted to distend in the chamber and means whereby the sack may be caused to distend and contract.

5. In a device of the character described, a light source, a chamber formed of a translucent wall imposed in the path of propagation of light rays from the light source, a sack adapted to distend in the chamber and means whereby fluid pressure in the sack may be varied to distend or contract the sack.

6. In a device of the character described, a light source, a chamber formed of a translucent wall imposed in the path of propagation of light rays from the light source, a plurality of sacks adapted each to distend in the chamber and means whereby fluid pressure in any sack may be varied to distend or contract the sack.

7. In a device of the character described, a light source, a chamber formed of a translucent wall imposed in the path of propagation of light rays from the light source, a yieldably distendable sack adapted to be distended in the chamber and means whereby fluid pressure in the sack may be varied to cause distention or contraction of the sack.

8. In a device of the character described, a light source, a chamber formed of a translucent wall imposed in the path of propagation of light rays from the light source, a plurality of yieldably distendable sacks adapted each to be distended in the chamber and means whereby fluid pressure in the sack may be varied to cause distention or contraction of the sack.

9. In a device of the character described, a light source, a chamber formed of a translucent wall imposed in the path of propagation of light rays from the light source, a sack adapted to be distended in the chamber and a fluid controlling means adapted to deliver to or to withdraw fluid from the sack.

10. In a device of the character described, a light source, a chamber formed of a translucent wall imposed in the path of propagation of light rays from the light source, a plurality of sacks adapted each to be distended in the chamber and fluid controlling means adapted to deliver to or withdraw from any sack.

11. In a device of the character described, a light source, a chamber formed of a translucent wall imposed in the path of propagation of light rays from the light source, a plurality of sacks adapted to be distended in the chamber and means whereby fluid may be independently delivered to and discharged from any sack.

12. In a device of the character described, a light source, a chamber formed of a translucent wall imposed in the path of propagation of light rays from the light source, a sack adapted to be distended in the chamber, and a bellows adapted to discharge and withdraw fluid to and from the sack.

13. In a device of the character described, a light source, a chamber formed of a translucent wall imposed in the path of propagation of light rays from the light source, a plurality of sacks adapted to be distended in the chamber, and bellows means adapted to discharge and withdraw fluid from any sack.

14. In a device of the character described, a light source, a sack adapted to be distended transversely of the path of propagation of light rays from the light source, and means whereby the sack may be distended and retracted.

15. A light source, a chamber formed of a translucent wall and imposed in the path of rays projected from the light source, a sack contained in the chamber, and means whereby a fluid may be delivered into the sack or withdrawn from the sack.

16. A light source, a chamber formed of a translucent wall and imposed in the path of rays projected from the light source, a sack contained in the chamber and means whereby a fluid may be delivered into or withdrawn from the sack to cause movement of the sack transversely of the rays.

17. A light source, a chamber formed of a translucent wall and imposed in the path of rays projected from the light source, a

sack receptacle adjacent to the chamber, a sack normally contracted in the sack receptacle, and means whereby a fluid may be delivered into or withdrawn from the sack to cause movement of the sack in the chamber transversely of the path of light rays from the light source.

18. In a device of the character described, a chamber formed of a translucent wall, a sack contained in the chamber, and means whereby a fluid may be delivered into or withdrawn from the sack to cause movement of the sack in the chamber.

In witness whereof I have hereunto set my hand this 24th day of January, 1916.

JOSEPH F. ERNST.

Witnesses:
D. B. DOWNEY,
ADOLPHE PETERSON.