G. S. INMAN.

DIMMER DEVICE FOR VEHICLE HEADLIGHTS.

APPLICATION FILED OCT. 3, 1913.

1,100,484.

Patented June 16, 1914.

2 SHEETS—SHEET 1.

Fig. 1.

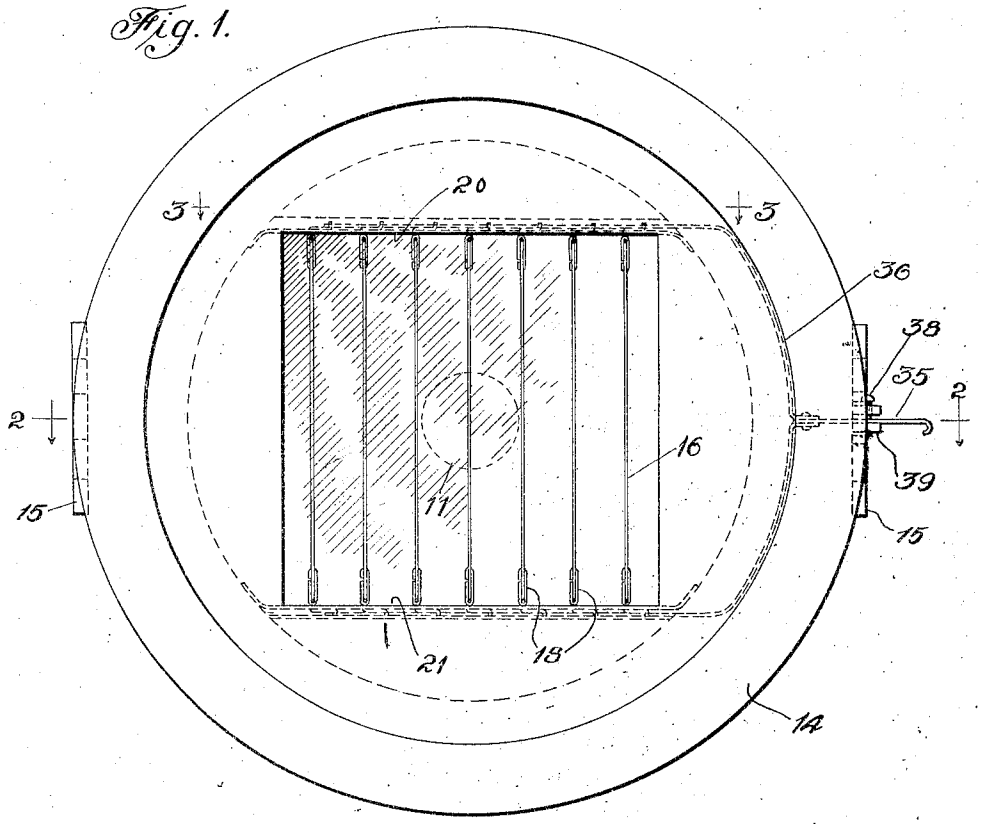
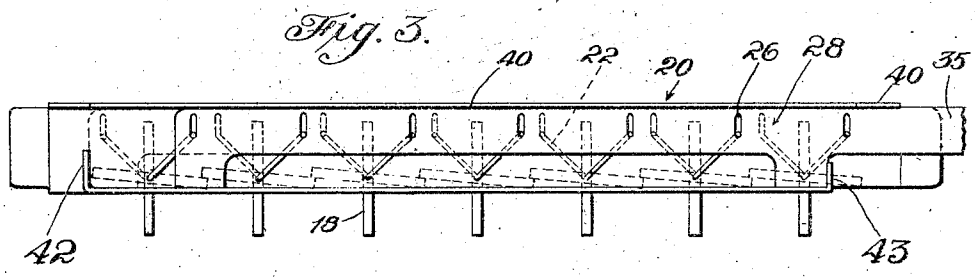


Fig. 3.



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2 SHEETS—SHEET 2.

Fig. 2.

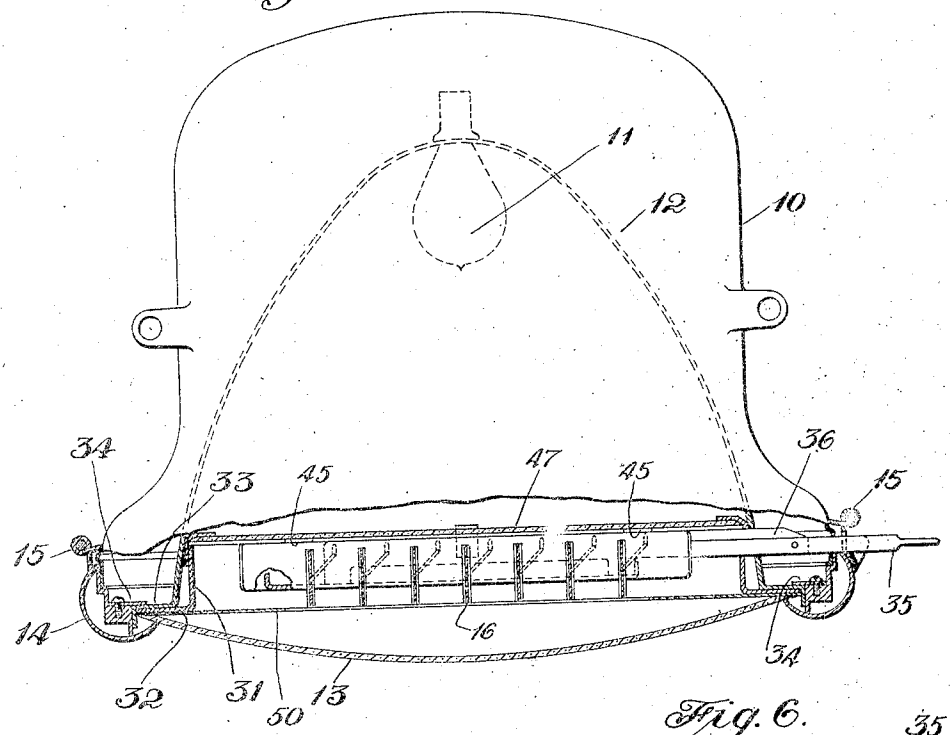


Fig. 4.

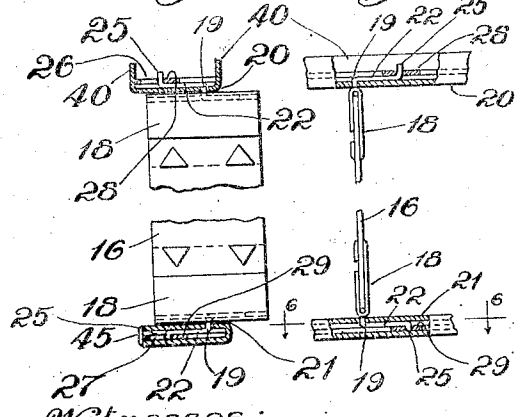


Fig. 5.

Fig. 6.

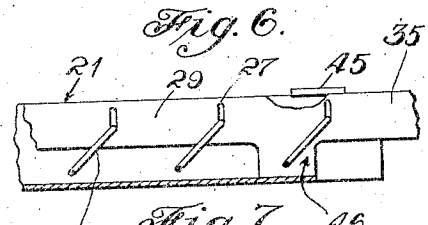
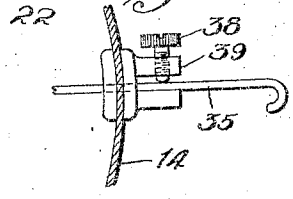


Fig. 7.



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UNITED STATES PATENT OFFICE.

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DIMMER DEVICE FOR VEHICLE-HEADLIGHTS.

1,100,484. Specification of Letters Patent. **Patented June 16, 1914.**

Application filed October 3, 1913. Serial No. 793,086.

To all whom it may concern:

Be it known that I, GEORGE S. INMAN, a citizen of the United States, and a resident of Chicago, in the county of Cook and State of Illinois, have invented certain new and useful Improvements in Dimmer Devices for Vehicle-Headlights; and I do hereby declare that the following is a full, clear, and exact description thereof, reference being had to the accompanying drawings and to the characters of reference marked thereon, which form a part of this specification.

This invention relates to a novel dimmer for head lights or lamps for automobiles, electric cars and like vehicles, so constructed and arranged as to permit the full volume of the light to be projected from the lamp when the vehicle is running in comparatively dark and isolated places, and to permit the light to be dimmed when the vehicle is running in comparatively light roadways or areas through which other vehicles are passing.

Among the objects of the invention is to provide means associated with the lamp for such vehicles which permits the full volume of the light to be utilized when desired and which, without adjustment or modification of the source of light, permits the light to be dimmed, without, however, cutting off or dimming it to a point beyond which it ceases its function as a head light.

A further object of the invention is to provide a dimming device for the purpose set forth which will eliminate to a maximum extent the casting of shadows on the roadway when the light is dimmed, and which will permit the use of a relatively thin translucent or semi-transparent medium for the dimmer, with means for actuating the elements thereof to expose or dim the light without placing stress on the dimming elements.

A further object of the invention is to provide a dimming device for the purpose set forth of a construction to be readily carried by the door or cover of the lamp, between the door lens and the source of light.

As shown in the drawings:—Figure 1 is a front elevation of a lamp equipped with my novel dimming device, Fig. 2 is a section on the line 2—2 of Fig. 1. Fig. 3 is a detail elevation as seen from the line 3—3 of Fig. 1. Fig. 4 is a detail, partially in elevation and partially in section, of one of the movable dimming elements. Fig. 5 is an edge elevation of one of the dimmer elements or slats with the upper and lower frame members shown partly in section. Fig. 6 is a detail section on the line 6—6 of Fig. 5. Fig. 7 is a detail of the actuating and locking means for the adjustable dimming elements.

In the illustrated embodiment of my invention as shown in the drawings, 10 designates a conventional form of casing for the lamp or head light for an automobile or electric car, 11 the lamp or source of light which may be an electric lamp or a gas burner, 12 a conventional form of reflector and 13 a conventional form of lens through which the light is projected. Said lens is carried by a frame or cover 14 which may be detachably secured to the casing or hinged thereto, as desired. The fastening devices 15 at the sides of the casing may either comprise overlapping lugs through which pins extend, or one of said devices may be regarded as a hinge and the other as a latch. In gas lamps it is common to hinge the front door or lens frame to afford ready access to the burner, and this may or may not be done in the use of an electric lamp.

Arranged between the source of light and the lens and carried by the lens frame is a dimmer device which, as herein shown, consists of a plurality of swinging shutter slats or louvers 16 that are so mounted and arranged as to be swung into position parallel to the light rays projected from the reflector 12, as indicated in full lines in Fig. 2, and to be swung to a plane substantially at right angles to the projected rays of light, as shown in Fig. 1 and indicated in dotted lines in Fig. 3. These shutter slats or louvers are made of a semi-transparent or translucent material, such for instance, as celluloid, or colored glass. Celluloid is preferable by reason of its lightness and the ease by which it may be mounted and connected to the actuating device therefor. The said shutter slats are connected to suitable actuating mechanism therefor whereby the series of slats may be simultaneously actuated to swing them into position to alternately expose and dim the light in the rear thereof. As herein shown, each of the said slats 16 is provided at its ends with fittings 18, preferably made of sheet metal and attached thereto in any suitable manner. To said fittings

are connected combined pivots and cranks designated, as a whole, by 19 which are soldered or otherwise fixedly secured to the fittings. The said combined cranks and pivots comprise pivot members arranged in the longitudinal axis of the slats and which extend through openings in upper and lower horizontal supporting or frame members 20, 21, respectively, horizontal members 22 which lie parallel to the planes of the supporting members, and crank members 25 disposed at right angles to the horizontal member 22 and which extend through slotted openings 26, 27 of upper and lower endwise reciprocatory actuating bars 28, 29 which are fitted to and are guided by the frame or supporting members 20, 21. Said upper and lower frame members 20, 21 are supported by a circular or part circular frame 31 which is arranged within the outer, larger end of the reflector 12, and is provided with a radial annular flange 32 which is confined between the lens 13 and a radial annular flange 33 at the outer, larger end of the reflector, as shown in Fig. 2, the parts being held in fixed relation on the clips 34. Said construction fixes the reflector to the lens frame or door so that said reflector is movable or removable with said door. The manner of mounting the frame 31 may be varied to correspond with different mountings of the door or lens carrying frame, an essential feature of the construction being the interposition of the dimming elements 16 between the lens and source of light and preferably the mounting of said dimming elements upon the door so as to be movable or removable with said frame or door.

The shutter slat actuating bars 28, 29 are adapted to be simultaneously reciprocated by means of a hand piece 35 which extends through an opening in the door or frame 14 and which is attached at its inner end to a curved cross bar 36 that is connected at its ends in any suitable manner to corresponding ends of said actuating bars 28, 29, as most clearly shown in Figs. 1 and 2. The said hand piece 35 may be locked in adjusted positions by means of a locking screw 38 screw-threaded to a slotted fitting 39 through which the hand piece extends and adapted to impinge at its inner end against said hand piece.

With the construction described, reciprocation of the slat actuating bars, through the manipulation of the hand piece 35, serves to give simultaneous opening or closing movement of the shutter slats, depending upon the direction of the hand piece, and said shutter or dimmer elements may be locked in either position of adjustment.

The supporting member 20 for the upper ends of the shutter slats is made of channel cross section, with the flanges 40 thereof directed upwardly, and the actuating member 28 associated with said actuating member lies between and is guided by the flanges thereof. The said flanges 40 are turned inwardly at their ends to constitute stops 42, 43, to limit the reciprocating movement of the upper actuating bar and to thereby limit the opening and closing movement of the shutter slats or louvers. The lower supporting bar for the shutter slats or louvers comprises a laterally opening channel member, through the upper flange of which the pivots 19 extend, and the lower flange of which supports the reciprocatory actuating bar 29 which lies beneath the arms 22 of the combined pivot and crank members and is provided with the slots 27 to receive the lugs 25 of the said pivot-crank members. The lower flange of the supporting member 21 is provided with lugs 45 to hold the lower actuating bar 29 laterally in place, and may be provided with stops 46 to limit the longitudinal reciprocal movement of the said bar. The said shutter slats or louvers are made of semi-transparent or translucent material. An approved material for this purpose is celluloid. If celluloid, or a material likewise combustible be employed, it is desirable, in the adaptation thereof to a gas lighted lamp, to interpose a sheet of glass 47 or other transparent material, between the dimmer and the source of light, or to otherwise protect the relatively inflammable substance from combustion.

In the use of the device, when the full volume of light is desired, the shutter slats are turned to assume a position parallel to the light rays which are projected from the reflector, to illuminate the roadway in front of the vehicle. In this position of the slats they afford no substantial obstruction to the light, so that the full volume of light may be utilized. Within zones where glaring light of the lamp is prohibited the slats may be adjusted in a position substantially at right angles to the light rays projected from the reflector 12 so as to cut off the direct passage of the light through the lens. By reason of the translucent character of the shield afforded by the said shutter slats or louvers, the light rays passing therethrough are subdued or dimmed so as to avoid the direct glare of the light, while at the same time affording sufficient light from the lamp to render the same discernible to approaching vehicles and to sufficiently illuminate the roadway for the vehicle carrying the dimmed light.

The unitary structure of the adjustable portion of the dimmer herein shown assumes a generally rectangular front elevation, as shown in Fig. 1, and when applied to a circular lamp lens, the area of the lens surrounding the dimmer and radially within the outer periphery of the lens may be

covered by a sheet 50 of translucent material such as celluloid fitted at its margin between the lens and the flange 33 of the dimmer frame, and provided with a central opening of a shape to expose the dimmer structure. This detail of the structure will depend somewhat on the lamp to which my dimmer device is applied.

It will be apparent that the structural details of the dimmer and its adaptation to particular types of lamps may be considerably varied within the scope and spirit of the invention, and the invention is not limited to the details shown, except as hereinafter made the subject of specific claims and as imposed by the prior art. The vertical arrangement of the shutter slats or louvers is advantageous by reason of the ease of supporting and actuating the same, but the general result may be produced with respect to the exposure and dimming of the light if the said slats were arranged in other than the horizontal position.

I claim as my invention:—

1. A dimmer for head lights comprising a series of shiftable dimmer elements made of translucent or semi-transparent material through the bodies of which the light rays are adapted to pass and adapted in one position of adjustment to overlap each other throughout the area of the light opening of the lamp whereby the light rays passing therethrough are dimmed and in another position to permit substantially the full volume of the light to pass between the slats through the light opening, and means for supporting and for adjusting the dimmer elements and for locking them in adjusted positions.

2. In a head light the combination with a casing, a source of light and a lens through which the light is projected, of a dimmer arranged between the source of light and the lens, comprising a series of shiftable semi-transparent dimming elements adapted in one position to permit the free passage of light from the source through said lens and in another position to be interposed in overlapping relation between the source of light and the lens, so that the light from the source passes through said elements and is dimmed by its passage therethrough, and means for simultaneously adjusting the dimmer elements and for locking them in adjusted positions.

3. The combination with a head light provided with a lens and a movable door for carrying same, of a dimmer device carried by the door between the lens and a source of light in the rear thereof, said dimmer device comprising a plurality of semi-transparent or translucent elements adapted in one position to permit the light rays to pass between the elements and directly through the lens and in another position to overlap each other to extend entirely across the area of the lens between it and the source of light to dim the light rays passing through the lens and means for adjusting said dimming elements and for locking them in adjusted positions.

4. A dimmer for headlights comprising a series of thin, semi-transparent shutter blades adapted to extend across a lamp lens and adapted in one position thereof to overlap each other at their edges and to constitute a continuous mask for the light rays and through which the rays pass to be dimmed, and adapted in another position thereof to assume parallel positions whereby the light rays pass substantially unobstructed between said blades, frame members in which said shutter blades are rockingly mounted at their ends, and means connected to the rocking pivots of the blades for opening and closing them.

5. The combination with a head light comprising a casing, a source of light and a lens extending across the front end of the casing, with a door supporting the lens, of a dimmer device comprising a frame carried by the door, thin translucent shutter elements having pivot means by which they are rockingly mounted in the frame members, cranks associated with said pivot means, connecting bars engaging the cranks and manual means associated with the connecting bars for simultaneously opening and closing the blades, with means for locking the blades in either of their adjusted positions.

In testimony, that I claim the foregoing as my invention I affix my signature in the presence of two witnesses, this 20th day of September, A. D. 1913.

GEORGE S. INMAN.

Witnesses:
G. E. DOWLE.
W. L. HALL.