Dec. 1, 1931. K. B. KARLEBO 1,834,542

DIMMING DEVICE FOR HEADLIGHTS FOR AUTOMOBILES AND THE LIKE

Filed April 17, 1930

Fig. 1.

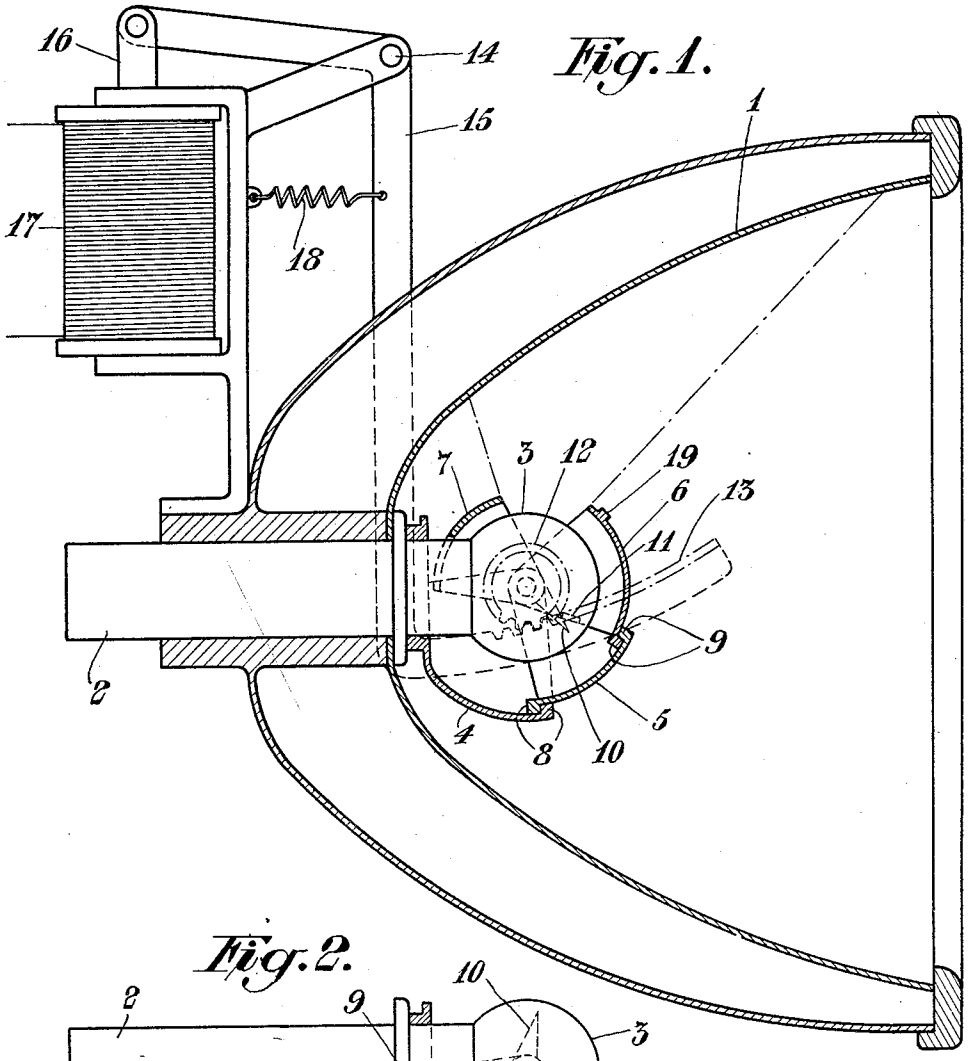


Fig. 2.

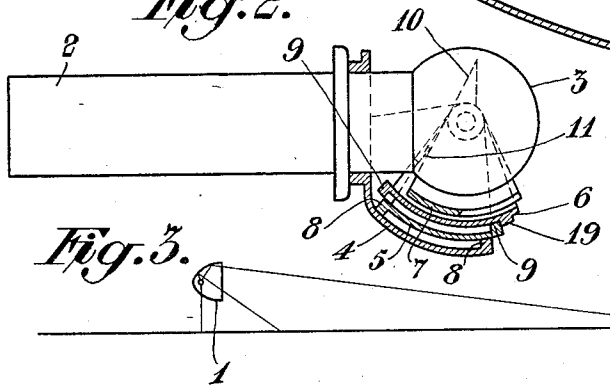


Fig. 3.

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UNITED STATES PATENT OFFICE

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DIMMING DEVICE FOR HEADLIGHTS FOR AUTOMOBILES AND THE LIKE

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The present invention relates to a dimming device for headlights for automobiles and the like which consists of an extensible and contractible shade comprising a number of shade sections which are pivoted on a common axis and are adapted in a certain position to shut off certain light rays from the lamp bulb. Devices of this type as hitherto proposed have not provided a satisfactory dimming of the light, since in those cases when the light was sufficiently shut off for not blinding an approaching driver the roadway was too badly lighted, and in such cases when the roadway was sufficiently illuminated the light was reflected so much upwards that it shone into the eyes of an approaching driver.

These inconveniences are avoided according to the present invention which broadly consists in that in the extended position of the shade one or more of the shade sections occupy such positions between the lamp bulb and the reflector that they shut off those light rays which are projected from the bulb rearwards against the central portion of the reflector, only such opening being left between the shade sections that light rays projecting from the bulb through said opening reach only the upper portion of the reflector which portion reflects the rays obliquely downwards.

The accompanying drawings illustrate an embodiment of the invention. Fig. 1 shows a vertical section through a headlight provided with a dimming device according to the present invention, said device being shown in the dimming position. Fig. 2 shows the dimmer in position for full light. Fig. 3 shows diagrammatically the manner in which the beam of light emitted through the dimmer when in the dimming position, is reflected.

The reflector 1 is provided in the usual manner with a lamp socket 2 carrying a lamp 3. Secured to the socket 2 is a shield 4 which has the shape of a spherical segment which is concentric with the lamp bulb 3. Pivotally supported in the shield 4 on pivots which are located in alignment with the horizontal axis through the center of the lamp bulb 3, is an extensible and contractible shade consisting of three shade sections 5, 6 and 7 located one inside the other, and each of which has the shape of a spherical segment concentric with the lamp bulb. The movement of the shade sections 5 and 6 is limited by projections 8 on the parts 4 and 5, and by projections 9 on the parts 5 and 6, in such manner that when the shade is extended, i. e. when the sections are swung out from each other, the shade sections 5 and 6 form a spherical segment which covers the lower and front sides of the lamp bulb 3, as shown in Fig. 1. The innermost shade section 7 is provided with an arm 10 which cooperates with an abutment 11 on the shade section 6.

Secured to the shade section 7 concentric with its axis of rotation is a toothed pinion 12 which meshes with a toothed segment 13 attached to the end of a bell crank lever 15, which is pivoted on the pin 14 and the other end of which is pivotally connected to a magnet core 16 in a solenoid 17 which, when energized by electric current, moves the arm 15 in the counter-clockwise direction in Fig. 1 against the influence of a spring 18.

When the light is to be dimmed electric current is supplied to the solenoid 17 so that the core 16 is attracted and the arm 15 is moved in the counter-clockwise direction in Fig. 1. The toothed segment 13 thus moves to the right in Fig. 1 and rotates the pinion 12 and thus also the shade section 7 in the counter-clockwise direction in Fig. 1. When the arm 10 on the shade section 7 engages the abutment 11 on the shade section 6, the latter is entrained in the rotation, and when the projections 9 engage one another the shade section 5 is also entrained until the projections 8 engage one another. The arm 10 is so positioned that an opening is formed between the shade section 7 and the shade section 6 for a beam of light from the bulb 3 which falls on such portion of the reflector 1 that said beam of light is only reflected obliquely downwards, as shown diagrammatically in Fig. 3. The inner surfaces of the shade sections may be polished so that they reflect light through said opening. In the case of a motor vehicle the portion of the reflector 1 on

which the light falls, should be so large that the road surface becomes illuminated from 5 to about 35 feet in front of the headlight.

The shade section 7 prevents light rays from the bulb 3 from reaching the central portion of the reflector which portion otherwise reflects the beam of light in such direction that it would shine into the eyes of an approaching driver and blind him. When the solenoid 17 is deenergized, the arm 15 is moved by the spring 18 in the clockwise direction in Fig. 1, so that the pinion 12 and thus also the shade section 7 are rotated in the clockwise direction. When the edge of the shade section 7 engages the abutment 11 on the shade section 6, said section is entrained in the rotation, and when a stop 19 on the shade section 6 engages the edge of the shade section 5, said section is also entrained, and all sections are thus moved together in the position illustrated in Fig. 2 for full light.

The embodiment described is merely selected as an example of the preferred manner in which the invention may be carried out, and it will be understood that various modifications may be made, for instance in respect of the shapes of the shade sections and the device for actuating the same, without departing from the principle of the invention.

I claim:

A headlight for automobiles and the like comprising a reflector and a light source, in combination with an extensible and contractible shade consisting of a plurality of shade sections hinged to each other and rotatable on a common axis around the light source, said shade being adapted in its extended position to substantially enclose said light source leaving only such opening that light rays emitted from said light source through said opening only fall upon such upper and forward portion of said reflector as will reflect the light rays obliquely downwards, and at least one of said shade sections being adapted in such position of said shade to occupy such position between said light source and said reflector as to shut off such light rays as are projected from said light source towards the central portion of said reflector.

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