

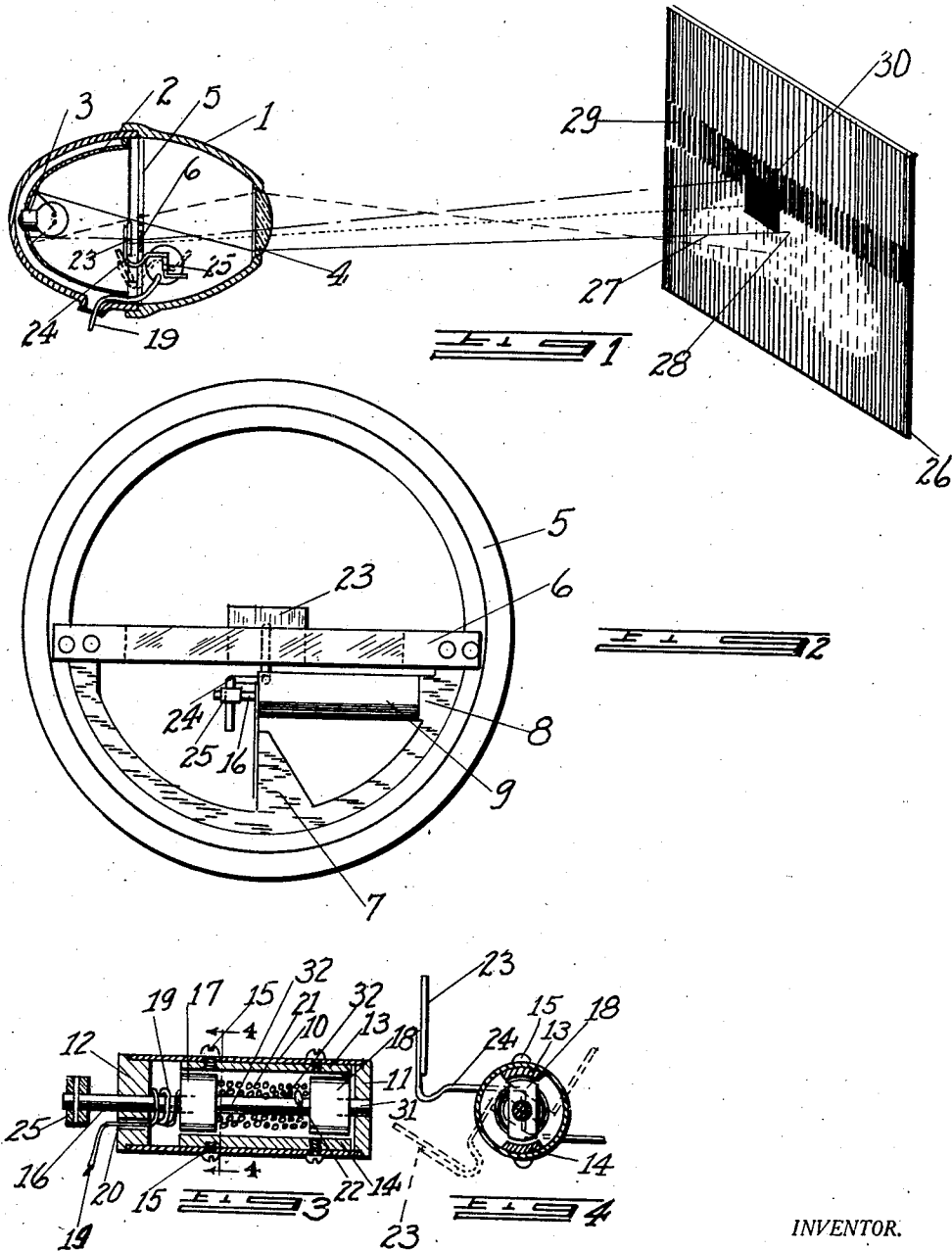
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E. P. BONE

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HEAD LAMP

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INVENTOR.

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## UNITED STATES PATENT OFFICE

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## HEAD LAMP

Application filed February 17, 1928. Serial No. 255,121.

My invention relates to headlamps and more particularly to means within the headlamps for casting a shadow in the projected light beam in the area striking the eyes of the driver of an opposing vehicle.

Every headlamp projects a light image. This image is formed either by a light concentrating reflector or one or more suitable lens or by a combination of a concentrating reflector and a lens. In some instances the image is circular and formed simply by the substantially uniform concentration of the light rays from the source of light within the headlamp and is substantially uniform in light intensity over the entire area. Other headlamps project the rays in such a manner as to form a light image of any desired shape and of varying intensity on different portions of the image.

Many headlamps heretofore devised have provided divers means for preventing glare in the eyes of the driver of an opposing vehicle. Such headlamps are provided with tilting reflectors or various types of dimmers and in part accomplish the result of this invention, however, certain disadvantages necessarily follow. In cutting off the light rays above and to the left, these previous devices also cut off the rays to the right and illumination of the roadway for any appreciable distance ahead is prevented.

The principal object of my invention is to provide a headlamp with full illuminating capacity for the entire roadway under ordinary conditions, but capable of prompt adjustment to cast a pronounced shadow over the area within which would be located the eyes of the drivers of oncoming vehicles, without affecting the illumination of other areas.

Another object of my invention is to provide means to accomplish the above object that may be instantly and easily operated as desired from any convenient place such as the dashboard of an automobile.

Another object of my invention is to provide simple means to accomplish this object that are easily constructed and reasonably inexpensive to manufacture.

These objects I accomplish by providing a small movable screen within the headlamp.

In the particular embodiment of my invention selected for illustration:

Fig. 1 is a vertical axial section through a headlamp in which my invention is included, from front to back, showing the rays as they emerge from the headlamp and the image that they cast upon a wall,

Fig. 2, an enlarged detail, is an elevation of the unit including the screen operated by a rotary solenoid,

Fig. 3 is an axial section of the solenoid with the armatures and their shaft shown in full, and

Fig. 4, is a section on the line 4—4 of Fig. 3. I have here shown for purposes of illustration only the preferred form of headlamp in which this invention may be used, and the combination horizontal and V filament incandescent lamp which is the subject of the invention in my co-pending application, Serial 250,549 for method of and means for illuminating a roadway, filed Jan. 30th, 1928.

Referring now to the drawing 1 is a headlamp casing within the rear part of which is secured a reflector 2 and an incandescent lamp 3. A plano convex lens 4 is secured in any suitable manner in the front of the casing, and ring 5 is removably secured to the inner periphery of the casing 1 and supports a fixed translucent screen 6 horizontally mounted. The two sections of the casing 1 are secured together in any suitable manner. The brackets or supports 7 and 8 preferably formed integral with the ring 5, firmly hold the solenoid 9 to the ring 5. The solenoid 9 consists of a casing 10 and ends 11 and 12. The pole pieces 13 and 14 of iron or other magnetic material within the casing 10 are secured thereto by screws 15. The shafts 16 and 31 to which is rigidly secured the armature 32 having enlargements 17 and 18, are journaled in the ends 11 and 12 for rotation. The wire 19 from any suitable source of electrical energy supply (not shown), passes through an aperture 20 in the end 12 and is spirally wound around the shaft 16 immediately inside of the casing 10 and then passing by the armature enlargement 17 is wound around the armature at 21 and its end grounded at 22.

A small preferably opaque screen 23 secured to an arm 24 is connected to the block 25 on the end of the shaft 16.

When electricity passes through the wire 19 into the solenoid there is a magnetic attraction between the armature enlargements 17 and 18 and the pole pieces 13 and 14, so that the parts take the positions shown in full lines in Figs. 1 and 4, and when the electrical circuit is discontinued, there is no longer any magnetic attraction and the screen 23 by its own weight falls into the position shown in dotted lines in Figs. 1 and 4.

When the screen is in operative or full line position as shown in Fig. 1, an image is cast on the board 26 as shown. The incandescent lamp here used casts an image in the general form of an isosceles triangle 27, with an intense light spot 28 near the apex. The shadow 29 is cast by the fixed screen 6 and the darkest spot 30 is cast by the movable opaque screen 23, in an area which it can readily be seen will include the eyes of a driver of an opposing vehicle.

Although I have shown and described my invention as applied to a particular type of headlamp, I do not wish to be limited to this form alone since it may be used with any type of headlamp whether using such a screen as the one indicated at 6 or with one using no screen at all, and likewise any suitable reflector, lens or incandescent lamp may be employed.

I claim as my invention and desire to secure by Letters Patent of the United States:

1. In combination with a headlamp having a source of light and means for projecting a light image, a rotatable screen which when in operative position intercepts part of the light rays to form a shadow in the light image, a solenoid having a rotating core and means for rigidly securing said screen to said core for rotation.

2. In combination with a headlamp having means for projecting a light image, a fixed translucent screen horizontally disposed within said headlamp in the path of some of the projected rays reducing the intensity of illumination of those rays passing there-through, a rotatable substantially opaque screen normally out of the path of the light rays, a solenoid having a rotating core and means for rigidly securing said rotatable screen to said core, said solenoid and rotatable screen so placed that energizing of said core moves said screen into the path of some of the projected light rays.

3. In combination with a headlamp having means for projecting a light image, a fixed screen horizontally disposed within said headlamp in the path of some of the projected rays reducing the intensity of illumination of those rays passing therethrough, a rotatable screen normally out of the path of the light rays by its own weight and adapted

when in operative position to substantially intercept those rays striking it, a solenoid having a rotating core and means for rigidly securing said rotatable screen to said core, said solenoid and rotatable screen so placed that energizing of said core rotates said screen into the path of some of the principal projected light rays.

In testimony whereof I have hereunto set my hand.

EVAN P. BONE.

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