Nov. 11, 1924. 1,514,653

A. D. CARDWELL

TAIL LIGHT

Filed Aug. 17, 1921

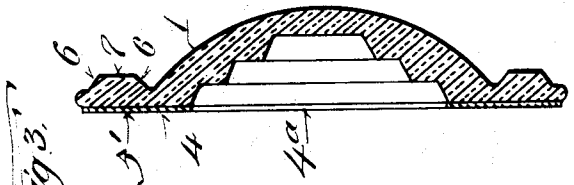


Fig. 3.

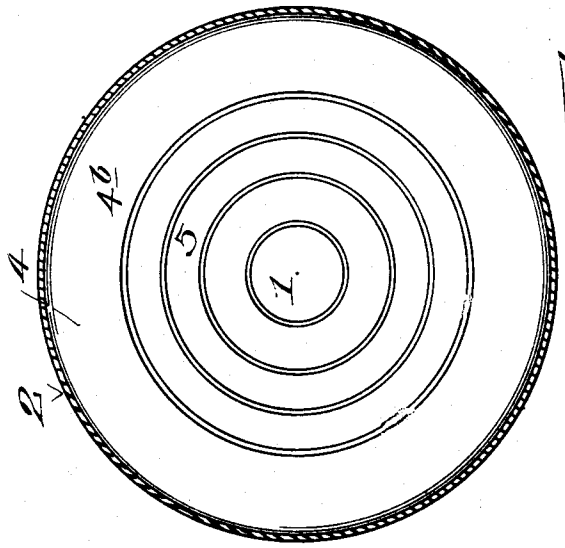


Fig. 2.

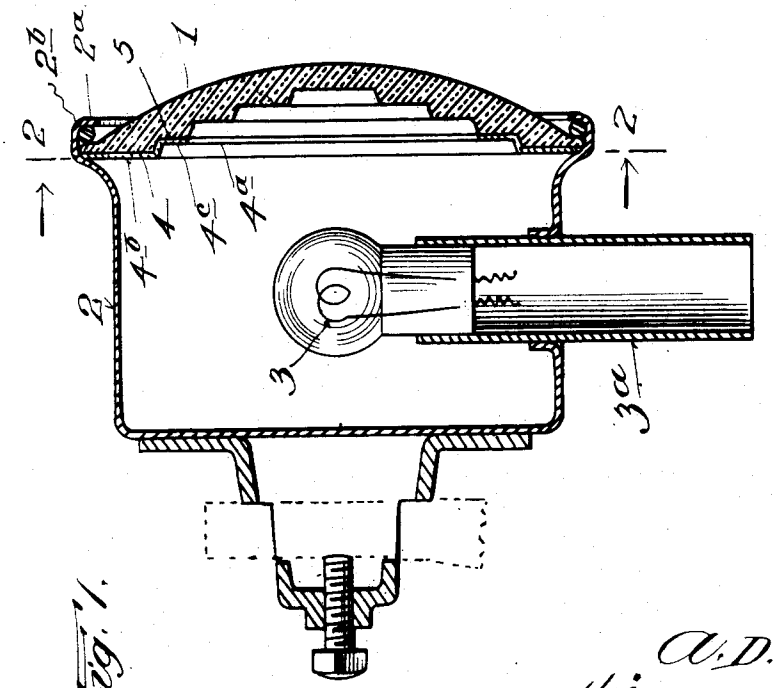


Fig. 1.

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UNITED STATES PATENT OFFICE.

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TAIL LIGHT.

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To all whom it may concern:

Be it known that I, ALLEN D. CARDWELL, a citizen of the United States, and resident of Rockville Center, in the county of Nassau and State of New York, have invented certain new and useful Improvements in Tail Lights, of which the following is a specification.

Heretofore tail lights for automobiles have usually been provided with a lens or glass showing red color in front of a source of light, such as an oil lamp or an electric light, and when such source of light becomes extinguished a vehicle approaching from the rear at night is in danger of collision with the forward vehicle.

The object of my invention is to provide a tail light with means through which its colored lens may be seen, as usual, from its source of light, and which means will act as a reflector in conjunction with light projected from an approaching vehicle, in case said source of light be extinguished, to show to the driver of the approaching vehicle the colored tail light lens of the vehicle ahead.

In carrying out my invention I provide an annular or perforate reflector in conjunction with the colored lens and light source of a tail light, so located with respect to said lens and light source that the light from said source may show through the lens within said reflector and when the light source is extinguished said reflector, when light rays from an approaching vehicle strike it, will cause the color, such as red, of said lens, to be observed from the rear.

My invention also comprises novel details of improvement that will be more fully hereinafter set forth and then pointed out in the claims.

Reference is to be had to the accompanying drawings, forming part hereof, wherein—

Figure 1 is a vertical section of a tail light embodying my invention;

Fig. 2 is a section on line 2, 2, in Fig. 1; and

Fig. 3 is a section of a modification.

The numeral 1 indicates a lens for a tail light which may be of usual red color as a danger signal. Said lens may be supported in any desired or usual way upon a lamp casing 2, such as by the detachable ring 2^b, between the lens and the casing flange 2^a. A source of light is indicated at 3 which may be an electric lamp, having a support 3^a, or an oil lamp, as may be desired, to be supplied with electric current or oil in any well known way. At 4 is a reflector used in conjunction with the lens, and shown having a central opening 4^a through which the light may pass to illuminate the lens. Reflector 4 may be in the nature of a mirror, that is to say, the reflector may be formed by the application of mercury upon the glass lens 1, on the inner side of the latter. If preferred, the reflector 4 may be in the form of polished metal or an annular mirror of mercury and glass, in conjunction with the lens. In the last cases the reflector may be separate from the lens but retained in the case by retaining means for the lens, such as the ring 2^b, or may be attached to the lens by any suitable adhesive.

In Fig. 1, the lens 1 is of conventional shape in automobile tail lights, having inner annular depressed surfaces 5 against which corresponding depressed portions of reflector 4 are opposed, the reflector thereby having a main outer flat portion 4^b and one or more indented or depressed inner portions 4^c, coinciding with the surfaces 5 of the lens.

In the form shown in Fig. 3, the reflector 4 opposes the marginal flat surface 5′ of the lens, and along the outer portion of the lens the latter is provided with angular or prism-like surfaces 6 and a surface 7 substantially parallel to the reflector, to cause reflection rearwardly from reflector 4 according to angles from which a rear light may be cast through the lens upon the reflector.

The reflector 4, shown in annular form, is so related to the lamp and to the lens that when the lamp is lighted the lens will be illuminated within the reflector to show red color, as usual, through the opening 4^a in the reflector. When the lamp 3 is extinguished and light is cast upon the lens from the exterior of casing 2, as from the head lights of an automobile behind the vehicle carrying the extinguished tail light, the rays from such rearward lamp will strike the reflector 4 ahead and cause illumination of the outer portion of lens 1 by reflection through the lens, as in ring-like form in front of the reflector. In other words, by means of my improvement a vehicle having head lights approaching the

rear of a vehicle whose tail light is extinguished, will, by means of said head lights, cause illumination of the lens of said extinguished light, by reason of its reflector 4, so that the driver of the rear vehicle will see a red colored ring on the vehicle ahead to warn said driver of the presence of said forward vehicle, hence, when a tail light becomes extinguished, both the vehicle having such tail light and a vehicle approaching from the rear will be protected from collision, whereas, otherwise danger of collision of said vehicles might occur.

My invention is not limited to the details of construction set forth, as the same may be varied, within the scope of the appended claims, without departing from the spirit of the invention.

Having now described my invention, what I claim is:—

1. A colored lens of the class described combined with a perforate reflector adjacent to a portion of the lens on the inside thereof permitting light to pass through another portion of the lens through said perforation in the reflector from a light source on one side of the lens, said reflector adapted to receive rays from an external source of light and direct back these rays towards said source.

2. A colored lens of the class described provided with an adjacent marginal annular reflecting surface permitting light from a light source on one side of the lens to pass through the opening in the reflector and through the opposing portion only of the lens, said reflector adapted to receive rays from an external source and direct back these rays towards said source.

Signed at New York city, in the county of New York, and State of New York, this 16th day of August, A. D. 1921.

ALLEN D. CARDWELL.