June 1, 1937. H. J. SAUER 2,082,658

REFLECTOR SIGNAL DEVICE EOR TAILLIGHTS

Filed Sept. 14, 1934

Fig.1.

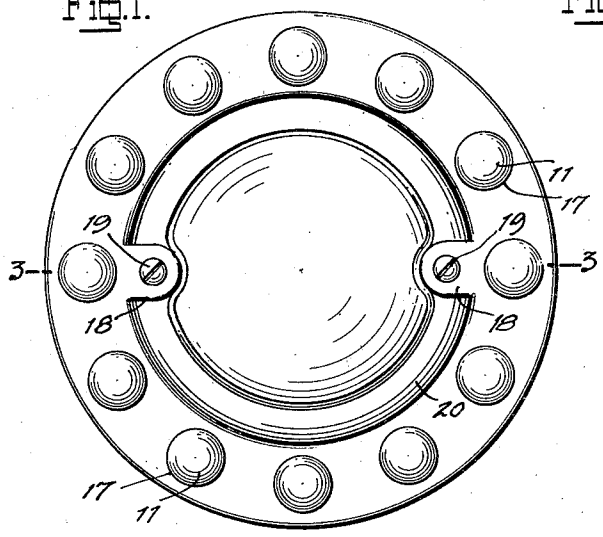


Fig.2.

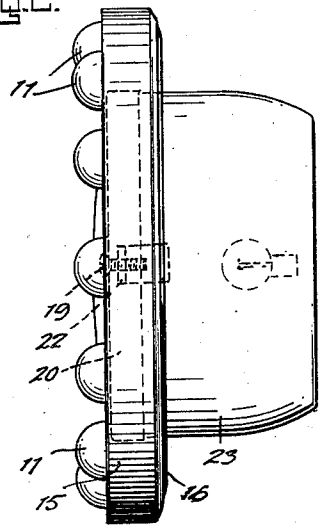


Fig.3.

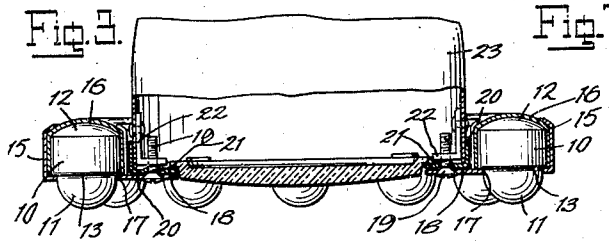


Fig.7.

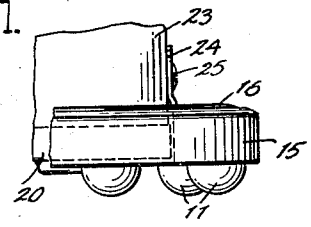


Fig.4.

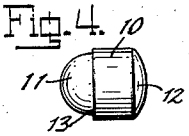


Fig.6.

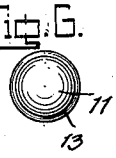


Fig.10.

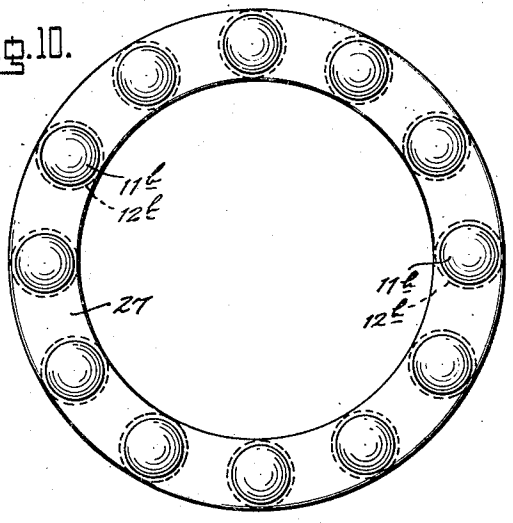


Fig.5.

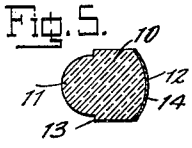


Fig.8.

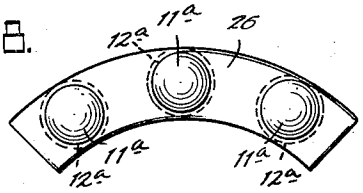
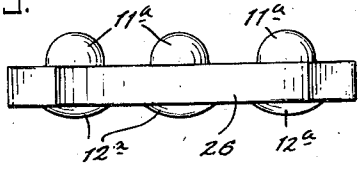


Fig.9.



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REFLECTOR SIGNAL DEVICE FOR TAILLIGHTS

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Application September 14, 1934, Serial No. 743,975

1 Claim. (Cl. 88—81)

The present invention relates to an improvement in a reflecting signal device for tail-lights of automobiles or other vehicles, and has for an object to provide an autocollimating reflector means in such relation to the tail-light that a reflector signal is provided corresponding in outline to and constituting a part of the tail-light, and which will provide a signal independently of the tail-light lens, so a reflector of full magnitude may be obtained without respect to the requirements of the lens, and without obscuring or cutting down the effective area of the lens, as has been the case in tail-light reflecting lenses heretofore in use, which, in combining the functions of a lens and a reflector, sacrificed and compromised the desired characteristics of each. Another object is to provide a reflector device which may be readily attached to a tail-light without the necessity for changing the lens. Another object is to provide a reflecting device which will function to give a signal to following vehicles in the event of failure of the tail-light, and also in normal use, with the tail-light properly functioning, will give a luminous flash signal as a following vehicle comes within range, the effect being to greatly supplement the normal brilliance of the tail-light and thereby compel the attention of the driver of the following vehicle during the time he is within the range of the reflector.

With the above and other objects in view, embodiments of the invention are shown in the accompanying drawing, and these embodiments will be hereinafter more fully described with reference thereto, and the invention will be finally pointed out in the claim.

In the drawing:

Fig. 1 is a front view showing a reflector device, according to an exemplary embodiment of my invention, mounted on a tail-light.

Fig. 2 is a side elevation of the same.

Fig. 3 is a horizontal sectional view taken along the line 3—3 of Fig. 1.

Fig. 4 is a side view of one of the autocollimating reflector units employed.

Fig. 5 is a longitudinal sectional view thereof.

Fig. 6 is a front end view.

Fig. 7 is a fragmentary plan view showing a modified form of attaching means for mounting the reflector device on the tail-light.

Fig. 8 is a plan view of a modified form of glass reflector unit, of segmental form.

Fig. 9 is a side elevation thereof.

Fig. 10 is a plan view of another modified form of glass reflector unit, of ring form.

Similar reference characters indicate corresponding parts throughout the several figures of the drawing.

Referring to the drawing, the reflector device according to the illustrated embodiment of the invention comprises generally a ring member carrying a series of autocollimating reflector units, and which is mounted on the tail light in surrounding relation to the front lens carrying closure.

The autocollimating reflecting unit 10, as shown in Figs. 1 to 7, is of the type shown in my U. S. Patent #1,834,647 dated December 1, 1931, and consists of a glass body, the intermediate portion of which is preferably cylindrical. The front end 11 of the glass body is convexly spherical and serves as the objective of the unit, and the rear end 12 is also convexly spherical. The front and rear ends have a common normal and a common center of curvature, and the radius of the rear end is greater than the radius of the front end. In practice the ratio is preferably two to one. The portion of the glass body in the rear of the front end extends outwardly so as to form an abrupt annular shoulder 13, which forms a support in a plane at right angles to the common normal to the front and rear ends. This shoulder has a greater radial extension from the common normal than that part of the glass body in front of the shoulder, and is also positioned sufficiently in front of the reflecting surface at the rear so that rays of light passing through the common center of curvature of the front and rear ends are reflected from the extreme edge of the reflecting surface without being interrupted by the shoulder. The rear end 12 is covered with a silver or foil coating 14, thus producing a catadioptric element.

The reflector units are mounted in a holder consisting of a front member 15 and a back member 16 of ring form adapted to surround the tail-light, the front member having a series of holes 17 through which the front ends 11 of the reflector units project. The front and back members are of channel-shape in cross-section the side walls of the back member fitting within the side walls of the front member, and the two being secured by flanging over the rearward edges of the front member upon the back surface of the back member. The back member is preferably curved in cross-section to conform to the curvature of the rear ends 12 of the reflector units.

For the purpose of convenient attachment to the tail-light the holder is provided with a pair of inwardly projecting apertured ears 18—18, which are arranged to register with the attach-

ing screws 19—19 of the tail-light closure 20, and which normally are engaged through holes 21—21 in the closure and screw into brackets 22—22 secured to the tail-light casing 23. These ears may be lanced and bent from the side wall of the front member 15.

In Fig. 7 I have shown a modification in which the reflector device is provided with a plurality of suitably spaced rearwardly extending apertured ears 24 secured to the side of the tail-light casing by screws 25. These are preferably formed as integral extensions of the side wall of the front member 15.

In Figs. 8 and 9 I have shown a modified form of reflector member in which a plurality (three as shown) of reflector units, each having a convexly spherical front end 11^a and a convexly spherical rear end 12^a, corresponding to the front and rear ends 11 and 12 of the single unit 10, are molded integrally with a segmental ring section 26. The rear surfaces 12^a are silvered or foiled. A plurality of these reflector members are adapted to be mounted in the holder in substantially the same manner as the single units 10, with the front ends 11^a projecting through the holes 17, as will be obvious.

In Fig. 10 I have shown a further modification in which the reflector member is in the form of a molded glass ring 27 having a plurality of reflector units integrally molded therewith, these units each having convexly spherical front ends 11^b and convexly spherical rear ends 12^b corresponding to the front and rear ends 11 and 12 of the single unit 10. This single reflector member is mounted in the holder in substantially the same manner as the units 10, with the front ends 11^b projecting through the holes 17, as will be obvious.

It will be understood that the reflector device may be of any suitable shape to conform to the particular shape of the tail-light, and that the attaching means may be arranged to register with the attaching means of the tail-light closure. Also the size and number of the reflecting units may be modified to provide any desired brilliance.

I have illustrated and described preferred and satisfactory embodiments of my invention, but it will be obvious that changes may be made therein, within the spirit and scope thereof as defined in the appended claim.

Having thus described my invention, what I claim and desire to secure by Letters Patent is:

In combination with a signal light comprising a lamp carrying casing, a closure having a lens, a means for securing said closure to said casing, a reflector comprising a frame entirely exterior of and separable from said casing and disposed in surrounding relation to said casing entirely out of the path of the lamp rays passing through said lens, attaching means for said reflector carried by said frame engaged with said closure in registering relation with said securing means and secured to said closure by engagement of said securing means with said attaching means, and autocollimating reflector means carried by said frame adapted to reflect an outside source of light.

HENRY J. SAUER.