

April 18, 1939.

M. KAPLOWITZ

2,155,092

REFLECTOR

Filed Feb. 20, 1936

Fig. 1.

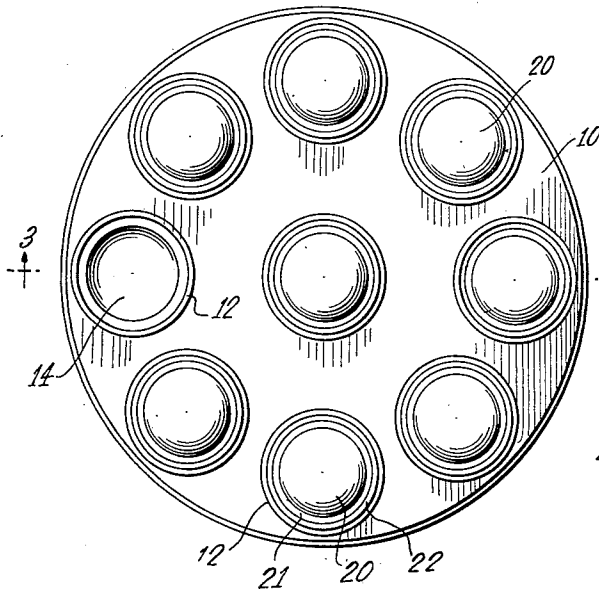


Fig. 2.

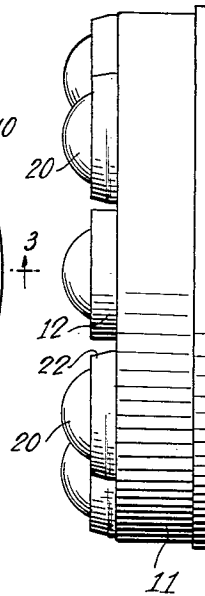
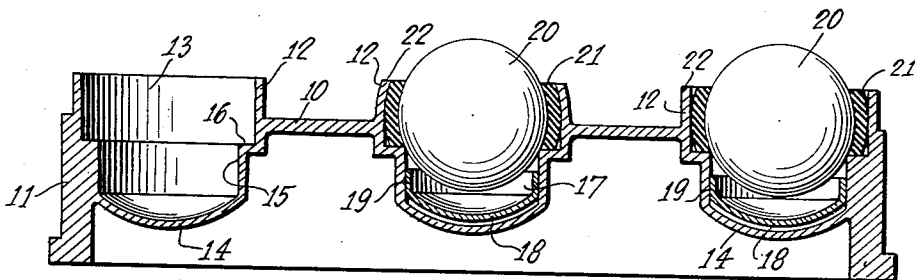


Fig. 3.



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2,155,092

REFLECTOR

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Application February 20, 1936, Serial No. 64,871

7 Claims. (Cl. 88—82)

This invention relates to reflectors of the type adapted to be mounted on vehicles in order to reflect light from the headlight of a following vehicle back to the driver of the latter, and one object thereof is the provision of certain useful improvements in reflectors of the multiple type. Such reflectors may also be mounted on stationary supports, as, for instance, at curves in highways and at dead ends of streets. The casings of the reflectors may be molded, cast or otherwise formed in the shape of letters, numerals, figures, trade marks, designs, etc.

A further object of the invention is the provision of such a reflector with means for varying the distance between the lens and its mirror. This adjustment means is necessary so as to accommodate graded groups of lenses with various focal lengths and still maintain a reflector of very high optical efficiency. These variations are due to physical or optical variations and are common in the manufacture of inexpensive lenses. It is further useful as the means of controlling the optical characteristics of the reflector by controlling the angle of the returning rays so as to meet specific optical requirements of various specifications.

A still further object of the invention is to provide such a reflex reflector with a multiple casing having hermetically sealed units which can be manufactured very inexpensively in various shapes, forms, and of various materials.

Another object of this invention is to provide a reflector having a high degree of optical efficiency and at the same time having its cost of manufacture reduced to a minimum.

The above and other objects will be made apparent in the description below in which like characters of reference refer to like-named parts in the accompanying drawing, forming a part thereof.

Referring briefly to the drawing:

Figure 1 is a plan view of an incompletely assembled multiple reflector.

Figure 2 is a side view of Figure 1.

Figure 3 is a cross-sectional view taken on the line 3—3 of Figure 1.

Referring in detail to the drawing, the numeral 10 represents the face plate of a casing provided with a peripheral flange 11. At spaced-apart positions, a number of tubular walls 12 project outward from the face 10, that portion of the face 10 which would come within the enclosure of each wall 12 being blanked out in the casting or stamping of the casing. Each wall 12 encloses a socket 13 having a rounded base 14 from which

the cylindrical wall 15, of the same diameter as the base 14, extends upwardly. A peripheral shoulder 16 marks the division between the inner surface of the wall 12 and the wall 15. The entire casing, together with the various features of the sockets 13, as above set forth, may be cast, stamped out, or otherwise formed of unitary construction.

A reflector element or mirror 17 having the back 18 whose concave surface is covered with a suitable coating of material such as chromium plate, is provided with a cylindrical flange 19 which is adapted to fit very snugly within the walls 15, so that it may be forced into position at a predetermined distance from the seat 16. A glass sphere or lens 20 of any suitable color is mounted on the seat formed by the shoulder 16. A soft rubber ring or gasket 21 is placed about the equatorial belt of the sphere 20 to serve as a water-proofing packing to prevent moisture from getting below the lens. After the mirror 17, the lens 20, and the gasket 21 have been mounted in the socket 13, as shown at the right hand end of Figure 3, the wall 12 is pressed inward in any desirable manner to assume the arcuate cross-sectional form shown at the center of Figure 3. The upper lip 22 of the turned-in wall 12, thereupon serves to lock the lens 20 in the socket.

Other forms of lenses aside from spheres may be used with equal advantage with the above mentioned type of construction.

No means for attaching the reflector on a vehicle or other support has been shown or described, as such means does not form any part of the present invention; obviously, any suitable means may be provided. It is also obvious that modifications in form and structure may be made without departing from the spirit and scope of the invention.

I claim:

1. In a multiple reflector, a unitary housing, said housing having a front wall with a plurality of openings therein, said openings having peripheral walls extending substantially perpendicular to the face of said front wall and forming peripherally walled sockets, said peripherally walled sockets being integral with said front wall, each of said peripherally walled sockets having socket locking means, said socket locking means consisting of a portion of said peripherally walled socket extending above said front wall, each of said peripherally walled sockets having a seat, said seats and said socket locking means being integral with said peripherally walled sockets, an auto-collimating catadioptric reflecting unit

mounted in each of said peripherally walled sockets, said units being seated on said seats, the front faces of said units projecting through said openings in said front wall, said peripherally walled sockets and said seats forming retaining casings for said units mounted therein, said portions of said peripherally walled sockets extending from said front wall being peened inwardly to engage said units and lock them in said sockets.

2. In a multiple reflector, a unitary housing, said housing having a front wall with a plurality of openings therein, said openings having peripheral walls extending inwards from the face of said front wall and forming peripherally walled sockets, each of said peripherally walled sockets having a seat and an extending rim, said extending rim projecting outwardly around the opening in said front wall, said seat being located below said extending rim in said socket, said seats and said extending rims being integral with said peripherally walled sockets, an autocollimating catadioptric reflecting unit mounted in each of said peripherally walled sockets, said units being seated on said seats, the front faces of said units projecting through said openings in said front wall, said extending rims being peened inwardly to engage said units and lock them in said sockets.

3. In a multiple reflector, a unitary housing, said housing having a front wall with a plurality of openings therein, said openings having peripheral walls extending outwards and inwards from the face of said front wall and forming peripherally walled socket casings, said socket casings being integral with said front wall, a lens and a reflector forming an autocollimating catadioptric reflecting unit mounted in each of said socket casings, said socket casings having means for retaining and positioning said reflectors and said lenses mounted therein, said lenses projecting through said openings in said front wall, said reflectors being retained in said inward extensions of said peripheral walls, said outward extensions of said peripheral walls being peened inwardly to engage said lenses and lock said units in said socket casings.

4. In a multiple reflector, a unitary housing, said housing having a front wall with a plurality of openings therein, each of said openings having a peripheral wall extending inwards from the face of said front wall and forming a peripherally walled socket casing, said socket casing being integral with said front wall, said socket casing having socket locking means, said socket locking means consisting of a portion of said socket casing extending above said front wall, said socket locking means being integral with said socket casing, a lens and a reflector forming an autocollimating catadioptric reflecting unit mounted in each of said socket casings, said socket casing having means for retaining and positioning said reflector and said lens mounted therein, said lens portion of said unit projecting through said opening in said front wall, said reflector being retained within said socket casing, said portion of said socket casing extending above said front wall being peened inwardly to engage said lens and lock said unit in said socket casing.

5. In a multiple reflector, a unitary housing having a front wall with a plurality of openings therein, said openings having peripheral walls extending substantially perpendicular to the face of said front wall and forming peripherally walled

socket casings, said socket casings being integral with said front wall, each of said socket casings having socket locking means, said socket locking means on each of said socket casings consisting of a portion of said socket casing extending above the front wall, said socket locking means being integral with said socket casing, a reflector and a lens forming an auto-collimating catadioptric reflecting unit mounted in each of said socket casings, said socket casings having means for retaining and positioning said reflectors and lenses mounted therein, said lenses projecting through said openings in said front wall, said reflector being slidably retained by said peripheral wall of said socket casing, said portion of said socket casing extending above said front wall being peened inwardly to engage said lens and lock said lens in said socket casing, the slidable relation between said peripheral wall and said reflector in said socket casing providing means for varying the focal distance between said lens and said reflector.

6. In a multiple reflector, a unitary housing having a front wall with a plurality of openings therein, said openings having peripheral walls extending substantially perpendicular to the face of said front wall and forming peripherally walled sockets, said peripherally walled sockets being integral with said front wall, each of said peripherally walled sockets having socket locking means, said socket locking means of each of said sockets consisting of a portion of said peripherally walled socket extending from said front wall, each of said peripherally walled sockets having a seat, said seat being located below said socket locking means, said seat and said socket locking means being integral with said peripherally walled socket, a reflector and a lens forming an autocollimating catadioptric reflecting unit mounted in each of said sockets, said lens projecting through said opening in said front wall and resting on said seat, said reflector being slidably retained by said peripheral wall of said socket, the slidable relation between said peripheral wall and said reflector providing means for varying the focal distance between said lens and said reflector, said portion of said peripherally walled socket extending from said front wall being peened inwardly to engage said lens and lock said lens in said socket.

7. In a multiple reflector, a unitary housing, said housing having a front wall with a plurality of openings therein, said openings having peripheral walls extending substantially perpendicular to said front wall and forming peripherally walled sockets, said peripherally walled sockets being integral with said front wall, each of said peripherally walled sockets having socket locking means, said socket locking means of each of said sockets consisting of a portion of said peripherally walled socket extending above said front wall, said socket locking means being integral with said peripherally walled socket, an auto-collimating catadioptric reflecting unit mounted in each of said peripherally walled sockets, the front faces of said units projecting through said openings in said front wall, said peripherally walled socket forming a retaining casing for said unit mounted therein, said portion of said peripherally walled socket extending above said front wall being peened inwardly to engage said unit and lock said unit in said socket.

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