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R. W. LUCE

1,979,695

MOUNTING FOR REFLECTOR UNITS IN SIGNS

Filed June 13, 1933

Fig. 1.

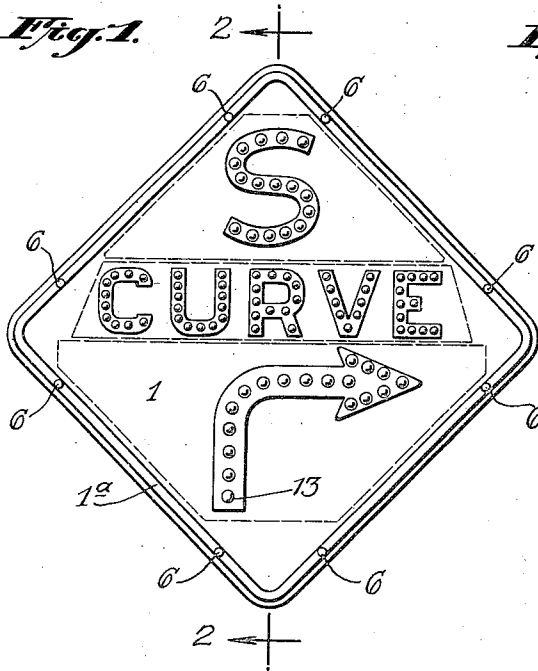


Fig. 2.

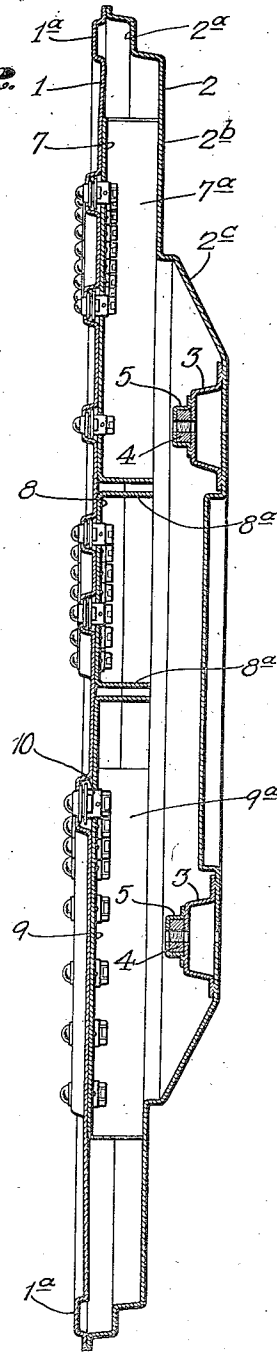


Fig. 3.

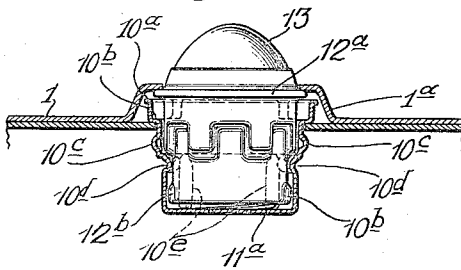


Fig. 4.

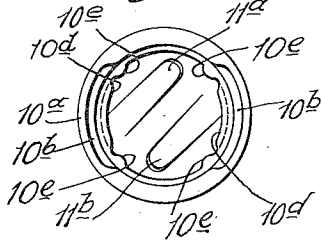
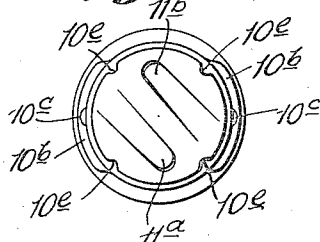


Fig. 5.



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MOUNTING FOR REFLECTOR UNITS IN
SIGNSRichard W. Luce, Westfield, N. J., assignor to
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Application June 13, 1933, Serial No. 675,561

10 Claims. (Cl. 40—130)

My invention relates to roadside signs of the type in which the characters displayed are described by a series of independent reflecting units and my invention is particularly directed to the mounting of the reflecting units in such signs.

Commonly, this type of sign includes a front display plate having a series of holes therethrough arranged to describe the character to be displayed by the sign, a reflecting unit for each opening with its front end extending into the opening, fastening devices for securing the reflecting units in place and a rear plate enclosing the bodies of the reflecting units and the mountings therefor. In general the reflecting units in such signs have been either mounted on the front display plate, or they have been carried by a separate reflecting-unit supporting plate provided and secured behind the front plate in such position as to support the reflecting units with their front ends extending through the openings in the front plate. The latter construction has been found to provide a security against pilfering of the reflecting units which has not been attainable with the first mentioned construction, but heretofore that construction has had certain manufacturing disadvantages. Among these disadvantages are included the necessity for great accuracy in locating the elements securing the reflecting units to the supporting plate, with respect to the openings through the front plate and to the means securing the supporting plate to the front plate; and the fact that with the manufacturing methods employed it is impossible to obtain equality in the spacings between the front plate and the supporting plate at all the unit receiving openings, with the result that the spacing is often too great for some of the buttons. The first mentioned of these disadvantages has been overcome by my invention described and claimed in my co-pending application Serial No. 675,562, filed June 13, 1933, and it is an object of my present invention to overcome the second mentioned disadvantage in such signs.

An advantage of the invention is the fact that the sign may be serviced while in the vertical position. In one form protuberances formed on the holders prevent the holders from falling out of the opening in the supporting plate and interlocking lugs on the reflecting units and confining ridges on the holders prevent the units from falling out of the holders.

A unit fits loosely in the holder and a play thereby provided permits the individual adjustment of the units to the opening in the cover plate.

A sign embodying my invention is illustrated in the accompanying drawing and described in detail below from which illustration and description a clearer understanding of my invention may be had.

Fig. 1 is a front elevation of a sign embodying my invention;

Fig. 2 is a transverse, sectional elevation taken along the line 2—2 of Fig. 1;

Fig. 3 is an enlarged, fragmentary section showing in detail a reflecting-unit holder as it is embodied in the sign;

Fig. 4 is a top plan of a reflecting-unit holder; and

Fig. 5 is a bottom plan of a reflecting-unit holder.

The sign illustrated in the drawing is of rectangular configuration and is mounted with a diagonal thereof vertical. The sign itself consists of a front plate 1 upon which the characters "S" at the top, the word "curve" substantially centrally of the sign, and a bent arrow at the bottom, are embossed, the three characters indicating that a reverse curve is just ahead and starts with a curvature in the direction of the arrow. Along the center line of each of these embossed characters a series of openings are cut through the front plate through which the ends of reflecting units extend.

A dished back plate 2 forms a housing for the mounting and the bodies of the reflecting units. The front plate is in effect a cover plate for this dish-shaped rear plate. Both plates are sheet metal and the rear plate is stamped to form a shoulder 2a, a base 2b for reflecting-unit sup-

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Commonly, this type of sign includes a front display plate having a series of holes therethrough arranged to describe the character to be displayed by the sign, a reflecting unit for each opening with its front end extending into the opening, fastening devices for securing the reflecting units in place and a rear plate enclosing the bodies of the reflecting units and the mountings therefor. In general the reflecting units in such signs have been either mounted on the front display plate, or they have been carried by a separate reflecting-unit supporting plate provided and secured behind the front plate in such position as to support the reflecting units with their front ends extending through the openings in the front plate. The latter construction has been found to provide a security against pilfering of the reflecting units which has not been attainable with the first mentioned construction, but heretofore that construction has had certain manufacturing disadvantages. Among these disadvantages are included the necessity for great accuracy in locating the elements securing the reflecting units to the supporting plate, with respect to the openings through the front plate and to the means securing the supporting plate to the front plate; and the fact that with the manufacturing methods employed it is impossible to obtain equality in the spacings between the front plate and the supporting plate at all the unit receiving openings, with the result that the spacing is often too great for some of the buttons. The first mentioned of these disadvantages has been overcome by my invention described and claimed in my co-pending application Serial No. 675,562, filed June 13, 1933, and it is an object of my present invention to overcome the second mentioned disadvantage in such signs.

In a construction embodying my present invention there is a supporting plate for the reflecting units which in the assembled sign is mounted between the front and rear plates. The supporting plate has a series of openings therethrough corresponding to the openings in the front plate and in each opening there is a device which I term a reflecting-unit holder. The reflecting-unit holder is adapted to receive a reflecting unit and includes resilient means which act upon the rear end of the reflecting unit and urge the unit towards the front plate. A limiting flange on the

porting plates and a frusto-conical reinforcing or mounting section 2c. At the base of the frusto-conical section, there are two openings through the rear plate for mounting bolts. Surrounding each of these openings and secured to the inner side of the plate there is an inverted cap 3. On the base of this cap a nut 4 is mounted, the nut being held in place and prevented from turning relative to the cap by a strap 5. The caps serve to distribute the force exerted by drawing up the mounting bolts, which are adapted to extend through the openings in the bottom plate and into threaded engagement with the nuts 4, and thus reinforce the rear plate which acts as a mounting plate for the sign. Through the shoulder 2a of the rear plate, there are eight holes and aligned holes are cut through an embossed border section 1a of the front plate. These openings form bolt holes through which bolts 6 extend and secure the front and rear plates together.

Between the front and rear plates there are three reflecting-unit supporting plates 7, 8 and 9, one for each of the characters of the sign. Each of these plates has right angular flanges 7a, 8a and 9a, respectively, the edges of which abut against the base 2b of the rear plate. These flanges provide room for the bodies of the reflecting units. The three supporting plates are mounted one above the other in accordance with the embossed characters on the front plate. Each of the plates has a series of holes therethrough corresponding to, and interrelated in accordance with the holes describing the character behind which the plate is mounted. In each of these holes in the reflecting-unit supporting plates there is a reflecting-unit holder 10.

The reflecting-unit holder, one of which is mounted in each opening of each supporting plate, is a sheet metal, cylindrical, cup-shaped stamping. The upper edge of the holder is bent outwardly forming an outwardly extending flange 10a. A portion of the wall of the holder extending longitudinally from the edge thereof is pressed outwardly at diametrically opposite points and the base of the protruding sections form flanges or shoulders 10b approximately equal in length to the flange. The shoulders 10b form limiting shoulders which prevent the reflecting-unit holder from passing through the plate. The bottom of the holder is slotted to form a pair of tongues 11a and 11b which are bent inwardly. These tongues are resilient and constitute inwardly projecting leaf springs the active ends of which lie in a diametrical line. A pair of diametrically opposite protuberances 10c extend outwardly from the wall of the holder. These protuberances are wedged in the opening in the plate and serve to maintain the holder in the plate even when the front plate is removed.

In each reflecting-unit holder there is mounted a reflecting unit which consists of a casing 12, a lens 13 and a reflector (not shown) within the casing behind the lens. Adjacent the outer edge of the casing there is formed a flange 12a. This flange is a limiting flange which is adapted to form an abutment for the unit against the front plate. The reflecting unit fits loosely in the holder so as to be adjustable to variations in alignment of the holes in the front and supporting plates. In order to maintain the unit in the holder when the front plate is removed, the holder has a pair of diametrically opposite inwardly extending, circumferential ridges 10d which cooperate with a pair of lugs 12b formed on the

casing of the reflecting unit. In putting the reflecting unit into the holder, the lugs 12b are pressed past the ridges 10d, the holder being buckled to permit the lugs to pass the ridges. The lugs 12b are maintained behind the confining ridges 10d by longitudinal, inwardly extending ridges 10e, a pair of which extend to the back of the holder from the ends of each confining ridge 10d.

The shoulders 10b and flanges 10a coact by reason of their spacing to serve as a filler in the space provided by the embossing. For a given height of embossing the thickness of this filler on the holder is so proportioned that together with the flange 12a on the unit it will substantially fill the space provided by the embossing between the two plates. There is almost invariably some room for axial play of the unit, the degree of which depends upon the accuracy of results, and this is accentuated whenever there is warping present. The leaf spring 11 formed in the bottom of the holder compensates for this condition and forces the limiting flange 12a of the reflecting unit against the inner surface of the front plate. Thus with these reflecting-unit holders in a sign constructed as described, all of the reflecting units, irrespective of a warped condition of the plate, are firmly pressed against the front plate and protrude through the front plate an equal amount.

The reflecting units are loose in the holders to provide a certain amount of play between the holder and the reflecting unit perpendicular and inclined to the axis of the holder. This play permits the individual units to become readily adjusted to irregularities.

It will be obvious that various changes may be made by those skilled in the art in the details of the embodiment of my invention illustrated in the drawing and above particularly described within the principle and scope of my invention as expressed in the appended claims.

I claim:

1. In a sign made up of a plurality of independent reflecting units grouped and arranged in the form of a character to be displayed, a display plate having a series of openings therethrough arranged to outline the character, a reflecting-unit supporting plate mounted behind the front plate and having a series of openings therethrough interrelated in accordance with the openings through the front plate, a reflecting-unit holder in each opening through the supporting plate including means adapted to extend along the sides of a reflecting unit inserted therein for limiting rotational movement of the unit and resilient means positioned by the holder to act upon the rear end of a reflecting unit and urge the unit towards the front plate, and a reflecting unit in each reflecting-unit holder and having the end thereof extending through the corresponding opening in the front plate, each reflecting unit including a limiting flange abutting against the inner surface of the front plate.

2. In a sign made up of a plurality of independent reflecting units grouped and arranged in the form of a character to be displayed, a front display plate having a series of openings therethrough arranged to outline the character, a reflecting-unit supporting plate mounted behind the front plate and having a series of openings therethrough interrelated in accordance with the openings through the front plate, a cup-shaped reflecting-unit holder in each opening through the supporting plate including a limiting flange

for engaging the supporting plate and resilient means at the bottom thereof for urging a reflecting unit towards the front plate, and a reflecting unit in each reflecting-unit holder and having the end thereof extending through the corresponding opening in the front plate, each reflecting unit including a limiting flange pressed against the inner surface of the front plate by the resilient means.

3. In a sign made up of a plurality of independent reflecting units grouped and arranged in the form of a character to be displayed, a front display plate having a series of openings therethrough arranged to outline the character, a reflecting-unit supporting plate mounted behind the front plate and having a series of openings therethrough interrelated in accordance with the openings through the front plate, a cup-shaped reflecting-unit holder in each opening through the supporting plate including longitudinally spaced flanges the rear one of which engages the supporting plate and resilient means in the bottom of the holder for urging a reflecting unit towards the front plate, and a reflecting unit in each reflecting-unit holder and having the front end thereof extending through the corresponding opening in the front plate, each reflecting unit including a limiting flange disposed in front of the forward flange on the holder and resiliently urged against the inner face of the front plate by pressure of the resilient means against the rear end of the unit.

4. In a sign made up of a plurality of independent reflecting units grouped and arranged in the form of a character to be displayed, a front display plate having a series of openings therethrough arranged to outline the character, a reflecting-unit supporting plate mounted behind the front plate and having a series of openings therethrough interrelated in accordance with the openings through the front plate, a cup-shaped reflecting-unit holder in each opening through the supporting plate including a limiting flange for engaging the supporting plate and a resilient leaf spring member formed in the bottom thereof for urging a reflecting unit towards the front plate, and a reflecting unit in each reflecting-unit holder and having the end thereof extending through the corresponding opening in the front plate, each reflecting unit including a limiting flange resiliently urged against the inner surface of the front plate by the leaf spring.

5. In a sign made up of a plurality of independent reflecting units grouped and arranged in the form of a character to be displayed, a front display plate having a series of openings therethrough arranged to outline the character, a reflecting-unit supporting plate mounted behind the front plate and having a series of openings therethrough interrelated in accordance with the openings through the front plate, a reflecting unit in each opening in the supporting plate having the end thereof extending through the corresponding opening in the front plate and each reflecting unit including a limiting flange abutting against the inner surface of the front plate, and a spring supported in the sign behind each opening in the supporting plate and arranged to bear upon the reflecting unit in the opening and yieldingly urge it into contact with the front plate.

6. In a sign made up of a plurality of independent reflecting units grouped and arranged in the form of a character to be displayed, a front display plate having a series of openings there-

through arranged in the form of a character, a reflecting-unit supporting plate mounted behind the front plate and having a series of openings therethrough interrelated in accordance with the openings through the front plate, a reflecting unit in each opening in the supporting plate having the end thereof extending through the corresponding opening in the front plate and each reflecting unit including a limiting flange abutting against the inner surface of the front plate, and a spring carried by the reflecting-unit supporting plate and mounted behind each opening therethrough and arranged to bear upon the reflecting unit in the opening and yieldingly urge it into contact with the front plate.

7. In a sign made up of a plurality of independent reflecting units grouped and arranged in the form of a character to be displayed, a front display plate having a series of openings therethrough arranged to outline the character, a reflecting-unit supporting plate mounted behind the front plate and having a series of openings therethrough interrelated in accordance with the openings through the front plate, a cup-shaped reflecting-unit holder in each opening through the supporting plate including a limiting flange for engaging the supporting plate and a resilient leaf spring member formed in the bottom thereof for urging a reflecting unit towards the front plate, a reflecting unit in each reflecting-unit holder and having the end thereof extending through the corresponding opening in the front plate, each reflecting unit including a limiting flange resiliently urged against the inner surface of the front plate by the leaf spring, and inter-engaging means on said holder and said unit for holding the unit in the holder.

8. In a sign made up of a plurality of independent reflecting units grouped and arranged in the form of a character to be displayed, a front display plate having a series of openings therethrough arranged to outline the character, a reflecting-unit supporting plate mounted behind the front plate and having a series of openings therethrough interrelated in accordance with the openings through the front plate, a cup-shaped reflecting unit holder in each opening through the supporting plate including a limiting flange for engaging the supporting plate and a resilient leaf spring member formed in the bottom thereof for urging a reflecting unit towards the front plate, means for maintaining the holder in the opening in the supporting plate, a reflecting unit in each reflecting unit holder and having the end thereof extending through the corresponding opening in the front plate, each reflecting unit including a limiting flange resiliently urged against the inner surface of the front plate by the leaf spring, and cooperating abutments on said holder and unit for holding the unit in the holder.

9. For a sign having a plurality of individual reflecting units, a cup-shaped reflecting unit holder for each reflecting unit having a resilient leaf member formed in the bottom thereof, a reflecting unit in the holder, and means for maintaining the reflecting unit in the holder.

10. For a sign made up of a plurality of individual reflecting units, a cup-shaped reflecting unit holder having a resilient leaf member formed in the bottom thereof, a reflecting unit in the holder, and cooperating abutments on the reflecting unit and the holder for maintaining the reflecting unit in the holder.