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C. M. SLESSMAN

2,223,273

LIGHT EMITTING ELEMENT MOUNTING

Filed Aug. 7, 1939

Fig. 1.

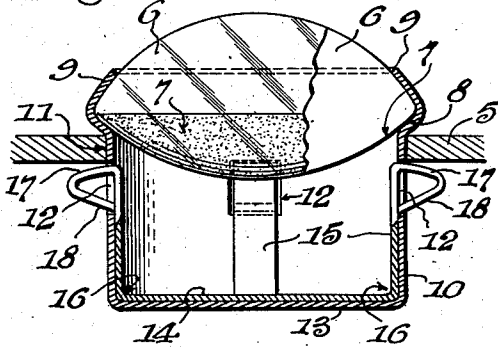


Fig. 4.

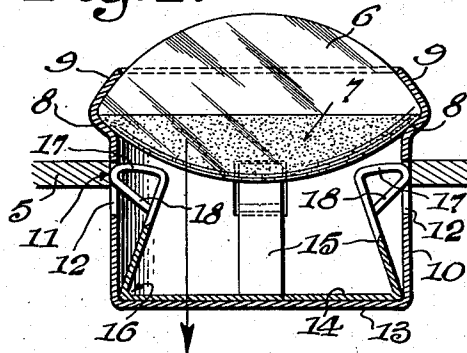


Fig. 2.

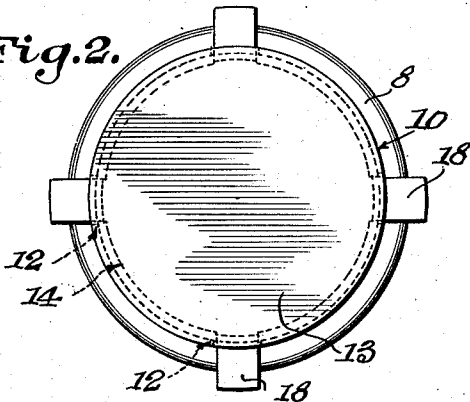


Fig. 5.

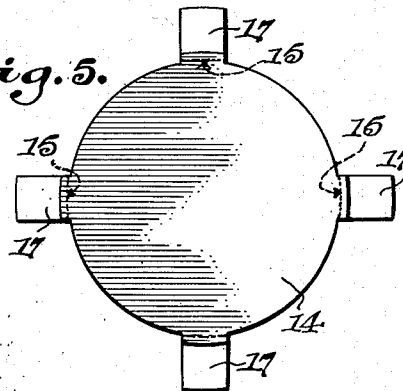


Fig. 3.

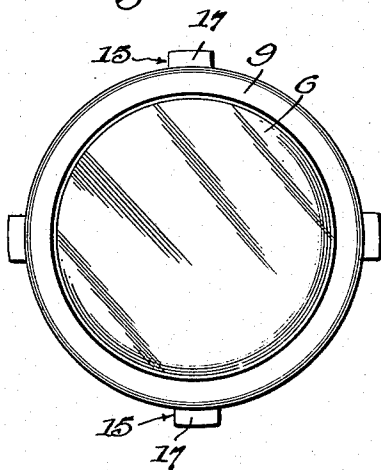


Fig. 6.

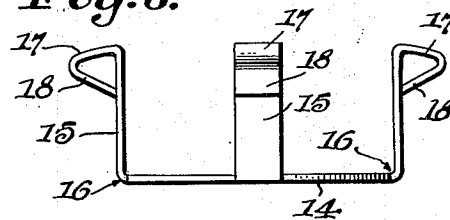
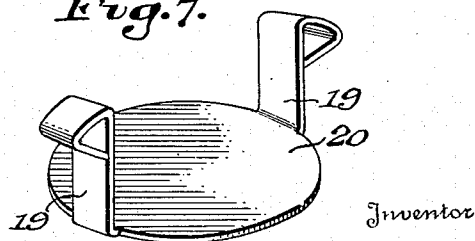


Fig. 7.



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LIGHT EMITTING ELEMENT MOUNTING

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10 Claims. (Cl. 88—82)

The invention relates generally to signs of the traffic marking or advertisement displaying types, and primarily seeks to provide a novel, simply and economically constructed mounting for the light emitting elements employed in such signs to define the display thereon.

In its more detailed nature, the invention resides in the provision of a sleeve-like shell in one end of which a light emitting element such as a reflecting lens of glass or other suitable material is secured and which is insertable through and removable from a receiving aperture in a mounting plate, said shell having apertures in portions of its defining wall and terminating just inwardly of said plate, and a locking member confined within the shell and having spring fingers yieldably projected through said apertures for locking engagement at the inner face of said plate.

Another object of the invention is to provide an element mounting of the nature stated in which the spring fingers include portions angularly disposed with respect to the mounting plate so that the fingers will be displaced inwardly by the plate as the element is inserted into the receiving aperture and will spring out into element locking position as they pass through the plate aperture.

Another object of the invention is to provide an element mounting of the nature stated in which the spring fingers and apertures cooperate to provide the sole means for holding the shell and the locking member in assembly.

With the above and other objects in view which will more fully appear, the nature of the invention will be more clearly understood by following the description, the appended claims, and the several views illustrated in the accompanying drawing.

In the drawing—

Figure 1 is a central vertical cross section through an element mounting embodying the invention.

Figures 2 and 3 illustrate the mounting unit of Figure 1 in bottom and top plan respectively and removed from the mounting plate.

Figure 4 is a view similar to Figure 1, the locking fingers being illustrated as displaced inwardly by contact with the mounting plate during insertion of the mounting shell into the plate aperture.

Figures 5 and 6 illustrate the locking member, in bottom plan and side elevation respectively, and removed from the mounting shell.

Figure 7 is a detail perspective view illustrating a modified form of locking member.

In the example of embodiment of the invention herein illustrated, 5 designates the mounting plate of a traffic or similar sign to which the light emitting or reflecting units are to be affixed for the purpose of outlining the traffic warning or other display. This plate may comprise the sole supporting portion of the sign or it may comprise only the face plate portion of a hollow box or similar structure. It is to be understood also that the invention comprehends the use of glass lenses or other light emitting units, and it is to be understood that the term "light emitting" is meant to embrace any suitable reflecting unit which will reflect light from a light source before the sign, or any unit which will pass light therethrough. The illustrative embodiment of the invention disclosed herein includes a light emitting element 6 which permits light to pass from the rear face thereof through the body of the element and out beyond the front face of the light emitting surface.

In this particular illustration, the element 6 is in the nature of a reflecting lens provided with a suitable silvered or other reflecting surface 7. It is to be understood, of course, that instead of treating the inner surface of the element 6 as at 7, it may be backed by any suitable reflecting element.

The element 6 is secured on an enlarged seat 8 and within the crimped retaining flange 9 of a cylindrical mounting shell 10. The seat 8 and flange 9 are so shaped that they form a groove-way between them within which the edge portions of the element 6 are secured, and the enlarged seat portion 8 forms an abutment flange engageable with the mounting plate 5 for limiting insertion of the cylindrical shell 10 through the receiving aperture 11 formed in said plate. See Figure 1.

The cylindrical shell 10 is provided with a plurality of equidistantly spaced wall apertures 12, and it will be observed that the upper limits of these apertures lie substantially flush with the inner face of the mounting plate 5 when the units are wholly inserted into said plate in the manner illustrated in the said Figure 1. When elements 6 of the light reflecting type are employed, the shell 10 may include a solid base portion 13.

A locking member is mounted within the shell 10 and includes a base plate 14 and a plurality of equidistantly spaced locking fingers 15 each disposed in alignment with one of the wall aper-

tures 12. The fingers are springy or yieldable and it will be noted by reference to Figures 1, 4 and 6 of the drawing, that these fingers join with the base portion 14 as at 16, the connections at 16 being in the nature of spring hinges upon which the fingers 15 can readily flex inwardly and outwardly.

The body portion of each finger 15 is disposed within the shell 10 and normally is substantially parallel to the shell wall. At its upper end, each finger 15 is bent outwardly as at 17 to form a locking lug, and inwardly and downwardly as at 18 to form a cam portion. It will be observed by reference to Figures 1 and 4 of the drawing that the locking lug portions 17 are curved on an arc struck from the spring hinge centers 16 and lie just inside the upper limits of the respective wall apertures 12. By thus curving the lug portions 17 extending through the apertures, they will always engage the shell at the edges of the apertures adjacent the end of the shell at which the flange 9 is located. Consequently the fingers 15 and their lugs 17 constitute means for retaining the assembled relation of the shell 10 and the locking member 14, 15 without the necessity of providing rivets, solder, brazing, or other securing media.

In mounting one of the light emitting units the end of the cylindrical shell 10 is inserted in an aperture 11 in the mounting plate 5. As the shell is slid into the aperture the angularly disposed cam portions 18 of the locking fingers 15 will engage the plate 5 and be displaced inwardly thereby in the manner illustrated in Figure 4. It will be observed by reference to Figures 1 and 4 of the drawing, that the space between the abutment flange 8 and the locking lug portions 17 is substantially equal to the thickness of the mounting plate 5. Thus as the abutment flange 8 contacts the outer face of the mounting plate 5 the locking lugs will spring outwardly to the position illustrated in Figure 1 of the drawing and thereby securely lock the elements in position. Thus mounted, the units can be removed only by pressing the locking lugs inwardly to the position illustrated in Figure 4 so that they can pass freely through the plate aperture 11.

In Figures 1 through 6 of the drawing the locking member is equipped with four equidistantly spaced locking fingers. The invention is not limited to the provision of any particular number of such fingers, and in Figure 7 of the drawing there is illustrated a modified form of locking member in which only two locking fingers 19 project from the base portion 20.

It will be observed by reference to Figure 1 of the drawing that the surface of the locking lug portion 17 is angularly disposed with relation to the opposed inner face of the mounting plate 5, and this angularly disposed surface may serve to engage the inner face of the plate in a camming action during the mounting of the unit and thereby tend automatically to draw the unit into its ultimately seated position with the abutment shoulder 8 against the plate 5 in the manner illustrated in Figure 1.

It is of course to be understood that the details of structure and arrangement of parts may be variously changed and modified without departing from the spirit and scope of my invention.

I claim:

1. A light emitting element mounting unit comprising a shell insertable at one end into an aperture in a mounting plate and carrying a

light emitting element at its other end, said shell having wall apertures therein, and a locking member mounted within said shell and having yieldable locking fingers provided with body portions located within said shell and with plate-contacting portions projected through said wall apertures and engageable under said plate to prevent withdrawal of the unit from the plate aperture.

2. A light emitting element mounting unit comprising a shell insertable at one end into an aperture in a mounting plate and carrying a light emitting element at its other end, said shell having wall apertures therein, and a locking member removably mounted within said shell and having yieldable locking fingers provided with body portions located within said shell and with plate-contacting portions projected through said wall apertures and engageable under said plate to prevent withdrawal of the unit from the plate aperture, the plate-contacting portions of said fingers constituting means for retaining assembly of said shell and locking member.

3. A light emitting element mounting unit comprising a shell insertable at one end into an aperture in a mounting plate and carrying a light emitting element at its other end, said shell having wall apertures therein, a locking member mounted within said shell and having yieldable locking fingers provided with body portions located within said shell and with plate-contacting portions projected through said wall apertures and engageable under said plate to prevent withdrawal of the unit from the plate aperture, and means at said other end of said shell for securely holding said light emitting element and constituting an abutment limiting movement of the unit into the plate aperture.

4. A light emitting element mounting unit comprising a shell insertable at one end into an aperture in a mounting plate and carrying a light emitting element at its other end, said shell having wall apertures therein, and a locking member mounted within said shell and having yieldable locking fingers each having a body portion disposed within the shell and normally being substantially parallel to the wall of the shell, each said finger being yieldable and including an outwardly bent lug portion projected through an associated one of said wall apertures to be engageable with the plate to prevent removal of the unit and an inwardly angled portion presented for finger displacing camming engagement with the plate during mounting of said unit.

5. A light emitting element mounting unit comprising a shell insertable at one end into an aperture in a mounting plate and carrying a light emitting element at its other end, said shell having wall apertures therein, and a locking member removably mounted within said shell and having yieldable locking fingers disposed within the shell but being provided with portions projected respectively through said wall apertures, said projecting portions being engageable under said plate to remove withdrawal of the unit from the plate aperture, said projecting finger portions also retaining said shell and locking member in assembled relation, said locking member including a base portion and each locking finger thereof being spring hinge connected with said base portion and including an outwardly bent lug portion engageable with the plate to prevent removal of the unit and an inwardly angled portion presented for finger displacing camming engagement with the plate during mounting of said

unit, each said lug portion being curved on an arc struck from the respective spring hinge connection.

6. A light emitting element mounting unit comprising a shell having an element receiving groove in one end forming an abutment shoulder and insertable at its other end into an aperture in a mounting plate, said shell having wall apertures therein spaced from the abutment shoulder a distance equivalent to the thickness of a mounting plate, and a locking member mounted in said shell and having yieldable locking fingers movable on said locking member for projection through said wall apertures for engagement under the mounting plate to secure mounting of the unit in the aperture in said plate, the plate-engaging portions of said fingers being spaced from said abutment shoulder a distance substantially equal to the thickness of said plate, whereby said shoulder and the plate-engaging portions of said fingers are together cooperable with said plate to hold said unit firmly in place without appreciable play axially of said mounting plate aperture.

7. A light emitting element mounting unit comprising a shell having an element receiving groove in one end forming an abutment shoulder and insertable at its other end into an aperture in a mounting plate, said shell having wall apertures therein spaced from the abutment shoulder a distance equivalent to the thickness of the mounting plate, and a locking member mounted in said shell and having yieldable locking fingers movable on said locking member for projection through said wall apertures for engagement under the mounting plate to secure mounting of the unit in the aperture in said plate, the portions of said fingers extending through said wall apertures engaging the shell at the edges of the apertures at the ends thereof adjacent said first end of the shell, whereby outward movement of the locking member in the shell is prevented.

8. A light emitting element mounting unit comprising a shell having an element receiving groove in one end forming an abutment shoulder and insertable at its other end into a mounting plate aperture, said shell having wall apertures therein spaced from the abutment shoulder a distance equivalent to the thickness of a mounting plate, and a locking member mounted in said shell and having locking fingers projected through said wall apertures for engagement under a mounting plate to secure mounting of the unit in the aperture in said plate, each said finger being yieldable and including an outward-

ly bent lug portion engageable with a mounting plate to prevent removal of the unit and an inwardly angled portion presented for finger displacing camming engagement with said mounting plate during mounting of said unit.

9. A light emitting element mounting unit comprising a shell having an element receiving groove in one end forming an abutment shoulder and insertable at its other end into an aperture in a mounting plate, said shell having wall apertures therein spaced from the abutment shoulder a distance equivalent to the thickness of the mounting plate, and a locking member mounted in said shell and having yieldable locking fingers movable on said locking member for projection through said wall apertures for engagement under the mounting plate to secure mounting of the unit in the aperture in said plate, the portions of said fingers extending through said wall apertures engaging the shell at the edges of the apertures at the ends thereof adjacent said first end of the shell, whereby outward movement of the locking member in the shell is prevented, said locking member including a base portion and each locking finger thereof being spring hinge connected with said base portion and including an outwardly bent lug portion engageable with the plate to prevent removal of the unit and an inwardly angled portion presented for finger displacing camming engagement with the plate during mounting of said unit, each said lug portion being curved on an arc struck from the respective spring hinge connection.

10. A light emitting element mounting unit comprising a shell insertable at one end into an aperture in a mounting plate and carrying a light emitting element at its other end, said shell having wall apertures therein, abutment means limiting insertion of the shell into said aperture, and a locking member mounted within said shell and having yieldable locking fingers having body portions disposed within said shell and projecting portions extending through said wall apertures and engageable under said plate to prevent withdrawal of the unit from the plate aperture, said projecting portions of said locking fingers being angularly disposed with relation to said plate whereby upon outward projection of said fingers through said wall apertures said angularly disposed portions will engage the plate and tend to draw the shell into the aperture to the extent permitted by said abutment means.

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