

Dec. 21, 1943.

F. L. PATTON

2,337,167

REFLECTING UNIT

Filed Dec. 26, 1942

Fig. 1.

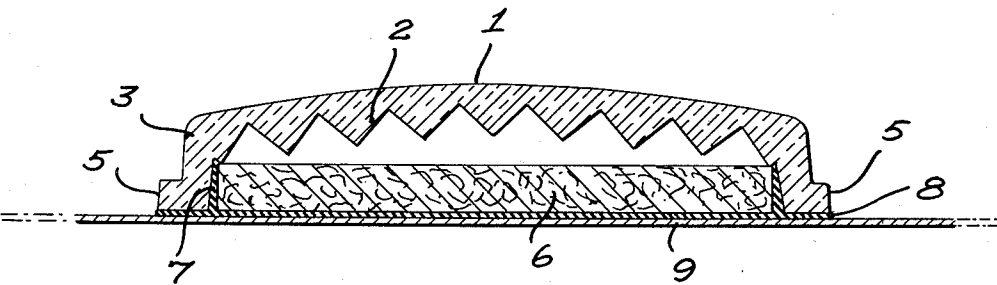
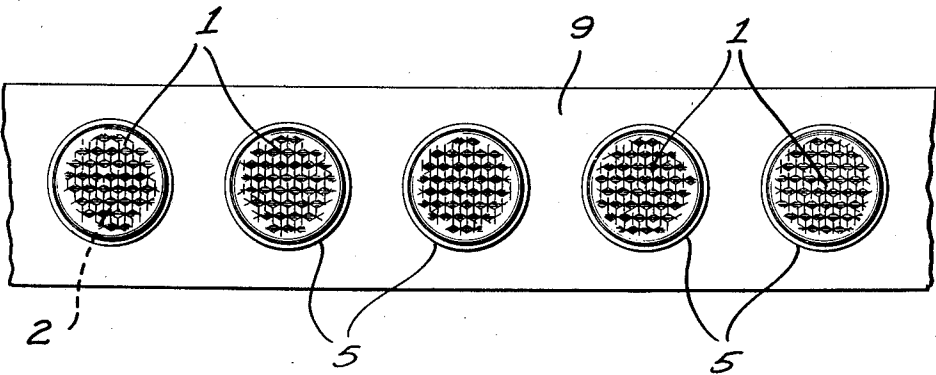


Fig. 2.



INVENTOR
FRANK L. PATTON.

BY *Vinton D. Barrett*
ATTORNEY

UNITED STATES PATENT OFFICE

2,337,167

REFLECTING UNIT

Frank L. Patton, West Orange, N. J., assignor to
Signal Service Corporation, a corporation of
Delaware

Application December 26, 1942, Serial No. 470,201

3 Claims. (Cl. 88—78)

This invention relates to the art of autocollimating reflecting units and especially reflectors which comprise a number of individual reflecting elements integrally joined to form a composite reflecting area. Such reflectors are usually in the form of discs of glass or plastic material with the individual reflecting elements so closely associated that the effect is that of a single large reflector.

In use the reflecting units are mounted in suitable supporting plates or standards along a highway, for example, where they become luminous by reflection of the light projected by vehicle lamps, and serve as warning signals to approaching motorists. Any moisture or dirt on the individual reflecting surfaces will decrease the reflecting power of the disc and render it less effective as a signal by lessening the distance within which it is visible. Consequently it is necessary to hermetically seal the individual reflecting units from the atmosphere.

Heretofore this was done by mounting the discs in a cup-like metal holder in the manner shown and described in the patents to John C. Haggart, Jr., No. 2,255,748 and 2,286,085. This required the use of considerable metal and special apparatus for assembling the reflector discs in individual metal holders.

The object of my invention is to hermetically seal the individual reflecting elements from the atmosphere in a simple and efficient manner, without the use of metal or complicated special apparatus.

In carrying out my invention I form the reflector unit with a rearwardly extending peripheral flange which provides a recess or chamber in the rear of the unit into which the individual reflecting elements project. In this recess I position an insert or filler which is of such size as to substantially fill the recess with the outer surface of the insert being flush with the rear edge of the peripheral flange, and its inner face out of contact with the reflecting elements. This insert may be made of any suitable material such as paper, fiber, wood or plastic. I then coat the entire rear surface of the unit as now assembled with a suitable sealing compound such as asphalt, tar, pitch, wax or any other of a number of similar suitable substances. Any adhesive substance or compound which will flow freely when hot, harden when cooled and is impervious to varying weather conditions will suffice. It is applied when in a molten state and flows into and fills the crevice between the insert and the flange. When it cools and hardens

it completely covers the rear of the unit, presenting a smooth, unbroken surface, and effectively seals the recess. Before the sealing compound has completely cooled and hardened I apply a protective backing of paper, Cellophane or similar thin flexible easily rupturable material. An individual backing may be applied to each unit or if desired a number of units may be applied to a long strip or to a sheet of backing material. Applying a number of units to a single strip or sheet of backing material greatly facilitates the handling, counting and storage of the units.

I shall now describe in detail my improved reflector as illustrated in the accompanying drawing and shall thereafter point out the invention in claims.

Fig. 1 is an enlarged cross-sectional view through a reflector unit constructed according to my invention;

Fig. 2 is a plan view showing a plurality of units on a long strip of backing material.

The reflector 1 is a disc of plastic or other glass-like composition, slightly meniscus in form, and is shown as having closely associated individual reflecting elements 2 in the form of trihedral projections on its rear concave face, of the construction disclosed in Stimson Patent No. 1,807,350. A peripheral flange 3 is formed integral with and projects rearwardly from the disc 1, and with the disc 1 defines a recess or chamber 4 into which the trihedral formations 2 project. A circumferential extension 5 which is molded integral with the flange 2 at the rear edge thereof, facilitates the mounting of the reflector unit in a supporting plate or standard.

In insert 6 of any suitable inert material such as paper, cardboard, wood, fiber or plastic is placed within the recess 4. As shown in Fig. 1 this insert is in the form of a flat disc which substantially fills the recess 4 and has its outer surface flush with the rear edge of the flange 2 and extension 5, and its inner face closely adjacent but out of contact with the trihedral reflecting elements. The insert or filler 6 should preferably substantially fill the recess 4, as shown, for the smaller the air space in the recess is, the less chance there is of moisture in the trapped air condensing on the reflector elements 2. But the filler must not be in contact with the reflector element for that would also decrease their efficiency in reflecting incident rays of light. However, in carrying out my invention it is not essential that the insert 6 shall fill the recess 4 to the extent illustrated, but it must substan-

tially close the open end of the recess and should have its rear surface substantially flush with the rear edge of the flange 2 and extension 5. Also the disc shaped insert 6 need not fit tightly within the recess 4 as a slight space or crevice 7 between the periphery of the insert 6 and the inner wall of the flange 2, as illustrated, is more beneficial than harmful.

The entire rear surface of the unit as now assembled is coated with a suitable sealing substance or compound 8 which also completely fills the space or crevice 7. This sealing substance, as hereinbefore stated, may be asphalt, tar, pitch, wax or any other adhesive substance or compound which will flow freely when hot, harden when cold and is impervious to varying weather conditions. It is applied to the rear surface of the unit when in a hot molten state and flows freely into and fills the crevice 7. After it cools and hardens it securely bonds the periphery of the insert 6 to the inner wall of the flange 2 and hermetically seals the recess or chamber 4 and effectively prevents any moisture or dirt from engaging the individual reflector elements 2.

After the sealing compound has cooled somewhat but is still in a sticky plastic condition I apply a protective backing 9 of paper, Cellophane or other similar thin flexible rupturable material. As stated previously, this backing may be applied individually to each reflector unit, or a plurality of units may be applied to a strip of backing material 9 as illustrated in Fig. 2, or to a sheet of backing material.

It will be understood that various modifications may be made to the construction shown and described herein without departing from the scope of the invention as pointed out in the following claims.

I claim:

1. A reflecting unit comprising a reflecting disc

having trihedral angular formations on its rear face forming a reflecting area and a peripheral flange surrounding the reflecting area and extending rearwardly therefrom and forming a recess in the rear of the disc, a filler member occupying said recess with its inner face out of contact with the reflecting area, and a sealing compound covering the outer face of the filler member and filling the annular space between the filler member and flange and hermetically sealing the recess.

2. A reflecting unit comprising a meniscus shaped reflecting disc having trihedral angular formations on its rear concave face forming a reflecting area, a peripheral flange surrounding the reflecting area and extending rearwardly therefrom and forming a recess in the rear of the disc, a flat disc shaped filler member occupying the recess with its inner peripheral edge engaging the rear face of the disc in the corner formed by its junction with the inner wall of the flange, and a sealing compound covering the outer face of the filler member and filling the annular space between the filler member and flange and hermetically sealing the recess.

3. A reflecting unit comprising a reflecting disc having trihedral angular formations on its rear face forming a reflecting area and a peripheral flange surrounding the reflecting area and extending rearwardly therefrom and forming a recess in the rear of the disc, a filler member occupying said recess with its inner face out of contact with the reflecting area, an adhesive sealing compound covering the outer face of the filler member and the edge of the flange and hermetically sealing the recess, and an easily rupturable covering adhesively secured to the back of the unit by the sealing compound.

FRANK L. PATTON.