Jan. 14, 1930. L. C. DOANE 1,743,847

VIBRATIONPROOF LIGHTING UNIT

Filed Dec. 11, 1924

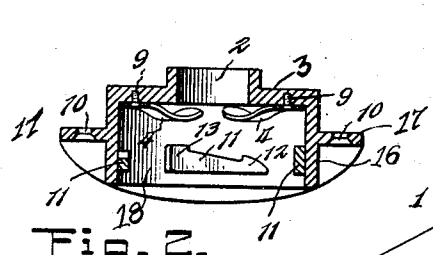


Fig. 2.

Fig. 1.

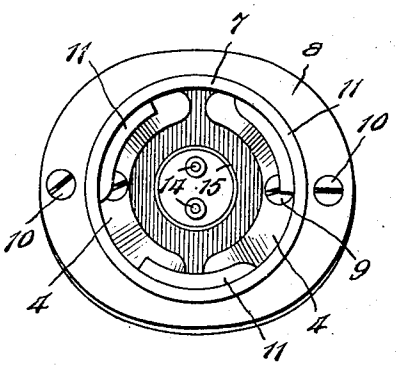


Fig. 3.

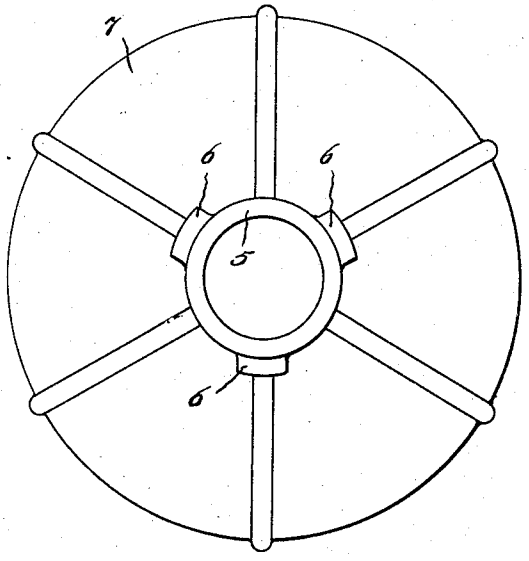


Fig. 4.

Leroy C. Doane INVENTOR

BY Jacob Liberman

his ATTORNEY

Patented Jan. 14, 1930 1,743,847

UNITED STATES PATENT OFFICE

LEROY C. DOANE, OF MERIDEN, CONNECTICUT, ASSIGNOR TO THE MILLER COMPANY, OF MERIDEN, CONNECTICUT, A CORPORATION OF CONNECTICUT

VIBRATIONPROOF LIGHTING UNIT

Application filed December 11, 1924. Serial No. 755,177.

The present invention consists of a lighting unit designed for car, bus, automobile lighting or similar installations and its object is to provide a unit which will primarily resist the jar and strain of traffic service and yet be of an agreeable appearance and simple in maintenance.

Fig. 1 is a vertical cross section of the unit seated in the roof of the car and showing the glassware in elevation;

Fig. 2 is a vertical cross section of the holder alone;

Fig. 3 is a bottom plan view of the holder, and

Fig. 4 is a top plan view of the shade or globe employed in the unit.

The unit comprises a holder or canopy and a shade with various mechanisms to retain the shade in the holder.

In Figs. 1 and 3 are shown a cylindrical canopy or holder 16 having ring-like walls 7 and a top 3 provided with a tubular opening 2 for the insertion of the lamp socket or receptacle 15 provided with the terminals 14 commonly used in this type of service. A pair of resilient springs 4 is fastened in the inside of the top of the holder by means of screws 9 following the circular contour similar to that of the wall for purposes hereinafter set forth. Toward the bottom of the ring, on its interior, are formed a series of tapering lugs 11 consisting of two teeth 12 and 13 with a sloping, recessed portion 11′ therebetween. The shade 7 has a series of lugs 6 on its neck 5, these lugs being slightly inclined in the manner shown to fit the sloping recesses 11′. The holder is adapted to be fastened in the ceiling or wall of the car, by screws 10 passing through the holes in the flange, and when the ceiling or wall of the car is inclined as is often the case, the flange 8 is inclined relative to the axis of the holder as shown in Fig. 1, lying in the plane passing through the upper and lower edges of the ring; this causes the mouth of the ring and the shade to lie parallel to the floor of the car or bus. In other cases the flanges may be in a plane at right angles to the vertical axis of holder and reflector.

The method by which the holder and reflector are installed is as follows:

The holder is secured within an aperture in the ceiling of the car and the flange 8 is fastened flush to the ceiling proper by means of screws 10, the wires having been connected to the lamp socket. The reflector lugs 6 are then inserted into the spaces 18 between the lugs 11 on the ring of the holder, the upper rim of the neck of the reflector being pressed against the springs 4 until the lower surfaces of the reflector lugs 6 are brought above the level of the lugs 12 of the holder when the shade may be turned angularly, the sloping shade lugs acting to further compress the springs. When the reflector neck is revolved sufficiently in the holder to permit the reflector lugs to pass by the portions 12 of the lugs and enter the recessed area 11′ of the holder lugs beyond the first tooth of the holder lugs, the pressure is removed from the shade and the springs press the lugs of the shade downward into the space between the two teeth on the holder lugs and the shade is thus locked in position. The oblique faces on the shade lugs 6 and the oblique bottom wall of the recesses 11′ on the holder act to cause the shade lugs to be securely anchored in place. The springs force the parts into place and the portions 12 of the lugs act as abutments to prevent the springs from forcing the shade lugs too far to cause an unthreading action. The higher part 13 of the lugs limits the turning movement of the shade and prevents turning the shade so far that the shade lugs may be forced out through the adjacent spaces.

It will be readily seen that any strain or jar due to the vibration of the car will not adversely affect the holder or shade because of the various elements in the shade holder contributing to a firm but resilient seat. The adjustment of the flanges on the holder in the form shown in Fig. 1, permits the mouth of the shade always to be parallel with the floor of the car and therefore permits the light rays to be reflected in useful zones in the bus. No jolt or jar can possibly unseat the lugs 6 of the reflector from the depression in the lug 11 on the inside of the top of the holder, while

in order to remove the shade, it is only necessary to push upward above the level of the lugs and turn it until the lugs of the shade fall into the spaces between the lugs of the holder, when the shade can be detached from the holder.

I claim:

1. In a unit for car lighting, a cylindrical holder, a shade revolving in the holder, the holder being provided on the under side of its top with resilient spring members and with spaced lugs on the bottom of the cylinder wall, each having a tooth at each end of a tapering depression, the shade having spaced oblique lugs on its upper portion adapted to enter the spaces between the holder lugs and ride thereon, the shade being held in position by pressure of the springs on the shade lugs when positioned on the holder lugs between the teeth.

2. A shade holder for vibration-proof lighting units, said holder having a downwardly facing annular shoulder, a pair of upwardly facing sloping shoulders, a dwell beyond the upper end of each sloping shoulder to receive a shade lug, and a substantially flat leaf spring adjacent the first shoulder and adapted to press the lugs into the dwells and prevent rattling of the shade.

3. In a unit for car lighting, a shade holder having a downwardly opening mouth, the inner side walls of which are provided with lugs having ascending sloping shoulders to guide the lugs of a shade, recesses in said lugs to receive the shade lugs, an annular shoulder above the mouth of the holder and of smaller diameter, a lamp receptacle mounted in the holder, and a substantially flat leaf spring carried by the shoulder outside the lamp receptacle for pressing the shade lugs into the recesses and preventing rattling of the shade in the holder, said holder having a peripheral flange for attaching the holder to a car ceiling, with the axis of the holder vertical.

4. In a vibration-proof lighting unit, a shade holder, a shade whose upper end is provided with spaced lugs angularly movable inside the holder when inserted therein, the holder having interiorly disposed spaced lugs between which the lugs on the shade are adapted to pass when inserting the end of the shade into the holder, the shade holder lugs having recesses to receive the shade lugs when the shade is turned angularly, a lamp socket passing through the rear portion of the holder, and spring means disposed about the socket and supported from the shade holder for pressing against the rear end of the shade to hold the lugs in the recesses, the cooperating lugs having oblique surfaces to facilitate securely seating the shade lugs in the recesses and hold them against stops carried by the shade holder.

5. In a vibration-proof lighting unit, in combination, a shade holder, a shade, the shade holder having a chamber for receiving the end of the shade, the walls of the chamber being provided with spaced shade supporting lugs, the shade having spaced lugs provided with oblique lower faces and disposed so as to pass between the shade supporting lugs, the shade supporting lugs having recesses into which the shade lugs may be turned, the recesses having oblique faces to cooperate with the oblique faces on the shade lugs and stops to limit the turning movement of the shade, and spring means carried by the shade holder for forcing the shade lugs into the recesses and against the stops.

6. In a vibration-proof lighting unit, in combination, a shade holder, a shade, the shade holder having a chamber for receiving the end of a shade, the walls of the chamber being provided with spaced shade supporting lugs, the shade having spaced lugs so disposed as to pass between the shade supporting lugs, the shade supporting lugs having recesses into which the shade lugs may be turned, the recesses having stops to limit the turning movement of the shade, a lamp socket carried by the shade holder in a position to carry a lamp within the shade, and spring means carried by the shade holder outside the lamp socket for forcing the shade lugs into the recesses.

7. In a unit for car lighting, a shade holder having a downwardly opening mouth, the inner side walls of which are provided with ascending sloping shoulders to guide the lugs of a shade, dwells or recesses beyond the shoulders to receive the shade lugs, an annular shoulder above the mouth of the holder and of smaller diameter, a lamp receptacle mounted in the holder, and a substantially flat leaf spring carried by the shoulder outside the lamp receptacle for pressing the lugs into the recesses, and prevent rattling of the shade in the holder.

Signed at Meriden in the county of New Haven and State of Connecticut this 28th day of November, 1924.

LEROY C. DOANE.