March 18, 1958 V. C. KENNEDY, JR 2,827,561

ROADWAY LIGHT

Filed May 9, 1955

Fig. 1

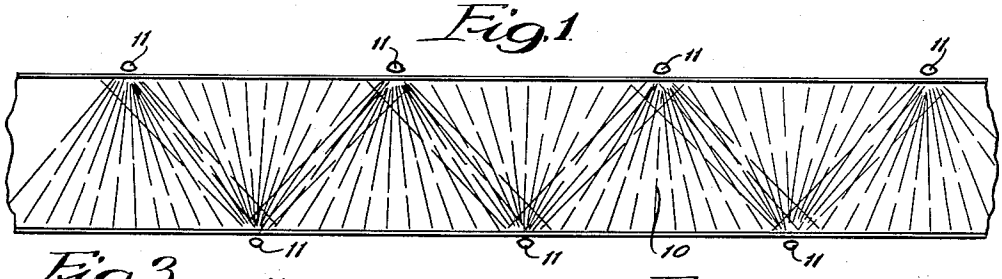


Fig. 3

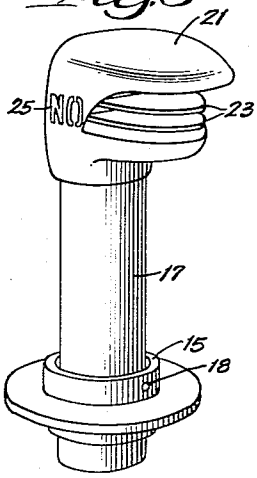


Fig. 2

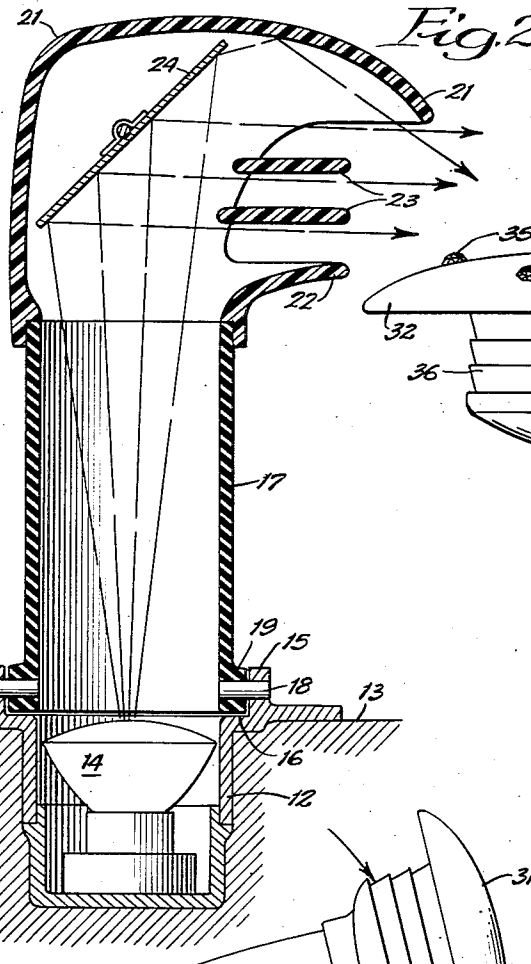


Fig. 4

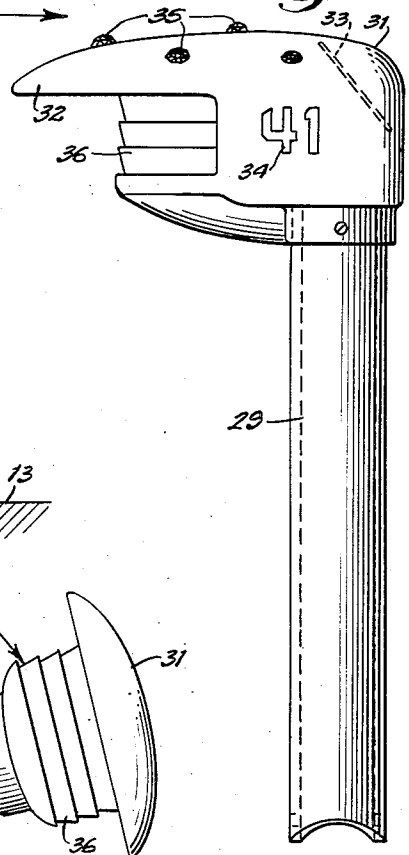
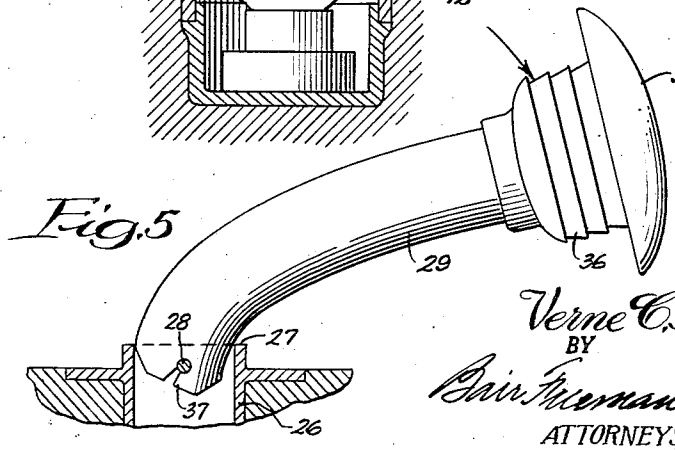


Fig. 5



INVENTOR.
Verne C. Kennedy, Jr.
BY
Blair, Freeman & Molinare
ATTORNEYS.

United States Patent Office

2,827,561

Patented Mar. 18, 1958

2,827,561

ROADWAY LIGHT

Verne C. Kennedy, Jr., Chicago, Ill., assignor to Streeter-Amet Company, Chicago, Ill., a corporation of Illinois

Application May 9, 1955, Serial No. 506,743

3 Claims. (Cl. 240—25)

This invention relates to roadway lights, and more particularly to lights for illuminating highways, streets, aircraft runways, and the like.

Highways and streets have heretofore generally been illuminated by light sources mounted on relatively tall posts or standards and directing the light downward toward the roadway or street. Such light sources inevitably create a certain amount of glare in the eyes of vehicle drivers, particularly in hilly country.

Further, if the poles or standards are struck by a vehicle they are apt to be damaged or broken and may expose energized wiring leading to the light source at the top of the pole or standard, with resultant danger. The repair and maintenance of such lights, therefore, becomes a serious and expensive problem. In addition, the poles are heavy and strong enough to seriously damage a vehicle striking them.

Aircraft runways have generally been illuminated by extremely short button-type lights which outline the runways without substantial illumination thereof. Such lights have generally been used because they are small enough not to damage a plane running over them, or to be damaged by the plane in the event they are struck.

It is one of the objects of the present invention to provide a roadway lighting system in which the roadway is adequately illuminated without the possibility of creating glare in the eyes of a vehicle operator.

Another object is to provide a roadway light which provides adequate illumination for a runway and which will not be damaged if struck, or seriously damage a vehicle striking the light.

Still another object is to provide a roadway light in which the light source is mounted below ground level and light therefrom is directed upwardly through a hollow or light transmitting post and is reflected outward from the upper end of the post to illuminate the roadway.

According to one feature of the invention the posts may be relatively short so that the light reflecting medium is beneath the normal level of the eyes of a vehicle operator and are formed of resilient material to deflect if struck without damage to the post and with minimum damage to the vehicle striking it.

A further object is to provide a roadway light in which the light is directed upwardly from the source through a hollow post and into a hollow head at the top of the post which contains a reflector to direct the light substantially horizontally onto the desired area.

According to a feature of the invention the head may be formed of translucent material or may have translucent portions to make it readily visible and to serve as identifying markers for highway routes or the like. The head may also be provided with baffles or lenses in a light transmitting opening therein to direct and diffuse the light over the desired roadway area.

The above and other objects and features of the invention will be more readily apparent from the following description when read in connection with the accompanying drawing, in which:

Figure 1 is a diagrammatic plan view showing illumination of a roadway in accordance with the present invention;

Figure 2 is a vertical section through a roadway light embodying the invention;

Figure 3 is a perspective view of the light of Figure 2;

Figure 4 is a side elevation of an alternative form of roadway light embodying the invention; and

Figure 5 is an elevation with parts in section illustrating deflection of the light of Figure 4.

According to the present invention a roadway, as illustrated at 10 in Figure 1, which may be a highway, a city street, an aircraft runway or the like, is illuminated by a series of roadway lights 11 located in staggered relationship on opposite sides of the roadway. Each of the roadway lights is relatively short vertically, on the order of three to four feet, and directs light horizontally outward in a conical pattern, as indicated in Figure 1, toward the opposite side of the roadway. Since the light sources are relatively low and since there are no upwardly directed beams of light no glare is created in the eyes of a vehicle operator moving along the roadway. The lights are so spaced, as shown in Figure 1, that the conical light patterns therefrom overlap slightly so that the entire roadway is fully and adequately illuminated.

Each of the roadway lights may be constructed, as shown in Figures 2 and 3, with a housing 12 generally cup-shaped and adapted to be buried in the ground with its top substantially at ground level, as indicated at 13. The housing is open at its top and receives a light source 14, which may be an electric lamp provided with a top lens closure, which will direct light from the source upward in substantially parallel rays. At its upper end the housing is provided with a flange 15 slightly larger than the diameter of the housing and connected thereto through a flat annular shoulder 16.

The housing carries a hollow post 17 formed of a soft resilient material, such as rubber or a resilient plastic. To mount the post in the housing the flange 15 carries a pair of diametrically opposite, inwardly extending pins 18 which extend through openings formed in the lower end of the post 17. The lower end of the post is preferably thickened, as shown at 19, for increased strength and the openings therein may be keyhole-shaped, as shown in Figure 5, to facilitate mounting on the pins 18 and release from the pins 18.

At its upper end the post carries a hollow head 21 which is preferably also formed of a resilient material, such as rubber or plastic. The head is closed at its top and is provided with an outwardly extending lip 21 at its top and a similar lip 22 at its bottom which define a light transmitting opening in one side of the head. Light directing baffles 23 may be arranged in the opening to restrict passage of light beams to a substantially horizontal direction so that there will be no upwardly directed beams. The overhanging lip 21 prevents any upwardly directed light beams and serves in addition to direct a portion of the light downwardly as well as horizontally so that the roadway will be properly illuminated.

A reflector 24 is mounted in the head and is positioned at an angle to receive upwardly directed light from the source 14 and to reflect the light horizontally outward through the lateral opening. The reflector may be formed of a coated transparent plastic so that it will not break away and will remain bright over a long period and may be shaped with any desired curvature to produce the desired light pattern on the roadway.

The head may additionally be formed into sides with transparent or translucent portions, as indicated at 25 in Figure 3, so that the roadway lights will be visible to an oncoming vehicle operator. The translucent portions

25 may, if desired, be utilized as highway markers or as traffic directions and will receive enough diffused light from the interior of the head to make them readily visible without creating glare.

With the highway light mounted as shown in Figure 2, it can readily deflect if struck by a vehicle without being damaged and with a minimum amount of damage to the vehicle. If struck from the side perpendicular to the axis of the pins 18 the light can deflect by partially pivoting about the pins 18 and partially by deformation of the resilient post. After being struck the resilient post will return to its normal upright position with no necessity for repairs. If the post should be struck by a vehicle traveling at an extremely high rate of speed, the force may be sufficient to pull the post away from the pins 18 and disconnect it completely from the housing 12. If this occurs, the probabilities are that the post will not be damaged and that the housing and light source will not be damaged. The post can, therefore, be easily remounted on the housing to return the light to service without requiring extensive repairs. In any case, when a light may be struck by a vehicle damage to the vehicle itself will be minimized since the entire light assembly above ground is made of a relatively soft, resilient material.

Figures 4 and 5 illustrate an alternative construction which includes a housing 26 adapted to be buried in the ground with its top substantially flush with ground level and having a pair of relatively short ears 27 projecting upward from its opposite sides. The ears 27 carry inwardly extending pins 28 for mounting the two. The housing 26 contains a light source similar to the source 14.

The light includes a tubular post 29 of resilient material, such as rubber, which carries a hollow head 31 at its upper end. The head may be constructed similarly to the head 21 of Figures 2 and 3 with a projecting top lip 32, a lateral light transmitting opening, and a reflector 33. Portions of the head may be made transparent or translucent, as indicated at 34, and additionally, colored glass beads 35 may be inserted in the head to increase its visibility.

In this construction the light transmitting opening is closed by a lens system, as indicated at 36, which may be molded of transparent plastic material shaped to diffuse the light over the desired roadway surface. Such a lens system will keep bugs and insects out of the head and post and can be designed to diffuse the light in substantially any desired pattern.

The post 29 is formed at its lower end with keyhole-shaped openings 37 which receive the pins 28 to hold the post on the housing. The opposite sides of the post may be partially cut away, as indicated, so that the post can pivot about the pins 28 when it is struck by partially deforming the material at the sides of the post.

While two embodiments of the invention have been shown and described, it will be understood that these are illustrative only and are not to be taken as a definition of the scope of the invention, reference being had for this purpose to the appended claims.

I claim:

1. A roadway light comprising a housing adapted to be buried in the ground with its top at ground level and formed for transmission of light upward therethrough, the upper portion of the housing carrying a plurality of inwardly extending pins, a tubular post of resilient material fitting onto and extending upward from the housing and having openings in its lower end fitting pivotally over the pins to secure the post releasably to the housing, a hollow head mounted on the upper end of the post and having a light transmitting opening in one side, and a reflector in the head to receive light from the source and reflect it out through the light transmitting opening.

2. The construction of claim 1 in which the post is slitted from the openings therein to its lower end so that it can slide from the pins in the event of excessive deflection without tearing.

3. The construction of claim 1 in which there are two pins at diametrically opposite sides of the housing about which the post can pivot when it is deflected.

References Cited in the file of this patent

UNITED STATES PATENTS

1,266,152	Poole	May 14, 1918
1,370,697	Mann	Mar. 8, 1921
1,886,004	Geyser	Nov. 1, 1932
1,991,584	Strauss	Feb. 19, 1935
2,094,741	Grussendorf	Oct. 5, 1937
2,147,679	Stanton	Feb. 21, 1939
2,719,214	Potter	Sept. 27, 1955