

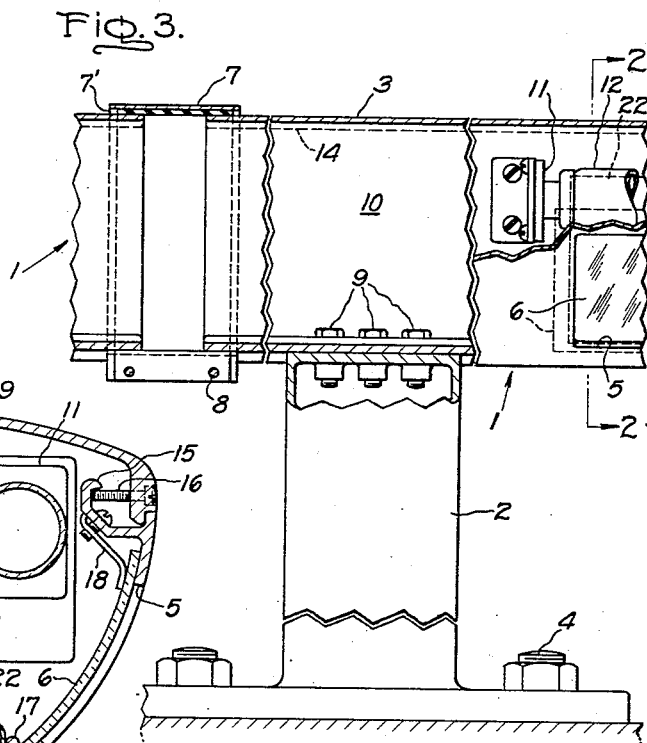
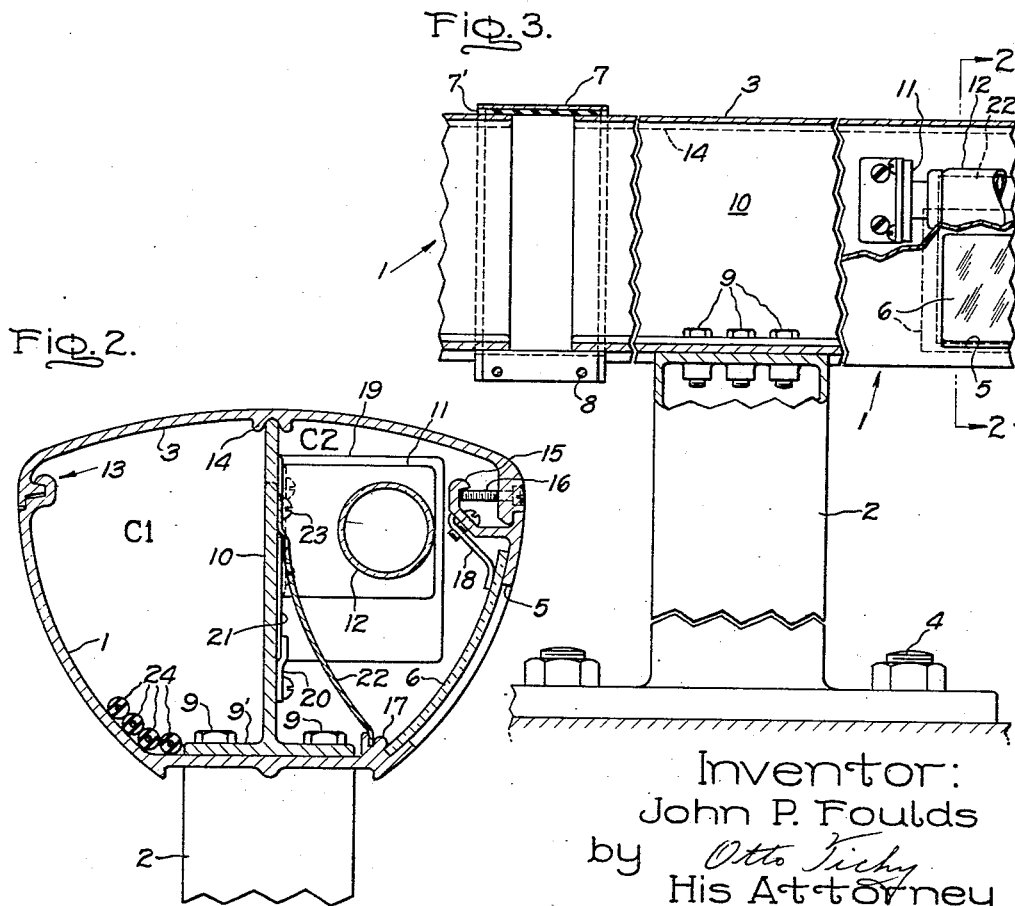
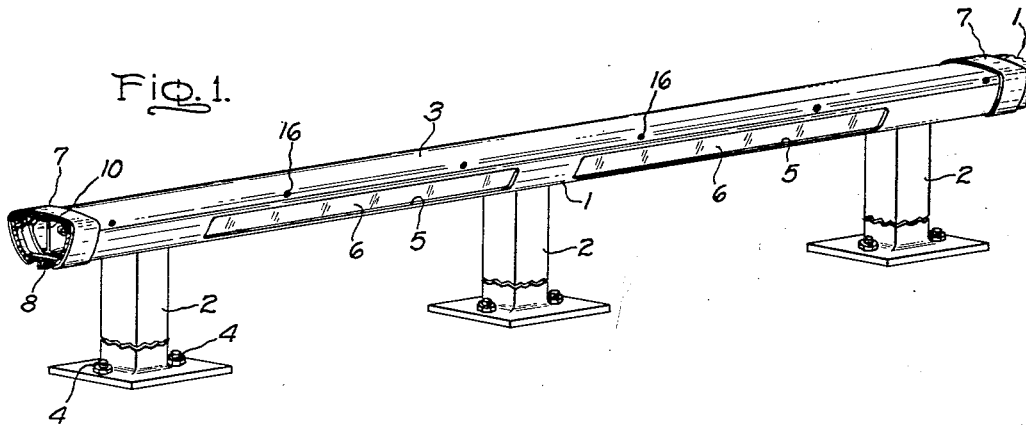
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COMBINATION RAIL AND LUMINAIRE

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COMBINATION RAIL AND LUMINAIRE

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This invention relates to a low mounted luminaire or guard rail lighting device and, more particularly, to a combined rail and luminaire for illuminating surfaces such as roadways, highways, causeways, airport runways, bridges, parapets, etc.

It is an object of the invention to provide a continuous rail member of rigid construction having incorporated therein means for effectively lighting the adjacent area. It is a further object to provide a structure wherein the light sources and auxiliary equipment, including wiring, ballast members and terminal connectors are effectively enclosed and protected. It is a still further object to provide a structure wherein the light sources and auxiliary equipment are readily accessible for inspection and maintenance.

The novel features of my invention will be pointed out in the appended claims, and a full understanding of the invention will be had from a reading of the following description taken in conjunction with the drawing wherein:

FIG. 1 is a fragmentary isometric view of a rail lighting device constructed in accordance with the present invention;

FIG. 2 is a fragmentary cross-sectional view of the device taken along the plane 2—2 of FIG. 3; and

FIG. 3 is a fragmentary side elevation, partly broken away, of the device.

Referring to FIG. 1 of the drawing, it will be seen that in the preferred embodiment of the present invention, there is shown an elongated channel-shaped member 1 that is supported in a predetermined position above a given surface or area on supporting means 2. The supporting means 2 may be standards or columns of any predetermined height. Any suitable means may be utilized to secure the supporting standards 2 in position adjacent an elongated area, such as a roadway or pedestrian causeway, as illustrated by the bolts and nuts designated generally by the numeral 4.

In order that the illustrated device may be utilized to provide a substantially uniform level of illumination along the length of a continuous surface, a plurality of elongated openings 5 are provided in at least one wall of the channel-shaped member 1, and light-transmitting plates or windows 6 are positioned over these openings to protect the interior of member 1 from exposure to the elements. It will be understood that the openings 5 are disposed in that wall of the member 1 which is adjacent the surface to be illuminated.

It will be appreciated that a plurality of members 1 will ordinarily be utilized in end-to-end relation, thereby to afford means for illuminating a substantial length of an elongated surface. Since it is desirable to maintain the rigidity of the entire structure, as well as to protect the interior of the channel-shaped members 1 as completely as possible from the elements, a plurality of releasable securing means, such as the connecting straps 7, with underlying gaskets 7', are disposed around the juxtaposed ends of the channel-shaped members 1 and secured in position by any suitable means, such as a fastening screw arrangement 8.

In accordance with the present invention, the channel-shaped member 1 is mounted on the supporting standards 2 and secured thereto by any suitable means, such as the bolts 9 through its transverse base 9'. Also, an elongated partition 10 is disposed in the center of the channel-shaped member 1 and extends substantially the full length

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thereof to divide the channel-shaped member 1 into first and second elongated compartments C1 and C2 (FIG. 2). As illustrated in FIG. 2, the partition 10 is secured to the channel-shaped member 1 by the bolts 9; however, it will be appreciated that the partition 10 could be made integral with the elongated channel-shaped member 1 if such a form of manufacture is deemed desirable.

In the illustrated embodiment, a plurality of elongated light sources are supported within the second compartment C2 of the channel-shaped member 1 by a plurality of electric socket means which are mounted on the partition 10 at longitudinally spaced points therealong such that a socket is disposed adjacent each side edge of each window 6. An elongated lamp 12 (FIG. 3) is mounted in each pair of sockets 11. In a preferred embodiment of the invention the sockets 11 and the elongated lamps 12 are fluorescent lamps and associated sockets of a suitable type, such as those frequently employed in commercial use for the illumination of industrial and residential buildings. Of course, suitable ballast means and electric connecting terminal means will be employed to energize the lamps 12, and such ballast and terminal means may be mounted in either the first or the second compartment of the channel-shaped members 1; however, for a reason to be explained hereinafter, it is preferred to locate these components in the second compartment C2 with the lamp 12.

In order to provide electric current to the lamps 12, while at the same time protecting the current supply cables or wires 24 (FIG. 2) from the elements and excessive danger of breakage, such wiring may be placed in the first compartment C1 of the channel-shaped member 1, shown on the left side of partition 10 in FIG. 2. It will be understood that a plurality of apertures are formed in the partition 10 at spaced points therealong so that connections may be made between the wiring disposed in the first compartment C1 of the channel-shaped member 1 and the ballast and terminal means preferably disposed in the second compartment C2. Thus, the first compartment is not obstructed with any ballasting or terminal means, so it affords an ideal conduit for a plurality of electric wires or other suitable electric current conducting means. A particular advantage of this conduit means is that when the cover 3 is removed from the channel-shaped member 1, the wiring may be readily inspected and, if necessary, repaired.

It will be seen that the equipment as thus far described comprises a plurality of elongated hollow members formed from the channel-shaped members 1 and their associated covers 3. Furthermore, it will be seen that two means of access are provided to the interior of these elongated hollow members. The first means of access is provided by removal of the cover 3 which is releasably secured in position on the channel-shaped member 1 by suitable positioning and locking means, such as those to be described hereinafter. The cover 3 affords access to the interior of the channel 1 for initial assembly therewith of the sockets 11, lamps 12, ballasts 19 and the necessary wiring 24 and connector blocks (not shown). The second means of access is through the openings 5 in one wall of the second compartment C2 of each of the channel-shaped members 1.

In the preferred embodiment of the invention, the cover 3 is releasably secured to the channel-shaped member 1 and positioned thereon partially by means of the tongue-and-groove arrangement shown at the left side of cover 3 in FIG. 2 and indicated generally by the numeral 13. The cover 3 is further positioned by the generally V-shaped groove in a ridge 14 (FIG. 2) extending longitudinally of the inner surface of cover 3 at a central portion thereof in a manner such that the partition 10 is engaged thereby and serves to position

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the cover 3 precisely above the partition 10. It will be understood that the tongue-and-groove arrangement 13 and the positioning means 14 may either extend the full length of cover 3 and member 1, as in the preferred embodiment of the invention, or they may be formed in segments spaced along cover 3 and member 1.

Also, locking means are provided for releasably securing the cover 3 in position. In the preferred embodiment of the invention these locking means comprise a rigid hook-shaped member 15 (FIG. 2) on the channel-shaped member 1, and screws 16 that are threaded through suitable tapped apertures in the right side of the cover 3, as seen in FIG. 2. It will be understood that when the screws 16 are screwed into engagement with the lip of the hook-shaped member 15, this member and the screws 16 will cooperate with the tongue-and-groove arrangement 13, as well as the V-shaped positioning means 14, to prevent the cover 3 from being moved either transversely or vertically relative to the channel-shaped member 1. The hook-shaped member 15 may be made integral with the cover 3 and coextensive in length therewith.

It will be seen that with the structure illustrated in the preferred embodiment of the invention the illuminating means and their associated electric current conductors are housed in a rigid, compartmentalized arrangement that serves the dual function of affording illuminating means, and providing either a hand rail or a guard rail arrangement. More specifically, it can be seen that the elongated partition 10 engages the cover 3 at its central portion and thus prevents the elongated hollow structure from being deformed, as it would be if the cover 3 were allowed to be deflected toward the interior of the channel-shaped member 1.

In addition to the ready access means afforded by removal of the cover 3 from the member 1, access may be gained to the interior of the second compartment C2 of the channel-shaped member 1 by removing the window or cover plate members 6 from the access openings 5. Such an arrangement is particularly desirable if access to the interior of member 1 is desired for minor maintenance or inspection purposes, such as cleaning the interior of the windows 6, or replacing a lamp 12 that may have failed. Such ready access is afforded by the unique structure of the present invention while at the same time the interior of the channel-shaped member 1 is kept well protected from exposure to the elements. These functions are accomplished by providing an embossment 17 (FIG. 2) along the entire length of the base portion of the channel-shaped member 1 to thus form a lip which engages and positions the bottom edges of windows 6. Resilient spring members 18 are mounted on the elongated member 15 and disposed to engage the inner surfaces of the windows 6 and bias them toward their respective openings 5. It will thus be seen that the windows 6 may be readily slid in either direction longitudinally along the channel-shaped members 1 thereby to remove them from over their respective apertures 5 and thus expose the interior of the second compartment C2 of the channel-shaped member 1 for any desired maintenance or inspection purposes. Of course, when such purpose has been accomplished it is only necessary to slide the windows 6 back to their original positions.

As indicated above, the ballast members for regulating current flow to the lamps 12 may be mounted on the partition 10 in the same compartment with the lamps. This is shown in FIG. 2 where a ballast 19 is shown mounted on the partition 10 in any suitable manner. As indicated therein, the ballast 19 is supported by clips 20 attached by screws to the partition 10 and overlying sheet metal flanges 21 extending from the base of the ballast 19. Each ballast 19 may be designed to regulate two lamps 12 and may be located behind or

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opposite the portion of channel 1 between the pair of windows 6 in each section of channel 1. A connector block (not shown) may also be attached to the partition 10 adjacent the ballast 19 for making connections between the sockets, ballast and current supply wiring.

In order to more efficiently direct light from the lamps 12 out across the adjacent walk or roadway, there is provided an elongated sheet metal reflector 22 (FIG. 2) of suitable curvature in association with each lamp and substantially coextensive therewith. As shown in FIG. 2, the reflector is supported along its lower edge in a groove or slot formed in the bead 17 and is fastened at its upper edge to the partition 10 by screws 23.

While a particular preferred embodiment of the invention has been shown and described, it will be obvious to those skilled in the art that various modifications may be made therein without departing from the invention in its broader aspects. For example, it will be evident that, when desired, lamps may be mounted on both sides of the central partition 10, with the provision of windows 6 on both sides of the channel member 1. Also, instead of one lamp 12 behind each window 5, two or more such lamps may be provided, or one longer lamp may be provided to extend across both windows 5 of each channel member 1.

What I claim as new and desire to secure by Letters Patent of the United States is:

1. A rail lighting device comprising an elongated hollow member having an open top closed by a readily removable cover member, means supporting said hollow member in a predetermined position above a surface, means for rigidly supporting said cover member against inward deflection secured to said hollow member and abutting said cover member, said last mentioned means defining an elongated partition within said member dividing the interior thereof longitudinally into first and second elongated walled compartments, electric socket means adapted to support an elongated electric lamp and transmit electric power thereto, said socket means being mounted on said partition to be located within one of said compartments for supporting an elongated lamp in a predetermined position therein, means defining an elongated light-transmitting section in a side wall of said hollow member for transmission of light from a lamp in said sockets comprising an elongated opening in said wall, a light transmitting plate disposed over said elongated opening, and means for detachably securing said plate in position over said elongated opening, and power supply means for connection to said sockets, including wiring disposed within one of said compartments.

2. Apparatus as defined in claim 1 wherein the means for detachably securing said plate in position comprises means defining plate positioning embossments on said one wall of the hollow member, and resilient means mounted within said hollow member and disposed to engage said plate thereby to bias the plate toward said opening thus affording means for closing the opening.

3. A rail lighting device comprising an elongated hollow member having an open top, means for supporting said hollow member in a predetermined position above a surface, means detachably securing said hollow member to said supporting means in said predetermined position, means defining an elongated partition within said member dividing the interior thereof into first and second elongated walled compartments, electric current conducting means disposed in said first compartment, electric socket means adapted to support an elongated electric lamp and transmit electric power thereto, said socket means being disposed in said second compartment for supporting an elongated lamp in a predetermined position therein, means defining an elongated light-transmitting section in one wall of said second compartment for transmission of light from a lamp in said sockets, an elongated cover for closing the open top of said

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hollow member, means for detachably securing said cover in position on said hollow member, said elongated partition abutting a central portion of said cover when said cover is secured to said hollow member thereby constituting means for rigidly supporting said cover against inward deflection toward the interior of said compartments.

4. A device as defined in claim 3 including positioning means on said central portion of said cover for centering the cover when it is moved into abutting engagement with the partition.

5. Apparatus for illuminating an elongated surface comprising a plurality of elongated hollow members, means for supporting said hollow members in a predetermined position above said surface such that the longitudinal axes of said members are in alignment, each of said members being disposed in juxtaposition with the next adjacent member in said alignment of members, each of said members comprising a channel-shaped base and a detachable cover of substantially equal length, means detachably securing each of said channel-shaped bases to said supporting means in said predetermined position, an elongated partition detachably secured to each of said channel-shaped bases whereby said channel-shaped bases are divided into respective first and second walled compartments by said partitions, electric current conducting means disposed in each of said first compartments, each of said second compartments having electric sockets disposed therein to support elongated electric lamps in predetermined position within the second compartments and transmit electric power to said lamps, ballast means mounted in each of said second compartments for supplying electric power to said lamps, means defining an elongated translucent section in one wall of each of said second compartments adjacent said

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surface whereby a light transmitting passageway is afforded from the respective interiors of each of said second compartments to said surface, means for releasably securing the juxtaposed ends of said bases and said covers together thereby to form a continuous hollow member having continuous first and second elongated compartments, said releasable securing means being further effective to retain each of said covers in position on its respective base and including a longitudinal groove extending along the upper edge of one side of each channel-shaped base, hook means extending along the upper edge of the other side, tongue means engaging said groove extending longitudinally along one edge of each detachable cover and a series of tapped apertures having screws threaded therethrough along the other edge engaging said hook means and a positioning ridge for engaging the upper edge of said partition having a V-shaped notch therein extending longitudinally of the inner surface of each cover for centering the cover when it is held by said releasable means and rigidly supporting the same against inward deflection toward the interior of said compartments.

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