

June 17, 1958

M. BOBRICK

2,839,672

TUNNEL LIGHTING FIXTURE

Filed July 29, 1957

3 Sheets-Sheet 1

FIG. 1.

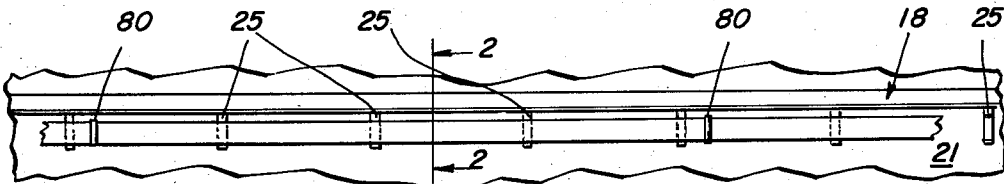


FIG. 3.

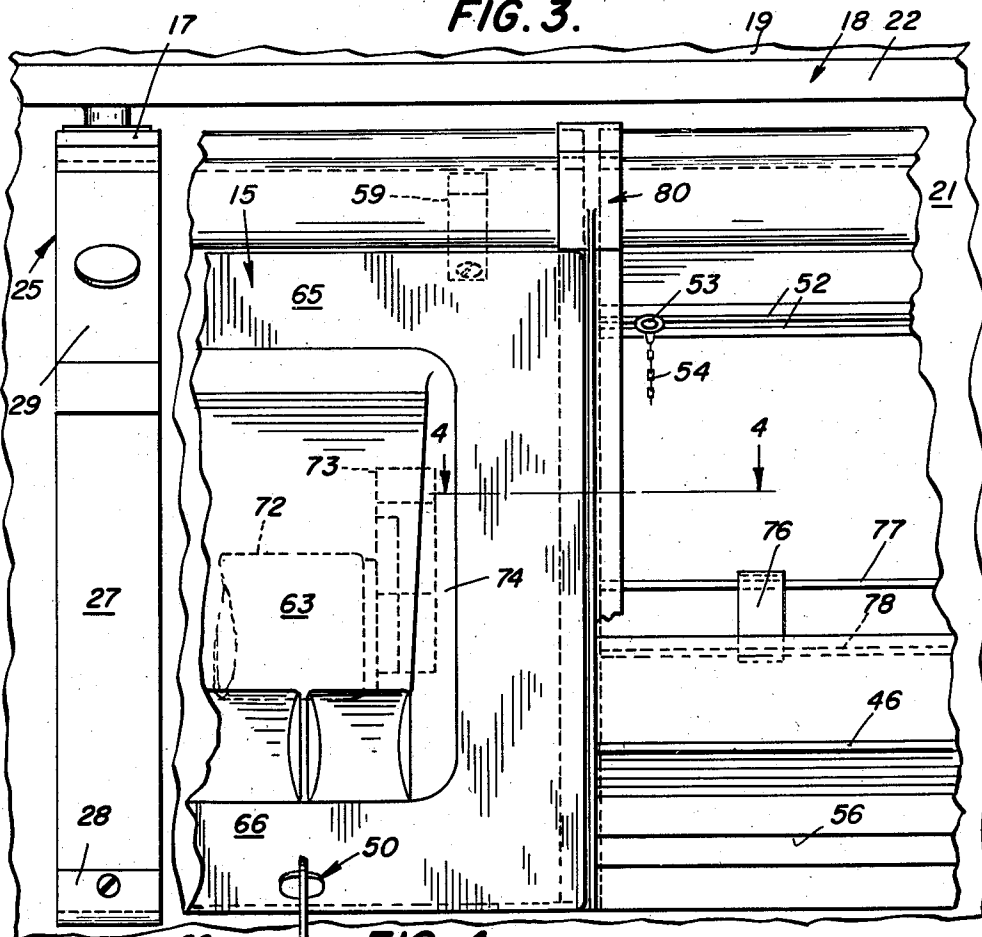
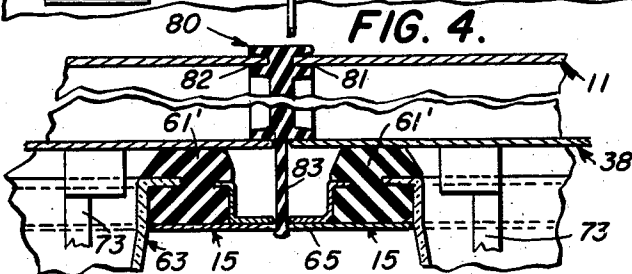


FIG. 4.



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FIG. 2.

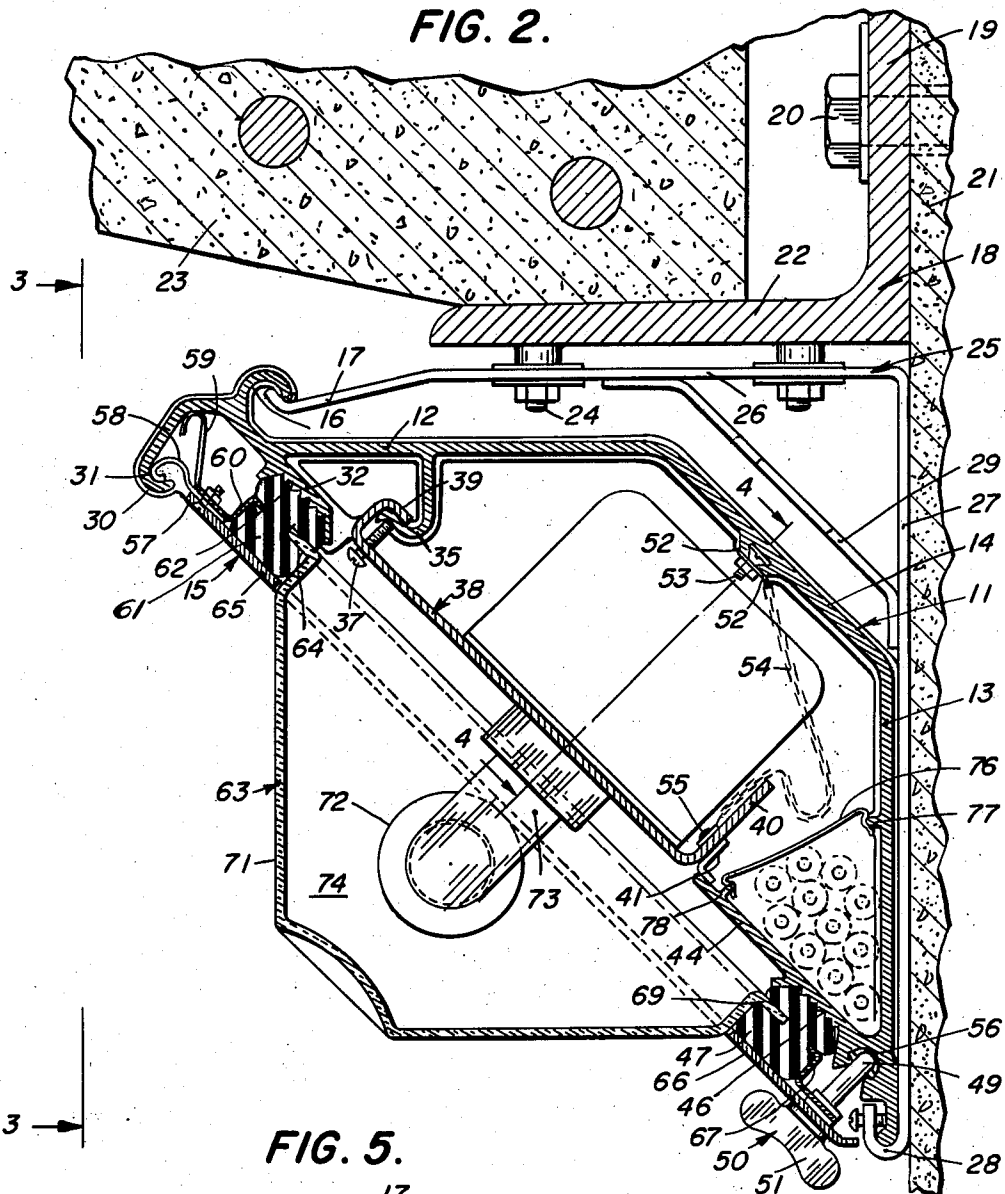
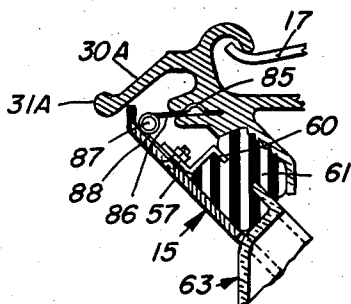


FIG. 5.



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FIG. 6.

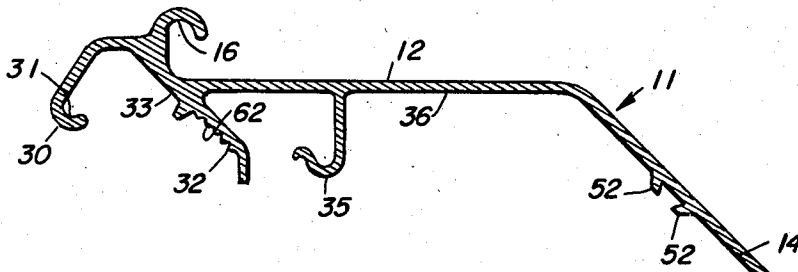


FIG. 7.

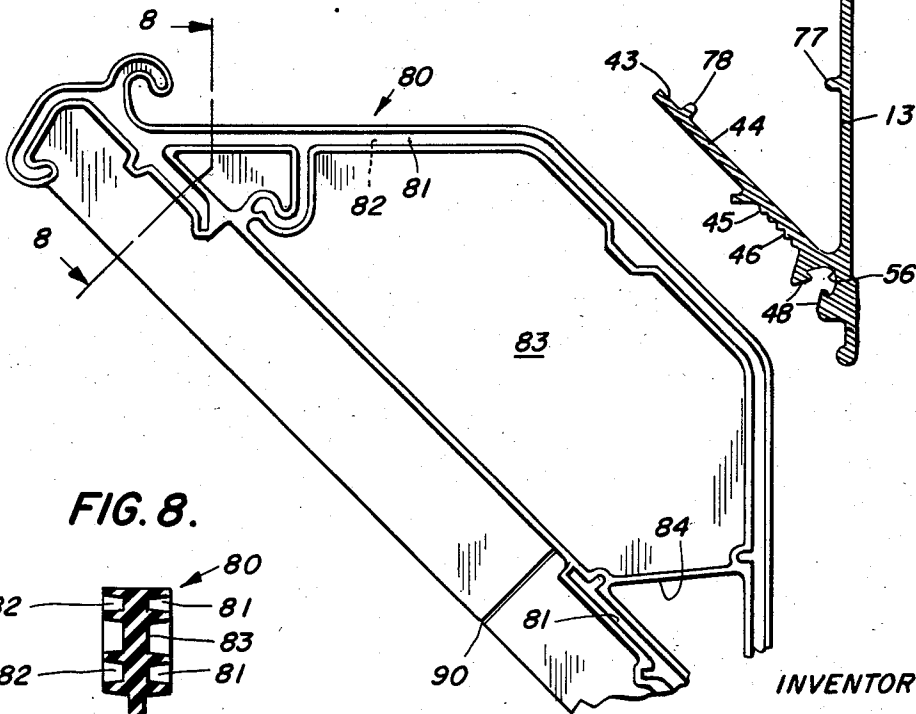
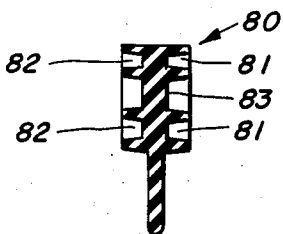


FIG. 8.



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## TUNNEL LIGHTING FIXTURE

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7 Claims. (Cl. 240—9)

This invention relates to a tunnel lighting fixture and in particular to a lighting fixture in units which may be extended for long lengths of a tunnel or the like.

One object of the invention is to provide a continuous length lighting fixture for tunnels. Another object is to provide adjoined sectional units for a continuous length lighting fixture for tunnels. Another object is to provide sealed lighting fixtures for tunnels which require no openings in their sealed structure for mounting on the tunnel walls. Another object is to provide a corner lighting fixture for tunnels in which the light is directed angularly downwardly from the upper side corners. A further object is to provide lengthwise units of tunnel lighting fixtures which are sealed against moisture and other atmospheric conditions. A still further object is to provide closure means for a corner supported tunnel lighting fixture which are readily opened and closed for maintenance purposes without disturbing adjacent units. Another object is to provide a metal extrusion for a housing having longitudinal integral walls, ridges, grooves, partitions and flanges for the assembling of a tunnel lighting fixture.

These and other objects are attained by my invention which will be understood from the following description, reference being made to the accompanying drawings in which:

Fig. 1 is a side elevational view of my tunnel lighting fixture as installed in the upper side corners of a tunnel structure;

Fig. 2 is a cross-sectional view taken on the line 2—2 of Fig. 1 showing details of the fixture structure, the mounting bracket attached to a tunnel structural member, and the means for supporting the fixture on the bracket;

Fig. 3 is a front elevational view taken from the position 3—3 of Fig. 2, parts being broken away to show the supporting bracket and the diffuser plate;

Fig. 4 is a fragmentary cross-sectional view taken on the line 4—4 of Fig. 3;

Fig. 5 is a fragmentary cross-sectional view showing an alternative structure for hinging the diffuser frame to the housing;

Fig. 6 is a cross-sectional view of the metal extrusion constituting the housing main structure;

Fig. 7 is an elevational view of the diaphragm partition gasket for sealing the ends of the extruded sections of the housing; and

Fig. 8 is a cross-sectional view taken on the line 8—8 of Fig. 7.

Referring to the drawings, Figs. 1 to 4 and 6 to 8 show a preferred form of my invention. The tunnel lighting fixture consists generally of housing sections assembled into a continuous long fixture extending from one end of the tunnel to the other, the sections being joined by partition gaskets abutting the contiguous ends of the extruded metal housing sections. These housing sections are supported on extension arms of metal brackets attached to the structural members of the tunnel, the brackets

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being spaced apart to give adequate support to the fixture. Each section of the metal housing, with end gaskets, contains the necessary electrical lamps, mountings, ballasts, fuses, switches, etc. for a complete lighting unit electrically independent of the adjoining units. The electrical wires are carried in a trough conduit extending longitudinally through all of the sections, openings being provided in the partition gaskets.

Referring particularly to the preferred form of the lighting fixture, this consists of an elongated extruded aluminum housing, marked generally 11, which is hemihexagonal in cross-section, and is arranged to be supported in the upper side corner of the tunnel structure with the light diffusing elements directed downwardly at about 45 degrees. It will be understood that since the main portion of the housing is a unitary metal extrusion, the features of structure described herein are not only integral, but run for the full length of a section, in practice about 12 feet. The housing enclosure consists of a top wall 12, a vertical wall 13, and a back wall 14 disposed at approximately 135 degrees from each of the other walls and connecting them.

At the outer end of the top wall 12 and extending above it is an integral hooked supporting groove 16 having its open portion facing the tunnel wall, said hooked groove 16 being arranged to engage a protruding arm 17 of a suitable mounting bracket 25. A structural angle roof member 18 has a back leg 19 which is attached by stud bolts 20 affixed to the concrete of the side wall 21 of the tunnel, the horizontal member 22 of the structural member 18 extending beneath the roof 23 of the tunnel and having downwardly directed stud bolts 24 to which the mounting bracket 25 is attached by its horizontal arm 26, the vertical member 27 of the bracket being disposed against the side wall 21 of the tunnel structure. The lower end of the vertical member 27 is provided with a reverse bend hook 28 being disposed in a position to support the lower end of the back wall 13 of the extruded housing. A brace member 29 for the mounting bracket 25 is provided across the corner between the horizontal member 26 and the vertical member 27.

The top wall 12 of the extruded housing is also provided with an integral over-hanging drip ledge 30, the drip ledge terminating underneath in a hinge hook groove 31 having an opening facing toward the interior space of said housing, said hinge hook groove 31 being adapted to hingedly support the closure member for the housing as will be described.

The top wall of the housing is also provided with a gasket holding flange 32 depending from the outer edge 33 inwardly and below the hook supporting groove 16 of the top wall 12, the surface of said flange having longitudinally holding ribs 62. The extruded housing 11 is also provided with a pan supporting hook ledge 35 depending from the inside surface 36 of the top wall 12, at an intermediate position, the opening in said hook ledge 35 being directed outwardly and upwardly and adapted to hingedly support a fixture pan 38 which is spaced away from and parallel to said housing back wall 14.

The vertical wall 13 of the extruded housing 11 is also provided with an integral longitudinal trough wall 44 extending upwardly from its lower portion and disposed in parallel relation to the back wall 14, the lower portion 45 of said trough wall being provided with longitudinally parallel holding ridges 46 for seating a closure gasket 47. The longitudinal trough wall 44 is provided with a continuous cam lock channel 56 disposed between the said holding ridges 46 and the lower end of the side wall 13, this channel having under-cut sides forming lips 48 to receive the projecting head 49 of the cam lock fastener

50, which is operatively attached to the locking flange member 66 of the closure 15.

An elongated fixture pan 38 is mounted within the housing by means of an inwardly reversed bend flange 39 at its upper edge which engages the pan supporting hook ledge 35 of the housing extrusion, the lower edge of the fixture pan 38 being provided with a right angled flange 40 to the lower face of which is attached a stop member 41 which in lamp operating position overlaps and abuts the upper edge 43 of the wiring trough wall 44. The fixture pan 38 is thus supported in a position generally parallel to the back wall 14 of the housing, being hung at its top edge from the hook ledge 35. Set screws 37 are conveniently provided in the pan 38 to removably hold the reverse bend flange 39 to said hook ledge 35. Upon release of the set screws 37, the fixture pan 38 may be raised to release the abutting stop member from the edge 43, so that the pan may be removed or allowed to hang vertically for access at the rear thereof.

A bolt head receiving groove is conveniently formed by spaced apart undercut tongues 52 on the inner surface of the back wall 14 to receive the heads of headed bolts 53, which may be used for the attachment of parts to the housing; for example, the safety chain 54 may be attached to one of said bolts 53, the other end of said chain being fastened to the lower portion of the fixture pan 38 by the bolt 55, the chain holding the pan in access position when it is released from the trough wall 44 so that it takes a perpendicular position hanging on the ledge hook 35.

The open exposure of the extruded housing, as above described, is closed and sealed by a hinged closure 15 which consists of a central opening face-plate 65 having an upper member 57 extending for the full length of each unit of the housing, the hinge roll 58 being attached to its upper edge so that it hingedly engages the hinge hook groove 31 of the extruded housing, previously described. A spring detent 59 is also attached to the hinge roll 58 to normally hold said hinge roll 58 in the hinge groove 31. The hinge roll 58 is also provided with a gasket holding rib 60, there being a molded resilient gasket strip 61 embedding said rib 60 as well as the upper margin flange 64 of a formed synthetic plastic light diffuser plate 63, the free surface of said gasket strip 61 abutting the ridges 62 of the gasket holding flange 32 of the housing. The lower member 65 of the face plate 65 is provided with a gasket holding rib 67 to which is adhesively attached a resilient gasket strip 47 which also embeds and holds the lower margin flange 69 of the plastic diffuser plate 63, this gasket strip in the closed position of the closure abutting the holding ridges 46 of the lower portion of the trough wall 44. The member 66 is also provided at spaced intervals lengthwise with operatively attached cam lock fasteners 50 having thumb turn wings 51 exposed on the outer face, the projected heads 49 of these cam lock fasteners being arranged to engage the lips 48 of the cam lock channel 56.

The plastic diffuser plate as shown consists of a molded acrylic plastic sheet having a central protruding dome 71 extending outwardly for sufficient distance to accommodate the fluorescent light tubes 72 and their mounting fasteners 73, the diffuser having integral end portions 74, and upper and lower margin flanges 64 and 69 which are embedded in the gasket strips 61, 61', and 68 as described above.

The channel formed between the side wall 13 and the trough wall 44 of the extruded housing serves as a wire-way trough which is readily accessible along its entire length when the fixture pan 38 is in released (hanging) position or has been removed. Spring holding clips 76 may be attached at spaced intervals to a ridge 77 on the side wall 13 and to the ridge 78 on the trough wall 44, these ridges being continuous for the length of the extruded housing.

The cross-sectional view of the preferred form of the extruded housing is shown in Fig. 6. The units for the

housing may be of any desired length, although a proper length to accommodate two 4-foot long fluorescent tubes is preferred, the overall length being approximately 12 feet. Between sections of the extruded housing there are provided diaphragm or partition gaskets 80 as shown particularly in Fig. 7, which gaskets are provided with channels 81 and 82 on a sheet member 83, the material of this gasket being of rubber-like material which is resilient but rigid enough to be self-supporting. The channels 81 and 82 of the gaskets receive the abutting ends of the extruded housing sections. The lower portion of the sheet member 83 is provided with an opening 84 corresponding to the wiring trough so that the electrical wires may be carried through the several sections of the long tunnel fixture.

In Fig. 5 is shown an alternative structure for supporting the closure 15 in which the drip ledge 30A terminates in a bead 31A, and a slot 85 is provided in the extruded housing at the outer edge of the top wall 12 below said drip ledge to engage a hinge leaf 86, this leaf being a part of the "piano" hinge 87, whose other leaf 88 is attached to the upper member 57 of the closure 15, the other elements of the closure and the extruded housing being the same as above described.

The many advantages of my tunnel lighting fixture will be apparent from the above description. The provision of lighting sections or units which are independent accessible units gives the advantage of providing continuity of service from any remainder of the lighting fixture units if one or more units become inoperative. The accessibility of the individual lighting units because of the hinged closure and hinged pan are among its many advantages. The units are individually sealed against moisture and other atmospheric influences by the provision of the molded partition gaskets as well as the sealing gaskets around the closure. The wire-way trough provides a safe channel for carrying the electrical service wires throughout the length of the tunnel, and the wires are readily accessible when the pan is removed. All of the electrical parts are mounted on the pan, which may be completely wired before installation. The pan may be easily removed and replaced so that repairs can be made outside the tunnel.

I claim:

1. A tunnel lighting fixture comprising a plurality of elongated sections of extruded metal housing of generally hemi-hexagonal cross-section disposed in end-to-end relation and adapted to be supported on brackets attached to the structural members of a tunnel-like structure, said housing having a top wall, a vertical wall, and a back wall defining a longitudinal interior space for enclosing mounted fluorescent light tubes, electrical accessories, and electrical conduits, said housing top wall having an integral external hooked supporting groove having its open portion facing the said supporting brackets and arranged to engage a protruding arm of said bracket, the outer edge of said housing top wall having an integral overhanging drip ledge, said drip ledge including a hinge holding means for a closure to said housing, an elongated fixture pan mounted within each section of said housing supported by said housing walls, said fixture pan being adapted for mounting thereon fluorescent light and the accessories therefor; a closure for each section of said housing, said closure being hingedly mounted to the underside of the outer end of said top wall beneath said drip ledge, said closure including a mounted formed plastic light diffuser plate; means for removably fastening the lower edge of said closure to the lower edge of said vertical wall of said housing; and molded resilient partition gaskets disposed between adjacent extruded metal housing sections, said gasket being provided on both sides with channels arranged to sealingly engage the respective ends of said adjacent abutting extruded sections.

2. A tunnel lighting fixture comprising a plurality of elongated sections of extruded metal housing of generally

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hemi-hexagonal cross-section disposed in end-to-end relation and adapted to be supported on brackets attached to the structural members of a tunnel-like structure; said housing having a top wall, a vertical wall, and a back wall defining a longitudinal space for enclosing mounted fluorescent light tubes, electrical accessories, and electrical conduits, said housing top wall having an integral external hooked supporting groove having its open portion facing the said supporting brackets and arranged to engage a protruding arm of said bracket, the outer edge of said housing top wall also having an integral overhanging drip ledge, said drip ledge terminating underneath in a hinge hook groove having an opening facing toward the interior of said housing, said housing top wall also having an integral interior pan-supporting hook ledge depending from its underside, said depending hook ledge having an outwardly and upwardly directed opening adapted to hingedly support a fixture pan from its upper edge in said space, said housing side wall having an integral longitudinal wiring trough wall extending angularly upwardly from its lower edge, said trough wall being disposed parallel to said back wall; an elongated fixture pan having an intumed hook flange along its upper edge adapted to engage the said pan supporting hook ledge, the opposite edge of said pan resting upon the innermost edge of said trough wall; a closure for each section of said housing, said closure being hingedly attached to said hinge hook groove under said drip ledge, said closure including a mounted formed plastic light diffuser plate; means for removably fastening the lower edge of said closure to the lower edge of said vertical wall of said housing; and molded resilient partition gaskets disposed between adjacent extruded metal housing sections, said gaskets being provided on both sides with channels arranged to sealingly engage the respective ends of said adjacent abutting extruded sections.

3. A tunnel lighting fixture comprising a plurality of elongated sections of extruded metal housing of generally hemi-hexagonal cross-section disposed in end-to-end relation and adapted to be supported on corner brackets attached to the structural members of a tunnel-like structure, said housing having a top wall, a vertical wall, and a back wall defining a longitudinal space for enclosing mounted fluorescent light tubes, electrical accessories, and electrical conduits, said housing top wall having an integral external hooked supporting groove having its open portion facing the said supporting brackets and arranged to engage a protruding arm of said bracket, the outer edge of said housing top wall also having an integral overhanging drip ledge, said drip ledge terminating underneath in a hinge hook groove having an opening facing toward the interior of said housing, said housing top wall also having a sealing flange depending from the upper outer corner of said housing below said hinge hook groove, said housing top wall also having an integral interior pan-supporting hook ledge depending from its underside, said depending hook ledge having an outwardly and upwardly directed opening adapted to hingedly support a fixture pan by its upper edge flange, said housing side wall also having an integral longitudinal wiring trough wall extending angularly upwardly from its lower edge, said trough wall being disposed parallel to said back wall, said trough wall having a continuous cam lock channel disposed in its lower edge adapted to operatively engage a cam lock fastener at any position along the length of said housing; an elongated fixture pan having an intumed hook flange along its upper edge adapted to engage the said pan supporting hook ledge, the opposite edge of said pan resting upon the innermost edge of said trough wall; a closure for each section of said housing, each closure comprising a formed synthetic plastic light diffuser plate, an open face-plate, a hinge roll attached to the upper member of said face plate, said hinge roll being adapted to operatively engage said hinge hook groove beneath said drip ledge, the lower member of said

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face plate being provided with cam lock fasteners adapted to engage the said cam lock channel in said trough wall, said upper and lower members of said face plate being attached to the upper and lower margin flanges of said light diffuser plate, and a sealing gasket along said upper and lower members said gasket being adapted to sealingly contact said sealing flange and said trough wall respectively; and molded resilient partition gaskets disposed between adjacent extruded metal housing sections, said gaskets being provided on both sides with channels arranged to sealingly engage the respective ends of said adjacent abutting extruded sections.

4. An extruded metal housing for a tunnel lighting fixture of the class described, of generally hemi-hexagonal cross-section, said housing having a top wall, a vertical wall, and a back wall defining a longitudinal space for enclosing fluorescent light tubes, electrical accessories, and electrical conduits, said housing top wall having an integral external hooked supporting groove having its open portion facing downwardly and rearwardly and being adapted to engage a protruding supporting arm of a bracket attached to the roof of a tunnel structure, the outer edge of said housing top wall also having an integral overhanging drip ledge, said drip ledge terminating underneath in a hinge hook groove having an opening facing toward the interior of said housing, said housing top wall also having a sealing flange depending from the upper outer corner of said housing below said hinge hook groove, said housing top wall also having an integral interior pan-supporting hook ledge depending from its underside, said depending hook ledge having an outwardly and upwardly directed opening adapted to hingedly support the upper flange of a fixture pan, and said housing side wall also having an integral longitudinal wiring trough wall extending angularly upwardly from its lower edge, said trough wall being disposed parallel to said back wall, said trough wall having a continuous cam lock channel disposed in its lower edge.

5. An extruded metal housing for a tunnel lighting fixture as defined in claim 4 in which a pair of longitudinal bolt-head holding tongues are formed on the inner face of said back wall.

6. An extruded metal housing for a tunnel lighting fixture as defined in claim 4 in which longitudinal gasket-holding grooves are formed on the outer face of said sealing flange and on the outer face of said trough wall.

7. In combination with a tunnel lighting fixture comprising a plurality of elongated sections of extruded metal housing of generally hemi-hexagonal cross-section disposed in end-to-end relation and adapted to be mounted in the upper side corners of a tunnel-like structure, said housing having a top wall, including an external hooked supporting groove directed toward the tunnel wall, a vertical wall, and a back wall defining a longitudinal space for enclosing mounted fluorescent light tubes, electrical accessories, and electrical conduits, said housing walls having integral longitudinal partition walls, shaped grooves and ridges disposed to support and hold a closure and a fixture mounting pan within said housing; an elongated fixture pan mounted within each section of said housing, said pan being adapted for mounting thereon fluorescent lights, and the accessories therefor; molded resilient gaskets disposed between adjacent extruded metal housing sections, said gaskets being provided on both sides with channels arranged to sealingly engage the respective ends of said adjacent abutting extruded sections; and a closure for each section of said housing, said closure including a mounted formed plastic light diffuser plate; a supporting bracket consisting of a vertical member, a horizontal member, and a brace member extending angularly between said vertical and said horizontal members, said vertical member being provided at its lower end with an intumed hook adapted to engage the lower end of the vertical wall of said fixture housing, said horizontal member having bolt holes to receive holding studs

projecting from a horizontal structural member of a tunnel structure, and said horizontal member also having a protruding arm with an upturned end adapted to engage said external hooked supporting groove of said fixture housing.

2,336,414  
2,533,661  
2,578,190  
2,717,307  
5 2,717,954

#### References Cited in the file of this patent

##### UNITED STATES PATENTS

2,335,545 Shannon et al. ----- Nov. 30, 1943 10

Mitchell ----- Dec. 7, 1943  
Arenberg et al. ----- Dec. 12, 1950  
Kurtzon ----- Dec. 11, 1951  
Bjontegard ----- Sept. 6, 1955  
Rex ----- Sept. 13, 1955

##### FOREIGN PATENTS

635,881 Great Britain ----- Apr. 19, 1950