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LUMINARY AND MODULAR UNIT LIGHTING FIXTURE THEREFOR

Filed June 28, 1963

3 Sheets-Sheet 1

FIG. 1

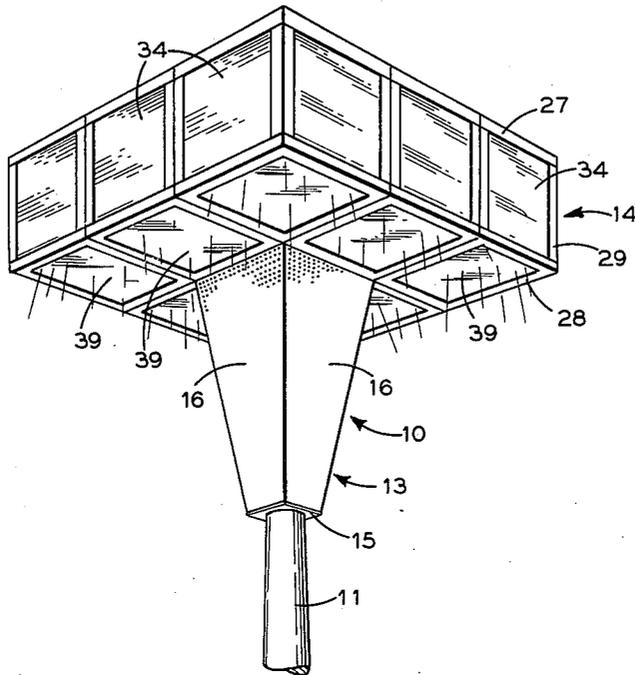
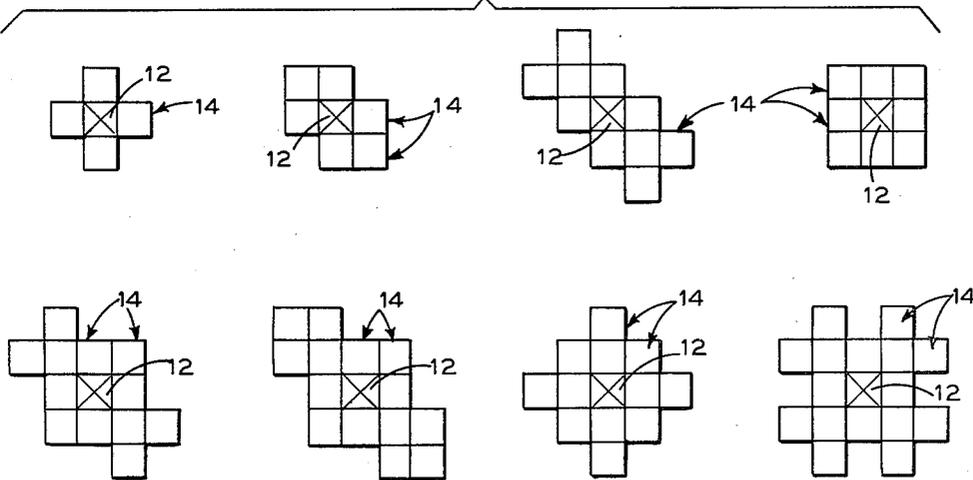


FIG. 7



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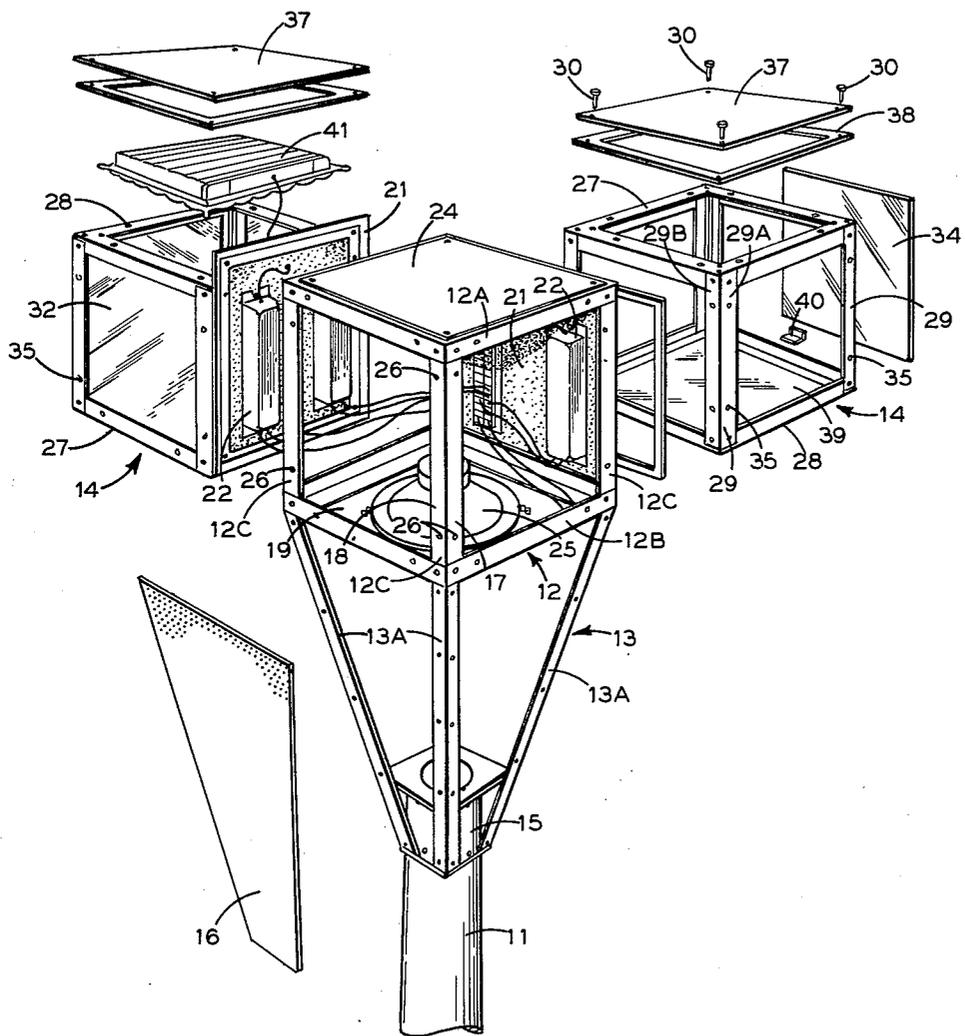
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LUMINARY AND MODULAR UNIT LIGHTING FIXTURE THEREFOR

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FIG. 2



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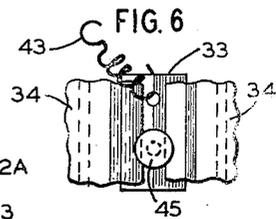
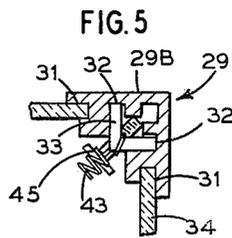
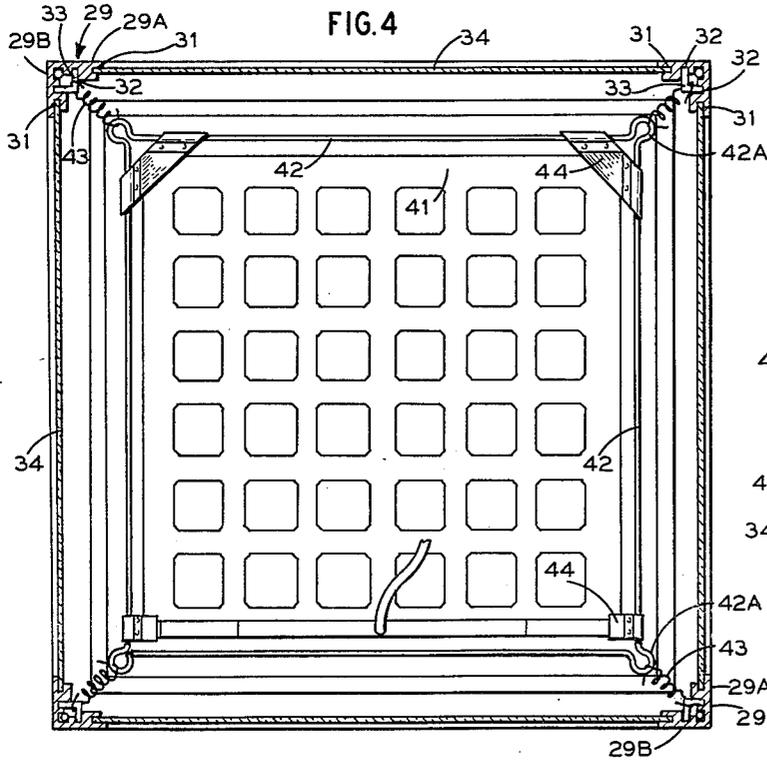
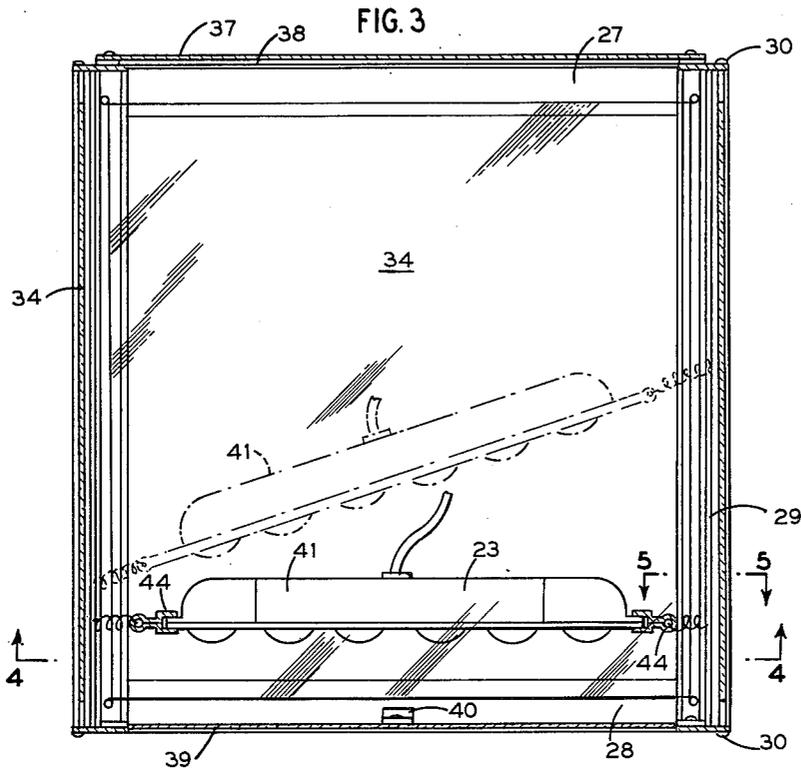
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LUMINARY AND MODULAR UNIT LIGHTING FIXTURE THEREFOR

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**LUMINARY AND MODULAR UNIT LIGHTING
FIXTURE THEREFOR**

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7 Claims. (Cl. 240-3)

This invention relates in general to a luminary and a modular lighting fixture therefor, and more specifically to a luminary composed of a plurality of modular unit lighting fixtures constructed and arranged so that the size and shape of the luminary can be varied by adding or subtracting the number of modular unit fixtures required for a given luminary arrangement.

In the present day and age, many businesses or enterprises, as for example, shopping centers, fairs, exhibits, drive-in movies, sport arenas or events, country theatres, public resorts and the like, must provide relatively large areas for the parking of the patrons' automobiles. Heretofore, difficulty has been encountered providing adequate means for identifying portions of such expansive parking areas and/or directing the patrons who for the most part, are thoroughly unfamiliar with the local surroundings to other areas of interest of such enterprises. All too often in such large public parking areas, little if any real noticeable identification markers or beacons are provided. As a result, when one parks his car in such a vast parking lot to attend the function or event offered by the enterprise, a patron will frequently forget in which area or portion of the lot the car has been parked. Consequently, when returning to his car, he frequently cannot immediately locate its position inasmuch as the noted landmarks, as for example, adjacent cars, may have been moved. For this reason, a person will lose a great deal of time in attempting to orientate his position in order to find where he has parked his car.

Also, in many resort areas and other outdoor interests, e.g., fairs, exhibits and the like, where many of the patrons are visiting, little if any effort has been made to provide informative visual aids for directing patrons to the various points of interest, which can also function to light the way at night. Consequently, in the absence of any organized manner of providing visual direction to patrons patronizing such events or to given points of interest, much of the enjoyment of such events is lost because much time is lost in meaningless, tiring wandering.

Therefore, it is an object of this invention to provide an improved luminary construction which can be readily utilized as a visible beacon for directing persons to given areas of interest or to particular areas of a vast parking lot to help orientate the person unfamiliar with the surroundings.

Another object of this invention is to provide a unique luminary in which the size or shape thereof can be readily varied to accommodate a given situation.

Another object of this invention is to provide a luminary which is comprised of a plurality of unit modular fixtures which can be clustered in various arrangements to define readily distinct luminous configurations which are pleasing, colorful and decorative.

It is another object of this invention to provide a modular unit lighting fixture having a light source universally mounted therein so that the light beam can be directed in any direction.

Still another object of this invention is to provide a luminary constructed of a cluster of similarly constructed unit lighting fixtures which are assembled atop of an elongated supporting hole and which is rugged, rigid and capable of resisting elements of weather.

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Still another object of this invention is to provide a modular unit lighting fixture that is both weather tight and light tight.

It is another object of this invention to provide a luminary capable of illuminating a considerable area in all directions.

Still another object is to provide a luminary of modular unit construction which is relatively simple, which can be easily fabricated and assembled, and which is positive in operation.

Another object is to provide a luminary constructed of a cluster of individually connected modular units of similar constructions, each of which is adapted to contain its own light source with means for individually adjusting position of the respective light sources relative to one another.

Another object is to provide a novel luminary having a fixture of modular design whereby the size and shape of a given luminary can be varied by adding or subtracting modular units as desired.

It is another object of this invention to provide a novel lamp holder for supporting a lamp in a given modular unit and which is of minimum size so as to not cast any shadow.

It is another object of this invention to provide a novel cubicle modular unit the sides thereof are formed of translucent, readily replaceable or removable panels.

It is another object of this invention to provide a luminary formed of a series of modular unit lighting fixtures and having provisions for incorporating therein a loud speaker of a public address system.

The above objects, and other features and advantages are readily attained by a luminary comprising essentially of an elongated supporting means which has fixed atop thereof a core frame to which a cluster of lighting fixtures, each being similarly constructed as a modular unit. In accordance with this invention, each of the respective modular units are defined by an open cubic frame construction comprising essentially of a top and bottom rectangular frame member which are secured at the corners thereof by an angular corner piece. Means are provided for detachably mounting translucent panels between adjacent corner pieces to close the open sides of the cubic framed fixture. Also top and bottom panels may define the top and bottom of the cubic frame. Accordingly, the colors of the respective panels may be varied in accordance to a given scheme. Means are provided for readily attaching the respective cubic lighting fixture in side by side relationship to define any desired cluster or array of such units about the core frame. Each of the modular units is further provided with means for universally supporting therein a light source. Accordingly, the position and direction of the light rays beaming from the respective light sources can be independently adjusted relative to one another. If desired, means are further provided to include in the luminary a loud-speaker of a public address system so as to provide an audible implement to the visual lighting information rendered possible by the particular construction and the arrangement of the clustered fixtures.

A feature of this invention resides in the provision that the respective modular unit construction of the respective light fixtures can be arrayed in clusters to form an illuminary any desired size, shape or appearance.

Another feature of this invention resides in the novel cubical frame unit construction of the respective lighting fixtures.

Another feature of this invention resides in the provision that the respective panels of the luminary can be colored in accordance to a given scheme so as to func-

tion as a beacon for directing patrons of a given attraction to a particular area or point of interest.

Another feature of this invention resides in the provision that the instant luminary is relatively simple in construction, is readily fabricated of relatively simple structural components, and which can be readily assembled and disassembled with a minimum of effort.

Other features and advantages will become more readily apparent when considered in view of the drawings and specifications in which,

FIGURE 1 illustrates a perspective view of the luminary constructed and arranged in accordance with the instant invention.

FIGURE 2 is a perspective exploded view illustrating the luminary of the instant invention.

FIGURE 3 is a sectional view in elevation taken through one of the modular units which comprise the luminary of the instant invention.

FIGURE 4 is a sectional view taken through a modular unit construction along line 4—4 of FIG. 3.

FIGURE 5 is a detailed section view taken through line 5—5 of a corner end piece on FIG. 3.

FIGURE 6 is a detail elevation view of FIG. 5 and

FIGURE 7 includes a series of diagrammatical illustrations only a few of the variations of luminary possible by the instant luminary construction.

Referring to the drawings, and in particular to FIGS. 1 and 2, the luminary 10 of the instant invention comprises essentially of an elongated support means or pole 11, a central core unit or frame 12, connected to the end of a transition section 13 secured atop the pole, and a plurality of modular unit lighting fixtures 14 which are arrayed in a cluster of any desired size or configuration about the central core or frame structure 12 and each other.

As shown, the supporting means or pole 11 comprises a pole of any suitable material and/or shape which may be for example, 20 ft. long. The pole 11 may be imbedded in the ground, but preferably it is supported or mounted in a concrete pedestal (not shown). The central core or frame structure 12 and transition section 13 are mounted atop the pole 11 by a slip fitter or collar 15 and it provides the support for each of the respective individual modular unit lighting fixtures 14 as will be hereinafter described. The transition section 13 is defined by structural angle member 13A extending upwardly and outwardly from the slip fitter 15 and a covering panel 16 is connected to adjacent members 13A to define the closures for the section.

The core frame 12 connected to the top of the transition section provides the mounting or support for each of the respective modular unit 14 or lighting fixtures and also as a resonance cavity for a loud speaker 25. Essentially the central core frame 12 consists of an open cubical frame structure approximately 16" x 16" x 18". Essentially the core frame 12 comprises a top rectangular disposed frame member 12A and a bottom rectangularly disposed frame member 12B which are interconnected at the corners thereof in spaced relationship by a plurality of corner end pieces 12C. As shown, each of the corner end pieces 12C are defined by an elongated angle member, which has its flanged portions 17, 18 disposed at substantially right angles with respect to each other. Suitable fastening means are provided as for example, screw means or the like to secure the respective end corner pieces 12C between the top and bottom frame members 12A, 12B of the core unit 12. The bottom panel 19 connected to the bottom frame 12B is provided with a circular cut out portion 20. Side panels 21 are secured to the vertical sides of the core frame unit 12 and connected to the inside of the respective side panels 21 are the ballast 22 for the lamps 23 disposed within the respective modular light fixture 14. Weld bolts are utilized to attach the ballast 22 for operating the respective lighting units to the side panels. Terminal strips are

provided for the primary wires of the ballast. Preferably the terminal strips are symmetrically located within the ballast 22. A sheet metal cover plate 24 closes the top of the core frame unit 12. Preferably, the cover 24 is removably connected to the horizontal flanges of the top frame member by suitable fasteners, and thereby provides means for defining a ready access for servicing the interior components disposed within the core frame 12. A suitable gasket means may be interposed between the sheet metal cover plate 24 and the upper frame 12A of the core unit 12 so as to provide a weather tight seal. Such gasket means may comprise a foam rubber gasket or the like.

If desired, a loud speaker 25 of a public address system may be mounted within the transition section between the top of the pole and the central core unit of the luminary. Accordingly the sides 16 of the transition section 13 may define a perforated grill panel or the like as shown. Preferably the grill or sides 16 is secured by means of screw fasteners or the like so as to be rendered readily removable.

In order to provide means for the connections of the respective modular unit light fixtures 14 to the core frame 12 to be hereinafter described, the corner pieces 12C of the central core frame are each provided with a plurality of apertures 26 for receiving the fastening means by which the adjacent modular unit light fixture 14 may be detachably connected thereto.

As shown in FIGS. 1 and 2, a plurality of individually constructed modular lighting fixtures 14 can be detachably secured to the respective faces of the central core unit 12. In the illustrated embodiment, each of the individual modular unit lighting fixtures 14 are illustrated as being of cubical construction, preferably having a physical dimension of approximately 16" x 16" x 16". Essentially each of the respective modular unit constructions are similar in construction and therefore the description of one is considered sufficient for disclosure and understanding of the concept.

Essentially the modular unit light fixture 14 comprises a die cast top and bottom member 27, 28 respectively, each of which is defined by opposed side and end portions rectangularly disposed. The respective side and end portions of the top and bottom frame 27, 28 are formed of structural angle members having a horizontally extending flange portion and a connected vertically disposed flange portion. The respective top and bottom rectangular frame members 27, 28 of the unit are connected in spaced relationship by a plurality of corner pieces 29 of angular construction. Preferably each of the corner pieces 29 are formed of an extruded aluminum. Suitable screw type fasteners or the like 30 secure the respective top and bottom frame portions 27, 28 to the respective corner pieces. Thus, it will be apparent that an open cubic structure is formed to define the frame of the modular unit 14.

As best seen in FIGS. 4 and 5, the extruded corner pieces are provided with flange portions 29A, 29B disposed at right angles with respect to each other, and the respective flange portions 29A, 29B have formed in the free end thereof a groove 31 extending substantially co-extensive to the length of the corner piece 29. Also, the interior surface of the respective flange portions 29A, 29B of the corner pieces 29 have formed therein a groove extending the length thereof to define a slideway 32 for receiving an angle slide 33 for reason which will be hereinafter described. The arrangement is such that the respective slides 33 can be rendered adjustably disposed along the length of the respective corner piece 29.

As shown in FIGS. 4 and 5, a readily removable side panel 34 is retained in the grooves 31 of adjacent corner pieces. When the modular units are arrayed in a cluster, the exposed exterior faces of the respective modular unit lighting fixtures only are preferably closed by a translucent panel 34. Thus the faces of the cubes within the

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cluster may not be provided with panels 34, thereby permitting light to be diffused throughout the entire cluster.

The translucent panels 34 may be formed of any desired color. Accordingly, the translucent panels 34 preferably have the combined properties of a high level light reflectance for maximum production of a colorful daylight effect, and also a high degree of light transmittance for equally colorful nighttime appearance when used in a trans-illuminated manner with a cool white fluorescent light source. For example, panels 34 may be translucent cast acrylic resin, Plexiglas type G, as manufactured by the Rohm and Haas Company. Because the modular unit construction is applied for outdoor use, it is essential that the translucent material have a sufficient strength to withstand wind pressure and other elements of weather.

In accordance with this invention, the arrangement is such that the unit modular construction 14 described can be detachably connected to the central core 12 frame or to each other in side by side relationship. As shown in FIG. 2, the corner pieces 29 of the modular unit construction are provided with a pair of apertures or holes 35 which are adapted to be disposed in alignment with corresponding holes or apertures 26 formed in the corner pieces of the core frame unit, or with holes 35 of an adjoining unit 14. By merely inserting a suitable fastener in the aligned holes 26, 35, a respective modular light fixture 14 can be securely attached to the central core frame 12 of the unit. Therefore, it will be readily apparent that the respective size and shape of the luminary can be readily built up as required by attaching several modular unit constructions to the central core frame 12 and/or to each other as may be desired.

In FIG. 1, eight modular core units 14 are disposed about the central core 12 frame. While FIG. 1 illustrates merely a single bank of modular unit lamp fixtures 14 circumscribing a central core 12 of the luminary, it is to be noted that a second bank of modular unit constructions (not shown) may be connected above the bank illustrated. Also, luminaries of various other arrangements and configurations can be constructed with the modular unit light fixture 14 described. For example, FIG. 7 illustrates several arrangements in which the respective modular unit constructions 14 can be connected about a central frame core 12 and to each other. In these views the central core 12 is identified by an "X" located at the center of the luminary. The other squares signify typical modular unit constructions 14 of the type hereinabove described.

In accordance with this invention, it will be noted that the top of the uppermost bank of modular units 14 of the luminary may be covered by a sheet metal cover 37. To render the cover weather tight and light tight, a suitable gasket 38 is interposed between the top cover sheet 37 and the top member 27 of the cubic frame structure. A bottom panel 39 for closing the open area of the bottom piece 28 is positioned on the horizontal flanges thereof. In accordance with this invention suitable L shaped brackets 40 securely fastened to the vertical flange of the bottom member 28 maintains panel 39 in position thereon. In the arrangement of a luminary, as disclosed in FIG. 1, the bottom panels 39 of the respective modular unit lighting fixtures 14 are formed of a pattern clear plastic or the like for maximum diffusion of the light in a downward direction.

In accordance with this invention, each of the respective modular unit lighting fixtures of the luminary may be provided with an independent source of light 41. As shown in FIGS. 2, 3 and 4, the light source comprises a rectangular panel type fluorescent lamp or bulb 41. The lamp 41 is supported in its respective fixture so as to be universally adjusted therein so that its light beam may be directed in any given direction. The mount for the individual lamp 41 comprises a lamp holder 42 which is defined as a wire ring arranged to circumscribe the circumference of the lamp or bulb 41. As shown in FIG. 4, 75

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the respective corner portions of the lamp holder 41 are provided with an eye loop 42A for receiving one end of a coil spring 43 to support the lamp from the respective slides 33, which are slidably adjusted along the slideways 32 formed in the respective corner pieces 29 of the modular unit construction 14. Corner brackets 44 secure the lamp 41 to the wire ring lamp holder 42. Thus, it will be noted that the lamp 41 is resiliently mounted by the four coil springs 33 disposed at each of the respective corners of the lamp holder 42. By adjustably positioning the respective slides 33 connected to the other end of the coil spring 43 along the slideway 32, the position of the lamp 41 can be varied in any desired manner so that the light rays thereof may be directed out of any of the respective sides of the modular unit construction 14.

From the foregoing description of the individual modular unit 14, it will be apparent that each of the lamp bulbs 41 of the luminary may be directed in a different angular direction as may be desired. To secure the position of the lamp 41 in its adjusted position, a set screw 45 is threaded through the slide 33 as noted in FIG. 6 and 5. Merely by threading the screw 43 into the slide 33, it will frictionally secure the slide 33 in its adjusted position.

From the foregoing description, it is to be noted that luminaries of various sizes, shapes and configurations can be formed with the modular unit construction described. Thus, the luminary may take on very distinctive shapes and sizes so that each is rendered distinctive, one from another. Also, the particular luminary construction 10 described renders it possible, by the utilization of various colors in a particular color scheme, to be adapted for use as beacons or markers to direct patrons to a given area of interest. Also, a public address system can be readily incorporated in the luminary with a minimum of ease to provide for audible information to be dissimilated.

From the foregoing description, it will be readily apparent that the luminary described is relatively simple in construction, distinctive in arrangement, and positive in operation. It is rugged, stable and resistant to the elements of weather. Also, that by rendering the light source 41 individually adjustable in each of the respective modular light fixture units, the rays of light from a single luminary can be simultaneously beamed in various directions to illuminate desired areas. The particular luminary is further conducive for lighting streets and areas while at the same time supply visible information capable of functioning as beacons for directing persons to desired locations or points of interest.

While the instant invention has been described in detail with reference to a particular embodiment thereof, it is to be understood that variations and modifications thereof may be made without departing from the spirit or scope of the invention.

What is claimed is:

1. A modular illuminating fixture comprising,
 - (a) a frame structure including,
 - (b) a top piece,
 - (c) a bottom piece,
 - (d) and end pieces interconnecting said top and bottom pieces in spaced relationship to define an open frame structure,
 - (e) panel means closing the open area of said frame structure,
 - (f) a lamp means disposed within said fixture, said lamp means including a lamp, and a wire lamp holder circumscribing said lamp,
 - (g) and means for universally mounting said lamp means within said frame so as to adjust the directed beam of said lamp in any given direction, said universal mounting means including a slideway formed along each of the end pieces, a cooperating slide adjustably mounted in each slideway, and a resilient

- means supporting the lamp holder between said slides.
2. A cubic modular lighting fixture comprising,
 - (a) similarly constructed top and bottom frame pieces, each having opposed frame members, 5
 - (b) end pieces interconnecting said top and bottom piece to define an open cubical frame structure, 10
 - (c) each of said end pieces having a longitudinally extending groove formed in the ends thereof,
 - (d) panel means forming the sides of said modular retained in the grooves between adjacent end pieces, 15
 - (e) means defining a slideway formed along the interior surface of each end piece,
 - (f) a slide slidably mounted in the slideway of each end piece, 20
 - (g) a lamp disposed within said cubical frame structure,
 - (h) and a lamp support including resilient means connecting said lamp support to said slides whereby the position of said lamp can be varied by adjusting the position of respective slides along their respective slideway.
 3. A modular lighting fixture comprising,
 - (a) a similarly constructed top and bottom member, 25
 - (b) each of said top and bottom members having connected opposed side and end portions,
 - (c) end pieces connected between said top and bottom members to define the corners of said modular fixture,
 - (d) each of said end pieces having a groove formed in the edges thereof, said groove extending the length of said end piece, 30
 - (e) a translucent panel for closing the open side area of said fixture,
 - (f) said panel having its opposed end portion received in the grooves formed in the opposed edge portion of adjacent end pieces, 35
 - (g) a lamp means disposed within said fixture,
 - (h) slider means movable along the end pieces for adjustably positioning of said lamp means in any of several positions within said fixture, means resiliently connecting said lamp means to said slider means, 40
 - (i) and means for positively maintaining the adjusted position of said slider means and lamp means connected thereto. 45
 4. A cubic modular lighting fixture comprising,
 - (a) a similarly constructed top and bottom members, 50
 - (b) each of said top and bottom members having opposed side and end portions of angular cross-section to define a rectangular frame having an internal horizontal flange and a connected circumscribing vertically disposed flange,
 - (c) extruded angled end pieces connected to and between the corners of said top and bottom means to define the corners of said cubic modular fixture, 55
 - (d) each of said angled end pieces having a groove formed in the end edges thereof, said groove extending the length of said end piece,
 - (e) a translucent panel for closing an open side area of said fixture, 60
 - (f) said panel having its opposed end portion received in the grooves formed in the opposed facing edge portion of adjacent end pieces,
 - (g) a slideway formed along the inside of the respective flange portion of said end pieces, 65
 - (h) a slide adjustably mounted in the slideway of each corner piece,
 - (i) a lamp means disposed within said cubical fixture including a rectangular lighting lamp and a wire holder therefor, 70
 - (j) resilient means for supporting said holder between said slides,
 - (k) and means for positively positioning the adjusted portion of said lamp. 75

5. A luminary comprising,
 - (a) an elongated supporting column,
 - (b) a frame core disposed atop said column,
 - (c) and a plurality of cubic modular lighting fixtures clustered about said core in side by side relationship,
 - (d) each of said fixtures including,
 - (e) a top frame and a bottom frame, each defined by opposed side and end structural angular members rectangularly disposed,
 - (f) a corner piece having flange portions interconnecting said top and bottom frames together to define a cubic frame structure having open faces,
 - (g) each of said corner pieces having a longitudinally extending groove formed in the edge portion of its respective flange portions,
 - (h) and each of said angular corner piece having a slideway formed at the junction of its angled flange portion,
 - (i) a slide adjustably positioned in the slideway of the respective corner pieces,
 - (j) a lamp disposed with said cubical frame structure,
 - (k) means for supporting of said lamp to each of said slides,
 - (l) said latter means including a coil spring for suspending said lamp from each of said slides,
 - (m) lock means for securing each of said respective slides in its adjusted position,
 - (n) and translucent panels closing the exterior open side of said cubical modular structure, the ends of said panels being received in the opposed grooves formed in the edges of adjacent corner pieces.
6. A luminary comprising,
 - (a) an elongated supporting column of circular cross-section,
 - (b) a cubical frame core,
 - (c) means defining a transition frame connecting said frame core atop said column,
 - (d) and a plurality of cubical modular lighting fixtures clustered about said core and about each other, said fixtures being connected in side by side relationship,
 - (e) each of said fixtures including,
 - (f) a top frame defined by rectangularly disposed side and end structural members of angled cross-section,
 - (g) a similar bottom frame defined by opposed side and end structural angled members rectangularly disposed,
 - (h) a corner piece having right angled flange portions interconnecting said top and bottom frames together to define a cubical frame structure having open faces,
 - (i) each of said corner pieces having a longitudinally extending groove formed in the edge portion of its respective flange portions,
 - (j) and each of said angled corner piece having a slideway formed at the junction of its flanged portion,
 - (k) a slide adjustably positioned along the slideway of the respective corner pieces,
 - (l) a rectangularly shaped fluorescent lamp disposed with said cubical frame structure,
 - (m) a wire lamp holder circumscribing said lamp,
 - (n) means securing the corners of said lamp holder to each of said slides,
 - (o) said latter means including a coil spring for suspending said lamp holder and lamp supported thereon from each of said slides,
 - (p) lock means for securing each of said respective slides in its adjusted position,
 - (q) said locking means including a set screw threaded through said slide to engage said corner piece for frictionally securing said slide in adjusted position.
 - (r) and translucent panels closing the exterior open side of said cubical modular structure, the ends of said panels being received in the opposed grooves formed in the edges of adjacent corner pieces.
7. The invention as defined in claim 6 including,

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(a) a loud speaker of a public address system mounted within the transition section.

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