United States Patent [19]

Gabryelewicz

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[45] **Oct. 8, 1974**

[54] **MODULAR LIGHTING SYSTEM**

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[21] Appl. No.: **376,307**

[52] **U.S. Cl.** ..... **339/158,** 240/10 R, 339/170

[51] **Int. Cl.** **H01r 27/02**

[58] **Field of Search** ..... 339/20–24, 339/154–162, 167–170; 240/10 R, 10 S, 240/10 Q, 10 T

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Assistant Examiner—Lawrence J. Staab
Attorney, Agent, or Firm—Michael G. Berkman

[57] **ABSTRACT**

A modular lighting system includes an elongated lighting module and a polygonal connector, each of the module and connector components having receptacle means and plug means adapted for joining each component to a like component and to the other component. The module includes an elongated base, an elongated first electrical conductor, an elongated second electrical conductor in the form of a channel member enclosing the sides of the first conductor in outwardly spaced relation thereto, an elongated cover forming with the base a casing adapted to enclose the conductors, the conductors having a plurality of contact portions and the cover having a plurality of bulb mounting openings there-along on each of a plurality of sides thereof, means mounting the conductors and the cover on the base with the respective contact portions and the bulb mounting openings aligned for parallel connection of a series of light bulbs to the contact portions, receptacle means at one end of the casing for receiving a pair of plug prongs in conductive relation to respective conductors, and plug means including a pair of prongs in conductive relation to respective conductors at the other end of the casing and adapted to mate with the receptacle means of a like module. The connector comprises a polygonal casing including a plurality of side walls each of which has a pair of prong-receiving openings extending therethrough, and a pair of conductive junction members mounted in the casing in spaced apart relation, each junction member including a hub element; a plurality of spoke elements each extending from the hub element to adjacent a prong-receiving opening in one of the side walls for making contact with a plug prong inserted through the opening to provide receptacle means at each of the walls, and a prong extending from the hub element and projecting through one of the prong-receiving openings in another one of the side walls to provide plug means adapted to mate with the receptacle means of a like connector. The receptacle means and plug means of the module also are adapted to mate respectively with the plug means and receptacle means of the connector.

9 Claims, 23 Drawing Figures

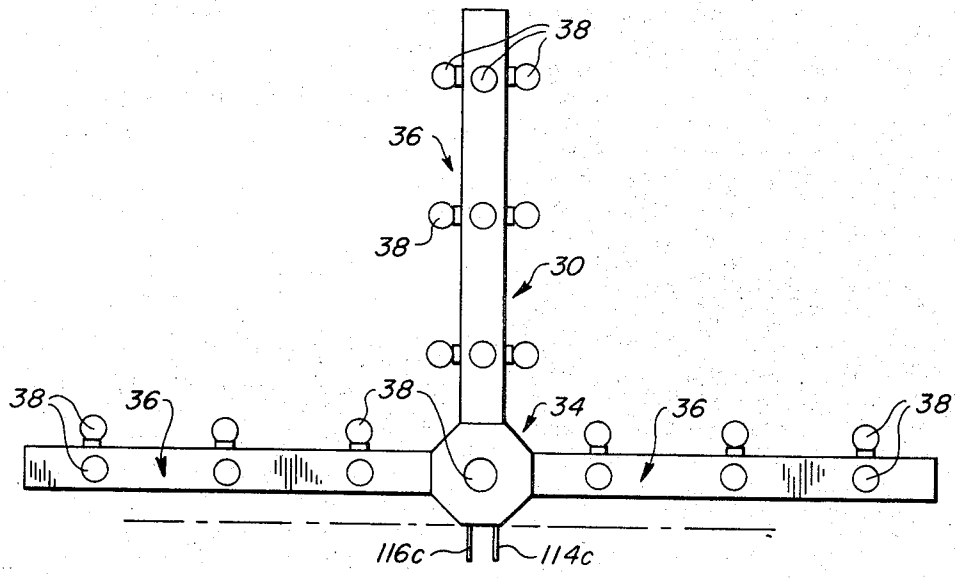


FIG - 1

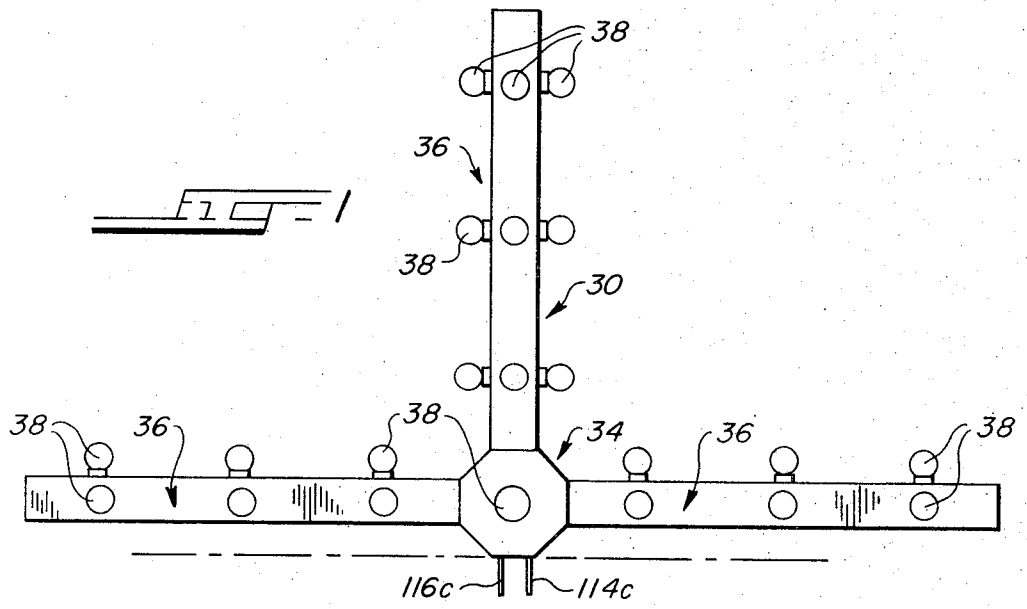


FIG - 2

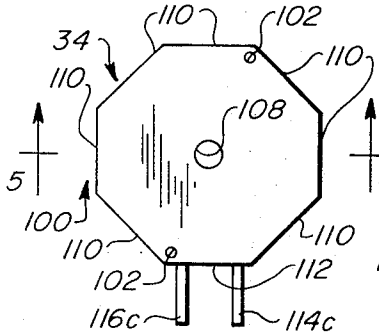


FIG - 3

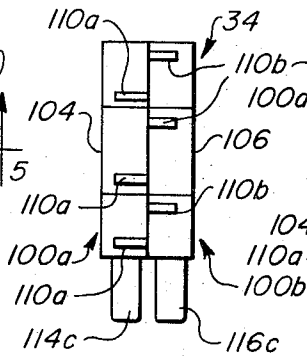


FIG - 4

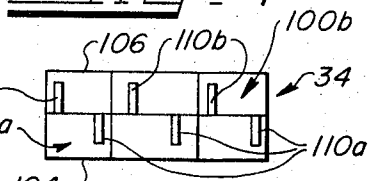


FIG - 4a

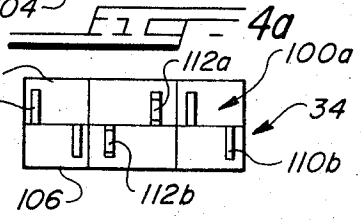


FIG - 5

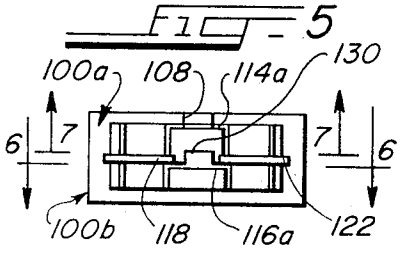


FIG - 6

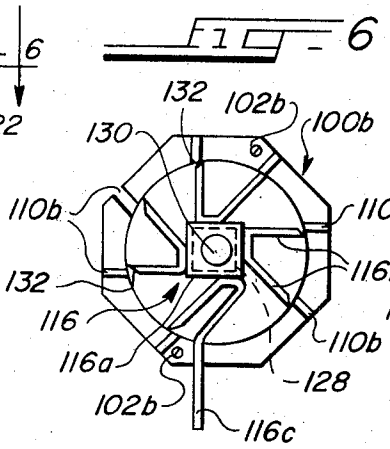


FIG - 7

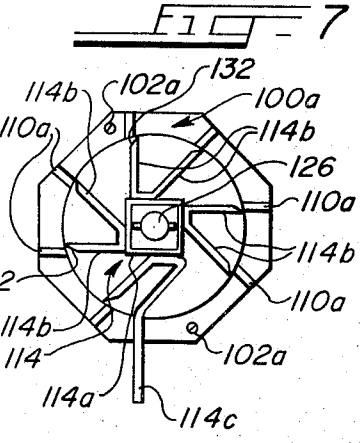


FIG - 8

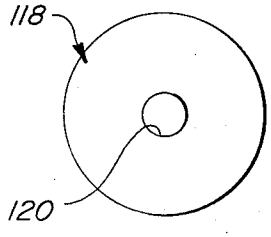


FIG - 9

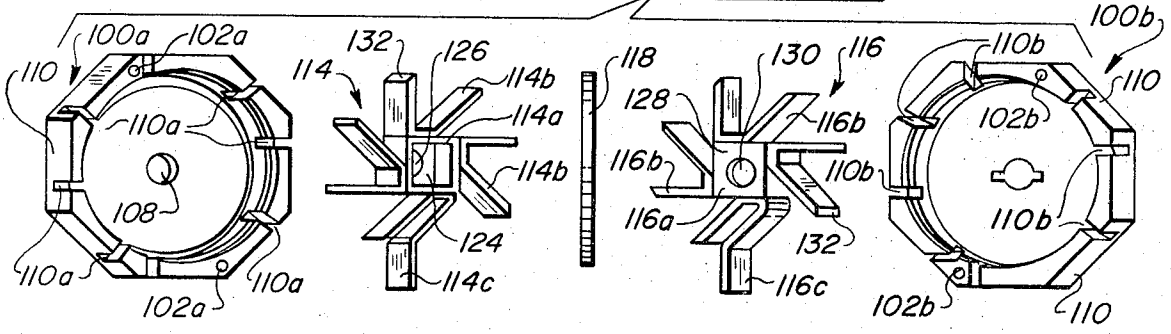
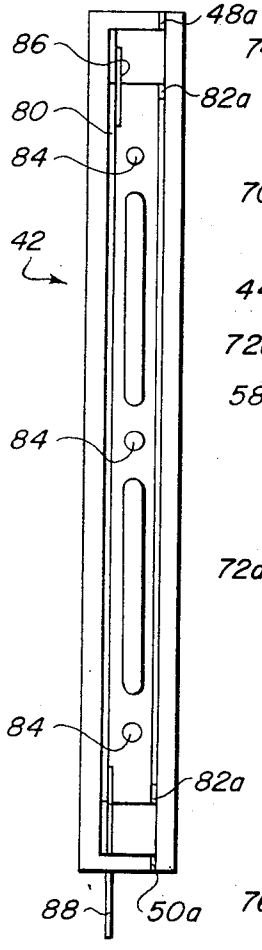


FIG - 17

FIG - 16



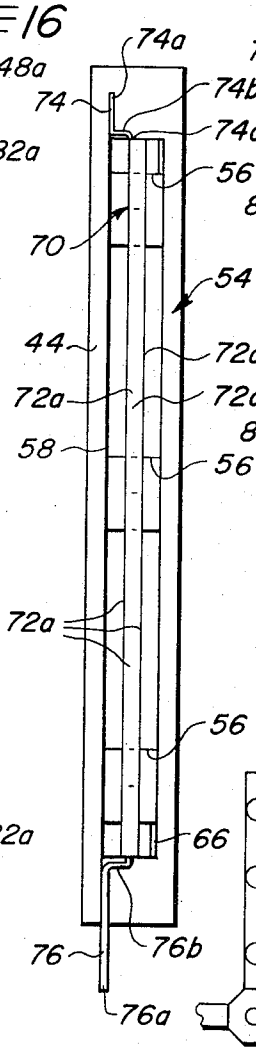


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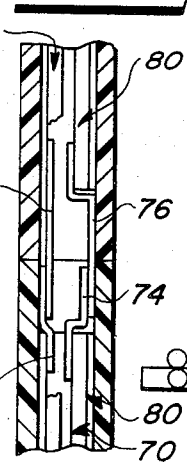


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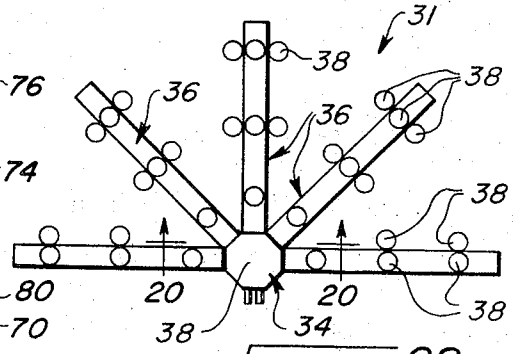


FIG - 22

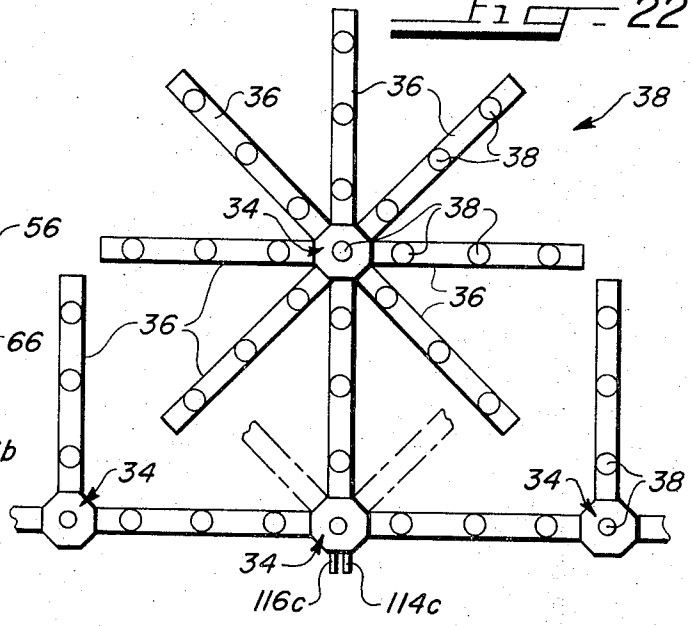


FIG - 10

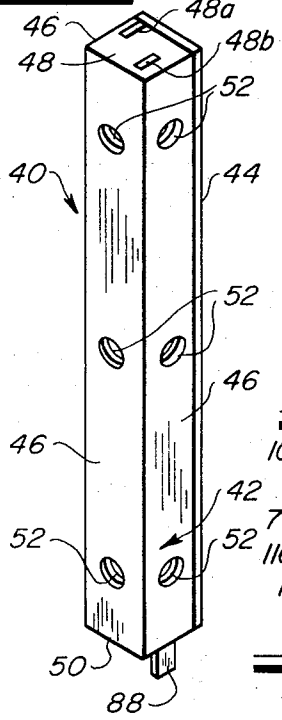


FIG - 11

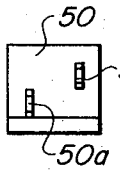


FIG - 12

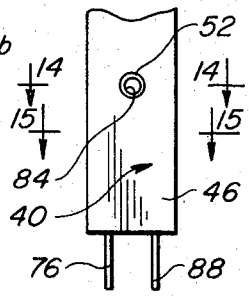


FIG - 13

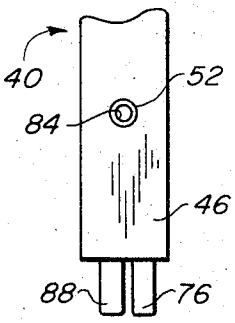


FIG - 20

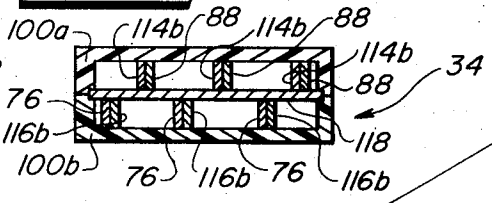


FIG - 19

FIG - 14

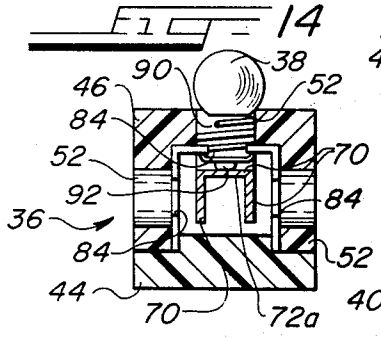
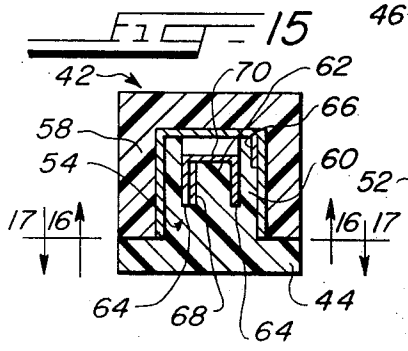


FIG - 15



MODULAR LIGHTING SYSTEM

This invention relates to a modular lighting system. More particularly, the invention relates to a lighting system which is adaptable to many and varied arrangements for purposes of illumination and decoration.

It is necessary or desirable frequently to provide illumination and/or decorative lighting along extended lines and in varied patterns for functional and aesthetic purposes. For example, window displays may be illuminated and framed by light bulbs arranged along the borders thereof or in other ways. Signs and displays may employ light bulbs arranged in lines or rows and in various patterns. Interior and exterior decorating make use of lines or strings of light bulbs in attractive and functional arrangements.

Lighting means for the foregoing purposes have included individual fixtures, special installations, and relatively temporary arrangements having exposed wiring. Such prior approaches and others have been lacking in versatility, adaptability, attractiveness, convenience, economy and/or safety. Improvements have been made in providing for mounting a series of light bulbs along extended lines, for example, as disclosed in U.S. Pat. Nos. 3,341,803 and 3,500,036. However, there remains room for improvement in the functional, artistic, and/or safety aspects of the structures.

An object of the present invention is to provide a modular lighting system which serves to mount light bulbs in a series of any desired extent and with the bulbs projecting in various directions, for illuminative and decorative purposes, while overcoming the shortcomings of the prior art.

A more specific object is to provide a modular lighting system of the foregoing character including an elongated lighting module and a polygonal connector, which may be assembled to provide lines of light bulbs in various lengths and patterns.

Another object is to provide a lighting system of the foregoing character wherein the module and the connector are adaptable to production in any suitable size and length and for use with any desired size of light bulb, while being safe and reliable.

An additional object is to provide a module and a connector for such a lighting system which are readily and economically manufactured and assembled from a small number of parts and are also readily disassembled, and which are easily and rapidly mounted in any of numerous possible arrangements for illuminative and decorative purposes and just as easily removed or rearranged when desired.

A particular object is to provide a module for use in a modular lighting system, which includes an elongated base, an elongated first electrical conductor having a plurality of sides each of which has a plurality of contact portions therealong, an elongated second electrical conductor in the form of a channel member having a plurality of sides adapted to enclose the sides of the first conductor in outwardly spaced relation thereto, the second conductor having a plurality of contact portions therealong on each of its sides and corresponding in number and disposition to the contact portions of the first conductor, an elongated cover forming with the base a casing adapted to enclose the conductors, the cover having a plurality of side walls each of which has a plurality of bulb mounting openings therealong, extending therethrough and corresponding in number and disposition to the respective contact portions, means mounting the conductors and the cover on the base with the respective contact portions and the bulb mounting openings aligned for parallel connection of a series of light bulbs to the contact portions, receptacle means at one end of the casing for receiving a pair of plug prongs in conductive relation to respective conductors, and plug means including a pair of plug prongs in conductive relation to respective conductors at the other end of the casing and adapted to mate with the receptacle means of a like module for joining the respective ends of the modules together.

Another particular object is to provide a connector for use in a modular lighting system which comprises a polygonal casing having a plurality of side walls each of which have a pair of prong-receiving openings extending therethrough, and a pair of conductive junction members mounted in the casing in spaced apart relation, each of the junction members including a hub element, a plurality of spoke elements each extending from the hub element to adjacent a prong-receiving opening in one of the side walls for making contact with a plug prong inserted through the opening to provide receptacle means at each of the walls, and a prong extending from the hub element and projecting through one of the prong-receiving openings in another one of the side walls to provide plug means adapted to mate with the receptacle means of a like connector.

An accompanying object is to provide a modular lighting system which includes a module and a connector accomplishing the foregoing particular objects and wherein the receptacle means and plug means of the module also are adapted to mate respectively with the plug means and receptacle means of the connector.

These and other objects, advantages and functions of the invention will be apparent on reference to the specification and to the attached drawings illustrating preferred embodiments of the invention, in which like parts are identified by like reference symbols in each of the views, and in which:

FIG. **1** is a front elevational view of a modular lighting system according to the invention, in one arrangement thereof;

FIGS. **2** and **3** are, respectively, front and side elevational views of a connector according to the invention;

FIGS. **4** and **4A** are, respectively, top and bottom plan views of the connector;

FIG. **5** is a cross-sectional view of the connector, taken substantially on line **5—5** of FIG. **2**;

FIGS. **6** and **7** are cross-sectional views of the connector, taken substantially on lines **6—6** and **7—7**, respectively, of FIG. **5**;

FIG. **8** is a front elevational view of an insulator employed in the connector;

FIG. **9** is an exploded perspective view of the connector, exploded from the center thereof;

FIGS. **10** and **11** are, respectively, perspective and end elevational views of a module according to the invention;

FIGS. **12** and **13** are, respectively, fragmentary front and side elevational views of the module;

FIGS. **14** and **15** are cross-sectional views of the module, taken substantially on lines **14—14** and **15—15**, respectively, of FIG. **12**, showing a light bulb in place in the view of FIG. **14**;

FIGS. 16 and 17 are cross-sectional views of the module taken substantially on lines 16—16 and 17—17, respectively, of FIG. 15;

FIG. 18 is a longitudinal sectional view of a joint formed by two interengaged modules, with parts broken away;

FIG. 19 is an exploded perspective view of the module;

FIG. 20 is a cross-sectional view of the connector, taken substantially on lines 20—20 of FIG. 21; and

FIGS. 21 and 22 are front elevational views on a smaller scale illustrating the modular lighting system of the invention employed in other arrangements of the components.

Referring to the drawings, FIGS. 1, 21 and 22 illustrate, respectively, three different illuminative and/or decorative arrangements or designs 30–32 of the modular lighting system representing a preferred embodiment of the invention. The illustrative embodiment of the system comprises a polygonal connector 34 and an elongated lighting module 36, each of which may be connected to the other or to another like member in any of numerous arrangements or designs, such as illustrated. Each module 36 is constructed for mounting a plurality of light bulbs or lamps 38 therealong on each of a plurality of sides thereof, and in the preferred embodiment, the connector 34 is constructed for mounting a light bulb 38 thereon.

Referring to FIGS. 10–19, the preferred module 36 includes a right rectangular casing 40 (FIG. 10), which preferably is constructed of a dielectric material, and in the preferred embodiment, is constructed of decoratively colored or tinted transparent or translucent plastic. The casing 40 is composed of a three-sided cover or closure 42 and a flat base 44 (FIGS. 10 and 19). The cover 42 includes three side walls 46 perpendicular to each other, and opposite parallel end walls 48 and 50 perpendicular to the side walls. The base 44 forms the fourth wall of the casing 40, and it also is perpendicular to two of the side walls 46 and to the end walls 48 and 50.

Each of the side walls 46 in the illustrative embodiment is provided with three circular bulb-mounting openings 52 extending through the wall and equidistantly spaced therealong with the openings in the several walls having their centers lying in three transverse planes. Each of the end walls 48 and 50 is provided with two spaced apart narrow prong-receiving openings or slots numbered 48*a* and 48*b*, and 50*a* and 50*b*, for the respective walls (FIGS. 10, 11 and 19). The openings in each wall are arranged in staggered relation, and the arrangement of the openings 48*a* and 48*b* is a mirror image of the arrangement of the openings 50*a* and 50*b* in the other wall. The several end wall openings are adapted for receiving plug prongs therethrough, as subsequently described.

Referring particularly to FIGS. 14, 15, 17 and 19, an elongated conductor mounting or support 54 is secured to or may be integral with an inner surface of the base 44. The mounting 54 is constructed of dielectric material, preferably the same plastic as employed for the casing 40. The mounting 54 is generally U-shaped or channel-like in cross-section and has three equidistantly spaced apart transverse grooves or cuts 56 extending therethrough. The grooves 56 are in alignment with the transverse planes of the bulb-mounting openings 52 in the cover 42 when the parts are assembled in the module 36. The mounting 54 includes two elongated raised or extended generally rectangular outer portions 58 and 60, and an elongated recessed inner portion 62, such portions being intersected and subdivided by the transverse grooves 56. The inner portion 62 is separated from the outer portions 58 and 60 by narrow longitudinal grooves 64. A recess 66 is provided at each end of one outer portion 60, in the outer surface thereof. An enlarged groove 68 is provided at each end of the inner portion 62, between the inner portion and the outer portion 58 opposite to the outer portion 60 bearing the recesses 66.

An elongated inner electrical conductor 70 in the form of a metal channel member having a U-shaped cross-section is mounted on the recessed inner portion 62 of the conductor mounting 54. The conductor has three sides 72 perpendicular to each other, and it is mounted on the inner portion 62 with the outer sides 72 inserted into the grooves 64 of the conductor mounting 54, is a snug frictional fit thereon. As so mounted, each of the conductor sides has three exposed contact portions 72*a* (FIG. 17), which are accessible in the grooves 56 of the mounting 54.

A tang 74 and a prong 76 are provided at the opposite ends of the conductor 70, in conductive relation thereto. The tang and the prong are generally flat strip conductive metal elements having respective longitudinally projective portions 74*a* and 76*a*, offsetting portions 74*b* and 76*b*, and longitudinally overlapping portions 74*c* and 78*c*. The overlapping portions 74*c* and 76*c* are inserted within the conductor 70 and in the enlarged grooves 68 at opposite ends of the recessed inner portion 62, as seen, for example, in FIGS. 15 and 18, with such portions and the conductor 70 in conductive engagement or contact. The projecting portions 74*a* and 76*a* extend outwardly for making contact with other conductive elements, as subsequently described. If desired, the tang 74 and the prong 76 may be secured to the conductor 70, as by soldering, or may be formed integral therewith, as by stamping.

A second, elongated outer conductor 80 in the form of a metal channel member U-shaped in cross-section is mounted on the conductor mounting 54. The outer conductor has three sides 82 perpendicular to each other and of greater width than the inner conductor 70. The outer conductor 80 is mounted on the mounting 54 with its outer sides 82 received snugly on the outer surfaces of the raised portions 58 and 60 of the mounting 54, in frictional engagement therewith. The outer sides 82 of the conductor 80 are seated on the base 44 of the casing 40, and the central side 82 of the conductor lies closely adjacent to or on the outer edges of the raised portions 58 and 60 of the mounting 54. As thus mounted, the outer conductor 80 encloses the sides 72 of the inner conductor 70, with the sides 82 of the former parallel to and in outwardly spaced relation from the sides 72 of the inner conductor 70. The ends 82a of one of the outer sides 82 are recessed or cut away from the adjacent ends of the remaining sides 82, to maintain the conductor 80 out of contact and in nonconductive relation to the inner conductor 70.

The outer conductor 80 is provided with three circular bulb-receiving openings 84 on each of its three sides 82, in equidistantly spaced relation therealong. The bulb-receiving openings 84 correspond in number and disposition to the bulb-mounting openings 52 in the cover 42, and both sets of openings likewise corre-

spond to the contact portions 72*a* of the inner conductor 70. The bulb-receiving openings 84 are of lesser diameter than the bulb-mounting openings 52. The walls of the bulb-receiving openings 84 constitute contact portions for engagement or contact with the light bulbs 38. When the parts of the module 36 are assembled, the bulb-mounting openings 52 in the cover 42 register concentrically with the bulb-receiving openings 84 in the outer conductor 80, and the openings 52 and 84 and the contact portions 72*a* on the inner conductor 70 are aligned in transverse planes through the centers of the openings.

A tang 86 and a prong 88 in the form of generally flat strip conductive metal elements are secured to opposite ends of one of the outer sides 82 and adjacent to the inner side 82 of the outer conductor 80. The tang and the prong extend longitudinally outwardly from the conductor 80, and they are secured to the conductor in conductive relation by suitable means, such as soldering. Alternatively, the tang and the prong may be formed integrally with the conductor, such as by stamping. The tang 86 and the prong 88 are disposed in the recesses 66 in the outer raised portion 60 of the conductor mounting 54 when the parts are assembled, as illustrated for the prong 88 in FIG. 15.

The module 36 is assembled by first inserting the outer sides 72 of the inner conductor 70 into the grooves 64 which border the inner portion 62 of the conductor mounting 54. The tang 74 and the prong 76 for the inner conductor 70 are inserted in the grooves 68 adjacent to the inner portion 62. The outer conductor 80 with its tang 86 and prong 88 are mounted on the outer portions 58 and 60 of the mounting 54. The conductive parts then are in frictional engagement with the mounting 54. The prongs 76 and 88 are inserted into the openings 50*a* and 50*b* in the end wall 50 of the cover 42, and the cover is moved over the sides 82 of the conductor 80. The outer side walls 46 of the cover 42 frictionally engage the outer sides 82 of the conductor 80 and abut on the base 44, to secure the cover in place.

In the illustrative embodiment of the invention, the assembled module 36 is adapted for mounting light bulbs 38 of the type illustrated in FIG. 14, having a threaded base 90 and a central inner or bottom terminal 92. A bulb 38 is inserted into any of the mounting openings 52 in the cover 42, and the base 90 of the bulb is inserted through the aligned receiving opening 84 in the outer conductor 80, in threaded engagement therewith, until the bulb terminal 92 makes contact with the aligned contact portion 72*a* on the inner conductor 70. Additional bulbs can be mounted in the same manner in each of the openings 52 in the same side wall 46 and in the remaining side walls 46 of the cover 42. The module 36 thus serves to mount light bulbs on three of its four perpendicularly arranged sides, while the base 44 may be attached to or otherwise mounted on a suitable support or backing, not shown, by suitable means.

Referring to FIGS. 16–18, the tangs 74 and 86 in the assembled module 36 extend from respective conductors 70 and 80 to points adjacent to the end wall openings 48*a* and 48*b*, respectively. The prongs of a suitable plug when inserted through the end wall openings 48*a* and 48*b* contact the tangs 74 and 86, to place the prongs in conductive relation to the tangs. The tangs 74 and 86 and the structure of the module casing 40 at the corresponding end of the casing thus provide receptacle means thereat for receiving a pair of plug prongs in conductive relation to respective conductors 70 and 80.

When the module 36 is assembled, the prongs 76 and 88 for the respective conductors 70 and 80 extend through respective openings 50*a* and 50*b* in the end wall 50 and project therebeyond (see FIGS. 11–13). The prongs 76 and 88 and the structure of the casing 40 associated therewith thus provide plug means at the corresponding end of the casing and of the module 36. As illustrated in FIG. 18, where the prongs 76 and 88 of one module 36 contact the tangs 74 and 86 of an other module 36, the plug means are adapted to mate with the receptacle means at the other end of a like module, for joining the respective ends of the modules together.

Referring to FIGS. 2–9, the connector 34 includes an octagonal casing 100 constructed of dielectric material, preferably colored or tinted plastic. The basing includes front and rear halves 100*a* and 100*b*, which are secured together by screws 102 extending through aligned holes 102*a* and 102*b* in portions of the side walls thereof, or by other suitable means. The casing 100 includes front and rear end walls 104 and 106, forming part of the front and rear casing halves 100*a* and 100*b*, respectively. The front end wall 106 is provided with a central circular bulb-mounting opening 108 extending therethrough. The casing 100 has seven side walls 110 and one side wall 112, the walls having pairs of elongated prong-receiving openings or slots 110*a* and 110*b*, and 112*a* and 112*b*, respectively, extending therethrough. One opening 110*a* or 112*a* of each pair is provided in the outer casing half 100*a*, and the remaining opening 110*b* or 112*b* of each pair is provided in the inner casing half 100*b*, with the openings in each pair disposed in staggered relation in each wall 110 or 112. The arrangement of the openings 112*a* and 112*b* in the one wall 112 is a mirror image of the arrangement of the openings 110*a* and 110*b* in each of the remaining walls 110.

Referring to FIGS. 6–9, the connector 34 also includes a pair of front and rear conductive metal junction members 114 and 116, which are mounted in the casing halves 100*a* and 100*b*, respectively, and an interposed circular disc insulator 118 having a central circular bulb access opening 120. The insulator 118 is mounted in an annular groove 122 (FIG. 5) at the parting line or plane between the casing halves 100*a* and 100*b*.

Each of the junction members 114 and 116 includes a central hub element 114*a* or 116*a*, a plurality of spoke elements 114*b* or 116*b*, and a prong 114*c* or 116*c*. The illustrative hub elements are rectangular, although they may be made in other configurations. The front hub element 114*a*, in the front casing half 100*a*, has a front wall 124 provided with a central circular bulb-receiving opening 126, the wall of which opening serves as a bulb contact portion. The rear hub element 116*a*, in the inner casing half 100*b*, has a front wall 128 provided with an integral raised central circular contact portion 130. The bulb mounting opening 108,, the bulb-receiving opening 126, and the contact portion 130 are in alignment. A light bulb 38 may be mounted on the connector 34 by inserting the base 90 thereof (as seen in FIG. 14) into the bulb-mounting opening 108 and into the bulb-receiving opening 126

in threaded contacting engagement with the front hub element **114***a*, until the bulb terminal **92** makes conductive contact with the contact portion **130** of the rear hub element **116***a*.

The spoke elements **114***b* and **116***b* of the respective junction members **114** and **116** are secured to the hub elements **114***a* and **116***a* by any suitable means, such as soldering, or the spoke elements may be constructed integrally with the hub elements. The spoke elements are strip members which extend outwardly from the hub elements so as to lie substantially perpendicular to the casing side walls **110.** One spoke element **114***b* or **116***b* of each of the junction members extends to each of the side walls **110.** The spoke elements **114***b* in the front casing half **100***a* extend to points adjacent the prong-receiving openings **110***a* in that half. The spoke elements **116***b* in the rear casing half **100***b* extend to points adjacent the prong-receiving openings **110***b* in that half. One of each of the spoke elements **114***b* and **116***b* extends adjacent to each of the casing walls **110.** The spoke elements are slightly offset with respect to the prong-receiving openings **110***a* and **110***b*, and preferably are provided with beveled outer edges **132.** The spoke elements **114***b* and **116***b* provide with each side wall **110** receptacle means for receiving a pair of plug prongs through the openings **110***a* and **110***b*, in conductive contact with respective spoke elements.

The prongs **114***c* and **116***c* are strip elements affixed to or integral with the respective hub elements **114***a* and **116***a*, and the prongs extend perpendicularly to the remaining side wall **112.** One prong **114***c* extends through and projects outwardly beyond the prong receiving opening **112***a* in the front casing half **100***a*, and the other prong **116***c* extends through and outwardly beyond the prong-receiving opening **112***b* in the rear casing half **100***b*. The prongs **114***c* and **116***c* and the side wall **112** provide plug means, and the plug means are adapted to mate with the receptacle means provided by the spoke elements **114***b* and **116***b*, and the remaining side walls **110,** in another, like connector **34,** for joining the respective sides of the connectors together.

The receptacle means of the module **36** are adapted to mate with the plug means of the connector **34.** Thus, the prongs **114***c* and **116***c* of the connector may be inserted through the end openings **48***b* and **48***a* in the module, into contact with the tangs **86** and **74,** respectively. Likewise, the plug means of the module **36** are adapted to mate with the receptacle means of the connector **34.** Thus, the prongs **76** and **88** of the module are received in the openings **110***b* and **110***a* in any of the side walls **110** of the connector, into contact with the spoke elements **116***b* and **114***b*, respectively, as illustrated in FIG. **20.** The module and the connector may be joined together employing the appropriate combination of receptacle and plug means, with one end of the module joined to one side of the connector. FIGS. **1, 21** and **22** illustrate ways in which the module and the connector may be joined.

In use, one or more of the connectors **34** is assembled with the number of lighting modules **36** needed to fulfill the requirements for illumination and/or decoration. The connector **34** may be plugged into any suitable source of electrical power, or, if desired, the plug end of a module **36** may be attached to the power source. The modules may extend in one or more of various directions from the connector, and a plurality of modules may be employed in series, by joining the plug and receptacle ends of successive modules. Illuminative and decorative effects are obtained by mounting the light bulbs **38** on one or more sides of the modules **36.** Also, a light bulb **38** may be mounted on the connector **34,** to provide additional illumination and decoration. In each case, the system is easily and rapidly assembled, and it employs readily available standard light bulbs.

The module **36** employs but relatively few parts, which are readily and economically manufactured and assembled. Inasmuch as the parts of the module **36** are held together by frictional interengagement, additional fastening means need not be employed, or if employed, may be minimal. Consequently, assembly and disassembly of the module and access thereto are simple and rapid. Similarly, the connector **34** is readily and economically constructed of but few parts, and easily and rapidly assembled and disassembled.

The module **36** and the connector **34** may be manufactured in any convenient dimensions, color or size, for use with any suitable size of light bulb **38.** The casing **40** and the conductor mounting **54** or the like may be assembled from individual parts, molded, and/or extruded, as may be most desirable. The type and mounting of the conductors **70** and **80** and their associated prongs and tangs provide a safe, reliable and durable unit, and, in particular, loose wires are avoided. The design of the connector **34** likewise provides safety, reliability and durability.

While preferred embodiments of the new modular lighting system and the components thereof have been illustrated and described, it will be apparent to those skilled in the art that various changes and modifications may be made therein within the spirit and scope of the invention. Thus, for example, the module **36** and the connector **34** need not be constructed in the particular illustrative geometrical configurations, but other shapes may be employed while providing the advantages of the invention. It is intended that all such changes and modifications be included in the scope of the appended claims.

I claim:

1. A modular lighting system which comprises, in combination, an elongated lighting module and a polygonal connector, each of the module and connector components including receptacle means and plug means adapted for joining each component to a like component and to the other component, said module comprising:

a. an elongated base,

b. an elongated first electrical conductor having a plurality of sides each of which has a plurality of contact portions therealong,

c. an elongated second electrical conductor in the form of a channel member having a plurality of sides adapted to enclose said sides of said first conductor in outwardly spaced relation thereto,

said second conductor having a plurality of contact portions therealong on each of its sides and corresponding in number and disposition to the contact portions of said first conductor,

d. an elongated cover forming with said base a casing adapted to enclose said conductors,

said cover having a plurality of side walls each of which has a plurality of bulb-mounting openings therealong, extending therethrough and corresponding in number and disposition to the respective contact portions,

e. means mounting said conductors and said cover on said base with the respective contact portions and the bulb-mounting openings aligned for parallel connection of a series of light bulbs to the contact portions,

f. receptacle means at one end of said casing for receiving a pair of plug prongs in conductive relation to respective conductors, and

g. plug means including a pair of plug prongs in conductive relation to respective conductors at the other end of said casing and adapted to mate with said receptacle means of a like module for joining the respective ends of the modules together;

said connector comprising:

h. a polygonal casing having a plurality of side walls each of which has a pair of prong-receiving openings extending therethrough, and

i. a pair of conductive junction members mounted in said casing in spaced apart relation, each of said junction members including:

1. a hub element,

2. a plurality of spoke elements each extending from said hub element to adjacent a different one of said side walls, and a spoke element of each junction member extending to adjacent each such wall with the spoke elements respectively adjacent the prong-receiving openings thereof to provide receptacle means for receiving a pair of plug prongs in conductive relation to respective spoke elements, and

3. a prong extending from said hub element and projecting through one of the prong-receiving openings in another one of said side walls, and the prongs of the pair of junction members projecting through respective openings in the latter wall to provide plug means adapted to mate with said receptacle means of a like connector for joining the respective sides of the connectors together,

said receptacle means and plug means of said module also being adapted to mate respectively with said plug means and receptacle means of said connector for joining the module and the connector together.

2. A lighting system as defined in claim **1** and including a contact portion on each of said hub elements and an end wall in said casing having a bulb-mounting opening extending therethrough, and means mounting said junction members in said casing with the respective contact portions and the bulb-mounting opening aligned for parallel connection of a light bulb to the contact portions.

3. A lighting system as defined in claim **1** and wherein said conductor mounting means comprises a generally U-shaped support on said base and having a recessed inner portion and two raised outer portions, said first conductor is mounted on said inner portion, and said second conductor is mounted on said outer portions.

4. A lighting system as defined in claim **3** and wherein said module casing, said support and said connector casing are formed of dielectric material.

5. An elongated lighting module adapted for use in a modular lighting system and which comprises:

a. an elongated base,

b. an elongated first electrical conductor having a plurality of sides each of which has a plurality of contact portions therealong,

c. an elongated second electrical conductor in the form of a channel member having a plurality of sides adapted to enclose said sides of said first conductor in outwardly spaced relation thereto,

said second conductor having a plurality of contact portions therealong on each of its sides and corresponding in number and disposition to the contact portions of said first conductor,

d. an elongated cover forming with said base a casing adapted to enclose said conductors,

said cover having a plurality of side walls each of which has a plurality of bulb-mounting openings therealong, extending therethrough and corresponding in number and disposition to the respective contact portions,

e. means mounting said conductors and said cover on said base with the respective contact portions and the bulb-mounting openings aligned for parallel connection of a series of light bulbs to the contact portions,

f. receptacle means at one end of said casing for receiving a pair of plug prongs in conductive relation to respective conductors, and

g. plug means including a pair of plug prongs in conductive relation to respective conductors at the other end of said casing and adapted to mate with said receptacle means of a like module for joining the respective ends of the modules together, said means mounting said conductors comprising a generally U-shaped support on said base having a recessed inner portion and two raised outer portions, said first conductor being mounted on said inner portion, and said second conductor being mounted on said outer portions.

6. A lighting module as defined in claim **5** and wherein said conductors are in frictional engagement with said support and said cover is in frictional engagement with said second conductor for securing the conductors and cover to said support.

7. A lighting module as defined in claim **6** and wherein said casing and said support are formed of dielectric plastic.

8. An elongated lighting module adapted for use in a modular lighting system and which comprises:

a. an elongated base of dielectric material,

b. an elongated first electrical conductor having three sides each of which has a plurality of contact portions therealong.

c. an elongated second electrical conductor in the form of a channel member having three sides adapted to enclose said sides of said first conductor in outwardly spaced relation thereto,

said second conductor having a plurality of contact portions defining bulb-receiving openings therealong on each of its sides and corresponding in number and disposition to the contact portions of said first conductor,

d. an elongated cover of dielectric material forming with said base a casing adapted to enclose said conductors,

said cover having three side walls each of which has a plurality of bulb-mounting openings therealong, extending therethrough and corresponding in number and disposition to the respective contact portions,

e. means mounting said conductors and said cover on said base comprising a generally U-shaped support of dielectric material on said base and having a recessed inner portion and two raised outer portions,

said first conductor being mounted on said inner portion, and said second conductor being mounted on said outer portion, whereby the respective contact portions and the bulb-mounting openings are aligned for parallel connection of a series of light bulbs to the contact portions with the bulbs in threaded engagement with said second conductor,

f. receptacle means at one end of said casing including a pair of tangs in conductive relation to respective conductors for receiving a pair of plug prongs in conductive relation thereto, and

g. plug means including a pair of plug prongs in conductive relation to respective conductors at the other end of said casing and adapted to mate with said receptacle means of a like module for joining the respective ends of the modules together.

9. A lighting module as defined in claim **8** and wherein said conductors are in frictional engagement with said support and said cover is in frictional engagement with said second conductor for securing the conductors and cover to said support.

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