March 31, 1970 B. H. FREEBURGER 3,504,169

ELECTRIC LIGHT STRING KIT

Filed Oct. 17, 1967

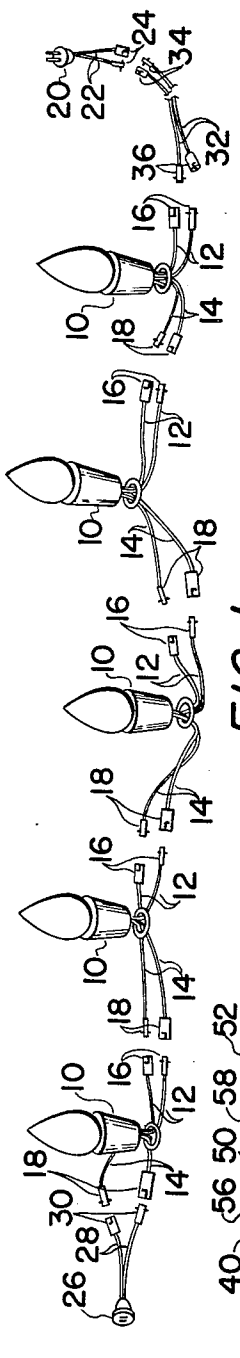


FIG. 1

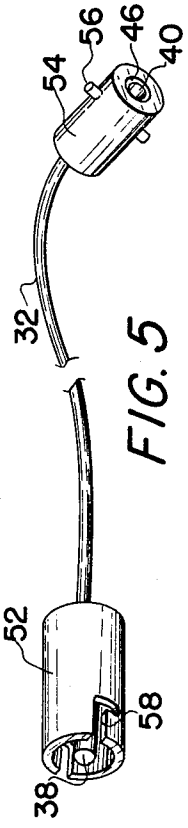


FIG. 5

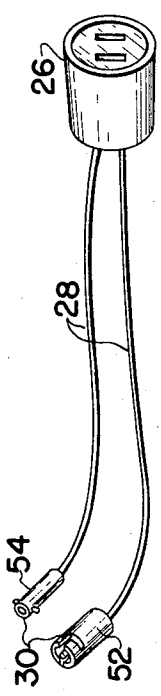


FIG. 4

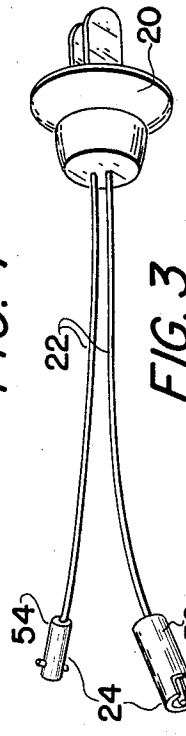


FIG. 3

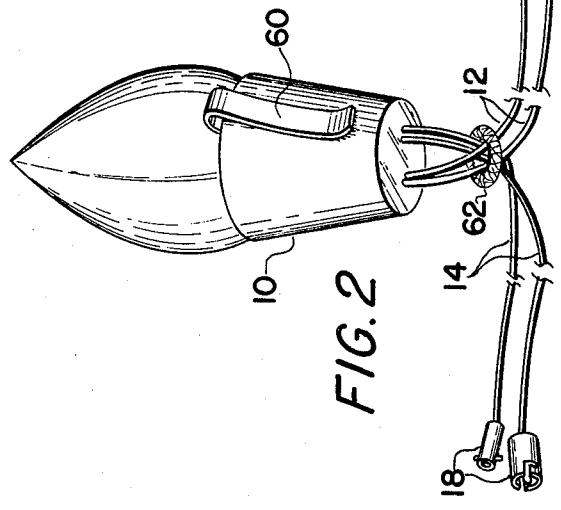


FIG. 2

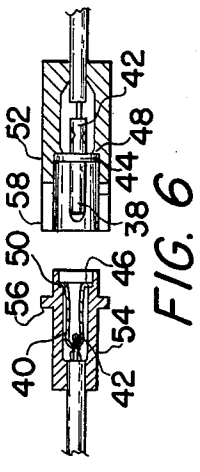


FIG. 6

INVENTOR

BARRON H. FREEBURGER

BY Walter S. Pawl

ATTORNEY

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ELECTRIC LIGHT STRING KIT

Barron H. Freeburger, 6637 24th Place, West Hyattsville, Md. 20782

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ABSTRACT OF THE DISCLOSURE

A sectionalized string of lights consisting of a supply line section, a plurality of socket sections, and extension sections for increasing the spacing between adjacent socket sections. Each socket section has a base member with two pairs of terminal wires extending in opposite directions therefrom. The terminal wires have complementary connector elements on the ends thereof for electrically connecting the socket section to an adjacent socket section or extension section. The extension section is made up of a pair of wires having complementary connector elements at each end thereof for electrically connecting the extension section to an adjoining socket section or extension section. The supply line section has a pair of wires with complementary connector elements on one end thereof for electrically connecting the supply line section to a socket section or extension section, and a plug on the other end which is connected to a power supply. The various sections are electrically connected in parallel with each other and can easily be interchanged, removed or added at any point along the string without effecting the voltage supplied across the sections of the string.

This invention comprises a new electric light string kit for stringing up a multiplicity of lights, as e.g. on a Christmas tree, which includes separable sections of the string, which may be easily coupled together, section by section, as the lights are being hung in a desired arrangement on the three or other structure, and which sections may be just as easily uncoupled, when the string is being taken down, or when it is desired to move, replace or insert additional sections in the string, without encountering any entanglement with the branches or other structure because of length of the string sections, and without disturbing other section couplings.

The object of this invention is to sectionalize the commonly used continuous one piece strings of lights for tree lighting or other decorations, to facilitate its handling as well as permit alternative designs in its make-up during assembly, as may be desired.

Another object is to provide electric wires of various suitable lengths with terminal connector means to make up extension or spacing sections, connected between other sections, each carrying one or more lights and being provided with complementary connector means at its opposite ends to form a continuous supply line for all the lights when all the connector means are coupled up.

A further object is to make the individual light sections of a string of lights easily separable from adjacent portions of the electric supply lines across which each light circuit is tapped by providing terminal connectors in said lines at each side of said tapped points, and to provide various lengths of extension wires with similar connector means at their opposite ends for making up the portions of the supply lines forming the string between the individual light sections and at the ends of the string.

A further object is to provide individual light sockets having a pair of supply line portions extending therefrom, one portion being adapted to be connected to an electrical supply outlet, and the other being adapted for connection

to further extension portions, including similar light socket carrying portions and other extension portions.

A further object is to make a composite string of lights which may be easily assembled as it is strung in any design or arrangement of lights around a tree or other structure, and just as easily disassembled as it is taken down piece by piece, without getting entangled in the tree branches or other structure, which may have other decorations draped over the string.

A further object is to provide a sectionalized light string or cable kit comprising a plurality of light socket carrying supply line sections, a supply line terminal section, an extension terminal section and a suitable number of extension wires of various lengths for making up supply line extensions between the light socket carrying sections and/or between the end light sections and their adjacent terminal sections.

Other and more specific objects will appear in the following detailed description of the invention as illustrated in the accompanying drawings, wherein:

FIG. 1 indicates how a string of five lights may be assembled from the several sections shown,

FIG. 2 is an enlarged view of one of the light sections,

FIG. 3 shows an enlarged view of the supply line terminal section,

FIG. 4 shows an enlarged view of the extension terminal section,

FIG. 5 shows an enlarged view of an extension wire, and

FIG. 6 is a sectional view showing details of the wire connector means that may be used for coupling the sections together.

The commonly used Christmas tree light strings are presently made up of a number of lights on one continuous pair of supply lines having a plug type terminal connector at one end for plugging into a supply line outlet, and an outlet terminal connector at the other end for receiving another extension line plug thereinto. When long strings of this type are draped around a tree, especially with other decorative material, it is often difficult to remove them from the tree without entanglement with other branches and danger of upsetting the tree or damaging the branches and other frangible decorations.

The present invention is a complete answer to these difficulties while providing versatility in the design of the string as to the desired number of lights and their spacing arrangement to suit any particular taste.

As illustrated in FIG. 1, the present string is sectionalized. Each light socket **10** has its own supply line portion made separable from the rest of the string by cutting off short supply end and extension end portions **12** and **14** respectively, extending in opposite directions from the socket, and fitting their terminal ends with complementary quick-connect-disconnect connector means **16** and **18**.

The supply end plug **20** has its own portion of the supply line with a short extension end portion **22** fitted with connector means **24**. The extension end outlet **26** has its own portion of the supply line with a supply end portion **28** fitted with connector means **30**.

Pairs of supply line extension wires **32** of various lengths are fitted with similar connector means **34** and **36** for making up suitable extension portions spacing other portions of the supply lines wherever desired.

While only one extension **32** and five individual light socket portions are shown in the sectionalized string kit illustrated, it is to be understood that any other number of lights and any additional spacing extension portions can be provided in a fit for coupling together in a string in any other arrangements as may be required, as the string is made while the lights are being suitably spaced on the tree or other structure.

The connector means may be made as shown, or any other type of quick-connect-disconnect connectors may be used for coupling the portions of the supply lines together. The type here shown have male and female terminals **38** and **40** with crimp type inner ends for crimping over the ends of the respective wires, such as **12, 14, 22, 28** and **32**. The terminals are provided with flanges **44** and **46** respectively for mounting with a force fit on the shoulders **48** and **50** the cylindrical insulator sleeves **52** and **54** respectively. The head of the sleeve **52** fits telescopically over the head of the sleeve **54** which has a pair of diametrically opposite radial projections **56** for engagement with complementary bayonet slots **58** in the head of the sleeve **52**. Thus the connection may be quickly made by a simple plugging in of the terminals and a slight twist of the projections **56** into locking position in their respective slots; uncoupling is just as simple.

Various kits may be made up of different number of light sections and extension sections, as may be desired; or the several sections may be sold independently.

The light sockets **10** may take any other form than that shown, as e.g. that of candles, and may be provided with hanger clips **60**.

A slidable ball bead or ring **62** may be used to facilitate fastening the socket **10** over a branch or other projection.

The wire insulations and other parts may be of variegated colors for decorative purposes.

Many other obvious modifications in form and arrangement of parts may be made without departing from the spirit and scope of the present invention, as defined in the appended claims.

What is claimed is:

1. A sectionalized electric light string comprising

a supply line section having a connector at one end for plugging into a standard outlet,

at least one light socket section,

each section having connector means adapted for joining adjacent ends of said sections together,

at least one pair of extension wires of suitable length and having detachable connector means for use as spacing extension sections between other sections of said string,

said connector means comprising complementary quick-connect-disconnect male and female plug connectors at each end of said light socket sections, and at one end of the supply line section and of the end extension section,

said male and female plug connectors comprising a prong terminal having an external flange at its base with a crimp type inner end extending therefrom for crimping over a stripped wire end,

a socket terminal having an external flange at its outer end and a crimp type inner end for crimping over a stripped wire end,

a cylindrical insulator sleeve having an internal shoulder facing its outer end for receiving said base flange of the prong terminal with a force fit, and

a cylindrical insulator sleeve having an internal shoulder facing its outer end for receiving said end flange of the socket terminal with a force fit,

the heads of said cylindrical sleeves being telescopically fitted and provided with a bayonet slot and pin connection for coupling the terminals together.

2. An electric light string as defined in claim **1**, including

five of said light socket sections,

five light bulbs for said socket sections, and

said one pair of extension wires being of suitable length for insertion between the supply line section and the first of said light socket sections.

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NORTON ANSHER, Primary Examiner

FRED L. BRAUN, Assistant Examiner

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