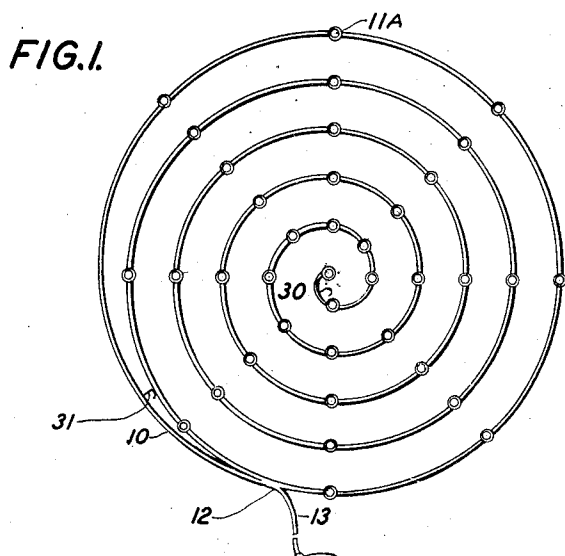
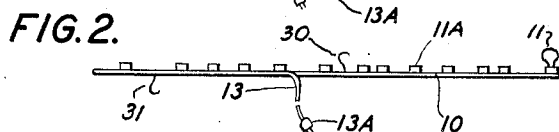
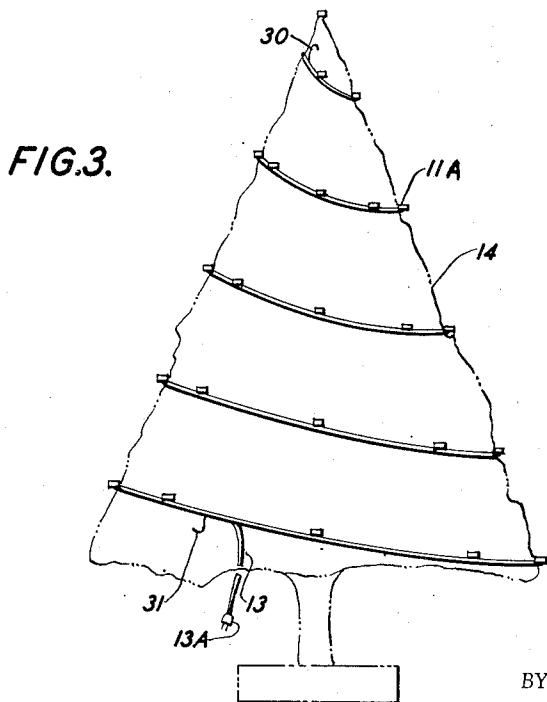
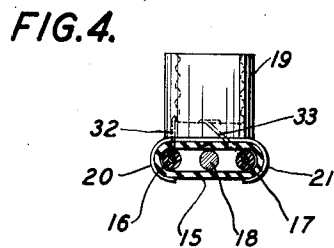
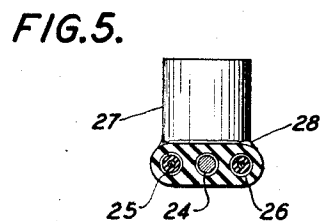
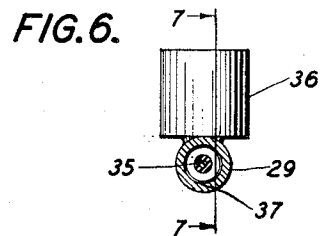
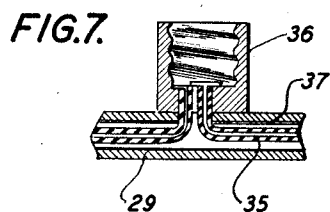


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J. J. MUSINSKI
ILLUMINATING DEVICE
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ILLUMINATING DEVICE

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10 Claims. (Cl. 240—10)

1

This invention is concerned with illuminating devices and more especially with devices for Christmas lighting and the like.

Heretofore customary strings of lights for Christmas trees and similar purposes are somewhat cumbersome to place and, in storage, tend to become tangled and twisted, sometimes to such an extent that the insulation becomes broken, with consequent shock and fire hazards. Moreover, in many prior types, individual light sockets are adapted for attachment to fragile branches of the tree and not infrequently become unfastened and drop, with consequent bulb breakage and annoyance.

I have developed an improved illuminating device for use on Christmas trees, etc. which substantially overcomes the foregoing difficulties and which in its preferred forms is more decorative than prior types.

In accordance with my invention I provide a flexible spiral member or carrier for electric lights. The carrier is capable of being expanded along its axis into helical shape but may be collapsed into a flat form for storage, etc. The lights, or sockets for them, are mounted in spaced relationship along the spiral and one or more conductors to supply current are mounted along the spiral in electrical connection with the lights or sockets.

Preferably the carrier is in the form of a tube of insulating material with the conductor or conductors disposed within the tube. The lights or sockets are mounted along the tube on its outside and wires from the conductors pass through holes in the tube at each light location to supply current.

The carrier preferably is resilient so that it tends to collapse by itself into a flat spiral. In accordance with my invention, the necessary resilience may be obtained by making the carrier itself of a springy plastic or the like or by employing a helical spring of metal as reinforcement, preferably as a core in a tubular type of carrier.

In its preferred form, the carrier is an extruded tube of fire resistant plastic, say cellulose acetate, wound into a flat spiral. The carrier is disposed on the tree by placing it above the tree and co-axially therewith and pulling down the outer coils of the spiral until it assumes the approximately conical or frusto-conical configuration of the tree.

The lights on the carrier may be connected in series with a single conductor or in parallel, employing two conductors. Wires for attachment

2

to a lighting circuit are brought out of one end of the spiral, preferably the outside end, in the form of a conventional extension.

The carrier may be made of colored plastic, but preferably I prefer to employ a hollow translucent plastic carrier, the inside of which is covered with a fluorescent coating so that the carrier glows when the lights are lit.

The tubular carrier may be of any desired cross-section but I prefer to employ a carrier having a cross-section with a flat upper surface upon which the sockets are mounted. The lights thus stand substantially parallel to each other when the device is applied to a tree.

The interior cross-section of the carrier tube may likewise be of any desired cross-section and may be provided with separate conduits for the wires and for the resilient core if this is employed. Another desirable form of interior cross-section is substantially oval with the wires, which should be individually insulated, lying in the tube side by side with the resilient core.

These and other features of my invention will be understood thoroughly through reference to the following detailed description and the accompanying drawing in which:

Fig. 1 is a plan view of a preferred form of the apparatus of my invention;

Fig. 2 is an elevation of the apparatus of Fig. 1 in collapsed or flat form;

Fig. 3 is a diagram showing the apparatus in its extended helical form applied to a Christmas tree;

Fig. 4 is a cross-sectional view through a preferred form of carrier showing a light socket mounted thereon with parallel conductors and a resilient or springy core;

Fig. 5 is a cross-sectional view of another form of tubular carrier with three separate conduits respectively for two conductors in parallel and a helical core;

Fig. 6 is a cross-section of a simplified form of the carrier employing a cylindrical tube of resilient plastic with a single conductor disposed therein; and

Fig. 7 is a longitudinal cross-sectional view through the carrier of Fig. 6 showing the manner in which a socket may be series connected.

Referring now to the drawing and particularly to Figs. 1 and 2, it will be observed that the apparatus comprises a resilient tubular carrier 10 of cellulose acetate or the like wound in spiral form. A series of conventional light bulbs 11 are mounted along the spiral. The light bulbs are disposed in conventional sockets 11A fastened

to the carrier. The light bulbs may be placed at any convenient spacing; in Fig. 1 they are shown mounted approximately 45 degrees apart so that when the carrier is extended as in Fig. 3 the bulbs will be lined up in rows down the tree 14.

For convenience in handling, the outer coil of the spiral is fastened to the nearest interior coil as shown at 12 and a conventional insulated extension 13 of the conductors within the spiral is provided for attachment to a light circuit by means of a plug 13A.

A hook 30 at the center of the spiral and a second hook 31 at the outside of the spiral may be provided to hold it on the tree.

To consider Fig. 3 in detail, it will be observed that the carrier with its lights has been pulled down over the tree 14 to assume the form of a downwardly expanding helix carrying the lights, which are pointed upward. If desired, the lights may be arranged to point at any other angle.

As previously noted, the lights may be connected in series or in parallel. A convenient form of carrier for parallel connection is illustrated in Fig. 4. The carrier proper 15 is tubular and of oval cross-section and electrically insulating character with an ample interior space also of oval cross-section to accommodate an insulated wire 16, a second insulated wire 17, and a springy metallic core 18. An electric light socket 19 is mounted on the carrier by means of clips 20, 21 fastened partially around the tube. The wires 16, 17 are connected to the carrier by conventional leads 22, 23 passed through holes in the tube wall.

The wires aid in holding the sockets to the carrier and in some cases the wires themselves may be sufficient for this purpose. In other cases, it may be desirable to employ the clips shown or to aid the wires by means of a cementing material, which is compatible with the particular plastic, say cellulose acetate, employed for making the tube.

Fig. 5 illustrates in cross-section another preferred form of carrier. It is of oval section and is provided with three separate conduits. The central conduit carries the resilient core or spring 24 of steel or the like. The two outer conduits respectively carry the wires 25, 26 for parallel connection of the lights. A light socket 27 is fastened to the outside of the carrier on its flat upper portion by means of cement 28.

A simple form of the carrier and its enclosed wire is shown in Fig. 6. In this case the carrier 29 is a simple resilient plastic tube having a wall thickness such that the tube itself is sufficiently resilient to collapse into a flat spiral. In this case the lights are connected in series and a single insulated conductor 35 is disposed within the tubular carrier, being connected to a socket 36 as shown in Fig. 7.

For decorative purposes the inside of the tubular carrier of Figs. 6 and 7 is provided with a fluorescent coating 37 of lacquer or the like. When the lights on the carrier are lit the tube glows with a pleasing effect.

The apparatus of the invention may be made in various sizes for application to various sizes and shapes of trees.

The apparatus may be used on structures other than trees but will find its major application to the latter.

I claim:

1. In an illuminating device, the combination which comprises a spiral flexible member capable

of being collapsed axially into substantially flat form, a plurality of electrical light sockets fastened at spaced intervals along the spiral member, and at least one electrical conductor extending along the spiral member and electrically connected with the holders.

2. In an illuminating device, the combination which comprises a relatively flat spiral resilient member capable of being extended axially into helical form, a plurality of electrical light holders fastened at spaced intervals along the spiral member, and at least one electrical conductor extending along the spiral member and electrically connected with the holders.

3. In an illuminating device, the combination which comprises a relatively flat spiral flexible carrier in tubular form capable of being extended axially into helical form, a plurality of electrical light holders fastened at spaced intervals along the carrier, and at least one electrical conductor extending within the tubular carrier and electrically connected with the holders.

4. Apparatus according to claim 3 provided with an insulated electrical wire extending from the outer end of the carrier for connection to an electrical current source.

5. In an illuminating device, the combination which comprises a relatively flat spiral flexible tubular carrier capable of being extended axially into helical form, a plurality of electrical light holders fastened at spaced intervals along the spiral member, at least one electrical conductor extending within the tubular carrier and electrically connected with the holders, and a resilient spiral core disposed within the tubular carrier.

6. In an illuminating device, the combination which comprises a relatively flat spiral flexible member capable of being extended axially into helical form, a plurality of electrical light holders fastened at spaced intervals along the spiral member, at least one electrical conductor extending within the carrier in a separate conduit and electrically connected with the holders, and a resilient spiral core disposed within another conduit in the carrier.

7. In an illuminating device, the combination which comprises a relatively flat spiral flexible carrier in tubular form capable of being extended axially into helical form, a plurality of electrical light holders fastened at spaced intervals along the spiral member, a fluorescent coating disposed on the interior wall of the tubular carrier, and at least one electrical conductor extending within the carrier and electrically connected with the holders.

8. In an illuminating device, the combination which comprises an elongated relatively flat spiral flexible tubular carrier capable of being extended axially into helical form, the cross-section of the carrier having a substantially flat portion, a plurality of electrical light holders fastened at spaced intervals along the carrier on the flat portion thereof, and at least one electrical conductor extending within the carrier and electrically connected with the holders.

9. In an illuminating device, the combination which comprises a relatively flat spiral resilient carrier constructed of tubing of electrically insulating character and capable of being extended axially into helical form, a plurality of electrical light holders fastened at spaced intervals along the carrier, and at least one electrical conductor

5

extending within the carrier and electrically connected with the holders.

10. In an illuminating device, the combination which comprises an elongated spiral flexible tubular carrier capable of being collapsed axially into substantially flat form, the tube being elongated in cross-section in a direction transverse to the axis of the spiral with a flat portion on a face transverse to the axis, a plurality of electrical light sockets fastened at spaced intervals along the carrier on the flat portion, and at least one electrical conductor extending within the carrier and electrically connected with the holders.

JOSEPH J. MUSINSKI. 15

6

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