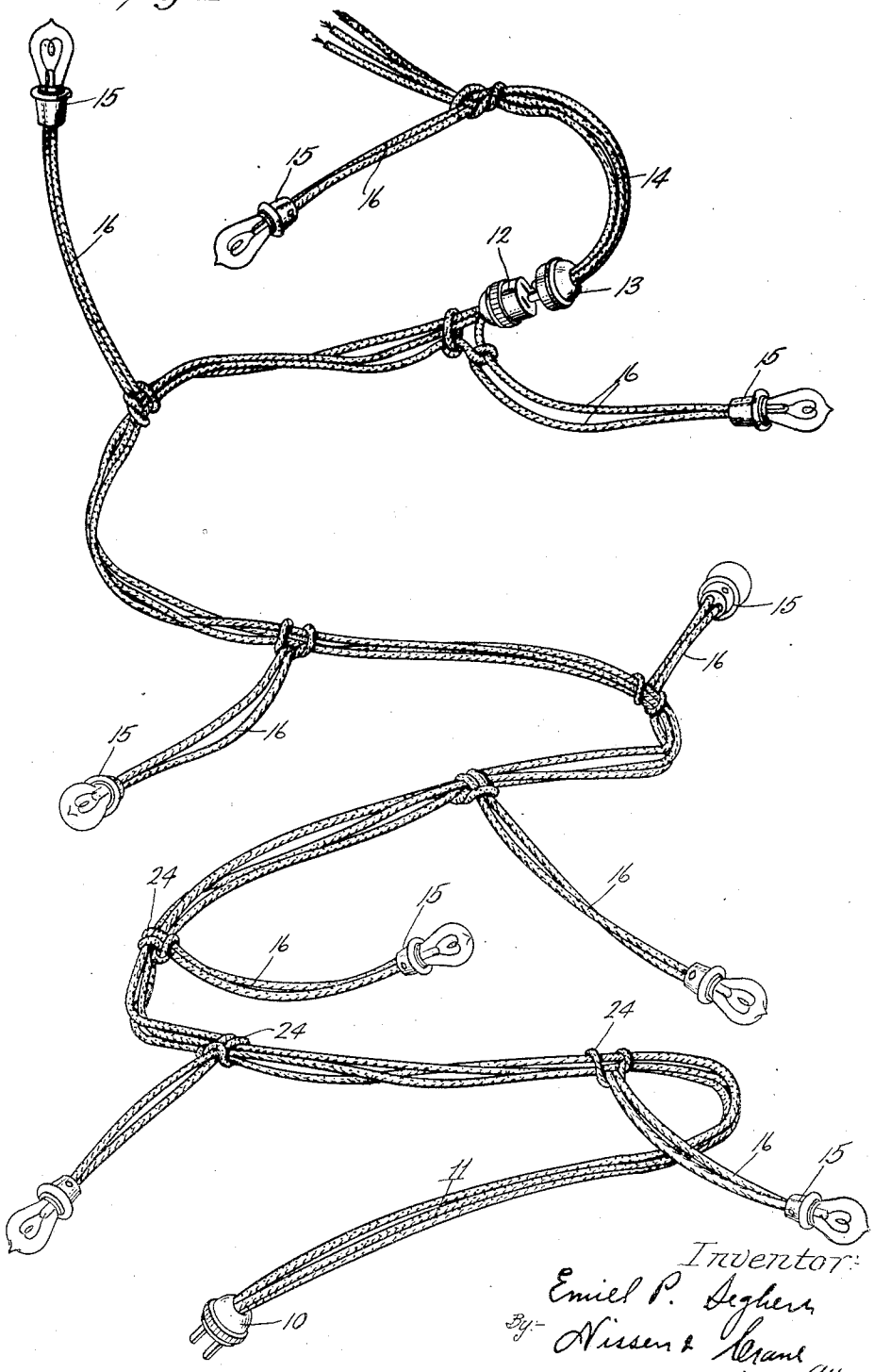
May 20, 1930. E. P. SEGHERS 1,758,982

DECORATIVE WIRING

Filed July 14, 1926 2 Sheets-Sheet 1

Fig 1



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May 20, 1930. E. P. SEGHERS 1,758,982

DECORATIVE WIRING

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Fig. 2

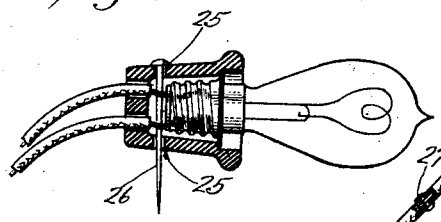


Fig. 4

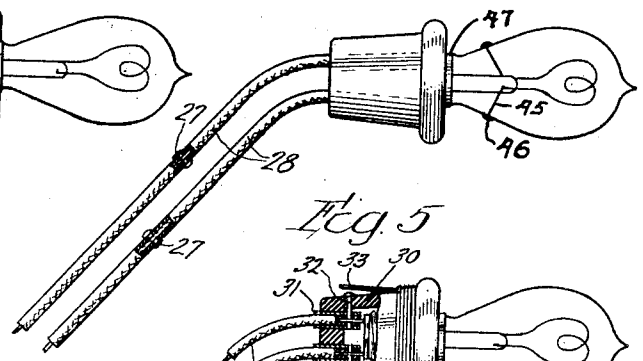


Fig. 3

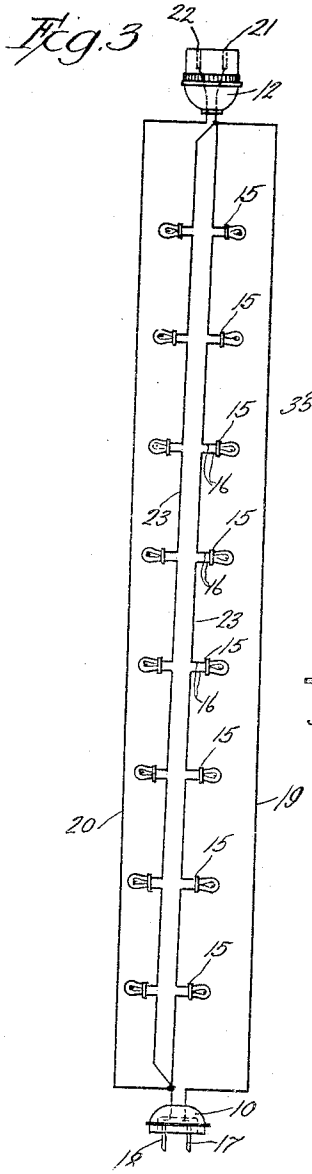


Fig. 5

Fig. 6

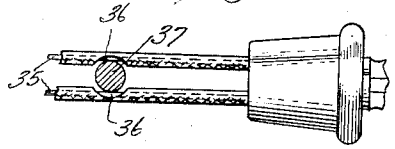


Fig. 7

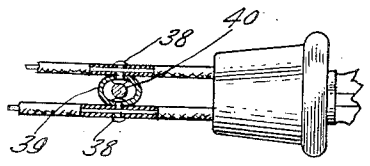


Fig. 9

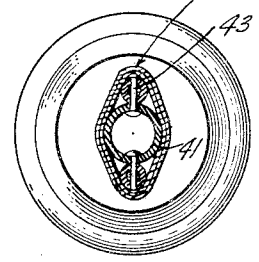
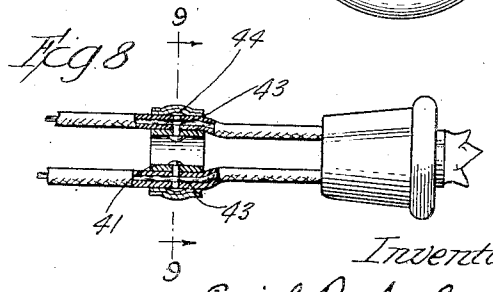


Fig. 8



Inventor:
Emiel P. Seghers
By: Nissen & Crane Attys.

Patented May 20, 1930

1,758,982

UNITED STATES PATENT OFFICE

EMIEL P. SEGHERS, OF CHICAGO, ILLINOIS

DECORATIVE WIRING

Application filed July 14, 1926. Serial No. 122,392.

This invention relates to the arrangement of wires for supplying current to electric lights in series and has for one of its objects the provision of an arrangement of the supply wires which shall permit convenient disposal of the wires and lights for decorative purposes, and which shall adapt itself to extension by the addition of any number of sets of lights within the carrying capacity of the supply wires.

A further object is to provide means for conveniently discovering a defective light in a series.

Other objects and advantages will appear from the following description.

The invention is exemplified in the combination and arrangement of parts shown in the accompanying drawings and described in the following specification, and it is more particularly pointed out in the appended claims.

In the drawings—

Fig. 1 is a perspective view of the wires for supplying current to a plurality of lights in series together with the connecting plugs and sockets for connecting the wires to a source of current and to an extension of lights;

Fig. 2 is a central sectional view of a light socket showing one construction for detecting a defective bulb;

Fig. 3 is a circuit diagram showing the connections for the wiring arrangement of the present invention;

Fig. 4 is an elevation, with parts in section, showing a different arrangement for detecting a defective bulb;

Fig. 5 is a view similar to Fig. 2 showing another arrangement for detecting a defective bulb;

Figs. 6, 7 and 8 are fragmentary elevational views showing other modifications for detecting defective bulbs; and

Fig. 9 is a section on line 9—9 of Fig. 8.

In Christmas tree and other decorative lighting it is a common practice to employ light bulbs adapted for a fractional part of the available voltage. It is common practice to place a number of such bulbs in series, eight bulbs in series being commonly used for the ordinary electric light circuit. If more than eight bulbs are required for any particular decoration the various sets must be provided with some kind of parallel arrangement. If the various sets are run from a common multiple socket it is difficult to distribute the lights of the sets effectively and if spaced sockets are used so as to bring the sets into different positions, additional wiring is required to supply the sockets. The present invention provides an arrangement by which any number of lights may be arranged to branch from spaced positions along a continuous supply line and it is only necessary to run one supply circuit to the Christmas tree or other object to be illuminated. The fact that all of the lights may be disposed along a single continuous cable makes it possible to begin at the bottom or top of the Christmas tree and wind the supply cable continuously to the other extremity of the tree with the lights branching off evenly over the entire tree. The arrangement lends itself to extension, it being only necessary to add additional sections to the end of the last section until a sufficient number of lights are connected.

Fig. 1 shows the way in which the wires of the circuit are disposed relative to each other showing the main cable with the lights branching therefrom at spaced positions along the cable. A plug 10 for connecting the electric light socket or other source of current supply is arranged at one end of the main cable 11. This cable consists of three insulated strands and is provided at the end opposite the plug 10 with a socket 12 for connection with a plug 13 of a second cable 14. The light sockets 15 are connected by branches 16 to the main cable 11, each branch comprising two insulated strands. The diagram of the wiring is shown in Fig. 3. The terminals 17 and 18 of the plug 10 are directly connected, respectively, by conductors 19 and 20 with the terminals 21 and 22 of the socket 12. A conductor 23 connects the terminals 18 and 21 and has the electric light sockets 15 arranged in series therein. The conductors 19, 20 and 23 are carried together side by side to form the cable 11 shown in Fig. 1, the conductor 23 being made longer than the conductors

19 and 20 so that the branches 16 may be looped about the conductors 19 and 20, as indicated at 24 in Fig. 1, the branches 16 being extended outwardly any desired distance from the cable 11 to permit the lights to be disposed at the outer portion of the Christmas tree while the cable 11 extends upwardly through the center of the tree. Any number of the conductors 23 may be connected between the terminals 18 and 21. In Fig. 1 a single series of lights is employed and a single conductor 23 is shown. In Fig. 3 two series of lights is shown for each pair of plugs and sockets and two conductors 23 are therefore employed. It will be readily apparent that the wiring circuits may be sold in sets, each comprising a plug and socket and a series of lights. The purchaser may add to his lighting system by merely purchasing another set of lights and plugging it into the socket at the end of the last set. As shown in Fig. 1, the last branch 16 may be carried off adjacent the end plug 12, but it is apparent that this arrangement is not essential but that the plug may be disposed any distance desired from the point where the last branch leaves the main cable.

Where a number of lights are placed in series it is apparent, of course, that if any light of the series burns out the entire series will be broken and all lights extinguished. In order to restore the series it is necessary to discover the defective light and replace it with a good one. This ordinarily requires separately replacing each light in the circuit until the defective one is discovered. Even this method may not be effective if two or more lights are burned out at the same time. To overcome this difficulty the constructions shown in Figs. 2, 4, 5, 6, 7, 8 and 9 have been devised. In the construction shown in Fig. 2 the insulating socket is provided with perforations 25 at the base of the socket in registration with the exposed portion of the wire connected with the terminals of the socket. By inserting a pin 26 or other instrument through the perforations 25 the pin will penetrate the strands of the wire, bridging the terminals of the socket. This may be done with a sharpened pin even though the insulation is intact over the portion of the wire engaged with the pin for the pin will be passed directly through the insulation. The pin also passes between the strands of the wire since the wire is commonly made up of a series of fine strands. If the light so short circuited is the defective one the circuit will be restored and the other lights will become bright.

In Fig. 4 headed pins 27 penetrate the wires 28 which supply the light bulb, the pins being extended through the insulation and the stranded conductor and having exposed heads, the exposed heads being offset along the wires 28 relative to each other. When it is desired to short circuit a particular bulb to determine whether or not it is burnt out the headed pins 27 are moved into registration to cause to contact. If the particular bulb so short circuited is the defective one the current will be restored and the other lights of the circuit illuminated.

In Fig. 5 the ends of the wires 29 which enter the socket 30 are covered with thin metal caps 31, the ends of the caps being provided with small perforations for receiving the bare wire, but of too small a size to permit the passage of the insulation. These caps cover the end of the insulation and prevent unwrapping of the insulation. Pins 32 are inserted through small perforations in the socket 30 and are forced through the thin metal caps 31 into the insulation at the end of the wires 28 and into the stranded conductor. Springs 33 are secured to the socket 30 by a conductor band 34. Pressure on the springs 33 will contact with the heads of the pins 32 and short circuit the conductors through the conductor band 34.

In the arrangement shown in Fig. 6 the insulation is removed for a short distance from the conductors 35, the bare portions 36 of the conductors being disposed in registration with each other. The insulation will ordinarily prevent the bare portions from contacting, but the bulb may be circuited by inserting a metal member 37 between the conductors in position to bridge the bare portions. The insulation adjacent the bared portions 36 may be covered with paraffine, glue or other material to prevent the severed edges from raveling.

In the form of the invention shown in Fig. 7 headed pins 38 similar to the pins 27 shown in Fig. 4 are inserted in the conductors but are arranged in registration with each other. The adjacent ends of the pins 38 are disposed inside of a short section of fiber tube 39 or other substantially rigid insulating material. A conductor member 40 may be inserted through the tube 39 to contact with the ends of the pins 38 and thus short circuit the bulb. The tube section 39 protects the exposed ends of the pins 38 and prevents accidental contact between the adjacent heads of the pins.

The form of the invention shown in Figs. 8 and 9 is similar to that shown in Fig. 7, except that a tube 41 of rubber or other resilient material is employed in place of the fiber tube 39 and is preferably arranged with its axis parallel to the conductors. The rubber tube spreads the wires to prevent contact of the heads of the pins 43, but contact may be made by merely pressing inwardly on the outer ends of the pins. The entire device may be wound with tape 44 or otherwise covered with insulation to prevent contact with the outer ends of the pins 43.

In the form of bulb shown in Fig. 4 leads 45 extend from the leads that supply the filament and are sealed in the sides of the bulb

and provided with contacts 46 on the outer surface of the bulb. With this construction the bulb may be tested by placing a short between the contacts 46 or between the contact that connects with the lead to the center of the plug and the sleeve 47. The bulb may also be tested by feeling the contacts 46 with the fingers. If the filament is in contact no shock will be felt, but if the filament is broken the voltage across the gap can be detected with the fingers.

Where pins like that shown at 27 in Fig. 4 are used the outer portions may be protected by a coating of shellac or other insulating material.

I claim:—

1. An electric lighting system comprising a plurality of electric lights in series, each light having a socket provided with a perforation therein to permit the insertion of a short circuiting member for shunting said light.

2. An electric lighting system comprising a plurality of electric lights in series, each light having a socket provided with oppositely disposed registering perforations therein, said perforations being arranged in alinement with the conductors entering said socket so that a short circuiting instrument inserted through said perforations will engage said conductors and short circuit said light.

In testimony whereof I have signed my name to this specification on this 12th day of July, A. D. 1926.

EMIEL P. SEGHERS.