

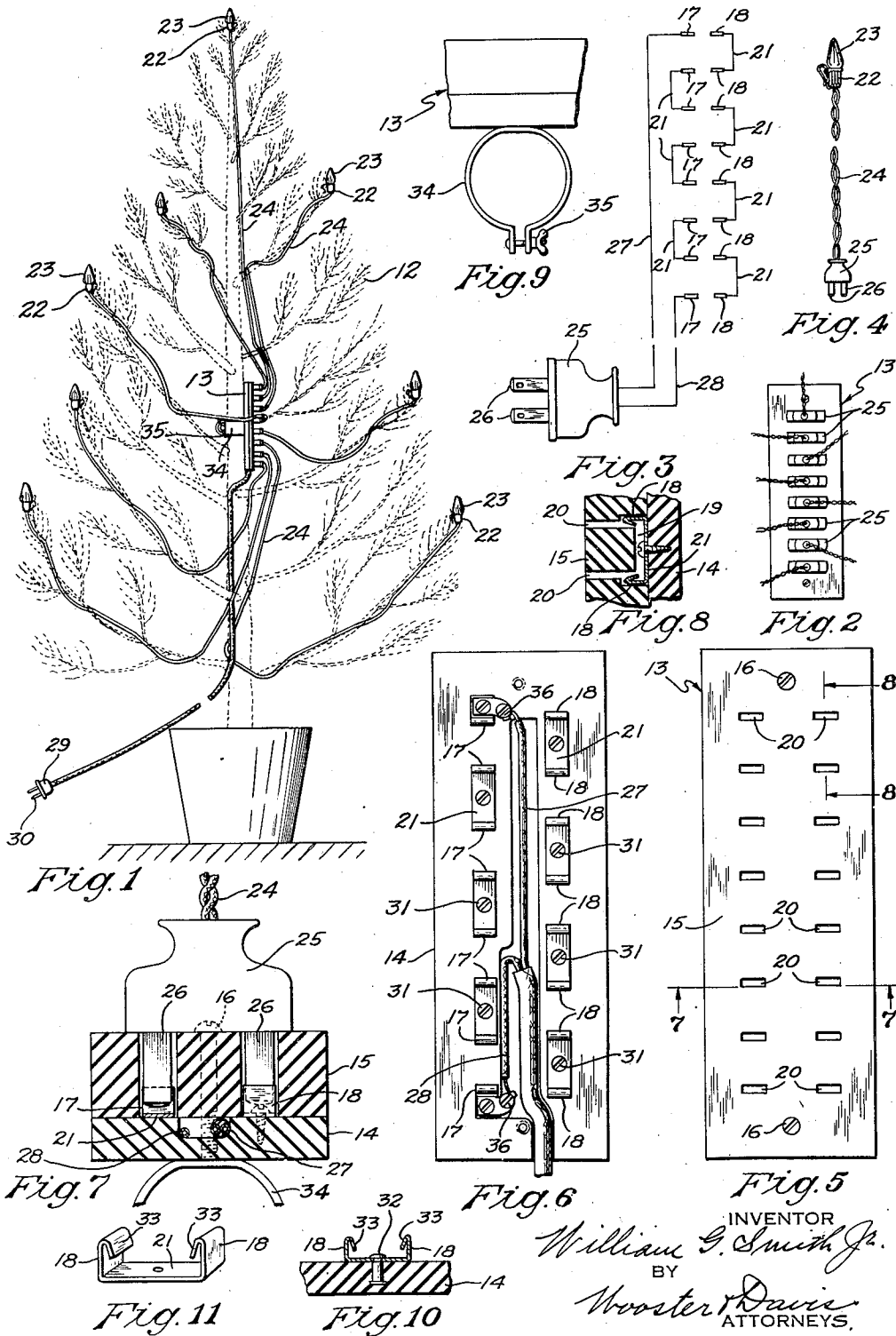
March 24, 1942.

W. G. SMITH, JR

2,277,532

CHRISTMAS TREE LIGHTING OUTFIT

Filed Nov. 10, 1939



INVENTOR
William G. Smith Jr.
BY
Hooster & Davis
ATTORNEYS

UNITED STATES PATENT OFFICE

2,277,532

CHRISTMAS TREE LIGHTING OUTFIT

William G. Smith, Jr., Noroton, Conn.

Application November 10, 1939, Serial No. 303,792

1 Claim. (Cl. 173—334)

This invention relates to Christmas tree lighting outfits and more particularly to such lighting outfits using the small low voltage lamps. The usual method of employing these low voltage lamps is to use a string of eight 14 volt bulbs connected in series when used with the usual 110 volt lighting system, these bulbs being mounted in small screw sockets which are connected in series with a plug-in cap. If anything happens to one of these sockets so that it is inoperative or if the leads to one of them becomes broken the whole string is useless. Also, because of the manner in which the sockets are connected to the connecting wires, it is difficult to place the individual bulbs to the best advantage and where they are wanted on the tree, and furthermore the connecting wires are apt to be located adjacent the ends of the branches where they cannot be hidden and so may be unsightly.

It is therefore an object of the present invention to provide a unit construction into which each individual socket for the small lamp bulbs may be plugged-in or detachably connected individually to a central unit to connect the plurality of bulbs in series, so that should a socket become inoperative or its lead wires broken the bulb series will not be rendered useless, but the useless socket or the one with the broken wires may be disconnected from the unit and a new one easily inserted in its place.

It is also an object to provide such a construction in which the individual bulbs may be more easily located in the desired location adjacent the outer ends of the branches and the wires leading thereto may be hidden by passing them along the branches so that they are not out in front where they would be unsightly.

With the foregoing and other objects in view I have devised a construction illustrated in the accompanying drawing forming a part of this specification. It is, however, to be understood that various changes and modifications may be employed within the scope of the invention.

In this drawing:

Fig. 1 is a view showing how the device may be attached to a Christmas tree;

Fig. 2 is a top plan view of the receptacle unit showing a plurality of plug caps inserted therein;

Fig. 3 is a wiring diagram showing the method of connecting the contacts of the units;

Fig. 4 shows one of the individual connections for the individual lamp bulbs;

Fig. 5 is a front face view of the receptacle unit on a larger scale;

Fig. 6 is a plan view of the lower section of

this unit showing the arrangement of contacts;

Fig. 7 is a transverse section substantially on line 7—7 of Fig. 5 showing a plug cap in position;

Fig. 8 is a detail section substantially on line 8—8 of Fig. 5;

Fig. 9 is an end view of the receptacle unit;

Fig. 10 is a section through connected contacts and the base element of the receptacle; and

Fig. 11 is a perspective view of connected contacts.

Fig. 1 shows how the lighting outfit may be applied to a Christmas tree 12. This outfit comprises a unit receptacle 13 which may be of a number of different constructions. In that shown it comprises an insulating body of two connected sections 14 and 15. They may be connected in any suitable way such for example as the screws 16 passing through one section, such as section 15, and threaded into the other section. This unit receptacle comprises a series composed of a plurality of plug-in outlet receptacles each comprising a pair of spaced contacts to engage the blade contacts of an attachment plug cap. In the present construction these contacts are mounted on the inner surface of the back or lower section 14 of the receptacle unit and each comprises a pair of contacts 17 and 18, preferably arranged in alignment as shown in Fig. 6. The front or top section 15 of the body has recesses 19 in its inner or bottom wall in which these contacts are located and has slots 20 leading from the front wall to these recesses in alignment with the contacts 17 and 18 so that when the aligned blades of the small attachment plug cap are inserted in a pair of aligned slots 20 they will engage the contacts 17 and 18 of this pair.

If small lamp bulbs of 14 volt rating are to be used with the usual 110 volt wiring system, eight of these bulbs are to be connected in series, therefore in the receptacle unit 13 the individual receptacles comprising a pair of contacts 17 and 18 are arranged in groups of eight. In the present drawing only one such group is shown, but it will be understood that a plurality of groups, either two, three or more, may be mounted in the same unit or same insulating body, thus permitting use of 16, 24 or more bulbs depending on the number of groups or series used. In order to connect the contacts of these receptacles of the different groups in series so that the lamp bulbs of that group are connected in series each contact of each pair 17 and 18 is connected by a conductor 21 with the alter-

nate contact of the next adjacent pair. Thus as shown in Fig. 6 the contacts 17 and 18 of the second pair from the top are connected to the alternate contacts of the first and third pair, the contacts 18 of the first and second pair are connected by the conductor 21, and the contacts 17 of the second and third pair are connected by a similar conductor, and so on throughout the series. Thus when a light socket 22 with a small light bulb 23 connected by suitable leads 24 to a plug-in cap 25 having contact blades 26 is connected to the receptacle unit by plugging the blades 26 into a pair of openings 20 to engage a pair of contacts 17 and 18 this lamp socket and the lamp are electrically connected across the pair of contacts 17 and 18, and it will be seen that if one of such lamps is plugged into each of the outlet receptacles of the unit comprising a pair of openings 20 and a pair of contacts 17 and 18, all of these lamps and sockets will be connected with each other in series. If leads 27 and 28 are connected one to the contacts 17 in the upper pair and the other to the contacts 17 in the lower pair as shown in Fig. 6 and these leads are connected to the plug-in cap 29 having contact blades 30 for plugging into an outlet receptacle in the house wiring system it will be understood that these lamps, if they are 14 volt lamps, may be operated from the standard 110 volt lighting system the same as is the standard string of lamps connected in series by wires as is the common arrangement. These end contacts may have the usual binding screws 36 for connecting the lead wires or these wires may be soldered to the contacts. However, in this case should one of the sockets 22 become inoperative or the leads 24 broken, all that is necessary is to disconnect this one socket from the unit and insert a new one. Thus it is not necessary to throw away the whole string should the leads or socket be broken as is the case in the common connected strings of sockets.

Also, the unit 13 may be mounted at any place on the tree, such for example at about the center of the height of the trunk as shown in Fig. 1 and secured to the trunk and the individual light bulbs plugged into this unit. Thus the wires to each socket and bulb may be run along the trunk and branches of the tree from the trunk to the lamps located at the outer ends of the branches so that these leads can be given maximum concealment and connecting leads will not appear at the outer ends of the branches as is often the case with the present strings of permanently connected sockets as are now commonly used. Also, as each socket and light bulb has an individual connection to the central unit these sockets and bulbs may be located very easily at any location desired, the leads to each one being made of any length. That is, they do not all have to be the same length. Those located near the center or on the shorter branches may have shorter leads than those located at the ends of the branches or at the top of the tree.

The contacts 17 and 18 may be separate contacts connected by a separate connecting bar, but preferably they are connected in one piece with the connecting bar 21 as shown in Figs. 6,

8, 10 and 11, being merely bent up from a strip of suitable metal, and may be fastened to the lower member 14 of the insulating body by screws 31 threaded into the body passing through the bar 21, or by rivets 32 molded into the body as shown in Fig. 10. The pair of contacts 17 and 18 could be arranged in parallel relation, that is, extending in planes longitudinally of the body 13, of course using a plug 25 having blades 26 correspondingly arranged in parallel relation, but it is preferred to arrange a pair of contacts 17 and 18 in alignment as shown so that the pairs can be located closer together cutting down the length of the body required, and this use of aligned blades 26 permits the use of narrower plugs or caps 25 which may be placed much closer than shown in Fig. 2 or even in contact with each other side by side so as to reduce the size of the central unit 13 to a minimum. In order to insure proper contact of the blades 26 with the receptacle contacts 17 and 18 the upper ends of these members 17 and 18 are preferably bent backwardly upon themselves and somewhat inclined as shown at 33 to form resilient spring contacts located in the path of the blades 26 as they are inserted in the slots 20 and yield laterally under the action of the blades to insure proper contact. It will of course be understood that various changes and modifications may be employed in the arrangement of the receptacle contacts and the construction of this central unit. It may be mounted on some other element of the tree in any suitable manner, but in the present case as shown in Fig. 9 a clamp 34 formed of a flexible strip of metal is secured to the back of the unit and provided with any suitable form of clamping means 35 for clamping this clamp about the trunk of the tree to hold the device in position.

Having thus set forth the nature of my invention, what I claim is:

A tree lighting outfit comprising an insulating body including a base member and a top member detachably connected, a plurality of receptacle contact members each comprising a metal strip bent to substantially U-shape so that the side legs form spring contacts, the free ends of said legs being bent laterally to form guides for the contact blades of an attachment plug cap, said contact members being mounted on the base member and arranged in two laterally spaced rows with the members in each row in alignment and spaced from each other and with the contact legs of each member in one row in alignment with the opposed contact legs of two adjacent contact members in the other row and electrically disconnected therefrom, means securing the connecting base portion of each contact member to the base member of the body, said top member of the body being provided with spaced entrance slots for contact blades leading to the first contacts and arranged in two laterally spaced rows with the slots in one row in alignment with those in the other row to thus form spacer pairs, and means for connecting the end contact members of one row to a house wiring system.

WILLIAM G. SMITH, JR.