April 1, 1930. R. ECKSTEIN 1,752,662

DECORATIVE LIGHTING OUTFIT

Filed Dec. 1, 1928

Fig. 1,

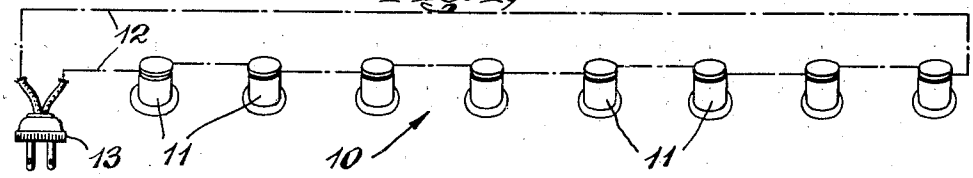


Fig. 2,

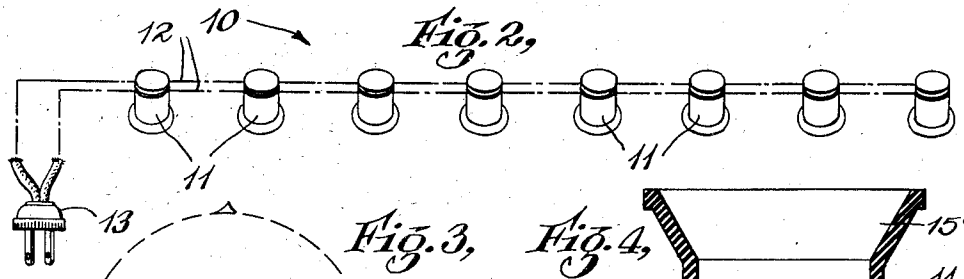


Fig. 3,

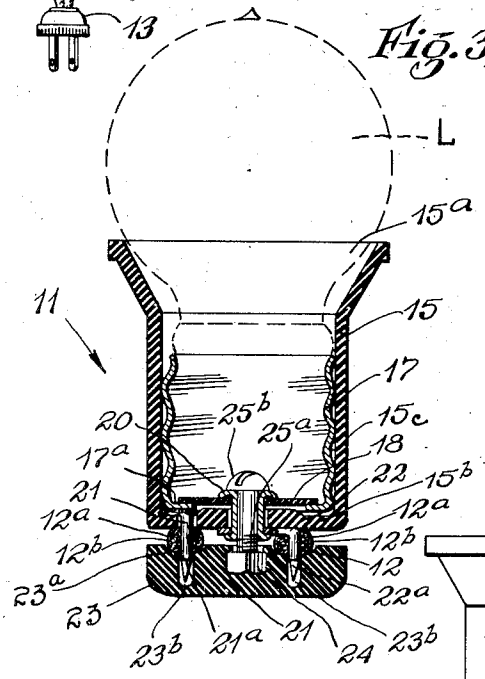


Fig. 4,

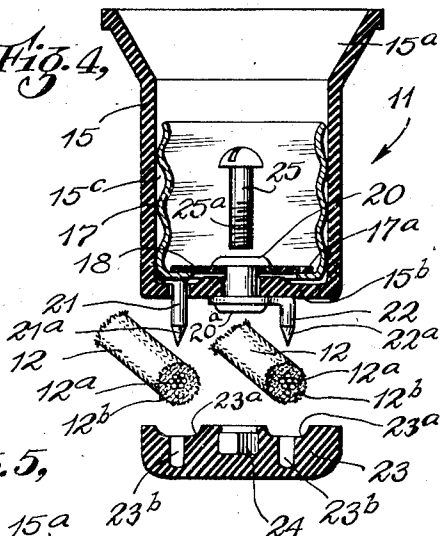


Fig. 5,

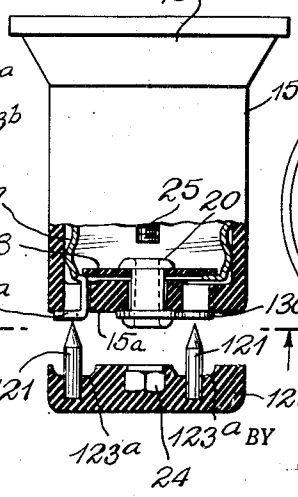


Fig. 6,

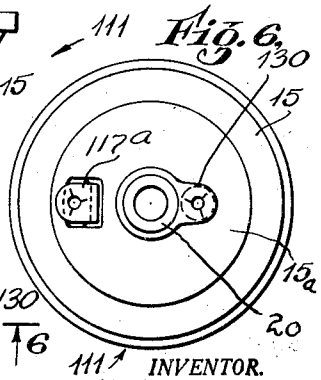
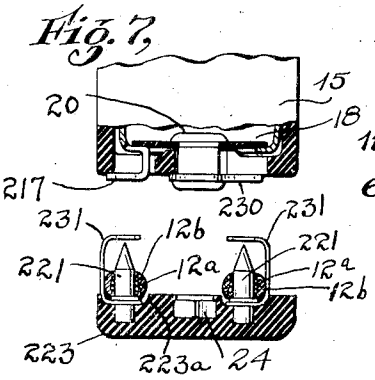


Fig. 7,



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UNITED STATES PATENT OFFICE

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DECORATIVE LIGHTING OUTFIT

Application filed December 1, 1928. Serial No. 323,116.

This invention relates to electric lighting sets. More particularly the invention is directed to portable lighting outfits for display and ornamental illumination such as used for interior, exterior, show windows and Christmas tree decorative lighting and other like purposes.

One object of the invention is to provide an improved electric lighting outfit construction in which the parts thereof may be sold separately and readily assembled in series or parallel circuit by even unskilled persons.

Another object of the invention is to provide in a portable lighting outfit of the character described, lamp sockets having an improved solderless connection for joining said sockets to the conductor wires which shall permit varying the spacing and number of the sockets in circuit to suit the requirement of installation and also shall provide ready means for repositioning and rearranging the circuit parts from an original assembly.

A further object of the invention is to provide an improved portable lighting outfit of the character described, comprising few and simple parts which shall be cheap to manufacture, and practical and efficient to a high degree in use.

Other objects of this invention will in part be obvious and in part hereinafter pointed out.

The invention accordingly consists in the features of construction, combinations of elements and arrangement of parts which will be exemplified in the constructions hereinafter described and of the scope of application will be indicated in the following claims.

In the accompanying drawing, in which is shown various possible illustrative embodiments of this invention,

Fig. 1 is a front elevational view, partly diagrammatic, showing a portable Christmas lighting outfit with the lamp sockets connected in series circuit, constructed to embody the invention.

Fig. 2 is a view similar to Fig. 1 showing an improved outfit with the lamp sockets connected in parallel circuit embodying the invention.

Fig. 3 is a cross-sectional view taken through one of the improved assembled lamp sockets showing the interior construction.

Fig. 4 is a cross-sectional view similar to Fig. 3, showing the parts separated ready for assembly.

Fig. 5 is a front elevational view of a lamp socket of modified construction embodying the invention, partly broken away to expose the interior, the parts being shown separated.

Fig. 6 is a sectional view taken on lines 6—6 in Fig. 5 and

Fig. 7 is a fragmentary cross-sectional view taken through another modified construction of the improved lamp socket, the parts being shown separated.

Referring in detail to the drawing, 10 denotes Christmas tree lighting outfits constructed to embody the invention which are seen to comprise a plurality of miniature lamp sockets 11 connected either in series or parallel circuit as shown in Figs. 1 and 2, respectively, by flexible conductors 12. The latter are preferably formed with a core of strand wires 12^a having a suitable insulating covering 12^b of any well understood construction.

The free ends of the circuit conductors 12 have applied thereto a plug cap 13 of any conventional make for attaching the outfit 10 to a suitable power supply (not shown) in the well understood manner.

A feature of the invention is the improved construction of said outfit whereby the lamp sockets can be interchanged, replaced, selectively spaced, and form separate, complete units which are easily and quickly assembled, said sockets being simple to connect in circuit without requiring a high degree of mechanical or electric skill. To this end, the current carrying parts of the sockets have prong terminals novelly incorporated therewith for piercing the insulating covering of the conductors and means are provided for clamping the sockets in spaced position to suit the installation requirements in the manner hereinafter described.

The socket 11 may comprise a suitably molded insulating casing 15 having a chamber 15^c extending in from an open end 15^a thereof, said casing being formed with a closed

end wall 15[b] at the bottom of said chamber. Snugly fitted into the chamber 15[c] there is a metallic screw contact shell 17 which is adapted to receive the base of a miniature lamp, indicated at L in dotted lines. See Fig. 3.

The shell 17 at its inner end has a flange portion 17[a] which supports an insulated disc or washer 18. The shell 17, by means of the washer 18 is anchored to the casing wall 15[b] in any suitable manner, preferably by a metallic eyelet rivet 20 which extends centrally through said washer and wall.

Extending through casing wall 15[b], at a spaced distance from the eyelet rivet 20 and contacting with the shell 17 is a prong terminal 21 having a pointed end 21[a]. Another prong terminal 22 having a pointed end 22[a] is rigidly secured to the exterior side of the casing wall 15[b] under the rim flange 20[a] of the eyelet rivet 20, the engagement of the latter with the terminal 22 making a good electrical contact. The terminal 22 is preferably positioned diametrically opposite respective the terminal 21 to separate same as much as possible, as is clearly shown in Figs. 3 and 4.

A cover member 23 made of fibre, molded or other suitable insulating material is provided for enclosing the live exposed portions of the prong terminals 21 and 22. Said member 23 may be formed with spaced grooves 23[a] in spaced alignment corresponding to the spacing of the terminals 21 and 22 for receiving the conductors 12.

Embedded in the member 23 between said grooves 23[a] there is a nut 24 which is adapted to engage the threaded end 25[a] of a screw 25 extending through the rivet 20. In mounting the socket 11 on the conductors 12, the screw 25 is inserted into the eyelet rivet and threaded into the nut 24 to clamp the member 23 to the conductors 12 for securing the socket in position. The head 25[b] of the screw then serves as the center contact for the lamp socket. The member 23 is provided with clearance passages 23[b] spaced to receive the terminal ends 21[a] and 22[b] as is clearly seen from Figs. 3 and 4.

The practical application of the invention will now be apparent. With the sockets 11, conductors 12 and cap plug 13 constructed to form separate units as shown in the drawing, the outfit is assembled with the sockets selectively spaced along the conductors to suit the requirements of the installation.

Each socket 11 is connected in circuit by simply piercing the terminal ends 21[a] and 22[a] each through the insulating covering 12[b] of a conductor so that said terminals electrically contact with the strand wires 12[a]. The screw 25 is then inserted to tightly clamp the conductors in the grooves 23[a] between the cover member 23 and the exterior side of the casing wall as is clearly seen from Figs. 3 and 4.

It should be noted that in the improved outfit 10 the sockets 11 may thus readily be replaced, spaced in any desired uniform or un-uniform distance apart or interconnected in series or multiple circuits.

In Figs. 5 and 6 a modified construction of the invention is shown. Here the sockets 111 are similar in construction to the sockets 11 described with the exception that cover members 123 are made to carry the piercing prongs 121 which project up from the grooves 123[a].

The shell 117 is provided with a spring receptacle contact 117[a] for engaging with the pointed end of one of said prongs 121 and another spring receptacle contact 130 is secured by the eyelet rivet 20 for engaging with the other prong 121. The cover member 123 is clamped in position by the screw 25 in the same manner as described above for the socket 11.

Still another modified form of the invention is shown in Fig. 7. Here besides the prongs 221 extending up from the grooves 223[a] of the member 223, there is provided a spring contact finger 231 for each prong 221. Said fingers 231 are adapted to abut the receptacle contacts 217 and 230 to assure positive electrical connection between the prongs and shell and center contacts of the socket in addition to that provided by the prong ends and the receptacle contacts.

It will thus be seen that there is provided a device in which the several objects of this invention are achieved and which is well adapted to meet the conditions of practical use.

As various possible embodiments might be made of the above invention, and as various changes might be made in the embodiment above set forth, it is to be understood that all matter herein set forth or shown in the accompanying drawing is to be interpreted as illustrative and not in a limiting sense.

Having thus described my invention, I claim as new and desire to secure by Letters Patent:

1. In a portable electric lighting outfit of the character described formed with flexible conductors having insulating coverings, a lamp socket comprising an insulating casing, a contact shell mounted in the casing, a center contact insulated from said shell, resilient contact members connected to the said shell and center contact, prongs piercing the insulating coverings electrically connecting the conductors to said resilient contact members and means for clamping the socket to the conductors.

2. A lamp socket for connecting to flexible conductors having insulating coverings comprising a tubular insulating casing having a closed end, a contact shell mounted in the casing against the closed end, a center contact insulated from said shell and passing through said end, a cover member secured

against the exterior side of said closed end for clamping the socket to the conductors, resilient contact members connected to said shell and said center contact, spring contact members connected respectively to the shell and center contacts and prongs extending between the casing and cover member piercing the insulating coverings and engaging said spring contact members to electrically connect the conductors to the said spring contact members.

3. In a lamp socket construction of the character described, a tubular insulating casing having a closed end wall, a contact shell mounted in the casing, an insulating washer engaging said shell with the end wall, an eyelet anchor passing through the washer and end wall for securing the shell against displacement, a cover member, means extending through said anchor forming the center contact of the socket and engaging said member for clamping flexible conductor wires between the latter and the casing, and terminal means for connecting the center and shell contacts with the conductor wires.

4. A lamp socket construction for connecting to flexible insulated conductors comprising a tubular insulating casing having a closed end wall, a contact shell mounted in the casing, an insulating washer engaging the shell against said wall, an eyelet anchor passing through the washer and end wall for securing the shell against displacement, a cover member, a screw extending through said anchor having a head forming the center contact of the socket and having a threaded engagement with said member for clamping the conductors between the member and the casing, and prongs piercing the insulation of said conductors electrically connecting the center and shell contacts with said conductors.

In testimony whereof I affix my signature.

REUBEN ECKSTEIN.