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H. J. NENNO

DECORATIVE LIGHTING

Filed Nov. 20, 1923

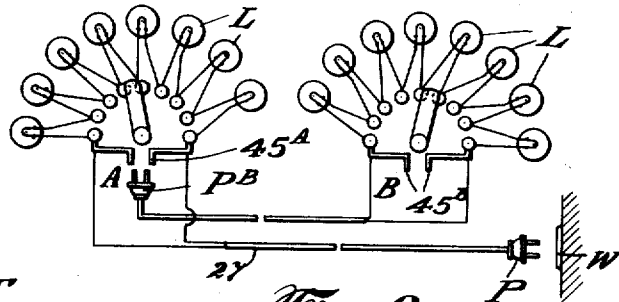
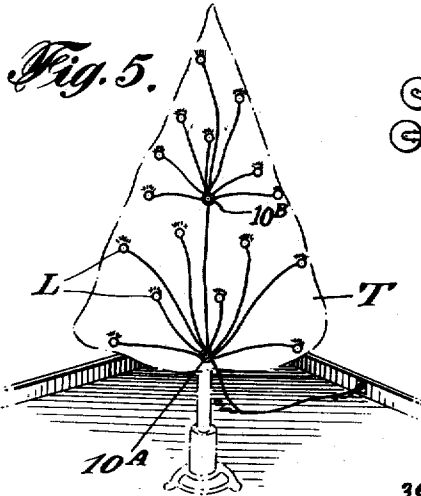


Fig. 6.

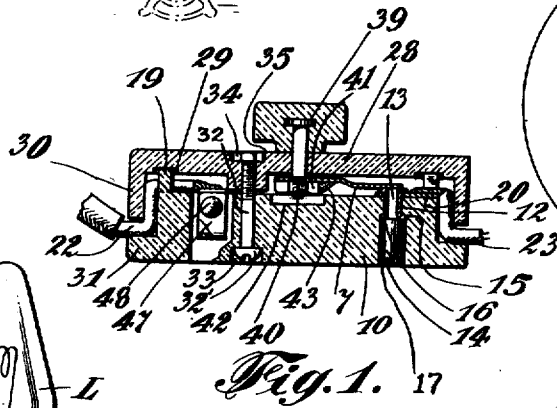


Fig. 1.

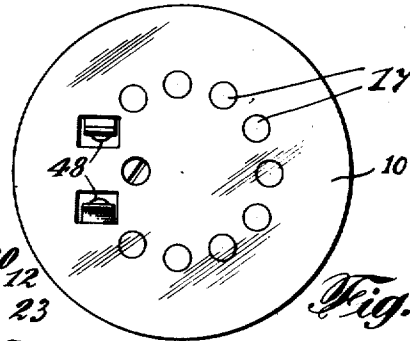


Fig. 2.

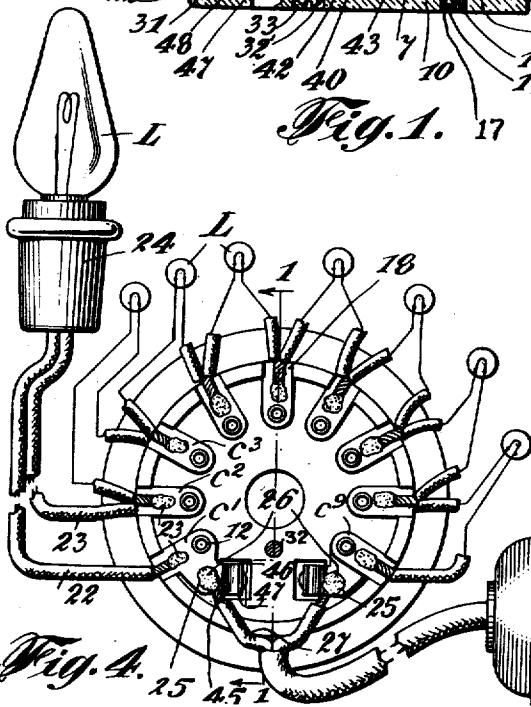


Fig. 4.

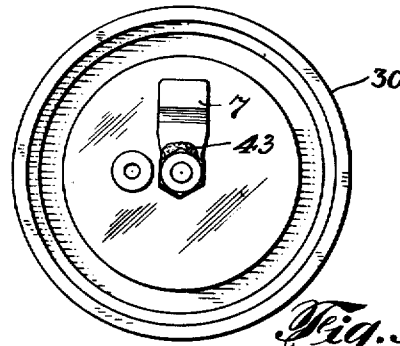


Fig. 3.

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UNITED STATES PATENT OFFICE.

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DECORATIVE LIGHTING.

Application filed November 20, 1923. Serial No. 675,861.

To all whom it may concern:

Be it known that I, HERBERT J. NENNO, a citizen of the United States, and resident of Rochester, in the county of Monroe and State of New York, have invented certain new and useful Improvements in Decorative Lighting, of which the following is a specification.

My present invention is concerned with electric appliances and systems, more particularly with Christmas tree and other decorative lighting sets, comprising a plurality of series-connected low voltage lamps to be operated from the ordinary domestic lighting circuit.

It is an object of the invention to provide a lighting set of the type referred to, permitting of wide scope in the positioning of the individual lamps on the tree, and yet obviating the need for draping on the tree any individual conductors more than three or four feet in length.

In the preferred embodiment, the conductors to each of the various lamps in the set are all attached to a circular mounting block, at which the series connection is permanently established, so that with said mounting block located near the axis of the tree, the lamps supplied therefrom may be distributed as desired about the tree with the use of short conductors.

The installation of series-connected miniature low-voltage lamps on Christmas trees it should be noted even when the mechanical difficulties are obviated in the manner referred to is frequently a difficult operation for electrically untrained persons. If, as frequently happens, one or more sets of lamps remain dark when the switch is turned on, the ordinary unskilled user finds difficulty in restoring the set to operativeness.

It is accordingly another object of my invention to provide an installation for Christmas tree lighting sets, by which the inoperative lamp which places the entire set out of commission may be quickly located, by any layman, even by a child, without requiring any electrical knowledge or skill and by the simplest of operations.

In the preferred embodiment, the testing means for locating the defective lamp is embodied in the mounting block which thus is a combined mounting and test block for the lamps of the set.

Another object is to provide an installation of the above type which shall lend itself readily to the connection in parallel for con-

venience in supplying from a single lamp socket or wall switch, any number of sets of miniature lamps.

Another object is to provide an installation of the above type in which the miniature lamps can be disposed at will at different locations upon the tree, without the need for effecting special wiring connections.

An important feature of my invention is the provision of an insulating block through which a set of miniature lamps is connected in series, preferably in a permanent installation, current supply leads being connected to said block. In the preferred embodiment, the electric lamp conductors are connected to contacts on the insulating block, one lamp between each two successive contacts, and a switch member is arranged when manually operated to successively bridge the gaps between the contacts for short-circuiting the lamps in succession.

According to another preferred feature, the current supply leads are electrically connected with terminal elements for coaction preferably with a quick detachable plug element, through which current may be supplied to a second identical block thus connected in parallel with the first block.

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

In the accompanying drawings in which is shown one of various possible embodiments of the several features of the invention,

Fig. 1 is a view in longitudinal cross-section of the preferred form of switch block,

Fig. 2 is a bottom plan thereof,

Fig. 3 is a bottom plan of the cover,

Fig. 4 is a plan view of the switch block base, illustrating the electrical connection of the associated parts,

Fig. 5 is an outline view of a Christmas tree with my lighting installation in place thereon, and;

Fig. 6 is a circuit diagram of the installation of Fig. 5.

Similar reference characters refer to similar parts throughout the several views of the drawings.

Referring now to the drawings, I have shown a combined mounting and test block comprising an insulating circular base mem-

ber 10 having thereon a succession of nine contacts C^1 , C^2 , C^3 , etc. The contacts in the preferred embodiment shown comprise small generally rectangular blanks which may be of brass extending along radii of the base block, each secured thereto by a corresponding brass rivet 12, the locus of said rivets on a circle concentric with said block. As best indicated in Fig. 1, the rivet is applied through the lower face of the block with its lower head against the shoulder 15 determining the bore near the upper face of the block within which the shank of the rivet fits. Preferably, the bores 16 below the rivets are sealed as by friction fitted plugs 17 which may, if desired, be of the same material as the block or of any other appropriate insulating material. The contact blanks C are passed over the corresponding rivet shanks to protrude into corresponding notches 18 in a flange 19 on the block base, whereupon the rivet shanks are crimped over to form heads 20 for securing said contact blanks in position. Between the pairs of contacts C^1 , C^2 are connected a pair of conductors 21 and 22 preferably by soldering thereto as at 23, the outer ends of said conductors being connected to the terminals (not shown) of a miniature lamp socket 24 for a miniature lamp L . Similar connections are made between each contact and the succeeding one, two conductors being thus soldered to each of the intermediate contact blanks C^2 — C^8 , and one to each of the terminal contacts C^1 and C^9 . At lateral extensions 25 of said terminal contacts are soldered as at 26, the supply leads 27 from any conventional form of electric plug P illustratively, a two-prong plug which may be applied at any wall socket, lamp socket or other electrical outlet.

In the embodiment shown, a cover 28 is supported upon the upstanding flange 19 on the base block, which extends into a corresponding groove 29 in said cover. The cover is also provided with a flange 30 extending about the inner ends of the various conductors 22 and 23 that protrude through the notches 18 in the base block, said conductors extending from between a lateral flange 31 on the base block and the lower edge of the cover flange. The cover 28 may be secured to the base 10 by a screw 32 extending through the base midway between terminal contacts C^1 and C^9 and with its head countersunk as at 32' at the bottom of the base and with a corresponding hexagonal nut 34 fitting in a corresponding hexagonal depression 35 in the upper surface of the cover. In the preferred embodiment, the cover is molded with an integral hub 36 at the lower surface thereof to provide a greater length of bearing surface for the screw 32 and to serve as a stop for the switch arm 37. Switch arm 37 which may

be a blank of brass is pivotally mounted at the center of the cover and is of sufficient width to bridge consecutive rivet heads 12 as it is rotated. For operating the switch arm, the insulating knob 38 is provided on the cover and is rigidly connected to the switch arm by a bolt pin 39 molded in the knob and extending axially through the cover. The switch arm 37 is clamped against a shoulder 40 on pin 39 by a nut 41 threaded onto the lower end of said pin. Clearance 42 is provided for said nut in the base 12, and the nut pin 39 and switch arm 37 are preferably soldered together at 43 to maintain the rigidity of the assembly, so that the switch arm 37 will turn in unison with the knob 38. The switch arm is preferably sprung as at 44 to provide a wiping spring contact on the successive rivet heads 12 as the knob is rotated in the process of locating a defective lamp.

The use of the installation thus far described for a single set of eight lamps is readily understood. The block assembly 10 is mounted upon or adjacent the tree, preferably near or at the axis thereof as in Fig. 5. The eight lamp sockets 24 with their lamps L installed therein are disposed upon limbs of the tree as desired, the conductors preferably radiating from the mounting block as suggested in Fig. 5. The plug P is connected to the wall socket, lamp socket or other outlet and the current turned on. If the lamps fail to glow, the knob 38 is rotated slowly, the switch arm 37 snapping between successive contact rivet heads 12 in its movement, short-circuiting the lamps in succession, until presently seven of the eight lamps begin to glow, which occurs at the moment that the defective or poorly connected lamp is short-circuited. The dark or defective lamp can now be removed and a perfect one substituted therefor, whereupon after movement of the operating knob on the desired block, to an extreme position, in contact with hub 36 the entire eight lamps will glow.

For supplying a multiplicity of eight lamps from one and the same outlet, wall or lamp socket, the mounting block is preferably constructed for ready connection in parallel therewith of a duplicate block. For this purpose, in the preferred embodiment shown, the terminal contacts C^1 and C^9 are of special form and include integral lateral tongues 45 extending downward respectively into corresponding rectangular recesses 46 through the base of the block, each having a reversely bent upward extending portion 47 with an embossment 48 thereon to provide an adequate spring contact for a two-prong plug of the same type as that appearing at P .

The manner of application for connecting in circuit as on a tree, any multiple of eight

lamps will be apparent from Figs. 5 and 6. This is accomplished by providing a plurality of identical blocks of the type described and installing the lamp set of each block on the tree in desired manner. As shown in the diagrammatic view of Fig. 6, a quick-detachable connector P^B on the block B, for instance, is inserted through the base of the block A for coaction with the terminals 45 therein, the current supply leads 27 on the block A being connected by means of the electrical plug P to the wall socket or equivalent outlet W. A third block may be connected to the terminals 45^B in the manner just described and any number of blocks may thus be connected to be supplied in parallel from the source of electric current, each block supplying current in series to the group of lamps connected thereto. If any set of lamps on the installation should be or become dark, the defective or loose lamp can be readily located by turning the knob of the corresponding block.

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

1. In a Christmas tree lighting set, a circular mounting block, a plurality of flexible electrical conductors connected to said block and protruding therefrom, a corresponding electric lamp supplied from each pair of said conductors, said conductors being connected in series on said block, said block having a pair of terminals, for connection of current supply leads thereto, whereby when the

block is disposed in any position on or adjacent to a Christmas tree and near the axis thereof, the lamp conductors may be arranged to radiate from said block for decorative distribution of the lamps.

2. In a Christmas tree lighting set, in combination, an insulating mounting block unit, a plurality of pairs of flexible conductors protruding from various points about the periphery of the block, lamps connected at the outer ends of the pairs of said conductors and means concealed within the block for connecting the conductors of the successive lamps in series, said block having terminals for connection to a source of current.

3. The combination set forth in claim 2 in which the connecting means for successive lamp conductors are arranged along the arc of a circle within the block and in which a switch member is provided within the block, adapted in operation to bridge successive pairs of connectors for successively short-circuiting the lamps in order to locate a defective lamp.

4. The combination set forth in claim 1 in which the terminals of the block have push connection elements for ready attachment thereto of a push plug to supply from the set a second Christmas tree lighting set for parallel connection of the sets.

Signed at Rochester in the county of Monroe and State of New York this 15th day of November A. D. 1923.

HERBERT JOSEPH NENNO.