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2,743,424

FLUORESCENT LIGHTING FIXTURES

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2 Sheets-Sheet 1

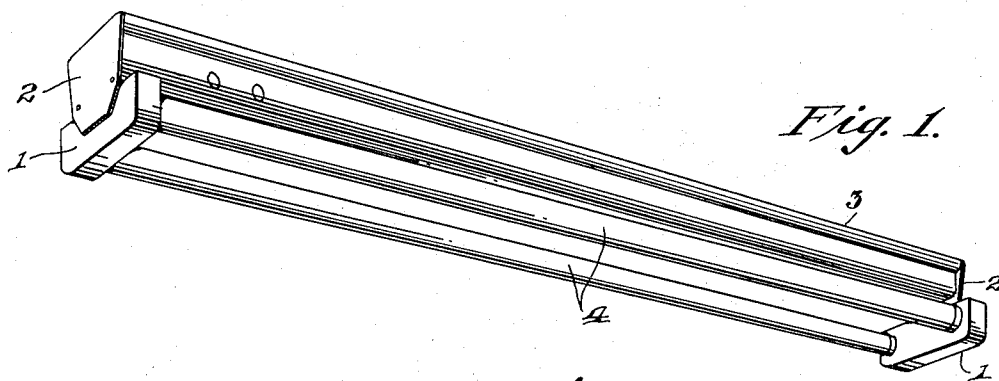
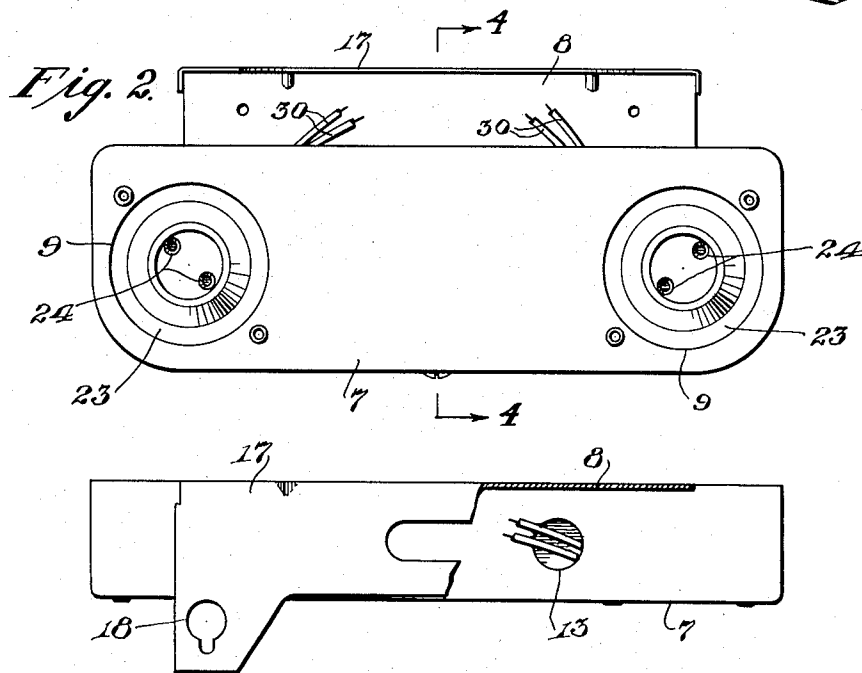


Fig. 3.

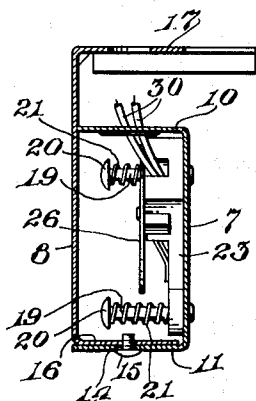


Fig. 4.

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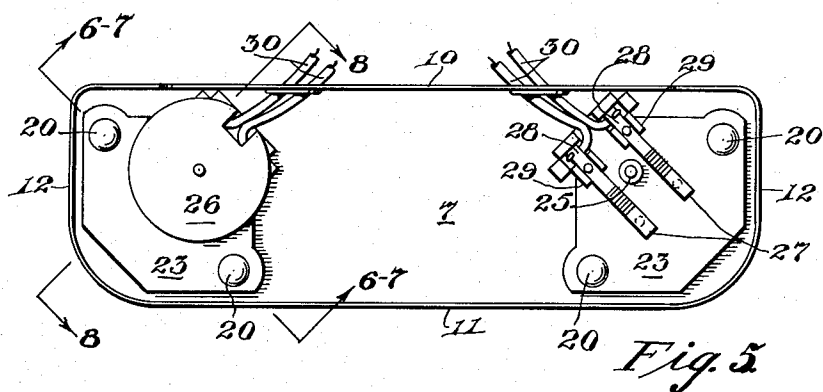
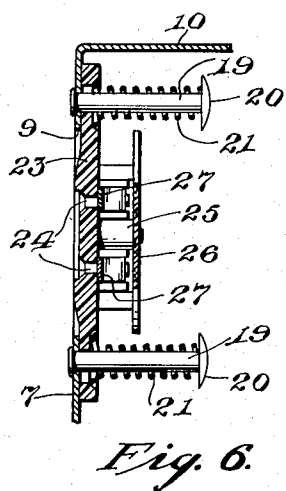
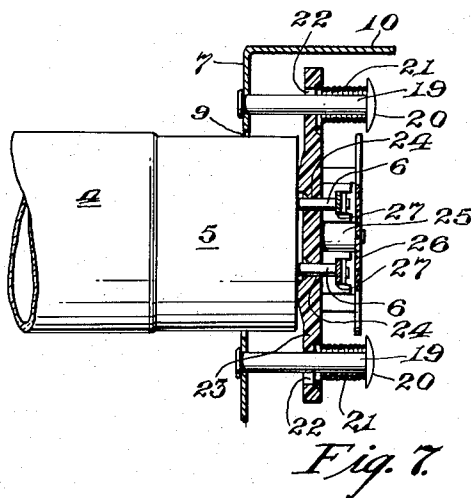
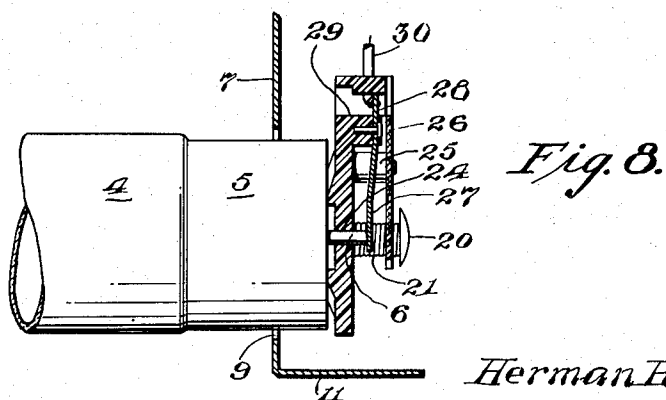
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FLUORESCENT LIGHTING FIXTURES

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2 Sheets-Sheet 2



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FLUORESCENT LIGHTING FIXTURES

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1 Claim. (Cl. 339—52)

The object of the invention is to provide improvements in supports for electric illuminating elements hereinafter referred to as fluorescent tubes, but with the understanding that such term is used in a generic sense to include all forms, types and sizes of electrically energized units to which the invention is adaptable, which obviously covers so-called black-light or the infrared invisible types, as well as those that emit those portions of the spectrum that are visible to the human eye.

Another and more specific object is to provide a support of this class, which essentially comprises two axially aligned and longitudinally spaced elements, each of which is characterized by a pair of contact-receiving bores into which the parallel wire terminals of a fluorescent tube are normally inserted, resilient means to yieldingly position said elements relatively toward each other, each of said elements upon its oppositely directed rearward sides being provided with metallic contacts, with which the tube terminals are normally in engagement, as they extend through and project from the opposite sides of said elements, together with a weatherproof housing for said elements that have apertures through which said elements are accessible by said tubes.

A further object is to provide a tube-supporting contact element of the class described, which comprises a relatively thin body of insulating material having at least one aperture extending through it, a resilient contact member secured to the rear of said element and having a resiliently positioned terminal portion normally spanning said aperture, and being yieldingly engageable at such free end with an electric terminal of said tube when extending through said aperture, an electric conductor being secured to a relatively fixed portion of said contact member, whereby when said tube is in operative position supported by said element, and its terminal extends through the aperture in said element, current from said conductor is made available to the interior of said tube through said terminal and said contact member when in engagement.

Still another object is to provide an improved support for operatively attaching a fluorescent tube or the like to a fixed foundation, which comprises a bracket that is securable to such foundation, a housing normally secured to said bracket and having its initially open side closed by said bracket, said housing being provided with a relatively large aperture, a tube-supporting element having a pair of spaced parallel bores extending through it, resilient means to yieldingly position said element in a position spanning said apertures, resilient contact members carried by the rear of said element in alignment with said bores, and adapted to be connected to current-carrying conductors, whereby when a fluorescent tube is operatively supported by said element, the freely extending parallel terminals of said tube extend through said bores and engage said contact members to electrically energize the interior of said tube.

And a still further object is to provide an improved support of this general character, which can be used as a pair in which they face each other in spaced relation,

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so that a fluorescent tube having oppositely directed freely extending terminals upon its ends can have its terminals upon one end inserted through the bores of either supporting element of a given pair, and then be shifted longitudinally as the first such element is forced rearwardly into its bracket housing, after which the terminals upon the other end of said tube may be inserted through the bores of the other element of such pair, and said elements thereafter yieldingly assuming their more closely adjacent positions under the influence of their respective resilient positioning means, to thereby operatively support the ends of said tube and effect a positive electrical contact between the contact members of said elements and the terminals of said tube.

With the objects thus stated in general terms, the invention comprises further details of construction and operation, which are hereinafter fully brought out in the following specification, when read in conjunction with the accompanying drawings in which Fig. 1 is a perspective view of a complete bracket and twin tubes supported thereby, as when secured to a ceiling and viewed from below; Fig. 2 is an enlarged elevation of one end of the bracket units of Fig. 1, as viewed from a position between them and in the absence of the tubes; Fig. 3 is a top plan view of the same; Fig. 4 is a vertical section on the lines 4—4 of Fig. 2; Fig. 5 is a rear elevational view of the hollow forward portion of the unit housing with the rear supporting closure member entirely removed therefrom; Figs. 6 and 7 are both sections on the line 6—7/6—7 of Fig. 5, but the first showing the tube-supporting contact element in its outer or inoperative position, while the second shows said element in operative or retracted position, in which it supports the adjacent fragmentary end portion of a fluorescent tube; and Fig. 8 is a section of the same on the line 8—8 of Fig. 5 in which the said element similarly supports one end of such a tube.

Referring to the drawings, a complete ceiling fixture embodying the improved contact supporting bracket is shown as comprising two such brackets 1, carried by depending angular projections 2 at the opposite ends of an elongated base member 3, while a pair of fluorescent or other electrically energized tubular elements are operatively supported in parallel relation between said brackets, as hereinafter described. Each of said elements comprises an elongated glass tube, upon whose opposite ends are secured protective metallic caps 5, through and from each of which extend and project a pair of rectilinear metallic terminals 6, whose function it is to conduct electric current from suitable contact members hereinafter described into the interior of the tube, so that the gases and/or filaments therein are suitably energized so as to produce the illumination for producing which the tube is designed.

Referring to Figs. 2, 3 and 4, each of the brackets 1 basically comprises a contact-supporting housing 7 and a closure bracket 8. Said housing comprises a plane front or normally inwardly directed wall, having as many relatively large circular apertures 9 as there are tubes to be supported, which in the device illustrated is two. From the periphery of said housing extend top, bottom and end walls 10, 11 and 12, respectively, while said top wall is provided with one or more wire-passing apertures 13, and said bottom wall is provided with a small aperture through which a suitable screw or bolt 15 extends for normally securing said housing to a lower, forwardly projecting flange 16 carried by said closure, which latter spans the entire longitudinal and transverse limits of said housing, and extends above the top wall 10 and is provided at its upper edge with a forwardly projecting base portion 17, provided with one or more keyhole apertures 18 for the reception of supporting screws or the like (not shown).

Within and secured to the inner front wall surface of said housing, there are provided for each tube support a

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pair of pins or lugs 19, provided with heads 20 upon their inner free ends, and surrounded by helical compression springs 21. Said pins extend loosely through spaced apertures 22 in a tube-supporting disk or plate 23, that is preferably made of any suitable insulating material, such as one of the well-known moldable plastics, and which disk is provided with a pair of transversely extending apertures 24, through which the terminals 6 of a tube 4 normally extend, and in fact project freely from the rearward surface of said disk (Figs. 7 and 8). Said disk is also preferably provided with an integral rearwardly projecting stud 25, that forms a support for an insulating protective disk 26, that covers in spaced relation a pair of resilient contact elements 27.

Each of said contact elements is secured at one end 28 to an integral boss 29 extending rearwardly from said insulating disk 23, while its opposite end projects freely across and closely adjacent to one of the apertures 24, and is thus yieldingly engaged by and effects electric contact with the free end of one of the terminals 6 of the fluorescent, or other electrical tube, operatively supported by said bracket through said disks. To the fixed end portion of each of said contact elements 27 is connected a conductor 30, by which current is led to and from said elements and thereby to and from the tube.

In the operation of this device, and with the several parts assembled as shown in the drawings, to effect an operative positioning of a fluorescent or other tube by the fixture, as it embodies a pair of the improved brackets, the terminals projecting from one end of such tube are inserted into and made to project through and from the rear of the apertures 24, as force applied substantially longitudinally upon the tube causes the disk 23 to be shifted inwardly against the tension of the disk-positioning springs 21, after which the terminals 6 projecting from the opposite end of the tube can be inserted in and through the correspondingly aligned apertures 24 in the oppositely positioned bracket disk, as in the first instance. When released, the tube assumes a central operative position under the influence of the similar springs 21, that normally tend to position the disks 26 in outward position closing the apertures 9 in the said bracket housings. And in this position of the respective elements, each of the tube terminals 6 is in positive electrical engagement with one of the resilient contact elements 27, so that upon the lead wires 30 being energized the tube is caused to become luminous.

Said tube is thus held in fixed operative position as

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long as may be desired, but can be removed from the supporting brackets by withdrawing its terminal longitudinally from one of said supporting disks, and then deflecting the separated end until the tube can be shifted in substantially the opposite direction and withdrawn longitudinally from the other supporting disks. It will also be noted that when no tube is present in a normal tube position, the supporting disks 23 effectively close the respective apertures 9, and thereby prevent the entrance of dirt and moisture into said bracket housing, but are at all times instantly ready to function as herein described. It is also to be noted, that since as many tubes can be provided for as may be desired, and are limited in number only by the number of pairs of supporting contact-disks that are present, illustration of two such pairs for two fluorescent tubes is merely representative, wherefore the principles that characterize the invention are fully present in and are illustrated by a single such pair of disks and a single tube operatively supported thereby.

Having thus described my invention, what I claim and desire to protect by Letters Patent of the United States is:

A bracket for an electrically energizable unit that has a pair of spaced parallel terminals projecting freely therefrom in one direction, comprising a casing having a relatively large aperture in one wall adapted to receive an end of such unit, a member normally closing said aperture and having a pair of bores adapted to receive the terminals of said unit, resilient contact elements carried by and upon the rear side of said member in alignment with said bores, guide means to limit said member to reciprocate in a substantially rectilinear path, springs carried by said guide means to normally maintain said member in one extreme position closing said aperture when the unit is withdrawn, said member being movable from such normal position while said unit terminals are being inserted through said bores and into engagement with said contact elements, and while preventing said tube from angular movement about its axis, an integral stud projecting freely from the rear surface of said member, and a protective disk of insulating material carried by said stud and in spaced relation covering and shielding said contact elements.

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