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3,286,089

LIGHT UNITS AND ELECTRICAL CONTACTS THEREFOR

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FIG. 1

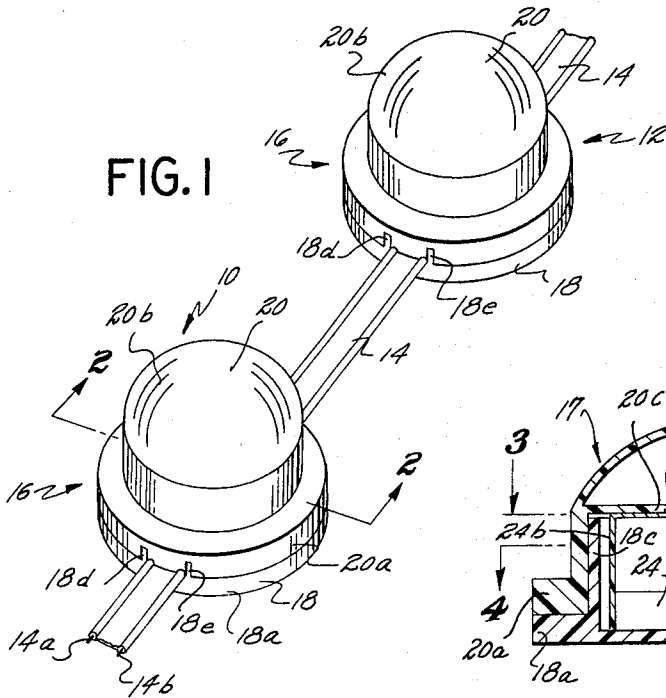


FIG. 2

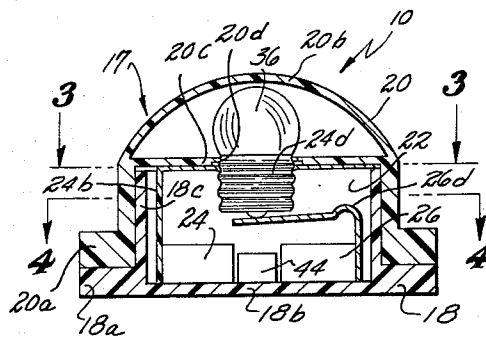


FIG. 3

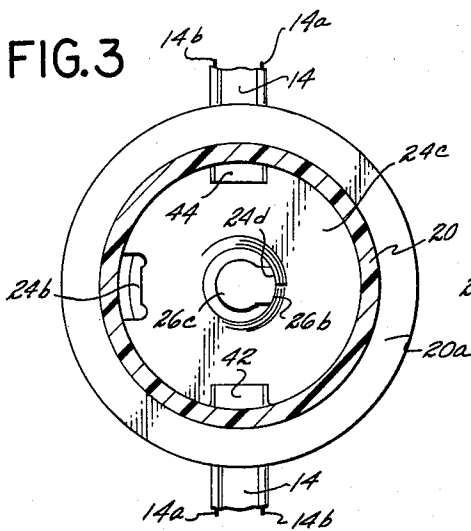


FIG. 4

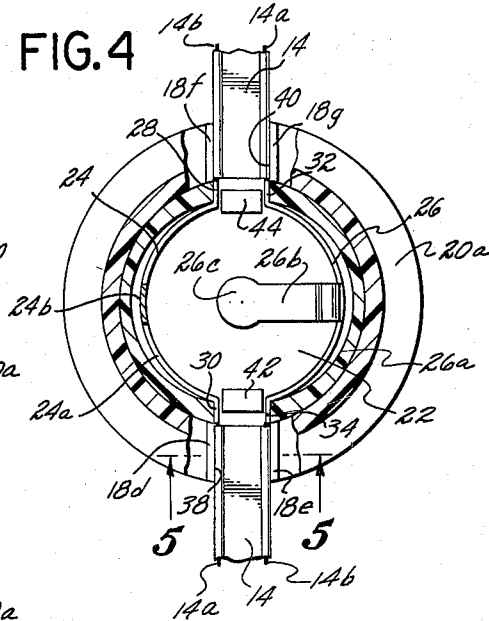
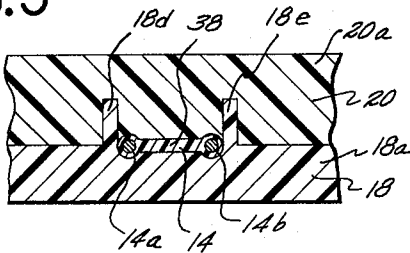


FIG. 5



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3,286,089 LIGHT UNITS AND ELECTRICAL CONTACTS THEREFOR

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2 Claims. (Cl. 240—11.2)

The present invention relates generally to electrical light units and contacts therefor, and more particularly to portable and simple lighting means.

The use of electrical energy for providing light has become highly refined within the past four or five decades. Prior to that, various forms of combustible materials, particularly kerosene, gasoline, oil and the like, were used in illuminating homes, factories and offices.

It has been recognized for some period of time that it would be highly advantageous to have relatively portable and uncomplicated lighting means for illuminating drawers, closets, tents and similar areas. To this end, the present invention provides such a light unit.

A new and unusual type of electrical contact was originated, which contact is formed of resilient or flexible material which insures electrical continuity between a terminal and an electrical conductor.

It is an object of the present invention to provide an electrical light unit for receiving a lamp and at least one pair of electrical conductors.

Another object of the present invention is to provide an electrical light unit as characterized above, which is adapted to receive the electrical conductor merely by insertion thereof within an appropriate socket or opening.

A further object of the present invention is to provide a light unit, as characterized above, formed of plastic material providing a housing having a cavity wherein the electrical lamp is positioned.

A still further object of the present invention is to provide an electrical light unit as characterized above having electrical contacts formed of flexible material biasing a terminal into engagement with the end of a conductive member.

An even further object of the present invention is to provide an electrical contact having an arcuately shaped central portion and a pair of terminal members on opposite ends thereof.

Another object of the present invention is to provide light units and contacts therefor as characterized above, which are simple and inexpensive to manufacture and which are rugged and dependable in operation.

The novel features which I consider characteristic of my invention are set forth with particularity in the appended claims. The device itself, however, both as to its organization and mode of operation, together with additional objects and advantages thereof, will best be understood from the following description of specific embodiments when read in connection with the accompanying drawings, to which:

FIGURE 1 is a perspective view of several light units according to the present invention connected in parallel circuit arrangement;

FIGURE 2 is a vertical sectional view through one of the light units of FIGURE 1, taken substantially along line 2—2 of FIGURE 1;

FIGURE 3 is a horizontal sectional view through such light unit, taken substantially along line 3—3 of FIGURE 2;

FIGURE 4 is another horizontal sectional view of such unit taken substantially along line 4—4 of FIGURE 2; and

FIGURE 5 is a fragmentary sectional view taken substantially along line 5—5 of FIGURE 4.

Like reference characters indicate corresponding parts throughout the several views of the drawings.

Referring to FIGURE 1 of the drawings, there is shown therein light units 10 and 12, each of which is formed in accordance with the present invention. Such light units are connected together by suitable conductors 14, as will hereinafter be explained in greater detail.

FIGURES 2—5 inclusive, show the details of construction of the light unit 10, although it is readily understood that the unit 12 is of identical construction.

Light unit 10 is formed with a housing 16 comprising a base member 18 and a cover 20 therefor. As shown most clearly in FIGURE 1, the housing 18 and cover 20 are generally circular in construction, the cover 20 fitting over the base member 18.

The base member is formed with an annular flange 18a, a relatively thin bottom wall 18b and an annular wall 18c. The cover 20 is also formed with an annular flange 20a, and is provided with an arcuately-shaped raised portion affording a dome 20b which is substantially hemispherical in construction. A partition wall 20c extends across the dome 20b on the inside of cover 20, there being a through opening 20d formed therein in a substantially central location.

As shown most clearly in FIGURE 2, the upstanding annular wall of 18c of base member 18 and the generally inverted cupshaped configuration of cover 20 cooperate to provide a cavity 22 therebetween.

Positioned within such cavity is a pair of electrical contacts 24 and 26, each of which is formed with an arcuate central portion 24a and 26a respectively, and a pair of terminals at opposite ends thereof as shown at 28 and 30 with respect to contact 24, and at 32 and 34 with respect to contact 26.

It will be particularly noted that the terminal members of each contact are substantially aligned along the diameter of the substantially semi-circular configuration of the central portion of the respective contact. That is, as shown most clearly in FIGURE 4, the terminal members 28 and 30 are aligned along an axis or line which represents the diameter of the arcuate shape of central portion 24a. In like fashion, the terminal members 32 and 34 are aligned along an axis which may be said to represent the diameter of the circular central portion of contact 26. Each of the central portions 24a and 26a is formed of resilient or flexible material for urging the respective terminal members into engagement with electrical conductors, as will hereinafter be explained in detail.

Contact 24 is formed with an upstanding arm 24b which supports a horizontal socket member 24c. As will be readily apparent to those persons skilled in the art, the contact 24 is formed of any appropriate conductive material such as aluminum, brass or the like, and is provided with a through opening 24d, the marginal edge of socket member 24c adjacent said opening being formed with a helix to provide fastening threads for receiving an electrical lamp 36, as shown in FIGURE 2.

Contact 26, on the other hand, is formed with a horizontal arm 26b having a generally circular end portion 26c for engagement with the centrally located depending contact of lamp 36. As shown most clearly in FIGURE 2, the arm 26b is off-set, as shown at 26d, to provide a desired biasing force for urging the end portion of arm 26b into engagement with such contact of lamp 36.

The base member 18 and cover member 20 are formed along the separating line of flanges 18a and 20a with a pair of oppositely disposed sockets 38 and 40. Such sockets are so formed as to receive the end of a conductor 14 having a pair of conductive members 14a and 14b. Such conductor 14 may be any appropriate connecting wire or the like, and in its simplest form is contemplated as being substantially identical with television antenna lead wire of 300 ohms electrical resistance. In any event, such con-

ductor must have conductive members which are held in predetermined spaced relation a distance corresponding to the distance between the adjacent terminal members of the contacts 24 and 26.

To facilitate forming the sockets 38 and 40, it is believed desirable to form base member 18 with a pair of upstanding wall members adjacent said sockets. That is as shown in FIGURES 4 and 5, the base member 18 adjacent the socket 38 is formed with a pair of substantially parallel wall members 18d and 18e, and as shown in FIGURE 4, member 18 is formed with wall members 18f and 18g adjacent the socket 40. Cover member 20 is formed with corresponding openings in the bottom of flange 20a for slidably receiving the wall members.

Within cavity 22 of housing 16 are a pair of spacers 42 and 44 which may be formed integrally with base member 18 and which assist in positioning the contacts 24 and 26 such as to dispose the terminals 28 and 32 in parallel spaced relation, and the terminal members 30 and 34 in similar relation.

As will be readily apparent to those persons skilled in the art, the cover 20 is removable from the position on the base member 18. With the cover so removed, the contacts 24 and 26 are inserted within the cavity 22 within the base member 18. Such contacts are inserted so that the terminal members are arranged as above described. The spacers 42 and 44 assist in accomplishing this.

As shown most clearly in FIGURE 4 of the drawings, the radius of curvature of the inner surface of the annular upstanding wall 18c of the base member 18 is smaller than the radius of curvature of the arcuate central portions of the contacts 24 and 26. This permits the terminal members to extend through the respective openings in wall 18c while affording a space between the various flexible central portions of the contacts and the adjacent portions of the wall 18c. This relationship becomes particularly significant in utilizing the flexible or resilient nature of the central portions of the contacts in maintaining engagement between the terminals and the conductors as will hereinafter become more readily apparent.

With cover 20 removed from base member 18, and the contacts 24 and 26 positioned as shown and described, the electrical lamp 36 can be readily inserted in the opening 24d of the horizontally disposed socket member 24c. With contact 26 properly positioned the circular end portion 26c thereof is disposed immediately beneath the opening 24d so that the depending contact of the lamp is caused to engage it. Thus the contacts 24 and 26 are connected in electrical continuity with the filament of lamp 36.

Thereafter, the cover 20 is slidably positioned on the base member 18, the flanges 20a and 18a being thereby placed in substantially adjacent relation.

Proper assembly of cover member 20 and base member 18 requires the upstanding wall member 18d, 18e, 18f and 18g to be inserted in the appropriate slots or openings formed in cover 20.

With the cover and base member slightly separated, the sockets 38 and 40 are slightly enlarged for individually receiving the end of a conductor 14. Such conductor need not be prepared in any special manner, but merely need be cut off or trimmed at the end to expose the ends of the conductive members 14a and 14b.

Such conductors 14 are inserted in an end-wise or longitudinal direction into the respective sockets 38 and 40 until the ends of the conductive members 14a and 14b abut against the ends of the respective terminals of the contacts 24 and 26. By applying a moderate amount of force to such conductors as they are inserted in the sockets, the flexible or resilient central portions of the contacts are suitably flexed so that a biasing force is developed which urges the terminals into engagement with the respective conductive members.

Thereafter, the cover 20 is firmly pressed in place on the base member 18 thereby causing the ends of the conductor 14 to be firmly gripped and held in place.

It is contemplated that one of the conductors 14 can be connected to any suitable source of electrical energy. Such source may be ordinary household electrical current or it may constitute a portable source such as a battery or the like. In its simplest and perhaps most practical form, it is contemplated that a small battery may be connected to one of the conductors 14, thus providing the most portable lighting unit.

As shown in FIGURES 1, 3 and 4 of the drawings, several light units according to the present invention may be connected together with several sections of conductor 14, the oppositely disposed sockets 38 and 40 being utilized to afford connection from one unit to the other.

As will be readily apparent to those persons skilled in the art, the arrangement of contacts 24 and 26 with respect to the electrical lamps, causes the various light units to be connected in parallel circuit arrangement. This means that in the event one electrical lamp burns out, the entire group of light units will not be extinguished.

It is contemplated that the subject light units can be positioned in any location whatever with substantially any number of light units being used as desired. Also by utilizing small batteries as the source of power, an exceedingly compact device is provided in accordance with the present invention.

It is also contemplated that the subject light arrangement can be firmly positioned within a drawer or cupboard merely by tacking the various sections of electrical conductors 14 on a wall, or shelf or the underside thereof.

It is thus seen that the present invention provides a light unit and lighting arrangement which is relatively simple in construction and is particularly well adapted for use as portable light.

Although I have shown and described certain specific embodiments of my invention, I am fully aware that many modifications thereof are possible. My invention, therefore, is not to be restricted except insofar as is necessitated by the prior art and by the spirit of the appended claims.

I claim:

1. A light unit comprising in combination, a housing comprising a base member and a cover therefor formed to provide a cavity therebetween for retaining an electrical lamp, a pair of electrical contacts supported within said base member for engagement with said lamp, each of said contacts being formed with a semi-circular central portion of flexible material and a pair of outwardly extending radial terminals at opposite ends thereof substantially aligned along the diameter of said semi-circular form of said central portion, said base member being formed with a generally circular aperture for receiving said contacts with the central portions thereof in generally circularly cooperative arrangement and with one terminal of each contact in parallel spaced relation to one of the terminals of the other contact, and a socket in said housing at each such pair of terminals for individually receiving an electrical conductor having a pair of space conductive members for engagement with the respective terminals thereat, whereby a plurality of such light units can be quickly and easily connected in parallel circuit arrangement.

2. A light unit according to claim 1 wherein said sockets are generally circular and said conductors are inserted thereinto cause the ends of the conductive members to abut said terminals.

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