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INCANDESCENT LAMP

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Fig. 1.

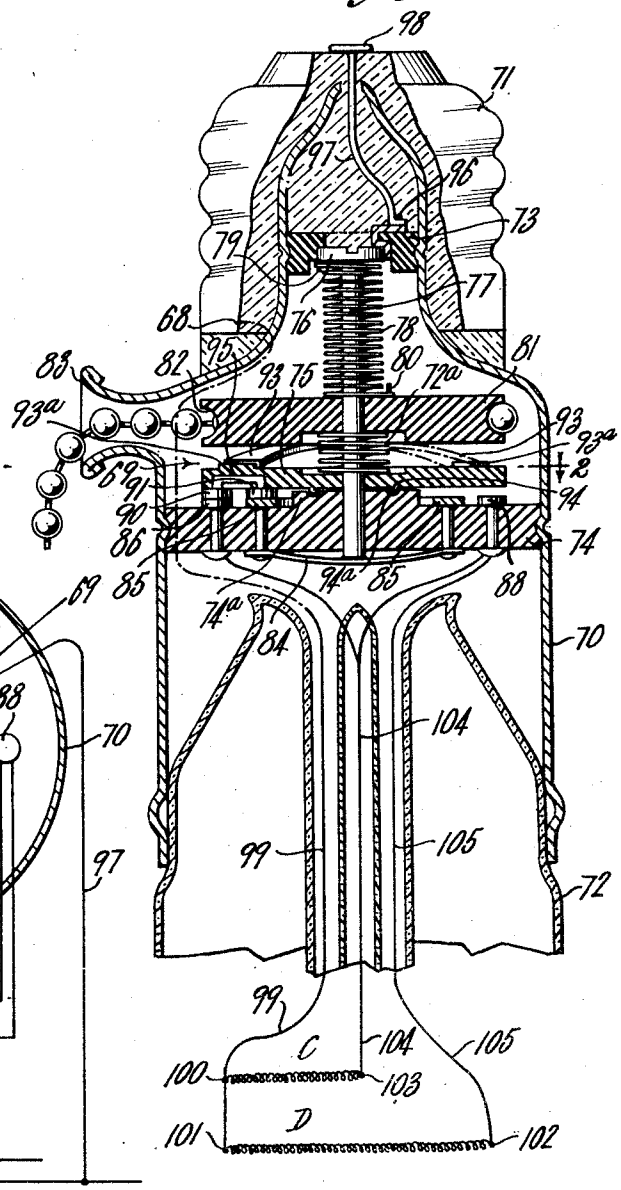
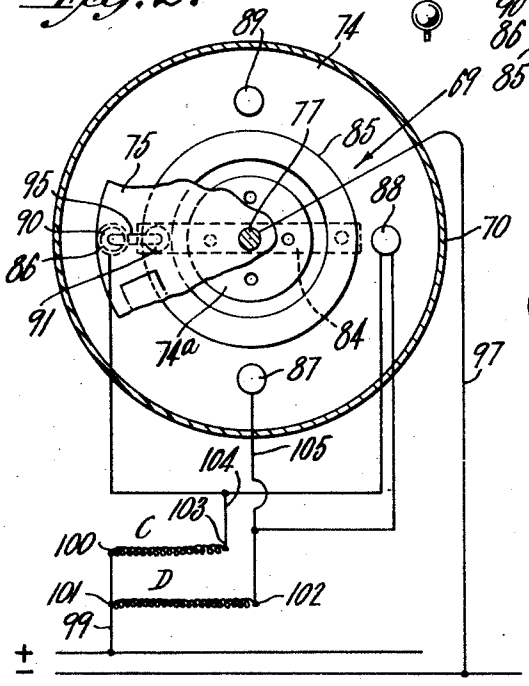


Fig. 2.



INVENTORS
GUSTAV HERZBERG
LEONARD GROSSMAN
BY
Charles Holland
ATTORNEY

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INCANDESCENT LAMP

Leonard Grossman, Irvington, and Gustav Herzberg, Newark, N. J.

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6 Claims. (Cl. 176—27)

This invention relates to the art of making incandescent electric lamps and has for an object the production of a lamp adapted to be used in standard lighting systems and enabling such systems to be much better adapted for varying lighting requirements than they are at present. The new lamp itself is designed to give varying illumination intensity without the consumption of greater current than is required to produce the particular illumination required at any given time. Regulation of the intensity of light given by such lamp is provided by the novel switch control of the present invention, and this control is satisfactorily provided in the lamp itself. The present invention thus enables different "levels" of lighting to be had with little or no change in the construction of standard lighting circuits. By different "levels" of lighting we mean different stages of illumination. For instance, an establishment may require more light, from a given source or sources of light, during certain parts of the working day than during certain other parts and will desire their illumination to vary in accordance with these requirements so that appropriate stages or "levels" of illumination may be maintained.

Illustrative embodiments of the invention are depicted in the accompanying drawing in which Fig. 1 is an elevation partly in section of a lamp in which the control of the varying degrees of illumination is provided in the base of the lamp itself; Fig. 2 is a cross section taken along the line 2—2 of Fig. 1 and showing in diagrammatic form the various electrical connections with the contacts of the control and the filaments of the lamp.

The lamp of the present invention may be constructed with the usual center and side contacts by providing for the control of the circuits of the lamp within the base of the lamp itself. As indicated in the drawing, an envelope 72 of a gas-filled or vacuum type duplex lamp is housed in a Mogul base 70 provided with a standard type screw-plug 71. Filaments C and D (shown diagrammatically for purposes of simple explanation) have a common connection 99 leading to the shell 71 of the base-plug and connected thereto at 68. The ends 102 and 103 of filaments D and C respectively are brought through the ordinary type of stem and press and are connected to the contacts 86, 87 and 88, of the switch mechanism designated generally at 69. Movement of the contact disc 75 of the switch, as will hereinafter be more particularly described, controls the passage of current through these contacts to the filaments C and D and enables varying illumination to be obtained.

As will hereinafter appear, the lamp exemplary embodiment shows how three "levels" of illumination may be obtained. It should be understood that while the control of these "levels" is depicted specifically the means and method of control may be modified so that various levels of illumination may be provided with a socket control and a two "level" illumination provided.

Coming now to the details of construction, the lamp of Fig. 1 is provided with a control switch which control may be mounted upon two parallel supporting discs 73 and 74 of insulating material, preferably of fibrous insulating material, possessing some degree of give or flexibility. Inwardly extending notches or rings are provided on the inner surface of the shell 70 of a Mogul type base and corresponding depressions are formed in the discs 73 and 74 so that the discs may be pressed and snapped into place as indicated in Fig. 1.

Between the discs is provided a spindle 77 having a noncircular head 76 seated in the top disc 73, and journalled on this spindle is an actuating disc 81 having a suitably shaped periphery 82 adapted to guide a chain and hold the end thereof, and allow it to be pulled through the chain guide 83 in order to turn disc 81 and actuate the switch which is designated generally at 69. A spring 78 may be provided between disc 81 and the head 76 of the spindle, the ends of the spring being hooked over projections 80 and 79 respectively in order that the spring may be put under torsion when the disc 81 is turned by means of the chain.

Disposed about the shaft 77 and below the actuating disc 81 is a contact disc 75 adapted to be moved into four successive positions in order to make or break the various circuits required to control the energization of the filaments C and D. This contact disc is provided with lugs 93a against which the ends of leaf spring members 93, attached to actuating disc 81, are adapted to push when the disc 81 is rotated in one direction against the torsion of spring 78. The movement in this direction is, of course, caused by a pull on the pull chain which, as previously described, winds around the guideway 82 and is secured to the actuating disc 81 at a suitable point. When the force of the spring 78 pulls the actuating disc and the chain back, the leaf spring members 93 ride over the lugs 93a, thus allowing the actuating disc to return to its original position preparatory to another actuation by the chain.

Beneath the contact disc 75 is provided a boss 74a which is formed with the base 74. On the

upper surface of this boss 74a are provided four depressions 94a spaced at 90° intervals, and fitting into these depressions are corresponding knobs 94 provided on the contact disc 75. A spring 72a may be provided between discs 81 and 75 in order to cause the knobs to seat in the depressions 94a when the disc 75 is in the proper quadrant. It will be seen that when the ends of the leaf spring members 93 have acted upon the lugs 93a to turn the disc 75 throughout a 90° angle, the knobs 94 will seat themselves in the corresponding depressions 94a, thus securing the contact disc 75 against further movement. The actuating disc 81 then returns to its original position by virtue of the torsional force exerted by spring 78, the leaf spring members 93 riding over lugs 93a as previously described.

Disc 74 is provided with a contact ring 85 diametrically opposite points of which are connected together by a metal strap 84 adapted to press against the end of the spindle 77 and make an electrical contact therewith. Near the periphery of disc 74 are provided three contacts 86, 87 and 88 spaced apart at 90° angles. Contact 86 is connected with lead 104 which is brought through the stem and press of the lamp and connected to one end of the filament C. Contact 87 is connected to lead wire 105 which also passes through the stem and press of the lamp and connects to the end of the other filament D. Contact 88 is connected to both lead wires 104 and 105. The other ends of the filaments C and D are connected to a common lead 99 which is brought through an appropriate conduit and connected to the outer shell 71 of the base as indicated at 68. The base contact 98 is brought through the interior of the base through conductor 97 and connected as at 96 to the spindle 76.

The contact disc is provided with a pair of contacts 90 and 91 disposed along a radius extending through one of the knobs 94 of the contact disc 75. These contacts 90 and 91 are connected together by a conductor 95. When the contact disc is in the position indicated in the drawing, the contacts 90 and 91 and conductor 95 bridge the space between the fixed contact 86 and ring 85, causing an electric current to pass therethrough and providing for the energization of filament C through the circuit 98, 97, 96, 76, 77, 84, 85, 91, 95, 90, 86, 104, 103, C, 100, 99, 68 and 71.

When the chain is pulled to move the actuating disc 81 through a 90° angle, the contact disc 75 is turned 90° and conductor 95 is placed across the circuit including ring 85 and fixed contact 87 (see Fig. 2). This allows current to pass through conductor 105 and causes filament D to be energized by way of a circuit following generally the outline of that previously described, except for its variation through contact 87 and lead 105 instead of contact 86 and lead 104.

When the contact disc is moved through a further 90° angle, contact is made between ring 85 and contact 88, the latter being connected through leads 104 and 105 to both filaments C and D, thus causing them both to be energized.

When the last quadrant of the cycle of the contact disc is completed, the conductor 95 is positioned so that it spans the gap between ring 85 and a fourth contact 89 and as the latter is not connected into the system, it is apparent that this is the "off" position of the switch.

What we claim is:

1. In an incandescent electric lamp, in combination, an envelope, a base having a base contact, a plurality of filaments mounted within the envelope and having one end of each connected to the shell of the base and having the other end of each separately connected to independent contacts and together connected to another contact, all of which filament contacts are within the base of the lamp, a switch disposed within the said base but operable from without said base, said switch having one pole connected with the base contact of the lamp and having its other pole movable over the said other contacts in order to enable the filaments to be energized separately and together by completing selected circuits from said base contact to said shell.

2. In an incandescent electric lamp, in combination, an envelope, a base, having a base contact, a plurality of filaments mounted within the envelope and having one end of each connected to the shell of the base and having the other end of each separately connected to independent contacts and together connected to another contact, all of which filament contacts are within the base of the lamp, a switch disposed within the said base but operable from without said base, said switch having one pole connected with the base contact of the lamp and having its other pole movable over the said other contacts.

3. In an incandescent electric lamp, in combination, an envelope, a base, having a base contact, a plurality of filaments mounted within the envelope and having one end of each connected to the shell of the base and having the other end of each separately connected to independent contacts and together connected to another contact, all of which filament contacts are within the base of the lamp and disposed equidistantly from a center point, a switch disposed within the said base, said switch being rotatable about said center point and having one pole connected with the base contact of the lamp and having its other pole movable over the said equidistantly spaced contacts, means for rotating said switch throughout an angle sufficient to open one circuit and close another circuit, and means for automatically returning said switch-operating means to a switch-operating position.

4. In an incandescent electric lamp, in combination, an envelope, a base, having a base contact, a plurality of filaments mounted within the envelope and having one end of each connected to the shell of the base and having the other end of each separately connected to independent contacts and together connected to another contact, all of which filament contacts are within the base of the lamp and disposed equidistantly from a center point, a switch disposed within the said base, said switch being rotatable about said center point and having one pole connected with the base contact of the lamp and having its other pole movable over the said equidistantly spaced contacts, and means for rotating said switch to close each of the filament circuits by separately connecting said contacts with the base contact of the lamp.

5. In an incandescent electric lamp, in combination, a base, a contact ring and a plurality of contacts disposed within said base, a plurality of filaments mounted within said lamp having one end of each connected separately to certain of said contacts and together to another of said contacts, and a switch device within said base adapted and arranged to connect selected contacts with said ring whereby the filaments may be energized separately or together by completing selected circuits within the lamp.

6. In an incandescent electric lamp, in combination, a base having a shell contact and a base contact and having disposed within it a contact ring connected to said base contact, and a plurality of switch contacts disposed around the periphery of the ring but separated therefrom, a plurality of filaments mounted within said lamp and having one end of each connected to said shell contact and having the other end of each separately connected to certain of said switch contacts and together connected to another of said contacts, and a switch device adapted and arranged to connect selected switch contacts with said ring.

LEONARD GROSSMAN.
GUSTAV HERZBERG.