April 2, 1940. J. DULBERG 2,195,921

ELECTRIC LAMP

Filed Feb. 11, 1938

Fig. 1.

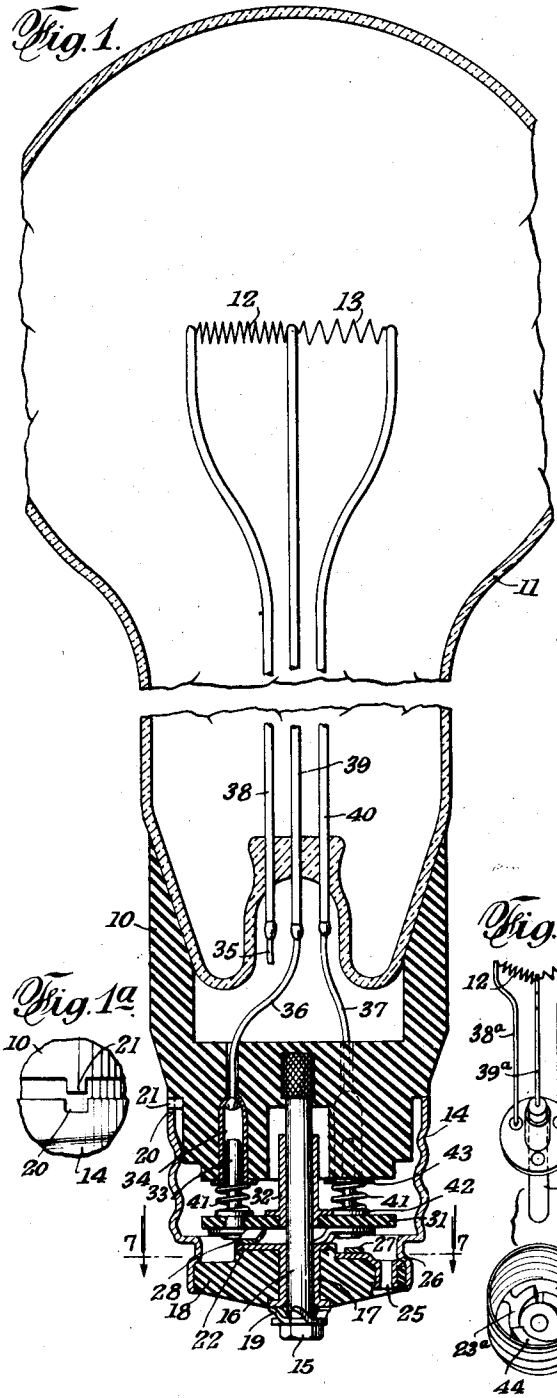


Fig. 1a.

Fig. 2.

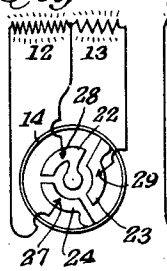


Fig. 3.

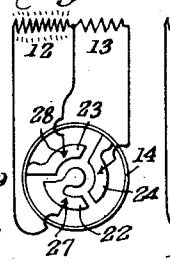


Fig. 4.

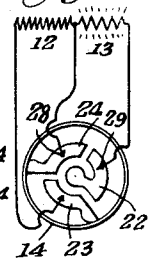


Fig. 5.

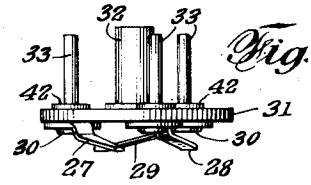


Fig. 6.

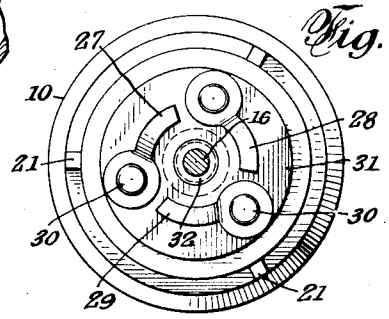


Fig. 8.

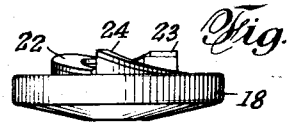


Fig. 9.

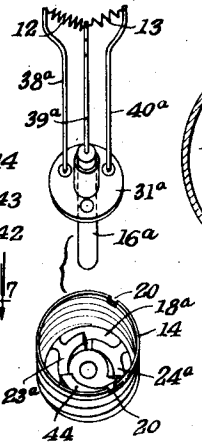
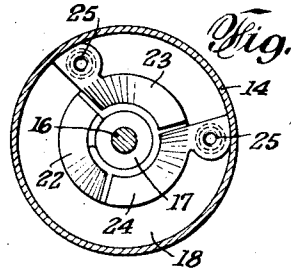


Fig. 7.



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UNITED STATES PATENT OFFICE

2,195,921

ELECTRIC LAMP

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Application February 11, 1938, Serial No. 189,956

14 Claims. (Cl. 176—27)

The invention herein disclosed relates to multiple filament lamps and particularly those of the type covered by the Dulberg Patent 2,082,326 of June 1, 1937.

Objects of the invention are to provide a truly practical form of multi-filament lamp, which can be used in any ordinary lamp socket and which can be easily operated to shift from one filament to another without removing the lamp from the socket.

Other objects and the novel features of construction, combinations and relations of parts by which all objects are attained are hereinafter set forth or will appear in the course of the following specification.

The drawing accompanying and forming part of the specification illustrates practical embodiments of the invention. Structure however may be modified and changed within the true intent of the invention as will be clear from the broad scope of the claims.

Fig. 1 is a broken and part sectional view illustrating the invention as embodied in a double filament lamp. Fig. 1a is a broken detail of the coupling between the lamp base and relatively rotatable screw shell.

Figs. 2, 3 and 4 are generally diagrammatic views illustrating three different lighting conditions of such lamp.

Fig. 5 is a side view of the intermediate contact carrying element.

Fig. 6 is an end view of the lamp base and the yielding contacts carried thereby, the spindle on which the screw shell is journalled being shown in section.

Fig. 7 is a cross-sectional detail as on the plane of line 7—7 of Fig. 1.

Fig. 8 is a detached side view of the contact carrying member which is secured in the end of the screw shell.

Fig. 9 is a perspective and somewhat diagrammatic view of a modified embodiment of filament and contact elements.

The present invention, as in the prior Dulberg Patent 2,082,326, comprises a two-part lamp base, one part designated 10, carrying the lamp globe 11, and series connected filaments, such as 12, 13, and the other carrying screw shell and center lamp contacts 14, 15, which by relative rotation of the parts can be connected in different relations with the filaments.

The two parts of the lamp base are shown as rotatably connected by a center stud 16, embedded in the insulating base portion of the globe part 10, and extending through an eyelet or sleeve 17, fixed in the insulating cap or plug 18, in the end of the screw shell contact 14. The center lamp contact 15 in the illustration, is in the form of a nut screwed on the outer end of the stud 16, and serving as a shoulder confining the parts in their relatively rotatable relation. A spring washer 19, between this nut and the outer flanged end of the eyelet 17, provides good electrical conductivity between end contact 15 and the sleeve 17, and also yieldingly holds the screw shell member thrust up over the lamp globe member, so as to normally engage a notched portion or portions 20, in the edge of the screw shell over a corresponding lug or lugs 21, on the base part 10. When so engaged, the two parts are locked in relatively non-rotatable relation and this, as shown in Fig. 1, is the normal condition, desirably so, since it enables the lamp to be readily turned into or out of a screw socket by grasping the end of the globe. To effect relative rotation, it is only necessary to pull the globe part away from the terminal part sufficiently to effect disengagement of the lug or lugs 21, from the notch or notches 20, and which movement can be readily effected when the screw shell is engaged in a supporting socket. The abruptly shouldered form of interlock between the globe part and screw shell part enables any necessary force being applied as may be required, to turn the lamp into or out of a supporting socket.

The eyelet or contact sleeve 17, is shown in Figs. 1, 7 and 8, as laterally and arcuately extended to form a curved center switch contact 22, overlying the upper or inner face of the insulating disc member 18. The screw shell terminal is shown as having contact elements 23, 24, extended inwardly and similarly curved and inclined over the upper face of the disc 18. These three contacts, that is, the single center contact 22, and the two screw shell contacts 23, 24, are shown in Fig. 7, as of equal length and equally spaced about the center of the screw shell end disc. The two contacts may be integral parts or, be in any way suitably attached to the screw shell. In Figs. 1 and 7, they are shown as eyeleted at 25, to the disc 18, beneath and engaged by an inwardly impressed portion 26, of the surrounding screw shell.

The filament terminals are shown in the present disclosure as three yielding inclined arcuate spring contacts 27, 28, 29, in correspondingly concentrically arranged and equally spaced relation to directly engage the inclined terminal contacts 22, 23, 24. These inclined spring contacts 27, 28, 29, are shown secured by rivet studs

30, on the lower or outer face of an insulating disc 31, carried by a sleeve 32, slidingly engaged on the center stud 16. The rivet studs 30 are shown extended at 30, at the upper face of the disc and slidingly entered into the sleeves or thimbles 34, forming the terminals for the leads 35, 36, 37, from the filament posts 38, 39, 40. In this way, the disc carrying the yielding filament contacts is slidingly keyed to the insulating base of the globe carrying part 10, and the contacts electrically connected with the three filament leads.

Coiled springs are shown at 41, Fig. 1, engaged about the studs 33, between the flanges or shoulders 42, at the lower ends of these rivet studs and the flanges 43, at the outer ends of the terminal sleeves 34, to yieldingly press the contact carrying disc toward the contacts in the screw shell and to form yielding spring connections between the floating disc contacts and the filament terminals. With this floating type of mounting, the filament contacts forming the upper or inner set of switch contacts have a self-adjusting floating action between the two base parts and are free to adapt and adjust themselves to the lower or outer set of switch contacts and at all times, good electrical connection is provided between the filament at the inside and the terminal contacts, that is, the screw shell and center lamp contacts, at the outside.

Change from one switch position to another is readily effected, while the lamp is in a supporting socket, by simply drawing the lamp bulb out slightly to uncouple the interlocking elements 20, 21, and then turning the bulb with respect to the screw shell right-handedly.

The various switch positions are shown in Figs. 2, 3 and 4. In the first of these, with the filament switch contacts 27, 28, 29, engaged with the outer switch contacts, 24, 22, 23, respectively, both filaments will be lighted in parallel relation, assuming the current entering through the center terminal contact 15 and so passing equally to the center connection of the two filaments and out through the two contacts 23, 24, connected with the screw shell.

In the position indicated in Fig. 3, with the center switch contact 22, in engagement with contact 27, the left hand filament 12 will only be illuminated. In the Fig. 4 position, the left hand filament is by-passed and only the right hand filament 13 is illuminated. For simplicity of illustration, the screw shell part is represented as having been turned, but in normal use it will be understood that the screw shell part remains stationary in the socket, while the filament carrying part is rotated step-by-step.

By way of example, the filaments 12 and 13 may be 40 watt and 60 watt respectively, thus to provide the three degrees of illumination of 40, 60 and 100 watts respectively. It is contemplated however, that other values and other numbers of filaments may be employed.

While in the embodiment of the invention thus far described the centerpost serves mainly as a means for rotatably confining the two parts of the lamp base, the centerpost, if desired, may be employed also as the center connection to the two filaments, as indicated somewhat diagrammatically in Fig. 9, where the center lead 39*a*, is shown directly connected with the end of the center stud 16*a*.

The two contacts 23*a*, 24*a*, are both connected with the screw shell as in the first form in position to engage the yielding spring contacts carried by the floating disc 31*a*. Since the stud 16*a* carries current for the center contact in this instance, there is no requirement for a third switch contact in the screw shell part, so at the place where such contact would be the insulating member 18*a*, may be formed with an incline 44, similar in shape to the center switch contact 22 and designed simply to serve as an insulating rest for the switch contacts on the floating contact carrier 21*a*.

By constructing and arranging the parts so that in one position both filaments will be in parallel and therefore under full potential, it is possible to have three fully effective lighting conditions with only the two filaments or light emitting illuminating elements. With this invention also the structure is kept relatively simple and entirely practical. As many changes are possible within the broad scope of the invention, terms have been employed in a descriptive rather than in a limiting sense and are to be so construed, except possibly for such limitations as may be required by state of the prior art.

What is claimed is:

1. An electric lamp, comprising a two part lamp base, means connecting said base parts in freely rotatable and axially separable and approachable relation, spring means yieldingly holding said parts in one axial position and yieldable to permit axial shifting to a different position, interlocking means engageable and disengageable by said relative axial shifting movements, a plurality of filaments carried by one of said base parts, switch contacts connected with said filaments and companion switch contacts carried by said other base part, said interlocking means including a locking shoulder or shoulders on the filament carrying base part and a screw shell contact notched for engagement therewith carried by the other base part.

2. An electric lamp comprising a two-part lamp base, means connecting said base parts in freely rotatable relation, a lamp globe carried by one of said base parts, two filaments in said lamp globe, having two outer ends and two joined together ends the other of said base parts being a terminal part and carrying screw shell and center lamp terminals, three equidistant relatively spaced contacts on said terminal part spaced the same distance from the center of said terminal part and connected two of them to one of said terminals and the other to the other of said terminals and three, concentrically arranged similarly spaced filament terminals on said relatively rotatable globe carrying base part in position to engage said spaced contacts on said terminal part and connected respectively with the outer ends and with said joined ends of the two lamp filaments.

3. An electric lamp comprising a two-part lamp base, means connecting said base parts in freely rotatable relation, a lamp globe carried by one of said base parts, a plurality of filaments in said lamp globe, the other of said base parts being a terminal part and carrying screw shell and center lamp terminals, two relatively spaced contacts on said terminal part spaced the same distance from the center of said terminal part and connected one to said screw shell terminal and the other to said center lamp terminal, concentrically arranged similarly spaced filament terminals on said relatively rotatable globe carrying base part in position to engage said spaced contacts on said terminal part and including a set of yieldingly supported floating contacts in-

terposed between said terminal contacts and the end of the lamp globe carrying base part.

4. An electric lamp, comprising a two part lamp base, means connecting the same in freely rotatable relation, a floating contact carrier yieldingly mounted between said base parts and connected to rotate with one of said base parts, cooperating switch contacts carried by the other of said base parts and by said floating contact carrier, plural lamp filaments carried by one of said base parts and connected with the switch contacts operable with said base part and terminal contacts carried by the other base part.

5. An electric lamp, comprising a two part lamp base, a stud rotatably connecting the two base parts, a contact carrier rotatably and slidably engaged on said stud between said rotatably connected base parts, switch contacts on said carrier and keyed to rotate with one of the base parts, cooperating switch contacts on the other base part, terminal contacts on said base part for engagement in an electric socket and filaments carried on the other base part yieldingly connected with the switch contacts on said slidingly mounted carrier and arranged for control by said cooperating switch contacts.

6. An electric lamp, comprising a two part lamp base, filaments carried by one base part, terminal contacts carried by the other base part, means confining said base parts in relatively rotatable relation and switch means for said filaments, including a floating contact carrier yieldingly mounted between the end of the filament carrying base part and the terminal carrying base part, switch contacts on said floating contact carrier and companion switch contacts on said terminal contact carrying base part.

7. An electric lamp, comprising a two part lamp base, means connecting said base parts in relatively rotatable relation, terminal contacts on one base part, three substantially equal length and equally spaced circularly disposed switch contacts on said terminal contact carrying base part, one electrically connected with one terminal contact and the other two electrically connected with the other terminal contact, two filaments carried by the other base part, a common connection for two ends of said filaments, individual connections for the other two ends of said filaments, three switch contacts rotatable with said filament carrying base part and electrically connected respectively with said common connection and said two individual connections from the filaments, said three switch contacts of the filament carrying base part being insulated from each other, equally spaced and disposed opposite to and in the same circular relationship with said three switch contacts carried by said terminal contact bearing base part.

8. An electric lamp, comprising a two part lamp base, means connecting said base parts in relatively rotatable relation, terminal contacts on one base part, three equally spaced circularly disposed switch contacts on said terminal contact carrying base part, one electrically connected with one terminal contact and the other two electrically connected with the other terminal contact, two filaments carried by the other base part, a common connection for two ends of said filaments, individual connections for the other two ends of said filaments, three switch contacts rotatable with said filament carrying part and electrically connected respectively with said common connection and said two individual connections from the filaments, said three switch contacts of the filament carrying base part being insulated from each other, equally spaced and disposed opposite to and in the same circular relationship with said three switch contacts carried by said terminal contact bearing part and means for yieldingly mounting one set of said switch contacts in freely floating relation between the two relatively rotatable base parts.

9. An electric lamp, comprising a two part lamp base, means connecting said base parts in relatively rotatable relation, terminal contacts on one base part, three equally spaced circularly disposed switch contacts on said terminal contact carrying base part, one electrically connected with one terminal contact and the other two electrically connected with the other terminal contact, two filaments carried by the other base part, a common connection for two ends of said filaments, individual connections for the other two ends of said filaments, three switch contacts rotatable with said filament carrying part and electrically connected respectively with said common connection and said two individual connections from the filaments, said three switch contacts of the filament carrying base part being insulated from each other, equally spaced and disposed opposite to and in the same circular relationship with said three switch contacts carried by said terminal contact bearing part and a yieldingly mounted support for said switch contacts rotatable with the filament carrying base part.

10. An electric lamp, comprising a two part lamp base, means connecting said base parts in relatively rotatable relation, terminal contacts on one base part, three equally spaced circularly disposed switch contacts on said terminal contact carrying base part, one electrically connected with one terminal contact and the other two electrically connected with the other terminal contact, two filaments carried by the other base part, a common connection for two ends of said filaments, individual connections for the other two ends of said filaments, three switch contacts rotatable with said filament carrying part and electrically connected respectively with said common connection and said two individual connections from the filaments, said three switch contacts of the filament carrying base part being insulated from each other, equally spaced and disposed opposite to and in the same circular relationship with said three switch contacts carried by said terminal contact bearing part, said terminal contacts consisting of screw shell and center lamp contacts respectively and said two switch contacts first mentioned being connected with said screw shell terminal contact.

11. An electric lamp, comprising two relatively rotatable base parts, two filaments carried by one base part, a common connection extending from two ends of said filaments, two individual connections extending from the other two ends of said filaments, terminal contacts on the other base part, concentrically related switch contacts carried by said last mentioned base part and both connected with one of said terminal contacts, opposed concentrically related switch contacts carried by the filament carrying base part and electrically connected with said two individual connections from the filaments and means for electrically connecting said common electrical connection from the filaments with said other terminal contact.

12. An electric lamp, comprising two relatively rotatable base parts, two filaments carried by one base part, a common connection extending

from two ends of said filaments, two individual connections extending from the other two ends of said filaments, terminal contacts on the other base part, concentrically related switch contacts carried by said last mentioned base part and both connected with one of said terminal contacts, opposed concentrically related switch contacts carried by the filament carrying base part and electrically connected with said two individual connections from the filaments, means for electrically connecting said common electrical connection from the filaments with said other terminal contact, said terminal contacts including a screw shell and a center lamp terminal, said two switch contacts on said screw shell base part being connected with said screw shell terminal and said center lamp terminal comprising in part a stud extending through said terminal base part.

13. A lamp comprising a two part lamp base, a stud pivotally connecting said two base parts in axially shiftable relation, interlocking means engageable and disengageable by axial shifting of said base parts, spring means associated with said stud for yieldingly retaining said base parts shifted in interlocked engagement, switching means interposed between said base parts and yieldable to the axial shifting movements of said base parts, said switching means including one set of contacts carried by one base part and a second set of switch contacts carried by the other base part, contact terminals on one base part and electrically connected with one set of switch contacts and light emission elements carried by the other base part and electrically connected with the other set of switch contacts.

14. A lamp comprising a two part lamp base, a stud pivotally connecting said two base parts in axially shiftable relation, interlocking means engageable and disengageable by axial shifting of said base parts, spring means associated with said stud for yieldingly retaining said base parts shifted in interlocked engagement, switching means interposed between said base parts and yieldable to the axial shifting movements of said base parts, said switching means including one set of contacts carried by one base part and a second set of switch contacts carried by the other base part, contact terminals on one base part and electrically connected with one set of switch contacts and light emission elements carried by the other base part and electrically connected with the other set of switch contacts and means for supporting one set of switch contacts in yielding floating relation between the two base parts and coupled to rotate with one of said base parts.

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