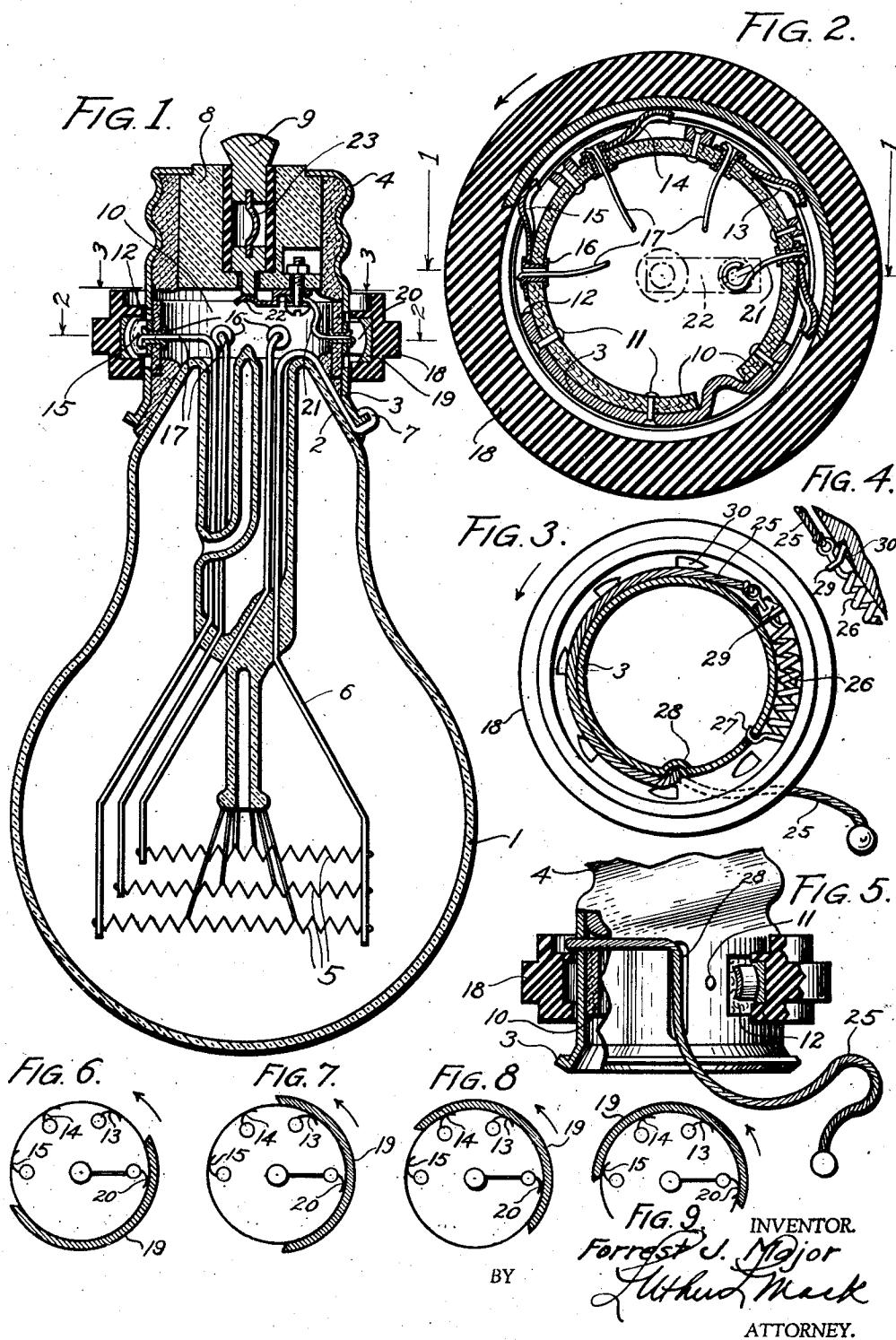


Dec. 13, 1938.

F. J. MAJOR  
MULTIFILAMENT LAMP

Filed Feb. 1, 1937

2,139,762



## UNITED STATES PATENT OFFICE

2,139,762

## MULTIFILAMENT LAMP

Forrest J. Major, Ocean Park, Calif.

Application February 1, 1937, Serial No. 123,446

9 Claims. (Cl. 176—27)

This invention has for an object the provision of a multi-filament lamp, in which a selected one or more of the filaments may be energized at will without removing the lamp from its socket, and wherein a fuse element protecting said filaments is arranged to be readily replaced when burned out, all, whereby to produce at a low cost a lamp having much longer life than the ordinary single filament lamp and in which the intensity of the light may be varied as desired depending upon the number of filaments energized.

This invention also relates to and embodies improvements in incandescent lamps of the type forming the subject matter of my applications for patents respectively entitled: Incandescent lamp, filed February 28, 1936, Serial Number 66,160, and Incandescent lamp, filed August 3, 1936, Serial Number 95,329.

Another object of this invention is to provide a simple and efficient selector means consisting of a few parts and adapted to be readily operated at will while the lamp is mounted in a socket, to connect one or more of the several filaments in the lamp circuit or to disconnect all of said filaments from the lamp circuit.

A further object is to provide a lamp of the character described wherein the one or more of the several filaments may be energized through manipulation of a pull cord actuated selector means forming a part of the invention.

I have shown a preferred form of my invention in the accompanying drawing, subject to modification within the scope of the appended claims without departing from the spirit of my invention.

Referring to the drawing:

Fig. 1 is a vertical sectional view of one form of the lamp of this invention taken on line 1—1 of Fig. 2, Fig. 2 is an enlarged cross section taken on the plane of 2—2 of Fig. 1, Fig. 3 is a section taken on the plane of line 3—3 of Fig. 1, Fig. 4 is a fragmentary section showing a portion of the pull cord means, Fig. 5 is a fragmentary section showing the pull cord selector means, Figs. 6, 7, 8 and 9 are diagrams showing various positions of the selector means.

One embodiment of the lamp comprises a bulb 1 having a neck 2 cemented to a conductor sleeve 3 provided with a screw threaded end 4. This bulb contains a plurality of filaments 5 having a common ground conductor 6 connected at 7 to said sleeve. A nonconducting plug 8 closes sleeve 3 and has a lamp contact terminal 9 thereon which with the sleeve is adapted to engage

in the usual manner the lamp socket contacts not shown.

The electrical circuits for the filaments are completed by the switch or selector means of my invention whereby one or more of the filaments may be energized as desired, depending upon the adjustment of said selector means. This means comprises an annular nonconducting band 10 secured by rivets 11 to the inside of the sleeve 3 which latter is open at points opposed to said bands as by means of the openings in slots 12. Spring contacts 13, 14 and 15 are secured to said band by means of hollow rivets 16 and extend through the slots 12 so as to be fully and permanently spaced, however, from contact with said sleeve. Filament conductors 17 are extended through the rivets 16 and soldered thereto to connect said contacts with said filaments.

Rotatably mounted on the sleeve 3 is a nonconducting selector ring 18 having a groove in its inner periphery, said ring covering the slots 12 in the sleeve 3 whereby the outwardly extending contacts 13, 14 and 15 will extend into said groove. Fixed within said groove is an arcuate contact segment 19 with which said contacts 13, 14 and 15 engage when the ring is appropriately turned. The contact segment 19 is at all times electrically connected with a contact 20 corresponding to the contacts 13, 14 and 15, and secured in like manner to the band 10. Contact 20 is connected with lamp terminal contact 9 as here shown, by means of a conductor 21, a contact 22 on the plug 8 and a fuse element 23 which latter is connected with said lamp terminal contact. This fuse element will provide protection against untimely "burning out" of the filaments and may be readily replaced when burned out, without otherwise disturbing the lamp. However, if desired this fuse may be eliminated and an ordinary conductor used to connect contacts 20 and 9.

It will be noted that the coating faces of the contacts 13, 14, 15 and 20 and contact segment 17 may be curved in cross section whereby said contacts will effectively hold the selector ring 18 against longitudinal displacement on the sleeve 3 while permitting said sleeve to rotate freely.

As shown in Fig. 6 the selector ring serves as an open switch and the filaments are deenergized. By turning the ring to the right to the extent indicated in Fig. 5, the filament connected with the contact 13 will be energized as the circuit for said filament will be established through the contact segment 19 which is at all times connected with the lamp terminal contact 9 by means of the contact 20, conductor 21, contact

22, and fuse element 23. As the selector ring is further rotated as shown in Figs. 8 and 9, the other filaments will be progressively connected in the lamp circuit so that depending upon the adjustment of the selector ring, one, two or three filaments may be energized as desired.

To provide for operation of the ring 18 when the lamp is mounted out of the reach, a pull cord 25 is employed, said cord being of any desired length depending on the height of the lamp. As here shown the cord 25 has one end thereof secured to a retractile spring 26 which is mounted in the grooved upper side of the ring 18 and has one end fixed as at 27 to the sleeve 3. After partially encircling the sleeve 3 the cord 25 extends through a groove 28 in said sleeve downwardly between the ring 18 and said sleeve and thereby hangs from the lower edge of said sleeve. On the spring 26 is a pawl member 29 adapted to cooperate with the circular series of ratchet teeth 30 formed on the ring 18. With each pull of the cord 25 the spring 26 will be stretched and the pawl 29 will engage with one of the teeth 30 whereby to turn the ring 18 as necessary to connect one or more of the filaments in the lamp circuit. Upon release of the cord the spring 26 will move the pawl 29 free of the teeth 30 without turning the ring 18 and the pull cord operating means will return to normal position.

I claim:

1. An incandescent lamp comprising a bulb, a plurality of filaments therein, a sleeve of conducting material secured to said bulb, a closure of nonconducting material in the outer end of said sleeve, a lamp terminal contact on said closure, a common ground conductor for said filaments and connected with said sleeve, an insulating member fixed upon the interior of said sleeve, said sleeve having openings therein at points thereof which are opposed to said insulating member, a selector ring of insulating material rotatable upon the exterior of said sleeve and having a groove therein registering with said openings, a contact segment fixed in said groove, spring contact members fixed to said insulating member and extended through said openings without contacting said sleeve and disposed within said groove in position to be engaged by said contact segment upon turning of said ring, conductors connecting said filaments with certain of said spring contact members, and means for connecting one of said contact members with said lamp terminal contact.

2. An incandescent lamp comprising a bulb, a plurality of filaments therein, a sleeve of conducting material secured to said bulb, a closure of nonconducting material in the outer end of said sleeve, a lamp terminal contact on said closure, a common ground conductor for said filaments and connected with said sleeve, an insulating member fixed upon the interior of said sleeve, said sleeve having openings therein at points thereof which are opposed to said insulating member, a ring of insulating material rotatable upon the exterior of said sleeve and having a groove therein registering with said openings, a contact segment fixed in said groove, spring contact members fixed to said insulating member and extended through said openings without contacting said sleeve and disposed within said groove in position to be engaged by said contact segment upon turning of said ring, conductors connecting said filaments with certain of said spring contact members, and means for connecting one of said contact members with said lamp

terminal contact, said spring contacts having their longitudinal axes disposed in a horizontal plane.

3. An incandescent lamp comprising a bulb, a plurality of filaments therein, a sleeve of conducting material secured to said bulb, a closure of nonconducting material in the outer end of said sleeve, a lamp terminal contact on said closure, a common ground conductor for said filaments and connected with said sleeve, an insulating member fixed upon the interior of said sleeve, said sleeve having openings therein at points thereof which are opposed to said insulating member, a ring of insulating material rotatable upon the exterior of said sleeve and having a groove therein registering with said openings, a contact segment fixed in said groove, spring contact members fixed to said insulating member and extended through said openings without contacting said sleeve and disposed within said groove in position to be engaged by said contact segment upon turning of said ring, conductors connecting said filaments with certain of said spring contact members, and means for connecting one of said contact members with said lamp terminal contact, including a fuse element.

4. An incandescent lamp comprising a bulb, a plurality of filaments therein, a sleeve of conducting material secured to said bulb, a closure of nonconducting material in the outer end of said sleeve, a lamp terminal contact on said closure, a common ground conductor for said filaments and connected with said sleeve, an insulating member fixed upon the interior of said sleeve, said sleeve having openings therein at points thereof which are opposed to said insulating member, a ring of insulating material rotatable upon the exterior of said sleeve and having a groove therein registering with said openings, a contact segment fixed in said groove, spring contact members fixed to said insulating member and extended through said openings without contacting said sleeve and disposed within said groove in position to be engaged by said contact segment upon turning of said ring, conductors connecting said filaments with certain of said spring contact members, and means for connecting one of said contact members with said lamp terminal contact, including a fuse element removably held in said closure.

5. An incandescent lamp comprising a bulb, a plurality of filaments therein, a sleeve of conducting material secured to said bulb, a closure of nonconducting material in the outer end of said sleeve, a lamp terminal contact on said closure, a common ground conductor for said filaments and connected with said sleeve, an insulating member fixed upon the interior of said sleeve, said sleeve having openings therein at points thereof which are opposed to said insulating member, a ring of insulating material rotatable upon the exterior of said sleeve and having a groove therein registering with said openings, a contact segment fixed in said groove, spring contact members fixed to said insulating member and extended through said openings without contacting said sleeve and disposed within said groove in position to be engaged by said contact segment upon turning of said ring, conductors connecting said filaments with certain of said spring contact members, and means for connecting one of said contact members with said lamp terminal contact, said insulating member being of annular form, openings in said sleeve being elongated and

said spring contact members extending in the direction of the length of said openings.

5 6. An incandescent lamp comprising a bulb, a plurality of filaments therein, a sleeve of conducting material secured to said bulb, a closure of nonconducting material in the outer end of said sleeve, a lamp terminal contact on said closure, a common ground conductor for said filaments and connected with said sleeve, an insulating member fixed upon the interior of said sleeve, said sleeve having openings therein at points thereof which are opposed to said insulating member, a selector ring of insulating material rotatable upon the exterior of said sleeve and having a groove therein registering with said openings, a contact segment fixed in said groove, spring contact members fixed to said insulating member and extended through said openings without contacting said sleeve and disposed within said groove in position to be engaged by said contact segment upon turning of said ring, conductors connecting said filaments with certain of said spring contact members, and means for connecting one of said contact members with said lamp terminal contact, a spring secured at one end to said shell and extending partly around the upper side of said ring, a pull cord connected with said spring and depending from said lamp, said ring having teeth therein and a pawl carried by said spring for engaging said teeth.

7. An incandescent lamp comprising a bulb, a plurality of filaments therein, a sleeve of conducting material secured to said bulb, a closure of nonconducting material in the outer end of said sleeve, a lamp terminal contact on said closure, a common ground conductor for said filaments and connected with said sleeve, an insulating member fixed upon the interior of said sleeve, said sleeve having openings therein at points thereof which are opposed to said insulating member, a ring of insulating material rotatable upon the exterior of said sleeve and having a groove therein registering with said openings, a contact segment fixed in said groove,

spring contact members fixed to said insulating member and extended through said openings without contacting said sleeve and disposed within said groove in position to be engaged by said contact segment upon turning of said ring, conductors connecting said filaments with certain of said spring contact members, and means for connecting one of said contact members with said lamp terminal contact, including a fuse element, and means for rotating said ring including a pull cord connected with and depending from said ring.

8. A multi-filament incandescent lamp comprising a base including terminal contacts, a bulb attached to said base, filaments in said bulb and switch means on said base for connecting one or more of said filaments with said terminal contacts, including a movable actuator and contacts operating to retain the actuator on the base to connect one or more of said filaments with said terminal contacts upon movement of said actuator, an insulation ring fixed within said base, said base having openings therein and means for affixing certain of said switch contacts to said insulation ring said switch contacts extending through said openings and having their free ends engaged with said actuator, said actuator having a groove therein for reception of said free ends.

9. A multi-filament incandescent lamp comprising a base including terminal contacts, a bulb attached to said base, filaments in said bulb, and switch means on said base for connecting one or more of said filaments with said terminal contacts and including a ring mounted interiorly of the base, a movable ring mounted exteriorly of the base, said movable ring having a groove therein and contact members carried by said rings adapted to be variously engaged upon movement of said movable ring for connecting one or more of said filaments with said terminal contacts, certain of said switch contacts engaging in said groove for retaining said movable ring upon the base.

FORREST J. MAJOR.