H. A. DOUGLAS.

ELECTRIC LAMP.

APPLICATION FILED MAY 22, 1914.

1,151,249. Patented Aug. 24, 1915.

Fig. 1.

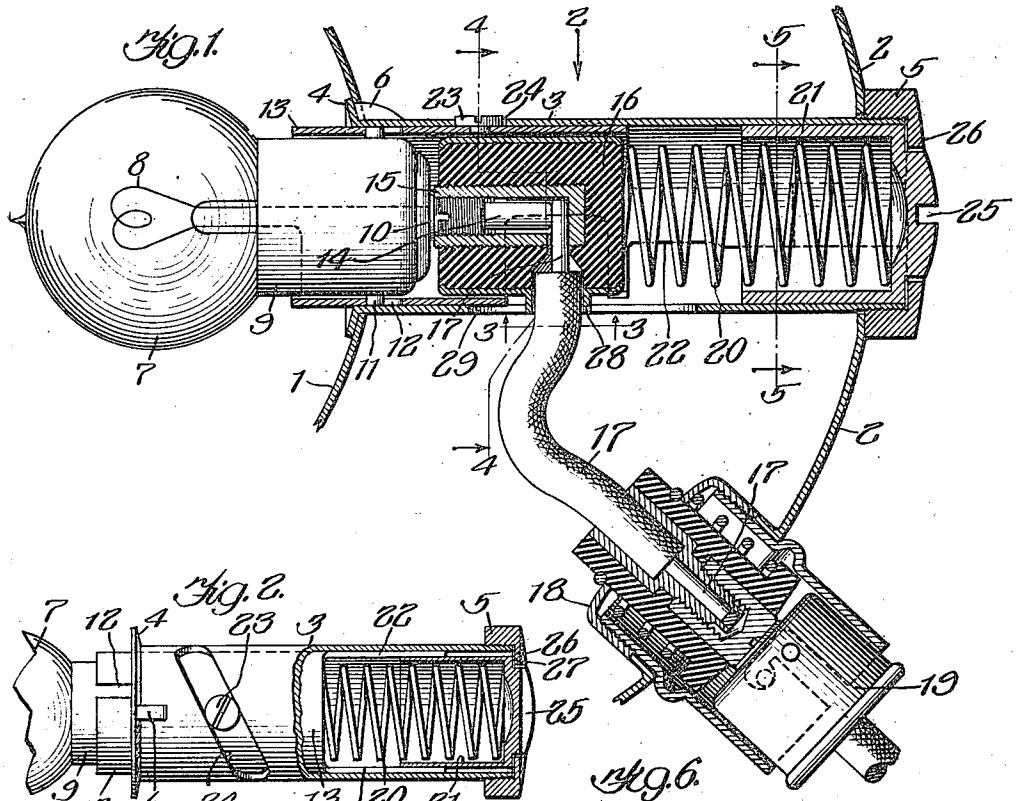


Fig. 2.

Fig. 3.

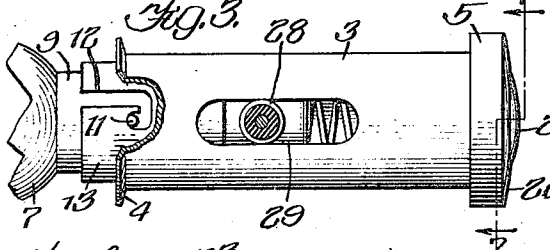


Fig. 4.

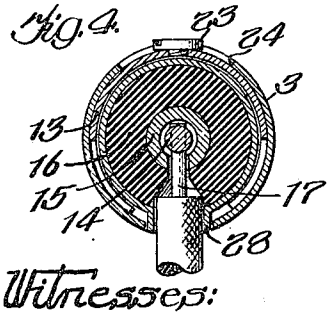


Fig. 5.

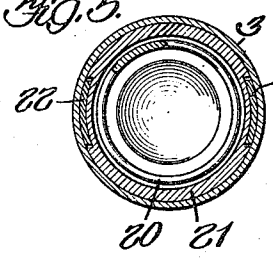


Fig. 6.

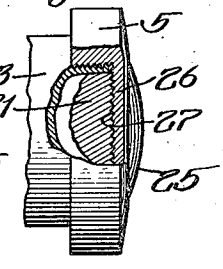


Fig. 8.

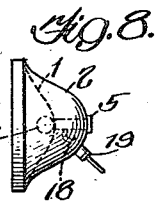
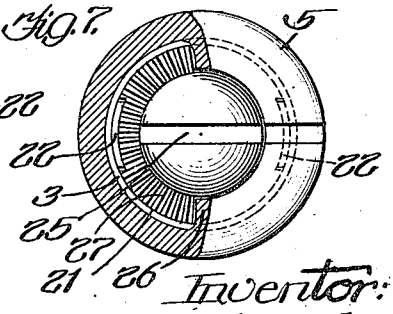


Fig. 7.



Witnesses:

Jno. H. Nelson Jr.

Edna B. Nelson

Inventor:

Harry A. Douglas.

By G. L. Crosby Atty.

UNITED STATES PATENT OFFICE.

HARRY A. DOUGLAS, OF BRONSON, MICHIGAN.

ELECTRIC LAMP.

1,151,249. Specification of Letters Patent. Patented Aug. 24, 1915.

Application filed May 22, 1914. Serial No. 840,150.

To all whom it may concern:

Be it known that I, HARRY A. DOUGLAS, citizen of the United States, residing at Bronson, in the county of Branch and State of Michigan, have invented a certain new and useful Improvement in Electric Lamps, of which the following is a full, clear, concise, and exact description, reference being had to the accompanying drawings, forming a part of this specification.

My invention relates to lamps and has for an object the provision of improved means for adjusting the position of lamps with respect to their mountings.

My invention is of particular service in connection with those small incandescent lamps that are mounted in relation to parabolic reflectors, the device of the invention readily enabling the focusing adjustment of the lamps with respect to the reflectors.

As the invention is preferably embodied, the lamp mounting is in cam engagement with an inclosing shell constituting the preferred form of lamp holder, there being a spring for pressing the lamp mounting forwardly and a rotatable abutment for the spring in such engagement with the lamp mounting as to permit the lamp mounting to move longitudinally of the lamp holder but which engagement will force the rotation of the lamp mounting when the abutment is turned whereby the position of the lamp mounting with respect to the shell is determined.

There are other features of my invention, the invention being more fully explained by reference to the accompanying drawing, showing the preferred embodiment thereof and in which—

Figure 1 is a sectional elevation illustrating novel parts of the invention, a part of the lamp structure being broken away because of lack of space; Fig. 2 is a side elevation, partially in section, of structural parts of my invention; Fig. 3 is a view taken on line 3 3 of Fig. 1; Fig. 4 is a sectional view on line 4 4 of Fig. 1; Fig. 5 is a sectional view on line 5 5 of Fig. 1; Fig. 6 is a plan view, partially broken away, of a rear portion of the structure; Fig. 7 is a sectional view on line 7 7 of Fig. 3; and Fig. 8 is a small view in elevation illustrative of a complete device.

Like parts are indicated by similar characters of reference throughout the different figures.

The lamp reflector 1 and the lamp back 2 are held in assembly by means of a shell or sleeve 3, constituting the preferred form of lamp holder, that has a flange 4 engaging the central portion of the reflector at the front face thereof and a nut 5 engaging the central portion of the back 2 at the back face thereof, this nut having threaded engagement with the threaded rearwardly projected end of the shell or sleeve 3. The shell is prevented from turning with respect to the reflector 1 and back 2 by means of a fin 6 received in a slot in the reflector.

The incandescent electric lamp 7 is illustrated as being of the single pole variety, one terminal of the filament 8 being grounded in the lamp base sheath 9 while the other terminal 10 is centrally disposed. Metallic bayonet pins 11 are secured directly to the sheath 9 and are adapted for reception within bayonet slots 12 provided in opposite sides of a sleeve 13, this sleeve constituting a part of the lamp mounting and within which sleeve the lamp may be turned to mount and demount the lamp. The contact 14 is shown as being in threaded connection with the interior of a cylindrical contact 15 which, in turn, is in threaded connection with the insulating body of the floating contact carrier 16. An aperture is formed in a side of the cylindrical contact 15 adjacent the base of this contact and through which aperture a conducting wire 17 is passed laterally into the contact carrier, the contact 14 being pressed into engagement with the conductor 17 by turning this contact with a screw driver whereby the conductor 17 is effectively extended into connection with the contact 15. The conducting wire 17 is shown as terminating in a connector member or socket 18 united with the back of the lamp and which connector I expect to make the subject matter of another application for United States Letters Patent. A terminal plug 19 operates in conjunction with the socket 18 to connect the conductor 17 with one terminal of a suitable source of current, the other terminal being grounded upon parts in conductive connection with the shell 3.

A coil spring 20 is interposed between the rear end wall of an abutment 21 and the floating contact carrier 16, this coil spring operating to maintain the contact 15 in connection with the lamp terminal 10 and, through the engagement of the parts 10 and

15, to force lamp 7 forwardly to maintain the bayonet pins 11 in engagement with the locking portions of the bayonet slots 12. The sleeve 13 is provided with diametrically opposite rearwardly projecting fingers 22 that are received in recesses (Fig. 5) whereby the abutment 21 and sleeve 13 are in movable relation longitudinally of the sleeve and abutment while relative rotation between the elements 13 and 21 is prevented. The sleeve 13 is in cam engagement with the shell 3, preferably by means of a cam pin 23 carried by the sleeve 13, and a helical cam slot 24 formed in the shell 3. The cam connection between the sleeve 13 and the shell 3 determines the extent to which the spring 20 may force the sleeve 13 forwardly. The rear end of the abutment 21 is provided with a screw driver slot 25 whereby the abutment 21 may be turned, the turned abutment having carried with it the fingers 22 whereby the sleeve 13 carrying such fingers is turned to bring the cam pin 23 into the desired position within the cam slot 24. In this manner the sleeve 13 is adjusted longitudinally of the shell 3 forwardly or rearwardly to a suitable extent sufficient to bring the lighting center of the lamp 7 into desired relation with the parabolic reflector 1. The abutment 21 thus has a plane of rotation which is preferably substantially fixed with respect to the lamp structure as a whole and in order to prevent the adjustment of the abutment from being disturbed after the lamp has been properly focused I desirably provide the nut 5 with an insetting flange 26, the engaging faces of the flange 26 and abutment 21 being of serrated formation 27 (Fig. 6) whereby the rotation of the abutment 21 is guarded against when the nut 5 is tightened in position, it being necessary to loosen the nut sufficiently to disengage the teeth 27 when the abutment 21 is to be turned for adjusting the lamp focus.

The contact carrier 16 is prevented from turning by being provided with a boss 28 which surrounds a covered portion of the conductor 17 and which enters a slot 29 within and extending longitudinally of the lamp holding shell 3.

The device of my invention, while permitting adjustment from the exterior of an assembled lamp structure, does not prevent the focusing of the lamp by turning it within the reflector space, the lamp thus being adjustable from the front as well as the rear of the structure. The floating contact carrier 16 is preferred since by its use the spring is thoroughly insulated from the lamp terminal 10 in addition to enabling the rotary adjustment of parts without turning the conductor 17.

While I have herein shown and particularly described the preferred embodiment of my invention I do not wish to be limited to the precise details of construction shown as changes may readily be made without departing from the spirit of my invention, but

Having thus described my invention I claim as new and desire to secure by Letters Patent the following:—

1. A lamp structure including an incandescent electric lamp provided with a mounting; a lamp holder with respect to which the lamp mounting may be turned and longitudinally moved; a cam structure having coöperating parts upon the lamp holder and mounting that force longitudinal movement of the lamp mounting when turned with respect to the lamp holder; a spring operating to force the lamp forwardly; a rotatable abutment having an interconnection with the lamp mounting that forces the latter to rotate with the former and which permits relative movement of the mounting and abutment longitudinally of the lamp holder; and a contact carrier for including the lamp in circuit and interposed between the lamp base and said spring to be held in position by the spring.

2. A lamp structure including a lamp provided with a mounting; a lamp holder with respect to which the lamp mounting may be turned and longitudinally moved; a cam structure having coöperating parts upon the lamp holder and mounting that force longitudinal movement of the lamp mounting when turned with respect to the lamp holder; a spring operating to force the lamp forwardly; and a rotatable abutment having an interconnection with the lamp mounting that forces the latter to rotate with the former and which permits relative movement of the mounting and abutment longitudinally of the lamp holder.

3. A lamp structure including an incandescent electric lamp provided with a mounting sleeve; a lamp holding shell receiving the mounting sleeve and with respect to which the lamp mounting sleeve may be turned and longitudinally moved; a cam structure having coöperating parts upon the lamp holding shell and mounting sleeve that force longitudinal movement of the lamp mounting sleeve when turned with respect to the lamp holding shell; a spring operating to force the lamp forwardly; a rotatable abutment having an interconnection with the lamp mounting sleeve that forces the latter to rotate with the former and which permits relative movement of the mounting sleeve and abutment longitudinally of the lamp holding shell; and a contact carrier for including the lamp in circuit and interposed between the lamp base and said spring to be held in position by the spring.

4. A lamp structure including a lamp provided with a mounting sleeve; a lamp holding shell receiving the mounting sleeve and

with respect to which the lamp mounting sleeve may be turned and longitudinally moved; a cam structure having coöperating parts upon the lamp holding shell and mounting sleeve that force longitudinal movement of the lamp mounting sleeve when turned with respect to the lamp holding shell; a spring operating to force the lamp forwardly; and a rotatable abutment having an interconnection with the lamp mounting sleeve that forces the latter to rotate with the former and which permits relative movement of the mounting sleeve and abutment longitudinally of the lamp holding shell.

5. A lamp structure including an incandescent electric lamp provided with a mounting; a lamp holder with respect to which the lamp mounting may be turned and longitudinally moved; a reflector with respect to which the lamp is to be focused; a cam structure having coöperating parts upon the lamp holder and mounting that force longitudinal movement of the lamp mounting when turned with respect to the lamp holder; a spring operating to force the lamp forwardly; a rotatable abutment having an interconnection with the lamp mounting that forces the latter to rotate with the former and which permits relative movement of the mounting and abutment longitudinally of the lamp holder; and a contact carrier for including the lamp in circuit and interposed between the lamp base and said spring to be held in position by the spring.

6. A lamp structure including a lamp provided with a mounting; a lamp holder with respect to which the lamp mounting may be turned and longitudinally moved; a reflector with respect to which the lamp is to be focused; a cam structure having coöperating parts upon the lamp holder and mounting that force longitudinal movement of the lamp mounting when turned with respect to the lamp holder; a spring operating to force the lamp forwardly; and a rotatable abutment having an interconnection with the lamp mounting that forces the latter to rotate with the former and which permits relative movement of the mounting and abutment longitudinally of the lamp holder.

7. A lamp structure including an incandescent electric lamp provided with a mounting sleeve; a lamp holding shell receiving the mounting sleeve and with respect to which the lamp mounting sleeve may be turned and longitudinally moved; a reflector with respect to which the lamp is to be focused; a cam structure having coöperating parts upon the lamp holding shell and mounting sleeve that force lognitudinal movement of the lamp mounting sleeve when turned with respect to the lamp holding shell; a spring operating to force the lamp forwardly; a rotatable abutment having an interconnection with the lamp mounting sleeve that forces the latter to rotate with the former and which permits relative movement of the mounting sleeve and abutment longitudinally of the lamp holding shell; and a contact carrier for including the lamp in circuit and interposed between the lamp base and said spring to be held in position by the spring.

8. A lamp structure including a lamp provided with a mounting sleeve; a lamp holding shell receiving the mounting sleeve and with respect to which the lamp mounting sleeve may be turned and longitudinally moved; a reflector with respect to which the lamp is to be focused; a cam structure having coöperating parts upon the lamp holding shell and mounting sleeve that force longitudinal movement of the lamp mounting sleeve when turned with respect to the lamp holding shell; a spring operating to force the lamp forwardly; and a rotatable abutment having an interconnection with the lamp mounting sleeve that forces the latter to rotate with the former and which permits relative movement of the mounting sleeve and abutment longitudinally of the lamp holding shell.

9. A lamp structure including an incandescent electric lamp; a sleeve receiving the base of the lamp and within which sleeve the lamp may be turned; a contact carrier; a spring for pressing the contact carrier toward the lamp to include the latter in circuit and with respect to which contact carrier the lamp and sleeve may turn; and a circuit conductor extending laterally into the contact carrier and having connection with the contact upon the carrier.

In witness whereof, I hereunto subscribe my name this 22nd day of April, A. D. 1914.

HARRY A. DOUGLAS.

Witnesses:
WILL M. FOSTER,
HENRY C. BOWKER.