

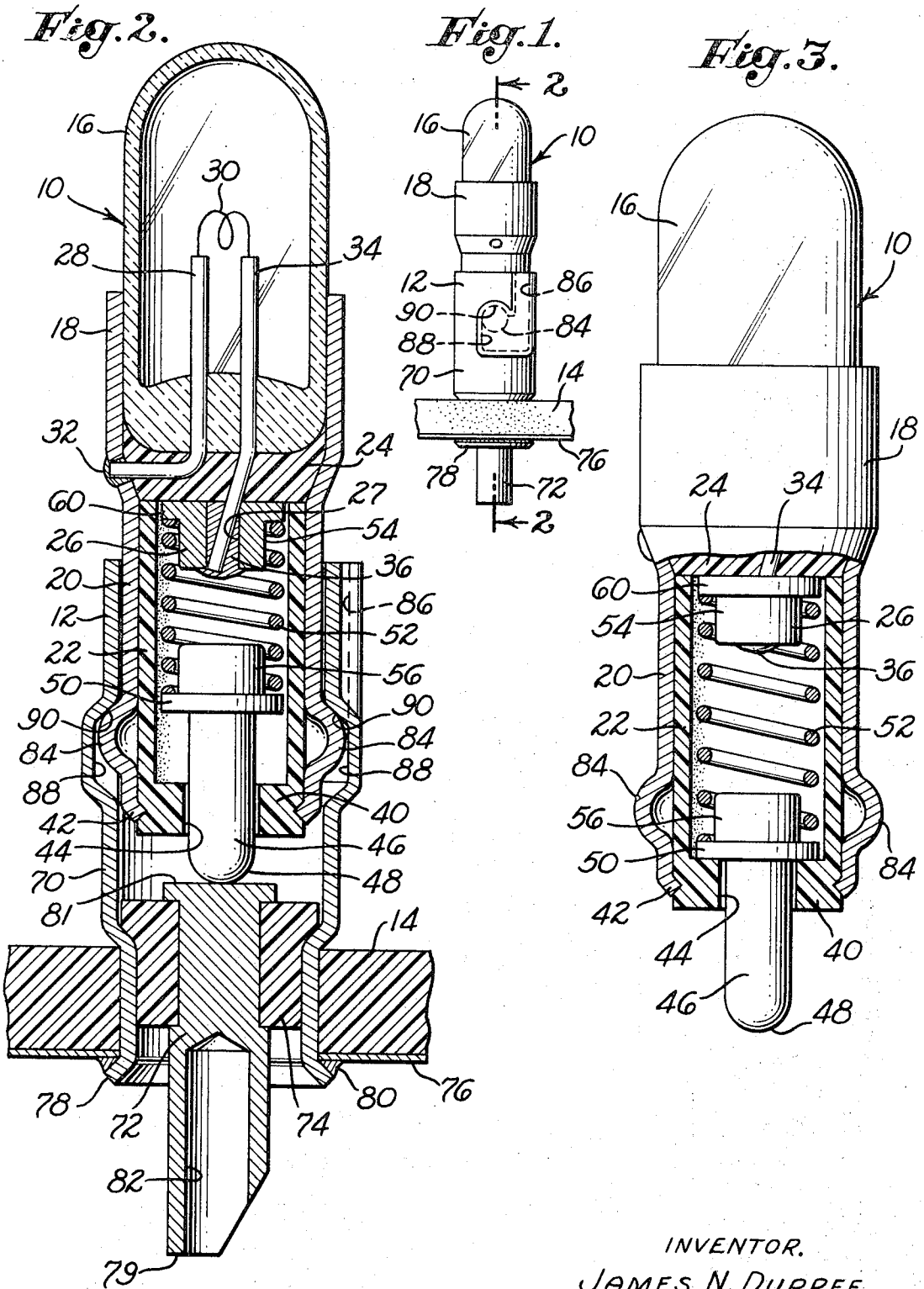
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LAMP WITH SPRING BIASED CONTACT

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## LAMP WITH SPRING BIASED CONTACT

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3 Claims

### ABSTRACT OF THE DISCLOSURE

A lamp with a housing carrying a bulb and a movable contact pin with the pin electrically connected to the bulb and spring-biased for engagement with a fixed contact in a socket.

This invention relates to lamps or light bulbs adapted to be removably mounted in sockets.

Many of the lamps or light bulbs used today are designed to be releasably mounted and secured directly to wall or panel sockets or the like without a cord and plug-type arrangement. Customarily the lamp is mounted in a socket which includes some means for receiving a housing portion of the lamp and locking same within the socket and completing an electrical circuit through the lamp. The locking action may be accomplished by a screw device or by some form of spring-biasing device, where some member of the lamp housing is urged in locking engagement against a corresponding receiving member in the socket. Two contacts in the socket engage respective contacts in the lamp housing to complete the electrical circuit through the lamp. The typical socket includes a movable contact spring-biased into engagement with a fixed contact in the lamp housing, where the spring may also act to lock the lamp housing in the socket.

I have found that an improvement over the customary above-described construction may be obtained by placing the movable contact within the lamp itself with the corresponding socket contact being fixed. The movable contact is carried by the lamp housing and is spring-biased into engagement with the fixed contact of the socket. As before, the lamp housing is locked to the socket structure. The socket structure may now be permanently set in place with reduced maintenance problems, as the parts most likely to wear out or malfunction, i.e. the bulb, the moving contact, and the spring, are now all carried by the lamp. This is particularly advantageous where the socket is set in quite inaccessible locations. The lamp may easily be removed from the socket and replaced and the maintenance of the bulb, spring, or moving contact may be performed away from the socket and panel. It is obviously much easier to vary the movable contact pins and the biasing strength of the springs where they are contained within the lamp rather than in the socket structure. The spring may also form part of the electrical connection between the moving contact and the bulb.

It is a primary object of this invention, therefore, to provide a lamp having a movable spring-biased contact pin carried by the lamp housing. A further object of this invention is to provide this type of lamp adapted to be mounted in a socket with a corresponding fixed contact.

Another object of the invention is to provide a lamp with a movable spring-biased contact member carried by the housing where a biasing member forms a portion of the electrical connection between the movable contact member and the light bulb.

Still another object of the invention is to provide in a lamp adapted to be mounted in a socket having two fixed contacts, the combination of a housing, a bulb, carried

by the housing, a movable contact carried by the housing, means for mounting said housing in the socket and forming a first electrical connection between the housing and one of the fixed socket contacts, biasing means for urging the movable contact against the other of said fixed socket contacts to form a second electrical connection, insulating means carried by the housing and the socket, and circuit means through the lamp and between said two electrical connections, said biasing means including a spring, said spring forming a portion of the circuit means.

A further object of this invention is to provide in a lamp adapted to be mounted to a socket, a spring-biased pin member carried by the lamp housing urging a locking engagement between the lamp housing and the socket.

The invention, both as to its organization and method of operation, together with further objects and advantages thereof, may best be understood by reference to the following description taken in connection with the accompanying drawing.

In the drawing:

FIG. 1 is an elevational view showing a preferred embodiment of my lamp mounted in a panel socket;

FIG. 2 is an enlarged sectional view taken along the line 2-2 in FIG. 1; and

FIG. 3 is an enlarged partly sectional view of the lamp of FIG. 1.

Referring to FIG. 1 of the drawing, a lamp 10 is shown mounted in a socket 12 which is attached to a panel or wall or similar member 14. The lamp 10 includes a bulb 16, which may be glass, plastic, or any other transparent or translucent material, and a lamp housing 18. A throw-away filter or lens cap (not shown) may be used to shield the bulb 16 and would be attached originally to the housing 18.

Referring now to the more detailed FIGS. 2 and 3, the bulb 16 is attached to the lamp housing 18 which preferably may include an outer sleeve 20 and an inner sleeve 22 carried by and affixed to the outer sleeve 20. The outer sleeve 20 is preferably formed from a metallic material while the inner sleeve 22 preferably acts as an insulator and may be of a durable plastic material, for example. A bonding and basing cement material 24 within the sleeve 20 beneath the bulb 16 acts to affix the bulb 16 to the housing 18 and supports and holds a fixed contact member 26. The fixed contact member 26 has an axial passage 27 and includes a cylindrical member 54 with an enlarged circular seat member 60 at its base. With a typical filament lamp, a lead 28 connects a filament 30 with the metallic outer sleeve 20, as at a solder joint 32, and a second lead 34 connects the filament 30 with the fixed contact member 26, as at a solder joint 36 in the passage 27.

The inner insulator sleeve 22 is formed with a base portion 40 which together with the end 42 of the outer sleeve 20 constitutes the mounting end of the housing 18. A cylindrical hole or opening 44 is provided centrally of the base 40. A preferably cylindrical, elongated contact pin member 46 is carried by the housing 18 for movement within the opening 44. The outward end of the contact member 46 is curved to form a hemisphere 48, and an enlarged circular seat member 50 is located at the inner end of the contact member 46. A cylindrical protrusion 56 extends inwardly of the seat member 50. The protrusion 56 and the cylindrical member 54 preferably have the same outer-diameter dimension and are in axial alignment. A biasing means urges the movable contact 46 outward, and may, for example, include a spring member 52. The spring member 52 is positioned about the cylindrical member 54 and the cylindrical protrusion 56 within the sleeve 22. The spring member 52 abuts against the seat member 60 of the fixed contact 26 at one end

and against the seat member 50 of the movable contact member 46 at the other end. The spring member 52 urges the movable contact member 46 outwardly until the seat 50 is restrained by the base portion 40 of the sleeve 22 as shown in FIG. 3. The movable contact member 46 is therefore contained within and carried by the lamp housing 18.

A feature of this invention is having the biasing means form a part of the electrical connection between the movable contact 46 and the bulb 16. The spring 52 is preferably metallic and forms an electrical connection between the movable contact 46 and the fixed contact 26. Other forms of circuitry may be employed, however, within the scope of the invention.

While the preferred form of construction of the lamp housing 18 and the method of carrying the movable contact member 46 by the housing 18 are described in the embodiment herein, other forms and methods may be used and I do not intend to limit the invention to my preferred embodiment.

As with the construction of the lamp housing, many varied and different forms of construction may be employed for the mounting socket. What will be more fully described herein is a type of mounting socket which I have found to be useful and practical. The socket 12 includes a sleeve or housing 70, preferably metallic, which is attached to the wall or panel 14 and projects outwardly therefrom. An elongated contact member 72 is set or fixed axially within the sleeve 70 by means of an annular insulator 74 as shown in FIG. 2. A thin contact plate 76 is carried on the inside face of the panel 14 and the interior end 78 of the sleeve 70 is connected thereto, as by a solder joint 80. The fixed contact member 72 is provided with a cylindrical hole or counterbore 82 at its inward end 79 for receiving a lead or wire.

The lamp housing 18 is adapted to be mounted within and locked to the socket sleeve 70. Two diametrically opposed circular knobs or pins 84 protrude outwardly from the outer sleeve 20 of the lamp housing 18. The knobs 84 are received by corresponding diametrically opposed protruding passageways or tracks 86 in the socket sleeve 70. Adjacent each track 86 in the sleeve 70 is a pocket 88 with a grooved seat portion 90, as shown in FIG. 1. To mount the lamp housing 18 in the socket 12, the knobs 84 are positioned in the tracks 86 and the housing 18 is pushed inwardly and then in a clockwise rotation until the knobs 84 reach the pockets 88. As the housing 18 is pushed inwardly, the hemispherical end 48 of the moving contact member 46 engages the outer end 81 of the fixed contact 72 of the socket 12. The movable contact member 46 is forced inwardly against the biasing force of the spring 52 creating additional spring tension in the spring 52. As the knobs 84 reach the pockets 88, the spring action will force the housing 18 outwardly away from the socket 12 and the knobs 84 will abut against the grooved seats 90. The lamp housing 18 is now spring-locked and mounted to the socket 12. The spring action will urge the movable contact 46 into continuous engagement with the fixed contact 72 forming a first electrical connection between the lamp 10 and the socket 12. Another electrical connection is formed by the engagement of the outer sleeve 20 of the housing 18 with the socket sleeve 70 connected to the contact plate 76. The electrical circuit may then be completed from an electrical energy source (not shown) through the lamp. While this is the

preferred arrangement in a two-connection system, other forms of electrical connections may be used and are within the scope of this invention.

To remove the lamp, of course, pressure is applied inwardly on the housing 18 and the housing 18 is rotated counterclockwise to enable the knobs 84 to return through the passageways 86.

The principal feature of this invention has thus been described where the movable spring-biased contact member 46 is contained within the lamp housing 18 while the corresponding fixed contact member 72 is affixed to the socket member 12.

The movable pin 46 need not necessarily be a contact member within the scope and objects of this invention but may function only in the locking arrangement of the lamp housing and the socket, where another suitable electrical connection between the lamp and the socket is provided.

Many changes, modifications, and substitutions may be made without departing from the spirit and scope of this invention.

I claim:

1. In a lamp adapted to be mounted in a socket, the combination of:

- a housing;
- a bulb carried by said housing;
- a pin slidably carried within said housing and cyclically reciprocable along the axis thereof toward and away from said bulb;
- a spring positioned within said housing in engagement with said pin urging said pin away from said bulb and outward for engagement with said socket, said engagement partially restraining said spring, with spring providing a continuously closed electrical circuit between said pin and said bulb; and
- locking means responsive to said spring for locking said lamp in said socket.

2. A lamp as defined in claim 1 wherein said bulb is cylindrical with a substantially constant outside diameter, and said housing includes a sleeve with a substantially constant inside diameter for slidably receiving said bulb.

3. A lamp as defined in claim 1, wherein said housing includes an outer conducting sleeve and an inner insulating sleeve carried by said outer sleeve, said pin forming a first electrical contact point and said outer conducting sleeve forming a second electrical contact point, and a continuous electrical circuit between said two contact points and through said lamp, said spring forming a portion of said electrical circuit.

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U.S. Cl. X.R.

240—8.16, 52

UNITED STATES PATENT OFFICE  
CERTIFICATE OF CORRECTION

Patent No. 3,530,330 Dated September 22, 1970

Inventor(s) JAMES N. DUPREE

It is certified that error appears in the above-identified patent and that said Letters Patent are hereby corrected as shown below:

Column 1: Line 18, "bulks" should read --bulbs--;  
Line 72, the comma after "bulb" should be deleted.  
Column 4: Lines 33 and 34 (Claim 1), "said" should be inserted  
between "with" and "spring".

SIGNED AND  
SEALED  
FEB 9 1971

(SEAL)

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