March 27, 1945. L. FRANK 2,372,266

SNAP-IN ELECTRIC LAMP PLUG

Filed Aug. 18, 1943

Fig. 1

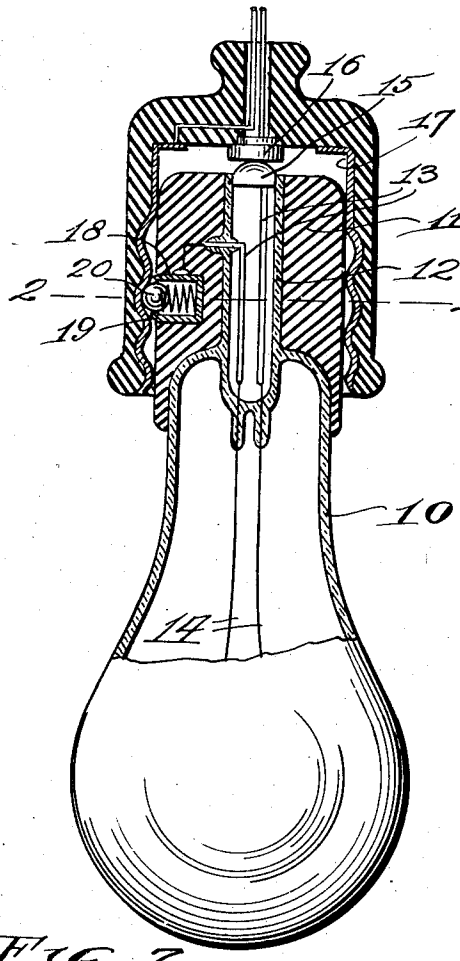


Fig. 2.

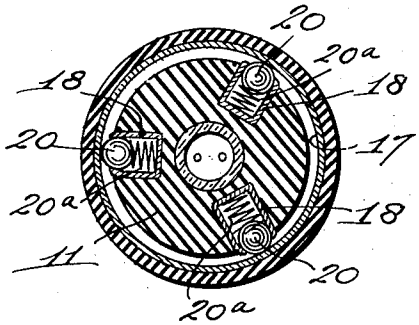


Fig. 3.

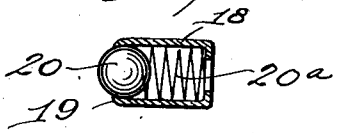


Fig. 4.

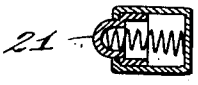


Fig. 5.

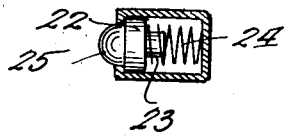


Fig. 7

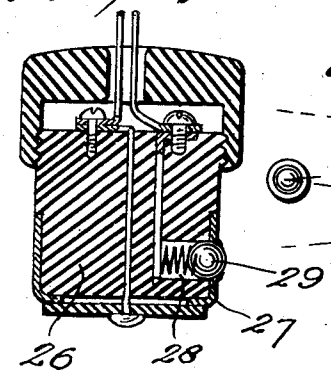
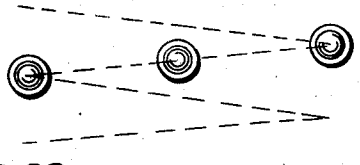


Fig. 6.



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SNAP-IN ELECTRIC LAMP PLUG

Louis Frank, Fellows, Calif.

Application August 18, 1943, Serial No. 499,071

1 Claim. (Cl. 176—32)

My invention relates generally to the conventional incandescent electric lamps, and has for its principal object, to provide such lamps with a plug portion devoid of the usual screw thread, and said plug being equipped with means which automatically snaps into the thread of the lamp socket so as to very firmly position the lamp in said socket, thus eliminating the time and labor involved in screwing the plugs of incandescent lamps into their sockets and likewise eliminating the unscrewing of the lamp plug from its socket.

A further object of my invention is to provide an electric lamp plug of the character referred to which will simplify and decrease manufacturing costs inasmuch as the entire plug portion of the lamp may be formed of suitable insulating material; for instance, any of the well known plastics now in general use.

With the foregoing and other objects in view, my invention consists in certain novel features of construction and arrangement of parts which will be hereinafter more fully described and claimed and illustrated in the accompanying drawing, in which:

Fig. 1 is a section taken lengthwise through the center of an electric lamp equipped with the snap-in plug, and also showing a portion of the socket in which said plug is positioned.

Fig. 2 is a horizontal section taken on the line 2—2 of Fig. 1.

Figs. 3, 4 and 5 are detail sectional views of various forms of spring pressed members which are carried by the plug portion of the lamp, and which engage the threads in the lamp socket.

Fig. 6 is a diagrammatic view showing the relative positions of the spring pressed members in the lamp plug.

Fig. 7 is a section taken through the center of an electric plug and showing same equipped with my improved means for retaining said plug in a socket.

Referring by numerals to the accompanying drawing which illustrates a preferred embodiment of my invention, 10 designates the glass bulb of the electric lamp, the upper end of which bulb is seated in the lower end of the lamp plug 11, which latter in accordance with my invention is cylindrical in form, and formed in a single piece from suitable insulating material; for instance, hardened plastic material.

Seated in the lower portion of the plug body is an axially disposed tube 12, preferably of glass, and which may be formed integral with the upper end of the lamp bulb, said tube providing a housing for electric current conductors 13.

The lower ends of these conductors are sealed in conventional manner in the lower end of the tube 12, and connected to said lower ends is the lamp filament 14. The upper end of one of the conductors 13 is electrically connected to a contact 15 mounted on the upper end of the plug body 11, and which latter is adapted, when the plug is inserted in the lamp socket 16 to engage a contact 16a seated within said socket.

The lamp socket is provided with a lining 17 of thin metal, such as brass, and in which is pressed a thread for the accommodation of electric lamps having conventional threaded plugs. Seated in the lower portion of the plug body 11 are one more short radially disposed housings 18 formed of thin metal, such as brass, and arranged in the outer portions thereof are thread engaging members 20 which are normally forced outward against retaining lips 19 on the outer ends of said housings by expensive coil springs 20a, which latter are positioned in the housings behind said thread engaging members.

There may be one, two or three of the housings 18, and thread engaging members in each plug, and where there are two or more of such housings, the same are located in an inclined or spirally disposed plane which corresponds to the pitch of the thread in the socket, and thus, when the lamp plug is inserted in the socket, the spring pressed thread engaging members will occupy the recessed portion of the thread.

In Fig. 6, I have shown diagrammatically three of the thread engaging members located in an inclined plane which corresponds with the pitch line of the thread in the socket.

In Fig. 3, I have shown the spring pressed engaging member in the form of a small ball 20, and in Fig. 4, the member is in the form of a cup shaped shell having a rounded thread engaging portion 21. In Fig. 5, the thread engaging member has the form of a block 22 provided on its inner end with a stem 23 which engages in the end of an expansive spring 24 and on the outer end of said block is a half round thread engaging head 25.

The end of one of the conductors 13 may be electrically connected to one or all of the metal housings 18, thus providing for electrical contact between the conductor and the metal shell 17 of the lamp socket.

When the block portion of my improved lamp is inserted in a socket, contact 15 engages contact 16 in the inner end of the socket and the groove engaging members under the influence of the expansive springs within the housings are

forced into yielding contact with the metal lining or shell 17 within the lamp socket, thus completing the electric circuit through the conductors 13 and filament 14.

Should there be any play between the inserted plug and the socket, due to irregularities of manufacture of the parts, the lamp lug after having been inserted in the socket may be slightly rotated in a direction so as to tighten the spring pressed contact members in the groove of the thread, thus, very firmly holding the plug within its socket.

Inasmuch as the thread engaging contact members carried by the plug are normally pressed outward by their springs and the tension of the latter being comparatively light, the plug portion of the lamp may be easily and quickly positioned within or withdrawn from a socket thereby effecting a material saving of time and labor in the installation of electric lamps and the replacement thereof.

In Fig. 7 I have shown a conventional electric plug 26 provided on its lower portion with an external metal shell 27 and positioned in recesses 28 in the lower portion of said plug behind said shell are spring pressed balls 29.

As a result of this arrangement, the balls 29 will enter the channel portion of the internal thread in a socket, and thus retain the inserted plug within said socket. The plug may be equipped with one, two or three of the spring pressed balls.

Thus it will be seen that I have provided a snap-in electric lamp which is relatively simple, in construction, inexpensive of manufacture and very effective in performing the functions for which is is intended.

It will be understood that minor changes in the size, form and construction of the various parts of my improved snap-in electric lamp may be made and substituted for those herein shown and described without departing from the spirit of the invention, the scope of which is set forth in the appended claim.

I claim as my invention:

A snap-in electric lamp for sockets having standard internal threads, comprising a bulb, a plug on one end thereof, a tube integral with the base portion of said bulb and extending axially through said plug, conductors located within said tube and connected to the lamp filament, a contact member seated in the outer end of said tube and connected to one of said conductors, a plurality of tubes seated in said plug and having open outer ends, one of which tubes is metal and electrically connected to the other one of said conductors, a spring pressed metal ball located in each tube, with a portion normally projecting through said open outer end, means on the outer end of each tube for limiting the outward movement of the spring pressed member therein and said tubes disposed in a spiral plane corresponding to the pitch of the thread in the socket in which the lamp plug is inserted.

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