Aug. 26, 1924. 1,506,184

L. KELLNER

SAFETY PLUG AND LAMP SOCKET

Filed Nov. 29, 1921

Fig. 2.

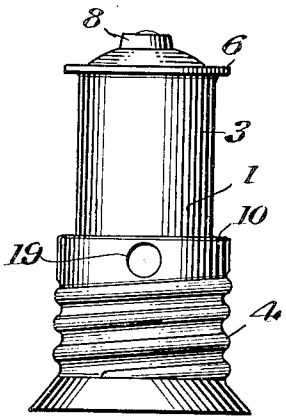


Fig. 1.

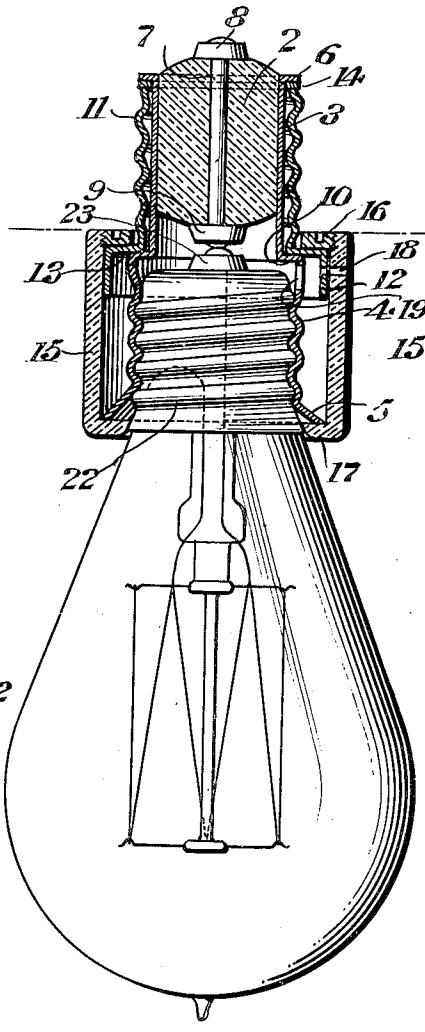


Fig. 6

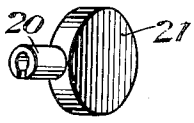


Fig. 4.

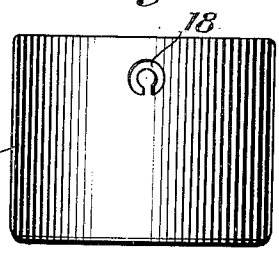


Fig. 3.

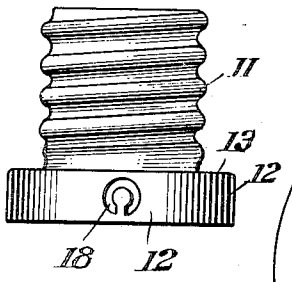
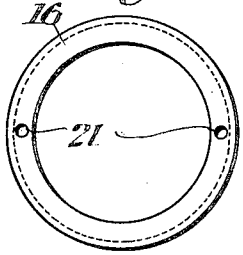


Fig. 5.



Inventor
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his Attorneys

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UNITED STATES PATENT OFFICE.

LOUIS KELLNER, OF BROOKLYN, NEW YORK.

SAFETY PLUG AND LAMP SOCKET.

Application filed November 29, 1921. Serial No. 518,716.

To all whom it may concern:

Be it known that I, LOUIS KELLNER, a citizen of the United States, resident of the borough of Brooklyn, in the county of Kings, city and State of New York, have invented certain new and useful Improvements in Safety Plugs and Lamp Sockets, of which the following is a specification.

The main object of this invention is to provide a plug adapted to be screwed into the ordinary lamp socket and to form in said plug a terminal socket adapted to receive the ordinary standard threaded terminal cap of an incandescent electric light bulb; and to so construct the said plug and socket that the plug will be locked in the ordinary standard lamp socket and the lamp will be locked in the terminal socket of the plug. By providing a safety plug and socket, as described, the ordinary electric lamp bulb may be used in connection with the ordinary lamp socket, it being only necessary to interpose my safety plug and socket, connecting the plug to the ordinary standard lamp socket and screwing the lamp in the terminal socket of the plug.

Another object of the invention is to provide removable means in the form of a key for locking the several parts of the safety plug and socket together so that the lamp may be unscrewed therefrom, or the plug and socket may be unscrewed from the standard lamp socket.

While I have shown and described my invention used in connection with an electric light bulb, it is manifest that it may be used with any form of electrical connection carrying terminal wires and adapted to have a threaded engagement with a socket having complementary contacts and terminals.

In the drawing, Fig. 1 is a side elevation of an incandescent electric light bulb in position in the plug and socket, the plug and socket being shown in longitudinal sectional view;

Fig. 2 a side elevation of the terminal shell showing the insulating plug therein;

Fig. 3 a side elevation of the connector sleeve;

Fig. 4 a side elevation of the insulating retainer and guard;

Fig. 5 a plan view of the retaining ring which locks the guard to the plug and socket; and

Fig. 6 a detail view of the removable key for locking the rotatable parts of the plug and socket together.

Referring to the various parts by numerals, 1 designates a terminal shell which is formed of metal, preferably of brass. This terminal shell is cylindrical at one end, as at 3, and in this cylindrical end is rigidly secured a plug 2 of insulation, said plug projecting slightly beyond the free end of the cylindrical part of the terminal shell. The other end of the terminal shell is slightly enlarged in diameter and is internally threaded to form a terminal socket 4. The free end of the socket portion of the shell is expanded to form the outwardly extending incline locking flange 5. At the free end of the cylindrical portion of the terminal shell is formed an outwardly extending radial, annular retaining flange 6. Extending through the plug 2 is a terminal rod 7 on the outer free end of which is secured a contact plate 8, said contact plate bearing directly on the exposed end of the insulating plug. The end of the plug extends slightly beyond the end of the terminal shell to ensure contact 8 engaging the usual contact as arranged in the standard lamp socket. To the inner end of the terminal rod 7 and within the terminal shell is secured a contact 9, said contact resting directly on the inner end of the plug 2 and being arranged in position to be engaged by the usual contact plate carried by the ordinary standard electric light bulb. The cylindrical plug portion 3 of the terminal shell is connected to the enlarged socket portion 4 thereof by a shoulder 10.

Surrounding the plug portion 3 of the terminal shell and loosely rotatable thereon is an externally threaded connector sleeve 11, said sleeve being threaded to adapt it to screw into the ordinary standard threaded lamp socket or plug receptacle. The connector sleeve is substantially equal in length to the cylindrical portion 3 of the terminal shell and at its inner end it is formed with the enlarged annular lock flange 12. This flange is connected to the body portion of the sleeve by a radial shoulder portion 13. The shoulder portion 13 of the connector sleeve fits close to the corresponding shoulder 10 on the terminal shell, the shoulder 10 and the retaining flange 6 forming means to prevent any material longitudinal movement of the connector sleeve on the terminal

shell. Arranged between the retaining flange 6 and the adjacent end of the connector sleeve is a loose antifriction ring or washer 14.

A cylindrical guard and operating sleeve 15 of insulating material encloses the socket end of the terminal shell. This guard is tubular and the lock flange 12 of the connector sleeve bears on the interior surface thereof. Threaded into the open end of the tubular guard is a lock ring 16. This lock ring fits over the outer surface of the shoulder 13 and thereby locks the connector sleeve to the guard, but the connector sleeve and guard may be freely rotated independently of each other. The end of the tubular guard, adjacent the expanded end of the terminal socket 4, is formed with an inwardly extending annular stop flange 17 which is adapted to engage the lock flange 5 of the terminal shell. The stop flange 17 cooperates with the locking flange 5 of the terminal shell and with the lock ring 16 to lock the guard in position and hold it against longitudinal movement. The tubular guard and the connector sleeve are freely rotatable independently of each other; and when the connector sleeve is screwed into a socket, the terminal leshl is freely rotatable in the connector sleeve.

The guard 15 and the lock flange of the connector sleeve are formed with corresponding C-shape openings 18 which are adapted to be brought into register with each other. The terminal shell is formed with an opening 19 which is adapted to be brought into register with the openings 18. A metal key 20, C-shape in cross section, is adapted to be inserted through the openings 18, when they are in register, and into the opening 19 in order to lock the three members of the device together against independent rotation and to permit them all to be rotated together. The key 20 is provided with a finger piece 21 of insulating material. The purpose of this is to prevent the operator from receiving the current from the circuit when the metal part of the key is in engagement with the connector sleeve and the terminal shell.

The lock ring 16 is provided with apertures 21 at diametrically opposite points to receive a suitable spanner by means of which the ring may be screwed into position.

The lamp bulb is provided with the usual threaded terminal cap 22 of standard size, and this threaded cap is adapted to be screwed into the terminal socket 4. The usual terminal 23 of the lamp is adapted to engage the contact 9 on the plug 2. One of the terminal wires of the lamp is connected to the contact 23 and the other is connected to the threaded terminal cap. When the connector sleeve is screwed into the ordinary lamp socket or plug receptacle, the said sleeve is in electrical contact with one of the terminals of the circuit and the contact 8 is in electrical engagement with the other terminals. As the connector sleeve is in electrical contact with the terminal shell, it is obvious that the lamp circuit will be completed in the usual way through the contact 23 and the terminal cap 22.

When it is desired to screw the device into an ordinary threaded socket or a receptacle, the parts of the device are rotated to bring the openings 18 and 19 into register. The key 20 is then inserted through said openings, thereby locking all of the rotatable parts together. The connector sleeve may then be screwed into the socket and the lamp, or a similar threaded connector plug, may then be screwed into the terminal socket 4. The key 20 is then removed, thereby freeing the guard and the terminal socket so that they may rotate on the threaded connector sleeve. It is obvious that when the key is removed the lamp cannot be unscrewed from the terminal socket, because said socket will freely rotate in the connector sleeve. It is also obvious that the connector sleeve will not be rotated because of its frictional engagement with the threaded socket.

The insulating guard 15 protects all of the metal parts which would otherwise be exposed after the connector sleeve had been screwed into its receiving socket. It also prevents access to the connector sleeve and to the terminal shell except through the apertures 18 and 19.

What I claim is:

1. A plug connector comprising a holder for an insulation plug and a terminal contact, an internally threaded lamp socket carried by the said holder and rigid therewith, an externally threaded connector sleeve surrounding the holder and rotatable thereon, a freely rotatable insulating guard and operating sleeve surrounding the lamp socket, means for locking the socket and the connector sleeve against longitudinal movement with relation to the operating sleeve, and means for temporarily locking the lamp socket and the connector sleeve to the operating sleeve within said sleeve to rotate therewith.

2. A plug connector comprising a cylindrical terminal shell, a plug of insulation secured in one end thereof and having a terminal contact extending longitudinally therethrough, and internally threaded terminal socket formed at the other end of said shell, an externally threaded connector sleeve rotatably mounted on the said shell at the plug end thereof, means to hold said connector sleeve on the terminal shell against longitudinal movement, a freely rotatable insulating guard and operating sleeve surrounding the socket end of said shell and locked to the connector sleeve and to the

terminal shell to hold it against longitudinal movement, and means for temporarily locking the said operating sleeve to the connector sleeve and to the terminal shell to rotate therewith.

3. A plug connector comprising a holder for an insulation plug and a terminal contact, an internally threaded lamp socket carried by the said holder and rigid therewith, an externally threaded connector sleeve surrounding the holder and rotatable thereon, a freely rotatable insulating guard and operating sleeve surrounding the lamp socket, means for locking the socket and the connector sleeve against longitudinal movement with relation to the operating sleeve, the said connector sleeve extending into the operating sleeve, and a removable locking device adapted to be inserted through the side of the operating sleeve and to lock the connector sleeve and the lamp socket to the operating sleeve within said sleeve to rotate with it.

4. A plug connector comprising a cylindrical terminal shell, a plug of insulation secured in one end thereof and having a terminal contact extending longitudinally therethrough, an internally threaded terminal socket formed at the other end of said shell, an externally threaded connector sleeve rotatably mounted on the said shell at the plug end thereof, means to hold said connector sleeve on the terminal shell against longitudinal movement, a freely rotatable insulating guard and operating sleeve surrounding the socket end of said shell, detachable means to lock the operating sleeve to the connector sleeve and to the terminal shell to hold it against longitudinal movement, and means for temporarily locking the said operating sleeve to the connector sleeve to rotate therewith.

5. A plug connector comprising a cylindrical terminal shell, a plug of insulation secured in one end thereof and having a terminal contact extending longitudinally therethrough, an internally threaded terminal socket formed at the other end of said shell, an externally threaded connector sleeve rotatably mounted on the said shell at the plug end thereof, means to hold said connector sleeve on the terminal shell against longitudinal movement, a freely rotatable insulating guard and operating sleeve surrounding the socket end of said shell, a detachable locking ring within the end of the operating sleeve to detachably lock the said operating sleeve to the connector sleeve and to the terminal shell to hold it against longitudinal movement, and means for temporarily locking the said operating sleeve to the connector sleeve to rotate therewith.

6. A plug connector comprising a cylindrical terminal shell, a plug of insulation secured in one end thereof and having a terminal contact extending longitudinally therethrough, an internally threaded terminal socket formed at the other end of said shell, an externally threaded connector sleeve rotatably mounted on the said shell at the plug end thereof, means to hold said connector sleeve on the terminal shell against longitudinal movement, a freely rotatable insulating guard and operating sleeve surrounding the socket end of said shell and locked to the connector sleeve and to the terminal shell to hold it against longitudinal movement, an annular lock flange carried by the connector sleeve within the operating sleeve, the operating sleeve and the connector sleeve and the terminal shell being formed with apertures adapted to be brought into register with each other by rotating said parts, and a removable key adapted to be inserted through said apertures to lock all of said parts to rotate together.

7. A plug connector comprising a cylindrical terminal shell, a plug of insulation secured in one end thereof and having a terminal contact extending longitudinally therethrough, an internally threaded terminal socket formed at the other end of said shell, an externally threaded connector sleeve rotatably mounted on the said shell at the plug end thereof, a freely rotatable insulating guard and operating sleeve surrounding the socket end of said shell and the adjacent end of the connector, means for locking the terminal shell and the connector against longitudinal movement with relation to the operating sleeve, and means for temporarily locking the terminal shell and the connector to the operating sleeve within said sleeve to rotate therewith.

In testimony whereof I hereunto affix my signature.

LOUIS KELLNER.