Nov. 1, 1938. A. A. BOON ET AL 2,135,163

ELECTRIC CONNECTER

Filed May 11, 1937

Fig. 1.

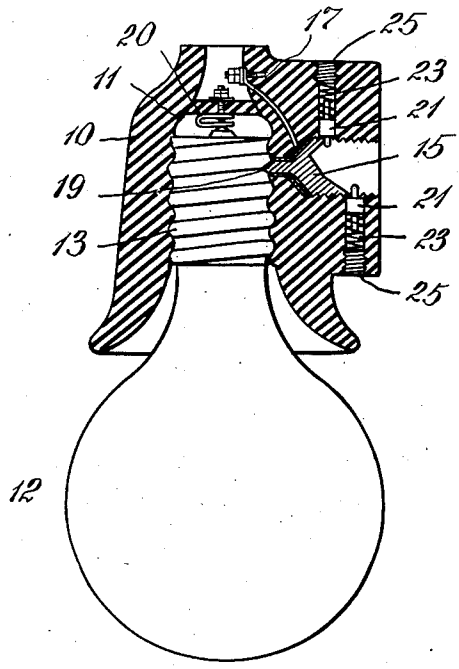



Fig. 2.

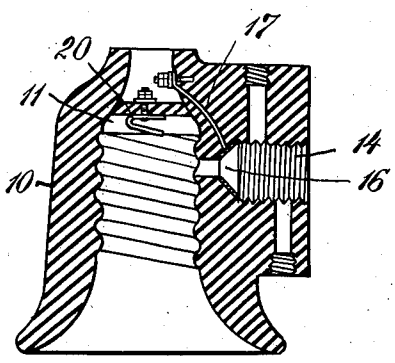



Fig. 3.

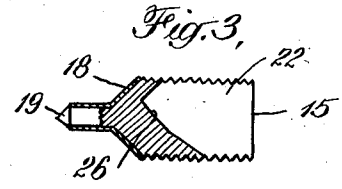



Fig. 3a.

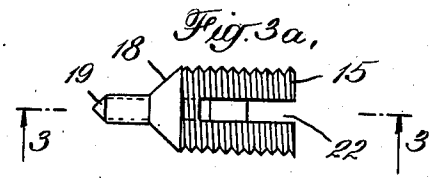



Fig. 8.

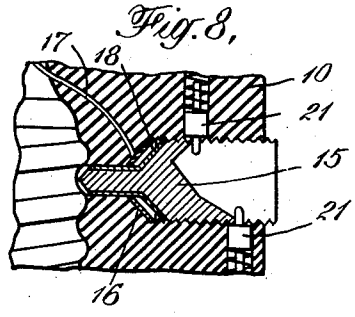



Fig. 4

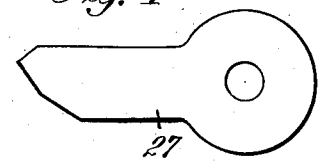



Fig. 5

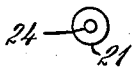



Fig. 5a

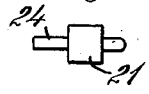



Fig. 6.

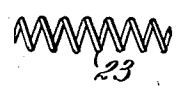



Fig. 4a

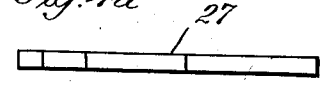



Fig. 7.




Fig. 7a




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# UNITED STATES PATENT OFFICE

2,135,163

## ELECTRIC CONNECTER

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Application May 11, 1937, Serial No. 141,886
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3 Claims. (Cl. 173—356)

This invention relates to electric connecters adapted to receive and hold electric lamp bulbs or electric plugs, wherein means are provided for preventing the unauthorized insertion or removal of lamp bulbs or plugs, or the unauthorized use of the sockets as sources of electric energy. This invention is particularly directed to the provision of a socket of this type which is simple in construction, and simple and reliable in operation.

One feature of lamp sockets in common use at the present time is the facility with which lamps may be inserted and withdrawn, and replaced by plugs for various electrical appliances. While this is often a great advantage, in some instances it is a decided disadvantage. For example, lamps placed in public conveyances, public rooms and other exposed places are often removed and carried away by thieves. The prevention of such thefts, or the apprehension of the thieves, is often an impossible task. Also, particularly in hotels and boarding houses, electric lamps are often removed from their sockets and replaced by plugs for various appliances such as flatirons, electric stoves, grills, etc., despite express agreement not to do so, thereby using the house current without compensation therefor. Furthermore, in many places, such as warehouses, storerooms, etc., more electric sockets may be provided than is ordinarily necessary for the adequate illumination of the area, so that the management removes bulbs from some sockets or turns those sockets off. In such cases it may happen that an irresponsible employee will turn on the lights again, or will replace bulbs in the empty sockets, as the case may be. In either event a needless waste of electric current ensues.

The present invention is directed especially to the provision of a lamp socket which is adapted to prevent the unauthorized insertion of a lamp in the socket, the unauthorized removal of a lamp from the socket, and the unauthorized use of a lamp which it is desired to leave in the socket in readiness for future use. In its preferred form, the act of locking the lamp in the socket establishes an electric circuit thereto, and the act of unlocking the lamp breaks the circuit.

In some cases sockets are wired together in groups and controlled from a single master switch, without the provision of an individual switch for each socket. In such a case the contacts within a socket are always alive when the master switch is closed, and when a bulb is removed from a socket the exposed live contacts constitute a source of danger. In accordance with the present invention a socket may be constructed in which the removal of the bulb necessarily breaks the circuit to the inner contacts of the socket. Furthermore, if there are no individual switches for the sockets, the invention provides means for insuring that the lamps are kept in the circuit without danger of the lamps being turned off without authority, yet permits the individual turning off of the lamps, when desired, by the use of a special key.

Heretofore a number of devices have been proposed to perform one or more of the above functions, particularly that of preventing the unauthorized removal of the bulb. In some of these proposals special elements must be attached to the lamp bases; in some, special attachments for ordinary sockets are provided; and in some, the mechanism for accomplishing the desired results is ineffective, unreliable or too complicated. The connecter of the present invention is designed to function in a simple, direct and positive manner, and to be easily and economically manufactured.

For an understanding of the invention reference is had to the drawing, which illustrates a specific embodiment of the invention, and the following description thereof.

In the drawing:

Fig. 1 is a longitudinal section of a connecter made in accordance with the invention, with a conventional lamp inserted;

Fig. 2 is a longitudinal section of the casing alone;

Fig. 3 is a longitudinal section of the screw-bolt 15 on the line 3—3 of Fig. 3a; Fig. 3a is a view thereof at right angles to the slot;

Fig. 4 is a side view of a key adapted to unlock the screw-bolt 15; Fig. 4a is an edge view thereof;

Figs. 5 and 5a are end and side views, respectively, of one of the locking plungers;

Fig. 6 is a detail view of one of the springs for the locking plungers; and

Figs. 7 and 7a are side and end views, respectively, of one of the screws which hold the spring-pressed locking plungers in place; and

Fig. 8 is a detail showing the plungers 21 mounted to lock the screw-bolt in open, as well as closed, position.

Referring to the drawing, a casing 10, preferably of non-conducting material such as a phenolic condensation product known by the trade name "Bakelite", is provided with a lamp socket 11 adapted to receive a conventional electric lamp 12 having a screw-base 13. Lamp socket 11

may have the usual threaded brass insert, if desired. Casing 10 is also provided with a screw socket 14 into which screw-bolt 15 (Fig. 3) is screwed. A brass ring 16 is mounted at the inner end of the screw-socket and connected with conductor 17 which extends to the outside of the connecter to permit ready wiring into a circuit. Conductor 17 may be secured to the casing 10 of the connecter in any convenient manner, such as shown. The inner end of the screw-socket and the brass ring 16 are preferably beveled so as to make good electrical contact with the screw-bolt when the latter is advanced.

The leading end of screw-bolt 15 is shaped to fit the inner end of the screw-socket 14, and provided with a brass ring 18 so as to make a good electrical contact with ring 16 in the screw-socket. The front end 19 of the screw-bolt is sharpened, and is preferably of a relatively hard material, for example, steel, and adapted to protrude into the lamp socket 11 when it is in its advanced position so as to penetrate into the base of lamp 12 when the lamp has been inserted into the socket. This firmly grips the lamp and prevents it from being unscrewed and removed. At the same time the firm contact of the screw-bolt with the shell of the lamp base establishes an electrical connection therewith and completes an electric circuit from the conductor 17 through the screw-bolt to the lamp. To diminish resistance, and to insure making a good electrical contact between conductor 17 and lamp base 13, the brass shell 18 may be extended nearly to the point 19 of the screw-bolt. With proper construction, electric current may flow to the lamp-base not only through the point 19, but also, if socket 11 is provided with the usual brass insert, from screw-bolt to the brass insert and then to the lamp base. The usual spring contact 20 is provided to make contact with the central terminal of the lamp base and may be fastened to the casing 10 of the connecter in any convenient manner, such as shown.

The screw-bolt 15 is locked in position by spring-pressed plungers 21 which project into the slot 22 (Fig. 3*a*) in the shank of the screw-bolt on opposite sides thereof. The parts of the plunger mechanism are shown in Figs. 5 to 7*a*. Spring 23 fits around the shank 24 of the plunger and both spring and plunger are retained in the casing 11 of the connecter by the short screw 25.

The inner end 26 of the slot in the screw-bolt (Fig. 3) has an irregular profile to receive key 27 for unlocking the screw-bolt. When the key is inserted it forces the plungers 21 out of the slot, thus releasing the screw-bolt and allowing it to turn. Plungers 21 are staggered with respect to each other to make it difficult to unlock the screw-bolt without the proper key. In Fig. 1 the plungers are so positioned with respect to the slot that they lock the screw-bolt only when it is in closed position. In Fig. 8 the plungers are positioned to lock the screw-bolt in either open or closed position. The key may be made in different patterns, as desired, and corresponding parts of the locking mechanism modified accordingly.

The socket above described can be used in several different ways. When there is no lamp bulb in the socket, the screw-bolt may be advanced until its point 19 projects into the socket, thereby preventing the insertion of a bulb or a plug for an electrical appliance. The spring-pressed plungers lock the screw-bolt in this position so that it cannot be withdrawn without the proper key. When it is desired to insert a bulb or plug, the key is inserted and the screw-bolt withdrawn sufficiently to permit the insertion of the bulb or plug. The screw-bolt is then again advanced to its forward position, thereby causing its point to grip or penetrate the threaded brass shell on the bulb or plug and thus prevent the removal thereof. At the same time the brass ring 18 on the screw-bolt makes contact with the brass ring 16, thereby establishing an electrical circuit from conductor 17 through brass rings 16 and 18 and point 19 of the screw-bolt to the brass shell of the bulb or plug. Thus the simple operation of advancing the screw-bolt by means of the key both locks the lamp or plug in position and establishes the electric circuit thereto. Furthermore, when the screw-bolt is retracted to permit the removal of the bulb or plug the electric contact between the screw-bolt and conductor 17 is broken, so that the removal of the bulb or plug does not leave live contacts exposed.

It will now be apparent that the present invention provides a simple and effective means for preventing the unauthorized insertion or removal of electric lamp bulbs or plugs, with a very simple locking mechanism. Furthermore, it provides a simple means for making and breaking the circuit from connecter to lamp at the same time the lamp is locked or unlocked. It will also be apparent that many of the details of the specific embodiment shown in the drawing may be changed without departing from the spirit and scope of the invention.

Conventional means for turning the lamp on and off may be provided if desired.

We claim:

1. An electric connecter which comprises a casing, a socket in the casing adapted to receive and hold the base of an electric lamp or plug, a threaded screw-bolt sharpened at one end and so mounted in the casing as to permit the sharpened end to be advanced into the socket and penetrate the base of a lamp or plug therein, said screw-bolt having a slot in its shank adapted to receive a key, a pair of plungers mounted in said casing spring-pressed to enter the slot on opposite sides of the screw-bolt and thereby lock the screw-bolt, said plungers being adapted to be forced out of the slot and release the screw-bolt by the insertion of the key, and means for completing an electric circuit from the connecter to a lamp or plug therein by the advancement of the screw-bolt and for breaking the circuit by the retraction of the screw-bolt.

2. An electric connecter which comprises a casing, a threaded socket in the casing adapted to receive the threaded base of an electric lamp or plug, a threaded metal screw-bolt having a relatively hard point at one end thereof so mounted in the casing as to permit the point to be advanced into the socket at the side thereof, said screw-bolt having a locking slot in its shank adapted to receive a key, a pair of plungers mounted in said casing spring-pressed to enter the slot on opposite sides of the screw-bolt and thereby lock the screw-bolt, and an electric conductor mounted in the casing so as to make contact with the screw-bolt when it is in its advanced position and thereby complete an electric circuit to the pointed end of the screw-bolt and to break contact when the screw-bolt is retracted.

3. An electric connecter which comprises a casing, a threaded socket in the casing adapted to receive the threaded base of an electric lamp or plug, a threaded metal screw-bolt having a rela-

tively hard point at one end thereof so mounted in the casing as to permit the point to be advanced into the socket at the side thereof, said screw-bolt having an electrically conductive beveled surface at the front thereof and a locking slot in its shank adapted to receive a key, a pair of plungers mounted in said casing spring-pressed to enter the slot on opposite sides of the screw-bolt and thereby lock the screw-bolt, an electric conductor associated with the casing, and a beveled electrically conductive surface connected to the conductor and positioned in the casing so as to cooperate with the conductive surface on the screw-bolt when it is in its advanced position and thereby establish an electric circuit from the conductor to the pointed end of the screw-bolt and to break the circuit when the screw-bolt is retracted.

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