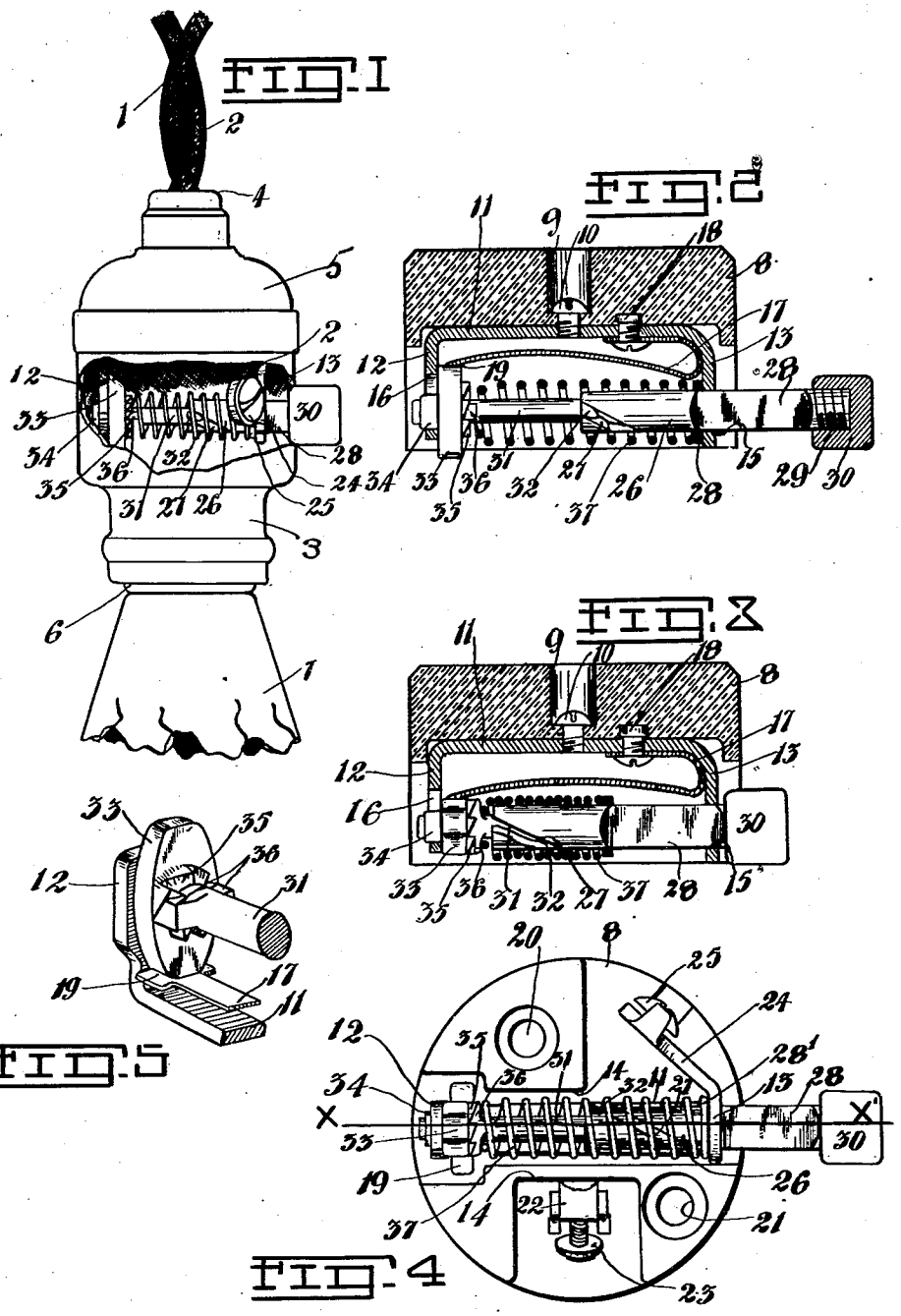
W. C. CLARK.

ELECTRIC LIGHT KEY SOCKET.

APPLICATION FILED MAR. 30, 1908.

921,800. Patented May 18, 1909.



WITNESSES

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WILLIAM CHARLES CLARK, OF KEEWATIN, ONTARIO, CANADA.

ELECTRIC-LIGHT KEY-SOCKET.

No. 921,800. Specification of Letters Patent. Patented May 18, 1909.

Application filed March 30, 1908. Serial No. 424,188.

To all whom it may concern:

Be it known that I, WILLIAM CHARLES CLARK, of the village of Keewatin, in the Province of Ontario, Canada, have invented certain new and useful Improvements in Electric-Light Key-Sockets, of which the following is the specification.

My invention relates to electric light key sockets, and the object of the invention is to provide a push key socket particularly adapted to incandescent lamp lights, whereby the electrical contact can be made and broken intermittently by pressing a push button or key.

A further object of the invention is to produce an inexpensive and durable device particular attention having been directed to keeping the operative parts applicable to the ordinary socket, termed "The Edison socket."

It consists essentially in a rotatable central rod having centrally thereon a pin, and toward one of its ends a cross bar constituting a set of teeth; a contact bar rotatable on the rod and having ratchet teeth on its inner face with which the cross bar teeth engage; a short tube having a slot therein, the tube being adapted to pass over the rod and supported so that it is restrained to a sliding motion on the rod; a spiral spring bearing against the cross bar and a shoulder on the tube; and a push button at the end of the tube, the parts being arranged and constructed as hereinafter more particularly described.

Figure 1 is a side elevation of a socket of the usual form provided with my invention, a part of the socket being torn away to expose the interior. Fig. 2 is a vertical sectional view through the porcelain insulator, in the plane denoted by the line X X′, Fig. 4, showing the portions attached thereto, the contact bar being shown in the closed position, and the push button at its outer position. Fig. 3, is a corresponding sectional view of Fig. 2, the contact bar being shown in the open position, and the push button at its inner position. Fig. 4 is an inverted plan view of the porcelain insulator, showing the parts connected thereto, the movable parts being in the position shown in Fig. 2. Fig. 5 is an enlarged detailed perspective view of the contact bar and the rod.

In the drawings like characters of reference indicate corresponding parts in each figure.

1 and 2 are the ordinary supply wires which enter the socket 3 through the insulator plug 4 in the cap 5.

6 is the usual screw base of the socket, and 7 a portion of an incandescent lamp bulb screwing into the base.

8 is the usual porcelain insulator to which is connected the contact and working parts of the socket. Centrally in the porcelain insulator is an opening 9 for the insertion of a screw 10, which passes into and holds the supporting bar 11, which has its ends 12 and 13 turned downwardly, the insulator being cut away at 14 to allow for the bar. The end 13 of the bar has a square opening 15 formed therein, and the end 12 an elongated circular opening 16, which is provided for a purpose later explained.

17 is the usual flat pressure spring fastened by a screw 18 to the bar and with its free end enlarged at 19 to engage with the movable contact bar, as later explained. The screw base of the socket is fastened to the porcelain insulator in the usual manner by screws which enter the threaded openings 20 and 21 provided.

22 is a stationary contact bar, which is adapted to make electrical connection with the contact piece of the incandescent lamp. The stationary contact bar is supplied with a binding screw 23 by which the lead wire 1 is connected to the bar.

The supporting bar 11 is supplied with a laterally extending member 24 which is provided with a binding screw 25 by which the lead wire 2 is placed in electrical contact with the bar.

26 is a short tube having the inner end provided with a spiral slot 27 and the outer end squared at 28 and adapted to pass slidably into the squared opening 15 in the downwardly turned end 13 of the bar. The extending end of the tube is threaded at 29 and receives a push button 30.

28′ is a collar on the tube adapted to limit the outward displacement of the tube.

31 is a rod with its inner end bearing in the inside of the tube and carrying a pin 32 which operates in the spiral slot 27.

33 is a movable contact bar centered on the rod 31 immediately to the inside of the end 12 of the bar 11. The bar is provided with a shoulder 34 which passes into the opening 16. The free end of the rod 31 passes into a central opening in the bar 33 and through the collar, bearing therein. The inner face

of the movable contact bar is supplied with ratchet teeth 35 and the rod 31 carries a cross bar 36 which constitutes teeth adapted to engage with the ratchet teeth.

37 is a spiral spring encircling the tube and the rod, abutting at its one end the inner face of the collar 28′ and at its other end the cross bar 36, in this wise tending continuously to keep the cross bar in engagement with the ratchet teeth.

The enlarged end of the pressure spring 17 rests continuously against the movable contact bar 33 as is shown in Figs. 2 and 3, tending to keep the shoulder 34 at the lower end of the opening 16.

The travel or movement of the tube is limited at the one extremity (the inner) by the pin 32 reaching the end of the spiral slot and abutting the collar 28′, and at the other extremity (the outer) by the shoulder engaging with the downwardly turned end 13 of the bar 17. The distance of travel, in other words the length of the spiral slot, is such that for the entire travel the rod 31 is turned one-quarter turn, and consequently the bar 32 is turned a similar distance. The number of the ratchet teeth 35 is such that one-quarter turn of the bar 36 causes one-quarter turn of the contact bar 33.

It will be seen that when the push button 30 is forced inwardly to the full extent, it carries with it the tube which causes the rod to rotate one-quarter turn, and as the cross bar 36 is continuously in engagement with the ratchet teeth the movable contact bar 33 is also turned one-quarter turn. This places the contact bar in electrical connection with the upper face of the base of the socket 6 and consequently completes the electric circuit for the lamp as the stationary bar 22 is continuously in contact. The spring 17 assures a tight contact between the contact bar and the top of the base and in combination with the elongated opening 16 allows the contact bar to clear readily.

Releasing the pressure on the push button allows it to return to the outer position on account of the spiral spring, and such movement turns the rod back one-quarter turn, resetting the bar 36. Forcing the push button inwardly again rotates the rod, and this by virtue of the cross bar and ratchet teeth causes the contact bar 33 to be thrown out of electrical contact with the top of the base and consequently breaks the lamp circuit. Releasing the pressure again sets the cross bar 36 so that when the push button is again forced inwardly the lamp circuit is closed by the contact bar 33 having traveled one-quarter turn.

It will be understood that although my invention has been described in connection with an incandescent light socket, yet it may with considerably less difficulty be used as a wall push button circuit closer. In this latter case one is not governed by a previously established design, such as the Edison, or other commercial incandescent socket.

What I claim as my invention is:

1. In a device of the class described the combination with an insulating support and a conducting screw base secured thereto, of a supporting bar fastened to the insulating support, said bar having its ends turned downwardly; a rotatable contact bar having a shoulder thereon, the shoulder bearing in one of the downwardly turned ends of the aforesaid bar; a rotatable rod bearing at its one end within the shoulder, an inwardly slidable tube carried by the other downwardly turned end of the bar, such tube forming a bearing for the other end of the rod, and means whereby the inward and outward movement of the tube successively rotates the contact bar into and out of engagement with the base, as and for the purpose specified.

2. In a device of the class described the combination with an insulating support, and a supporting bar secured thereto, the said supporting bar having its ends turned downwardly, of a rotatable contact bar having a shoulder thereon bearing in an opening provided in one of the downwardly extending ends of the supporting bar; a rotatable rod with one of its ends bearing in the shoulder; a pin on the rod; a tube having one of its ends squared and passing into a square opening provided in the other downwardly turned end of the supporting bar, the tube forming a bearing for the other end of the rod and having a spiral slot therein in which the pin operates; and means carried by the rod and engaging with the contact bar, the inward movement of the tube serving to rotate the rod and through it the contact bar one-quarter revolution, such means allowing the tube to return to its outer position while the contact bar is stationary; and means for returning the tube to the outer position, as and for the purpose specified.

3. In a device of the class described the combination with an insulating support and a supporting bar secured thereto having its ends turned downwardly, of a rotatable contact bar having a shoulder thereon; the shoulder passing into an opening provided in one of the downwardly extending ends; a set of ratchet teeth on the inner face of the contact bar; a rotatable rod with its one end bearing in the shoulder; and a cross bar on the rod, the cross bar constituting teeth adapted to engage with the ratchet teeth; a pin carried by the rod; a tube passing over the free end of the rod and provided with a spiral slot which receives the pin, the outer end of the tube being squared; the squared end passing into and through a squared opening provided in the other down-

wardly extending end of the supporting bar; a collar on the tube; a spiral spring encircling the tube and the rod and abutting at its one end the cross bar on the rod and at its other end the shoulder, and a push button at the other end of the tube, as and for the purpose specified.

Signed at Keuora, in the Province of Ontario, this 6th day of March 1908.

WILLIAM CHARLES CLARK.

Witnesses:
J. F. MacGillivray,
Olive Gordon.