N. MARSHALL.

LAMP SOCKET.

APPLICATION FILED JUNE 7, 1909.

987,152. Patented Mar. 21, 1911.

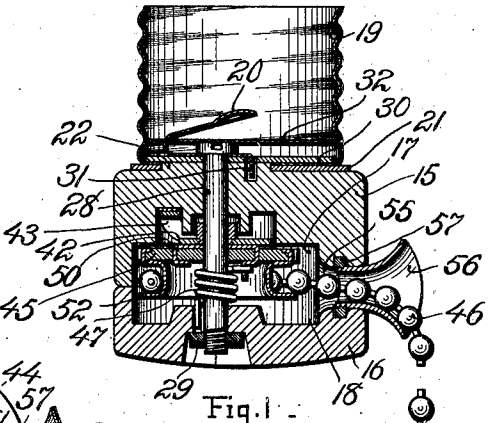

Fig. 1.

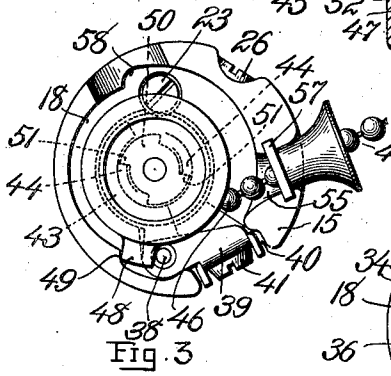

Fig. 3.

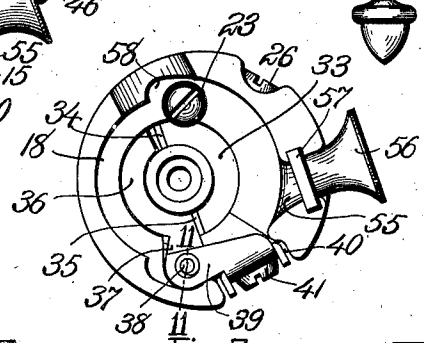

Fig. 2.

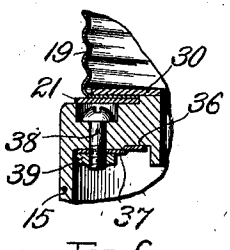

Fig. 6.

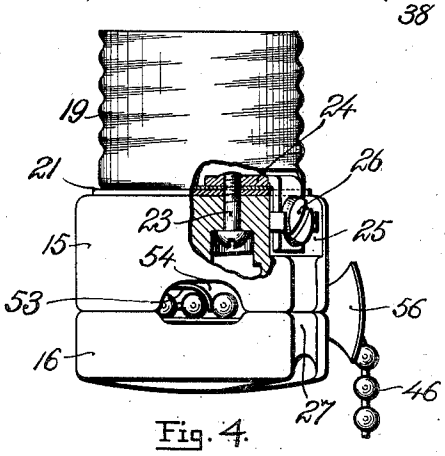

Fig. 4.

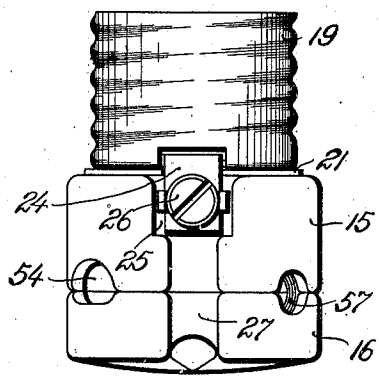

Fig. 5.

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LAMP-SOCKET.

987,152. Specification of Letters Patent. Patented Mar. 21, 1911.

Application filed June 7, 1909. Serial No. 500,502.

To all whom it may concern:

Be it known that I, NORMAN MARSHALL, a citizen of the United States, residing at Newton, in the county of Middlesex and State of Massachusetts, have invented certain new and useful Improvements in Lamp-Sockets; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

The invention relates to incandescent lamp sockets, and more particularly to that class of sockets known as "pull" sockets.

The object of the invention is to provide an improved and novel construction of socket in which the switch mechanism is operated to complete and break the circuit by alternating pulls upon an operating cord depending from the socket.

To these ends the invention consists in the features of construction and combinations of parts hereinafter described and set forth in the claims.

The various features of the invention will be readily understood from an inspection of the accompanying drawings, in which—

Figure 1 is a vertical sectional view through the porcelain base of a pull socket embodying certain features of the invention; Fig. 2 is an end view of one of the sectional base blocks with certain parts of the switch mechanism removed; Fig. 3 is a similar view showing certain parts of the switch mechanism which are omitted in Fig. 2; Fig. 4 is an elevation partly in section of the base and parts carried thereby; Fig. 5 is a similar view looking in a different direction; and Fig. 6 is a detail sectional view on line 11—11, Fig. 2.

As shown the base of the socket comprises two cylindrical sections or blocks 15 and 16 of porcelain or other suitable insulating material. The blocks are provided with abutting faces which are recessed at 17 and 18 to form a chamber within which the switch mechanism is housed and effectively insulated. The lamp terminals are secured upon the outer end of the block 15, and comprise a screw shell 19 and a center contact piece 20. The flange of the screw shell is separated from the block 15 by an interposed washer 21 of fiber or other suitable insulating material which effectively insulates the shell from the metallic parts carried by the block 15. The outer end of the block 15 is provided with a cylindrical boss 22 which fits within the cylindrical opening in the flange of the screw shell and serves to center the shell on the block. The shell is secured in position upon the block by means of a screw 23 which passes through a hole in the flange of the shell and is threaded into a plate 24 which engages the inner surface of the flange. The plate 24 extends outward through a slot in the shell, and is bent at right angles so that its outer end lies within a peripheral recess 25 formed in the block 15. The outer end of the plate 24 is provided with a binding screw 26 to which one of the conductor wires may be connected, the wire extending through peripheral recesses 27 formed in the blocks 15 and 16.

The center contact piece 20 is secured in position on the end of the boss 22 by means of a screw bolt 28 which passes through the base blocks 15 and 16, and is provided at its outer end with a nut 29. This bolt acts to bind the base blocks together, and also acts as the pivotal support for the switch mechanism as well as acting to hold the center contact in position. A disk 30 of insulating material is interposed between the base of the center contact piece 20 and the end of the boss 22, and the boss is of such thickness that this disk assists in retaining the screw shell in position on the end of the block 15. The disk 30 also effectively insulates the center contact from the screw shell. The center contact piece is held from turning under the head of the bolt 28 by an inwardly projecting finger 31 formed at its end and arranged to pass through a hole in the disk 30 and into a recess formed in the end of the block 15. The complete insulation of the center contact from the shell and other current carrying parts is further insured by a disk of mica or other insulating material 32 which lies within the inner end of the shell 19 and is provided with an open-

ing through which the terminal end of the center contact piece passes, as indicated in Fig. 1.

The recess 17 in the block 15 is provided at its inner end with an annular groove 33 the bottom of which is provided with two inclines terminating in abrupt axially extending shoulders 34 and 35. A segmental contact plate 36 is arranged upon one of the inclines at the bottom of the groove 30, and is provided with a radially extending portion 37. The plate is secured in position by means of a screw 38 which passes through the block 15, as indicated in Fig. 6, and is threaded into a wire terminal plate 39 which overlies the part 37 of the contact plate and clamps the plate in position. The outer end of the plate 39 extends at an angle to the part with which the screw 38 engages, and is arranged in a peripheral recess 40 formed in the block 15. The outer end of the plate is provided with a binding screw 41 by which the other conductor wire may be connected with the socket.

The mechanism for making and breaking the circuit comprises a switch plate 42 mounted to turn upon the bolt 28 and provided with a segmental spring finger 43 arranged to travel around within the annular groove 33. The plate 42 is slit circumferentially, and the slitted portions bent downward in Fig. 1 to form two teeth or projections 44 indicated in dotted lines in Fig. 3. The switch plate may be given a half revolution to make or break the circuit by means of an oscillatory actuator disk 45 which is mounted to turn upon the bolt 28, and may be moved in one direction by a pull chain or cord 46, and moved in the other direction, by a spring 47. The actuator disk is formed from vulcanized fiber or other suitable insulating material, and is provided with a radially extending stop finger 48 which is normally held against a shoulder 49 in the wall of the recess 17 by the spring 47. The actuator disk 45 is provided with a clutch plate 50 secured upon its upper side in Fig. 1, and provided with shoulders 51 arranged to engage the teeth or projections 44 on the switch plate. The spring 47 acts not only to hold the actuator disk in normal position and return it to this position, but also acts to force the actuator disk yieldingly against the switch plate, and to force the finger of the switch plate yieldingly against the inclines at the bottom of the annular groove 33. The clutch plate is secured to the actuator disk by fingers extending through holes in the disk and bent over against the opposite side of the disk, as shown in Fig. 1. One of these fingers extends downward in Fig. 1, and is engaged by one end of the spring 47. The other end of the spring is held in a hole formed in the block 16. The actuator disk is provided with a metallic flange 52 which is bent to form an annular cord or chain-carrying groove. This annular groove flange is secured to the actuator disk by means of projecting fingers which pass through slots formed in the periphery of the disk and have their ends bent over against the opposite side of the disk, the flange being so connected with the disk that it is effectively insulated from the clutch plate by the disk. The annular flange is provided with a finger 53 (Fig. 4) arranged to lie between two adjacent balls of the chain 46 and connect the end of the chain to the actuator disk. This enables the end of the chain to be readily connected or disconnected from the actuator disk after the parts have been assembled, the abutting ends of the blocks 15 and 16 being recessed at 54 to provide an opening through which access may be had to the groove flange at the point where the retaining finger 53 is located. The actuator chain wraps around the groove flange of the actuator disk and passes out through a guide passage 55 formed by properly recessing the abutting ends of the blocks 15 and 16, and through a guide tube 56 forming a continuation of the passage and extending through the inclosing shell of the socket.

In the construction shown the guide tube 56 is so connected with the base of the socket that it may be readily disconnected for the purpose of refinishing, or whenever it is desired to remove the tube for any purpose. As shown, the inner end of the tube is threaded in a nut 57 which is securely held in an annular groove formed in the walls of the recess 55. This construction enables the nut to be readily positioned in assembling the parts, and to be securely held in position against rotation after the parts are assembled, and this construction forms one feature of the invention. In the form of socket shown, the recesses 17 and 18 are formed eccentrically in the ends of the blocks 15, and this construction is preferred for the reason that it provides a thicker wall for the insulating chamber at the side where the nut 57 is located.

Assuming that the parts are in the position indicated in the drawings, the finger 43 of the switch plate will lie in engagement with the contact piece 36, and electrical connection will be made from the wire terminal 41 through the switch mechanism to the center contact 20. By pulling on the cord 46 the actuator plate may be rotated until the stop finger 48 brings up against a stop 58 formed in the wall of the recess 17. The

stop shoulders 49 and 58 are so arranged that the actuator disk may be then given a half revolution. During this movement of the actuator disk the shoulders 51 on the clutch plate 50 will engage the projections 44 and advance the switch plate 42 through a half revolution. This movement of the switch plate will carry the finger 43 of the plate along the contact plate 36 until the end of the finger leaves the contact plate at the abrupt shoulder 35 and snaps upward in Fig. 1 against the deeper end of the second incline at the inner end of the annular groove 33. This quickly breaks the circuit, so that there is no electrical connection between the wire terminal 41 and the center contact 20. When the cord 46 is released, the spring 47 immediately returns the actuator disk to the normal position indicated in Fig. 3. During this movement the clutch plate rides over the projections 44, the spring yielding to allow the relative axial movement between the clutch plate and contact plate. When the actuator cord or chain is again pulled, the switch plate is given another half revolution to bring the parts into the position indicated in the drawings, and thus again complete the circuit.

While it is preferred to employ the specific construction and arrangement of parts shown and described, it will be understood that this construction and arrangement is not essential to the invention except so far as it is specified in the claims, and may be modified and varied without departing from the broader features of the invention.

Having explained the nature and object of the invention, and specifically described one of the forms in which it may be embodied, what I claim is:—

1. An incandescent lamp socket comprising a porcelain base, a pull switch mechanism mounted in the base, a nut secured in the base, and a guide tube for a pull cord screwed into the nut, substantially as described.

2. An incandescent lamp socket comprising two cylindrical base blocks, a pull switch mechanism mounted between the blocks, recesses in the opposing faces of the blocks for receiving a nut, a nut held in said recesses between the blocks, and a guide tube for a pull cord screwed into the nut, substantially as described.

3. An incandescent lamp socket comprising two base blocks having abutting faces recessed to form an insulating chamber, an annular groove at the end of one of the recesses, a segmental contact plate arranged along the inner end of the annular groove, a rotary switch plate provided with a finger adapted to travel along said groove in contact with its inner end, shoulders on said contact plate, a clutch plate provided with coöperating shoulders, an insulating disk carrying the clutch plate and provided with a grooved flange, and a pull cord connected to the insulating disk, substantially as described.

4. An incandescent lamp socket comprising two cylindrical base blocks having abutting faces recessed to form an insulating chamber, lamp terminals upon one of the blocks, a pull switch mechanism arranged in the chamber comprising an actuator disk provided with a stop finger 48, a spring for actuating the disk in one direction, a pull cord for actuating the disk in the opposite direction, and shoulders 49 and 58 formed in the recess of one of the blocks for determining the movements of the actuator disk, substantially as described.

5. An incandescent lamp socket comprising two cylindrical base blocks having abutting faces recessed to form an insulating chamber and also recessed to form a passage leading from the chamber, a pull switch mechanism mounted in the chamber, a nut held between the blocks with its bore in register with said passage, and a guide tube for a pull cord screwed into the nut, substantially as described.

6. An incandescent lamp socket comprising two cylindrical base blocks having abutting faces eccentrically recessed to form an insulating chamber and also recessed to form a passage through the thicker wall of the chamber and a transverse groove in the wall of the passage, a nut held in the groove, a tube for a pull cord screwed into the nut, and a switch mechanism within the chamber adapted to be operated by a cord extending through the guide tube and passage, substantially as described.

7. An incandescent lamp socket comprising two cylindrical base blocks having abutting faces recessed to form an insulating chamber, lamp terminals upon one of the blocks, a pull switch mechanism arranged within the chamber, and a screw bolt for securing the base blocks together and upon which the switch mechanism is operated, substantially as described.

8. An incandescent lamp socket comprising an insulating base provided at one end with a cylindrical boss, a screw shell provided with a flange having a cylindrical opening fitting about the boss, an insulating disk interposed between the base and flange of the shell, and a center contact mounted upon the end of the boss and provided with an inwardly projecting finger entering the recess in the end of the boss, substantially as described.

9. An incandescent lamp socket comprising two base blocks having abutting faces recessed to form an insulating chamber, an annular groove at the end of one of the recesses provided with inclined surfaces at its inner end, a segmental contact plate arranged along one of said surfaces, a rotary switch plate provided with a segmental finger adapted to travel around said groove in contact with the incline, an actuator arranged within the chamber for intermittently advancing the switch plate, a pull cord connected to move the actuator in one direction, and a spring for returning the actuator to normal position, substantially as described.

In testimony whereof I affix my signature, in presence of two witnesses.

NORMAN MARSHALL.

Witnesses:

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N. D. MCPHAIL.