

D. P. WOLHAUPTER.
ELECTRICAL PULL SOCKET.
APPLICATION FILED JUNE 17, 1911.

1,024,304.

Patented Apr. 23, 1912.

2 SHEETS-SHEET 1.

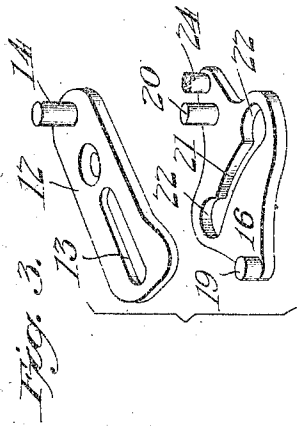


Fig. 1.

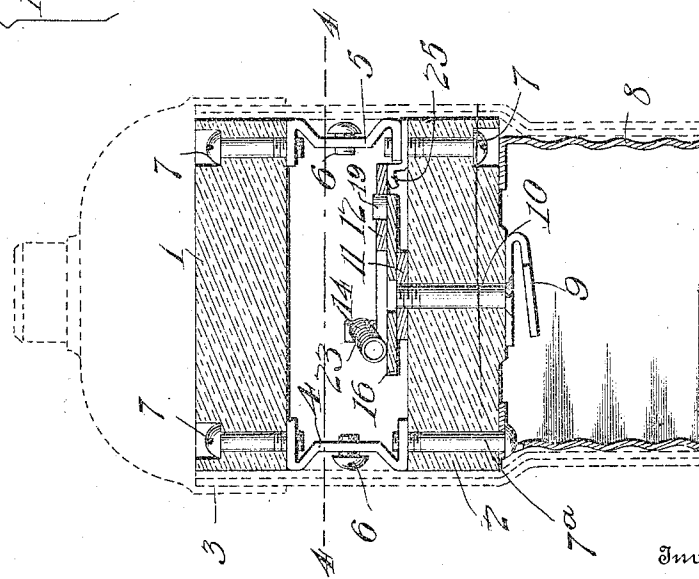
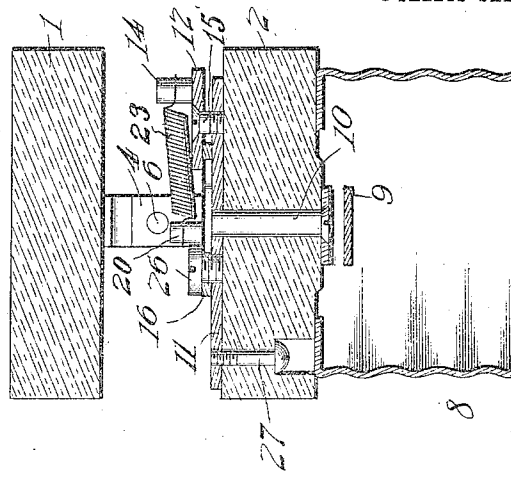


Fig. 2.



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2 SHEETS—SHEET 2.

Fig. 4.

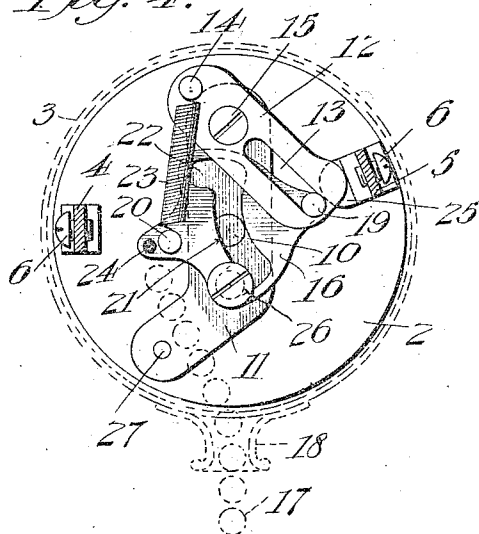


Fig. 5.

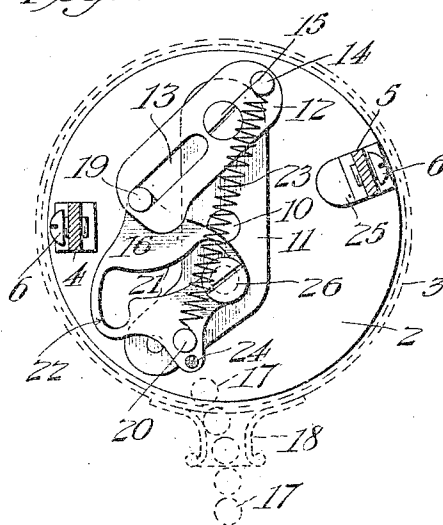


Fig. 6.

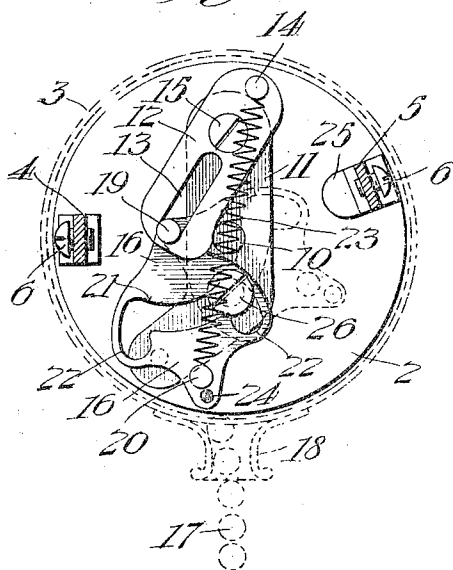
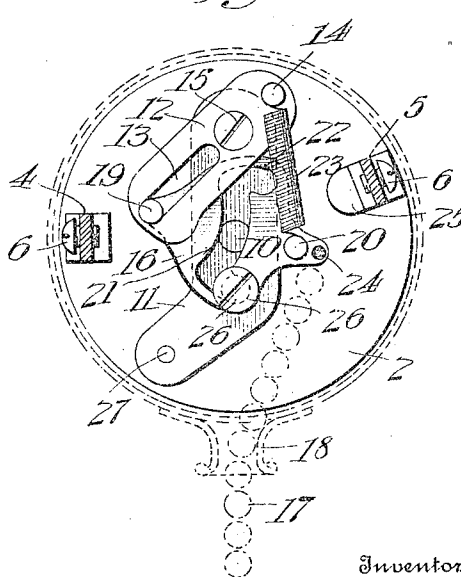


Fig. 7.



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ELECTRICAL PULL-SOCKET.

1,024,304.

Specification of Letters Patent.

Patented Apr. 23, 1912.

Application filed June 17, 1911. Serial No. 633,859.

To all whom it may concern:

Be it known that I, DAVID P. WOLHAUPTER, a citizen of the United States, residing at Washington, District of Columbia, have invented certain new and useful Improvements in Electrical Pull-Sockets, of which the following is a specification.

The present invention relates to certain new and useful improvements in electric lamp sockets of that general character which are actuated by pulling upon a cord or chain and are commonly termed "pull sockets," the primary object of the invention being to simplify and improve the switch mechanism employed for making and breaking the electric circuit through the lamp.

A further object of the invention is to provide a pull socket switch mechanism which embodies novel features of construction whereby the switch contact member has a back and forth movement in contradistinction to a rotary movement, and is moved from one position to the opposite position by consecutive pulls upon a pull cord.

A still further object of the invention is to provide a switch mechanism of this general character which is very compact in its construction and will make and break the circuit with rapidity, which comprises few and inexpensive parts adapted to be quickly assembled or taken apart, and which can be bodily removed from the socket or placed in position therein without the necessity of first dismounting the members.

I do not confine myself, in carrying out the above objects, to the precise details of construction of the various parts of the socket, but preferred and practical embodiments thereof are shown in the accompanying drawings, in which:—

Figure 1 is a longitudinal sectional view through a pull socket constructed in accordance with the invention, the exterior casing being shown in dotted lines. Fig. 2 is a similar view through the insulating body and screw shell contact; the section line being at right angles to that of Fig. 1. Fig. 3 is a detached perspective view of the switch member and the shifter member. Fig. 4 is a transverse sectional view on the line 4-4 of Fig. 1, the switch mechanism being shown in plan with the various elements thereof in the position assumed when the switch is closed so as to permit the electric current to flow through the lamp. Fig. 5 is a similar view showing the parts in the

position assumed when the switch member has been moved away from the contact by an initial pull upon the pull cord. Fig. 6 is a similar view showing the position assumed by the parts when the pivot pin of the shifter member has been thrown out of engagement with one of the pivot notches by the final pull upon the pull cord, and Fig. 7 is also a similar view showing the position assumed by the parts when the pull cord has been released, the switch being now open and adapted to be again thrown into the position shown by Fig. 4 and closed by merely drawing the pull cord out and then releasing the same.

Corresponding and like parts are referred to in the following description and indicated in all the views of the drawings by the same reference characters.

Specifically describing the embodiment of the invention illustrated upon the drawings, the numerals 1 and 2 designate a pair of spaced blocks of porcelain or other suitable insulating material, the said blocks constituting the usual insulating body, and being housed within the usual exterior casing 3. A pair of terminal plates 4 and 5 connect the insulating blocks 1 and 2 and are provided with binding screws 6 adapted to engage the usual wire terminals. Any suitable fastening members such as the screws 7 may be employed for securing the terminal plates to the insulating blocks, and one of the screws 7^a which engages the terminal plate 4 may also engage the screw shell contact 8 so as to place the said members in electrical connection. The center plug contact 9 is arranged within the screw shell contact 8 and secured to the lower insulating block 2 by means of a combined fastening and conducting screw 10, the upper end of the said screw engaging the base plate 11 upon which the switch mechanism is mounted. The metallic end or base of an incandescent electric lamp is designed to be threaded into the shell contact 8 in the usual manner until the center plug engages the contact 9. The circuit through the lamp can then be opened and closed at will through the medium of the switch mechanism which constitutes the essential feature of the present invention and is mounted upon the insulating body, preferably between the blocks 1 and 2.

A switch member 12 is pivotally mounted upon the base plate 11 at a point between

the ends thereof and is formed with a long arm having a slot 13 therein, and a short arm provided with some form of spring engaging means such as the post 14. The pivot point of the switch member and the post 14 are in alinement with the longitudinal axis of the slot 13, and in the present instance the switch member is pivoted upon a screw 15 projecting from the base plate. Coöperating with the switch member 12 is a shifter member 16 which is actuated by a pull cord 17 passing outwardly from the socket through some suitable guide such as is indicated at 18. One end of the shifter member is formed with a pin 19 which is loosely received within the slot 13 of the member 12, while the opposite end thereof is formed with suitable spring engaging means such as the post 20, the said post and pin being disposed upon the longitudinal axis of the shifter member. At a point between the pin 19 and post 20 the shifter member is formed with a transversely disposed curved slot 21, the said slot being concentric with the pin 19 and communicating at the extremities thereof with pivot notches 22 extending in a direction away from the pin 19. A pivot screw 26 extends through the curved slot 21 and loosely secures the shifter member 16 to the base plate 11, the said screw being formed with a head which projects over the edges of the slot so as to retain the shifter member against displacement. The post 14 of the switch member 12 is connected to the post 20 of the shifter member 17 by a tension spring 23, and the pull cord 17 is connected to the shifter member 16 at a point upon the longitudinal axis thereof and adjacent to the post 20, some suitable insulating member such as that indicated at 24 being employed for engaging the pull cord.

One of the switch members, and in the present instance the member 12, is utilized as a contact member and serves in one of its two positions to engage a fixed contact member 25 so as to close the circuit through the lamp. As indicated upon the drawing this fixed contact member is interposed between the terminal plate 5 and the block 2, and held in position by means of the same screw which connects the said block to the terminal plate. When the member 12 is swung into engagement with the fixed contact 25, as indicated in Fig. 4, the circuit through the lamp will be closed, while when the parts are in the position shown in Fig. 7, the circuit through the lamp will be opened, and the said parts are adapted to be thrown from one position to the opposite position by drawing the pull cord 17 out and then releasing the same. Assuming the switch to be closed, as shown in Fig. 4, an initial pull upon the cord 17 will swing the shifter member 16 about the screw 26 as a center until the

parts assume the position shown in Fig. 5, the pin 19 of the said shifter member co-operating with the slot 13 of the member 12 to move the same away from the fixed contact 25 and also bring the tension spring 23 from one side of the screw 15 to the opposite side thereof. The tension in this spring then holds the member 12 away from the fixed contact 25, while a continued and final pull upon the cord 17 serves to move the shifter member 16 bodily so as to throw the screw 26 out of that one of the pivot notches 22 in which it has been seated. As soon as the pull cord 17 is released, the tension spring 23 will swing the shifter member 16 about the pin 19 as a center until the pivot screw 26 has reached the opposite end of the curved slot 21 and entered the opposite pivot notch 22, the various parts then assuming the position shown in Fig. 7. In a reverse manner, the switch can be thrown from the position indicated by Fig. 7 to that indicated by Fig. 4, by again pulling upon the cord 17 and releasing the same. The pull upon the cord would first swing the shifter member 16 about the pivot screw 26 as a pivot until the member 12 was swung into engagement with the fixed contact 25 and the tension spring 23 moved to the opposite side of the screw 15, and then finally move the shifter member 16 bodily to throw the pivot screw 26 out of the pivot notch 23. Upon releasing the cord the shifter member 16 would turn about the pin 19 as a center until the pivot screw 26 was opposite the opposite pivot notch 22, when there would be a slight bodily movement of the shifter member incident to permitting the pivot screw to enter the said opposite pivot notch. It will thus be obvious that the switch mechanism can be properly manipulated to open and close the circuit by successively pulling upon and releasing the cord 17, and that this result is produced through the medium of members mounted to have a back and forth, or to and fro movement, the necessity for providing rotary commutator switch members or other similar and expensive mechanism being avoided.

A further feature of advantage resides in the fact that the entire switch mechanism can be bodily removed from the socket or placed in position therein without dismounting the parts. In order to remove the switch mechanism as an entirety it is merely necessary to unscrew the combined fastening and conducting screw 10 which connects the base plate to the center plug contact 9, and also a second screw 27 which is utilized to hold the base plate accurately in position. A very simple and inexpensive pull cord switch mechanism is thereby produced which is very rapid in its action and will quickly make and break the circuit so as to avoid all dangerous sparking.

Having thus described the invention, what I claim as new and desire to secure by Letters Patent, is:—

1. A pull socket switch including a member mounted to have a back and forth movement, a fixed pivot, a shifter member mounted upon the fixed pivot and formed upon opposite sides of the longitudinal axis thereof with notches to engage the same; one end of the shifter member having an operative connection with the first mentioned member, a pull element connected to the opposite end of the shifter member, and means for moving the shifter member to bring its opposite notches into engagement with the fixed pivot between consecutive manipulations of the pull element.

2. A pull socket switch including a member mounted to have a back and forth movement, a fixed pivot, a shifter member mounted upon the fixed pivot and formed upon opposite sides of the longitudinal axis thereof with notches adapted to engage the same, one end of the shifter member having an operative connection with the first mentioned member, a pull element connected to the opposite end of the shifter member, and a tension spring connecting the shifter member and first mentioned member, the said spring serving to move the shifter member to alternately bring the opposite notches into engagement with the fixed pivot between consecutive manipulations of the pull element.

3. A pull socket switch including a member mounted to have a back and forth movement, a fixed pivot, a shifter member formed between the ends thereof with a lateral slot connecting at the extremities thereof with pivot notches, the fixed pivot being adapted to extend into the slot and engage either of the notches and one end of the shifter member having an operative connection with the first mentioned member, a pull element connected to the opposite end of the shifter member, and a tension spring connecting the said opposite end of the shifter member and the first mentioned member, the said spring serving to move the shifter member to alternately bring the opposite notches into engagement with the fixed pivot between consecutive manipulations of the pull element.

4. A pull socket switch including a switch member mounted to have a back and forth movement, a shifter member formed between the ends thereof with a lateral slot connecting at its extremities with pivot notches, a fixed pivot adapted to pass through the slot and engage either of the pivot notches, one end of the shifter member having an operative connection with the first mentioned member, a fixed guide, a pull element passing through the fixed guide and connected to the opposite end of the shifter member, and a tension spring connecting the first

mentioned member and shifter member, the said spring serving to move the shifter member to alternately bring the opposite notches into engagement with the fixed pivot between consecutive manipulations of the pull element.

5. A pull socket switch including a pivotally mounted switch member, a fixed guide, a fixed pivot arranged between the guide and the pivot of the first mentioned member and in a straight line therewith, a shifter member mounted upon the fixed pivot and provided upon opposite sides of the longitudinal axis thereof with notches adapted to engage the same, one end of the shifter member having an operative connection with the pivotally mounted member, a pull element passing through the fixed guide and passing through the opposite end of the shifter member, and a tension spring connecting the pivotally mounted member and shifter member, the said spring serving to move the shifter member to alternately bring the opposite notches into engagement with the fixed pivot between consecutive manipulations of the pull element.

6. A pull socket switch including a member pivoted between the ends thereof, a fixed guide, a fixed pivot arranged between the guide and the pivot of the first mentioned member and in substantially a straight line therewith, a shifter member formed at a point between its ends with a transverse slot which loosely receives the fixed pivot and connects at its extremities with pivot notches adapted to engage the fixed pivot, the inner end of the shifter member having a pin and slot connection with the pivot member, a pull element engaging the fixed guide and connected to the opposite end of the shifter member, and a tension spring connecting the far ends of the shifter member and pivot member, the line of action of the tension spring being thrown upon opposite sides of the pivot of the first mentioned member as the same is moved back and forth, and the said spring serving to move the shifter member to alternately bring the opposite notches into engagement with the fixed pivot between consecutive manipulations of the pull element.

7. A pull socket switch including a pivotally mounted member, a shifter member having an operative connection with the first mentioned member for moving the same back and forth to open and close the switch, the said shifter member being provided toward opposite sides thereof with pivot notches, a fixed pivot pin adapted to engage either of the notches, a pull element having an operative connection with the shifter member, and means for moving the shifter member to shift the pivot pin from one pivot notch into engagement with the

opposite pivot notch between consecutive manipulations of the pull element.

8. A pull socket switch including a pivotally mounted member, a shifter member having an operative connection with the first mentioned member for moving the same back and forth to open and close the switch, the said shifter member being formed with a lateral slot communicating at opposite ends thereof with pivot notches, a fixed pivot pin passing loosely through the slot and adapted to enter either of the pivot notches, a pull element having an operative connection with the shifter member, and a spring connected to the shifter member for moving the same between consecutive manipulations of the pull element to shift the fixed pivot pin from one pivot notch into engagement with the opposite pivot notch.

9. A pull socket switch including a member pivotally mounted between the ends thereof, a shifter member formed between the ends thereof with a lateral slot communicating at the extremities thereof with pivot notches, the inner ends of the first mentioned member and shifter member having an operative connection so that the first mentioned member can be moved back and forth to open and close the switch through the medium of the shifter member, a fixed pivot pin passing through the slot of the shifter member and adapted to engage the pivot notch at either end thereof, a pull element having an operative connection with the shifter member for actuating the same, and a tension spring connecting the outer ends of the first mentioned member and shifter member, the line of action of the said spring being thrown upon opposite sides of the pivot of the first mentioned member as it is moved back and forth, and the said spring serving to move the shifter member to shift the pivot pin from one pivot notch to the opposite pivot notch between consecutive manipulations of the pull element.

10. A pull socket switch including a member pivoted between the ends thereof, a shifter member having a pin and slot connection with the first mentioned member for moving the same back and forth to open and close the switch, the said shifter member being formed between the ends thereof with a transverse slot communicating at its extremities with pivot notches, a fixed pivot pin passing loosely through the slot and adapted to engage either of the pivot notches, a pull element having an operative connection with the shifter member, and a tension spring connecting the shifter member and first mentioned member, the line of action of the spring being thrown upon opposite sides of the pivot of the first mentioned member as the same is moved back

and forth, and the said spring serving to move the shifter member to shift the fixed pivot pin from one pivot notch to the opposite pivot notch between consecutive manipulations of the pull element.

11. A pull socket switch including a member pivoted between the ends thereof and having a longitudinal slot in the inner end thereof, a shifter member provided at the inner end thereof with a pin received loosely within the slot of the first mentioned member, the said shifter member being formed at a point between its ends with a transverse slot which is concentric with the pin and communicates at its extremities with the pivot notches, a fixed pivot pin received loosely within the slot and adapted to be engaged by either of the pivot notches, a pull element connected to the outer end of the shifter member for actuating the same for moving the first mentioned member back and forth to open and close the switch, and a tension spring connecting the outer ends of the first mentioned member and shifter member, the line of action of the tension spring being thrown upon opposite sides of the pivot of the first mentioned member as the same is moved back and forth, and the said spring serving to move the shifter member to shift the fixed pivot pin from engagement with one pivot notch to engagement with the opposite pivot notch between consecutive manipulations of the pull element.

12. An electrical pull-socket switch consisting of two shifting plates supported to occupy two duplicate positions, a spring connecting the two plates, and a reciprocal pull element having a direct non-shifting connection with one of the plates.

13. An electrical switch consisting of two plates supported to occupy two duplicate positions, a reciprocal pull element having direct connection with one of the plates, and means including a spring for throwing one plate to a position which carries the spring past the center in one direction upon the outward pull of the pull connection, and upon the inward movement of the latter permitting the spring to automatically carry the other plate into starting position for the next outward pull.

14. An electrical switch consisting of two pivotally jointed plates supported to occupy two duplicate positions, a reciprocal pull element having direct connection with one of the plates, and means including a spring, for throwing one plate to a position which carries the spring past the center in one direction upon the outward pull of the pull connection, and upon the inward movement of the latter permitting the spring to automatically carry the other plate into starting position for the next outward pull.

15. A pull socket switch comprising two pivotally mounted and pivotally connected

plates arranged to occupy two duplicate positions, a fixed guide arranged in line with the pivots of the two plates, a reciprocal pull element directly connected with one of the plates, and means including a spring for throwing one plate to a position which carries the spring past the center in one direction upon the outward pull of the pull connection, and upon the inward movement of the latter permitting the spring to automatically carry the other plate into starting position for the next outward pull.

16. In an electrical pull socket, the com-

bination with the socket body, of a pull switch comprising a single detachable base plate, pivotally jointed and spring-connected switch plates mounted on the base plate, and a reciprocal pull connection with one of the switch plates.

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

DAVID P. WOLHAUF, JR.

Witnesses:

A. M. PARKINS,
EMORY L. GROFF.