

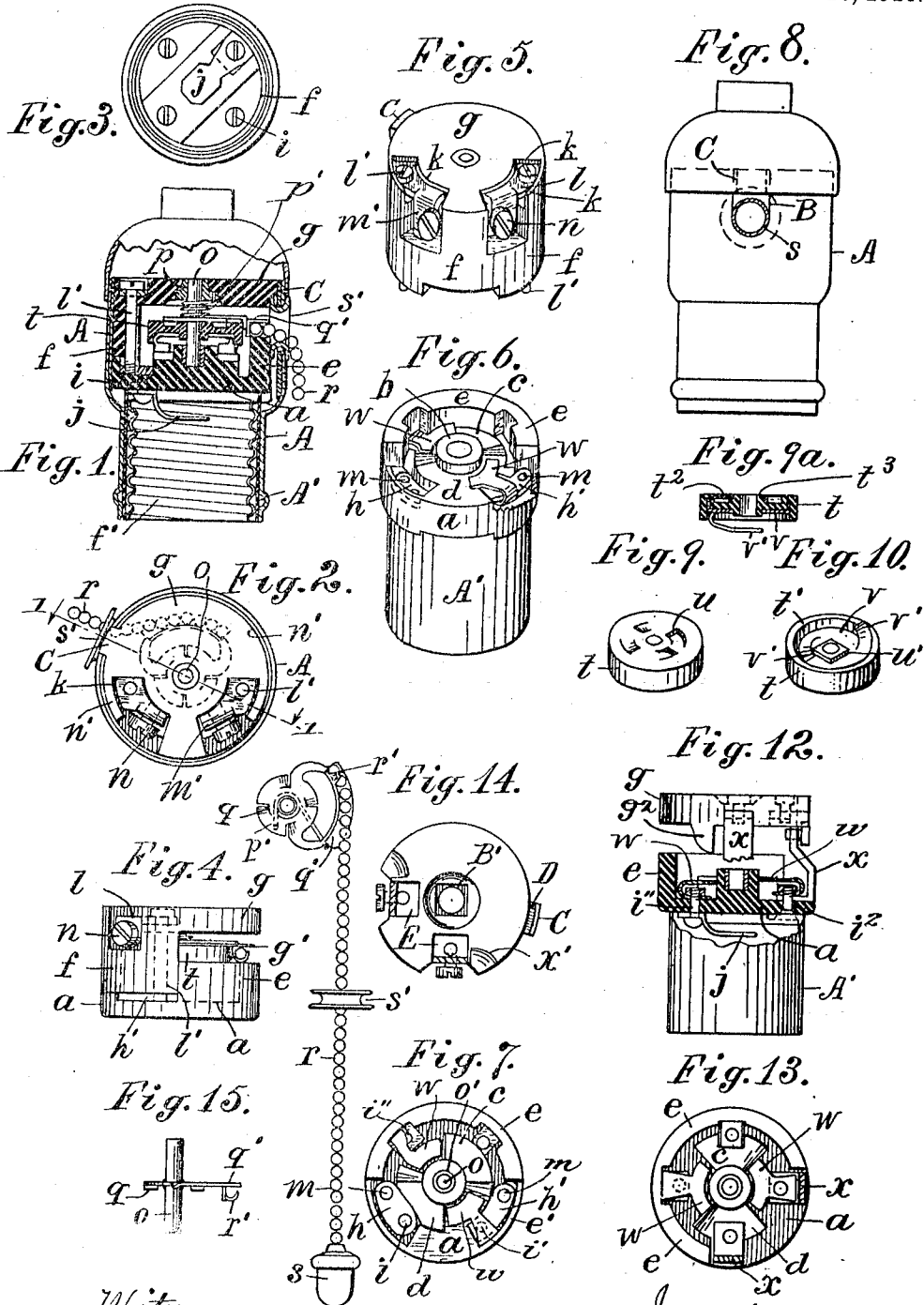
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PULL SOCKET FOR ELECTRIC LAMPS.

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UNITED STATES PATENT OFFICE.

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PULL-SOCKET FOR ELECTRIC LAMPS.

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To all whom it may concern:

Be it known that I, FREDERIC BARR, a citizen of the United States, residing at 362 Livingston street, Brooklyn, county of Kings, and State of New York, have invented certain new and useful Improvements in Pull-Sockets for Electric Lamps, fully described and represented in the following specification and the accompanying drawings, forming a part of the same.

The present invention relates to electric lamp and switch sockets and particularly a pull-switch for an electric lamp-socket, in which a cord or chain is connected to a segment in the switch and extended through an eyelet in the outer shell to be pulled when shifting the switch, and the invention consists primarily in forming the insulating-bod and head-piece of the switch with cylindrical flanges adapted to surround and inclose in a greater or less degree the switch-mechanism, so as to prevent any short-circuiting between the parts of such mechanism.

The invention also includes various details of construction.

Heretofore, it has been common to make a switch-body with a base and head-piece of porcelain connected by posts, with a ratchet-mechanism, for turning the switch-contacts, mounted upon a spindle journaled in said base and head-piece, and the present invention furnishes a construction in which the base and head-piece may be connected without the use of posts, by the cylindrical flanges formed upon them to inclose all of the switch-mechanism except the pull-chain.

Heretofore, the eyelet upon the shell has been the only means of supporting the chain to prevent the chain from contact with metallic parts of the switch-mechanism, but in the present invention the flanges which connect the base and head-piece are constructed to form a narrow segmental channel on a line with the eyelet, which channel confines the chain and prevents it, if slackened, from falling into contact with the other parts of the switch. The rotatable ratchet-disk upon the spindle, which carries the movable switch-springs or leaves, has commonly had such contacts insulated thereon, but not protected in any way from contact with the chain in case the chain becomes slackened. In the present construction, I form the ratchet-disk of porcelain or other insulating

material with a marginal depending flange which nearly incloses the switch-leaves, and forms an inner wall to the said channel. This fully prevents the contact of the chain with the switch-leaves or other parts of the switch-mechanism.

Some of the safeguards which I have referred to can be used in a switch having the base and head-piece connected by posts, and such an alternating construction is shown herein, the base having the cylindrical flange to support the chain as described above, and the ratchet-disk being flanged.

In the drawing, Figure 1 is a vertical section at line 1—1 in Fig. 2 where hatched, of a switch constructed without posts; Fig. 2 shows the top of the head-piece with the chain-connections in dotted lines; Fig. 3 shows the under side of the base; Fig. 4 shows the base and head-piece in elevation with the mechanism that is visible between those parts; Fig. 5 is a perspective view of the head-piece; Fig. 6 is a perspective view of the base and insulating sleeve below the same; Fig. 7 is a plan of the base; Fig. 8 is an elevation of the lamp-socket complete with the eyelet in section; Fig. 9 shows in perspective the top of the rotating disk; Fig. 9^a is a section of an alternative form for the disk *t*; Fig. 10 shows in perspective the bottom of the rotating-disk with the spring-leaves thereon; Fig. 11 shows the under side of the ratchet-segment with its attached spindle and the chain and eyelet; Fig. 12 is an elevation of the switch with two posts connecting the base and head-piece, one of the posts being broken off and the base shown in section at the center line where hatched; Fig. 13 is a plan of the base shown in Fig. 12 with the posts *x* thereon; Fig. 14 represents the under side of the head-piece shown in Fig. 12 with the upper ends of the posts *x*, and Fig. 15 represents the spindle in elevation in either form of switch.

In Figs. 1 to 11 inclusive, the base *a* is of insulating material in disk-form with the following integral attachments, namely, the boss *b* in the center, segmental-seats *c* and *d* at opposite sides of the same, and an upwardly projecting cylindrical flange *e* which encircles one side of the switch-mechanism to the level of the chain. The opposite side of the switch-mechanism is inclosed by a corresponding cylindrical flange *f* upon the head-piece *g*, as shown in Fig.

4, the space between the top of the flange *e* and the head-piece *g* forming a segmental slot *g'* which is provided for the movement of the chain and the ratchet-segment. Depressions are formed inside of flange *e'* upon the base, to receive connection-blocks *h*, *h'*, which are secured by screws *i* *i'* extended upwardly through the bottom of the base, as shown in Figs. 1 and 7. The screw *i* of the block *h* is in connection with the screw-shell *f'* of the lamp-socket, see Figs. 1 and 3. Recesses *k* are formed in the top of the head-piece, and circuit terminals *l* are secured therein by screws *l'* which are extended downward through holes in the flange *f* and screwed into threaded holes *m* in the blocks *h*, *h'*, thus holding the head-piece firmly upon the base without any posts. Vertical lugs *m'* are provided upon the circuit terminals *l* within lateral extensions of the recesses *k*, with binding-screws *n* therein to secure the usual circuit wiring (not shown). These lugs lie within the circle of the head-piece and are covered with an insulating sleeve *n'*, as shown in Fig. 2. A rotary spindle *o* is fitted to bushings *o'* and *p* in the base and head-piece, the latter being held from turning by a square flange, as indicated by the square socket *B'* therefor in Fig. 14. The usual spiral spring *p'* is applied to the spindle and its ends attached to the bushing *p* and the ratchet-segment, as indicated in Fig. 1, and by the dotted lines in Fig. 11. A ratchet-disk having four downwardly sloping teeth *q* is attached to the spindle and provided with an integral segment *q'* to which one end of the chain *r* is attached by a bent lug *r'*. The chain has the usual knob *s* upon its outer end, and before it is attached to the segment an eyelet *s'* is slipped upon the chain and thus held thereon. A disk *t* of insulating material with downwardly depending marginal flange *t'* is fitted loosely to the spindle, and formed with four ratchet-notches *u* in the upper side to engage the downwardly projecting ratchet-teeth *q*. In the recess within the flange *t'*, a hub *u'* is formed, and a circular plate *v* is formed to fit within the flange and around the hub. The hub is preferably made square, as shown in Fig. 10, to turn the plate *v* thereby. The plate *v* has contact leaf-springs *v'* sloped downwardly therefrom to engage metallic spring-contacts *w*, which are supported upon the base between the segmental seats *c* and *d*. One of the spring-contacts *w* is connected with the center lamp-contact *j* by screw *i* beneath the base, as shown in Fig. 12, and the other is connected by its block *h'* and screw *l'* with one of the circuit terminals upon the head-piece. The outer metallic shell *A* is formed with the usual notch *B* to receive the eyelet *s'*, which is shown in section in Figs. 1 and 8; and a

lug *C* is projected from the head-piece *g* and formed with a notch *D* upon its under side as shown in Fig. 14; to engage the inner flange upon the top of the eyelet and hold it firmly in place in the notch *B*.

Figs. 1 and 4 show the relation of the chain to the flange *e* upon the base *a*, the chain resting upon the top of such flange, and the margin of the disk *t* lying close to the inner side of the channel, so as to form an insulating wall within the same. The chain is thus confined positively to the channel, and cannot contact with any parts of the switch. The depending flanges *t'* upon the rotary disk *t* wholly inclose the plate *v* and its attached leaf-springs and prevents any part of the chain from contacting with them. Observation of Fig. 4 shows that the semi-cylindrical flange *f* which is of insulating material integral with the head-piece, takes the place of posts in connecting the head-piece with the base, and that the flanges *e* and *f* serve to wholly inclose all of the switch-mechanism except at the semi-circular slot *g'* (see right hand side of Fig. 4) through which the disk *t* is visible, and in which the chain operates. The same advantages in respect to the insulation of the chain are secured in the construction shown in Figs. 12, 13 and 14, where the head-piece is supported upon the base by two posts *x* set 90 degrees apart, and the movement of the segment is restricted by two integral studs *h'* which project downward from the head-piece *g'* over the semi-cylindrical flange *e* upon the base. In this construction, as shown in Figs. 12 and 13, the flange *e* embraces three-quarters of the circle, and incloses all of the switch-mechanism excepting at the posts, and it forms a ledge which supports the chain the same as the flange *e* in Fig. 4. One of the contacts *w* is fastened to the base by a screw *i'*.

Fig. 14 shows the head-piece for this construction, with all attachments removed except the posts *x*, the notches *E* being shown in the under side of the head-piece to receive the tops of the posts, and the lug *C* being shown which is formed with the notch *D* to engage the top edge of the eyelet. Herefore, in such switches, the construction has required the detachment of the chain from the ratchet-segment when assembling the parts of the switch or taking them apart; but in the present construction the eyelet *s'* is first applied to the chain and the end of the chain then secured to the segment *q'*, the removal of the head-piece from the base then permitting the segment *q'* with the attached spindle *o*, and the chain and eyelet to be removed from the casing together. It will be understood that in the form shown the spindle is attached rigidly to the ratchet-disk and segment *q'*, so as to oscillate therewith under the alternating operation of the

spring p' and the pull-chain r but this is not essential. It will be noted that the porcelain or insulating disk t has the ratchet-notches u formed directly in its upper side to receive the ratchet-teeth q ; but the notches may be formed in a metal plate t^2 sunk in the upper side of the porcelain disk t , if desired, as shown in Fig. 9^a, a square hub u^3 being formed on the disk to drive such plates; but the disk having the integral notches u' is of cheaper construction. Fig. 9^a also shows an alternative construction for the plate v in which it is propelled by studs v^2 extended into the body of the disk, in which case a round hub would be used in place of the square hub u' .

Having thus set forth the nature of the invention what is claimed herein is:

1. A pull-switch for a lamp-socket having a base and head-piece with a spindle and switch-mechanism located between the same and a ratchet-segment with chain extended therefrom and a cylindrical flange integral with the base extended around such mechanism to the level of the pull-chain, to form a channel beneath the head-piece with a ledge to support the chain.

2. A pull-switch for a lamp-socket having a base and head-piece with a spindle and switch-mechanism located between the same and a ratchet-segment with chain extended therefrom and a cylindrical flange integral with the base extended around such mechanism to the level of the pull-chain to form a channel beneath the head-piece with a ledge to support the chain, and the spindle having an insulating disk with its edge forming a wall at the inner side of such channel.

3. A pull-switch for a lamp-socket having a base and head-piece with a spindle and switch-mechanism located between the same and a ratchet-segment with chain extended therefrom at one side of the switch, and cylindrical flanges projected upwardly and downwardly from the base and head-piece at opposite sides of the switch-mechanism, inclosing all of the same excepting the ratchet-segment.

4. In a pull socket switch, an insulating block formed of two parts having a narrow chain guiding and insulating groove open around one side between the parts, switch contacts mounted within the block, an oscillating lever pivoted within the block and having its outer end projecting into said groove and an operating chain secured to the outer end of said lever and guided in said groove and thereby kept from engagement with said contacts.

5. A pull-switch for a lamp-socket having a base and head-piece with a spindle and switch-mechanism located between the same and a ratchet-segment with chain extended therefrom at one side of the switch, and cylindrical flanges projected upwardly and

downwardly from the base and head-piece at opposite sides of the switch-mechanism, the head-piece having notches k therein with contact-blocks l provided with binding-screws n , connection-blocks h and h' sunk in the base and secured by screws from the bottom of the same, screws l' extended from the contact-blocks l downward through the cylindrical flange into the blocks h , h' , and switch-mechanism connected by the blocks h , h' , substantially as set forth.

6. In a pull-switch for a lamp-socket, the combination, with a movable spindle having a ratchet-disk attached thereto with ratchet-segment projected therefrom and a pull-chain attached thereto, of the insulating-disk t fitted movably to the spindle and provided with the ratchet-notches u and having on the under side the marginal flange t' and the central square hub u' , with the metallic plate v fitted to such hub and provided with leaf-springs v' for connecting the contacts of the switch when suitably operated by the pull-chain.

7. A pull-switch for a lamp-socket having a base and head-piece with bearings o' and p therein and binding-screws upon the head-piece, the spindle o fitted to such bearings and having the ratchet-disk attached thereto and provided with a ratchet-segment q' , an insulating disk fitted movably to the spindle and provided upon its upper side with ratchet-teeth u and having upon its lower side a marginal flange t' with a plate v secured therein and provided with contact leaf-springs v' and spring-contacts w upon the base for connection by the leaf-springs v' , one of such spring-contacts being connected with the center lamp-contact j and the other connected with one of the binding-screws.

8. In a pull-switch for a lamp-socket, the combination, with a movable spindle having a ratchet-disk attached thereto with ratchet-segments projected therefrom and a pull-chain attached thereto, of the insulating-disk t fitted movably to the spindle and provided upon the top with the square hub t^3 , and a plate t^2 fitted thereto and provided with ratchet-teeth, and the insulating-disk having upon the under side the marginal flange t' with the metallic plate v secured within such flange and provided with leaf-springs v' for connecting the contacts of the switch when suitably operated by the pull-chain.

9. In a pull socket, the combination of a base member and a head member, one of said members having a flange projecting to meet the other member and forming a recess between said members for the switch mechanism, plates located between said flange and the opposite member each of said plates having screw threaded openings and screws passing through said flange into said plates and through the opposite member into

said plates for securing the members together.

10. In a lamp socket switch, a base member and a head member, said members having flanges projecting to form a recess between said members, two switch contacts located opposite each other in said recess, a lamp terminal connected to one of said contacts, two circuit terminals, one of said circuit terminals being connected to the other switch contact and a second lamp terminal connected to the other circuit terminal and a rotatable switch member for connecting said switch contacts.

11. In a pull switch, an insulating block formed in two parts, one of said parts having a flange around one-half extending to meet the other part, screws passing through the flanged portion for securing the parts together, said flanged portion having recesses in its outer and side walls, circuit terminals secured in said recesses by means of said screws and switch mechanism located between the parts of said insulating member.

12. In a lamp socket, an insulating block formed in two parts, one of said parts having a flange projecting toward and meeting the other part, said flanged member having recesses in its flanged portion, circuit terminals located in said recesses, lamp terminals on the opposite face of the other part of the insulating block, plates located between the flange of one part and the adjacent face of the other part, screws passing through the flange of said first mentioned part and securing the circuit terminals and said part to said plates and screws passing through the other part and securing said plates, one of said latter screws also securing one of the lamp terminals to said part and switch mechanism located between the parts of said insulating block.

13. In a pull switch, an insulating block formed in two parts, one of said parts having a flange extending around one side and projected to meet the other part, said latter part having a flange extending around the opposite side and projecting toward the first mentioned part but leaving a channel around said side and switch mechanism located between said parts and including an operating lever and chain operable in said channel and means for securing said parts together.

14. In a lamp socket switch, an insulating block formed in two parts, one of said parts

being adapted to accommodate circuit terminals, the other part being adapted to accommodate lamp terminals and one of said parts being also adapted to accommodate switch contacts, one of said parts having a flange projected toward the other part, circuit terminals mounted on the part adapted to accommodate the same, lamp terminals mounted on the part adapted to accommodate the same, switch contacts mounted on the part adapted to accommodate the same, plates secured between said parts, two screws passing through one part and securing the circuit terminals to said part and securing said part and said circuit terminals to said plates, two screws passing through the other part, one of said latter screws securing the lamp terminal to said part and screwing into one of said plates, the other screw passing through the other part and through one of the switch contacts and securing said part and one of said switch contacts to the other plate and a third screw securing the other lamp terminal and the other switch contact to said part.

15. In a pull socket switch, an insulating block, switch contacts contained therein, a spindle supported in said block, an oscillating lever on said spindle, an operating chain secured to the outer end of said lever, said block having a segmental annular groove open around one side and a curved insulating member forming the inner wall of said groove, said chain and the outer end of said oscillating lever being guided in said groove.

16. In a pull socket switch, an insulating block having a peripheral flange and a lateral chain guiding groove, switch contacts located within said flange, a spindle supported in said block, an oscillating lever on said spindle, an operating chain secured to said oscillating lever in said groove and an insulating disk on said spindle covering said switch contacts and separating said oscillating lever from said switch contacts and preventing said chain from engaging said contacts.

In testimony whereof I have hereunto set my hand in the presence of two subscribing witnesses.

FREDERIC BARR.

Witnesses:

L. LEE,

THOMAS S. CRANE.