A. N. PETIT.

ELECTRIC SWITCH.

APPLICATION FILED JAN. 2, 1913.

1,100,253.

Patented June 16, 1914.

Fig. 1.

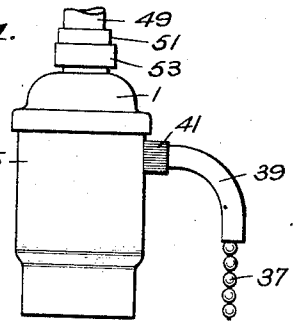


Fig. 4.

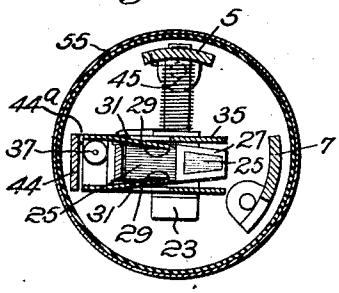


Fig. 5.

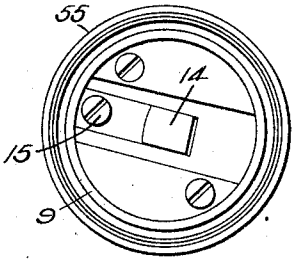


Fig. 2.

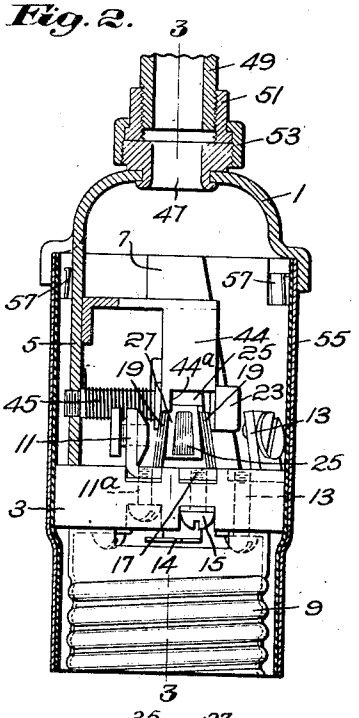


Fig. 3.

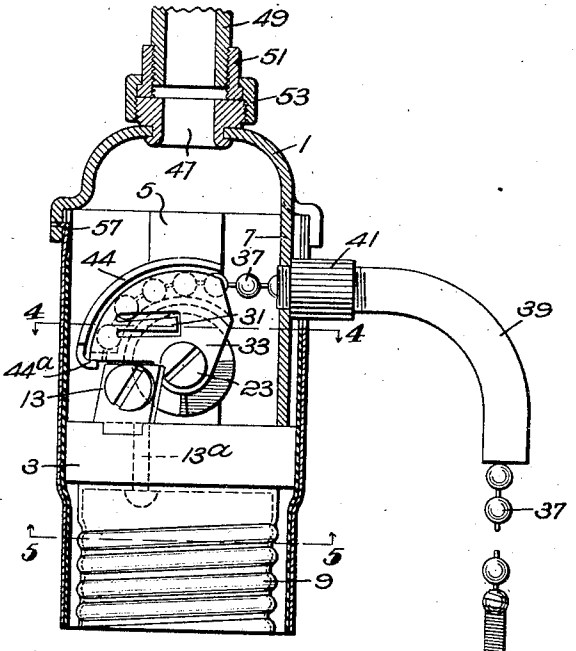


Fig. 6.

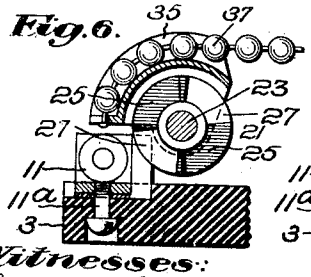


Fig. 7.

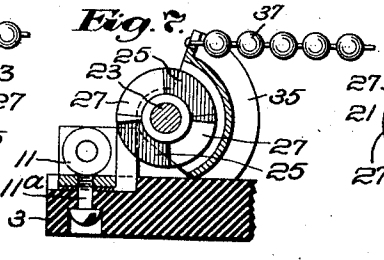


Fig. 8.



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UNITED STATES PATENT OFFICE.

ADEMOR N. PETIT, OF WEST ORANGE, NEW JERSEY.

ELECTRIC SWITCH.

1,100,253. Specification of Letters Patent. Patented June 16, 1914.

Application filed January 2, 1913. Serial No. 739,588.

To all whom it may concern:

Be it known that I, ADEMOR N. PETIT, a citizen of the United States, and a resident of West Orange, in the county of Essex and State of New Jersey, have invented an Improvement in Electric Switches, of which the following description, in connection with the accompanying drawings, is a specification, like characters on the drawings representing like parts.

This invention relates to electric switches for lamp sockets and other uses.

The character of the invention may be best understood by reference to the following description of an illustrative embodiment thereof shown in the accompanying drawing, wherein:

Figure 1 is a side elevation of an illustrative lamp socket equipped with a switch mechanism embodying the invention; Fig. 2 on an enlarged scale is a vertical section through the socket shown in Fig. 1, disclosing a switch mechanism contained therein; Fig. 3 is a section taken on line 3—3 of Fig. 2; Fig. 4 is a section taken on line 4—4 of Fig. 3; Fig. 5 is a bottom view of the socket; Fig. 6 is a sectional detail showing the switch in one position; Fig. 7 is a similar view showing the switch in a different position; and Fig. 8 is a detail to be referred to.

Referring to the drawing, the illustrative construction shown therein as embodying the invention comprises a frame including a dome or covering top 1 and a base block 3 of porcelain or other appropriate insulation material. Said top and block are spaced and standards 5 and 7 are provided conveniently integral or rigidly and permanently connected with said top and having feet held in recesses in said base block by suitable screws. The top and standards herein form the support for said block and a switch mechanism to be described. To receive the usual incandescent lamp a threaded socket 9 is secured to the under face of said base block.

To receive the wires leading to the lamp binding posts 11 and 13 are provided conveniently L shaped and seated in recesses in the upper face of the base block 3, said binding posts being secured to said block by screws 11^a and 13^a. The head of the screw 11^a is set in a recess in the under face of the disk 3 sufficienty deep to prevent contact thereof with the threaded socket 9. The screw 13^a is longer and is entered through the bottom of the socket 9 and provides a conductor between the binding post 13 and said socket. The binding post 11 is for transmitting the current to a spring contact 14 on the under face of the disk 3, which is adapted to engage the usual central contact on the end of an incandescent lamp. This spring contact is connected by a screw 15 with a plate 17 set in a recess in the upper surface of the disk 3.

To make and break the circuit between the binding post 11 and the spring contact they are provided with opposed contact brushes 19, 19 projecting upwardly and conveniently composed of a plurality of resilient leaves of copper or other suitable conducting material. Interposed between these brushes and engaged by them is a switch wheel 21 of porcelain or other suitable material journaled on a stud shaft 23 having a reduced end threaded to the standard 5 referred to. This wheel is provided with segments 25 of insulation material alternating with segments 27 of conducting material. As a result, when an insulation segment is between and in engagement with said brushes the circuit is open and when a conducting segment is between and in engagement with said brushes the circuit is closed. To advance this wheel step-by-step its lateral faces are provided with inclines forming ratchet teeth 29 which are engaged by resilient pawls 31 projecting inward from a rocking yoke 33 embracing a portion of said wheel and journaled on the stud shaft of the latter.

To rock the yoke in a clockwise direction to advance the wheel a step the yoke is provided with an arcuate channel 35 in which is seated a chain or cord or other flexible connection 37, one end of which is suitably secured to said yoke at one end of said channel. The other end of said chain projects out of the frame through an aperture in the standard 7 referred to and is received and guided by a rigid tube 39 threaded in said aperture and having tubular portions extending in different directions, herein substantially at right angles to one another, said portions being connected by a friction reducing gradually curved portion. The tube is adjustably secured to said standard by a set nut 41. As a result, the tube can be set in various positions of adjustment relatively to the socket and always depend downward whether the socket

is in a horizontal, vertical or other position. The free end of the chain depends from said tube and may be provided with an appropriate handle.

When the chain is pulled the yoke is rocked in a clockwise direction (Fig. 7). In the course of this movement the opposed pawls of said yoke engage the ratchet teeth of the switch wheel and turn the latter also in a clockwise direction. The rocking of the yoke in this direction is limited by the engagement thereof with the upper surface of the base disk 3. To prevent undue pounding of said yoke on said disk from this rocking movement a helical spring 43, or other resilient means, may be interposed in the pull chain. To prevent the chain jumping out of the channel of the rocking yoke a shield 44 is provided conveniently secured to the standard 5 and curved to conform to the contour of the channel. The rocking yoke is normally urged in a contra-clockwise direction (Fig. 3) by a helical spring 45 encircling said stud shaft and having one end secured to said rocking yoke and its opposite end secured to the standard 5. On retreating movement of the yoke the resilient pawls thereof drag idly along the faces of the switch wheel into positions to be in readiness to engage other teeth of said wheel and advance the latter another increment. To limit the rocking of said yoke in a contra-clockwise direction a suitable stop is provided shown herein as a spur 44^a projecting from said shield.

The opposed brushes not only act as contacts but also as dogs to limit the reverse rotation of the switch wheel, and owing to their resilience tend to check the rotative movement of the wheel and prevent overthrow thereof.

The rocking yoke has a sufficient arc of movement to advance the ratchet wheel a distance somewhat in excess of the distance between two successive ratchet teeth of the switch wheel, but the yoke pawls on retreat of the yoke press against the switch wheel and reversely rotate the same sufficiently to compensate for the excess advance and bring the ratchet teeth thereof back into engagement with the ends of the brush contact dogs. Thus the switch wheel is always advanced equal steps and thereby proper engagement of the wheel segments with the brush contacts is assured on the successive steps of advance of the wheel.

The switch supporting frame may be connected to a bracket or other fixture in any suitable manner. As shown herein the dome ring 1 is mounted on the reduced end of a boss 47, said end being lipped or riveted over into secure engagement with said ring. To connect this boss with the usual threaded pipe 49 of a fixture a pair of flanged sleeves 51 and 53 may be provided, one being adapted for threaded engagement with the fixture and the other with said boss. By this arrangement the socket may be turned to bring the chain guiding tube in any desired position.

Heretofore, so far as I am aware, in connecting the switch carrying frame to fixtures it has been necessary to first inclose the frame in a socket shell which is made in two parts comprising a shell and a cap, the latter being provided with a bushing which is threaded to the fixture. In mounting such a lamp socket upon a fixture it is necessary to first screw the cap to the fixture, then secure the switch frame to the cap and finally inclose the frame in the shell. By the construction described herein this inconvenience is eliminated since the standards of the switch carrying frame are permanently connected to or integral with the ring which is secured to the fixture.

If desired, the frame may be inclosed in a shell 55 of brass or other suitable material which may be slipped over the base block and its upper edge fitted within the border of the dome ring. To prevent interference from the chain guide tube with the shell the latter may be provided with a lateral aperture. To connect the shell with said ring the former may be provided with resilient fingers 57 having lugs projecting therefrom for entrance into corresponding apertures in said dome.

The usual paper insulation shell may be interposed between said brass shell and the switch carrying frame.

The shell and dome described present an outward appearance having a suitable finish for certain purposes, but in some cases it may be desired to provide a finer finish by inclosing the socket in a metallic or other canopy. In such case the brass shell would not be necessary since it is not essential to connect and provide support for any of the parts but is merely a finishing member.

Heretofore, so far as I am aware, switch mechanisms for lamp sockets have made necessary upper and lower insulation blocks and also a considerable amount of insulation material in the switch mechanisms. This insulation material is objectionable for a variety of reasons. By my invention the necessity for an upper insulation block is eliminated and the amount of insulation material in the mechanism is greatly reduced. In my device it is merely necessary to have the base block and switch wheel of insulation material and of course the usual paper insulation shell when the same is employed.

The switch wheel rotating between the spring brush contacts provides a simple and effective positively operated make-and-break arrangement which is cheap to manufacture and not liable to get out of order.

It is not necessary for the wheel to slide on its shaft in making and breaking the circuit as is usual in socket switches, and therefore the wheel and its coöperating yoke may always remain in alinement with the chain guide so that the chain may freely render through its guide without liability of binding on the edge thereof. The comparatively long radius of the curve of the guide tube further tends to reduce friction on the chain and facilitates free operation thereof.

In the closed circuit the current in passing from one contact to another is not obliged to pass through the shaft of the switch wheel or a series of elements of the mechanism, but on the contrary is directly transmitted from one brush contact to the other through the single wheel conductor segment in engagement with said brushes. This reduces the liability of short circuiting and poor electrical contact to a minimum. The resilience of the brush contacts will cause the same to press into close engagement with the conductor segments of the switch wheel and the turning of the wheel for making and breaking the circuit will create a rubbing between these surfaces which will maintain them constantly bright and conductive.

While the switch described herein is shown in connection with a lamp socket it will be understood that it is not limited thereto, but has a wide field of use.

Having described one embodiment of the invention, without limiting the same thereto, what I claim as new and desire to secure by Letters Patent is:

1. In a device of the class described the combination of a switch wheel having conductive and insulation portions, opposed resilient contacts for engagement with opposite faces of said wheel; a rocking member having a resilient pawl for engagement with said wheel to advance the latter an increment, a channel, a flexible member seated in said channel and connected to said rocking member for actuating the latter, and means to prevent inadvertent displacement of said flexible member from said channel.

2. In a device of the class described the combination of a switch wheel having conductive and insulation portions, opposed resilient contacts pressing toward one another against the opposite faces of said wheel, and means for advancing said wheel step by step including a rocking member having resilient pawls for engagement with opposite sides of said wheel.

3. In a device of the class described the combination of a frame including a standard, a stud shaft projecting therefrom, a switch wheel journaled on said shaft and having insulation and conductive portions, resilient contacts for engagement with opposite faces of said wheel, a rocking member journaled on said shaft and having pawls for engagement with said wheel to rotate the same in one direction, and a spring on said shaft tending to turn said rocking member in the opposite direction.

4. In a device of the class described the combination of a frame including a base block, a ring, standards connecting said block and ring, contacts mounted on said base block, a shaft carried by one of said standards, a switch wheel on said shaft for coöperation with said contacts, and means including a rocking member for advancing said wheel step by step.

5. In a device of the class described the combination of a frame including a base block, a ring having provision for connection with a fixture, means connecting said base block and ring, fixed contacts carried by said base block, a wheel having conductive and insulation portions for engagement with said contacts, and pawl and ratchet means for advancing said wheel step by step.

6. In a device of the class described, the combination of a support; a switch mechanism carried thereby; a rigid curved tube having tubular portions extending in different directions and a gradually curved portion connecting said tubular portions; a pull chain connected to said mechanism and extending through said tube; and means for adjustably securing said tube to said support to permit said tube to be set in various positions relatively to said support.

7. A device of the class described comprising, in combination, a support, a switch mechanism carried thereby, a rigid guide tube having a gradually curved portion intermediate its ends, a pull chain extending through and beyond said tube for operating said switch mechanism, means adjustably connecting said tube to said support for permitting the same to be set in different fixed positions relative to said support, and means for adjustably and rigidly securing the latter in different positions relative to a fixture.

8. A device of the class described comprising, in combination, a supporting member, a covering top therefor, a frame permanently and rigidly connecting said member to said top, a switch mechanism carried by said supporting member, means to connect said top to a fixture, and means for incasing said switch mechanism.

9. A device of the class described comprising, in combination, a support having a covering top permanently and rigidly connected therewith, a switch mechanism carried by said support, a guide tube having a gradually curved portion intermediate its ends and secured to said support, a pull chain extending through said tube for operating said mechanism, and means for adjustably

and rigidly securing said support in different positions relative to a fixture.

10. A device of the class described comprising, in combination, a supporting member, a covering top therefor, means permanently and rigidly connecting said member to said top, a switch mechanism carried by said supporting member, and means for securing said top rigidly to a fixture including a clamping sleeve adjustable externally of said top and forming a finishing member.

11. In a device of the class described, the combination of a switch mechanism, a supporting member therefor, a covering top, a frame permanently and rigidly connecting said member to said top and means for securing the latter rigidly to a fixture in different positions of rotative adjustment including sleeves having frictionally engaging flanges and accessible exteriorly of said support for relative clamping adjustment.

12. In a device of the class described, the combination of a supporting member, a covering top therefor, means permanently connecting said member to said top, an electrical switch mechanism carried by said supporting member, a shell inclosing said mechanism, and means detachably connecting said shell to said top.

In testimony whereof, I have signed my name to this specification, in the presence of two subscribing witnesses.

ADEMOR N. PETIT.

Witnesses:
CELESTINE WICKHAM,
L. A. DUNCAN.

Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents, Washington, D. C."