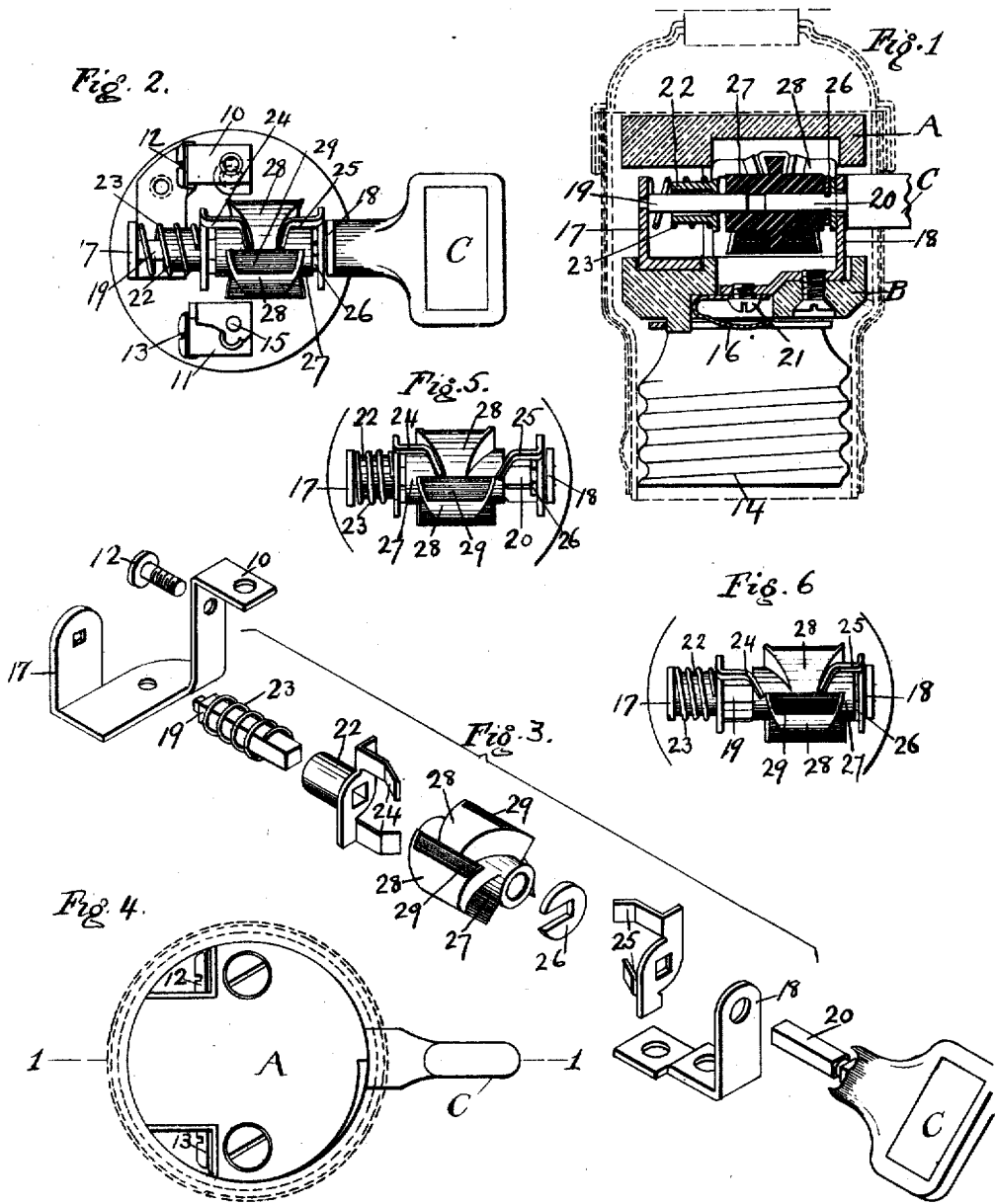


A. W. CLAUDER.
 ELECTRIC SWITCH.
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998,467.

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UNITED STATES PATENT OFFICE.

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ELECTRIC SWITCH.

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To all whom it may concern:

Be it known that I, ARTHUR W. CLAUDER, a citizen of the United States of America, and residing in the city of Bridgeport, in the county of Fairfield and State of Connecticut, have invented a certain new and useful Improved Electric Switch, of which the following is a specification.

My invention relates to electric switches and particularly to switches for electric lamp sockets, the object of my invention being to provide an improved device of this character embodying the advantages hereinafter pointed out.

In the accompanying drawings, Figure 1 is a vertical section through a lamp socket on line 1—1, Fig. 4; Fig. 2 is a plan view with the upper insulating button removed; Fig. 3 is a perspective of the switch spindle and associated parts, detached; Fig. 4 is a plan of the socket body; and Figs. 5 and 6 are plan views showing the switch mechanism in different positions.

In the accompanying drawings my invention is shown embodied in an electric lamp socket comprising insulating buttons A and B between which the switch mechanism is mounted. These buttons are spaced apart by standards 10 and 11 provided with binding screws 12 and 13 for the leading-in wires. The shell 14 is constantly in circuit through the securing screw 15 which passes through the base of standard 11. Current is led to the center contact 16 through the switch mechanism about to be described.

Two uprights 17 and 18 support the opposite ends 19 and 20 of the divided switch spindle, the upright 17 being electrically connected to and preferably integral with the standard 10, and the upright 18 being electrically connected through the screw 21 with the center contact 16. The portion 19 of the spindle is non-rotating, its squared end being held rigid in the upright 17. A non-rotating sleeve 22 with squared bore slides lengthwise of this portion of the spindle and is subjected to the action of the spring 23 interposed between a collar thereon and the upright 17. A pair of spring contact fingers 24 with inclined ends is mounted upon the sleeve 22.

The portion 20 of the spindle, which is carried by the usual insulating thumb key C, is journaled in the upright 18 although of rectangular cross section through at least a

portion of its length. A second pair of contact fingers 25 similar to and facing those just described, are united by a web with rectangular perforation corresponding in shape to the cross section of the portion 20 of the spindle so that the spring fingers 25 rotate with the latter under the influence of the key C. A washer 26 may be provided to support the contact fingers 25 on the spindle 20, and lock the latter in position.

Interposed between the two pairs of contact fingers 24 and 25 is arranged the cut-out block. In the form shown this comprises a cylindrical body 27 of insulating material with four ratchet teeth on each end. Upon the four peripheral wedge shaped cams thus formed, separate conducting bands 28 are mounted, the sides of which overlap the sides of said cams and thus form the bearing faces which are engaged by the spring fingers 24 and 25. The adjacent bands are insulated from each other by the depth of the ratchet teeth on the one hand, and peripherally through the spacing interval formed by the recessing of the broader end of each band at 29.

Obviously if both pairs of spring pawls are in contact with the same band the current is led from the terminal 12 through the upright 17, spindle 19, contact fingers 24, opposite bands 28, contact fingers 25, spindle 20, and upright 18 to the center contact 16 and the lamp is in circuit. On the other hand if the pairs of spring contacts are in engagement with alternate bands, the circuit is broken at the cutout block, since the bands are insulated from each other.

The operation of the switch is readily understood. Upon the turning of the key C clockwise (Fig. 5), the spring fingers 25, rotating with the key spindle 20, tend by their frictional engagement with the ratchet, to rotate the latter. The spring fingers 24 however engaging the ratchet on the opposite face of the cut-out block, prevent the rotation of the latter so that the block 27 is merely displaced axially, compressing the spring 23. Inasmuch as the spring fingers 24 do not rotate, the circuit is made or broken as soon as the fingers 25 have passed the edge of the ratchet tooth then engaged and the block is snapped back by the expansion of the spring 23. If the handle be turned in the other direction (counterclockwise), Fig. 6, the cut out block is rotated by

the engagement of the fingers 25 with the ratchet teeth, while the fingers of the contact piece 24, riding up on the ratchet teeth on the opposite face of the cut-out block, force the contact member back and the spring 23 is again compressed, so that as soon as the fingers 24 have passed the end of the ratchet tooth the circuit is made or broken by their snapping down into the adjacent recess at the base of the next tooth. It is thus seen that while the cut-out block is free to rotate on the spindles 19 and 20, it is maintained stationary with relation to one pair of said spring contact fingers when the actuating key is rotated in one direction, and stationary with relation to the other pair when the key is rotated in the opposite direction, by reason of the oppositely faced ratchet elements on the faces engaged by said contact fingers. The rotation of said key in either direction thus makes or breaks the circuit.

The construction possesses several advantages. Two breaks are secured by reason of the fact that the current is carried by both contact fingers in each pair 24-25. The break is sharp, since the spring 23 is under its greatest compression just as the fingers leave the end of the ratchet teeth. The key C serves as an indicator of the position of the switch since the squared key spindle 20 is held in definite relation to the contact fingers 25. The switch elements are readily manufactured, durable, efficient, easily assembled, and once assembled difficult to put out of order, and at the same time afford maximum of efficiency from an electrical standpoint by providing a sharp break, well insulated contacts and a reversible indicating operating key.

Obviously the switch may be employed in other connections than in a lamp socket as shown, and I do not limit my invention to its use in the latter, nor to the precise details of construction illustrated which obviously may be varied in many ways without departing from the scope of my invention. For instance the contact fingers of the members 24 and 25 may be rigid instead of resilient as shown, since the spring 23 readily permits the axial displacement of the parts.

I claim as my invention:—

1. An electric switch comprising a cutout block and a plurality of contact members cooperating therewith, said parts being all displaceable with relation to each other, in combination with reversible actuating means for altering the relation of one or the other of said contacts to said cutout block depending upon the direction in which said actuating means is rotated, to make or break the circuit.

2. In an electric switch, a cutout member and a pair of contact members in sliding engagement therewith, in combination with a

reversible actuating member and means for moving with relation to said cutout block, one of said contact members on the movement of said actuating member in one direction, and the other contact member on the movement of said actuating member in the opposite direction, to make or break the circuit.

3. In an electric switch, a cutout member and a pair of contact members in sliding engagement therewith, in combination with a reversible actuating member and means for moving said cutout member with relation to one of said contact members on the movement of said actuating member in one direction, and with relation to the other contact member in the reverse direction, to make or break the circuit.

4. In an electric switch, a cutout block rotating in one direction, two contact members in sliding engagement therewith, one of said contact members being free to rotate in either direction and the other contact member being held against rotation, in combination with a reversible actuating member and means for rotating together said cutout block and the freely rotating contact member in one direction, and only said freely rotating contact member in the opposite direction, to make or break the circuit.

5. An electric switch having a rotary cutout member axially displaceable, contact members cooperating therewith, one of said contact members being axially displaceable with said cutout member but held against rotation, and the other contact member being freely rotatable in either direction, in combination with reversible actuating means engaging said freely rotatable contact and serving upon the rotation thereof in one direction to axially displace said cutout block and cooperating contact member without rotary displacement thereof, to make or break the circuit.

6. An electric switch having a rotary cutout member axially displaceable, contact members cooperating therewith, one of said contact members being axially displaceable with said cutout member but held against rotation, and the other contact member being freely rotatable in either direction, in combination with reversible actuating means engaging said freely rotatable contact and serving upon the rotation thereof in one direction to rotate said cutout block therewith whereby the circuit is made or broken, substantially as described.

7. In an electric switch, a cutout member and cooperating independent contact members, all of said parts being rotatable with relation to each other, a reversible operating spindle for altering the relation of one or the other of said contacts to said cutout block depending upon the direction in which said spindle is rotated, said parts being con-

structed to assume with exactness certain predetermined relations in the make or break position, and an operating key fixed on said spindle and indicating by its position the make or break condition of the switch.

8. An electric switch comprising a rotary cutout block, independent conducting bands thereon, a pair of contacts lying one on either side of said cutout block and separately rotatable with relation thereto, each of said contacts comprising a pair of contact fingers lying on opposite sides of the axis of rotation and simultaneously contacting with the conducting bands on said cutout block, in combination with means for rotating one or the other of said contacts with relation to said cutout block to make or break the circuit, whereby two breaks in the circuit are simultaneously secured on one side of said cutout block, substantially as described.

9. An electric switch comprising a switch spindle having its opposite ends insulated from each other, a cutout block mounted thereon, and a snap make and break mechanism in connection therewith for making or breaking a circuit through the opposite ends of said spindle.

10. An electric switch comprising a switch spindle having its opposite ends insulated from each other, a cutout block mounted thereon, contacts cooperating with said cutout block, and a snap make and break mechanism in connection therewith for making or breaking a circuit through the opposite ends of said spindle.

11. In an electric switch, a switch spindle, a rotary cutout block mounted thereon having ratchets thereon, together with independent contact members cooperating with said ratchets, said contact members comprising pawls engaging the ratchet teeth of said cutout block.

12. In an electric switch, a switch spindle, a rotary cutout block mounted thereon having opposed ratchet ends and conducting members extending between and overlying opposite teeth on said ratchet ends, in combination with contact members comprising pawls engaging said conducting members and means for displacing said pawls with relation to said cutout block to make or break a circuit through said conducting members.

13. In an electric switch, a switch spindle, a rotary cutout block mounted thereon having opposed ratchet ends and conducting members extending between and overlying opposite teeth on said ratchet ends, in combination with contact members comprising pawls engaging said conducting members and reversible actuating means for displacing one or the other of said pawls with relation to said cutout block to make or break a

circuit through said conducting members upon the rotation of said actuating means in either direction.

14. In an electric switch, a divided switch spindle, a cutout block mounted upon and bridging the space between the juxtaposed ends of said spindle and insulated therefrom, conducting members carried by said cutout block, in combination with contacts cooperating with said conducting members and a snap make and break mechanism for displacing said contacts with relation to said cutout block to make or break a circuit through said conducting members.

15. In an electric switch, a divided switch spindle, a cutout block mounted upon and bridging the space between the juxtaposed ends of said spindle and insulated therefrom conducting members carried by said cutout block, in combination with contacts cooperating with said conducting members and reversible actuating means for displacing one or the other of said contacts with relation to said cutout block to make or break a circuit through said conducting members upon the rotation of said actuating means in either direction.

16. In an electric switch, a divided switch spindle, uprights carrying the same, one portion of said spindle being rigid with relation to its upright, in combination with a cutout block rotated on said divided spindle and cooperating contacts on opposite sides thereof, reversible operative means in connection with the rotation thereof in either direction to displace said cutout block with relation to one or the other of said cooperating contacts.

17. In an electric switch, a divided spindle, uprights carrying the same, one portion of said spindle being rigid with relation to its upright, and the other portion of the spindle being freely rotatable in its upright, in combination with a cutout block mounted on said spindle, a cooperating contact member on one side thereof mounted on said stationary portion of the spindle and held against rotation, together with a second contact cooperating with said cutout block mounted on the other side thereof and moving with the freely rotating portion of said spindle, and means in connection with the rotation of said portion of the spindle for displacing said cutout block with relation to one or the other of said cooperating contacts.

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

ARTHUR W. CLAUDER.

Witnesses:

F. E. SEELEY,
H. M. WICHERT.