

997,564.

S. KORF & R. WITZ.
 ROTARY SNAP SWITCH.
 APPLICATION FILED JULY 30, 1910.

Patented July 11, 1911.
 3 SHEETS-SHEET 1

Fig. 1.

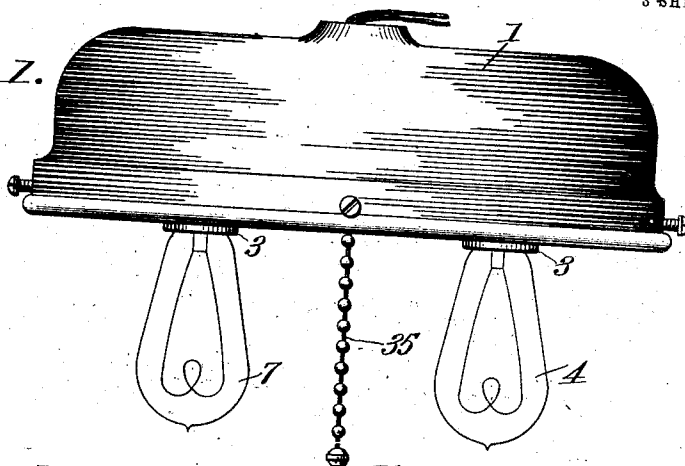


Fig. 2.

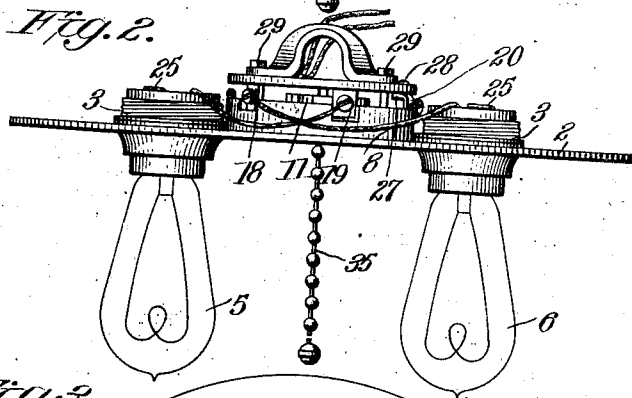
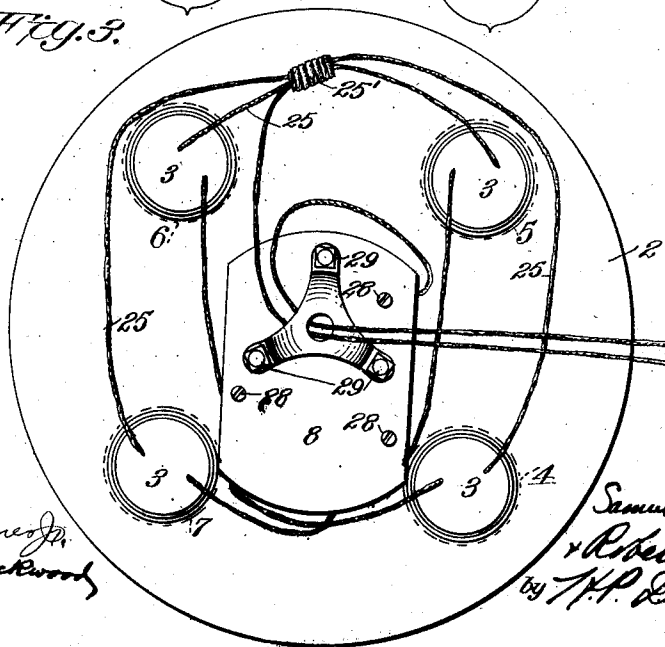


Fig. 3.



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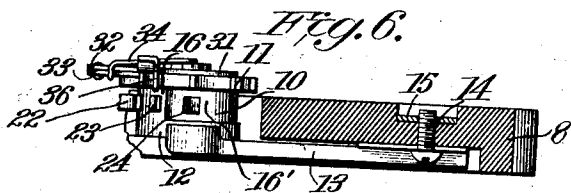
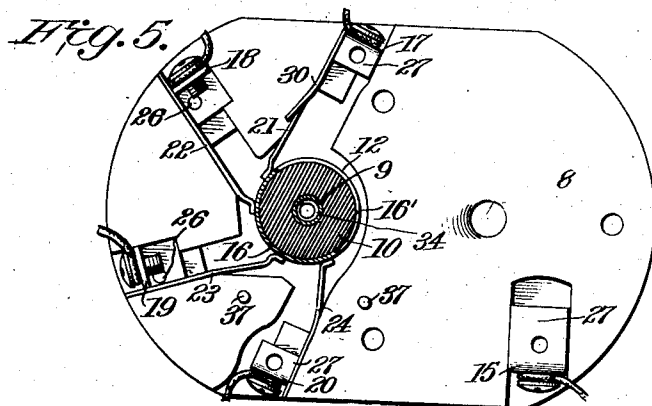
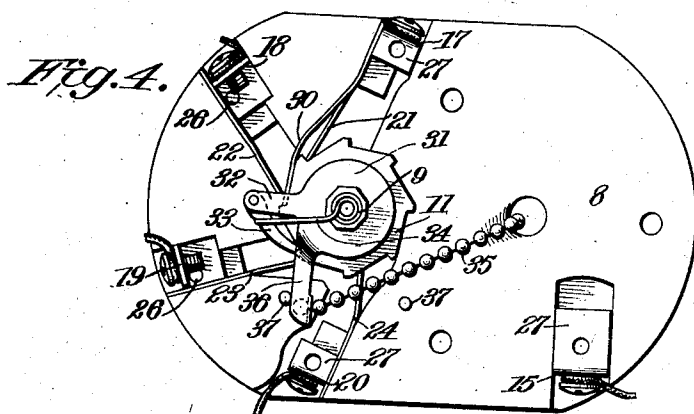
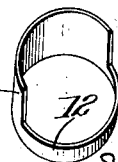
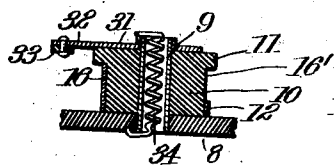


Fig. 7.

Fig. 8.



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 3 SHEETS—SHEET 3.

Fig. 9.

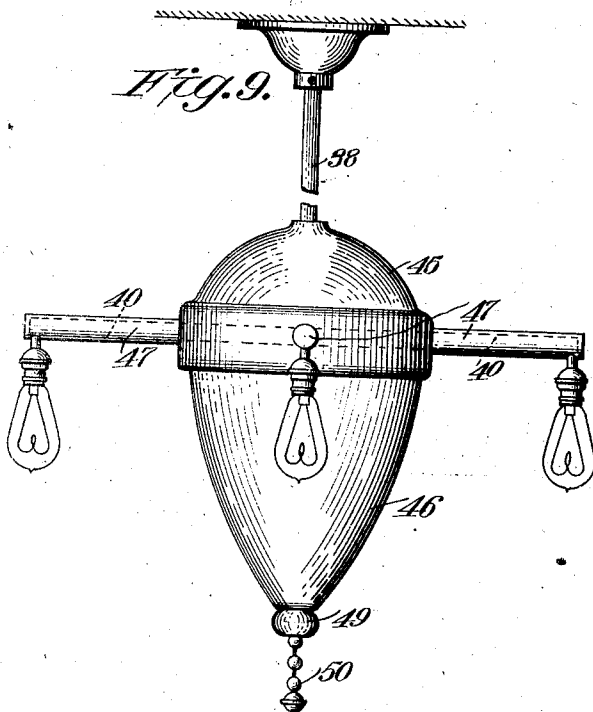


Fig. 11.

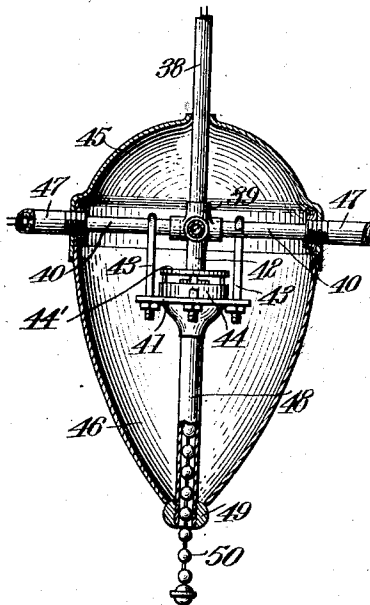


Fig. 10.

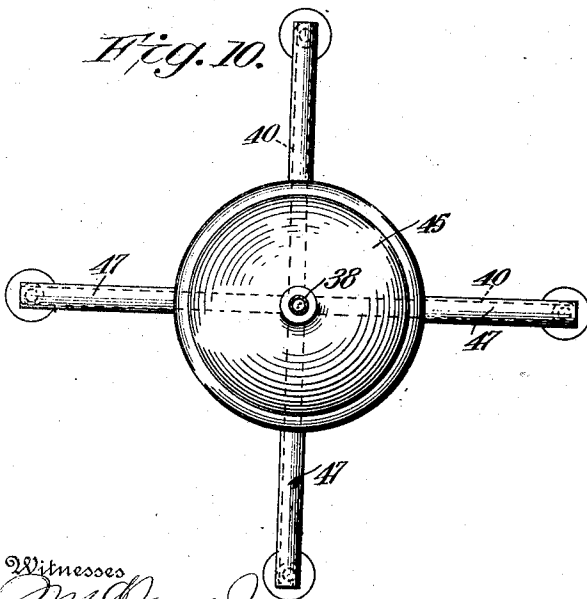
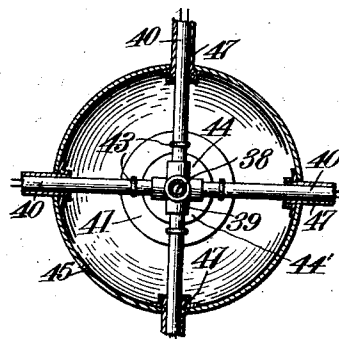


Fig. 12.



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UNITED STATES PATENT OFFICE.

SAMUEL KORF AND ROBERT WITZ, OF CHICAGO, ILLINOIS, ASSIGNORS TO THE WI-KO ELECTRIC COMPANY, OF CHICAGO, ILLINOIS, A CORPORATION OF ILLINOIS.

ROTARY SNAP-SWITCH.

997,564.

Specification of Letters Patent. Patented July 11, 1911.

Application filed July 30, 1910. Serial No. 574,710.

To all whom it may concern:

Be it known that we, SAMUEL KORF and ROBERT WITZ, citizens of the United States, residing at Chicago, in the county of Cook and State of Illinois, have invented certain new and useful Improvements in Rotary Snap-Switches, of which the following is a specification.

Our invention relates to a rotary snap switch for electric lamps designed principally for residence lighting fixtures and particularly to a switch for a cluster or number of lamps or bulbs and its object is to provide a device in which the continuous circuit of the series can be broken so as to make or break the circuit to any desired number of the lamps; to provide a device that may be operated by a single pull-chain and thus obviate the necessity of employing a chain or key for each lamp; and to enable the operation of the device by successive pulls upon the single chain.

The invention is particularly applicable to the control of tungsten lamps which are usually arranged in clusters, and also to lamps which are socketed in lighting fixtures.

The preferred embodiment of our invention is hereinafter described and illustrated in the accompanying drawings.

In these drawings, Figure 1 is a side elevation of a dome within which the invention is held; Fig. 2 is a side view of the disk or plate in which the bulb sockets are removably held and of the lamp operating mechanism which is secured to said plate; Fig. 3 is a plan view thereof; Fig. 4 is a plan view of the box containing the operating mechanism but with the upper section of the box removed; Fig. 5 is a similar view with the ratchet wheel and the parts above the same removed; Fig. 6 is a vertical section showing particularly the lowermost contact strip; Fig. 7 is a vertical section through the ratchet wheel member; Fig. 8, a detail perspective of the ratchet wheel contact band; Fig. 9, a side elevation showing the invention applied to a residence lighting fixture; Fig. 10, a plan view thereof and Figs. 11 and 12 are vertical and horizontal section views of such device.

Referring to the drawings and particularly to Figs. 1 to 8, inclusive, the device is shown in connection with a tungsten lamp.

1 is a dome to which a shade is preferably secured although not shown. Within the dome is removably held a reflector and socket carrying plate 2 in which are removably secured the sockets 3 for the electric incandescent lamps 4, 5, 6 and 7. 8 is a box which is made into an upper and lower section, and it is preferably of porcelain, although any suitable non-conducting material may be used. The mechanism for controlling the electric circuit to the lamps is incased within this box. Referring to this mechanism, 9 is a hollow post to which is connected a member consisting of the tubular part 10 and the ratchet wheel 11. This member is made of a non-conducting material such as rubber or fiber. Surrounding the tubular part 10 is a metal band 12, the lower portion of which is constantly in contact with a strip 13 connected by a screw 14 to a terminal 15 to which is connected by a binding screw to one of the wires of the electric circuit. At the upper part, the band 12 is cut away so as to provide a semi-circular portion 16 which is of slightly greater height than the lower part of the band and to expose a portion 16' of the tubular non-conducting part 10. Terminals 17, 18, 19 and 20 are adapted to establish a circuit for the lamps through the spring metal conductor strips 21, 22, 23 and 24 contacting with the part 16 of band 12. A separate wire 25 is provided for each lamp to form the second wire of the circuit for each lamp and it is connected to the binder post which contacts with the strip adapted to make the circuit for the lamp by a binder screw, and also to such lamp through the socket. All the wires except the wire leading to terminal 15 are in contact at 25'. Each of the contact strips and the respective terminal with which it is in circuit are secured together and to the box by a screw 26. The terminals 15, 17 and 20 are provided with a plate 27 at their top which has a screw-threaded opening therein to receive the screws 28 which secure the sections together. Bolts 29 secure the box as a whole to the plate 2. Preferably made integral with the spring metal strip 21 is a detent pawl 30 for the ratchet wheel 11. Loosely mounted on the post 9 above the ratchet wheel is a plate 31 which has an arm 32 to which the pawl 33 is pivoted, which pawl is adapted to move the ratchet forward

when operated. A spiral spring 34 held within the hollow post 1 keeps the pawl and ratchet in engagement and returns the plate after an operation of the device. An operating pull chain 35 is connected to an arm 36 of the plate 31 and a pull thereon will move the ratchet one tooth. Stop pins 37 are provided and the arm 36 is adapted to abut against the same to limit the revolving of the ratchet wheel. The circuit is adapted to be established for the respective lamps by the contact of its conductor strip with the semi-circular part 16 of band 12. It will be seen that in a cluster or series of lamps that the lamps thereof will be lighted whose conductor strip is in contact with part 16 and that those lamps will be out of circuit whose conductor strip is in contact with the non-conducting part 16'. Any number of lamps may be employed and a conductor strip must be provided for each lamp and suitably wired as are the lamps shown.

The device is adapted to be operated by successive pulls upon the chain 35. Assume that none of the lamps are lighted. The conductor strips are all contacting with the non-conducting part 16'. To light a single lamp, the chain is pulled once, which causes the ratchet to revolve one tooth which brings the part 16 into contact with the strip 21 which lights the lamp 4. Upon a second pull, strip 22 would establish a circuit for the alternate lamp 6 and upon a third and fourth pull the strips would establish a circuit for the alternate lamps 5 and 7, respectively. The lamps are thus all lighted. To break the circuit, the chain must be pulled once for each lamp so as to move the part 16' out of contact with the conductor strip.

It is obvious that the contacts and wiring may be so arranged that any number of lamps may be lighted as are desired, and it will be noted that the entire mechanism is operated by a single pull-chain.

In Figs. 9 to 12, inclusive, the switch is shown as mounted in a residence lighting fixture. At the base of a vertical pipe arm 38, from a central coupling 39 radiate pipe arms 40 to the outer ends of which are connected the lamps or bulbs. A plate 41 is removably clamped against an extension 42 of the coupling 39. Bolts 43 adapted to clamp the plate against the extension, pass through the plate and have hook ends adapted to engage the arms 40. Upon the plate is secured a box 44 within which is located the improved switch mechanism. The switch box is made in two parts with the lower or main part supported on the member 41 and the upper portion 44' secured to said lower-part and adapted to receive by means of a socket or aperture the lower end of the arm 32 of the rigid fitting of the fixture. The box in the case of this

form of fixture is preferably round. An inclosing shell member is composed of the upper and lower sections 45 and 46. Covering pipe arms 47 for the arms 40 are screwed into the section 45. A tube 48 is secured to the plate 41 and extends through and beyond an opening in the section 46, the section being secured in place by the threaded engagement of a knob 49 with the lower end of the tube. The pull chain 50 for the switch passes through and is guided in the tube. The device of Figs. 9 to 12, inclusive, forms the subject matter of an application divided from this application and filed by us on February 23, 1911, for an electric switch fixture, which divisional application bears the Serial Number 610,354. The switch mechanism in this form is similar to that of the other form. The wires are necessarily longer, however, and pass through the pipe arms to the lamps.

The lighting of the lamps in both devices alternately as shown is not an essential feature as any combination of lamps may be successively lighted by suitably connecting the wires.

It is clear that we may vary the details of construction of our device or make any changes within the spirit and scope of our invention.

Having thus described our invention, what we claim is:—

1. In an electric snap switch in combination with a series of electric lamps, a removable box made of non-conducting material and adapted to contain the switch mechanism, separate contact strips for the lamps, a circuit controller in said box adapted to successively contact with the different strips, said box having openings formed in its side wall to accommodate the strips and wiring and adapted to receive the wiring and support the switch mechanism upon the same side thereof leaving a plain smooth surface on one side of the box whereby the same may be attached to different forms of fixtures, substantially as described.

2. In combination with a suitable shell, a lamp supporting plate adapted to receive a plurality of lamps, a removable self-contained switch adapted to be mounted on the inner face of said plate and having a switch box provided with a flat, plain surface and composed of two separable switch inclosing members in combination with wiring and contact strips leading to the different lamps and a common circuit controller for successively lighting and for successively extinguishing said lamps mounted within said box and operating said contacts, means for operating said controller and a pull chain connected to said operating means and passing through the box and through said plate, substantially as described.

3. In a lamp, a shade holder, a removable plate therein, electric lamp sockets removably secured to the plate, an operating mechanism containing device having an upper and a lower section removably secured to the plate, lamp operating mechanism within said device, a single pull chain for operating said device extending through the plate, and electric circuit means in connec-

tion with the lamp and the operating mechanism, substantially as described.

In testimony whereof we have affixed our signatures in presence of two witnesses.

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ROBERT WITZ.

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