Nov. 3, 1925. 1,559,888

E. R. KULKA

CANOPY SWITCH

Filed Jan. 24, 1925

Fig. 1

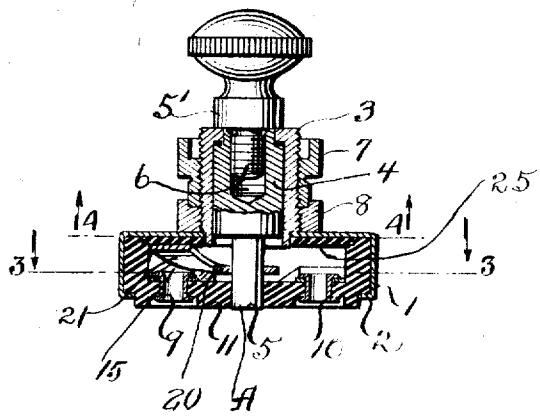


Fig. 2

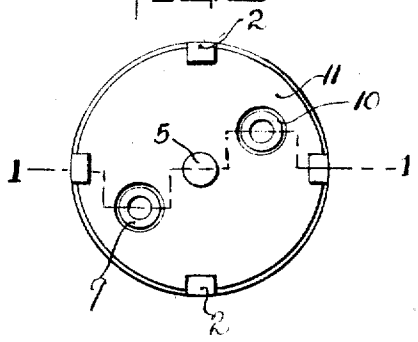


Fig. 3

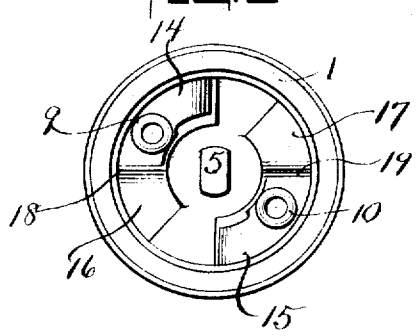


Fig. 4

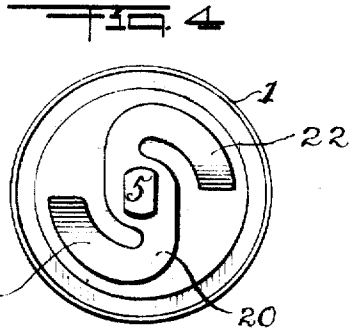


Fig. 5



Fig. 6



Fig. 7



Eugene R. Kulka

INVENTOR

BY Mock & Blum

ATTORNEY

Patented Nov. 3, 1925. 1,559,888

UNITED STATES PATENT OFFICE.

EUGENE RAYMOND KULKA, OF BROOKLYN, NEW YORK, ASSIGNOR TO C. D. WOOD ELECTRIC CO. INC., OF NEW YORK, N. Y., A CORPORATION OF NEW YORK.

CANOPY SWITCH.

Application filed January 24, 1925. Serial No. 4,385.

To all whom it may concern:

Be it known that I, EUGENE RAYMOND KULKA, a citizen of the United States, residing at Brooklyn, in the county of Kings, city and State of New York, have invented certain new and useful Improvements in Canopy Switches, of which the following is a specification.

My invention relates to a new and improved canopy switch.

One of the objects of my invention is to make a canopy switch which will be of simple and compact construction and which can be easily and quickly manufactured and assembled.

Another object of my invention is to make a canopy switch of small dimensions and having a minimum number of parts.

Another object of my invention is to provide a canopy switch of the jump type and having the minimum number of resilient parts or members.

Other objects of my invention will be set forth in the following description and drawings which illustrate a preferred embodiment thereof, it being understood that the general statement above made of the objects of my invention is intended merely to generally explain the same and not to limit it in any manner.

Fig. 1 is a section on the line 1—1 of Fig. 2.

Fig. 2 is a bottom plan view.

Fig. 3 is a sectional view on the line 3—3 of Fig. 1.

Fig. 4 is a sectional view on the line 4—4 of Fig. 1.

Figs. 5 and 6 are detail views of one of the stationary contact blades.

Fig. 7 is a side elevation of the movable contact member.

The device comprises a base 11 made of bakelite or other suitable insulating material. This base 11 has a series of depressions at the bottom thereof and these depressions are engaged by four tongues 2 of a casing 1 which is made of any suitable metal such as brass or the like. The casing 1 is made or stamped with the tongues 2 vertical, and these tongues can be readily bent inwards so as to engage the recesses of the base 11. The base 11 is provided with metal rivets 9 and 10 which pass into the hollow cup-shaped interior of the said base 11. The rivet 9 holds a stationary contact blade 14 in position and the rivet 10 holds a stationary contact blade 15 in position. The interior of the said base 11 is provided with cam projections 16 and 17. These cam projections are preferably molded integral with the base 11 and they each have a tapered contour. Thus, the cam projection 16 has a shoulder 18 directly adjacent the associated blade 14 and the cam projection 17 has a corresponding raised shoulder 19 adjacent this associated blade 15.

A movable contact blade 20 which is made of any suitable resilient metal such as brass or the like is mounted upon the end 5 of a spindle 4. The spindle 4, including the end 5 thereof is made of suitable insulating material and as clearly shown in Fig. 1 the upper end of the spindle 4 is hollow and it is internally threaded. The spindle 4 is engaged by the externally threaded end 6 of a knurled knob 5' and the casing 1 has an upper threaded portion which is engaged by nuts 8 and 7 so that the outside of the article is given a neat and finished appearance. As shown in Fig. 1 the bottom of the outer nut 7 fits within a depression in the top of the lower nut 8. The blade 20 is mounted upon the end 5 of the spindle 4 so that said end 5 and said blade 20 revolve together. The blade 20 consists of a substantially flat central portion and raised end portions 21 and 22 which have substantially the same contour or inclination as the cam projections 16 and 17. The top of the cup-shaped base 11 is closed by an insulating member 25.

The terminals of the source of current to be connected, can be connected in any suitable manner to the hollow rivets 9 and 10 so that the blades 14 and 15 are thus connected to said terminals. When the blade 20 is in the position shown in Fig. 4, the upraised ends 21 and 22 rest upon the shoulders or projections 16 and 17 so that said ends 21 and 22 are separated from the blades 14 and 15 and the circuit is not closed. When the spindle 4 is revolved the switch member 20 is also revolved until its ends contact with the blades 14 and 15 so as to make or close the circuit. Since the ends 21 and 22 of the blade 20 are upwardly inclined as before mentioned, they bear against the top insulating member 25 with a certain amount of force so that the said blade 20 is always forced downwardly or in the direction of the stationary blades 14 and 15. Hence,

when the ends of the said blade 20 pass beyond the shoulders 18 and 19 the said blade 20 is snapped into position very quickly so as to make the desired contact. Similarly, when the blade 20 is moved to the inoperative position, its inclined ends ride upon the upwardly inclined blades 14 and 15 until the contact is broken by a quick snap action. The blades 14 and 15 are mounted upon projections or shoulders having a contour similar to that of the projections 16 and 17.

The inner end of the base 11 may be considered as being divided into eight substantially equal segments or parts, each said part being occupied by a tapered projection inclined away from said base, or by a space between two such adjacent projections.

The movable blade 20 is mounted so as to turn with the end of spindle 4, but it is slidable upon said spindle, in a direction towards and away from said base to a limited extent. Hence, when the inclined ends 21 and 22 of blade 20 are slid over the projections 16 and 17, the central portion of blade 20 is slid on the end 5 of spindle 4 away from the base 11, so that the contact with the stationary blades is broken, and the inclined ends 21 and 22 are bent against member 25, so that a spring pressure is exerted to force blade 20 towards said base.

I have shown a preferred embodiment of my invention but it is clear that numerous changes and omissions could be made without departing from its spirit.

To operate the switch, the spindle end 5 is revolved a quarter of a revolution. If, for example, the movable contact blade 20 has its ends in contact with the stationary contact blades 14 and 15, then the movable contact blade slides upwardly or away from the inner face of the insulating base, until the ends of the said movable blade have passed beyond the shoulders of the inclined projections on which the said stationary contact blades are mounted. As the movable contact blade 20 is slid upon the end 5 of the spindle in a direction away from the insulating base 11, the inclined ends 21 and 22 thereof are bent against the cover 25, so that when the ends of the movable contact blade 20 are no longer in contact with the said stationary contact blades, then the movable contact blade is rapidly forced downwardly or towards the insulating base 11 so that the inclined ends thereof rest upon the intermediate projections 16 and 17. A similar effect is secured upon the next quarter revolution of the member 5′ so that the contact is rapidly made and broken with a snap or jump action so that sparking is minimized.

I claim:—

A switch comprising a metal casing having an end portion, an insulating base connected to said casing opposite said end portion, the inner face of said base having a plurality of tapered projections, spaced stationary contact blades mounted on some of said projections, a revoluble spindle mounted in the end portion of the casing, an insulating cover for said insulating base located at the inner side of said end portion, the said spindle projecting through said cover and having at its end adjacent said stationary contact blades, and a movable resilient contact blade mounted on the end of said spindle, said movable contact blade being turnable with said spindle, and being also slidable thereon, the ends of said movable contact blade being inclined away from said base and the said contact blade being adapted to contact with said insulating cover when said inclined ends thereof are forced away from said tapered projections so that the resilience of said contact blade then urges it towards said base.

In testimony whereof I hereunto affix my signature.

EUGENE R. KULKA.

when the ends of the said blade 20 pass beyond the shoulders 18 and 19 the said blade 20 is snapped into position very quickly so as to make the desired contact. Similarly, when the blade 20 is moved to the inoperative position, its inclined ends ride upon the upwardly inclined blades 14 and 15 until the contact is broken by a quick snap action. The blades 14 and 15 are mounted upon projections or shoulders having a contour similar to that of the projections 16 and 17.

The inner end of the base 11 may be considered as being divided into eight substantially equal segments or parts, each said part being occupied by a tapered projection inclined away from said base, or by a space between two such adjacent projections.

The movable blade 20 is mounted so as to turn with the end of spindle 4, but it is slidable upon said spindle, in a direction towards and away from said base to a limited extent. Hence, when the inclined ends 21 and 22 of blade 20 are slid over the projections 16 and 17, the central portion of blade 20 is slid on the end 5 of spindle 4 away from the base 11, so that the contact with the stationary blades is broken, and the inclined ends 21 and 22 are bent against member 25, so that a spring pressure is exerted to force blade 20 towards said base.

I have shown a preferred embodiment of my invention but it is clear that numerous changes and omissions could be made without departing from its spirit.

To operate the switch, the spindle end 5 is revolved a quarter of a revolution. If, for example, the movable contact blade 20 has its ends in contact with the stationary contact blades 14 and 15, then the movable contact blade slides upwardly or away from the inner face of the insulating base, until the ends of the said movable blade have passed beyond the shoulders of the inclined projections on which the said stationary contact blades are mounted. As the movable contact blade 20 is slid upon the end 5 of the spindle in a direction away from the insulating base 11, the inclined ends 21 and 22 thereof are bent against the cover 25, so that when the ends of the movable contact blade 20 are no longer in contact with the said stationary contact blades, then the movable contact blade is rapidly forced downwardly or towards the insulating base 11 so that the inclined ends thereof rest upon the intermediate projections 16 and 17. A similar effect is secured upon the next quarter revolution of the member 5′ so that the contact is rapidly made and broken with a snap or jump action so that sparking is minimized.

I claim:—

A switch comprising a metal casing having an end portion, an insulating base connected to said casing opposite said end portion, the inner face of said base having a plurality of tapered projections, spaced stationary contact blades mounted on some of said projections, a revoluble spindle mounted in the end portion of the casing, an insulating cover for said insulating base located at the inner side of said end portion, the said spindle projecting through said cover and having at its end adjacent said stationary contact blades, and a movable resilient contact blade mounted on the end of said spindle, said movable contact blade being turnable with said spindle, and being also slidable thereon, the ends of said movable contact blade being inclined away from said base and the said contact blade being adapted to contact with said insulating cover when said inclined ends thereof are forced away from said tapered projections so that the resilience of said contact blade then urges it towards said base.

In testimony whereof I hereunto affix my signature.

EUGENE R. KULKA.

Certificate of Correction.

Patent No. 1,559,888. Granted November 3, 1925, to EUGENE RAYMOND KULKA.

It is hereby certified that error appears in the printed specification of the above-numbered patent requiring correction as follows: Page 2, line 75, in claim, strike out the word "at"; and that the said Letters Patent should be read with this correction therein that the same may conform to the record of the case in the Patent Office.

Signed and sealed this 22d day of November, A. D. 1927.

[SEAL.]

M. J. MOORE,
Acting Commissioner of Patents.

Certificate of Correction.

Patent No. 1,559,888. Granted November 3, 1925, to

EUGENE RAYMOND KULKA.

It is hereby certified that error appears in the printed specification of the above-numbered patent requiring correction as follows: Page 2, line 75, in claim, strike out the word "at"; and that the said Letters Patent should be read with this correction therein that the same may conform to the record of the case in the Patent Office.

Signed and sealed this 22d day of November, A. D. 1927.

[SEAL.]

M. J. MOORE,
Acting Commissioner of Patents.