May 17, 1932. A. KUZMETH 1,858,243

ELECTRIC SWITCH

Filed June 28, 1930

Fig. 1.

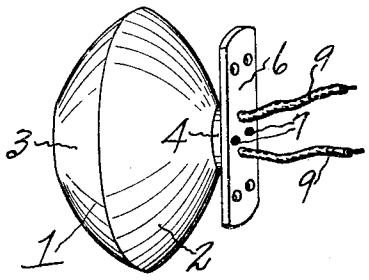


Fig. 2.

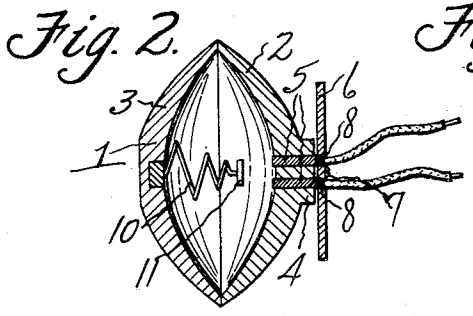
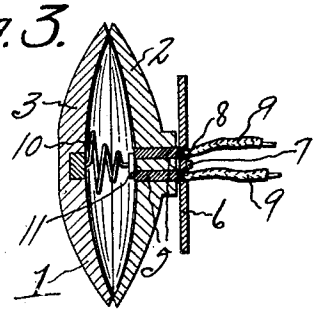


Fig. 3.



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UNITED STATES PATENT OFFICE

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ELECTRIC SWITCH

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The invention relates to electric switches, and has for its object to provide a switch whose contacts are normally spaced apart, and which, upon closing the contacts thereof, will automatically reopen said contacts after a short interval of time.

A further object is to provide a switch whose contacts are disposed in a non-conducting deflatable air-bulb in normally spaced position, said contacts closing upon depression of said bulb.

A further object is to provide a switch whose contacts are disposed in a deflatable air-bulb in spaced relation, one of said contacts being mounted on a spring carried by said bulb, said contacts being closed upon depression of said bulb and held in closed position by said spring during the initial inflation of said bulb.

A further object is to provide a switch having a casing of registering, resilient, non-conducting, cup-shaped members carrying switch contacts therein whereby said contacts will interengage upon depression of the casing and will part upon inflation of the casing.

With the above and other objects in view, the invention resides in the combination and arrangement of parts as hereinafter set forth, shown in the drawings, described and claimed, it being understood that changes in the precise embodiment of the invention may be made within the scope of what is claimed without departing from the spirit of the invention.

In the drawings:

Figure 1 is a perspective view of the switch.

Figure 2 is a sectional view of the switch in open, spaced-contact position.

Figure 3 is a sectional view of the switch in closed-contact position.

Referring to the drawings, which illustrate the preferred embodiment of the invention, the numeral 1 designates an air-bulb, preferably formed of registering, soft-rubber, cup-shaped members 2 and 3, adhesively secured together with non-hardening adhesive, the connection between said members preferably being such as to permit the deflation and inflation of the bulb by passage of air therebetween. A boss 4 is formed on the outer side of the central portion of member 2, and through said boss extend spaced terminal bars 5 whose ends project slightly beyond the adjacent inner and outer surfaces of said member. A hard rubber plate 6 is adapted to be secured to boss 4 by means of screws 7 and forms means for securing said switch to a supporting member. Contacts 8 are carried by plate 6 and engage the terminal bars 5, said contacts 8 having connection with wires 9 of the circuit to be controlled by the switch. Suitably carried by the inner side of cup-shaped member 3 at the center thereof is a helical compression spring 10, on the outer end of which is mounted a contact plate 11 opposite terminal bars 5 and normally spaced therefrom.

Upon the application of pressure to the bulb it is compressed and deflated whereby the contact plate 11 engages and spans the terminal bars 5 to close the circuit therebetween, the spring 10 being compressed with the bulb. Subsequent release of pressure permits the gradual inflation of the air-bulb and expansion of spring 10, but the contact plate 11 is held in circuit-closing position by the spring until said spring has assumed its normal expanded position, after which, the final inflation of the air-bulb carries the spring and contact plate away from cup-shaped member 2 and breaks the circuit between terminal bars 5. Thus depression of the switch bulb closes the switch for a short interval of time without the necessity of manually holding the switch closed. The length of time the switch is closed depends upon the rate of inflation of the bulb and the size of the spring 10 employed, and may be regulated by lengthening or shortening spring 10.

The spring 10 forms a positive means for insuring return of the bulb to its normal inflated position after depression thereof, by virtue of the spreading action it exerts on the bulb which prevents the bulb from becoming stuck in depressed closed-contact position after release of pressure therefrom. It will also be seen that with this construction the switch parts, being enclosed within the rubber non-conducting bulb, are inaccessible, and there

is no danger of touching live electrical members when operating the switch. Obviously the particular type and construction of the air-bulb may be varied if desired, for instance semi-spherical members may be fixedly secured together to form a bulb which will be operatively deflatable by the provision of a small air-hole therein; also the air-bulb previously described may be provided with a small air-hole to insure its effective inflation and deflation. Another modified form of the device might be made in which a contact member formed of resilient material would be carried by the bulb in a manner to engage and span the terminal bars upon depression of the bulb and to remain in contact with said bars during the initial expansion thereof, thus combining in one member the spring and contact illustrated.

The invention having been set forth, what is claimed as new and useful is:

1. An electric switch comprising a deflatable non-conducting air-bulb, spaced terminal bars carried by said bulb, a contact plate carried by said bulb and adapted to engage and span said bars upon depression of said bulb, and means for holding said plate in engagement with said bars during the initial expansion of said bulb.

2. An electric switch comprising a deflatable non-conducting air-bulb, spaced terminal bars carried by said bulb, a contact plate, and a spring carried by said bulb and mounting said plate whereby said plate engages and spans said bars upon depression of said bulb, said spring holding said plate in engagement with said bars during the initial expansion of said bulb.

3. An electric switch comprising a deflatable non-conducting air-bulb, spaced terminal bars carried by said bulb, and a resilient contact plate disposed in said bulb in normally spaced relation to said bars, said plate being adapted to contact and span said bars upon depression of the bulb and to remain in contact with said bars during the initial expansion of said bulb.

4. An electric switch comprising a deflatable non-conducting air bulb, spaced terminal bars extending into said bulb, a spring disposed in said bulb, and a contact carried by said spring and adapted to engage and span said bars upon depression of said bulb and flexing of said spring, said spring holding said contact in engagement with said bars during the initial expansion of said bulb.

5. An electric switch comprising a deflatable non-conducting air bulb, spaced terminal bars extending into said bulb, a coil spring disposed in said bulb opposite said bars, and a contact carried by said spring and adapted to engage and span said bars upon depression of said bulb and flexing of said spring, said spring holding said contact in engagement with said bars during the initial expansion of said bulb.

6. An electric switch comprising a deflatable non-conducting air-bulb formed of registering interconnected, resilient, cup-shaped members, spaced terminal bars carried by one of said members, a spring disposed in said bulb and carried by the other member, and a contact carried by said spring and adapted to engage and span said bars upon depression of said bulb, said spring holding said contact in engagement with said bars during the initial expansion of said bulb.

7. An electric switch comprising a deflatable non-conducting air-bulb formed of registering, interconnected, resilient, cup-shaped members, spaced terminal bars mounted at the center of one of said members, a coil spring disposed in said bulb and mounted at the center of the other member, and a contact carried by said spring and adapted to engage and span said bars upon depression of said bulb, said spring holding said contact in engagement with said bars during the initial expansion of said bulb.

In testimony whereof I affix my signature.

ANDREW KUZMETH.