G. BIDDLE.

ELECTRIC SWITCH.

APPLICATION FILED JAN. 10, 1916.

1,238,382. Patented Aug. 28, 1917.

Fig. 1

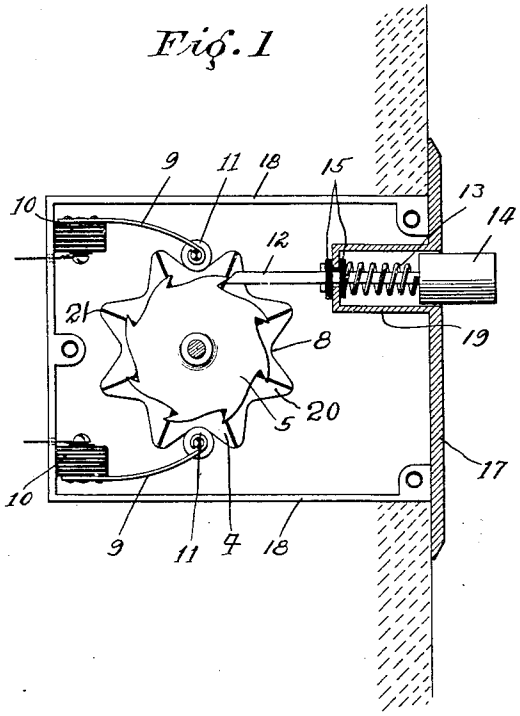


Fig. 2

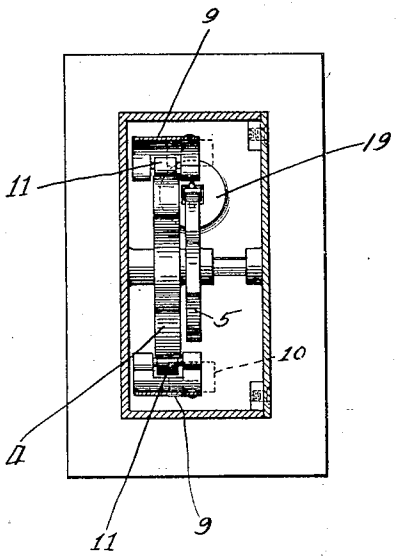
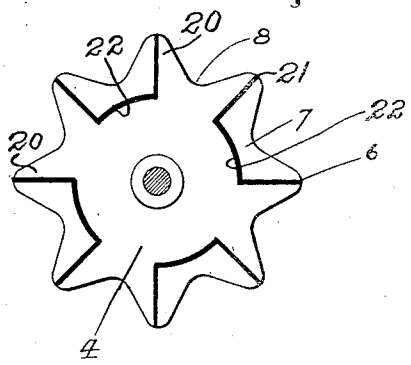


Fig. 3



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ELECTRIC SWITCH.

1,238,382. Specification of Letters Patent. Patented Aug. 28, 1917.

Application filed January 10, 1916. Serial No. 71,360.

To all whom it may concern:

Be it known that I, GRAHAM BIDDLE, a citizen of the United States, residing in Oakland, in the county of Alameda and State of California, have invented certain new and useful Improvements in Electric Switches, of which the following is a specification.

The present invention relates to improvements in electric switches and consists in the combinations and arrangements of parts hereinafter described and particularly set forth in the accompanying claims.

The invention has for its purpose to provide an electric switch of the make-and-break operating type, wherein the same may be worked by the ordinary push button, without the snap, or noise, that is characteristic of the present used snap switches.

Another object of the invention is to construct a switch of the rotary acting type, wherein the conductor is designed to allow the pair of contact terminals to ride freely thereon and thereby avoid the injury or wear to the parts that is a consequence to the constant snapping of the snap type of switch.

The invention is shown by way of illustration in the accompanying drawings, wherein—

Figure 1 is a central sectional view of the switch,

Fig. 2 an end elevational view of the same, with parts in section, and

Fig. 3 a view in elevation of the rotary conductor.

Referring to the construction in detail and wherein like reference characters represent corresponding parts, 4 designates a rotary conductor suitably mounted to rotate on a shaft journaled in the casing 18 and adapted to be actuated in a step-by-step movement through the pawl 12 that engages with the teeth of the ratchet wheel 5 secured to and co-axial with said rotary conductor.

The pawl 12 is carried by the push button 14 that works within the socket piece 19 formed as a part of the casing closure 17; and a spring 13, mounted on said pawl, engages with the push button and normally holds the latter in position for operation, as shown in Fig. 1. A pair of washers 15 of rubber, or other suitable material, is fitted on the pawl 12 to either side of the socket piece 19, and has for its purpose to avoid the noise incident to the operation of the push button.

A pair of spring contacts 9, mounted on the terminal pieces 10, carries rollers 11 that engage with the peripheral edge of the rotary conductor and make or break the circuit therewith, as will be understood. The elements described in the foregoing are, or may be, of the ordinary or usual construction, and form no part of the novelty of the present device.

The rotary conductor 4 is constructed of suitable conducting metal and is formed with a plurality of radially projecting portions 20, whose outer and inner edges, 6 and 8 thereof, are rounded or curved after the manner shown in Fig. 3. Said rounded edges or salients provide a smooth and uninterrupted surface to engage the contact rollers 11 and allow the latter to have continuous engagement with the rotary member at all times in its operation, and without break or snap. Each of said projecting portions is constructed to receive the strip of insulation 21 that divides the projecting part or salient evenly; and the strips are connected in alternate pairs by similar insulation 22. This construction of the rotary conductor provides conductor segments and insulated segments in diametrically opposed pairs to engage with the rollers 11 of the terminal contacts 9, to successively make and break the circuit.

By having the strips of insulation evenly dividing the projecting portions of the rotary conductor, said rollers 11 of the contact terminals pass from circuit making to circuit breaking positions, or vice versa, without suddenly snapping, and by this provision, the operating parts are not subjected to the wear incident to such engagement, and the objectionable feature of noise is also avoided.

It is obvious that those skilled in the art may vary the details of construction and arrangement of parts without departing from the spirit of my invention, and I therefore do not wish to be limited to such features except as may be required by the claims.

Having thus fully described my said invention, what I claim as new and desire to secure by Letters Patent, is:

1. In a switch, the combination of a casing, a rotary conductor having radially projecting portions mounted in the casing, strips of insulation dividing the salient of each of the several radially projecting portions and therewith forming the circuit closing and circuit breaking elements of the conductor, a pair of contacts engaging said

conductor, and means for imparting rotation to the conductor, substantially as set forth.

2. In a switch, the combination of a casing, a rotary conductor having radially projecting portions mounted in the casing and constructed with rounded salients, strips of insulation dividing at the middle the salient of each of the several radially projecting portions and therewith forming the circuit closing and circuit breaking elements of the conductor, a pair of contacts engaging said conductor, said contacts adapted to move over the salients of the projecting portions and make or break circuit without snapping, and means for imparting rotation to the conductor, substantially as set forth.

3. In a switch, the combination of a casing, a rotary conductor having radially projecting portions mounted in the casing and constructed with rounded salient portions forming a continuous and unbroken contacting surface, strips of insulation dividing at the middle each of the several salient portions and therewith forming the circuit closing and circuit breaking elements of the conductor, a pair of contacts engaging said conductor surface, said contacts adapted to freely move over the salient portions of said surface and make or break the circuit without snapping, and means for imparting rotation to the conductor, substantially as set forth.

In testimony, that I claim the foregoing as my own, I have hereto affixed my signature in the presence of two subscribing witnesses.

GRAHAM BIDDLE.

Witnesses.

B. R. JEFFERIS,

T. V. CHRISTIANSON.