

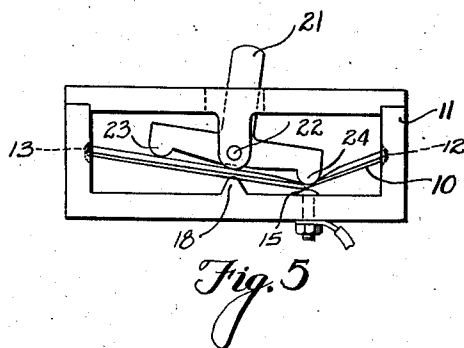
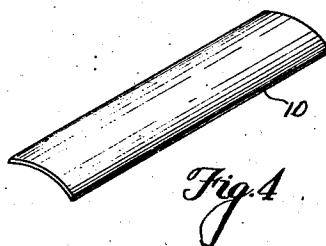
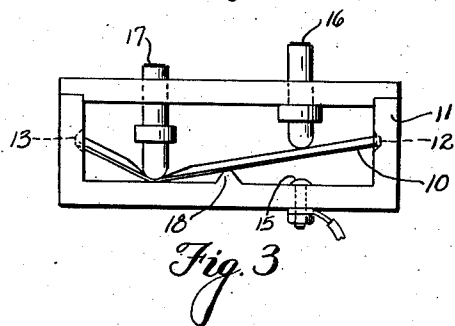
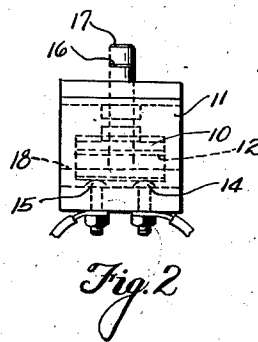
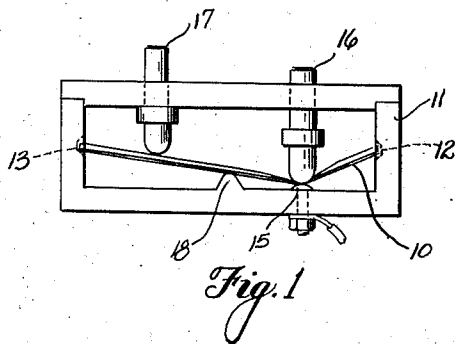
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R. H. JORDAN

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SNAP-ACTION MECHANISM

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INVENTOR.
Richard H. Jordan
BY
Hoodling and Krost
attys

UNITED STATES PATENT OFFICE

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SNAP-ACTION MECHANISM

Richard H. Jordan, Mansfield, Ohio, assignor to
Dominion Electrical Manufacturing, Inc., a
corporation of Ohio

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5 Claims. (Cl. 200—67)

My invention relates in general to a quick-action movement and more particularly to a snap switch.

An object of my invention is the provision of a snap switch which may be constructed of simple parts and which is reliable in operation.

Another object of my invention is the provision of a channelled flat spring which is employed to give a quick-action movement.

Another object of my invention is to use the channelled flat spring as a bridging member to close an electrical circuit between two spaced contacts.

Another object of my invention is the provision of a snap-action arrangement for interrupting and making electrical circuits by flattening a portion of a pre-formed channelled resilient strip which is anchored at its two ends and which is supported by an intermediate fulcrum or support, the flattening reducing the rigidity of the channelled member between the fulcrum and one of the ends of the strips and thereby producing a quick-acting movement.

Other objects and a fuller understanding of my invention may be had by referring to the following description and claims, taken in conjunction with the accompanying drawing, in which:

Figure 1 is a side elevational view of a switch embodying the features of my invention;

Figure 2 is an end view of the device shown in Figure 1;

Figure 3 is a view similar to Figure 1, with the switch shown in the opposite position;

Figure 4 is a perspective view of a channelled flat spring used in my switch; and

Figure 5 is a side elevational view showing a modification of the method of operating my switch.

With reference to the views of the drawing, my invention comprises generally a channelled rigid flat resilient strip 10 having its opposite ends mounted in notches 12 and 13 provided in the upright portion of the switch frame 11 which may be constructed of any suitable insulating material. The distance between the two notches 12 and 13 is shorter than the length of the channelled resilient strip so that the endwise constraint upon the channelled resilient strip causes it to assume a position as shown in Figure 1, or in Figure 3. The intermediate portion of the channelled resilient strip 10 is supported by an intermediate support or fulcrum 16. Positioned under the channelled rigid resilient strip 10 and between the intermediate support 16 and the notch 12 are two spaced electrical contacts 14

and 15 which are bridged by the channelled rigid resilient strip 10 when the control push button 16 is depressed. When the control push button 17 is depressed, the contacts 14 and 15 are open as shown in Figure 3.

The operation of either one of the control push buttons 16 and 17 which when it engages the channelled rigid resilient strip 10, causes the channelled rigid resilient strip 10 to become almost flat or straight across which reduces the rigidity of same to give a quick-action movement. The reduction of rigidity of the channelled resilient strip in the places where the control push buttons 16 and 17 are located permits the spring to straighten out where it formerly was reduced in rigidity and deformed. The straightening out action is accompanied by a snap movement so that when either one of the control push buttons 16 and 17 are operated the snap action is instantaneous.

In Figure 5 I show a different method of weakening the channelled resilient strip in that I employ a switch lever 21 which is pivoted at a pivot point 22 and which has two spaced rocking arm engaging portions 23 and 24 for reducing the rigidity of the channelled rigid flat spring 10. The operation of the switch in Figure 5 is the same as that described with reference to the foregoing views.

While I have shown the channelled resilient strip as bridging the contacts 14 and 15 directly, it is to be understood that the switching arrangement may comprise other designs where the making and breaking of the circuit is remotely controlled by the quick-action movement of the rigid resilient strip 10.

Although I have described my invention with a certain degree of particularity, it is understood that the present disclosure has been made only by way of example and that numerous changes in the details of construction and the combination and arrangement of parts may be resorted to without departing from the spirit and the scope of the invention as hereinafter claimed.

I claim as my invention:

1. A quick-acting switch comprising the combination of a pair of spaced switch contacts, a relatively thin rigid channelled member for bridging the contacts having two end portions, a center portion and intermediate portions between the respective end portions and the center portion, and actuating means disposed to contact the said intermediate portions of the channelled member to flatten same and thereby reduce the rigidity thereof, end support means

to support the ends of the channelled member and constrain same endwise, and center support means to support the center thereof, the said at least one of the intermediate portions of the said channelled members under said endwise constraint giving a quick-acting movement with reference to the pair of spaced switch contacts upon flattening of an intermediate portion and reducing its rigidity by the actuating means.

2. A quick-acting device comprising the combination of a pair of spaced switch contacts, a relatively thin rigid channelled member for bridging the contacts having two end portions, a center portion and intermediate portions between the respective end portions and the center portion, and actuating means disposed to contact at least one of the said intermediate portions of the channelled member to flatten same and thereby reduce the rigidity thereof, end support means to support the ends of the channelled member and constrain same endwise, and center support means to support the center thereof, the said at least one of intermediate portions of the said channelled members under said endwise constraint giving a quick-acting movement with respect to its supported ends upon applying a force thereto by means of the actuating means.

3. A quick-acting device comprising the combination of a pair of spaced switch contacts, a relatively thin rigid channelled member for bridging the contacts having two end portions, a center portion and intermediate portions between the respective end portions and the center portion, and actuating means disposed to contact at least one of the said intermediate portions of the channelled member to flatten same and thereby reduce the rigidity thereof, end support means to support the ends of the channelled member and constrain same endwise, and center support means to support the center thereof, the said at least one of intermediate portions of the said channelled members under said endwise constraint giving a quick-acting movement with

respect to its supported ends upon applying a force thereto by means of the actuating means, and switch means actuated by the quick-acting movement.

5 4. Apparatus to give a quick-acting movement, comprising in combination, a relatively thin rigid channelled member having two end portions, a center portion and intermediate portions between the respective end portions and the center portion, said channelled member being made of a resilient metallic strip, and actuating means disposed to contact at least one of the said intermediate portions of the channelled member to flatten same and thereby reduce the rigidity thereof, end support means to support the ends of the channelled member and constrain same endwise, and center support means to support the center thereof, the said at least one of the said intermediate portions of the channelled member under endwise constraint giving a quick-acting movement upon flattening of said intermediate portion and reducing its rigidity by the actuating means.

5. Apparatus to give a quick-acting switch movement comprising, in combination, a relatively thin rigid channelled member having two end portions, a center portion and intermediate portions between the respective end portions and the center portion, said channelled member being made of a resilient metallic strip, and actuating means disposed to contact at least one of said intermediate portions of the channelled member to flatten same and thereby reduce the rigidity thereof, end support means to support the ends of the channelled member and constrain same endwise, and center support means to support the center thereof, the said at least one of the said intermediate portions of the channelled member under endwise constraint giving a quick-acting switch movement upon flattening of said intermediate portion and reducing its rigidity by the actuating means, and switch means actuated by the quick-acting movement.

RICHARD H. JORDAN.