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SLIDE SWITCH INDEXING DEVICE INCLUDING SPRING DETENT MEANS

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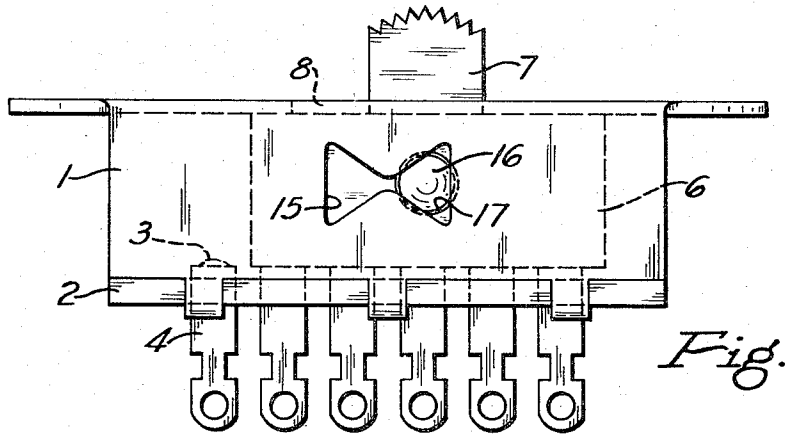


Fig. 1

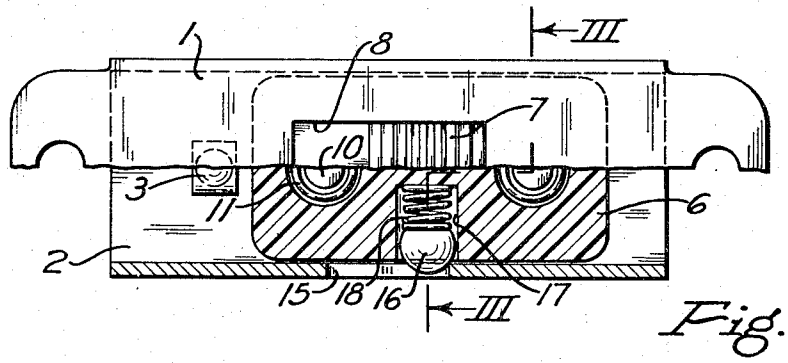


Fig. 2

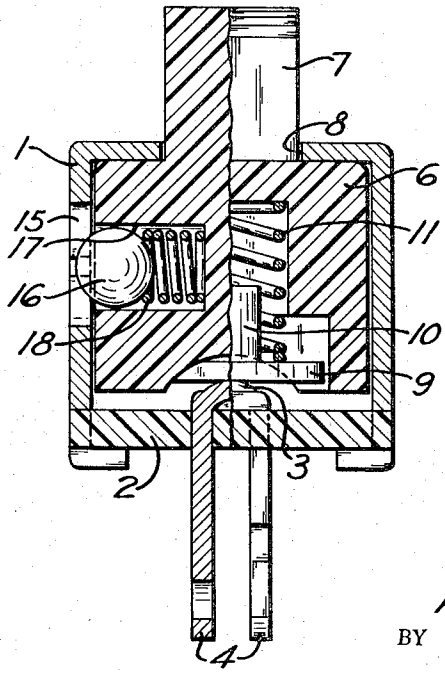


Fig. 3

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SLIDE SWITCH INDEXING DEVICE INCLUDING SPRING DETENT MEANS

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ABSTRACT OF THE DISCLOSURE

A switch housing contains a line of fixed contacts, across which a movable contact is moved by a slide that carries a spring-pressed detent which projects into a longitudinal slot in a wall of the housing and engages the side walls of the slot as it moves back and forth. The side walls of the slot taper inwardly toward each other from both ends to provide a space between their centers that is much narrower than the ends of the slot.

Background of the invention

Some slide switches in the past have been provided with spring-pressed detents which project into holes in the side walls of the switch housings to index the switches. In a given switch a pair of holes are separated by a small area of the housing wall, which the detent must pass over in order to move from one hole to another. With that construction, it is possible for the slide to stop or stall with the detent pressing against the area between the holes instead of moving on into one of the holes.

It is among the objects of this invention to provide a slide switch with an indexing arrangement, in which the indexing detent can less readily stall midway between the indexing openings.

The preferred embodiment of the invention is illustrated in the accompanying drawings, in which

FIG. 1 is a side view of the switch;

FIG. 2 is a plan view, partly in longitudinal section; and

FIG. 3 is a cross section taken on the line III—III of FIG. 2.

Referring to the drawings, the switch housing is formed from a metal channel **1** having parallel side walls and a top wall, and an insulating base **2**, to which the channel is clamped. A plurality of fixed contacts **3** are mounted in a straight line on the inner surface of the base. Each contact is connected with a terminal **4** that extends through the base. Slidably mounted in the housing is a slide **6** of insulating material which straddles the line of fixed contacts. The slide can be moved back and forth by a plunger or, as shown, the center of the top of the slide can be provided with a manually movable button **7** that projects through a rectangular opening **8** in the top of the housing. Between the slide and the housing base there are one or more sliding contacts **9** having stems **10** disposed in openings in the slide, as shown in FIG. 3. Coil springs **11** on the stems press the sliding contacts against the fixed contacts. As the slide is moved back and forth in the housing, it slides the movable contacts across the fixed contacts to connect different pairs of fixed contacts into the circuit.

It is a feature of this invention that this switch is provided with means for indexing it so that the slide will always stop in one or the other of its two positions and not "stall" between them. Accordingly, one side of the housing is provided with a longitudinal slot **15** that is a little longer than the distance that the slide is to move between its two operative positions. Projecting into this slot is a portion of a detent, preferably a ball **16** that is mounted in an opening **17** in the side of the slide and that is pressed outwardly by a spring **18** in the opening behind the ball. Engagement of the ball with the sides of the slot prevents it from being ejected from the slide.

To provide the equivalent of two longitudinally spaced indexing openings, in either of which the ball can seat depending upon which direction the slide has been moved, the side walls of the slot are tapered from both ends inwardly toward each other but their centers do not quite touch, as shown in FIG. 1. Therefore, the space between the centers of the two side walls is much narrower than the ends of the slot. The result is that the slot has end portions that are tapered toward each other and are connected by a narrow central gap so that the slot somewhat resembles a tiny bowtie in appearance. Although it is not absolutely necessary that the ball engage the end walls of the slot, because its side walls will prevent the ball from escaping from the slide and housing, it is preferred that the ends of the slot be made parallel to each other and that one or the other be engaged by the ball when it is in the adjoining triangular opening.

When the slide is moved by the button from either end position toward its other end position, the ball is carried along with it. As the ball moves toward the center gap in slot **15**, the converging side walls of the slot force the ball inwardly in slide opening **17**. Then, as soon as the ball passes the center points of the slot side walls, it will engage slot side walls that diverge in the direction of movement of the slide. The outward pressure of the ball against these diverging walls, which are nearly at right angles to each other, moves the ball and slide forward to complete the travel of the slide in that direction. The narrow gap at the center of the slot is too short to allow the ball to stall there accidentally.

According to the provisions of the patent statutes, I have explained the principle of my invention and have illustrated and described what I now consider to represent its best embodiment. However, I desire to have it understood that, within the scope of the appended claims, the invention may be practiced otherwise than as specifically illustrated and described.

I claim:

1. A slide switch comprising a housing containing a line of fixed contacts, a movable contact, a slide in the housing moving the movable contact back and forth along the fixed contacts, a wall of the housing having a longitudinal slot therein, and a spring-pressed detent carried by the slide and projecting into said slot, the detent engaging the side walls of the slot as the detent moves back and forth therein, said side walls of the slot tapering inwardly toward each other from both ends to provide a space between their centers much narrower than the ends of the slot, whereby the slot has end portions tapered toward each other and connected by a central gap.

2. A slide switch according to claim **1**, in which the end walls of the slot are substantially parallel and one of them is engaged by the detent at each end of the path of travel of the detent.

3. A slide switch according to claim **1**, in which said detent is a ball.

4. A slide switch according to claim 1, in which said inwardly tapering slot side walls are nearly at right angles to each other.

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