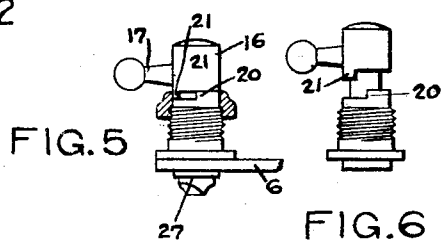
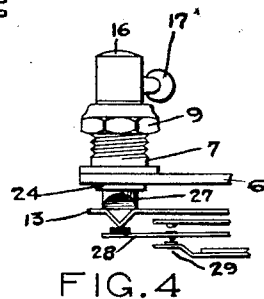
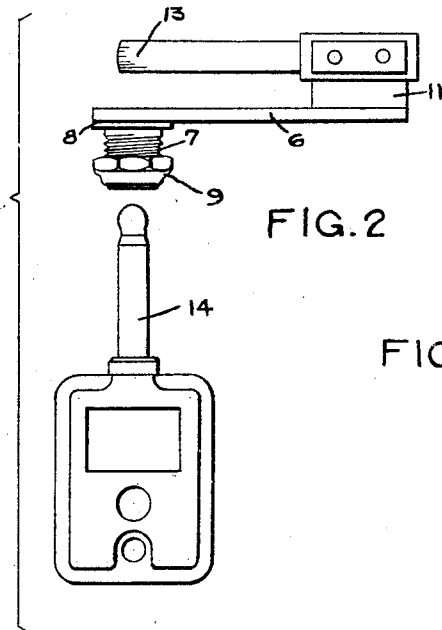
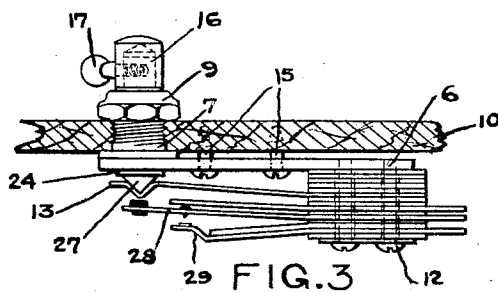
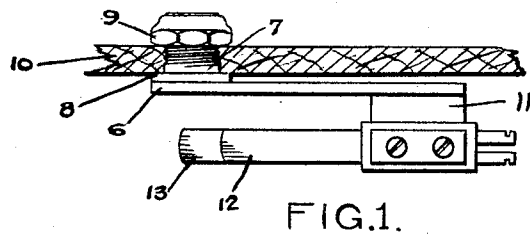


Feb. 28, 1928.

1,660,877

R. H. MANSON
ELECTRICAL SWITCH
Filed Aug. 26, 1925



INVENTOR
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UNITED STATES PATENT OFFICE.

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ELECTRICAL SWITCH.

Application filed August 26, 1925. Serial No. 52,674.

This invention relates to electrical switches and more particularly to switches for use in wire and radio communication.

In former plug-operated switches or jacks, it was necessary to arrange the contact springs, so that they extended in a direction parallel to the sleeve of the jack, with the frame and spring assembly projecting at right angles to its support, an arrangement which was especially wasteful of space and necessitated the fastening of the frame to the support at one end only. It was, therefore, necessary to provide reinforcing members on the frame, which required forming and spot-welding operations resulting in increased cost of manufacture.

The main feature of the present invention is directed to an arrangement of parts in a switch, which will overcome the disadvantages of former switches and which is simple and inexpensive to manufacture, easy to install, as well as rigid and durable in service.

Another feature of this invention is the provision of switches of the plug-operated or of the key-operated types, which are readily mounted on supports of varying thickness, by clamping means engaging the face of the supports.

Fig. 1 shows a top view of the switch for use with a plug; Fig. 2 is a bottom view of the switch and a view of a plug for use therewith. Fig. 3 is a view of a modified switch of the key type, while Fig. 4 is a view of the key in operated condition, with certain parts broken away, of the key structure generally shown in Fig. 3, and Figs. 5 and 6 show detail views of the modified structure.

Referring to Figs. 1 and 2, the numeral 6 indicates a flat frame member apertured near one end to receive a sleeve generally designated 7. This sleeve has a shoulder 8 integral therewith and is provided at its lower end with a portion which is staked in the aperture of the frame member. An intermediate portion of the sleeve is threaded to receive a relatively thick nut 9, while the upper portion of the sleeve is free from threads. By this arrangement the frame may be supported on a panel 10 by inserting the sleeve 7 through an opening therein and

tightening the nut 9 until it engages the panel on one side and the shoulder 8 on the sleeve engages the other side. The use of a relatively thick nut 9 with the outer portion of the sleeve free from threads, permits the mounting of the switch on panels of varying thickness without the use of spacing washers and at the same time, the exposed end of the sleeve will not present an unsightly appearance. Other suitable means such as screws (not shown) may be used to secure the frame to the panel 10, in addition to the nut 9 just referred to.

At the right-hand portion of the frame 6 as shown in Fig. 1, there is provided a bracket 11, which may be integral with the frame or may be secured thereto in any suitable manner. This bracket has mounted thereon an assembly of springs 12, including the master spring 13. It will be noted that the free end of the master spring 13 is opposite the aperture in the sleeve 7, and is so spaced therefrom that when plug 14 is inserted through the aperture in the sleeve 7, its rounded top engages the master spring 13 to reverse the normal conditions of the spring assembly and thereby vary the circuit connection controlled at the switch.

In the modification shown in Figs. 3, 4, 5 and 6, the switch structure includes a key or cam arrangement to actuate the springs of the assembly instead of the plug 14 as in Fig. 2. In these views corresponding parts of the structure are designated by the same reference characters as were used in Fig. 1. In this modification also, the frame 6 is apertured to receive a sleeve 7, held in fixed relation by staking or other suitable means, while a nut 9 engages the threaded portion of the sleeve 7 to secure the switch to a panel, such as 10, although screws 15 may be used to secure the frame 6 to the panel or support in addition to or without the use of the nut 9. In this arrangement the spring assembly 12 is fastened directly to the frame by means of screws without the use of a bracket 11, such as is shown in Fig. 1. A key element 16 provided with a handle 17, passes through the sleeve 7 and terminates in a triangular cam portion normally engaging the crimped portion of the master spring 13, while a shoulder 24 on the key

element 16 engages the staked end of the sleeve 7, so that the master spring cannot force this element through the sleeve. As shown in Figs. 5 and 6, one-half of the upper edge of sleeve 7 is milled away to form a shoulder 20, which cooperates with a lug 21 on the key, so that its movement is limited to a proper opening and closure of the spring assembly.

10 In Fig. 3 the switch is shown in its normal condition, that is, with the contact springs 28 and 29 out of engagement, while in Fig. 4 the switch is shown with these contact springs in operative relation. In the normal position of the switch the cam 27 rests in the crimped portion of the master spring 13, so that the contact springs 28 and 29, normally tensioned away from each other are held out of engagement. To operate the switch the handle 17 is moved toward the right through a quarter turn, so that the cam 27 bridges the crimped portion of the spring 13, thereby forcing it downward, so that the contact springs 28 and 29 are forced into engagement.

It will thus be seen that the switch is simple in construction and is so arranged that its frame may be supported on a panel substantially throughout its length, thereby insuring rigid mounting of the switch.

What I claim is:

1. In a device of the class described, a flat apertured frame, a sleeve threaded intermediate its ends and secured in said aperture at right angles to said frame, a nut engaging the threaded portion of said sleeve, and a plurality of contact springs mounted in parallel relation to said frame and having their free ends adjacent said sleeve.

40 2. In a device of the class described, in combination, a flat apertured frame, a sleeve mounted in the aperture in said frame, said sleeve having a threaded portion intermediate

its ends, a nut engaging said threaded portion, springs mounted on said frame at right angles to said sleeve and spaced from said frame, and means movable in said sleeve for actuating said springs.

3. In combination with a support having an opening therein, an apertured frame, a threaded sleeve secured in said aperture and extending through said opening, a nut engaging said sleeve to fasten said frame to said support, and springs mounted on said frame in parallel relation to said support with their free ends adjacent said sleeve.

4. In a device of the class described, a flat apertured frame, a sleeve threaded intermediate its ends and secured in said aperture at right angles to said frame, a nut engaging the threaded portion of said sleeve, a plurality of contact springs mounted in parallel relation to said frame and having free ends adjacent said sleeve, and a cam member movable in said sleeve and engaging one of said springs for actuating the remainder of them.

5. In a device of the class described, a flat apertured frame, a sleeve on said frame adjacent said aperture and extending at right angles to said frame, a plurality of contact springs insulatedly mounted in parallel relation on said frame, one of said springs having a crimped portion and a raised portion, a rod with a V-shaped end rotatably mounted in said sleeve, said V-shaped portion of said rod normally engaging the crimped portion of said spring, and means for rotating said rod to cause said V-shaped portion to engage the raised portion of said crimped spring to change the relation of said springs with respect to each other.

In witness whereof, I hereunto subscribe my name this 21st day of August, A. D. 1925.

RAY H. MANSON.