

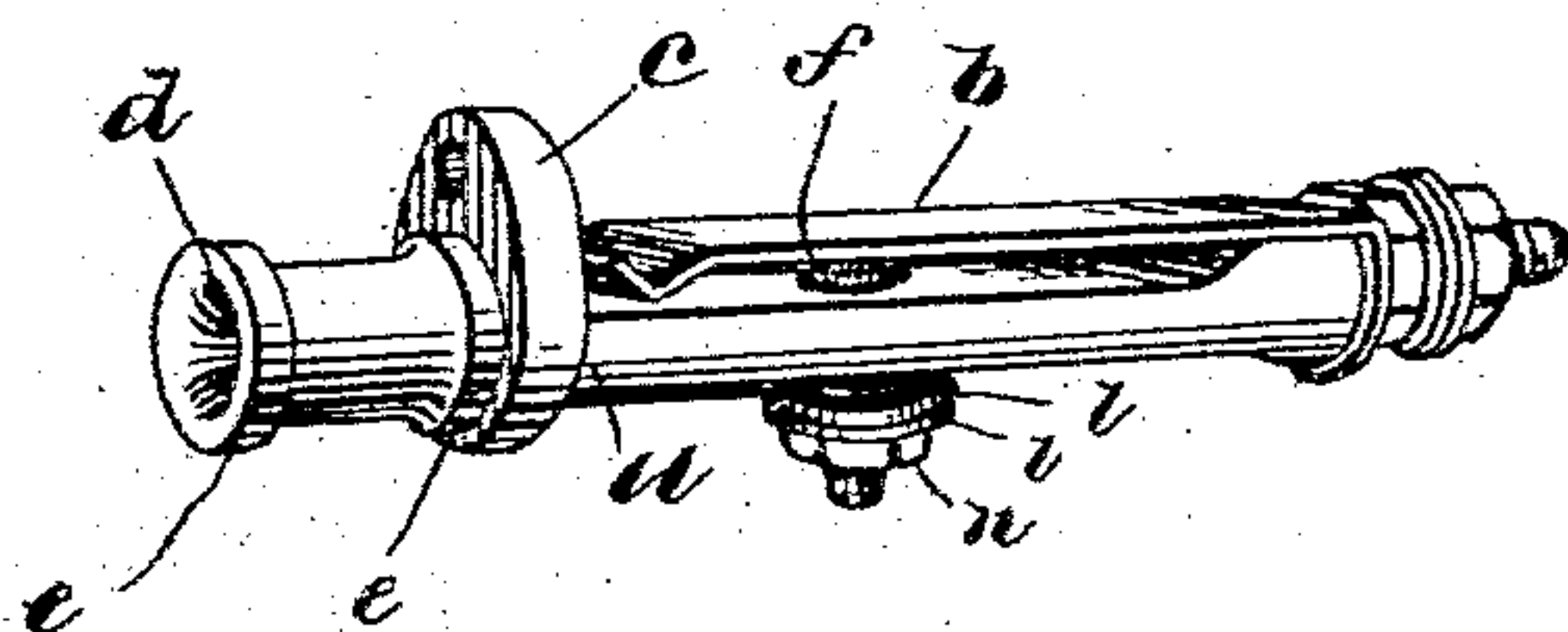
(No Model.)

J. C. WARNER.  
SPRING JACK SWITCH.

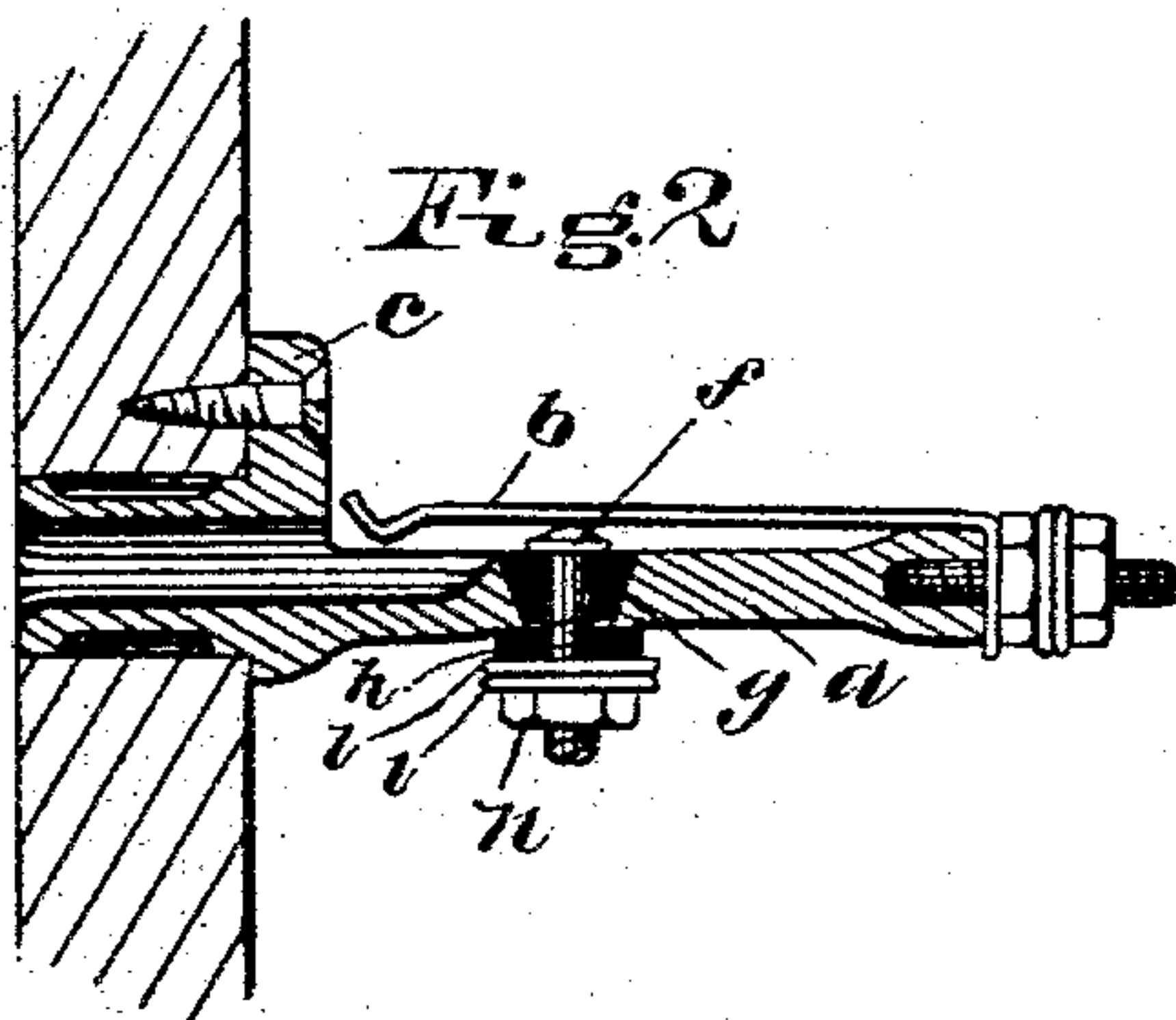
No. 321,553.

Patented July 7, 1885.

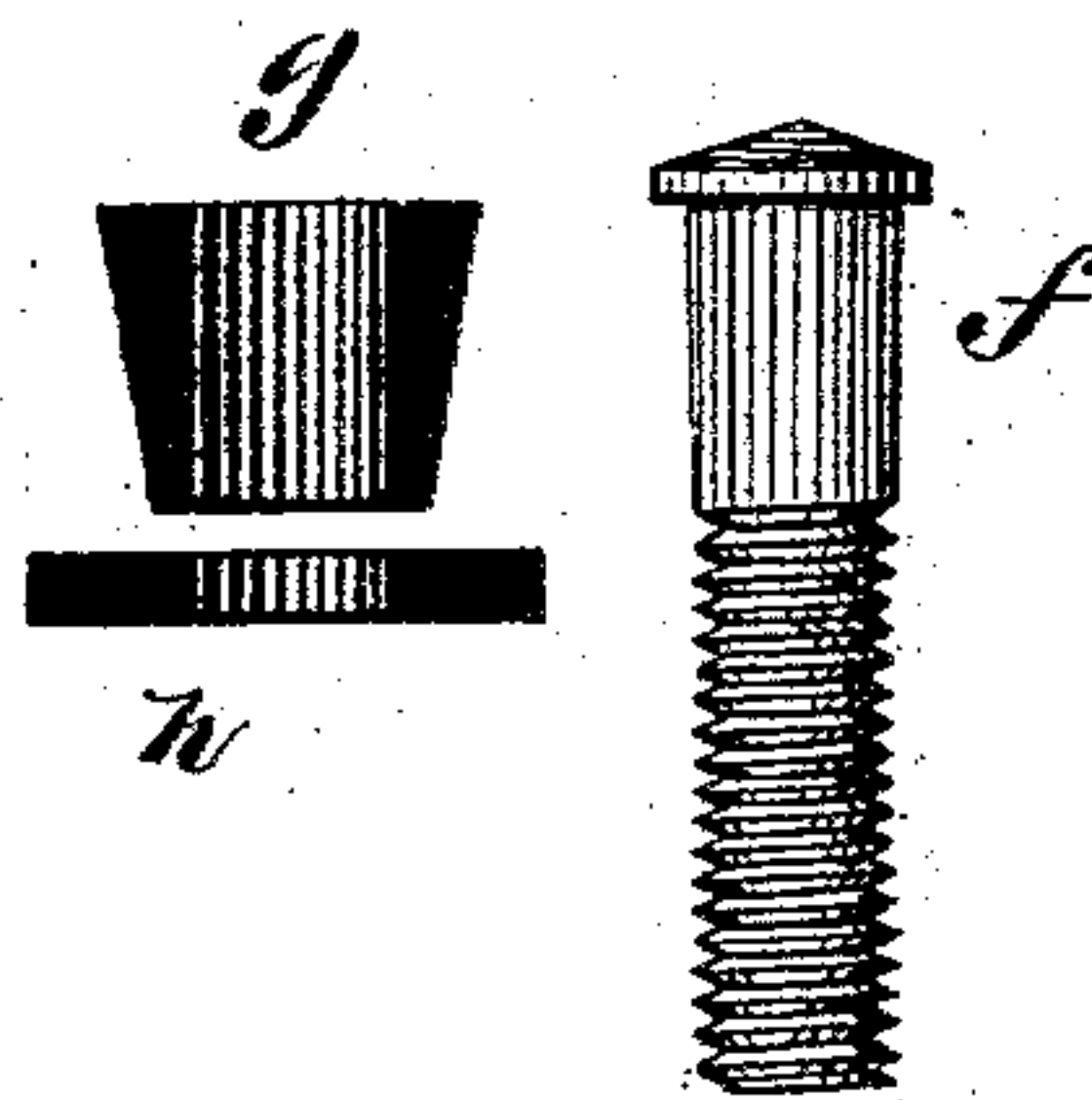
*Fig 1*



*Fig 2*



*Fig 3*



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# UNITED STATES PATENT OFFICE.

JAMES C. WARNER, OF CHICAGO, ILLINOIS, ASSIGNOR TO THE WESTERN  
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## SPRING-JACK SWITCH.

SPECIFICATION forming part of Letters Patent No. 321,553, dated July 7, 1885.

Application filed October 22, 1883. (No model.)

*To all whom it may concern:*

Be it known that I, JAMES C. WARNER, a citizen of the United States, residing at Chicago, in the county of Cook and State of Illinois, have invented a certain new and useful Improvement in Spring-Jack Switches for Telephone-Exchanges, of which the following is a full, clear, concise, and exact description, reference being had to the accompanying drawings, forming a part of this specification.

Prior to my invention herein described spring-jack switches have been used which consist, mainly, of a metallic frame, a spring, and a contact-point, said spring normally resting in contact with said contact-point, which is insulated from the other portions of the switch. The spring-jacks are inserted through the switch-boards on which they are used, so that the permanent connections with the telephone-lines to which they belong may be made at the back of the board, while the temporary connections between two telephone-lines may be made by the usual cords and plugs at the front of the board. These spring-jacks are inserted into their places from the front of the switch-board, and are provided at their front ends with flanges or collars which come against the face of the board. The spring-jacks are held in place by screws passing through said flanges. The contact-points must project considerably below the shank of the switch, in order that the proper connections may be made thereto. In inserting the switch or spring-jack into the board the contact-point will not pass through the opening provided in the board for the switch. The contact-points must therefore be inserted in the switches after said switches are secured in the board. This has been found very troublesome and inconvenient. Another difficulty is met with in fitting up these switches. The hard-rubber insulation for the contact-point is screwed into place in the metallic frame, which is tapped out to receive it. The shaft of the contact-point is then screwed into the rubber insulation. This construction, besides being expensive, is found to be defective. The screw-threads in the rubber often give way in screwing the parts together, in fitting up, or

in making connections, and the utility of the switch thus destroyed.

My invention herein described consists, first, in a spring-jack provided with a lug or collar and a forwardly-projecting sleeve adapted to be inserted through the switch-board from the rear of said board and to receive the connecting-plugs from the front of said board; second, in the combination, with the spring, the contact-point, and the frame of a spring-jack switch, of a tapered or conical insulator for said contact-point.

My invention further consists in combinations hereinafter described and claimed.

In the accompanying drawings, Figure 1 is a perspective view of my spring-jack switch complete. Fig. 2 is a longitudinal sectional view of the same. Fig. 3 is a detailed view of the contact-point and its insulation.

The frame *a*, to which the spring *b* is attached in the usual manner, is cast with a flange or lug, *c*, and a forwardly-projecting sleeve, *d*. This sleeve *d* is preferably made of a sufficient length to just come flush with the front face of the switch-board when inserted in place therein, as shown in Fig. 2. This sleeve is also bored out to receive the connecting-plugs, and may be provided with turning-rings *e e* on the outer surface at the front and rear, which may be turned off concentric with the bore of the sleeve to a size to fit the hole in the switch-board, thus securing a neat fit with a bearing at the front and rear without turning up the full length of the sleeve. The frame *a*, where the contact-point *f* is inserted, is provided with a tapered hole, considerably larger than the shaft of the contact-point. Into this tapered hole the conical or tapered insulator *g* is inserted. This insulator is made, preferably, of hard rubber, and bored out to receive the shaft of the contact-point. The shaft of the contact-point is screw-threaded at its lower end, and provided at its upper end with a slightly-conical head, which forms the contact-point proper. The conical insulator is forced into its place in the frame, after which it is filed off at top and bottom flush with the frame *a*. The contact-point is then inserted until the head comes against the in-



insulator, a rubber washer, *k*, is placed thereon next to the frame underneath, then the copper washers *l l*, and, finally, the nut *u*, which holds the whole firmly together. The shaft of the contact-point *f*, above the threaded portion, is preferably made slightly tapering, as shown in Fig. 3, so that when forced through the insulator *g* said insulator will be spread in the frame *a*, and thus be held firmly in place. After a switch has thus been completed, it may first be tested electrically, to see that the connections and insulation are perfect, after which it is inserted in the switch-board, as above described, and as shown in Fig. 2. It is then secured in place by means of a screw passing through the lug *c*, or by other appropriate means.

By means of the above-described improvements, it will be seen I am enabled to make a spring-jack switch which may be fitted up complete and tested thoroughly before it is placed in the switch-board.

I claim as my invention—

1. A spring-jack switch provided with a lug

or collar and a forwardly-projecting sleeve adapted to be inserted through the switch from the rear of said board, and to receive the connecting-plugs from the front of said boards, substantially as specified.

2. The combination, with a frame, *a*, having lug *c* and forwardly-projecting sleeve *d*, of a spring, *b*, and insulated contact-point *f*, substantially as described and shown.

3. The combination, with the spring, the contact-point, and frame of a spring-jack switch, of a tapered or conical insulator for said contact-point, substantially as set forth.

4. The combination, with a frame, *a*, having lug *c* and forwardly-projecting sleeve *d*, of a spring, *b*, a contact-point, *f*, and a tapered insulator, *g*, substantially as shown and described.

In witness whereof I hereunto subscribe my name this 20th day of October, A. D. 1883.

JAMES C. WARNER.

Witnesses:

PAUL A. STALEY,

GEORGE P. BARTON.