

(No Model.)

C. E. SCRIBNER.
SPRING JACK FOR TELEPHONE SWITCHBOARDS.

No. 552,725.

Patented Jan. 7, 1896.

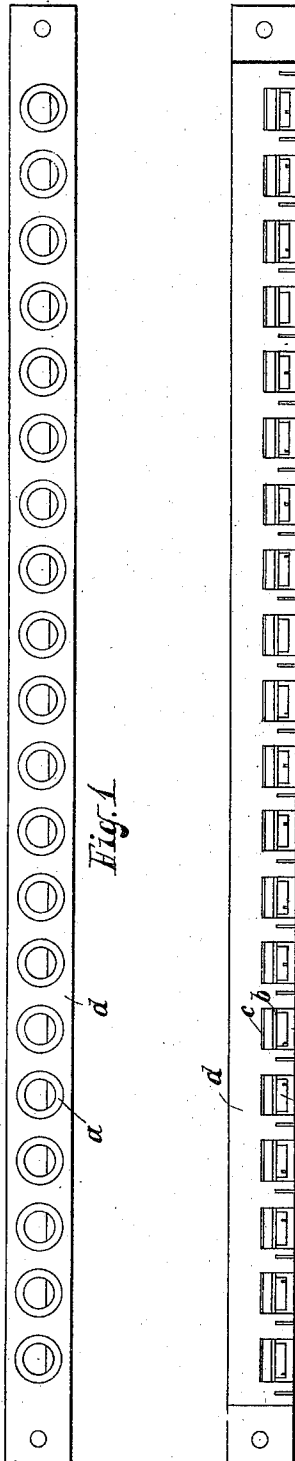


Fig. 1

Fig. 3

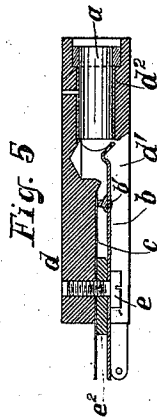


Fig. 5

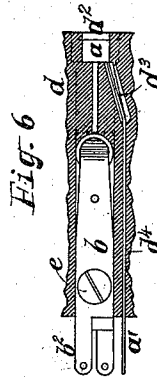


Fig. 6

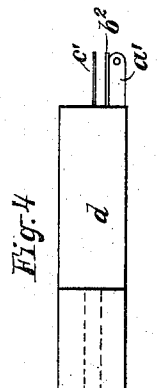


Fig. 4

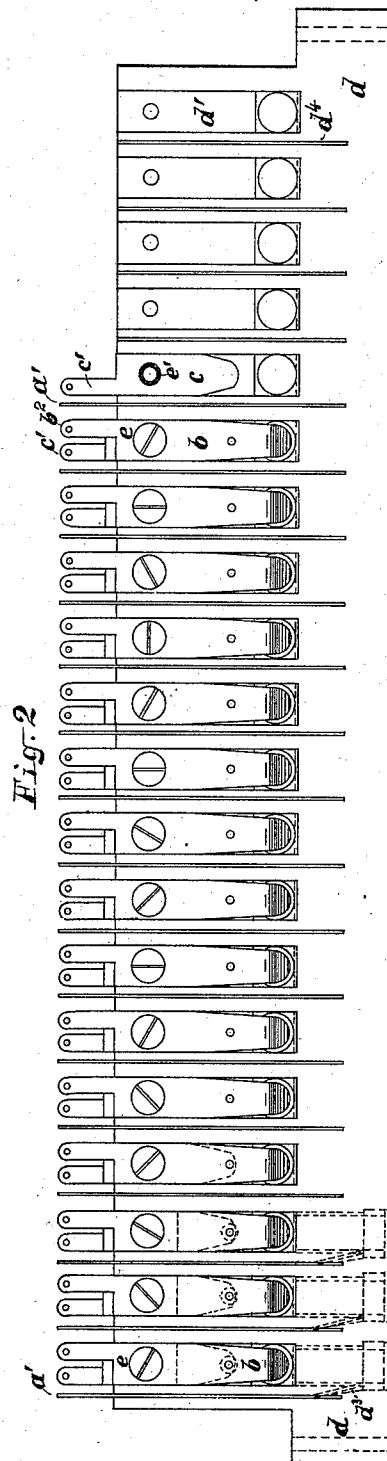


Fig. 2

WITNESSES

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UNITED STATES PATENT OFFICE.

CHARLES E. SCRIBNER, OF CHICAGO, ILLINOIS, ASSIGNOR TO THE WESTERN ELECTRIC COMPANY, OF SAME PLACE.

SPRING-JACK FOR TELEPHONE-SWITCHBOARDS.

SPECIFICATION forming part of Letters Patent No. 552,725, dated January 7, 1896.

Application filed July 30, 1892. Serial No. 441,765. (No model.)

To all whom it may concern:

Be it known that I, CHARLES E. SCRIBNER, 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-Jacks for Telephone-Switchboards, (Case No. 313,) 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.

My invention relates to spring-jacks for telephone-switchboards. Its object is to provide a spring-jack of simple and durable construction, and so constituted as to avoid the accumulation and incrustation of dust between the contact-surfaces of the spring-jack.

Heretofore it has been customary to mount a number of spring-jacks—usually twenty—upon the single supporting-plate of insulating material. This supporting-plate has commonly been made in two or more parts, the different metallic portions of the different spring-jacks being secured by suitable screws, bolts and pins in their proper positions upon the different portions of the supporting-plate. The spring-jack has comprised a metallic tubular "thimble," a flexible metallic contact adapted to make connection with a suitably-formed plug when the latter is inserted into the spring-jack, and a contact-stud projecting through the insulating-plate beneath the flexible spring and so disposed that the spring rests upon it and makes electrical connection with it when in its normal position, the spring being separated from the stud when the plug is inserted. In these spring-jacks the contact-surfaces between the line-spring and the stud were broad, and whether the line-spring were placed on the under or upper side of the plate dust accumulated upon one or the other contact-surface, forming an incrustation thereon and thus eventually preventing electrical connection.

My invention is designed to avoid the complicated structure which has hitherto been necessary in the spring-jacks, and at the same time to so constitute and arrange the contact-surfaces as to make the accumulation of dust between them impossible.

In my improved spring-jack the metallic

portions of the jack are mounted in suitable openings and grooves in a solid block or plate of insulating material, said plate being preferably molded with the necessary openings and channels. The metallic portions of the spring-jack comprise simply a metallic tube or thimble adapted to make connection with the sleeve of a plug, a flexible line-spring carrying a pyramidal or conical formed contact on its upper surface, and a conducting-strap above the said spring having a contact-surface upon which the contact-point carried by the line-spring may bear. This line-spring and its contact-strap are mounted in a groove milled or formed in the under surface of the insulating supporting-plate, and are secured in place therein by a screw passing through both into the supporting-plate, and insulated from the contact-strap by suitable bushings. This groove is so curved and formed that the contact-strap and the contact-point upon the flexible spring are protected or shielded from dust. The line-spring and contact being on the under side of the supporting-plate, and thus protected, whatever dust enters the spring-jack will either fall through the openings in the under side of the plate containing the line-spring or will accumulate upon the upper surface of the line-spring around the pyramidal contact-point. None can by any means become incrustated upon the contact-surface of the strap. The parts of a suitable number of my spring-jacks may be mounted upon a single supporting-plate, as heretofore. I am thus enabled to construct a spring-jack having few and simple parts, and so constituted as to entirely avoid danger arising from the accumulation of dust upon the spring-jack.

My invention is illustrated in the accompanying drawings. Therein I have shown various views of a strip containing twenty spring-jacks organized in accordance with my invention.

Referring to the drawings, Figure 1 therein is a front elevation of a strip of spring-jacks. Fig. 2 is a view of the same from beneath. Fig. 3 is a rear elevation of the strip. Fig. 4 is an end elevation thereof. Fig. 5 is a central longitudinal sectional view of a single spring-jack, being a transverse section of the

strip of spring-jacks on the center line of a single jack. Fig. 6 is a section of a single spring-jack taken on the line 6 6 of Figs. 1 and 5, disclosing the means whereby connection is made to the thimble or metallic ring of the spring-jack from the rear of the strip.

I will now describe in detail my invention as depicted in the drawings, indicating parts therein by letters of reference, like parts being designated by similar letters.

Referring to Fig. 5, the spring-jack will be seen to consist essentially of a metallic tubular thimble *a* enlarged at its outer extremity, having a shoulder formed on its outer surface; a flexible metallic spring *b*, having its length extending parallel with the axis of the tubular thimble, and one extremity being presented in front of the opening thereof; a conducting-strap *c* above the spring *b*, and a plate *d* of insulating material whereon the parts are mounted. The spring *b* is curved at its forward extremity, so as to more readily ride upon the end of an inserted plug. The spring carries, also, the contact-point *b'* rigidly secured to it. The spring *b* and the strap *c* are provided with narrow extensions *b*² and *c'*, respectively, at the rear of the strip of spring-jacks, whereby to attach the line-terminals to the springs. The spring *b* and the strap *c* are mounted in a groove *d'*, milled or otherwise formed in the under surface of the plate *d* of insulating material, being secured therein by a screw *e* passing through both into the plate *d*. The groove *d'* is formed as shown in Fig. 5, the upper wall of the groove being curved to extend below the extremity of the strap *c* and to form a shield before the contact-point. The crowding of dust forward under the contact-point by the repeated insertion of the plug is thus largely prevented. The strap *c* is insulated from the screw by a suitable bushing *e'* of insulating material and is separated from the spring *b* by a washer *e*², also of insulating material. The tube or thimble *a* is inserted into the perforation *d*² extending from the front of the plate *d* to a suitable depth and meeting the milled groove within which the parts *b* and *c* are mounted. The thimble *a* is provided with an oblique metallic extension *a'*, which, when the thimble is placed in position, is inserted through an oblique duct *d*³ and thence through a transverse saw-cut *d*⁴ in the surface of the insulating-plate *d*. The extension *a'* is of such length that when the thimble is placed in the strip it extends to the rear of the jack to an

equal distance with the soldering extensions of the spring *b* and the strap *c*. Connection may thus be made to the thimble *a* by soldering the line-wires to the extension *a'* at the rear of the jack. The thimble *a* is secured in the perforation *d*² by a pin *a*² extending through the material of the plate into the thimble.

In the construction of the strips containing a large number of spring-jacks, the plate *d* is formed or molded with the requisite number of grooves *d'*, perforations *d*², the oblique ducts *d*³ and transverse saw-cuts *d*⁴ necessary to accommodate the corresponding parts of the spring-jacks. The metallic portions of the spring-jacks are then mounted thereon in the position and manner described.

I do not desire to claim in this application the combinations of the oblique extension *a'* with the thimble *a*, and the oblique duct *d*³ and the saw-cut *d*⁴ to lead said extension to the rear of the strip of spring-jacks. This device is described and fully claimed in a joint application of W. R. Patterson and myself for a patent on "Spring-jack switches for telephone switchboards," filed January 21, 1892; but

I claim as new and desire to secure by Letters Patent—

1. In a spring jack, the combination with a supporting plate of insulating material provided with a groove or channel in its under side, of a flat strip *c'* secured to the upper wall of said channel, said wall being provided with a downward projection in front of the end of said strip, a line spring beneath said strip, and a contact anvil mounted upon the upper surface of said line spring and adapted to make contact with the under side of said strip; substantially as described.

2. The combination with a supporting plate *d* of insulating material having perforations *d*² and the grooves *d'* formed therein, of the thimbles *a* in said perforations, the contact springs *b* carrying contact points *b'* and the contact straps *c* therefor mounted in said grooves, and the screws *e* passing through said springs *b* and straps *c* into said plate *d* to secure them to the same, substantially as described.

In witness whereof I hereunto subscribe my name this 28th day of June, A. D. 1892.

CHARLES E. SCRIBNER.

Witnesses:

FRANK R. MCBERTY,
WALTER L. SMITH.