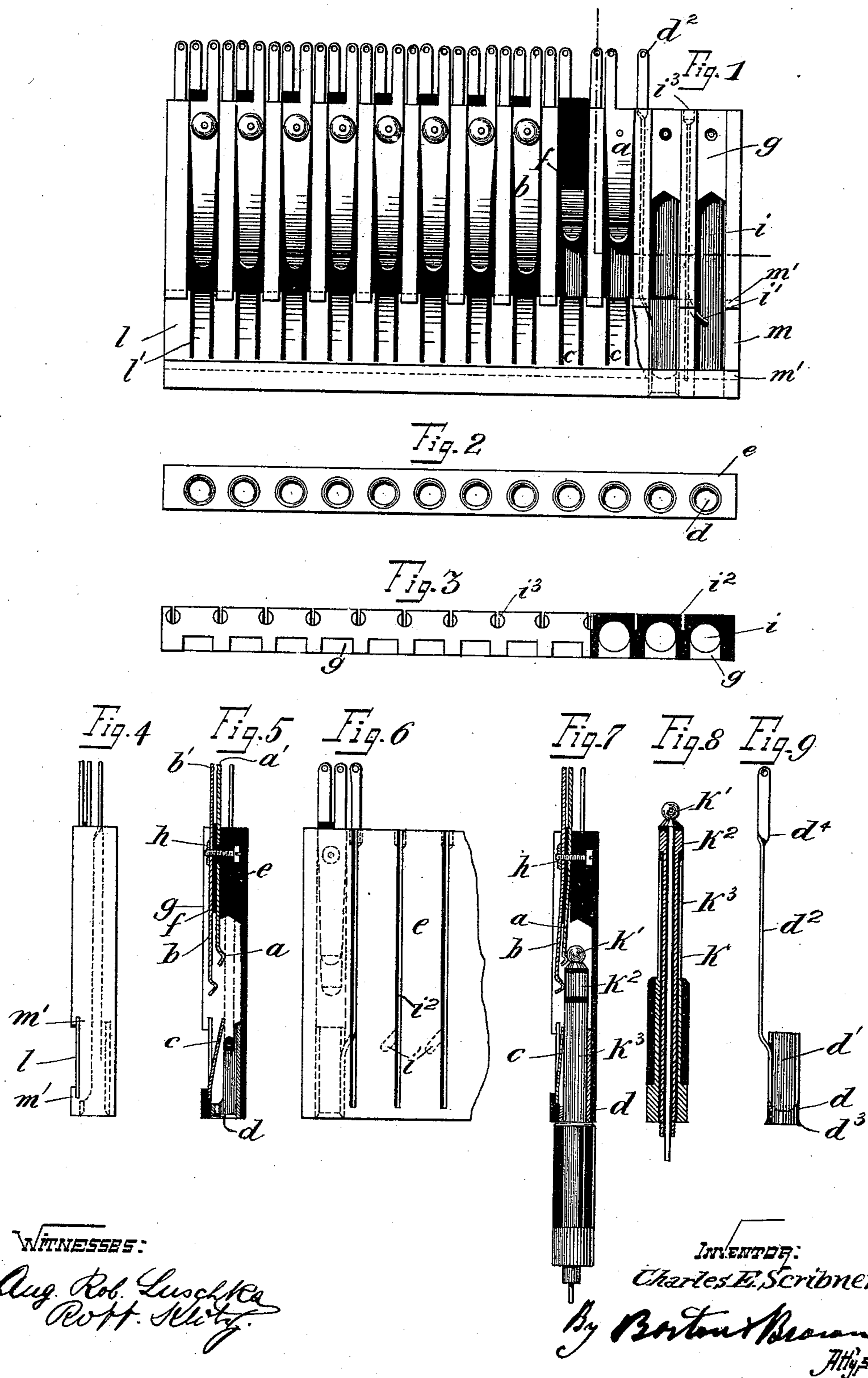


(No Model.)

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

No. 574,224.

Patented Dec. 29, 1896.



# 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. 574,224, dated December 29, 1896.

Application filed July 5, 1894. Renewed July 13, 1896. Serial No. 599,059. (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. 358,) 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 switchboards of telephone-exchanges. Its object is to produce a spring-jack of improved construction adapted to be placed in small compass.

In telephone-switchboards it is usual to mount the spring-jacks, which constitute the terminals of the different telephone-lines, in groups upon plates or bases common to a number of different spring-jacks, this number being usually twenty. Such a group of spring-jacks is called a "strip of jacks." The different strips of jacks are arranged one above another in the switchboard. It is desirable that the spring-jacks should be placed as closely together and should occupy as little space as possible upon the face of the switchboard, since the number of telephone-lines which may extend to any section of switchboard is limited to such a number that the terminals spring-jacks of the line can be placed within convenient reach of an operator. On this account it is essential that the spring-jacks shall be made as compact and arranged as close together as possible in the strip.

My improvements in the spring-jack herein described consist in certain details of construction which I will now proceed to describe, and which will be pointed out particularly in the claims.

In the accompanying drawings, which are illustrative of my invention, I have shown in Figure 1 a plan of a strip of twelve of my improved spring-jacks. Fig. 2 is a front elevation of the strip. Fig. 3 is a rear elevation of the same. Fig. 4 is an end elevation. Fig. 5 is a transverse section of the strip, being a longitudinal section of a single spring-jack. Fig. 6 is a view of a portion of the strip from beneath. Fig. 7 is a sectional

view of the spring-jack with a connecting-plug inserted therein. Fig. 8 is a sectional view of the connecting-plug. Fig. 9 is a view of the thimble of the spring-jack.

Each spring-jack consists, essentially, of three springs *a*, *b*, and *c* and a tubular thimble *d*, which different parts constitute the terminals of different electrical circuits. These parts are mounted on a base-plate *e*, of hard rubber or other insulating material, which forms the common frame of all the spring-jacks of the strip. The spring *b* is superposed upon spring *a*, but is electrically separated from it by an interposed tongue *f*, of hard rubber. The springs *a* and *b* lie in grooves *g*, milled in the plate *e*, and are secured therein by a small insulated bolt *h*, passing through plate *e* and having its head deeply countersunk therein, the opening above the head of the screw being filled with insulating material. The tip of spring *a* extends forward into a channel *i*, formed by drilling deeply into the edge of strip *e*, the length of the spring being such that when a connecting-plug *k* is inserted into the spring-jack the spring *a* shall bear upon the tip *k'* of the plug. Spring *b* is of similar construction, but is of such length that its extremity bears upon the sleeve *k<sup>2</sup>* of an inserted plug. Both springs *a* and *b* are provided with rearwardly-projecting extensions *a'* *b'*, with which circuit connections may be made. The springs *c* of the different spring-jacks are designed to have a common circuit connection, and hence are constructed in a common strip of spring metal *l*. Deep transverse saw-cuts *l'* are made in this strip, and the intervening tongues *c* are bent downward into such a position that they may project into the tubular channel *i* and may bear upon sleeve *k<sup>3</sup>* of plug *k*, as seen in Fig. 7. This strip *l* is let into a shallow channel or groove *m*, formed in one face of plate *e*, the edges of the groove being undercut at *m'* to receive the edges of the strip *l*. By this simple and inexpensive means the strip *l* is retained firmly in place in the strip of spring-jacks.

The thimble *d* is of tubular shape, as shown in Fig. 9, but for a portion of its length is cut down to the plane of its axis, as at *d'*. The thimble is formed with a rearward extension

$d^2$ , which is brought obliquely from the side of the thimble. This thimble is inserted into the drilled opening  $i$  in the frame  $e$ , the extension  $d^2$  being led along an oblique duct  $i'$  and into a transverse saw cut  $i^2$  on the under side of the strip  $e$ . The rear end of the saw cut  $i$  opens into a shallow countersunk opening  $i^3$ . The thimble  $d$ , which is originally formed with its extension  $d^2$  flat throughout its entire length, is inserted into the opening  $i$ , as described, until the shoulder  $d^3$  comes against the face of plate  $e$ , the open side of the thimble being toward the spring  $c$ . Then the extension  $d^2$  is twisted through ninety degrees, the twist being so made that the shoulder  $d^4$ , formed thereby, rests upon the bottom of the countersunk opening  $i^3$ . By this construction longitudinal movement of thimble  $d$  is prevented.

It will be observed that when the plug  $k$  is inserted into the spring-jack spring  $c$  and thimble  $d$  both make contact with the sleeve  $k^3$  of the plug, while springs  $a$  and  $b$  make contact with the tip  $k'$  and short sleeve  $k^2$ , respectively. The pressure of spring  $c$  upon the plug insures perfect contact between the sleeve  $k^3$  and thimble  $d$  and also, of course, between spring  $c$  and the sleeve  $k^3$ . When the plug is withdrawn, the tongue or spring  $c$  lies in the opening of thimble  $d$ , and is thus insulated from it.

Having thus described my invention, I claim as new and desire to secure by Letters Patent—

1. In a spring-jack the combination with

the plate  $e$  having the tubular channel  $i$ , the transverse saw cut  $i^2$ , and the oblique duct  $i'$  leading from the tubular channel to the saw cut, of the thimble  $d$  inserted in the tubular channel, the extension  $d^2$  thereof passing through the oblique duct into the saw cut and twisted at its rear extremity to prevent its withdrawal from the saw cut, substantially as described.

2. The combination with the plate  $e$  having the transverse saw cut  $i^2$  therein, of the thimble  $d$ , the extension  $d^2$  thereof lying in the saw cut  $i^2$  and twisted at its rear extremity to prevent its withdrawal from the saw cut, as described.

3. The combination with the plate  $e$ , of the thimble  $d$  inserted in an opening thereof, the extension  $d^2$  of the thimble lying in the saw cut  $i^2$ , the countersunk opening  $i^3$ , the tongue  $d^2$  being twisted to produce a shoulder bearing upon the bottom of the opening  $i^4$ , substantially as described.

4. The combination with the plate  $e$  having a number of thimbles  $d$  mounted therein, of the groove  $m$  in the face thereof having its edges undercut at  $m'$  and a plate  $l$  lying in said groove and having its edges engaging said undercut portions  $m'$ , substantially as described.

In witness whereof I hereunto subscribe my name this 15th day of June, A. D. 1894.

CHARLES E. SCRIBNER.

Witnesses:

F. R. McBERTY,

ELLA EDLER.