

(No Model.)

C. E. SCRIBNER.

LOCK SWITCH FOR ELECTRIC SWITCHBOARDS.

No. 502,769.

Patented Aug. 8, 1893.

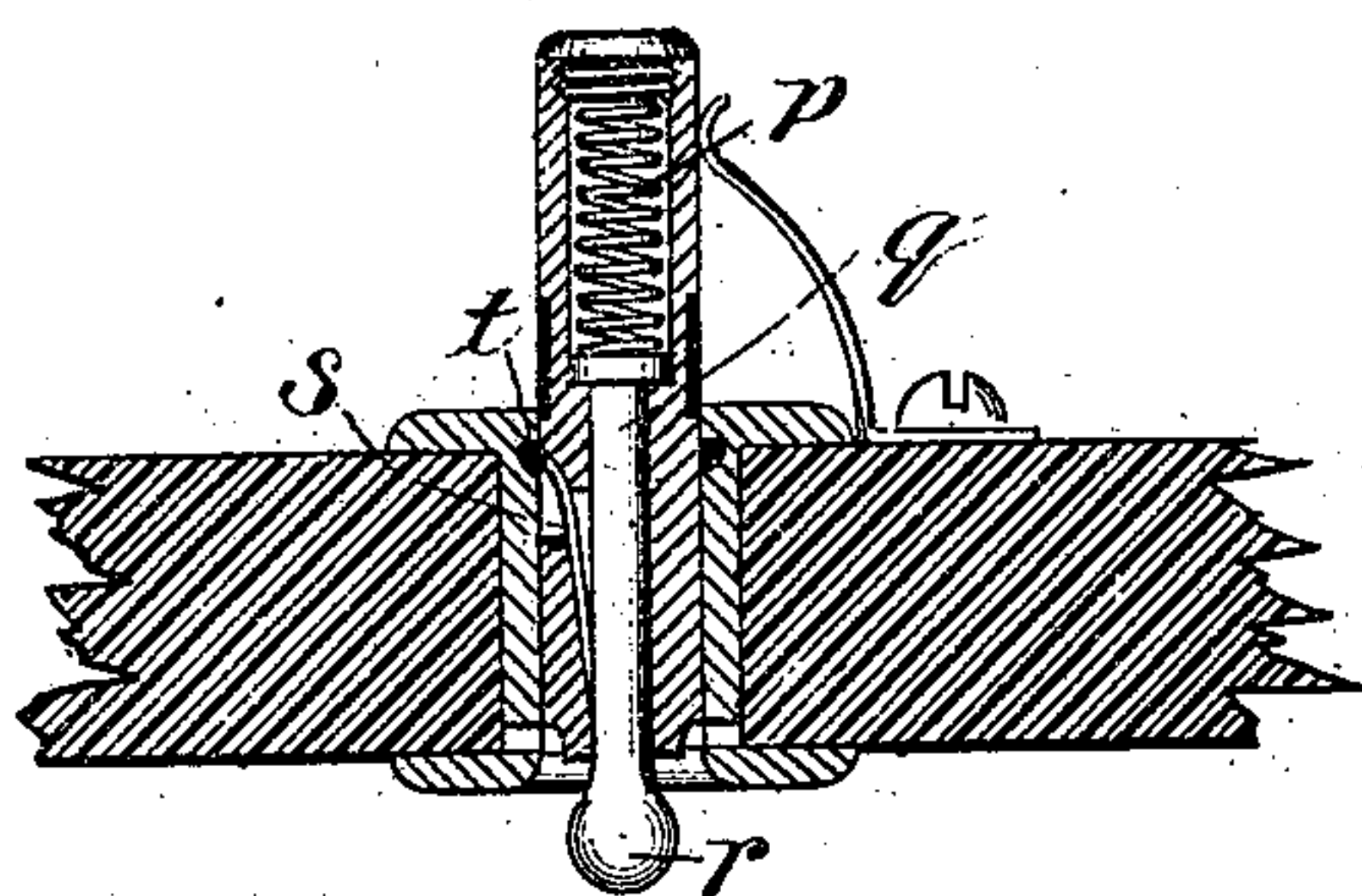
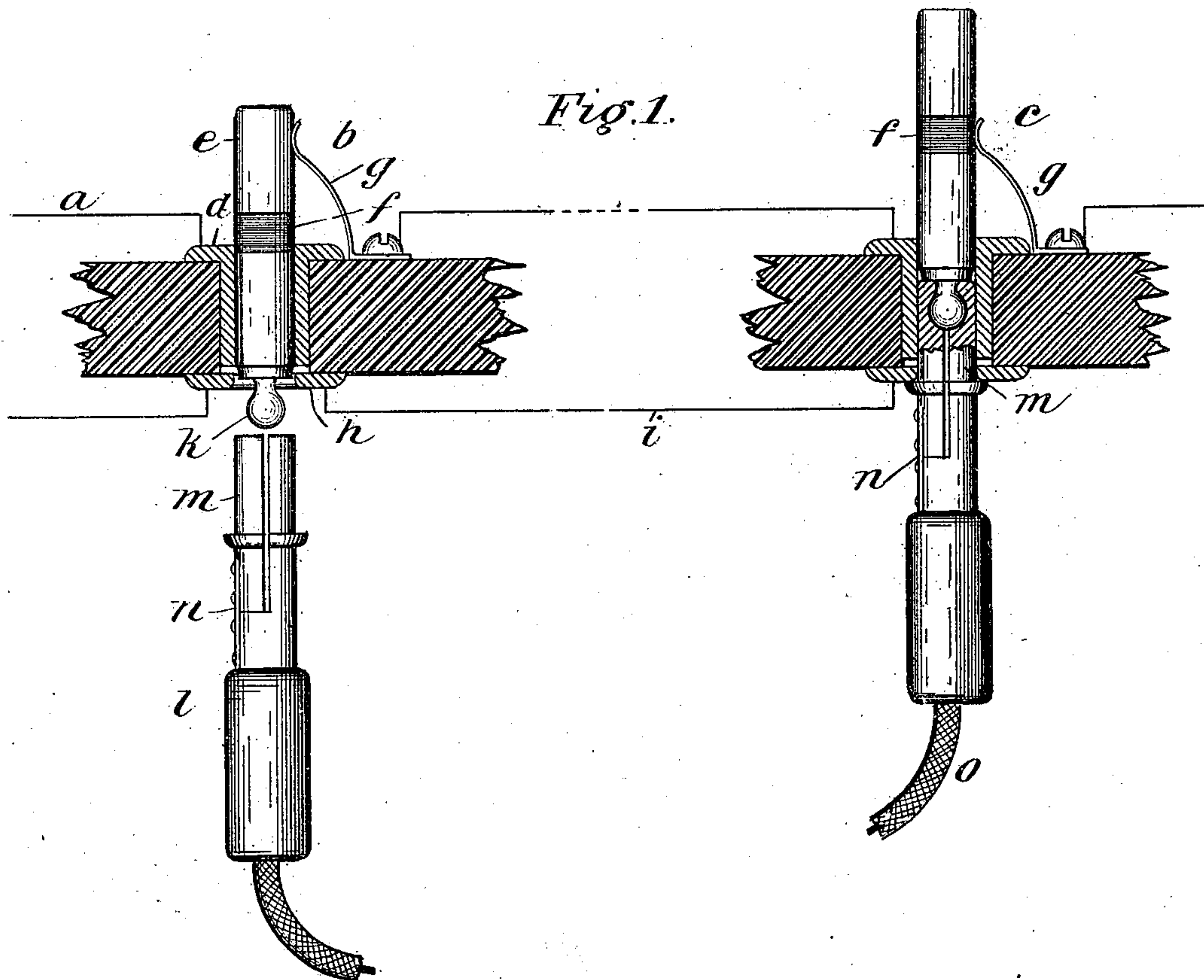


Fig. 2.

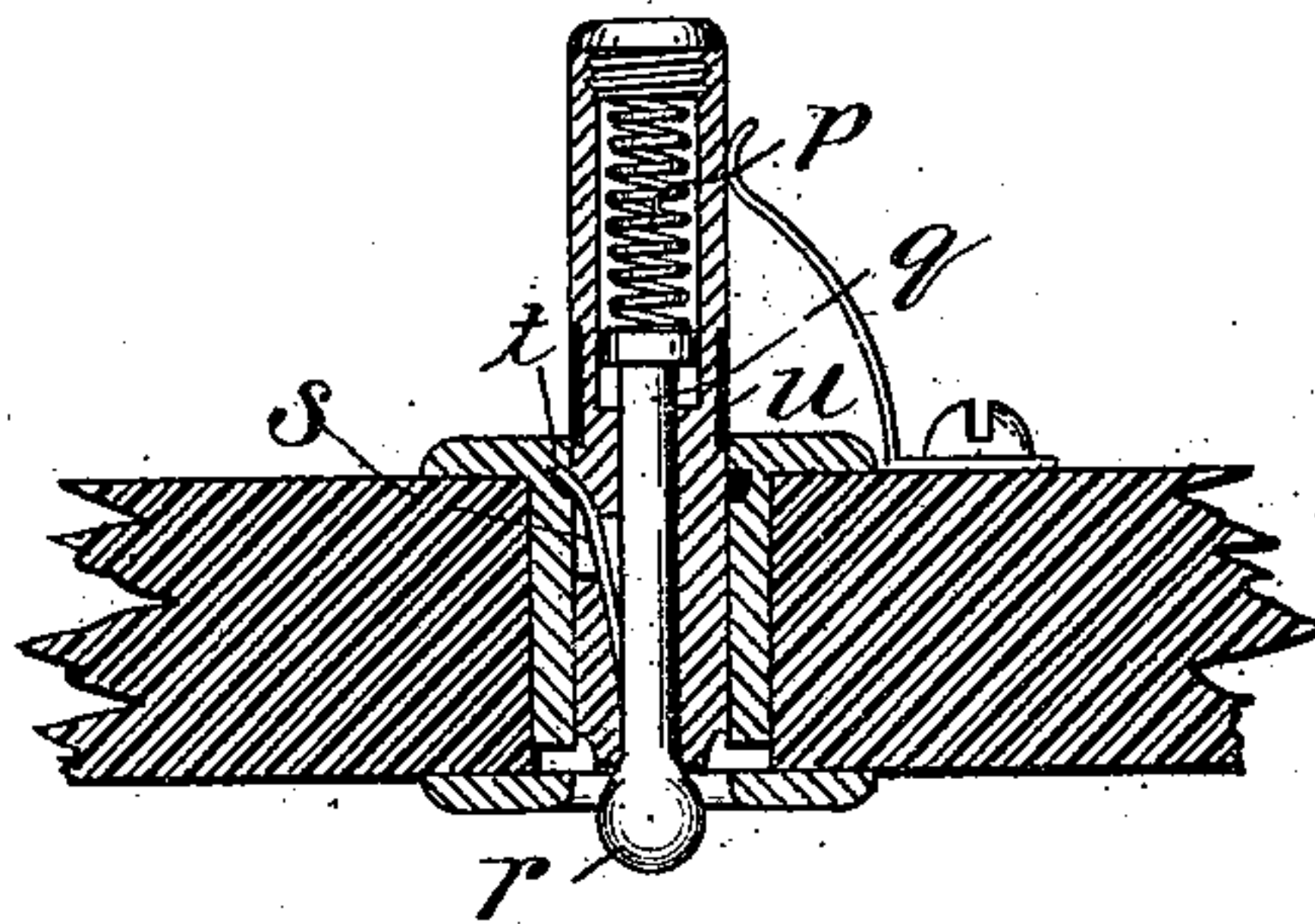


Fig. 3.

Witnesses:
Jam^lB. Dover.
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UNITED STATES PATENT OFFICE.

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

LOCK-SWITCH FOR ELECTRIC SWITCHBOARDS.

SPECIFICATION forming part of Letters Patent No. 502,769, dated August 8, 1893.

Application filed November 19, 1887. Serial No. 255,597. (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 Lock-Switches for Electric Switchboards, (Case No. 144,) 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 lock switches for electric switchboards, and its object is to provide for locking the plug to the movable portion of the switch in such manner that, whenever a plug is withdrawn, the connections of the switching device will be restored to their normal condition.

My invention is designed primarily for multiple switchboard systems in which normally open test circuits are used, these test circuits being connected to ground when their lines are in use.

My invention will be described with reference to the test circuits shown in my Patent No. 305,021, of September 9, 1884, though it is evident that by slight mechanical changes it might be applied to any other system, as, for example, the system of Milo G. Kellogg, Patent No. 308,315, of November 18, 1884, or the system of William S. Ford described in his Patent No. 357,821, of February 15, 1887.

Heretofore the connecting plugs have been provided with springs which are slipped over a ball on the end of the switch lever or drawbar. No means being provided for locking the plug to the ball, strong springs have been necessary and though made with the greatest care, the plug frequently is pulled off without moving the bar back so as to bring the connections of the switch to their normal position.

My invention is illustrated in the accompanying drawings, in which—

Figure 1 is a sectional view of two spring-jack switches of a telephone line and the test circuit wire connected therewith. Figs. 2 and 3 are views showing a modified form of spring-jack.

Like parts are indicated by similar letters of reference in the different figures.

The telephone line *a* connects with the

spring-jack *b* on the first board and thence with the spring-jack *c* on the next board and thence normally to ground. The spring-jack I have shown consists of the metallic socket *d*, the movable piece *e* provided with a ring of insulating material *f* and the spring *g*. The piece *h* insulated from the socket of the switch, serves as a test piece, the test wire *i* being connected with all the test pieces *h* of the spring-jacks of line *a*.

I need not describe the calling and clearing out apparatus. The test may be made in the usual manner, by touching a plug having a telephone in its circuit, to the test piece *h* of the spring-jack of the line tested. If the test circuit is crossed with the telephone line at any other board, a click will be heard in the telephone. If the line is free, the test wire will be open and no click will be heard in the telephone. At spring-jack *c* such a cross is shown between the test piece and socket through the medium of the inserted plug. These circuits and the method of testing are old.

My invention herein relates more particularly to the plug and the movable piece *e* of the spring-jack and my invention is not limited to any system of circuits which is changed by pushing in and drawing out the rod or movable piece *e*. The head or ball *k* is of such form that the plug or clasp may be slipped over the same readily and locked thereon so that when the plug is withdrawn the rod will be pulled out to its normal position, whereupon the plug will let go of the rod. My plug *l* consists of the rubber handle through which the flexible conducting cord passes, being connected to the stem or metallic portion of the plug in any well-known way. The tip of the plug is a clamp, the jaw *m* being attached to the stem by a spring *n*. The clamp is cut out to correspond to the shape of the ball or knob upon the rod. In order to make a connection the clamp is placed over the end of the movable piece and pushed back into the plug hole, as shown at switch *c* in Fig. 1. When the plug is thus inserted, the piece *e* is forced back and the line *a* disconnected from spring *g* and connected through the plug with a flexible cord *o*. Now on withdrawing the plug, the circuit changing piece

e is drawn forward to the position shown in spring-jack *b*. The knob *k* thus projects so as to be easily grasped by the clamp. As this piece *e* might accidentally be pushed back
 5 out of reach, I preferably use some spring and catch device to hold the knob out, as shown in Figs. 2 and 3. The spring *p* serves to force the central pin *q* out, as shown in Fig. 2. On
 10 pressing against the knob *r* on the end of the pin, the spring *p* will be compressed and the detent *s* which is secured to the said pin, will be brought into engagement with the stop or
 15 catch *t*, as shown in Fig. 3. When, however, the plug is placed over the end of the pin and pressed back against the sleeve *u*, the detent will not be brought into engagement with its
 20 catch, but the whole circuit changing piece will be forced back and the telephone line will be connected with the flexible cord of the plug and cut off at the same time from the
 central office ground.

I do not limit my invention to the precise construction shown, since it is evident that the lock plug may be applied in different ways
 25 without departing from my invention. When used in the Ford system it is evident that the movable piece *e* would be attached to the rods and that the rods would be operated to change the circuit by simply pressing the plug into
 30 the socket and withdrawing it therefrom, and since the plug would be automatically locked and unlocked, as herein described, there would be no danger of the plug slipping off
 without restoring the normal circuit.

35 Whatever may be the form of my device,

the plug hole and the clamp of the plug and the movable piece must be so constructed that the plug, on being withdrawn, changes the position of the movable piece sufficiently to bring the circuits to their normal condition. 40
 The clamp thus remains locked to the circuit changing piece or rod until it is fully withdrawn from the plug hole and thereupon is unlocked.

Having thus described my invention, I 45 claim as new and desire to secure by Letters Patent—

1. The combination with the clamp upon the plug, of the movable piece to which the clamp is fitted, and the plug socket from 50 which the movable piece normally projects, said plug socket being adapted to receive the clamp and hold the same locked to the movable piece while the plug is being reciprocated within the socket, substantially as and for 55 the purpose specified.

2. The combination with a plug socket, of a movable pin inserted therein, a spring which normally holds said pin extended, a detent which locks the pin in this normally extended 60 position, and a connecting plug provided with a clamp adapted to fit over the pin to move the same, substantially as and for the purpose specified.

In witness whereof I hereunto subscribe my 65 name this 17th day of October, A. D. 1887.

CHARLES E. SCRIBNER.

Witnesses:

GEORGE P. BARTON,
 W. M. CARPENTER,