(No Model.)

C. E. SCRIBNER.

LOOP KEY.

No. 388,453. Patented Aug. 28, 1888.

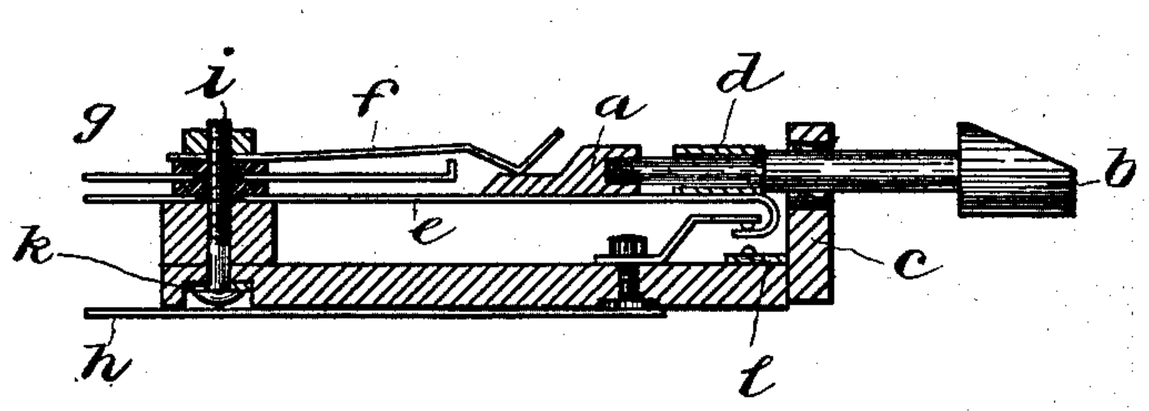

Fig. 1.

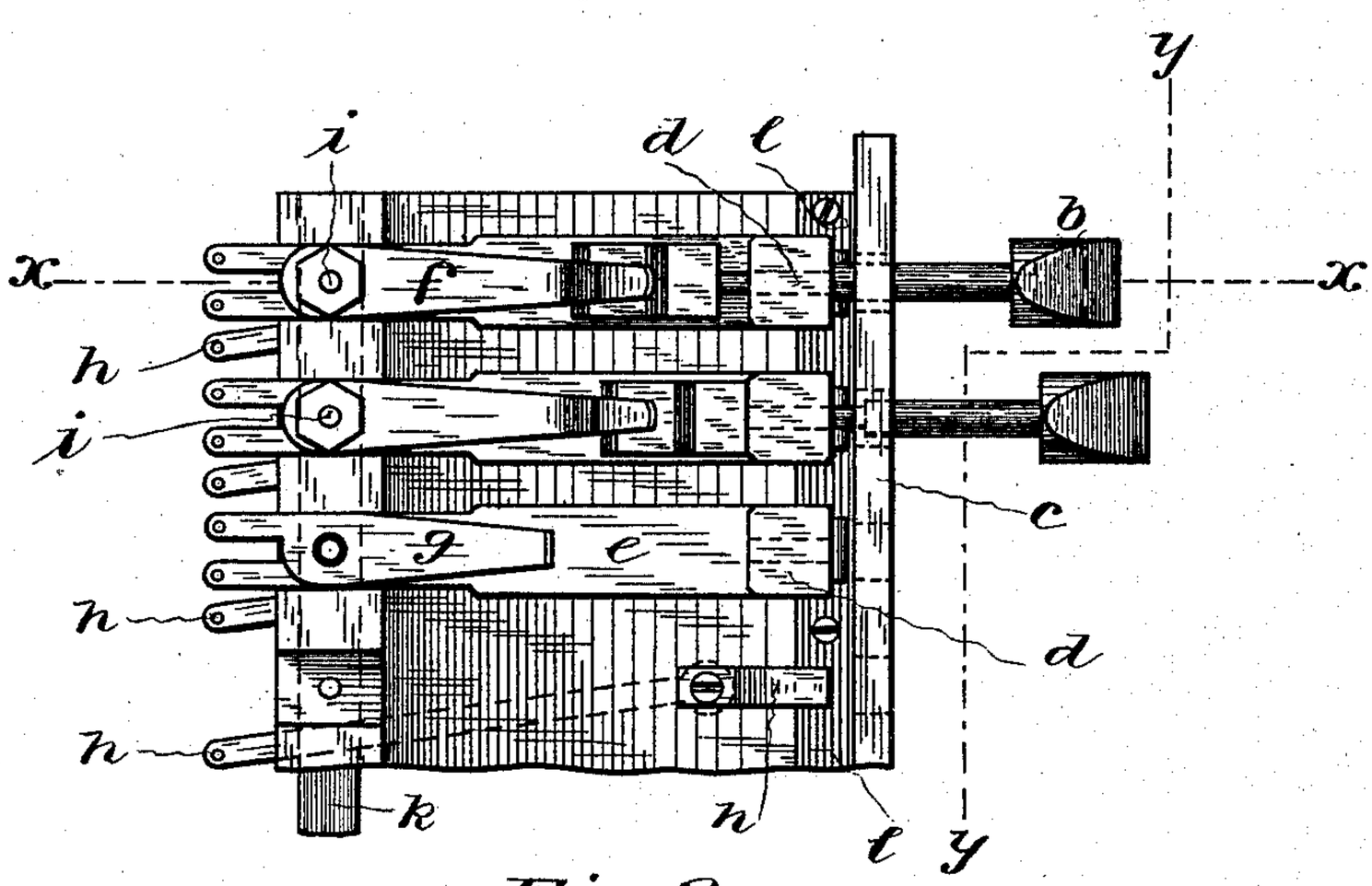

Fig. 2.

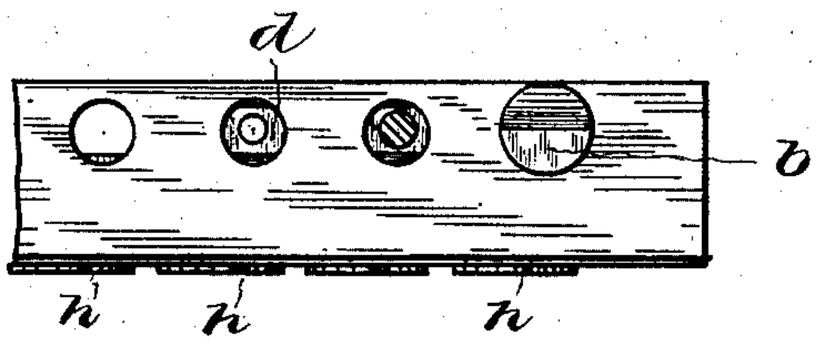

Fig. 3.

Witnesses:

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UNITED STATES PATENT OFFICE.

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

LOOP-KEY.

SPECIFICATION forming part of Letters Patent No. 388,453, dated August 28, 1888.

Application filed June 1, 1888. Serial No. 275,747. (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 Loop Keys, (Case 146,) 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 telephone-exchange apparatus; and it consists, essentially, in a loop-key adapted to connect and disconnect a telephone from circuit or make connection with a generator or other source of electricity. My key is sometimes termed a "listening-in" and "calling" key, since in its operation it performs the functions of a loop-key and a calling-key. My key is of such construction that several may be mounted upon the same strip or frame and brought within the smallest possible space.

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

Figure 1 is a sectional view illustrative of my loop-key on line *x x* of Fig. 2. Fig. 2 is a plan view showing a section or strip of such loop-keys, a portion thereof being broken away. Fig. 3 is a front view thereof, as seen from line *y y* of Fig. 2.

I have not deemed it necessary to show the circuits and connections, since they form no part of the invention herein claimed.

Referring to Fig. 1, the wedge *a* of insulating material is connected to a handle or knob, *b*, the shank of which passes loosely through an opening in the face *c* of the strip. The hole in the facing *c* is somewhat larger than the shank in order that the handle may be depressed when desired, as will be presently explained. I provide the guide *d*, which is secured, as shown, to the spring-contact *e* of the switch. The wedge *a* in Fig. 1 is shown thrust in under spring *f*, so as to lift said spring *f* from contact with its underlying contact-spring, *g*. The tension of spring *e* is such that connection is normally closed between said spring *e* and contact *h*. On withdrawing the wedge from beneath spring *f* said spring *f* closes upon contact *g*. When several keys are arranged upon the same strip, as shown in Fig. 2, all the springs *f* may, if desired, be connected together through the medium of the bolts *i i'*, &c., and a common strip, *k*, extending under the heads of all the bolts of the strip. The strip *l*, which I term the "battery" or "generator" strip, may be connected with any suitable source of electricity. This strip may be common to as many keys as may be desired. It will be understood that bolt *i* is insulated from springs *e g* and connection *h*. Spring *e* should be of sufficient force to support the guide *d* and the wedge *a* and handle *b* when mounted thereon, as shown more clearly in Fig. 1. By thrusting in upon the handle *b* the wedge is forced under spring *f*, so as to disconnect spring *f* from contact *g*. On withdrawing the wedge spring *f* closes upon contact *g*, and in either position of the wedge the connection is formed between spring *e* and contact *h*. Upon depressing the handle, however, the connection between spring *e* and contact *h* is broken and a new connection formed between spring *e* and strip *l*, strip *l*, as before stated, being connected with a source of electricity.

It will be noted that my key, as thus described, includes five contact-springs and connections together—that is to say, the upper spring, *f*, its normal contact *g*, spring *e*, and the contacts *h* and *l*. At the will of the user spring *e* may be closed upon contact *h* or contact *l* by simply depressing the handle *b* or allowing the same to remain in the position shown. It should be observed that it matters not what may be the position of the wedge *a* with respect to spring *f*. Whenever a handle, *b*, is depressed, spring *e* will be separated from contact *h* and closed upon contact *l*. When the wedge *a* is thrust under spring *f*, said spring *f* is lifted from contact *g*, and on withdrawing the wedge connection is closed between said spring *f* and said contact *g*.

I have shown a common strip, *k*, connecting together the springs *f* of several keys through the medium of the bolts *i i'*. By this construction a telephone may be connected in circuit with as many of the springs *f* of several switches as may be desired. The circuit of the telephone-line may pass normally through

spring *e* and contact *h*. Thus, on depressing the handle *b* current may be sent to line. I preferably make the strip *l* common to several keys in order that a single source of electricity may be sufficient.

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

1. The combination, with the insulated spring or contact-piece *e*, rigidly mounted at one end, of contacts *h* and *l* on opposite sides of one end or portion of said spring *e*, a guide, *d*, mounted upon said spring *e* and serving to support wedge *a* and its handle *b*, said handle extending through an opening in the facing *c*, said opening being somewhat larger than the shank of the handle, whereby on depressing said handle the spring *e* is separated from contact *h* and closed upon contact *l*, substantially as described.

2. The combination, with the handle *b*, of the wedge of insulating material *a*, carried thereby, said handle being mounted upon spring *e* in the guide *d*, and the spring *f*, adjusted to close upon its contact *g*, whereby on inserting the wedge under spring *f* spring *f* may be lifted from its normal contact, while on depressing the handle the position of spring *e* with respect to its contacts may be changed, substantially as described.

3. The combination of two or more listening-in and calling keys mounted upon the same strip, each of said keys consisting of the following elements: a wedge, *a*, and a handle, *b*, mounted upon a spring, *e*, a contact, *h*, with which contact-spring *e* is normally connected, a contact-spring, *f*, adjusted to close upon its normal contact, said spring being lifted therefrom on the insertion of the wedge, and the contact-strip *l*, common to the different keys, substantially as described.

4. The facing *c*, provided with openings for the handles of several keys, said opening being larger than the handles inserted through the same, respectively, in combination with springs *e*, one for each handle, each spring *e* being provided with a guide for its said handle, and a common contact-strip, *l*, whereby on depressing any handle the spring *e* thereof will be closed upon contact-strip *l*, substantially as described.

In witness whereof I hereunto subscribe my name this 15th day of March, A. D. 1888.

CHARLES E. SCRIBNER.

Witnesses:
CHAS. C. WOODWORTH,
CHAS. G. HAWLEY.