

(No Model.)

2 Sheets—Sheet 1.

C. H. HASKINS.

LOCK OUT BOX AND SHUNT CIRCUIT FOR TELEPHONE EXCHANGES.

No. 378,679.

Patented Feb. 28, 1888.

Fig. 1.

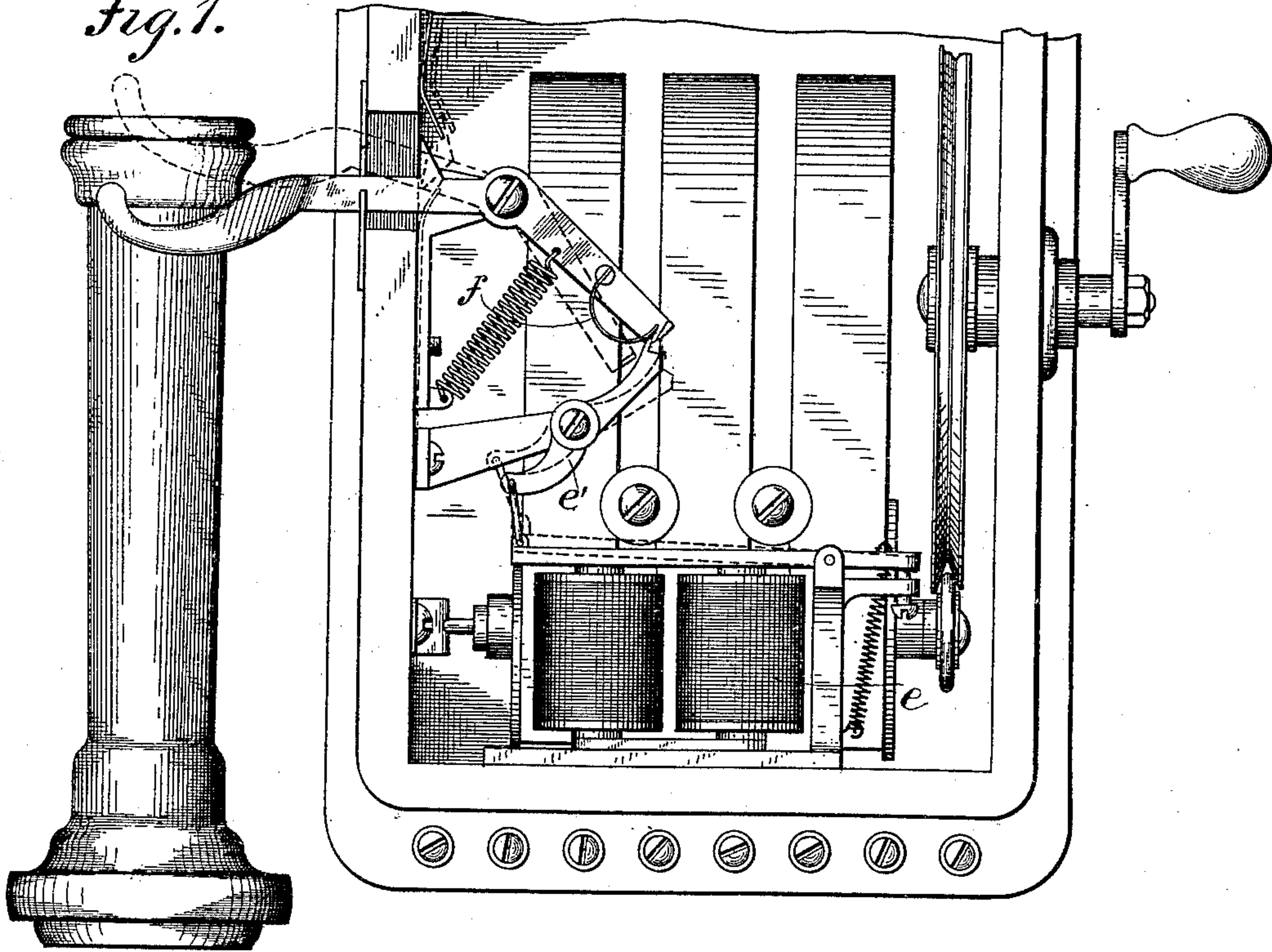
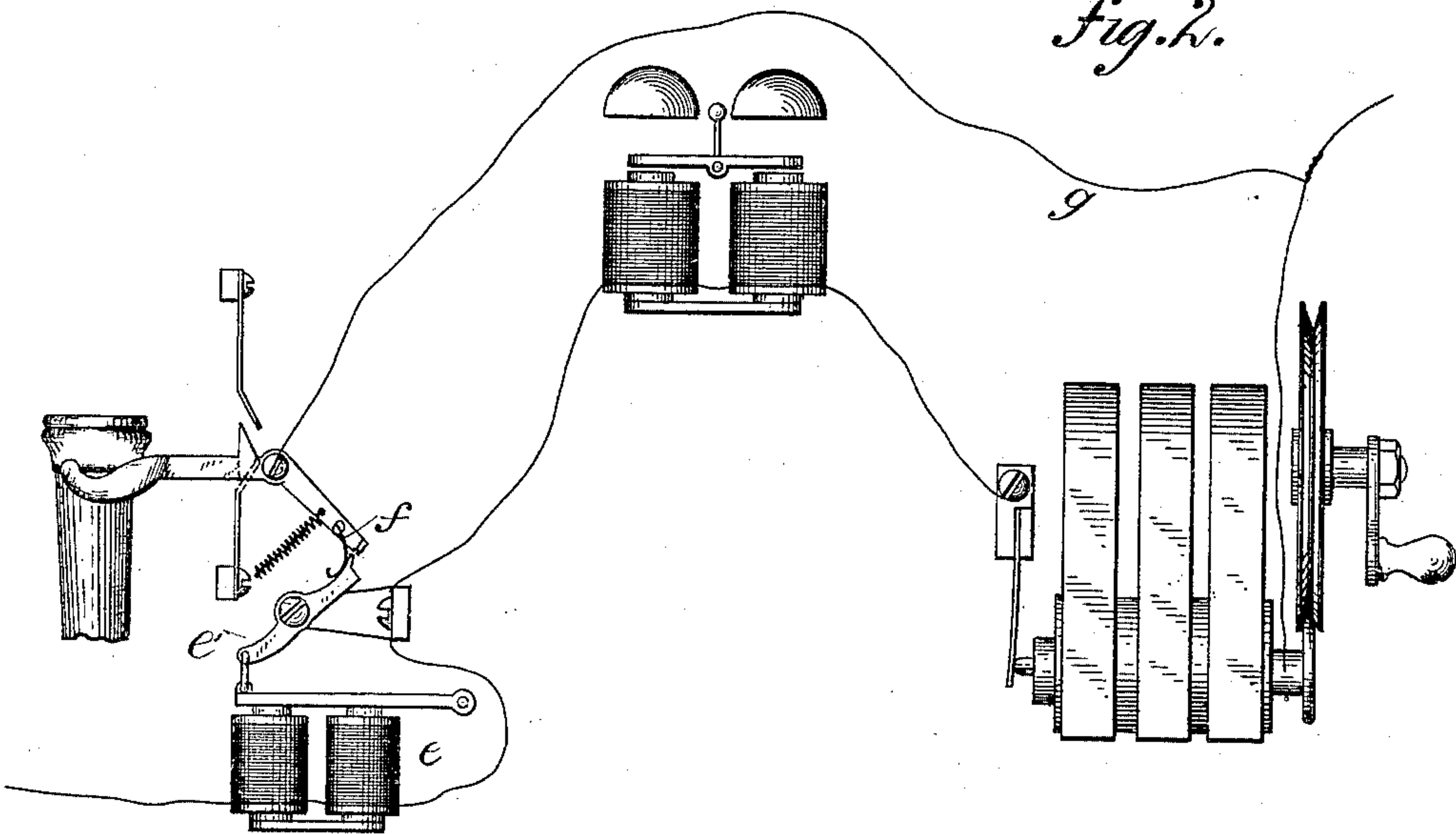


Fig. 2.



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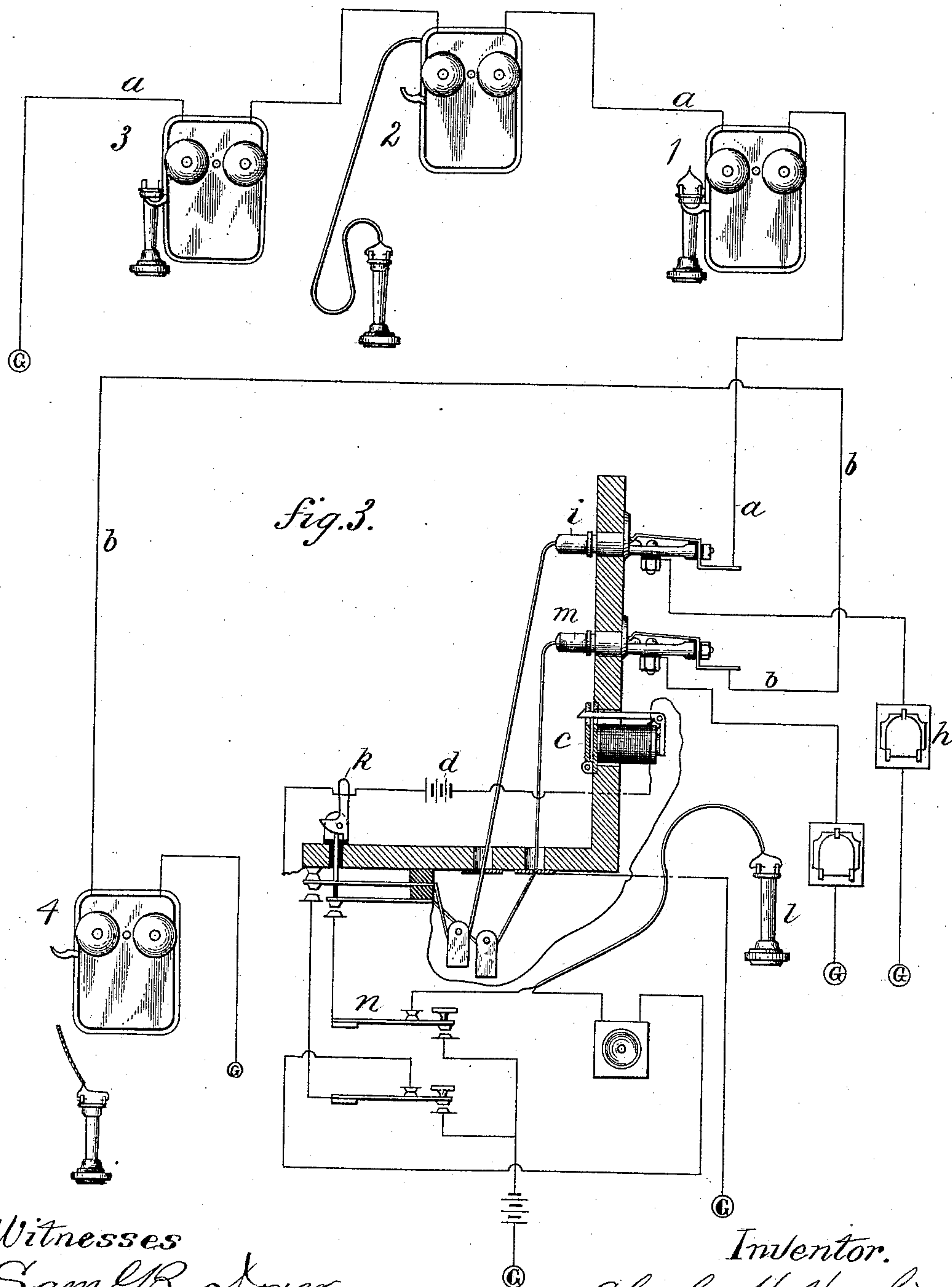
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UNITED STATES PATENT OFFICE.

CHARLES H. HASKINS, OF MILWAUKEE, WISCONSIN, ASSIGNOR TO THE
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LOCK-OUT BOX AND SHUNT-CIRCUIT FOR TELEPHONE-EXCHANGES.

SPECIFICATION forming part of Letters Patent No. 378,679, dated February 28, 1888.

Application filed December 3, 1885. Serial No. 184,562. (No model.)

To all whom it may concern:

Be it known that I, CHARLES H. HASKINS, a citizen of the United States, residing at Milwaukee, in the county of Milwaukee and State of Wisconsin, have invented a certain new and useful Improvement in Lock-Out Boxes and Shunt-Circuits 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.

In certain cases it has been found desirable to place two or more stations upon the same line, each station being provided with a telephone, a transmitter, a bell, and generator.

Bliss clocks and other systems of individual calls have been used, so that one subscriber might be rung up without disturbing any other subscriber on the line.

My invention herein relates to the apparatus for use at the stations of the different subscribers where several subscribers are thus placed upon the same line.

My invention has for its object, first, to provide a locking device at each of the stations, by means of which the telephones of all the stations upon a given line, except the station that is first connected for conversation, may be excluded from the circuit; and, second, to provide a shunt-circuit around the boxes of the stations which are thus locked out, in order that all unnecessary resistance may be removed from the talking-circuit.

By the use of my invention any two subscribers of the exchange connected together may hold private conversation with one another without liability of interruption by calls from any other subscriber upon their circuit, while at the same time all unnecessary resistance is removed from their circuit.

My invention may be used in connection with the Bliss clock or any other well-known individual call. I have illustrated, however, only ordinary keys for sending signals from the central office over the lines. The circuits of the bell and telephone at the different stations are the well-known open or make-and-break circuits. When the telephone is hung on the switch, the bell is in circuit and the telephone cut out. On removing the telephone the telephone is brought into circuit and the

branch containing the bell is opened. I have not deemed it necessary to illustrate these well-known circuits in detail.

In the drawings, which are illustrative of my invention, Figure 1 shows a sectional view of a telephone call-box embodying my invention, the upper portion thereof, which contains the bell, being broken away. Fig. 2 is a diagram view illustrative of the shunt-circuit, which is closed around the box when the box is locked. Fig. 3 is a diagram showing two subscribers upon different lines connected together through the central office for conversation, the central-office apparatus being shown somewhat in detail.

Upon line *a* are shown three subscribers' stations, 1, 2, and 3. Upon line *b* is shown station 4. Stations 2 and 4 are shown connected together through a pair of cords, said cords including a clearing-out shutter *c* and battery *d*. When two subscribers are thus connected together, other subscribers on the same lines, as subscribers 1 and 3, will be locked out, so that they cannot ring or listen.

As shown in Figs. 1 and 2, electro-magnet *e* of the locking and shunting mechanism is permanently included in the circuit of the telephone-line. When battery *d* is included in a line, all electro-magnets *e* of the circuit will be energized, and all the subscribers upon the circuit, except the two that are in communication, will be locked out, as before stated, and a shunt-circuit will be closed around the boxes that are thus locked out, as indicated in Fig. 2. When magnet *e* is energized, the pivoted lever *e'*, which is linked to the armature of said electro-magnet, is brought into the position shown under and in the path of the inner end of the switch-lever. If, now, the telephone should be removed, the motion of the lever would be arrested by the lever *e'*, as shown. The lever *e'*, when raised to the position shown, comes in contact with the switch-lever, or preferably with the spring-contact *f*, as shown in Figs. 1 and 2. This contact closes the shunt around the generator and bell of the box and prevents current from the generator being sent to line, while at the same time the resistance of the bell and generator is shunted out of circuit. The spring *f*, (shown upon the switch-lever in Fig. 1,) serves as an electrical

connection between the telephone-switch and the stop. Thus when circuit through any electro-magnet *e* is closed the shunt-circuit *g* will be closed automatically—that is, at the same time and by the same means—around the box, as shown in Fig. 2, and thus as long as current remains upon the line the switch-lever cannot rise to the position indicated by dotted lines in Fig. 1, in which position the bell is disconnected from and the telephone connected into the circuit of the line.

I will now describe the operation of my system.

Suppose subscriber 2 wishes to talk with subscriber 4. He first sends current, by means of his generator, over his line, thereby throwing down shutter *h* in line *a* at the central office. The operator, seeing the shutter fall, inserts a plug, *i*, of a pair of cords in the switch of the line, as shown. By throwing down the cam-lever *k*, or by means of any other well-known switch, the operator brings his telephone *l* into the circuit, and subscriber 2 thereupon tells the operator that he wants subscriber 4. The operator at once inserts the other plug, *m*, of the pair in the spring-jack of line *b*, as shown. By means of key *n* the calling-battery is thrown upon line *b*, thus ringing up subscriber 4. Then by throwing up the cam-lever *i* to the position shown telephone *l* is disconnected from the circuit of the lines, and the said lines are connected together through the pair of cords, clearing out shutter *c* and battery *d*, as shown. Subscribers 2 and 4 are thus placed in secret communication, all other stations on the lines, as stations 1 and 3, being locked out, and the bells of these stations are shunted. Before the final connection is made as above described the operator should assure himself that subscriber 4 has taken down his telephone, otherwise subscriber 4 might be locked out of the circuit. The clearing-out annunciator *c* which I have shown is what is

known as the "closed-circuit" annunciator, so arranged that the shutter will be held up as long as the circuit is closed. The subscriber, on hanging up his telephone, changes the circuit from his telephone to his bell, as is usual. The circuit of the line is thus momentarily opened as the switch passes from one point to the other, and the shutter falls, whereupon the operator pulls out the plugs and disconnects the lines. The battery *d* is thus disconnected from the line. The electro-magnets *e* are thus demagnetized, the pivoted levers *e'* fall, and the boxes resume their normal position.

Prior to my invention an electro-magnet had been placed at each of the different subscribers' stations of the telephone-lines, and so arranged that the switches at stations not connected could be locked out by current sent from the central office. Such a system is described in Patent No. 251,178, granted to Charles E. Buell December 20, 1881, for telephone switch devices. In Buell's system, however, no shunt is employed and the circuits are liable to be left open when locked out.

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

An electro-magnet in the circuit of a telephone-line, a telephone-switch, shunt-circuit *g* around the bell and generator, a circuit-closing device operated by the armature of said electro-magnet, and a battery at the central office included in the circuit, whereby the shunt-circuit may be closed around the box, substantially as and for the purpose specified.

In witness whereof I hereunto subscribe my name this 23d day of November, A. D. 1885.

CH. H. HASKINS.

Witnesses:

S. G. LAPHAM,
GEO. H. RUSSELL.