

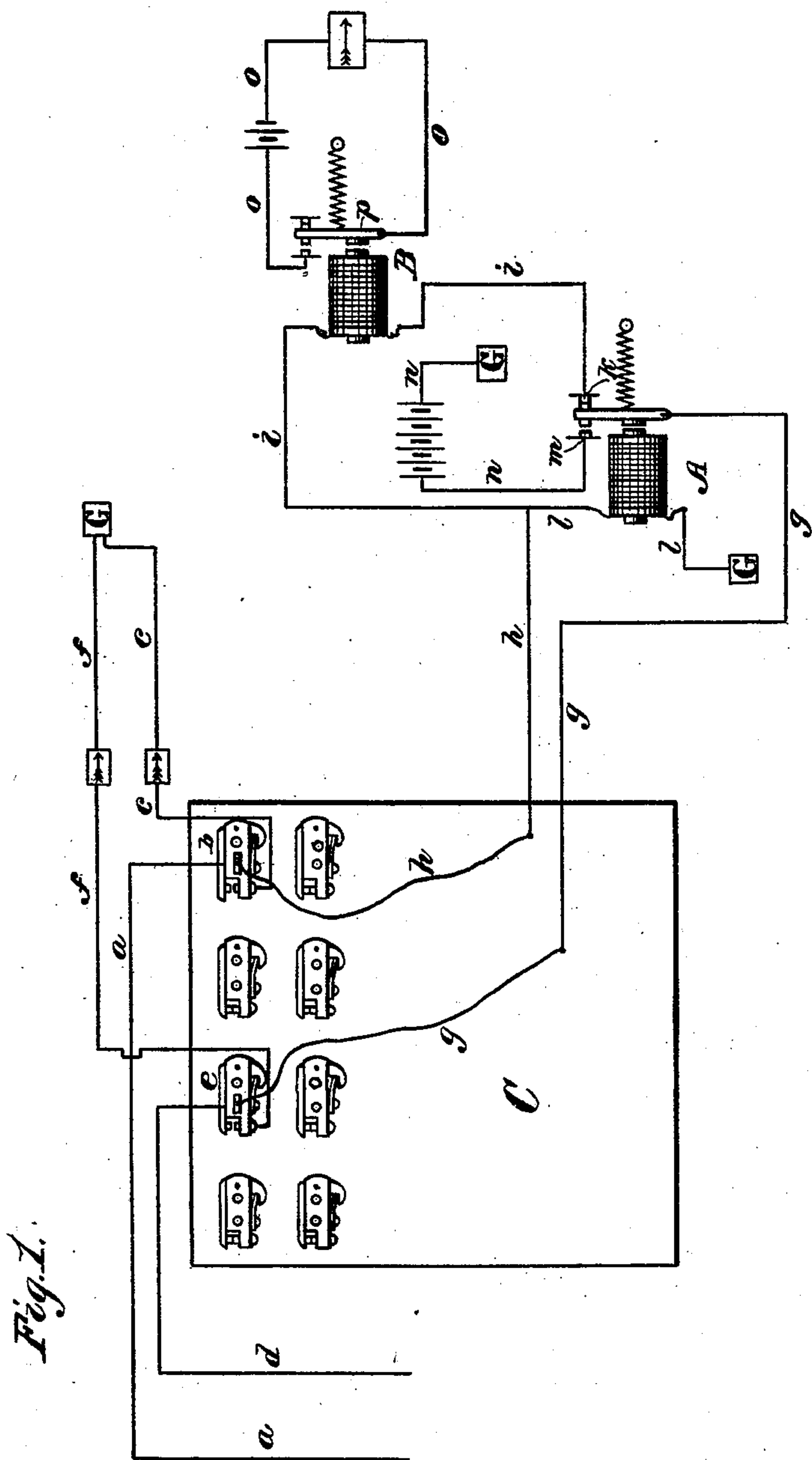
(No Model.)

C. E. SCRIBNER.

Calling and Clearing Out Circuits for Telephone
Exchanges.

No. 243,312.

Patented June 21, 1881.



Witnesses,
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UNITED STATES PATENT OFFICE.

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CALLING AND CLEARING-OUT CIRCUIT FOR TELEPHONE-EXCHANGES.

SPECIFICATION forming part of Letters Patent No. 243,312, dated June 21, 1881.

Application filed February 24, 1881. (No model.)

To all whom it may concern:

Be it known that I, CHARLES E. SCRIBNER, of Chicago, Illinois, have discovered certain new and useful Improvements in Calling and Clearing-Out Circuits for Telephone-Exchanges, of which the following is such a full, clear, concise, and exact description as will enable those skilled in the art to practice my invention, reference being had to the accompanying drawing, forming a part of this specification.

My invention relates to the circuits of a telephone-exchange system. By its use the subscribers are enabled to do their own calling after they are connected at the central office.

My improvements, as hereinafter described, may be readily adapted to any telephone-exchange system.

The novelty of my invention consists in one or more pairs of relays, in combination with circuits and electric apparatus at the central office. Each pair of relays is provided with a pair of plugs and conducting-cords. There should be such a number of outfits that any subscriber wishing a connection may not be compelled to wait for others to get through with the outfit that they are using, as it is evident only one connection can be had at once through a given pair of relays. The cords of a pair of plugs should be of different colors—for example, red and blue.

In the drawing the figure represents a diagram of the circuits of a pair of relays, A and B, and of the lines of two subscribers connected through the said pair of relays.

C is the switch-board. The telephone-lines come to the central office in the usual manner, and connect with a switch on the switch-board, or with a switch on each of the switch-boards when more than one switch-board is used. The lines may be opened or closed to ground, according to the system of signaling or sending in the calls.

In the drawing the telephone-lines are connected from their respective switches to ground through numbers of annunciators when not in use. Line *a* connects with jack-knife switch *b*, and thence by line *c* through an annunciator, and to ground. Line *d* connects with jack-knife switch *e*, and thence by line *f* through an annunciator and to ground. Let red cord

g connect with armature of relay A and blue cord *h* of the pair branch, the branch *i* passing through the magnet of relay B to contact-point *k*, and the other branch, *l*, passing through the magnet of relay A and to ground. Contact-point *m* is connected through the calling-battery to ground by line *n*.

The clearing-out annunciator is placed in the local circuit of line *o*. The armature *p* of relay B serves as a key or circuit-closer.

The magnet of relay A is of high resistance, preferably about ten or fifteen times as many ohms resistance as the resistance of the magnet of relay B.

The calling subscriber *S'* is connected with line *a*, and the subscriber wanted, *S*², is connected with line *d*. *S'* having notified the central office in any well-known way that he wishes to talk with *S*², the attendant switchman inserts the pair of plugs in their switches *b* and *e*, as shown. The ground-wires *c* and *f* are thus removed, and *S'* proceeds to ring up *S*² by sending a current along his telephone-line *a*. The current thus sent passes through the coil of magnet of relay A, and the armature of relay is moved from contact-point *k* to contact-point *m*, and the calling-battery is thus thrown to the telephone-line of *S*². The adjustment of relay A is light as compared with the adjustment of relay B, and hence the line *i* is opened at *k* before the circuit of line *o* is closed by the movement of the armature of relay B. The clearing-out annunciator, therefore, is not disturbed by the current sent by *S'*. As soon as *S*² hears the call he takes down his hand-telephone and answers the call through his transmitter. When *S'* and *S*² are through talking *S*² hangs up the hand-telephone and sends a current along his telephone-line *d*. This current will all pass through the coil of the magnet of relay B, but only a small part of this current will pass through the coil of the magnet of relay A, since the resistance of the magnet of relay A is very high, as compared with the resistance of the telephone-line *a*. The circuit of line *o*, therefore, is closed by the movement of the armature of relay B, and the attendant at the central office notified by the clearing-out annunciator to disconnect the switches *b* and *e*. This is done by pulling out the pair of plugs from the said switches.

I claim—

The combination of the telephone-line circuits of two subscribers with a pair of relays, a calling-battery, and a clearing-out annunciator, said relays being provided with contact-points for their armatures, whereby the calling-battery is thrown to line, or the circuit of

the clearing-out annunciator closed, substantially as shown and described.

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