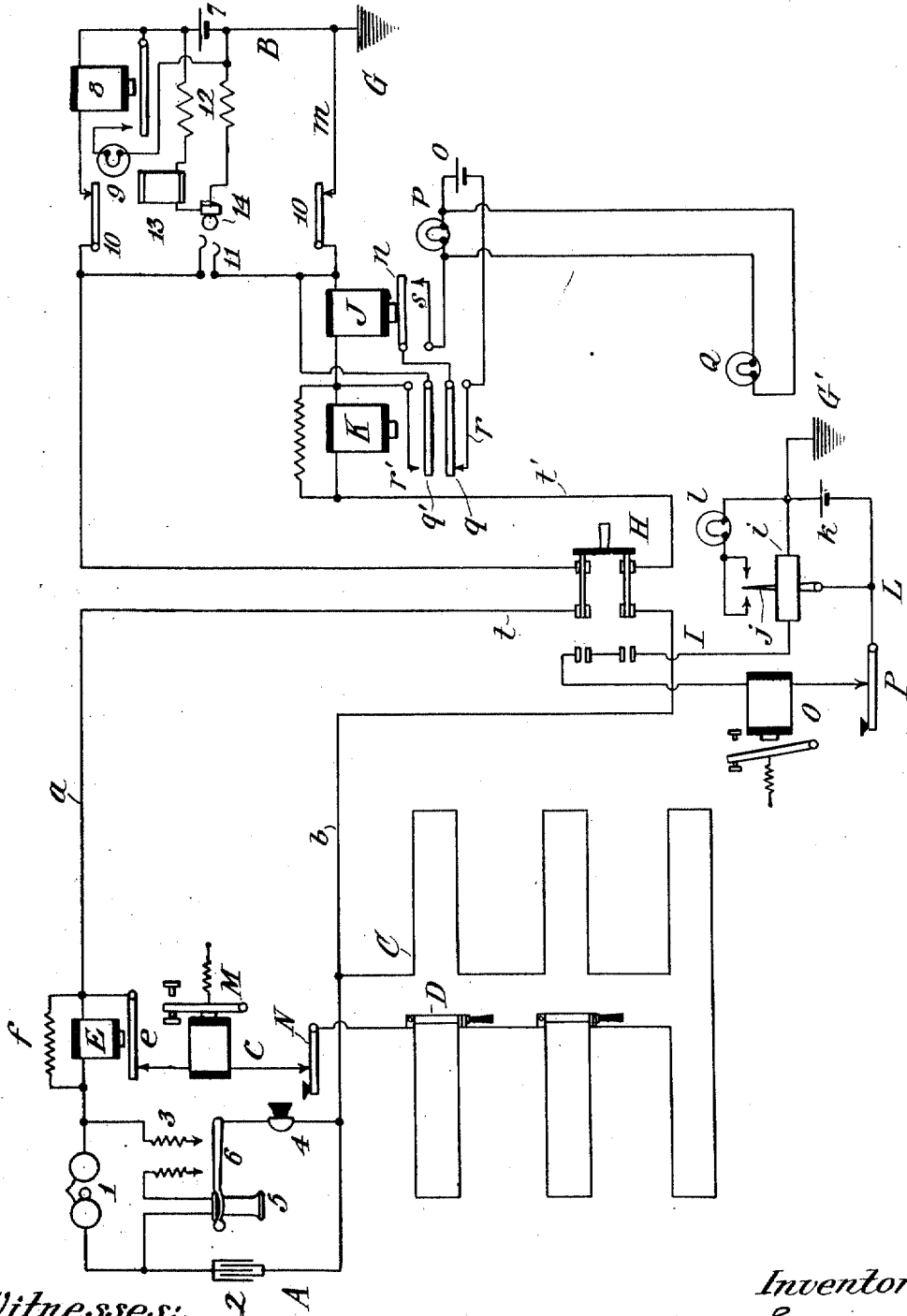


A. GOLDSTEIN.
ELECTRICAL ALARM SYSTEM.
APPLICATION FILED AUG. 6, 1910.

984,211.

Patented Feb. 14, 1911.



Witnesses:
C. Singer
May T. McHarry.

Inventor:
Albert Goldstein
by Paul Benjamin
his attorney.

UNITED STATES PATENT OFFICE.

ALBERT GOLDSTEIN, OF NEW YORK, N. Y., ASSIGNOR TO INTERNATIONAL ELECTRIC PROTECTION COMPANY, A CORPORATION OF NEW YORK.

ELECTRICAL ALARM SYSTEM.

984,211.

Specification of Letters Patent.

Patented Feb. 14, 1911.

Application filed August 6, 1910. Serial No. 575,900.

To all whom it may concern:

Be it known that I, ALBERT GOLDSTEIN, a citizen of the United States, residing at New York, in the county of New York and State of New York, have invented a certain new and useful Improvement in Electrical Alarm Systems, of which the following is a specification.

In U. S. Letters Patent No. 966,903, granted to me August 9th, 1910, and filed March 28th, 1910, I have set forth an electrical alarm system which has for its object the utilization of a telephone circuit also as a burglar alarm circuit. At the transmitting or subscriber's station are arranged the usual telephonic transmitting devices, and also the protective circuit which may comprise a number of loops in series so as to extend to various localities—as, for example, windows and doors—in a building which it is desired to protect. The protective circuit is in shunt from the main line circuit, and is normally closed. When the telephone receiver is removed from its switch arm, the closing of main circuit by said arm in the ordinary way causes a magnet in said main circuit to become energized from the distant or receiving station, and said magnet thereupon moves its switch to open said protective circuit. Hence said protective circuit shunt is automatically cut out while the subscriber is talking, and does not interfere with speech transmission. At the receiving or central office end of the line are provided the usual translating devices and an alarm circuit associated therewith, which alarm circuit is so constructed as that upon the occurrence of a break or other abnormal electrical condition on the line, the alarm will be sounded. Also at the receiving station is another and separate alarm circuit which is never connected to the apparatus at said receiving station, but which, by means of a suitable switch, may be brought into circuit with the apparatus at the transmitting station, the connection of the said apparatus with the translating devices at the receiving station being at the same time broken. When, therefore, the switch is thrown to connect the telephonic apparatus at the transmitting station with the translating devices at the receiving station, the ordinary conditions of telephonic transmission are present, with the addition that accidental breaks or disturbances on

the line will be indicated at the receiving station. When the switch is thrown to connect the telephonic apparatus at the transmitting station with the independent alarm circuit at the receiving station, then speech transmission is prevented; but the protective circuit at the transmitting station is directly connected with said independent alarm circuit, so that any interruption of said protective circuit results in operating the alarm circuit to give an alarm. By reason of this construction, a telephone subscriber may, at any desired hour, notify his telephone exchange that for some stated period of time he desires his telephone service cut off and burglar alarm made effective. The operator at the exchange then simply throws the switch before noted, and thereafter any tampering with the subscriber's protective circuit or abnormal condition on the line is at once announced by the alarm at said exchange.

It may happen that at the time the subscriber directs the connection of his protective circuit with the alarm system, there may already be trouble on the protective circuit. In my aforesaid apparatus, this trouble is indicated to the operator at the alarm station, as soon as he throws the switch. But the subscriber may be wholly ignorant of it, and hence may leave his premises for the night, for example, supposing that everything is all right, when the contrary is true. My present invention obviates this difficulty by providing means whereby the operator at the alarm station may communicate with the subscriber directly, as soon as the alarm connection is made, to send him an O. K. signal if no trouble is indicated, or to advise him as to the trouble, so that it can be at once corrected. The means of intercommunication operates in both directions, and, as here shown, is telegraphic through the medium of suitable keys and sounders. I have also found it preferable to separate the alarm station from the central telephone station, and to place the switch at the alarm station under the control of the operator there located. In order to warn this operator when the switch is to be thrown, I provide at his station an additional translating device—here a lamp—which is in circuit with the central station apparatus, and hence is responsive to signals sent by the subscriber while the telephone connections are closed.

The accompanying drawing is an electrical diagram, showing the application of my invention to a typical "Bell" telephone circuit.

As shown in my aforesaid Letters Patent, the line circuit, of which the members are indicated at *a*, *b*, unites the subscriber's station at A to the central office at B. The switch H instead of being at the central office is now located at another station indicated at L, and hereafter termed the burglar alarm office, which may be distant from the central office. The apparatus at the central office B includes the battery 7, line relay 8, line lamp 9, switches 10 of the cut off relay (not shown), jacks 11 (only one shown), the cord circuit (which includes the two windings 12 of the repeating coil, supervisory relay 13 and plug contacts 14), magnets K, J, switches *g*, *g'*, *u*, contacts *r*, *r'*, *s*, battery *o* and lamp *p*, and is the same as already described in my aforesaid Letters Patent. The apparatus at the subscriber's station A, which includes the bell 1, condenser 2, induction coil 3, transmitter 4, receiver 5, switch 6, magnet E, shunt *f*, switch *e*, shunt conductor *c*, protective circuit C, short-circuiting levers D, is also the same as described in my aforesaid Letters Patent. The apparatus at the burglar alarm office L includes the alarm circuit I, comprising wires *t*, *t'*, galvanometer coil *i* connected to ground at G', balanced needle arm *j*, battery *k* and glow lamp *l*, and is also the same as in my aforesaid Letters Patent.

The structural additions to the foregoing system are as follows: At the subscriber's station A, and interposed in the shunt conductor *c*, between the switch *e* and the protective circuit C, a telegraph sounder M and a key N. In the alarm circuit wire *t* and at the burglar alarm office L and between one contact of switch H and battery *k*, a telegraphic sounder O and a key P. Also at the burglar alarm office L, a lamp Q, in shunt with lamp *p*.

The operation of my present invention is as follows: When the subscriber desires to connect his station with the burglar alarm office L and disconnect it from the telephone central office B, he sends any predetermined signal to the operator at L, by means of the telegraph key N. This signal is translated at L by a flickering of the lamp Q, and thereupon the operator at L throws the switch H to establish the subscriber's connection through the wires *t*, *t'* to the alarm circuit I. The operator at L then observes the needle *j* of galvanometer coil *i*, which, if deflected, indicates trouble on the subscriber's circuit; thus, for example, such deflection will occur if all the switch levers D of the protective circuit C are not open. When such trouble is shown the operator communicates with the subscriber's station by means of his key P and the subscriber's sounder M, and gives such directions as will cause removal of said

trouble. If no trouble is indicated by the galvanometer needle *j*, or when the needle comes to balanced position, the operator uses key P to send an O. K. signal. Considering the whole system, it will be apparent that the telephone operator at the exchange B gets his instructions from the subscriber's station by means of the lamp 9; the wire chief also at the exchange watches the indications of lamp *p*, which, as already explained in my aforesaid Letters Patent, becomes lighted when either a break or a ground occurs on the line: the burglar alarm office operator gets his signal to throw switch H from lamp Q. Because lamps *p* and Q are connected, both the wire chief and the burglar alarm operator simultaneously learn of the subscriber's direction to change from telephone to burglar alarm service. After the change has been made, then by reason of the telegraph keys and sounders described, the burglar alarm operator and subscriber may communicate, either to permit the burglar alarm operator to send in at once an O. K. signal, or if he finds trouble on the subscriber's circuit, to send such notification thereof as will insure its removal, before any O. K. signal is transmitted.

I claim:

1. The combination with a telephonic circuit including subscriber's and central station telephonic transmitting and receiving apparatus, and means for transmitting and receiving call signals, of a protective circuit at the subscriber's station, means at a station distant from said subscriber's station for indicating trouble on said protective circuit, and means independent of said telephone apparatus and said call signal and receiving means for signaling over said telephonic circuit from said distant station to said subscriber's station.

2. The combination with a telephonic circuit including subscriber's and central station telephonic transmitting and receiving apparatus and means for transmitting and receiving call signals, of a protective circuit at the subscriber's station, means at a station distant from said subscriber's station for indicating trouble on said protective circuit, means for connecting to line either said indicating means or said central station apparatus, and means in circuit with said indicating means and independent of said central station apparatus and said call signal and receiving means for signaling between said distant station and said subscriber's station.

3. The combination of a line circuit extending between distant stations, and, at one station, telephonic receiving and transmitting devices, a signal receiving device and a protective circuit, and, distant therefrom, telephonic translating devices, a separate alarm circuit, means for connecting to line

either said translating devices or said alarm circuit, and means in said alarm circuit for transmitting signals to said signal receiving device at said first-named station.

5 4. The combination of a line circuit extending between distant stations, and, at one station, telephonic receiving and transmitting devices, means for receiving signals, means for transmitting signals and a protective circuit, and, distant therefrom, telephonic translating devices, a separate alarm circuit, means for connecting to line either said translating devices or said alarm circuit, and in said alarm circuit, means for receiving signals and means for transmitting signals.

5. The combination of a line circuit extending between distant stations, and, at one station, telephonic receiving and transmitting devices, a protective circuit, a telegraph sounder and a telegraph key, and, distant therefrom, telephonic translating devices, a separate alarm circuit, means for connecting to line either said translating devices or said alarm circuit, and in said alarm circuit, a telegraph sounder and a telegraph key.

6. The combination of a line circuit extending between distant stations, and, at one station, telephonic receiving and transmitting devices and a protective circuit, and, distant therefrom, telephonic translating devices, a separate alarm circuit and a switch, the aforesaid switch operating to connect the telephonic apparatus at said first station either to the translating devices

or to the separate alarm circuit at the distant station, and means disposed in said protective circuit and in said alarm circuit for communicating between said stations.

7. The combination of a line circuit extending between distant stations, and, at one station (A) telephonic receiving and transmitting devices, a protective circuit and in said protective circuit a key and sounder, and, at another station (B) telephonic translating devices, and, at a third station (L) an alarm circuit, a key and sounder therein and a switch; the said switch operating to connect the telephonic apparatus at said station A either to the translating devices at station B or to the said alarm circuit at station L.

8. The combination of a line circuit extending between distant stations, and, at one station (A) telephonic transmitting and receiving devices and a protective circuit, and, at another station (B) telephonic translating devices, and, at a third station (L) an alarm circuit, a switch and a separate alarm signal: the said switch operating to connect the telephonic apparatus at said station A with (1) the translating devices at station B and the separate alarm signal at station L, or with (2) the alarm circuit at station L.

In testimony whereof I have affixed my signature in presence of two witnesses.

ALBERT GOLDSTEIN.

Witnesses:

GERTRUDE T. PORTER,
MAY T. MCGARRY.