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ALARM SYSTEM

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Fig. 1

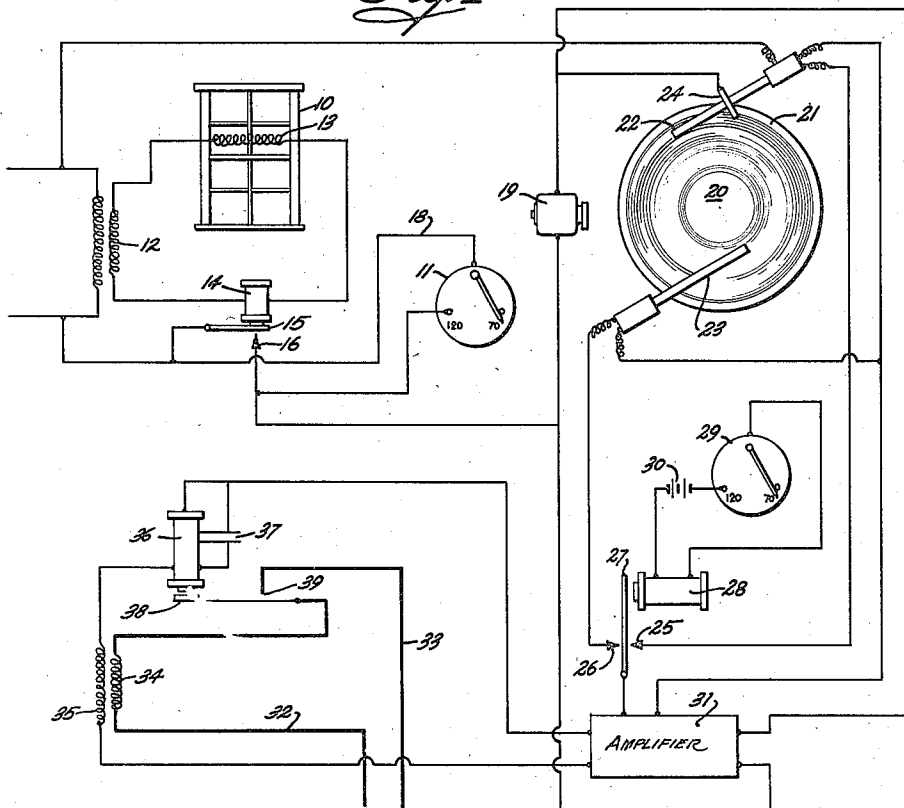
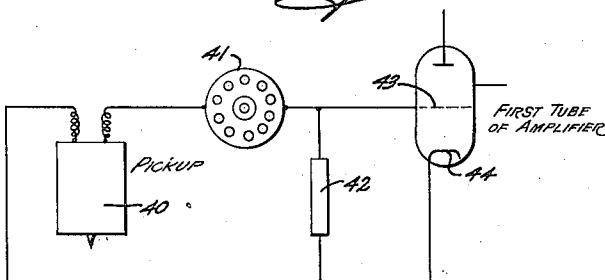


Fig. 2



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ALARM SYSTEM

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5 Claims. (Cl. 179—5)

This invention relates to improvements in alarm systems.

Heretofore, alarm systems have been provided for use in conjunction with automatic telephone systems wherein a record having recorded thereon a message to the effect that either a fire, burglary, or other contingency is occurring at a certain address is caused to be played and reproduced in the transmitter of a telephone. In the devices heretofore designed, more or less elaborate electrical mechanisms are provided for lifting the transmitter of the telephone and operating the dial mechanism to call the police department or the fire department as the case may be, and then to have the message recorded on the record reproduced in the transmitter.

An object of the present invention is to provide an improved alarm system for use in conjunction with a line of an automatic telephone system wherein it is unnecessary to lift the transmitter nor to operate the dialing mechanism of the telephone set in order to call the police department, the fire department, or other subscribers to whom the recorded message is to be conveyed. In accordance with the present invention a calling record or message is recorded on the record which is electrically translatable into electrical impulses applied directly to the telephone line corresponding to similar electrical impulses that are applied to the line by the dialing system of the telephone set, whereby, in the event of fire or burglary the record is started rotating and the required impulses are applied directly to the line to call the fire department or police department as the case may be by means of the recording on the record itself.

While the invention has been primarily designed for use in conjunction with an alarm system in a broader aspect it is an object of the invention to provide a method and apparatus for calling a subscriber of an automatic telephone system by means of recordings on a record, with the interposition of any mechanical device or electro-mechanical device for operating the dialing mechanism of a telephone set.

With the foregoing and other objects in view which will be made manifest in the following detailed description and specifically pointed out in the appended claims, reference is had to the accompanying drawing, for an illustrative embodiment of the invention, wherein:

Figure 1 is a diagrammatic or schematic view illustrating apparatus embodying the present invention; and

Fig. 2 is a wiring diagram of apparatus that

may be employed in the making of a record utilized in accordance with the present invention.

Referring to the accompanying drawing wherein in similar reference characters designate similar parts throughout, the invention will be described in conjunction with an alarm system wherein 10 indicates a window or other opening designed to be protected against unauthorized ingress and which when opened will serve to operate the alarm. 11 indicates a thermometer or other temperature measuring device which when heated to an excessively high temperature will also serve to operate the alarm in the event of fire.

12 indicates a suitable transformer the primary of which is connected to a suitable source of current, such as for example, house current. The secondary of this transformer may be in series with a readily breakable coil 13 designed to be broken whenever the window 10 is open. The secondary and coil are in series with a relay 14, the armature 15 of which is engageable with a contact 16. Armature 15 may be electrically connected to one of the supply lines supplying electric current to transformer 12. This arrangement is such that as long as the circuit through the coil 13 remains closed armature 15 will disengage contact 16 but when the circuit is broken armature 15 will be no longer attracted and may engage contacts 16 in circuit-closing position.

A lead 18 may come also from the supply of house current and be connected to the thermometer 11 so that when the thermometer registers an excessive temperature it will be effective to close the circuit in the same manner that it is closed when armature 15 engages contact 16. Whenever current is supplied to contact 16 either by armature 15 or by the thermometer 11, the circuit through an electric motor 19 is closed, which serves to rotate a turntable 20 on which there is disposed a record 21. Record has two sets of recordings therein, one of which is engageable by a tone arm 22 and the other engageable by a tone arm 23. A contact 24 may be engageable by the tone arm 22 to break the circuit through the motor 19 when the tone arm 22 has moved inwardly over the record a predetermined distance so as to shut off the phonographic apparatus and so it will not continue playing indefinitely.

Tone arm 22 is electrically connected to contact 25 and similarly tone arm 23 is electrically connected to a contact 26 between which there is an

armature 27 adapted to be attracted by a solenoid 28. Solenoid 28 may be in circuit with a thermometer 29 and a storage battery or dry cell 30. Whenever the temperature is excessive the circuit through the solenoid 28 is closed attracting armature 27 to engage contact 25, thus placing tone arm 22 in circuit with the amplifier 31 and disconnecting tone arm 23 from the amplifier. Whenever the thermometer does not register any excessive temperature armature 27 will be in engagement with contact 26 and disengaged from contact 25, thus placing tone arm 23 in electrical connection with the amplifier 31 and disconnecting tone arm 22 therefrom.

32 and 33 indicate leads of a telephone line of an automatic telephone system. On one of these leads, indicated at 32, there is connected the secondary 34 of a radio transformer, the primary of which is indicated at 35. The primary 35 is connected to one side of the output of the amplifier 31 and to one side of a solenoid 36. A small condenser 37 is arranged in parallel with the solenoid 36 and the solenoid and condenser in turn connected to the other side of the output of the amplifier. The solenoid when energized serves to attract an armature 38 to cause it to engage a contact 39 on the telephone lead 33.

Assume for example that the number on the automatic telephone of the fire department is 6957, or that it is composed of letters having the corresponding digits on a dial mechanism of a telephone set. The outer recording on the record 21 is made up of two records which may be referred to herein as the "call record" and the "message record." The call record is such as to cause the amplifier to deliver electrical impulses so as to make and break the circuit through the solenoid 36, six times, then after a pause, nine times, after a succeeding pause, five times, and after a final pause, seven times. This will cause armature 38 to engage and disengage the contact 39 a corresponding number of times. When the contact 39 is thus engaged and disengaged, the circuit is closed through the lines 32 and 33 in the same manner as the circuit is opened and closed by means of the dialing mechanism of the ordinary telephone set. Consequently, the mechanism at the substation of the automatic telephone system will be automatically operated to call the fire department. When the receiver is lifted at the fire department the message to the effect that a fire is occurring at the address where the alarm system is installed is transmitted. Such message is recorded on the record 21 to be picked up by the tone arm 22 after the call record has been played. This message which is picked up by the tone arm is electrically translated through the amplifier 31 and through condenser 37 to the radio transformer having the windings 34 and 35. In a similar manner, if the burglary is taking place resulting in a rupture of the circuit through solenoid 14 tone arm 23 will be connected to the amplifier through armature 27 being in engagement with contact 26. The first message on the record played by the tone arm 23 may be the call message for the police department. Thus, if the number of the police department on the automatic telephone exchange is 1234 the first message played by the tone arm 23 will cause electrical impulses to be supplied solenoid 36 that will cause armature 38 to close and open with contact 39 once, then twice, then three times, and finally four times, in the same manner that the dialing system of a telephone set would close and open to operate the automatic exchange. When

the police department has thus been called tone arm 23 will play a message on the record to the effect that a burglary is taking place at the address where the alarm system is installed. After the record has been rotated sufficiently to cause the tone arm 22 to progress inwardly a sufficient distance to disconnect contact 24 the circuit through the motor 19 is broken so that the record will not continue to rotate indefinitely.

In Fig. 2, I have illustrated a portion of an apparatus that may be used to record on the record 21 the call message or call record that will operate through the amplifier the solenoid 36 to effect the calling of the police department or the fire department as the case may be, through the automatic exchange. A simple way in which this may be accomplished is to record on a suitable record the sound of a siren having a frequency of 500 cycles. This may be recorded with the use of an ordinary microphone in the usual manner. This sound as recorded may be picked up from such record by a magnetic pick-up indicated at 40 which is in circuit with the dialing mechanism indicated at 41 of a conventional telephone set. 42 indicates a suitable resistance connected across the lines as indicated, which lines are connected to the grid 43 and filament 44 of the first tube of an amplifier. The output of the amplifier is connected with a cutting head of any ordinary or conventional recording system for recording on the record 21. Thus, in order to record on record 21 any recording which will operate solenoid 36 and armature 38 in accordance with the number that would be dialed by the dialing mechanism of a telephone set, it is merely necessary to operate the dial 41 in accordance with the number of the police department or the fire department as the case may be. The recording made on the record 21 in this manner will be such that when it is played back through amplifier 31 it will cause armature 38 to engage and disengage contact 39 in the same manner as would be accomplished by dialing the dialing mechanism of the telephone set.

From the above-described construction it will be appreciated that with the improved alarm system no mechanical or electro-mechanical device is necessary to lift the receiver or the combined receiver and transmitter from the telephone set, nor is it necessary to provide any construction for operating the dialing mechanism. The same record which plays back the message transmitted on the telephone line to the party called also operates the armature 38 to effect a calling of the desired party. While the invention has been primarily designed for use in conjunction with alarm systems, it may also be employed wherever it is desired to automatically call a subscriber of an automatic telephone system and transmit to the called party a recorded message.

Various changes may be made in the details of construction without departing from the spirit and scope of the invention as defined by the appended claims.

I claim:

1. An alarm system comprising in combination an automatic telephone system, a record having a message recorded thereon and also a record translatable electrically into the call number of a subscriber of the telephone system, and means for translating the record and applying it to the telephone line to call the subscriber, and means for translating electrically the message of the

record and applying it to the line so as to be audible by the called subscriber.

2. An alarm system comprising in combination an automatic telephone system, a record having recorded thereon a call record electrically translatable into the call number of a subscriber of the system and an audible message to be delivered to the subscriber, and means for electrically translating and applying to a line of the system the call recording and thereafter the message recording. 5 10

3. An alarm system comprising in combination an automatic telephone system, a record having a plurality of call records thereon electrically translatable into the calls of a plurality of subscribers, and a message recording associated with each call record, means for electrically translating either call record and applying it to a line of the telephone system to cause a subscriber to be called, means for thereafter translating and applying to the line the message recording associated therewith, and means for electing the call and message records to be utilized. 15 20

4. In combination, an automatic telephone sys-

tem, a record having recorded thereon, call recording electrically translatable into the call of a subscriber of the system and a message recording to be delivered to the called subscriber, and means for electrically translating and applying to a line of the system the call recording to cause the telephone system to call the called subscriber, and means for thereafter electrically translating and applying to the line the message recording to be delivered to the subscriber.

5. In combination, an automatic telephone system, a record having recorded thereon, call recording electrically translatable into the call of a subscriber of the system, and a message recording to be delivered to the subscriber, a tone arm for the record, an amplifier connected thereto, a transformer having a primary connected to the output of the amplifier, and a secondary inserted in a line of the automatic telephone system, an electro-magnetic means in circuit the amplifier for opening and closing the circuit of the line in accordance with call recording to call a subscriber of the system.

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