May 10, 1927. 1,627,612

W. J. LUSE

ALARM SYSTEM

Filed Dec. 13, 1922 5 Sheets-Sheet 1

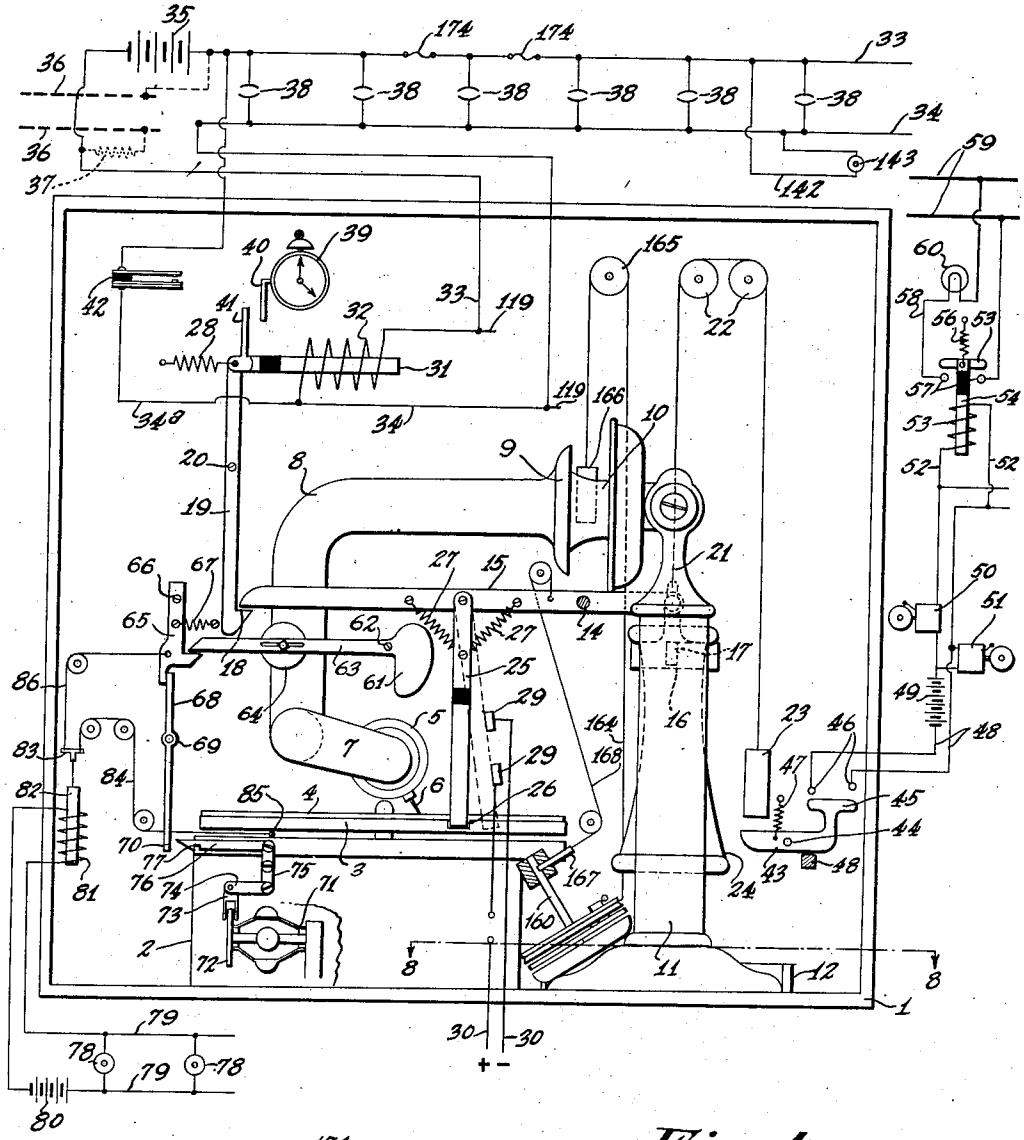


Fig. 1

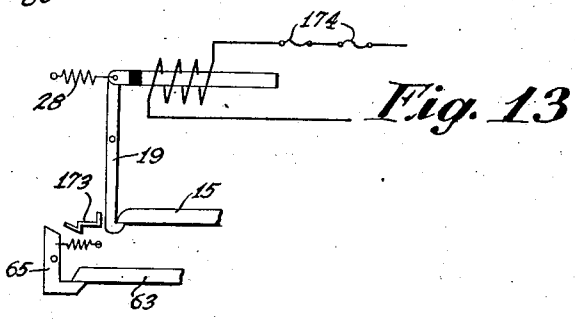


Fig. 13

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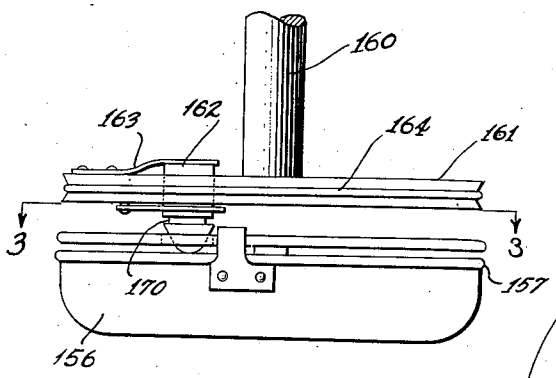


Fig. 3

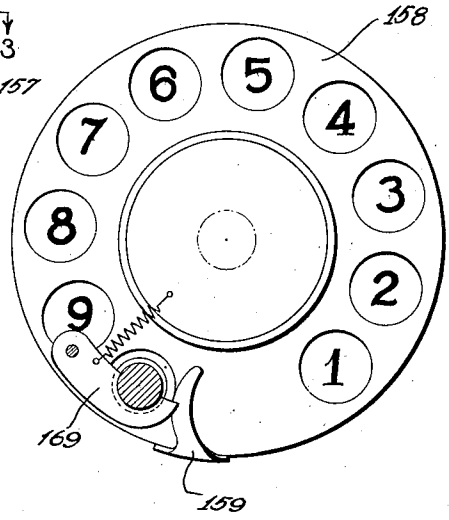


Fig. 2

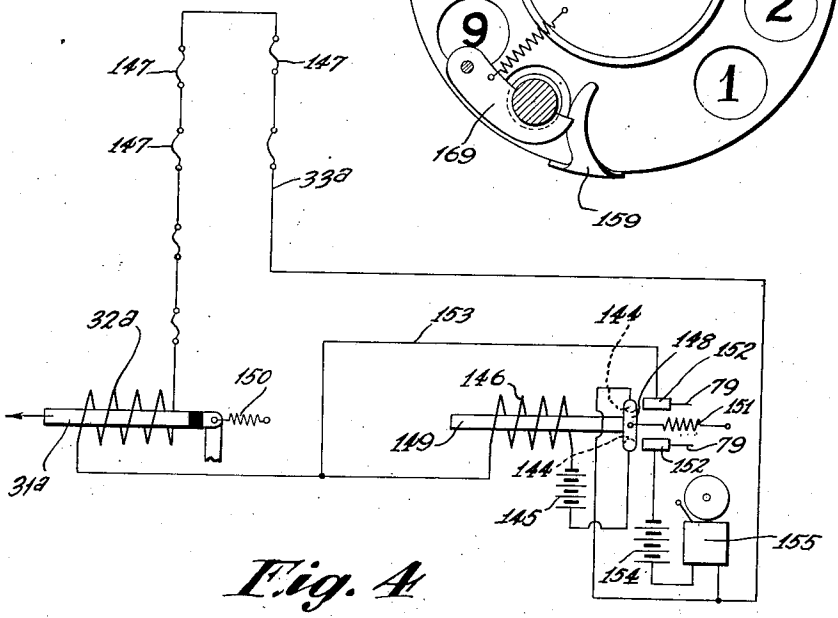


Fig. 4

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ALARM SYSTEM

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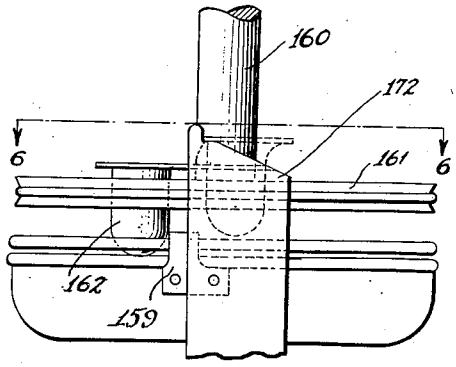


Fig. 5

Fig. 6

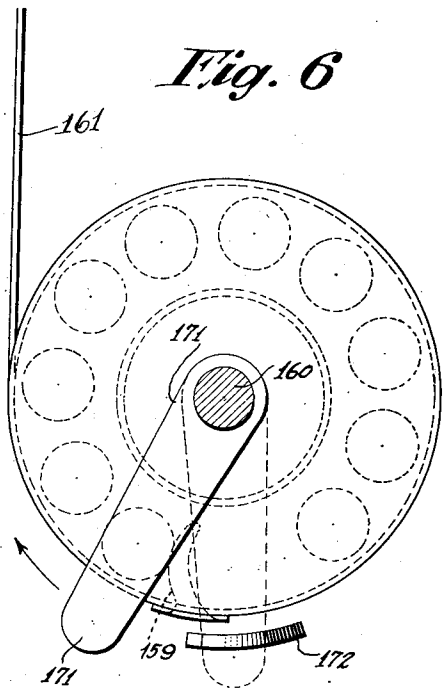
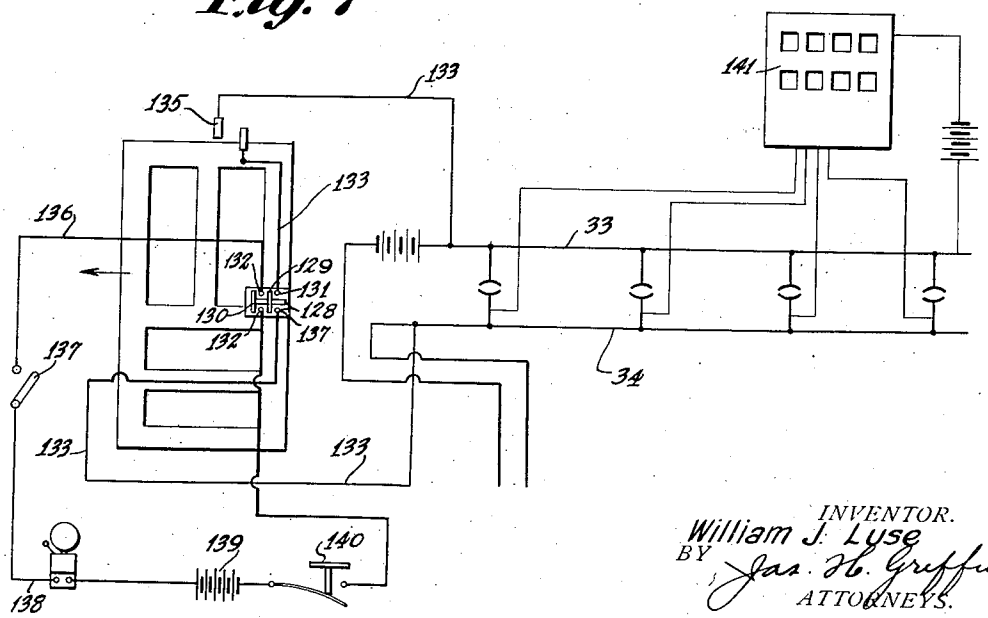


Fig. 7



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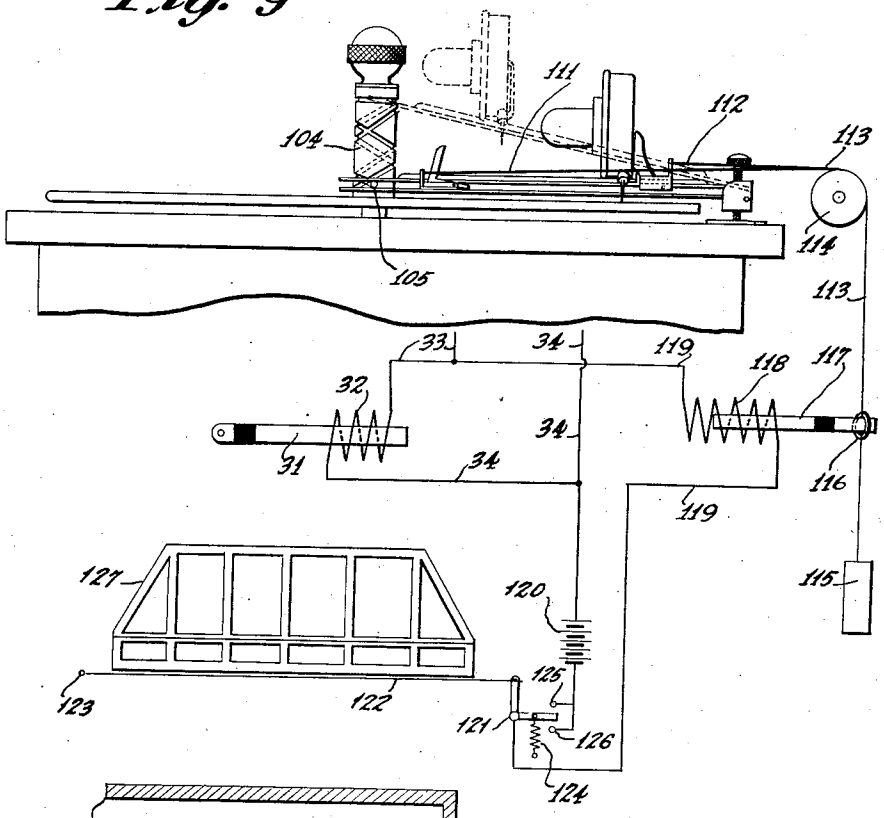
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ALARM SYSTEM

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Fig. 9



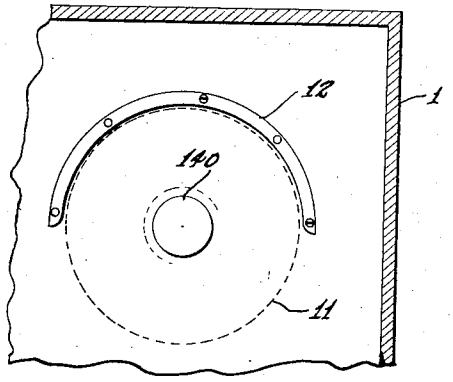


Fig. 8

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ALARM SYSTEM

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Fig. 10

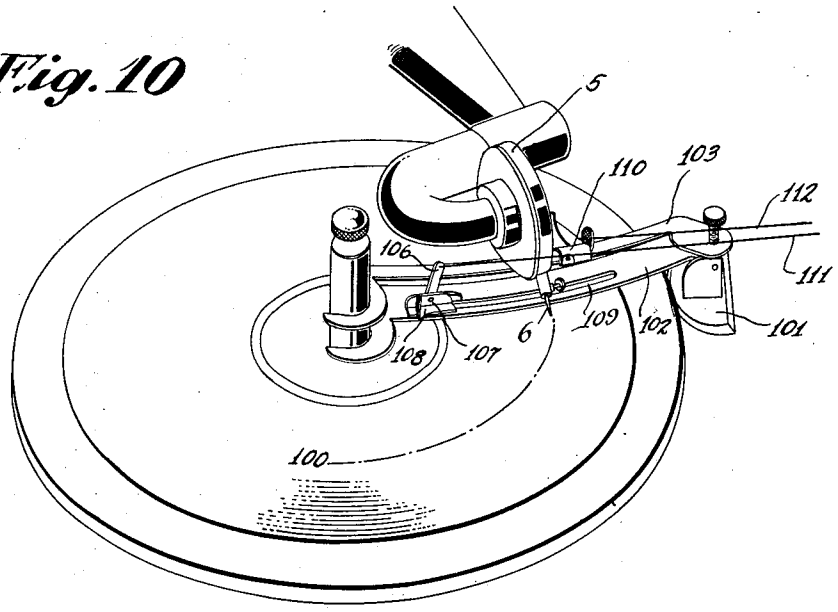


Fig. 11

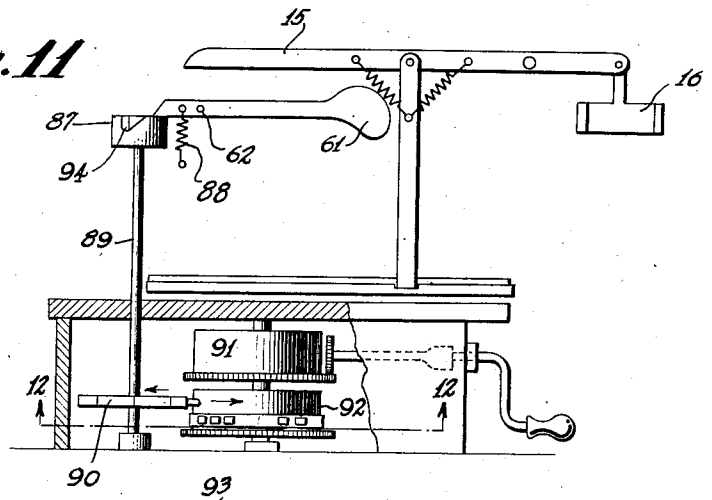
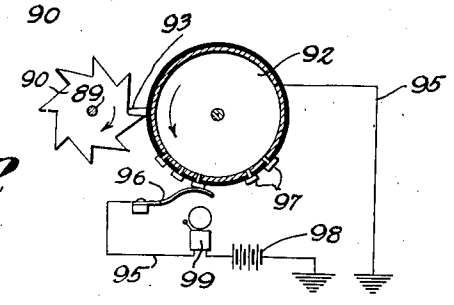


Fig. 12



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Patented May 10, 1927. 1,627,612

UNITED STATES PATENT OFFICE.

WILLIAM J. LUSE, OF NEW YORK, N. Y.

ALARM SYSTEM.

Application filed December 13, 1922. Serial No. 606,655.

This invention resides in a novel system of transmitting alarms of different characters, such for example, as fire and burglar alarms and consists, more especially, in the notification preferably in a wholly automatic manner of a distant station in the event of fire or attempt at burglary.

In my prior Patent No. 1,344,701 of June 29th, 1920, and in my copending application Serial No. 387,287, filed June 8th, 1920, I disclosed systems for signalling the presence of fire or the attempt at burglary. The present invention is not only an improvement upon the said two prior inventions, but also embodies the utilization in conjunction with such systems of further novel features not previously disclosed by me.

The system of the present invention may be used for the giving of fire alarms only, or burglar alarms only, but, in its preferred embodiment, is capable of giving alarms of both characters. In fact, it may be adapted for other uses and operates on the broad principle of remaining in non-signalling condition so long as normal conditions prevail, but in the event of a change of such normal conditions to an abnormal condition, the alarm will be immediately transmitted. For example, the normal condition of a building is a safe condition and so long as this condition prevails the alarm system should remain inactive. However, if fire should start or an unauthorized person attempt to enter the building, it is desirable to signal this change to abnormal conditions, and the system is so constituted as to immediately function upon the event of such change.

In its preferred practical form, the signal or alarm is adapted to be communicated from its source to a distant or central station or elsewhere through electrical connection therewith and I find it convenient and highly efficient to utilize the conventional telephone with its connecting wires to the telephone exchange as a means of transmission of the alarm to the central office of the telephone company whence it may be relayed by an operator or otherwise to an appropriate police station in the attempt at burglary or to an appropriate fire house in the event of fire. The system may also include suitable local circuits for giving either an audible or a visual signal or both in the vicinity of the alarm transmitting means of this system. That is to say, an annunciator may be located in the watchman's quarters of the building to show the exact location of the fire or attempt at burglary or an alarm bell, horn or siren may be located either interiorly or exteriorly of the building for the purpose of giving an audible alarm within the building or to the neighbors or the public at large exterior of the building.

In adapting the invention to its various uses or to different environments, the system will naturally be varied to suit conditions, but in one of its preferred, practical forms, it may conveniently embody one or more boxes positioned in different places or rooms throughout the building and in which boxes are housed the transmitting mechanism, i. e., the mechanism for actually effecting the sending of the alarm or signal. If a plurality of these boxes are employed, they will be connected together in any suitable manner and a description of one will suffice for all. Each box provides space to receive a conventional desk telephone instrument with its transmitter and receiver, the latter of which is suspended on the usual hook of the instrument. During the working day, the telephone may be removed from the box and employed in the usual manner. However, when the occupants leave the building and automatic protection is desired, the instrument is placed in the box in such manner as to automatically come into cooperative relation with the signal giving means contained in the box. This signal giving means may conveniently be in the form of a phonograph instrument, the delivery end of the tone arm of which is so positioned that when the telephone is placed in the box, the transmitter of the telephone will be juxtaposed and in alinement with said tone arm, so that in the event the phonograph is operated while the receiver hook is raised, said phonograph will talk directly into the transmitter and may be heard at the telephone exchange. The phonograph is normally inactive, but its motor is energized, if a spring motor is employed, so that it is capable of operation at any time when permitted to. Said motor is however

held in restraint by braking means normally held in braking position, but adapted to be released in the event of fire or burglary. The release of the braking means is effected electrically by means of circuits which in practice may be normally either open or closed circuits. In the event that closed circuits are employed, these circuits include suitable means which, under normal conditions, enable the circuits to remain closed, but which upon the change of such conditions to abnormal will effect the opening of said circuits. If open circuits are utilized, the mechanism employed in conjunction therewith will be such as to close the circuits when the abnormal condition arises.

Associated with the mechanism thus far described is further means whereby the starting of the phonograph occurs simultaneously with the lifting of the receiver hook, so that when the phonograph starts to deliver its message to the telephone instrument, said instrument may be conditioned to receive and transmit this message.

The system is preferably so constituted that after the signal or alarm has been given and its work is complete in this respect, it will automatically replace the telephone hook to cut off the instrument, so that the central office will not be annoyed by continued operation of the instrument or in the event of the utilization of a party line, the service of the other parties will not be unnecessarily interrupted.

One of the many novel features of the present invention is found in the construction of the system wherein I am able to transmit different messages selectively from one record. That is to say, I may utilize a portion of the record for the giving of a fire alarm and another portion of the record for the giving of a burglar signal and the apparatus associated therewith will automatically function to select the appropriate alarm and cause the signal to be properly given.

Another feature of the invention resides in the fact that said system may be so constituted as to preclude the occupants of the building from leaving the building unguarded when locking up for the night.

Another feature of importance is the adaptation of the present invention to employment in connection with telephone instruments embodying a dialing system of sending calls.

Many other novel features with their attendant advantages might be here referred to, but will be more specifically pointed out in the following detailed description and referred to in the appended claims.

The accompanying drawings illustrate different practical embodiments of the invention, but the constructions therein shown are to be understood as illustrative, only, and not as defining the limits of the invention.

Figure 1 illustrates the system of the present invention in a more or less diagrammatic manner.

Figure 2 is a side elevation of a part of the dialing apparatus shown in Figure 1.

Figure 3 is a section on the line 3—3 of Figure 2.

Figure 4 is a wiring diagram of a slightly modified construction which may be utilized in lieu of a part of the system shown in Figure 1.

Figure 5 is a view corresponding to Figure 2, but showing a modified form of construction.

Figure 6 is a section on the line 6—6 of Figure 5.

Figure 7 is a diagrammatic view illustrating more particularly a wiring diagram of certain circuits which may be associated with the signal controlling circuit shown in Figure 1.

Figure 8 is a fragmental section taken in the plane of the line 8—8 of Fig. 1 with the telephone instrument and dialing apparatus removed and showing a controlling switch which is illustrated in Figure 7.

Figure 9 is a side elevation of mechanism for selectively controlling the giving of the fire or burglar alarms showing in conjunction therewith a wiring diagram of circuits for giving the burglar alarm.

Figure 10 is a perspective view illustrating the selective mechanism and the manner of controlling the same automatically.

Figure 11 shows a portion of the phonograph instrument having associated therewith means for controlling the resetting of the telephone instrument to normal and means for closing a supplementary circuit which may be in the nature of a separate alarm; and,

Figure 12 is a section on the line 12—12 of Figure 11.

Figure 13 diagrammatically shows a modified form of automatic resetting means.

Referring to the drawings and more particularly to the operatively complete system shown in Figure 1, 1 designates a box or casing which may be of any suitable shape but is here shown as of substantially rectangular form. The front of the box is shown open in Figure 1, but, in practice, it is adapted to be closed by a suitable door. The box may be of any material but is preferably of fire-proof construction.

In practice, it is placed in any suitable and convenient position and is adapted to be supported on a fixed mounting whereby it is permanently held in position.

Positioned within the box 1 and located in any desired part thereof is a phonograph

instrument, the box containing the motor and associated parts being designated by the reference character 2. The phonograph instrument embodies the usual turn table 3, on which is adapted to be supported a disk record 4. A reproducer 5 with its cooperating stylus 6 is associated with the record and is carried by a section 7 which is pivotally mounted on one end of the tone arm 8. The tone arm is supported within the box in any suitable manner and is so placed that its delivery end 9 is adapted to cooperate with the mouth piece 10 of the transmitter of a telephone instrument 11. The delivery end 9 is preferably flared as shown and the mouth piece is adapted to be received in this flared end or at least come into alined juxtaposition therewith.

The telephone instrument is shown as a well known form of desk instrument and its accurate positioning within the box is facilitated by securing to the bottom of the box a substantially semicircular limiting flange or stop 12 which is shown in plan in Figure 8. The open side of the limiting flange faces towards the open side of the box and the flange is so positioned that when the telephone instrument is positioned within the box and slid back against the flange into the dotted line position of Figure 8, the base of the instrument will contact with and engage the flange, so that the instrument will come to rest in a position wherein the mouth piece 10 will be in juxtaposition with the sound delivery end of the tone arm.

Supported on the interior of the box in any manner on a pivot 14 is a rocker lever 15, one end of which carries a depending forked gripping member 16 of insulating material which as shown in Figures 1 and 11 is adapted to straddle the receiver 24 beneath the telephone hook 17. The other end of the rocker 15 is normally maintained in elevated position by engagement with a shoulder 18 formed at the lower end of a lever 19 pivoted at 20. The end of the rocker 15 to which the gripping member 16 is pivoted has also affixed thereto a tension member 21 in the form of a cable or chain which passes upwardly and laterally over directional pulleys 22 and thence downwardly and is secured to a weight 23. The weight 23 is normally suspended on this tension member 21 and serves to tilt the rocker 15, but cannot do so as long as the rocker is in engagement with the shoulder 18 of the lever 19. If however, the lever 19 is disengaged from the rear end of the rocker 15, the weight 23 will act upon said rocker and is of sufficient ponderosity to overcome the weight of the telephone hook and receiver 24 and to thus cause the elevation of the telephone hook and consequently cause the telephone instrument to be put in service with reference to the central office or telephone exchange. The telephone will remain in service until the rocker 15 is tilted back into its normal position and its rear end hooked over the shoulder 18 of the lever 19.

In accordance with this invention, the phonograph instrument which is the preferred form of audible alarm means employed is normally maintained inactive while the telephone instrument is out of service but is automatically rendered active during such periods when the telephone is in service. This control of the phonograph may be efficiently effected by pivoting on the rocker 15 a depending brake arm 25, the lower end of which is normally adapted to seat in a notch or recess 26 in the turn table of the phonograph instrument, as shown in full lines in Figure 1. The brake arm 25 has associated therewith springs 27 which normally maintain it in neutral position and yieldably hold it in the notch 26 of the turn table.

With this assembly, it will be apparent that when the rocker is tilted under the impulse of the weight or counterbalance 23, the brake arm will be oscillated or shifted into the dotted line position of Figure 1 and by such movement will be disengaged from the notch 26 so as to permit the turn table to revolve and the phonograph to function for the purpose of reproducing sound and delivering it to the telephone transmitter. The phonograph may be subsequently stopped through the tilting of the rocker arm back into normal position to bring the brake arm again in the notch 26 of the turn table.

It will be apparent in this connection that if the phonograph is of the well known spring type, it will commence to operate as soon as the turn table is released and this is the construction I preferably employ. However, if desired the spring motor may be eliminated and the phonograph may be electrically operated. In this event, suitable means will be provided to turn on the power to the motor when the telephone hook is raised and to shut off the power when it is subsequently lowered. In the form of the invention illustrated in Figure 1, the brake arm 25 is utilized for this purpose since in its tilted dotted line position, it is adapted to engage with contacts 29 which are included in the energizing circuit 30 of the phonograph instrument so that when the brake arm bridges these contacts the instrument will be automatically started and when the brake arm is drawn away from these contacts the circuit will be automatically broken and the instrument stopped.

As hereinbefore stated, the rocker 15 is normally maintained in its inactive position shown in Figure 1 by means of the shouldered lever 19 and this lever is adapted to be

maintained in locking position under normal conditions by means of a spring 28 as clearly shown in Figure 1.

It will thus appear that it is only necessary to tilt the lever 19 to release the rocker in order to effect operation of the phonograph and the delivery of a message to the telephone instrument. In practice, this result may be accomplished in different ways but in Figure 1 I have shown a very satisfactory method of electrically effecting such result. In this showing, the upper end of the lever 19 has secured thereto a core 31 of a solenoid provided with windings 32 and these windings constitute a coil which is included in an electrical circuit adapted to be closed at various points for the purpose of energizing the solenoid and drawing in its core for the purpose of tilting the lever 19. Thus, a wire 33 leads from one terminal of the coil and a wire 34 leads from the other terminal thereof and these wires are led throughout the various parts of the building which it is desired to protect and constitute the main or trunk lines of the firing controlling circuits. One of them includes a suitable source of electric current such for example as the battery 35, although the main house lighting current wires 36 may be connected into either one of these trunk lines, as shown in dotted lines in Figure 1. If this source of current is employed, the transformer 37 is preferably included for obvious reasons. At such points in the building where protection is particularly desired suitable switches 38 are positioned and these switches are connected in parallel across the trunk lines so that they will be in multiple as clearly shown in Figure 1. The controlling circuit illustrated may be a closed circuit as will hereinafter be more fully explained but to operate the solenoid in the manner described an open circuit should be employed and in this event the switches 38 are such that they will close the circuit in the event of fire.

In practice, automatic circuit closers, such for example as electrothermostat switch of any conventional form may be applied so that in the event of raise of temperature occasioned by fire, any one of these couples will serve to close the circuit across the trunk lines and complete an electric circuit to the solenoid core, so that the core of said solenoid will trip the lever 19 and cause the alarm to be delivered to the telephone instrument which is automatically rendered operative through the weight of the counterbalance.

A thermostat switch of the type which may be employed is shown in Figure 1 of the drawings and bears the reference character 42. It is shown as positioned within the box and included in a branch wire 34a, leading from the coil 32 to the main 33. The resulting circuit includes the source of current supply, the coil 32 and the switch 42 and in the event of fire in the vicinity of the box this switch will serve to automatically close and result in the giving of an alarm.

If desired, I may associate with this system a clock or other instrument which is adapted to normally run but may be stopped automatically in the event of fire so as to leave an infallible record of the time when the apparatus started to operate. Such a clock is shown at 39 and is in the form of a stop clock, the stop lever 40 of which lies in the path of a finger 41 associated with the solenoid core so that when the solenoid is operated pressure will be immediately applied to the stop lever 40 and the clock 39 stopped.

Thus in the event of fire, the audible alarm means will be rendered operative and will deliver the signal alarm or message to the telephone instrument which has been also rendered operative to receive such alarm for the purpose of transmitting it to the telephone exchange or central office. The telephone central will listen to the alarm, be advised of its purport and immediately relay the message to an appropriate fire house so that such fire company can immediately respond to the alarm which has been automatically set. I may associate with this system, however, additional means for giving a local alarm and this means is preferably caused to function simultaneously with the phonograph.

In practice, various means may be utilized to this end but I have found it convenient to utilize a counterbalance 23 to control the local alarm as this counterbalance is lowered when the telephone is put into operation. Thus in Figure 1, I have shown a lever 43 pivoted at 44 and provided at one end with a contact bar 45 adapted to cooperate with contacts 46. The lever is normally retracted from the contacts 46 by a spring 47 which maintains it against a stop 48. The opposite end of the lever, however, projects beneath the counterbalance 23, so that when the counterbalance is lowered simultaneously with the raising of the receiver hook its weight will be imposed upon the lever 43 for the purpose of tilting the lever and causing the bar 45 to bridge the contacts 46. These contacts 46 constitute the terminals of a local circuit 48 fed from a suitable source of current supply 49 and including suitable audible alarms 50 and 51, which are shown as bells, but which, in practice, may be whistles, sirens or the like. Any number of such audible alarms may be included in the circuit 48 and said alarms may be positioned at different points or different localities throughout the interior of the building or externally thereof or said circuit may lead to a distant station whereat

an alarm is included therein. Connected across the circuit 48 is a branch circuit 52 including the coil 53 of a solenoid having a core 54. This core carries a bridge piece 55 which is normally elevated by means of a spring 56. When the circuit 48 is energized, the core 54 will be depressed and serve to bridge contacts 57 included in a circuit 58 having a suitable source of current supply such as the house lighting circuit 59. The circuit 58 includes one or more lamps 60 which may constitute the illuminating lamps in the building and when this feature of the invention is employed, the building will be immediately lit up in the event of fire, or, as hereinafter pointed out, in the event of an attempt at burglary, since the local circuits referred to will be energized whenever the counterbalance 23 is lowered and as will be hereinafter explained this results in the event of an attempt at burglary. The local circuits described may be utilized in whole or part as specified and may be varied as occasion may require without departing from this invention.

I have thus far described the fire controlled means for effecting the giving of a signal and have referred to the fact that after the signal has been given the telephone instrument is duly cut out of service. The tilting of the rocker 15 serves to put the telephone in service by raising the hook in the manner described and the tilting of this rocker arm back into its normal position will naturally effect the lowering of the telephone hook and the breaking of the main telephone circuit. This returning of the rocker arm into normal position may be accomplished in various ways, but in the form shown in Figure 1, it is accomplished by means of a cam 61 eccentrically pivoted at 62.

With this cam is associated an actuating arm 63, which, as shown in the drawing, is weighted at 64. In lieu of the weight 64, however, a spring or other equivalent means may be employed. In any event, the structure is such that the cam 61 normally tends at all times to revolve in a counterclockwise direction about its pivot 62 as viewed in Figure 1, but this tendency is normally opposed by a shouldered latch 65 pivoted at 66 and normally maintained in engagement with the actuating arm 63 by means of a spring 67. So long as the latch is in the normal position shown, the cam will be maintained in inoperative position. The cam moreover is so positioned that when the rocker 15 is released, it will tilt downwardly and engage with the cam and partake of this position until it is desired to reset the parts whereupon it is only necessary to swing back the latch 65 for the purpose of releasing the cam so that the weight or spring associated therewith may cause rotation of cam in a clockwise direction for the purpose of forcing the rocker 15 back into its normal position. When the rocker is thus forced back into normal position its free end will ride against the inclined nose at the lower end of the lever 19 and retract the lever sufficiently to permit the rocker to pass by the nose thereof and lock above the shoulder 18.

In practice, various means may be employed for swinging back the latch 65 to effect the resetting of the telephone instrument and in Figure 1 a purely mechanical means is illustrated as adapted for normal operation. This means is shown as embodied in a lever 68 pivoted at 69. The upper end of the lever is adapted for engagement with the latch while the lower end of the lever is provided with a forwardly projecting finger 70. The centrifugal governor 71 of the phonograph instrument is illustrated diagrammatically and the movable collar 72 thereof is adapted to be straddled by a fork 73 having a link connection 74 with a lever 75 pivoted intermediate its ends. To the upper end of the lever is pivoted a detent 76 notched at 77.

The operation of this mechanism is as follows: When the phonograph instrument is started, the weights of the governor fly outwardly and draw the movable collar 72 to the right with the result that this operation serves, through the connections described, to shift the detent 76 to the left and cause the notch 77 to hook over the phonograph 70 of the lever 68. As long as the phonograph continues to operate, the lever 68 will remain in substantially the position shown. However, as the spring motor runs down, or the current to the motor is shut off in any suitable manner, as would be the case in an electric machine, the weights of the governor will retract causing the movable collar 72 to be shifted to the left with the result that the detent 76 will be retracted drawing with it the lower end of the lever 68 and causing the upper end of the lever to draw back the latch from beneath the actuating arm 63 of the cam 61 for the purpose of effecting resetting of the telephone instrument. Thus, after the record has been played and the alarm given, the slowing down of the motor will automatically effect the resetting of the telephone instrument. The cam 61 however will be reset manually with relation to the latch 65 and the detent 76 will be also released manually from the lever 68 although these resetting operations may be effected automatically if desired.

In the system as thus far described, the alarm will be given and will continue until the motor runs down or is otherwise caused to cease to function. In this figure however

I have shown means whereby the alarm may be stopped manually at any time. The means for accomplishing this result is shown as consisting in one or more push buttons or switches 78 for closing a circuit 79 including a source of current supply 80 and a coil 81 of a solenoid provided with a core 82. The core is secured to an equalizer 83, one arm of which is connected by a tension member in the form of a cable 84 passed over suitable directional pulleys and secured to the conventional brake 85 of the phonograph. The other arm of the equalizer is secured by means of a cable 86, passing over suitable directional pulleys to the latch 65. Thus, if either of the switches 78 is operated, the solenoid will be energized and its core 82 caused to draw on the cables 84 and 86 for the purpose of immediately stopping the phonograph and simultaneously drawing back the latch 65 for the purpose of resetting the telephone instrument. In practice, these push buttons are preferably concealed or are placed in positions known only to authorized persons, since in the event of burglar alarm, it is not desirable to provide means whereby a burglar can readily stop the alarm.

In Figures 11 and 12, I have shown a modified form of construction wherein the latch 65 may be omitted together with the lever 68 and the operating connections with the governor of the phonograph instrument and wherein the resetting will be automatic. In this construction, the end of the rocker 15 is normally sustained by the lever 19, as shown in Figure 1, and is released after the manner shown in Figure 1. However, it is returned to normal position by modified mechanism. In the showing of Figures 11 and 12, the cam 61 is pivoted at 62 and the free end of its actuating arm is pressed at all times against a cam 87 by means of the spring 88. The cam 87 is mounted on a vertical shaft 89 to which is fixed a star wheel 90. The spring motor shown embodies the usual two part construction, the upper part 91 of which is rotated when the motor is wound and the lower part 92 of which slowly rotates as the motor unwinds. I mount on the circumference of this part 92 an outwardly projecting finger or tooth 93, so that as the part 92 rotates it will move the star wheel 90 intermittently and through a predetermined number of angular degrees for each complete rotation of the part 92. The parts are so assembled that when the motor starts to operate the operating arm of the cam 61 will rest upon the high part of the cam 87 and will continue to so rest upon this part while the section 92 of the spring motor makes, e. g., seven or eight complete rotations, whereupon the end of the actuating arm will follow into the low phase 94 of the cam 87 which will permit the spring 88 to tilt up the cam 61 and cause it to act against the under side of the rocker for the purpose of returning the rocker to normal position. Continued slight rotation of the motor part 92 will again elevate the free end of the actuating arm of the cam 61 to the high phase of cam 87 leaving the parts as shown in Figure 11, wherein they are ready for further operations.

In connection with Figures 11 and 12, further means for giving an alarm during the operation of the phonograph and independently of the telephone instrument is illustrated and in this connection it may be noted that a spring motor actuating independently of the phonograph instrument or through a suitable time train can be employed to give this alarm. The alarm means shown embodies a circuit 95, one lead of which is grounded on the motor part 92 and the other lead of which terminates in a spring contact 96 adapted to ride over the contacts 97 mounted on the periphery of the part 92. The circuit 95 includes a source of current supply 98 and an alarm 99 positioned in any desired place either locally or at a distant station. The contacts 97 may be properly spaced about the circumference of the part 92, so that through one complete rotation of the part 92 a definite alarm may be given. For example, three contacts are shown spaced relatively close together with a relatively large gap and two additional contacts. If the part 92 is rotated with this arrangement, the bell 99 will be given three rings and then a pause and thereafter two rings with a long pause before the signal is repeated, so that the signal as given may be interpreted to mean thirty-two. Thus if a number of stations are connected with the alarm 99, each station having its own particular number, the alarm will clearly show from which station the signal is sent. Constructions of the character described may be used in connection with the telephone transmitter or may be used alone and are especially adapted for rural systems, such as rural fire alarm systems or burglar alarm systems, although are not restricted to such environment.

In the system of this invention as thus far described with reference more particularly to Figure 1, the same has been referred to especially as for the purpose of giving fire alarms and when so used a phonograph record carrying any appropriate sound groove may be employed. For example, the sound groove may be so cut as to reproduce the following message: "Central there is a fire in the third floor rear of 277 Broadway" and this message may be repeated several times on the record so that this message will be repeated into the telephone transmitter so that the telephone central will be

sure to understand the message and will be able to properly relay it to the fire department for the purpose of giving the exact location of the fire and thus expediting the work of the firemen.

The same general system may be employed purely as a burglar alarm by substituting normally open switches adapted to be closed by windows or doors when such doors or windows are opened by a burglar and in this event the record on the phonograph might be cut to reproduce: "Central there is an attempt at burglary in the third floor rear of 277 Broadway."

However, in order to insure a double means of protection against both fire and attempt at burglary, I prefer to so construct the apparatus that it is able to automatically transmit alarms of either fire or attempt at burglary and in carrying out this feature of the invention, I so constitute the apparatus that both of these alarms may be recorded on different parts of the same face of the same record and the reproducer of the phonograph instrument automatically shifted to selectively reproduce either one of these alarms appropriate to the need. Thus, in Figure 10 of the drawings, a record is shown on which is shown a dot and dash line 100. That portion of the record radially exterior of the annular line 100 is cut to reproduce the burglar alarm while that portion of the record interiorly of the line 100 is cut to reproduce the fire alarm.

In carrying out this phase of the invention, I associate with the turn table of the phonograph a device which is well known on the market and which has heretofore been employed exclusively as a repeating device. As shown in Figures 9 and 10, it embodies a plate 101 adapted to be secured to the case of the instrument and to which plate is pivoted two arms 102 and 103. The arm 102 extends radially across the record and rotatably carries at its inner end an upstanding post 104 adapted to seat on the spindle of the turn table and in which post is cut a double helix. The upper arm 103 also extends radially of the record and carries at its inner end a pin 105 adapted for cooperation with the helical grooves in the post.

Under normal conditions, the pin is substantially at the top of the helical grooves and the reproducer is held by the upper arm 103 clear of the record and bearing against the stop 110. The arm 102 is slotted at 109 and associated with this slot is a carrier 108 on which a bell crank 106 is mounted on the pivot 107. The stop 110 is mounted for sliding movement on the arm 103.

Under normal conditions, the arm 103 will be raised and the reproducer will gravitate against the stop 110. However, if the phonograph is started, the pin on the arm 103 will rapidly descend through the helical groove to bring the stylus 6 into engagement with the record and reproduction will thereupon commence and will proceed until the reproducer engages the stop 106 which will cause pivotal movement of the stop for the purpose of raising the arm so that the pin will again engage with the helical groove. As soon as this occurs, the arm will be elevated to cause the gravity return of the reproducer to engagement with the stop 110 to effect the repeating of the alarm. It will be apparent that the repeating feature of the device will operate in the same manner over either alarm section of the record and may be determined by a shifting of the stops to control the repeating for either of such operations to the exclusion of the other.

In adapting this device to the present system, I attach a tension member, such as a cable 11 to the stop 106 or carrier 108 and to the stop 110 I attach a tension member 112. The opposite ends of both of these cables, I attach to a common cable 113, which is lead over a directional roller 114 and is secured to a counterbalance 115. Under normal conditions, the counterbalance is held in restraint with the stops in the position shown in Figure 10 so as to limit the reproducer for operations over the fire alarm radial portion of the record. In the event of attempt at burglary however the counterbalance is adapted to be automatically released to impose its weight upon the stops 106 and 110 and immediately slide them along the bars 102 and 103 respectively into positions wherein the operations of the reproducer will be limited to that portion of the record radially outward of the line 100 and whereon the burglar alarm signal is recorded. Various means may be employed for holding the weight in restraint and releasing it when required, but diagrammatic means for accomplishing this result is shown in Figure 8. In this showing, I have included a ring 116 and the cable 113 and under normal conditions support the weight of the counterbalance from this ring by passing the ring over the outer end of a solenoid core 117.

The solenoid embodies a coil 118 included in a circuit 119, which, as shown in Figure 9, is a branch circuit cut into the mains 33 and 34, which include the coil 32 of the operating solenoid. The branch circuit 119 includes its own source of power 120 and a switch 121 shown as a bell crank lever. One arm of the bell crank lever is attached to one end of one or more wires 122 and the other end of such wire is fixed at 123 to a firm support. The wire 122 is maintained taut by means of a spring 124, which normally holds the other arm of the bell crank intermediate two contacts 125 and 126. One or more wires 122 as described may be

stretched over a door window or skylight 127. If the wires are cut, the spring 124 will cause the bell crank to complete the circuit at the contact 126 and if the wires are placed under further tension as by a person stepping on the same, the bell crank will make contact at 125 although normally the circuit 119 is an open circuit. If the circuit is closed in either of the ways specified, the current will flow from the battery 120 through the solenoid coils 32 and 118 in series and will simultaneously effect two operations. Firstly, it will act upon the core 31 to start the phonograph and telephone instrument in operation and secondly it will energize the coil 118 to withdraw the core 117 from the ring 116, thereby imposing the weight of the counterbalance 115 upon the stops 106 and 110, so that the reproducer will be shifted into a position to reproduce the burglar alarm. As a result, the burglar signal will be transmitted through the telephone to the central office. After the alarm has been answered by the police, the parts of the device may be readjusted and the core 117, stops 106 and 110 and counterbalance are readjusted, so that the ring 116 will again be started by the core 117 and the apparatus left in condition to give an alarm of fire although capable in the event at attempt of burglary to again give the burglar alarm. The manner in which the burglar alarm circuits may be cut into the main fire alarm circuit is shown in Figure 1, where short leads of the branch circuit 119 is shown.

It will be noted in this connection that the fire alarm system will function without effecting the burglar alarm system as the main controlling circuit of the fire alarm system does not include the coil 118. However, when the burglar alarm system is operated, the coils 32 and 118 will be in series and will be simultaneously energized for the purposes stated.

In Figure 7, I have illustrated a modified form of burglar alarm specifically associated with a bolt 128 of a lock of a loft or office door or of a street door of a building or dwelling. The lock is of any conventional type, but the bolt embodies two contacts 129 and 130 which are moved with the bolt, although these contacts may be otherwise mounted and adapted to be moved synchronously with the movement of the bolt. The contact 129 is adapted for cooperation with fixed contacts 131, while the contact 130 is adapted for cooperation with fixed contacts 132. The fixed contacts 131 are included in an electrical circuit 133, which cut into the main leads of the controller circuit wires 33 and 34 and includes fixed and movable contacts 134 and 135 respectively mounted on the door and on the door casing.

When the bolt is retracted, the circuit 133 is opened at the lock and at the contacts 134 and 135, but when the bolt is in locked position, the movable contact 129 will bridge the contacts 131 and close the circuit at this point so that if a burglar forces a door and opens it, the contact 134 will engage with the contact 135 and complete the main controlling circuit so that the alarm will be given.

The contacts 132 are included in a circuit 136 which also includes a manually operable switch 137, a suitable alarm 138, a source of power 139 and a plunger switch 140. The plunger switch 140 is mounted in the base of the box 1 so as to underlie the base of the telephone as shown in Figure 8. As long as the telephone is positioned in the box, the plunger switch will maintain the circuit 136 open by virtue of the weight of the telephone. Moreover, the circuit will be opened at the lock as long as the bolt is retracted, but the switch 137 is normally closed. The purpose of this circuit is purely a protective circuit to preclude the proper parties from forgetting to leave the signalling apparatus in operative condition when leaving the building for night or otherwise. Assume, for example, that the last person to leave the building, forgets to put the telephone in the box and thus leaves the plunger switch 140 closed. As soon as he closes the door and locks it behind him, he will complete the circuit 136 and the bell 138 will commence to ring thereby notifying him that he has forgotten to replace the telephone, so that he can go back and place the apparatus in proper condition before leaving. The switch 137 is to permit the door to be left locked and the telephone to be used at such times as in the evening or on holidays as an authorized person may desire to work without interruption. He may simply open the switch 137 and close it again before he leaves as this will probably not often happen, the switch 137 may be set to remain closed at substantially all times and thus properly protect the system against being left inoperative through inadvertence.

In Figure 7, I have also shown an annunciator board 141 as associated with the main control circuit. This annunciator board may be of any desired and well known type and is electrically connected with the several switches in such manner that it will show at once the particular switch which has been operated. Such an annunciator device may be associated with the system of Figure 1 and may conveniently be positioned in the entrance hall or watchman's quarters so that the particular location of fire, at any point throughout the building, may be determined at a glance.

It may be desirable at times to test the

system to see if the wiring is intact and that there are no "grounds". For this purpose, I include somewhere in the mains 33 and 34 a cross wire 142 and in this cross wire include a switch 143, as shown in Figure 1, so that by the manual actuation of this switch, the circuits may be closed to cause the apparatus to function. To preclude the transmission of an alarm to the central office during such a test, one of the push buttons 78, shown in Figure 1, may be actuated at the same time, so that while all the apparatus will operate, the telephone hook will not be lifted.

The main operating circuit thus far described is in the nature of a normally open circuit but I am aware that a closed circuit may be employed for the same purpose. As an example of the manner in which such circuit may be used, Figure 4 is illustrative. In this figure, 33ª constitutes the main controlling circuit including a solenoid coil 32ª, fixed contacts 144, a source of current supply 145 and a solenoid coil 146 and in this circuit is also included a plurality of fusible links 147, which, in the event of fire are adapted to be disrupted for this purpose of breaking the circuit. Under normal conditions the circuit is closed by a movable contact 148 carried by a solenoid core 149 associated with the coil 146 to the end that the coil 32ª be maintained in energized condition, so that it will serve to draw its core 31ª, which corresponds to the core 31, in the direction of the arrow and opposed to the tension of the spring 150. So long as the current is flowing through the main, the coil 32ª will have the same function as the spring 28 of Figure 1, but when current ceases to flow through the main, the coil will be energized and the spring 150 will act to the same end as the coil 32 of Figure 1. Thus, when employing a closed circuit, the current will serve to hold the signalling apparatus in restraint and such apparatus will be automatically released when the circuit is broken by fire or otherwise.

In employing a closed circuit energized by batteries or other electrical source of energy, there is a possibility that the batteries may become weakened in time or the other source of current be momentarily shut off in which event an alarm would be given. In order to preclude this inadvertent giving of an alarm, the solenoid embodying the core 149 and coil 146 are utilized. As long as the current from the source 145 is sufficiently strong to carry out its functions of restraining the apparatus, the movable contact 148 will bridge the contacts 144. but if the current becomes weakened, the spring 151 will act to draw the movable contact into engagement with two other fixed contacts 152, which are included in a circuit 153 which shunts the said solenoid and includes an additional source of power 154 and an alarm 155. The fixed contacts 152 are so placed that the contact 148 will bridge these contacts before it leaves the contacts 144, so that the source 154 will be thrown in circuit with the core 32ª without interruption of current flow. As soon as the circuit 153 is included, however, the alarm 155 will be put into operation and will notify all within hearing that the source 145 requires attention. I may also connect the wires 79, shown in Figure 1, to the contacts 152, as shown in Figure 4, since the source 154 will usually consist in a battery which in time would run down and cause the giving of a false alarm. By closing the circuit 79, however, in the manner described, the giving of such a false alarm is precluded.

The telephone instrument thus far referred to in describing this invention is of the conventional desk type. At the present time, however, there are a large number of automatic dialing telephone instruments in use and are associated with machine switching systems of telephone transmission. With instrument of this character, it is necessary to dial the instrument before the call is given and the present invention embodies means for accomplishing this result so that such an instrument may be employed in conjunction with this apparatus.

The preferred form of construction is shown in Figures 1, 2 and 3. In this showing, the casing of the device which is rigidly mounted on the instrument is designated 156 and carries on its top a fixed dial 157 on which is annularly disposed a series of numbers ranging from 1 to 9 and following the 9 is a zero and the word "operator". The movable dial is designated 158 and has finger openings normally registering with the several designations on the fixed dial. The fixed stop is designated 159. For the purpose of automatically manipulating this device, I rotatably mount within the box a shaft or spindle 160 and to the lower end of this spindle I attach a plate 161, through which extends a plunger 162. A spring 163 bears against the top of the plunger and forces it in the direction of the movable dial 158. The periphery of the plate 161 is grooved and a flexible cord or cable 164 works in this groove. One end of the cord is attached to the periphery of the plate and the other end passes upwardly and over a direction pulley 165 and thence downwardly and is secured to a counterbalance 166, which serves the purpose of rotating the plate 161 when the plate is released. The plate is normally held against rotation by means of a pin 167 which projects into a hole in the spindle 160, as shown in Figure 1, and to this pin is attached one end of a

cable 168, the other end of which passes over a directional pulley and is secured to the rocker 15.

The parts are so associated that in initially setting the device, the plunger 162 is brought into the position shown in Figure 3, wherein its lower end extends through the "operator" hole in the movable dial 158 and the pin 167 is thereafter engaged by the spindle 160 to lock the parts in position. The device is left in this condition and remains so until an attempt at burglary or a fire takes place, whereupon the rocker 15 will be tilted in the manner hereinbefore described and through such operation will exert a pull on the cable 168 and pull out the pin 167. The weight 166 will then act to revolve the plate 161 and as this plate rotates, the plunger 62 carries a movable dial with it to effect the "dialing". The parts rotate in unison until the lower tapered end of the plunger strikes the finger piece 159 and is thereby elevated for the purpose of releasing the movable dial 158, so that it can spring back to initial position under its own power and give the "operator" call to the central office. As the plunger 162 is elevated by the finger piece in the manner described, a spring actuated detent 169 automatically engages with an annular channel 170 in the plunger and maintains it in elevated position so that it cannot further act upon the movable dial, but will simply rotate idly until the weight 166 has spent its energy.

In this manner, the central office will be notified and the operator will receive the message in a manner which will be apparent from the foregoing description.

Figures 5 and 6 show a slightly modified form of construction, wherein the operating plunger instead of being carried by the plate 161 is carried by a radial leaf spring 171 which is affixed to the spindle 160. The plunger 162 operates in substantially the same manner in the rotation of the movable dial, but instead of being released by engagement with the fixed stop 159, it is disengaged by an inclined cam track 172, which lies in the path of the spring 171. As the plunger nears the end of its travel, the outer end of the spring simply rides up on the track 172 and automatically releases the movable dial so that it can return to initial position and signal the central office. Otherwise the parts are the same.

In the construction shown and described in Figure 1, the resetting of the rocker 15 is controlled either manually or automatically but more particularly in an automatic manner from the controller or governor of the phonograph instrument. I am aware however that the time of resetting or discontinuing the giving of an alarm may be accomplished in various other ways and in Figure 13, a slight modification is shown whereby an appreciable rise in temperature over and above the temperature required to effect the giving of an alarm will automatically serve to cause the stopping of the alarm. Moreover, the same construction may be utilized to automatically reset or cancel a signal in the event the temperature falls below the operating point.

In the construction of Figure 13, the lever 19 is provided at its lower end with a rearwardly extending spring finger 173 offset so as to function as a latch. When the main operating circuit energizes the solenoid core 32 and tilts the lever 19 to release the rocker 15, this latch 173 is caused to automatically engage with and lock with respect to the upper end of the detent 65. As long as the operating circuit is closed, the parts would be maintained in this condition and the telephone instrument would remain in operative condition. However, if the heat in the vicinity of the particular thermostatic switch, which has caused the closing of the main controlling circuit, becomes sufficiently diminished to permit the reopening of the switch, the spring 28 will cause the lever 19 to be swung back to normal position drawing with it the upper end of the detent 65, so that the actuating arm 63 of the resetting cam will be released and will serve to reset the apparatus. Moreover, I may include in the main operating circuit at suitable points, preferably contiguous to the switches 38, fusible links 174, two of which are shown in Figure 1, so that if the temperature rises above the resistance point of these links, they will be fused for the purpose of opening the controlling circuit and permitting the resetting of the apparatus in the manner just described with reference to Figure 13.

In practice, however, fusible links are used which will stand a fairly high temperature so as to assure ample opportunity for the alarm to be given through an appreciable period before the heat could possibly raise to a sufficient temperature to reset the apparatus.

In practically carrying out the invention, I find it convenient to utilize the normal commercial telephone instrument with its usual conventional circuits for the purpose of transmitting the alarm to the desired destination through the agencies of the telephone company. I am aware however that a private line to any particular destination independently of the telephone company may be employed in lieu of the commercial system. Moreover, private lines through the main office of the telephone company may be utilized to carry the alarms to desired destinations without the necessity of manual intervention.

In Figure 1 of the drawings, a weight is

shown as the prime mover for the rocker 15 and serves to tilt the same when it has been released in the manner described. I do not however limit myself to the use of a weight as a prime mover in this respect since one or more springs may be associated with the rocker for the same purpose or a spring and weight may be used conjointly.

In referring to the construction shown more especially in Figure 10 for selectively determining the alarm to be given, I may employ, as stated, a well known form of repeating device, but have described this device as useful particularly in selecting the alarm to be given. It will be understood, however, that while acting in the capacity referred to, it will also serve its inherent functions and will operate as a repeater, so that the alarms will be repeated if the apparatus is permitted to operate for a sufficient period to allow of this.

The apparatus is so constituted that a relatively weak current may be employed in connection therewith and even when a closed circuit is utilized as a controlling circuit, the apparatus is not expensive to maintain. An important feature of the invention resides in the fact that the telephone instrument is entirely unencumbered, all of the parts being mounted within the box, so that when the telephone is set into the box it automatically comes into operation with such parts. This statement applies not only to the forked gripping member 16, which is shown best in Figure 11, but also to the dialing adjuncts which simply are juxtaposed with the dial without being attached thereto, in any way whatsoever. This enables the telephone instrument to be readily removed from the box for its normal use and to be as easily returned to cooperative relation with the apparatus within the box to leave the parts in operative condition to transmit a burglar, fire or other alarm. The fire alarm has been shown in the drawings as entirely automatic in its nature and the burglar alarm is also automatic in so far as its functioning is concerned after it has been initially actuated by a burglar coming in contact with or cutting the wires 122. I am aware however that a fire alarm may be manually given as for example by the actuation of the switch 143, shown in Figure 1, or by any other appropriate means, while the burglar alarm circuit may be completed by any suitable switch in a manual manner in lieu of the wires 122 as described.

I claim:

1. Alarm system embodying a dial telephone, means for dialing said telephone, means cooperating with the transmitter of the telephone for sounding an alarm in the vicinity of the transmitter of the telephone, means for normally maintaining the alarm means and the dialing means in restraint, and means for releasing the alarm means and dialing means.

2. Alarm system embodying a dial telephone instrument, signaling means to deliver a message into the transmitter of the telephone instrument and held in restraint as long as normal conditions prevail, means for automatically dialing the telephone instrument, means for holding the dialing means in restraint as long as normal conditions prevail, and means for automatically causing the operation of the signalling means and the dialing means upon the change of conditions from normal to abnormal.

3. Alarm system embodying a dial telephone, means for dialing said telephone, means cooperating with the transmitter of the telephone for sounding an alarm in the vicinity of the transmitter of the telephone, means for normally maintaining the alarm means and the dialing means in restraint, and means for releasing the alarm means and dialing means, in combination with means for automatically lifting the hook of the telephone instrument to place the instrument in operative condition.

4. Alarm system embodying a dial telephone instrument, signalling means adapted to cooperate with the transmitter of the telephone instrument and held in restraint as long as normal conditions prevail, means for automatically dialing the telephone instrument, means for holding the dialing means in restraint as long as normal conditions prevail, and means for automatically causing the operation of the signalling means and the dialing means upon the change of conditions from normal to abnormal, in combination with means for automatically lifting the hook of the telephone instrument to place the instrument in operative condition.

5. Alarm system embodying a dial telephone, normally restraining automatic means for dialing said telephone, normally restrained means for delivering a message into the transmitter of the telephone, and means for causing the operation of the message delivering means and simultaneously causing the operation of the dialing means and for simultaneously raising the telephone hook to place the telephone in operative condition.

6. Alarm system embodying a dial telephone, apparatus for delivering a message to the transmitter of the telephone, apparatus for automatically dialing the telephone, and apparatus for automatically lifting the telephone hook, in combination with means normally maintaining all of said apparatus in restraint as long as normal conditions exist, but adapted to effect the operation of all of such apparatus when a change from normal to abnormal condition occurs, whereby a message is delivered to the

telephone, the telephone hook is raised to render the telephone operative and the telephone is dialed to effect the desired connection at the telephone exchange.

7. An automatic fire alarm embodying a dial telephone instrument, means controlled by a predetermined rise in temperature to automatically dial the telephone dial disc, and means to stop and release the dial disc to allow the desired automatic telephone connection to be made for transmission of an alarm, in combination with means for delivering the alarm to the telephone instrument, and means to allow the automatic dial switch to be returned to neutral for subsequent operation.

8. An automatic alarm embodying a dial telephone, means controlled by a predetermined rise in heat or an attempt of burglary to automatically dial, stop and release the dial disc, means for lifting the telephone hook, and means for delivering an audible alarm signal to the telephone instrument, in combination with means to automatically lower the telephone hook after a predetermined period of time for subsequent operation thereafter.

9. An alarm system embodying a telephone instrument, unitary alarm means adapted to deliver to the telephone instrument alarms of different character, and means for automatically selecting the alarm to be given by the unitary alarm means, in combination with a normally operating clock, and means for stopping the clock when the alarm means is operated, so as to show the time at which such alarm means was operated.

10. An alarm system embodying a telephone instrument, unitary phonographic mechanism having a reproducer and associated with the telephone instrument and provided with one record having thereon both a burglar alarm and a fire alarm, and means for selectively automatically positioning the reproducer in cooperative relation with either one of said alarms, whereby one may be given exclusively of the other.

11. An alarm system embodying a telephone instrument, unitary phonographic means associated therewith for delivering to the instrument a burglar alarm and a fire alarm contained on a single record, means operable by a prospective burglar to effect the giving of the burglar alarm exclusively through the operation of the phonographic means, and means operable in the event of fire to effect the giving of the fire alarm exclusively through the operation of the same phonographic means, in combination with means for reconditioning the operative parts to neutral condition for a succession of alarms thereafter in an entirely automatic manner.

12. An alarm system embodying a telephone instrument, a phonograph associated therewith and provided with a reproducer adapted to reproduce sounds for transmission through the telephone instrument, a phonograph record, different parts of which record contain different alarms, and means for automatically positioning the reproducer selectively with respect to any of the different alarms at any time for the purpose of giving an appropriate alarm exclusively.

13. An alarm system embodying alarm means comprising a phonograph provided with a reproducer, a record on different parts on which different alarms are contained, controlling means appropriate to each alarm, and means actuated by the controlling means for automatically positioning the reproducer to reproduce the alarm corresponding to the controlling means which has been actuated.

14. An alarm system embodying alarm mechanism comprising a rotatable record on different portions of which a fire alarm warning and a burglar alarm warning are carried, a reproducer mounted for cooperation with said record and movable into cooperative relation with either warning alarm, thief actuated means for causing the operation of the record, means operable in the event of fire to also effect operation of the record, and means for automatically positioning the reproducer in cooperation with that portion of the record appropriate to the particular actuating means which has been operated.

15. An alarm system embodying alarm mechanism comprising a rotatable record on different portions of which a fire alarm warning and a burglar alarm warning are carried, a reproducer mounted for cooperation with said record and movable into cooperative relation with either warning alarm, thief actuated means for causing the operation of the record, means operable in the event of fire to also effect operation of the record, means for automatically positioning the reproducer in cooperation with that portion of the record appropriate to the particular actuating means which has been operated, a telephone instrument positioned to transmit an alarm, and means operable upon the giving of an alarm to render the telephone capable of transmitting the alarm.

16. An alarm system embodying a record, one portion of which contains a fire warning and another portion of which contains burglary warning, a reproducer movable into cooperative relation with either portion of the record, normally restrained means for actuating the record, fire controlled means for releasing the record, actuating means in the event of fire and burglary actuated means for releasing the record for operation in the event of an attempt at burglary, means for effecting movement of the reproducer,

and operative connections between the burglary actuated means and the reproducer moving means for automatically moving the reproducer from normal cooperative relation with the fire alarm portion of the record into a position to reproduce the burglar alarm in the event of attempt at burglary.

17. An alarm system embodying a telephone instrument, normally inactive alarm means cooperating with the telephone instrument and adapted to deliver a message thereto, means for effecting the operation of the alarm means, a normally operating clock, and means for stopping the clock when the alarm is operated so as to show the time at which such alarm was operated.

18. An alarm system embodying a telephone instrument, a phonograph instrument normally held in restraint but adapted when operated to deliver a message to the telephone instrument for transmission thereby, means for releasing the phonograph for operation, a normally operable clock, and means for automatically stopping the clock when the phonograph is brought into operation to record the time of such operation.

19. An alarm system embodying a telephone instrument, a phonograph instrument normally held in restraint but adapted when operated to deliver a message to the telephone instrument for transmission thereby, means for releasing the phonograph for operation, a normally operable clock, means for automatically stopping the clock when the phonograph is brought into operation to record the time of such operation, and means for lifting the telephone hook while the phonograph is in operation.

20. An alarm system embodying alarm means, means for effecting the operation of the alarm means, a lighting circuit including lamps for illuminating a predetermined part of the building in which the alarm means is positioned, means for automatically closing the lighting circuit when the alarm means is actuated, whereby the building is illuminated when the alarm is given, and means for automatically resetting the alarm means and opening the lighting circuit after expiration of a predetermined period of time.

21. In an alarm system, a commercial telephone and its associated transmitting circuits in combination with normally inactive alarm means adapted when operated to deliver an alarm to the telephone instrument for transmission thereby, means for effecting the operation of the alarm means, a lighting circuit including lamps for illuminating the building and means for automatically effecting the operation of the said lighting system when the alarm means is brought into operation and a local alarm operable while the lamps are illuminated.

22. In an alarm system, a commercial telephone instrument and its associated transmitting circuits in combination with alarm apparatus adapted to give an alarm to the telephone instrument for transmission thereby, automatic means for effecting the operation of the alarm, means for automatically shutting off the alarm, and means for manually shutting off the alarm.

23. An alarm system for protecting a building embodying audible alarm means adapted when operated to deliver an alarm into the transmitter of a commercial telephone when the telephone is in predetermined position, means for effecting the operation of the alarm means, and means for giving a local signal in the event a person attempts to leave the building unguarded before placing the telephone in such predetermined position with respect to the alarm means.

24. An alarm system for protecting a building embodying alarm apparatus, and means for automatically effecting the operation thereof, in combination with an electric circuit associated with the lock of the building door and including a reminding signal adapted to be operated through closing of the circuit when the door is locked while the alarm means is not in a condition wherein it will be responsive to its controlling means, whereby the person locking the door will be reminded to place the apparatus in condition to give the alarm before leaving the building unguarded.

25. An alarm system for protecting a building embodying a normally inactive alarm apparatus, a telephone instrument adapted to be positioned in cooperative relation with the alarm apparatus, a switch adapted to be maintained in predetermined condition by the telephone when in such position, a controlling circuit for effecting operation of the alarm apparatus, and simultaneously acting upon the telephone instrument to condition it to receive and transmit the alarm, an additional circuit including the said switch, another switch associated with the lock of the door of the building to be protected, and operable by the lock to complete the said additional circuit. in the event the door is locked while the telephone instrument is not in its predetermined position relative to the alarm apparatus, and a warning signal in said additional circuit constructed to give a warning which will be apparent to the person so locking the door, whereby the building cannot be left unprotected.

26. An alarm system embodying a telephone instrument with its transmitting circuit in combination with alarm apparatus, a controlling circuit for causing the operation of the alarm apparatus and simultaneously rendering the telephone capable of

transmitting said alarm, a door lock, and a switch included in the controlling circuit and operable by the door lock, so that when the lock is actuated the alarm will be given and transmitted.

27. An alarm system embodying phonographic alarm apparatus, a controlling circuit for controlling said alarm apparatus, a main source of electrical energy for feeding said circuit, a secondary source of electrical energy adapted to be switched into the controlling circuit in the event that the main source of energy becomes ineffective, means for automatically effecting this switching operation, and signalling means for signalling the inclusion of the secondary source of energy into the operating circuit.

28. An alarm system embodying phonographic alarm apparatus, a controlling circuit for controlling said alarm apparatus, a main source of electrical energy for feeding said circuit, a secondary source of electrical energy adapted to be switched into the controlling circuit in the event that the main source of energy becomes ineffective, electrically operated means for automatically effecting this switching operation, and a signal automatically brought into operation when said switching operation takes place.

29. An alarm system embodying phonographic alarm apparatus, a controlling circuit for controlling said alarm apparatus, a main source of electrical energy for feeding said circuit, a battery circuit adapted to be included in the controlling circuit to feed the same in the event that the main source of electrical energy becomes ineffective, a circuit shifting switch normally including the main source of electrical energy in the operating circuit, but adapted to automatically switch in the secondary circuit in the event that the main source of electrical energy become ineffective, and a signal included in the secondary circuit and automatically operable when said circuit is included in a controlling circuit.

30. An alarm system embodying phonographic alarm apparatus, a controlling circuit for controlling said alarm apparatus, a main source of electrical energy for feeding said circuit, a secondary source of electrical energy adapted to be switched into the controlling circuit in the event that the main source of energy becomes ineffective, means for automatically effecting this switching operation, and signalling means for signalling the inclusion of the secondary source of energy into the operating circuit, in combination with means automatically operable from the secondary source of electrical energy to restrain the alarm apparatus from operation when said secondary source of energy is included in the controlling circuit.

31. An alarm system embodying a dial telephone instrument, signalling means adapted to cooperate with the telephone instrument and held in restraint as long as normal conditions prevail, means to automatically dial the telephone and to render said telephone instrument switches operative, means for holding the dialing and switching means in restraint as long as normal conditions prevail, and means to cause the operation of the signalling, dialing and automatic switching means upon the change of conditions from normal to abnormal, and means to automatically stop, release and return the dial disc and switching means to neutral after a predetermined length of time for subsequent operation of the telephone.

32. Alarm system embodying a dial telephone instrument, means for transmitting a signal, signal means adapted to cooperate with the transmitter of the telephone instrument and held in restraint as long as normal conditions prevail, means for automatically dialing the telephone instrument, means to render the automatic dial switches operative, means for holding the dialing and switching means in restraint as long as normal conditions prevail, and means for automatically causing the operation of the signalling, dialing and switching means upon the change of condition from normal to abnormal, means to automatically stop and release the dial disc of the telephone so as to allow it to return to neutral, in combination with means for automatically stopping signalling means after a predetermined period of time for subsequent operation.

33. An alarm system embodying a telephone instrument, a phonograph instrument normally held in restraint and adapted to deliver a message to the telephone instrument when in operation, means for starting the operation of the phonograph instrument and simultaneously lifting the receiver hook of the telephone, means controlled by the governor of the phonograph instrument when the phonograph stops to automatically depress the receiver hook and simultaneously stop the phonograph instrument at the conclusion of a predetermined period of operation of the phonograph instrument, and means for automatically conditioning the phonograph for subsequent operation.

34. An alarm system embodying alarm apparatus, a telephone instrument adapted to be positioned in juxtaposition with the alarm apparatus, apparatus for effecting the operation of the alarm apparatus and for simultaneously lifting the receiver hook of the telephone instrument and embodying a hook actuating member, and means for guiding the standard of the telephone instrument into a position wherein the hook thereof will automatically come into cooperative relation with the hook lifting apparatus.

35. An alarm system embodying a casing

provided therein with a seat to receive the standard of a commercial telephone instrument, a forked member associated with the casing and adapted to embrace the telephone receiver and underlie the telephone hook when the telephone is in cooperative relation with its seat, alarm means for delivering the message to the telephone transmitter when the receiver hook is elevated, and means for simultaneously effecting the operation of the alarm means and also effecting actuation of the forked member to lift the receiver hook of the telephone instrument.

36. An alarm system embodying a casing provided therein with a seat to receive the standard of a commercial telephone instrument, a forked member associated with the casing and adapted to embrace the telephone receiver and underlie the telephone hook when the telephone is in cooperative relation with its seat, alarm means for delivering the message to the telephone transmitter when the receiver hook is elevated, and means for simultaneously effecting the operation of the alarm means and also effecting actuation of the forked member to lift the receiver hook of the telephone instrument, said forked member being pivotally mounted to permit of lateral movement thereof whereby slight variations in the position of the telephone hook will not render said member inoperative to elevate the hook.

37. An alarm system embodying alarm means, a controlling circuit for controlling the operation of the alarm means and including a thermostatic switch to close said circuit upon a predetermined rise in temperature and to again open said circuit when the temperature subsequently falls to substantially normal, and fusible means included in the controlling circuit and adapted to be disrupted in the event of a predetermined rise in temperature above the temperature required to close the thermostatic switch to stop the operations of the alarm means.

38. An alarm system embodying alarm apparatus, a normally open controlling circuit adapted to be closed by a predetermined rise in temperature to cause the alarm apparatus to function and to thereafter act as a maintaining circuit to maintain the alarm apparatus in operating condition, and means associated with said circuit and operable upon a further predetermined rise of temperature to automatically break the maintaining circuit and cause the alarm apparatus to stop functioning.

39. An alarm system embodying a telephone, a phonograph having a record, means for effecting operation of the phonograph to deliver a message corresponding to a predetermined portion of the record to the telephone for transmission, and means, operable while the record continues to revolve, for automatically effecting repetition of the message contained on the same portion of the record on the record.

40. In an alarm signalling system, means for transmitting an alarm to a distant station, means for withholding the alarm, devices positioned at different points and operable upon a change from normal to abnormal conditions to effect the transmission of the alarm, in combination with means to keep in operation a maintaining alarm, irrespective of whether inception means are maintained or not, after the inception means has operated, and means for automatically or manually stopping said alarm irrespective whether said maintaining means are in operation or not.

41. An alarm system embodying means for giving an alarm, means for transmitting the alarm to a distant station, means for effecting the operation of the alarm giving means from different points, annunciator means for showing the point from which the alarm giving means has been operated, and means for automatically resetting the alarm giving means after its operation to condition it automatically for subsequent operations.

42. An alarm system embodying a telephone instrument, normally inactive alarm means cooperating with the telephone instrument and adapted to deliver an alarm thereto, means for effecting the operation of the alarm means, a normally operating clock, and means for stopping the clock when the alarm is operated so as to show the time at which such alarm was operated.

43. An alarm system embodying a dial telephone instrument, signalling means adapted to cooperate with the telephone instrument and held in restraint as long as normal conditions prevail, means for automatically dialing the telephone instrument and to render said automatic telephone instrument switches operative, means for holding the dialing and switching means in restraint as long as normal conditions prevail, and adapted to cause the operation of the signalling, dialing and switching means upon the change of condition from normal to abnormal, means for automatically stopping, releasing and returning the dialing disc and switching means to neutral for subsequent operation of the phone.

44. In an alarm signalling system embodying signalling means for transmitting an alarm to distant and local points, and lighting up at least a portion of a building when the said means is in operation, means for withholding the signalling means from operating, means for releasing said signalling means upon a change from normal to abnormal condition, in combination with

means for resetting the signalling means for automatic subsequent operation.

45. An alarm system embodying audible signalling means normally held in restraint, signalling transmitting means normally inactive, means for releasing the alarm means for operation and simultaneously rendering the transmitting means operative to permit the giving and transmission of a signal, means for automatically resetting the parts to normal condition to leave said parts in condition to repeat the operation specified, means, operable while said alarm is functioning, to give another and separate local warning alarm, and means for automatically resetting said local alarm means.

46. An alarm system embodying an automatic telephone, means for delivering an alarm or mesage to the transmitter of said telephone, means for automatically dialing and for placing the automatic dial switches in operation for a predetermined period, and means for automatically resetting the parts for subsequent operation.

In testimony whereof I have signed the foregoing specification.

WILLIAM J. LUSE.