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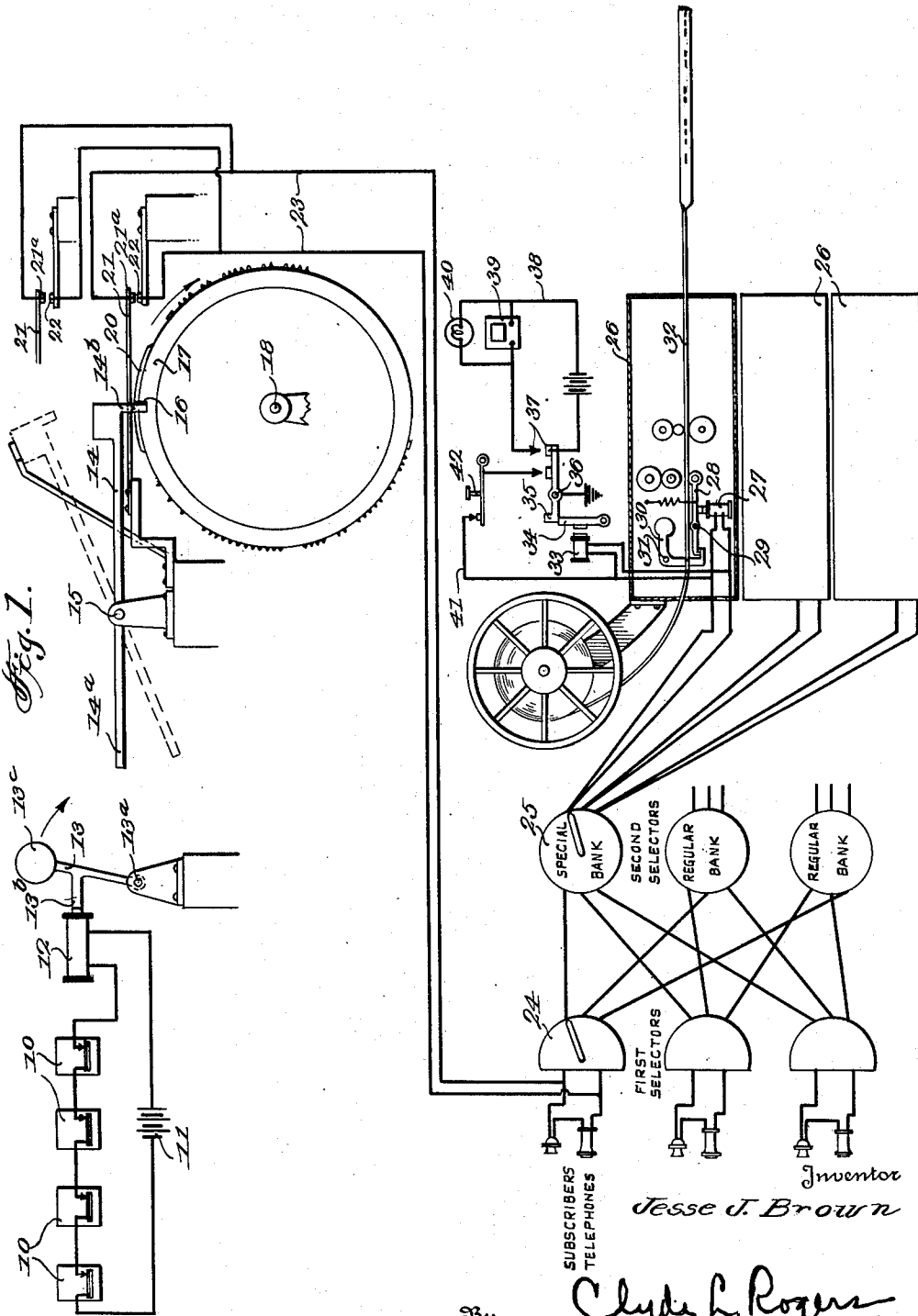
J. J. BROWN

2,168,320

TELEPHONIC HOUSE PROTECTION SYSTEM

Filed April 7, 1936

2 Sheets-Sheet 1



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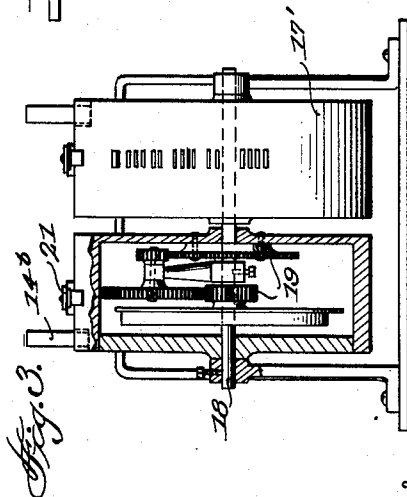
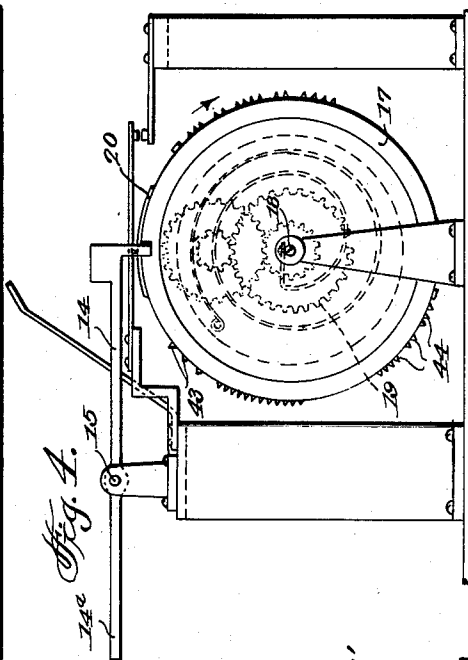
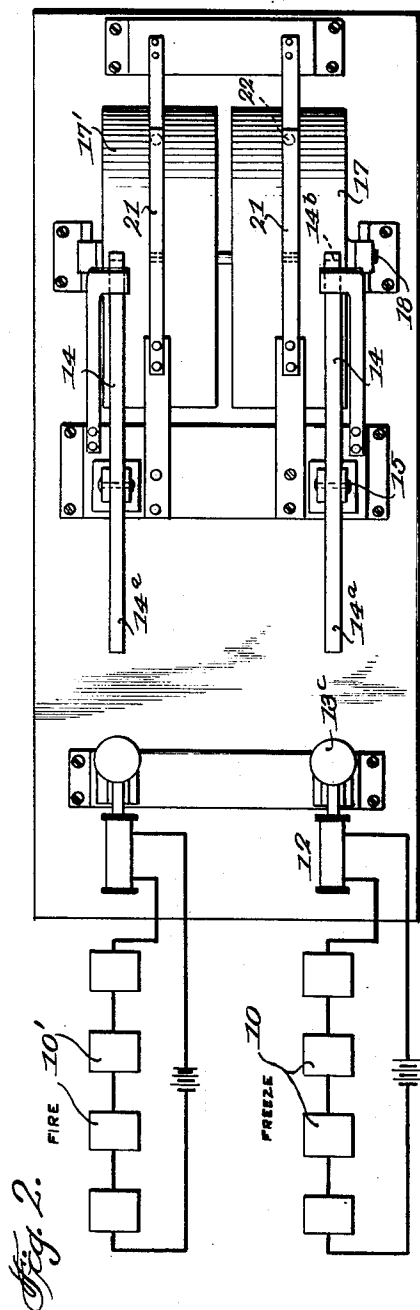
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2 Sheets-Sheet 2



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TELEPHONIC HOUSE PROTECTION SYSTEM

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13 Claims. (Cl. 179—5)

This invention relates to a building protection system and apparatus adapted for use with the ordinary dial telephone system for the automatic transmission of suitable and distinctive signals, to indicate any abnormal condition or conditions in the building thus protected.

While the invention is well adapted and designed for indicating automatically to a central station or desired location the failure of the building heating plant such as an oil burner, gas burner or automatic coal stoker normally used to heat the building, the equipment and system of the invention is equally well adapted for many other uses such as to indicate excess heat and give an alarm of fire, or to transmit a burglar alarm, or flood conditions, or, in fact, any predetermined abnormal condition of which it is desired to be advised while the occupants of the building are absent.

To this end I make use of devices automatically responsive to the special conditions about which it is desired to signal, selected according to the requirements of the particular character of warning desired and which in the case of automatic heating plants would be special thermostats mounted in different parts of the building and arranged to act as room-condition responsive devices to automatically set in action a device adapted to transmit signals over the telephone line the same as those transmitted by the manipulation of the ordinary dial telephone but the signals transmitted being of course of the character to give the desired information or warning after bringing into action a special "central" equipment.

The foregoing and other objects and advantages of the invention will be better understood from the following detailed description taken in connection with the accompanying drawings, and the distinctive features of novelty will be thereafter pointed out in the appended claims.

Referring to the drawings:

Figure 1 is a diagrammatic elevation showing an illustrative embodiment of my invention;

Figure 2 is a plan view of essential working portions thereof;

Figure 3 is an end view looking from the right in Figure 2 and with a portion broken away in section, and

Figure 4 is a side elevation of the signaling drums and associated mechanism.

10 indicates a series of special thermostats, shown as four in number to be mounted in selected parts of the building to be protected, in circuit with a battery 11 and with a holding mag-

net coil 12. 13 denotes a weighted lever pivoted at 13a and biased so that it tends to swing downward away from the coil 12 when its armature 13b is released by said magnet coil. When thus permitted to drop by opening of any of the thermostats 10, the weighted end 13c of this lever strikes the rear end 14a of a latch lever 14 which is pivoted at 15 to a fixed support. The resulting swinging of the latch lever 14 lifts a detent 14b at the front end thereof out of a notch 16 in a signal drum 17. The signal drum 17 is mounted to turn on a shaft 18 and is acted on by a spring and governor mechanism 19 housed therein and which may be of any usual or suitable type adapted to turn the drum at a pre-determined rate of speed when released by the detent 14b. The drum 17 bears a raised portion 20 at the locality of the notch 16 which holds a resilient contact bearing blade 21 so that the contact 21a borne thereby is separated from a fixed contact 22. As the drum 17 starts to turn, in a clockwise direction, as shown, the raised portion 20 passes from under the spring blade 21 permitting the contacts 21a, 22 to close. These contacts control a circuit 23 which is an extension of the building telephone circuit and hence the closing of the contacts 21a, 22 is equivalent to removing the receiver of a telephone from its hook, closing the circuit to the central office and the first bank of selectors 24. As the drum 17 continues to revolve, other shorter raised portions or lugs on the surface of the drum act to momentarily raise the blade 21 and break the telephone circuit at 21a, 22, sending corresponding impulses over the wire and setting up the automatic selector switches for the central desired, which in this case, is a special central 25, connected not to other telephones but to a bank of registers similar to those widely used in telegraph messenger call service and other like uses, and to the first "vacant" register. Energization of this register designated generally at 26 causes a magnet coil 27 thereof to swing a latch lever 28 which is pivoted at 29 causing the latch thereof to release a weighted lever 30 which is pivoted at 31. The swinging of lever 30 through internal connections operates to release the spring motor (not shown) of this register for the functioning of the register,—it being understood that the lever 30 will re-set manually after the operation. As the drum 17 rotates farther, other lugs on its periphery cause more impulses to be sent over the described connection and these cause the subscriber's phone number to be dialed, followed if desired, by a code signal. These last impulses or breaks in the circuit cause

a corresponding record to be made on the register tape 32 by a usual inking mechanism or by holes punched in the tape by the operation of the register. A relay magnet 33 is also energized by the first connection to the register and by attracting its armature 34 permits a weighted contact bearing lever 35 to swing about its pivot 36 closing contacts 37 in a battery circuit 38 which is adapted to operate a buzzer 39 and a pilot lamp 40. The described movement of the lever 35 also closes a connection 41 through the selector switches and to the subscriber's station until released by the attendant by his operation of a manual key 42 to break the circuit. This is accomplished by having the lever 35 grounded. As seen in Figure 2, the system is illustratively shown as provided with two sets of thermostats, i. e., the set 10 which may be responsive to a certain temperature minimum say, to open when the room temperature falls to 40° F. and to the functioning of these thermostats the selected code may assign one dash on the tape. A second set of thermostats 10' may be set to open when the temperature rises to a pre-determined maximum, say 115° F., and a second drum 17' is mounted to be controlled by the thermostats 10', the same as already described. The selected code may provide for two dashes on the tape to indicate the operation of these thermostats and this drum. Both of the drums 17, 17' may be mounted on the same fixed shaft 18 to which the operating springs may be suitably attached.

In operation assuming the house temperature falls to the pre-determined minimum of 40° F., one of the thermostats 10 will open deenergizing the coil 12, permitting the weighted lever 13 to fall and by engaging the rear end 14a of the lever 14, trip its detent 14b to release the drum 17 and permit it to turn under the action of its spring and governor 19. The resulting closing of the contacts 21a, 22 makes a connection to the central office and dials the special central by the action of the first set of lugs 43 on the drum 17; this automatically connects the calling station to a vacant one of the registers 26 and starts such register in operation by releasing the latch lever 28. The connection of the line to the register also energizes the relay 33, releasing the contact lever 35 which closes the grounding contact 41 and also closes the contacts 37,—this latter energizing the pilot lamp and buzzer to give indication of information to the attendant. The continued rotation of the drum 17 then brings the second set of lugs 44 on the drum into play, and the subscriber's station number is dialed, these impulses registering on the tape and indicating where the call has originated; at this time the code indicia is also registered on the tape, indicating which set of thermostats has operated. There is then a waiting period during which the attendant at central may dial the numbers shown,—as a check,—which should result in a "busy" signal. Continued rotation of the drum 17 then causes a third set of lugs to repeat the number and code signal,—as a check,—and the line is restored to normal condition (at the calling end only) by the raised portion 20 of the drum again engaging the spring blade 21 to open the contacts 21a, 22 of the circuit to central. The detent 14b again drops into the notch 16 and stops the drum. The attendant first using the release key 42, then dials the subscriber's number again to attempt to establish communication with anyone who may be in the building, and this serves as a further check on the calling station as the line should now re-

spond to the attendant's call and he should hear the subscriber's phone ringing. If no answer is received the attendant notifies the service department of the heating equipment company so that a service man may be sent to restore the house burner or stoker to proper operation,—or if the code indicates high temperature the fire department is notified. The contacts 41 are used to hold the connection through the several banks of connectors should it be desired to trace the origin of the call and the attendant may leave this connection on until he has dialed all but the last digit of the number and then press the release key 42, thus eliminating the bare possibility of another call to this number getting in ahead of his.

The described system is capable of being enlarged and extended almost indefinitely so as to include burglar alarm wiring, in which case of course when one of the protective switches operates its drum and code signal, the police car could be notified; suitable condition-responsive alarms could be arranged to cause instant notification of the operation of sprinkler systems; basements subject to flooding could be caused to give instant notification of a predetermined water level. The blowing out of fuses could be signaled merely by connecting the holding relay 12 through such fuse and time-delay devices could be arranged to give warning of the electric power being off for a pre-determined length of time. Other suitable condition-responsive devices corresponding to the thermostats 10 could be provided within the contemplation of my invention to be responsive to coal gas or illuminating gas and thus give warning of dangerous conditions therefrom so that the attendant at central could attempt to awaken the occupants by phone and then if necessary call the police.

Many other variations of the described system are possible and practicable, some of which would be of a special nature, yet all embodying the basic idea of using the dial telephone connection to a building to register automatically through selected condition-responsive devices any abnormal condition of which it is desired to give warning to an outside location where someone is in constant attendance. The condition-responsive device may cause a bell to ring in the same building before dialing central, by using a much longer raised portion 20 on the dialing drum to provide the delay, and allowing lever 13 to make the necessary bell contact when lever 13 drops. This arrangement would permit a person in the building to prevent the call from going in to central by lifting the receiver from the hook of the telephone set, and attend to the abnormal conditions in response to the alarm bell. This alarm bell would obviously not be provided on a burglar alarm circuit. This is an optional arrangement and because its operation is perfectly obvious is not shown on the drawings. If however, no one is in the building, or is unable for any reason to respond to the alarm, the drum transmits the information to central as above described. As shown herein the number chosen for the "special central" and as seen at 43 is 1—1—1—12. This is designed to eliminate any false alarms that might be sent in manually from a regular dial phone by a person learning what this special number 1—1—1—12 might be. The "1" central usually connects to a bank of company phones and the "12" would not be possible from a regular dial set,—this would require that

the "1" banks of switches be provided with twelve steps instead of the usual 10.

I am aware that the invention may be embodied in other specific forms without departing from the spirit or essential attributes thereof, and I therefore desire the present embodiment to be considered in all respects as illustrative and not restrictive, reference being had to the appended claims rather than to the foregoing description to indicate the scope of the invention.

Having now described my invention, what I claim as new and desire to secure by Letters Patent is:

1. Building protection apparatus comprising a dial telephone system, an automatically acting transmitter constructed and arranged for transmitting dialing impulses to said system of a character different and distinct from the impulses produced by the manual dial telephone, with locking means for holding said transmitter normally inactive, a condition-responsive device adapted to release said locking means upon the occurrence of an abnormal condition, and a special central connected in said dial telephone system and constructed to receive and record warning indicia from said automatically acting transmitter only.

2. Building protection apparatus as set forth in claim 1 wherein the automatic transmitter comprises a rotary drum bearing contact breaking projections with spring means tending to turn said drum, and a latch to hold the drum against rotation except when tripped by the action of said condition-responsive device.

3. Building protection apparatus as set forth in claim 1 wherein the means for holding the automatic transmitter normally inactive comprises a pivoted and weighted latch lever, and with means associated with said condition-responsive device to trip said latch lever and release said automatic transmitter.

4. Building protection apparatus as set forth in claim 1 wherein the means for holding the automatic transmitter normally inactive is embodied in a pivoted and weighted latch lever with a solenoid controlled, pivoted and weighted armature adapted to trip said latch lever and with a series of condition-responsive devices in an electric circuit with such solenoid.

5. House protection apparatus comprising a dial telephone system, an automatic transmitter embodied in a plurality of rotary drums mounted on a common shaft with spring means tending to rotate said drums, means for individually locking said drums against rotation, and means for tripping said locking means to release either of said drums upon the occurrence of abnormal conditions, embodied in two series of thermostats, one series responsive to excess cold and the other series responsive to excess heat, each of said thermostat series having a solenoid in an electric circuit therewith, and with a swinging and weighted armature normally held inactive by the solenoid but adapted to swing by gravitation when released by the solenoid and to trip its respective lock to release one of said drums for turning movement to transmit dialing impulses.

6. A house protection apparatus comprising a dial telephone system, an automatic transmitter for transmitting dialing impulses to said system, a lock normally holding said transmitter inactive, condition-responsive devices having provision to trip said lock and release said transmitter on the occurrence of an abnormal condition, and a special central connected in said dial telephone sys-

tem equipped with a register adapted to record warning indicia from said transmitter and having also means for exhibiting a conspicuous warning indication to an attendant.

7. A house protection apparatus as set forth in claim 6 wherein said register is equipped with means to ground the operating circuit to hold the operative connection, said circuit being equipped with a release key adapted to be released by an attendant.

8. In combination with a standard public dial telephone system which includes a customer's dial telephone station, a common automatic switching central, and customer's line connection between the two; a building protection system comprising an automatic transmitter constructed and adapted to transmit dialing impulses to said customer's line of a character distinct from those originating in the manual dial telephone, a lock normally holding said transmitter inactive, a condition-responsive device adapted to release said lock upon the occurrence of an abnormal condition, and a special automatic switching central connected to said common central and arranged to be responsive to calls from said automatic transmitter only and to register selected warning indicia therefrom.

9. A building protection system as set forth in claim 8, wherein the special automatic switching central is equipped to provide sensory indication to an attendant.

10. A building protection system as set forth in claim 8, wherein means is provided to prevent said special central from receiving calls from manually operated dial transmitters.

11. In combination with a standard public dial telephone system which includes a subscriber's dial telephone station, a common automatic switching central, and subscriber's line connection between the two; a building protection system comprising an automatic transmitter adapted to transmit dialing impulses to said subscriber's line, a lock normally holding said transmitter inactive, a condition-responsive device adapted to release said lock upon the occurrence of an abnormal condition in the building protected, a special automatic switching central connected with said common central and arranged to receive calls originating at said automatic transmitter and to record selected warning indicia therefrom, and means incorporated in said automatic transmitter for restoring said subscriber's line to normal at the subscriber's end after the said warning indicia have been recorded at the special central whereby calls may then be received at said subscriber's station in the usual manner.

12. A building protection apparatus comprising a dial telephone system, an automatic transmitter for transmitting dialing impulses to said system of a character distinct from those originating in the manual dial phone, a lock normally holding said transmitter inactive, condition-responsive devices having provision to trip said lock and release said transmitter upon the occurrence of an abnormal condition, means incorporated in said transmitter for giving conspicuous warning indication at the locality of subscriber's phone when said transmitter is initially set in operation by release of said lock, and means for manually restoring said transmitter to normal and inactive condition before said transmitter has transmitted any dialing impulses to said telephone system.

13. In an automatic telephone alarm system, the combination with a register adapted to record

5 warning indicia received from the system, of a special automatic switching central connecting with said register, a common automatic switching central having banks of switches with more than ten steps, and a set of standard manually operated transmitters limited to ten-step operation, said special central being connected to steps

of the common central higher than ten whereby calls originating at standard manually-operated transmitters limited to ten consecutive impulses cannot be transmitted through said common central to said special central.

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