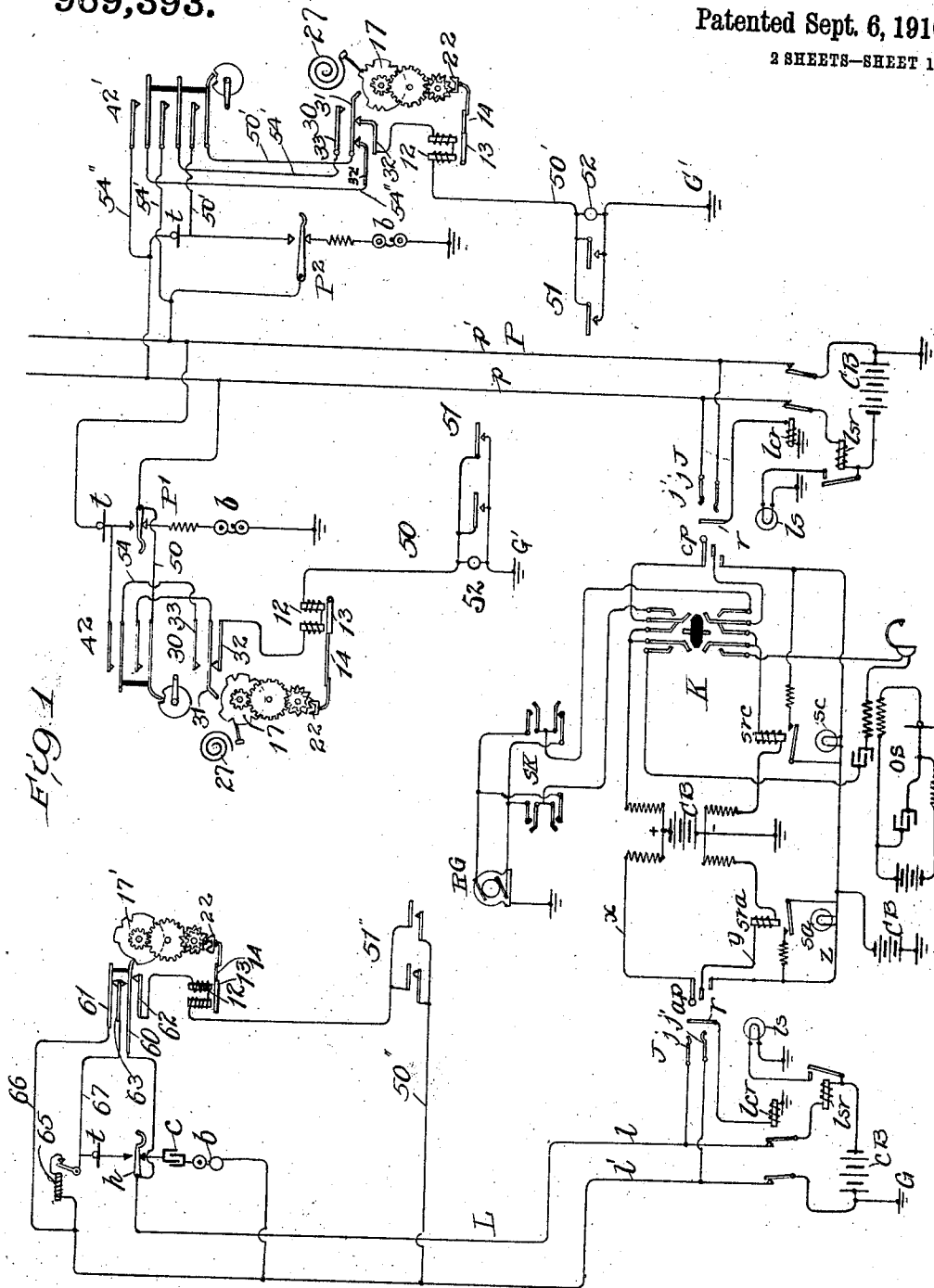


J. G. NOLEN.
 COMBINED TELEPHONE AND PROTECTIVE ALARM SYSTEM.
 APPLICATION FILED MAY 9, 1907.

969,393.

Patented Sept. 6, 1910.
 2 SHEETS—SHEET 1.



Witnesses:

Ray White.

Harry R. L. White

Inventor:

James G. Nolen

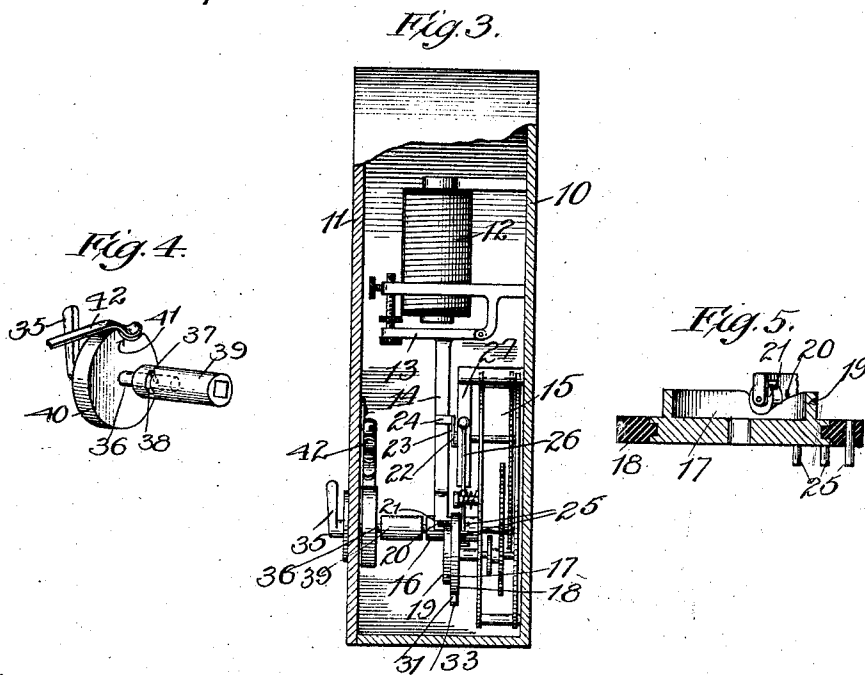
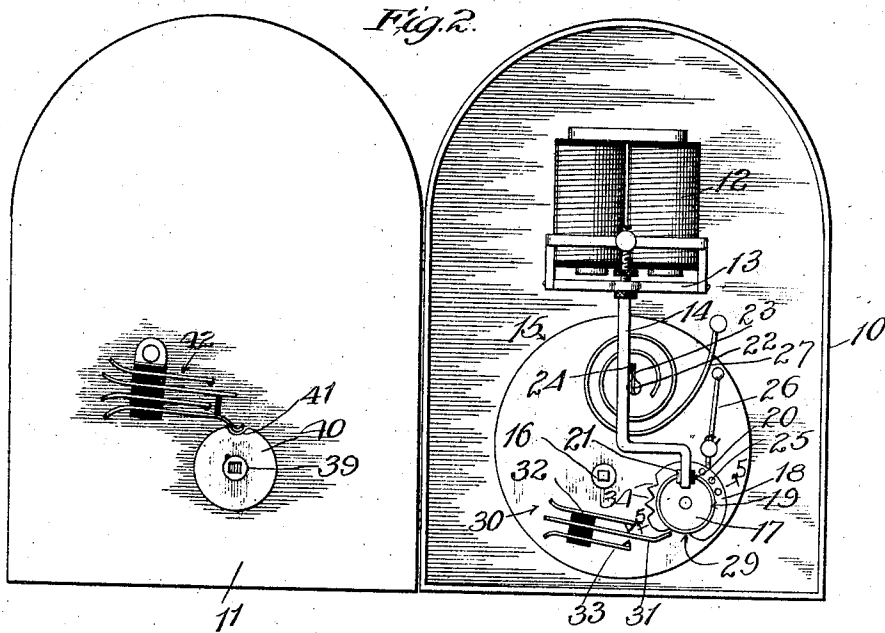
By *Boie Bain & May* Attys

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Inventor
 James G. Nolen,
 By *Soresbain & May*

UNITED STATES PATENT OFFICE.

JAMES G. NOLEN, OF CHICAGO, ILLINOIS, ASSIGNOR TO JOHN E. SHEPHERD, OF CHICAGO, ILLINOIS.

COMBINED TELEPHONE AND PROTECTIVE ALARM SYSTEM.

969,393.

Specification of Letters Patent.

Patented Sept. 6, 1910.

Application filed May 9, 1907. Serial No. 372,746.

To all whom it may concern:

Be it known that I, JAMES G. NOLEN, a citizen of the United States, residing at Chicago, in the county of Cook and State of Illinois, have invented certain new and useful Improvements in Combined Telephone and Protective Alarm Systems, of which the following is a specification.

My invention relates to improvements in combined telephone and protective alarm systems of the general character disclosed and broadly claimed in my pending application Serial No. 302,838, filed February 26th, 1906.

One of the objects of my invention is to provide an alarm system applicable to party lines.

Another object of my invention is to provide a protective alarm system operable as an auxiliary to establish a telephone system without requiring any change whatever in the normal equipment, and by the simple addition of circuits and devices at the subscriber's station.

Another object of my invention is to provide an arrangement for party line protective alarm service, such that the protective alarm installation at any station may operate to signal the central operator even though the party line is being used by some other subscriber thereon, and the conditions at the central station are those normal to a complete talking connection between such party line and another line circuit of the exchange, that is to say, with a cord circuit established and the operator cut off.

A further object of my invention is to provide improved appliances for installation in such burglar alarm systems for use in conjunction with telephone systems, and other and further objects of my invention will become apparent to those skilled in the art from the following description, taken in conjunction with the accompanying drawings, wherein;

Figure 1 is a diagrammatic view showing my burglar alarm system as applied to a well known telephone system. Fig. 2 is a front elevation of a signal or alarm box, suitable in the practice of my invention. Fig. 3 is a side elevation thereof with part of the casing broken away. Fig. 4 is a detail of the setting handle for such box, and; Fig. 5 is a sectional detail on line 5-5 of Fig. 2.

Throughout the several views like characters of reference refer always to like parts.

In Fig. 1, I have shown in diagrammatic fashion as a telephone installation of well known character, a central energy cord circuit, a private line and a party line.

Specifically *l* and *l'* represent respectively the tip and sleeve line wires of a private line *L*, connected at the subscriber's station respectively with the switch hook *h* and through a transmitter *t* with the upper switch hook contact. The private line is shown as embodying the bridged bell wiring arrangement, and, therefore, the lower switch hook contact is connected through a suitable condenser *c* and bell *b* with the line wire *l'*. The rest of the subscriber's set is not shown but may be of any suitable character. At the central station the switchboard equipment of such line is indicated as of usual type involving jack *J*, providing the tip and sleeve jack springs *j* and *j'*, connected with lines *l* and *l'*, respectively and test ring *r* connected to the usual line cut-off relay *lcr*, and thence to ground; the line signal, indicated as a lamp *ls*, connected in a circuit grounded at one end, and adapted to be connected through the normally open armature of the line signal relay *lsr* with the tip wire *l*, which includes the winding of relay *lsr* and is connected to one terminal of the central battery *CB*, the opposite terminal of which is grounded at *G* and connected with the sleeve side of the line.

On the party line *P* the tip and sleeve line wires *p* and *p'*, have exactly similar central station arrangement, similarly indicated, but at the subscribers' stations, whereof two are indicated as *P*¹ and *P*², the ringing connections are alternately connected to opposite sides of the line and are grounded. To this end the switch hook of the station *P*¹ is connected with the tip wire *p*, while at station *P*² the hook is connected with the sleeve wire *p'* the upper contact and transmitter in each case being connected with the remaining line wire and the lower hook contact grounded through a suitable resistance and bell *b*.

In the central cord circuit shown the central battery *CB* has connections on its positive side through the strand or wire *x*, on the one hand through normally closed contacts of the operator's calling and listening key *K* with the tip of the calling plug *cp*, and on

the other hand with the tip of the answering plug *ap*, and on its negative side is grounded and also connected by the sleeve strand *y*, on the one hand through the supervisory relay *sra* and the normally closed contacts of the key *K* to the sleeve of the calling plug *cp*, and on the other hand through supervisory relay *sra* to the sleeve of the answering plug *ap*. The third or test strand *z* of the cord circuit is connected with the positive side of the central battery *CB*, and on opposite sides to the third or test sleeve contact of the plugs *ap* and *cp*, such strand including therein the two supervisory lamps *sa* and *sc*, paralleled by cut out shunts controlled respectively by the cutout relays *sra* and *sra*. The key *K* controls in any suitable manner an operator's set *OS*, and any suitable ringing generator *RG* and selective key connections *SK*, diagrammatically illustrated in conventional form.

It will be understood that this telephone system which I have thus far described is not new, and is illustrated simply as one system to which my invention may conveniently be applied, for purposes of disclosure. The ordinary operations of a telephone system will be understood and need not here be described.

With this or other suitable telephone circuits I provide a protective system wholly local to a subscriber's station, comprising a protective circuit, including signal initiating protective devices, such as door and window springs of a burglar alarm system, or thermostat of a fire alarm system, or the like, which in their operation effect an association of the telephone and protective circuit preferably such that the protective circuit is fed with current from the central station battery.

With the protective circuit is associated a circuit responsive instrument responsive to the operation of the signal initiating means, arranged, when in operation, to cause the operation of an alarm of proper character, and in proper association with the telephone system, for the transmission to the central operator's set of an audible alarm. Further I so arrange that the line signal at the central station, appropriate to the subscriber's line, responds to the operations of the protective devices, to attract the attention of the central station operator, and I further so arrange the protective devices that in the event that the subscriber's line is already in use when the protective devices operate, the central operator's attention is called to the fact of such operation of the protective devices by the response of the supervisory signal to such operation. I further make such provision that upon a party line the signal or alarm devices of each subscriber may serve to send to the central operator a distinguishing signal, whereby the operator is

enabled to locate exactly the subscriber whose protective devices are operated out of the multiplicity of subscribers serve by the common line. Connection suitable for this latter service I will first describe.

For convenience all of the apparatus for the subscriber's station except the signal initiating device for said circuit connections may be incorporated in an alarm box, of the character shown in Figs. 2 to 5, wherein 10 indicates the box frame and 11 the door, said box having mounted therein a relay 12, the armature 13 whereof is provided with an arm 14 governing the operations of a spring impelled motor, which actuates the alarm and switching mechanism. 15 indicates in general such a motor provided with a winding stem 16 and having on one of its slow speed arbors a wheel 17, provided with an insulating rim 18, and a crown flange 19, in which is provided a notch 20, arranged to receive a roller 21 carried by the armature arm 14, when said armature is retracted from the relay magnet 12. On a suitable high speed part of the motor, such as the vibratile escapement member 22, is provided a pin 23 with which coacts a blade 24 carried by the arm 14, the blade being arranged to stop and hold the pin 23 against movement whenever the roller 21 enters the notch 20 of the crown flange of wheel 17, and to release the escapement part when armature 13 is attracted to its magnet and so long as roller 21 rides upon the rim of the crown flange 19. Thus it will be apparent that whenever the relay magnet 12 is energized to attract the armature 13 the wound motor is released and wheel 17 turns, the roller 21 riding up the inclined edge of the notch 20 on to the rim of flange 19, so mechanically holding the blade 24 out of the path of the vibratile member 23, and permitting the clock to run until the wheel has made a complete revolution, irrespective of whether magnet 12 remains energized or not, but at the end of such rotation if the magnet has in the meantime become deenergized the roller 21 again drops into notch 20 and the blade 24 stops the escapement member 22 by engagement with the pin 23. The wheel 17 carries a suitable number of teeth, or pins 25, arranged to coact with the extremity of a spring-pressed striker 26, arranged when moved and released by a pin 25 to strike against and sound an audible alarm device 27, illustrated as a coiled sounding spring. The wheel 17 is preferably provided in the periphery of its insulating rim 18 with a notch 29, in which stands when the motor is at rest contact leaf 31 of a set of springs 30 including a leaf spring 32 with which leaf 31 normally makes contact, and a leaf 33 into contact with which leaf 31 may be raised, when the notch 29 passes from beneath spring 31, and the

said spring is caused to ride upon the periphery of the rim 18. The rim 18 may further be provided with notches 34 arranged in order to represent a signal similar to that represented by teeth 25.

The casing door 11 preferably carries the winding handle 35, adapted when the door is closed to connect for rotation with the winding stem 16 of the motor, and I prefer that such winding handle also control the setting spring, whereby the protective devices may be cut into or out of service or operative condition. To this end I make the stem of the winding handle 35 in two parts connected, for rotary lost motion, the main stem part 36 directly connected with handle 35 having thereon a pin 37 engaging in an elongated groove 38, in a sleeve stem part 39, carried by the main stem part 36, and having at its end the aperture for engagement with the winding stem 16. Upon the main stem portion 36 I provide an insulating disk 40 having in the periphery thereof a notch 41, said disk 40 being operatively associated with a suitable set of contact springs, generally indicated at 42, and so arranged that when one of said springs stand in notch 41 the protective service is rendered inoperative, or cut out, while when the handle 35 is rotated so that the normal periphery of disk 40 raises the aforesaid spring, contacts are effected cutting the burglar alarm devices into service or operative condition.

It will be seen that by the arrangement shown in Fig. 4 the handle 35 may be moved to wind the motor an angular distance corresponding with the arc of slot 38, and that if the handle be left in such position the controlling spring of the set 42 will be elevated to cut the burglar alarm devices into service, but through the lost motion connection the handle 35 may be restored to initial position, so that the controlling spring of the set 42 again drops in notch 41 to put the alarm devices again out of service, notwithstanding that the motor has been wound. Thus the putting of the station into or out of service is left wholly to the subscriber, and the movement of the handle to throw the station into service necessarily winds the motor if the same has previously run down. It will be understood that I do not limit myself to these particular devices, but show the same simply for purposes of full disclosure and for convenience of description of an operative system.

Referring now to the party line equipment, shown to the right in Fig. 1, 50 indicates the protective circuit, grounded at one end at G', and including in parallel therein signal initiating devices 51 and 52, indicated as normally open window or door springs, and a thermostat respectively. Such circuit 50 further including the coils of the relay 12, the normally closed contact springs 32 and

31 of set 30, associated with the motor, suitable springs of the set 42, terminating in a connection with the switch hook *h* which, it will be remembered, is connected to the tip side of the line. The remaining spring 33, of the switch set 30, is connected by wire 54 through springs of the set 42, with the upper contact of the switch hook *h*.

In the arrangement of the springs 42, as shown in connection with the subscriber's station P¹, two pairs of springs electrically disconnected are employed, one pair of springs forming part of the current path for each of wires 50 and 54, said springs being so arranged that both pairs are closed when the box handle 35 is rotated to position to wind the motor and thereby condition the burglar service devices for operation.

Now it will be seen that under normal conditions when the party line P is not in use, the operation of any of the signal initiating devices 51 or 52, at the station of the subscriber P¹ closes a circuit as follows; from the grounded side of the central battery CB through said battery, the relay *lsr*, the tip wire *p*, the switch hook wire, the lower springs of the set 42, springs 31 and 32 of set 30, the windings of relay 12, the closed signal initiator, and back to ground at G'. This circuit including the line signal relay, energizes said relay, and causes it to attract its armature thereby cutting in the line lamp in the ordinary manner. In response to the line lamp signal the operator, of course, plugs in with the answering plug and bridges her set upon the cord strands *x* and *y*.

The ground circuit heretofore traced, it will be observed, includes the relay 12, the armature 13 whereof is attracted, releasing the motor to permit the latter to effect a complete revolution of the signal wheel 17, which at the outset lifts pen 31 into contact with pen 33, breaking the ground circuit, heretofore described but closing the pen 31 upon the pen 33 and thereby establishing a bridge across the line through the transmitter and wire 54 to the pen 33 and back to the switch hook through a suitable portion of the wire 50. Obviously under these conditions, which are equivalent to those produced by the removal of the receiver from the switch hook, so far as effect upon the line signal is concerned, the line lamp continues lighted until the operator plugs in, but the grounded bell circuit is not broken, as would be the case were the receiver removed from the switch hook. The rotation of the wheel 17 further produces movements of the striker 26 to strike the sounding spring 27 a number of blows determined upon, and constituting the signal for the particular subscriber on the party line.

It will be understood that in the installation of the apparatus this alarm mechanism

ism is placed within effective distance of the transmitter, that is to say, so close to the transmitter that the sound of the alarm may readily cause vibrations in the transmitter which are reproduced as sound waves by the operator's receiver. Consequently the central operator instead of getting a call in the ordinary manner hears the predetermined blows of the sounding spring of the audible alarm at the subscriber's station, and instantly knows that the burglar alarm at such subscriber's station is operated, and thereupon the central operator may, selectively or otherwise, as the installation requires, ring the bell of the subscriber from whose station the burglar alarm is received.

It will be observed that the conditions at the subscriber's station produced by the operations of the alarm system heretofore described, do not wholly prevent the customary signaling operations through the subscriber's bell, for the reason that the grounded burglar alarm circuit wire 50, which if intact would short-circuit the bell, has been broken by the separation of springs 31 and 32, so that the only ground connection remaining at the subscriber's station is that through the bell *b*.

In effecting connection of the burglar alarm devices to the subscriber's set P^2 , wherein the switch hook is connected to the sleeve side of the line, slight increase in the wiring must be made in order that the impulses transmitted over the tip side of the line may actuate the relay 12, without encountering the resistance of the transmitter. As shown in Fig. 1 the wire 50' including the signal initiating devices and the relay normally include springs 32 and 31, and the lower pair of springs of the set 42', but is connected between the transmitter and the front contacts, while the wire 54' extending from spring 33 includes another pair of contacts of the set 42' and is connected to the switch hook so that while the connections of the burglar alarm set are reversed with respect to the instruments of the subscriber's set at these two stations, they are similar with respect to the line wires, their connections merely compensating for the reversal of connections of the two subscribers' sets with the line. To cut out the resistance of the transmitter *t*, however, a supplemental contact 32' is provided to contact with spring 31 simultaneously with contact 32, such supplemental contact 32', being connected through wire 54'' and a third pair of springs of the set 42' with the transmitter connections between the transmitter and the tip line wire, so that when the burglar alarm is in service and one of the signal initiators is closed current from the grounded central battery flows through the tip

side of the line that connects with 54'' and 50' through the relay signal initiating devices to ground, avoiding the resistance of the transmitter, while upon the lifting of spring 31, due to the commencement of activity of the motor in response to operation of relay 12, the circuit path is from the central battery through the tip wire *p*, the transmitter, part of wire 50', springs 31, 33, and back by wire 54' to the sleeve side of the line and thence to battery.

I will now describe the operation of the burglar alarm system in calling central when one party on the party line is using the line, and the burglar alarm at the station of another party operates. Under such conditions the party line circuit is closed—at station P^2 , let us say,—by the removal of the receiver from the switch hook, and such line is connected through the strands *x* and *y* of the cord circuit with the line of some other subscriber; battery current is being fed from the central battery CB in both directions, on the one hand to the calling subscriber,—let us assume the line *L*,—and on the other hand through the calling plug of the called subscriber— P^2 —on the party line *P*. Both supervisory relays *sra* and *src* are receiving current so that both supervisory lamps *sa* and *sc* are deenergized by reason of the shunts established therearound, while both line lamps of the lines *L* and *P* are extinguished through the operation of the line cut-out relays *lcr*. Now if a signal initiator at station P' be operated, a circuit is established from the central battery CB over the tip wire *p* through connection 50' including the relay 12 and the closed signal initiating device to ground, so establishing a ground circuit through the tip side only of the cord circuit, and thereby grounding out or "robbing" the calling end of the sleeve strand of the cord circuit, so that supervisory relay *src* is substantially deenergized and its armature falls, giving current to the supervisory lamp *sc* which starts to glow. The relay 12 being properly energized, sets the motor in motion and wheel 17 begins to revolve, raising the pen 31 and thereby breaking the ground circuit just described, causing restoration of the supervisory lamp to deenergized condition. The motor, however, may be wound to run several revolutions of the wheel 17, and each time wheel 17 reaches such point that the pen 31 drops in the notch 29, the ground circuit is restored, causing another flash of the supervisory lamp, also causing the armature 13 to be attracted by its magnet, so that a new revolution of wheel 17 is begun. Furthermore, the notches 34 in the periphery of the wheel 17 simulating the signal number of the subscriber's station, may be employed to permit momentary operations of the switch contacts to establish said

grounded circuit, and thereby cause the supervisory lamp to flash signals corresponding with the station numbers of the party whose alarm system is operated. Of course connections being already established through the cord, the central operator need but listen in to receive the audible signal from the alarm at the subscriber's station, which, it will appear, may be transmitted without material interference with any conversation that may be going on between the subscribers initially connected for conversation. If the party line is equipped for selective signaling the central operator may then in the usual way ring the party whose alarm is operating, or if necessary, may instruct the conversing party on the same line to hang up temporarily in order that she may give the proper alarm. In brief, without disturbing in any way the ordinary telephone equipment at central station or at the subscriber's station, but merely by the addition of devices mechanically and electrically simple, the burglar alarm apparatus is adapted for the transmission over a party line of signals distinguishing the station of the particular party whose line is operating, and attracting the attention of the central operator irrespective of whether the party line is already in use by some other subscriber or not, and, in the event that the line is already in use such alarm may be transmitted without seriously disturbing the party already using the line, or causing any disturbance of the established connections.

It will, of course, be apparent that the apparatus and circuits described may equally well be employed upon an individual or single line, and upon such line, if preferred, a bridging system both for ringing and for alarm signal transmission may be employed, as indicated to the left in Fig. 1. Furthermore, it is not essential, for some of the purposes of my invention that the ordinary transmitter be employed in the operation of the alarm system, for a means for occasioning vibrations in the operator's receiver may operate directly in the line to the exclusion of the transmitters. This specific feature of my invention I do not here claim in detail, as such an arrangement is claimed in my co-pending application, Serial No. 376,481, filed May 31, 1907. In this arrangement the relay and motor may be substantially the same as heretofore described, the audible alarm being done away with, and wheel 17' coacting only with a group of contact springs. Specifically wheel 17' has a peripheral notch normally receiving the lower spring of a pair of insulated springs 60 and 61 insulated from each other and arranged to rise in unison when the notch of the wheel passes from beneath them, the lower spring 60 normally making contact with a spring 62, and arranged to be lifted

to contact with spring 63, and the upper spring being arranged to normally contact with the spring 63 and to be lifted therefrom when raised. The signal initiating devices are connected in a circuit 50'' including the relay 12, the signal initiating devices, the springs 62, 60 and extending to the line *l*.

The alarm vibrations are occasioned by a buzzer 65 connected between the transmitter and the line *l'*, the buzzer being normally short-circuited by connections 66 and 67 running from opposite sides of the buzzer to springs 61 and 63 respectively. Now it will be seen that whenever a circuit closer of the protective circuit is operated, connections are established from the central battery through the line signal relay *lsr*, the line wire *l*, wire 50'' including springs 60-62, relay 12, the closed signal initiator, and back through the remaining line wire *l'* to the battery. This energized circuit includes the relay 12, which trips the wound motor so that its signal wheel 17' revolves, raising the associated pins 60 and 61 to establish new contacts, breaking shunt 66-67 around the buzzer, opening contacts 60-62 and completing a circuit from battery, through the line wire *l* to spring 60, through spring 63 by wire 67, through the buzzer 65 and back over line wire *l'*, consequently when the central operator plugs in in response to the line signal, she hears in her receiver the buzzer 65 working in the line, and is thereby apprized of the operation of the signal initiating devices of the burglar alarm circuit. It will be understood, of course, that this buzzer arrangement is equally applicable to the grounded protective circuit and ringing system as it is to the bridge protective circuit and ringing system, and may be employed in a party line with the motor wheel having its periphery notched at intervals to permit return of the pens to normal position at determined intervals, each such return re-establishing the short circuit around the buzzer 65 and thereby causes the buzzer to operate intermittently in a fashion which may be read as number signals, or the like. It will further be understood that the bridging system shown to the left in Fig. 1, is not well adapted to party line practice, as such use involves complications of wiring or balancing of resistance, which are avoided by the use of the grounded signal initiating system.

While I have herein described in some detail a specific embodiment of my invention for purposes of clearly indicating to those skilled in the art a convenient and practical arrangement, it will be understood that changes may be made without departure from the spirit and scope of my invention, the single modification described being here presented merely as suggestive of the widely

variant forms in which my invention may be practiced.

Having thus described my invention, what I claim and desire to secure by Letters Patent, of the United States, is:

1. In a combined telephone and protective system, the combination of the central station equipment involving a normally de-energized line signal and an operator's set including a receiver, a subscriber's line involving at the subscriber's station a transmitter and a switch normally opening the circuit of said transmitter, a subscriber's protective circuit, signal initiating means, motor actuated alarm means controlled by said protective circuit arranged to occasion an audible alarm, and motor operated means for closing the transmitter circuit to include therein the transmitter during the operation of the audible alarm means.

2. In a combined telephone and protective alarm system, the combination of the central station equipment involving a normally de-energized line signal and an operator's set including a receiver, a subscriber's line involving at the subscriber's station a transmitter and a switch normally opening the circuit for said transmitter, a subscriber's protective circuit, signal initiating means therein arranged when actuated to complete a circuit for energizing the central line signal, motor driven audible alarm means within effective distance of the transmitter to transmit sound thereto, motor controlling means therefor responsive to the actuation of the signal initiating means to start the motor, and means operated by said motor for bridging the normally open switch connection of the transmitter to include the transmitter in operative association with the line.

3. In a combined telephone and burglar alarm system, the combination of a central station equipment, involving a normally de-energized line signal, an operator's set including a receiver, a subscriber's line involving at the subscriber's station a transmitter, a protective circuit, signal initiating means therein, alarm means, adapted and arranged to occasion in the line vibrations translatable into audible sound by the operator's receiver, a motor, a switch controlled by the motor, arranged to establish a bridging circuit across the line including the transmitter, and an electro-responsive device associated with the protective circuit controlling the motor.

4. In a combined telephone and protective system, a central station equipment including a battery, a cord circuit for connection with a subscriber's line, a supervisory signal arranged to be energized by the grounding of a subscriber's line when the cord circuit is connected therewith, and an operator's set including a receiver, a subscriber's line

involving at the subscriber's station a transmitter and a switch normally opening the transmitter circuit, and a subscriber's protective system involving signal initiating means arranged when operated to cause the grounding of the subscriber's line by a circuit excluding the transmitter, and audible signal devices within effective distance of the transmitter responsive to the operation of the signal initiating means to occasion an audible signal and to close an operative circuit involving the transmitter thereby to condition the transmitter to transmit the audible signal to the central station receiver.

5. In a combined telephone and protective system, a party line, a central station equipment comprising an operator's receiver, a line signal and a grounded battery therefor, at each subscriber's station in said party line a transmitter, a normally open circuit therefor, a protective system involving a normally open ground circuit adapted when closed to energize the line signal, a relay in said ground circuit, a motor controlled by said relay, and means for transmitting an audible signal characteristic of the particular station controlled by said motor, means for closing the transmitter circuit to energize the transmitter controlled also by said motor, and signal initiating means for closing the normally open ground circuit.

6. In a combined telephone and protective system, a party line, a central station equipment comprising a line signal, a grounded battery therefor, an operator's set including a receiver, and ringing devices, and at each subscriber's station in said party line a transmitter, a grounded bell, and a protective system involving signal initiating devices, a ground circuit connection closable by the operation of said signal initiating device, the initiating devices for energizing the line signal, and means controlled by the closure of said circuit for breaking said circuit and for transmitting to the central station through the subscriber's transmitter an alarm characteristic of the particular station, whereby after the line signal is actuated the subscriber's bell may be rung from the central station through the normal ground connection.

7. In a combined telephone and protective system, a party line, a central station equipment comprising a line signal, an operator's set and a means of current supply, and at each subscriber's station in said line, a transmitter, a grounded bell and a protective system involving signal initiating devices, an alarm signaling device, and means whereby the actuation of said signal initiating devices establishes a circuit for the central line signal, and conditions the alarm signaling means for operation to transmit an audible signal through the transmitter.

8. In a combined telephone and protective system, a central station equipment comprising a line signal, a grounded battery therefor, a party line, and at each subscriber's station in said line a grounded bell normally connected with the line, a transmitter normally disconnected from the line, and a protective system involving signal initiating devices, a grounded circuit connection closable by the operation of said devices for energizing the line signal, an electro responsive device, an audible sounding mechanism operatively related to the transmitter, and controlled by said motor, and means for closing the normally open transmitter circuit also controlled by said motor, and arranged to be actuated contemporaneously with the operation of the sounding mechanism.

9. In a combined telephone and protec-

tive system, a telephone system involving at each subscriber's station a transmitter and a normally open transmitter circuit therefor, a motor driven signaling device comprising a switch, circuit connections for said switch whereby the latter may ground the line or close the subscriber's transmitter circuit, said motor device having a sounding mechanism within effective distance of the transmitter and a winding handle, a switch for disabling the motor-operated switch controlled by the winding handle, and signal initiating means controlling the operation of the motor.

In testimony whereof I hereunto set my hand in the presence of two witnesses.

JAMES G. NOLEN.

In the presence of—

FORÉE BAIN,

MARY F. ALLEN.