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B. O. FOX.

COMBINED TELEPHONE, SIGNAL, BURGLAR, AND FIRE ALARM.

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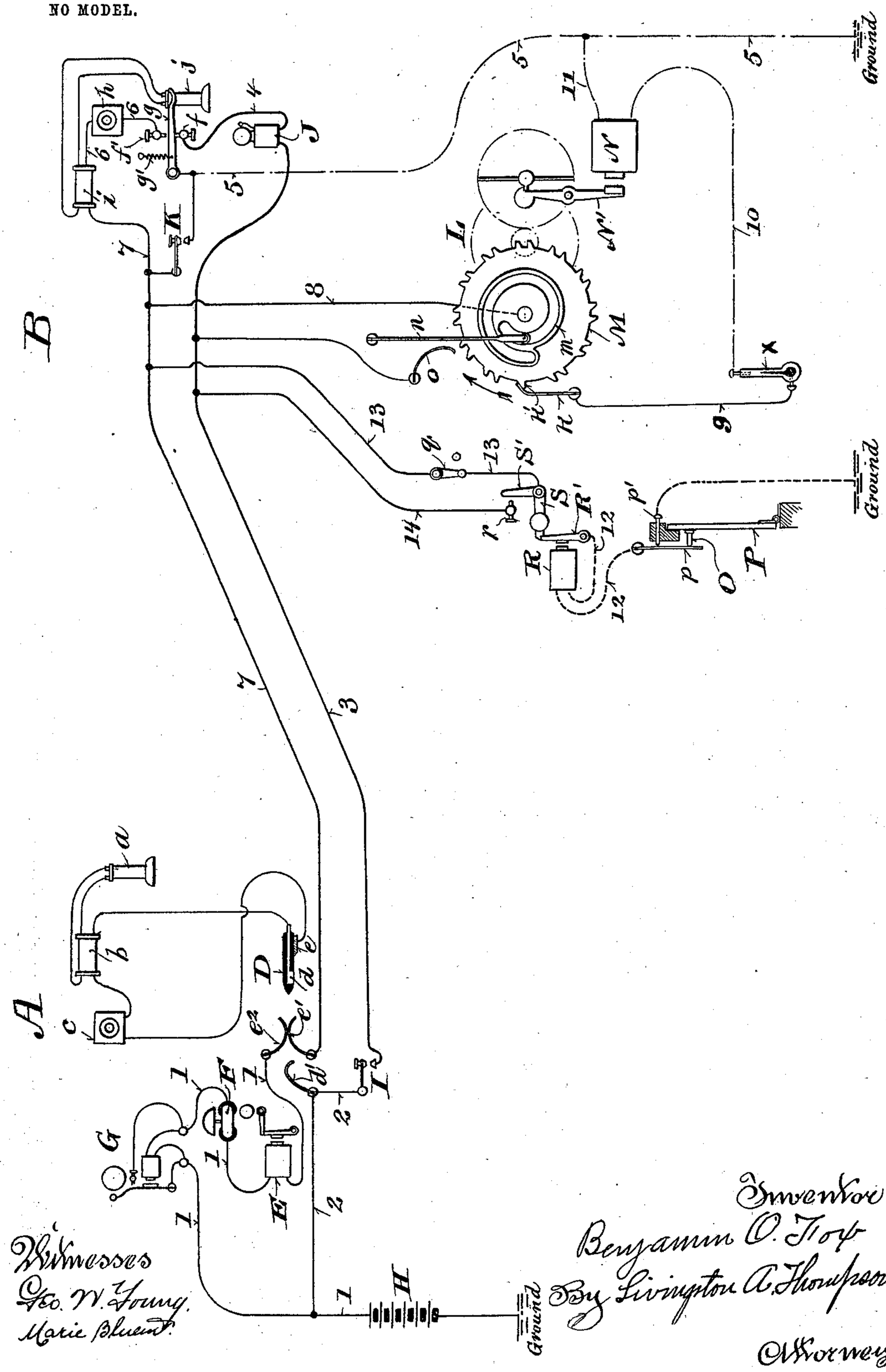
NO MODEL.



Witnesses
Geo. W. Young.
Marie Bluemel.

Inventor
Benjamin O. Fox
By Livingston A. Thompson
Attorney

UNITED STATES PATENT OFFICE.

BENJAMIN O. FOX, OF MILWAUKEE, WISCONSIN.

COMBINED TELEPHONE, SIGNAL, BURGLAR, AND FIRE ALARM.

SPECIFICATION forming part of Letters Patent No. 724,093, dated March 31, 1903.

Application filed February 14, 1902. Serial No. 93,998. (No model.)

To all whom it may concern:

Be it known that I, BENJAMIN O. FOX, a citizen of the United States, and a resident of Milwaukee, State of Wisconsin, have invented certain new and useful Improvements in a Combined Telephone, Signal, Burglar, and Fire Alarm; and I do hereby declare that the following is a full, clear, and exact description thereof.

My invention has for its object to provide a telephone, signal, burglar, and fire alarm system which can all be operated upon two wires; and it consists of certain peculiarities of construction and combination of parts to be fully set forth hereinafter with reference to the accompanying drawing and subsequently claimed.

The drawing is a diagram view illustrating a central station or office at A and at the other end of the wires a room B or subscriber's station equipped with my improved mechanism, the use of which is expressly applicable to hotels; but it may be used generally in connection with any two-wire system. Station A is provided with an ordinary telephone consisting of receiver *a*, induction-coil *b*, and transmitter *c*, together with a plug D, which has a metallic core *d*, that is exposed at its outer end for engagement with a contact-spring *d'*, said core being wired to the induction-coil *b*, and a plate *e* upon the outside of the plug D for engagement with the spring *e'* is wired to the transmitter. A spring e^2 is normally in contact with the spring *e'* and is connected by a wire 1 to an annunciator E, thence to a gong F and non-circuit-breaking bell G, from which it is connected to a battery H, through which it passes to the ground. A wire 2 is connected to wire 1 between the bell G and the battery and leads to the spring *d'*, from which point it is connected to one side of a push-button I, and the other member of the latter is connected to a bell J in room B or subscriber's station by a signal line-wire 3. The circuit of bell J is completed by a wire 4 to a contact *f*, upon which the telephone-lever *g* normally rests, the current passing through the latter and to the ground by means of a wire 5, connected to the pivot of said lever. Another contact-point *f'* above lever *g* and normally out of engagement therewith is connected by a wire 6 to the subscriber's transmitter, and thence to the usual induction-coil *i*, and from there is connected by a telephone-line wire 7 to the spring *e'* at the office or central station A. The receiver *h* of the subscriber's telephone is also connected in the usual manner to the induction-coil, its weight holding the lever *g* upon the contact-point *f* against the resistance of a spring *g'*.

A push-button K is placed at subscriber's station, one member of which is wired to the telephone-line 7 and the other to line 5, so that when it is desired to signal to office A the button is closed, completing the circuit from the latter to the ground and through line 7, springs *e' e²*, and wire 1 to the battery and to the ground, thereby causing the annunciator to drop, giving one stroke to the gong F and a continuous ring to the bell G, and when it is desired to signal from the office to the room or subscriber's station the push-button I is closed, which will complete the circuit through wires 1 and 2 to the battery and thence to the ground and through signal-line 3 to the bell J, to wire 4, through lever *g*, and to the ground through wire 5. When the circuit is closed, the armature at the bell G is attracted by its magnet and pulled forward until it touches the connection located between the bell and its magnet, which short-circuits the magnet, thus cutting off the circuit and releasing the armature without opening the circuit. After the subscriber has called up the office, as previously described, in order that a talking-circuit may be established between them the plug D of the office-telephone is inserted between the springs *e' e²*, and the current will now pass from telephone-line 7 to spring *e'*, to plate *e*, and from there through the office-telephone and back to the metallic core *d*, which is now in contact with spring *d'*, and through the latter to wires 2 and 1, to the battery, and ground. The subscriber having removed his receiver, the lever *g* will close the circuit from line 7 through his telephone by means of lines 5 and 6 to the ground.

A motor-actuated fire-alarm box L is connected to line 7 by a wire 8, and a contact-brush *k*, which normally rests upon a tooth *k'* of the number-wheel M, is connected by a wire 9 to thermostat *x*, and another wire 10

leads from the latter to a releasing-magnet N of the alarm-box L, the former being grounded through a wire 11, which is connected to wire 5. Upon the face of the wheel M is a spiral cam *m*, into which rests a roller upon the end of a lever *n*, which when the aforesaid wheel is revolved in the direction of the arrow, as indicated, will move outward, and by the time the latter has made a revolution it will have made a connection with a spring *o*, that is wired to signal-line 3, the purpose of which will be set forth hereinafter.

The operation of the fire-alarm is as follows, viz: When the thermostat *x* closes the circuit between wires 9 and 10, a current is established through brush *k*, wheel M, and wires 7 and 8, thence, by means of springs *e'* and e^2, through the magnet of gong F, causing the latter to strike audibly every time the brush *k* comes in contact with wheel M, thence through the mechanism at the office and to battery H and the ground and from line 10 upon the other side of the thermostat *x* through the magnet N, line 11 5, and the ground, thus retracting the armature N', which will release the alarm mechanism, causing the wheel M to make one revolution and send in the desired number a series of times audibly from the gong F and also visibly by dropping the indicator E, it being understood that the wheel N is provided with a coil-spring which admits of being wound up and that the said wheel is held against motion by means of a catch actuated by armature N'. When the wheel M has completed its movement, the lever *n* strikes spring *o*, and the current will then pass from wire 8 through the wheel to the aforesaid lever, thence through spring *o* and its connection to signal-wire 3, bell J, wire 4, lever *g*, and wire 5 to the ground, thus ringing the bell at subscriber's station, which, together with bell G at the office, will continue to ring until the alarm-box L is again reset.

A burglar-alarm, which consists of a circuit-closer and is normally held open by means of a pin O, may be placed in any desired position at the doors and windows of a subscriber. The device as illustrated shows a door P provided with a pin O, which normally breaks the connection between a spring *p* and stud *p'*, which is wired to the ground, the former being connected, by means of a wire 12, to the magnet R of a circuit-breaker and from there to the armature of said magnet. The latter has resting upon its end a gravity-lever S, which is connected to telephone-line wire 7 by means of a wire 13 and is provided with a switch *q*. The other arm S' of said lever is in the path of a contact-point *r*, which has a wire 14 leading therefrom to the line-wire 3, and, as may be readily seen, when the door is opened the spring *p* rests against stud *p'*, which establishes a circuit through wire 12, lever S, wire 13, and telephone-wire 7 and, as previously stated, through the springs *e'* and e^2 and alarm mechanism to the battery and ground *p'*, grounding upon the other end of the line. As soon as this circuit is established the magnet R will retract its armature R' and cause the lever S to drop, the arm S' of which will then strike contact-point *r* and establish a circuit through wire 14 to the subscriber's bell J, grounding, as in the previous instance, through wire 5, and thus giving a continuous alarm at both the office and subscriber's station until the circuit is broken by the switch *q*, another advantage being that by the above-described construction it prevents any possibility when set of opening a door or window without giving an instantaneous alarm.

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

In a combined telephone, signal, burglar and fire alarm, a battery, a subscriber's telephone normally out of circuit with an annunciator, a fire-alarm gong and non-circuit-breaking bell at central station, means for breaking said circuit and establishing a talking-circuit between a central station and that of the subscriber's and simultaneously cutting out the annunciator and audible signals, a circuit-closer bridging the subscriber's telephone and a signal-circuit, a circuit-closer at the central station and a bell at subscriber's station, a fire-alarm mechanism in circuit with the telephone-line and a thermostatic circuit-closer for the same, another circuit-closer connecting the signal-line and fire-alarm mechanism whereby when the latter has completed its operation a permanent circuit is established through the subscriber's bell and signal mechanism at the central station, a burglar-alarm in circuit with the telephone-line consisting of a normally open circuit, a spring-controlled circuit-closer and also an electric magnetic controlled mechanism in said circuit whereby when the latter is closed the aforesaid mechanism will establish a permanent circuit through the signal mechanism at central and subscriber's station, substantially as set forth.

In testimony that I claim the foregoing I have hereunto set my hand, at Milwaukee, State of Wisconsin, in the presence of two witnesses.

BENJAMIN O. FOX.

Witnesses:
MARIE BLUEM,
L. A. THOMPSON.