

No. 777,327.

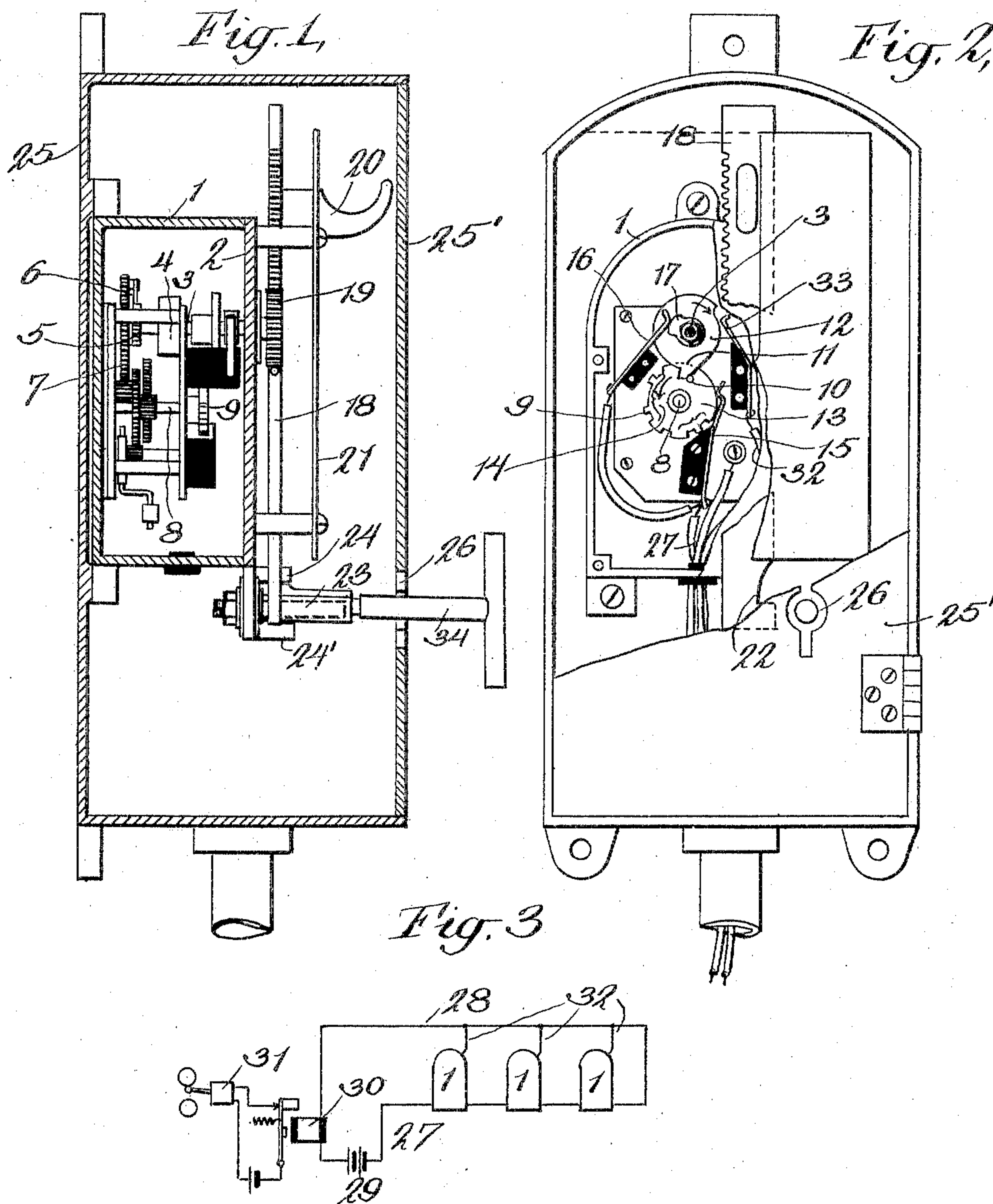
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J. C. BARCLAY.

CALL BOX.

APPLICATION FILED APR. 5, 1904.

NO MODEL.



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CALL-BOX.

SPECIFICATION forming part of Letters Patent No. 777,327, dated December 13, 1904.

Application filed April 5, 1904. Serial No. 201,676. (No model.)

To all whom it may concern:

Be it known that I, JOHN C. BARCLAY, a citizen of the United States, residing at New York, in the county of New York and State of New York, have invented certain new and useful Improvements in Call-Boxes; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

My invention relates to improvements in call-boxes such as are employed in messenger-call systems, fire-alarm systems, and watchmen's signal systems and embodies a modification of the call-box illustrated and described in my application for Letters Patent filed January 27, 1904, Serial No. 190,828.

My invention consists in the provision, in connection with signaling apparatus adapted to transmit alternately signals of two different kinds, one of which may be a signal designating the box from which the signal is sent and the other a signal of another character, said signaling apparatus adapted to transmit these two signals a less or greater number of times, as desired, of means for preventing the transmission of the second signal above referred to.

My invention further consists in the novel construction and arrangement of operating parts whereby the cutting out of the second signal is accomplished; and my invention further consists in means for closing a short circuit from any box being operated to send in an alarm around the boxes more distant from the central station than the box so operated, whereby interference with the transmission of the signal of the box so operated by more distant boxes is avoided.

The objects of my invention are to adapt ordinary messenger call-boxes for use both as alarm-boxes and as watchmen's signal-boxes and to cause the call-box to give an alarm-signal distinct from that given when used as an ordinary watchman's signal-box.

I will now proceed to describe my invention with reference to the accompanying drawings, in which one form of device embodying my invention is illustrated, and will then point out the novel features in claims.

In the said drawings, Figure 1 shows an elevation from the left-hand side of the mechanism of the box, the call-box itself and the outer inclosing box being shown in section. Fig. 2 shows a front elevation of the mechanism of the box, certain parts of the device being broken away to expose the mechanism to view. Fig. 3 is a diagram illustrating how the boxes are connected to their circuit.

In the drawings, numeral 1 designates an ordinary call-box containing suitable circuit-varying mechanism which, except in the features hereinafter described, may be of substantially the ordinary type. 2 designates the cover for this box, which cover carries suitable operating means, hereinafter described, for operating said circuit-varying mechanism. This circuit-varying mechanism comprises a spring-winding shaft 3 and means operated thereby arranged to wind a spring 4 when rotated in the direction of the arrow, Fig. 2, and to be rotated backward when released by the said spring, and thereby to drive through a ratchet 5 and pawl 6 a gear-train 7, communicating motion to a shaft 8, carrying a contact-wheel 9. This contact-wheel is provided with a pin 10, normally engaging a projection 11 of the cam 12 on the spring-winding shaft 3. In the normal position of the parts this projection 11 and pin 10 are in engagement, as shown.

In the periphery of the contact-wheel 9 there are a plurality of notches arranged in two series, 13 and 14. A contact-brush 15 makes contact with the periphery of the wheel 9, and when any one of these notches comes opposite said brush the circuit is broken. The first series of notches 13 are customarily used to denote the number of the box and the second series of notches to denote the character of the alarm sent in, and when the box is used as a fire-alarm box the notches of this second series may conveniently form the letter "F" of the Morse code—viz., — — — —. If the alarm-box is used for other purposes the notches of this second series may be varied to send some other letter or character of the Morse code or some other distinctive signal.

As will be described hereinafter, the call-box is customarily provided with two operat-

ing devices, one arranged when operated to wind up the shaft 3 in the direction of the arrow a distance sufficient to permit one complete revolution only of the contact-wheel 9 when said shaft is released, the other operating device arranged when operated to wind up the shaft 3 through such distance as will cause the contact-wheel to revolve a plurality of times when the shaft is released. The first of these operating devices is customarily used for sending in ordinary service-signals, such as watchmen's signals, and the second operating device is used for sending in alarm or emergency signals, such as fire-alarm signals. For sending in the ordinary service or watchman's signal it is desirable to transmit the number of box only and not the second or alarm signal. For this purpose I provide suitable contact mechanism for closing a shunt-circuit around the circuit-breaker formed by the wheel 9 and brush 15. This shunt-circuit contact device comprises a brush 16 in electrical connection with brush 15 and another cam 17 on shaft 3. When the box is operated for sending in the ordinary service-signal, in which case the contact-wheel makes one revolution only, the brush 16 and cam 17 are out of contact during the period when the number of box is being sent in by means of the notches 13; but said cam makes contact with said brush before the second series of notches 14 come opposite the brush 15.

For operating the box I provide a rack-bar 18, mounted to slide vertically in suitable guides on the outside of the cover-plate 2 and engaging a pinion 19 upon the spring-winding shaft 3. This rack-bar is provided with a finger-hook 20, projecting through a slot in a plate 21. The rack-bar is also notched at 22 near its lower end to permit it to be engaged by a suitable removable key 34. The cover-plate 2 is provided with a spindle 23 for this key and with stops 24 and 24' to limit the motion thereof.

Customarily this call-box is located within another box 25, provided with a hinged door 25'. In this door there is a keyhole 26, through which key 34 may be inserted to engage the rack-bar at 22. The door is customarily provided with some convenient seal or latch which normally holds it closed, but permits it to be opened when necessary, so that access may be gained to the hook 20.

The manner of using the box is as follows: To send in an ordinary watchman's time-signal, a suitable key 34 is inserted through the keyhole in the door 25' into engagement with the notched lower end of the rack-bar 18, and said key is turned and then released. The rack-bar is thereby pulled downward such a distance that the cam 12 is turned far enough and the spring 4 wound up sufficiently to permit one rotation only of contact-wheel 9. As soon as the key is released the mechanism of the call-box begins to operate, and the

notches of series 13 of the contact-wheel passing brush 15 break the circuit of the box successively, thus sending in the number of the box. After the notches of series 13 have passed the brush there is a pause, and then the notches of series 14 pass the brush and would break the circuit in such manner as to produce the characteristic signal — — — of the letter "F" of the Morse code except for the action of brush 16 and cam 17. Cam 17 is moved away from the brush 16 by the preliminary rotation of shaft 3, but makes contact with said brush again during the operation of the call-box after notches 13 have passed brush 15, but before notches 14 pass said brush 15. Therefore when the box is operated by the key the circuit of the box is closed around brush 15 and contact-wheel 9 after the number of the box has been sent in, but before the letter "F" has been transmitted, so that the letter "F" is not transmitted. If, however, the box is operated by means of the hook 20, that hook when drawn downward rotates the shaft 3 and cam 12 so far as to permit several revolutions (usually eight) of the contact-wheel 9 before the pin 10 of said wheel and the projection 11 of cam 12 come together and lock the mechanism of the box. Since cam 17 rotates with shaft 3, it follows that after the hook 20 has been released and the mechanism begins to operate both the number of box and the letter "F" are transmitted by the rotation of the contact-wheel until in the last rotation of said wheel said cam 17 and brush 16 again make contact. It will thus be seen that when the box is operated for sending in an alarm both the number of box and the letter "F" are transmitted during all but the last revolution of the contact-wheel. This serves to distinguish the alarm-signal from the ordinary watchman's signal, for the letter "F" can be sent in only when the box has been operated by means of the hook 20.

Fig. 3 shows how a plurality of boxes may be connected in circuit. In this figure numerals 1 1 1 designate three boxes connected in series in a circuit formed by conductors 27 and 28, in which circuit there is a battery 29 and a relay 30. When the circuit of this relay is broken, the circuit of a suitable bell or sounder 31 is closed. To prevent interference with the transmission of an alarm-signal by one of the boxes of the series through the operation of one of the other boxes of the series to send in a watchman's signal or the like, I customarily connect each box by means of a shunt-wire 32 to the return side 28 of the circuit. This wire 32 is connected to a brush 33, which makes contact with cam 12 when the shaft 3 is turned beyond the limit of movement imparted to said shaft when the box is operated by the key. In other words, contact is closed between brush 33 and cam 12 whenever the box is operated by means of the hook 20 to send in an alarm-signal.

The shunt-circuit when closed cuts out all the boxes farther on in the circuit, thus minimizing the chance of interference.

It is obvious that my invention is susceptible of many variations and modifications and is not restricted to any particular type of signal-transmitting mechanism or to any particular means for operating the signal-transmitting mechanism or to the transmission of alarms and watchmen's time-signals only. The box may be used for transmitting any desired class of signals. Obviously instead of causing the contact-wheel to revolve once or a number of times, according to the signal transmitted, the series of notches in the periphery of the wheel might be duplicated as many times as desired. In either case the contact wheel or member will be moved a relatively short distance in transmitting one signal and a relatively greater distance in transmitting the other signal, and the mechanism for closing the shunt-circuit around the signal-transmitting mechanism will be arranged to close such shunt connection during a portion of the movement of the signal-transmitting member.

What I claim is—

1. In signaling apparatus, the combination with signal-transmitting mechanism comprising means for transmitting successively and alternately two different signals, said mechanism arranged to transmit said signals in alternation a greater or less number of times at will, of means for closing a shunt connection around said signal-transmitting mechanism, arranged to close such shunt connection during the last transmission, by said mechanism, of the second of said signals.

2. In signaling apparatus, the combination with signal-transmitting mechanism comprising an actuating member arranged to be moved a less or greater distance at will, and means for transmitting successively and alternately two different signals, said mechanism arranged to transmit said signals in alternation a less or greater number of times, according as said actuating member is moved a less or greater distance, of means for closing a shunt connection around said signal-transmitting mechanism, arranged to close said shunt connection during the last transmission, by said mechanism, of the second of said signals.

3. In signaling apparatus, the combination with signal-transmitting mechanism comprising an operating-shaft, a contact wheel and brush, said wheel having notches or teeth corresponding to two different signals, and spring mechanism arranged to be wound upon rotation of said shaft in one direction, and upon release of said shaft to rotate the same in a reverse direction, and also to rotate said contact-wheel, and means for operating said shaft to cause the rotation of said contact-

wheel through a less or greater distance, according to the signal to be transmitted, of a cam fast on said shaft and a brush therefor, said brush and cam when in contact closing a circuit around said contact-wheel and its brush, said cam constructed to break contact with its brush when said shaft is operated to wind the spring, and to make contact with said brush in the return movement of the shaft prior to the last passage of the notches of the contact-wheel corresponding to the second signal past the brush coacting with said wheel.

4. In signaling apparatus, the combination with signal-transmitting mechanism comprising an operating member and circuit-varying means arranged to be operated thereby, and two actuating devices, one arranged to give said operating member a limited movement only, the other to give said operating member a longer movement, of a shunt-circuit contact device operated concurrently with said signal-transmitting mechanism and in series circuit therewith, and arranged to close a shunt-return path for the circuit through said signal-transmitting mechanism, said shunt-circuit contact device constructed to remain open when said mechanism is operated by that actuating device giving the limited movement, but to be closed when said mechanism is operated by the other actuating device beyond the range of movement imparted by said first-named actuating device.

5. In signaling apparatus, the combination with signal-transmitting mechanism comprising an operating-shaft, circuit-varying means and spring mechanism arranged to be wound upon rotation of said shaft in one direction, and upon release of said shaft to rotate said shaft in a reverse direction and to operate said circuit-varying means, and two actuating devices, one arranged to move said shaft through a limited arc only, the other to move said shaft through a greater arc, of a cam on said shaft in series circuit with said circuit-varying means and a shunt-circuit contact-brush therefor, said cam constructed to remain out of contact with said brush throughout the arc of movement imparted to said shaft by said first-named actuating device, but to make contact with said brush when said shaft is moved beyond such limited arc by the second actuating device, said brush and cam together constituting a contact device arranged to close a shunt-return for the circuit through said circuit-varying means.

In testimony whereof I affix my signature in the presence of two witnesses.

JOHN C. BARCLAY.

Witnesses:

H. M. MARBLE,

C. A. VAN BRUNT.