

UNITED STATES PATENT OFFICE.

BROWN S. FLANDERS, OF BOSTON, MASSACHUSETTS.

FIRE-ALARM BOX.

SPECIFICATION forming part of Letters Patent No. 370,328, dated September 20, 1887.

Application filed March 19, 1887. Serial No. 231,561. (No model.)

To all whom it may concern:

Be it known that I, BROWN S. FLANDERS, of Boston, in the county of Suffolk and State of Massachusetts, have invented an Improvement in Fire-Alarm Boxes, of which the following description, in connection with the accompanying drawings, is a specification, like letters on the drawings representing like parts.

This invention has for its object to improve the fire-alarm signal-box shown and described in United States Patent No. 340,618, dated April 27, 1886, and to provide the same with suitable releasing devices whereby the auxiliary motor can be released from a distant point to operate the signal transmitter, and also with suitable locking devices for locking the releasing device, so that the auxiliary motor, when in operation, cannot be interfered with, and when once started cannot be again set in operation until the locking devices have been moved to release the releasing devices.

In accordance with this invention, the signal-transmitter is provided with an actuating-lever and with an auxiliary motor for moving the said actuating lever to effect the transmission of a signal. The auxiliary motor is normally wound and provided with a releasing-lever controlled by the armature of an electro-magnet, so that when the said magnet is energized the auxiliary motor may be released. The releasing lever is arranged to retain the armature of the electro-magnet in fixed position until positively disengaged therefrom, and when disengaged the said lever is forced into engagement with a latch which locks the said lever out of the control of the electro-magnet, so that the auxiliary motor cannot be a second time operated until the said locking-latch has been disengaged from the releasing-lever; and as the releasing lever locks the armature of the electro-magnet until it is itself locked the auxiliary motor cannot be interfered with when in operation. The fire-alarm box is located upon the street and operated in usual manner to transmit the fire-alarm signal, and the electro-magnet controlling the auxiliary motor is included in a circuit containing suitable circuit-controlling devices located at different points—as in different offices, for instance—substantially as indicated in the patent referred to.

Figure 1 shows in front elevation a fire-alarm signal-box provided with an auxiliary operating mechanism embodying this invention; and Fig. 2, a modified form of fire-alarm signal-box provided with a modified form of auxiliary operating mechanism.

Referring to Fig. 1, I have shown a fire-alarm signal-transmitter of the class commonly known as the "sector fire-alarm box," it comprising a suitable motor mechanism, *a*, break-wheel *a'*, and contact-pen *a'* therefor, and an operating-lever adapted to be moved in one direction to wind the motor and to be released to effect the transmission of the signal.

I have fixed to the winding-shaft of the motor *a* a sector, *b*, the teeth of which mesh with the toothed wheel *b'*, which is driven a definite distance in one direction by a toothed wheel, *b''*, fixed to the winding shaft or arbor of a normally-wound auxiliary motor; but as the toothed wheel *b''* is deprived of teeth for a portion of its surface the said toothed wheel *b'*, upon arriving at such plain part of the toothed wheel *b''*, is free to be revolved in the opposite direction by the motor *a* of the signal-transmitter.

The auxiliary motor *c* is provided with a releasing device, (herein shown as the lever *d*,) pivoted at *d'* to a standard, one end of the said lever having a projection, 2, which engages a stop, 3, projecting from one wheel of the motor *c*. The opposite end of the lever *d* is held against the armature-bar *e* of an electro-magnet, *m*, by the action of the spring of the motor, thereby keeping the motor at rest. When the armature *e* is lifted, the lever *d* is pressed by the stop 3 beneath the said armature, serving to retain the latter in fixed position, so that it cannot respond to any changes in the current whatever, such disengagement of the stop 3 permitting the motor to operate. As the motor *c* is thus released, the toothed wheel *b''* engages the toothed wheel *b'* to rotate it in the direction shown by the arrow thereon, thereby moving the sector *b* or actuating-lever of the signal transmitter in the direction of the arrow thereon. When the sector *b* has been moved far enough to wind the motor *a*, one end of the sector strikes against one arm of a pivoted lever, *f*, and moves the said lever against a pin, 4, projecting from one side of

the releasing-lever *d*, to thereby move the said releasing-lever out from beneath the armature *e* and outward beneath a pivoted latch, *n*, which serves as a locking device to thus
 5 lock the releasing-lever *d* in the position shown in dotted lines, in which position the stud 2 occupies a position to stop the movement of the motor when the wheel *w* thereon has completed one revolution. When the
 10 sector *b* has been moved sufficiently to accomplish the result above named, the toothed wheel *b'* has arrived at that portion of the toothed wheel *b'* which is deprived of teeth, so that the sector *b* is thereby free to be returned
 15 to its normal position by the motor *a* and to transmit the signal. The locking device or latch *n* retains the releasing-lever *d* until it is positively disengaged by hand or otherwise.

It will be seen from the foregoing that after
 20 the armature has been moved to disengage the releasing-lever it is itself locked, and remains so until the releasing-lever is removed therefrom and locked, so that the auxiliary motor, when in operation, cannot be interfered
 25 with in any way, and after once set in operation and completely effected the transmission of a signal it cannot be again operated until the releasing device has been set free.

In Fig. 2 I have shown what is actually
 30 known as a "village fire alarm signal-box," it comprising a motor mechanism and signaling devices, (not shown,) and a starting lever or pull, *t*, for the motor.

In applying my invention to a box of such
 35 construction I have pivoted to a suitable standard or frame an actuating-lever, *p*, one arm of which is provided with a loop or eye to receive the starting-pull *t*, and the other arm is connected loosely to an eccentric-lever, *p'*, connected with the toothed wheel *p'* by a pin, *p''*,
 40 so that as the toothed wheel *p'* is revolved the lever *p* will be vibrated on its pivot. The rod *p'* is provided with a central opening through which a key may be passed to engage the square end of a winding shaft of the auxiliary
 45 motor *o*.

The toothed wheel *p'* of the auxiliary motor, together with the releasing devices and locking devices, are, in the present embodiment of
 50 my invention, the same as has been described with the sector-box, except that the releasing-lever *p'* is moved from beneath the armature of the electro magnet, to be engaged by the pivoted latch by one side of the eccentric rod *p'*
 55 striking against it.

It will thus be seen that with very little modification the auxiliary motor and its releasing and locking devices may be applied to either form of box.

I claim—

1. In a fire alarm signal-box, a signal-transmitting mechanism and motor therefor, an actuating-lever for said motor, an auxiliary motor for moving the said actuating-lever, and a releasing device for the auxiliary motor, combined with a device, as a bar, controlled by an electro-magnet for setting the said releasing-lever free to permit the auxiliary motor to operate, and with locking devices for engaging the releasing-lever after it has been set
 60 free.

2. In a fire alarm signal-box, a signal transmitting mechanism and starting-lever for operating it by hand, combined with an auxiliary motor operatively connected with the signal-transmitting mechanism, and releasing-lever for the auxiliary motor, a bar controlled by an electro magnet for setting the releasing-lever free to start the auxiliary motor, said bar and releasing-lever being so constructed
 80 that each shall lock the other when the releasing-lever is set free, substantially as described.

3. In a fire alarm signal-box, a signal-transmitting mechanism and starting-lever for operating it by hand, combined with an auxiliary motor operatively connected with the signal-transmitting mechanism, a releasing-lever for the auxiliary motor, a bar controlled by an electro-magnet for setting the releasing-lever free to start the auxiliary motor, a locking device for locking the releasing-lever out of the limit of movement of the bar employed to set it free, and means for moving said releasing-lever into engagement with the said locking device, substantially as described.

4. In a fire alarm signal-box, a signal transmitting mechanism and starting-lever for operating it by hand, combined with an auxiliary motor operatively connected with the signal-transmitting mechanism, a releasing-lever for the auxiliary motor, a bar controlled by an electro-magnet for setting the releasing-lever free to start the auxiliary motor, said bar and releasing-lever being so constructed
 105 that each shall lock the other when the releasing-lever is set free, and a pivoted latch, *n*, and means for moving the releasing-lever into position to be engaged by the latch, substantially as described.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

B. S. FLANDERS.

Witnesses:

G. W. GREGORY,
 C. M. CONE.

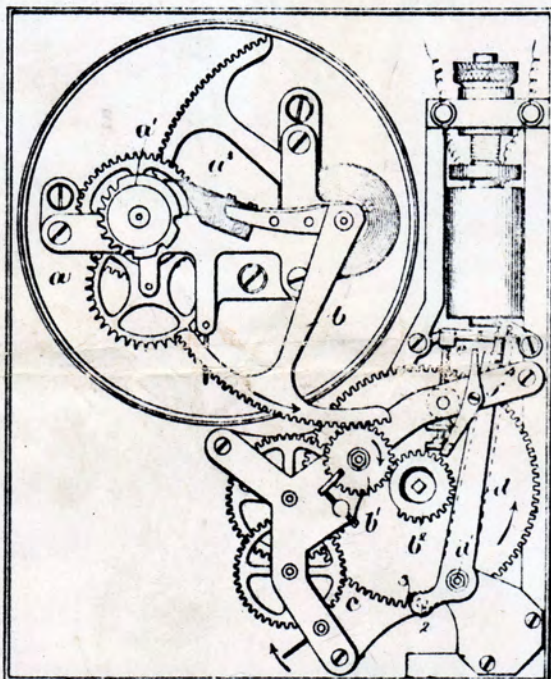
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FIG. 1.



WITNESSES

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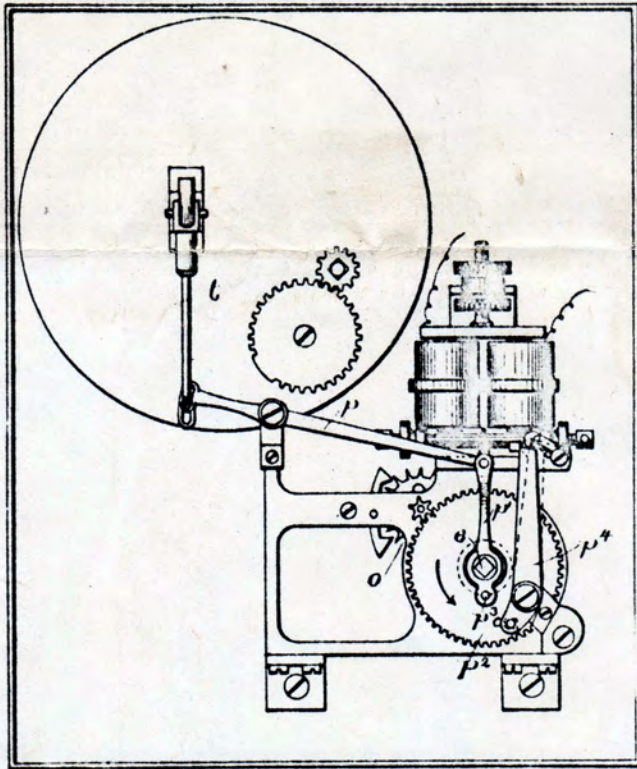
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FIG. 2.



WITNESSES

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