

(No Model.)

J. T. STACK.
FIRE ALARM BOX.

No. 543,063.

Patented July 23, 1895.

Fig. 1.

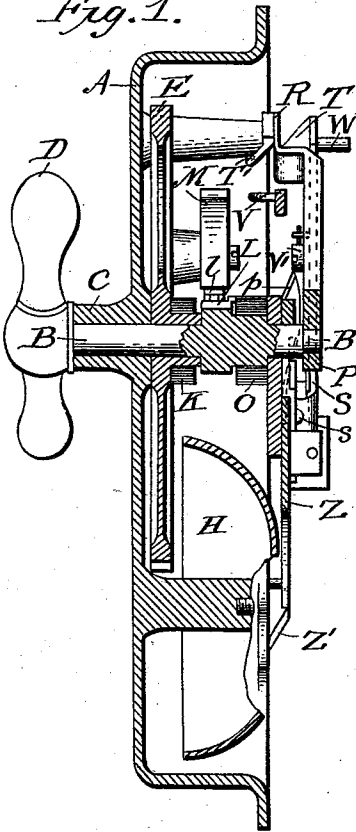


Fig. 2.

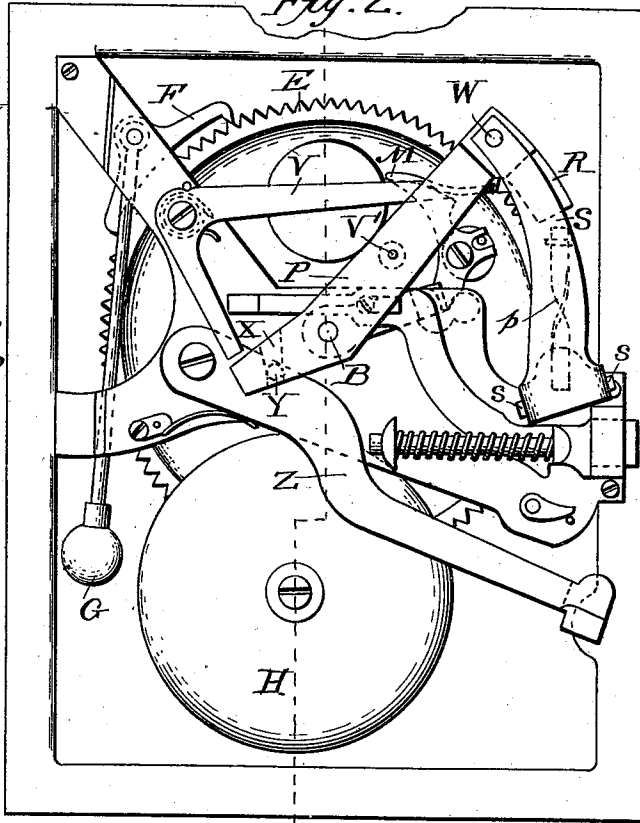
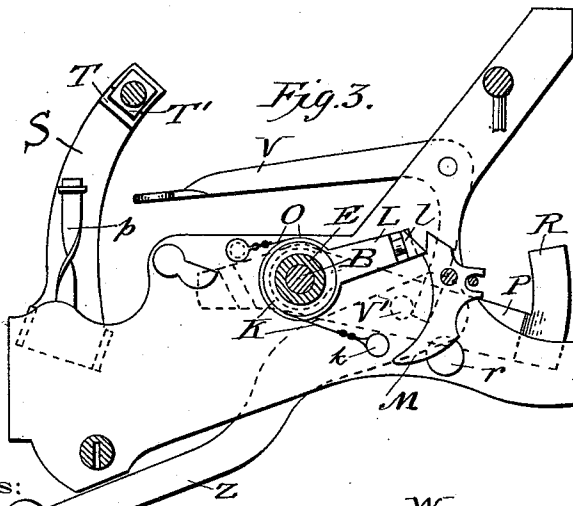


Fig. 3.



Witnesses:
J. H. Blackwood
L. F. Shaw

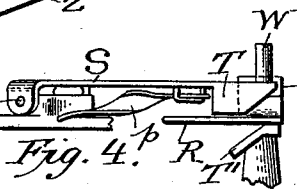


Fig. 4.

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UNITED STATES PATENT OFFICE.

JOHN T. STACK, OF CHICAGO, ILLINOIS, ASSIGNOR TO THE GAMEWELL FIRE-ALARM TELEGRAPH COMPANY, OF NEW YORK, N. Y.

FIRE-ALARM BOX.

SPECIFICATION forming part of Letters Patent No. 543,063, dated July 23, 1895.

Application filed January 2, 1894. Serial No. 495,432. (No model.)

To all whom it may concern:

Be it known that I, JOHN T. STACK, a citizen of the United States, residing at Chicago, county of Cook, State of Illinois, have invented certain new and useful Improvements in Fire-Alarm Boxes, of which the following is a specification, reference being made to the accompanying drawings, in which—

Figure 1 is a vertical section of that part of the box embodying my invention. Fig. 2 is a plan thereof. Fig. 3 is a reverse plan, and Fig. 4 is a detail.

My invention relates to that class of boxes known as "keyless" boxes. The peculiar feature of such keyless boxes is that they are provided with an external handle, by the turning of which an alarm will be sent in. Boxes of this kind are usually placed in exposed situations, where they are not likely to be tampered with and unauthorized alarms sent in, because such boxes do not require to be opened with a key before an alarm can be turned in, but are accessible to any one. It is customary, however, to provide boxes of this kind with a gong or alarm-bell, which is automatically sounded by the turning of the handle, so that an alarm cannot be sounded without calling attention to the fact. My invention consists only in certain details of construction of a box of this character.

It is customary in fire-alarm boxes to have the apparatus contained therein normally short-circuited, in order that the resistance of the box-magnets and other parts may be removed from the circuit, and it is also customary to provide means for preventing interference between the several boxes on a common circuit. In ordinary key-boxes there is usually a projection which by the opening of a box breaks the short circuit, and oftentimes further provision by which the same movement co-operates with the non-interference mechanism to disable or cut out the box in the event of another signal being already in process of transmission on the same line. It is obvious that in keyless boxes where the door is not open that these same operations must be performed in some other way, and it is usual to provide that the turning of the handle shall in some way act to bring the box

into circuit and to work the non-interference device before an alarm is sent.

My invention consists especially in certain combination devices for performing these functions, and at the same time causing the tripping of the starting mechanism of the box and the sending of a signal to the central station.

Referring to the accompanying drawings, A represents the door of an ordinary fire-alarm box, and it will be seen that it is made quite deep in order that the mechanism for operating the same from the outside may be attached to the door and form a part thereof independent of the main apparatus within the box. On the outside of the door is cast a boss C, which forms the bearing for the main operating-shaft B. The shaft is provided with a handle D outside the box. Within the door A is a toothed wheel E, which in turning is adapted to engage with a pallet F, carrying a hammer G, and thereby sound the bell H. On the hub of wheel E is a coil-spring K, and next to the spring is a short radial arm L. One end of spring K is attached to a stationary part of the box at the point *k*, while the other end is fastened to the wheel E. On the end of the arm L is a spring-pressed tip *l*, which is adapted to engage with a pivoted latch M on the face of wheel E. In Fig. 3 these two parts are shown not in full engagement, but just at the point of release. A second spring O, Fig. 1, is placed on the hub of arm L, having one end attached thereto and the other end attached to a stationary part of the box. It will, therefore, be apparent that the turning of handle D will wind up spring O, and if the tip *l* is in engagement with latch M the movement of arm L will at the same time turn wheel E, thereby winding up spring K and sounding an alarm. This will be continued until the curved end of latch M comes into engagement with the stationary pin *r*, when the latch will be slightly turned and the wheel E, being released will come back to its original position, under the influence of spring K, and in doing so will continue to sound the alarm.

The mechanism thus far shown is not new with me, but is well known in the art, being

shown in Patent No. 346,847 of B. S. Flanders, dated August 3, 1886.

The features embodying my invention are as follows: On the shaft B is a second radial arm P, carrying on its outer end a blade R.

S is a curved arm pivoted at the points s, Figs. 2 and 4, and provided with a spring p, tending normally to draw the arm S backward against the door A. On the end of arm S is a cam-shaped projection T, adapted to rest against a similar-shaped stop T'. Normally T and T' are separated by the blade R on the end of arm P, which goes in between them and forces the curved arm S forward. The arm S carries a pin W, and the pin W forms part of a well-known non-interference mechanism, which need not be described in detail, but of which, however, it may be said that the pin W serves as a mechanical connection between the door of the box and the armature of the non-interference magnet, normally holding the latter in its attracted position, and that so long as the armature is thus attracted it holds an insertion-piece between the operating-hook and releasing-lever of the train. This non-interference device is known as the "Gardiner" arrangement, the object being to have the retraction of the armature of non-interference magnets, caused by the presence of the signal on the line, disable the mechanism by withdrawing the insertion-piece so that the operating-hook may not act upon the lever.

By means of my arrangement the first movement of handle D turns the radial arm P, and withdraws the blade R from engagement with piece T, thereby allowing the spring p to draw back the arm S, carrying the pin W. The withdrawal of the pin W allows the armature of the non-interference magnet to act in the event of there being a signal already in process of transmission.

For operating the cut-out I provide on the opposite end of arm P a cam-shaped groove X, adapted to engage a pin Y upon a pivoted arm Z. The arm Z is provided with a spring normally pressing upward, and at its outer end has a wedge-shaped surface Z', adapted to act upon the cut-out switch within the box. The first movement of the arm P withdraws the cam X and allows the arm Z to rise under the influence of its spring and thereby open the short-circuit switch or cut-out.

For operating the releasing-lever of the boxes, I provide an angle-lever V, the longer horizontal arm of which is adapted to engage with the ordinary releasing or operating-hook whenever the short arm of the lever is engaged by a pin V' on radial arm P. It will be observed that this engagement does not take place until the arm P has been turned to the limit of its range of movement. This

necessitates that the alarm-bell shall ring for a certain period before an alarm can be sounded by the pulling of the box, and after the mechanism of the box has been released the bell will continue to ring for a certain time while the parts are coming back to their normal position.

What I claim as new, and desire to secure by Letters Patent, is—

1. The combination in a fire-alarm box of an external handle, an alarm sounded thereby, a releasing mechanism for the box actuated by said handle, and consisting of an angle lever having one arm adapted to engage the releasing lever of the box when the other end is engaged by an arm on the shaft of the said handle.

2. The combination in a fire alarm box of an external handle, an alarm sounded thereby, connecting devices between the said handle and the releasing lever of the box, and means for controlling the non-interference mechanism of the box by the movement of said handle.

3. The combination in a fire-alarm box of an external handle, non-interference devices for the box controlled by the first movement of said handle, and a releasing lever for the box controlled by subsequent movement of the handle.

4. The combination in a fire-alarm box of an external handle, a cut-out, non-interference devices for the box controlled by the first movement of the said handle, and a releasing device controlled by the subsequent movement of the handle.

5. The combination in a fire-alarm box of an external handle, a piece carrying a pin acting upon the non-interference mechanism of the box and provided with a retractile spring, and an arm on the shaft of the said handle, bearing against the said piece, normally forcing it against the tension of the said spring, but adapted to release the said piece on the movement of the said handle.

6. The combination in a fire-alarm box of an external handle, an alarm sounded thereby, an arm carrying a pin adapted to engage with the non-interference mechanism of the box and to be itself engaged by an arm on the shaft of the said handle, and a releasing device for the mechanism of the box consisting of a lever adapted to engage with the releasing hook and be itself engaged by a pin on the said arm.

In witness whereof I have hereunto set my hand this 26th day of December, 1893.

JOHN T. STACK.

Witnesses:

E. B. CHANDLER,
DOUGALD MUIR.