

J. M. FAIRCHILD.
Fire-Alarm Telegraph.

No. 70,672.

Patented Nov. 5, 1867.

Fig. 4.

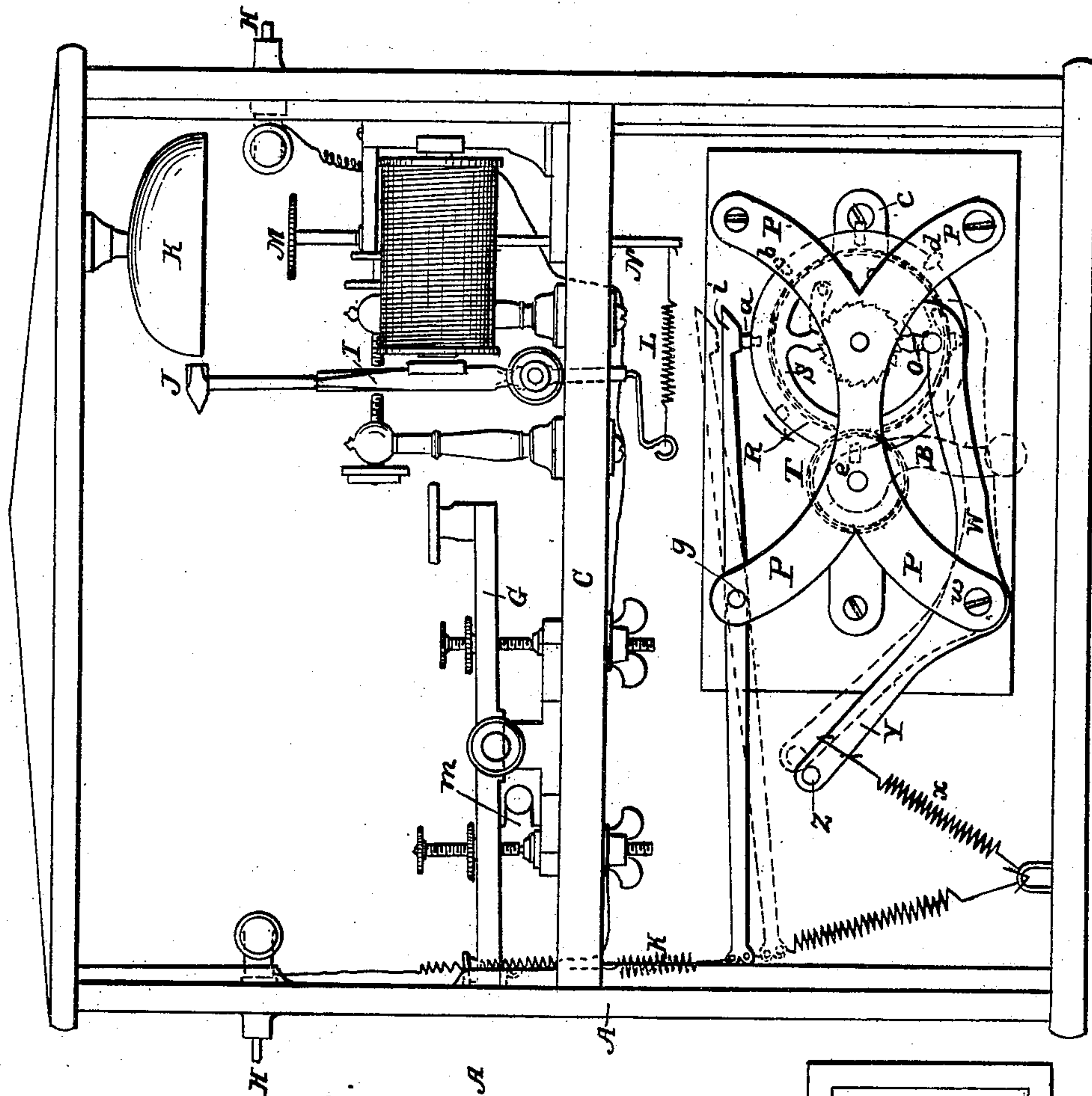


Fig. 3.

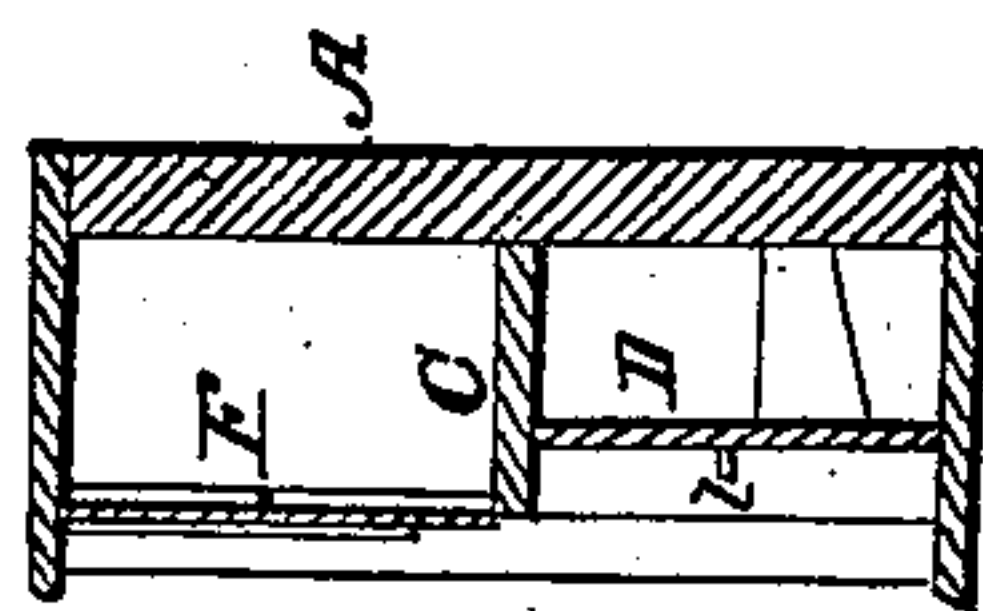


Fig. 1.

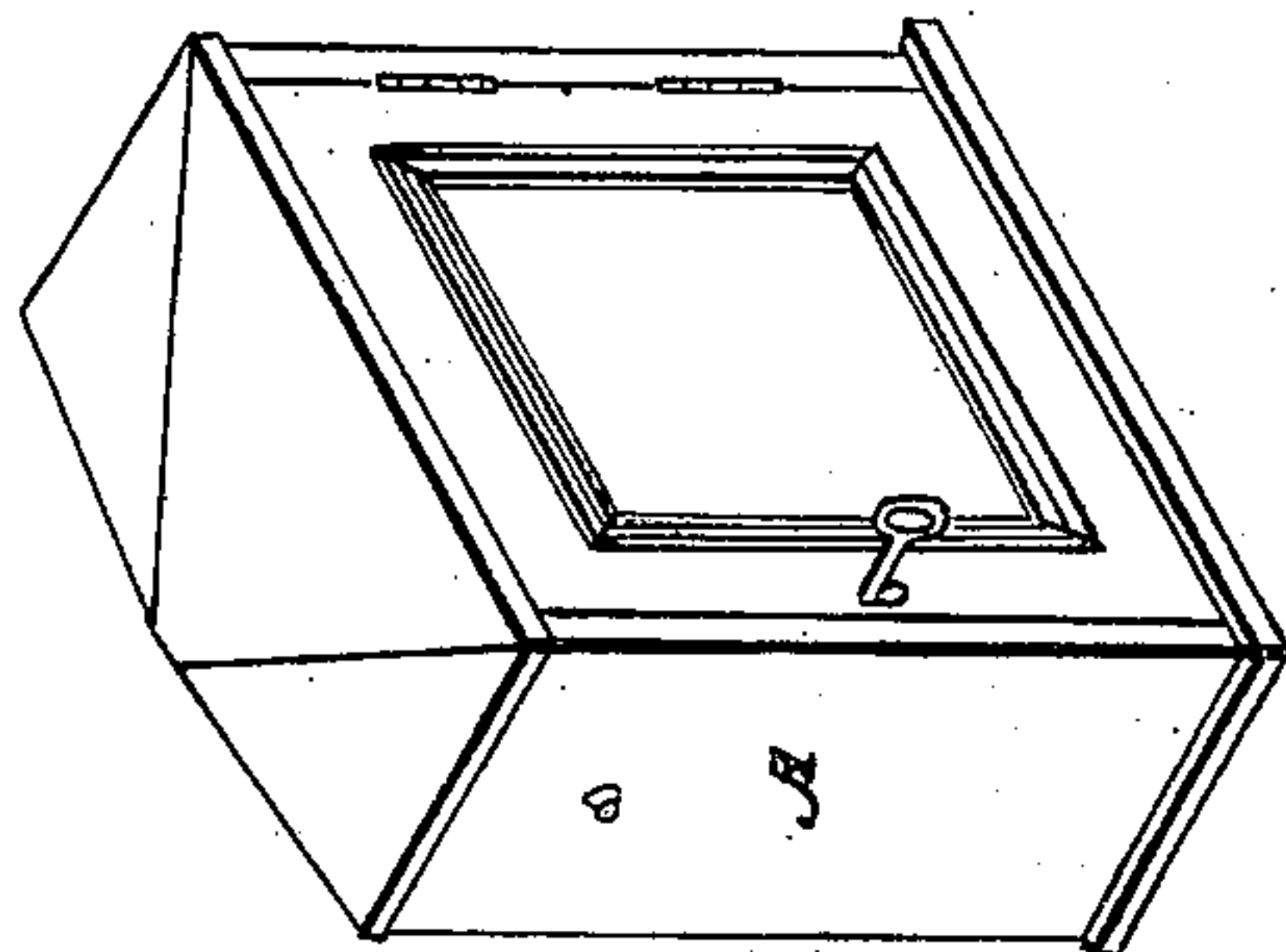


Fig. 2.

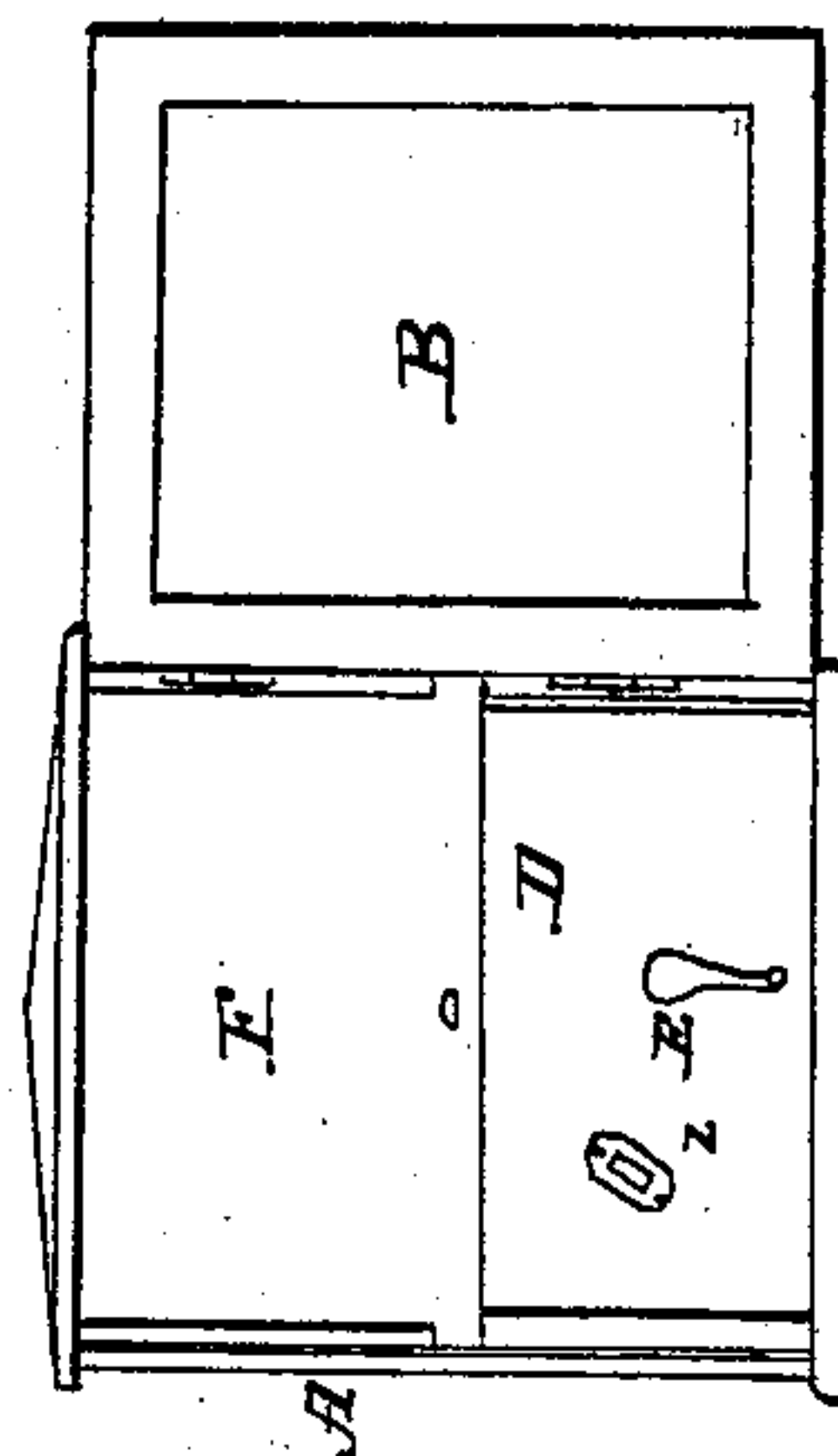
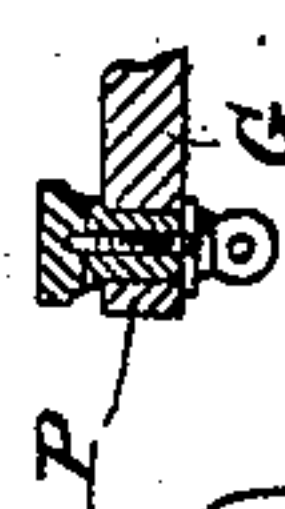


Fig. 5.



Witnesses:
John H. Sumner
a f Tibbits

Inventor:
J. M. Fairchild
By his Attorney,
John Earl

UNITED STATES PATENT OFFICE.

J. M. FAIRCHILD, OF NEW HAVEN, CONNECTICUT, ASSIGNOR TO HIMSELF,
J. K. BUNDY, AND J. M. TOWNSEND, OF SAME PLACE.

IMPROVEMENT IN FIRE-ALARM TELEGRAPHS.

Specification forming part of Letters Patent No. **70,672**, dated November 5, 1867.

To all whom it may concern:

Be it known that I, J. M. FAIRCHILD, of New Haven, in the county of New Haven and State of Connecticut, have invented a new Improvement in Fire-Alarm Telegraph; and I do hereby declare the following, when taken in connection with the accompanying drawings, and the letters of reference marked thereon, to be a full, clear, and exact description of the same, and which said drawings constitute part of this specification, and represent, in—

Figure 1, a perspective view of the box; Fig. 2, a front view with the door open. Fig. 3, a vertical section of the box, to illustrate its construction; and in Fig. 4, an interior view of the box, showing the construction and arrangement of my invention.

This invention relates, first, to an improvement in boxes for inclosing fire-alarm-telegraphing instruments; and, secondly, to an improvement in the apparatus for signaling or communicating from the box, the object being to combine with an ordinary telegraphing instrument an apparatus for mechanically operating the key of the instruments, so as by means of the said key to open and close the circuit, and the said mechanism being entirely insulated from the instrument.

In order to the clear understanding of my invention, I will proceed to describe the same, as illustrated in the accompanying drawings.

I will first describe the box.

A is the outer case; B, the door; C, a platform across the box, upon which the instrument is placed, and beneath which the apparatus for operating the key is arranged.

D is a partition placed in front of the apparatus for operating the key below the platform C, and in front of which is the crank E, by means of which the apparatus is worked, and the said partition arranged so that when required it may be removed by first removing the crank from its shaft.

F is a partition in front of the instrument, arranged to slide freely up and down when unlocked from its up position.

The object of the partition F is to protect the instrument; but when it is necessary to use the key, the proper person unlocks the partition F, and slides it down in front of the

crank, as denoted in red, Fig. 3, and so as to prevent any communication whatever with the apparatus below while the slide F is down, and when the slide is down the operator has access to the key, and without fear of interruption by breaking the circuit by accidentally moving the crank, as will be more fully hereafter described. Therefore, any person who may have access to the box may send the signals necessary to designate the position of the box, but none but the proper person can have access to the instruments for other communications. This completes the first part of my invention.

Upon the platform C, I place an ordinary Morse telegraphing instrument, having the key G arranged in connection therewith, and with receiving and communicating wires H, also arranged in the usual manner.

The lever I has arranged upon its end a hammer, J, of any convenient form, and in close proximity thereto a bell, K, is arranged, so that the lever I will, as the circuit is opened and closed, sound the bell at each movement of the lever; and the lever I extends below the platform, and a spring, L, attached thereto, so as to return the lever at the closing of the circuit, the tension of the spring L being adjusted by means of the finger-wheel M, through the rod N.

Beneath the platform C is arranged, in a frame-work, P, a wheel, R, having upon its periphery several pins or projections, *a b c*, &c., and has connected therewith a gear-wheel, S, whereby the wheel R is caused to revolve, by the turning of the crank E, (denoted in red, Fig. 4,) through a pinion, T, on the crank-shaft, working into the gear-wheel S, and on the face of the wheel R, or at any convenient point, is fixed a pin, U, projecting therefrom.

W is a lever, having its fulcrum at *w*, and has a notch formed at its end, and in such relative position to the pin U on the wheel R, that at a certain point (more fully hereafter described) the pin U will fall into the said notch in the lever.

To the other arm Y of the lever W a spring, X, is fixed, which bears the notch in the other arm of the lever up against the pin U.

From the arm Y a pin or knob, Z, projects

through the partition D, as seen in Figs. 2 and 3, so that by raising the lever, (as denoted in blue,) the wheel is free to be turned by the crank E, the wheel R moving (in the direction denoted in Fig. 4,) a ratchet upon the same shaft, or in connection therewith, and with a pawl, (as denoted in broken lines, Fig. 4,) prevents the turning of the wheel in other or the wrong direction.

Upon a fulcrum, *g*, is arranged a lever, *h*, one end, *i*, of which is inclined, so as to permit the projections on the wheel R to pass freely thereunder, and raise that arm of the lever, while a spring, *k*, attached to the key, connects the other end with the key, and tends to hold up that end of the lever *h*, and cause it to drop when the projection on the wheel has passed from under the lever.

When the lever *h* is raised by the passage of the projection on the wheel R thereunder, the key is drawn down so as to break the circuit, and so hold it; but when the projection has passed under, and the lever *h* dropped, as denoted in blue, then the spring *m*, being stronger than the spring *k*, when so released, raises that end of the lever, and, depressing the other, opens the circuit in the usual manner.

It will be observed that, by the connection of the lever *h* with the key G, were there no insulation, the mechanism below the platform would be charged, and the person who, standing upon the earth, should take hold of the crank to operate the mechanism to give the signal, would unavoidably receive a shock therefrom. This is a serious difficulty, experienced in most fire-alarm or signal-boxes. To avoid this, I fit in the end of the arm of the lever G, as seen in Fig. 5, an ivory (or any non-conducting material) sleeve, *p*, into which a hook or eye is placed, by which the connection is made between the lever *h* and the key G, and thus in a simple manner insulate the connection, so that the electricity has no effect whatever upon the mechanism below the platform.

To signal from the box, the requisite number of projections are fixed upon the wheel, here shown as 4 and 1—that is, four strokes space, one stroke space and stop, completing the revolution of the wheel, which may be interpreted according to the position of the box and the understanding of the operators.

The person desiring to give the signal opens the door, raises the lever Y, and turns the crank to cause one revolution of the wheel R,

when the wheel is stopped by the pin U falling into the notch of the lever W, as before described; and this stop must occur when the lever *h* is resting upon one of the projections, for in this position the circuit is closed. This one revolution, by the projections as here arranged, has made the signals of 4—1, and may be repeated by again raising the lever Y to free the wheel from the notch on the lever W.

The projections upon the wheel R I arrange so as to be adjustable to different positions. This is best done by making the pins to screw into a hole tapped in the periphery of the wheel, and having numerous such holes in the wheel, so that any or all of the pins may be differently placed.

I have represented the projections as arranged upon the periphery of the wheel R, but there may be pins or projections upon the face of the wheel, it only being necessary that the lever be moved by the revolution of the wheel, as described.

This arrangement is for general use, as for sounding an alarm; but if it be necessary to communicate other signals, then the person who has the authority to so communicate, may open the instrument by unlocking and dropping the partition F, which opens to him the instrument above, then he may transmit his communication or signals by means of the key G in the usual manner for telegraphing.

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

1. The arrangement of the sliding partition F, the platform C, and partition D, with the box A, and combined with a signaling apparatus, substantially in the manner herein set forth.

2. Operating the key of telegraphic instruments by means of a mechanism connected therewith, but perfectly insulated therefrom, substantially in the manner herein set forth.

3. The arrangement described of the pins or projections *a b c*, &c., upon the wheel R, when constructed so as to be adjustable to different signals, substantially as set forth.

4. The arrangement of the lever W, so as to arrest the movement of the wheel R at each revolution, as and for the purpose described.

J. M. FAIRCHILD.

Witnesses:

JOHN E. EARLE,
A. J. TIBBITS.