

No. 763,042.

PATENTED JUNE 21, 1904.

L. CAMPBELL.
FIRE ALARM APPARATUS.
APPLICATION FILED SEPT. 8, 1903.

NO MODEL.

2 SHEETS—SHEET 1.

Fig. 1.

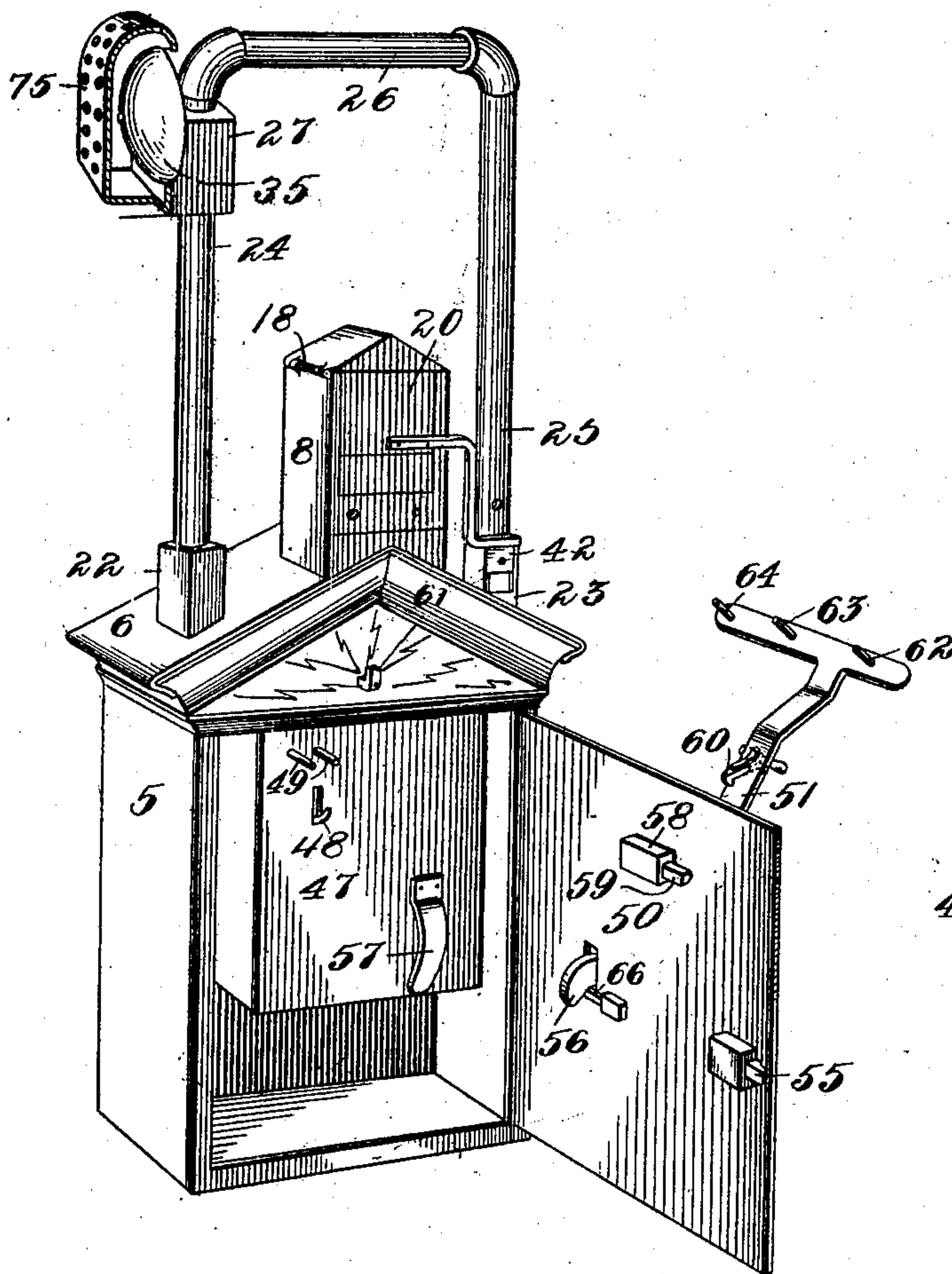


Fig. 2.

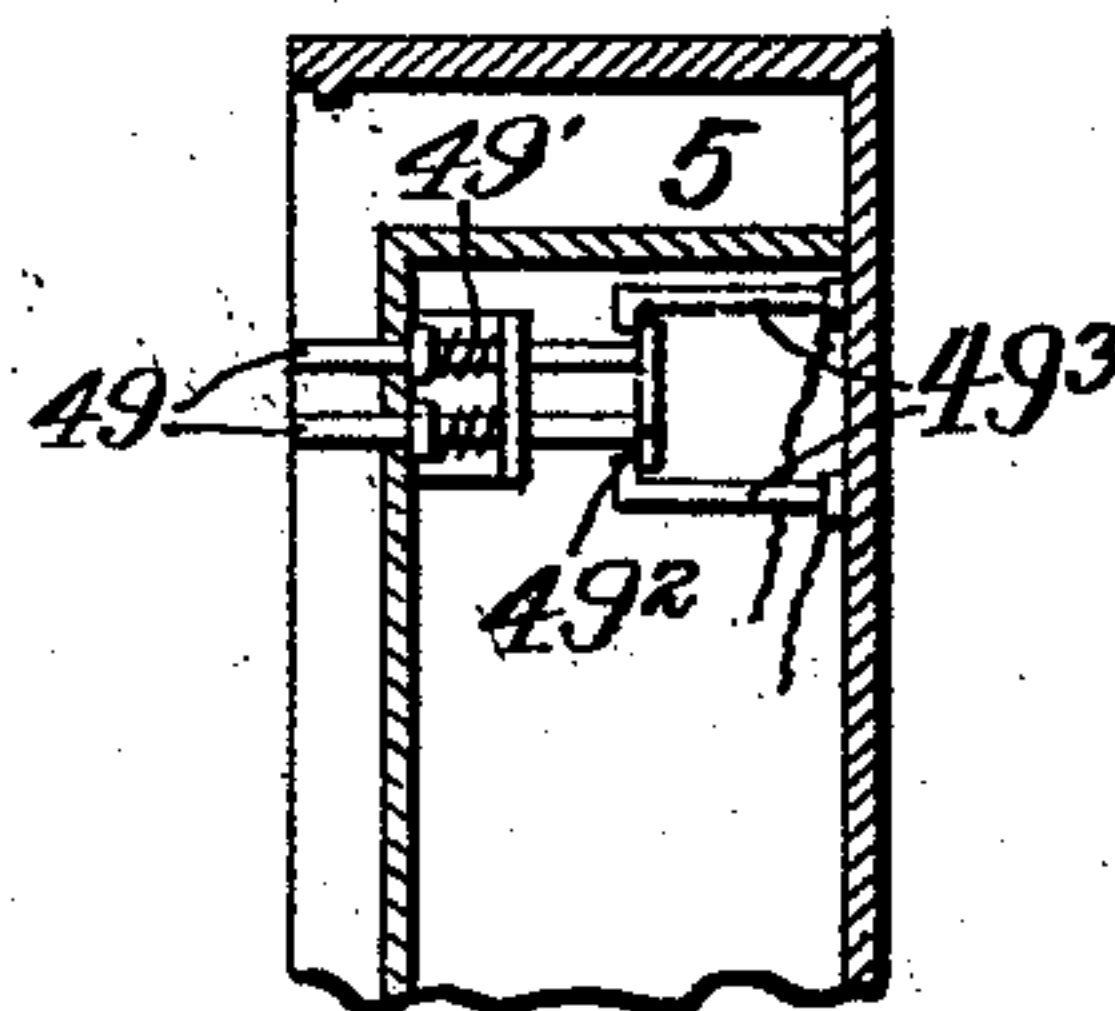
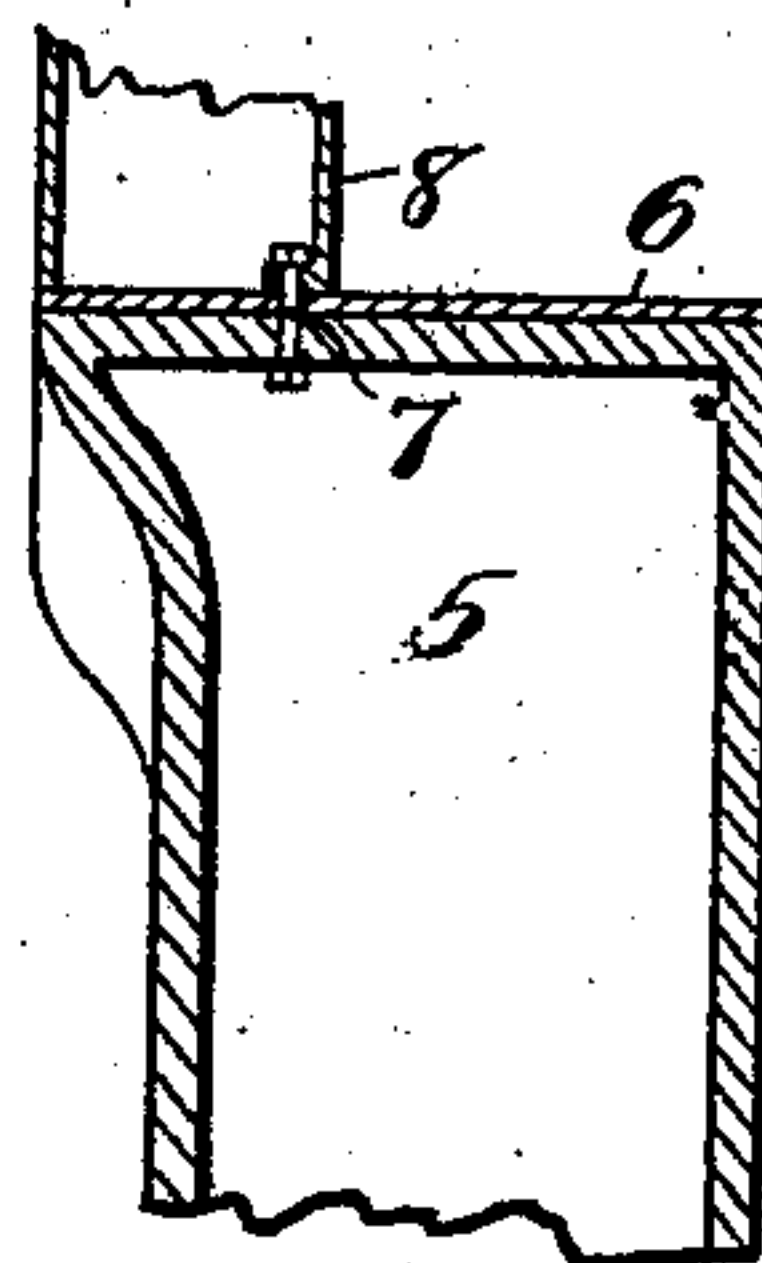


Fig. 10.

Witnesses:

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By his Attorney

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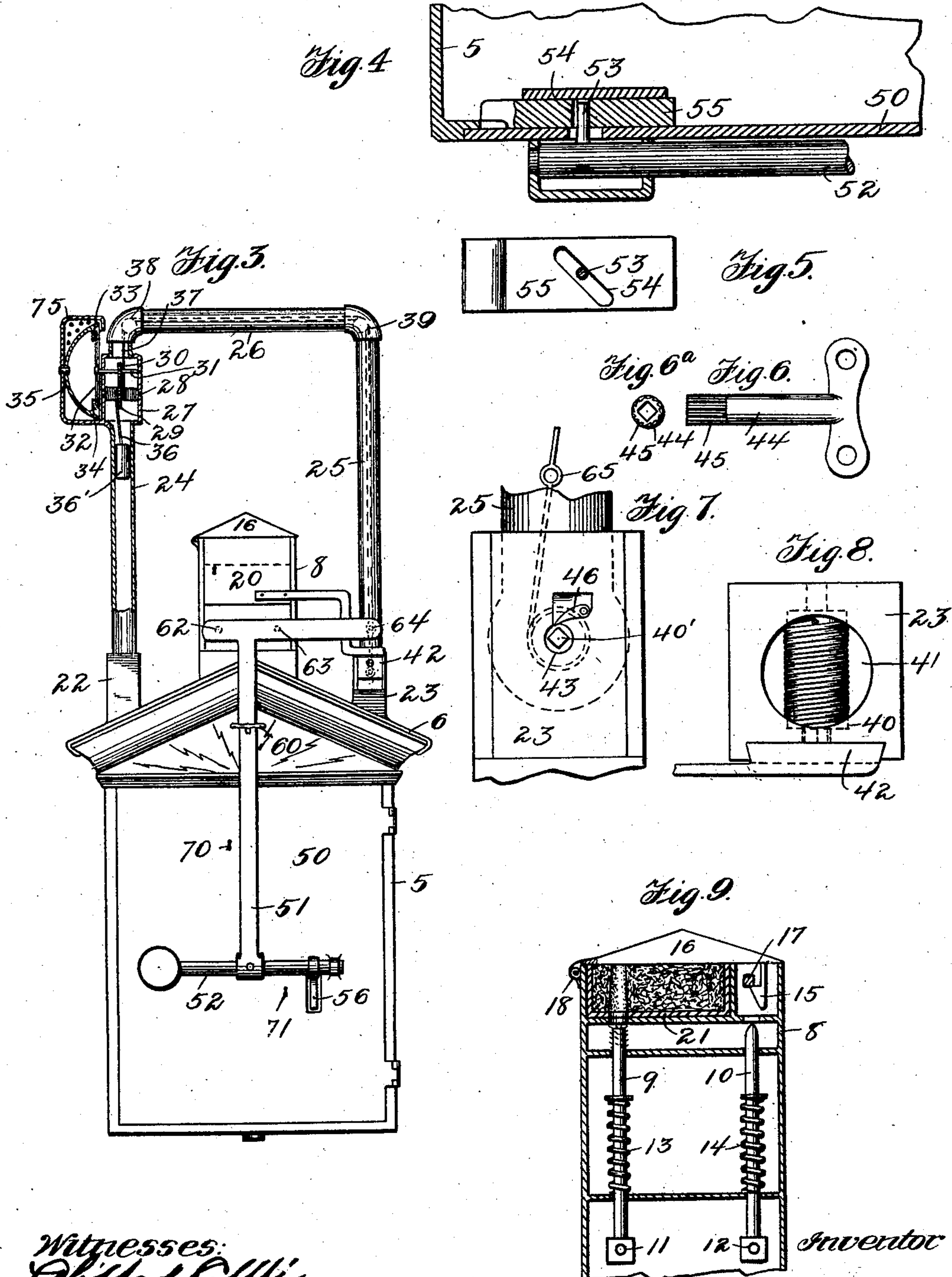
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2 SHEETS—SHEET 2.



Witnesses:
Clifford Ellis
Josiah H. Peck

Inventor
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By his Attorney,
Frank Campbell.

UNITED STATES PATENT OFFICE.

LOUDOUN CAMPBELL, OF WASHINGTON, DISTRICT OF COLUMBIA.

FIRE-ALARM APPARATUS.

SPECIFICATION forming part of Letters Patent No. 763,042, dated June 21, 1904.

Application filed September 8, 1903. Serial No. 172,224. (No model.)

To all whom it may concern:

Be it known that I, LOUDOUN CAMPBELL, a citizen of the United States of America, residing at Washington, District of Columbia, have invented certain new and useful Improvements in Fire-Alarm Apparatus, of which the following is a specification.

My invention relates to fire-alarm boxes, and has for its object the provision of a local alarm in connection with such boxes so arranged as to insure the prompt turning in of an alarm of fire and at the same time afford protection against false alarms by making certain the detection of any one turning in such false alarm.

In some fire-alarm boxes now in use provided with local alarms it is necessary for the person turning in the alarm to depress a hook upon the interior of the fire-alarm box after the door thereof is opened. Owing to the ignorance of the public as to the proper method of turning in the alarm of fire, it has been found that many persons omit to perform the essential function of depressing the hook, because they suppose that the fire-alarm has been turned in when the local alarm sounds upon opening the door of the main box.

To obviate the foregoing difficulties, this invention comprises a main alarm, a local alarm, and a single lever controlling both alarms, whereby they are sounded simultaneously.

Further objects and advantages of the invention will be set forth in the detailed description which now follows.

In the accompanying drawings, Figure 1 is a perspective view of a fire-alarm box with the main door thereof open and having my invention applied thereto. Fig. 2 is a transverse vertical section of the upper part of the main box, showing how a saddle, hereinafter described, is secured thereto. Fig. 3 is a front elevation of the box with part of the casing containing the local-alarm mechanism in section. Fig. 4 is a horizontal section of the door of the main box and the fastening device therefor. Fig. 5 is an elevation of the bolt shown in Fig. 4. Figs. 6 and 6^a are respectively side and end elevations of a key hereinafter described. Fig. 7 is a front ele-

vation of a hollow lug containing the winding mechanism of the local alarm. Fig. 8 is a plan view of said lug, and Fig. 9 is a vertical section of a box or casing which is mounted upon the main box and contains mechanism for illuminating the vicinity of the box when the main alarm is sounded.

Like numerals designate similar parts throughout the several figures of the drawings.

Referring to the drawings, the numeral 5 designates a fire-alarm box, upon which is mounted a saddle 6, secured thereto by a bolt 7, which passes through the top of the main box, the saddle, and a lug cast upon a box or casing 8, carried upon the saddle. Referring now more particularly to Fig. 9, it will be seen that the casing 8 contains two spring-pressed rods 9 and 10, having eyes 11 and 12 at their lower ends and having their upper ends so formed that when said rods are released and forced up by the springs 13 and 14 the end of rod 10 will impinge against a catch 15, carried by the top 16 of the box, and force said catch out of engagement with a lug or bar 17, carried by the box, thereby freeing the top and permitting it to be thrown back by a spring 18 upon the pintle thereof. At the same time rod 9, which is provided with spurs or points upon its upper end, ignites a charge of powder, which burns slowly and brilliantly illuminates the vicinity of the box. A slide or door 20 serves to lock the spring-pressed rods in their retracted position, as is clearly shown in Letters Patent of the United States No. 692,765, issued to me on the 4th day of February, 1902, for fire-alarm apparatus.

The charge of powder is contained in a small box 21, which may be readily removed and another charge inserted when it is desired to reset the box after an alarm has been turned in.

Cast upon the saddle 6 are lugs 22 and 23, into which are threaded tubes 24 and 25, connected at the top by a horizontal tube 26.

Upon the upper part of the tube 24 is a casing 27, containing the mechanism for sounding the local alarm. This mechanism comprises a drum 28, mounted for rotation in said casing

27 and carrying a spur gear-wheel 29, which meshes with a smaller spur gear-wheel 30 upon a rotative shaft 31. This shaft 31 extends through the wall of the casing 27 and carries upon its outer end a striker-bar 32, upon which are mounted tumblers 33 and 34, adapted to sound the bell 35 when the striker-bar is rotated, as will be readily understood.

Wound upon the drum 28 on one side of the gear-wheel 29 is a cable 36, to the free end of which is attached a weight 36', which tends to rotate the drum and, through the mechanism described, sound the bell. Normally the drum is held against rotation by a cable 37, attached thereto upon the opposite side of the gear-wheel 29, said cable passing over idle pulleys 38 and 39, mounted in the L's connecting tubes 24, 25, and 26, and being wound upon a drum 40, mounted in a recess 41 of lug 23.

As will be seen by referring to Figs. 7 and 8, lug 23 has a dovetail groove formed therein for the reception of a slide or shield 42, carried by the slide or door 20, said shield having a keyhole formed therein, which only registers with a keyhole 43, formed in lug 23, when the slide or door 20 is locked in the lower position, at which time the key 44 may be placed upon the angular shaft 40' of drum 40 to wind the cable 37 thereon and to wind up the weight 36'. This key 44 is provided with ratchet-teeth 45, adapted to be engaged by a pawl 46, set into the face of lug 23, as will be hereinafter described. Referring to Fig. 1, the numeral 47 designates the inner box, which carries the mechanism for sounding the main alarm, and 48 the hook, the depression of which sets said mechanism in motion. Shunt-pins 49 shunt the box out of circuit when they are pressed inward by the closing of the main door 50, and it is necessary that the door be opened a short distance before the box is shunted into circuit with fire-alarm headquarters.

To open the main door and shunt the box into circuit and to sound the main and local alarms simultaneously, the lever 51 is provided. This lever is pivoted upon a shaft 52, mounted in bearings upon the door 50, and one end of the shaft carries a pin 53, (see Figs. 4 and 5,) which enters a cam-groove 54, formed in the bolt 55, which secures the main door 50. Upon the opposite end of shaft 52 is a cam 56, which when the lever 51 is pulled out and down presses against a flat spring 57, secured to the face of the inner box.

Secured to the inner face of door 50 and insulated therefrom is a lock 58, the bolt 59 of which is made to conform to the curvature of the hook 48 and serves to depress said hook when the door is opened, as will be set forth in the description of the operation of the device. To secure the lever 51 against accidental displacement, the spring-pressed latch 60 is provided, which engages the lug 61 when the door is closed and prevents lever 51 from be-

ing moved except by a downward and outward pull. The free end of lever 51 carries pins 62, 63, and 64, which engage the eyes 11 and 12 of rods 9 and 10 and an eyelet 65, formed in the cable 37.

The operation of the device is as follows: When it is desired to turn in an alarm of fire, the handle of latch 60 is grasped and pulled down, which serves to release the lever 51, which is in turn pulled down and out. This action withdraws the pins carried upon the free end of said lever from the eyes of the spring-pressed rods and the cable 27, thereby releasing the weight 36' and, through the rotation of the gear-wheels and striker-bar controlled thereby, causing the bell 35 to sound. At the same time the spring-pressed rods 9 and 10 operate to open the top of casing 8 and ignite the powder charge to illuminate the vicinity of the fire-alarm box. When the lever 51 is pulled down, as just described, the cam 56 presses against the spring 57 and compresses said spring until the lever is pulled down far enough to cause the pin 53, working in the cam-groove of bolt 55, to retract said bolt enough to release the door 50, when the spring 57 will act to force said door open, thereby permitting the shunt-pins to be forced out by springs 49' until a bar 49", carried by said pins, contacts with the ends of the binding-posts 49", thereby shunting the box into circuit and depressing the hook 48 by means of the bolt 59, which normally lies in the curve of said hook. As will readily be seen, if the door 50 should now be closed by the person turning in the alarm the bolt 59 would strike the outer end of the hook 48, which has now returned to its upper position, and to prevent this the latch-bolt 66 is provided, which as soon as the lever is pulled down slips under the cam 56, as shown in Fig. 1, and prevents the lever from being shoved up until said bolt 66 is retracted by some one in authority having a key for that purpose.

The operation of resetting the box is as follows: The slide 20 is first locked into its lower position, thereby bringing the eyes of the spring-pressed rods into the path of the pins 62 and 63 of lever 51 and also causing the keyhole formed in shield 42 to register with keyhole 43 of lug 23. The ratchet-key 44 is then placed upon the angular end of the shaft of drum 40 and the cable 37 is wound upon said drum, thereby winding cable 36 upon drum 28 to wind up the weight 36'. Cable 37 is wound upon drum 40 until the eyelet 65 thereof is brought into the path of the pin 64, carried by lever 51. The pawl 46 engages the ratchet-teeth of key 44 to hold the drum 40 against rotation until lever 51 is moved into position to cause the pin 64 to enter eyelet 65 of cable 37. Before this is done, however, a key is inserted in keyhole 70 to retract bolt 59 of lock 58. The latch-bolt 66 is then, through the medium of a key, inserted in a

keyhole 71, retracted from the path of cam 56, after which door 50 is closed. Lever 51 is moved into position to cause the pins 62, 63, and 64 to enter the eyes of rods 9 and 10 and the eyelet 65 of cable 37. Key 44 is then removed, a fresh charge of powder is inserted in casing 8, slide 20 is locked in its upper position, and the top of casing 8 is closed, after which bolt 59 is thrown to cause it to enter the recess formed by the curve of the hook 48. If desired, a perforated casing 75 may be placed over bell 35.

From the foregoing description it will be seen that this invention embodies means insuring the prompt turning in of the main alarm and at the same time actuating a local alarm of such nature as to effectually deter malicious persons from turning in false alarms of fire. By mounting the local-alarm mechanism upon a saddle the invention may be readily applied to the boxes now in use, and by so arranging the lever 51 that only a single movement of the lever is required to shunt the box into circuit and to sound both the main and local alarms the likelihood that any one turning in an alarm will make a mistake as to the proper method of so doing is very remote. This device renders the fire-alarm box instantly accessible at all times without leaving the fire department without protection against false alarms.

While the various elements shown and described are well adapted to attain the end sought, it is to be understood that my invention is not limited thereto, for changes may be made in the details thereof without departure therefrom.

Having described my invention, what I claim is—

40 1. In a fire-alarm box, the combination, with a main alarm, of a local alarm, and a lever controlling both alarms and the door of the fire-alarm box.

2. In a fire-alarm box, the combination, with a main alarm, of a local alarm, a lever controlling both alarms and the door of the fire-alarm box, and means for locking said lever against accidental displacement. 45

3. In a fire-alarm box, the combination, with a main alarm, of a sounding and illuminating local alarm, and a lever controlling both of said alarms and the door of the fire-alarm box. 50

4. In a fire-alarm box, the combination, with a main alarm, of a sounding and illuminating local alarm, a lever mounted upon the exterior face of the door of said box, controlling said alarms, and means for locking said lever against accidental displacement. 55

5. In a fire-alarm box, the combination, with main-alarm mechanism, of local-alarm mechanism, and a lever so arranged that a single movement of said lever will open the door of the fire-alarm box and set said alarm mechanisms in motion. 60

6. In a fire-alarm box, the combination, with main-alarm mechanism, of local-alarm mechanism and a lever pivoted upon the door of the box and adapted when actuated to operate both the main and local alarms and to force the door of the box open. 65 70

7. In a fire-alarm box, the combination, with main-alarm mechanism, of local-alarm mechanism situated upon the exterior of said box and a lever carried by the door of the box adapted to simultaneously set said alarm mechanisms in motion and to open said door. 75

8. In a fire-alarm box, the combination, with a main alarm, of a local alarm, and a member controlling both alarms and the door of the fire-alarm box. 80

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

LOUDOUN CAMPBELL.

Witnesses:

JOHN M. FOLLIN,
A. M. DANIELS.