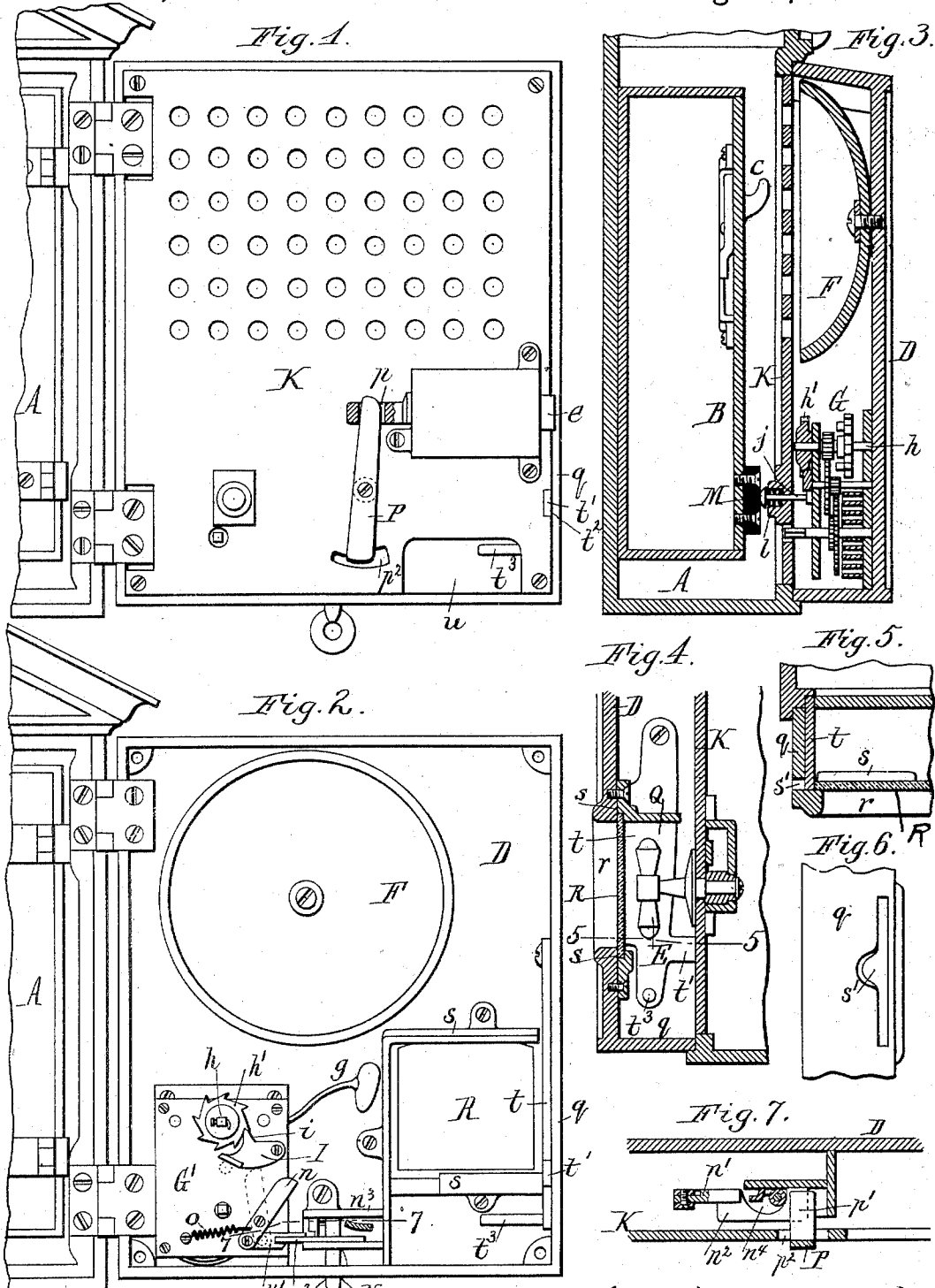


(No Model.)

J. G. KRAETZ.
FIRE ALARM BOX.

No. 503,376.

Patented Aug. 15, 1893.



Chas. F. Burkhardt
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Witnesses.

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UNITED STATES PATENT OFFICE.

JOHN G. KRAETZ, OF BUFFALO, NEW YORK.

FIRE-ALARM BOX.

SPECIFICATION forming part of Letters Patent No. 503,376, dated August 15, 1893.

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To all whom it may concern:

Be it known that I, JOHN G. KRAETZ, a citizen of the United States, residing at Buffalo, in the county of Erie and State of New York, have invented new and useful Improvements in Fire-Alarm Boxes, of which the following is a specification.

This invention relates to fire alarm boxes having a local alarm or signal which is operated in opening the door of the box, so as to rouse the neighborhood when the box is opened, and thus deter mischievous persons from tampering with the box or sending false alarms.

The invention has more especial reference to alarm boxes in which the door is closed by a bolt or latch having an actuating knob or handle which is covered by a frangible guard that must be broken to reach the handle for opening the door.

My invention has for one of its objects to so construct the actuating devices of the local alarm that the box may be opened by authorized persons for inspecting or making repairs, without sounding such alarm.

Another object of the invention is to simplify the construction of the frangible guard and facilitate the renewal of the glass or other frangible part of the guard.

In the accompanying drawings:—Figure 1 is an interior view of the outer door of the fire alarm box, with the covering plate of the alarm devices in place. Fig. 2 is a similar view, with said covering plate removed. Fig. 3 is a vertical cross section of the box with the door closed. Fig. 4 is a fragmentary vertical section of the door, the plane of section being through the frangible guard. Fig. 5 is a horizontal section in line 5—5, Fig. 4. Fig. 6 is a fragmentary edge view of the door showing the slot through which the frangible panel is introduced. Fig. 7 is a fragmentary horizontal section in line 7—7, Fig. 2.

Like letters of reference refer to like parts in the several figures.

A represents the rectangular body of the box, which contains any well known electric or other signal mechanism for giving the alarm at fire headquarters.

B is the usual interior door of the box, through which access is had to said signaling mechanism and *c*, (Fig. 3,) is the actuating hook or handle which projects through the customary slot in the interior door and whereby the alarm is sent to headquarters. These parts are all common and constitute no part of my invention.

D is the outer or main door of the alarm box, which is preferably attached to the box by spring hinges, to cause the door to open automatically when released.

e is the usual horizontally sliding spring bolt or latch of the door and E is its rotary actuating knob or handle.

F is a bell or gong attached to the inner side of the main door D, the latter being hollow or chambered as shown, to receive the gong and its actuating mechanism.

g is a movable hammer or tongue adapted to strike the gong, for giving the local alarm. This hammer may be vibrated by any suitable actuating mechanism, an ordinary clock work G being preferably employed for this purpose.

h is the actuating shaft of the clock work from which the hammer *g* is operated and which projects through the case G' of the clock work.

h' is a ratchet wheel secured to the outer end of said shaft and controlling the rotation of the latter, and I is a detent pivoted to the outer side of the case G' adjacent to said ratchet wheel and having a tooth *i* adapted to interlock with the ratchet wheel, so as to hold the actuating shaft *h* from turning and prevent the hammer from sounding the gong. When the main door of the box is closed, this detent is held in its elevated position, in engagement with the ratchet wheel, by a horizontal retaining pin or projection *j* arranged on the inner side of the main door and engaging under the detent, as shown in Fig. 3. This retaining pin is arranged to slide in an opening formed in a plate K, which covers the gong and the hammer actuating mechanism, and is provided with a retracting spring *l* which tends to withdraw the pin from under the detent when the main door is opened, so as to release the de-

tent. This spring surrounds the retaining pin between the outer side of the covering plate K and a head or enlargement formed at the outer end of the pin. When the main door is closed, the retaining pin *j* is pressed inward against the pressure of its spring by its inner end striking a bearing block or raised face M secured to the inner door of the alarm box, as shown in Fig. 3. When the pin is thus pressed inward, its inner end projects under the detent I and thus holds the latter in engagement with the ratchet wheel, as long as the outer door remains closed. The block M is preferably constructed of hard rubber or other insulating material, to prevent grounding of the electrical current when the outer cover of the box is closed, which would be liable to occur if the metallic retaining pin came in contact with the metallic inner door of the box. As soon as the outer door is opened for the purpose of sending an alarm to fire headquarters, the retaining pin, by the reaction of its compressed spring, is retracted from the detent, and the latter, being thus left unsupported, drops out of engagement with the ratchet wheel *h'*, thereby releasing the clockwork, operating the hammer and sounding the local alarm and apprising the neighborhood of the fact that someone is sending in an alarm or tampering with the fire alarm box. Persons wishing to give a true alarm will have no occasion to be disturbed by this local alarm, but persons bent on mischief, from fear of detection, will naturally be prompted to make their escape as soon as the local alarm begins to ring and will thus be balked in their design to send a false alarm. After an alarm has been given, the inspector or other person charged with the care of the fire alarm boxes, again winds up the clock work ready for another alarm.

In order to permit an inspector or other authorized person to open the outer door of the box without sounding the local alarm, the detent I is provided with a retractible support or locking device which may be shifted under the detent when the outer door is open, or moved aside after closing the door, so that the detent is held in engagement with the ratchet wheel *h'* by the retaining pin *j* only. This locking device preferably consists of an upright lever *n* pivoted to the outer side of the clock work case and bearing with its upper arm against the under side of the detent I when swung into its forward position, as indicated by dotted lines in Fig. 2, but clearing the detent when the lever is swung backward into the position shown by full lines in said figure. The lower arm of this locking lever is connected by a rod *n'* with a laterally sliding shifting bar *n²*, which is arranged between two guide bars *n³* secured to the inner side of the main door and is provided with a notch or recess *n⁴* adapted to receive the bit of an ordinary key N. This key is inserted through a slot in the lower edge of

the door. Upon turning this key in one or the other direction, the shifting bar *n²* is moved accordingly and the locking lever is swung under the detent, or clear of the same. *o* is a spring attached at one end to the clockwork case and at its opposite end to the lower arm of the locking lever *n*, and tending to swing the lever backward out of engagement with the detent.

P is a lever, whereby the spring bolt *e* is withdrawn when opening the main door without sounding the local alarm. This lever is pivoted in an upright position to the outer side of the covering plate K and engages with its upper arm in a longitudinal slot *p* formed in the projecting rear portion of the spring bolt. The lower end of this lever is formed with a lip or finger *p'* which projects inwardly through a curved slot *p²*, formed in the covering plate, and which stands in the path of the bit of the key N, as shown in Figs. 2 and 7, so that upon turning the key in the proper direction to shift the locking lever *n* under the detent, the sliding bolt of the door is at the same time retracted. The locking of the local-alarm actuating devices and the unbolting of the main door of the alarm box are thus simultaneously effected by a single movement of the key N, thereby dispensing with a separate key for operating the bolt of the door. Upon releasing the key, the sliding bolt is again projected by its spring, in a common manner.

When it is desired to wind up the clockwork of the local alarm, the outer door of the box is opened, the key N is inserted in the slot in the lower edge of the door and turned in the proper direction to swing the locking lever under the detent I, and the clockwork is then wound. Upon closing the door, the movable retaining pin *j* on the door is pressed inwardly under the detent. The key N is now turned in the opposite direction to retract the locking lever, so that the detent is supported only by the pin *j*. As soon as the outer door is opened for giving an alarm, the detent, which is now left unsupported, drops out of engagement with the ratchet wheel, as before described, and the local alarm is sounded.

In case it is desired to open the outer door of the alarm box without sounding the local alarm, for inspecting the signal mechanism or making repairs, it is only necessary to shift the locking lever *n* under the detent I by means of the key N, before opening the door. After closing the door, the locking lever is again retracted.

The casing of the sliding bolt *e* is attached to the outer side of the covering plate K and the shank of its operating handle E passes through an opening in said plate, as shown in Fig. 4. The handle E is located in a receptacle or inclosure Q arranged in the lower portion of the chambered outer door, the front wall of the door and the covering plate K

forming the front and rear walls of this receptacle, respectively, and the outer flange *q* of the door forming the outer side wall of the receptacle. The main door is provided opposite the handle *E* with an opening *r* to which is applied a plate or panel *R* of glass or other frangible material, which, while covering and protecting the handle, permits access to the same for opening the door by breaking the glass. The frangible plate is arranged with its upper and lower edges in horizontal ways *s s* secured to the inner side of the outer door, above and below the opening *r*, as shown in Fig. 4. *s'* is a vertical slot formed in the outer flange *q* of the door, in line with the ways *s*, through which the frangible plate is inserted in its ways. *t* is a lid or guard-bar applied to the inner side of the slot *s'*, for closing the same and preventing withdrawal of the frangible plate from the outside of the alarm box. This guard bar is pivoted at its upper end to the inner side of the door-flange *q*, and adapted to bear with its inner edge against the rear side of the door, so as to cover the slot *s'*, as clearly shown in Fig. 5. The guard bar is provided on its rear side with a lug or projection *t'* which passes through a slot *t''*, formed in the covering plate *K* and bears against the body of the alarm box when the main door is closed, whereby the bar is prevented from swinging on its pivot and uncovering the slot *s'*. The guard bar is provided at its lower end with a handle *t'''* whereby it is swung aside for exposing the slot and permitting the insertion of a new frangible panel, when necessary. The coving plate *K* is formed opposite the handle *t'''* with a finger-aperture *u*, as shown in Fig. 1, through which the handle may be reached and the broken glass is removed. Upon opening the main door and pulling the guard bar outward, the slot *s'* is uncovered and a frangible plate may be passed through the same into its ways *s*. After inserting the plate, the guard bar is again swung inward to cover the slot, in which position it is held by its lug *t'* upon closing the main door.

I claim as my invention—

1. In a fire alarm box, the combination with the body of the box and the outer or main door, of a local alarm gong, a hammer for sounding the gong and its actuating mechanism, all arranged on the main door, a stop or detent adapted to engage with said actuating mechanism, and a retractible retaining pin for holding the detent in engagement with the actuating mechanism, attached to the main door and bearing against the body of the box when the main door is closed, whereby said pin is held in engagement with the detent by the door, substantially as set forth.

2. In a fire alarm box, the combination with the body of the box and the outer or main door, of a local alarm gong, a hammer for sounding the gong and its actuating mechanism, all arranged on the main door, a stop or

detent adapted to engage with said actuating mechanism, a movable retaining pin attached to the main door, adapted to engage with said detent and bear against the body of the box when said door is closed, and a spring whereby said pin is withdrawn from said detent, when the door is opened, substantially as set forth.

3. In an alarm box, the combination with the body of the box and the main door, of a local alarm gong, a hammer for sounding the gong, and its actuating mechanism, a stop or detent for arresting said actuating mechanism, a movable retaining pin arranged on the door and adapted to engage with said detent when the door is closed, a bearing block of insulating material arranged on the body of the box, against which said pin bears, and a spring for retracting said pin when the door is opened, substantially as set forth.

4. In a fire alarm box, the combination with the body of the main door having a bolt or latch, of a local alarm gong, a hammer for sounding the gong and its actuating mechanism, a detent for arresting said actuating mechanism, a retractible locking device adapted to engage with said detent, to permit the door to be opened without ringing the gong, and a connection between said locking device and the door latch or bolt, whereby the door is unlocked by the movement of locking the detent to prevent the alarm from ringing, substantially as set forth.

5. In a fire alarm box, the combination with the body and the main door having a bolt or latch, of a local alarm gong, a hammer for sounding the gong and its actuating mechanism, a detent for arresting said actuating mechanism, a retractible locking lever adapted to engage with said detent, a shifting bar for actuating said lever, and an operating lever connected with the door-latch or bolt and having a lip or projection arranged adjacent to said shifting bar, whereby the door is unlocked by the movement of locking the detent to prevent the alarm from ringing, substantially as set forth.

6. In a fire alarm box, the combination with the door having an opening, a bolt or catch and a handle for operating said catch, arranged in rear of said opening, ways arranged above and below said opening on the rear side of the door, a slot arranged in the edge of the door in line with said ways, and a frangible plate arranged in said ways, substantially as set forth.

7. In a fire alarm box, the combination with the door having an opening, a bolt or catch and a handle for operating said catch, arranged in rear of said opening, ways arranged above and below said opening on the rear side of the door, a slot arranged in the edge of the door in line with said ways, a frangible plate arranged in said ways, and a movable lid or guard applied to said slot for confining the frangible plate, substantially as set forth.

8. In a fire alarm box, the combination with

the door having an opening, a bolt or catch and a handle for operating said catch, arranged in rear of said opening, ways arranged above and below said opening on the rear side
5 of the door, a slot arranged in the edge of the door in line with said ways, a frangible plate arranged in said ways, a lid or guard bar pivoted to the inner side of the door and adapt-

ed to close said slot, and means for retaining said lid in place, substantially as set forth. 10
Witness my hand this 29th day of May, 1893.

JOHN G. KRAETZ.

Witnesses:

CARL F. GEYER,
F. C. GEYER.