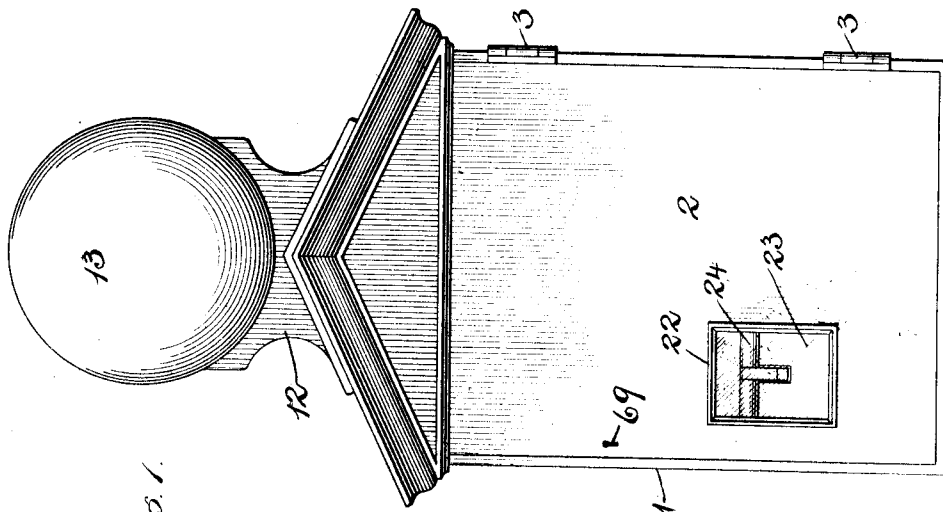


APPLICATION FILED MAR. 27, 1911.

3 SHEETS—SHEET 1.



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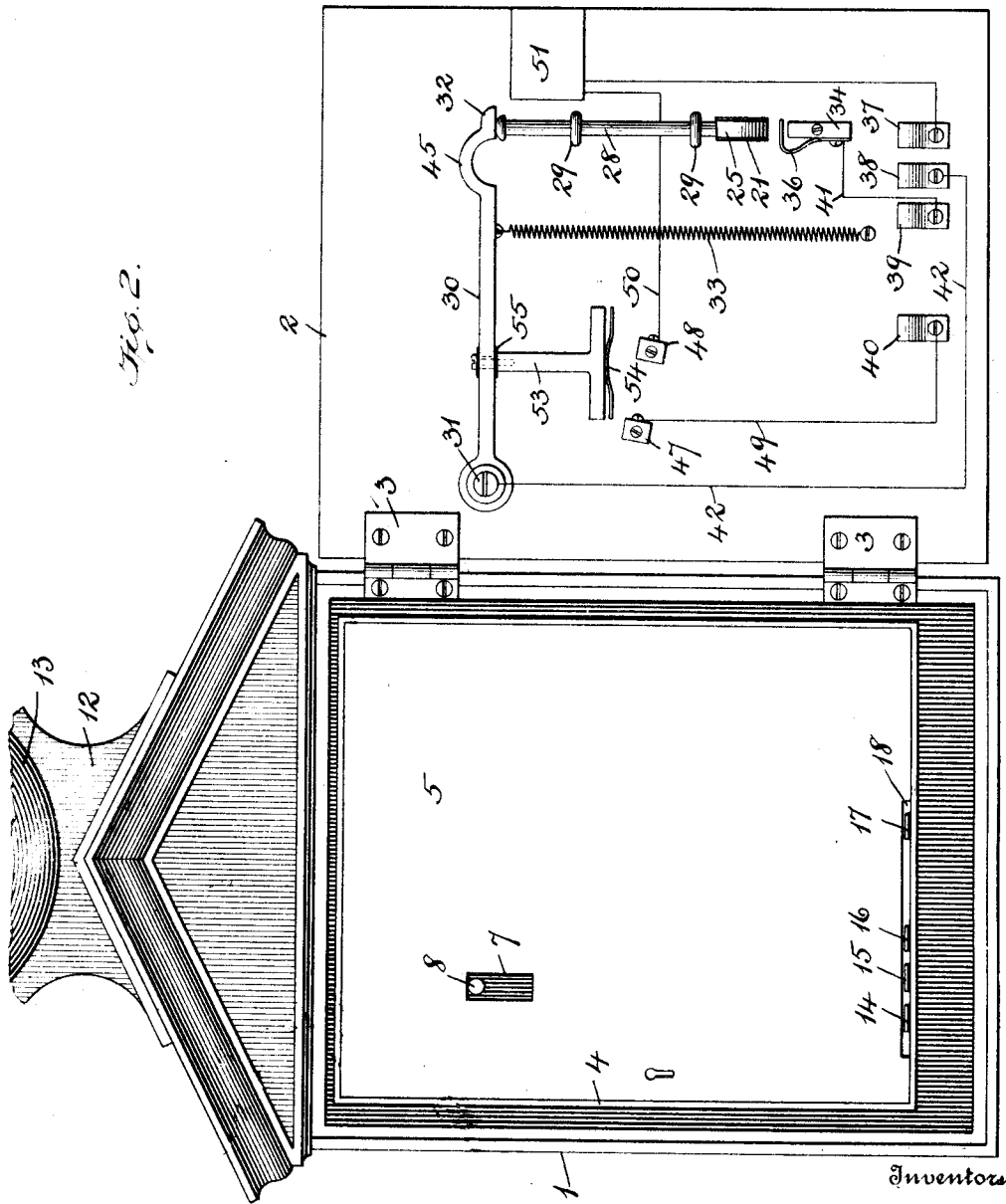
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FIRE ALARM BOX MECHANISM.
APPLICATION FILED MAR. 27, 1911.

1,049,308.

Patented Dec. 31, 1912.

3 SHEETS-SHEET 2.



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By

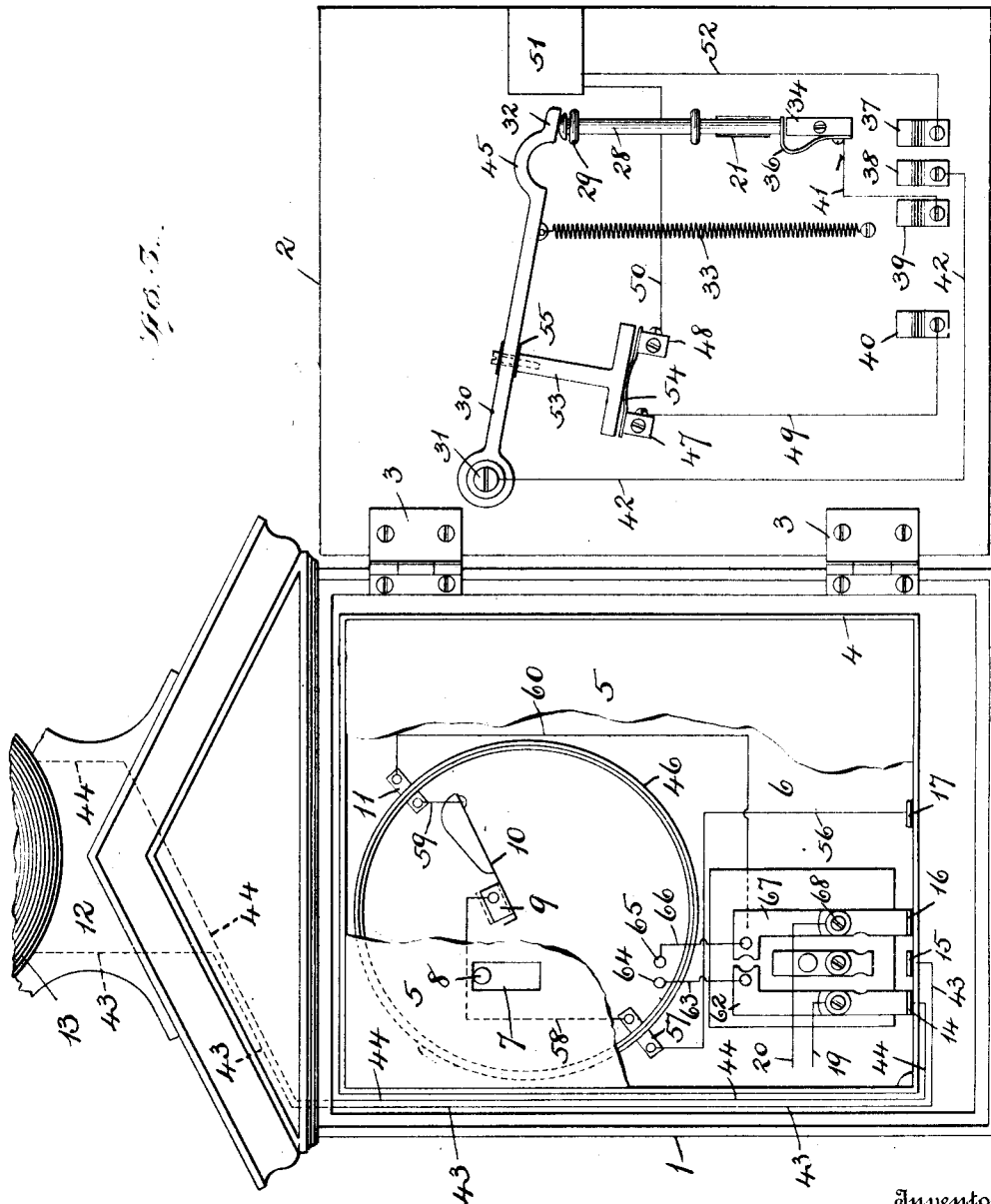
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3 SHEETS—SHEET 3.



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UNITED STATES PATENT OFFICE.

CHRISTIAN F. KLEIN AND EDWARD A. PYLES, OF BALTIMORE, MARYLAND, ASSIGNORS OF ONE-HALF TO SAID CHRISTIAN F. KLEIN, ONE-FOURTH TO SAID EDWARD A. PYLES, AND ONE-FOURTH TO JULIUS E. PYLES, OF BALTIMORE, MARYLAND; WILHELMINA KLEIN ADMINISTRATRIX OF SAID CHRISTIAN F. KLEIN, DECEASED.

FIRE-ALARM-BOX MECHANISM.

1,049,308.

Specification of Letters Patent.

Patented Dec. 31, 1912.

Application filed March 27, 1911. Serial No. 617,173.

To all whom it may concern:

Be it known that we, CHRISTIAN F. KLEIN and EDWARD A. PYLES, citizens of the United States, residing at Baltimore, in the State of Maryland, have invented certain new and useful Improvements in Fire-Alarm-Box Mechanism, of which the following is a specification.

This invention relates to an improved fire alarm box mechanism and has for its object to provide an improved device of the character described that will deter persons from calling out the fire department by sending in what is known as a false alarm.

One object of the invention is to provide an improved construction of box mechanism whereby when set in motion will first sound a local or neighborhood alarm for a predetermined or a short period before the actual operation can be conducted, to send in the alarm to the department or the department headquarters and by this means of detaining a person before the actual alarm is sent in and while the local alarm is sounding, deter persons from sending in the actual alarm when there is no fire.

Another object of the invention is to provide an improved fire alarm box mechanism by means of which a preliminary local alarm and a preliminary department alarm may be sounded simultaneously to notify the department that the box mechanism has been actuated so that in case the actual alarm does not follow as it would not if the person at the box should run off before the box is in condition to send in the actual alarm, and because of the sounding of the local alarm, the department can send to and restore the box to its normal condition.

With these and other objects in view the invention is illustrated in the accompanying drawings in which,

Figure 1, shows a box in front elevation to which the invention is applied. Fig. 2, is a similar view of the box with the outer door open and showing the mechanism carried on the inner side of said outer door. Fig. 3, is a similar view but shows the inner door of the box broken away to illustrate diagrammatically such features on the interior as are utilized in carrying out the invention, and Fig. 4, is an enlarged verti-

cal sectional view through the box and doors and shows the mechanism on the outer door in position ready for operation.

Referring to the drawings the numeral, 1, designates the outer casing of the box, which may be of any desired form, shape or design and having an outer door, 2, pivotally connected therewith by means of suitable hinges, 3. As is usual, the outer casing, 1, contains an inner casing, 4, having a door, 5, at the front side thereof and forming an inner receptacle, 6, which contains the usual Gamewell alarm mechanism which is so well known to those skilled in the art to which this invention relates that it is deemed unnecessary to illustrate the same in detail. The inner door, 5, is provided with the usual slot, 7, through which the so-called hook, 8, of the alarm mechanism projects for operation. The inner alarm mechanism also employs the well-known contacts, 9, and, 10, of the said Gamewell device,—the latter contact, 10, of which is pivoted at one end so its other end may be drawn away from and gradually returned to the other contact, 9, as the alarm is sent to the department. A contact plate, 11, is also shown herein for the purpose of conveniently following the circuits.

It is to be understood that the particular construction of the devices thus far described are all separately common and well-known in the art, and are only new in their relation with such other means as we have devised to effect a different action, and as pointed out in the appended claims.

On the outer casing, 1, we provide a suitable support, 12, for a belt, 13, by means of which latter a local alarm is to be sounded. We are aware that we are not the first to provide, broadly speaking, a local alarm device, but we do not know of a local alarm device that operates in the manner and with the other mechanisms of the box apparatus as we have combined them.

By reference to Figs. 2, 3 and 4 it will be seen that the inner casing of the box sustains a plurality of contact plates 14, 15, 16, and 17, respectively, which latter extend horizontally and project through a notch, 18, in the lower edge of the inner door, 5, so as to project toward the inner side of the outer door, 2. The contact plates, 14

and, 16, are connected by wires, 19, and, 20, respectively which latter form a part of the circuit that connects the alarm apparatus in the box with the department as will presently be more fully explained after the mechanism on the door has been described. The door, 2, has a vertical slot, 21, therein and is also provided on its outer side with a box-like case, 22, that extends around the said slot, and said case has a front wall, 23, of frangible material such as glass which completely closes the case. A latch, 24, is pivotally sustained in the case, 22, and has a segmental arm, 25, one end, 26, of which extends horizontally and rests against the inner surface of the frangible wall, 23, while its other end, 27, projects through the vertical slot, 21, in the door, 2, and turns upwardly so as to form a ledge or support at the inner side of the door, as clearly shown in Figs. 2 and 4. Directly over the up-turned end, 27, of the latch, 24, there is provided a vertical rod, 28, whose lower end is supported on the said up-turned end of the latch and is thereby held in an elevated position. In order to hold the rod, 28, in an upright position and at the same time enable it to be moved vertically, we provide suitable guide devices, 29, which, in the present instance have the form of eyes so that the rod may project therethrough. The rod, 28, is constructed of a material that is a conductor of electricity or has a conductor extending from its upper to its lower end, for a purpose presently to be explained.

An actuator lever, 30, when in its normal position, extends substantially in a horizontal direction across the inner side of the door and is pivoted to the latter at, 31. The free end, 32, of this lever projects over and rests upon, or is otherwise connected with the rod, 28, so that it is sustained in an elevated position as shown in Fig. 2. In the present instance the lever, 30, is pivoted at one end and its other or free end merely rests upon the upper end of rod, 28. A coiled spring, 33, has its upper end attached to the lever, 30, and its lower end secured to the inner side of the door so as to exert a constant downward pull on the free end, 32, of the lever, 30, and also on the rod, 28, which presses the segment arm, 25, outwardly against the frangible wall, 23, which prevents said parts from downward movement. Below the segment latch, 25, the inner side of the door, 2, carries a block, 34, which is insulated from the door by suitable material, 35. This block, 34, carries a contact plate, 36, which has such a position beneath the rod, 28, that contact may be made from the plate, 36, to lever, 30, through rod, 28, as will presently more clearly appear.

A plurality of contact fingers, 37, 38, 39, and, 40, respectively are provided along the inner side of the door, 2, and in such posi-

tions that when the door is swung to close the box said contact fingers will respectively engage the ends of contact plates, 14, 15, 16, and, 17, that project from the interior of the inner case, as shown in Fig. 4. It will thus be seen that when the door is in the closed position finger, 37, will contact with plate, 14; finger, 38, will make contact with plate, 15; finger, 39, will electrically engage plate, 16, and finger, 40, will be brought into contact with plate 17. In the present instance the plates, 14, and, 16, in the inner case or receptacle may be called the terminals because the connections to and from the box are made therewith.

By referring to Figs. 2 and 3, of the drawings it will be seen that a wire, 41, extends from plate, 36, to contact finger, 39, and it will be understood that when the door, 2, is closed said finger, 39, electrically contacts with or engages plate or terminal, 16. It will also be noted that a wire, 42, extends from finger, 38, on the door to the pivot-end of lever, 30, thus electrically connecting those elements and that when the door is closed finger, 38, will electrically engage contact plate, 15. By now referring to Fig. 3 of the drawing it will be seen that a wire, 43, leads from contact plate, 15, to bell, 13, and that another wire, 44, returns from the bell and connects with terminal, 14. All of the connections just described may be said to relate to the local alarm circuit which is normally open or broken because the connection from lever, 30, on the door, 2, to plate, 36, also on the door, which in the present instance is rod, 28, is broken,—the rod being normally elevated from plate, 36, and held so by the segment arm, 25, as shown in Fig. 2.

It will be noted that lever, 30, in the present instance, has an arched portion or bend, 45, between its pivoted and free ends and that when the door, 2, is closed this bend, 45, extends over the upper side of the operating pin or hook, 8, by the depression of which the alarm mechanism is set in action, therefore when the free end, 32, of said lever is drawn down, as will presently be described, the pin or hook, 8, will be pulled down thereby and set the alarm mechanism in motion to give a preliminary notice to the department which will hereinafter be more fully set forth. The depression of the pin or hook, 8, begins before the lower contact end of rod, 28, is brought into contact with plate, 36, on the door and as soon as the hook begins to move downwardly the mechanism in the case, 46, will cause the contacts, 9, and, 10, to separate as usual, and by this means break the normal contact between said contacts, 9, and, 10, before contact is made between rod, 28, and plate, 36, on the door.

From the foregoing explanations it will

be understood that the very first operation necessary is that of breaking the glass plate, 23, which normally supports the segment 25, and upon the breaking of which the arm will swing outwardly and allow the rod to begin its downward movement because of the pull of spring, 33, on lever, 30. When lever, 30, begins to swing down, the pin or hook, 8, will be depressed and the contacts, 9, and, 10, will be separated. Immediately after this the lower end of rod, 28, will impinge on plate, 36, and thereby establish a local alarm circuit which will include wire, 19, terminal, 14, wire, 44, bell, 13, wire, 43, to contact, 15. Then from contact, 15, to finger, 38, on the door and by wire, 42, to lever, 30, rod, 28, contact plate, 36, wire, 41, to finger, 39, and finally to terminal, 16, and wire, 20, back to the current supply. Thus it will be seen that the breaking of glass, 23, will bring about the ringing of local bell, 13, and will have also effected a single depression of pin or hook, 8, to send a signal to the department. This latter signal to the department however is not in our case the fire alarm signal but is what might be termed the preliminary alarm, to notify headquarters or the department that the local alarm of the box has been sounded. In sending this signal to the department the hook or pin must have been depressed and the contacts, 9, and 10, thereby first separated, the department signal being given as the contacts, 9, and, 10, are brought together again. During this interval the door, 2, remains closed and locked and the local alarm is sounding and the stem or hook, 8, cannot be actuated again to sound the alarm because it is not accessible, the door being closed and locked. This condition prevails until the contacts, 9, and 10, are again brought together at which time a new condition will arise that will effect an unlocking and an opening of the door, 2, so as to expose the pin or hook, 8, for a second alarm operation by a person who desires to send in an actual fire alarm.

Referring to Fig. 3, it will be seen that door, 2, has two spaced-apart contact fingers, 47, and, 48, the former of which is connected to contact finger, 40, by means of wire, 50, and the latter (48) is connected by a wire, 51, with a lock-mechanism, 51. A bolt, 53, extends from the lock and electrically connects the same with the contact finger, 48. The form or construction of the lock is immaterial to the present invention, the only thing being essential that the bolt shall be retracted by completing a circuit through, and as many forms of locks are to be found on the market as deemed necessary to illustrate the same. A door closer is carried on the pivoted lever, 30, and comprises a stem, 53, having a contact plate, 54, on its lower end. This

stem is insulated from the lever, 30, by suitable material, 55, and the plate, 54, thereon is so arranged that one end thereof will seat on contact block, 47, while the other end will seat on contact block, 48, thus bridging the space between the contact block as clearly shown in Fig. 3. If therefore the door, 2, in Fig. 3, is presumed to be closed with contact finger, 40, engaging contact plate, 17, in the box and contact finger, 37, engaging terminal plate, 14, as they would, the local alarm would sound until contacts, 9, and, 10, are brought together when a lock-releasing circuit will be formed as follows: from terminal wire, 19, and terminal plate, 14, to finger, 37, on the door, then by wire, 52, to lock to close the circuit through the latter and release the bolt; from lock, 51, by wire, 50, block, 48, plate, 54, to block, 47, then by wire, 49, to contact finger, 40, then to plate, 17, and by wire, 56, to post, 57. From post, 57, the lock circuit would proceed through wire, 58, contacts 9, and, 10, to wire, 59, and post, 11, and finally by wire, 60, to terminal, 16, and back through wire, 20, to the source of current supply. Thus it will be seen that after the glass, 23, has been broken the contacts, 9, and, 10, will be separated while the local alarm bell, 13, is sounded for a short period during which time the door remains unlocked; then the contacts, 9, and, 10, are again brought together in the usual way and a lock-releasing circuit is thus formed which will retract the bolt and unlock the door, so that access may be gained to the pin or hook, 8, to permit the alarm to be sent in to the department.

The means employed to send in the alarm are the same or equivalent to those now commonly employed and a detailed description thereof is deemed unnecessary. It is deemed advisable to add however, that when the door, 2, is opened the circuits in the box proper are in condition to perform their usual functions as will appear by reference to Fig. 3, in which the circuit will be formed from wire, 19, to terminal, 14, through post, 61, plate, 62, and wire, 63, to post, 64, into the alarm mechanism then return by post, 65, and wire, 66, to plate, 67, and post, 68, to terminal, 16, and then back by wire, 20, to the department and current supply.

It will be understood that in the operation of the invention the local alarm and preferably a preliminary alarm at headquarters will be given but the door will remain closed for a short period during which delay attention of all in the vicinity of the box will be directed to the fact that some one has started its operation, and more than likely if a false alarm was attempted the party will run off without waiting for the door, 2, to be unlocked, consequently the actual alarm will not be sounded. In this

event the department apparatus will not respond but some one may be sent to the box to re-set it by replacing the broken glass and closing the door. The lock, 51, may be actuated through the key-hole, 69, by an authorized person for purposes of inspection without sounding either of the preliminary alarms.

Having thus described our invention what we claim and desire to secure by Letters Patent is,—

1. In a fire alarm mechanism the combination with a box having a door, of a department alarm mechanism in the box including a stationary contact, a movable contact and an actuating hook; a local alarm device; actuating means accessible from the exterior of the box; electric means coacting between the exterior actuating means and the local alarm device to operate the latter; a lock for holding the door closed after the local alarm has been sounded and electric means for releasing the lock on the door to allow the door to be opened to expose the actuator of the department alarm.

2. In a fire alarm mechanism the combination with a box having a department alarm therein including a stationary contact, a movable contact and an actuating member, of a door for preventing access to said mechanism; a local alarm device; devices on the door for actuating the local alarm device; means for holding the door locked after the local alarm has begun operating and electrical means for releasing the door.

3. In a fire alarm mechanism the combination with a box having a department alarm mechanism therein including coacting contacts one of which is movable with respect to the other and also including an actuating member, of a door for preventing access to said mechanism; a local alarm device; contacts in the box; connections between said contacts and the local alarm device; contacts on the door to engage the contacts in the box; an electrically-operated lock for securing the door; and means for first establishing a circuit through the local alarm to first operate the latter and then to establish a circuit through the lock to actuate the latter and release the door.

4. In a fire alarm mechanism the combination with a box having a department alarm mechanism therein including two coacting contacts one of which is movable with respect to the other and also including an actuating member, of a plurality of contacts in the box; a local alarm device; connections between the local alarm and the contacts in the box; a door for preventing access to the department alarm mechanism in the box; means on the door for forming an electrical connection between the box contacts to operate the local alarm; an electrically-operated lock

and means in the box for releasing the lock after the local alarm has been operated.

5. In a fire alarm mechanism the combination with a box having a department alarm mechanism therein including two coacting contacts one of which is movable with respect to the other and also including an actuating member; a local alarm device; a door; means on the inner side of the door for effecting an operation of the local alarm; means on the outer side of the door for actuating the said means on the inner side thereof; a lock to hold the door closed and means for interrupting the local alarm and simultaneously actuating the lock to release the door.

6. In a fire alarm mechanism the combination with a box having a department alarm mechanism therein including two coacting contacts one of which is movable with respect to the other and also including an actuating member, of a local alarm; a door for the box to prevent access to the department alarm mechanism therein; a casing on the exterior of the door and having a frangible wall; means on the inner side of the door for establishing electrical connections through the local alarm and means in the casing on the exterior of the door for controlling the means on the inner side thereof to sound the local alarm while the door remains closed.

7. In a fire alarm mechanism the combination with a box having a department alarm mechanism therein including a stationary and a movable contact and an actuating member, of a local alarm device; a door; means for locking the door; means on the inner side of the door for engaging the actuating member of the department alarm mechanism; a casing on the outer side of the door and having a frangible wall; means in the casing on the outer side of the door and engaging the means on the inner side of said door and held in an inoperative position by the said frangible wall; means for establishing a circuit through the local alarm and simultaneously moving the actuating member of the department alarm while the door remains closed.

8. In a fire alarm mechanism the combination with a box having a department alarm mechanism therein including a pair of separable contacts and an actuating member, of a local alarm; a door; a lock on the door; electrical connections including the door lock and the pair of separable contacts of the department alarm mechanism; means on the door for operating the actuating member of the department alarm and thereby separating the said pair of contacts and means also on the door for effecting an operation of the local alarm while the said contacts are separated.

9. In a fire alarm mechanism the combination with a box having a department alarm mechanism therein including an actuating member and two separable contacts, of a series of contacts in the box; a local alarm device; connections between the box contacts and the local alarm; a door for the box; connections on the door with the local alarm contacts in the box; means on the exterior of the door for closing the circuit through the local alarm contacts while the door is closed; a lock for the door and means for releasing the lock after the local alarm has been sounded to permit the door to be opened and access gained to the actuating member of the department alarm mechanism.

10. In a fire alarm mechanism the combination with a box having a department alarm mechanism therein including two sep-

arable contacts and an actuating member, of a local alarm; a door for preventing access to the actuating member of the department alarm mechanism, said door having an opening to the exterior; a lock for the door; a movable device extending through the door opening; contacts on the door and held in a separated condition by the device that extends through said door opening; connections between the contacts on the door and the local alarm device, and means for electrically releasing the lock to permit the door to be opened.

In testimony whereof we affix our signatures in presence of two witnesses.

CHRISTIAN F. KLEIN.

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Witnesses:

CHARLES B. MANN, Jr.,

G. FERD. VOGT.