To all whom it may concern:

Be it known that I, JOHN HUTKA, a subject of the King of Hungary, residing at Youngstown, in the county of Mahoning and State of Ohio, have invented certain new and useful Improvements in Safety Fire-Alarm Boxes, of which the following is a specification.

This invention relates to certain new and useful improvements in safety fire alarm boxes.

The primary object of the invention is the provision of an arrangement in connection with fire alarm boxes, whereby the arm of a person turning in the alarm will be automatically detained until the arrival of an authorized person who is enabled to unlock the mechanism.

A further object of the device is to provide a ready means for preventing the sounding of false alarms of fire by arranging a catching device for the person turning in an alarm, the structure being such that the alarm can not be operated until after the catching mechanism has been actuated and a releasing of the mechanism is impossible by the public.

A still further object of the device is to provide a means in connection with the operating switch of the electrical system of a fire alarm box, for holding the operator of the switch a prisoner until the arrival of a proper officer to ascertain the location of the fire and to release the operator by resetting the holding means of the device.

In the drawings forming a part of this application and in which like designating characters refer to corresponding parts throughout the several views,

Figure 1 is a front elevation of the device with a portion of the front plate removed, Fig. 2 is a side elevation thereof.

Fig. 3 is a bottom plan view of the same. Fig. 4 is a view similar to Fig. 1 with a portion of the front plate removed and a part of the casing shown in vertical section.

Fig. 5 is a vertical transverse sectional view taken upon line V—V of Fig. 1.

Fig. 6 is a horizontal transverse sectional view taken upon line VI—VI of Fig. 1.

Fig. 7 is a view similar to Fig. 1 showing the position of the parts when the device is tripped.

Fig. 8 is a vertical sectional view taken upon line VIII—VIII of Fig. 1, and Fig. 9 is a perspective view of the arm catching member detached.

Referring more in detail to the drawings a casing 10 is provided in the form of a box having a front side 11 and a hand receiving opening 12 in one end 13 thereof. A horizontal partition 14 within the casing 10 provides a mechanism receiving compartment 15 below the partition and a chamber 16 above and inwardly of the opening 12.

A sliding panel 17 is arranged in the front of the box for normally closing, a corner portion or compartment 18 of the casing 10 within which a turn-switch 19 is arranged for the circuit wires 20 of the fire alarm system.

A U-shaped frame 21 is slidably mounted upon the end 13 by means of brackets 22 and extends through the partition 14 into the chamber 16, where the frame is provided with a slightly flexible yoke 23 made up of pivoted sections, the said yoke being normally arranged substantially out of alignment with the opening 12, whereby the hand of the operator may be readily inserted through the opening. A pivoted finger 24 is carried by the free end or cross piece 25 of the frame 21 having a spring 26 connected between said finger and the bottom 27 of the casing 10 adapted for drawing the yoke 23 across the opening 12 for engaging the arm of the operator when thrust therethrough whenever the mechanism is tripped in the manner hereinafter set forth.

The panel 17 is provided with a depending pin 28 connected to a link 29 arranged within the casing 10 and pivotally attached by means of a similar link 30 to a rocker arm 31 pivoted to a post 32 carried by the adjacent end 33 of the casing. A post 34 is horizontally pivoted within the casing 10 between the opposite sides thereof and has a lever 35 secured thereto pivotally connected at its free end to the finger 24. A similar lever 36 is secured to the post 34 and is connected to the rocker arm 31 by connectors 37. It will be seen that when the panel 17 is in its normal elevated position closing the corner compartment 18, the lever 35 and the connecting means between the lever 35 and said panel 17 will hold the frame 21 and its yoke 23 elevated with the hand receiving opening 12 unobstructed.

A vertical guide strip 38 is arranged at the inner side of the panel 17 having a groove 39.
within which a beveled lug 40 of said panel is positioned for sliding during the longitudinal shifting of the panel 17. A latch pin 41 is horizontally shiftably arranged upon the guide strips 28 for normally projecting through the groove 39 into the path of movement of the lug 40. The beveled inner face of the lug 40 permits the upward movement of the panel 17 to a point above the pin and in which position, the pin 41 by engaging the lug 40 retains the panel 17 elevated with the engaging yoke 28 in its normal open arrangement.

A push rod 42 is slidabley arranged upon the rear wall 43 of the casing 10 with its upper end arranged inwardly of an opening 44 in a partition 45 at one end of the chamber 16. The pin 41 is normally positioned within the groove 39 by means of a spring 47 while a rocker 48 is pivoted at one end to the pin 41 while its opposite end is pivoted to a link 49 which in turn is hinged to a rocker arm 50 having operative connections with the lower end of the push rod 42. A spring 51 is connected to a lug 52 of the rocker arm 50 and assists the spring 47 in positioning the pin 41 as well as in holding the rod 42 elevated.

It will be understood that the device is normally set with the panel 17 elevated and the yoke 28 not obstructing the opening 12 with the latch pin 41 engaging the lug 40 for maintaining the elements in this arrangement. A person desiring to obtain access to the switch 19 for turning in a fire alarm will insert his hand and arm through the opening 12 and yoke 28 and will push downwardly upon the push rod 42 which is accessible through the opening 44. This movement of the rod 42 retracts the pin 41, releasing the lug 40 and permitting the spring 26 to move the panel 17 downwardly uncovering the corner compartment 18, while the frame 21 and yoke 28 move downwardly simultaneously with the panel 17 securing the arm or wrist of the operator within the opening 12 by means of the yoke 28 which engages the arm. The other hand of the operator may be then employed for turning the switch 19 for closing the circuit of the wires 20 and sending in the alarm of fire.

A catch 53 is pivoted to the cross piece 25 of the frame 21 and provided with a spring 54 for normally maintaining the catch in engagement with a toothed rack 55 carried by the adjacent end 13 of the casing 10. It will be understood that the downward movement of the frame 21, ratchets the catch 53 over the rack 55 which engagement of the catch with the teeth of said rack prevents the return movement of the frame 21 until the catch 53 has been released.

A door 56 is arranged in the bottom 27 of the casing 10 and adapted to be opened by an officer of the fire department inserting the proper key through a slot 57 for releasing the lock bolt 58 of the door 56. A turn spindle 59 is journaled within the corner compartment 18 inwardly of the door 56 and has a lever 60 secured thereto and connected by means of a link 61 with an arm 62 of a shaft 63 journaled upon the rear wall of the casing 10. Projecting arms 64 carried by the shaft 63 have links 65 pivoted to the free ends, which links have their free ends connected by a rod 66. Fingers 67 are pivoted to the rear wall of the casing 10 and have the rod 66 journaled through their inner ends. A bail 68 is carried by the rod 66 while a finger 69, 65 pivoted to the catch 53 has a collar 70 slidably receiving the bail 68 therethrough.

When the device has been sprung for catching the hand of an operator, the officer in charge opens the door 56 and turns the spindle 59 for shifting the links 65 in a manner to exert a pull upon the bail 68 and finger 69, thereby releasing the catch 53 from the rack 55. When the panel 17 is released, the panel may then be elevated by means of a key positioned through one of the keyhole slots 71 provided in the panel, the latter being caught and retained by the latch pin 41 with the yoke 28 released as hereinbefore described.

A retaining means is arranged for the panel 17 when lowered consisting of a detent 72 pivoted as at 73 to the inner face of the panel and maintained in normal engagement with a toothed portion 74 of the casing end 23 by means of a spring 75 carried by the panel 17. The detent 72 permits the panel to freely move to its lower position, while the engagement of the detent 72 with the teeth 74 prevents the return upward movement of the panel until such detent is released by inserting a key through the slot 71 for engaging and inwardly moving the detent 72 away from the teeth 74. The complete operation of the device will be apparent from this detailed description of the operation of the several parts. It will be understood that the lowering of the rod 42 by the hand of the operator positioned through the openings 12 and 44 trips the mechanism for lowering the panel 17 and yoke 23 for uncovering the corner compartment 18, permitting access to the switch 19 and catching the arm of the operator. The detent 72 retains the panel 17 lowered, while the catch 53 retains the yoke 23 and its frame 21 lowered until an authorized person such as a policeman or fireman opens the door 56 and grasps the spring 59, while simultaneously therewith, the key for the detent 56 is inserted through the slot 71 of the panel 17 and the detent 72 released so that an upward movement of the panel 17 is effected by pushing the same by means of said key after the spindle 59

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has been turned for releasing the catch 53. The upward movement of the frame 21 places the spring 26 under tension and the elements are retained in this position by the latch pin 41 as heretofore noted until said pin is released by the push rod 42 for the automatic operation of the mechanism by means of the said operating spring 26.

A serviceable structure is provided possessing great strength for catching and holding the operator, thereby rendering it possible to quickly ascertain the location of a fire as well as to prevent tampering with the fire alarm system and sending in of false alarms.

What I claim is:

1. Fire alarm mechanism comprising a casing having a hand receiving opening in one end thereof, arm grasping means arranged inwardly of the opening, alarm operating means, obstructing means for the alarm operating means, simultaneously operable withdrawing means for the obstructing means and actuating means for the arm engaging means.

2. Fire alarm mechanism comprising a casing having a hand receiving opening in one end thereof, arm grasping means arranged inwardly of the opening, alarm operating means, obstructing means for the alarm operating means, simultaneously operable withdrawing means for the obstructing means and actuating means for the arm engaging means, a retaining catch for the arm engaging means, a retaining detent for the panel and separate releasing means for the said detent and catch.

3. A device of the class described comprising a casing having a hand receiving opening in one end thereof and a switching compartment adjacent its other end, a slidable casing panel for said compartment, an arm engaging means arranged inwardly of said opening, and simultaneous operating means for said panel and arm engaging means.

4. A device of the class described comprising a casing having a hand receiving opening in one end thereof and a switching compartment adjacent its other end, a slidable casing panel for said compartment, an arm engaging means arranged inwardly of said opening, simultaneous operating means for said panel and arm engaging means, a retaining catch for the arm engaging means, a bottom door in the casing, releasing means for said catch operable adjacent the said door.

5. A device of the class described comprising a casing having a hand receiving opening in one end thereof and a switching compartment adjacent its other end, a slidable casing panel for said compartment, an arm engaging means arranged inwardly of said opening, simultaneous operating means for said panel and arm engaging means, means adapted for retaining said panel closed and means operable from a point inwardly of said opening for releasing the said last mentioned means.

6. A device of the class described comprising a casing having a hand receiving opening in one end thereof and a switching compartment adjacent its other end, a slidable casing panel for said compartment, an arm engaging means arranged inwardly of said opening, simultaneous operating means for said panel and arm engaging means, a retaining catch for the arm engaging means, a bottom door in the casing, releasing means for said catch operable adjacent the said door, means adapted for retaining said panel closed and means operable from a point inwardly of said opening for releasing the said last mentioned means.

7. A device of the class described comprising a casing having a hand receiving opening in one end thereof and a switching compartment adjacent its other end, a slidable casing panel for said compartment, an arm engaging means arranged inwardly of said opening, a normally tensioned operating spring for the arm engaging means, and operable shifting connections between the said panel and arm engaging means.

8. A device of the class described comprising a casing having a hand receiving opening in one end thereof and a switching compartment adjacent its other end, a slidable casing panel for said compartment, an arm engaging means arranged inwardly of said opening, a normally tensioned operating spring for the arm engaging means, operable shifting connections between the said panel and arm engaging means, retaining means for the arm engaging means, a door for said casing, and releasing means for said retaining means operable inwardly of said door.

9. A device of the class described comprising a casing having a hand receiving opening in one end thereof and a switching compartment adjacent its other end, a slidable casing panel for said compartment, an arm engaging means arranged inwardly of said opening, simultaneous operating means for said panel and arm engaging means, operable shifting connections between the said panel and arm engaging means, retaining means for the arm engaging means, a door for said casing, releasing means for said retaining means operable inwardly of said door, locking means for the panel and means adapted for permitting the return movement of the panel and arm engaging means when the said locking and retaining means are released.

10. A device of the class described comprising a casing having an arm receiving opening and a corner compartment, an alarm switch within the said compartment, a shiftable closure for said compartment, auto-
matic opening means for said closure, means adapted for retaining said closure normally overlying said compartment, and releasing means for said retaining means operable inwardly of said opening.

11. A device of the class described comprising a casing having an arm receiving opening and a corner compartment, an alarm switch within the said compartment, a shiftable closure for said compartment, automatic opening means for said closure, means adapted for retaining said closure normally overlying said compartment, releasing means for said retaining means operable inwardly of said opening, arm engaging means arranged adjacent said opening closure, whereby the arm of the operator is adapted to be engaged upon the opening of said closure, and released upon closing said compartment.

12. A device of the class described comprising a casing having an arm receiving opening and a corner compartment, an alarm switch within the said compartment, a shiftable closure for said compartment, automatic opening means for said closure, means adapted for retaining said closure normally overlying said compartment, releasing means for said retaining means operable inwardly of said opening, arm engaging means arranged adjacent said opening closure, whereby the arm of the operator is adapted to be engaged upon the opening of said closure, and released upon closing said compartment.

In testimony whereof I affix my signature.

JOHN HUTKA.

Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents, Washington, D.C."