

992,633.

Fig. 2.

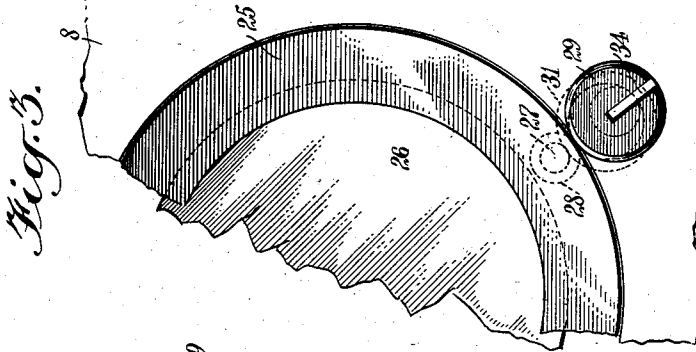


Fig. 3.

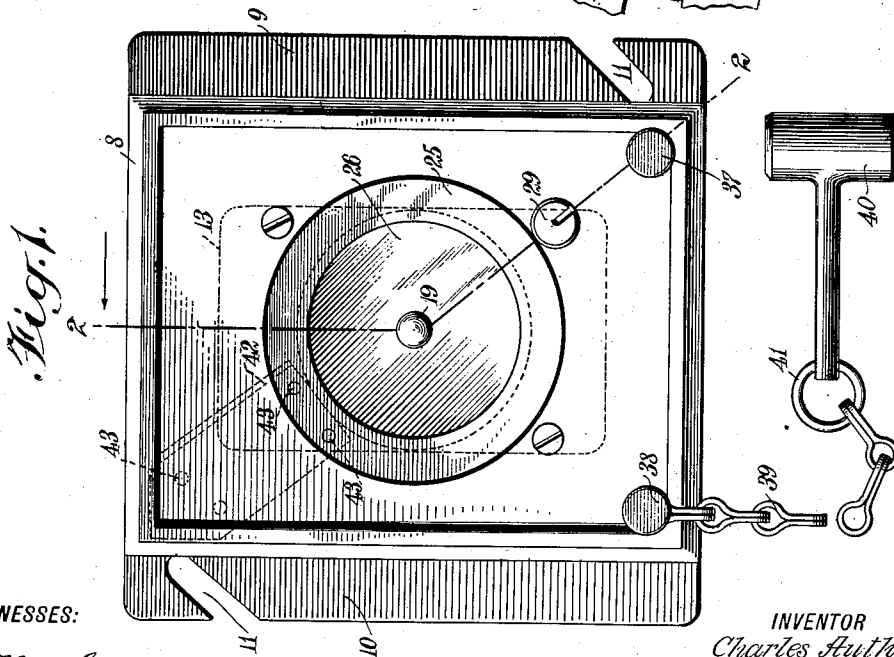


Fig. 1.

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BREAK-GLASS FIRE-ALARM.

992,633.

Specification of Letters Patent.

Patented May 16, 1911.

Application filed June 11, 1910. Serial No. 566,334.

To all whom it may concern:

Be it known that I, CHARLES AUTH, a citizen of the United States, and a resident of the city of New York, borough of Brooklyn, in the county of Kings and State of New York, have invented a new and Improved Break-Glass Fire-Alarm, of which the following is a full, clear, and exact description.

10 My invention relates to fire alarms of the so-called "break glass" type, my more particular purpose being to provide such alarms with an efficient testing device, and also to improve the general construction of
15 such alarms.

Reference is to be had to the accompanying drawings forming a part of this specification, in which similar characters of reference indicate corresponding parts in all
20 the figures.

Figure 1 is an elevation showing the alarm box and hammer for breaking the glass in order to give the alarm; Fig. 2 is a section on the line 2—2 of Fig. 1, showing
25 the contact mechanism for actuating the alarm and also showing the means controllable by a key for testing the condition of the apparatus; and Fig. 3 is an enlarged fragmentary elevation showing the lock
30 mechanism controllable by the key and used for purposes of testing and inspection.

The alarm box is adapted to be sunken into a wall and thereby caused to practically occupy less room.

35 At 4 is the solid surface of a wall and at 5, 6 are panel boards or plates surrounding the compartment 7. The face of the box is shown at 8. This box is provided with rectangular walls 8^a having flanges 8^b turned
40 outwardly therefrom and extending behind the panel boards 5, 6, thereby holding the various parts in position. The box is further provided with flanges 9, 10 which are simply continuations of the flanges 8^b and
45 are provided with slots 11 disposed obliquely and oppositely to each other, as indicated in Fig. 1. Behind the face 8 is a plate 12 provided centrally with an opening 12^a, and mounted securely upon the
50 walls 8^a. A block 13 of wood or other insulating material is mounted upon the plate 12. A leaf spring 14 is mounted upon the

upper portion of the block 13 and extends downwardly from the same. A fastening bar 15 holds this spring in position and is in turn held firmly against the block 13 by aid
55 of a bolt 16.

At 17 is a binding post which is in metallic communication with the contact spring 14. An insulated wire 18 is connected with
60 the binding post and serves as one of the conductors for supplying an electric current to the apparatus, as hereinafter described.

A bolt 19 extends entirely through the block 13 and is provided with a rounded
65 point 19^a. The bolt is further provided with a head 20, the latter having a conical portion 20^a against which the leaf spring 14 normally presses.

At 21 is a leaf spring which is secured
70 upon the lower portion of the block 13 by aid of a pressure plate 22. Connected with this leaf spring 21 is a binding post 23 to which is secured an insulated wire 24. Fitted into an annular frame 25 of metal is a
75 circular disk 26 of glass. This frame 25 carrying the glass fits into a circular opening 26^a in the face 8. Mounted upon the lower edge of the annular frame 25 and extending inwardly from the same is a bolt
80 27 having a head 28 and this head having a conical portion 28^a. The bolt as a whole serves the purpose of a latch for holding the annular frame 25 in its normal position indicated in Fig. 2. Secured rigidly to the
85 face plate 8 and extending inwardly therefrom is a boss 29 having generally a cylindrical form. This boss is provided with a neck 30 and loosely encircling this neck is a locking ring 31. Mounted upon the boss
90 29 is a leaf spring 32 secured thereto by aid of a screw bolt 33. The boss 29 is provided with a key-way 34 having the form of a slot and extending lengthwise through the boss. A key 35 is provided with a beveled
95 edge 36 and is adapted to be inserted in the key-way so that the beveled edge 36, by engaging the inner surface of the locking ring 31, may move the ring laterally in a direction crossing the general longitudinal axis
100 of the boss 29 and its key-way 34. By merely placing the key 35 in the position indicated in Fig. 2, and pressing upon it, the locking ring 31 is moved obliquely down-

ward and to the right, following generally the radial direction of the key-way 34. The leaf spring 32 is partially within the key-way and by its engagement with the locking ring 31 tends normally to force the locking ring obliquely upward and against the body portion of the bolt 27, as indicated in Fig. 2. While in this position the locking ring 31 is eccentric relatively to the boss 29. When, however, the key is inserted as just described, so that the locking ring 31 is drawn obliquely downward, the locking ring is brought into a true concentric position relatively to the axis of the boss 29, and is so doing the locking ring disengages the bolt 27 and moves entirely out of the path of the head 28, thereby leaving the lower end of the annular frame 25 entirely free.

At 37, 38 are two screws. A chain 39 is connected with the screw 38, and is also connected with a hammer 40 having a ring 41. By slipping the ring 41 over the screw 37 the hammer may be suspended from this screw. Otherwise the hammer will hang from the chain 39 and screw 38.

The annular frame 25 is mounted upon a leaf spring 42 by aid of rivets or other appropriate fastenings 43, in such manner that the frame 25 normally tends to spring outward, as indicated by dotted lines in Fig. 2. The arrangement of the parts is such, however, that when the lower edge of the frame 25 is forced inward toward the wall, as indicated in Fig. 2, the locking ring 31 springs into its normal position so that a portion of the locking ring lodges between the head 28 and the face of the casing and thus holds the frame 25 in the position indicated by full lines in Fig. 2. While in this position the pressure of the glass plate 26 against the bolt 19 causes the conical portion 20* of the bolt head 20 to hold the leaf spring 14 out of engagement with the spring 21, as indicated by full lines in Fig. 2. As soon, however, as the bottom edge of the frame 25 is liberated by action of the key 35, as above described, the tension of the leaf spring 42 causes the frame 25 to spring into the position indicated by dotted lines in Fig. 2, and the leaf spring 14 now springs into engagement with the leaf spring 21.

The insulated wires 18, 24 being connected up with a source of electricity and with an alarm controllable by said source of electricity, the apparatus is ready for use. For convenience I designate the annular frame 25 and the pane of glass 26 as a window.

The operation of my device is as follows: The parts being assembled and connected up as above described, the window is closed; that is to say, the lower edge of the annular frame 25 is forced into the position indi-

cated by full lines in Fig. 2. When this is done the locking ring 31 snaps up against the body portion of the bolt 27 and prevents the head 28 of this bolt from moving. The tension of the leaf spring 32 now holds the locking ring 31 in its eccentric position as indicated by full lines in Fig. 2, and by dotted lines in Fig. 3. The pressure of the plate of glass 26 against the bolt 19 prevents contact between the leaf springs 14 and 21, and consequently the alarm is normally idle. Now, in case of fire the operator grasps the hammer 4 and strikes the glass plate 26 with it. This liberates the bolt 19, which under pressure of the leaf spring 14 quickly moves forward until the bolt head 20 lodges against the block 13. The leaf spring 14 which serves the purpose of a contact spring now rests against the leaf spring 21 and a circuit is completed as follows: source of electricity, wire 18, binding post 17, springs 14, 21, plate 22, binding post 23, wire 24, to alarm, thence back to source of electricity. This energizes the alarm. Suppose, now, that a properly authorized person provided with the key 35 wishes to test the system. He inserts the key as above described, so that the beveled edge 36 engages the inner surface of the locking ring 31 and moves this ring from its normal or eccentric position into its abnormal or true concentric position. This releases the bolt and allows the bottom of the window to swing outwardly, the spring 14 engaging the spring 21, as above described, and thus actuating the alarm.

Of course, it is an easy matter to test any alarm by breaking the glass, but this is objectionable for many reasons, one being the necessity of replacing each plate of glass when broken, and another being the slight danger and inconvenience due to the shattering of the glass. By aid of my advice the condition of the alarm can be tested by merely inserting a key; and when the test is over, all that is necessary to place the apparatus in normal condition is to press against the window, closing it with a snap.

Having thus described my invention, I claim as new and desire to secure by Letters Patent:

1. The combination of a window having a normal position and an abnormal position, contact mechanism controllable by said window, a bolt mounted upon said window and constituting a latch, and a lock including a locking ring engaging said bolt for the purpose of holding said window in its normal position.

2. The combination of a movable member, contact mechanism to be closed by movements of said movable member, a bolt mounted upon said movable member, a boss disposed adjacent to said bolt and provided

with a neck, a locking ring encircling said neck and adapted for temporarily holding said bolt, and means controllable at will for shifting the position of said locking ring
5 relatively to said bolt in order to release said movable member.

In testimony whereof I have signed my

name to this specification in the presence of two subscribing witnesses.

CHARLES AUTH.

Witnesses:

JOSEPH HUMPHREY,
AUGUST E. FARUNKOPF.