W. Z. WILKINSON.

AUTOMATIC FIRE ALARM SYSTEM.

APPLICATION FILED JULY 1, 1915.

1,173,072.

Patented Feb. 22, 1916.

3 SHEETS—SHEET 1.

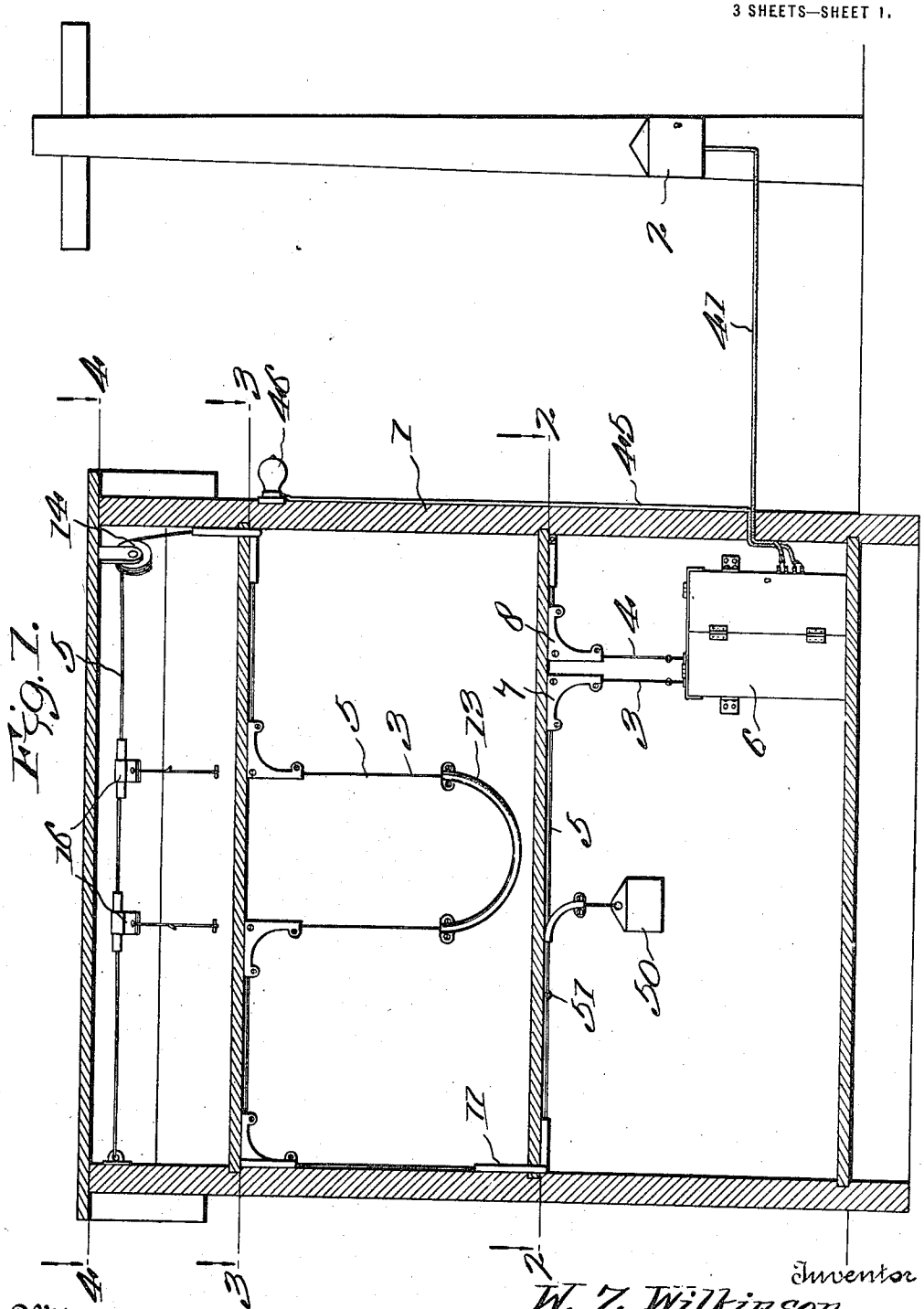


Fig. 1.

Witnesses

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3-SHEETS—SHEET 2.

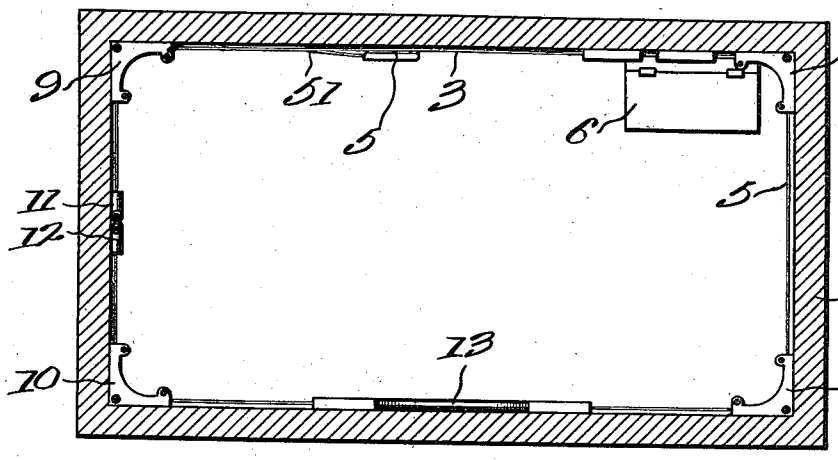


Fig. 2.

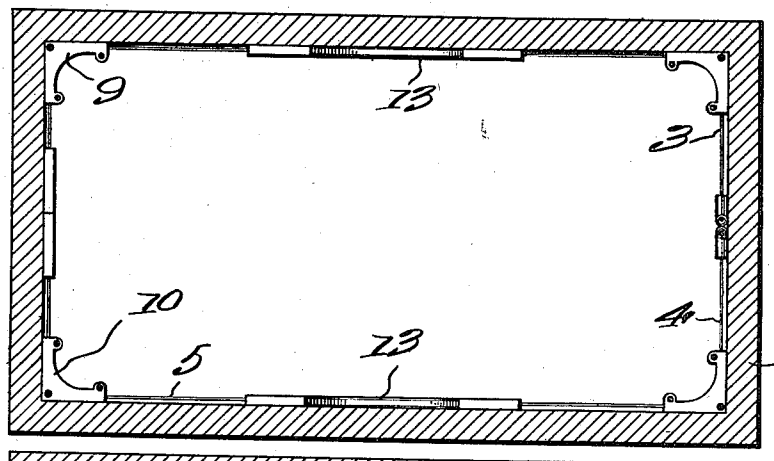


Fig. 3.

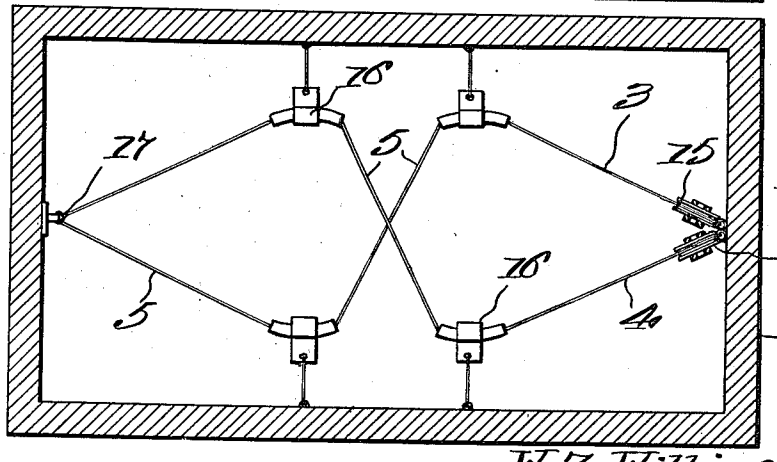


Fig. 4.

Witnesses

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3 SHEETS SHEET 3.

Fig. 5.

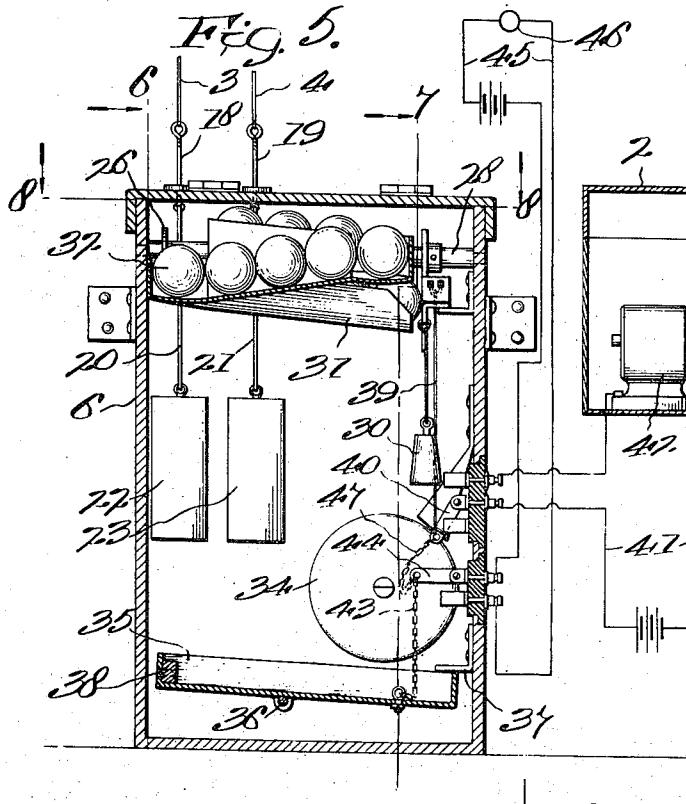
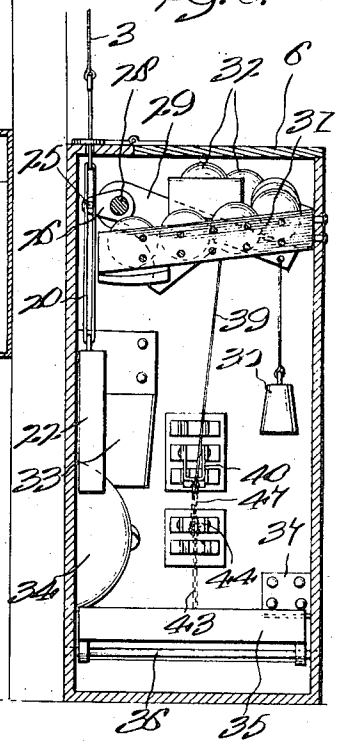


Fig. 6.



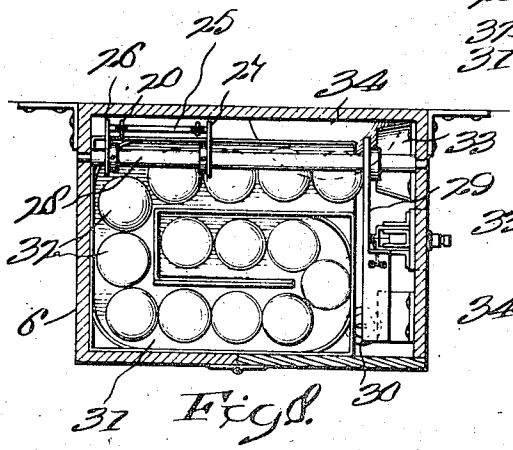


Fig. 8.

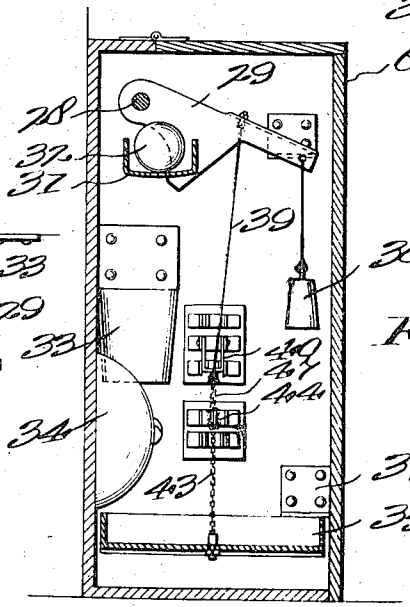


Fig. 7.

Witnesses

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UNITED STATES PATENT OFFICE.

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AUTOMATIC FIRE-ALARM SYSTEM.

1,173,072. Specification of Letters Patent. Patented Feb. 22, 1916.

Application filed July 1, 1915. Serial No. 37,617.

To all whom it may concern:

Be it known that I, WILLIAM Z. WILKINSON, a citizen of the United States, residing at Baton Rouge, in the parish of East Baton Rouge and State of Louisiana, have invented certain new and useful Improvements in Automatic Fire-Alarm Systems; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

The present invention relates to improvements in automatic fire alarm systems, and consists more particularly in an improved fire alarm system for installation in buildings whereby a local alarm may be sounded and the general alarm turned in simultaneously.

It is an object of the present invention to provide an improved automatic fire alarm system which, in addition to sounding a local alarm and turning in the general alarm, will automatically close circuit through a signal lamp or other signaling device provided on the exterior of the building for indicating to firemen the location of the fire.

A further object of the present invention resides in providing improved means for sounding the audible alarm, and in a novel arrangement of thermally-controlled mechanism for releasing the alarm operating means; said several mechanisms being associated to operate the general alarm and the visual signal in front of the building.

With these and other objects in view the invention consists in the novel details of construction and combinations of parts more fully hereinafter disclosed and particularly pointed out in the claims.

In the accompanying drawings forming a part of this application, and in which similar reference symbols indicate corresponding parts in the several views: Figure 1 is a vertical sectional view of a building equipped with an automatic fire alarm system constructed and arranged in accordance with the present invention and illustrating connection to the general alarm box. Fig. 2 is a horizontal sectional view taken on the line 2—2 in Fig. 1. Fig. 3 is a similar view taken on the line 3—3 in Fig. 1. Fig. 4 is a similar view taken on the line 4—4 in Fig. 1. Fig. 5 is a vertical sectional view of the improved alarm box. Fig. 6 is a vertical sectional view taken on the line 6—6 in Fig. 5. Fig. 7 is a similar view taken on the line 7—7 in Fig. 5; and Fig. 8 is a horizontal sectional view taken on the line 8—8 in Fig. 5.

Referring more particularly to the drawings, 1 designates a building equipped with the improved fire alarm system, and shown in Fig. 1 as connected to a signal box 2 in the general alarm system.

Throughout the building 1 are strung a plurality of connections 3 and 4 provided, at short intervals, with fusible sections 5 adapted to be destroyed under the influence of heat and release said connections, as hereinafter more fully described. The connections 3 and 4 are carried upwardly from the alarm box 6, as disclosed to advantage in Fig. 1, and are passed through a pair of right angular guides 7 and 8, thence along the ceiling through similar guides 9 and 10, as shown in Fig. 2, and are directed through brackets 11 and 12 to the second floor of the building. Here the connections 3 and 4 are similarly strung, the same being shown in Fig. 1 to be carried down and passed through a semi-circular tube 13. The connections 3 and 4 are similarly strung throughout the remaining floors of the building, and are preferably engaged through pulleys 14 and 15 journaled in hangers in the attic, and are arranged in zigzag formation, passing from one side to the other through supports 16 and being secured in an eye 17. It will be understood, however, that the connections 3 and 4 may be of any suitable number, and may be strung through the building in any manner found convenient or necessary.

Each of the connections 3 and 4 are coupled by links 18 and 19 to closed loops 20 and 21, respectively, supporting weights 22 and 23 arranged in the alarm box 6. The closed loops 20 and 21 straddle a rod 25 connected between a pair of arms 26 and 27 mounted on a rock shaft 28, journaled in the side walls of the box 6.

On the rock shaft 28 is mounted a gate 29, normally depressed, as shown in Fig. 7, by a weight or other suitable means 30; and in such position closing the mouth of a trough 31, wherein are arranged a series of balls 32. The mouth of the trough 31 discharges onto a chute 33 for directing the series of

balls 32 against a bell or other audible signal 34. From the bell 34 the balls 32 fall upon and are collected into a platform 35 mounted for tilting movement on a rod 36, and normally held against a stop 37 by a weight or other means 38.

The gate 29 is coupled by a connection 39 with a switch arm 40, for closing a circuit 41 in which is included a motor 42 in the general alarm signal box 2. Although I have illustrated a motor 42 for actuating the general alarm system, it will be understood that any of the approved means now in common use may replace the same.

The tilting platform 35 is coupled by a connection 43 to a switch arm 44 for closing a circuit 45, including a signal lamp or other signaling device 46 to be mounted on the exterior of the building, as shown in Fig. 1, whereby the firemen will be enabled to locate the fire. The switch arm 40 is connected to the switch arm 44 through a connection 47 for opening the switch 40 simultaneously with the closing of the switch 44, as hereinafter explained.

In the operation of the improved system the several parts are normally in the position shown in the drawings. Whenever a fire occurs in any part of the building, the heat generated thereby will melt the nearest fusible section 5 and release the associated connection 3 or 4 to the action of its corresponding weight 22 or 23, which action will be assisted by supplemental weights 50 coupled to said connections 3 and 4, as indicated at 51 in Fig. 1. The disengaged weight 22 or 23 will thereupon fall, drawing the respective loop 20 or 21 down, and through the rod 25 and associated arms 26 will oscillate the rock shaft 28, withdrawing the gate 29 from position, closing the mouth of the trough 31. The balls 32 will then automatically discharge from the inclined trough 31 and will be directed successively onto the chute 33 and against the bell 34, which will, by such action, sound an alarm throughout the building. Simultaneously with the movement of the gate 29 the switch 40 will be closed through the connection 39, and will start the motor or other device 42, thereby turning in the general alarm. As the balls 32 are discharged they are collected in the inclined platform 35, until the same having collected in sufficient numbers will tilt the platform about the rod 36 and against the action of the weight 38, thereby drawing upon the connection 43 and closing the switch 44. The lamp 46 in front of the building will thereupon be lighted and indicate to the firemen the location of the fire. Simultaneous with the closing movement of the switch 44 the connection 47, which has been drawn taut by the closing of the switch 40, will operate to reopen the switch 40 and shut off the electric motor or other device 42, which has completed its operation of turning in the general alarm.

It is obvious that those skilled in the art may vary the details of construction and arrangements of parts without departing from the spirit of my invention, and therefore I do not wish to be limited to such features except as may be required by the claims.

I claim:

1. In an automatic fire alarm system for buildings, the combination of an audible alarm, means for controlling the sounding of said audible alarm, means associated with said audible alarm for actuating a general alarm, a signal for indicating the building, and means for simultaneously disconnecting said general alarm means and operating said signal, substantially as described.

2. In an automatic fire alarm system for buildings, the combination of an audible alarm, means for actuating said audible alarm, means for turning in the general alarm from said audible alarm means, a visual signal for indicating the building, and means for closing circuit through said visual signal and simultaneously disconnecting the general alarm means, substantially as described.

3. In an automatic fire alarm system for buildings, the combination of an audible alarm, means for sounding said audible alarm, a general alarm actuating means, a switch for closing circuit through said general alarm means, a connection for actuating said switch from the audible alarm sounding means, a visual signal for indicating the building, a switch for closing circuit through said visual signal, means for actuating said switch, and a connection between said switches for simultaneously interrupting the circuit through said general alarm means and closing the circuit through said visual signal, substantially as described.

4. In an automatic fire alarm system, the combination of an audible signal, a series of balls for sounding said audible signal thermal-controlled means for releasing said balls, a signal for indicating the building, and means operated by said balls for closing circuit through said signal, substantially as described.

5. In an automatic fire alarm system, the combination of an audible signal, a series of balls for sounding said audible signal. thermal-controlled means for releasing said balls, means associated with said thermal-controlled means for turning in the general alarm, a signal for indicating the building, and means operated by said balls for closing the circuit through said signal, substantially as described.

6. In an automatic fire alarm system, the combination of an audible signal, a series of balls for sounding said audible signal,

thermal-controlled means for releasing said balls, a signal for indicating the building, a movable platform for collecting said balls, and a switch associated with said platform for closing circuit through said signal, substantially as described.

7. In an automatic fire alarm system, the combination of an audible alarm, a trough arranged above said audible alarm, a series of balls for operating said audible alarm and confined in said trough, thermal-controlled means for releasing said balls, means actuated from said thermal-controlled means for turning in the general alarm, a signal for indicating the building, a switch for closing circuit through said signal, a tilting platform for collecting said balls, a connection for operating the signal switch from said platform, and a connection between said switches for simultaneously interrupting the general alarm means and closing circuit through said signal, substantially as described.

8. In an automatic fire alarm system for buildings, the combination of an audible signal, a trough arranged above said audible signal, a series of balls for operating said audible signal confined in said trough, a gate for controlling the release of said balls, means for normally holding said gate in closed position, connections strung through the building, fusible sections in said connections, means for moving said gate to open position against the influence of said closing means when a fusible section is destroyed, and means for electrically turning in the general alarm and operated through said balls, substantially as described.

9. In an automatic fire alarm system for buildings, the combination with an audible alarm, a trough arranged above said audible alarm, a series of balls for operating said audible alarm and confined in said trough, a gate for controlling the release of said balls, means for normally holding said gate in closed position, connections strung through the building, fusible sections in said connections, means for moving said gate to open position when a fusible section is destroyed, means associated with said gate for turning in the general alarm, a movable platform for collecting said balls, a visual signal for indicating the building, and means connected to be operated from said platform for simultaneously closing circuit through said visual signal and interrupting the circuit through said general alarm means, substantially as described.

10. In an automatic fire alarm system for buildings, the combination of a general alarm actuating means, a signal for indicating the building, means for automatically operating said general alarm means, and means for simultaneously disconnecting said general alarm means and operating said signal, substantially as described.

11. In an automatic fire alarm system for buildings, the combination of a general alarm actuating means, a signal for indicating the building, switch means for closing circuit through said general alarm means and signal, a device for automatically throwing said switch means to operate the general alarm, and means for reversing said switch means to simultaneously interrupt the general alarm means and close circuit through said signal, substantially as described.

12. In an automatic fire alarm system for buildings, the combination of a general alarm actuating means, a signal for indicating the building, a pair of interconnected switches for closing the circuit through said general alarm means and signal, means for independently closing said general alarm switch, and means for simultaneously opening said general alarm switch and closing the signal switch, substantially as described.

13. In an automatic fire alarm system for buildings, the combination of an audible alarm, means for sounding said audible alarm, a gate for controlling the release of said alarm sounding means, an instrumentality for shifting said gate to release the alarm means, a general alarm actuating means, switch mechanism for closing circuit through said general alarm means and connected to be actuated from said gate in moving to open position, a signal for indicating the building, switch mechanism for closing circuit through said signal, a loose connection between said switch mechanisms, and a device operated from said alarm sounding means to simultaneously close said signal switch mechanism and open the general alarm switch mechanism, substantially as described.

In testimony whereof, I affix my signature.

WILLIAM ZACH WILKINSON.