No. 713,050. Patented Nov. 11, 1902.

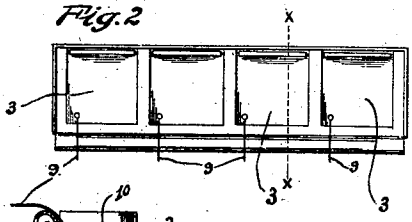
F. BERNARDIN.

AUTOMATIC FIRE ALARM.

(Application filed Apr. 25, 1902.)

(No Model.)

Fig. 2



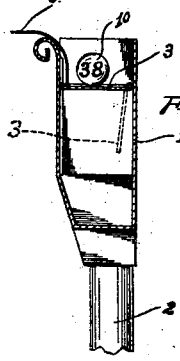
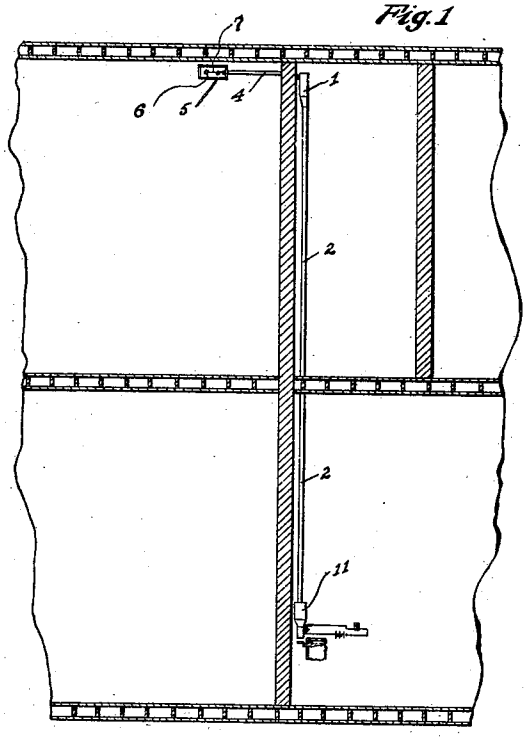


Fig. 3

Fig. 1



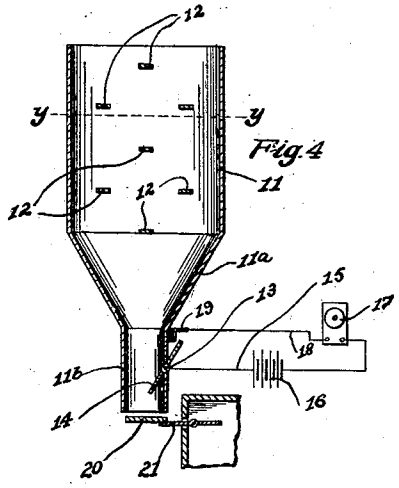


Fig. 4

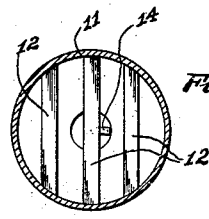


Fig. 5

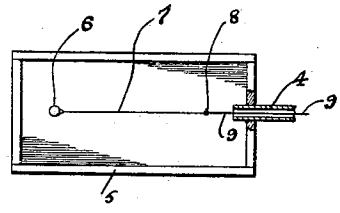


Fig. 6

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AUTOMATIC FIRE-ALARM.

SPECIFICATION forming part of Letters Patent No. 713,050, dated November 11, 1902.

Application filed April 25, 1902. Serial No. 104,695. (No model.)

To all whom it may concern:

Be it known that I, FRANK BERNARDIN, a citizen of the United States, residing at Antwerp, in the county of Paulding and State of Ohio, have invented a certain new and useful Improvement in Automatic Fire-Alarms, of which the following is a specification.

My invention relates to automatic fire-alarms, and has particular relation to that class of automatic alarms which are adapted for use in hotels, apartment-houses, business-blocks, &c.

The objects of my invention are to provide an improved fire-alarm mechanism so arranged and constructed as to indicate at a suitably-located station the presence of a fire in any one of the rooms of a building, to so construct my improved apparatus as to indicate the number of the room from which the alarm is given, to combine therewith means for automatically operating the operating hook or lever of a city fire-alarm box, and to produce other improvements the details of which will be more fully pointed out hereinafter. These objects I accomplish in the manner illustrated in the accompanying drawings, in which—

Figure 1 is a central vertical section through portions of two floors of a building, showing one line of my improved apparatus in position. Fig. 2 is a plan view of the ball-receptacle which I employ in the manner hereinafter described. Fig. 3 is a sectional view on line $x\ x$ of the same. Fig. 4 is a central vertical section of the indicating mechanism at the terminal station. Fig. 5 is a transverse section on line $y\ y$ of Fig. 4, and Fig. 6 is a face view of the fuse-box.

Similar numerals refer to similar parts throughout the several views.

In carrying out my invention I employ vertically-arranged hopper-like receptacles 1, the latter being preferably located within the hallways of a building, one for each room thereof. Each of these receptacles consists of the open-mouthed body, (shown more clearly in Figs. 2 and 3 of the drawings,) having its lower portion converging to a central outlet from which leads downwardly a suitable pipe or tube 2. Near the upper portion of each of the receptacles 1 I provide separated drops or doors 3, each of which is hinged at one side to one wall of the receptacle and which is adapted to drop by gravity to the position indicated by dotted lines in Fig. 3 of the drawings. Leading from points above the receptacle 1 are one or more tubes or pipes 4, these tubes leading to desirable points within the room to which said receptacle belongs. At their terminations said tubes 4 enter the ends of open frames or boxes 5, which are suitably fixed about the room. As indicated more clearly in Fig. 6 of the drawings, each of these frames or boxes is provided in one end with an outwardly-projecting pin 6, from which leads toward the pipe 4 a fusible thread or cord 7, which may be of fabric or other suitable fusible material. This fusible thread is, as indicated at 8, connected with one end of a suitable flexible wire 9, which, leading through the tube 4, runs to the receptacle 1 and into the upper end of the latter, where it engages one of the drops 3 and serves to normally hold the latter horizontally within the receptacle or in its raised position. It is obvious that where a number of the fuse devices are employed in a room these devices may be connected, respectively, with the various drops 3 in the manner above described. Upon the drops are supported balls, such as are indicated at 10 in Fig. 3, each of these balls bearing the number of the room to which the receptacle 1 belongs. The downwardly-extending tube or pipe 2, which leads from the bottom or central portion of each of the receptacles 1, is extended to a suitable point in a lower room, such as a hotel-office, where it may discharge its contents into an alarm-casing 11, the latter preferably consisting of the cylindrical body, (shown more clearly in Fig. 4,) said body having a tapered termination 11^a, leading to a short tubular neck or outlet 11^b. Within the body of the casing 11 I provide transversely arranged and separated contact-bars 12. In one side of the neck or tubular outlet 11^b I provide a pin 13, which extends at right angles with the direction of the length of said tubular outlet and on which is mounted centrally a metallic trip-bar 14, the latter projecting partially within the outlet-tube and partially through a suitable opening in the side thereof. With the

pivot or hinge point 13 of this contact-bar 14 I connect a wire 15, which leads through a battery 16 to an ordinary electrically-operated bell 17. From the remaining post of this bell 17 a wire 18 leads to a suitably-supported contact-plate 19, which is arranged adjacent to the upper portion of the casing outlet-tube 11^b and which is normally out of contact with the outwardly-projecting end portion of the contact-bar 14. I may also provide below the outlet-tube 11^b a lever projection or extension 20 of an ordinary fire-alarm-box-operating hook or lever 21, from which fire-alarm box wires are run in the usual manner to the headquarters of a city fire department.

Although I have shown but one fusing device within one of the rooms and have shown but one ball-conducting tube 2 leading to the alarm-casing 11, it is obvious that various numbers of said fusing devices might be employed in each room and that the pipe 2 may have leading thereto at convenient points pipes leading from other room-receptacles, such as that indicated at 1.

In order to illustrate the operation of my device, we will assume that fire is generated within or communicated to room 38. The heat thus generated in said room results in burning or severing the fusible thread or cord 7 and in thus releasing the wire 9 and likewise releasing the drop 3 of the receptacle 1 with which said wire is connected. As this drop falls of its own weight, the ball is precipitated into the lower portion of the receptacle 1 and allowed to drop through the pipe 2 into the mouth of the alarm-casing 11, in passing through which it contacts successively with the bars 12, producing thereby sufficient noise to attract the attention of a clerk or other nearby person. Having passed the bars 12, the ball in dropping through the outlet 11^b comes into contact with the inwardly-extending end of the bar 14, causing the outwardly-projecting portion of the latter to contact with the plate 19, thus causing a circuit through the bell mechanism 17 and causing said bell to ring. In its further downward movement and in escaping from the lower end of the outlet to a suitable receptacle which may be placed beneath the same the ball contacts with and depresses the lever extension 20, resulting in such movement of the ordinary fire-alarm-box-operating lever 20 as to put said fire-alarm-box mechanism into operation.

Although I have shown and described a fuse-containing box or casing 5 for each of the fuse-threads, it is obvious that this thread or cord might be simply supported between pins projecting from the walls of a room, or that said cord might be made to run about the room in suitable directions and at desirable heights therein.

From the construction and operation described it will be seen that simple and effective means are provided for indicating the presence of fire within a room of a hotel or other building, for indicating the number of the room, and for operating an ordinary fire-alarm-box lever.

Having now fully described my invention, what I claim, and desire to secure by Letters Patent, is—

1. In an automatic fire-alarm mechanism, the combination with a ball-receptacle, a drop hinged therein, a fixed fusible body supporting said drop in a raised position and a ball on said drop, of a tube leading from said receptacle to a lower point, substantially as specified.

2. In an automatic fire-alarm, the combination with a suitably-supported ball-receptacle, a hinged drop contained therein, a fusible body and a connection between said fusible body and said drop whereby the latter is held in a raised position and a ball on said drop, of an alarm-casing supported at a point below said receptacle, transversely-arranged sounding-bars arranged in said casing, and a tube connecting said receptacle and casing, substantially as specified.

3. In an automatic fire-alarm, the combination with a receptacle 1, a hinged drop contained in said receptacle, a fusible body having a connection with said receptacle-drop which supports the latter in its raised position, and a ball-conducting tube 2 leading from said receptacle 1 of a tubular alarm-casing 11, a contacting bar pivotally connected with said casing and projecting partly within and partly without the latter, an electrically-operated bell, a fixed contact-plate 19 and wires connecting said bell-operating mechanism respectively with said contact-plate and contact-bar through a battery, substantially as specified.

FRANK BERNARDIN.

In presence of—
O. R. LACY,
ALBERT MILLER.