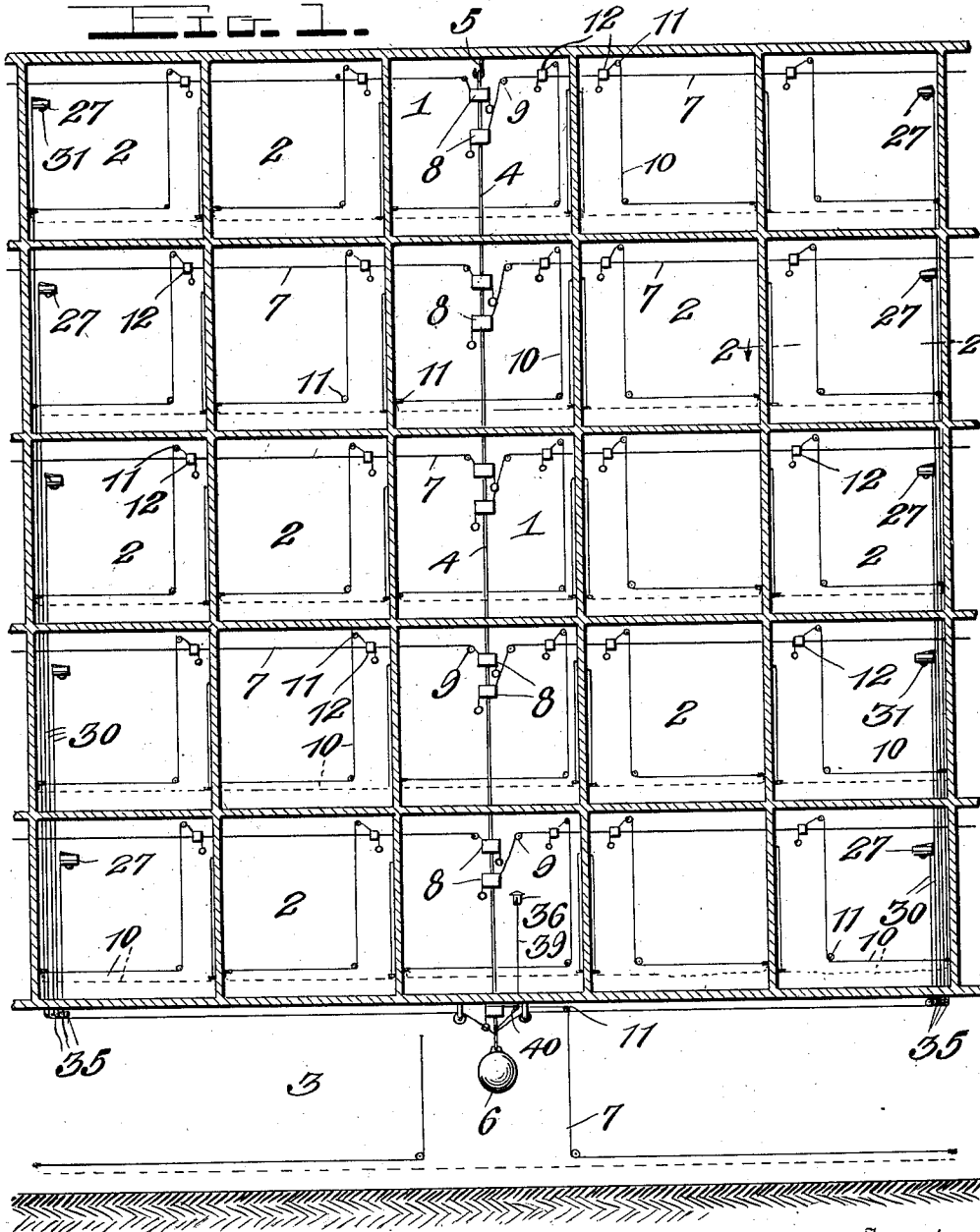


D. DE ROSA.
 AUTOMATIC FIRE ALARM SYSTEM.
 APPLICATION FILED APR. 18, 1910:

1,010,351.

Patented Nov. 28, 1911.

2 SHEETS—SHEET 1.



Witnesses
Chas. L. Grechauer.
E. M. Ricketts

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Delfino De Rosa,

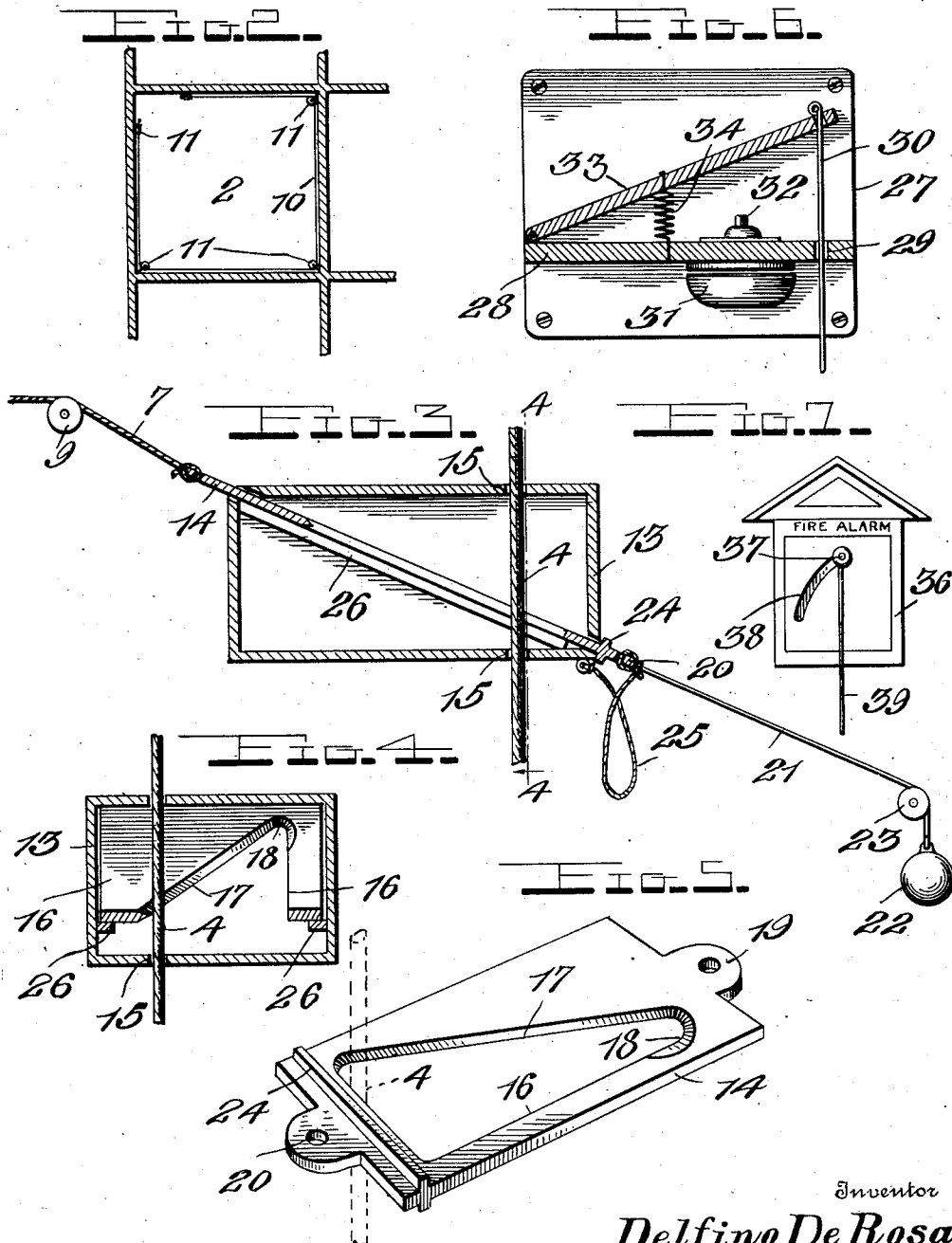
By *Watson E. Coleman.*
 Attorney

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UNITED STATES PATENT OFFICE.

DELFINO DE ROSA, OF CHISHOLM, MAINE.

AUTOMATIC FIRE-ALARM SYSTEM.

1,010,351.

Specification of Letters Patent.

Patented Nov. 28, 1911.

Application filed April 18, 1910. Serial No. 556,105.

To all whom it may concern:

Be it known that I, DELFINO DE ROSA, subject of the King of Italy, residing at Chisholm, in the county of Franklin and State of Maine, have invented certain new and useful Improvements in Automatic Fire-Alarm Systems, of which the following is a specification, reference being had to the accompanying drawings.

My invention relates to improvements in automatic fire alarm systems.

The object of the invention is to provide a simple means for automatically sounding fire alarms in all of the various apartments, rooms or other portions of a building when fire occurs in any portion of the building, and also to sound the alarm in a nearby fire engine house.

With the above and other objects in view, the invention consists of the novel construction, combination and arrangement of parts, hereinafter fully described and claimed, and illustrated in the accompanying drawings in which:—

Figure 1 is a diagrammatic view through a building illustrating the application of my improved automatic fire alarm system; Fig. 2 is a detail horizontal section taken on the plane indicated by the line 2—2 in Fig. 1; Fig. 3 is a sectional view through one of the rope or cord-cutting devices; Fig. 4 is a detail section taken on the plane indicated by the line 4—4 in Fig. 3; Fig. 5 is a perspective view of the cutting knife; Fig. 6 is a sectional view of one of the alarm devices; and Fig. 7 is a view of a fire alarm box commonly employed in city fire alarm systems.

My improved automatic fire alarm system may be installed in any size and kind of building but in the drawings I have shown it arranged in an apartment house, the numeral 1 indicating the main hallways on the several floors, 2 the rooms of the various apartments, and 3 the cellar or basement.

In the practice of my invention I provide a main rope 4 of suitable size and strength and have it extend from the ceiling of the uppermost hallway 1 in which it is anchored on a hook 5, to the cellar 3, and I arrange on its lower end a heavy weight 6 which may weigh from two hundred to five hundred pounds, according to the size of the building, and the number of parts in the system which it must actuate when the rope

4 is cut. I also provide one primary branch rope 7 for each of the apartments, or groups of rooms in the building. This rope 7 extends through the entire apartment and has one of its ends anchored and its other end connected to a cutting device 8 arranged on the main rope 4. The branch rope 7 may, of course, be smaller in size and strength than the rope 4 and it is preferably arranged adjacent to the ceilings of the rooms in the apartment and passes around suitable directing pulleys or guides 9 wherever it makes an angle or turns. I also provide secondary branch ropes or cords 10 in the several rooms of each of the apartments. Each of the ropes 10 extends around the room as shown in Fig. 2, preferably about four feet from the floor and two inches from the wall, and it is passed over suitable directing pulleys 11, one of its ends being anchored and its other end being connected to a cutting device 12 which is arranged on the rope 7 and is similar to the cutting devices 8 but smaller than the same. The ropes or cords 10 may be as small and light as may be desired so that the slightest fire in the room will quickly burn them, and they may be run around doors, windows, fire-places, smoke flues and other portions of the room where it is likely fire will occur, or where fire will spread. In this connection it may be noted that the system may be used as a protection against burglars by arranging the cords or ropes 10 so that they will be severed by a burglar when he attempts to enter the room.

One of the cutting devices 8 is shown in detail in Figs. 3, 4 and 5, of the drawings and it comprises a box or casing 13 in which is slidably mounted a diagonally arranged cutting knife 14 and which contains guide openings 15 for the rope 4. The knife 14 is preferably in the form of a rectangular plate arranged for sliding movement diagonally through the box 13 and having a large opening 16 for the rope 4 and an angularly arranged beveled cutting edge 17 which is adapted to sever the rope when the slide is pulled downwardly through the box. This cutting edge 17 is arranged diagonally forming one wall of the opening 16 in the knife plate and its upper portion is rounded or hook-shaped, as shown at 18, so as to insure the cutting of the rope. The upper end of the knife plate is formed with an apertured lug 19 to which the rope 7 is at-

tached, and its lower end is formed with a similar apertured lug 20 for the attachment of a wire rope or other flexible element 21, to the other or free end of which is attached
 5 a weight 22 of sufficient size to actuate the knife downwardly when the rope 7 is cut, and thereby cause the cutting edge of the knife to sever the rope 4. The wire or element 21 preferably passes around a guide
 10 pulley 23 so that as the weight 22 descends there will be a direct longitudinal pull on the knife. Formed on opposite sides of the lower portion of the knife plate are transverse stop ribs 24 which limit the upward
 15 movement of the knife and prevent it from being pulled too far into the box 13 by the cord 7. In order to prevent the knife from being pulled entirely out of the box by the weight 22, a stop cord 25 has one of its
 20 ends connected to the box 13 and its other end to the lug or ear 20, as shown in Fig. 3. On the opposite side walls of the box 13 are formed inwardly extending diagonally arranged supporting and guide ribs
 25 26 on which the knife plate rests and slides. Each of the cutting devices 12 is constructed and operated in the same manner as the device 8 above described, and it is therefore thought that a detail description
 30 of this cutting device is unnecessary. It will, of course, be understood that the devices 12 are smaller and have smaller actuating weights for their knives because they operate on the cords 7 which are lighter in
 35 weight and smaller in size than the main rope 4.

In one or more rooms of each apartment I provide a mechanically actuated alarm or signal 27 which is actuated by the dropping
 40 of the weight 6 when the main rope 4 is severed. One of the alarm devices 27 is shown in Fig. 6 and comprises an attaching plate or bracket having a ledge 28 provided with an opening 29 to receive an actuating wire
 45 30, and also supporting a mechanically actuated bell 31, the latter being preferably spring-actuated and controlled by a push button 32. Pivoted on the bracket or plate 27 is a lever 33, to the free end of which is
 50 connected the wire 30, and the intermediate portion of which is adapted to swing against and depress the push button 32. A spring 34 is arranged between the ledge or support 28 and the lever 33 for the purpose of holding
 55 the same in elevated position and out of contact with the button 32. The actuating wires or similar flexible elements from the several devices 27 pass over directing pulleys or guides 35 and are connected to the
 60 weight 6 or to the main rope 4 adjacent its lower end and at a point below the lowermost cutting device 8, which latter is of course controlled by the rope 7 in the cellar 3. It will be seen that when the weight
 65 6 drops it will simultaneously pull all of

the wires 30 downwardly and cause the levers 33 to actuate the alarm bells.

36 denotes a firm alarm box of ordinary form commonly used in connection with electric fire alarm systems used in cities. 70 This alarm box 36 has a button 37 working in an arcuate slot 38 and when depressed it is adapted to close an electric circuit which causes an alarm to be sounded in a nearby fire engine house. To permit such fire alarm
 75 to be actuated when a fire occurs in the building in which my improved system is installed, I connect to the button 37 a wire 39 which passes over a suitable directing pulley, or pulleys 40 and is connected to the
 80 lower end of the main rope 4 so that it will be actuated when the wires 30 are actuated.

The operation of my improved system is as follows. Should fire occur in any portion of the building, one of the cords or
 85 ropes 10 will be burned and when it is severed it will cause the cutting device 12 which it controls, to cut the rope 7 passing through such device 12. The cut rope 7 in turn causes the cutting device 8 which it
 90 controls to sever or cut the main rope 4, whereupon the weight 6 drops and draws upon the wires 30 and 40 to simultaneously sound the alarm bells 31 in all of the different points throughout the building, and also
 95 the fire alarm in the nearby engine house. Should the fire be at such a place in the room or building that one of the ropes 7 will be burned before the rope or cord 10, the system will operate in the same manner because
 100 the cords 7 are free to slide when they are cut or burned in two.

While I have shown and described in detail the preferred embodiment of my invention, I wish it understood that I do not
 105 limit myself to the construction and arrangement of the parts shown, since various changes may be made in the form, construction and arrangement of parts, and the manner of installing the system in various kinds
 110 of buildings within the scope of my invention as defined by the appended claims.

Having thus described the invention, what is claimed is:

1. The herein described fire alarm system
 115 comprising a vertical main cord secured at its upper end and having a weight at its lower end suspended thereby, a primary branch cord, supporting pulleys therefor, one end of said branch cord being secured
 120 and said branch cord having a cutting device to act on the main cord and also having an actuating weight suspended thereby and keeping the same under tension, a secondary branch cord, supporting pulleys therefor, one
 125 end of the said secondary cord being secured, the said secondary branch cord having a cutting device to act upon the primary branch cord and being provided with a weight to actuate the said cutting knife when the
 130

secondary branch cord is burned or broken, and a signaling device connected to the first mentioned weight by means independent of the main cord, whereby the signaling device
5 is operated when the first mentioned weight is released and permitted to drop by the cutting of the main cord.

2. The herein described fire alarm system comprising a vertical main cord secured at
10 its upper end and having a weight at its lower end, suspended thereby, a primary branch cord, supporting pulleys therefor, one end of said branch cord being secured and said branch cord having a cutting de-
15 vice to act on the main cord and also having an actuating weight suspended thereby and keeping the same under tension, a secondary branch cord, supporting pulleys therefor, one end of the said secondary
20 branch cord being secured, said secondary

branch cord having a cutting knife to act upon the primary branch cord and being provided with a weight to actuate the said cutting knife when the secondary branch cord is burned or broken, a plurality of
25 signaling devices each having an operating cord, the operating cords of the signaling devices being directly connected to the first mentioned weight, independently of one an-
30 other and also independently of the main cord, so that said weight when the same is released and permitted to drop by the cutting of the main cord serves to operate the signaling devices.

In testimony whereof I hereunto affix my
signature in the presence of two witnesses.

DELFINO DE ROSA.

Witnesses:

HERBERT L. HERSEY,
GEO. O. EUSTES.

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