

J. E. GOODWIN.

FIRE ALARM.

APPLICATION FILED FEB. 23, 1912.

Patented Jan. 21, 1913.

2 SHEETS-SHEET 1

1,050,824.

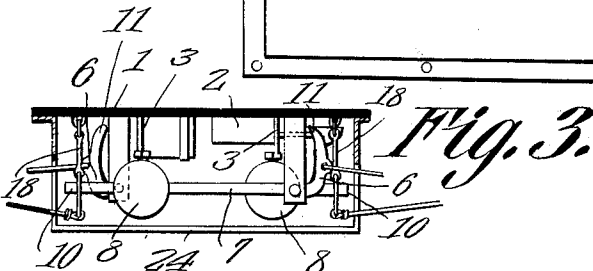
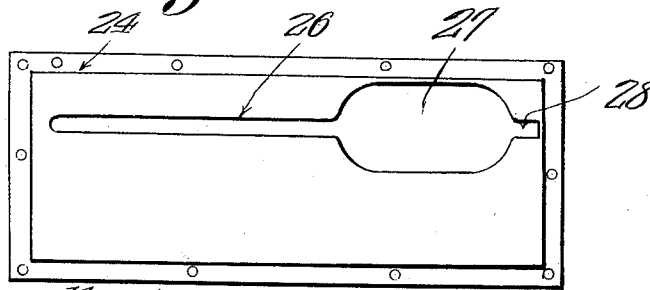
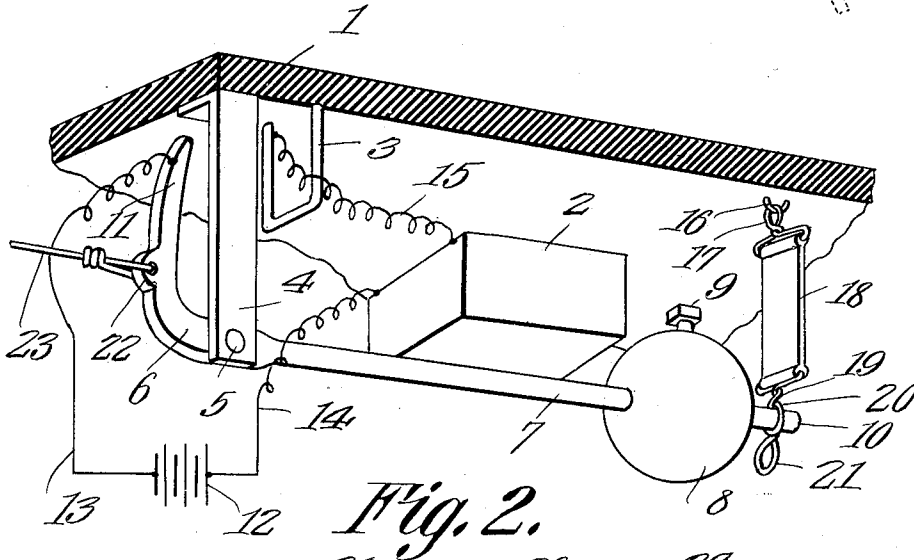
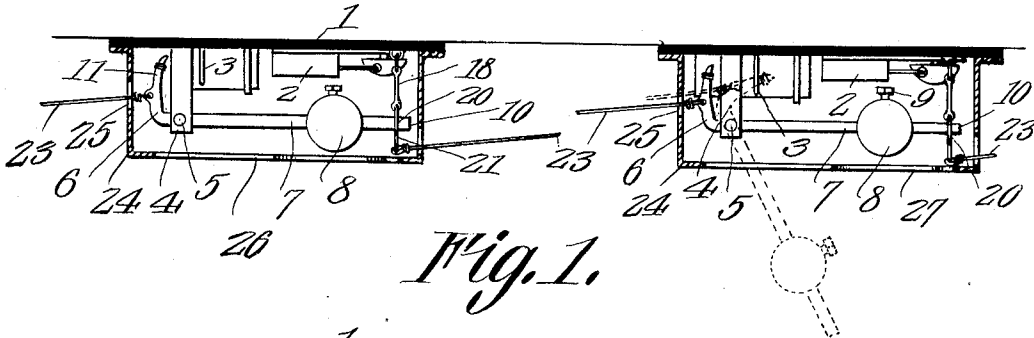


Fig. 4.

Witnesses

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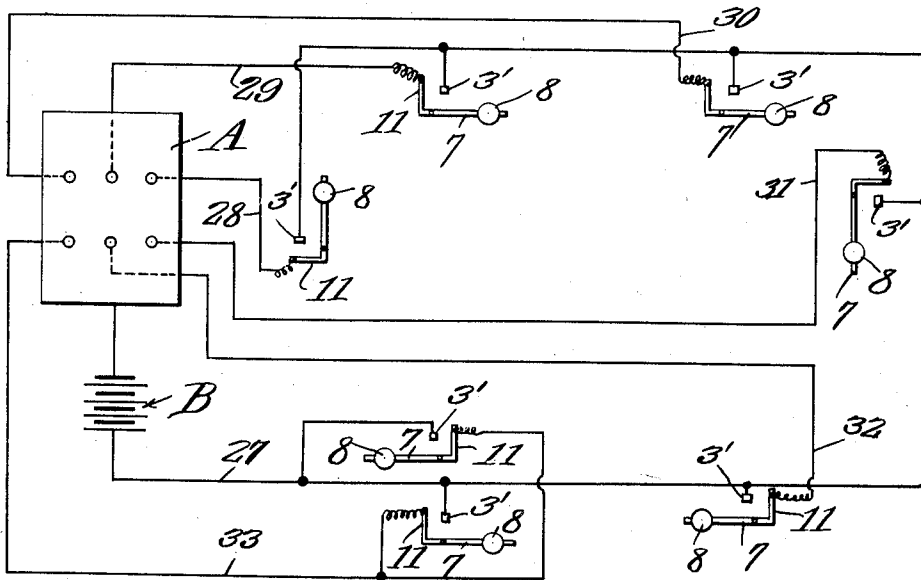
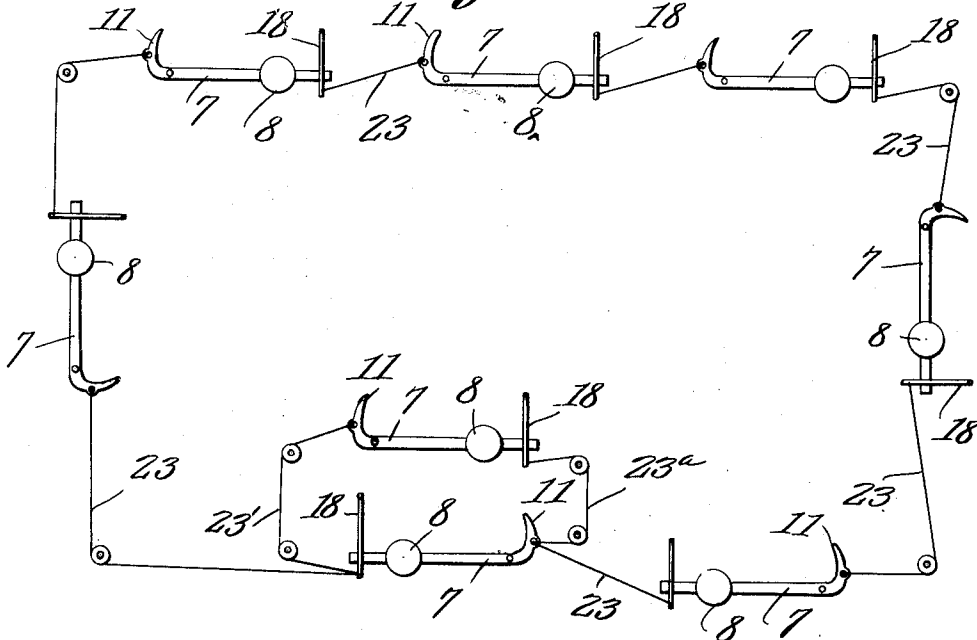
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2 SHEETS—SHEET 2.

*Fig. 5.*



*Fig. 6.*

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# UNITED STATES PATENT OFFICE.

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## FIRE-ALARM.

1,050,824.

Specification of Letters Patent.

Patented Jan. 21, 1913.

Application filed February 23, 1912. Serial No. 679,401.

*To all whom it may concern:*

Be it known that I, JAMES E. GOODWIN, a citizen of the United States, residing at Cumberland Gap, in the county of Claiborne and State of Tennessee, have invented a new and useful Fire-Alarm, of which the following is a specification.

The present invention relates to improvements in fire alarms, the primary object of the invention being the provision of a novel form of alarm actuating mechanism, which when used in connection with buildings is placed upon or near the ceiling in each of the respective rooms or apartments, and are connected in a series, whereby fusing or the release of one will cause the automatic operation of the others without destruction of the fuse, thus giving the alarm, and at the same time preventing the unnecessary destruction of the various mechanisms, the particular mechanisms having their individual alarms, or being connected in series to operate an annunciator and alarm at a central point, so that the fire may be immediately located.

A further object of the present invention is the novel form of weight actuated electrical switch control mechanism, which is normally held in open circuit through the medium of a fusible or thermostatic connection, said switch being operably connected to such connection of a similar mechanism, all of said mechanisms being connected in series, so that the operation of either one of the fuses due to an excessive amount of heat, will automatically release all of the fuses in the various mechanisms and actuate the alarms.

With the foregoing and other objects in view which will appear as the description proceeds, the invention resides in the combination and arrangement of parts and in the details of construction hereinafter described and claimed, it being understood that changes in the precise embodiment of the invention herein disclosed can be made without departing from the spirit of the invention.

In the drawings—Figure 1 is a longitudinal sectional view of two of the mechanisms connected in series in operable relation, dotted lines illustrating the position thereof when one of the devices has been automatically operated due to a fire. Fig. 2 is a perspective view of the switch mechanism and the adjacent parts. Fig. 3 is a

bottom plan view of the casing surrounding the mechanism. Fig. 4 is a view similar to Fig. 1 of a two lever mechanism, which provides a connecting medium intermediate of the ends of the system or alarm, whereby the severance of the connection at either side thereof will operate the system. Fig. 5 is a diagrammatic view illustrating one method of installation of the devices as shown in Figs. 2 and 4. Fig. 6 is a diagrammatic view of the electrical circuits employed when the devices actuate indicators at a distant point.

Referring to the drawings, the numeral 1 designates a support which is preferably made of wood or a body of insulation, and carries the audible annunciator, simply a bell 2, and the U-shaped metal stationary switch or contact 3. Connected to the support 1 and depending therefrom in close proximity to the contact point 3 is an arm 4, which has mounted in its lower end by means of a pivoting pin 5, the switch lever 6, whose long terminal 7 has adjustably mounted thereon the weight 8, by means of the set screw 9, the said weight being so mounted as to provide the projecting end 10, the purpose of which will presently appear. The hooked contact terminal 11 of the switch is disposed, so that when released the weight will lower the long terminal 7 and bring the hooked terminal 11 into contact with the stationary terminal or contact point 3, and thus establish an electrical circuit, including the batteries 12, conductor 13 which is connected to the terminal 11, a conductor 14 which is connected to the annunciator 2, and the conductor 15 which is connected to the annunciator 2 and the stationary contact point or terminal 3.

In order to properly hold the free end of the switch 7 in the position as shown in Figs. 1 and 2, a staple or screw eye 16 is connected to the base and pivotally supports the hanging member 17 of the fusible strip 18, whose lower end carries the switch supporting member 19, provided with the two eyes 20 and 21. The eye 20 when the switch 6 is held in open position, fits upon the end 10 of the switch lever 7 and retains the same as clearly shown.

In order to automatically release the various fusing strips 18, due to the fusing of either one of the strips connected in series, the switch lever is provided with the lug 22, which has connected thereto the wire or

flexible connection 23, whose other end is connected to the loop or eye 21 of the next adjacent alarm mechanism.

Secured to and depending from the base 1 and surrounding the mechanism of each of the alarm devices, is a casing 24, provided with an aperture 25 through which the flexible connection 23 extends, and with the elongated slot 26, an enlarged portion 27 and a reduced portion 28 in the lower base or plate of the casing, which when the device is operated and the alarm is actuated, will permit the lowering of the switch lever 7 and its weight 8 as clearly illustrated in dotted lines Fig. 1.

Although the device herein described has been shown as connected and carrying its individual annunciator, it is evident that the circuit may lead directly from the terminal 11 of the switch and the stationary contact point 3' to an annunciator A at the desired central office of the building, as shown in Fig. 6, so that the actuation of any one of the mechanisms will ring an alarm and indicate at such place the location of the fire, and also the successive operation of the different devices, due to the throwing of the first lever switch 7, and the consequent successive operation of the various devices, due to the pulling of the connections 23 and 23', and the consequent releasing of the fusible plate 18 thereof. It is also evident from the foregoing description, that when the device is connected in series as described and shown in Fig. 5, and the fusible connection 18 of either one of said devices, is fused, that the weight 8 due to gravity will fall, and cause the terminal 11 of the switch 7 to move to and in engagement with the stationary contact 3, this action setting the alarm of that individual mechanism, and at the same time pulling upon the flexible connection 23 to release the fusible connection 18 of the next adjacent mechanism, which in turn will operate the next and so on, until all of the devices have been actuated, thus saving the fusing of the various plates or fusible connections 18 of the devices not affected.

In Fig. 4 has been shown a double lever arrangement, embodying the identical construction, except that the two levers 7 are arranged in opposite directions so that the fusing of either connection 18 will set in operation the complete alarm. In this form a single battery is employed and to which both of the levers are connected as heretofore described. The installing of this form depends entirely upon the location or construction of the room as to whether one or two levers are necessary, but in the complete system at least one of the two lever devices should be installed.

The installation of the device, as clearly shown in Figs. 2 and 4, is shown diagram-

matically in Fig. 5, and it will thus be seen by this diagram that the release or fusing of any of the fusible members 18 will produce the successive operation of the full train of levers 7, so that the various circuits for actuating the alarms will be closed.

In the diagram as shown in Fig. 6, the annunciator A is positioned at a distant point and has the main line connected to the batteries B, a conductor 27 being led away from the battery B and having branched therefrom the various contacts 3'. Led away from the different indicators and annunciators are the respective conductors 28, 29, 30, 31, 32 and 33, each one of which is connected to its respective terminal 11 of the pivoted levers 7. It will thus be seen from this diagram that the release of any one of the fusible connections will permit the lever 7 controlled thereby to fall and thus bridge the connection between the terminals 11 and 3' and close the circuit to its respective signal of the annunciator, and thus indicate at a distant point the exact location of the fire. The various levers 7 may be connected by the connections 23, 23' and 20<sup>a</sup> as shown in Fig. 5, so that the release of the levers will be immediately announced at the annunciator A and in the succession in which they are operated.

What is claimed is:

1. The combination with a fire alarm, of a plurality of alarm mechanisms, each of which mechanisms comprises a source of electrical energy, a circuit connected to said source, a pivoted weight actuated switch in said circuit, a stationary contact in said circuit and in the path of the switch, an audible alarm in said circuit, a fusible connection for holding the switch out of engagement with the stationary contact, and a flexible connection between the switch of each mechanism and the fusible connection of the next adjacent mechanism.

2. The combination with a fire alarm, of a plurality of alarm mechanisms, each of which mechanisms comprises a source of electrical energy, a circuit connected to said source, a pivoted weight actuated switch in said circuit, a stationary contact in said circuit and in the path of the switch, an audible alarm in said circuit, a fusible connection for holding the switch out of engagement with the stationary contact, and means connected to the switch of one mechanism and to the fusible connection of the next adjacent mechanism throughout the series, whereby the fusing of any one of the connections will cause the automatic release of the respective fusible connections of the mechanisms connected in series.

3. A fire alarm, having a plurality of alarm mechanisms connected in series, each of said mechanisms having a stationary electrical contact, a weight actuated switch dis-

posed to engage said contact when released,  
an alarm, an electrical circuit including said  
contact, switch and alarm, a heat released  
connection for holding the switch out of  
5 contact with the stationary contact, and  
means operably connecting the switches and  
heat released connections of the said mech-  
anisms in series, whereby the release of any  
of the weight actuated switches will cause  
10 the actuation of the remaining alarms in  
succession.

4. A fire alarm, having a plurality of  
alarm mechanisms connected in series, each  
of said mechanisms having a stationary elec-  
15 trical contact, a weight actuated switch dis-  
posed to engage said contact when released,  
an alarm, an electrical circuit including said

contact, switch and alarm, a heat released  
connection for holding the switch out of  
contact with the stationary contact, and a 20  
connection between each switch and the heat  
released connection of the next adjacent  
alarm mechanism, whereby the automatic  
release of any one of the weight actuated  
switches, will cause the operation in succes- 25  
sion of the remaining alarm mechanisms.

In testimony that I claim the foregoing as  
my own, I have hereto affixed my signature  
in the presence of two witnesses.

JAMES E. GOODWIN.

Witnesses:

ALF C. WILLIAMS,  
J. W. VERMILLION.