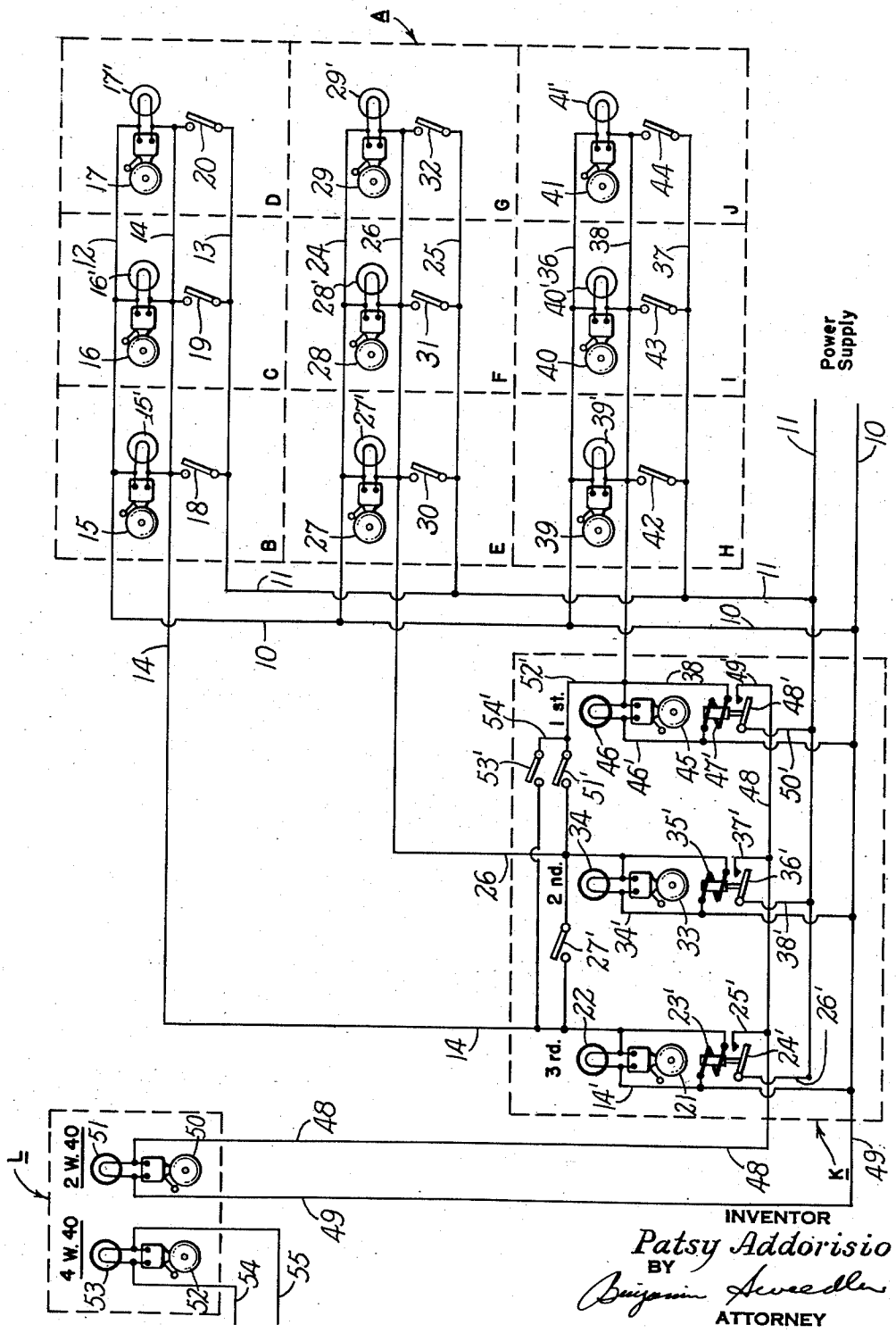
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FIRE ALARM SYSTEM

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FIRE ALARM SYSTEM

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1 Claim. (Cl. 177—355)

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This invention relates to fire alarm systems and more particularly to such systems in which the location of the fire is signalled to a central station, alarms operated in the rooms near the room in which the fire began, alarms operated in other rooms of the building under the control of an attendant in the central station and simultaneously a signalling device operated in the fire department headquarters indicating the locality of the building in which the fire commenced.

It is an object of the invention to provide a fire alarm system which permits a person in a room or building in which the fire breaks out to immediately signal occupants of the building or adjoining building of this fact, also to simultaneously signal this fact to the fire department headquarters and to a central station such as the superintendent's or janitor's apartment or office in the case of an apartment house or hotel, which system permits the superintendent or janitor to signal other occupants of the building or of adjoining buildings to apprise them of the existence of the fire. With the fire alarm system of this invention, all occupants of the building or of adjacent buildings are signalled immediately upon the breaking out of a fire, permitting them to escape and the fire department headquarters is also signalled, indicating the location of the fire. Hence the fire-fighting equipment should arrive more promptly with consequent saving in life and property.

Other objects of this invention will be apparent from the following detailed description thereof:

In the accompanying drawing forming a part of this specification and showing, for purposes of exemplification, a preferred form of this invention without limiting the claimed invention to such illustrative instance, the single figure is a wiring diagram of a fire alarm system embodying my invention.

In the drawing the different portions of the fire alarm system are represented by dotted rectangles. Large rectangle A, which is subdivided into smaller rectangles B, C, D; E, F, G; and H, I, J, represents diagrammatically an apartment house, hotel, office building or factory. Rectangles B, C, D represent the rooms or apartments on one floor; E, F, G those on another floor and H, I, J those on still another floor. The rectangles B to J, inclusive, may represent different homes arranged, for example, in groups B, C, D; E, F, G; and H, I, J, respectively; the homes being so grouped that if a fire

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breaks out in one home of a given group there is danger the fire may spread to other homes in this group.

While the drawing, in the interests of simplicity, indicates only three rooms in each group, it will be understood any desired number of rooms may be included in the group, the exact number depending, of course, on the number of rooms or apartments it is desired to group together; for example, the number of such rooms on each floor, or the number of homes grouped together. The term "room" is used herein in a generic sense to include a house, apartment, office, etc., in each of which a signalling device is disposed.

K represents a central station, such as a janitor's or superintendent's apartment or office, or in the case of a group of homes, a station having an attendant present at all times. L is the fire department headquarters.

10 and 11 are the main electrical power lines. Branch power lines 12 and 13 lead from lines 10 and 11, respectively, and pass through rooms B, C and D. A carrier wire 14 is associated with branch power lines 12 and 13. Alarms 15, 16 and 17, each desirably in the form of a bell, and visual signalling devices, such as lamps 15', 16' and 17', are connected to lines 12 and 14 and are located in rooms B, C, and D, respectively, as shown in the drawing. Manually operated switches 18, 19 and 20 are connected in circuit with lines 13 and 14, the switches being disposed in rooms B, C and D, respectively, where they are readily accessible and are normally in open position. Disposed in central station K is an alarm 21 connected to lines 14 and 14', the latter line being in electrical contact with line 10. A visual signalling device, such as a lamp 22, is also connected to lines 14 and 14' and is positioned in central station K. Alarms 15, 16 and 17 are connected in parallel with each other and with the alarm 21 and visual signalling device 22 in central station K. A relay 23' is connected in circuit with lines 14 and 14'. This relay operates a switch 24', one contact of which is connected by a line 25' with a line 48, hereinafter described, and the other contact of which is connected by a line 26' with power line 11. A switch 27' is connected in circuit with lines 14 and 26, the latter line being hereinafter described. Switch 27' is disposed in central station K where it is readily accessible to the attendant in this station.

Branch power lines 24 and 25 lead from power lines 10 and 11, respectively, and pass through

rooms E, F and G. A carrier wire 26 is associated with the branch power lines 24 and 25. Alarms 27, 28 and 29 and lamps 27', 28' and 29' are connected to lines 24 and 26 and disposed, respectively, in rooms E, F and G. Manually operated switches 30, 31 and 32 are positioned in readily accessible places in rooms E, F and G, respectively, and are connected in circuit with lines 25 and 26, as shown in the drawing. Positioned in central station K is a bell or other alarm 33 and a visual signalling device 34 is connected in circuit with line 26 and a line 34' in electrical contact with line 10. A relay 35' is connected in circuit with lines 26 and 34'. This relay operates a switch 36', one contact of which is connected by a line 37' to line 48 and the other contact of which is connected by line 38' to power line 11. Alarms 27, 28 and 29 are connected in parallel with each other and with alarm 33 and visual signal 34 in central station K.

Similarly, branch power lines 36, 37 lead from main power lines 10 and 11, respectively, pass through rooms H, I and J and have a carrier wire 38 associated therewith. Alarm or signalling devices 39, 40 and 41 and lamps 39', 40' and 41' are connected in circuit with lines 36 and 38 and are disposed in rooms H, I and J, respectively, which rooms also have therein switches 42, 43 and 44 connected in circuit with lines 37 and 38. An alarm 45 and a visual signalling device 46 are positioned in the central station K. Alarms 39, 40 and 41 are connected in parallel with each other and with alarm 45 and visual signal 46 in central station K. Alarm 45 and signal 46 are connected in circuit with line 38 and a line 46' in electrical contact with power line 10. A relay 47' is connected in circuit with lines 38 and 46'. This relay operates a switch 48', one contact of which is connected by a line 49' with line 48 and the other contact of which is operated by a line 50' with power line 11. A switch 51' is positioned in central station K in a line 52' connecting line 38 with line 26. Another switch 53' is disposed in line 54'. When switch 53' is closed, line 38 through line 54' is in electrical communication with line 14.

Each of the visual signal devices 22, 34 and 46 has associated therewith suitable indicia indicating the location of the alarms in circuit therewith. Thus signalling device 22 has the indicia "3rd" indicating that the alarms in circuit therewith are on the third floor, the signalling device 34 has the indicia "2nd" indicating that the alarms in circuit therewith are on the second floor and the signalling device 46 has the indicia "1st" associated therewith indicating the alarms in circuit therewith are on the first floor. It will be understood that the drawing shows only a portion of building A and rooms on additional floors are provided with like signalling devices. Also, while the rooms on each floor are grouped together, the rooms on two or more floors may be disposed in one group with the alarms in each group connected in parallel with each other and with an alarm and visual signalling device in central station K.

A pair of lines 48, 49 lead to the fire department headquarters L. Line 48 makes electrical contact with lines 25', 37' and 49', as hereinabove described, and line 49 with the power line 10, as shown in the drawing. An alarm 50 and a visual signalling device 51 are connected in circuit with lines 48, 49 and are disposed in the fire department headquarters L. Thus alarm 50 and signalling device 51 are connected in parallel with

alarm 21 in the central station K and with alarms 15, 16 and 17 in rooms B, C and D, respectively; with alarm 33 in central station K and alarms 27, 28 and 29 in rooms E, F and G, respectively; and with alarm 45 and alarms 39, 40 and 41 in rooms H, I and J, respectively. If any one of the switches 18, 19, 20; 30, 31, 32; 42, 43, 44 is closed, a circuit is completed, which circuit is described hereinafter more fully, energizing the alarm 50. The fire department headquarters L is provided with one alarm and visual signal for each building or group of buildings, each such alarm or signal being associated with a fire alarm system similar to that shown in the drawing in connection with building A. As shown in the drawing, alarm 50 and visual signal 51 are in circuit with the alarms in central station K and those in building A. A second alarm 52 and signal 53 are disposed in fire department headquarters L in a circuit containing lines 54, 55 leading to the portion of the alarm system in a second building. As above indicated, any desired number of alarms and signals corresponding to 50, 51 and 52, 53 may be used, the number depending on the number of buildings in the locality served by the fire department headquarters. Each alarm and signal 50, 51; 52, 53 is provided with a legend to indicate the exact locality of the building with which the alarm and signal are connected. Thus the legend 2 W 40, associated with alarm 50, indicates the location of building A; and the legend 10 W 40, associated with alarm 52, indicates the location of the building with which alarm 52 is associated, etc.

In operation, should a fire break out, for example, in room B, the occupant of that room immediately closes switch 18. This completes a circuit from power line 10, branch line 12, alarm 15, switch 18, line 13, line 11, energizing carrier line 14 so that the signalling devices 15, 16 and 17 and lamps 15', 16' and 17' are energized, notifying the occupants of these rooms of the presence of a fire on the same floor. Simultaneously, alarm 21 and visual signal 22 are energized, notifying the attendant in station K of the presence of the fire on the third floor containing rooms B, C and D. The attendant on closing switch 27' completes a circuit between lines 24, 25, energizing the carrier line 26 and the alarms 27, 28 and 29 and lamps 27', 28' and 29', notifying the occupants on the second floor containing rooms E, F and G of the fire. Also the attendant by closing switch 51' completes a circuit through lines 36, 37, energizing the carrier line 38 and the alarms 39, 40 and 41 and lamps 39', 40' and 41'.

Simultaneously, the audible alarm 50 and the visual signal 51 located in the fire department headquarters are energized through relay 23', closing switch 24' so that current flows through lines 48 and 49, notifying the firemen of the existence and location of the fire. Upon opening switch 18, relay 23' is deenergized causing switch 24' to open and discontinuing the alarm 50.

Should a fire commence in room H, the occupant by closing switch 42 energizes alarms 39, 40, 41, 45 and 50 and lamps 39', 40', 41', 46 and 51 through the circuits hereinabove described. The attendant in central station K by closing switch 51' energizes the alarms 27, 28 and 29 and lamps 27', 28' and 29'. By closing switch 27' also he energizes alarms 15, 16 and 17 and lamps 15', 16' and 17'. By closing switch 53' and leaving switch 51' open he energizes

alarms 15, 16 and 17 without energizing alarms 27, 28 and 29.

It will be noted this invention provides a fire alarm system which permits a person in a room in which the fire breaks out to automatically signal other occupants of the building or of adjoining buildings of the existence of the fire, to simultaneously signal this fact to the fire department headquarters and also to a central station such as the superintendent's or janitor's apartment or office. The superintendent, by closing one or more switches, notifies the other occupants of the building of the existence of the fire, permitting them to escape with consequent saving of life. The prompt notification of the fire department headquarters results in the more prompt arrival of the fire-fighting equipment with consequent saving in property. With this invention an alarm is given before a fire makes sufficient headway to cause operation of a thermostatic switch, as is the case in prior known systems in which, if the fire starts in a corner remote from the location of the thermostatic switch, the fire may cause great damage before the thermostatic switch is operated and the fire-fighting equipment arrives at the scene of the fire.

Since different embodiments of the invention could be made without departing from the scope of this invention, it is intended that all matter contained in the above description or shown in the accompanying drawing shall be interpreted as illustrative and not in a limiting sense.

What is claimed is:

In a fire alarm system for a plurality of multi-story buildings comprising in combination a series of alarms for each floor of each building, the individual alarms being connected in parallel and being located in different rooms on said floor, a manually operable switch in circuit with each alarm and being located in the same room as the said alarm, a visual signalling device in circuit with each alarm and located in the same room as said alarm, a central station, a separate

alarm in said station in parallel with each of said series of alarms and individual thereto, a visual signalling device in circuit with each of said separate alarms in said central station, a separate manually operable switch in said central station in circuit with each of said alarms and visual signalling devices in said central station and individual thereto, closing of each of said last named manually operable switches causing energization of all of the alarms and visual signalling devices in the series in circuit therewith, a fire department headquarters, a signalling device in said fire department headquarters in parallel with all of said first mentioned series of alarms, said headquarters having a separate signalling device for each building whereby upon fire breaking out in one room of a building the occupant of said room, upon closing the switch in said room, immediately energizes the alarms and visual signalling devices in certain of the other rooms in said building, also energizes an alarm and visual signalling device in the central station and simultaneously energizes the signalling device corresponding to said building in the fire department headquarters and the attendant in the central station, upon closing the switches in said station, energizes the alarms and visual signalling devices in other rooms in said building.

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