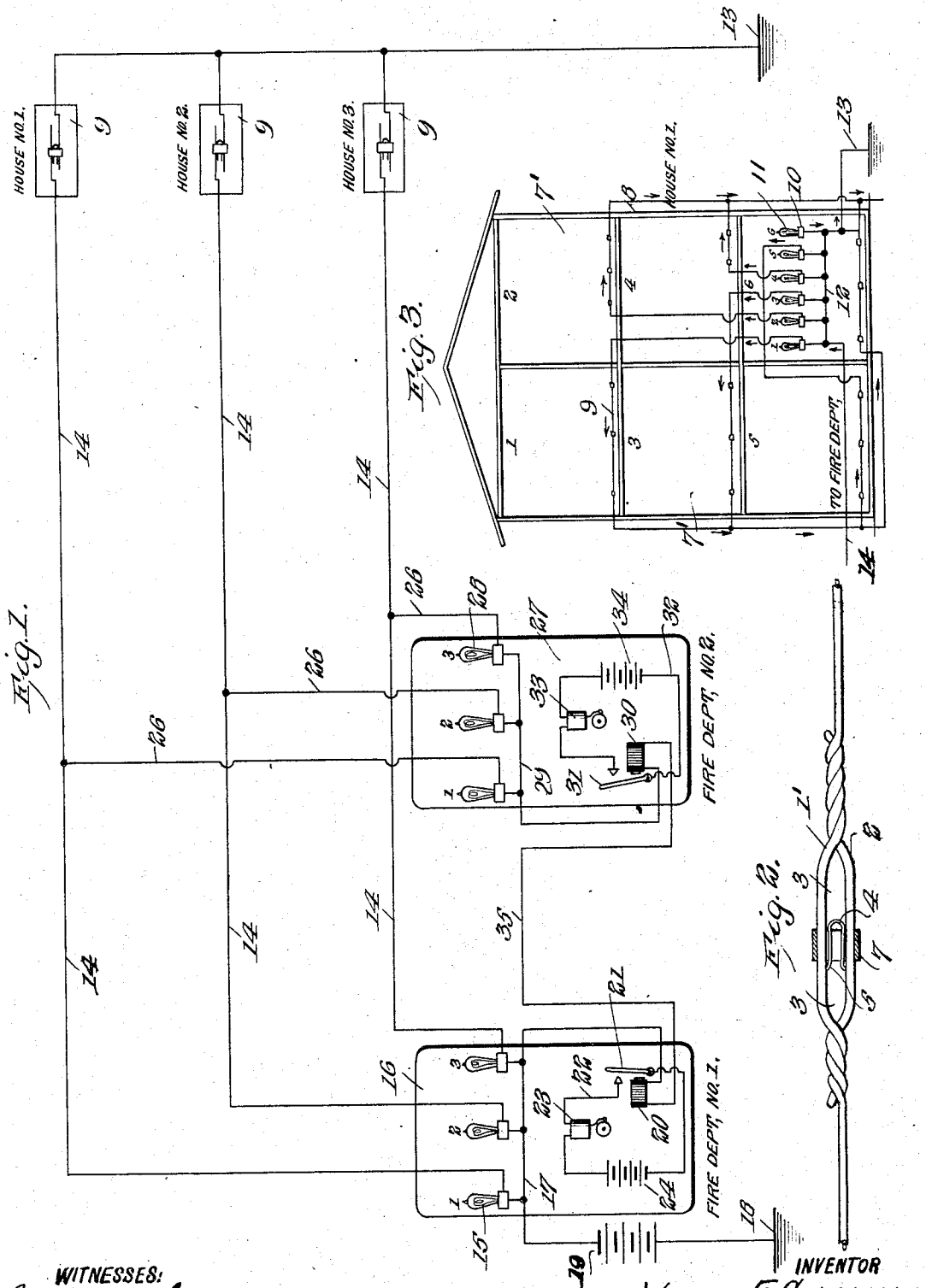


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 AUTOMATIC FIRE ALARM.
 APPLICATION FILED AUG. 19, 1910.

1,152,932.

Patented Sept. 7, 1915.



WITNESSES:
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AUTOMATIC FIRE-ALARM.

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To all whom it may concern:

Be it known that I, WILLIAM F. CALDWELL, a citizen of the United States, and a resident of Hot Springs, county of Garland, and State of Arkansas, have invented certain new and useful Improvements in Automatic Fire-Alarms, of which the following is a specification.

My invention is an improvement in automatic fire alarms, and consists in certain novel constructions, and combinations of parts hereinafter described and claimed.

The object of the invention is to provide a device of the character specified, wherein the occurrence of a fire will indicate to the occupant of the house in which room the fire is to be found, and will also indicate to the fire station in which house the fire is to be found.

A further object is to provide an improved form of device to be acted upon by the fire to set the indicating device proper in operation.

Referring to the drawings forming a part hereof, Figure 1 is a diagrammatic view of the connections between a plurality of subscribers' stations and a plurality of fire or central stations. Fig. 2 is a similar view of the connections in the individual subscriber's stations, and, Fig. 3 is a plan view of a portion of the device operated upon by the fire.

In the embodiment of the invention shown in the drawings, each house or subscriber's station is provided with a plurality of the double wires shown in Fig. 2, arranged in suitable places in the rooms, and in position to be acted upon by the heat of the fire. The said double wire is composed of two strands 1' and 2, twisted together over the greater portion of their length, but separated at spaced intervals, as shown at 3. At the points where the wires are spaced, they are held apart by a substantially U-shaped member 4, formed from a strip of conducting material, which will expand under heat. The strip is bent upon itself to form a pair of substantially parallel arms, and the free end of each arm is turned outwardly slightly at 5. The said member is placed between the wires in the loop formed by their separation, with one arm against one wire, and the other arm against the other wire.

A sleeve 7 encircles the wires at approximately the center of the U-shaped member, the said strip being a width somewhat less

than the length of the member. The wires 1' and 2 are wrapped or insulated, as shown, and when the wires are exposed to the heat of a fire, the insulation is burned off, thus permitting the U-shaped member to short circuit the wires at the point where the insulation is destroyed.

It will be understood that the members 4 are arranged sufficiently close together, and the wires are placed in such position that a fire will act on the wires soon after its commencement. One of the wires is grounded at the house to be protected, and the other is connected with the circuit.

In Fig. 1 is shown diagrammatically, a preferred arrangement, and the connection of the houses to be protected with the central office or fire department, and in Fig. 2 is shown the preferred arrangement for each house. Each room 7' of the house 8, is provided with the wires designated as a whole by 9, and all of the wires from the rooms are led to a central switchboard 10. A lamp 11 is interposed in the lead from each room, on the switchboard, and beyond the switchboard all the ends of one of the wires are connected by a lead 12, which is grounded at 13, and all the ends of the other wire are connected by a lead 14 which leads to the fire department. The lead 14 from each house is connected with a lamp 15 on a switchboard 16 at the fire department, and beyond the switchboard the leads are connected by a wire 17, one end of which is grounded at 18, a battery or other source of electrical energy 19 being interposed in the said wire. The other end of the wire 17 is connected to one of the terminals of an electromagnet 20, acting on a circuit closing arm 21, which opens and closes a circuit 22, in which is interposed a bell or other audible signal 23, and a battery or other source of electrical energy 24.

As indicated in Fig. 1, two fire departments or stations are connected in each circuit, and a branch lead 26 branches from each of the leads 14 to the switchboard 27 of the second station. The board 27 is similar to the board 16, each lead 26 being connected with one terminal of a lamp 28 on the switchboard, whose other terminals are connected by a wire 29. The wire 29 is connected with one of the terminals of an electromagnet 30, which operates an arm 31, for opening and closing a circuit 32, in

which is interposed a bell 33, and a battery 34. The other terminals of the electromagnets are connected by a lead 35.

Should a fire occur in house No. 1, for instance, as soon as the insulation is burned from the wires 1 and 2, they are short circuited or connected by the U-shaped member. The current is now free to pass the battery 19 through the electromagnets 20 and 30, and the arms 21 and 31 are operated to close the circuits 22 and 32.

The closing of the circuits 22 and 32 rings the bells 23 and 33, and the current passes on from the electromagnets by way of the leads 14 and 26 to the house, through the lamp on the switchboard 10 of the house, in which belongs the room where the fire is to be found, and to ground at 13.

The current from the battery 19 branches when the wires 1 and 2 are connected, a part of the current passing directly through lamp 15 of house No. 1, lead 14, wires 1 and 2, and ground at 13, and another part through electromagnets 20 and 30, lamp 28, and lead 26 to lead 14.

It will be understood that the arrangement is the same in each house. The lamp on the switchboard in the house indicates the room, and the lamp on the switchboard at the station, indicates the house. In case a watchman is on duty at the house, the switchboard shows him exactly where to find the fire, and also warns the fire department.

I claim:

A fire alarm system comprising in combination a plurality of subscribers' stations, and a plurality of central stations, a plurality of indicating devices at each subscriber's station, each device connected by two wires, one of the wires being grounded, a common lead to which the other wires are connected, a signal interposed in each of the said wires at a common point at the subscriber's station, a switchboard at each of the central stations, the common lead from each subscriber's station passing to the board of one central station, and having a branch passing to the board of the other station, a signal interposed in each lead and in each branch at the central stations, a lead connecting all of the said leads at one central station, said lead being grounded, a source of electrical energy interposed in the grounded lead, a lead connecting all of the branches at the other central station, an electromagnet at each station, having one termination connected with the connecting lead, a wire connecting the other terminals of the electromagnets, a normally open auxiliary circuit at each station and provided with a signal, and means operated by the electromagnets for closing the circuits.

WILLIAM F. CALDWELL.

Witnesses:

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