

R. C. BRONSON.
ELECTRIC ALARM.
APPLICATION FILED OCT. 12, 1908.

937,919.

Patented Oct. 26, 1909.

2 SHEETS—SHEET 1.

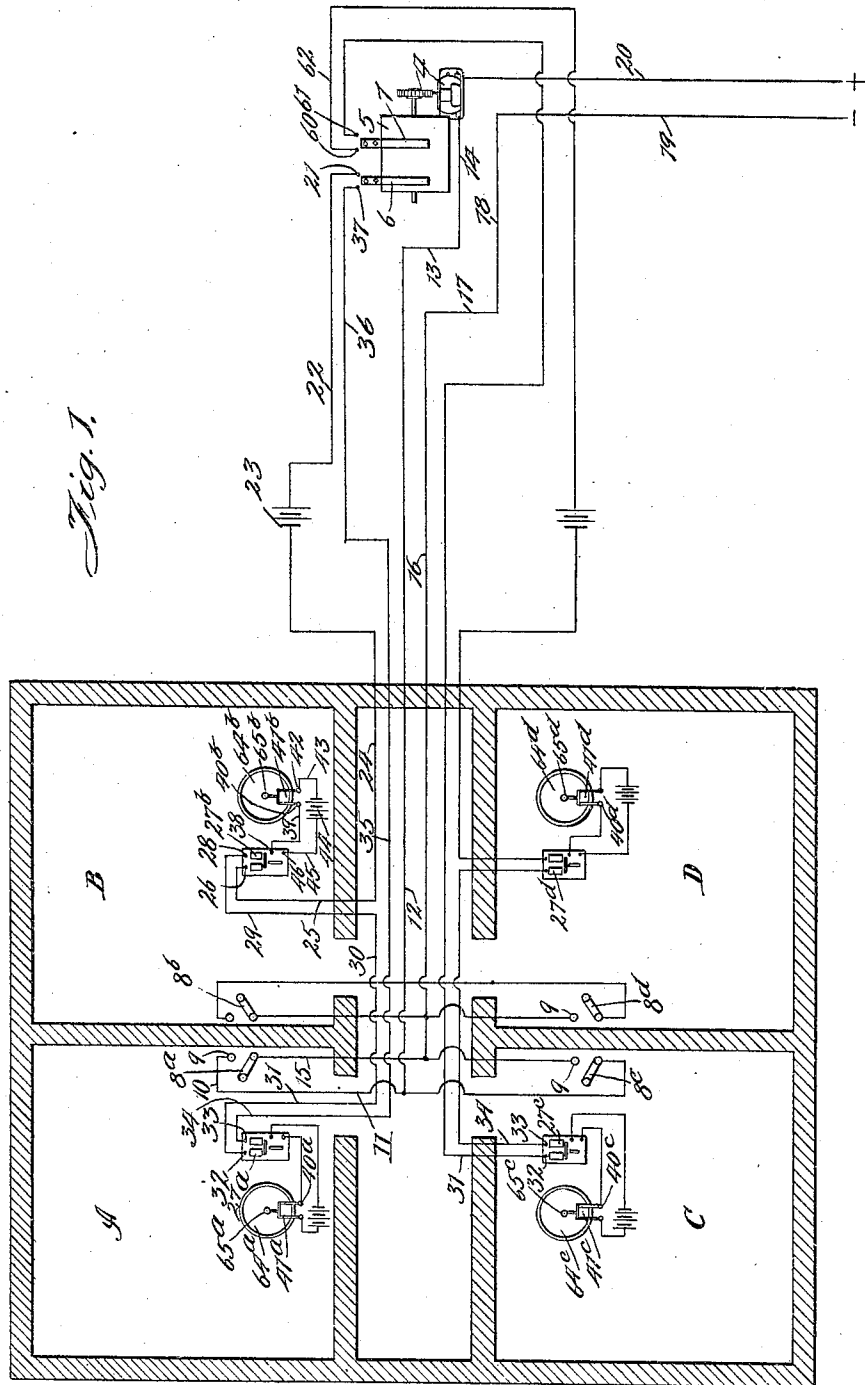


Fig. 1.

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Fig. 2.

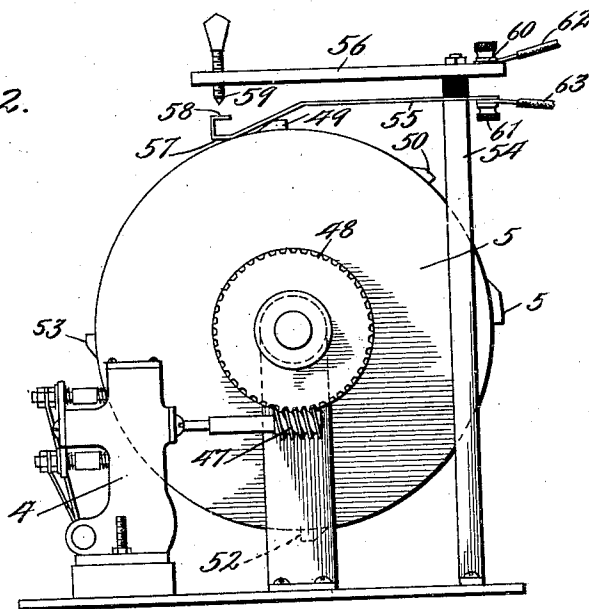
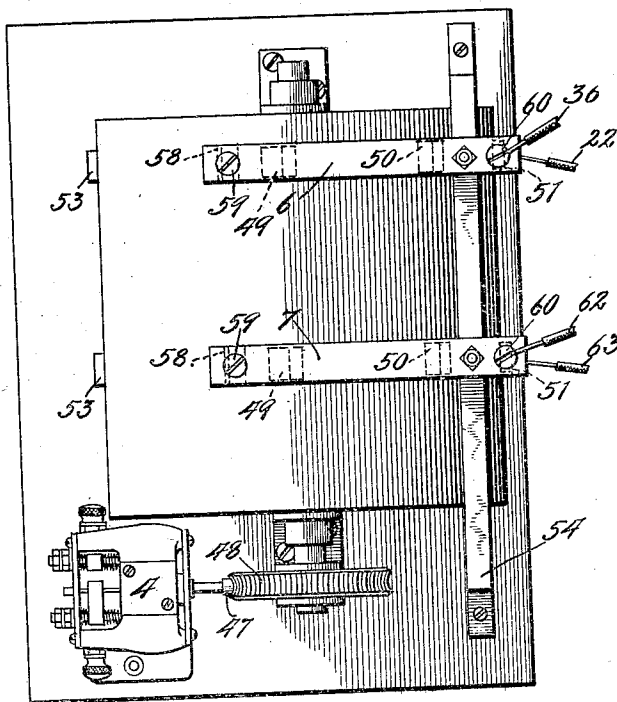


Fig. 3.



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UNITED STATES PATENT OFFICE.

RALPH C. BRONSON, OF CHICAGO, ILLINOIS.

ELECTRIC ALARM.

937,919.

Specification of Letters Patent.

Patented Oct. 26, 1909.

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To all whom it may concern:

Be it known that I, RALPH C. BRONSON, a citizen of the United States of America, and resident of Chicago, Cook county, Illinois, have invented a certain new and useful Improvement in Electric Alarms, of which the following is a specification.

My invention relates to improvements in electric alarm systems, and has for its object the production of devices by means of which an alarm may be sounded simultaneously in any number of rooms or in any desired places.

A further object is the production of a system involving simple constructions and wirings, by means of which the turning of a switch in any room will at once operate the striking mechanism located in any desired number of rooms.

These and such other objects as may hereinafter appear, are attained by my device, an embodiment of which is shown in the accompanying drawings.

Referring now to the drawings: Figure 1 represents a diagrammatic view showing the system installed in four rooms. Fig. 2 represents a side elevation of my motor and transmitting cylinder in position. Fig. 3 represents a top plan view of Fig. 2.

Referring now to the drawing: A, B, C, and D represent the four rooms, for instance in a school house equipped with my system. Located away from the rooms and preferably in the basement, is an ordinary motor 4. This motor is in circuit with a source of electricity, preferably a system in use for lighting. Adjacent to this motor is a transmitting cylinder 5, by the operation of which the striking apparatus in each room is caused to operate. The transmitting cylinder 5 is so arranged as to accommodate any number of local circuits leading to the different floors of the building, and each room is equipped with a local circuit actuated by a relay and adapted to operate an alarm or striking apparatus in the room.

In Fig. 1 the transmitting cylinder is shown with two contact strips 6 and 7. Located in each room within which there is an alarm or from which it is desired to start the alarms in operation, are switches 8^a, 8^b, 8^c, and 8^d. The closing of any one of these switches closes the circuit through the motor 4. For instance, let us suppose the switch 8^a closed. The circuit is completed through a contact 9 and lines 10, 11, 12, 13 and 14 to

the motor 4 and through the switch 8^a, the lines 15, 16, 17, 18 and 19 to the outside circuit, while the other line 20 of the outside circuit is connected to the other pole of the motor 4. This closing of the switch 8^a therefore sends a current through the motor and actuates the transmitting cylinder 5. The revolution of this cylinder alternately makes and breaks the local circuits to each series of rooms, as will be explained later, the circuits being as follows: From the pole 21 on the transmitter line 22 to the local battery 23, lines 24, 25 to the pole 26 of relay 27^b and from the other pole 28 of the relay through lines 29, 30, 31 to the poles 32 of relay 27^a. From the other pole 33 lines 34, 35 and 36 to the opposite pole 37 of the contact strip 6. When the relay 27^b is energized it closes the local circuit within the rooms through the relay contact 38, line 39 to the pole 40^b of the striker 41^b from the opposite pole 42, line 43, the local battery 44, line 45, to the opposite pole 46 of the relay 27^b.

Referring now to Figs. 2 and 3, it will be noted that the motor 4 is provided with a worm 47 meshing with the gear 48 on the transmitting cylinder 5, the operation of the motor therefore revolves the transmitting cylinder at any desired rate of speed. Located on the outer periphery of the cylinder 5 are a series of contact lugs 49, 50, 51, 52 and 53. On the frame 54 is mounted a contact spring 55 and a metallic connecting bar 56. This contact spring 55 is directly in the path of lugs 51, 52 and 53 and as the cylinder is revolved, the springs ride over the face of the lug, forcing the contacting face 58 of the spring into contact with the contact screws 59 in connection with the contact bar 56. Contact screws 60 and 61 secure to the rod 56 and spring 55, the connecting wires 62 and 63 leading to the apparatus located in rooms C and D, the circuits of which are similar to those traced above leading to rooms A and B as shown in Fig. 1 and Fig. 2.

Located in each of the rooms A, B, C, and D are drums or some similar device 64^a, 64^b, 64^c and 64^d adapted to be actuated by the strikers 41^a, 41^b, 41^c, and 41^d.

While I have shown the transmitting cylinder as equipped with two series of contact lugs 49, 50, 51, 52 and 53, it is evident that I can place as many series of these lugs on the cylinder as I desire in order to facilitate the

operation of the device, and while I have shown two rooms in circuit with each series of contacts in the cylinder, it is evident that any number of rooms may be placed in circuit although I prefer to place the rooms on each floor on the same circuit. It is also evident that the relays and batteries in the local circuits in the room could be dispensed with and the current obtained direct from, for instance batteries 23 for rooms A and B, but owing to the long stretches of wire made necessary in the installation of my device, a great loss of current would ensue with corresponding expense of maintenance.

By the use of the relays and local circuits in each room I find that in ordinary practice, the battery 23 may consist of as many cells as there are rooms or relays to be actuated, while for the local circuits, I find from practice that three ordinary cells serve to fulfil all requirements. For alarms 64^a, 64^b, 64^c and 64^d, I prefer to use drums which are struck by the arm 65^a, 65^b, 65^c and 65^d of the striker 41^a, 41^b, 41^c and 41^d. I use a drum for the reason that as this device is to be used in the event of fires, making it necessary for the occupants of the rooms to leave the building in an orderly manner, the drum is best calculated to keep the pupils in step and prevent confusion.

Let us suppose that this device is installed in a school of four rooms, as illustrated in Fig. 1. The teacher in room A becomes apprised of the fire in the building, making it necessary to get the children out as quickly as possible and yet prevent a panic. She turns the switch 8^a thus closing the circuit and sending the outside current through the motor 4. The motor immediately starts into operation and revolves the transmitting cylinder. It will be noted that the contacting lugs on the cylinder are spaced apart and that some of the spaces are wider than others and the width or length of face of the lugs themselves varies, for instance, the width of the lug 51 is practically three times the width of the lug 50, thus holding the spring 55 up a correspondingly longer time. The intervals between the lugs and the width of the faces of the lugs are carefully proportioned so that the impulses sent over the local circuits are the same length as those produced by the beating of an ordinary march tune on the drum. This revolution of the transmitting cylinder therefore closes the local circuit intermittently and causes the striker to beat the individual drums in the rooms. The children start at once from their seats and as they move toward the doors, unconsciously fall into step with the

drum. Thus in a great measure the element of danger from a panic is eliminated. This alarm continues until some switch is thrown open opening the circuit. It will be noted that these switches are in multiple, so that the closing of any one switch sends the current through the motor and starts the device in operation.

Heretofore in the event of fires in schools for instance, it has been necessary for the teacher discovering the fire to go at once to the janitor generally in the basement, to have the outside doors opened, and then to at once come back to the hall and commence playing a piano placed in the hall to be used in cases of this kind. The other teachers assigned to the same duty on the other floors, at once go to their pianos and commence playing for the children to march out. It is evident, however, that a very great loss of time has necessarily ensued in getting through with these operations and at the same time there is no probability that any two teachers will play in time. Consequently as the pupils from the different floors come together on the stairs or in the corridors, there will necessarily be more or less confusion. By the use of my device and system, however, a simple closing of the switch in one room immediately starts into operation the drum in every room, all beating in exact time with each other. The janitor is of course, thus immediately apprised of the necessity for seeing that all exits are open and the children can at once march out in step.

It is evident that this invention is valuable not only for use in schools but also for apartment houses, large halls, theaters, etc.

I claim:

In an alarm system comprising a normally open main circuit, a plurality of open local circuits, a plurality of relays in series in said local circuits and a ringer circuit for each relay adapted to be closed thereby, including a battery and alarm mechanism including a drum, a motor adapted to be put in operation on the closing of said main circuit, a cylinder actuated by said motor provided with contact lugs spaced apart at irregular intervals on the outer periphery of said cylinder to alternately open and close said local circuit and operate said alarms.

Signed by me at Chicago Illinois this 8th day of October 1908.

RALPH C. BRONSON.

Witnesses:

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