

No. 724,917.

PATENTED APR. 7, 1903.

J. H. MUNCHAUSEN.

AUTOMATIC AUDIBLE FIRE ALARM TRANSMITTER AND SIGNAL.

APPLICATION FILED FEB. 25, 1902.

NO MODEL.

2 SHEETS—SHEET 1.

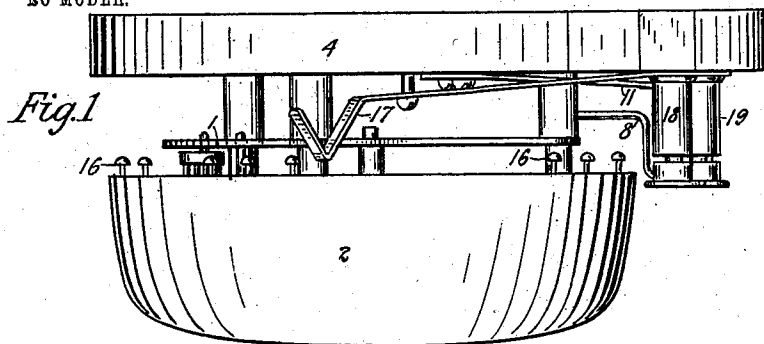
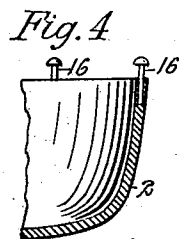
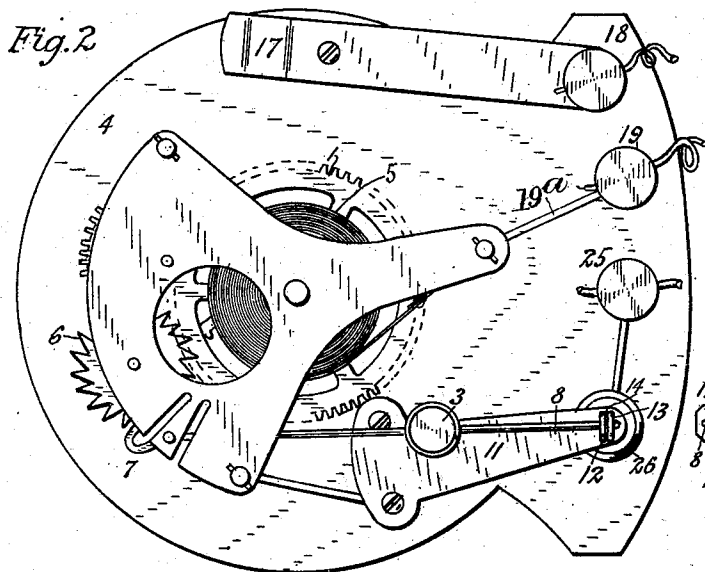
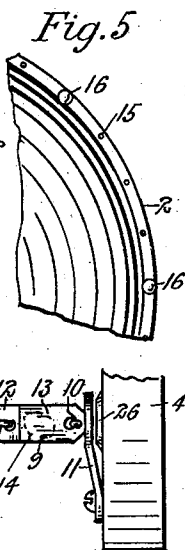
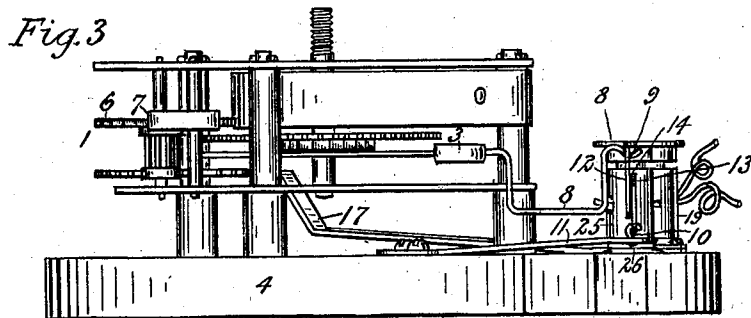


Fig. 6

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2 SHEETS—SHEET 2.

Fig. 7

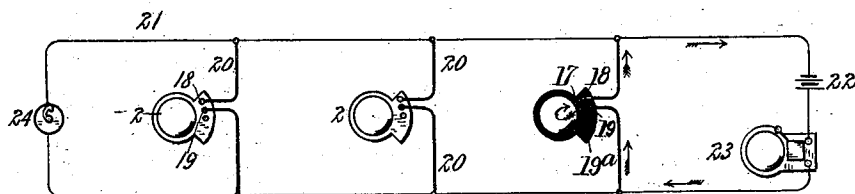


Fig. 8

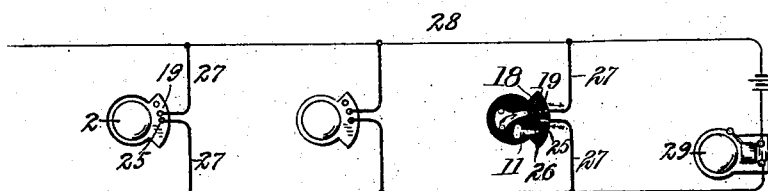
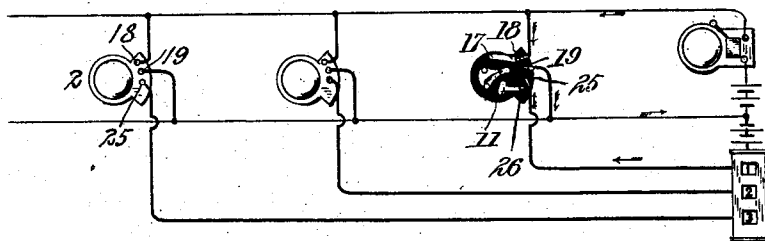


Fig. 9



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UNITED STATES PATENT OFFICE.

JOHN H. MUNCHAUSEN, OF BROOKLYN, NEW YORK.

AUTOMATIC AUDIBLE FIRE-ALARM TRANSMITTER AND SIGNAL.

SPECIFICATION forming part of Letters Patent No. 724,917, dated April 7, 1903.

Application filed February 25, 1902. Serial No. 95,499. (No model.)

To all whom it may concern:

Be it known that I, JOHN H. MUNCHAUSEN, a citizen of the United States of America, and a resident of New York, borough of Brooklyn, State of New York, have invented certain new and useful Improvements in Automatic Audible Fire-Alarm Transmitters and Signals, of which the following is a specification.

This invention relates to automatic audible fire-alarm transmitters and signals of the class in which the signaling mechanism is under the control of a thermostat or fuse which is melted under the action of heat, so that the transmitting and signaling mechanism is released and an alarm sounded.

The objects of the present invention are to provide a fire-alarm transmitter which may be conveniently applied to the point desired to be protected and which is durable, reliable, and efficient in action.

Further objects of the invention are to provide a fire-alarm transmitter which will not only give a local alarm, but which will also operate a distant signaling device, either continuously or intermittently, in which latter case at least two signaling devices located at distant points are set in action, one of which may be a visual signal and the other of which may be an intermittently-actuated audible signal.

My invention consists of certain features of construction and combinations of parts, to be hereinafter described and then claimed.

In the accompanying two sheets of drawings, Figure 1 is a side elevation of the local automatic fire-alarm transmitter forming a part of the present invention. Fig. 2 is a plan view of the same with the bell removed. Fig. 3 is a side elevation of the same inverted with respect to Fig. 1 and viewed from the opposite side, the bell being omitted. Fig. 4 is a broken detail sectional view showing how the pins for imparting an intermittent signal are mounted in the bell. Fig. 5 is a broken portion of the bell looking toward the rim of the same, in which the circuit-closing pins are inserted. Fig. 6 is a detail view showing more particularly the fuse and how it is set in position. Figs. 7, 8, and 9 are diagrams showing a fire-alarm system, including in Fig. 7 means for causing an intermittent audible

signal at a distant point, in Fig. 8 means for causing a continuous signal at a distant point, and in Fig. 9 means for causing a distant visual signal and an intermittent signal, both the visual and the audible signal being either at one point or located at isolated points. In these views as only one—the right-hand—fuse is supposed to have been melted the course of the current is indicated only through the alarm mechanism controlled directly thereby.

Referring first to Figs. 1 to 6, inclusive, the alarm mechanism consists of a spring-actuated alarm-train 1, a bell 2, a bell-hammer 3, and an insulating-base 4, on which the alarm-train is mounted. The arbor of the main-spring 5 of the alarm-train is screw-threaded, so that the bell 2 may be screwed thereonto, so as to be rotated by the alarm-train. The escape-wheel 6 acts on the pallet 7 and oscillates the hammer 3 for striking the bell 2. There is no novelty in the parts so far described, and any well-known mechanism serving the same purpose may be used for sounding the alarm at the local point. In the present invention the shank of the hammer 3 is provided with an extended finger 8, the outer extremity of which is caught into an eye or perforation in one end of a fuse 9, which at its other end is provided with an eye or perforation in which is caught a hook 10, located on one end of a flat spring 11, which is secured at its opposite end to the base 4 of the alarm-train and is electrically connected with its frame. The fuse 9 referred to is preferably composed, as shown, of two thin pieces 12 13, of copper, which overlap and are connected together by means of fusible material 14, such as soft solder. The solder should be able to withstand a temperature of about 150° Fahrenheit, so that in case of a fire in the room or place in which the fire-alarm or local bell is placed the solder will melt and the two sections of the fuse separate under the action of the spring 11, thereby releasing the finger on the hammer 3. The hammer being thus released will be caused to rapidly oscillate under the action of the alarm-train, thereby vigorously striking the rim of the bell 2 and alarming persons within the hearing distance of the said bell.

The described parts embody some of the features of my invention.

Another feature of my invention is enabled to be carried out, due to the rotation of the bell 2, and consists in forming in the edge of the rim of the rotating bell a series of preferably equally-spaced sockets or holes 15, Fig. 5, which are adapted to receive a number of pins or plugs 16, which may be inserted removably in such sockets, they being held frictionally in the same. These pins 16 form the means for imparting intermittent irregular or regular signals to a distant point. According to the arrangement of the pins in the sockets of the rotating bell, so will the intervals between the signals produced thereby at a given point be altered. To carry out this portion of the invention, a spring-contact 17 is fixed to the base 4 by means of a binding-post 18, the free end of such spring being located in the path of the pins 16 on the bell, so that contact therewith will be made by the successive pins as the bell rotates. The frame of the alarm-train 1 is electrically connected, as indicated in Fig. 2, with a second binding-post 19, arranged on the base 4.

In Fig. 7 is shown a system in which a number of fire-alarm transmitters are connected in multiple by branch wires 20, which lead from the said binding-posts 18 19 to the main-line wires 21. These main-line wires may in the case of an apartment or flat house, department-store, or the like form part of an electric circuit already installed, in which is included a battery 22, a signaling device 23 in the form of an audible alarm located in the janitor's or superintendent's quarters or elsewhere, and a circuit-closer 24—for instance, a push-button. In the case of a hotel the distant signaling device may of course be located at the clerk's desk. When a fire occurs in a room or an apartment in which one of the fire-alarm transmitters constructed in accordance with my invention is located and the heat is above, say, 150° Fahrenheit, the fuse will melt and the hammer of the alarm-train will be released, thereby causing the same to strike the bell and give a series of signals to those within hearing of the local fire-alarm. The bell 2, however, is caused to rotate, due to the release of the hammer, so that the pins 16 on the same will strike the spring-contact 17 in succession and cause a series of signals at the distant signaling device 23. The current flows as indicated by arrows when the fuse is melted from the positive side of the battery to signal 23, through the line to the binding-post 19, thence through the wire connection 19^a, the frame of the alarm-train bell 2, pins 16, spring-contact 17, and back to the battery through the return side of the line. There are no electrical connections through the binding-post 25 in this case. The distant signal or signals may have a predetermined variation, according to the different positions of the pins 16 in the transmitters in the different rooms or apartment. For instance, one fire-alarm transmitter may have the contact-pins on

the bell so arranged as to impart two series of signals in which the signals of each series are equally spaced, while another alarm-transmitter may have the pins so arranged as to produce three series of signals in which the signals of each series are equally intervalled, or the signals of one series may have equal intervals and signals of the other series diverse intervals. As the bell 2 is readily detachable, the contact-pins may be conveniently and readily set in the desired position thereon.

In some cases it may be desirable to prepare a continuous series of audible signals or a single visual signal at a distant point. This may be accomplished by the provision of a third binding-post 25, which is electrically connected, as shown in Fig. 2, with a fixed contact 26, which is located opposite the free end of the spring 11, which controls the hammer of the bell. By connecting the binding-posts 19 25 through branch wires 27, as shown in Fig. 8, with main-line wires 28, which lead to a distant continuous alarm signaling device 29, it is possible to impart a continuous signal to the latter immediately a fire occurs in the room or chamber in which the fire-alarm transmitter is located, due to the fusing of the solder of fuse 9 and the closing of an electric circuit through the contact of the said spring 11 with the said fixed contact 26. The current flows as indicated by darts from the positive side of the battery to a signal 29, through the line to binding-post 25, to contact 26, through the contact-spring 11 and the frame of the train to binding-post 19, from whence the current returns to the battery. In this case there being no electric circuit through the spring-contact 11 no variable intermittent signals will be transmitted.

In Fig. 9 is diagrammatically shown a system in which all of the binding-posts of the fire-alarm transmitters are connected in an electric circuit, so as to transmit either a continuous alarm-signal to a distant point or a visual signal and also to transmit a series of variable audible signals to the same distant point or to another distant point, as required. In this form of the invention the current flows the same as indicated by the arrows and darts in Figs. 7 and 8, but returns by one wire.

This invention is peculiarly adapted for electric signaling systems already installed in hotels, department-stores, apartment-houses, warehouses, &c., inasmuch as it is only necessary to properly connect the binding-posts of the fire-alarm transmitters by means of branch wires with the main-line wires in multiple—as shown, for instance, in the various diagrams. Other combinations and arrangements may of course be effected by skilled electricians.

Having thus described my invention, what I claim as new, and desire to secure by Letters Patent, is—

1. The combination of a bell, a hammer, means for actuating the hammer, a spring-contact, a fuse mechanically connecting and restraining the hammer and spring-contact, a second contact from which the spring-contact is spaced by the hammer and fuse, and a normally open electric signaling-circuit including both contacts, the hammer and spring-contact being simultaneously released from each other upon the melting of the fuse, substantially as described.

2. The combination of a spring-actuated alarm-train, a bell, a hammer controlling said train, a spring-contact electrically connected with the frame of the alarm-train, a fixed contact, a fuse mechanically connecting and restraining the hammer and spring-contact, and binding-posts, one electrically connected with the frame of the alarm-train and the other with the fixed contact, through which and through the binding-posts an electric circuit may be established by the contacting of the said spring-contact with its opposing contact, substantially as described.

3. The combination of a rotary bell, means for rotating the same, an escapement controlling the means of rotation, a fuse controlling the escapement, means for sounding the bell, a series of contact-pins on the rotary bell, an electric circuit in which said rotary bell is located, and a movable contact which is also located in said circuit, said pins being adapted to strike said movable contact, substantially as described.

4. The combination of a bell, means for rotating the same, a hammer, a fuse controlling said hammer, which in turn controls the means for rotating the bell, a series of contact-pins on the rim of the bell, an electric circuit, in which said bell is located, and a spring-contact which is also located in said circuit, said pins being adapted to strike said spring-contact during the rotation of the bell, substantially as described.

5. The combination of an alarm-train, a bell rotated by said train, a hammer, a fuse controlling said hammer, a series of contact-pins on the rim of the bell, binding-posts, one of which is electrically connected with the frame of the alarm-train, and a spring-contact which is electrically connected with the other binding-post, said pins being adapted to strike said spring-contact during the rotation of the bell, substantially as described.

6. The combination of an alarm-train, a hammer controlling the escapement of the train, a bell rotated by the train, a fuse controlling the hammer, a distant signaling device, and means for closing an electric circuit, in which said signaling device is included, through the rotation of the said bell, substantially as described.

7. The combination of a rotary bell, a series of pins removably inserted in such rotary bell, thermostatically-controlled means for sounding the bell, a distant signaling device, and means for closing an electric circuit, in which said signaling device is included, through the action of said contact-pins, substantially as described.

8. The combination of a hammer, means for actuating the same, a rotary bell controlled by the hammer, which also controls such actuating means, a fuse controlling the hammer, a distant signaling device, and means for closing an electric circuit, in which said signaling device is included, through the rotation of the said bell, substantially as described.

9. The combination of a rotary bell, a hammer, means for actuating them, an escapement controlling the means of actuation, a fuse controlling the escapement, additional signaling means, and a series of pins rotated with the bell and adapted to bear on an adjacent part of and to operate the additional signaling means during the rotation of the bell, substantially as described.

10. The combination of a rotary bell, contact-pins rotated with the bell, a hammer, an alarm-train for actuating the hammer and rotating the bell, a spring-contact, a fuse connecting the hammer and spring-contact, a second contact, an electric signaling-circuit including both contacts and the frame of the alarm-train, a second spring-contact, and a second electric signaling-circuit in which the bell and the second spring-contact are located, the pins being arranged to strike the second spring-contact, substantially as described.

Signed at New York this 20th day of February, 1902.

JOHN H. MUNCHHAUSEN.

Witnesses:

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GEO. L. WHEELOCK.