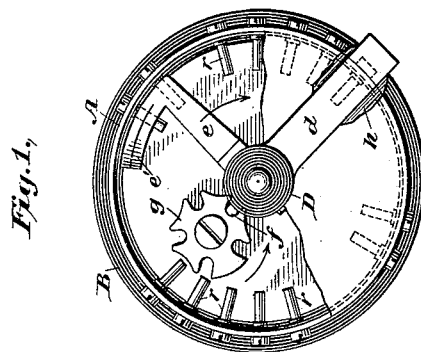
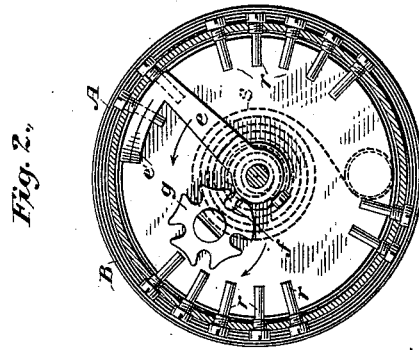
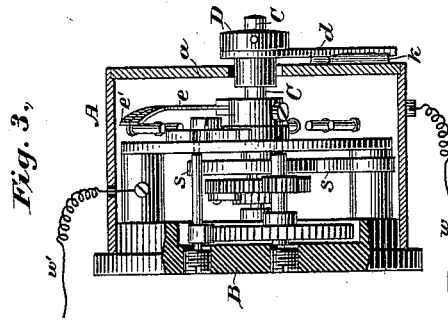


(No Model.)

G. F. BULEN.
AUTOMATIC FIRE ALARM TRANSMITTER.

No. 421,854.

Patented Feb. 18, 1890.



Witnesses

Geo. W. Breech
C. E. Ashley

Inventor
Geo. F. Bulen
By his Attorneys
Pope, Edgcomb & Terry

UNITED STATES PATENT OFFICE.

GEORGE F. BULEN, OF TOMPKINSVILLE, NEW YORK.

AUTOMATIC FIRE-ALARM TRANSMITTER.

SPECIFICATION forming part of Letters Patent No. 421,854, dated February 18, 1890.

Application filed June 18, 1889. Serial No. 314,770. (No model.)

To all whom it may concern:

Be it known that I, GEORGE F. BULEN, a citizen of the United States, residing in Tompkinsville, in the county of Richmond and State of New York, have invented certain new and useful Improvements in Automatic Fire-Alarm Transmitters, of which the following is a specification.

This invention is an improvement in thermostatic fire-alarm transmitters, or devices which are constructed to indicate or signal over an electric circuit, when brought into operation by a predetermined degree of heat, the existence and location of a fire.

The invention resides in the construction of the transmitter proper, the object of which is to produce a simple, cheap, and effective device which shall be interchangeable with others of its kind, so that only one set of tools may be required in the manufacture of any number of transmitters capable of giving different signals.

In the drawings hereto annexed, Figures 1 and 2 are top views of the transmitter, partly in section; and Fig. 3 is a broken section of the case with a side view of the apparatus contained therein.

The instrument is mounted on an insulating base B, by means of which it is secured to any suitable support in a building or apartment which is to be protected.

The operative parts of the instrument comprise a spring and a train of gear-wheels for imparting movement to a contact-maker, a series of contacts by means of which the desired signal is transmitted, and a detent normally restraining the train from operation until released by the action of a predetermined heat. Broadly considered, these features or elements are present in other devices of this kind. The distinguishing features of my improved transmitter, however, reside in the details of construction hereinafter described. I inclose the train with its contact-maker in a metallic box A, which is secured to the insulating base B, and therefore normally out of electrical contact with said train. Around the side or walls of this box or case I form any desired number of perforations in such position that screws or pins inserted through them will lie in the path of the contact-maker when moved by the train of wheels.

This construction enables me to produce a transmitter capable of sending any predetermined signal or of changing the character of the signal which any given box is to send with the least possible trouble or expense, it being necessary merely to insert or remove such plugs or screws from the metallic casing as will give the desired number of contacts and spaces.

The clock work or train which I have devised comprises a spindle C, upon which is fixed a spring s, and with which is combined a short train of gear-wheels, as shown. To the piece D, which is of insulating material and fixed to the top of the spindle C, is attached an arm d, extending over the outside of the cover a. Within the box is the contact e, formed with a trailing end e', and adapted to sweep over the contact screws or pins r, arranged as above described. In order that the arm d may make only a certain number of turns, either in being wound or in unwinding, I fix near the spindle C a stop g, mounted eccentrically on a screw or stud. A pin f on the spindle C engages with notches in the periphery of the stop, and when the spindle has turned four times it brings the stop g into a position which locks the spindle against further movement in that direction, but permits it to turn as many times in the opposite direction.

The instrument is connected with a central office by means of the wires w and w', one connected with the metallic casing of the instrument and the other with the train, as shown. The spring is wound by turning the lever or arm g to the left, as indicated by the arrow in Fig. 2.

When the device is wound up, it is locked by soldering the arm g to the cover a with solder or suitable material which fuses at a low temperature. The solder is represented at k. A fire in the vicinity of the box which produces sufficient heat to melt the solder at k sets the box in operation, and the train immediately turns the two arms d and e to the right, as indicated by the arrow in Fig. 1, and the trailing end e' of the arm e passes successively over the screws projecting through the sides of the box. These are arranged in such manner as to give a signal indicating the number of the box. Thus it will be seen

that the screws are arranged in the figures in groups of two and five. This is repeated twice in the circle of the box, and may be oftener, if desired. If fixed in the position shown in Fig. 1, then, when released, the numerals 2 and 5 will be repeated twice for each revolution, or for four revolutions eight times, which indicates at the central office, or at any desired point in the circuit, that the box No. 25 has been set in operation.

The invention is not confined to the use of solder alone at the point *k*; but any material may be used to prevent the release and operation of the apparatus that will perform the same function as solder—that is, any material that maintains its shape or consistency in ordinary temperatures, but changes under heat.

What I claim is—

1. The combination, in a thermostatic fire-alarm transmitter with a spring-actuated train and contact-arm carried thereby and forming one terminal of an electric circuit, of an insulated metallic inclosing-case forming

the other terminal of the circuit and having a line of perforations therein, and removable metallic plugs or contacts inserted in said perforations in position to be encountered by the contact-arm, as set forth.

2. An automatic fire-alarm transmitter, consisting of a metallic case and a spring and train therein, said case and train being insulated from each other, a contact-arm on said train, a series of metallic pins or plugs extending through perforations in said case into the path of the contact-arm, and an arm extending from one member of the train by which said train is wound, said arm being normally restrained by a joint or connection with the case of a fusible solder, as set forth.

In testimony whereof I have hereunto subscribed my name this 14th day of June, A. D. 1889.

GEO. F. BULEN.

Witnesses:

DANL. W. EDGECOMB,
CAROLINE E. DAVIDSON.