(No Model.)

G. M. STEVENS.

ELECTRIC FIRE ALARM APPARATUS.

No. 384,875. Patented June 19, 1888.

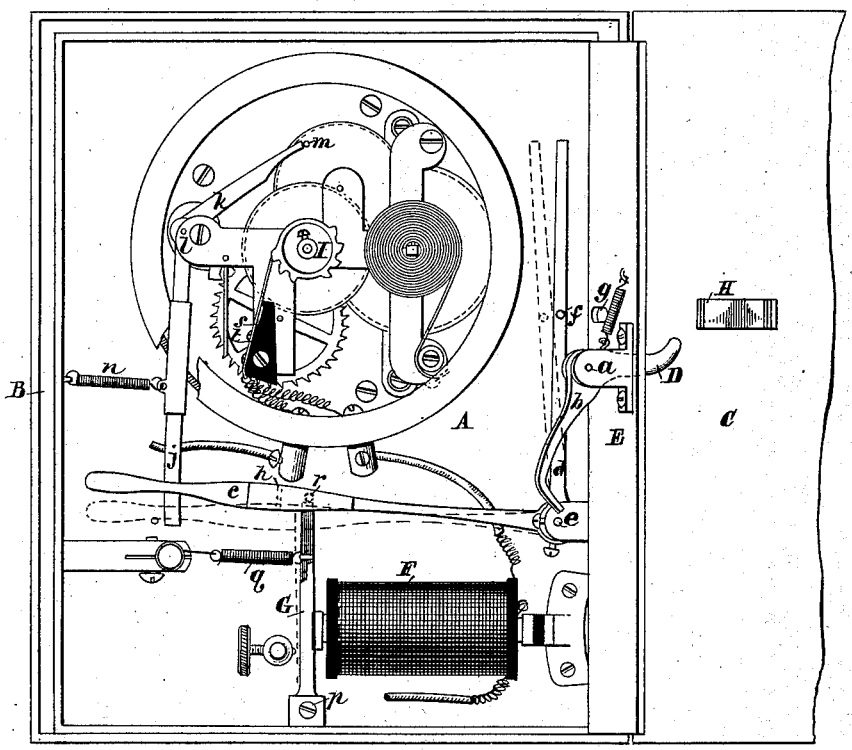

Fig: 1

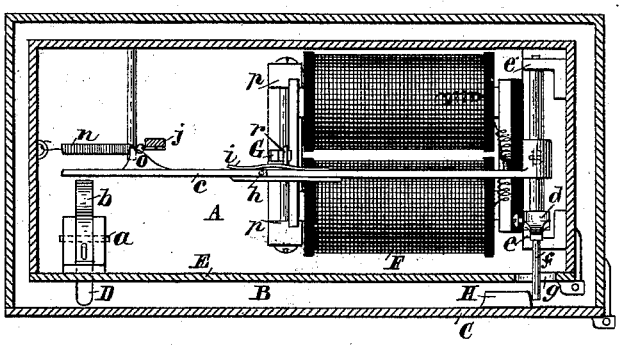

Fig: 2.

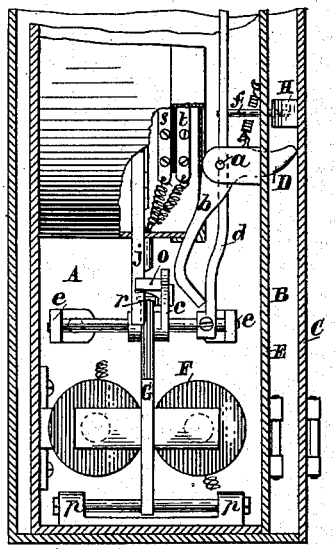

Fig: 3.

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UNITED STATES PATENT OFFICE.

GEORGE M. STEVENS, OF CAMBRIDGE, MASSACHUSETTS.

ELECTRIC FIRE-ALARM APPARATUS.

SPECIFICATION forming part of Letters Patent No. 384,875, dated June 19, 1888.

Application filed March 12, 1888. Serial No. 267,038. (No model.)

To all whom it may concern:

Be it known that I, GEORGE M. STEVENS, a citizen of the United States, residing at Cambridge, in the county of Middlesex and State of Massachusetts, have invented a new and useful Improvement in Electric Fire-Alarm Apparatus, of which the following is a specification, reference being had to the accompanying drawings.

My invention relates to an improvement in signal-boxes of an electric fire-alarm apparatus, its object being to provide means whereby while an alarm is being given from any box on the circuit the devices for releasing or permitting the action of the mechanism in a box for causing an alarm cannot be operated by the lever which is to be "pulled" for giving an alarm.

My invention consists in the devices and combinations of devices hereinafter set forth, and specifically pointed out in the claims.

In the drawings, Figure 1 shows so much of a signal-box and mechanism therein embodying my invention as is sufficient for illustration of the same. Fig. 2 is a section and plan, and Fig. 3 a section and side view, of certain parts shown in Fig. 1.

As usual in this class of signal-boxes, there is a case, A, secured to and within an outer case, B. To give an alarm, a person opens the door C of the outer case and pulls down a lever, D, which projects from the door E of the inner case. This lever I pivot to the door E or to a stand thereon at *a*. This lever has an arm, *b*, fastened thereto or integral therewith, which is preferably of the shape and extends downward, as shown. A lever having one arm, *c*, nearly horizontal, and another arm, *d*, nearly vertical, is pivoted within the inner case at the side thereof, at *e*, so as to swing in vertical planes. The arm *d* has a pin, *f*, fixed thereon, which extends, when the inner door is closed, through a slot, *g*, therein. The arm *c* has the outer end portion pivoted to the other part at *h*, to swing horizontally. A flat spring, *i*, tends to keep this outer end portion in line with the balance of the arm *c*.

The releasing device may be a lever having arms *j* and *k* and pivoted at *l*, so that a pin, *m*, on a gear of the mechanism for causing the alarm may meet the end of the arm *k*, and thus said mechanism be stopped. The arm *j* is nearly vertical, and a spring, *n*, tends to keep this lever in position to meet the pin *m*, as shown. The spring *n* swings the lever against a fixed stop. (Not shown in the drawings, being connected with the part broken away.) A projection, *o*, on the pivoted part of the arm *c* of the lever *c d* is so beveled that on pressing inward on said pivoted part the arm *j* of the lever *j k* will be moved sidewise, and hence the whole lever *j k* swung so that the pin *m* will be released and the alarm mechanism be allowed to operate.

An electro-magnet, F, is located in the inner case, its armature being fixed to a lever, G, pivoted at *p*. A spring, *q*, tends to swing this lever and the armature away from the magnet. There is a pin, *r*, on the arm *c* of the lever *c d*, which may rest on the upper end of the lever G when the armature is in contact with the magnet and this lever G in the consequent position.

A projection, H, fixed on the inner face of the outer door, is so located that when this door is closed it will engage with the pin *f*, and the lever *c d* will be held thereby in such position that the arm *c* will be raised.

Insulated brushes *s t* co-operate with a wheel, I, for making and breaking the electric circuit, for giving an alarm in the usual manner. These brushes, in a signal-box from which no alarm is being given, remain on a contact-space of the wheel I, so that when no alarm is being given from any signal-box on the circuit the circuit is closed. In the circuit are the coils of the magnet F, as indicated. The circuit being closed, on opening the outer door, although the pin *f* will be released by the projection H, the lever *c d* will swing and the arm *c* drop only a slight distance, since the pin *r* will meet the upper end of the lever G. The arm *b* of the lever D will therefore be opposite the pivoted portion of the arm *c* of the lever *c d*, and when the lever D is pulled said pivoted part of the arm *c* will be swung inward, so as to swing the lever *j k* and release the pin *m*. Thus the alarm mechanism will be allowed to operate; but if, on opening the outer door, an alarm is being given from any box on the circuit, and hence the circuit is being broken, then the lever G will be released by the mag-

net and swung therefrom, and the arm *c* of the lever *c d* will drop down so far, as indicated by dotted lines in Fig. 1, that it will be below the arm *b*, and will not be met and moved by this arm *d* when the lever D is pulled, and the mechanism for giving an alarm will not be affected. Thus a person by pulling the lever D cannot cause any interference with an alarm being given from any signal-box on the circuit. When the outer door is closed, the lever *c d* will be swung so as to be in position to have the arm *c* caught by the lever G or otherwise, as and for the purposes set forth.

I claim as my invention—

1. In an electric signal-box, the combination of a door provided with a projection, H, a pivoted lever, *c d*, having an arm, *c*, to swing in a vertical plane, and located in said box, and provided with a pin, *f*, to engage with said projection, said lever being thus held against the action of gravity between the lever D to be pulled for giving an alarm, and the device for releasing the mechanism for making and breaking the circuit, substantially as set forth.

2. The combination, in an electric signal-box, of an electro-magnet, F, armature and lever G therefor, lever *c d*, provided with a projection or pin, *r*, and projection *o*, lever D to be pulled for giving an alarm, and the releasing-lever *j k*, substantially as set forth.

3. The combination of the outer door provided with a projection, H, a lever, *c d*, having an arm, *c*, to swing in a vertical plane, and provided with a pin, *f*, to engage with said projection, and also provided with a projection or pin, *r*, an electro-magnet and armature and lever G therefor, and a lever, D, pivoted to the inner door, substantially as set forth.

4. The combination of the lever *c d*, having an arm, *c*, to swing in a vertical plane, and swung by the outer door and upheld by a magnet, armature and lever G, a lever, D, to be pulled for giving an alarm, and a releasing device, as the lever *j k*, substantially as and for the purposes set forth.

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