(No Model.) 2 Sheets—Sheet 1.

F. F. LOOMIS.

FIRE ALARM TELEGRAPH BOX.

No. 323,435. Patented Aug. 4, 1885.

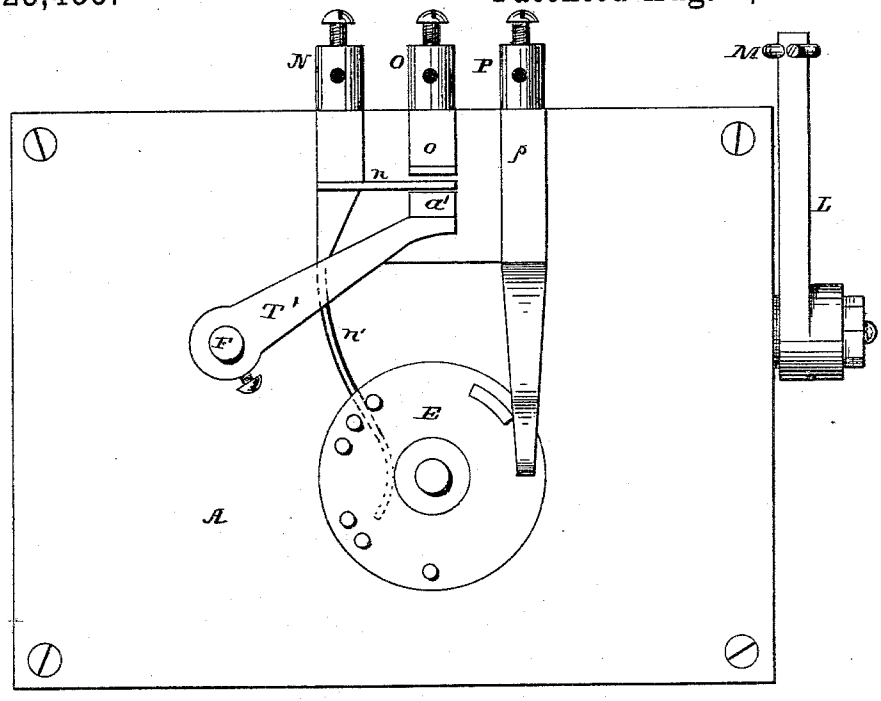

Fig. 1.

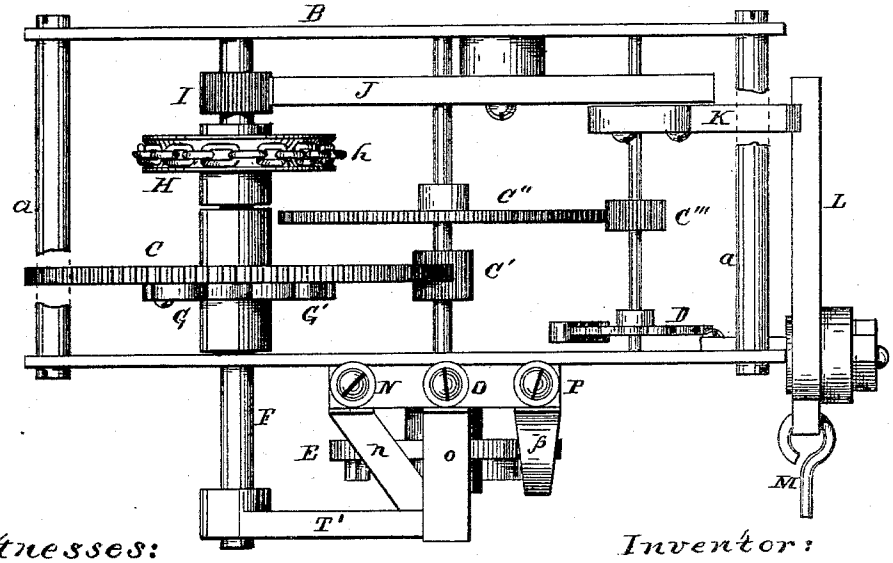

Fig. 2.

Witnesses:

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E. A. Simmons

Inventor:

Frank F. Loomis,

by C. P. Humphrey

Atty.

(No Model.) 2 Sheets—Sheet 2.

F. F. LOOMIS.

FIRE ALARM TELEGRAPH BOX.

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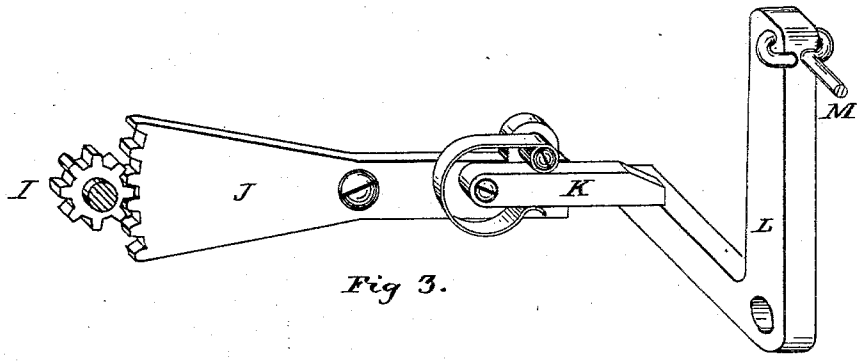

Fig 3.

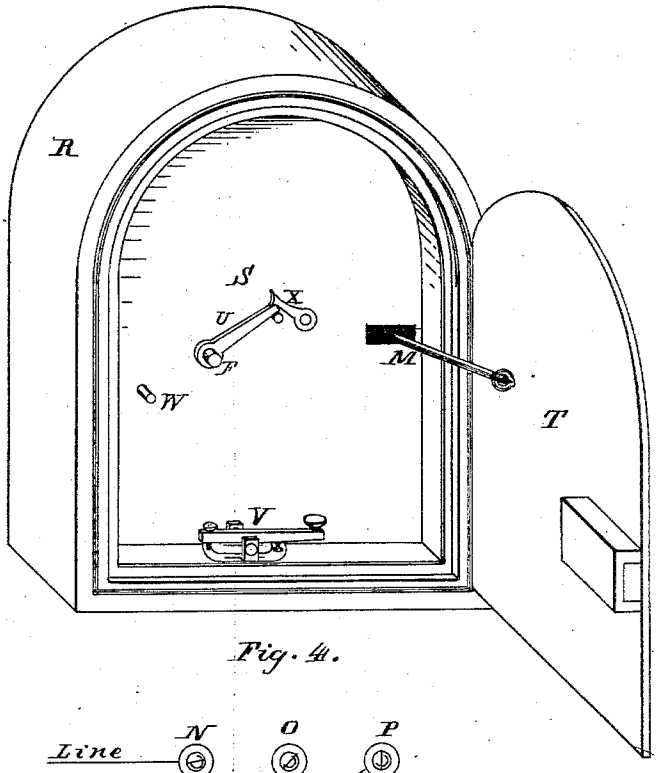

Fig. 4.

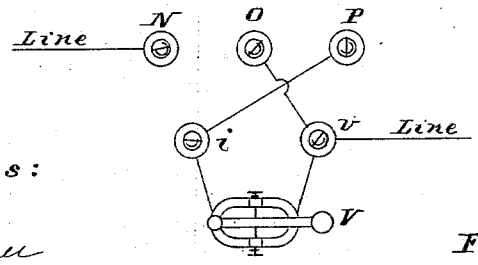

Fig. 5.

Witnesses:

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Inventor:

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UNITED STATES PATENT OFFICE.

FRANK F. LOOMIS, OF AKRON, OHIO.

FIRE-ALARM-TELEGRAPH BOX.

SPECIFICATION forming part of Letters Patent No. 323,435, dated August 4, 1885.

Application filed August 4, 1884. (No model.)

To all whom it may concern:

Be it known that I, FRANK F. LOOMIS, a citizen of the United States, residing at Akron, in the county of Summit and State of Ohio, have invented a new and useful Improvement in Fire-Alarm-Telegraph Boxes, of which the following is a specification.

My invention relates, generally, to fire-alarm-telegraph boxes in which a train of gearing moved by a spring or weight operates a circuit-breaker and automatically transmits the alarm; and it has especial relation to that class of boxes in which the weight or spring is wound up by opening the door.

The objects of my invention are, first, to wind up and release the clock-work when the alarm-box is opened, which shall then continue to actuate the circuit-breaker until the alarm is repeated a number of times; and, second, to throw the box into circuit as the clock-work is wound up, and cut it out as soon as it ceases to repeat the alarm.

It consists in the devices illustrated in the accompanying drawings, in which—

Figure 1 is a front elevation of the case containing the train and winding mechanism, and showing the circuit-breaker and cut-out; Fig. 2, a plan of the same; Fig. 3, a perspective view of the winding mechanism; Fig. 4, a similar view of a fire-alarm box containing the mechanism shown in Figs. 1 and 2; and Fig. 5, a diagram illustrating the operation of the cut-out.

The operating mechanism is supported by a frame-work consisting of two plates, A and B, united by the posts *a a*. In this is a train of gearing, C C′ C″ C‴, provided with an escapement, D, to regulate its motion, and connected with which is the circuit-breaker E. The wheel C is loose on the shaft F, but is driven in one direction by the ratchet-wheel G′ and pawl G. Upon this shaft F is keyed a pulley, H, on which is a chain, *h*, bearing at its lower end a weight. (Not shown.) A pinion, I, is also keyed to this shaft, which meshes with the segmental rack on the end of the rocking-arm J. This arm J is pivoted to the back plate, B, and has at its opposite end a latch, K, which engages the horizontal arm of the bell-crank L as it swings upward. This bell-crank is journaled to one end of the plate A, and in the vertical arm is a wire or rod, M, the other end of which is attached to the door T of the box R.

When the door T is closed, the horizontal arm of the bell-crank is depressed; but as the door is opened it rises, engages the latch K, and swings the lever J, causing the rack to turn the pinion and wind the chain *h* on the pulley H until the arm of the bell-crank escapes past the latch K, when the weight at once actuates the train and sends in the alarm. As the door is closed the arm of the bell-crank descends and is permitted by the latch to escape below it. By this arrangement the simple opening of the door operates the machinery and sounds the alarm.

For convenience of communicating, an ordinary telegraph-key, V, is placed in the box R in front of a partition, S, behind which is the mechanism just described. When desired, the clock-work may be retained wound up, and released at will, by extending the shaft F through the partition S, (see Fig. 4,) attaching thereto a radial arm, U, arranged, when the weight has run down, to rest against a pin, W, and when wound up to engage and be retained by a latch, X. This arrangement is desirable when the key is to be used, as it and the circuit-breaker are simultaneously thrown in circuit.

The mechanism for throwing the key and circuit-breaker into circuit is thus described: Upon a block of insulating material attached to the front upper edge of the plate A are three binding-posts, N O P, the first whereof is connected with the main line. The post O is connected with one binding-post, *v*, of the key, (see Fig. 5,) which is also connected with the main line. The post P is connected with the key-post *i*. The circuit-breaker E is insulated from its axle and is in constant connection with the post N by the spring or brush *n′*, resting on its hub. A spring or brush, *p*, projects from the post P, and forms a connection with projections on the face of E as the latter revolves. From the post O a spring, *o*, projects horizontally forward, and from the post N a corresponding spring, *n*, extends diagonally beneath, and when at rest is slightly separated from *o*. A radial arm, T′, is keyed to the shaft F, and has at its outer end a hard-

rubber button, *a*, which, as the weight runs down, meets and presses *n* against *o*, connecting N and O, and making a short-circuit between the ends of the line, through *i o* N, cutting out the box and key.

The winding of the mechanism withdraws the arm T′, allowing the springs *n o* to separate, thereby breaking the connection between N and O and sending the current through the key and circuit-breaker.

I am aware that a fire-alarm telegraph box containing a circuit-breaker actuated by a spring or weight through a train of gearing, and in which the weight or spring is wound up by opening the door, is of itself not new, and such I do not claim; but

What I claim, and desire to protect by Letters Patent, is—

1. In a fire-alarm-telegraph box, the combination, with a circuit-breaker actuated by a weight, or equivalent, through a train of gearing, of a swinging lever having at one end a segmental rack meshing into a winding pinion, and a latch at the other, and a pivoted bent lever adapted at one end to engage the latch and having the other connected with the box-door, all constructed and arranged substantially as shown, and for the purpose specified.

2. In a fire-alarm-telegraph box, the combination, with a circuit-breaker, a weight, and train of gearing to actuate the same, and a door connected therewith to wind up the weights when opened, of the radial arm T′, and springs *n o*, constructed, connected, and arranged substantially as shown, and for the purpose specified.

3. In a fire-alarm-telegraph box, containing a circuit-breaker, a weight, and train of gearing connected with a door to be wound up by opening the latter, the combination therewith of the radial arm U and hook X, all constructed and arranged substantially as shown, and for the purpose specified.

In testimony that I claim the foregoing I have hereunto set my hand this 24th day of July, A. D. 1884.

FRANK F. LOOMIS.

Witnesses:

C. P. HUMPHREY,

G. H. SIMMONS.