

(No Model.)

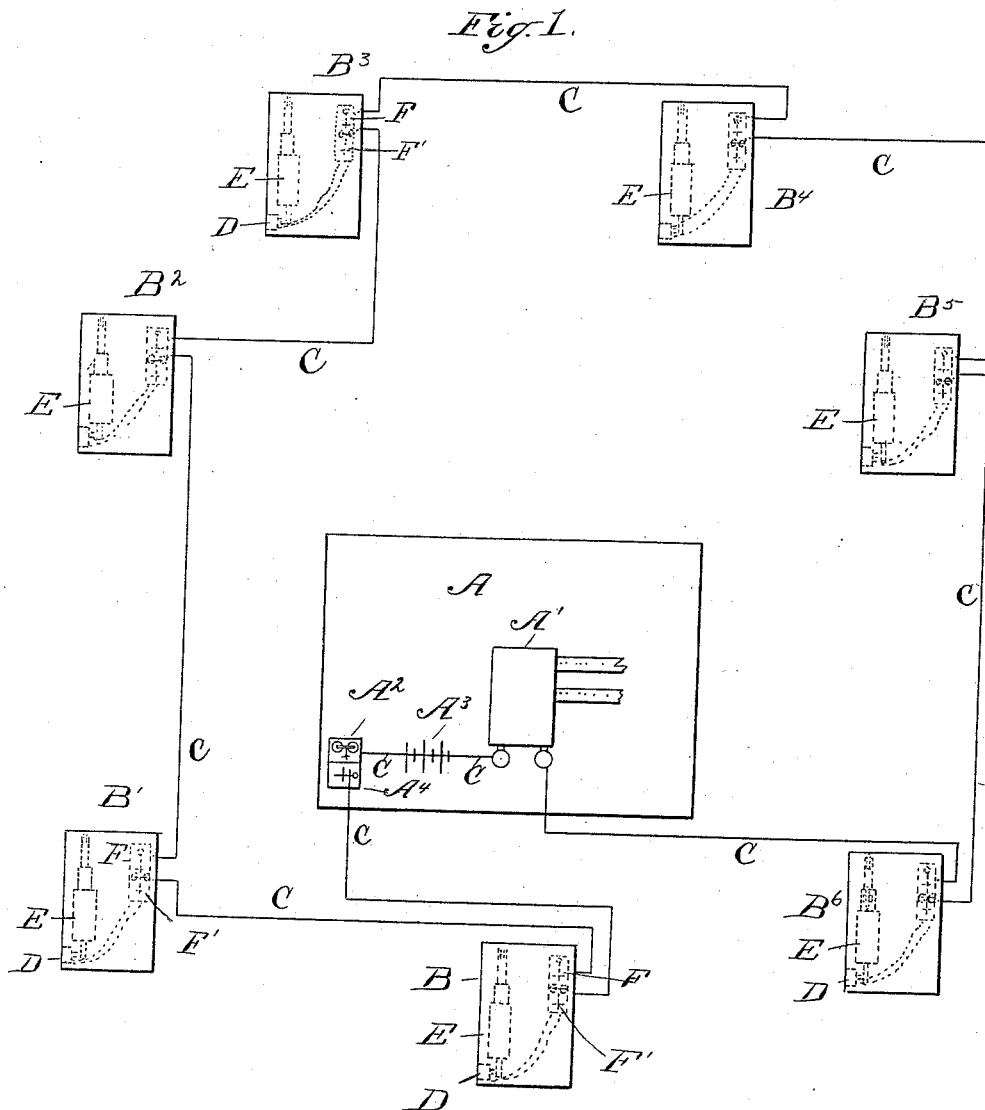
2 Sheets—Sheet 1.

G. L. B. ROUNSEVILLE.

ELECTRIC SIGNAL SYSTEM FOR LETTER BOXES.

No. 418,322.

Patented Dec. 31, 1889.



Witnesses:  
B. M. Whitaker.  
Ernie Miller.

Inventor:  
George L. B. Rounseville.  
By Arthur Thacker  
Atty.

(No Model.)

2 Sheets—Sheet 2.

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Fig. 2.

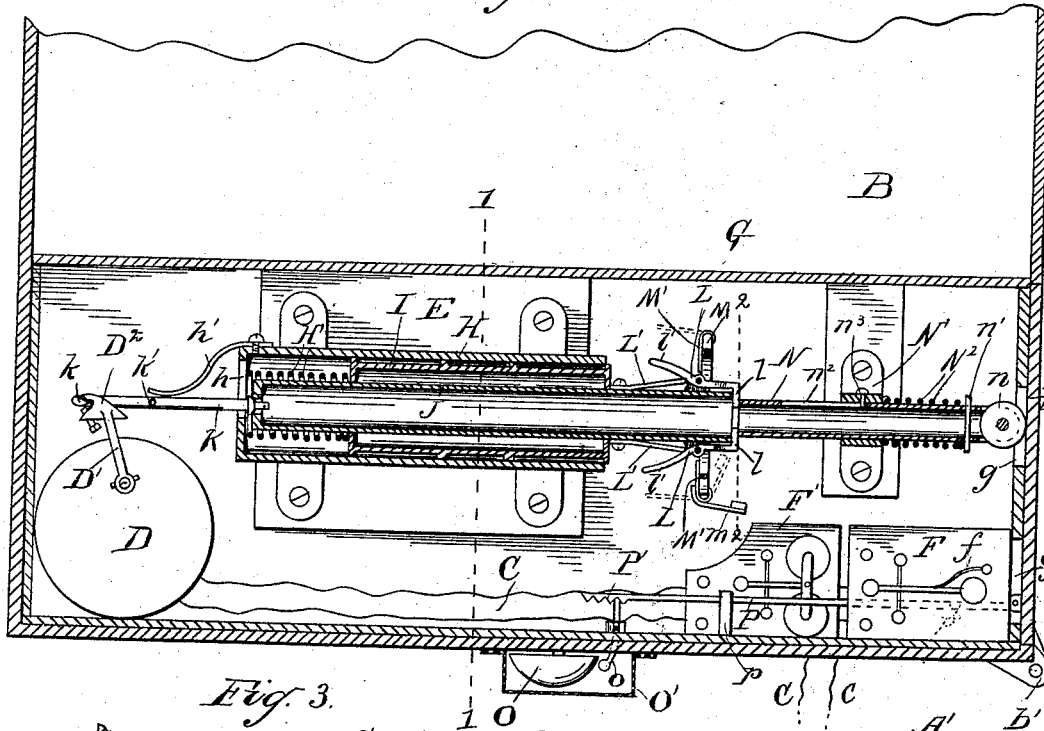


Fig. 3.

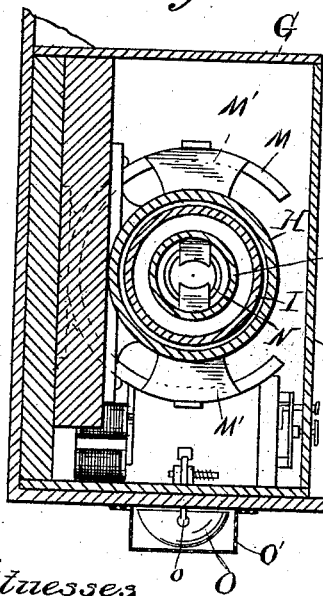


Fig. 4.

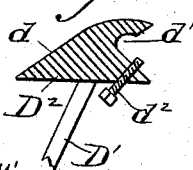


Fig. 5.

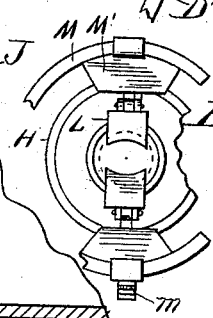
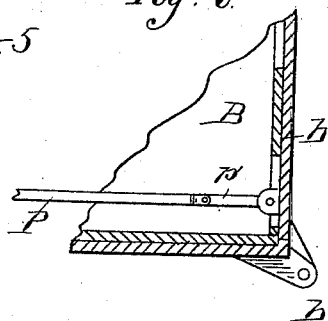


Fig. 6.



Witnesses.

B. M. Whitaker.  
Ernie Miller.

Inventor.  
George L. B. Rounseville.

By Edwin Thacher  
Attys.

# UNITED STATES PATENT OFFICE.

GEORGE L. B. ROUNSEVILLE, OF CHICAGO, ILLINOIS.

## ELECTRIC-SIGNAL SYSTEM FOR LETTER-BOXES.

SPECIFICATION forming part of Letters Patent No. 418,322, dated December 31, 1889.

Application filed October 5, 1888. Serial No. 287,326. (No model.)

*To all whom it may concern:*

Be it known that I, GEORGE L. B. ROUNSEVILLE, a citizen of the United States, and residing at Chicago, in the county of Cook and State of Illinois, have invented a certain new and useful Improvement in Electric-Signal Systems for Letter-Boxes, which is fully set forth in the following specification, reference being had to the accompanying drawings, in which—

Figure 1 represents a view illustrating my safety system; Fig. 2, a sectional view of a letter-box having my safety device applied thereto; Fig. 3, a transverse sectional view taken on the line 1 1 of Fig. 2; Fig. 4, a detail sectional view of the catch on the end of the call-box lever; Fig. 5, a detail sectional view taken on the line 2 2 of Fig. 2, and Fig. 6 a detail sectional view showing the connection between the door and the bell-rod.

Like letters refer to like parts in all the figures of the drawings.

My invention relates to safety systems for letter-boxes, and has for its object to provide a system whereby a number of letter-boxes may be electrically connected with a central station to establish communication between each of said boxes and said station.

My invention has for its further object to provide letter-boxes thus connected to a central station with automatic means whereby when the box is opened the number of the box will be announced and registered at the central station, said announcing and registering taking place automatically and being beyond the control or prevention of the person opening or attempting to open the box.

To these and other ends my invention consists in certain novel features, which I will now proceed to describe, and will then particularly point out in the claims.

In the drawings, A represents the central station, provided with a register or recording instrument A', which is preferably the well-known double-pen register. There is also provided at the central station a receiver A<sup>2</sup>, for receiving electric signals, said instrument being preferably the ordinary Morse sounder or receiver.

A<sup>3</sup> represents a suitable battery or other

source of electricity, by means of which the circuit C is supplied with electricity.

B, B', B<sup>2</sup>, B<sup>3</sup>, B<sup>4</sup>, B<sup>5</sup>, and B<sup>6</sup> represent letter-boxes connected to the central station A by means of the line or circuit C. Any desired number of boxes may be connected to the central station, and, if desired, each box may be separately connected; but I prefer to connect them in series on a single circuit, as shown. Each box contains an automatic signaling device D, adapted to transmit a signal giving the number of the particular box within which it is located, the instrument which I prefer to employ for this purpose being the ordinary Davis and Watts call-box. In order to actuate the signaling device D, I employ an automatic operating mechanism E, so constructed and arranged that when the door of the box is opened, even to the slightest extent, said operating mechanism will actuate the call-box and transmit the corresponding signal to the central station. In addition to this automatic signaling mechanism I provide in each letter-box a signaling-key F, preferably the ordinary Morse key, by means of which communication may be had with the central station by employing any suitable system or code of electric signals. These signaling devices are inclosed within a casing within a letter-box, those devices which act automatically being so protected as to be out of the reach of and beyond the control of any one opening the box, while the signaling-key is so arranged that after the letter-box is opened access may be had to it for the purpose of communicating with the central station. In order that communications from the central station may be received at each box, I provide at the central station a signaling-key A<sup>4</sup> and at each letter-box a receiver or sounder F'.

The main line or circuit C has one of its terminals connected to the battery A<sup>3</sup> at the central station A, and passing thence to the receiver A<sup>2</sup> and signaling-key A<sup>4</sup> leaves the central station and is led to the first letter-box B. In this box it is connected to the signaling devices in the manner hereinafter described, and thence extends to the box B', where it is similarly connected. After being

connected in a similar manner to each of the boxes B<sup>2</sup> B<sup>3</sup>, &c., it returns to the central station, where it is connected to the register A' and led thence to the battery A<sup>3</sup>, to which its other terminal is connected.

I will now proceed to describe in detail the signaling apparatus which I prefer to employ in connection with each letter-box, the same being shown in detail in Figs. 2 to 6, inclusive, of the drawings. In this construction G represents a casing containing the said mechanism and adapted to be secured within the letter-box B and to occupy a comparatively small space therein. The letter-box B is provided with the usual door *b*, hinged at *b'* and swinging outward, against which door the casing G abuts, being provided with slots *g* and *g'* in the end adjacent thereto, for the purposes hereinafter pointed out. The call-box D is secured at the farther end of the casing G, and its operating-lever D' is provided with a cam-catch D<sup>2</sup> at its free or upper end. The front portion of this cam-catch forms an incline *d*, and at the rear there is provided a recess *d'*, which forms the catch proper. A set-screw *d''*, extending upward into the recess *d'*, serves to adjust the operation of the catch in the manner hereinafter pointed out. It represents a guide, having preferably the cylindrical or barrel form shown, within which slides a sleeve I, which is secured to a tube J.

H' represents a spring coiled around that end of the tube J adjacent to the call-box D, said spring being arranged within the barrel H and bearing at one end against the end of said barrel as an abutment, its other end bearing against the end of the sleeve I. It will thus be seen that this spring tends to force the tube J outward toward the door *b* and away from the box D.

K represents a draw-bar, loosely attached to the end of the tube J, so as to be free to vibrate vertically. This draw-bar extends through a vertical slot *h* in the end of the barrel H, and is provided at its end with a lateral hook or projection *k*, to engage with the catch of the box-lever D'. A transverse pin *k'* serves as a stop to limit the forward motion of the tube J and draw-bar K by its contact with the end of the barrel H. A spring *h'*, attached to the barrel H, bears upon the draw-bar K and serves to force the same normally downward, at the same time, however, permitting it to rise slightly when necessary. At its outer end the tube J is provided with trip-levers L, pivoted, respectively, on the upper and under sides thereof, and having inwardly-bent ends *l*, which, when the trip-levers are in their normal position, as shown, close or partially close the outer end of the tube J. The other ends or tails of the trip-levers L are bent slightly outward, or away from the tube J, as shown at *l'*, and springs L', attached to the tube J, bear upon the under sides thereof to hold the trip-levers normally in the position shown.

M represents a yoke, to which are pivoted

the trips M', said trips being arranged in the path of the bent tail-pieces *l'* of the trip-levers L. These trips hang normally in the position shown in full lines in Fig. 2 of the drawings, the lower trip being provided with a weighted arm *m*, to retain it normally in this position. The upper trip of course hangs naturally in the position shown. These trips bear against the face of the yoke M, and cannot, consequently, swing in the direction of the door *b*, but are free to swing in the opposite direction, as indicated in dotted lines in Fig. 2 of the drawings.

N represents a push rod or tube arranged in line with the tube J, and having an external diameter less than the internal diameter of said tube. The push-rod N is free to slide through a guide or bearing N', and is provided at its end with an anti-friction roller *n*, which bears against the door *b*. The slot *g* is for the purpose of allowing this push-rod to pass freely through the end of the casing G and bear against the door. In order to hold it in contact with the door, I employ a spring N<sup>2</sup>, coiled around the push-rod, one end of said spring abutting against the guide N', while the other abuts against a transverse pin *n'*, extending through the push-rod. A slot *n''* in the push-rod, in conjunction with a pin *n'''* in the bearing N', prevents the push-rod from rotating, and thereby maintains the anti-friction roller N with its axis of rotation always parallel to the pivots of the door *b*.

O represents a bell secured, preferably, on the underside of the letter-box B and inclosed by a suitable cage O'. This bell is adapted to be struck by a hammer *o*, the stem of which extends upward into the casing G, as shown in Figs. 2 and 3 of the drawings.

P represents a bell-rod arranged to slide longitudinally through a suitable bearing *p* within the casing G, and having its inner end notched, as shown at P', to engage with the end of the hammer *o* and vibrate the same when the rod P is moved longitudinally. A pivoted link *p'* connects the bell-rod P to the door *b*, and serves to impart longitudinal motion to said bell-rod when the said door is moved in either direction. The slot *g'* is for the purpose of allowing the link *p'* to pass freely through the end of the casing G, and thus connect the bell-rod P and door *b*.

The wires C, composing the main line or circuit, pass through the signaling-key F and sounder F' before being led to the box D, and a suitable switch *f* is employed, by which the box D may be switched out of circuit and the signaling-key F into circuit when it is desired to use this latter. As shown in Fig. 3 of the drawings, the ends of the signaling-key F and of the switch *f* project slightly through the casing G, so that these parts are under the control of any one who opens the letter-box.

The operation is as follows: When the door *b* of the letter-box is closed, the various parts of the mechanism therein contained are in the position shown in the drawings. Upon

opening the door *b*, as soon as said door begins to move, the push-rod *N* and tube *J* move along with it until the tail-pieces *l'* of the trip-levers *L* come in contact with the trips *M'*. These depress the said tail-pieces against the action of the springs *L'* and withdraw the bent ends of said levers from in front of the end of the tube *J*. As soon as this withdrawal occurs the tube *J* slides rapidly and instantaneously over the push-rod *N* under the force of the spring *H'*. This action, through the medium of the draw-bar *K*, throws the lever *D'* of the call-box *D* over until the hook *k* on said draw-bar is discharged from the recess *d'*. The moment of this discharge may be readily determined in an obvious manner by adjusting the set-screw *d<sup>2</sup>* in or out. This adjustment of the set-screw increases or decreases the depth of the recess *d'*, and since it is obvious that the hook will be discharged more quickly from a shallow recess than from a deep one, it will be seen that the depth of the recess being variable through the medium of the set-screw, the moment of discharge of the hook may be correspondingly varied. The lever *D'* returns as usual to its original position, and during this return the call-box gives forth a signal which is transmitted over the line *C* to the central station *A*, where it is recorded by means of the double-pen register *A'*. This signal indicates the number of the letter-box which has just been opened. At the same time the opening of the door *b* operates the bell-rod *P*, and through the hammer *o* the bell *O*, thereby giving a local alarm at the letter-box, which will attract immediate attention and give warning to those in the neighborhood that the box is being opened. Both these operations take place automatically and instantaneously and are beyond the control of the person who opens the box. After the box has been opened the signaling-key *F* may be thrown into circuit and full communication may be had with the central station for any desired purpose. As soon as the door *b* is sufficiently opened the push-rod *N* is forced out of the tube *J* by the action of the spring *N<sup>2</sup>*, and the trip-levers *L*, having cleared the trips *M'*, are returned to the position shown in the drawings by the springs *L'*. In closing the door the push-rod *N* bears against the ends of the trip-levers in the manner shown in Fig. 2 of the drawings, and forces the tube *J* backward against the action of the spring *H'*. During this movement the hook *k* of the draw-bar *K* strikes the incline *d* of the cam-catch *D<sup>2</sup>* and rides over the same, being permitted to swing vertically by its loose connection with the tube *J* and by the slot *h* in the barrel *H*. When the said hook has reached the end of the cam-incline, it is forced downward by the spring *h'* into the recess *d'*, and the mechanism is thus set ready for another pull. This occurs when the door *b* has been completely closed, and the door

being secured in this position the apparatus is ready to operate as soon as the door is again opened.

In the application of my safety system to the system of letter-box collections now in use various advantages are to be noted. Each collector has a schedule which determines the precise time at which each box in his route or district should be opened. It will be at once seen that each box as soon as opened automatically records its number at the central station, thereby providing a check upon the collector and rendering it possible to determine whether he is on time and attending to his duties. Moreover, each collector may be required to identify himself by some particular signal, secret or otherwise, transmitted through the signaling devices provided for that purpose, or he may communicate to the central station anything necessary, or may receive communications from the central station. In the case of any tampering with the box or attempt to open the same by unauthorized persons the fact will be at once made known at the central station and measures taken accordingly.

It is obvious that various modifications in the details of construction and arrangement of the parts may be made without departing from the principle of my invention, and I therefore do not wish to be understood as limiting myself strictly to the precise details hereinbefore described and shown in the drawings.

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

1. The combination, with the door *b*, of the call-box *D* and its lever *D'*, a sliding spring-controlled tube provided with a draw-bar to engage said lever, a push-rod bearing against the door and adapted to enter said tube, suitable trip-levers against which said push-rod normally bears, and hinged trips for tripping said levers, substantially as and for the purposes specified.

2. The combination, with the call-box *D* and its lever *D'*, having cam-catch *D<sup>2</sup>*, with incline *d*, recess *d'*, and set-screw *d<sup>2</sup>*, of the tube *J*, the draw-bar *K*, loosely connected to said tube and provided with hook *k*, and the spring *h'*, bearing on said draw-bar, substantially as and for the purposes specified.

3. The combination, with the push-rod *N*, of the tube *J*, the trip-levers *L*, pivoted on said tube and provided with inwardly-bent front ends *l* and outwardly-bent tail-pieces *l'*, the springs *L'*, and the trips *M'*, arranged in the path of the levers and free to swing inward but not outward, substantially as and for the purposes specified.

GEORGE L. B. ROUNSEVILLE.

Witnesses:

IRVINE MILLER,  
CARRIE FEIGEL.