

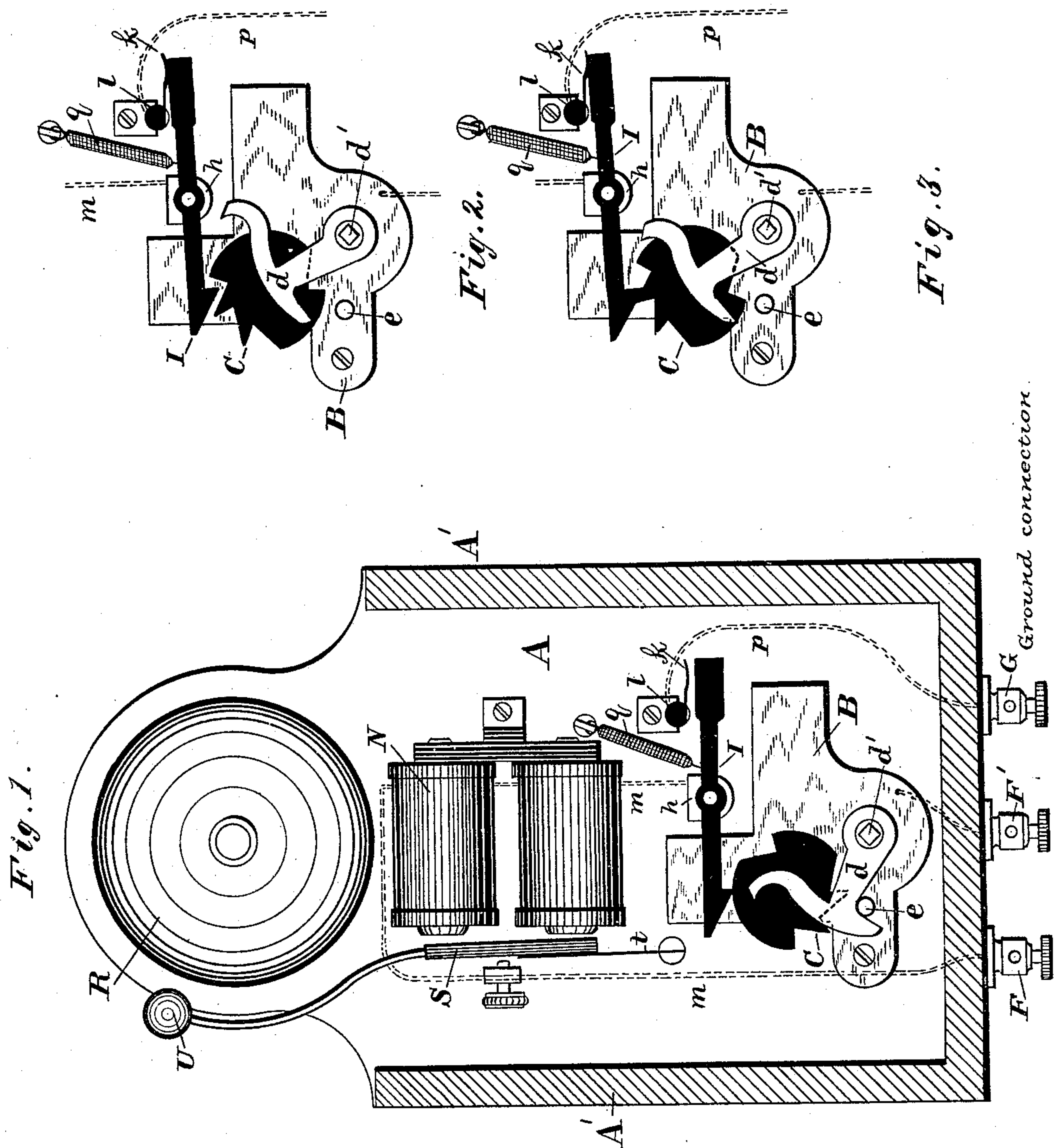
(No Model.)

M. J. O'SULLIVAN.

CALL BOX FOR DISTRICT TELEGRAPHS.

No. 299,417.

Patented May 27, 1884.



Witnesses:  
A. C. Eader  
Jno. E. Morris.

Inventor:  
M. J. O'Sullivan  
By Chas B. Mann  
Attorney.



# UNITED STATES PATENT OFFICE.

MICHAEL J. O'SULLIVAN, OF BALTIMORE, MARYLAND, ASSIGNOR OF THREE-FOURTHS TO J. FRANK MORRISON, OF SAME PLACE.

## CALL-BOX FOR DISTRICT-TELEGRAPHS.

SPECIFICATION forming part of Letters Patent No. 299,417, dated May 27, 1884.

Application filed August 24, 1883. (No model.)

*To all whom it may concern:*

Be it known that I, MICHAEL J. O'SULLIVAN, a citizen of the United States, residing at Baltimore and State of Maryland, have invented certain new and useful Improvements in Call-Boxes for District-Telegraphs, of which the following is a specification, reference being had therein to the accompanying drawings.

My invention relates to certain improvements in call-boxes for district-telegraphs.

In the annexed drawings, which illustrate my invention, Figure 1 is a view of a vertical section of the call-box, the front wall of which being removed shows the signal mechanism and lightning-arrester. In this figure the vibrating finger has its normal position. Fig. 2 is a view of the position of the vibrating finger at the moment when the metallic circuit is broken while sending a signal. In this position there is a connection with the ground. Fig. 3 is a view of the position of the vibrating finger at the moment it makes circuit by contact with the tooth of the revolving circuit-breaking disk.

My invention is designed to be applied to call-boxes used in telegraph systems in which a number of stations are in metallic circuit with a central office.

One of the principal objects is to provide means for maintaining a ground-connection when sending signals, and thereby provide for an avoidance of the trouble heretofore experienced in time of storm of the lightning burning the finger in contact with the circuit-breaking wheel; and another result of my means for maintaining a ground-connection is that when either of the main-line wires of the metallic circuit is broken a ground-circuit is at once made automatically upon the signal-box being operated. I also provide the ordinary district call-box with a gong or bell and magnet, whereby, when a call has been made from a box to the central station, the caller at the box may be apprised by a stroke of his own gong that his call has been understood at the central station.

The letter A designates the back of the box, and A' the walls. This box contains the metal frame B, which covers the usual train of clock-work. C designates the circuit-breaking

wheel; *d*, the crank-arm, and *e* the stop-pin. The binding-posts F and F' are for the connection of main-line wires, and the binding-post G for the ground-connection. All the parts just named are of the usual form.

The peculiar vibrating finger, I, which I have devised is centrally pivoted on a post, *h*. A platinum plate-spring, *k*, is attached to another post, *l*, having a ground-connection. One end of the vibrating finger is adapted to bear against the platinum plate-spring, and the other (the hook end) is adapted to bear against the circuit-breaking wheel. The main-line wire *m* passes from the binding-post F to the magnet N; thence to the post *h*, whereon the vibrating finger is pivoted. Here the wire terminates. The other end of the wire connects the metal frame B and the clamp F'. It will be seen that when the hook end of the vibrating finger is in contact with the wheel the main-line circuit is complete. The post *l* has a wire, *p*, which leads to the ground, and a spiral spring, *q*, connects with the vibrating finger and keeps it normally in contact with the circuit-breaking wheel, and when by the revolution of the said wheel the contact is broken, the spring draws the finger to and in contact with the post, thereby temporarily grounding the line. When the wheel again comes in contact with the vibrating finger, the metallic circuit is restored. Thus the ground-connection is made and broken in succession. Should lightning come into the box from the main-line wire when the vibrating finger has its normal position, as seen in Fig. 1, it would jump or pass over the space separating the end of the finger and the ground-post *l*. The platinum plate-spring is an auxiliary, and is desirable because it will yield somewhat to the slight pressure of the vibrating finger. Then while the hook end of the vibrating finger is making contact with the circuit-breaking wheel, and thereby the other end is being drawn away from the ground-post *l*, the plate-spring, in relaxing its tension, will move forward slightly toward or after the withdrawing finger end, and thus while the vibrating finger moves away there is a lingering connection between it and the spring—or, in other words, a prolongation of the contact while the process of disconnection is going on. This



plate-spring, however, is not essential. The base-post *l*, with a ground-connection, and the vibrating finger, will suffice as an operative device illustrating this feature of my invention.

5 By this arrangement, whenever the main-line circuit is broken, a ground-connection is made upon the signal-box being operated, and in time of storm, when the line is charged with an abnormal electric current, the latter will

10 jump from the vibrating finger across the intervening space to the ground-connection, which will relieve the wire and prevent the lightning from burning any part of the apparatus. The crank, which ordinarily is outside

15 of the box, is not here shown, but it is attached at *d'*.

The letter *R* designates the gong or bell, and *S* the armature, carried by a spring, *t*. The hammer *U* is attached to the armature, and

20 when the latter is attracted by the electromagnet the hammer strikes the bell. By this means applied to the ordinary district call-box and the use of a prearranged signal, the person in attendance at the central station may

25 cause the bell *R* to be struck, thereby indicating that the "call" has been received and is understood.

Having described my invention, I claim and desire to secure by Letters Patent of the United States—

1. In a telegraph system having a closed metallic circuit-connection, the combination, with the circuit-breaking wheel, of a post having a ground-connection, and a vibrating finger centrally pivoted and adapted for one end to make contact with the circuit-breaking wheel, and the other end with the said ground-post, substantially as set forth. 30 35

2. In a telegraph system having a closed metallic circuit-connection, the combination, with the circuit-breaking wheel, of a post having a ground-connection, and provided with a plate-spring, *k*, and a vibrating finger centrally pivoted and adapted for one end to make contact with the circuit-breaking wheel, and the other end with the said plate-spring, as set forth. 40 45

In testimony whereof I affix my signature in presence of two witnesses.

MICHAEL J. O'SULLIVAN.

Witnesses:

JNO. T. MADDOX,  
JNO. E. MORRIS.