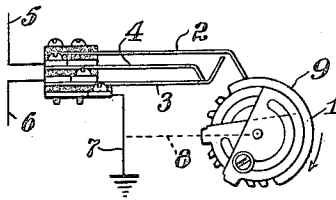


A. A. CLOKEY.  
CONTACT ARRANGEMENT FOR CALL BOXES AND OTHER TRANSMITTERS.  
APPLICATION FILED DEC. 6, 1916.

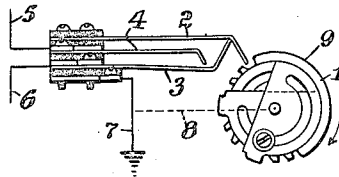
1,224,359

Patented May 1, 1917.

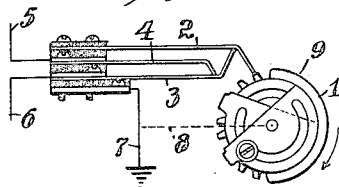
*Fig. 1.*



*Fig. 2.*



*Fig. 3.*



WITNESSES:

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# UNITED STATES PATENT OFFICE.

ALLISON A. CLOKEY, OF JERSEY CITY, NEW JERSEY, ASSIGNOR TO THE WESTERN UNION TELEGRAPH COMPANY, OF NEW YORK, N. Y., A CORPORATION OF NEW YORK.

## CONTACT ARRANGEMENT FOR CALL-BOXES AND OTHER TRANSMITTERS.

1,224,359.

Specification of Letters Patent.

Patented May 1, 1917.

Application filed December 6, 1916. Serial No. 135,507.

### *To all whom it may concern:*

Be it known that I, ALLISON A. CLOKEY, a citizen of the United States of America, and a resident of Jersey City, county of Hudson, and State of New Jersey, have invented certain new and useful Improvements in Contact Arrangements for Call-Boxes and other Transmitters, of which the following is a specification.

My invention relates to contact arrangements for call boxes (such for example as the transmitters employed in message call systems and the like) and other transmitters employing a toothed break wheel and contact springs, brushes or "pens" coacting therewith, and embodies improvements upon the contact arrangement shown and described in my Patent No. 1,164,069 dated December 14, 1915. My invention consists in the novel arrangement of contact pens in connection with a break wheel.

The object of my invention is to improve the contact arrangements commonly employed in transmitters of the type referred to, and in particular to avoid occasion for connecting one of the line wires to the metal frame of the mechanism, and so to eliminate possibility of grounding the line through accidental contact between the call box mechanism and the switch box in which such mechanism is commonly inclosed, which switch box is now itself commonly grounded; such grounding of the switch box being now required by rules as to installation of electrical equipment in force in many localities.

I will now proceed to describe my invention with reference to the accompanying drawings, and will then point out the novel features in claims: In said drawings:

Figures 1, 2 and 3 are similar figures showing, in elevation, a break wheel and contact pens, the latter arranged in accordance with my invention, the said figures showing the contact pens in various different positions occupied during rotation of the break wheel.

In the said figures I have not shown the mechanism for rotating the break wheel, as such mechanism is well known; and the mechanism employed may be, for example, that of my said Patent No. 1,164,069; nor have I shown the case which commonly in-

closes the contact devices and the driving mechanism, as such cases are well known.

In the drawings, numeral 1 designates the break wheel. The particular break wheel shown is an adjustable break wheel such as described in my said Patent No. 1,164,069; but the adjustability of the break wheel forms no portion of the present invention, and an ordinary non-adjustable break wheel might be used instead.

2 designates a contact pen coacting with the teeth of break wheel 1; 3 designates a contact pen arranged to make and break contact with pen 2; and 4 designates a contact pen arranged to make and break contact with pen 3, as described hereinafter. 5 and 6 designate line conductors, of which 5 is electrically connected to pen 4, and 6 is electrically connected to pen 3. 7 designates a grounded conductor, electrically connected to the frame of the mechanism, and therefore to the break wheel 1, such electrical connection to the break wheel being indicated by a dotted line 8.

Fig. 1 shows the parts in the position of rest. In such position, the line circuit 5-6 is closed through contact pens 3 and 4. Contact between pens 2 and 3 is broken, since pen 2 is resting upon the long raised or blank portion 9 of the break wheel.

Suppose now that the break wheel be rotated in the direction indicated by the arrow: As soon as pen 2 drops off the long raised portion 9 of the break wheel, into the space between that long raised portion 9 and the first tooth of the break wheel, contact is broken between pens 3 and 4, thereby opening the line circuits 5-6, and at the same time contact is made between pens 2 and 3; but as the pen 2 is not now in contact with the break wheel, the contacting of pens 2 and 3 does not, for the moment, effect any result. Fig. 2 shows the parts in this position.

As the break wheel continues its rotation, the pen 2 rides up on the first tooth of the break wheel, one result of contact of pen 2 with such first tooth of the break wheel being to ground the circuit 5-6 through the break wheel, and ground connection 8-7; for pens 3 and 2 are then in contact, and as pen 2 rides up on the first tooth of the break wheel, contact is made between pens 3 and

4, without breaking contact between pens 2 and 3, the position of the parts being as shown in Fig. 3; so that line circuit 5-6 is both completed and grounded, as required for so-called "McCulloh" operation.

As the break wheel continues its rotation, the contact pen slips off the first tooth of the break wheel, the conditions illustrated in Fig. 2 then obtaining; that is to say, the line circuit 5-6 is broken, and also the ground connection through the break wheel and conductors 8-7 is broken; and as the rotation of the break wheel continues, and pen 3 rides up on another tooth of the break wheel, the line circuit is again closed and the ground connection reestablished.

Since by the arrangement described, the mechanism of the call box (except the contact pens) is always grounded, and since the line conductors 5-6 can become grounded (so far as the box mechanism is concerned) only through contact of pen 3 with pen 2, occurring during the operation of the box, accidental grounding of the line circuit is avoided.

What I claim is:

1. A transmitter comprising a toothed grounded break wheel, two contact pens adapted to make and break contact with each other, and adapted for connection to two sides of a main circuit, and a third pen, coacting with and adapted to contact with the teeth and other raised portions of the break wheel, and arranged, when it drops into a notch of the break wheel, to contact with one of the first mentioned contact pens, and to separate the said first mentioned contact pens one from the other.

2. A transmitter comprising a toothed grounded break wheel having an initial raised portion of a height greater than that of its teeth, two contact pens adapted to make and break contact with each other and adapted for connection to two sides of a main circuit, and a third pen coacting with and adapted to contact with the teeth and other raised portions of the break wheel, and arranged, when it drops into a notch of the break wheel, to contact with one of the first mentioned contact pens and in so doing to separate the said first mentioned contact pens one from the other, the height of the teeth of said wheel being such that when such

third pen rises and passes over one of said teeth all three pens are in electrical connection, but when the said third pen is in contact with the initial raised portion of the wheel only the two first mentioned contact pens are in electrical connection with one another.

3. A signaling system comprising in combination a line circuit and a transmitter therefor comprising a toothed break wheel, a ground connection for said wheel, two contact pens adapted to make and break contact with each other, and connected respectively to the two sides of the line circuit, and a third pen, coacting with and adapted to contact with the teeth and other raised portions of the break wheel, and arranged, when it drops into a notch of the break wheel, to contact with one of the first mentioned contact pens, and to separate the said first mentioned contact pens one from the other.

4. A signaling system comprising in combination a line circuit and transmitter therefor comprising a toothed break wheel having an initial raised portion of a height greater than that of its teeth, a ground connection for said wheel, two contact pens adapted to make and break contact with each other, and connected respectively to the two sides of the line circuit, and a third pen, coacting with and adapted to contact with the teeth and other raised portions of the break wheel, and arranged, when it drops into a notch of the break wheel to contact with one of the first mentioned contact pens and in so doing to separate the said first mentioned contact pens one from the other, the height of the teeth of said wheel being such that when such third pen rises and passes over one of said teeth all three pens are in electrical connection, but when the said third pen is in contact with the initial raised portion of the wheel only the two first mentioned contact pens are in electrical connection with one another.

In testimony whereof I have signed this specification in the presence of two subscribing witnesses.

ALLISON A. CLOKEY.

Witnesses:

H. M. MARBLE,  
PAUL H. FRANK.