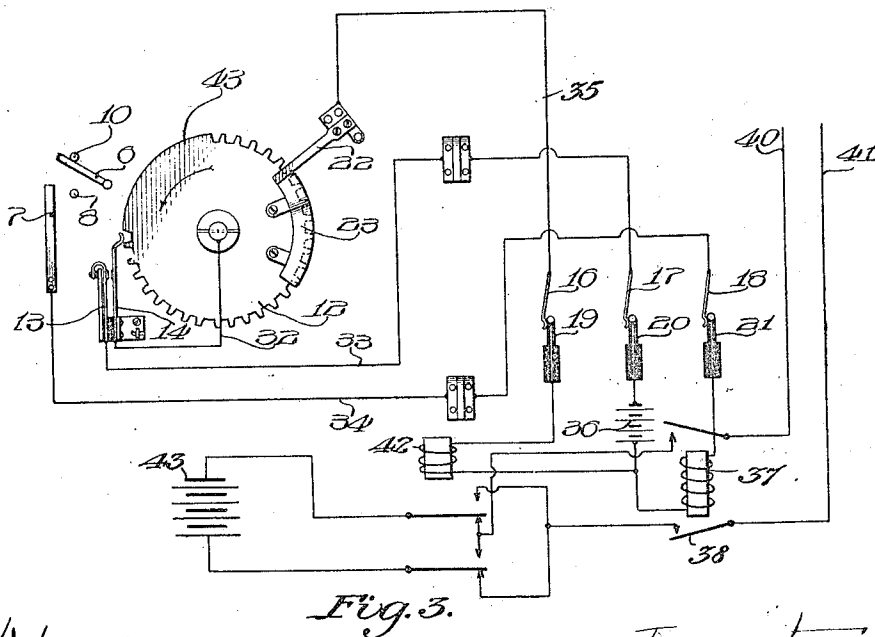
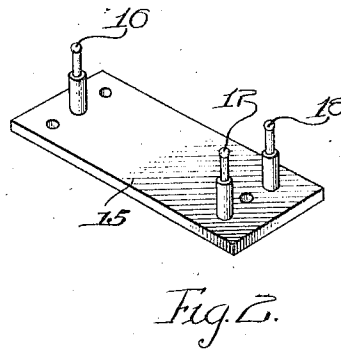
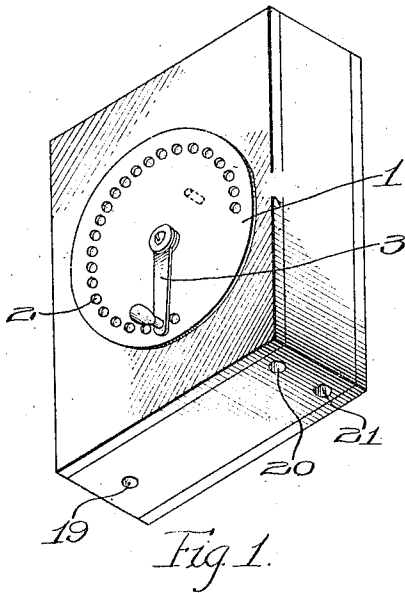


1,137,717.



Witnesses:
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Inventor:
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By May W. Z. [Signature]

C. S. RHOADS, JR.

CALL BOX.

APPLICATION FILED APR. 28, 1913.

1,137,717.

Patented Apr. 27, 1915.

2 SHEETS—SHEET 2.

Fig. 4.

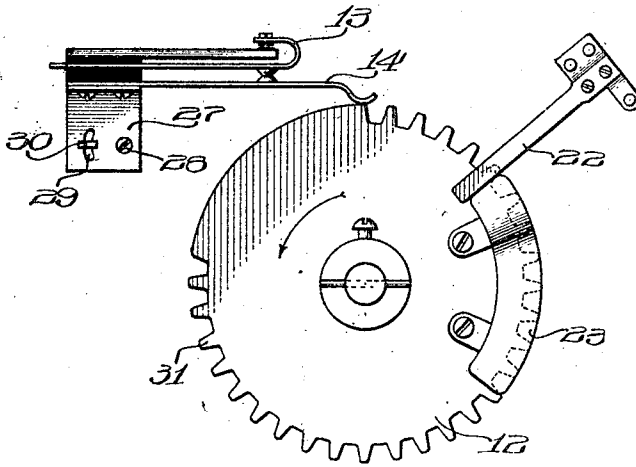


Fig. 5.

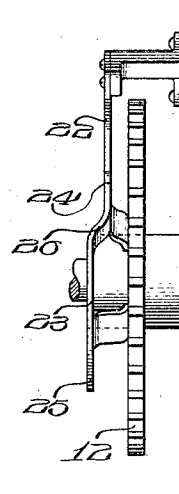
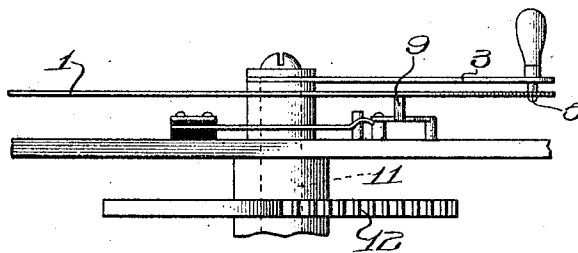


Fig. 6.



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UNITED STATES PATENT OFFICE.

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CALL-BOX.

1,137,717.

Specification of Letters Patent.

Patented Apr. 27, 1915.

Application filed April 28, 1913. Serial No. 764,252.

To all whom it may concern:

Be it known that I, CHARLES STANLEY RHOADS, Jr., a citizen of the United States, residing at Chicago, in the county of Cook and State of Illinois, have invented a certain new and useful Improvement in Call-Boxes, of which the following is a full, clear, concise, and exact description, reference being had to the accompanying drawings, forming a part of this specification.

My invention relates to calling devices and has for its object the provision of an improved device of this character, which is of use more particularly in the sending of impulses to cause the operation of step-by-step selectors provided at substations on party line systems.

The particular call box of my invention is designed to transmit a plurality of rapidly succeeding impulses, which impulses are then followed by a release impulse which may be of different character than the signaling impulses.

My invention concerns itself primarily with means for the proper sending of this release impulse, the means at the same time being capable of sending a prolonged impulse initially before the various stepping impulses are sent. The initial long impulse acts as a clearing out impulse and should be longer than the clearing out impulse because usually the rapidity of the wind-up is considerably greater than the unwinding operation so that a larger distance of contact is required.

My invention also concerns itself with means to provide an adjustable contact operated by the impulse sending element of the call box, which impulse sending element herein takes the form of a toothed wheel.

The general nature of the call box herein, it will be understood is of the character in which a movable element, preferably rotatable, is set by the operator to any desired position corresponding to the sub-station to be called, whereupon automatic clock or other suitable mechanism turns the element slowly to its initial position during which return movement the particular substation is selected.

My invention also concerns itself with improved circuit arrangements for a call box of this character, all as will appear more readily from the description which I will now make of one form of carrying out my inven-

tion, which will be given in connection with the accompanying drawing in which—

Figure 1 is a front perspective view of a call box constructed in accordance with my invention; Fig. 2 is a view of the connecting cord with plugs upon which the same may be set for mounting purposes. Fig. 3 sets forth a diagrammatic view of the circuit arrangements; Fig. 4 sets forth the operating apparatus mounted on the rear of the cover; Fig. 5 is a side view thereof, and Fig. 6 is a side view showing the setting mechanism.

Referring more particularly to Figs. 1 and 2, the call box is provided with the front plate 1 having holes 2 and a handle 3, which handle 3 has the fingerpiece 4 provided with a pin 5 adapted to be set into any of the holes 2, whereupon the element 1 after the pin 5 has been inserted in the proper hole is rotated clockwise (Fig. 1) until the pin 5 engages a suitable stop by impinging against the pivoted contact member 6 to push this contact member 6 into engagement with the contact 7, where it is also held by the limit stop 8. The clock mechanism which is not shown herein then rotates the element 1 in a contra-clockwise direction until a pin 9 provided in the dial 1 engages the element 6 and rotates it to position against the stop 10. The shaft 11 which carries the plate 1 also carries the segmental wheel 12, which segmental wheel in connection with the springs 13 and 14 is adapted to periodically close contact between these springs to send the impulses required.

The call box is adapted to be set upon the base plate 15, having the plugs 16, 17 and 18 adapted for connecting purposes with jacks respectively 19, 20 and 21 provided in the said plug box by being mounted therein. By means of this arrangement the plug box can be readily removed should there be any defect and a new one inserted in place. A contact spring 22 is provided which is adapted to contact with the contact plate 23, the construction of which contact plate will be more readily apparent from Fig. 5. As the toothed element 12 is moved in one direction of rotation, this spring 22 engages the rounded end 24 of this plate 23 and rides on top thereof the full length of this contact element, thus to provide the long initial impulse as set forth. Then on the return movement of the element 12 the spring 22 rides under the upper portion 25 of this contact

plate 23 and does not close contact therewith until engaging the portion 26 so that a short release impulse can be sent. The springs 13 and 14 are suitably insulatingly mounted upon an adjustable plate 27 which is pivoted by means of any suitable screw at 28 and has a slot 29, which by cooperating with the screw 30 permits adjustment of these springs relatively to the teeth 31 of the element 12.

I have shown in Fig. 3 diagrammatically the circuit arrangement which I prefer to employ. The element 12 is preferably connected with the spring 14 by means of the conductor 32, and the spring 13 is connected by means of the conductor 33 with the jack 20. The spring 7 is connected by means of the conductor 34 with the jack 21 and the contact element 6 is directly connected with the element 12 through the metallic part of the device. The spring 22 is connected with the jack 19 by means of the conductor 35. A battery 36 is provided in connection with an impulse sending relay 37. This impulse relay 37, through the agency of the armatures 38 and 39, transmits impulses over the line wires 40 and 41 from the battery 43.

The circuit for the transmission of impulses may be traced from the jack 20, battery 36, relay 37, jack 21, conductor 34, spring 7, contact element 6, conducting element 12, springs 14 and 13, conductor 33, back to the spring jack 20. Thus each time a tooth engages the spring 14 an impulse is transmitted over the line wires 40 and 41.

It will be understood that by reason of the contact element 6 remaining in contact with the spring 7 only on the reverse operation of the element 12 that the engagement with the teeth 31 during the setting operation does not cause a transmission of impulses as this element 6 is then not in engagement with the spring 7. The spring 22 when engaging the element 23 is designed to close circuit through a suitable pole changing device 42 for the transmission of the clearing out and release impulses.

The circuit in that instance can be traced from the jack 19, conductor 35, spring 22,

contact element 23, element 12, spring 14, spring 13, conductor 33, jack 20, battery 36, pole changer magnet 42 back to the spring jack 19.

It will be understood that the untoothed section 43 of the element 12 maintains engagement between the springs 13 and 14, during the time that the spring 22 may be in engagement with the element 23.

From this it is thought the invention will be readily understood and it will also be readily understood that changes and modifications can be readily made without departing from its spirit.

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

1. A call box of the character described comprising a toothed element, a contact spring adapted for engagement by the teeth of said element, a second spring under the control of said element, and a bent plate associated with said element for engaging said last aforesaid spring either a long or short period of time depending upon the direction of movement of said element.

2. A call box of the character described comprising a toothed element, a contact spring adapted for engagement by the teeth of said element, a second spring under the control of said element, and means associated with said element for engaging said last aforesaid spring either a long or short period of time depending upon the direction of movement of said element, said means including a bent plate, said last aforesaid spring being adapted to engage said plate throughout its entire length during one direction of motion, and throughout only a portion of its length during the reverse direction of motion.

In witness whereof, I hereunto subscribe my name this 11th day of December, A. D. 1912.

CHARLES STANLEY RHOADS, JR.

Witnesses:

JOHN N. BARNEY,
W. E. HARKNESS.