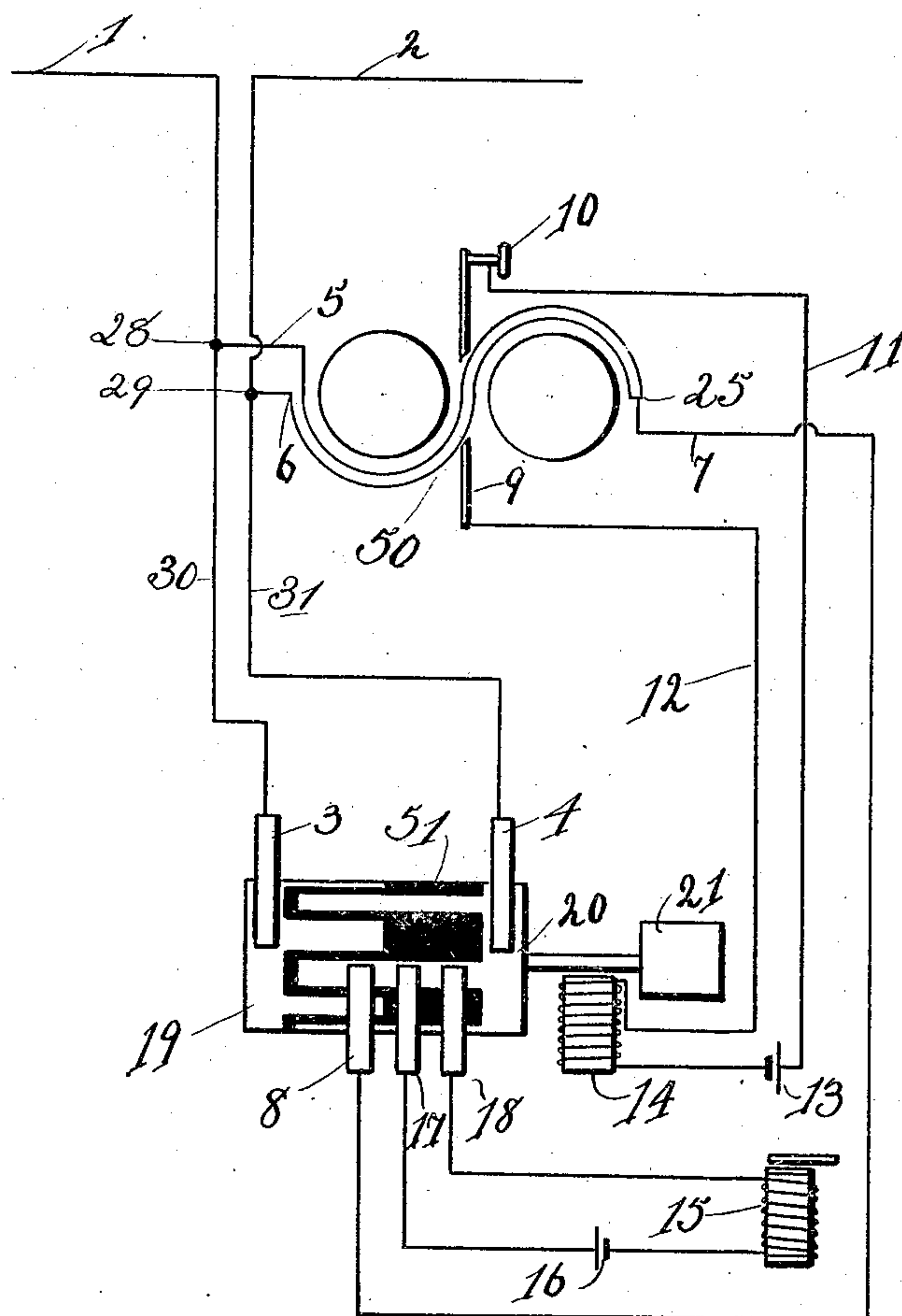


No. 847,189.

PATENTED MAR. 12, 1907.

I. KITSEE.
ELECTRIC TELEGRAPHY.
APPLICATION FILED AUG. 9, 1906.



WITNESSES:

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ELECTRIC TELEGRAPHY.

No. 847,189.

Specification of Letters Patent.

Patented March 12, 1907.

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To all whom it may concern:

Be it known that I, ISIDOR KITSEE, a citizen of the United States, residing at Philadelphia, in the county of Philadelphia and State of Pennsylvania, have invented certain new and useful Improvements in Electric Telegraphy, of which the following is a specification.

My invention relates to an improvement in electric telegraphy, and has more special reference to telegraphy on lines with great capacity—such, for instance, as submarine cables. Over such lines only feeble currents can be transmitted, and it was found advantageous to transmit messages with the aid of true reversals—that is, with the aid of impulses alternately of opposite direction, but always of the same duration and intensity.

With a system of reversals wherein each impulse is only of a short duration and all impulses are alike in time units and where the receiving instrument is too feeble to make a circuit, but strong enough to break one, it is necessary to provide means that the receiving instrument should be able to answer impulses of an opposite direction with alike movements and should be so organized that its operation should automatically translate the received impulses into Morse characters—that is, dots and dashes.

Referring to the drawing, the same illustrates in diagrammatic view part of a line, a receiving device, and my invention attached thereto.

1 and 2 are the lines of transmission. 50 is the receiving instrument as an entirety. This receiving instrument comprises, instead of, as is usually the case, one winding, two windings, here designated as 5 and 6, respectively. One terminal of one winding—say the winding 5—is connected to the part 1 of the line, and one terminal of one winding—say the winding 6—is connected to the part 2 of the line. The other terminals of both windings are connected together at 25. The two windings are therefore connected together in series as to each other and as to the line. An impulse flowing through the line will, say, starting from the point 1, pass through the winding 5 and back through the winding 6 toward the line part 2. As the flow of the current through the winding 5 will be in opposition to the flow of the current in winding 6, it is obvious that the magnetizing influence of this impulse will be nil. This has to be borne in mind to understand

the later explanation of the working of the instrument. The receiving device embraces also the armature 9 and the contact 10. Normally the armature rests, as shown in the drawing, against the contact 10.

The localized arrangement is as follows: To the points 28 and 29 are connected the wires 30 and 31, respectively, the wire 30 connected to the brush 3 and the wire 31 connected to the brush 4. 51 is the commutating device, comprising a drum, on which are mounted the metallic rings 19 and 20. Each ring is provided with extensions, the extension of one ring alternating with the extension of the other ring. The extension of the ring 19 extends only half-way the length of the space between one ring and the other ring, whereas the extension of the ring 20 extends the whole length between the two rings. The rings are insulated from each other and the drum, and the surface of the drum itself is of an insulating material. The drum is provided with the shaft and is rotated by means 21. This means may be an electric motor or a mechanical-clock arrangement, and I therefore have shown the same in a conventional sign. 14 is the electromagnetic means to retard the movement of the drum. This electromagnetic means may consist of the usual step-by-step movement, which is well known, or any other suitable arrangement. The circuit of the electromagnetic device 14 embraces the source of current 13 and the wires 12 and 11, the wire 12 connected to the armature of the receiving device 9 and the wire 11 connected to the contact 10. To the junction 25 of the two windings 5 and 6 is connected the wire 7 and to this wire the brush 8. This brush rests either on one of the extensions of ring 20 or one of the extensions of ring 19.

It is supposed that the brush 8 rests, as illustrated in the drawing, on an extension of 20. A short circuit is established, including the following parts: winding 6, wire 7, brush 8, extension of ring 20, brush 4, wire 31, and point 29. A current therefore flowing from the line 1 will flow through winding 5, but will not flow through winding 6, because of the high resistance offered by this winding and will select the path consisting of wire 7, brush 8, extension of 20, brush 4, wire 31, and will then flow to line 2. It is supposed that the commutating-drum has been moved, so that the brush 8 will leave the bar or extension of 20 and will connect

with one of the bars or extensions of 19. The short circuit around 6 is now broken, and a short circuit is established around 5. An impulse flowing from 1 will not travel through the coil 5, but will travel through wire 30, brush 3, extension of 19, brush 8, wire 7, winding 6, and then through the part-line 2. Thus it will be seen that when the brush 8 rests on an extension of 20 the current will only flow through the winding 5 and when the brush rests on an extension of 19 the current will only flow through the winding 6.

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

1. A line of transmission in combination with a polarized relay provided with two coils, one terminal of each coil connected to the line and the junction of said coils connected locally to means adapted to alternately shunt one or the other of said coils.

2. In telegraphy, a receiving device or relay, two windings therefor, a commutating device adapted to be operated by said relay and means operatively related to said relay

and commutating device to alternately shunt one or the other of said windings.

3. In telegraphy, means to receive impulses of alternate direction and translate the same into readable characters, said means comprising one polarized device, two windings for said device and means to alternately shunt alternate coils for each impulse received.

4. In telegraphy, a line of transmission, a receiving device for said line, means to make a local circuit only through the movement of the armature thereof in one direction and to break said circuit through the movement of the armature in the opposite direction, two coils for said receiving device and means to alternately shunt alternate coils of said device.

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

ISIDOR KITSEE.

Witnesses:

MARY C. SMITH,
ALVAH RITTENHOUSE.