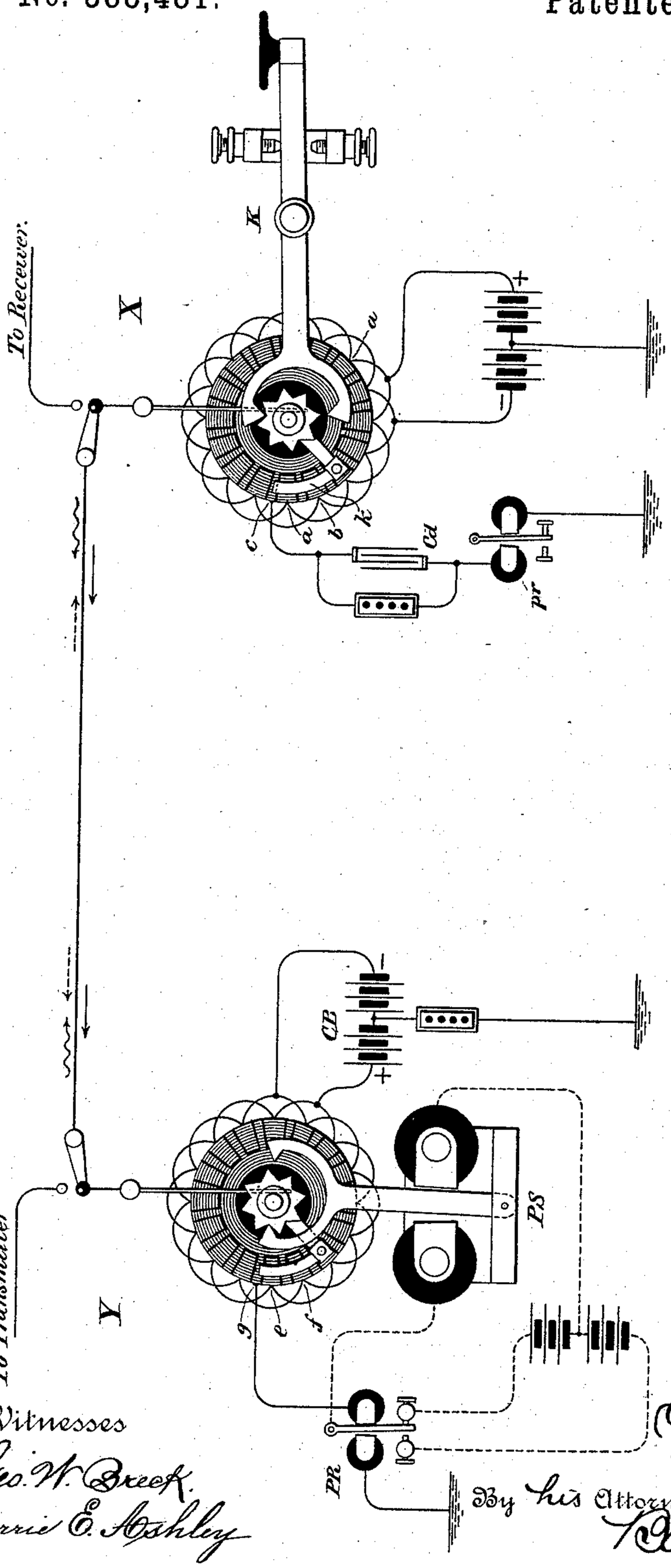
(No Model.)

P. B. DELANY.

TELEGRAPHY.

No. 388,481. Patented Aug. 28, 1888.



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TELEGRAPHY.

SPECIFICATION forming part of Letters Patent No. 388,481, dated August 28, 1888.

Application filed December 3, 1887. Serial No. 256,867. (No model.)

To all whom it may concern:

Be it known that I, PATRICK B. DELANY, of New York city, State of New York, United States of America, have invented certain new and useful Improvements in Telegraphy, of which the following is a specification.

In two Letters Patent granted me November 29, 1887, I have shown a system of telegraphy of the same character as that herein disclosed. In those patents two ways of neutralizing or eliminating static and retarded currents from the line are illustrated, one by grounding the main line at each station after each impulse, and another by the use of condensers at the ends of the line. In the present case I cause the transmitted impulse upon its reception to operate apparatus which throws a counter-current on the line from any suitable source—for instance, from an ordinary primary battery. The apparatus by which this is accomplished is novel, and I do not limit its use to sending neutralizing or counter currents into the line after each interruption of the circuit, though that is the primary purpose for which I have invented it.

The accompanying drawing is a diagram illustrating my invention, and showing two connected stations with the transmitting apparatus switched in at station X, and the receiving apparatus at station Y.

The transmitting apparatus at X is identical with that shown in my patent of November 29, 1887, No. 373,968—that is to say, by the manipulation of the key K the trailer *k* is caused to travel over the contacts *a b*, which are arranged alternately, and are respectively connected with opposite poles of a source of electric energy, and pause upon intermediate contacts, *c*, after being depressed or raised, whereby impulses of alternating polarity but equal duration are sent into the line. A condenser, C*d*, connected between the earth and the intermediate contacts sends counter currents into the line, as described in said patent, the condenser being charged by the bridging of the trailer from the contacts *a b* to the intermediate contacts, *c*. A polarized relay, *p r*, may be placed between the earth and condenser, if desired, to indicate "breaks" from the receiving-station. The receiver at station Y has a trailer or contact-maker and a table of contacts, the alternate large contacts *e f* of which are respectively connected with opposite poles of a battery, C B, having its center to ground through an adjustable resistance. The intermediate small contacts, *g*, are all connected to earth through a polarized relay, P R, the armature of which controls the local of a polarized sounder, P S, whose armature is forked at the end and acts on a star-wheel on the spindle of the trailer or contact maker. At the periods of rest of the sounder-armature the trailer pauses upon an intermediate contact, *g*, as shown.

The operation is as follows: Assuming the key at X is depressed, a positive current (indicated by the full arrows) is sent over the line as the trailer crosses a battery-contact, *a*. At Y this impulse, acting on the relay P R, drives its armature to the left, thus actuating the polarized sounder P S and causing its armature acting through the star-wheel and spindle to move the trailer across a large segment, *e*, connected with the positive pole of the battery C B. Upon the cessation of the battery-current transmitted, as described, from X to Y, the retarded current or static discharge (indicated by the dotted arrows) commences to flow out of each end of the line. At the transmitter end it is neutralized by the condenser-discharge, as above mentioned, and at the receiving end by the impulse sent from the battery C B, as just described, the neutralizing-currents being indicated by the wavy arrow. By adjusting the resistance between the battery C B and ground, the power of the neutralizing impulse sent into the line from the battery may be regulated. Upon the raising of the transmitting-key at X a negative message impulse is sent into the line from the contact *b*, and the static discharge or retarded current from such impulse at the receiving end is neutralized by a negative impulse from battery C B, which is sent into the line when the armature of the polarized relay is driven over to its right-hand contact and the trailer caused to pass over a negative segment, *f*.

I do not limit myself to the particular manner of operating the trailer or the particular arrangement of the trailer and contacts. This invention may be used with any suitable form of transmitter.

I claim—

1. The combination of a main line, trans-

mitting mechanism for sending alternating currents over the line, a receiving polarized relay, a moving contact-maker connected with the line, its actuating mechanism controlled by the relay, and contacts *e f* respectively connected with sources of energy of opposite polarity, over one of which contacts the trailer passes at each movement of the relay-armature, whereby a counter-current is sent into the line after each received impulse.

2. The combination, with a main line and current-transmitting devices, of a receiver having a receiving-relay, contacts connected with sources of electricity of opposite polarity, and a contact-maker connected with the line and controlled by the relay, which contact-maker successively crosses said contacts as the relay is successively actuated.

3. The combination, with the main line and transmitting devices for sending currents of alternating polarity, of a receiver having a trailer connected with the line, a table of contacts traversed by the trailer, and the alternate contacts *e f* of which are respectively connected with opposite poles of a source of electric energy and the intermediate contacts on which the trailer normally rests connected to earth through the polarized relay, and the trailer-actuating devices controlled by the relay-armature.

4. The combination at a receiving station of the receiving-relay actuated by impulses received from the distant transmitting-station, the contact-maker, which moves in response to said received impulses, contact-maker-actuating devices controlled by the relay, a line connected with the contact-maker, the contacts *e f*, traversed by the contact-maker, and a source of electric energy with which said contacts are respectively connected and from which counter or neutralizing impulses are sent into said line, as set forth.

5. The combination of a line, a relay located at a receiving-station and responding to impulses received from the distant transmitting-station with which relay the line is normally connected, a contact-maker connected with the line and moving in response to said received impulses, contacts traversed by said contact-maker, the contact-maker-actuating devices controlled by the relay, and a source of electric energy with which said contacts are respectively connected, whereby upon the reception of an electrical impulse upon the relay the line is briefly connected with one of said battery-connected contacts, substantially as set forth.

6. The combination at a receiving-station of a receiving-relay actuating by impulses received from the distant transmitting-station, a contact-maker moving in response to said impulses, contact-maker-actuating devices controlled by the relay, a line connected to the contact-maker, alternate contacts traversed by the contact-maker, and sources of electric energy of opposite polarity with which said alternate contacts are respectively connected, whereby impulses are sent into the line connected to the contact-maker as it passes over each electrically-connected contact.

In testimony whereof I have hereunto subscribed my name.

PATRICK B. DELANY.

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