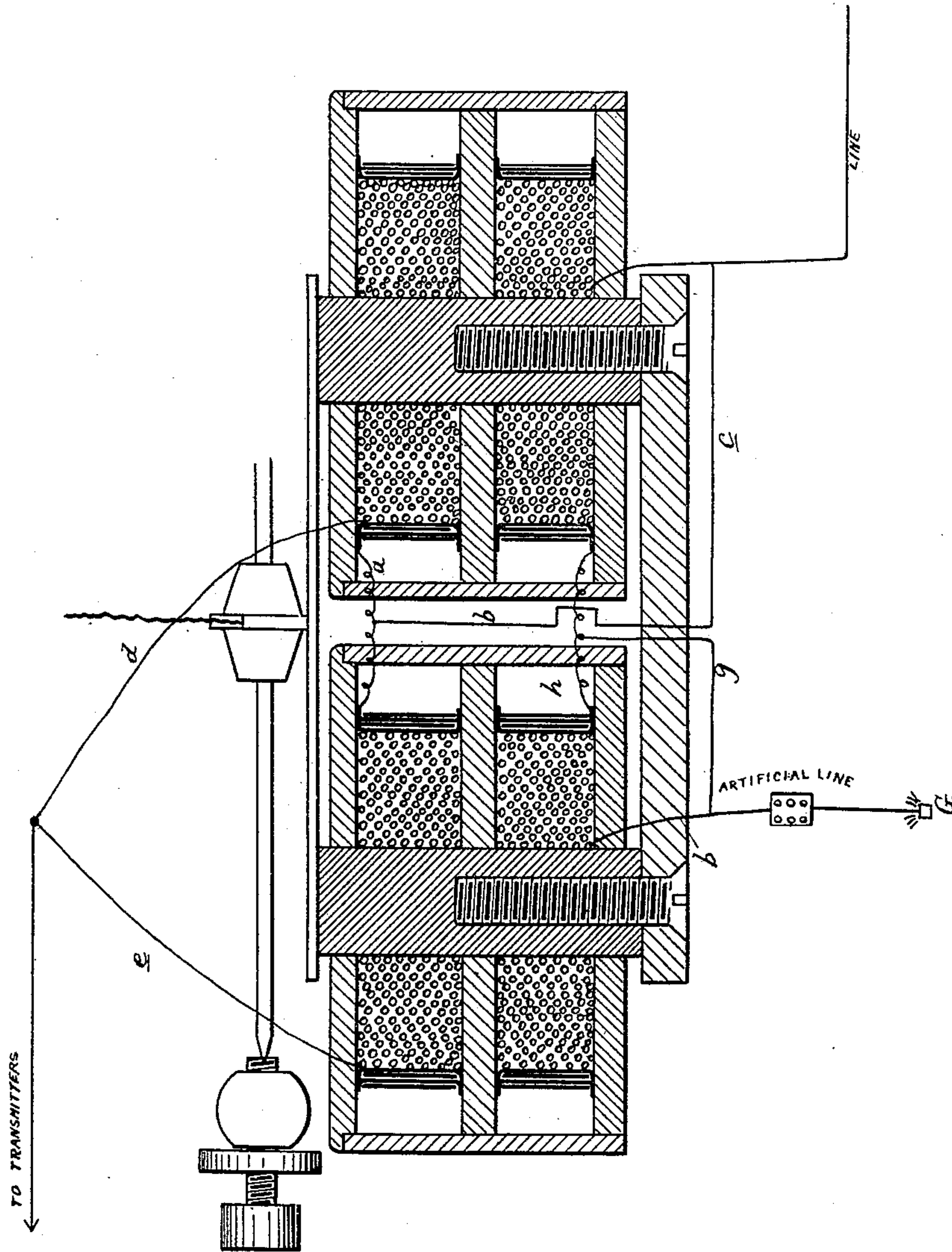


(No Model.)

W. S. LOGUE.  
TELEGRAPH INSTRUMENT.

No. 377,110.

Patented Jan. 31, 1888.



Attest:  
John Schuman.  
N. J. Sprague

Inventor:  
William S. Logue.  
By his Atty  
N. J. Sprague

# UNITED STATES PATENT OFFICE.

WILLIAM S. LOGUE, OF BALTIMORE, MARYLAND.

## TELEGRAPH-INSTRUMENT.

SPECIFICATION forming part of Letters Patent No. 377,110, dated January 31, 1888.

Application filed March 10, 1887. Serial No. 230,349. (No model.)

*To all whom it may concern:*

Be it known that I, WILLIAM S. LOGUE, of Baltimore, in the State of Maryland, have invented new and useful Improvements in Telegraphy; and I do hereby declare that the following is a full, clear, and exact description thereof, reference being had to the accompanying drawing, which forms a part of this specification.

10 This invention relates to certain new and useful improvements in multiple telegraphs for preventing false signals upon the reversal of the main-line current; and the invention consists in the novel means employed by me for that purpose, as more fully hereinafter described and claimed, and shown in the accompanying drawing, in which the invention is illustrated in a sectional plan of the neutral relay.

20 It is well known to practical telegraphers that in the use of the quadruplex or other multiple telegraphs false signals are often caused at the neutral side of the receiving-instrument upon the reversal of the main-line current, such false signals being otherwise called, in the technical language of the operator, "the kick of the neutral relay," the cause of which is well understood as being due to the static discharge of the line on several of the signaling-currents from the transmitting-station. To correct this action I wrap the outside of both coils of the neutral relay with several layers of tin-foil and paper in the following manner: First, I wrap around such 35 coils a layer of tin-foil, then a layer of thin paper, then again a layer of tin foil, and then another layer of thin paper, and so on, the number of such alternate layers of tin-foil and thin paper being increased or diminished to suit the requirements as demonstrated by practical observation. All the alternate layers of tin-foil are placed in electrical connection with each other, preferably by connecting them on their edges, and to facilitate this the layers of 45 paper are preferably made smaller than the

layers of tin-foil, to permit the joining of the edges of the tin-foil layers together. By thus wrapping the coils of the neutral relay and connecting electrically the tin-foil layers together I surround the neutral relay with a compensating device which will prevent the interfering action of the static discharge. This device is a condenser surrounding the coils, as shown in the drawing, and connected up with the circuit so as to discharge through the coils of the relay and render nugatory the effect of said static discharge.

In operating quadruplex systems on a reversal of the current at the transmitting-station the neutral relay should remain inactive. Practically, however, by reason of the discharge of the line, a reverse impulse of the same strength as a previous impulse will not hold the relay neutral, the static discharge of the line destroying the balance. I have indicated one way of connecting the condenser in circuit in the drawing. As shown, the condensers on the two legs of the magnet are connected in multiple arc, one set of condenser-coils being connected to the artificial line, the other set to the real line. The condenser is thus in a shunt around the opposing coils of the neutral relay. On a reversal of current the condenser is charged and discharges through the circuit *a b c d e f g h*, affecting the coils of the neutral relay equally and oppositely, maintaining it in its normal position and clearing the line.

What I claim as my invention is—

A relay for a quadruplex-telegraph system provided with exciting-coils, a condenser surrounding said coils, and circuit-connections between the condenser terminals and the line to neutralize the effect of the static discharge of the line on said relay.

WILLIAM S. LOGUE.

Witnesses:

H. S. SPRAGUE,  
T. E. ROBERTSON.