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PATENTED NOV. 6, 1906.

P. B. DELANY.
TELEGRAPHIC TAPE PERFORATOR.
APPLICATION FILED NOV. 1, 1904.

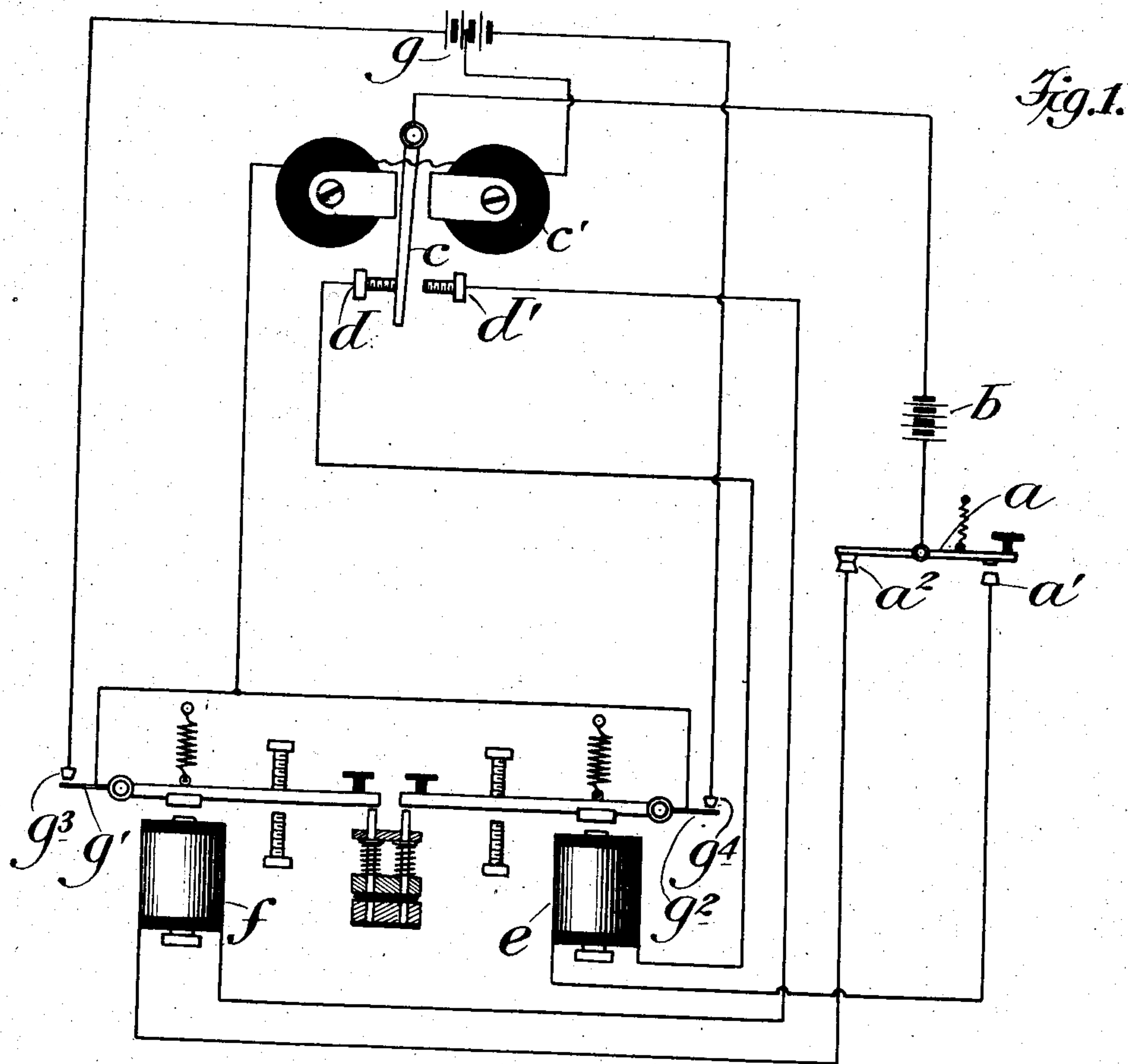


Fig. 1.

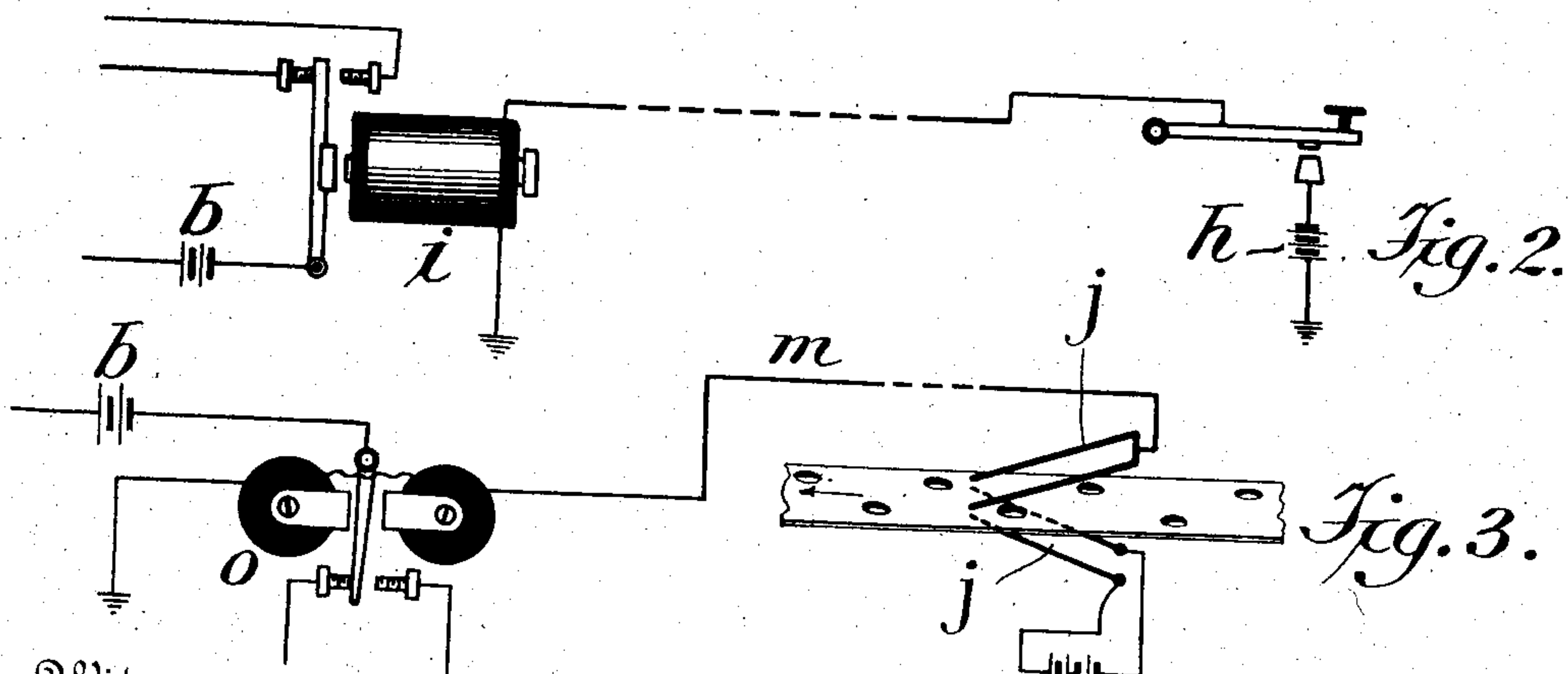


Fig. 2.

Fig. 3.

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TELEGRAPHIC-TAPE PERFORATOR.

No. 835,013.

Specification of Letters Patent.

Patented Nov. 6, 1906.

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To all whom it may concern:

Be it known that I, PATRICK B. DELANY, a citizen of the United States, residing at South Orange, county of Essex, State of New Jersey, have invented certain new and useful Improvements in Telegraphic-Tape Perforators, of which the following is a specification.

The object of this invention is to simplify the circuits and apparatus of an electromagnetic telegraphic-tape perforator adapted to be operated locally by a Morse key as well as from a distance either by a Morse key or a transmitter of other description—such, for instance, as a keyboard-transmitter or transmitting contact-fingers ordinarily employed in connection with perforated transmitting-tapes in automatic telegraphy.

The primary feature of this new organization is the employment of circuits and contacts therefor controlled by the armature-levers of the punch-magnets for opening the respective circuits of the magnets after they have been energized to operate the punches.

In the accompanying drawings, Figure 1 is a diagrammatic view showing a perforator operated locally by a Morse key; Fig. 2, a view showing a similar arrangement, the Morse key being placed at a distance and controlling a relay disposed locally with reference to the perforator; Fig. 3, a like view showing a transmitter for sending impulses of alternating polarity through the medium of a perforated transmitting-tape, for instance, which impulses control the position of the armature of the polarized relay locally disposed with reference to the perforator.

Referring to Fig. 1, *a* is a Morse key, the lever of which is connected to the punch-magnet battery *b*, one pole of the battery being connected to the armature-lever *c* of the polarized relay *c'*, which normally rests against the contact-stop *d*, connected, through the punch-magnet *e*, with the bottom stop *a'* of the Morse key. The back-stop *a''* of the Morse key, against which the key-lever normally bears, is connected through the coils of the punch-magnet *f*, thence to the opposite contact-stop *d'* of the armature-lever *c*. The polarized-relay-reversing battery *g* is connected from its middle through the coils of the polarized relay to two insulated con-

tacts *g'* *g''* on the levers of the punch-magnets, which when in normally retracted position are separated from their respective contact-stops *g''* *g'''*, connected with opposite poles of the split or divided battery *g*.

When the Morse key is depressed against its bottom stop or anvil *a'*, the circuit of the battery *b* is closed and is as follows: from one pole of the battery through the key-lever and bottom stop to the winding of punch-magnet *e*, thence to the contact-stop *d* and polarized-relay armature-lever *c*, thence to the other pole of the battery, and the armature-lever *c* is attracted to actuate its punch. In the movement, however, of this armature-lever the circuit of the battery *g* is closed at the contacts *g''* *g'''* and the polarized relay *c'* is immediately reversed, its armature-lever passing to the contact *d'*, thus opening the circuit of the punch-magnet *e*. When the Morse key is raised and contact between its lever and its back-stop *a''* is completed, circuit of the battery *b* is closed through the punch-magnet *f*, the attraction of whose armature to actuate its punch is immediately followed by the closing of the circuit of the local battery *g* at the contacts *g'* *g''*, and the polarized relay is immediately reversed, its armature-lever passing to its normal position against its contact-stop *d*.

In Fig. 2 the arrangement is in all respects the same, except that there the Morse key is placed at a distance in a circuit including a battery *h* and a neutral relay *i*, the armature-lever and front and back contact-stops of which correspond electrically with the key-lever and its stops. (Shown in Fig. 1.)

In Fig. 3 instead of a Morse key there are opposed pairs of contact-fingers *j j*, the lower ones of which are connected as ordinarily with opposite poles of a battery *k* and the upper ones with a line or circuit connection *m*, passing through the coil of the polarized relay *o*, having, except as to its polarity, a neutral or unbiased armature which, with its contact-stops, corresponds to the Morse key and its contact-stops. (Shown in Fig. 1.)

This invention has been characterized as a "tape-perforator," but is of course applicable to recording transmitted messages otherwise than by the perforation of the receiving-tapes—for instance, by mere puncture or by

indentation or embossing thereof or by ink or electrochemical recording.

I claim as my invention—

- 5 1. An apparatus for recording electrically-transmitted signals, comprising the combination with recording-magnets, their armature-levers and transmitting means for controlling the circuits of the magnets, of means controlled by the respective armature-
10 levers whereby each, on each actuation thereof, opens the circuit of its own magnet and closes the circuit-path of the other magnet.
- 15 2. An apparatus for the recording of electrically-transmitted signals, comprising the combination of magnets *e, f*, their armature-levers, polarized relay *c'*, its battery, and circuit connections and contacts controlled by the armature-levers for reversing the polar-
20 ized relay to open the circuit of said magnets *e, f*, after each actuation of its armature-lever.
- 25 3. An apparatus for the recording of electrically-transmitted signals, comprising the combination of magnets *e, f*, polarized relay *c'*, its battery and circuit connections, its armature and circuit connections, and means

controlled by said armature and connections for reversing the position of said armature.

4. An apparatus for recording electrically-transmitted signals, comprising the com- 30
bination of its recording-magnets, a relay, its lever and contacts, an independently-actuated lever and its contacts, said recording-magnets controlled by said levers and their contacts and means controlled by
35 joint operation of said levers for reversing the position of said relay-lever after each electrically-transmitted signal.

5. An apparatus for recording electrically-transmitted signals, comprising the com- 40
bination of recording-magnets, a relay, its armature and contacts controlling said recording-magnets, an independently-operated lever controlling said relay, and contacts controlled by said recording-magnets for jointly
45 controlling said relay and its contacts.

In testimony whereof I have hereunto subscribed my name.

PATRICK B. DELANY.

Witnesses:

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