

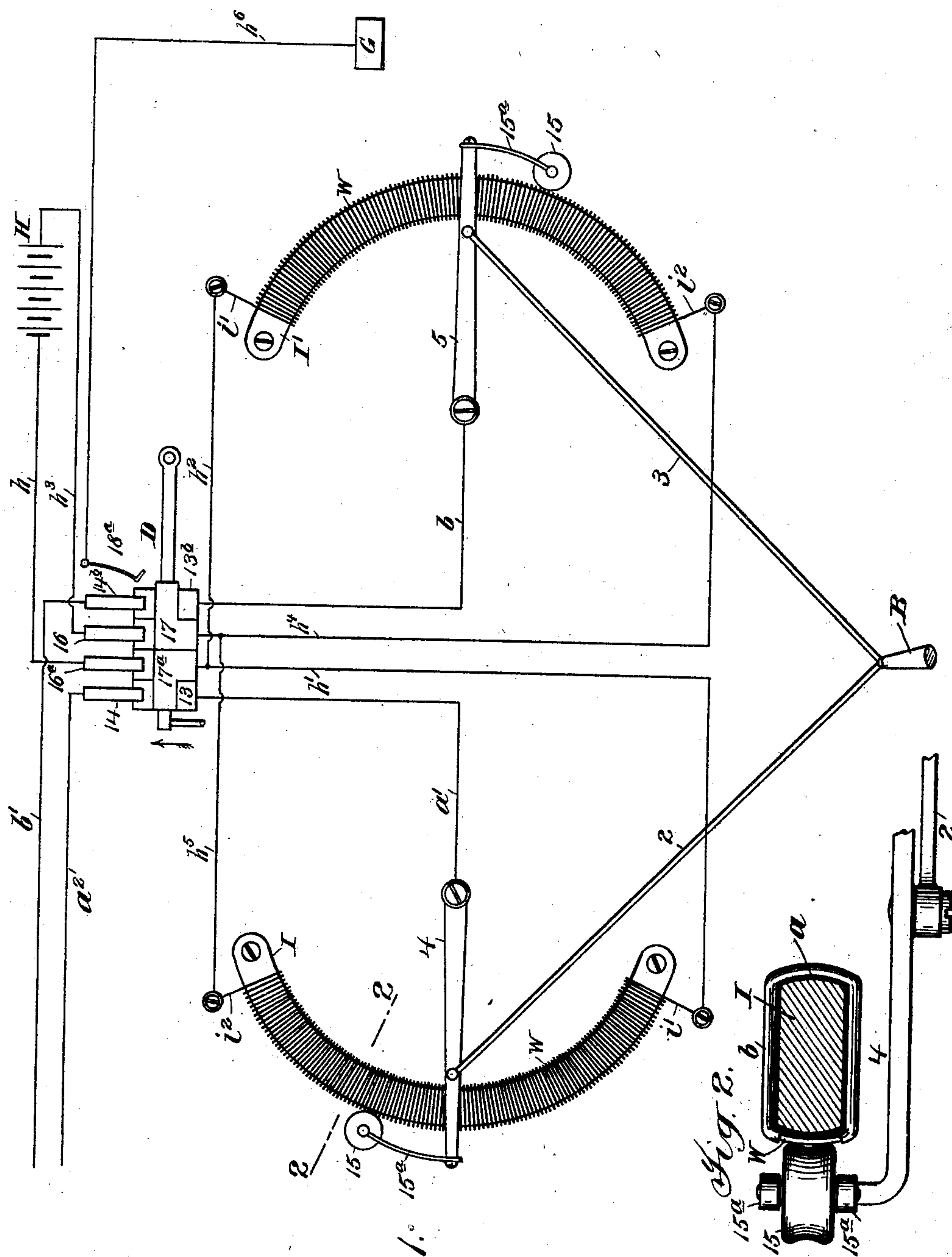
No. 668,893.

Patented Feb. 26, 1901.

G. S. TIFFANY.
TELAUTOGRAPH.

(Application filed Dec. 20, 1900.)

(No Model.)



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TELAUTOGRAPH.

SPECIFICATION forming part of Letters Patent No. 668,893, dated February 26, 1901.

Application filed December 20, 1900. Serial No. 40,473. (No model.)

To all whom it may concern:

Be it known that I, GEORGE S. TIFFANY, a citizen of the United States, residing in the borough of Brooklyn, county of Kings, and State of New York, have invented certain new and useful Improvements in Telautographs, fully described and represented in the following specification and the accompanying drawings, forming a part of the same.

10 This invention relates to improvements in telautographic apparatus, and particularly to telautographic apparatus of that class in which the movements of the receiving-pen in unison with the transmitting-tracer are effected by variations in the strength of the current sent over line from the transmitting instrument to the receiving instrument, such variations in current strength being in turn effected by and corresponding to the movements of the transmitting-tracer.

20 In two applications filed by me October 19, 1900, Serial Nos. 33,589 and 33,590, is shown and described at length a telautographic apparatus containing for each of the main-line circuits an independent circuit, including a source of electric energy from which current is supplied to the main-line circuit and also means controlled by the transmitting-tracer whereby the current so supplied to said main-line circuit is varied in strength during the writing operation according to the movements of the transmitting-tracer, such currents of varying strength, through suitable devices at the receiving instrument, causing the receiving-pen to move in unison with and to reproduce the writing or other matter traced by the transmitting-tracer. The present invention has especial reference to telautographic apparatus of this type, the improvements of the present invention relating particularly to means controlled by the transmitting-tracer for so varying the strength of the current supplied to the main-line circuits. The means provided for this purpose by the present invention may be used in conjunction with any suitable devices at the receiving instrument—such, for example, as the movable coils shown and described in my aforesaid applications.

50 In the accompanying drawings, Figure 1 illustrates, partly in diagram, so much of a

transmitting instrument as is necessary for an understanding of the present invention; and Fig. 2 is a section on the line 2 of Fig. 1.

In said drawings, B represents the transmitting-tracer, (usually a pencil,) which is carried by a pair of hinged arms 2 3, pivoted eccentrically to a pair of arms 4 5, connected, respectively, to left and right hand main-line wires $a^2 b'$, leading to a suitable receiving-instrument—such, for example, as that illustrated in Fig. 2 of my applications before referred to. As the transmitting-tracer B is moved in writing the arms 4 5 are rotated thereby, and as the latter are thus rotated they effect, through means which will presently be described, variations in the strength of the currents sent over the main-line wires $a^2 b'$.

70 Current is supplied to the main-line wires $a^2 b'$ from two local circuits at the transmitting-station which are independent of the main-line circuits $a^2 b'$ and which include a source of electric energy, as a battery H and two plates I I', preferably arc-shaped and which are wound with resistance-wire w , from which current is shunted into the left and right hand main-line circuits $a^2 b'$, respectively, from said independent circuits. These arc-shaped plates I I' are located beneath the path of movement of the rotary arms 4 5, so that their windings of wire w will be engaged by contacts, preferably rollers 15, carried by said arms, to which they are secured by springs 15^a, which press them against the windings of wire w . Through these contacts 15 and arms 4 5 currents are shunted from the independent circuits into the main-line circuits $a^2 b'$, respectively, which vary in strength according to the positions of these contacts between the terminals $i^1 i^2$ of the wires w , as will presently appear. The arc-shaped plates I I', which support the wires w , are preferably of metal covered with insulating material (preferably asbestos) a , and the wire w wound thereon is also suitably insulated, as shown at b , such insulation being removed, as shown, where the rollers 15 bear against said wire. The rollers 15 are preferably of carbon, because such material will smooth out or gradually bridge across the turns of the wire,

thus avoiding abrupt changes or jumps from one strength of current to another. The independent current-supplying circuits above referred to will now be described. With the master-switch D in the position in which it is shown, which is the position it occupies when the transmitting-tracer is "hung up," the transmitting and receiving instruments are out of circuit. When, however, the master-switch is moved in the direction indicated by the arrow, Fig. 1, the negative pole of the battery will be connected by wire h , contact-brush 16^a , contact-plate 17^a on the master-switch, and wires h^1 h^2 to the terminals i^1 of the wires w , while the positive pole of the battery H will be connected by wire h^3 , contact-brush 16, contact-plate 17 on the master-switch D, and wires h^4 h^5 to the opposite terminals i^2 of the wires w . The positive pole of the battery H is grounded at G, when master-switch D is moved to the position stated, by wire h^6 , connected to contact-spring 18^a , (contacting with plate 17,) brush 16, and wire h^3 , so that with the parts in such position a current is passing through each of these independent circuits from the negative pole of the battery H and through the wires w , rollers 15, springs 15^a , arms 4 5, wires a^1 b , contact-plates 13 13^b , and brushes 14 14^b to the main-line circuits a^2 b^1 , respectively, leading to the receiving instrument, which, as before stated, may be the receiving instrument shown and described in my said prior applications or any other suitable receiving-instrument. The strength of the currents delivered from these independent circuits to the main-line circuits will, as before stated, be dependent upon the positions of the rollers 15 relatively to the opposite terminals i^1 i^2 of wires w , since the nearer these rollers are to the terminals i^1 of said wires the greater the voltage between said rollers and the opposite terminals i^2 of said wires or ground, and vice versa, or, in other words, if we assume the voltage of the battery H to be thirty volts and a roller 15 to be one-third the distance from the terminal i^2 of one of the wires w the difference of potential between the roller 15 and ground will be approximately ten volts, and if said roller be midway between the terminals i^1 i^2 of said wire the difference of potential between the roller and ground will be approximately fifteen volts.

From this construction it results that as the arms 4 5 are rotated by the movement of the transmitting-tracer B the rollers 15 are caused to assume different positions relatively to the terminals i^1 i^2 of the wires w and to shunt into the main-line circuits a^2 b^1 currents which vary in strength in accordance with the positions thus assumed by the rollers 15, and consequently in accordance with the positions assumed by the transmitting-tracer, the strength of the currents increasing as the rollers 15 approach the terminals i^1 of the wires w and decreasing as they approach the terminals i^2 thereof.

Of course it will be understood that in the receiving instrument, which may be connected with the transmitting instrument shown, the pen-arms of such receiving instrument instead of being connected to pen-arm drums, as in my prior applications before referred to, will be connected, respectively, to devices like the arms 4 5, so that the angular movements of the receiving-pen will be the same as those of the transmitting-tracer.

What I claim is—

1. In a telautographic apparatus, the combination of a transmitting-tracer, a main-line circuit, an independent circuit including a source of electric energy, two relatively movable members, one included in the independent circuit and through which current is supplied to the main-line circuit, and the other leading therefrom to the main-line circuit, said first-named member consisting of resistance-wire wound upon a suitable support, and connections between the transmitting-tracer and one of said members whereby the latter is moved relatively to the other member so as to shunt from said independent circuit into the main-line circuit currents varying in strength according to the movements of said transmitting-tracer, substantially as described.

2. In a telautographic apparatus, the combination of a transmitting-tracer, a main-line circuit, an independent circuit including a source of electric energy and a member through which current is supplied therefrom to the main-line circuit, said member consisting of resistance-wire wound upon a suitable support, a movable member in contact therewith and connected with the main-line circuit, and connections between the transmitting-tracer and said movable member whereby the latter is moved relatively to the other member so as to shunt from said independent circuit into the main-line circuit currents varying in strength according to the movements of said transmitting-tracer, substantially as described.

3. In a telautographic apparatus, the combination of a transmitting-tracer, a main-line circuit, an independent circuit including a source of electric energy, two relatively movable members, one included in the independent circuit and through which current is supplied to the main-line circuit, and the other leading therefrom to the main-line circuit, said first-named member consisting of resistance-wire wound upon a suitable support and said second member of carbon, and connections between the transmitting-tracer and one of said members whereby the latter is moved relatively to the other member so as to shunt from said independent circuit into the main-line circuit currents varying in strength according to the movements of said transmitting-tracer, substantially as described.

4. In a telautographic apparatus, the combination of a transmitting-tracer, a main-line circuit, an independent circuit including a

source of electric energy and a member through which current is supplied therefrom to the main-line circuit, said member consisting of resistance-wire wound upon a suitable support, a movable member of carbon in contact therewith and connected with the main-line circuit, and connections between the transmitting-tracer and said movable member whereby the latter is moved relatively to the other member so as to shunt from said independent circuit into the main-line circuit currents varying in strength according to the movements of said transmitting-tracer, substantially as described.

5. In a telautographic apparatus, the combination of a transmitting-tracer, a main-line circuit, an independent circuit including a source of electric energy and a member through which current is supplied therefrom to the main-line circuit, said member consist-

ing of resistance-wire wound upon a suitable support, a movable member consisting of a roller of carbon in contact therewith and connected with the main-line circuit, and connections between the transmitting-tracer and said movable member whereby the latter is moved relatively to the other member so as to shunt from said independent circuit into the main-line circuit currents varying in strength according to the movements of said transmitting-tracer, substantially as described.

In testimony whereof I have hereunto set my hand in the presence of two subscribing witnesses.

GEORGE S. TIFFANY.

Witnesses:

T. F. KEHOE,
S. WINTHAL.