

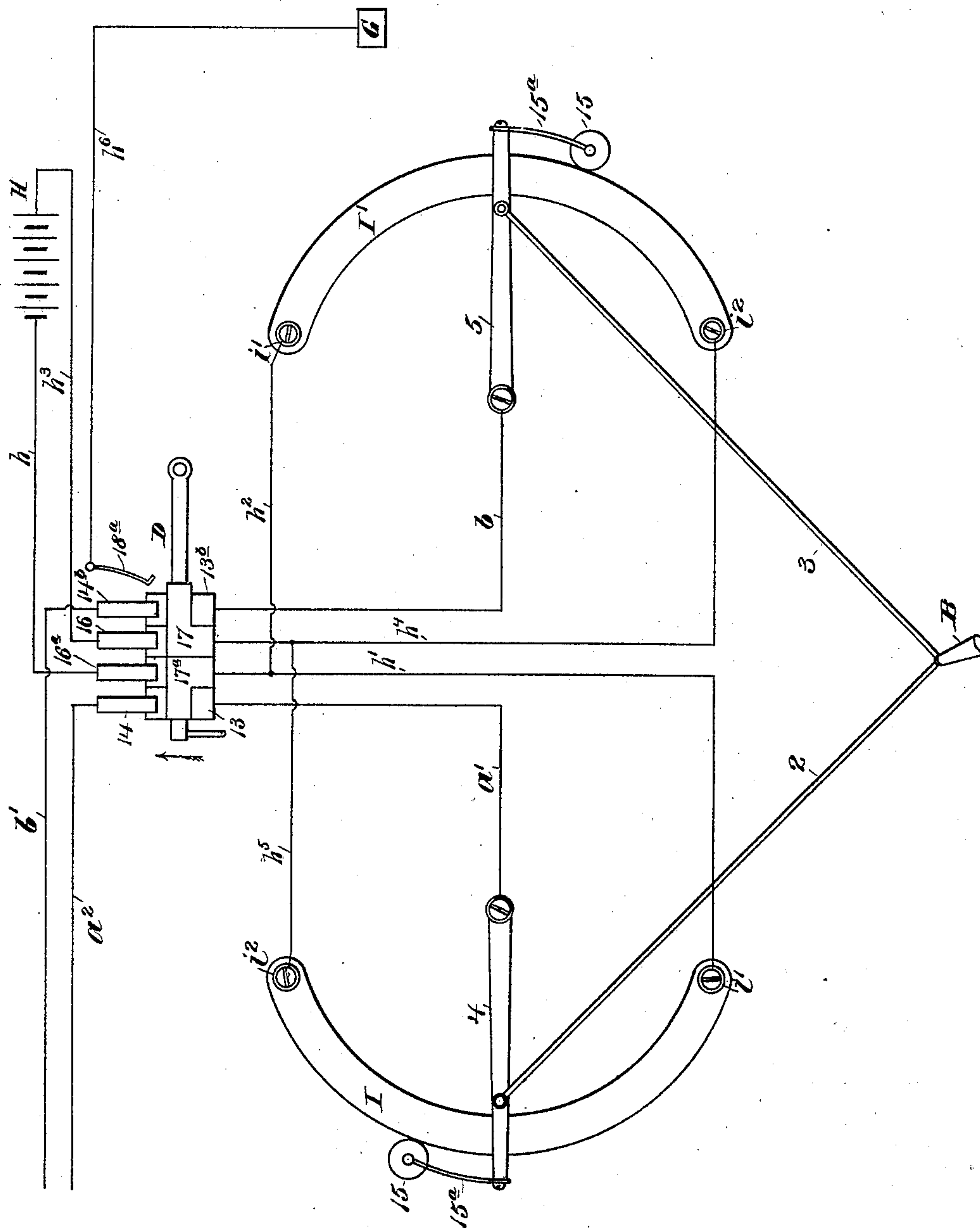
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Patented Feb. 26, 1901.

G. S. TIFFANY.
TELAUTOGRAPH.

(Application filed Dec. 20, 1900.)

(No Model.)



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TELAUTOGRAPH.

SPECIFICATION forming part of Letters Patent No. 668,892, dated February 26, 1901.

Application filed December 20, 1900. Serial No. 40,472. (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 drawing, 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
15 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 move-
20 ments of the transmitting-tracer.

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
25 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-
30 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-
35 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,
40 the improvements of the present invention relating particularly to means controlled by the transmitting-tracer for so varying the strength of the currents supplied to the main-line circuits. The means provided for this
45 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 drawing is illustrated, partly in diagram, so much of a transmitting

instrument as is necessary for an understanding of the present invention.

In said drawing, B represents the transmitting-tracer, (usually a pencil,) which is carried by a pair of hinged arms 2 3, pivoted
55 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 illus-
60 trated in Figure 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
65 they effect, through means which will presently be described, variations in the strength of the currents sent over the main-line wires $a^2 b'$.

Current is supplied to the main-line wires $a^2 b'$ from two local circuits at the transmitting-station which are independent of the
70 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, from which current is shunted into the left and
75 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
80 as to be engaged by contacts, preferably rollers 15, carried by said arms, to which they are secured by springs, which press them against the peripheries of plates I I'. Through
85 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 or rollers between the terminals $i' i^2$ of said plates I I', as will presently
90 appear. The arc-shaped plates I I' are of carbon, and the contacts 15 are also preferably of carbon, so as to reduce the tendency to oxidation, and while the contacts 15 may
be of other forms it is preferable that they
95 be in the form of rollers pivoted in arms 15^a, as shown, so as to make rolling contact with the plates I and I'.

The independent current-supplying circuits above referred to will now be described, with the master-switch D in the position in
100 which it is shown, which is the position it occupies when the transmitting-tracer is "hung

up," and the transmitting and receiving instruments out of circuit. When the master-switch is moved, however, in the direction of the arrow, the negative pole of the battery H will be connected by wire h , contact-brush 16^a, contact-plate 17^a on the master-switch, and wires h' h^2 to the terminals i' of the arc-shaped plates I I', 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 arc-shaped plates I I'. 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^8 , so that with the parts in such position a current is passed through each of these independent circuits from the negative pole of the battery H and through the plates I I', rollers 15, springs 15^a, arms 4 5, wires a' b^2 , contact-plates 13 13^b, and brushes 14 14^b to the main-line circuits a^2 b' , 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' i^2 of the arc-shaped plates I I', since the nearer these rollers are to the terminals i' of said plates the greater the voltage between said rollers and the opposite terminals i^2 of said plates 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 the plate I or I' 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' i^2 of said plate I or I' 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' i^2 of the plates I I' and to shunt into the main-line circuits a^2 b' 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' of the arc-shaped plates 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, 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, one of said members being of carbon, 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, 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, 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, both of said members being of carbon, 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 and a member through which current is supplied therefrom to the main-line circuit, 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, one of said members being of carbon, 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, 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 accord-

ing to the movements of said transmitting-tracer, both of said members being of carbon, 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 an arc-shaped member through which current is supplied to the main-line circuit, a member in contact
10 with said arc-shaped member and connected with the main-line circuit, one of said members being rotatable relatively to the other, and connections between the transmitting-tracer and the rotatable member whereby the
15 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, one of said members
20 being of carbon, substantially as described.

6. In a telautographic apparatus, the combination of a transmitting-tracer, a main-line circuit, an independent circuit including a source of electric energy and an arc-shaped
25 member through which current is supplied to the main-line circuit, a member in contact with said arc-shaped member and connected with the main-line circuit, one of said members being rotatable relatively to the other,
30 and connections between the transmitting-tracer and the rotatable 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 vary-
35 ing in strength according to the movements of said transmitting-tracer, both of said members being of carbon, substantially as described.

7. In a telautographic apparatus, the combination of a transmitting-tracer, a main-line circuit, an independent circuit including a source of electric energy and an arc-shaped member through which current is supplied to the main-line circuit, a rotatable member
40 in contact with said arc-shaped member and leading therefrom to the main-line circuit, and connections between the transmitting-tracer and said rotatable member whereby the latter is moved relatively to the other
45 member so as to shunt from said independent circuit into the main-line circuit currents varying in strength according to the movements of the transmitting-tracer, one of said members being of carbon, substantially as de-
50 scribed.

8. In a telautographic apparatus, the combination of a transmitting-tracer, a main-line circuit, an independent circuit including a source of electric energy and an arc-shaped
60 member through which current is supplied to the main-line circuit, a rotatable member in contact with said arc-shaped member and leading therefrom to the main-line circuit, and connections between the transmitting-
65 tracer and said rotatable 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 the transmitting-tracer, both of said mem- 70
bers being of carbon, substantially as described.

9. In a telautographic apparatus, the combination of a transmitting-tracer, a main-line circuit, an independent circuit including a source of electric energy and an arc-shaped
75 member through which current is supplied to the main-line circuit, a rotatable member bearing a roller in contact with said arc-shaped member and leading therefrom to the
80 main-line circuit, and connections between the transmitting-tracer and said rotatable member whereby the latter is moved relatively to the other member so as to shunt from said independent circuit into the main-
85 line circuit currents varying in strength according to the movements of the transmitting-tracer, one of said members being of carbon, substantially as described.

10. In a telautographic apparatus, the combination of a transmitting-tracer, a main-line circuit, an independent circuit including a source of electric energy and an arc-shaped member through which current is supplied to the main-line circuit, a rotatable member
90 bearing a roller in contact with said arc-shaped member and leading therefrom to the main-line circuit, and connections between the transmitting-tracer and said rotatable member whereby the latter is moved rela-
95 tively 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 the transmitting-tracer, both of said members being of car-
100 bon, substantially as described.

11. 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 mov-
110 able 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, and connections between the transmit-
115 ting-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 move-
120 ments of said transmitting-tracer, one of said members being pivoted in a suitable support so as to make rolling contact with the other, substantially as described.

12. In a telautographic apparatus, the combination of a transmitting-tracer, a main-line circuit, an independent circuit including a source of electric energy and an arc-shaped member through which current is supplied to the main-line circuits, a rotatable member
125 bearing a roller in contact with said arc-shaped member and leading therefrom to the main-line circuit, and connections between the transmitting-tracer and said rotatable mem-
130

ber 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
5 movements of the transmitting-tracer, sub-
stantially 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.