

(No Model.)

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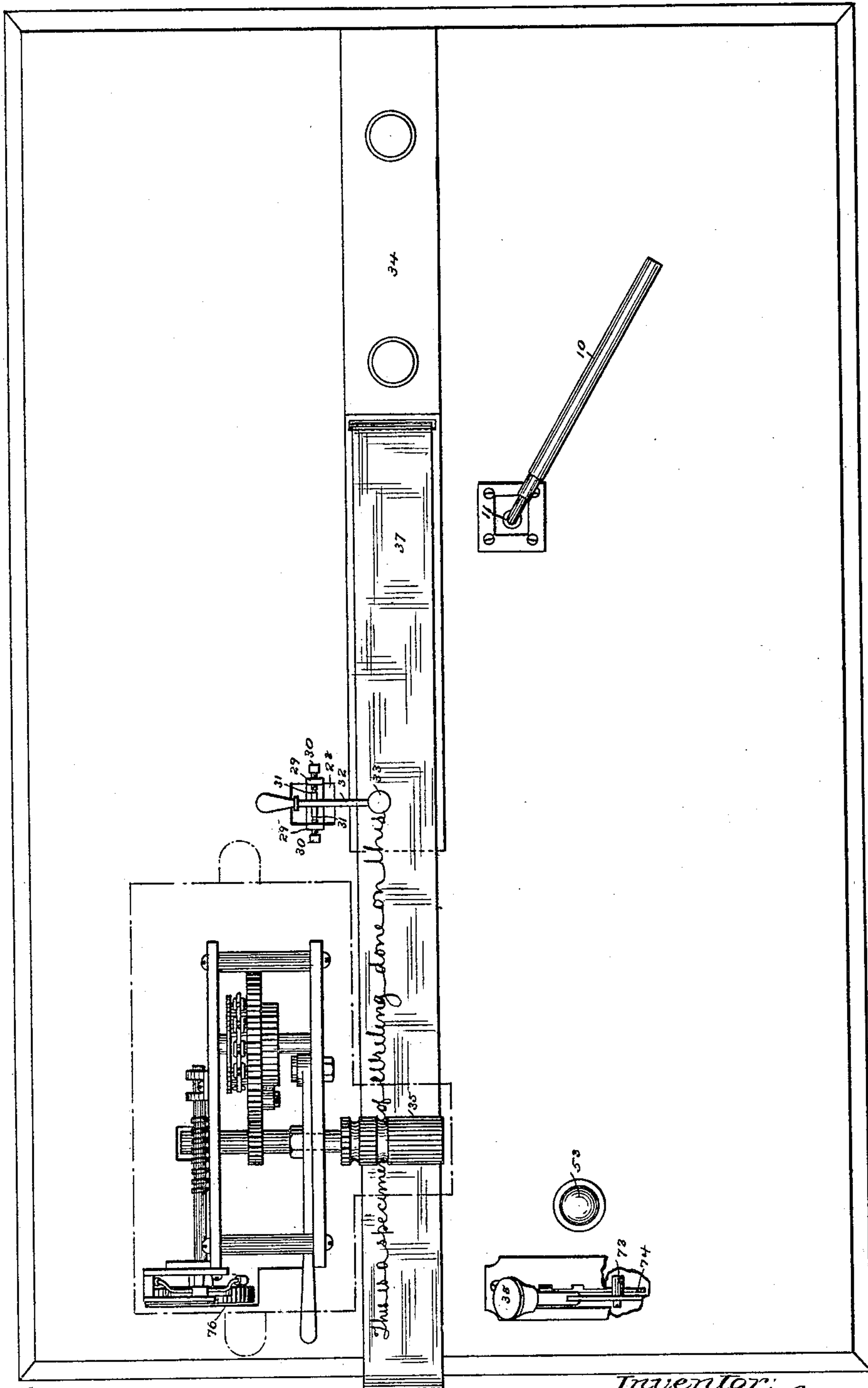
J. H. ROBERTSON.

AUTOGRAPHIC TELEGRAPH.

No. 353,593.

Patented Nov. 30, 1886.

Fig. 1.



Attest:

Geo. H. Potts.
J. A. Hoovey

Inventor:

James H. Robertson,
per Behrman & Co.

Atty's:

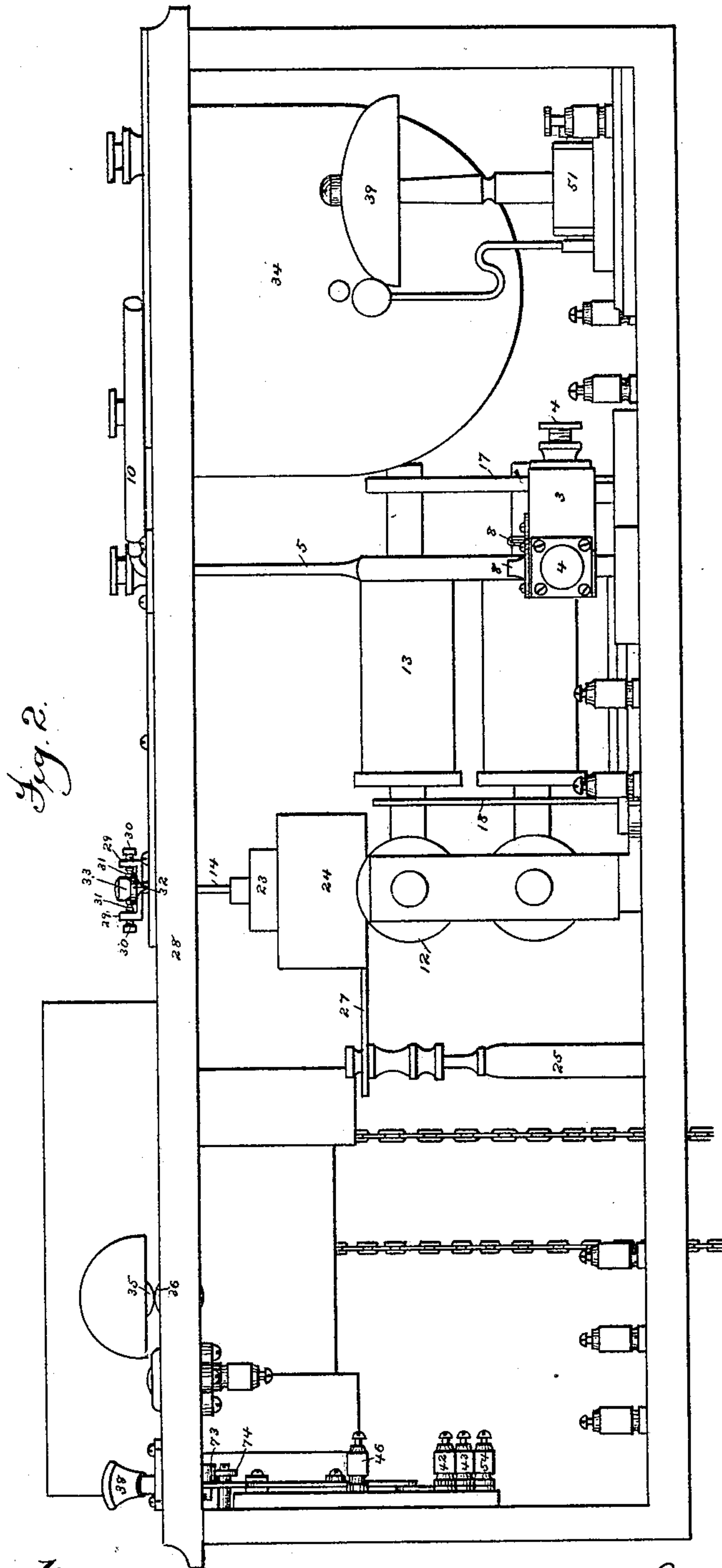
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J. H. ROBERTSON.
AUTOGRAPHIC TELEGRAPH.

No. 353,593.

Patented Nov. 30, 1886.



Inventor.

Attest:
George H. Bott
J. A. Harvey

James H. Robertson,
per Behrens & Co.

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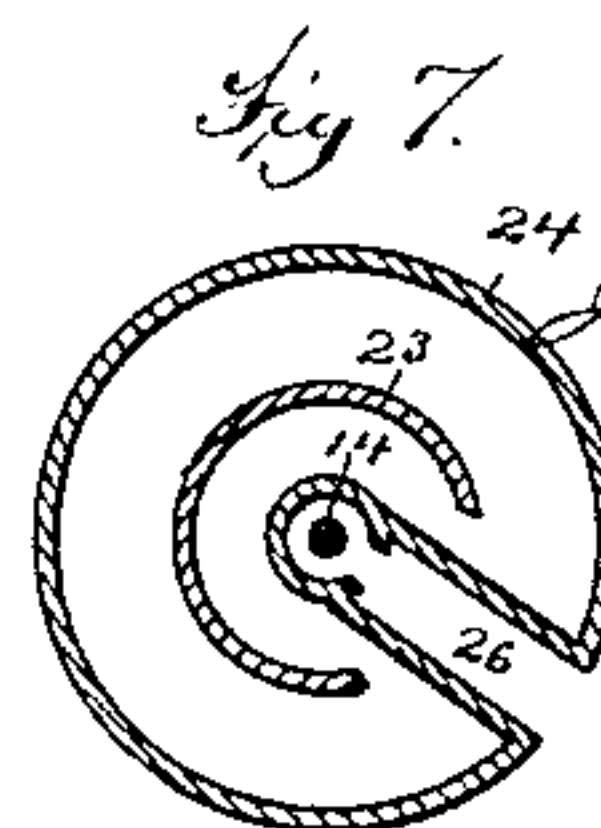
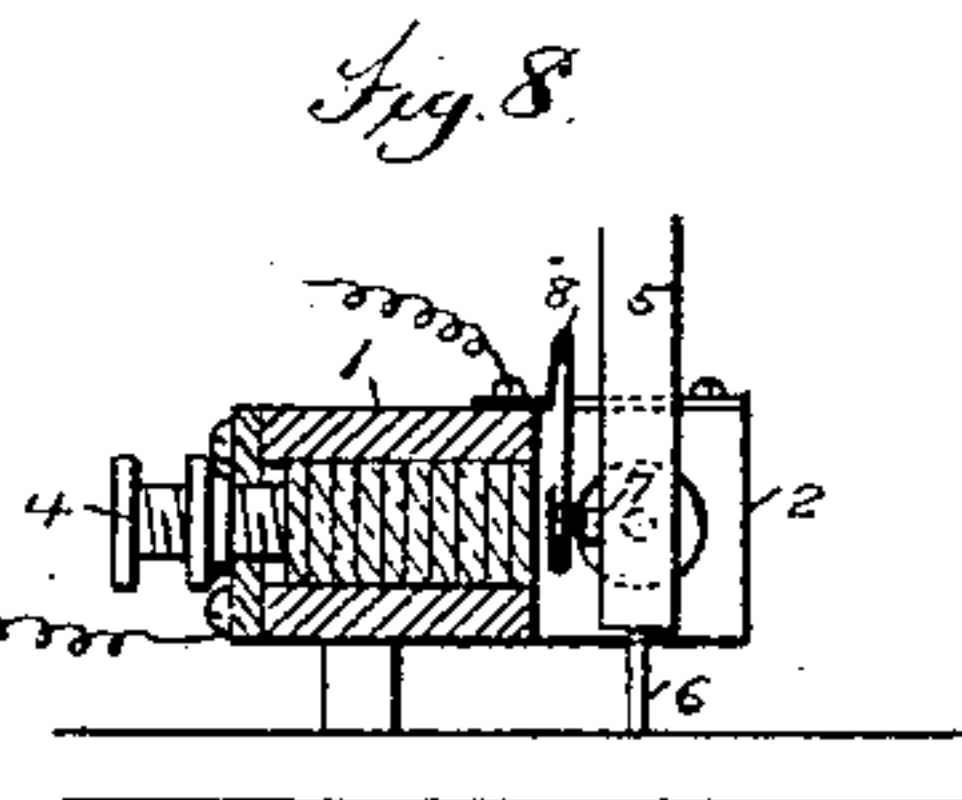
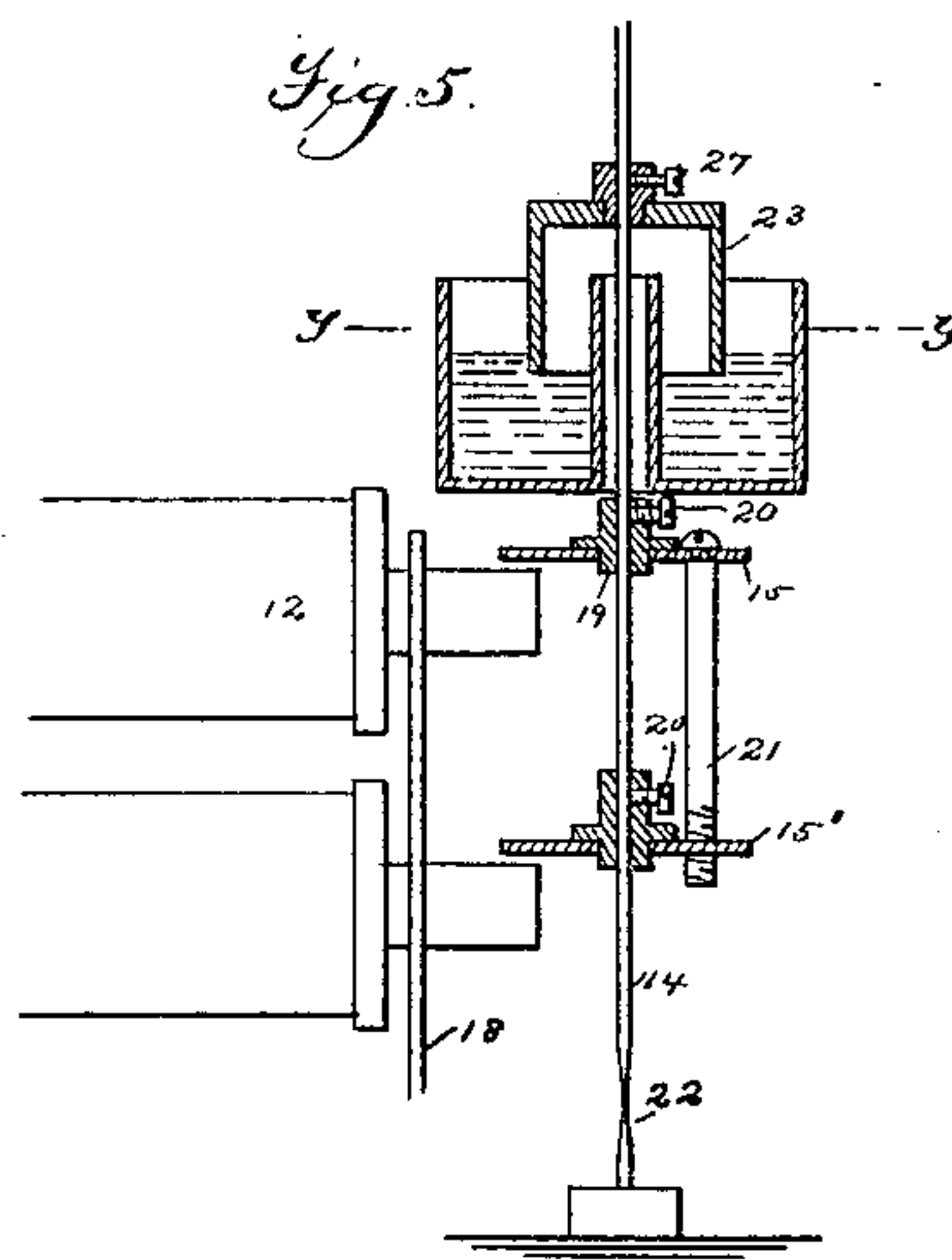
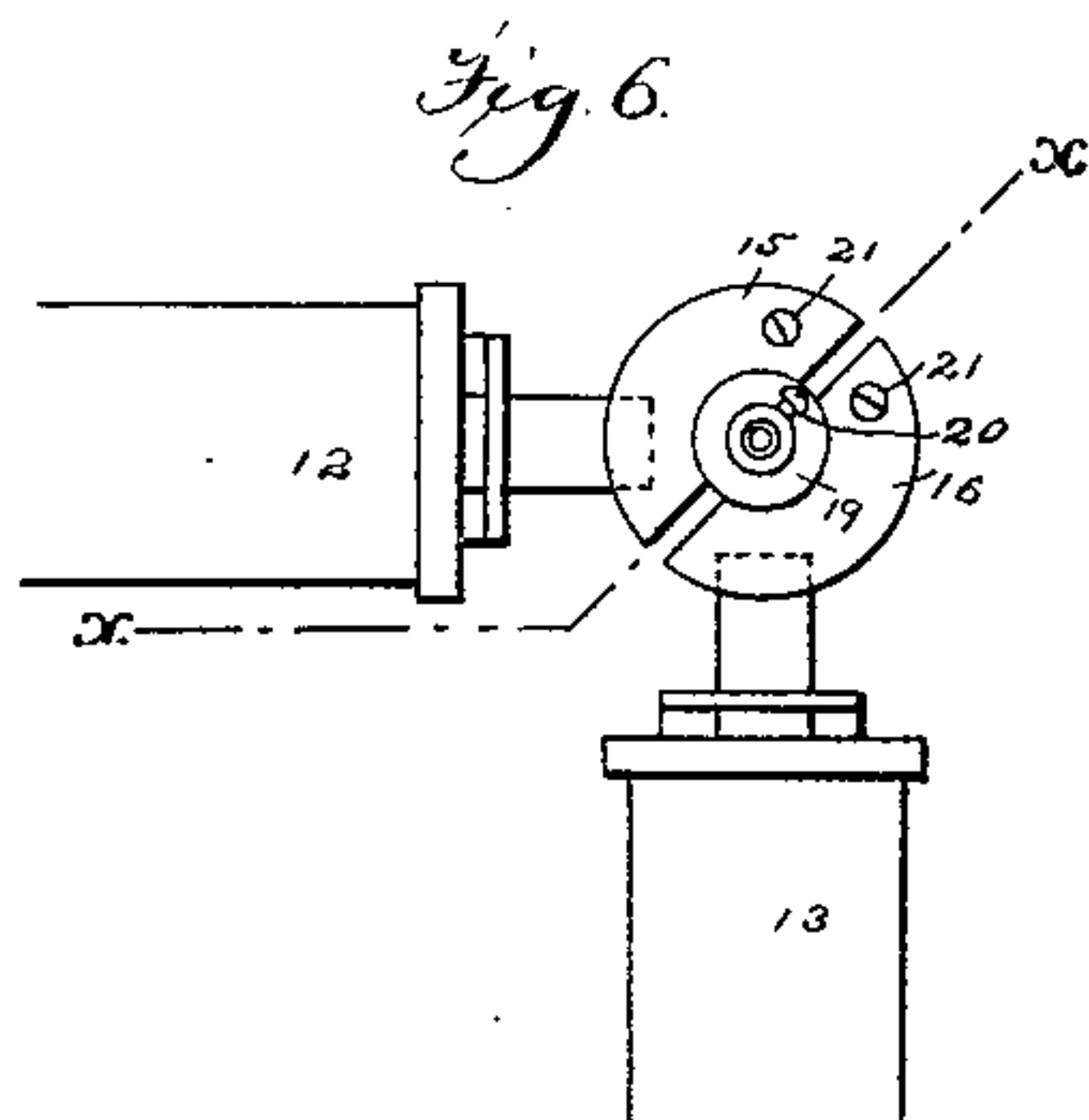
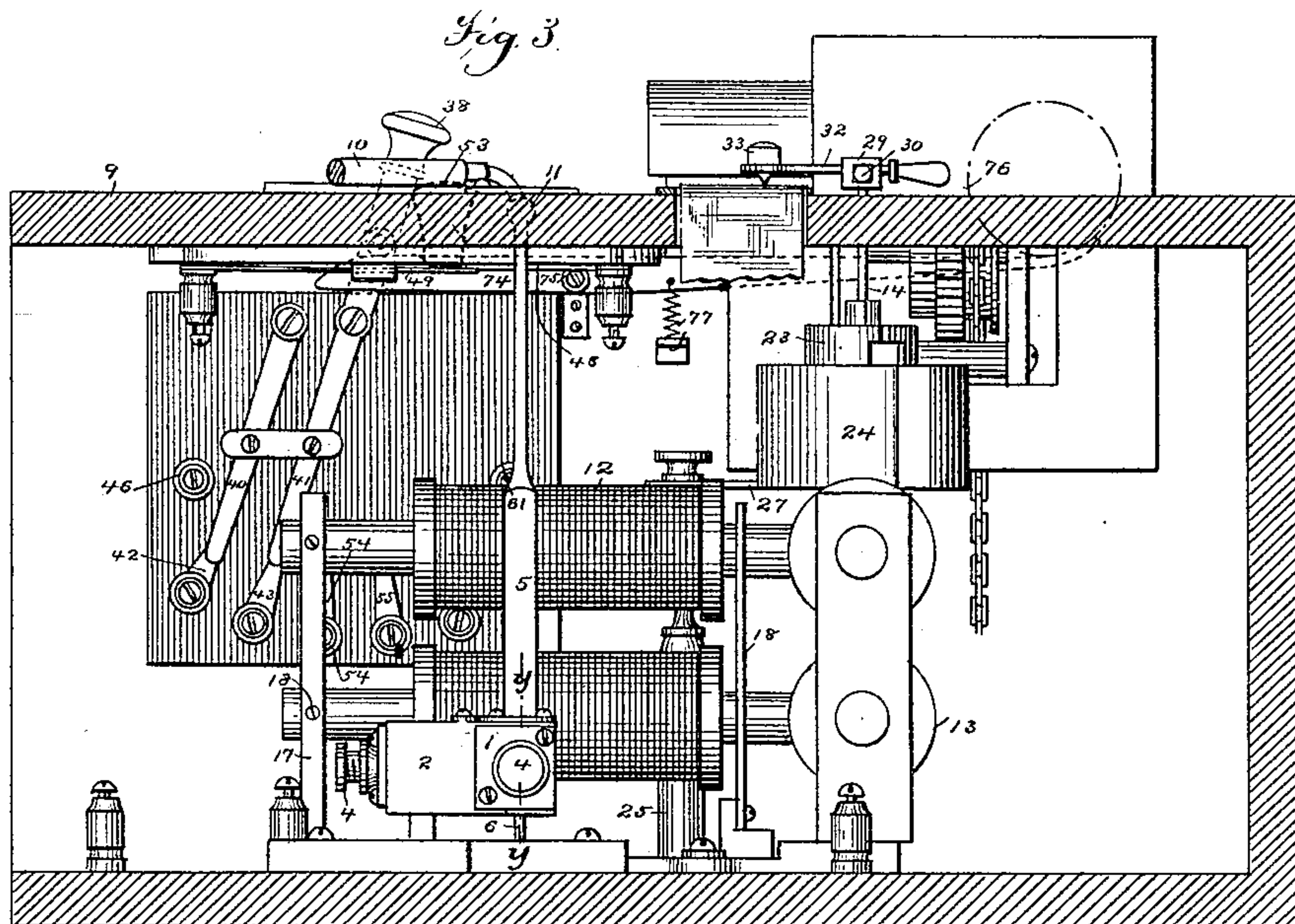
(No Model.)

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J. H. ROBERTSON.
AUTOGRAPHIC TELEGRAPH.

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Attest:
Geo. H. Bost
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Inventor:
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Attest:

(No Model.)

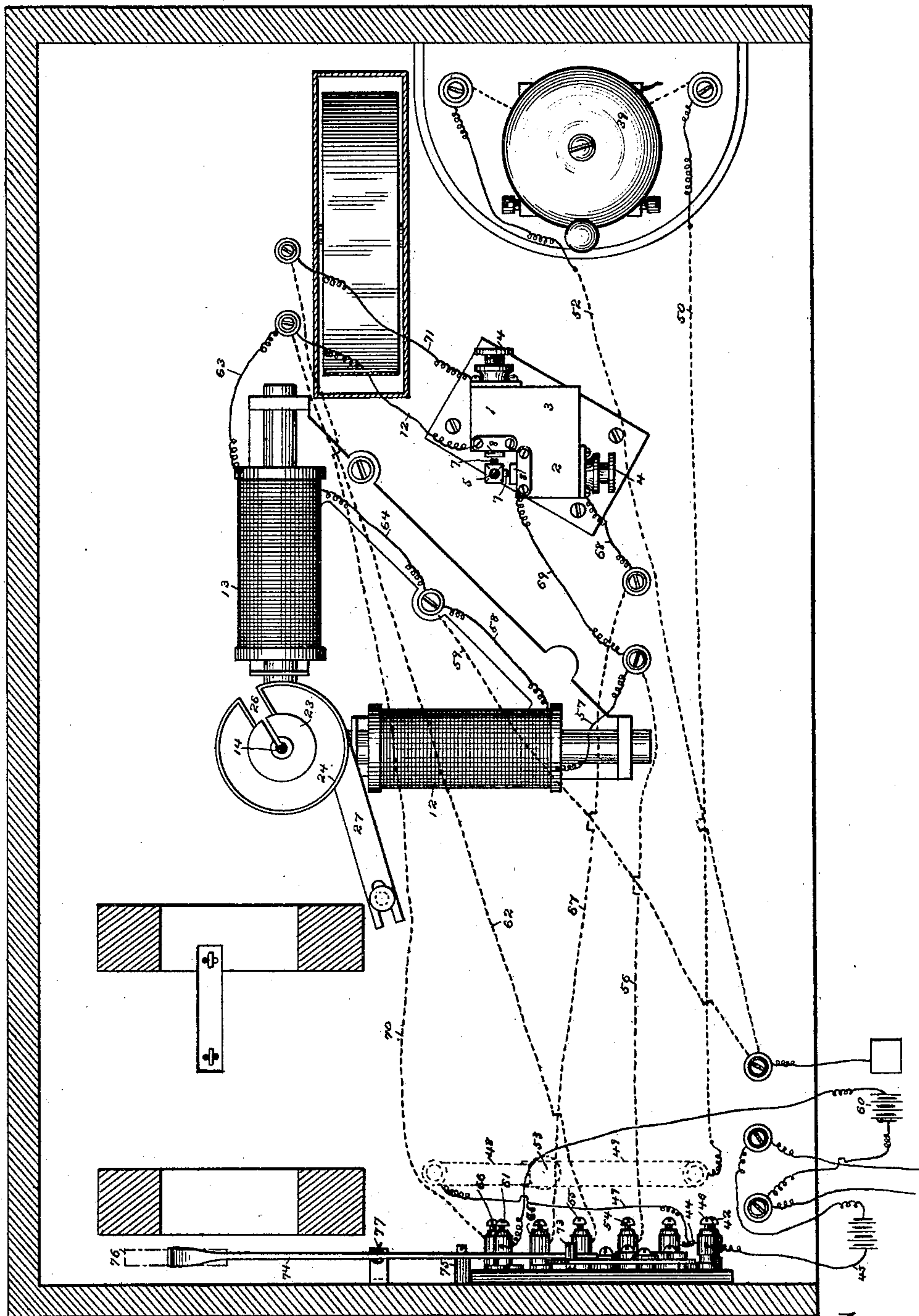
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AUTOGRAPHIC TELEGRAPH.

No. 353,593.

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Fig. 14.



Attest:
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(No Model.)

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AUTOGRAPHIC TELEGRAPH.

No. 353,593.

Patented Nov. 30, 1886.

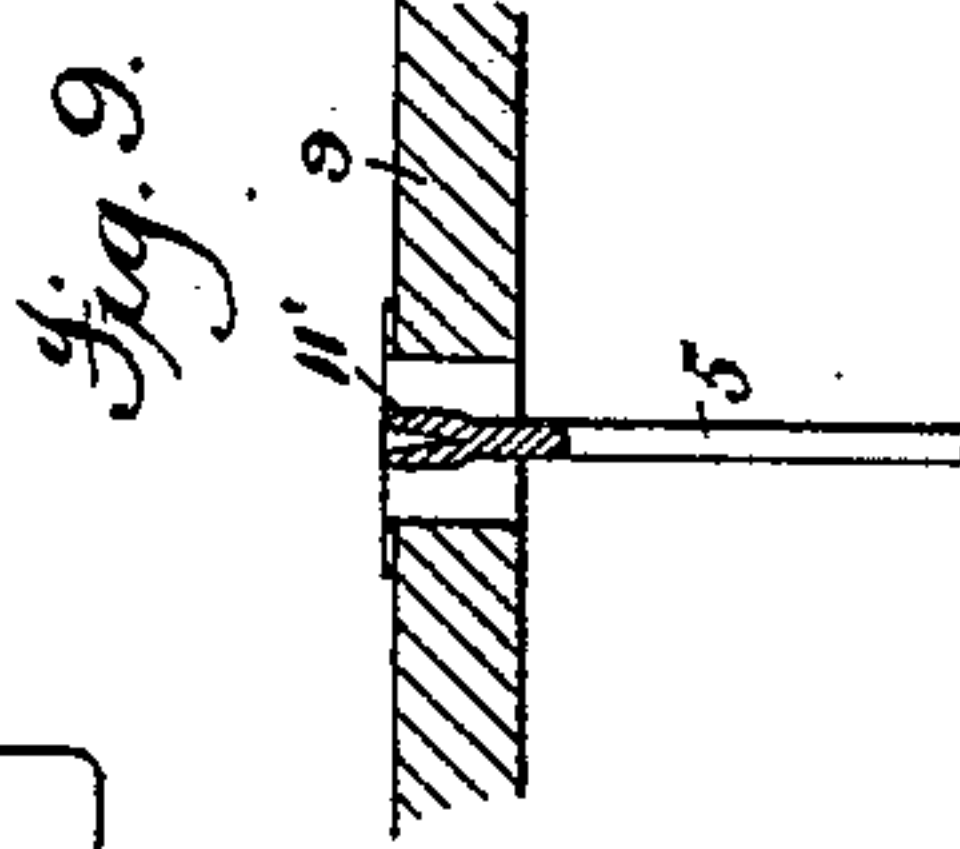
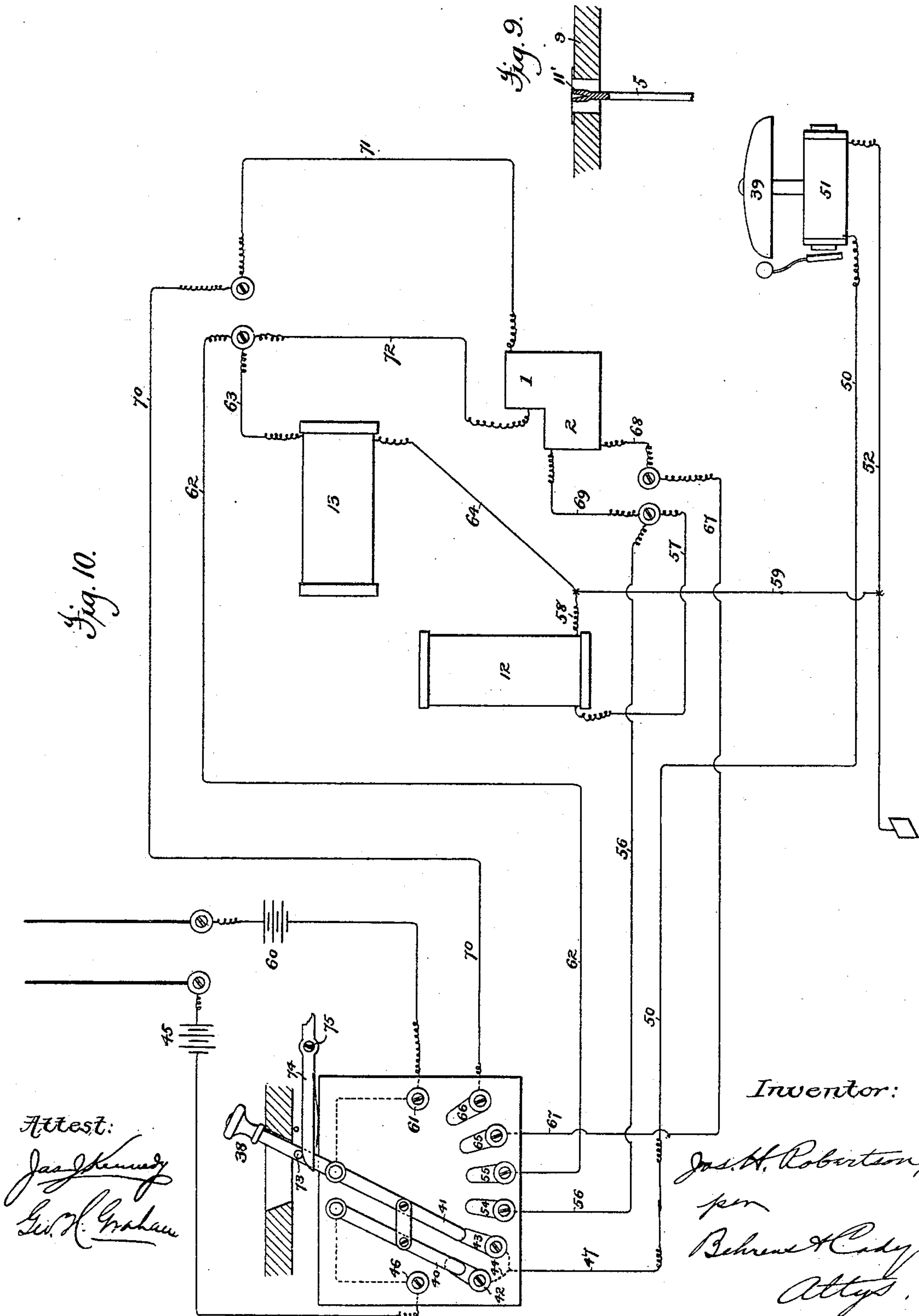


Fig. 10.



Inventor:

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per
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Attest:
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UNITED STATES PATENT OFFICE.

JAMES H. ROBERTSON, OF RUTHERFORD, NEW JERSEY.

AUTOGRAPHIC TELEGRAPH.

SPECIFICATION forming part of Letters Patent No. 353,593, dated November 30, 1886.

Application filed June 30, 1886. Serial No. 206,692. (No model.)

To all whom it may concern:

Be it known that I, JAMES H. ROBERTSON, a citizen of the United States, and a resident of Rutherford, New Jersey, have invented a
5 new and useful Improvement in Autographic Telegraphs, of which the following is a specification.

My invention relates to that class of autographic telegraphs for which I have heretofore
10 filed several applications for Letters Patent, designated with serial number as follows: Nos. 154,795, 177,435, and 200,412.

The object of this invention is to improve the several parts of such an apparatus so that
15 it will operate with greater certainty, exactness, and promptness.

It consists in the several combinations of parts hereinafter described and claimed.

In the accompanying drawings, forming a
20 part of this specification, Figure 1 represents a plan view of an apparatus embodying my invention. Fig. 2 is a side view of the same. Fig. 3 represents an end view. Fig. 4 is a view taken on a horizontal line immediately
25 below the top of the table shown in Fig. 1. Fig. 5 is a view in cross-section, taken on line *x x* of Fig. 6, of a part of the receiving-instrument. Fig. 6 is a top view of the armatures and magnets of the receiving-instrument. Fig.
30 7 is a horizontal cross-section taken on line *y y* of Fig. 5, and Fig. 8 represents a vertical cross-section of a part of the sending or transmitting instrument. Fig. 9 is a modification of the lever, in which it is formed with a socket
35 at its top for a pencil or other holder. Fig. 10 is a view showing the switch mechanism and its connections, with a diagram of the circuits.

Referring to the transmitting-instrument,
40 the reference-numbers 1 and 2 (see Figs. 4 and 8) represent the piles of carbon disks, as described in one of the previous applications hereinbefore referred to. For convenience, the two series of carbon disks are placed in
45 receptacles formed in one piece of wood, 3. Each pile of disks is provided with a screw-follower, 4, for adjusting the normal pressure of the disks on each other.

The means I use for varying the pressure on
50 the piles of carbon disks consists of a rod or

lever, 5, pivoted at its lower end in any suitable manner. In this instance the rod is provided at its lower end with an aperture, into which a pin or wire, 6, fits, the latter being
55 secured to the base of the instrument. I preferably make the lever 5 long, so that the hand of the operator has a large field of motion and is not cramped in its movements. On this rod or lever, opposite the piles of disks, I locate pressure-points 7, of non-conducting material,
60 and between said points and piles I arrange strips of metal, 8, to which the conductors are secured. I apply to the upper end of the lever, at about the surface of the table 9, a holder,
10, pivoted to said lever by a universal joint, 65 11. Instead of this arrangement, I can provide the upper end of the lever with a cavity, 11', of any form, into which a lead-pencil or other holder can be inserted for giving move-
70 ment to the said lever. As the operator manipulates the holder, as in writing—outlining the letters—the pressure on the carbon disks is increased or diminished, with results as described in one of my applications hereinbefore referred to.

The electro-magnets 12 and 13 of the re-
75 ceiver are arranged at right angles to each other, and at the point where the poles would meet, if extended, I locate a carrier-rod, 14, for carrying the armatures 15, 15', 16, and 16'
80 of said magnets. (The latter, 16', is not shown in the drawings.) The poles of said magnets are secured in position in the standards 17 by set-screws 18, and can be adjusted as may be
85 required, each pole being adjustable independently of the other.

The armatures 15 and 16 for the two mag-
90 nets 12 and 13 are separated from each other by a non-magnetic block, 19, the object of which is to prevent any influence being exercised by one magnet on the armature of the other, which would be the case were the two armatures formed in one piece or united by magnetic material—that is to say, if both magnets had one armature in common. The
95 armatures are united to the carrier-rod by set-screws 20, passing through the blocks 19. The armatures 15' and 16' are united to the armatures 15 and 16, respectively, by an iron rod or post, 21. This connection of the two arma-
100

tures of opposite polarity completes the magnetic circuit, and of course gives an increase of power. I have made the connection 21 with a screw-thread on its lower end, so that the parts connected can be adjusted nearer to or farther from each other. The carrier-rod 14 is reduced in thickness at 22, forming a spring, so that its armatures can easily and quickly respond to the varying attraction of the electro-magnets. The entire rod may be made of flexible material, if desired, or it may be pivoted; but in this case spiral or other springs will have to be used to keep the rod and armatures in their normal positions.

To steady the movements of the carrier-rod, I secure to it an arm or extension, 23, which dips into a liquid contained in a vessel, 24, adjustably mounted, through arm 27, on standard 25. This vessel has a depression, 26, in one side, extending a little beyond its center, so as to allow the carrier-rod 14 to occupy a central position in regard thereto, said rod carrying the extension 23, shaped, as shown, to correspond somewhat with the form of the vessel. This extension can be adjusted on the rod by means of the set-screw 27, so as to dip into the liquid more or less, as may be found necessary. The carrier-rod extends above the table 9 through an enlarged aperture, 28, in the same, and is bifurcated at its upper end, each bifurcation 29 being provided with a screw-bearing, 30, in which the pivot or shaft 31 of the counterweighted arm 32, carrying the receiving-pen 33, is mounted. The arm is weighted so that the pen shall bear only lightly on the paper. The said arm has a screw-threaded hole at its outer end, into which the receiving-pen is screwed. The pen illustrated is a reservoir or fountain pen of the stylographic kind; but an ordinary fountain-pen may be used if it is placed at an angle so as to pass freely over the paper.

The reel of paper used in the apparatus is contained in the receptacle 34, and as the paper 37 uncoils it passes from said receptacle under the receiving pen or stylus and between the feed-rolls 35 and 36 of the paper-feed mechanism whereby it is fed forward. With the exception of the arresting means hereinafter described, I do not claim any novelty in the said feed mechanism, and it will not, therefore, be necessary to describe the same herein.

The switch-lever 38 is shown in the drawings in its normal position, with the bell 39 in circuit. The said switch-lever is provided with two contact-makers, 40 and 41, for the two circuits of the instruments, and these contact-makers in the normal position of the switch-lever connect with binding-posts 42 and 43, which are joined by wires 44. (See Fig. 4.) The circuit in this case is from battery 45 to binding-post 46, thence by conductor 47, springs 48 49, conductor 50, bell electro-magnets 51, and conductor 52 to ground. When the circuit is made and broken by the push-button 53, which acts to sepa-

rate the springs when pressed, the bell is operated.

If it is desired to put the receiver only in circuit, the switch-lever is shifted to make contact with binding-posts 54 and 55. The circuits in this case will be from battery 45, switch-lever, binding-post 54, conductors 56 57, receiver-magnet 12, and conductors 58 59 to ground, and from battery 60, binding-post 61, switch-lever, binding-post 55, conductors 62 63, receiver-magnet 13, and conductors 64 59 to ground.

If it is desired to put both receiver and transmitter in circuit, the switch-lever is shifted until its contact-makers are in connection with binding posts 65 66. The circuits in this case are as follows: from battery 45, switch-lever, binding-post 65, conductors 67 68, pile of carbon disks 2, conductors 69 and 57, magnet 12, and conductors 58 and 59 to ground, and from battery 60, binding-post 61, switch-lever, binding-post 66, conductors 70 71, pile of carbon disks 1, conductors 72 63, receiver-magnet 13, and conductors 64 59 to ground.

Whenever both transmitter and receiver or receiver only are put in circuit, the clock-work escapement is automatically released, and this is accomplished as follows: The switch-lever carries a roller or projection, 73, which, when the lever is thrown into its normal position, rides over and depresses the outer end of brake-lever 74, pivoted at 75, causing its inner end to press firmly against the under side of ratchet-wheel 76 of the clock-work mechanism, thus preventing any movement of the paper. As the switch-lever is shifted to throw the receiver alone, or both receiver and transmitter, into circuit, the said projection of the switch-lever passes beyond the brake-lever, and the outer end of the latter is then thrown up by spring 77, leaving the clock-work mechanism free to move the paper.

It will be observed that the two circuits used are connected near the instruments and between the same and ground to one and the same ground-wire, and this is done, of course, both at the transmitting and receiving station.

It will also be observed that the poles of the two batteries in the two circuits are opposed to each other, the purpose of which is to secure a more regular action.

In an application filed by me April 28, 1886, Serial No. 200,412, I have described and claimed a liquid-containing receptacle and an armature or armatures immersed in the liquid. Such matter I do not desire to broadly claim in the present application.

Having thus described my invention, what I claim, and desire to secure by Letters Patent, is—

1. The combination, with two electro-magnets placed at an angle to each other, of an armature-carrier mounted to have a lateral motion and provided with magnetically-separate armatures for said electro-magnets, substantially as described.

2. The combination, with two electro-mag-

nets placed at an angle to each other, of an armature-carrier mounted to have a lateral motion and provided with magnetically-separate armatures arranged to overlap the poles of said magnets, substantially as shown and described.

3. An armature-carrier provided with two sets of magnetically-separate armatures, the armatures of one set being magnetically connected with those of the other, substantially as described.

4. An armature-carrier provided with two sets of magnetically-separate armatures, the armatures of one set being magnetically connected with those of the other by an adjustable connection, whereby the two sets can be adjusted nearer to or farther from each other, substantially as described.

5. An armature-carrier provided with magnetically-separate armatures secured to said carrier by a non-magnetic block and set-screw, substantially as described.

6. A flexible laterally-movable armature-carrying rod provided with magnetically-separate armatures, substantially as described.

7. A movable armature-carrier provided at its upper end with a stylus or pen pivoted thereto, substantially as described.

8. An armature-carrier provided at its upper end with an arm pivoted thereto and carrying a fountain-pen, substantially as described.

9. A movable armature-carrier provided with a counterbalanced stylus or pen pivoted thereto, substantially as described.

10. A movable armature-carrier provided at its upper end with an arm pivoted thereto, and having an opening and a stylus or pen secured in said opening, substantially as described.

11. An armature-carrier provided at its upper end with a bifurcated part, in combination with an arm pivoted to said part and carrying a pen or stylus at its outer end, substantially as described.

12. A movable armature-carrier provided with a projection, in combination with a vessel containing liquid in which said projection is arranged to dip, substantially as described.

13. An armature provided with a projection, in combination with a vessel containing liquid in which said projection is arranged to dip, substantially as described.

14. A movable armature-carrier provided with a projection, in combination with a vessel having a depression in its side, as described, to permit said armature carrier to occupy a central position, said projection being arranged to dip into a liquid contained in said vessel, substantially as described.

15. The combination, with two line-wires and receiving and transmitting instruments (which latter vary the current) included therein, the said line-wires being connected

at each end to a single ground-wire, of two batteries of equal power having poles opposed to each other, substantially as described.

16. The combination, with the paper-feed mechanism, of a brake-lever for arresting the action of said feed mechanism, and a switch-lever arranged to disengage said brake-lever when said switch-lever is shifted to put one or both instruments in circuit, substantially as described.

17. The combination, with the paper-feed mechanism, of a brake-lever for arresting said feed mechanism, a switch-lever provided with a projection for depressing said brake-lever, and a spring for returning the latter to operative position, substantially as described.

18. The combination, with two piles of carbon disks placed near and at an angle to each other, of a lever arranged to exert a pressure on either one or both of said piles according to the direction in which said lever is moved, substantially as described.

19. The combination, with two piles of carbon disks placed near and at an angle to each other, of a long lever arranged to exert a pressure near its pivot on either one or both of said piles, whereby the free end of said lever has a large field of motion and the hand of the operator is not cramped in its movement, substantially as described.

20. The combination, with two piles of carbon disks placed near and at an angle to each other, of a lever arranged to exert a pressure on either one or both of said piles according to its movements, a table provided with an opening through which said lever extends, and a holder for the hand of the operator, substantially as described.

21. The combination, with two piles of carbon disks placed near and at an angle to each other, of a lever arranged to exert a pressure on either one or both of said piles according to its movements, and a holder for the hand of the operator, substantially as described.

22. The combination, with two piles of carbon disks placed near and at an angle to each other, of a lever arranged to exert a pressure on either one or both of said piles according to its movements, and a holder for the hand of the operator universally pivoted to said lever, substantially as described.

23. The combination, with two piles of carbon disks placed near and at an angle to each other, of a lever arranged to exert a pressure on either one or both of said piles according to its movements, and strips of metal arranged between said lever and piles, to which the conductors are attached, substantially as described.

24. The combination, with two piles of carbon disks placed near and at an angle to each other, of a lever provided with pressure-points and arranged to exert a pressure on either one or both of said piles, and strips of metal ar-

ranged between said lever and piles for attachment of conductors, substantially as described.

25. The combination, with two piles of carbon disks placed near and at an angle to each other, of a lever universally pivoted at its lower end and arranged to exert a pressure on either one or both of said carbon piles, according to

its movements, at points between its pivot and free end, substantially as described. 10

In testimony whereof I have hereunto subscribed my name.

JAMES H. ROBERTSON.

Witnesses:

U. H. RUFF,
PATK. DUNN.