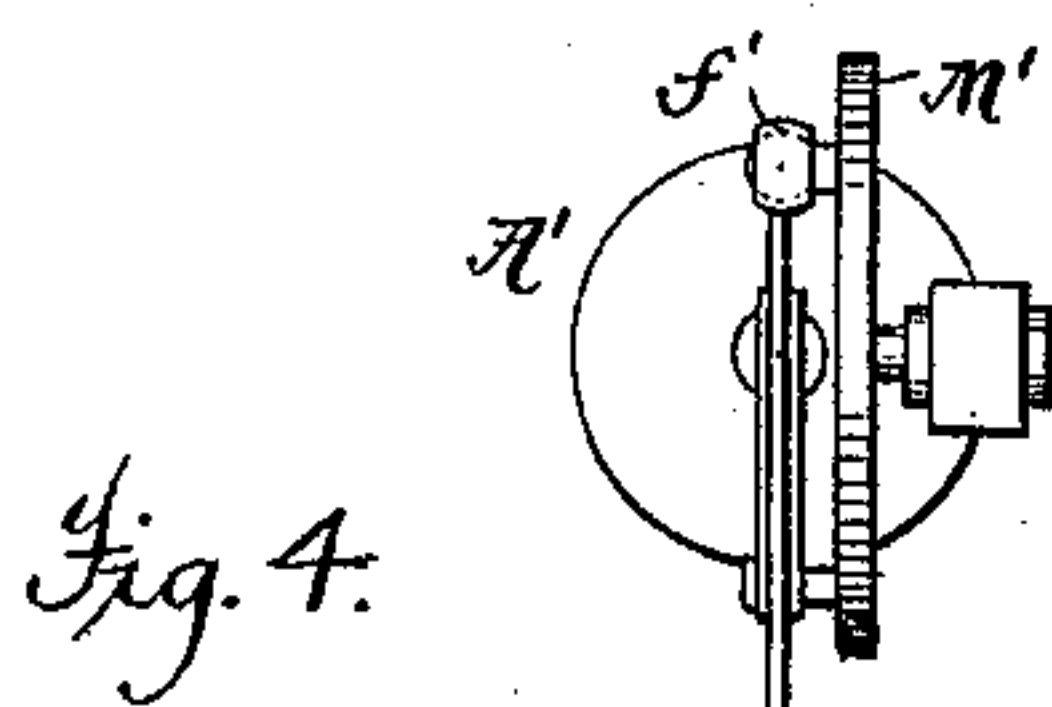
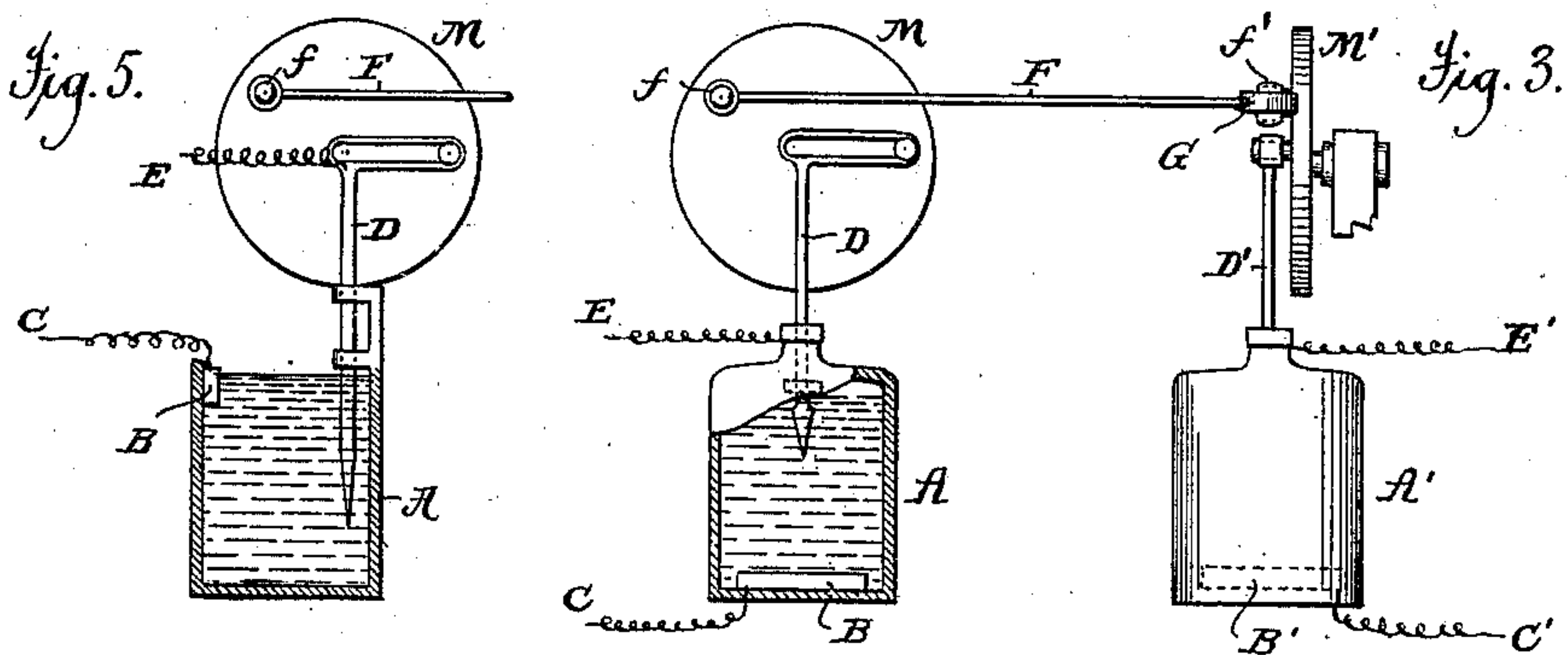
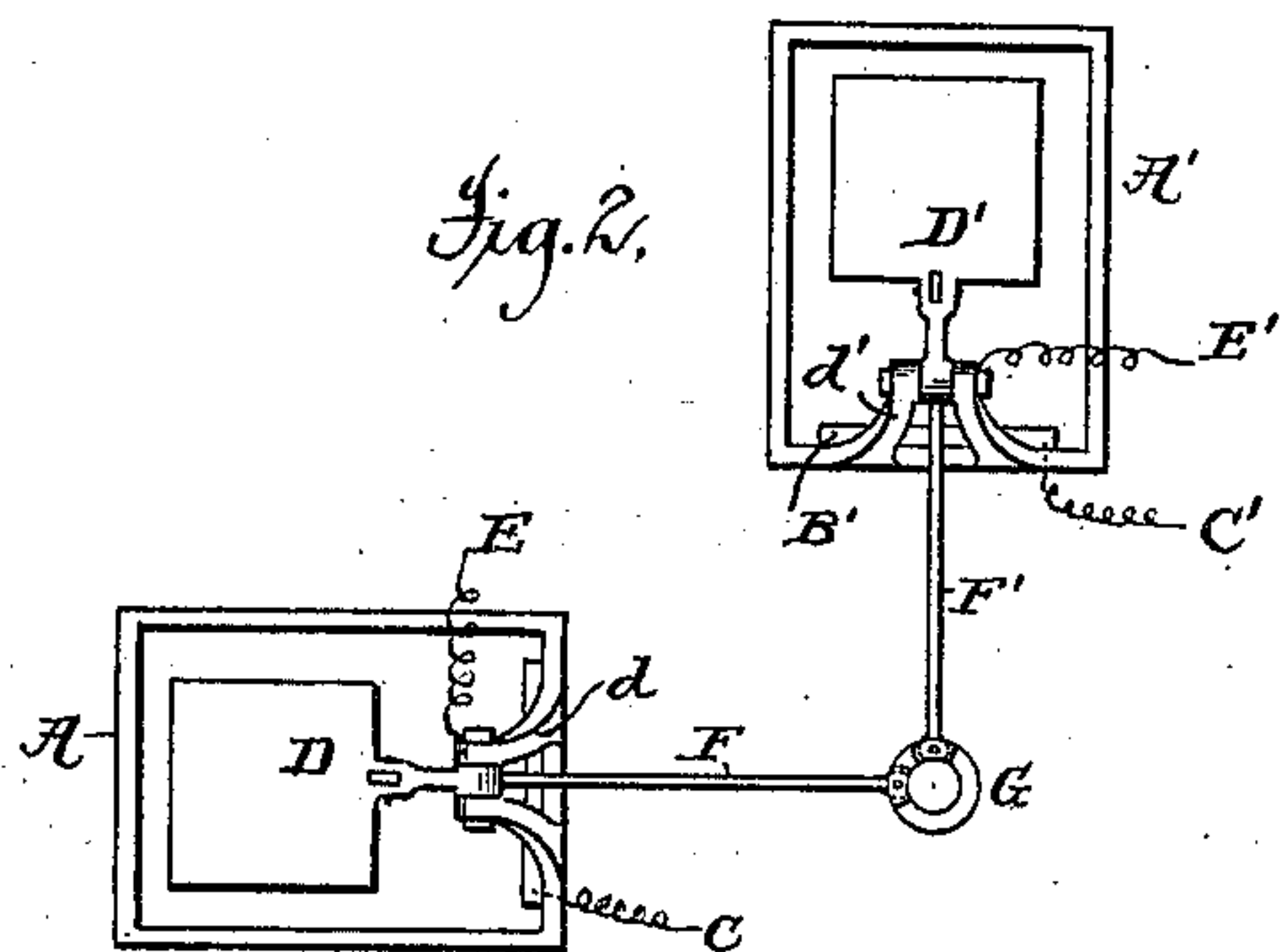
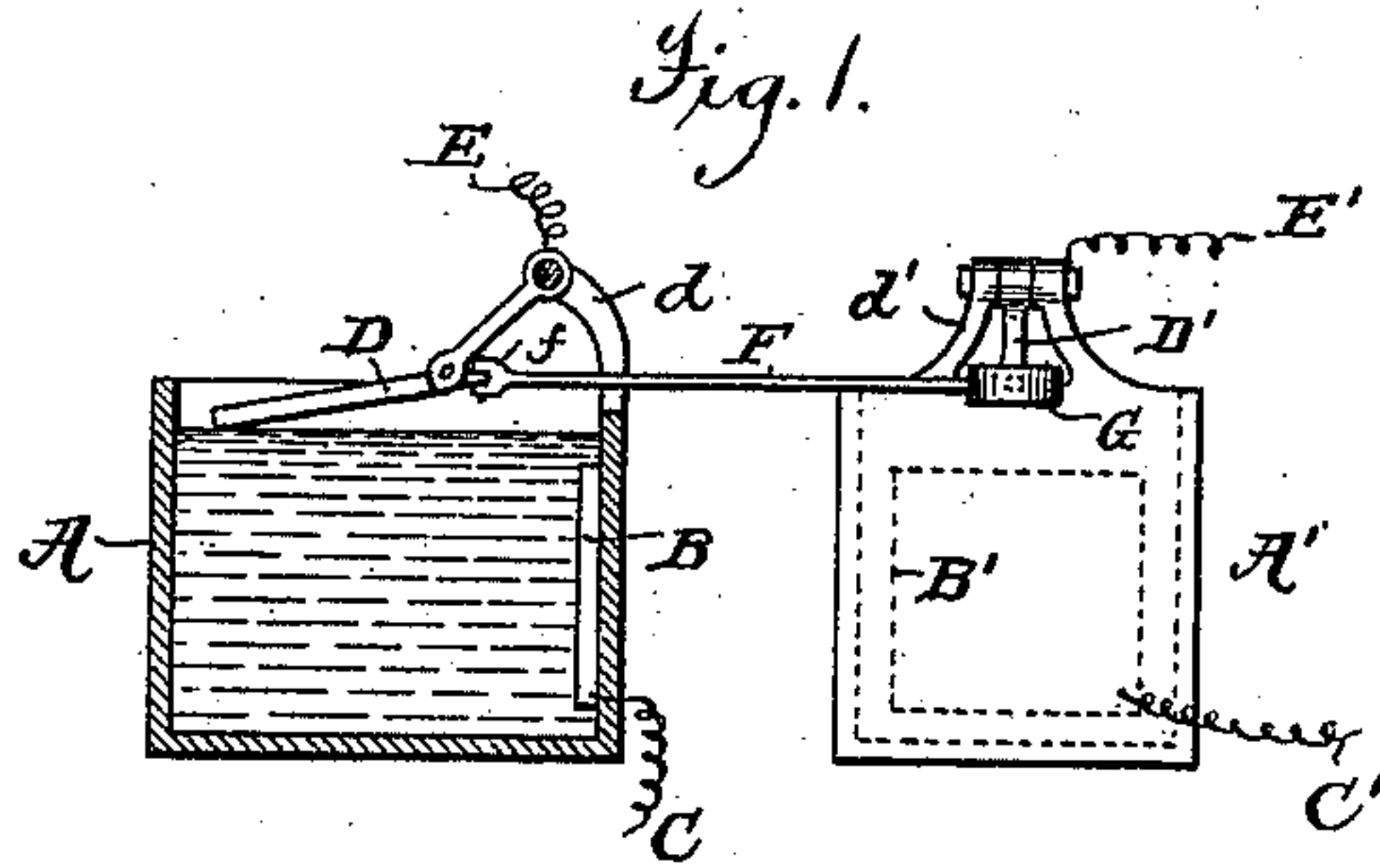


(No Model.)

J. H. ROBERTSON.
AUTOGRAPHIC TELEGRAPH.

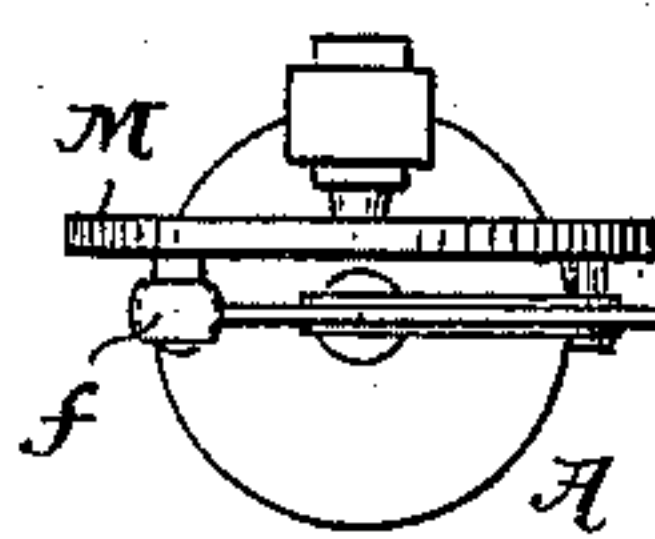
No. 357,038.

Patented Feb. 1, 1887.



Attest:
Geo. H. Graham
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Inventor:



James H. Robertson
per
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Atty's.

UNITED STATES PATENT OFFICE.

JAMES H. ROBERTSON, OF RUTHERFORD, NEW JERSEY.

AUTOGRAPHIC TELEGRAPH.

SPECIFICATION forming part of Letters Patent No. 357,038, dated February 1, 1887.

Application filed September 13, 1886. Serial No. 213,387. (No model.)

To all whom it may concern:

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

In a former application filed by me at the United States Patent Office September 18, 1885, Serial No. 177,435, I have described means for varying the current in an electric circuit in autographic telegraphs, in which the strength of the current is altered by varying the pressure on a pile of carbon disks included in the circuit, the strength of the current being gradually changed. The extent of surface of the disks in contact is governed in that case by the varying pressure brought to bear upon them, and the resistance is varied accordingly. In the invention herein described the same effect is obtained by immersing one electrode to a greater or less extent in a liquid constituting part of the other electrode; also, in addition, by the electrodes being brought nearer to or farther away from each other.

My invention consists in the construction and arrangements of parts, hereinafter described and claimed, and illustrated in the accompanying drawings, in which—

Figure 1 is a side view of my invention, partly in section. Fig. 2 is a plan view thereof. Fig. 3 is one form of the modification. Fig. 4 is a plan view thereof, and Fig. 5 is another modification.

The transmitting-instrument embraces in its construction two receptacles, A A', containing a liquid. The latter consists of water, which may be acidulated or have mingled therewith carbon or other conducting powder. Almost any liquid may be used. If the liquid consists of a material of high resistance, it is an advantage to mix with it some substance, liquid or otherwise, of higher conductivity. By so doing the power of the battery will not be wasted in overcoming a great deal of useless resistance and traveling through a large space unnecessarily for a small result. In the case of some liquids used for insulating purposes—such as paraffine-oil, shellac, &c.—they would have to be largely mingled with better conducting material to get any result.

Referring to Figs. 1 and 2, within each re-

ceptacle A A' is located a plate, B B', of platina or other good conducting material, connected by wires C C' with a battery. (Not shown.) The electrodes D D' are each pivoted to a projection, d d', or other suitable support, so as to swing into the liquid toward and away from the plate B B'. Conductors E E' extend from the electrodes D D' and connect with the electro-magnets of the receiving-instrument. (Not shown.) The electrodes D D' are operated by rods F F', connected thereto by universal joints f f', and pivoted in a socket to a ring, G, which serves as a holder for a stylus, or may be directly moved by hand, as in former application referred to. The universal joint f f' permits of a variation of the movement of the rod F F' in addition to the two sliding directions in which the rods move at an angle to each other. The socketed connections with the ring G also aid in these movements. By this construction the electrodes D D' are gradually immersed in the liquid and the resistance varied accordingly. It will be observed, also, that the resistance will be further increased or decreased as the electrodes D D' are moved farther from or nearer to the plates B B'. Instead of the universal joint f f', the rods F F' may be made flexible and the same result obtained.

In the modification in Figs. 3 and 4 the electrodes D D' move vertically in the receptacles A A', and are immersed in the liquid and moved toward and away from the plate B B' of platina or other material. Wires C C' E E' form the connections for the circuit, as in the preceding example. The electrodes D D' may be operated by any suitable mechanism. In this case they are shown connected to an oscillating disk, M M', in turn connected with the stylus or holder G by rods F F', attached thereto by universal joints f f'.

In the modification in Fig. 5 the electrode D moves vertically and is gradually immersed in the liquid in the receptacle A on the side farthest from the plate B, of platina or other material. The parts are duplicated and operated and the circuit formed as in the other examples. In this case, however, the electrode does not approach the plate, as in the former cases.

What I claim, and desire to secure by Letters Patent, is—

1. In autographic telegraphs, the combination, with a receptacle containing a liquid forming an electrode, of an adjustable electrode immersed in the liquid and means for moving or adjusting said movable electrode by the hand of the writer, substantially as described. 5
2. In an autographic telegraph, the combination, with a stylus or holder, of a receptacle containing a liquid included in an electric circuit, a movable electrode arranged therein, and connections between said holder and movable electrode, so arranged that the movements of the former may cause the latter to be more or less immersed in said liquid, substantially as described. 10 15
3. In an autographic telegraph, the combination, with a receptacle containing a liquid, of an electrode arranged to be immersed in the same, a stylus or holder, and connections between said electrode and holder, substantially as described. 20
4. In an autographic telegraph, the combination, with two receptacles containing a liquid, of a stylus or holder and connections between said holder and receptacle, so arranged that the movements of the holder will cause the electrode to be more or less immersed in the liquid, substantially as described. 25
5. In an autographic telegraph, the combination, with two receptacles containing a liquid, of two electrodes arranged to be gradually immersed in the same, a stylus or holder, and connections between said electrodes and holder, substantially as described. 30
6. In an autographic telegraph, the combination, with a receptacle containing a liquid forming an electrode in an electric circuit, of a pivoted arm forming an electrode and immersed in the liquid, and a rod connecting said arm with a stylus or holder, substantially as described. 35 40
7. In an autographic telegraph, the combination, with two receptacles containing a liquid and forming electrodes in an electric circuit, of two pivoted arms forming electrodes immersed in the liquid, and two rods connecting said arms with a stylus or holder, substantially as described. 45

In testimony whereof I have hereunto subscribed my name.

JAS. H. ROBERTSON.

Witnesses:

ROBERT JACKSON,
RICHARD G. BABBAGE.