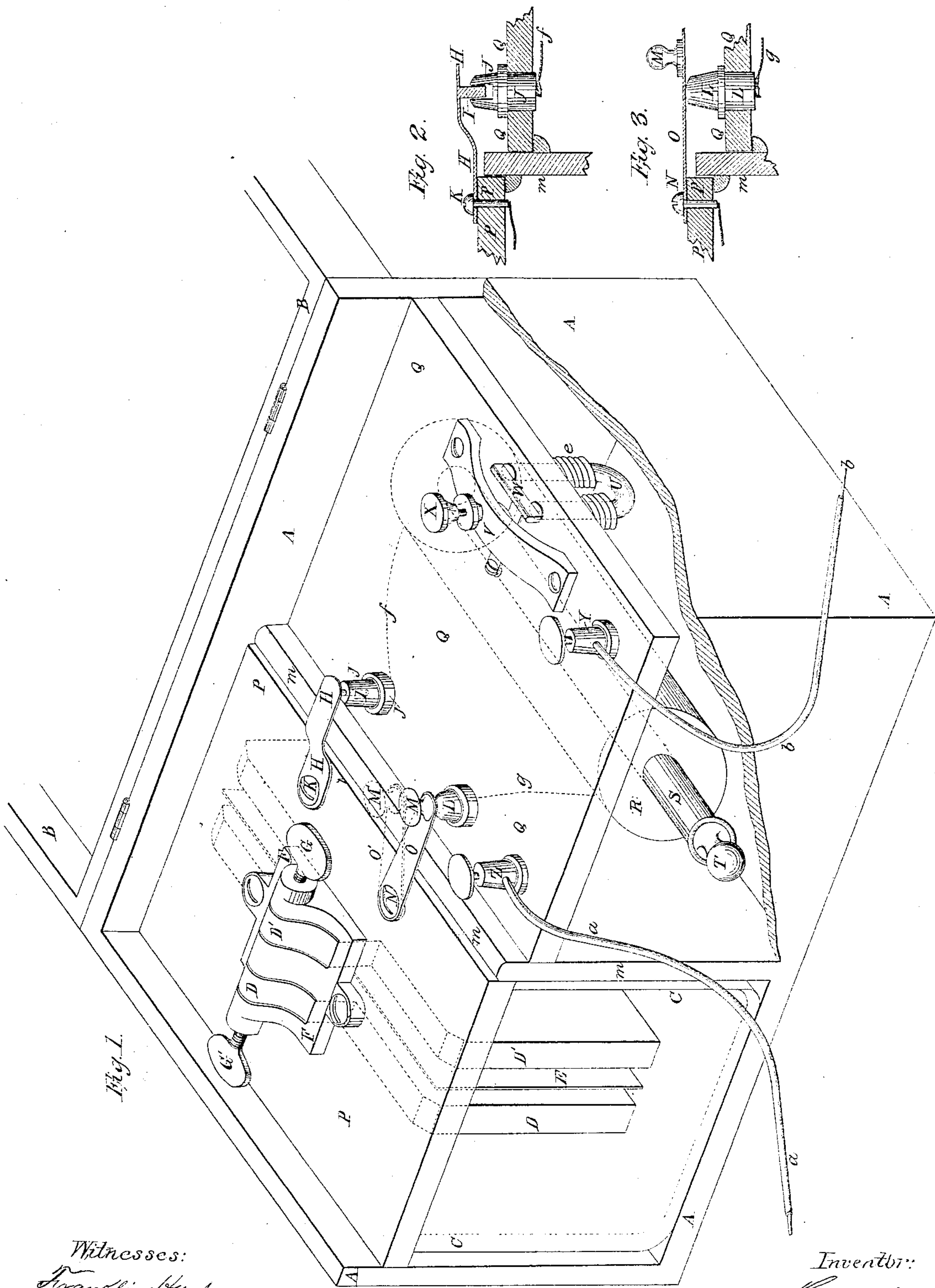


T. HALL.
ELECTRO MAGNETIC MACHINE.

No. 24,459.

Patented June 21, 1859.



Witnesses:
Franklin Hunt
Sam^l Betchelder

Inventor:
Thomas Hall

UNITED STATES PATENT OFFICE.

THOMAS HALL, OF BOSTON, MASSACHUSETTS.

IMPROVED ELECTRO-MAGNETIC MACHINE.

Specification forming part of Letters Patent No. 24,459, dated June 21, 1859.

To all whom it may concern:

Be it known that I, THOMAS HALL, of Boston, in the county of Suffolk and State of Massachusetts, have invented an Improvement in Electro-Magnetic Machines; and I do hereby declare that the following is a full and exact description thereof, reference being had to the accompanying drawings, and to the letters and figures marked thereon.

Figure I is a perspective view of the instrument; Fig. II, a vertical section of the spring-connection; Fig. III, a vertical section of the switch-connection.

The letters refer to the same parts in all of the figures.

My improvement in electro-magnetic machines for medical purposes relates solely to the connection of the battery and the machine by means of an elastic bar or spring and the movable or switch connection by which the machine is started or stopped at pleasure, both the battery and the machine being inclosed in the same box.

The box A is provided with a hinged cover, B, and when closed the only parts in sight are the wires *a b* and the knob T. The box is divided into two compartments by the partition *m*, in one of which the battery is placed, and the other contains the machine. I refer to these several parts merely to indicate their position, as my improvement does not relate to the wire helix, the magnet and its vibrating armature, or to the conditions of their mechanical action.

The zinc plates of the battery are seen at D D', and the intermediate platina plate at E. These are suspended from the movable board P by the binding-screws and clamps G G' F. The other compartment of the box A contains the machine (so called) of the usual construction, consisting of the wire helix R, its central iron wires, S, the magnet U, surrounded by the coils *e*, the vibrating armature W, the position of which is adjusted by the screw X, passing through the stirrup V, and the terminal wires *a b*, attached to the screw-cups *r y*.

The positive and negative wires of the battery are placed below the board P, and are respectively connected with the screws K and N in contact with the brass spring-bar H and the brass switch O M, which thus become the poles of the battery, and are both of such length as to project from one edge of the board P across the partition *m*, their free ends being about half an inch above the board Q. Upon this board and passing through the same are the connecting-studs L and J. In the center of the latter is a small hole to receive the metallic pin or stud I, which projects downward from the end of the spring-bar H. The other stud, L, is rounded at the top, so that the switch O M may be readily thrown on and off, as required. The course of one of the currents from the battery is through the spring H, its pin I, the stud J, and the wire *f*. The other current passes through the switch O M, the stud L, and the wire *g*. To break the circuit, the switch is thrown off from the stud L to the position shown by the lines O' M' in Fig. I. When the bottom board, P, is put in place, the pin enters the hole in the stud J and bears firmly upon it, making a perfect connection, and the switch O M rests in close contact with the stud L, thus dispensing with the common wire and screw-cup connections and allowing the top boards, P and Q, to be taken up and replaced, without the inconvenience attending the use of screws and connecting-wires.

What I claim is—

The combination of the spring connecting-bar H and the switch O, placed between the machine and the battery and operating with reference to each other, substantially as herein described.

THOMAS HALL. [L. S.]

In presence of—

SAML. BATCHELDER, Jr.,
FRANKLIN HUNT.