

C. DURANT.

Electro-Magnetic Relay Instrument.

No. 84,806.

Patented Dec. 18, 1868.

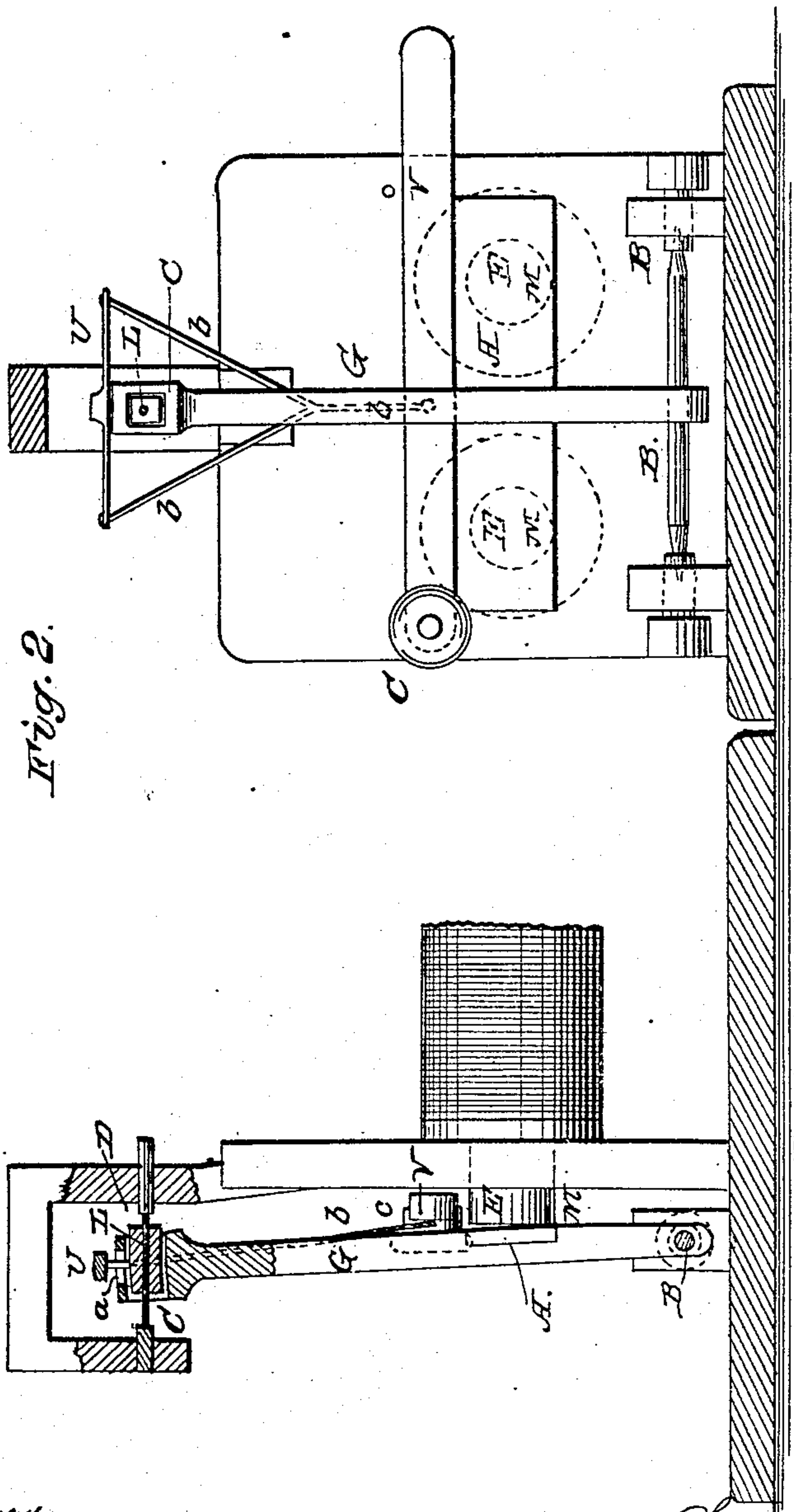


Fig. 1.

Fig. 2.

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CHARLES DURANT, OF JERSEY CITY, NEW JERSEY.

Letters Patent No. 84,806, dated December 8, 1868.

IMPROVEMENT IN ELECTRO-MAGNETIC RELAY-INSTRUMENT.

The Schedule referred to in these Letters Patent and making part of the same.

To all whom it may concern:

Be it known that I, CHARLES DURANT, of Jersey City, in the county of Hudson, and State of New Jersey, have invented a new and useful Improvement in the Electro-Magnetic Relay-Machine; and I do hereby declare that the following is a full, clear, and exact description thereof, which will enable those skilled in the art to make and use the same, reference being had to the accompanying drawings, forming part of this specification.

This invention relates to a new and improved electro-magnetic relay-machine, used in operating the electro-magnetic telegraph, and is an improvement on a machine for that purpose which was invented by me, and assigned to George F. Durant, and a patent issued therefor, dated May 19, 1868.

My improvement consists, first, in shaping the shifting or sliding bolt (which rests and moves through and upon the armature or armature-lever) in the form of the arc or curve described by the armature or armature-lever, (when in operation,) at the opening therein through which it is intended said bolt shall move and operate; and also in shaping the opening in the armature or armature-lever in the same curve or arc, for the reception of said sliding bolt, that a greater or less movement of the armature or armature-lever, incident to the varying strength of the electric current, will no longer cause an oscillating movement of the bolt, sufficient to throw the machine out of adjustment, as in the original device, but will allow it to operate in still wider range, from feeble to strong electric currents and escapes, than hitherto.

My improvement consists, secondly, in producing and graduating friction on the shifting or sliding bolt, (which rests and moves through and upon the armature or armature-lever,) by means of a spring or springs, either fastened directly to said bolt, through a cut or slot in the top of the armature or armature-lever, and connected, by means of cord or wire, with an adjustable friction-lever, for regulating its pressure, or fastened, and the pressure on the bolt graduated in any other equivalent or more convenient manner, for the purpose of shutting out "induction," or, in other words, for the purpose of confining the working or operating of the relay-machine to the one strong electric current used by the operator in telegraphing, to the exclusion of or shutting out of the various weaker and constantly-changing electric currents passing over the same wire, which would otherwise tend greatly to impair the proper working of the instrument, the disturbing effects of "induction" being more or less noticeable on the ordinary relay-machines at all times, when working on the present poorly-insulated telegraph-lines, but particularly in rainy or foggy weather.

In the accompanying sheet of drawings—

Figure 1 is a side view of a portion of an electro-magnetic relay-machine, showing my invention partly in section.

Figure 2 is an end view of the same.

Similar letters of reference indicate corresponding parts.

To enable those skilled in the art to make and use my invention, I will describe its construction and operation, thus:

Fig. 1 shows the armature A, (or armature-lever,) on axle or pivots at B, and impinging against the edges of the magnet-cores E E, at the points M M, which serve as a fulcrum to convert the armature or armature-lever into an efficient and only spring for recoil on opening of the circuit, and the armature or armature-lever G, sustaining the curved shifting or sliding bolt L, which rests upon it, and is allowed to move through the curved opening, C, in the arc of a circle, (the centre of which, in this case, is in the middle of a line drawn between the points of impingement, M M,) whilst operating the local circuit at D, and the spring U, fastened or screwed to the shifting or sliding bolt L, through the slot or cut, a, in the top of the armature or armature-lever G, and connected, by means of the cord or wire, b, with the lever V, which is made adjustable, and held in any desired place within the scope of its movement, by means of the friction produced thereon by the screw-nut c and spring-washer.

Fig. 2 shows the armature A, or armature-lever, on axle or pivots at B B, and impinging against the edges of magnet-cores E E, at the points M M, which serve as a fulcrum to convert the armature or armature-lever into an efficient and only spring for recoil on breaking of the circuit, and the armature or armature-lever G, sustaining the curved shifting or sliding bolt L, which rests upon it, and is allowed to move through the curved opening, C, in the arc of a circle, (the centre of which, in this case, is in the middle of a line drawn between the points of impingement, M M,) whilst operating the local circuit, and the spring U, fastened or screwed to the shifting or sliding bolt L, and attached, by means of the cord or wire, b, to the lever V, which is rendered adjustable, and held in any desired place within the scope of its movement, by means of the friction produced thereon when the screw-nut c is properly screwed up.

On depressing the lever V to any desired point, it is held there, as before explained, and produces its proportionate amount of friction on the shifting, or sliding bolt L, thus enabling only a proportionately-strong electric current to operate the machine.

On lifting up the lever V, it is held there in the same manner, and relieves the shifting or sliding bolt L of all friction, except that due to its own weight, thereby rendering the instrument very sensitive to all electric currents.

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

1. The curving of the shifting or sliding bolt L, and also the curving of the opening in the armature or armature-lever, through which opening said bolt moves and operates, substantially as and for the purpose herein shown and described.

2. The spring U, in combination with the adjustable lever V, or its equivalent, applied to the shifting or sliding bolt L, moving through and upon the armature or armature-lever, substantially as and for the purpose set forth.

CHARLES DURANT.

Witnesses:

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