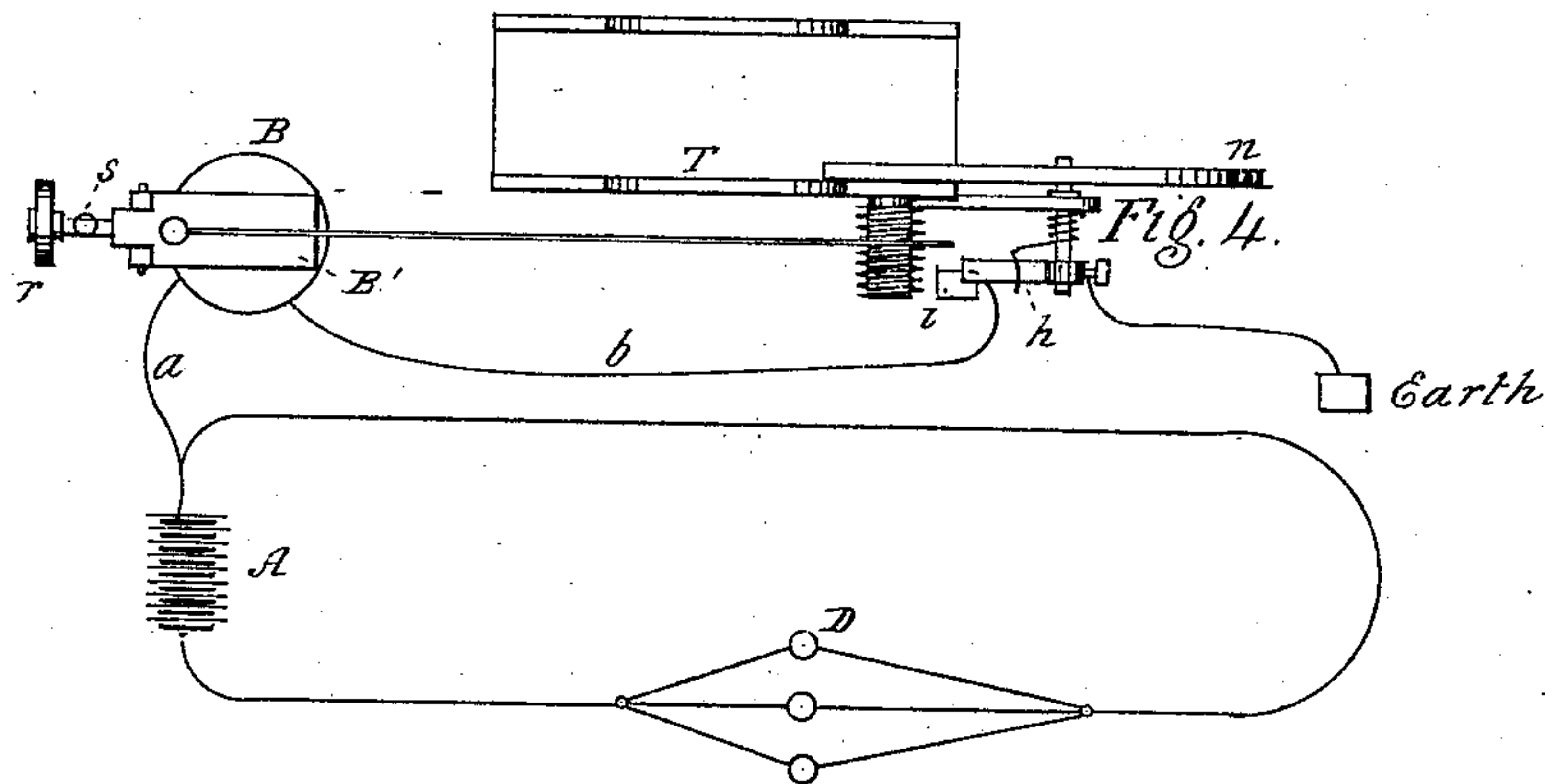
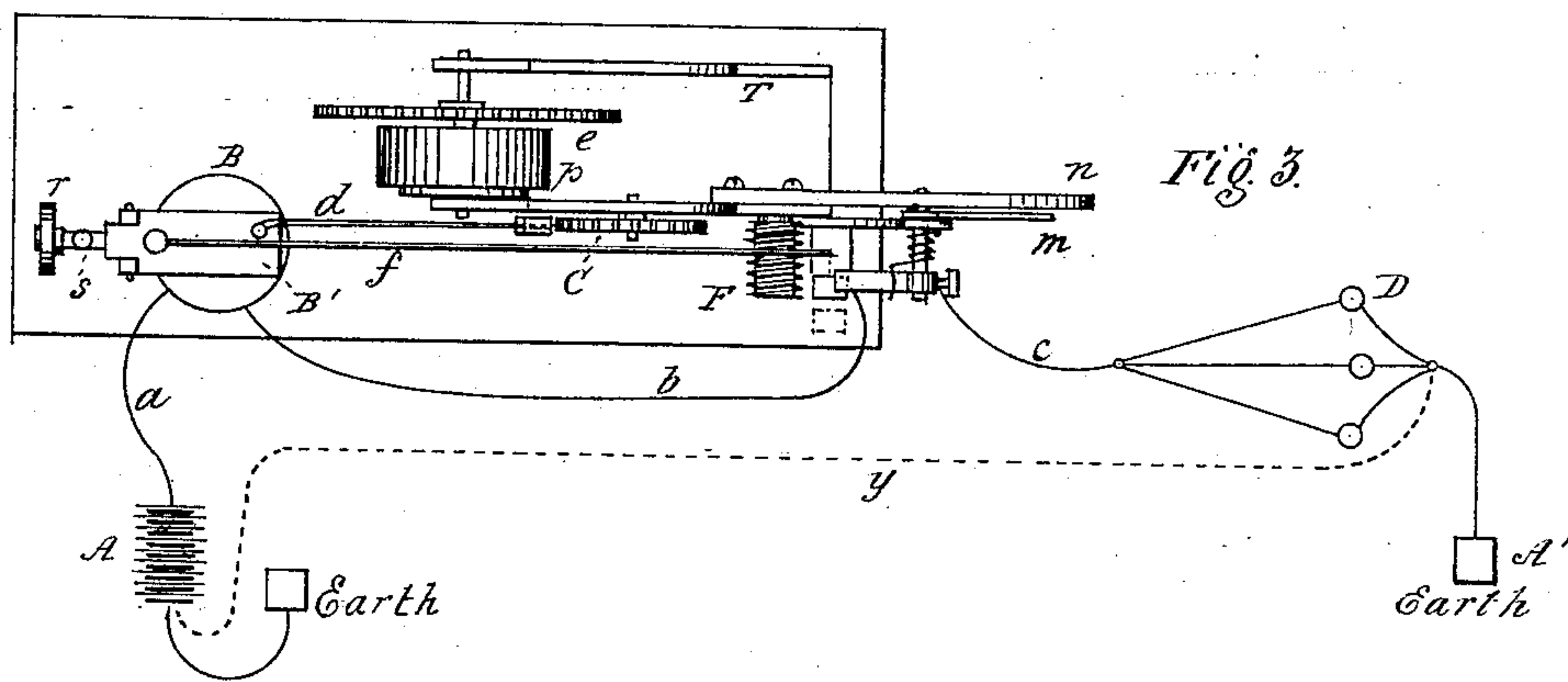
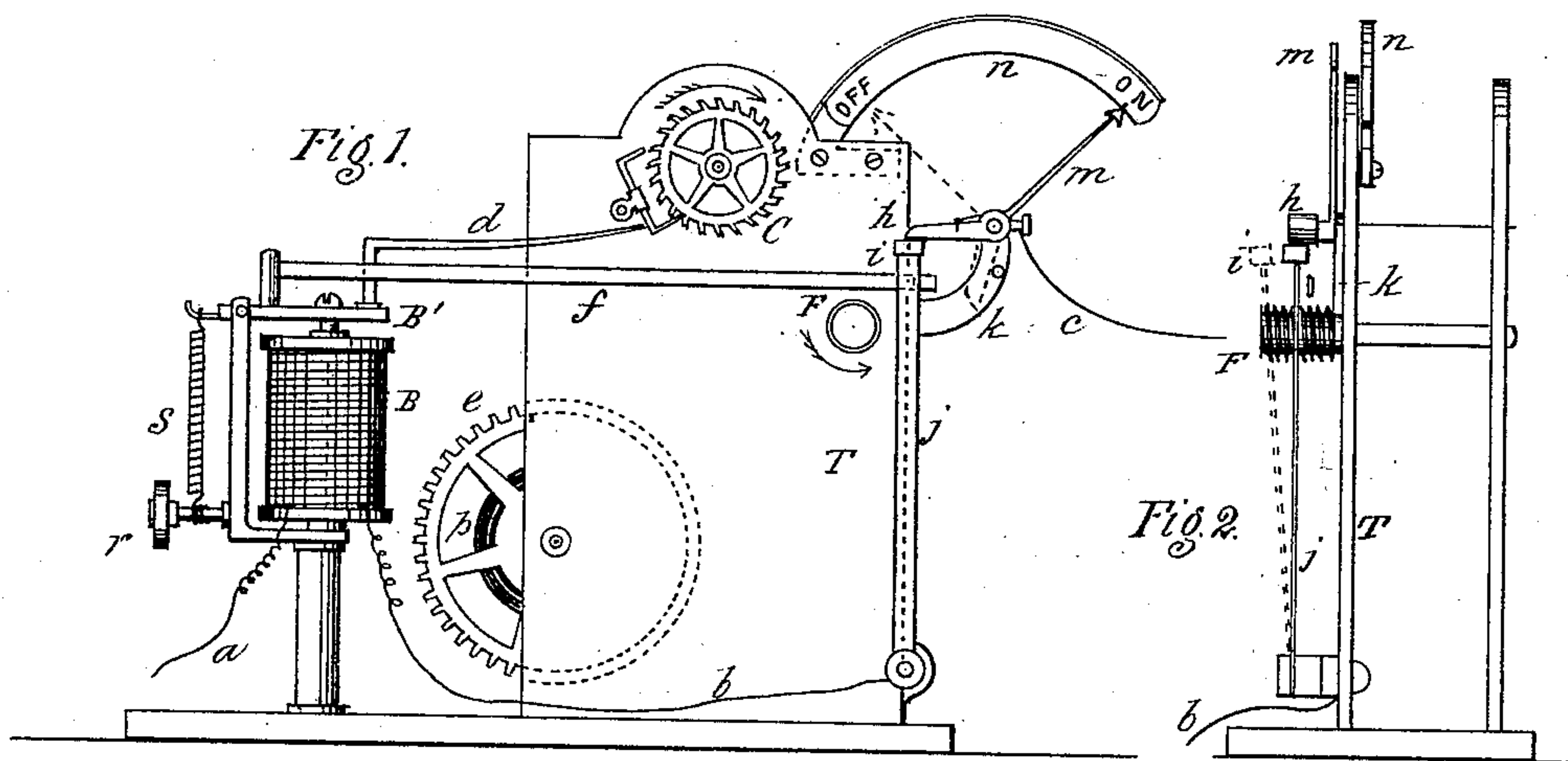


(No Model.)

A. L. BOGART.
ELECTRIC CIRCUIT CUT-OUT.

No. 279,634.

Patented June 19, 1883.



Witnesses:

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ELECTRIC-CIRCUIT CUT-OUT.

SPECIFICATION forming part of Letters Patent No. 279,634, dated June 19, 1883.

Application filed January 17, 1883. (No model.)

To all whom it may concern:

Be it known that I, A. LIVINGSTON BOGART, a citizen of the United States, residing at Jamaica, in the county of Queens and State of New York, have invented an Improvement in Electric-Circuit Cut-Offs; and I hereby declare the following to be a full, clear, and exact description thereof, reference being had to the accompanying drawings, which form a part of this specification.

This invention relates to improvements in the construction of electric-circuit cut-offs for the purpose of cutting off or detaching from the battery a circuit that may accidentally or otherwise become closed and remain closed for more than a certain length of time, the same being designed to be used in electrical apparatus for various purposes, in which the circuits are intended to be closed for use during short intervals of time only.

My improved mechanism may be used in connection with either a metallic or a ground return. It is chiefly intended to be employed in open-circuit work for the purpose of preventing injury to the battery by an undue consumption of its elements, but is also applicable to closed circuits as a safety device for preventing grounds or short-circuiting. In the latter case it is employed to cut off the battery from a circuit in the event of accidental short-circuiting, or in cases where a metallic circuit is used to cut off the battery whenever a circuit becomes grounded; and the object of the invention is to simplify the construction of the mechanism and to render it very certain and effective in its operation.

In a former application for Letters Patent for an electric-circuit cut-off I have shown and claimed improved mechanism which is adapted for use where two or more circuits are operated by the same battery; but my present invention may be (and is chiefly designed to be) used where only one circuit is employed, although it may be used with advantage where several circuits are operated by the same battery.

The invention consists in certain novel constructions and combinations of parts in an electric-circuit cut-off, hereinafter particularly described, whereby the said objects and purposes may be effected.

In the accompanying drawings, Figure 1 represents a side elevation of my improved cut-off mechanism; Fig. 2, an end elevation with parts left off; Fig. 3, a plan view; and Fig. 4 is a diagram of circuits, hereinafter explained.

The mechanism and devices which constitute my invention are placed at any convenient point between the battery from which the circuit or circuits is or are supplied and the instrument or instruments which are operated by said circuits.

A may represent an ordinary battery for operating one or more circuits, and B an ordinary magnet connected with said battery by a wire, *a*, and with the frame T of the cut-off instrument by a wire, *b*. A line-wire, *c*, connects said frame T with the instrument or instruments D, operated by the circuit or circuits. In the drawings three of such instruments are shown, but one or more may be used at pleasure. When the cut-off mechanism is used in connection with an open-circuit battery, the line-wire or line-wires may be grounded, as at A', or, if desired, a return-wire (represented by the dotted line *y* in Fig. 3) may be used.

s is the usual retracting-spring attached to the armature B'.

My improved mechanism is constructed as follows:

C is an anchor-escapement, having bearings in the frame T of the instrument, and rotated by means of a spring-driven wheel, *e*, through the medium of a suitable train of gearing, or by other suitable means.

Attached to the armature B' is an arm or rod, *d*, the outer end of which presses against the anchor of the escapement-wheel and prevents the latter from rotating so long as the armature is not attracted by the magnet, but is freed from contact therewith whenever the armature is attracted.

F is a cylinder or roller, having screw-threads formed on its outer surface, and which has bearings in the frame of the instrument. This screw F is rotated through the medium of a suitable train of gearing by the wheel *e* whenever the escapement is released by the descent of the armature B'. A spring-rod, *f*, is secured to the armature B' and extends over

and above the screw F, and is brought into contact therewith whenever the armature is attracted; but while the latter is passive it is lifted thereby out of contact with said screw.

5 *h* is a drop-lever pivoted to an insulated arm, *k*, or other suitable support, attached to the frame T, to the heel of which said lever the line-wire *c* is secured, and the free end of said arm *k* rests upon a projection, *i*, at the
10 upper end of a spring-rod, *j*, the lower end of the latter being secured to the frame T of the instrument.

The operation is as follows, (reference being had to Figs. 1, 2, and 3:) The circuit or cir-
15 cuits being normally open and the instrument set with the lever *h* resting upon the projection *i*, as shown in Fig. 1, no current will pass through the instrument or its magnet B; but whenever the line-wire (or one of the line
20 wires) is grounded or the circuit closed between the instrument and the return, said instrument and its magnet will be brought into circuit, and the armature will then be attracted and the rod *d* released from the escapement,
25 and the escapement-wheel and also the screw F will be rotated, and the rod *f*, being brought by the descent of the armature into contact with said screw, will be carried along the threads of the latter until its outer end pushes
30 the projection *i* from under the lever *h*, which latter will then drop, and thereby cut off the line-wire or line-wires from the battery.

m is a pointer or index attached to or arranged to move with the lever *h*, and which
35 traverses a plate, *n*, and constitutes an indicator for the purpose of giving notice to the person in charge whenever the instrument has been set in motion by the closing of a circuit and has been kept in motion for the length of
40 time necessary for the rod *f* to remain in contact with the screw F before the projection *i* is pushed from under the lever *h*; or, in other words, to indicate that the main circuit has been cut off.

45 I do not confine myself to the exact form of break device just described (namely, the lever *h* and rod *j*) for the purpose of disconnecting the main circuit, as it is obvious that the same may be modified without departing from the
50 principle of my invention; and I may also state that the escapement C may be dispensed with; but in that case the instrument would need to be wound up more frequently, as the unwinding of the spring *p* would be continu-
55 ous. The trains of gearing are not shown in the drawings, it being deemed unnecessary to do so.

When my improved mechanism is used on closed circuits to guard against short-circuiting, which would reduce the resistance of the
60 lines, no change in the construction of the same is necessary; but the armature B' is simply adjusted by means of the retracting-spring *s* and adjusting-screw *r*, so that the normal
65 amount of current passing through the magnet B will not be sufficient to cause it to attract the armature, and consequently the armature will only be attracted (to set the instrument in motion) by reason of the increase
70 of current through the magnet resulting from the decrease of resistance of the line or lines when short-circuited or grounded. This adjustment is effected by simply increasing the tension of the spring *s* to the requisite degree
75 by turning the screw *r*.

The diagram marked Fig. 4 represents my improved cut-off mechanism as applied to prevent grounds on metallic circuits, which may be either open or closed circuits. In this case,
80 also, no change in the construction of the mechanism is needed, and, inasmuch as the circuits can readily be traced on the diagram, it is not deemed necessary to enter into a fuller description thereof.

I do not claim, broadly, a cut-off mechanism
85 whereby a circuit is cut off from the battery at the expiration of a certain length of time after it has been closed or grounded.

What I claim as my invention is—

1. In an electric-circuit cut-off, the combination of the rod *f*, secured to the armature
90 B', as described, the screw F, rod *j*, provided with the projection *i*, and drop-lever or disconnecting device *h*, to which the line-wire *c* is attached, as shown and described.

2. In an electric-circuit cut-off, the combination of the armature B', provided with the
95 rods *f* and *d*, the screw F, escapement C, rod *j*, provided with the projection *i*, and the drop-lever or disconnecting device *h*, to which the line-wire *c* is attached, all as herein shown and described.

3. The combination herein shown and described of the indicator *m*, drop-lever or disconnecting device *h*, rod *j*, provided with the
105 projection *i*, rod *f*, and screw F, as and for the purpose set forth.

A. LIVINGSTON BOGART.

Witnesses:

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