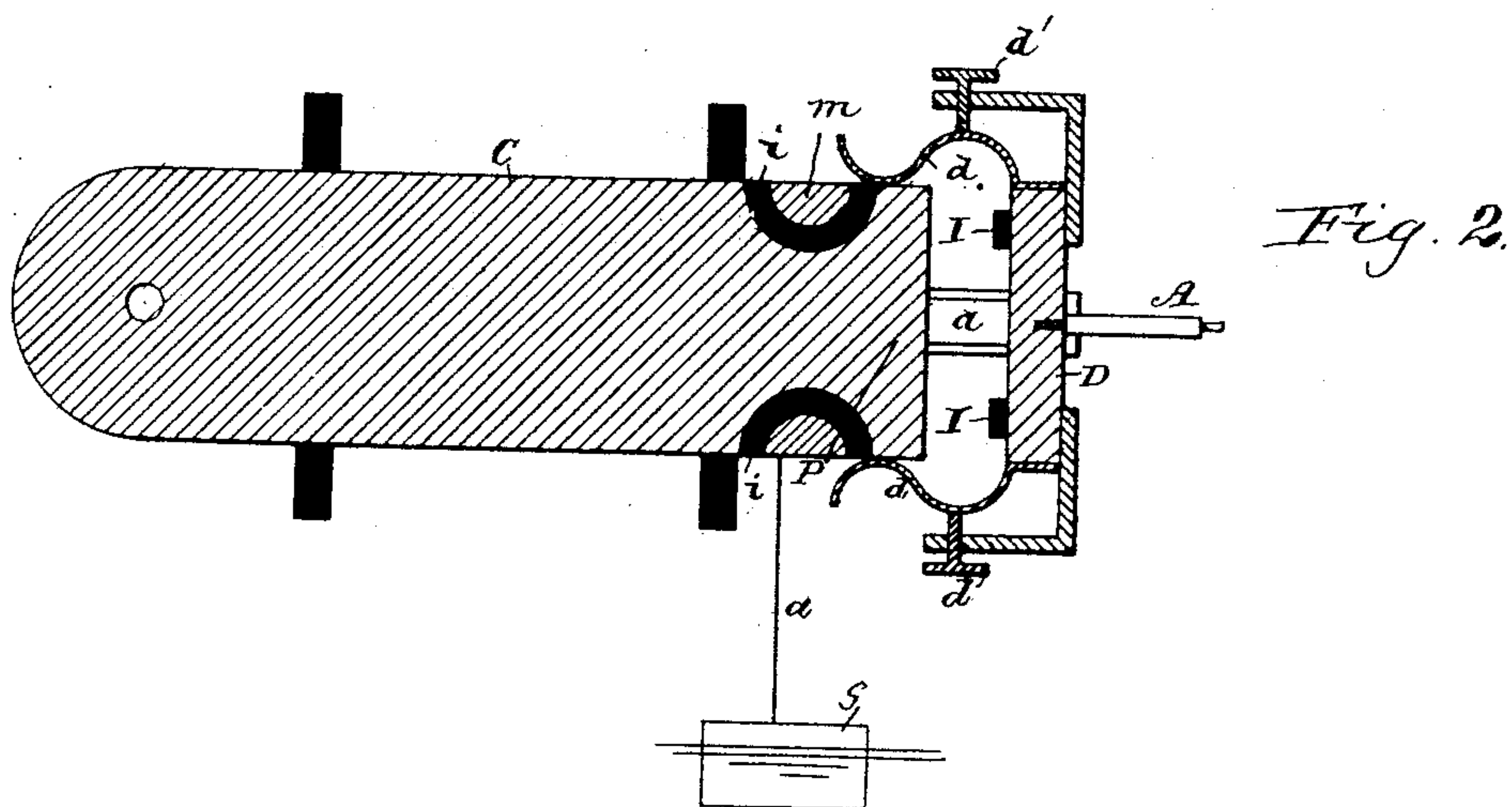
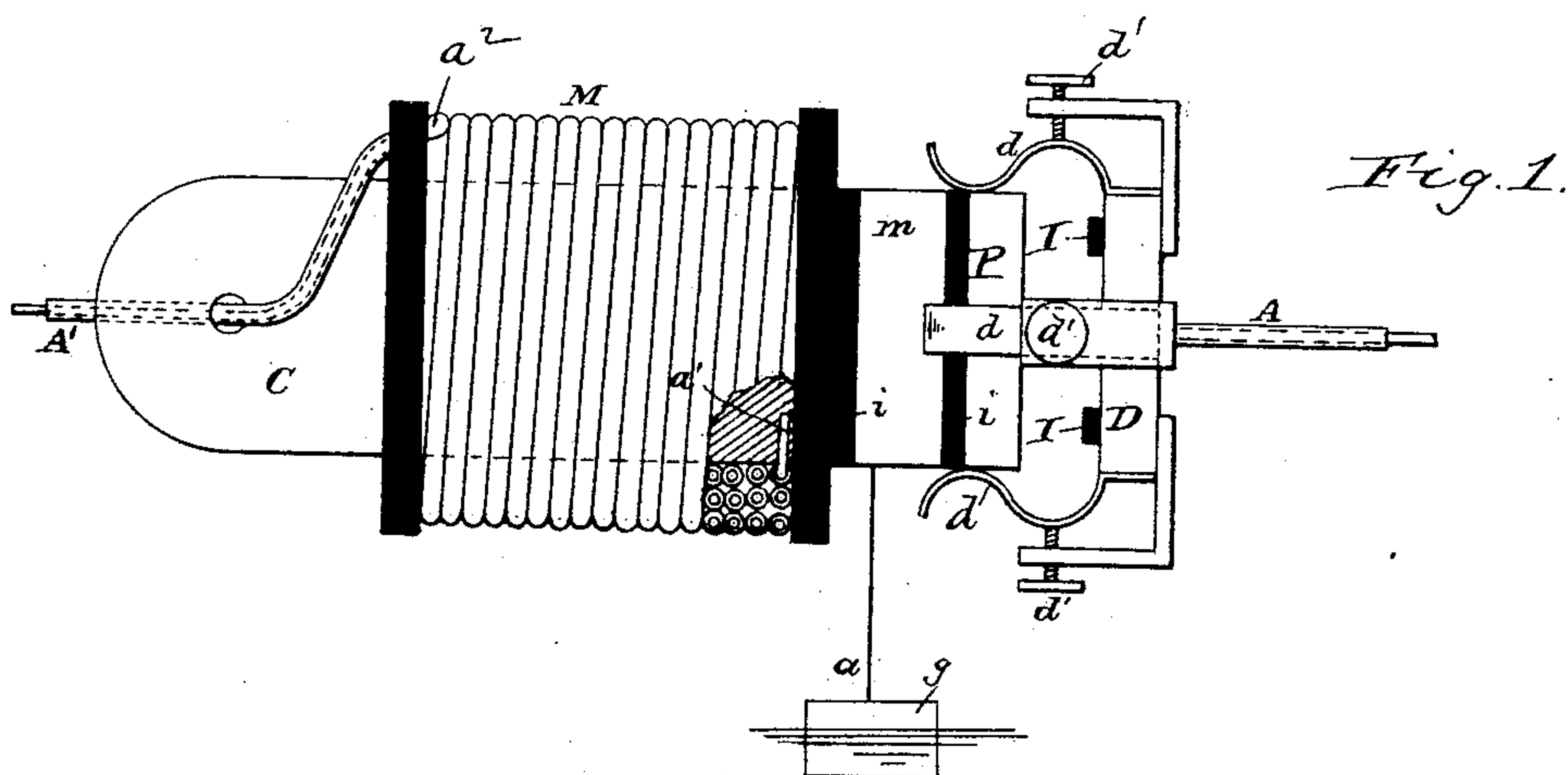


(No Model.)

M. THUM.
CIRCUIT CONTROLLING DEVICE.

No. 473,595.

Patented Apr. 26, 1892.



Witnesses:
John Chambers
M. M. Thum

Inventor:
Maudville Thum,
by H. N. Low
attorney.

UNITED STATES PATENT OFFICE.

MANDEVILLE THUM, OF LOUISVILLE, KENTUCKY.

CIRCUIT-CONTROLLING DEVICE.

SPECIFICATION forming part of Letters Patent No. 473,595, dated April 26, 1892.

Application filed June 5, 1891. Serial No. 395,265. (No model.)

To all whom it may concern:

Be it known that I, MANDEVILLE THUM, a citizen of the United States, residing at Louisville, in the county of Jefferson and State of Kentucky, have invented certain new and useful Improvements in Circuit-Controlling Devices, of which the following is a specification.

My present invention relates to circuit-controlling devices by which, upon the current in the circuit exceeding a certain predetermined or normal amount, a change will be effected in said circuit or in another circuit. Such change may consist of a break in the circuit, a partial interruption of it, or the substitution therein of branch or other conducting devices.

My invention consists in a magnetic core having an electric contact or contact portion carried by or formed with the core, a helix surrounding the core and connected with the contact, and an armature having a contact adapted to bear upon said first-mentioned contact and to be separated therefrom upon the movement of the armature toward this core.

My invention also consists in the parts and combinations thereof, hereinafter set forth and claimed.

In order to make my invention more clearly understood, I have shown in the accompanying drawings means for carrying the same into practical effect without, however, limiting the application of the improvements to the constructions which for the sake of illustration I have delineated.

In said drawings, Figure 1 is a view of a circuit-controlling device embodying my invention. Fig. 2 is a sectional view of the same.

Referring to the drawings, C is the core, as at a' , and M the helix of an electro-magnet, one end of the helix being electrically connected with the core and the other end a^2 being adapted to be joined to the conductor A' of a circuit A A'. At m the core is provided with an insulated portion, which is separated from the rest of the core by an insulating material i , and at P' is provided with a contact portion. The part m may be entirely of insulating material; but I prefer to form it of conducting material, as shown, in the form of a ring surrounding the core and adapted to be connected with a conductor a .

D is an armature situated within the sphere of attraction of the core C and movably supported by suitable means, in this instance by springs d , which are secured to the armature and grasp the core. Said springs form electrical contacts adapted to bear upon the contact portion P of the core, as shown in the drawings, or upon the ring m , according to the position of the armature.

I indicates an insulating stop or stops interposed between the armature and the core and adapted to arrest the movement of the former toward the core, so that the springs d will rest upon the ring m and the springs and armature be insulated from the core.

The circuit the augmentation of whose current is to operate the armature is indicated at A A', the former end being connected electrically with the springs d , as through the armature, and the latter end being electrically connected with the core through the helix M. Upon the energization or abnormal energization of the core C by occurrence or augmentation of the electric current in the circuit A M A' the armature D will approach the core and the contacts d be separated from the contact P and caused to touch the part m . The current through A A' will thus be interrupted. If the conductor a be employed and grounded at g or otherwise connected, the augmented current from A will pass to said conductor a and thence to the ground or to whatever instrument the latter conductor is connected with. The tension of the springs d is of the proper degree to hold the armature in place with such tightness that it will not be moved by the normal attraction of the magnet, but will be permitted to move under the attraction caused by an abnormal increase of current in the circuit.

It will be understood that my invention contemplates the substitution of another magnet for the armature, the magnets being arranged with their ends of opposite polarity abutting.

The tension of the springs d may be regulated to the desired degree by screws d' , mounted in bearings on the armature and engaging said springs. By turning the screws inward the springs will be caused to grasp the core more firmly, and a greater attractive force in the latter will be necessary to break the circuit.

What I claim is—

1. The combination, with a magnetic core, of a contact portion carried by said core, a helix electrically connected with said contact
5 and surrounding the core, and an armature having a contact normally bearing upon said contact portion and which when in such position permits the movement of the armature toward the core for the purpose of separating
10 said contacts, substantially as set forth.

2. The combination, with a magnetic core, of a helix electrically connected therewith, a contact portion carried by the core, an armature having a contact adapted to bear upon
15 said contact portion and movable toward the core, means for resisting the normal attractive force exerted upon the armature, and an insulation adapted to receive the armature-contact when the latter is moved toward the core,
20 substantially as set forth.

3. The combination, with a magnetic core, of a helix electrically connected therewith, a

contact portion carried by the core, an armature having a contact adapted to bear upon said contact portion and movable toward the
25 core, means for resisting the normal attractive force exerted upon the armature, an insulated contact adapted to receive the armature-contact when the latter is moved toward the core, and a conductor extending from said insulated
30 contact, substantially as set forth.

4. The combination, with a magnetic core, of a helix, a contact carried thereby, a helix surrounding the core and connected with said
35 contact, and an armature provided with spring contact-arms adapted to grasp the core, substantially as set forth.

In testimony whereof I hereunto set my hand in the presence of two witnesses.

MANDEVILLE THUM.

Witnesses:

H. N. LOW,

WILLIAM L. ALLEN.