

No. 678,069.

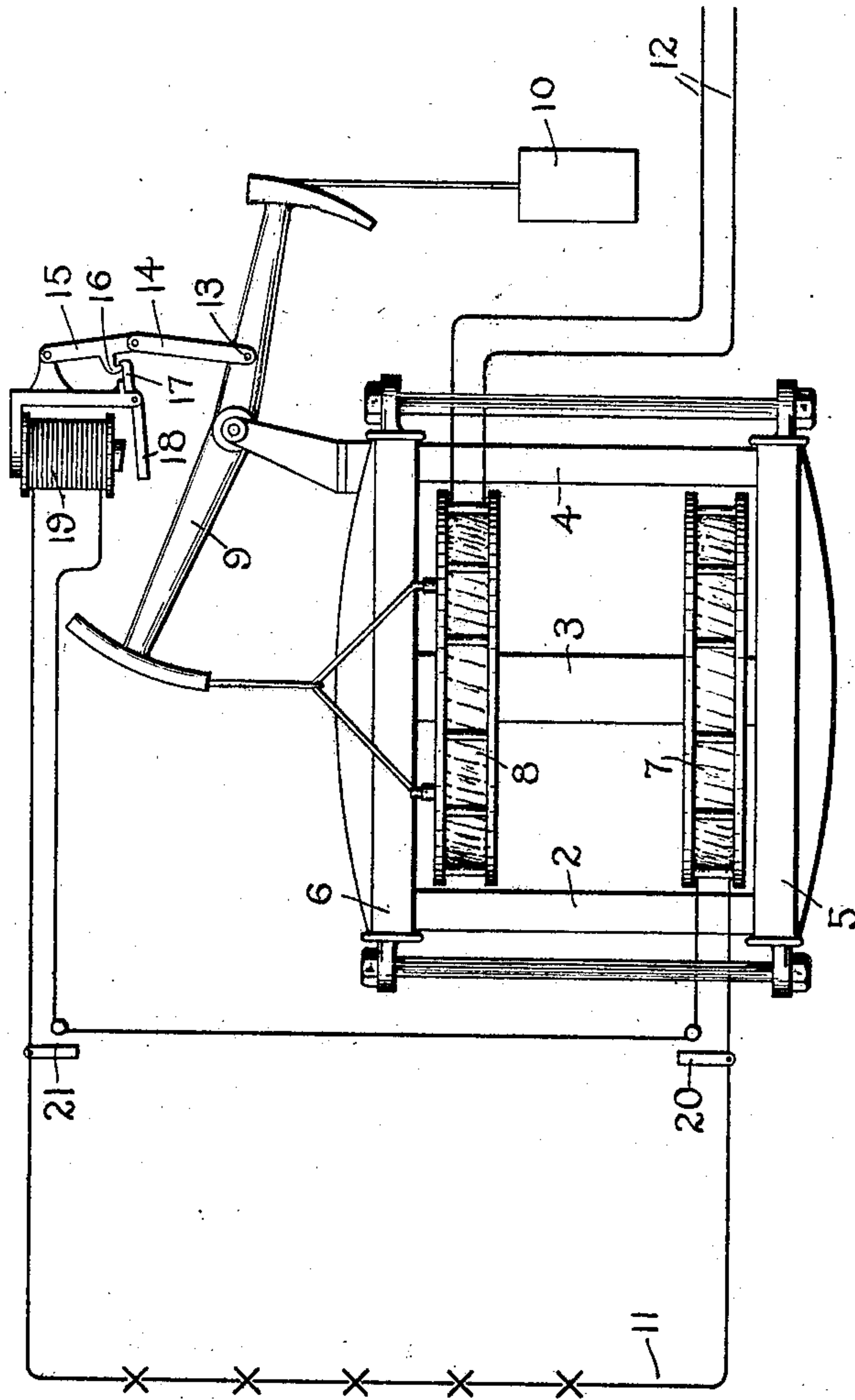
Patented July 9, 1901.

C. H. VAN SLYCK.

STARTING DEVICE FOR CONSTANT CURRENT APPARATUS.

(Application filed May 9, 1901.)

(No Model.)



Witnesses.

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UNITED STATES PATENT OFFICE.

CHARLES H. VAN SLYCK, OF NEW YORK, N. Y., ASSIGNOR TO GENERAL ELECTRIC COMPANY, OF NEW YORK.

STARTING DEVICE FOR CONSTANT-CURRENT APPARATUS.

SPECIFICATION forming part of Letters Patent No. 678,069, dated July 9, 1901.

Application filed May 9, 1901. Serial No. 59,380. (No model.)

To all whom it may concern:

Be it known that I, CHARLES H. VAN SLYCK, a citizen of the United States, residing in the city, county, and State of New York, have invented certain new and useful Improvements in Starting Devices for Constant-Current Apparatus, (Docket No. 1,745,) of which the following is a specification.

In the practical operation of constant-current-regulating devices, such as constant-current transformers or constant-current reactive coils, in which the regulation is effected through the movement of a coil or coils, it is desirable when starting that the parts should be in the position corresponding to no load, because when in this position the rush of current at starting is a minimum and the consequent strain on the apparatus much less than if the parts were in the position corresponding to full load.

My present invention comprises means whereby constant-current-regulating apparatus of the types mentioned may be conveniently started in the manner described, the arrangement being such that the whole operation may be controlled either from the switchboard or from any other convenient point.

In carrying my invention into practice I provide a magnetically-controlled latch which when the parts of the mechanism to be controlled come into no-load position serves to lock the parts in this position, the latch being controlled by a switch located, as before mentioned, at some suitable point.

For a better understanding of my invention reference is to be had to the following description, taken in connection with the accompanying drawing, which represents in diagram one embodiment of my invention.

The scope of the invention is more particularly pointed out in the claims appended hereto.

Referring to the drawing, 1 indicates a constant-current transformer representing one of the various regulating devices to which my invention may be applied. The transformer in the present instance consists of a three-legged core having the legs 2, 3, and 4 joined by end pieces 5 6 in a well-known manner, the central leg 3 serving as a common return

for the outside legs 2 and 4. Two coils 7 8 are mounted so as to surround the central core 3, the coil 7 in this case being shown as fixed and the coil 8 as connected to a counterbalancing-lever 9. The weight 10, attached to the outer end of the lever 9, is proportioned so as only to partially counterbalance the weight of coil 8 and parts connected thereto. The repulsion between the currents in the coils 7 and 8 serves to overcome that portion of the weight not counterbalanced and causes the coils to separate. The movable coil in a manner well understood automatically adjusts its position so as to preserve a substantially constant current in the secondary circuit 11, fed from the coil 7, the coil 8 being represented in this case at the primary coil receiving current through the leads 12, connected to any suitable source of current. To the outer arm of the lever 9 is pivoted at 13 one of two jointed links 14 and 15. The link 15 is provided with a catch 16, the downwardly-projecting end of which is arranged so as to engage a latch 17, controlled by the armature 18 of an electromagnet 19.

When the coils 7 and 8 of the transformer are separated from each other as widely as possible, this wide separation corresponding to the position of no load, the relative position of the parts of the mechanism will be about as indicated in the drawing, in which the outer end of the lever 9 has moved downward, thereby causing the catch 16 to be moved inward and into engagement with the latch 17. A convenient means for automatically causing the parts to move into this position may consist of a short-circuiting device, such as the switch 20, for short-circuiting the secondary winding 7. Just before shutting down the transformer the switch 20 may temporarily be moved into the short-circuiting position, thereby causing a maximum repulsion of the coils 7 and 8 and a consequent engagement between the catch 16 and the latch 17. Upon next starting up the transformer by turning on the current in the primary circuit the parts of the transformer will be in a position least likely to cause a resulting undesirable rush of current. As soon as current has been turned on in the primary circuit 12 current flows in the secondary circuit 11 and through

the magnet 19 in series therewith, thereby causing an attraction of the armature 18 and a release of the lever 9, which thereupon allows the movable coil 8 to move into a position corresponding to the load on the secondary circuit. If desired, a short-circuiting switch 21 may be used to control the action of the magnet 19, this switch being opened when it is desired that the magnet shall operate and closed when it is desired that the magnet shall be inoperative. The switch 21 permits the magnet 19 to be controlled at will so long as current is flowing in the secondary circuit.

What I claim as new, and desire to secure by Letters Patent of the United States, is—

1. The combination with a constant-current-regulating device having a movable member, of an electromagnetically-controlled locking device for said member.
2. The combination with a constant-current-regulating device provided with a movable member, of a locking device for securing said member in one of its extreme positions of movement.
3. The combination with a constant-current transformer having relatively movable members, of an electromagnetically-controlled locking device for one of said members.

4. The combination with a constant-current-regulating apparatus having a movable member, of a latch for locking said member in one of its extreme positions of movement, and magnetic means for controlling said latch.

5. The combination with a constant-current-regulating apparatus having a movable member, of a locking device for said member, and means controlled by current flowing in said regulating apparatus for actuating said locking device.

6. The combination of a constant-current transformer having a movable member, a locking device for said member, a magnet in operative relation to said locking device, and means for causing current from the secondary of said transformer to pass through the winding of said magnet.

7. The combination of a constant-current transformer, means for locking the parts in a position corresponding to no load, and means controllable at will for unlocking said parts.

In witness whereof I have hereunto set my hand this 6th day of May, 1901.

CHARLES H. VAN SLYCK. [L. S.]

Witnesses:

THOMAS K. HENDERSON,
HAYGARTH LEONARD.