G. W. HAMILTON.

AUTOMOTONEER.

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1,036,836.

Patented Aug. 27, 1912.

Fig. 1.

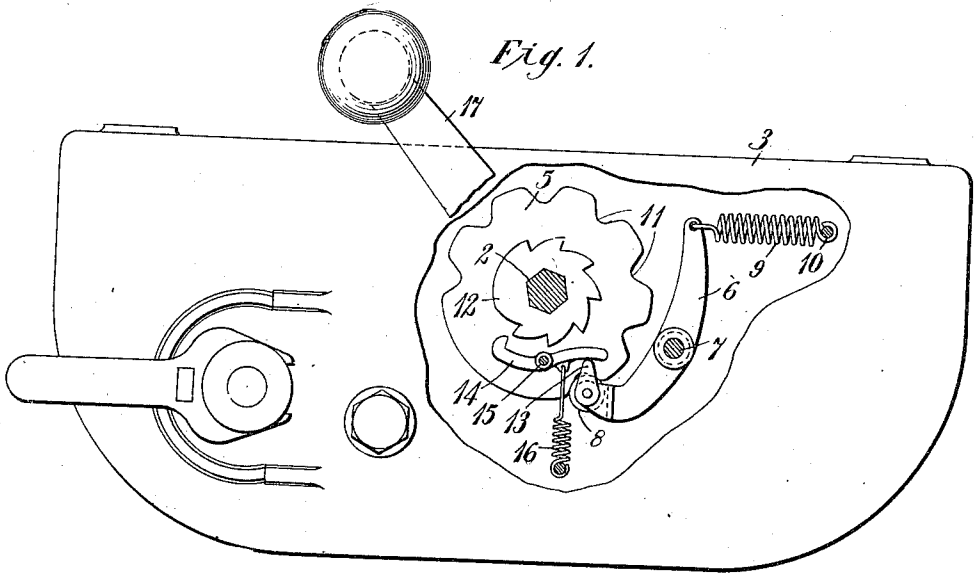
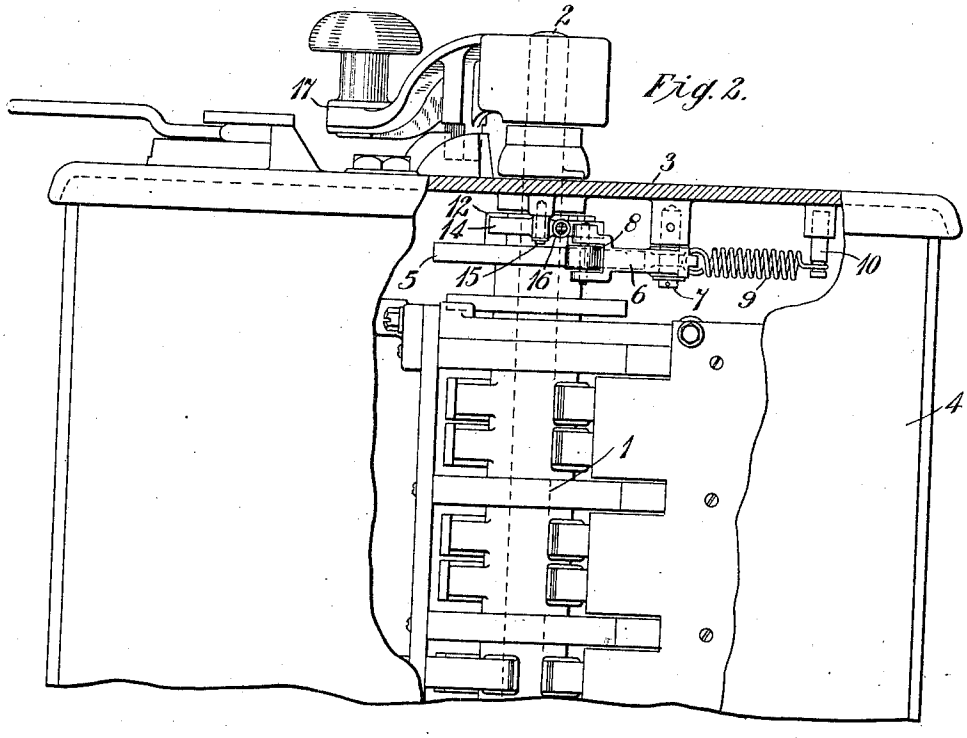


Fig. 2.



WITNESSES:

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GEORGE W. HAMILTON, OF EDGEWOOD PARK, PENNSYLVANIA, ASSIGNOR TO WESTINGHOUSE ELECTRIC AND MANUFACTURING COMPANY, A CORPORATION OF PENNSYLVANIA.

AUTOMOTONEER.

1,036,850. Specification of Letters Patent. Patented Aug. 27, 1912.

Application filed December 26, 1911. Serial No. 667,915.

To all whom it may concern:

Be it known that I, GEORGE W. HAMILTON, a citizen of the United States, and a resident of Edgewood Park, in the county of Allegheny and State of Pennsylvania, have invented a new and useful Improvement in Automotoneers, of which the following is a specification.

My invention relates to controllers for electric motors and it has special reference to such controllers as are manually operated and are adapted to occupy a plurality of positions.

The object of my invention is to provide a particularly simple and durable mechanical attachment for control apparatus of the class above indicated that shall so coöperate with the parts of standard controllers as to delay the operation of such controllers and so prevent injuring the motor or motors governed by them.

Various mechanical attachments have heretofore been proposed for introducing a time element between successive notches of a manually operated controller, but many of them have the disadvantage of requiring considerable additional effort on the part of the attendant, while others are unsightly or ineffective.

According to my present invention, I provide a simple mechanism which is dependent upon the accentuating pawl settling fully into the notches in the surface of the star wheel or cam with which it is adapted to engage.

Figure 1 of the accompanying drawing is a plan view, with a portion of the cover removed, and Fig. 2 is a partial elevation of a controller embodying my invention.

Referring to the drawings, the usual contact-bearing drum 1, of a controller, is provided with a shaft 2 and is rotatively mounted in suitable bearings provided in a base (not shown) and in a cover 3 which forms a part of a casing 4. An accentuating cam or star wheel 5 is secured to the shaft 2 at the upper end of the drum within the casing and a pawl 6, which is pivotally supported upon a pin 7 projecting downwardly from the cover 3, is provided with a roller 8 to engage the periphery of the star wheel 5. A spring 9 is stretched between a pin 10 and one end of the pawl 6 to force the roller 8 into engagement with the notches 11 of the star wheel. A ratchet wheel 12 is also secured to the shaft 2 and is located directly above the cam or star wheel 5. One arm of the pawl 6, which is bifurcated to receive the roller 8, is provided with a projection 13 to engage the tail of a latch 14 when the roller is in any one of the notches 11. The latch 14 is pivotally supported upon a pin 15 and its front or hook end is forced inwardly by a spring 16 to engage one of the teeth of the ratchet, when not held out of such engagement by the projection 13.

The arrangement of parts is such that, at each position of the controller, the drum is locked against further forward rotation by the latch 14 until the roller 8 settles into the notch 11 of the star wheel that corresponds to the position occupied by the controller. If a careless or ignorant operator attempts to rotate the control drum too rapidly by means of the control handle 17, the roller 8 will obviously not have time to go to the bottom of the notch 11 corresponding to the position of the drum and, consequently, the drum will be temporarily locked in this position.

My invention is not limited to a controller of the drum type or of any particular type, nor is it limited to the specific structural details illustrated, and I desire that only such limitations shall be imposed as are indicated in the appended claims.

I claim as my invention:

1. A controller, comprising a movable contact member, operating means therefor, a notched member for accentuating positions of the contact member, and coöperating means having a member to engage the accentuating notches and a latch for preventing movement of the contact member, said latch being released only when the engaging member settles into one of the notches of the accentuating member.

2. A controller comprising a movable contact member, an actuating lever therefor, coöperating accentuating members, one of which is adapted to progress with the contact member and means for preventing movement of the contact member until released by the full engagement of the accentuating members in each control position.

3. A controller comprising a movable contact member, a notched accentuating member and an accentuating lever adapted to

engage the notches in the various control positions and means for preventing movement of the contact member until released by the full engagement of the lever with the accentuating notches.

4. A controller comprising a contact-bearing drum, an operating handle, a notched cam or star wheel, an accentuating lever coöperating with the notched cam or star wheel and means for temporarily locking the drum in each of its control positions until released by the full engagement of the accentuating lever with the corresponding notch of the star wheel.

5. A controller comprising a contact-bearing drum, an operating handle, a notched cam or star wheel, an accentuating lever coöperating with the notched cam or star wheel, a ratchet wheel secured to the contact-bearing drum, a latch coöperating with the ratchet wheel and means carried by the accentuating lever for withdrawing the latch when the lever is in full engagement with a star wheel notch.

6. Control apparatus comprising a movable member adapted to occupy a plurality of positions, coöperating members for accentuating the several control positions, and means for delaying the operation of the control apparatus at each control position until released by the full engagement of the coöperating members.

In testimony whereof, I have hereunto subscribed my name this 7th day of Dec. 1911.

GEORGE W. HAMILTON.

Witnesses:
R. J. DEARBORN,
B. B. HINES.

Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents. Washington, D. C."