No. 713,858. Patented Nov. 18, 1902.

F. B. COREY.

LATCH FOR CONTROLLER HANDLES.

(Application filed Apr. 12, 1902.)

(No Model.) 2 Sheets—Sheet 1.

Fig. 1.

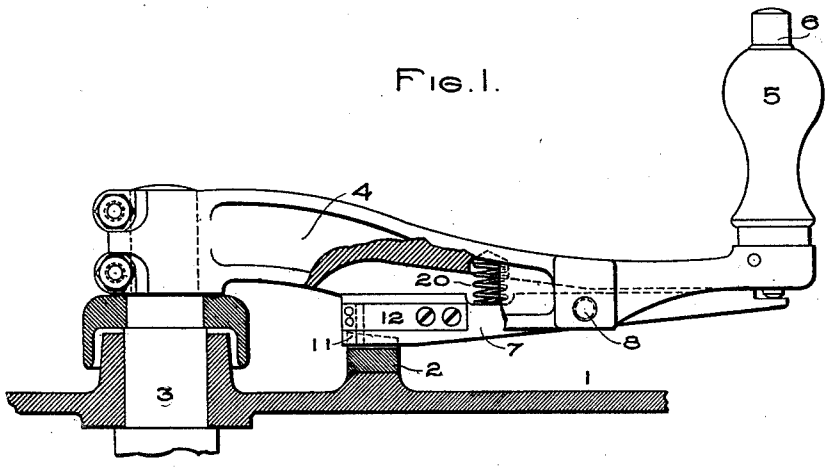



Fig. 2.

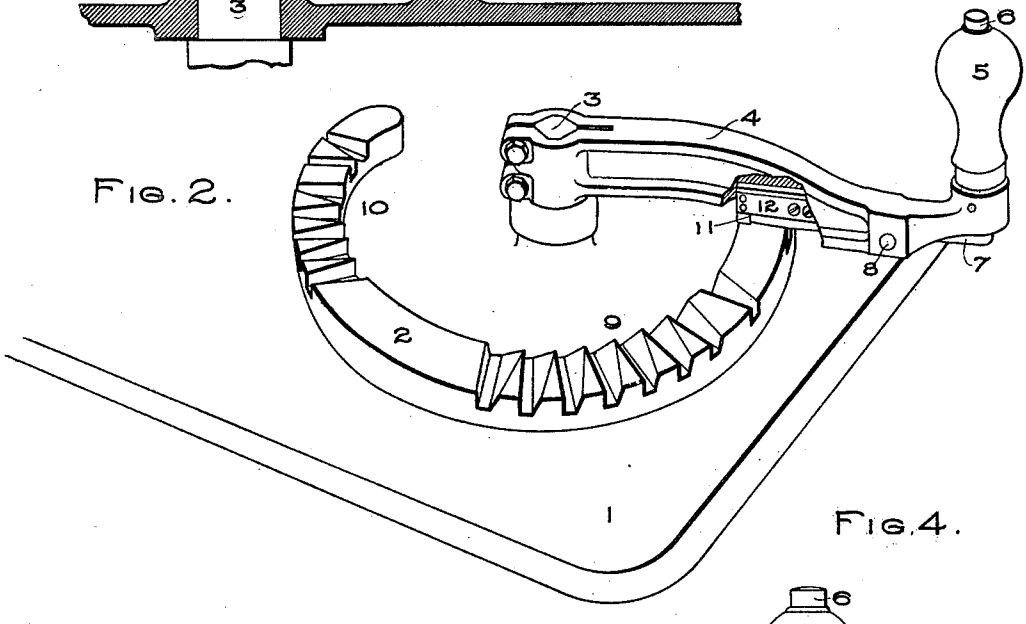



Fig. 4.

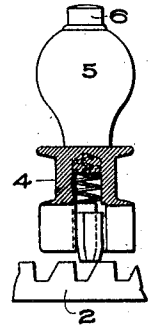
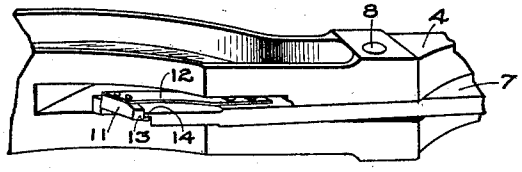



Fig. 3.




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(No Model.) 2 Sheets—Sheet 2.

FIG. 5

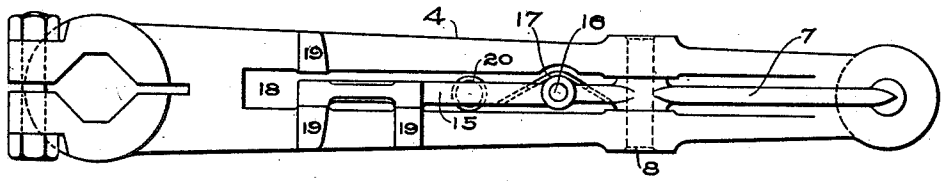



FIG. 6

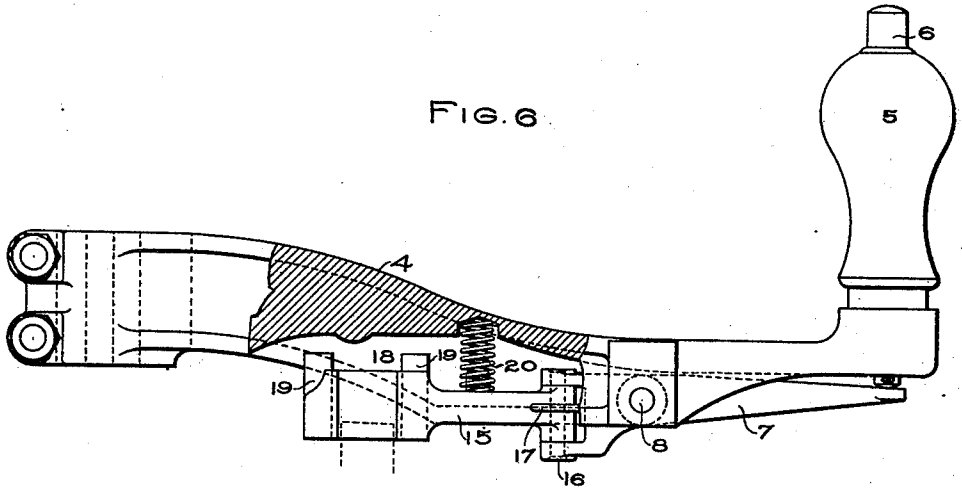
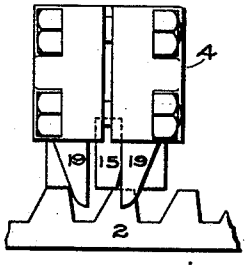



FIG. 7




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# UNITED STATES PATENT OFFICE.

FRED B. COREY, OF SCHENECTADY, NEW YORK, ASSIGNOR TO GENERAL ELECTRIC COMPANY, A CORPORATION OF NEW YORK.

## LATCH FOR CONTROLLER-HANDLES.

SPECIFICATION forming part of Letters Patent No. 713,858, dated November 18, 1902.

Application filed April 12, 1902. Serial No. 102,528. (No model.)

*To all whom it may concern:*

Be it known that I, FRED B. COREY, a citizen of the United States, residing at Schenectady, county of Schenectady, State of New York, have invented certain new and useful Improvements in Latches for Controller-Handles, (Case No. 2,585,) of which the following is a specification.

This invention relates to controllers for electric motors, and it is especially intended for the large controllers used in railway equipments. In certain types of such controllers the handle by which the contact-cylinder is rotated is provided with a spring-latch which engages with notches in a rack, quadrant, or dial-ring secured upon the top of the controller-casing. The latch normally engages one of the notches and can only be disengaged to release the handle by pressing down a thumb-piece in the handle. In operating this device it is necessary to keep the thumb-piece depressed until the latch has cleared the edge of the notch, the result being that the latch is sometimes retained by the thumb so long as to skip the next notch.

The object of my improvement is to positively insure a notch-to-notch movement and simplify the operation necessary to obtain this result. I accomplish this by providing the latch with a spring-actuated portion which when the latch is raised instantly moves ahead over the top of the next tooth in the rack or dial-ring and prevents the latch from dropping back into the same notch, holding it above the teeth of the dial-ring irrespective of the pressure on the thumb-piece. The handle is thus positively released and is free to be turned if the motorman gives only a momentary pressure on the thumb-piece.

In the accompanying drawings, Figure 1 is a sectional elevation of a controller-handle embodying my invention. Fig. 2 is a perspective view of a portion of the top of a controller casing and handle, the latter being partly broken away to show my improvement. Fig. 3 is a perspective view of the under side of a portion of the controller-handle. Fig. 4 is a cross-sectional elevation of the handle. Fig. 5 is a bottom plan view of a modification. Fig. 6 is a sectional side elevation of the same, and Fig. 7 is an end view of the same.

On the top 1 of the controller-casing is secured a notched quadrant or dial-ring 2, concentric with the shaft 3 of the contact-cylinder. On the shaft is secured a controller-handle 4, having a handpiece 5, in which is a thumb-piece 6, bearing on the outer end of a latch 7, which occupies a recess in the under side of the handle and is fulcrumed at 8 on a transverse axis, so that downward pressure on the thumb-piece will lift the inner end of the latch. The dial-ring has two sets of notches 9 10, into which the latch can enter to determine the proper position of the contact-cylinder for the several different combinations of circuits. One set of notches 9 is used for the series positions and the other set for the parallel positions, in accordance with the usual custom.

The latch must be raised out of the notch by pressing on the thumb-piece before the handle can be turned, and it must be held up until it has cleared the notch; but if the handle is moved quickly the latch may be carried past the next notch before it can be dropped. In order to prevent this, I provide the latch with a movable portion and a spring to move it transverse to the plane of movement of the latch, so that the motorman need give but an instant's pressure on the thumb-piece, sufficient to lift the latch out of the notch, when the spring-actuated portion of latch immediately moves over the top of the next tooth and automatically holds the latch raised until the next notch is reached. Thus all danger of overrunning a notch is entirely obviated.

In Figs. 1, 2, 3, and 4 the movable portion of the latch is a block 11, fitting a slot or notch in the latch and carried on a leaf-spring 12, fastened to the body of the latch, so that when the latter is lifted the block is moved yieldingly out of line with the body of the latch. If desired, the range of transverse movement of the block with reference to the latch may be limited in any suitable manner, as by means of a lip 13 on the block, abutting against a lip 14 on the body of the latch. The notches are beveled on one side, so that when

the latch drops it fits snugly against the opposite upright side of the notch, the block, which is on the forward side of the latch, being pressed back in line with the latch. When the latch is raised by a momentary pressure on the thumb-piece, the spring instantly throws the block forward over the top of the next tooth and prevents the latch from falling until the handle has been turned forward far enough to allow the latch to drop into the next notch.

In Figs. 5, 6, and 7 the entire inner end portion 15 of the latch is laterally movable, being hinged to the body of the latch on a vertical pivot 16. A light spring 17 at the hinge-joint keeps the portion 15 normally thrown forward, but permits it to be forced back against the rear side of the recess 18 in the handle when the latch is down. Upon lifting the latch the spring 17 at once throws the portion 15 forward over the top of the next tooth, which supports the latch while the handle is being turned. The controller-handle may have depending supporting-lugs 19, between which the portion 15 plays.

In both modifications the latch may drop by its own weight into the notches; but it is preferably forced down positively by a spring 20.

It is evident that my improved latch can be applied to a handle moving over a quadrant having notches in its edge instead of in its side or to a handle coöperating with a straight rack instead of a curved one, should it be desired to do so.

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

1. The combination with a notched rack, of a handle coöperating therewith, a pivoted latch in said handle, and an automatically-actuated support carried on said latch to support the same when it is lifted out of a notch.

2. The combination with a notched rack, of a handle coöperating therewith, a pivoted latch in said handle having a movable portion, and means for yieldingly moving said portion out of line with the body of the latch.

3. The combination with a notched rack, of a handle coöperating therewith, a pivoted latch in said handle, and a spring-actuated support carried on said latch to automatically support the same when it is lifted out of a notch.

4. The combination with a notched rack, of a handle coöperating therewith, a latch pivoted in said handle and having a portion movable transverse to the plane of movement of the latch, and means for yieldingly moving said portion.

5. The combination with a notched rack, of a handle coöperating therewith, a latch pivoted in said handle and having a portion movable transverse to the plane of movement of the latch, and a spring tending to force said portion normally out of line with the body of said latch.

6. The combination with a notched rack, of a handle coöperating therewith, a latch pivoted to said handle and having a portion movable transverse to the plane of movement of the latch, and a leaf-spring carrying said movable portion and fastened to the body of the latch.

7. The combination with a notched rack, of a handle coöperating therewith, a latch pivoted in said handle and having a portion movable transverse to the plane of movement of the latch, and means for limiting the movement of said portion.

8. The combination with a notched rack, of a handle coöperating therewith, a latch pivoted to said handle and having a portion movable transverse to the plane of movement of the latch, a leaf-spring carrying said movable portion and fastened to the body of the latch, and abutting lips on said movable portion and the body of the latch.

In witness whereof I have hereunto set my hand this 10th day of April, 1902.

FRED B. COREY.

Witnesses:
BENJAMIN B. HULL,
HELEN OXFORD.