

No. 671,232.

Patented Apr. 2, 1901.

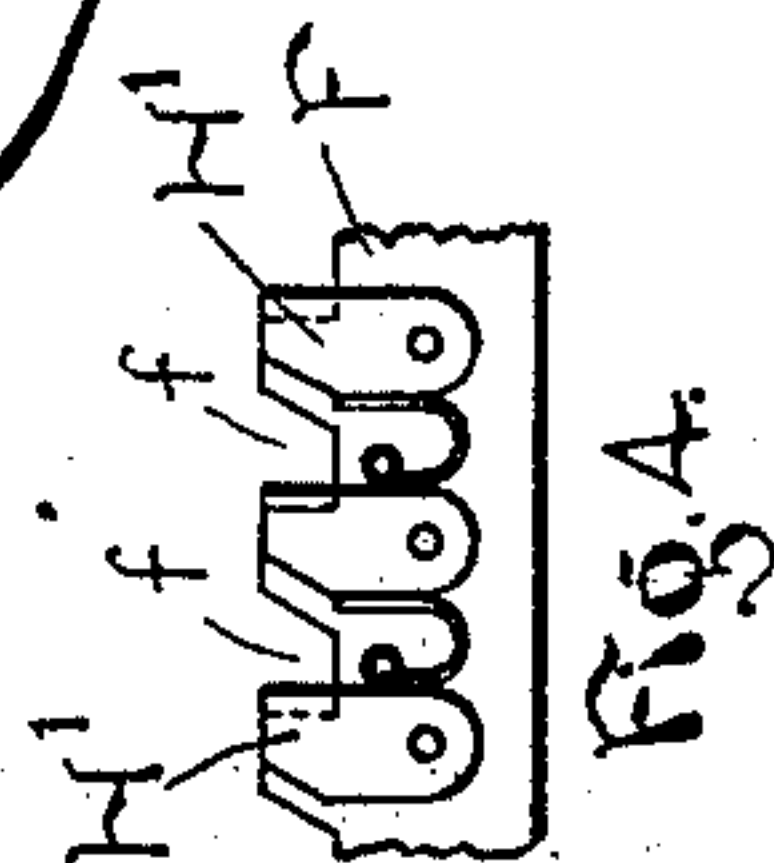
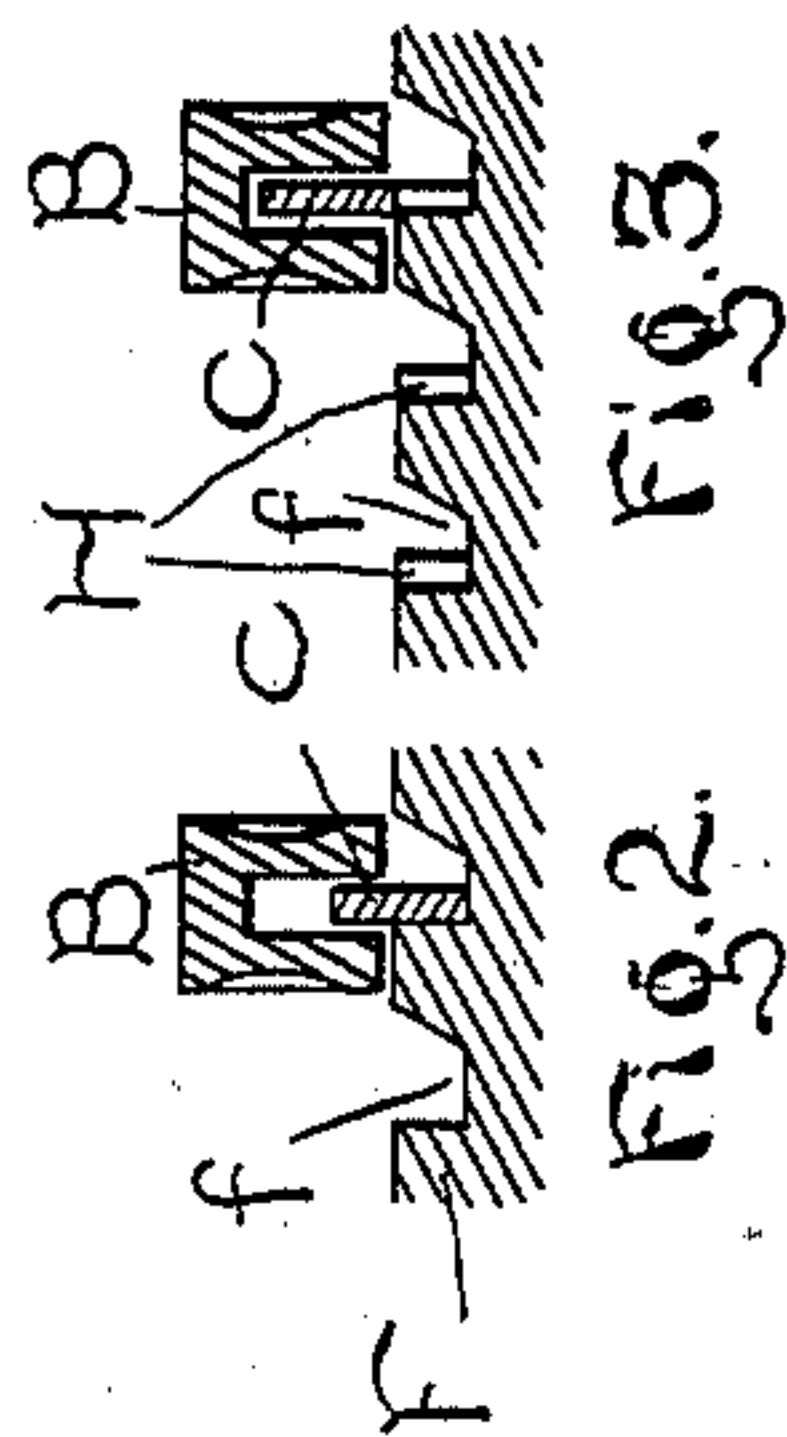
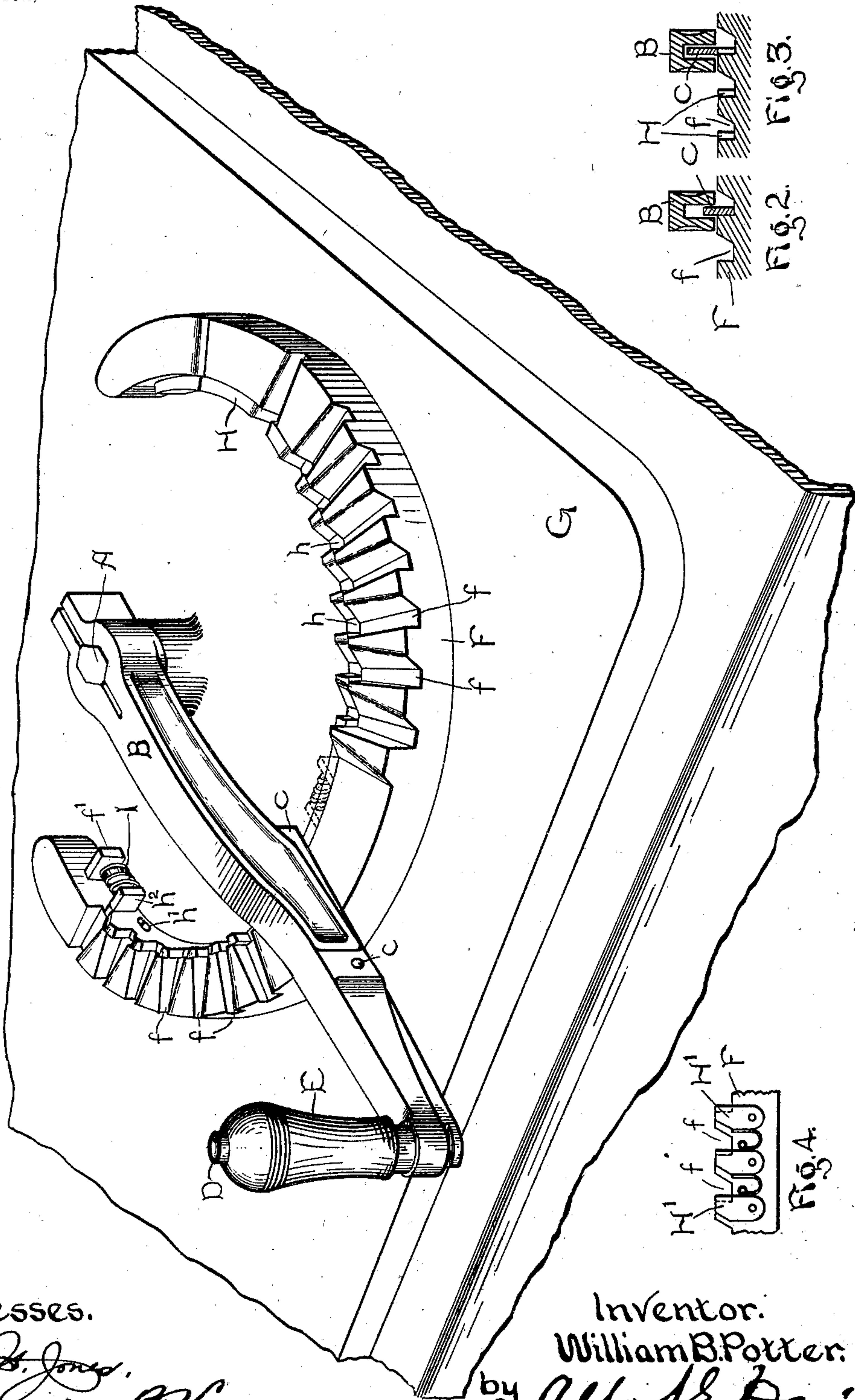
W. B. POTTER.

ATTACHMENT FOR NOTCHED QUADRANTS.

(Application filed Dec. 28, 1900.)

(No Model.)

Fig. 1.



Witnesses.

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UNITED STATES PATENT OFFICE.

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ATTACHMENT FOR NOTCHED QUADRANTS.

SPECIFICATION forming part of Letters Patent No. 671,232, dated April 2, 1901.

Application filed December 28, 1900. Serial No. 41,369. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM B. POTTER, a citizen of the United States, residing at Schenectady, county of Schenectady, State of New York, have invented certain new and useful Improvements in Attachments for Notched Quadrants, (Case No. 1,776,) 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 electric-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 quadrant 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 so long as to skip the next notch.

The object of my invention is to positively insure a notch-to-notch movement and simplify the operation necessary to obtain this result. I accomplish this by providing a spring-actuated auxiliary support movable independently of the quadrant, so that when the latch is raised-said support instantly operates to hold it in this position above the teeth of the quadrant, irrespective of the pressure on the thumb-piece, so that the handle is positively released and is free to be turned if the motorman gives only a momentary pressure on the thumb-piece.

In the drawings, Figure 1 is a perspective view of a portion of the top of a controller-casing provided with my invention. Figs. 2 and 3 are detail sectional views. Fig. 4 shows a modification.

To the shaft A of the contact-cylinder is secured a handle B, which is hollow to receive a latch C, fulcrumed on a transverse axis at c. A thumb-piece D passes up through the crank-handle E, its lower end bearing on the outer end of the latch, so that downward pressure on the thumb-piece will lift the latch. A quadrant F is secured upon the top G of

the controller-casing, having two series of notches *f*, into which the latch C can enter to determine the proper position of the contact-cylinder for the several different combinations of circuits. One set of notches 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 the latch must be held up until it has cleared the notch; but if the handle is moved quickly it may be carried past the next notch before the latch can be dropped. In order to prevent this, I provide a spring-actuated support, which is so arranged that the motorman need give but an instant's pressure on the thumb-piece sufficient to lift the latch out of the notch. The support immediately operates automatically to hold the latch raised until the next notch is reached, when it allows the latch to drop of its own weight into said notch. Thus all danger of overrunning a notch is entirely obviated. The device which I prefer for this purpose is an auxiliary narrow quadrant H, lying parallel with and adjacent to the main quadrant F. The auxiliary quadrant has notches *h*, adapted to register with the notches *f* in the main quadrant. The auxiliary quadrant is free to move endwise within certain limits determined by slots *h'*, through which pass the screws which fasten the two quadrants together. At one end of the auxiliary quadrant is an abutment *h*², between which and an adjacent abutment *f'* on the main quadrant is a spring I, which tends to keep the auxiliary quadrant with the vertical edges of its notches out of line with those in the main quadrant, as shown in Fig. 1. When the handle B is turned and the latch C drops into a notch *f* and the corresponding notch *h*, the movement of the handle brings it first against the edge of the notch *h*, and the auxiliary quadrant is compelled to move with the handle until the latch brings up against the edge of the notch *f*. The parts are now in the position shown in Fig. 2, the notches *f* and *h* being in line. The spring I is not strong enough to overcome the resistance offered by the friction of the shaft A and the detent devices with which it is provided, as usual.

Now when the latch is lifted by a momentary pressure on the thumb-piece the instant the latch clears the top of the auxiliary quadrant the spring I throws this quadrant endwise, so
 5 that its tooth *h* comes under the latch and prevents it from falling, as shown in Fig. 3. The handle is now free to be turned forward (to the left) and the latch will slide over the tops of the adjacent teeth in both quadrants
 10 and drop into the next pair of notches *f h*.

In the drawings only one auxiliary quadrant is shown; but it is evident that, if desired, separate quadrants could be provided, one for the series notches and one for the parallel
 15 notches, each with its own spring, as shown in dotted lines in Fig. 1; or a separate spring tooth or dog *H'* could be pivoted on the main quadrant adjacent to each notch, as indicated in Fig. 4. Other modifications or equivalent
 20 means for carrying out my idea will doubtless suggest themselves to those skilled in the art.

While the drawings show the invention applied to a curved rack or quadrant, yet it is
 25 manifestly within the scope of my invention to apply it to a straight rack should it be desired to do so. Hence, although I have used the word "quadrant" in describing my invention, I do not mean thereby to limit my-
 30 self to a curve-rack only.

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

1. In a controller, the combination with the handle of the contact-cylinder, of a latch piv-
 35 oted thereon, a notched rack coacting with

said latch, and means for automatically supporting said latch when raised out of a notch, until the handle is turned to bring the latch over the next notch.

2. The combination with a controller-handle, its latch and notched quadrant, of a spring-actuated support separate from said quadrant, to automatically support the latch when it is lifted out of a notch. 40

3. The combination with a controller-handle, its latch and notched quadrant, of an auxiliary tooth adjacent to each tooth of the quadrant, and means for moving the auxiliary tooth under the latch when it is raised out of a notch. 45 50

4. The combination with a controller-handle, its latch and notched quadrant, of an auxiliary notched quadrant adjacent to the main quadrant, and means for automatically moving said auxiliary quadrant when the
 55 latch is raised out of a notch.

5. The combination with a controller-handle, its latch and notched quadrant, of an auxiliary notched quadrant adjacent to the main quadrant, and a spring for automatic-
 60 ally giving said auxiliary quadrant an endwise movement when the latch is raised, to bring a tooth of said auxiliary quadrant under the latch.

In witness whereof I have hereunto set my
 65 hand this 27th day of December, 1900.

WILLIAM B. POTTER.

Witnesses:

BENJAMIN B. HULL,
 MABEL H. EMERSON.