

A. S. CUBITT.
 LOCKING MECHANISM FOR CONTROLLER HANDLES.
 APPLICATION FILED NOV. 9, 1906.

977,073.

Patented Nov. 29, 1910.

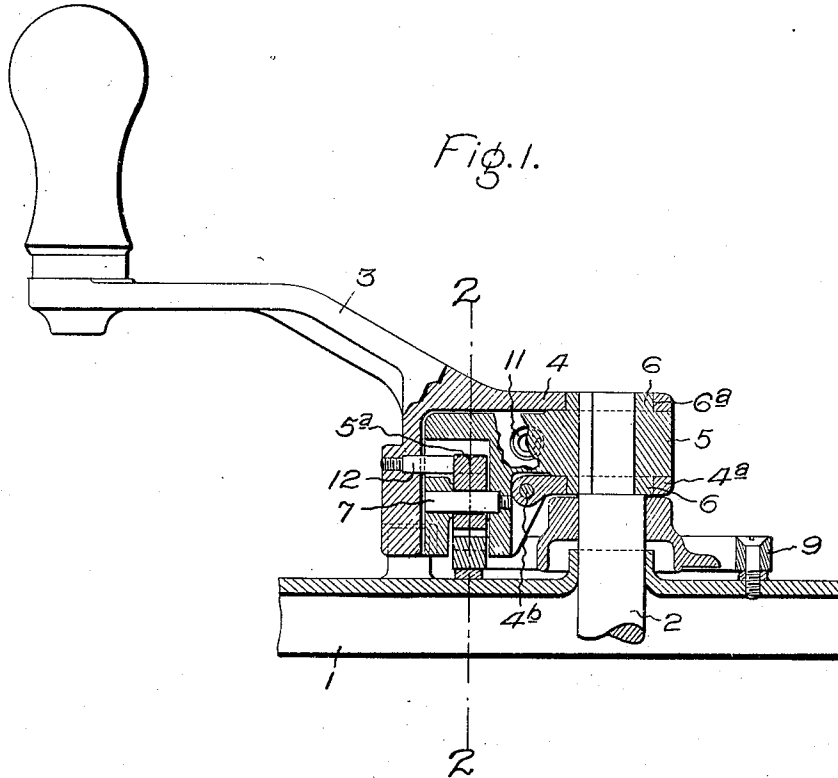


Fig. 2.

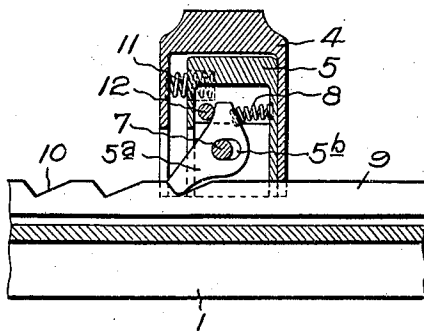
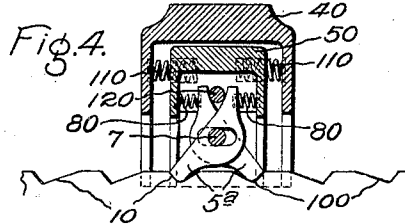
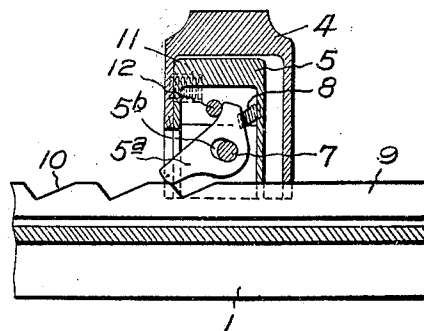


Fig. 3.



Witnesses:

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UNITED STATES PATENT OFFICE.

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LOCKING MECHANISM FOR CONTROLLER-HANDLES.

977,073.

Specification of Letters Patent. Patented Nov. 29, 1910.

Application filed November 9, 1905. Serial No. 286,506.

To all whom it may concern:

Be it known that I, ARCHIBALD S. CUBITT, a subject of the King of Great Britain, residing at Schenectady, county of Schenectady, State of New York, have invented certain new and useful Improvements in Locking Mechanism for Controller-Handles, of which the following is a specification.

The present invention relates to controllers and more particularly to means for preventing the controller handle from being moved too rapidly from its zero position through successive running positions.

The object of the present invention is to improve the construction and mode of operation of mechanism of the character specified.

The present invention therefore consists in the devices and combination of devices to be hereinafter described and particularly pointed out in the claims.

One form of the present invention is illustrated in the accompanying drawing in which,

Figure 1 is a cross-sectional view showing the upper portion of a controller and a handle to which the present invention is applied; Fig. 2 is a cross section taken on line 2-2 Fig. 1; Fig. 3 is a view similar to Fig. 2; some of the parts, however, being shown in different positions; and Fig. 4 shows a handle adapted for movement in both directions from the "off" position.

Reference being had to the drawing, 1 indicates the top of a controller casing; 2 a shaft extending through the casing; and 3 a handle for rotating the shaft. This is a usual construction for controllers having a cylindrical movable element; but it is of course understood that the present invention is applicable to controllers of different types. The controller handle is made of two parts, an outer shell 4 connected to or formed in the handle proper, and an inner portion 5 having trunnions 6 journaled in bearings 6^a of the part 4 so as to have a limited oscillatory motion within said part. The part 4 is preferably made open on its lower side and provided with a detachable plate 4^a which surrounds one of the trunnions on the part 5 and is held to the part 4 by means of a pin 4^b. This plate permits the ready removal of the member 5 but serves to hold it in place when the handle is taken from the controller. Near the free

end of the member 5 is located a dog 5^a which is provided with an elongated slot 5^b through which a pin 7 passes, the pin being rigidly secured to the member 5. Gravity assisted by a spring 8 tends to hold the nose of the dog 5^a in position to engage with the notches or teeth 10 of the rack 9 arranged upon the casing concentric with the shaft 2. A spring 11 arranged between one side of the member 5 and the interior of the member 4 tends to hold these two members in the relative positions shown in Fig. 2, which is also the position which these two members occupy when the handle is moved in the "on" direction to bring the controller into a running position. In this position of the parts it is seen that the dog 5^a engages with one of the notches 10, thereby locking the controller handle against further forward movement.

In order to release the dog, the controller is moved backward slightly, and, by reason of the friction between the contacts of the controller proper, the shaft 2 and therefore also the member 5 remain stationary. The springs 8 and 11 will be compressed and a pin 12, rigidly secured to the member 4, strikes against the upper end of the dog 5^a and rotates it about the support 7. At the end of the extreme relative movement of part 4 with respect to part 5 the nose of the dog will have been lifted out of the notch; whereupon the spring 8 comes into play and turns the dog 5^a about the pin 12 as a fulcrum as far as the length of the slot 5^b will permit, thereby moving the nose of the dog forward and past the notch with which it previously engaged. When the handle is then again moved forward the dog is free until it engages in the next succeeding notch, whereupon the several steps outlined must be repeated. The backward movement of the controller is unretarded since the dog is free to ride up the inclines of the several notches when the handle is returned to the "off" position.

The construction just described will operate only to lock the controller handle against movement in one direction, but since it is also desirable to prevent too rapid movements of the controller in either direction from its "off" position when the controller is a reversing controller, I have shown an arrangement in Fig. 4 to accomplish this result. The parts 40 and 50 are in the main

the same as the parts 4 and 5 in Figs. 1 to 3, there being, however, a spring 110 on each side of the part 50 instead of the single spring 11 in the first construction. Instead of a single dog, two dogs 5^a are mounted upon the pin 7, the dogs being arranged reversely so that one interlocks with the notches 10 and the other with reversely arranged notches 100. The pin 120, corresponding to the pin 12, is arranged between the upper ends of the two dogs so that when the handle is moved in one direction the pin operates on one dog and when moved in the opposite direction it engages with the other dog. Each dog is provided with a spring 80, corresponding to spring 8. In the position of the parts shown, the handle is locked in the "off" position. A slight movement of the part 40 toward the right will lift the lower end of the one dog out of engagement with the notch 10, whereupon the spring 80 will come into play and slide the dog laterally so as to free it from the notch. The controller may then be moved to the left until this dog drops into the second notch. Similarly, if it is desired to move the controller to the right, the handle is first moved slightly toward the left, lifting the other dog out of engagement with the first notch of the series 100; whereupon the spring associated with this dog moves it laterally so as to clear the notch and thereby permits the controller to be moved to the right until this dog drops into the second notch. In this construction, also, the handle may be brought to the "off" position without being retarded, the dogs sliding freely through the notches.

It will now be seen that by the present invention I have produced a simple and positive retarding device which permits the controller to be operated rapidly between running positions but positively stops it in its several running positions. At the same time, because the movable parts are all contained within the controller handle, no change is made in the construction of the controller or in its appearance when equipped in accordance with the present invention.

Although I have shown and described a preferred form of the present invention, I do not desire to be limited to the particular form shown, since in its broader aspects the present invention may take various other forms.

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

1. In a controller, a movable member adapted to be moved in opposite directions from its "off" position, an operating handle, means for locking said member against movement at one or more points in either direction from the "off" position, and means for releasing said member operative upon

movement of said handle toward the "off" position.

2. In a controller, a movable member adapted to be moved in opposite directions from its "off" position, an operating handle, means for locking said member against movement at one or more points in either direction of movement from the "off" position, and means controlled by a movement in said handle toward the "off" position for releasing said member.

3. In a controller, a movable member adapted to be moved in opposite directions from its "off" position, an operating handle, two series of stops, a pair of dogs one of which engages with one series of stops to lock said member against movement in one direction from the "off" position and the other of which engages with the other series of stops to lock the member against movement in the opposite direction from the "off" position, and means for releasing said dogs from said stops operative upon movement of the handle toward the "off" position.

4. In a controller, a movable member adapted to be moved in opposite directions from its "off" position, an operating handle, two series of stops, a pair of dogs one of which engages with one series of stops to lock said member against movement in one direction from the "off" position and the other of which engages with the other series of stops to lock the member against movement in the opposite direction from the "off" position, and means controlled by movements of the handle toward the "off" position for releasing said dogs from said stops.

5. In combination, a controller handle, a single pawl carried by the handle and entirely covered thereby, a notched member with which the pawl coöperates to stop the handle at predetermined points in its forward movement, and means operated by the handle during a slight backward movement thereof for releasing said pawl.

6. In a controller, a shaft, an operating handle therefor comprising an arm fixed to the shaft and a second arm pivoted to the first and having a limited movement relative thereto, a notched member, a single pawl carried by the handle, means for moving said pawl into engagement with a notch of said member which is covered by said handle, and means whereby a backward movement of the second arm alone disengages the pawl from said notch.

In witness whereof, I have hereunto set my hand this 8th day of November, 1905.

ARCHIE S. CUBITT.

Witnesses:

BENJAMIN B. HULL.

MARGARET E. WOOLLEY.