

No. 897,602.

PATENTED SEPT. 1, 1908.

F. M. DU BOIS.
CONTROLLER REGULATOR.
APPLICATION FILED JAN. 2, 1906.

Fig. 1.

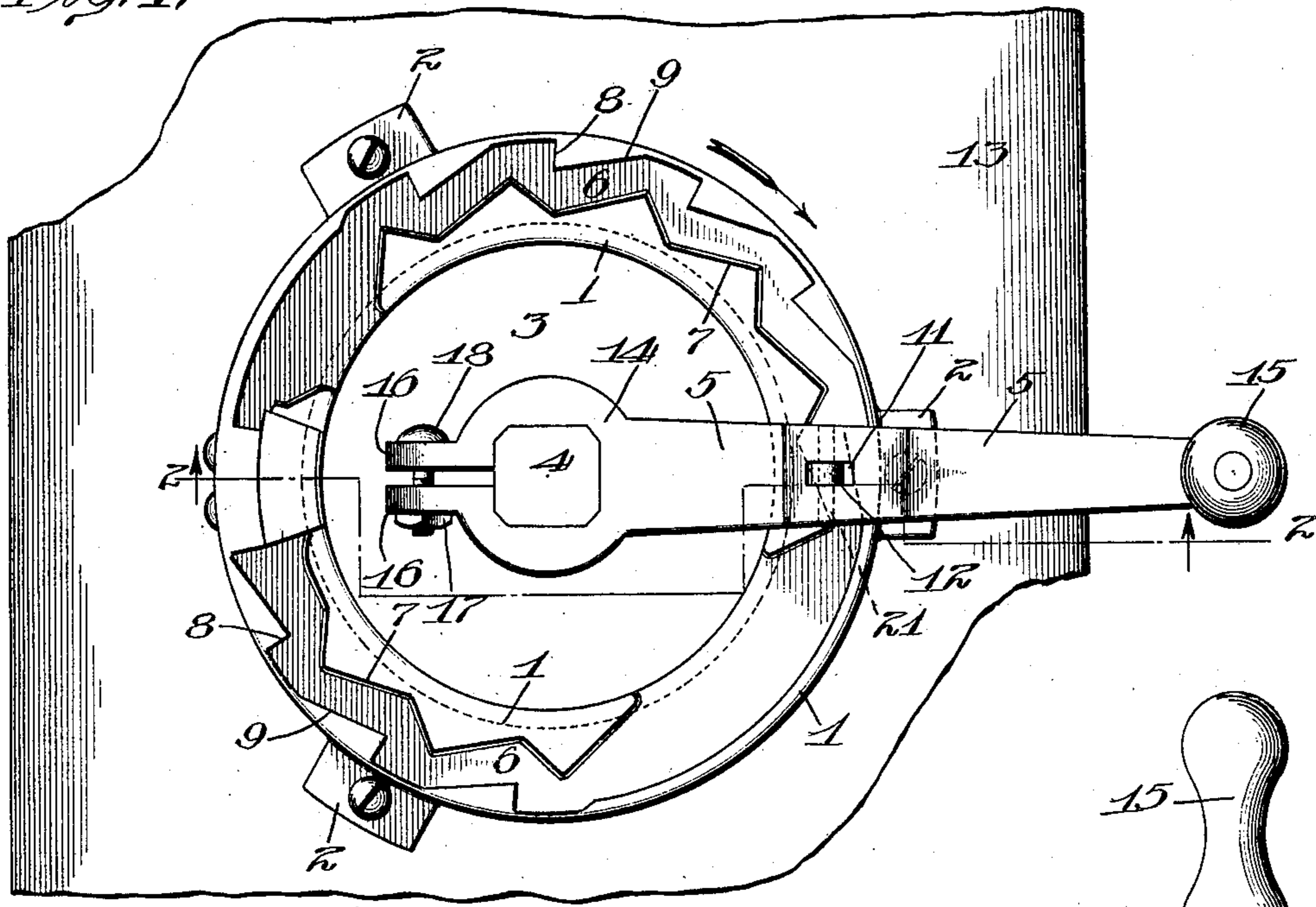


Fig. 2.

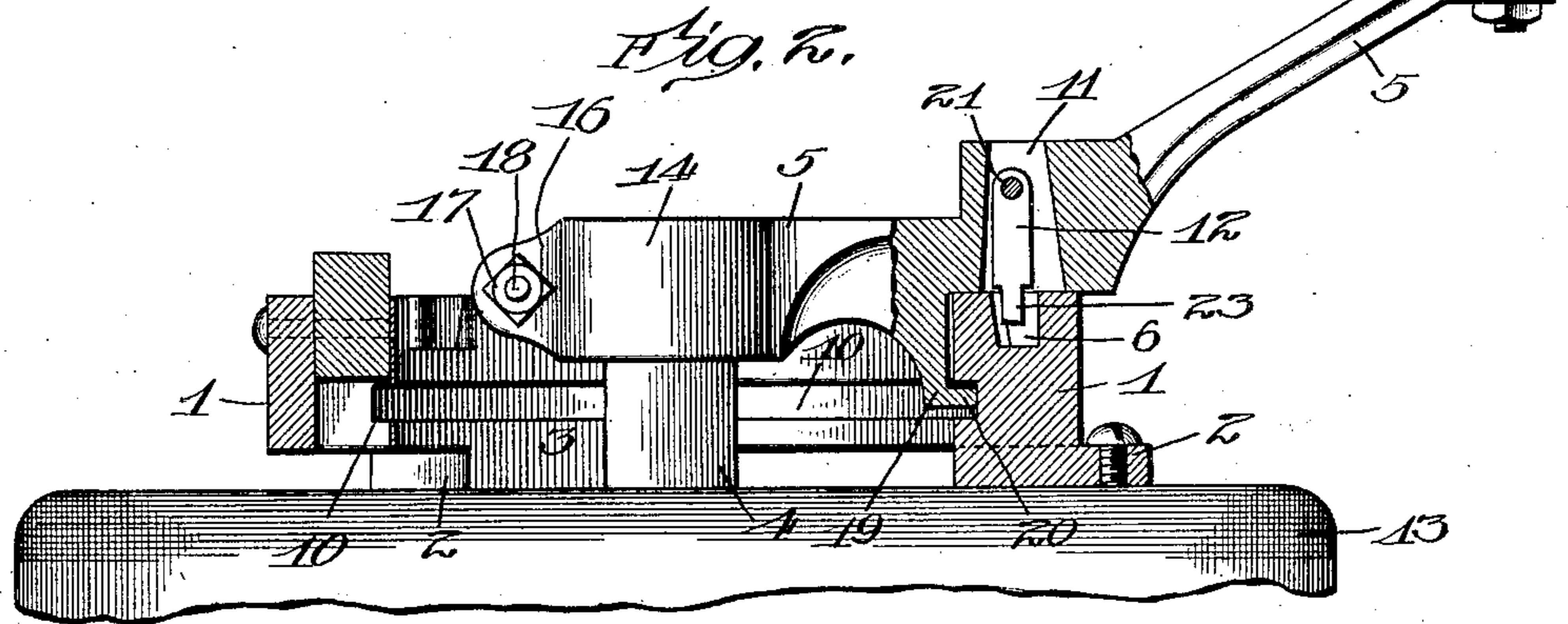
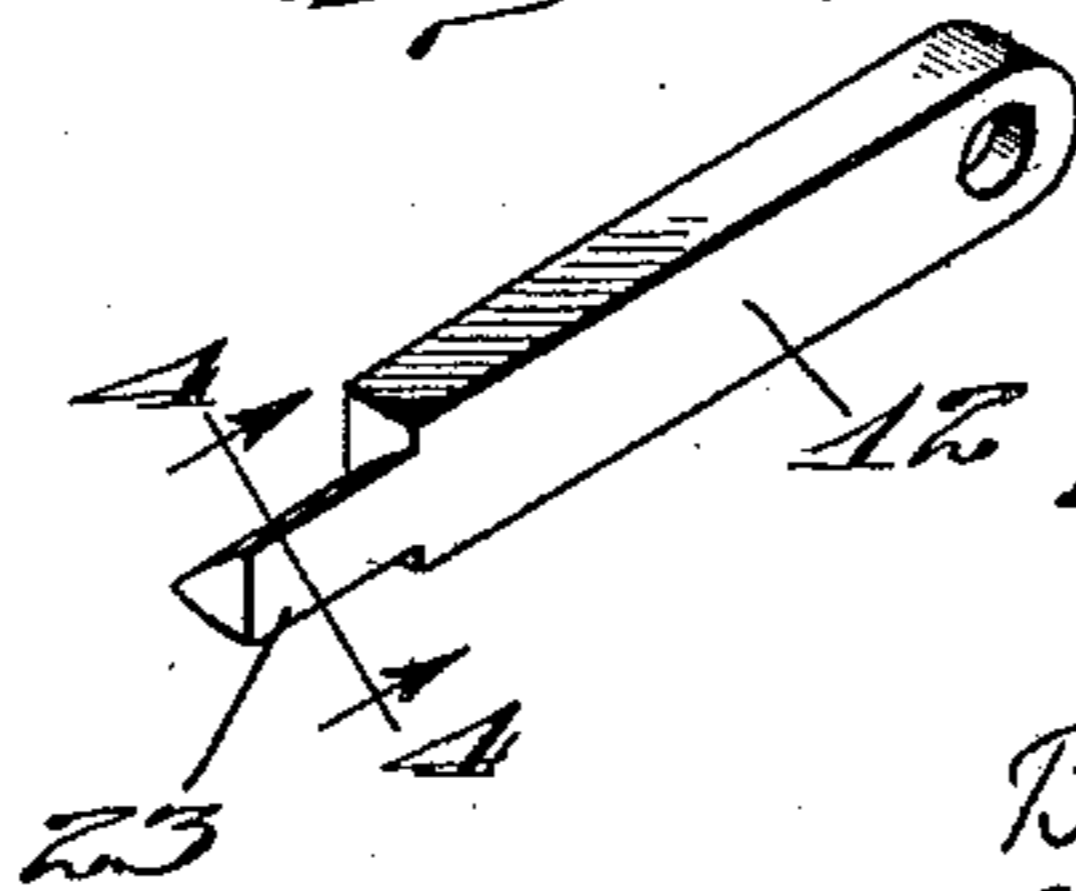


Fig. 4.



Fig. 3.



Witnesses:
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UNITED STATES PATENT OFFICE.

FREDERICK M. DU BOIS, OF SYRACUSE, NEW YORK, ASSIGNOR, BY MESNE ASSIGNMENTS, TO AMERICAN AUTOMOTONEER COMPANY, OF PHILADELPHIA, PENNSYLVANIA, A CORPORATION OF PENNSYLVANIA.

CONTROLLER-REGULATOR.

No. 897,602.

Specification of Letters Patent.

Patented Sept. 1, 1908.

Application filed January 2, 1906. Serial No. 294,282.

To all whom it may concern:

Be it known that I, FREDERICK M. DU BOIS, a citizen of the United States, residing at Syracuse, in the county of Onondaga and State of New York, have invented new and useful Improvements in Controller-Regulators, of which the following is a full, clear, concise, and exact description, reference being had to the accompanying drawing, forming a part of this specification.

My invention relates to improvements in controller regulators, such as are adapted for use in connection with street car controllers, or in analogous relations to prevent the operator from moving the controller too rapidly to cut out the resistance in the motor circuit.

My device is ordinarily designed for periodically arresting the operating crank of the controller in its rotation, and thereby prevent too rapid movement of the controller.

A further object of my invention is to provide a device which shall be simple in construction and consist of few parts, whereby the same will not readily get out of order and may not be easily destroyed.

In the accompanying drawings illustrating one embodiment of my invention, Figure 1 is a plan view of the controller regulator attached to the top of the casing of the controller; Fig. 2 is a sectional view taken on the line 2—2 of Fig. 1; Fig. 3 is an enlarged detail view in perspective of the dog; and, Fig. 4 is a transverse view of the dog shown in Fig. 3, taken on the line 4—4.

In constructing my invention I provide a stationary plate 1 having lugs 2, whereby the same may be secured in position upon the casing of the controller, and provided with a central opening 3, through which the shaft 4 of the controller may pass and be connected to the operating crank 5. The upper surface of the plate 1 has formed therein a zig-zag slot or channel 6, having preferably the form shown in Fig. 1, in which the inner edge is formed of inclined cam surfaces 7, over which the retarding dog is adapted to slide. The outer edge of the zig-zag slot consists of a stop or ratchet portion 8 connected by the inclined portions 9 which limit the outward movement of the dog, and confine it within the groove 6. As shown in Fig. 1, these cam and stop surfaces occur at certain intervals throughout certain portions of the slot 6, and

at longer intervals throughout other portions of the slot, so that the proper movement of the controller may take place. Any arrangement, however, of these stops and inclined portions may be employed so that the desired operation of the controller may be secured.

The operating crank 5 is provided with a handle 15 and at the other end with a split hub 14, which is adapted to pass over the controller shaft 4 and to be clamped to said shaft by pressing together the ends 16 of the operating crank by turning the nut 17 on the bolt 18 passing through said ends. The operating crank is provided also with a depending lug 19 having a shoulder 20 adapted to move in an annular groove 10, on said plate 1, to limit the upward movement of the operating crank. In a slot 11 in said operating crank 5, a dog 12 is pivoted on a pin 21 passing through the sides of the operating crank. The lower part 23 of the dog 12 which extends into and moves in the slot 6 when the operating crank is moved is of peculiar construction as shown in Fig. 3 of the drawings, it being substantially wedge-shaped, and having one of its sides substantially in parallel with the stop or ratchet portions 8.

The dog 12 is pivoted in such manner that gravity normally holds its lower portion against the inner face of the slot 6, consisting of the inclined cam surfaces 7. In operation, as the handle is turned in the direction of the arrow, the dog 12 normally held by gravity against the inclined cam surfaces 7 is thrust outwardly thereby, and into engagement with the stop or ratchet portions 8 checking the movement of the operating crank. The movement thus being checked, and the handle being slightly relaxed, the dog swings inwardly by gravity against the next cam surface whereby it will be in position to be moved outwardly against the next stop on further movement of the operating crank. When it is desired to reverse the movement of the operating crank the same can be thrown back to its initial position without check or retardation. The dog being substantially wedge-shaped as described, moves freely in the return path through the zig-zag slot for the reason that it moves with the apex of this lower wedge-shaped portion always pointing substantially in the direction of this path and swings against the in-

clined cam surfaces only, which do not interfere with the movement of the operating crank of the controller.

It will be understood that in the present claims where I have used the expression "detent" I contemplate any construction which is used to check or prevent motion.

Having thus described my invention what I claim as new and desire to secure by Letters Patent, is:

1. In a controller regulator, the combination with a handle, of a dog suitably mounted to be rotated by said handle and arranged to oscillate independently of the handle only in a single plane with respect to the handle, a series of stops for engaging said dog, and means for moving said dog into engagement with said stops, said dog being disengaged from said stops by gravity.

2. In a controller regulator, the combination with a handle, of a dog suitably mounted to be rotated by said handle, and arranged to oscillate independently of the handle only in a single plane with respect to the handle, a series of stops for engaging said dog, and means for moving said dog into engagement with said stops, said dog being disengaged from said stops by gravity.

3. In a controller regulator, the combination with a handle, of a dog pivotally mounted and arranged to be rotated by said handle and to oscillate independently of the handle only in a single plane with respect to the handle, a series of stops for engaging said dog, means for moving the free end of said dog into engagement with said stops to one side of its center of gravity, whereby said dog will be disengaged from said stops by gravity.

4. In a controller regulator, the combination with a handle, a dog suitably mounted to be rotated by said handle and arranged to oscillate independently of the handle only in a single plane with respect to the handle, a series of stops for engaging said dog, and means for moving said dog into engagement with said stops, said dog being arranged to automatically disengage from said stops.

5. In a controller regulator, the combination with a handle, of a dog suitably mounted to be rotated by said handle and arranged to operate in a vertical plane, a series of stops for engaging said dog, serrations for throwing said dog into engagement with said stops when said handle is moved in one direction, said stops and serrations being so constructed and arranged that said dog will readily move between same and permit a continuous movement of the handle in a reverse direction.

6. In a controller regulator, the combination with a handle, of a dog carried thereby, a series of stops and a series of cams for moving said dog into engagement with said stops when said handle is moved in one direction, said cams and stops being so constructed and

arranged that said dog will move between the same and permit a continuous movement of said handle, when the same is moved in a reverse direction.

7. In a controller regulator, the combination with a handle, of a dog carried thereby, a series of stops for engaging said dog, and a series of cams for moving said dog into engagement with said stops when said handle is operated in one direction, said cams and stops being so constructed and arranged that said dog will permit a continuous movement of the handle in a reverse direction, without being raised to ride over said cams and stops.

8. In a controller regulator, the combination with a handle, of a dog suitably mounted to rotate therewith, a series of stops for engaging said dog, and a series of cams for moving said dog into engagement with said stops, said dog being disengaged from said stops by gravity, and said cams and said stops being so constructed and arranged that said dog will move between the same in a reverse direction, permitting a continuous movement of said handle.

9. In a controller regulator, the combination with a detent, of a series of stops, and a series of cams for alternately moving said detent into engagement with said stops to cause an intermittent movement of the controller in one direction, said detent having an unobstructive movement between the cams and stops when the controller is moved in a reverse direction, whereby a continuous movement of the controller is permitted.

10. In a controller regulator, the combination with a detent, of a series of stops and a series of cams for alternately moving said detent into engagement with said stops, said detent being disengaged from said stops by gravity, whereby an intermittent movement of the controller is caused in one direction, said detent having an unobstructed movement between the cams and stops when the controller is moved in a reverse direction, whereby a continuous movement in the reverse direction is permitted.

11. In a controller regulator, the combination with a handle, a detent mounted to rotate therewith, a series of stops for engaging said detent, and a series of cams for alternately moving said detent into engagement with said stops, said cams and stops being so constructed and arranged that said detent may pass therebetween to permit a continuous movement of the handle in a reverse direction.

12. In a controller regulator, the combination with a handle, of a dog pivotally connected thereto and adapted to be rotated thereby, of a series of stops for engaging said dog and a series of cams which said dog may follow in either direction for moving said dog into engagement with said stops, when said

handle is moved in one direction, said dog being arranged to be disengaged from said stops by gravity.

13. In a controller regulator, the combination with an actuating handle, of a pivoted dog movable therewith, a series of ratchet teeth with which said dog is adapted to engage when the handle is moved in one direction but arranged to permit said handle to be moved freely in the opposite direction, and a series of cams arranged to guide said dog in proximity to said ratchet teeth in either direction.

14. In a controller regulator, the combination with an actuating handle, of a ratchet surface, a pivoted dog movable with said handle and normally disengaged from said ratchet surface, and a cam surface between which and said ratchet surface, said dog is adapted to move in either direction.

15. In a controller regulator, the combination with an actuating handle, of a ratchet surface, a cam surface, and a pivoted dog mounted to move with said handle and oscillating only in a radial plane between said cam and ratchet surfaces.

16. In a controller regulator, the combination with an actuating handle, of a series of ratchet teeth, a depending dog movable with said handle, cams for throwing said dog into engagement with said ratchet teeth when said handle is rotated in one direction and intermediate cam surfaces for guiding said dog past said throwing cams when said handle is rotated in the reverse direction.

17. In a controller regulator, the combination with an actuating handle, of a ratchet, a cam surface, and a dog pivotally suspended from said handle and moving in either direction between said ratchet and said cam surface, the portion of said dog extending therebetween being in the form of a wedge whose base is adapted to engage the stop surfaces of the ratchet when the handle is moved in one direction.

In witness whereof, I have hereunto subscribed my name in the presence of two witnesses.

FREDERICK M. DU BOIS.

Witnesses:

A. E. STEIRLY,
ELIZABETH C. MARKELL.