

No. 794,358.

PATENTED JULY 11, 1905.

R. P. JACKSON.  
ELECTRICAL CONTROLLER.  
APPLICATION FILED JUNE 6, 1904.

Fig. 1.

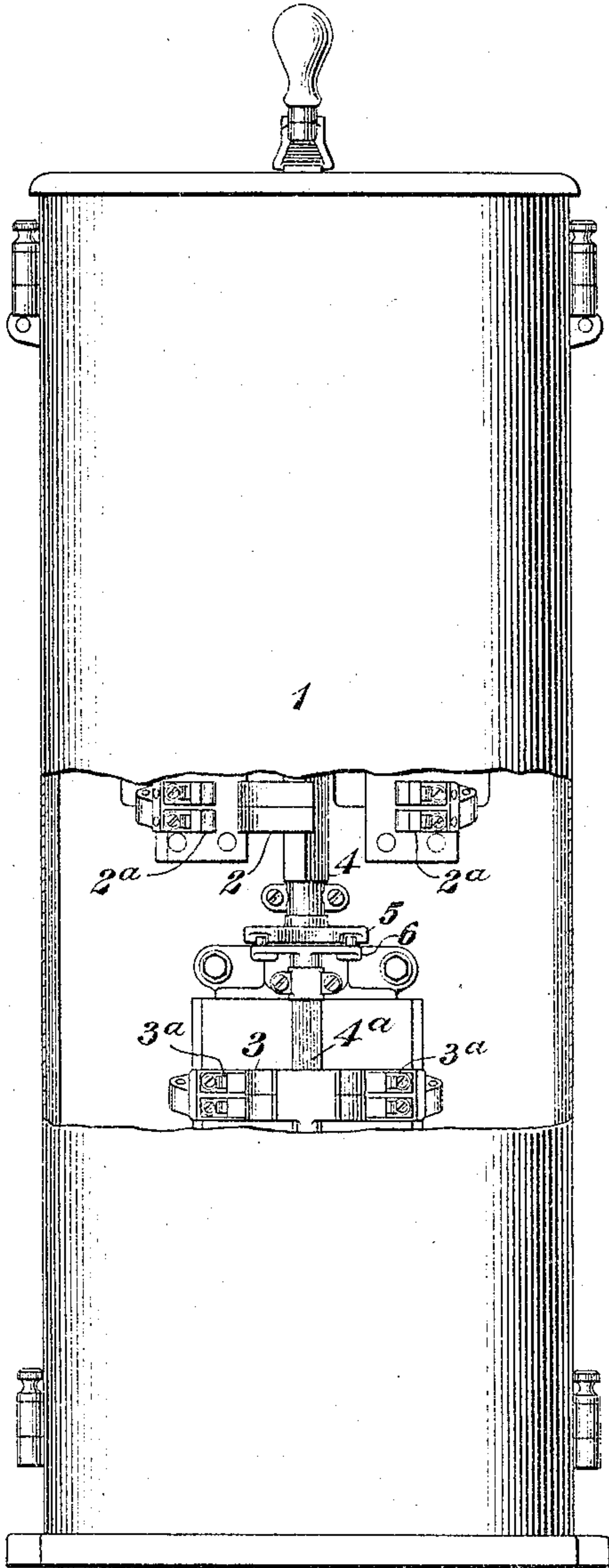


Fig. 2.

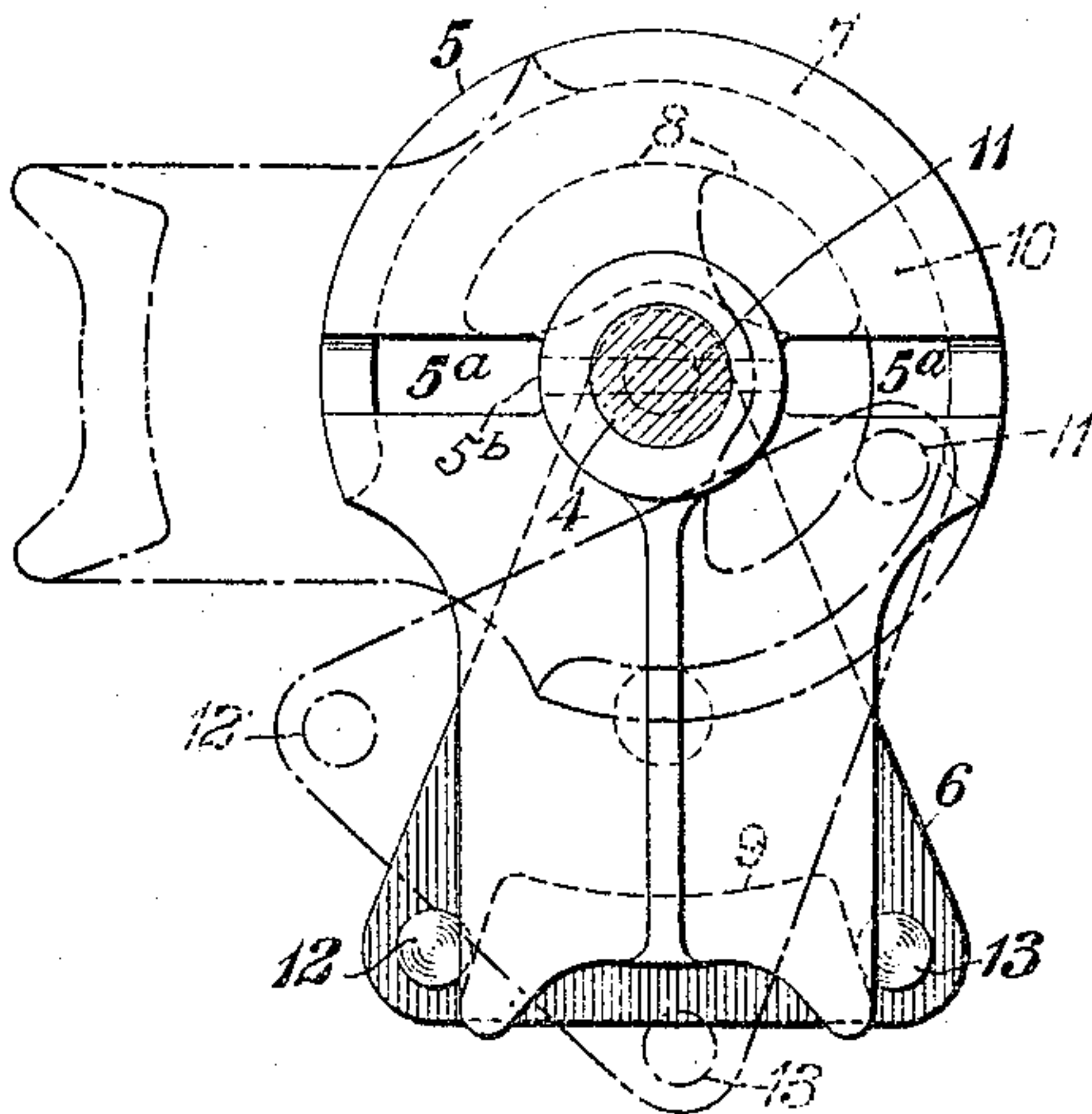


Fig. 3.

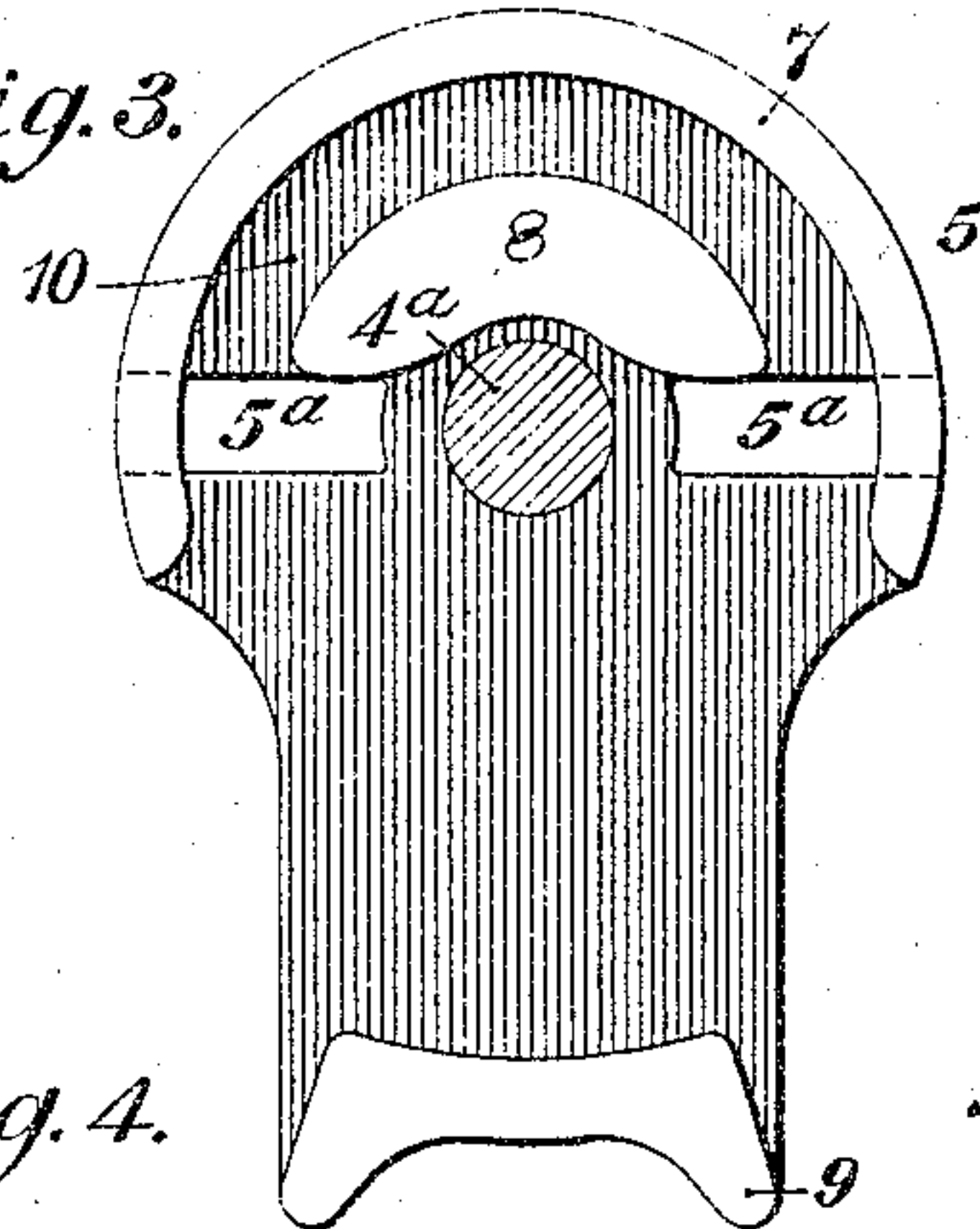
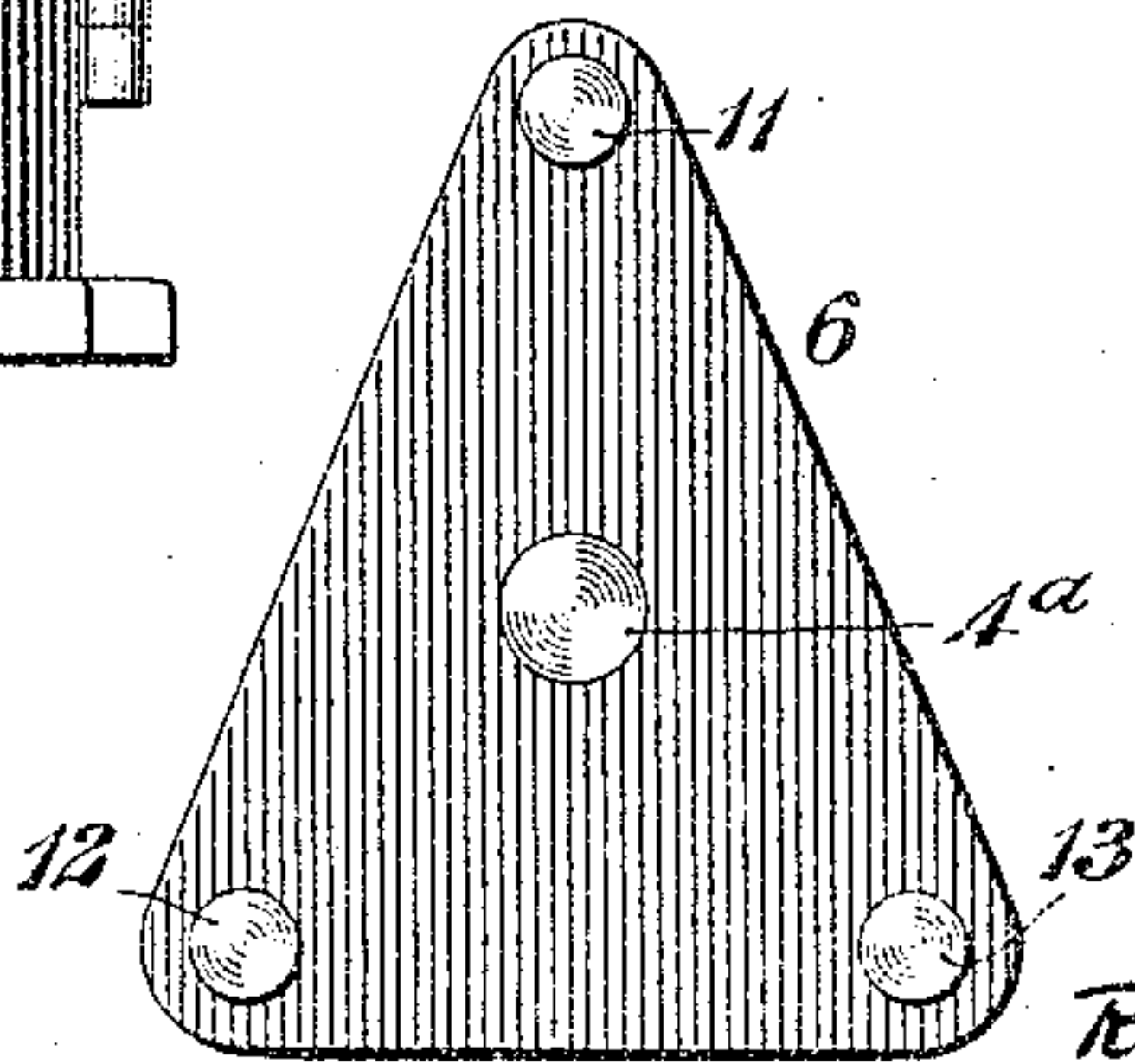


Fig. 4.



WITNESSES:

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## ELECTRICAL CONTROLLER.

SPECIFICATION forming part of Letters Patent No. 794,358, dated July 11, 1905.

Application filed June 6, 1904. Serial No. 211,375.

*To all whom it may concern:*

Be it known that I, RAY P. JACKSON, a citizen of the United States, and a resident of Wilkesburg, in the county of Allegheny and  
5 State of Pennsylvania, have invented a new and useful Improvement in Electrical Controllers, of which the following is a specification.

My invention relates to controllers for electrical circuits; and it has for its object to provide a connecting device between the main and reversing drums of a controller by means of which the reversing-drum is actuated by the operation of the main drum and is prevented from independent operation.

15 It has frequently occurred in the use of controllers in which the movement of the main drum serves to operate the reversing-drum and in which no provision is made for locking the reversing-drum in any of its positions  
20 that the reversing-drum has been moved accidentally from the desired position by reason of vibration or other causes. Such accidental operation besides being the cause of an interruption in the service of the apparatus  
25 governed by the controller is also likely to result in injury to the controller or to the distributing system, and it is the primary object of my invention to avoid these objections.

My invention is illustrated in the accompanying drawings, in which—

30 Figure 1 is a view in front elevation of a controller constructed in accordance therewith, a portion of the cover being broken away. Fig. 2 is an enlarged plan view of the  
35 connecting device between the main and reversing drums. Fig. 3 is a bottom face view of that member of the connecting device which is mounted upon the main-drum shaft, and Fig. 4 is a top face view of the member  
40 which is mounted upon the reversing-drum shaft.

The controller 1, which may be of any suitable construction so far as its adaptation to circuit variations and combinations is concerned, is provided with a main drum 2 and  
45 a reversing-drum 3, with the contact-segments of which suitable fingers 2<sup>a</sup> and 3<sup>a</sup> engage in

the usual manner. The shaft 4 of the main drum and the shaft 4<sup>a</sup> of the reversing-drum are out of alinement, and their inner adjacent  
50 ends are respectively provided with cooperating plates 5 and 6, which constitute a means whereby movement of the main drum in either direction from its zero or "off" position serves to correspondingly move the reversing-drum  
55 from its zero or inoperative position to its operative position and to hold it in the last-named position until the main drum is again returned to its off position. The bottom face of the plate 5 is provided with three projec-  
60 tions 7, 8, and 9, the first two of which are of such shape as to form an approximately semi-annular groove 10 between them. This plate is also provided with two openings 5<sup>a</sup> to permit of the insertion of a suitable dowel-pin 5<sup>b</sup>  
65 to fasten the plate to the shaft 4.

The plate 6 is of approximately triangular form and its top face is provided with three pins 11, 12, and 13, located at its respective corners, the first of which is adapted to project into the groove 10 of the plate 5 when the controller is in any of its "running" positions. The pins 12 and 13 are engaged by the opposite ends of the projection 9 when the main drum is in its zero position, and such  
75 engagement is maintained until the reversing-drum has been moved sufficiently to effect engagement between the reversing-drum contact-segments and the corresponding fingers, and at this point the said pins 12 and 13 will  
80 become disengaged from the projection 9 and the pin 11 will enter the groove 10 between the projections 7 and 8 of the plate 5. The reversing-drum will be thereby locked against further movement while the main drum is in  
85 any operating position, as is indicated in Fig. 2, in which the positions of the two plates with respect to each other when the controller is in its off position are shown in full lines and their positions when the controller has  
90 been thrown to either its reverse or its forward position are shown in broken lines.

The above-described device for actuating and locking the reversing-drum insures a posi-



tive coöperative relation between the main drum and the reversing-drum that obviates the necessity of employing any star-wheel, ratchet, or spring, and the engaging surfaces having relative movement are of such size and form that only a slight degree of wear occurs and such as does occur will be so distributed that the adjustment of the device as a whole is not materially affected thereby.

10 The form and dimensions of the several parts may be varied from what is shown without departing from my invention, and I therefore desire to have it understood that my claims are intended to cover such variations, even though  
15 they are not specifically mentioned.

I claim as my invention—

1. In a controller, the combination with a main drum having an actuating-plate one face of which is provided with projections, and a  
20 reversing-drum having a plate one face of which is provided with projections that are engaged by the actuating-plate projections to move the reversing-drum to one of its "on" positions and to lock it in that position.

25 2. In a controller, the combination with a main drum having a plate that is provided with an actuating projection and a locking-groove, and a reversing-drum having a plate that is provided with three pins, two of which  
30 are engaged by the actuating projection on the main-drum plate and the other of which engages the groove in the main-drum plate.

3. In a controller, the combination with a main drum and a reversing-drum the shafts  
35 of which are out of alinement and are respectively provided with face-to-face plates having coöperating projections for operating the reversing-drum as the main drum is operated, for locking the reversing-drum in its initial  
40 position and in its extreme positions and for preventing independent movement thereof.

4. In a controller, the combination with a main drum and a reversing-drum, of means for actuating the reversing-drum when moving the main drum and for preventing independent operation of the reversing-drum,  
45 comprising a plate mounted on the end of the main-drum shaft and having an approximately semi-annular groove and a projection, and a  
50 plate mounted on the end of the reversing-drum shaft and provided with spaced pins, one of which projects into the groove of the said plate when the controller is in any of its running positions and the other two of which

engage respectively with said projection when the controller is in its "off" position. 55

5. In a controller, the combination with a main drum and a reversing-drum the shafts of which are respectively provided with face-to-face gear-plates the coöperating projections of which insure movement of the reversing-drum to either of its "on" positions by the movement of the main drum and prevent independent movement thereof. 60

6. In a controller, the combination with a main drum and a reversing-drum, of a connection between the two whereby the reversing-drum is moved from its "off" position to either of its "on" positions by the movement of the main drum but is prevented thereby from independent operation, comprising a plate mounted on the main-drum shaft and having a projection and a semi-annular groove on one face, and a plate mounted on the end of the reversing-drum shaft and provided with three spaced pins, two of which are engaged respectively by said projection when the main drum is moved from its "off" position and the other of which projects into said semi-annular groove after the reversing-switch has been moved. 75 80

7. In a controller, the combination with a main drum and a reversing-drum, the shafts of which are out of alinement, of plates mounted upon the respective adjacent ends of said shafts in face-to-face relation and having coöperating face projections which insure dependent operation of the reversing-drum from zero to circuit-closing position and which lock said drum against movement during further movement of the main drum. 85 90

8. In a controller, the combination with a main drum and a reversing-drum, of plates mounted upon the respective shafts of the said drums in face-to-face relation and provided with coöperating face projections which insure dependent operation of the reversing-drum from zero or "off" position to circuit-closing position and which lock said drum against movement until the main drum is returned to "off" position. 95 100

In testimony whereof I have hereunto subscribed my name this 27th day of May, 1904.

RAY P. JACKSON.

Witnesses:

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BIRNEY HINES.