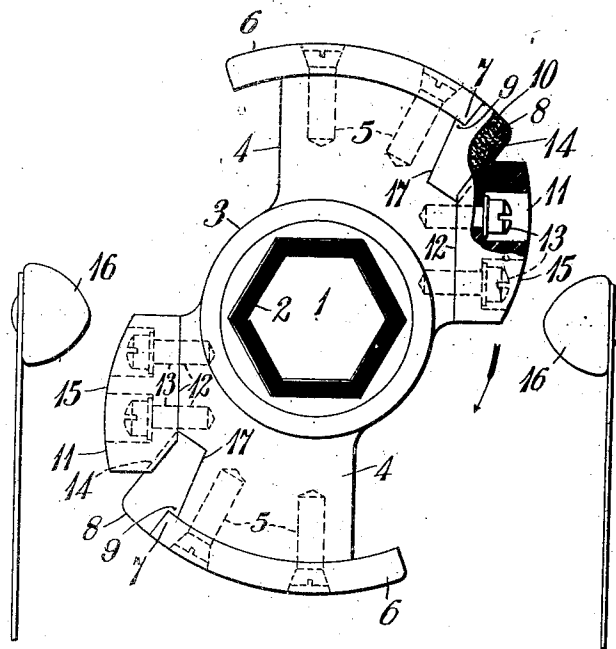


A. J. HALL.
CONTROLLER.

APPLICATION FILED DEC. 4, 1913.

1,260,665.

Patented Mar. 26, 1918.



WITNESSES:

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CONTROLLER.

1,260,665.

Specification of Letters Patent.

Patented Mar. 26, 1918.

Application filed December 4, 1913. Serial No. 804,645.

To all whom it may concern:

Be it known that I, ARTHUR J. HALL, a subject of the King of Great Britain, and a resident of Wilksburg, in the county of Allegheny and State of Pennsylvania, have invented a new and useful Improvement in Controllers, of which the following is a specification.

My invention relates to contact devices for electrical apparatus, and it has special reference to such devices as are used in connection with switching apparatus of the rotatable drum type.

One of the objects of my invention is to provide a contact device of the above mentioned class which shall be simple and inexpensive in construction, more durable than devices of similar character heretofore used and which shall prevent buckling of the contact fingers.

Another object of my invention is to provide a contact device which shall substantially obviate the burning or pitting which usually takes place in devices of this class.

A still further object is to provide lubricating means which shall serve to prolong the life of the cooperating contact members and shall render the switch or controller more readily operative.

Contact devices of this class, as heretofore used, have been of such construction as to be subjected to a great deal of friction, burning and damage incident to the well known buckling of the fingers.

It is my purpose to provide a contact device of relatively few parts which are composed of such materials and are so assembled and disposed with respect to one another that the objects hereinbefore mentioned are attained.

In the accompanying drawing, the single figure is a view, partially in section and partially in plan, of a portion of a controller embodying my invention.

Reference may now be had to the drawing, in which the device shown embodies a shaft 1, an insulating collar 2 and a spider 3 having oppositely projecting arms 4. Mounted on each of the arms 4, by means of screws 5, is a conducting segment 6 which is provided with an end portion 7 projecting beyond the arm 4 and which is preferably constructed of cold rolled steel.

Adjacent to the end portion 7 of the segment 6 is a substantially V shaped notch

17 in the arm 4 to receive a member 8 of high-resistance material having lubricating qualities, such as carbon and graphite, or the like. The member 8 is provided with a shoulder 9 which fits against the end portion 7, and its outer surface 10 is in alinement with the outer face of the segment 6 to form a continuous contact bearing surface. The member 8 is in intimate engagement with the arm 4 and segment 6, whereby a good electrical contact is secured.

Being thus engaged on one side by the arm 4 and the segment 6, the member 8 is securely held in position by a block 11 of insulating material which is secured to a face 12 of the arm 4 by screws 13. The block 11 has a face 14 bearing against the member 8 and an outer surface 15 which is curved from the path of travel of the segment 6 in such manner as to serve as a gradual approach for a contact finger 16 to the member 8 and the segment 6. During the operation of the device, when the drum is rotated in the direction of the arrow, the finger 16 first engages the insulating approach block 11 and then is brought into engagement with the member 8, which takes the arc without damage to the segment 6 upon which the finger 16 finally rests. In the reverse direction, the member 8 is again the arcing point.

In passing to and fro over the member 8, the finger 16 takes up and distributes a certain portion of the graphite or other similar substance in the member 8, which acts as a lubricant to insure smooth operation.

By the use of cooperating contact members of copper and steel, I obtain a device which withstands the wearing effects of friction to a greater degree than has heretofore been possible.

While I have shown a specific form of my invention and a particular adaptation thereof, the structural details and arrangement and location, of parts may obviously be varied materially without departing from the spirit and scope of my invention, and such modifications are intended to be covered by the appended claims.

I claim as my invention:

1. The combination with a contact finger, of a rotatable member, a contact segment concentric with said rotatable member and mounted thereon, and an insulating member constituting a curved approach for said seg-

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ment secured to said rotatable member, said insulating member having a diameter that gradually increases to substantially that of the contact segment.

5 2. The combination with a contact finger, of a rotatable member, a contact segment on said member adapted to engage said finger, a resistor adjacent said segment for taking
10 the are in making and breaking said engagement, and a member adjacent said resistor adapted to provide a gradual approach for said finger to said resistor and
15 said segment.

3. The combination with a rotatable member having a contact segment thereon, of a resistor adapted to form a continuation of
15 said segment, and an insulating block having an outer face gradually approaching the outer faces of said resistor and said segment.
20 ment.

4. The combination with a rotatable member having a contact segment and an insulating block thereon, of a resistor intermediate said segment and said block and held
25 in position thereby.

5. The combination with a rotatable member having a contact segment and an insulating block thereon, of a lubricating member-intermediate said segment and said block
30 and held in position thereby.

6. The combination with a rotatable member having a projecting arm and a contact segment on said arm and projecting beyond it, of an insulating block on said arm, and

a lubricating member having a portion 35 thereof disposed beneath said projecting segment and engaged by said block.

7. The combination with a rotatable member provided with a plurality of projecting portions having an opening between them, 40 of a detachable lubricating member disposed in said opening, and a conducting member associated with one of said projecting portions and having a part thereof engaging
45 said detachable member for holding it in position.

8. The combination with a stationary contact member and a relatively movable member, of a second contact member, a combined
50 lubricating and resistance member and an insulating approach, all detachably secured to said movable member and adapted to be successively brought into engagement with
55 said stationary contact member.

9. The combination with a contact member, of a relatively movable approach member of insulating material, a resistance member and a second contact member all adapted to be brought into smoothly successive
60 coöperative engagement with said first contact member.

In testimony whereof, I have hereunto subscribed my name this 28th day of Nov., 1913.

ARTHUR J. HALL.

Witnesses:

P. L. MAEDIS,
B. B. HINES.