C. LE G. FORTESCUE.

CAM RECTIFIER.

APPLICATION FILED MAR. 30, 1914.

1,194,160. Patented Aug. 8, 1916.

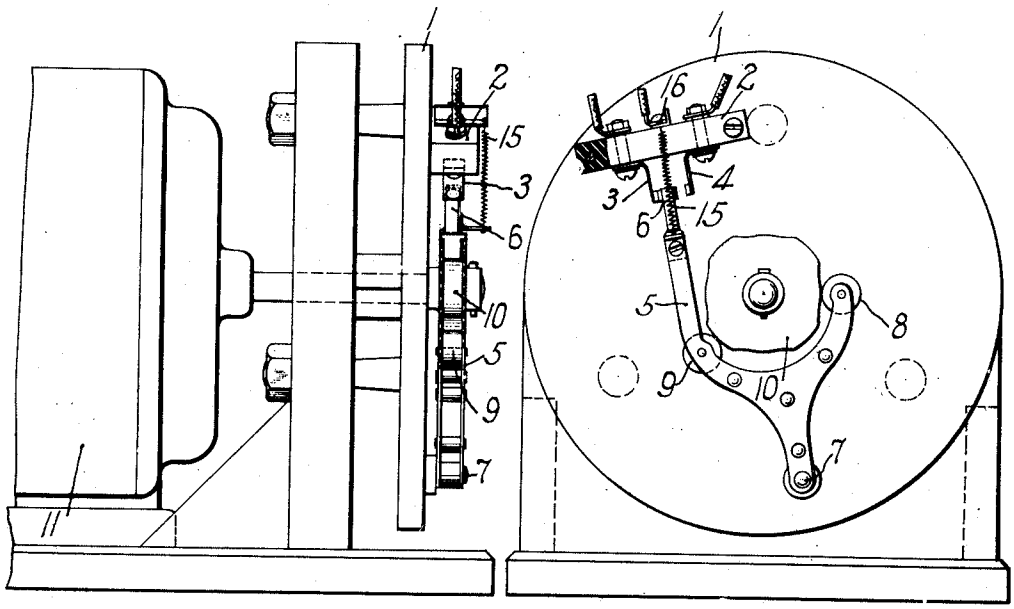


Fig. 2 Fig. 1.

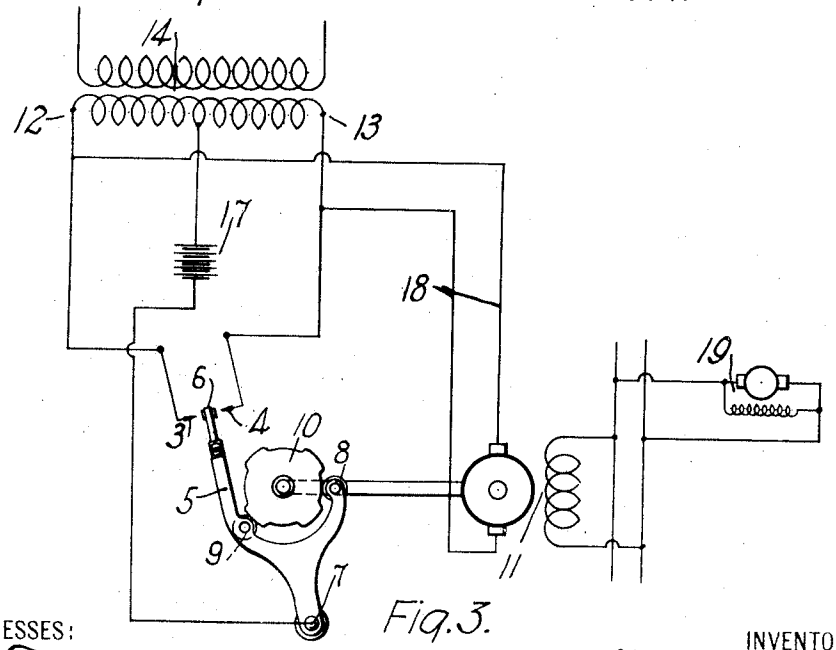


Fig. 3.

WITNESSES:

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CAM-RECTIFIER.

1,194,160. Specification of Letters Patent. Patented Aug. 8, 1916.

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To all whom it may concern:

Be it known that I, CHARLES LE G. FORTESCUE, a subject of the King of Great Britain, and a resident of Pittsburgh, in the county of Allegheny and State of Pennsylvania, have invented a new and useful Improvement in Cam-Rectifiers, of which the following is a specification.

My invention relates to apparatus for rectifying alternating current and particularly to that type known as mechanical rectifiers.

The object of my invention is to provide a simple, compact device of the character described which shall have few working parts, be positive in action, and readily adjustable.

Referring to the accompanying drawing, Figure 1 is a view, in front elevation, of my rectifier; Fig. 2 is a view, in side elevation, of the same; and Fig. 3 is a diagrammatic view of my rectifier and its circuits.

Mounted upon a base 1, is an insulating member 2 carrying fixed contact members 3 and 4. Each of the contact members 3 and 4 comprises a spring and a tip of some refractory material, such, for example, as carbon, platinum, tungsten or the like. Mounted on an oscillating carrier 5, is a double contact member 6 so placed as to oscillate between contact members 3 and 4. The contact member 6 is also provided with refractory tips which are preferably dissimilar to those pertaining to contact members 3 and 4, in order to prevent sticking. The member 5 is of substantially Y-shape and is pivotally mounted on base member 1 at the point 7, and provided with two rollers 8 and 9. Embraced by the two arms of the Y, in such position as to bear upon the rollers 8 and 9, is a cam member 10 that is driven by a synchronous motor 11. Current leads extend from the two terminals 12 and 13 of an alternating current source 14 to respective contact members 3 and 4. The contact member 6 is connected to the middle point of the source 14 through a conducting spring 15 that is connected with a fixed binding post 16 on the insulating member 2. Inserted in the connection between the contact member and the source 14, is the direct-current load of the rectifier, as, for example, a storage battery 17. The synchronous motor 11 is driven from the alternating current source 14 by means of connections 18 and is provided with direct current excitation from a separate source 19. Obviously, the field winding of motor 11 may be fed from battery 17, if found desirable.

Having thus described the construction of my rectifier, I will now proceed to set forth the operation thereof.

Cam 10, being driven in synchronism with the frequency of source 14 by motor 11, will cause the member 5 to oscillate in synchronism and thus effect contact between members 4 and 6 at such times as member 4 is positive and between members 3 and 6 at such times as member 3 is positive. It will thus be seen that contact member 6 will be, for a great portion of the time, in contact with points of positive potential and, accordingly, unidirectional pulsating current will flow from contact member 6 through load 17 to the mid point of the source 14.

If desired, the device may be so adjusted that the contact member 6 will touch contact members 3 and 4 only at such times as the latter are of negative polarity, under which conditions, the direction of current flow through the load 17 will be reversed. Owing to the resiliency of the contact members 3 and 4, they will remain in contact with member 6 for an appreciable length of time.

If desired, member 5 may be in electrical connection with contact member 6 and current be led to the latter at point 7 rather than through a spring such as 15. This system of connections is shown in Fig. 3.

What I claim is:

1. A mechanical rectifier comprising a pair of fixed contact members mounted upon a base and insulated therefrom, a rotatable cam, a pivotally mounted, oscillatory member of Y-shape, both arms of which engage the cam, and a contact member carried by an extension of said oscillatory member and vibratory between the two fixed contact members.

2. A mechanical rectifier comprising a pair of fixed contact members mounted upon a base and insulated therefrom, a rotatable cam, a pivotally mounted, oscillatory member of Y-shape engaging the rotatable cam on substantially opposite sides thereof, a contact member carried by an extension of said oscillatory member and vibratory between the two fixed contact members, and a current lead to said vibratory contact member.

3. The combination with a source of alternating current, of a fixed contact member

connected to each terminal of said source, a movable contact member between said fixed contact members, and means comprising a cam engaging the support of the movable contact member and a synchronous motor operating from said source and driving said cam, whereby said movable contact member is caused to vibrate in synchronism with the frequency of the alternating current source.

In testimony whereof, I have hereunto subscribed my name this 23rd day of Mar. 1914.

CHARLES LE G. FORTESCUE.

Witnesses:

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