J. BIJUR.

ELECTRICAL APPARATUS.

APPLICATION FILED NOV. 8, 1917.

1,359,866. **Patented Nov. 23, 1920.**

Fig. 1.

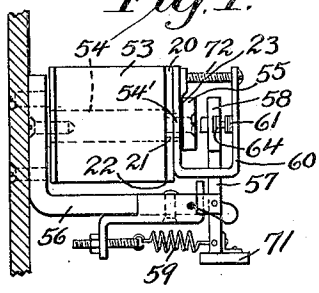
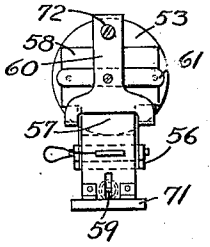


Fig. 2.



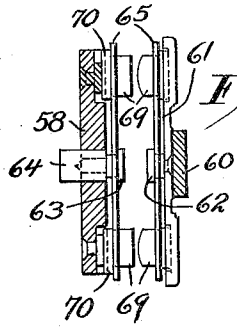


Fig. 3.

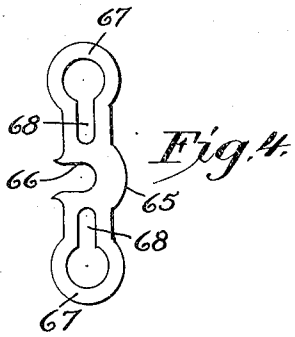


Fig. 4.

Fig. 5.

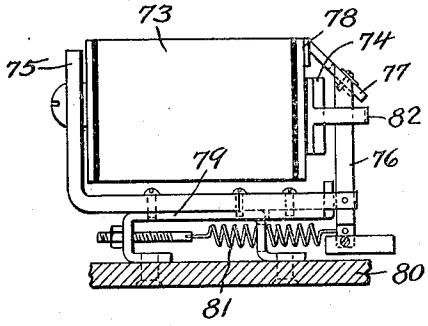


Fig. 6.

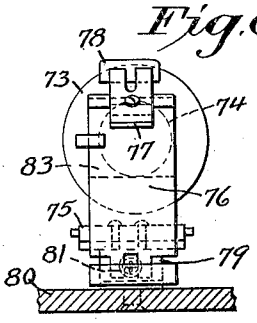


Fig. 7.

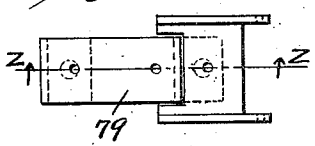
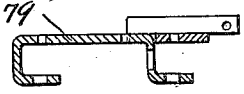


Fig. 8.



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UNITED STATES PATENT OFFICE.

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ELECTRICAL APPARATUS.

1,359,866. Specification of Letters Patent. Patented Nov. 23, 1920.

Original application filed April 28, 1911, Serial No. 623,834. Divided and this application filed November 8, 1917. Serial No. 200,835.

To all whom it may concern:

Be it known that I, JOSEPH BIJUR, a citizen of the United States, and a resident of the borough of Manhattan, in the city, county, and State of New York, have invented an Improvement in Electrical Apparatus, of which the following is a specification.

This invention relates to electrical apparatus for motor vehicles of the general type set forth in my copending application Serial No. 623,834 filed April 28th, 1911, which issued on November 20th, 1917, as Patent No. 1,246,852, of which the present application is a division.

One of the objects is to provide controlling apparatus in a system of the above type which will under all conditions of operation, distribute a current having proper characteristics for efficient operation.

Another object is to provide apparatus of the above type which shall be sensitive to changes in condition of operations of the system, and whose action shall be automatic.

Another object is to provide apparatus of the above type simple and rugged in construction, and which may easily be kept in operative condition.

Other objects will be in part obvious and in part pointed out hereinafter.

The invention accordingly consists in the features of construction, combinations of elements and arrangement of parts which will be exemplified in the construction hereinafter set forth, and the scope of the application which will be indicated in the following claims.

In the accompanying drawings, wherein is shown one of various possible embodiments of this invention:

Figure 1 is a detail elevation of a regulating device.

Fig. 2 is an end view thereof.

Fig. 3 is a detail sectional view of a contact mechanism involved in the regulating device of Fig. 1.

Fig. 4 is a detail view of the contact holder of this mechanism.

Fig. 5 is a detail side elevation of a circuit making device.

Fig. 6 is an end view thereof.

Fig. 7 is a detail plan of a supporting element.

Fig. 8 is a sectional view taken along the line Z—Z of Fig. 7.

Similar reference characters refer to similar parts throughout the several views of the drawings.

Referring to Figs. 1 to 4 of the drawings there is provided a magnet 53 having a core 54 formed with an enlarged head or end 55. Secured to the opposite end of core 54 is a support 56 bearing a pivoted iron member 57 which has at its free end an armature 58 retracted from core 54 by an adjustable spring 59. Mounted upon the magnet adjacent the head 55 is a brass member or bracket 60. As shown in the drawings, the brass member or bracket 60 is mounted so as to be insulated from the magnet 53 and its core 54. Specifically describing this detail, it is noted that the core 54 has a reduced diameter 54′ immediately below head 55. The brass member 60, and the disk 20 contacting the lower arm thereof, have openings 21 through which portion 54′ of the core extends, these openings being of larger diameter than said reduced portion which is consequently spaced from the members 20 and 60. An insulating disk 22 prevents electrical connection between member 60 and the magnet 53, and a second insulating disk 23 maintains the head 55 out of electrical contact with member 60. Formed upon member 60 is a resilient cross-piece 61 provided with a pin 62 having an enlarged head. A similar pin 63 is mounted in the brass pin 64, with which the armature 58 is provided, as best shown in Fig. 3 of the drawings. Removably slipped beneath the heads of each of these pins in a spring member 65, shaped as indicated in Fig. 4 and provided with a recess 66 to embrace the corresponding pin, as well as openings 67 communicating with slot 68 at each end. Within these openings are inserted the contact members 69, each of which is formed with a shoulder 70. These contact members are inserted within the openings 67 in spring 65, and the latter slipped into position in

which it is held by its frictional contact with the parts with which it engages. The contacts are thus readily removable and are yet securely mounted in position and are adapted as the armature vibrates to make and break the circuit at two points. The armature 58 is provided with a counterweight 71 whereby its action is rendered substantially independent of the effect of vibration and gravity. The distance between the contacts upon member 61 and those upon the armature is adjusted by a screw 72 provided at the free end of the member 60, and it may be noted that the latter member, as well as the contacts thereon are insulated from the armature. By this arrangement there are provided two parallel contacts, so that in the event of one becoming worn or pitted, the other may maintain efficient action of the device, and also the resilient mounting of the contacts affords a rubbing action as they are engaged by the armature which tends to keep them clean and insure a good electrical connection.

Referring now to Figs. 5, 6, 7 and 8 of the drawings, there is shown a main switch which governs the electrical connection of the generator with the external circuit consisting of battery and translating devices. This switch comprises a magnet 73 which may have several windings and is provided with a core having an enlarged head 74. Secured to the opposite end of this core is a supporting member 75 having pivotally connected thereto a balanced armature 76. This armature bears a removable slotted contact 77 coacting with a fixed contact 78, these parts being so insulated and connected as to control connection with the external circuit. The supporting member 75 is secured to a brass piece 79 which holds it in position and spaces it from the supporting wall indicated at 80, and between these parts is positioned an adjustable retracting spring 81 tending to swing the armature away from the core to a distance limited by a brass stop 82 held beneath the magnet core and extending over the armature as at 83.

It will thus be seen that there is provided apparatus of a compact, and yet simple, construction in which the several aims of this invention are achieved.

As many changes could be made in the above construction and many apparently widely different embodiments of this invention could be made without departing from the scope thereof, it is intended that all matter contained in the above description or shown in the accompanying drawings shall be interpreted as illustrative and not in a limiting sense.

It is also to be understood that the language used in the following claims is intended to cover all of the generic and specific features of the invention herein described and all statements of the scope of the invention, which, as a matter of language, might be said to fall therebetween.

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

1. In apparatus of the class described, in combination, a magnet, a movable member mounted to be attracted thereby, a bow-spring mounted upon said member and bearing a pair of replaceable contacts respectively adjacent its ends, said spring being formed and positioned to make a connection for said contacts as said movable member moves, and means adapted to retract said movable member from said magnet.

2. In apparatus of the class described, in combination, a magnet, a pair of adjacent relatively movable members one mounted to be attracted by said magnet, a first pair of contacts upon one of said members, a resilient element mounted upon the other said member and bearing a pair of removable contacts and shaped to make substantially simultaneous rubbing connection with said first pair of contacts as said movable member moves, and a spring mounted and connected to retract said movable member from said magnet.

3. In apparatus of the class described, in combination, a magnet, a movable member mounted to be attracted thereby, a relatively fixed member adjacent to said movable member, a resilient member mounted upon one of said members and bearing a contact and shaped to make a rubbing connection with said contact as said movable member moves, and means adapted to adjust the distance between said contact and the parts with which it coacts.

4. In apparatus of the class described, in combination, a magnet, a movable member mounted to be attracted thereby, a relatively fixed member adjacent said movable member, means mounted upon one of said members and supporting a pair of removable contacts, said means being formed to make electrical connections with said contacts substantially simultaneously as said movable member moves, a spring mounted and connected to retract said movable member from said magnet, and means adapted to adjust the distance between said contacts and the parts with which they coact.

5. In apparatus of the class described, in combination, a magnet winding, a core in said winding, an armature biased to retracted position and mounted to coact with said core, said armature having a counterweight, and a pair of coacting contacts one of which is controlled by said armature.

6. In apparatus of the class described, in combination, a magnet winding, a core in

said winding, an armature, a spring for biasing said armature to retracted position, means for adjusting the tension of said spring, means for rendering the action of said armature substantially independent of the effect of vibration and gravity, and a pair of coacting contacts, one of which is controlled by said armature.

7. In apparatus of the class described, in combination, a magnet winding, a core in said winding having a laterally extending head, an armature biased to retracted position and mounted to coact with said head, means for rendering the action of said armature substantially independent of the effect of vibration and gravity, and a brass pin interposed between said armature and said head, to prevent direct contact between said armature and said head.

8. In apparatus of the class described, in combination, a magnet, a pair of adjacent relatively movable members mounted to be moved toward each other by said magnet, a pair of resilient elements one mounted upon each said member, each said element bearing a pair of removable contacts, the contacts on one said resilient element being arranged to make substantially simultaneous rubbing connection with those on the other.

In testimony whereof, I have signed my name to this specification this 30th day of October, 1917.

JOSEPH BIJUR.