Jan. 23, 1923. 1,443,205

J. BIJUR.
ELECTRICAL APPARATUS.
FILED JULY 3, 1919.

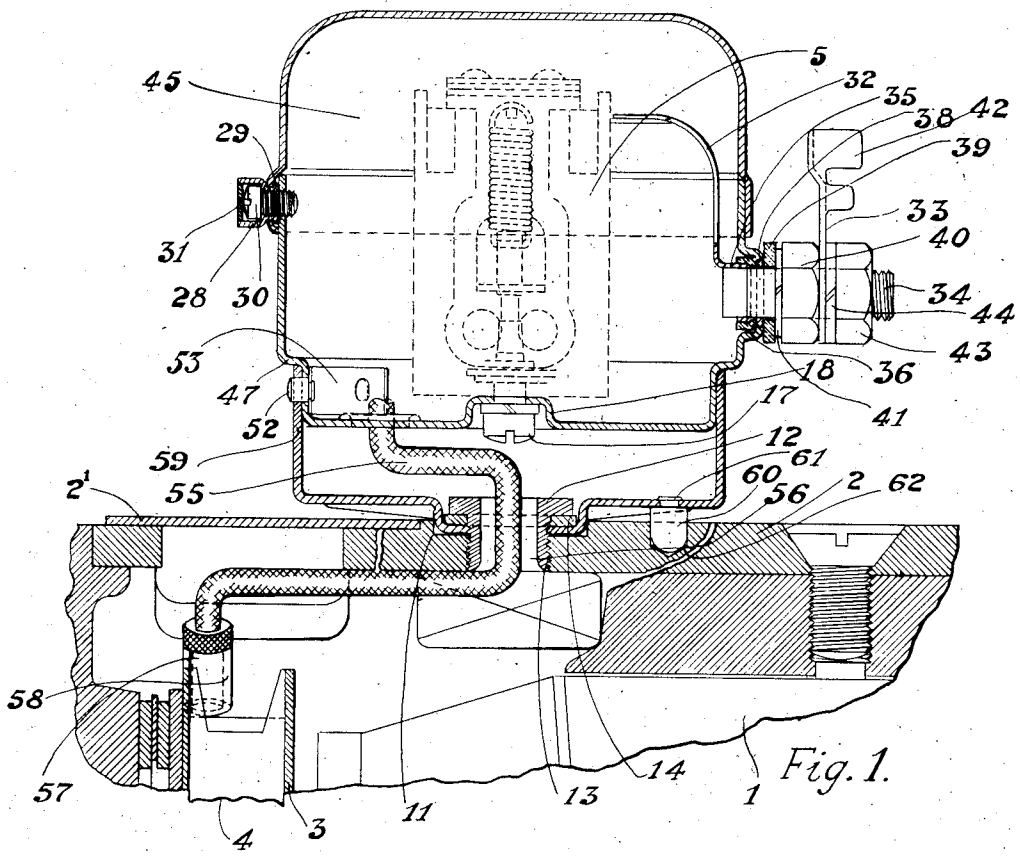


Fig. 1.

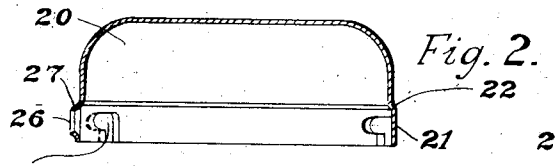


Fig. 2.

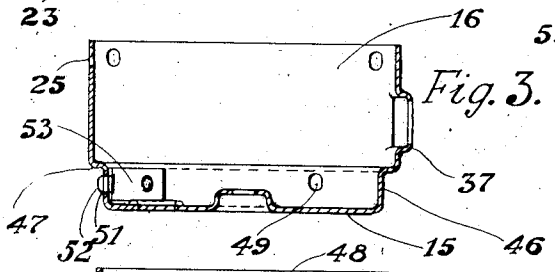


Fig. 3.

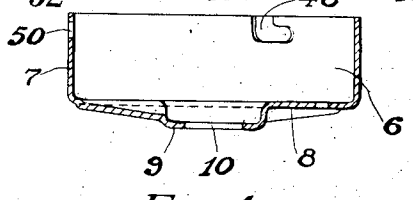


Fig. 4

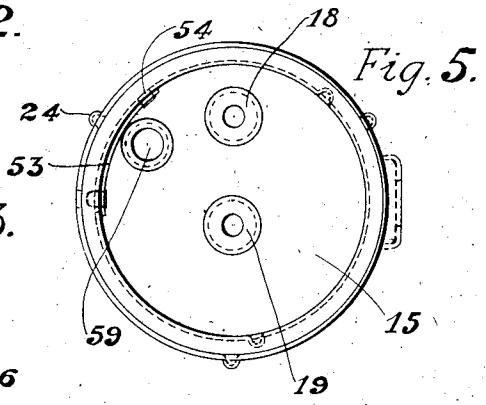


Fig. 5.

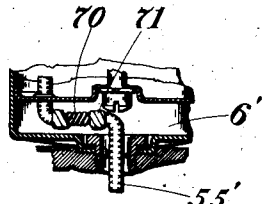


Fig. 6

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UNITED STATES PATENT OFFICE.

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ELECTRICAL APPARATUS.

Application filed July 3, 1919. Serial No. 308,466.

To all whom it may concern:

Be it known that I, JOSEPH BIJUR, a citizen of the United States, residing at New York city, in the county of New York and State of New York, have invented certain new and useful Improvements in Electrical Apparatus, of which the following is a clear and exact description, such as will enable others skilled in the art to which it appertains to make and use the same.

This invention relates to electrical generating and control apparatus, and with regard to its more specific features to the mechanical application of the latter.

One of the objects is to provide electrical, generating and associated control apparatus, which shall be simple and compact in construction, and substantially proof against derangement from entry of water.

Another object is to provide control apparatus that can be installed and removed with a minimum of time and trouble by persons wholly unfamiliar with the character of the apparatus or the wiring diagram of the system.

Another object is to provide apparatus of the above type which shall be proof against tampering with delicate parts.

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 of which will be indicated in the following claims.

In the accompanying drawings in which is shown one of various possible embodiments of the several features of my invention, Fig. 1 is a view in longitudinal section and on an enlarged scale of my apparatus showing a fragment of the generator 1. Fig. 2 is a view in longitudinal section of the cover of my box, Fig. 3 is a view similar to Fig. 2 of the casing member of my box, Fig. 4 is a view similar to Figs. 2 and 3 of the base member for the box, Fig. 5 is a top plan view of the casing member shown in Fig. 3, and Fig. 6 is a fragmentary sectional view showing a somewhat modified form of the invention.

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

Referring now to the accompanying drawings, there is shown by way of example a generator having an armature 1 a casing 2, a window strip 2^1 and a metallic housing 3 for a brush 4. This generator is preferably of the well known type employed on motor vehicles for maintaining a storage battery in charged condition. The generator is accordingly provided with any of the well known regulating means (not shown), to maintain a function of the output constant for widely varying speeds.

To allow the generator to charge the battery when the voltage of the former is sufficiently high, and at the same time to prevent a discharge of the battery through the generator when the apparatus is idle or running at speeds below that for which the generator builds up, I preferably employ an automatic electromagnetic switch 5 of well known construction, the details of which need not be described, as they are immaterial to this invention.

To associate the switch 5 with the generator, I preferably mount upon the latter a pressed metal base member 6 having a cylindrical wall 7 and a radially corrugated base 8 provided with a central circular embossment 9 having a central opening 10 therethrough. Embossment 9 fits into a correspondingly shaped depression 11 in the casing 2 and is firmly secured to said casing by means of a hold-down screw 12 threaded into the casing 2 as at 13 and locked in place preferably by means of lock washer 14. To firmly hold the base 6 against rotation about the hold-down screw, I preferably provide a dowel 60, riveted to the bottom 8 of said base as at 61, to extend downwardly into a corresponding socket 62 in the casing 2.

Switch 5 is preferably secured to the bottom 15 of casing member 16 by means of screws 17 passing from below and extending upwardly through upward embossments 18 and 19 in said bottom.

Casing 16 is closed by means of a cover member 20 having a rim 21 telescoped over the wall of casing 16 to a limiting position determined by shoulder 22. To secure the

cover 20 to the casing 16 I preferably provide the former with a plurality, preferably three outwardly embossed bayonet slots 23 and I provide the casing 16 with a corresponding number of correspondingly placed outwardly embossed lugs 24 for entry into the bayonet slots 23 to attach the cover to the casing to form the closed switch-box. To prevent access without detection to the electromagnetic apparatus contained within the box, by unauthorized persons, I preferably attach a sealing cup 28 by riveting it as at 29 about an aperture 26 in the cover said cover being embossed outwardly as at 27 about said aperture. A screw 30 is threaded into the cup and into an aligned aperture 25 in the casing to firmly secure the cover and the casing together. A lead plug 31 is disposed within the cup 28 to cover the head of the screw 30, so that access cannot be had to said screw without destroying said plug.

I preferably provide a jumper 32 electrically connecting switch 5 to a terminal 33 on the exterior of the casing. This terminal preferably includes a bolt 34 to one end of which the jumper 32 is attached as at 35, a terminal insulation piece 36 encircling said bolt and fitting over said jumper end, the casing 16 being preferably embossed outwardly as at 37 to lodge said insulation piece. The bolt 34 is insulated from the casing by means of a bushing 38. A nut 40 is threaded onto bolt 34 and insulated from the casing by a washer 39, and secured by means of a lock washer 41. The terminal lug 42 to which a lead-wire (not shown) is connected, is clamped in place against the head of nut 40 by means of a bolt-nut 43 secured in place by a lock washer 44.

The box enclosing the switch 5 when the cover is locked in place, designated in its entirety by numeral 45, thus constitutes a self-contained control apparatus which cannot be tampered with without detection. The box 45 is preferably, telescoped into the base member 6, the bottom of the casing 16 being of reduced diameter as at 46 forming a shoulder 47 to limit the amount of entry thereof into said base member. To secure said box to said base member I preferably provide outwardly embossed bayonet slots 48 in the base member and corresponding outwardly embossed lugs 49 in the reduced portion 46 of the casing 16, similar to bayonet slots 23 and lugs 24 above described.

In order to prevent the control apparatus 45 from working its way loose with respect to the base 6 due to vibration I preferably provide a spring-pressed lug 52 extending through a small circular aperture 50 in the base wall 7, and through an aperture 51 registering therewith in the reduced portion 46 of the casing member 16. The lug 52 is preferably secured by riveting or equivalent means to a leaf-spring 53 extending along an arc of the casing portion 46, the spring being in turn riveted at its opposite end as at 54 to the casing portion 46.

To electrically connect the control apparatus to the generator, I preferably provide a flexible conductor 55 secured at one end (not shown) to the control apparatus, extending through an opening 59 in the bottom 15 of casing 16, through a central longitudinal opening 56 is the hold-down screw 12 and terminating in a plug 57 adapted to be inserted for quick detachable connection into a cylindrical metal socket 58 formed preferably integrally with the brush box 3. The base member 6 provides ample room for taking up the slack of conductor 55.

Although conductor 55 passes through an opening 56 in the dynamo casing, this opening is completely closed against entry of rain water or other foreign matter when casing 45 is in place.

By referring to Fig. 1 it is further noted that the connection from the automatic switch to the generator is completely enclosed, and only the connection to the battery is accessible.

In the use of my apparatus, if the switch 5 should become out of order, it is merely necessary to depress lug 52, deflecting spring 53 and then to turn the casing so that it may be lifted out of bayonet slots 48. By opening window strap 2, access is had to the terminal 57 which is readily pulled out of socket 58. There is no liklihood that an unskilled person may by error lossen a connection other than that between the casing 45 and base 6, for the reason that the screws 17 holding the switch in the box, and the hold-down screw 13, holding the base onto the generator, are both inaccessible until after the casing is removed.

Assuming a replacement control apparatus be available, the same is applied by inserting the plug 58 thereof into socket 57, after passing the conductor 55 through the central opening 56. The bottom of the box is then telescoped into the base 6 until the bayonet connections are made, when lug 52 will snap through the opening 51 in the base; whereupon the apparatus is again in condition for use. The window strip, 2^1 should then preferably be again applied. It is thus seen that any person however unskilled in the handling of electrical apparatus and however unfamiliar with the character of the apparatus and the connections is able to remove a defective switch box and replace it with an operative one. Thus, if a spare box 45 is available no automobile mechanic or electrician need be called to repair the device should it become out of order. The defective box is returned to the manufacturer or service station where the cover may be removed by an authorized person and the switch repaired.

It is to be noted that an authorized person

may remove cover 20 from the switch box while the box remains on the generator, and this without affecting any of the electrical connections. As the switch then extends above the top of casing member 16, its operation can thus conveniently be observed under actual working conditions.

In Fig. 6 I have shown a modified form of the invention, in which the connection of the switch and the generator is intended to be broken when required, by severing conductor 55^1 at its slack portion within base 6^1. For this purpose, I have shown an ordinary splice 70, taped as at 71 to avoid a ground, part of the tape being shown broken away. Other types of connection may of course be employed.

Although I have shown my automatic switch box as applied to a generator for motor vehicles it is to be understood that it is of more general application, being useful also for stationary installations. It is also to be understood that my box may be employed for enclosing apparatus other than a switch for the specific purpose set forth.

It will thus be seen that there is herein described apparatus in which the several features of this invention are embodied, and which apparatus in its action attains the various objects of the invention and is well suited to meet the requirements of practical use.

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.

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

1. Apparatus of the character described, comprising in combination, a generator, a closed box for containing control apparatus therefor, a base member secured to said dynamo for mounting said box and a quick-detachable connection between said base member and said box.

2. Apparatus of the character described, comprising in combination, a generator, a closed cylindrical box for containing control apparatus therefor, a base member secured to said dynamo, said base member having a rim encircling said box, and a bayonet connection between said base member and said box.

3. Apparatus of the character described, comprising in combination, a generator, a closed cylindrical box for containing control apparatus therefor, a base member secured to said dynamo, said base member having a rim encircling said box, and a bayonet connection between said base member and said box, said bayonet connection comprising an elbow shaped embossment on one of said members, and a co-operating lug embossment on the other.

4. Apparatus of the character described, comprising in combination, a generator, a box for control apparatus therefor, a base member secured to said generator and embracing the bottom of said box, and a quick-detachable connection between said base and said box, comprising a bayonet connection, and a spring pressed latch to prevent undesired loosening of said bayonet connection.

5. In combination, a generator, a box mounted thereon, for containing control apparatus therefor, a base for said box, a central hold-down screw for securing said base to said generator, and an electrical conductor passing from said generator through a longitudinal opening in said screw for connection to said control apparatus.

6. In combination, a dynamo, having a casing, a base member for control apparatus, means securing said base member to said casing, comprising a screw passing centrally through said base into said casing, and a dowel pin near the edge of said base fitting into a depression in said casing.

7. In combination, a dynamo, having a casing and brushes, a base member, means securing said base member to said casing, a dynamo control apparatus support, a quick-detachable mechanical connection for securing said support to said base, a conductor passing from said control apparatus through a central opening in said base member, and a quick-detachable plug and socket connection between said conductor and one of said brushes.

8. In combination, a generator having a casing and brushes, a base member, a screw, having a central aperture for securing said base member to said casing, a closed box mounted on said base member, for containing electrical apparatus, a quick-detachable connection for securing said box to said base member, a conductor passing from said electrical apparatus through said aperture in said screw, and a quick-detachable connection between said conductor and a part of said generator.

9. In combination, a generator having a casing, a cup shaped base member secured thereto, a box for generator control apparatus, said box being telescoped into said base member, a quick detachable connection between said latter elements, and means to limit the entry of said box into said base with the bottom of said box spaced from the bottom of said base.

10. In combination, a generator having a casing, a circular base member secured to said casing and having an upstanding rim, a box for control apparatus, said box having

a bayonet connection with said rim, and a shoulder on said box extending over the top of said rim to space the bottom of said box from said base member.

11. In combination, a generator, a box, fastening means passing through the bottom of said box for detachably securing an appartus thereto, a cup shaped support for said box, and means wtihin the contour of said support for securing the latter to said generator, whereby said apparatus fastening means and said support fastening means are inaccessible until said box is removed from its support.

In testimony whereof, I have signed my name to this specification this 30th day of June, 1919.

JOSEPH BIJUR.