

SPECIFICATION

Brush Carrier and Voltage Regulator Assembly for a Generator, Particularly for Motor Vehicles

The present invention concerns a brush carrier and semi-conductor voltage regulator assembly for a generator, particularly for the generator of a motor vehicle, said assembly having a brush carrier which is intended to be fixed to a support of the generator at the collecting ring end of the latter, and which is adapted to receive directly thereon a voltage regulator which includes a housing. The housing would normally be moulded in plastics material and contain a printed circuit, with semi-conductor elements disposed on said printed circuit.

It is known to fix a regulator on a brush carrier, but, after having been fixed to one another, they usually form an inseparable assembly, the disadvantage of which is that when a defect occurs in one or other of the elements, it is necessary to replace the complete assembly, which leads to expensive repairs.

This disadvantage has been overcome by using additional removable fixing means, arranged simultaneously to ensure the fixing and the electrical connection of the regulator to the brush carrier, after the latter has been mounted on the support of the generator. However, this arrangement requires a quite large number of threaded holes and screws for fixing the elements to one another.

An object of the present invention is to eliminate a good many of these screws and holes and generally to obtain a brush carrier-regulator assembly in two separable parts, of simpler design and therefore of lower cost.

Furthermore, the invention aims to obtain a separable assembly, but one which can be previously assembled by suitable means, in such a way as to be easily stored before being finally mounted on the support of the generator and easily manipulated when being mounted.

According to the invention, a brush carrier and semi-conductor voltage regulator assembly for a generator comprises a brush carrier adapted to be fixed to a support of the generator at the collecting ring end thereof, a voltage regulator including a housing, and fixing means acting when the regulator is mounted on the brush carrier to hold the two together, the fixing means including two hooks made by moulding with the brush carrier and two fixing tabs disposed to either side of the regulator housing and which engage in the necks of the hooks, the fixing means also including a resilient tongue on the brush carrier at a location between the hooks and provided with a retaining catch which moves aside during the passage of the edge of a lateral wall of the regulator housing when it is being mounted and which anchors itself on the internal surface of said wall when the regulator is in its final position with respect to the brush carrier.

The invention will now be described, by way of example, with reference to the accompanying

drawings, in which:—

Figures 1, 2, 3, 4 show respectively plan views of a cover, of a regulator, of a brush carrier and of a regulator brush carrier assembly after mounting, these views showing the order of mounting the various elements one on another.

Figures 5, 6, 7, 8 show respectively views in section along the line AA of Figures 1, 2, 3 and 4.

The assembly shown in Figures 4 and 8 includes a voltage regulator assembly designated 1, of the semi-conductor type, for the generator of a motor vehicle, the excitation winding of which is supplied by means of brushes 2 and 3, slidably mounted in housing 4 and 5 of a brush carrier 6, in which they are held retracted by means of a locking pin 7 passing through the housings 4 and 5. This enables the brush carrier 6 to be more easily mounted when it is being fixed to the support 8 of the generator after it has been pre-assembled with the regulator 1 to form an assembly.

The regulator 1 is in the form of a hollow parallel-epipedic housing 9 which is open in one of its faces 9a to receive the semi-conductors of which it is composed. Two fixing tabs in the form of lugs 10 and 11 are provided on either side of the housing 9 and are provided respectively with two holes 12 and 13, the axes of which correspond to those of two holes 14 and 15 formed in two lugs 16 and 17 disposed on either side of the brush carrier 6. The holes are arranged in such a manner that the final assembly of the pre-assembled regulator 1 and brush carrier 6 is effected by means of two fixing screws 18 and 19 passing through the lugs 10 and 11 of the regulator 1 and the lugs 16 and 17 of the brush carrier 6 and screwing into corresponding threaded holes in the support 8.

The pre-assembly of the regulator 1 on the brush carrier 6 is effected by means of suitable snap-engagement means, made by moulding with the brush carrier 6. These means are constituted by two hooks 20 and 21, disposed symmetrically on the lugs 16 and 17 of the brush carrier 6 and bent back at right angles. The tabs 10 and 11 of the regulator engage the hooks 20 and 21. The snap-engagement means also includes a resilient tongue 22 disposed in the axis of said brush carrier 6 and provided with a retaining catch 23 which moves aside during the passage of the edge 24 of the regulator housing side wall 25 during mounting of the latter, and anchors itself on the internal face 25a of said wall 25 (Figure 8) at the moment when the tabs 10 and 11 of the regulator 1 reach the base of the hooks 20 and 21.

In this manner, the regulator 1 is located and axially and transversely held on the brush carrier 6 and the respective fixing holes 12, 13 and 14, 15 of the regulator and brush carrier are coincident.

After having carried out the pre-assembly of these two elements and effecting their electrical interconnection in known manner, the electrical and mechanical protection of the connecting means is ensured by means of a cover,

advantageously made by moulding from plastics material and which covers the open portion of the assembly through which the various connections are effected. The cover 26 is held in place by two screws 27 and 28 which screw into two corresponding threaded holes 29 and 30 in the brush carrier 6.

The regulator 1 can easily be removed by simply exerting pressure on the extension 31 of the resilient tongue 22 of the brush carrier 6, after having removed the cover 26 and disconnected the regulator 1 from the brush carrier 6.

It is clear that many modifications may be made to this embodiment, which is given by way of example, without, however, going beyond the scope of the present invention. For example, the cover may be fixed by resilient snap-engagement on the brush carrier, rather than by being fixed by screws.

20 Claims

1. A brush carrier and semi-conductor voltage regulator assembly for a generator comprising a

brush carrier adapted to be fixed to a support of the generator at the collecting ring end thereof, a voltage regulator including a housing, and fixing means acting when the regulator is mounted on the brush carrier to hold the two together, the fixing means including two hooks made by moulding with the brush carrier and two fixing tabs disposed to either side of the regulator housing and which engage in the necks of the hooks, the fixing means also including a resilient tongue on the brush carrier at a location between the hooks and provided with a retaining catch which moves aside during the passage of the edge of a lateral wall of the regulator housing when it is being mounted and which anchors itself on the internal surface of said wall when the regulator is in its final position with respect to the brush carrier.

2. A brush carrier and semi-conductor voltage regulator assembly substantially as hereinbefore described with reference to the accompanying drawings.

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