

CONDUCTIVE INSERT FOR COMPOSITE PANELS

Main Technological Area —> Electrical Engineering

Keywords —> Threaded Insert | Electrical conductivity | Electric Grounding | Composite Materials | Honeycomb

It is well known that electrical equipment installed in any means of transport (vehicles, aircraft or boats) require a "grounding" connection to ensure its operation and to protect the safety of the occupants in the event of current leakage. In the case of metal structures (chassis, fuselage, hull, etc.), the grounding function is performed by the structure itself.

The advent of new materials, such as honeycomb panels, which are not always electrically conductive, has highlighted the need to guarantee this important functionality with solutions different from those used in the past. The proposed solution consists of a threaded insert for the installation of electrical equipment that requires a "grounding" line to be used in the presence of composite panels such as "honeycomb".

The patent also includes the installation tool for the insert. The particular configuration of the insert and the presence of a support ring made of electrically conductive material enables its insertion in the panel, the safe anchorage and the connection of the same (and of the apparatuses to it is not necessary to connect the equipment) to the grounding line.

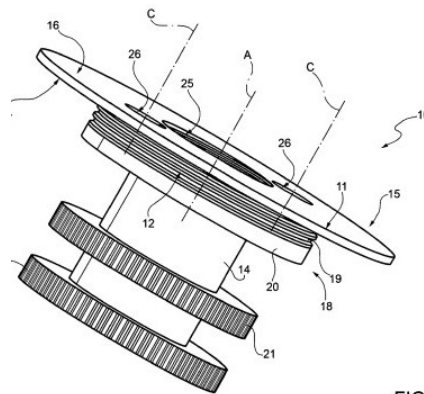


FIG. 1

TECHNICAL SPECIFICATIONS

The installation includes:

- 1) The drilling of the panel with defined diameter and depth
- 2) Position the insert inside the hole so that the external support surface (indicated with 16 Figure 1) stops on the surface of the panel with electrical conductivity.
- 3) The insertion of special adhesive solutions, in the liquid state, inside the upper holes (indicated with 26 in Figure 1) for clamping the part to the structure
- 4) The subsequent insertion of the fixing screw of the electrical device or the grounding lines of the same device.

INNOVATION/ADVANTAGES

- Easy to install and robust
- Restoring the grounding function even in non-metallic structures
- Standardization (through the adoption of standard threaded inserts)

FIELDS OF APPLICATION

- Aircraft (including drones)
- Satellites
- Vehicles, motorcycles
- Vessels
- Non-metallic structures designed to house electrical equipment.

PATENT INFORMATION

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IPC Codes - F16B5/01

Active worldwide applications

EPO - EP2798230B1; filing date: 11/10/2012; grant date: e 2016/03/23

National Extensions: Italy - Germany – France – United Kingdom

USA - US9337554; filing date: 2014/06/13; grant date: 2016/05/10

China - CN104185741B; filing date: 2012/10/11; grant date: 2016/05/18

Russia - RU2599604C2; filing date: 2012/10/11; grant date: 2016/10/10

South Korea - KR20140120303A; filing date: 2012/10/11; grant date: 2018/12/13

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