DESCRIPTION

BATTERY DEVICE AND BATTERY SYSTEM

CROSS-REFERENCE TO RELATED APPLICATIONS

[0001] This application is national stage application of International Application No. PCT/JP2017/027084, filed July 26, 2017, incorporated herein by reference, and which claims the benefit of priority from Japanese Patent Application No. 2016-150793, filed July 29, 2016, the entire contents of which are incorporated herein by reference.

FIELD

[0002] Embodiments described herein relate generally to a battery device and a battery system.

BACKGROUND

[0003] Conventionally, battery devices incorporating a plurality of battery cells and modules in a casing are known. In such a battery device, for example, the battery cells and modules are cooled for longer longevity.

[0004] It is hard to assemble a battery device in a configuration such that cells and modules are uniformly cooled, which may increase manufacturing cost.

BRIEF DESCRIPTION OF DRAWINGS

[0005] FIG. 1 is a perspective view schematically illustrating a vehicle according to a first embodiment.

FIG. 2 is an exploded perspective view illustrating a battery device according to the first embodiment.

FIG. 3 is a cross-sectional view illustrating the

battery device according to the first embodiment.

FIG. 4 is a perspective view schematically illustrating an inside of the battery device according to the first embodiment.

FIG. 5 is a perspective view illustrating a battery module according to the first embodiment.

FIG. 6 is an exploded perspective view illustrating the battery module according to the first embodiment.

FIG. 7 is a cross-sectional view illustrating part of the battery device according to the first embodiment.

FIG. 8 is a perspective view illustrating a first fixing member according to the first embodiment.

FIG. 9 is a perspective view schematically illustrating a battery device according to a second embodiment.

FIG. 10 is a cross-sectional view illustrating the battery device according to the second embodiment.

FIG. 11 is an exploded perspective view illustrating a battery unit according to the second embodiment.

FIG. 12 is an exploded side view illustrating the battery unit according to the second embodiment.

FIG. 13 is a cross-sectional view illustrating part of the battery device according to the second embodiment.

FIG. 14 is a perspective view schematically illustrating an inside of the battery device according to the second embodiment.

FIG. 15 is a cross-sectional view of a battery device according to a third embodiment.

FIG. 16 is a perspective view schematically illustrating a plurality of battery devices according to a fourth embodiment.

FIG. 17 is a plan view illustrating a plurality of battery devices according to a fifth embodiment.

DETAILED DESCRIPTION

[0006] In general, according to one embodiment, a battery device includes a casing, a second wall, a plurality of battery modules, a support, a plurality of fixing parts and cooling unit. The casing includes a first wall. The second wall is detachably attached to the casing apart from the first wall in a first direction. The plurality of battery modules are arranged in a second direction inside a chamber of the casing, the second direction intersecting with the first direction, the chamber located between the first wall and the second wall, the battery modules each including a first surface facing the first wall, a second surface facing the second wall, and a first positioner provided on the first surface, the first positioner including one of a protrusion and a recess. The support extends in the second direction inside the chamber, supports the battery modules, and is provided with a plurality of second positioners that is fitted to the first positioners to hold the battery modules in the second direction, the second positioners each including the other of the protrusion and the recess. The plurality of fixing parts are provided on the second surface or in a location closer to the second surface than to the first surface, and fix the battery modules and the casing to each other. The cooling unit is configured to allow a refrigerant to flow into an interval between the battery modules.

[0007] The following describes a first embodiment with reference to FIGS. 1 to FIG. 8. In the present description, basically, a vertically upward direction is defined as an upward direction, and a vertically downward direction is defined as a downward direction. In the present description, a plurality of expressions may be used for a