

# US Patent & Trademark Office

## Patent Public Search | Text View

---

United States Patent Application Publication	20250266567
Kind Code	A1
Publication Date	August 21, 2025
Inventor(s)	PARK; Ju-Hun et al.

---

### BATTERY PACK

---

#### Abstract

A battery pack may include: a case having a base plate and configured to provide an inner space; a battery module located inside the case; and a venting cover coupled to the case, the venting cover covering at least one surface of the battery module, and the venting cover configured such that at least a portion of the venting cover is movable in an outward direction of the battery module.

---

<b>Inventors:</b>	<b>PARK; Ju-Hun (Daejeon, KR), CHANG; Hyuk-Kyun (Daejeon, KR)</b>
<b>Applicant:</b>	<b>LG ENERGY SOLUTION, LTD. (Seoul, KR)</b>
<b>Family ID:</b>	<b>1000008615261</b>
<b>Assignee:</b>	<b>LG ENERGY SOLUTION, LTD. (Seoul, KR)</b>
<b>Appl. No.:</b>	<b>19/105276</b>
<b>Filed (or PCT Filed):</b>	<b>July 10, 2024</b>
<b>PCT No.:</b>	<b>PCT/KR2024/009880</b>

#### Foreign Application Priority Data

KR	10-2023-0090616	Jul. 12, 2023
----	-----------------	---------------

---

#### Publication Classification

**Int. Cl.:** H01M50/358 (20210101); H01M50/289 (20210101); H01M50/375 (20210101)

**U.S. Cl.:**

**CPC** H01M50/358 (20210101); H01M50/289 (20210101); H01M50/375 (20210101);  
H01M2220/20 (20130101)

---

## Background/Summary

### CROSS REFERENCE TO RELATED APPLICATION

[0001] The present application claims priority to Korean Patent Application No. 10-2023-0090616 filed on Jul. 12, 2023 in the Republic of Korea, the disclosures of which are incorporated herein by reference.

### TECHNICAL FIELD

[0002] The present disclosure relates to a battery pack.

### BACKGROUND ART

[0003] As the demand for portable electronic products such as laptops, video cameras, mobile phones, and the like rapidly increases, and as robots, electric vehicles, and the like are progressively commercialized, active researches on high-performance secondary batteries capable of being repeatedly charged and discharged are underway.

[0004] Currently commercialized secondary batteries include nickel-cadmium batteries, nickel-hydrogen batteries, nickel-zinc batteries, and lithium secondary batteries. Among them, lithium secondary batteries are in the spotlight for their advantages of free charging and discharging due to almost no memory effect, a very low self-discharge rate, and a high energy density, compared to nickel-based secondary batteries.

[0005] These lithium secondary batteries generally use lithium-based oxides and carbon materials as positive and negative electrode active materials, respectively. The lithium secondary batteries include an electrode assembly in which positive and negative electrode plates, coated with the positive and negative electrode active materials, respectively, are disposed with a separator therebetween and an exterior case, i.e., a battery case, that stores and seals the electrode assembly with an electrolyte.

[0006] In general, lithium secondary batteries may be classified, depending on the shape of the exterior case, into can-type secondary batteries in which the electrode assembly is accommodated in a metal can and pouch-type secondary batteries in which the electrode assembly is accommodated in a pouch of an aluminum laminate sheet.

[0007] Recently, secondary batteries have been widely used in medium and large devices for driving or energy storage, such as electric vehicles and energy storage systems (ESSs), as well as in small devices such as portable electronic devices. A plurality of secondary batteries described above may be electrically connected and stored inside a module case to form one battery module. In addition, multiple battery modules described above may be connected to configure one battery pack.

[0008] However, in the case where a large number of secondary batteries (battery cells) or a large number of battery modules are densely stored in a small space, they may be vulnerable to a thermal event. In particular, if an event such as thermal runaway occurs in any one battery cell, high-temperature gas, flame, and heat may be generated. If such gas, flame, or heat transfers to other battery cells included in the same battery module, an explosive chain reaction such as thermal propagation may occur. In addition, this chain reaction may cause accidents such as fire or explosion in other battery modules, as well as in the relevant battery module.

[0009] Moreover, since medium and large battery packs used in electric vehicles include a large number of battery cells and battery modules to increase output and/or capacity, the risk of a thermal chain reaction may be further increased. In addition, in the case of a battery pack mounted to an electric vehicle or the like, there may be users such as drivers nearby. Therefore, if a thermal event occurring in a specific battery module fails to be controlled to lead to a chain reaction, it may cause significant property damage and casualties.

### DISCLOSURE

#### Technical Problem

[0010] The present disclosure aims to solve the problems described above and other problems.

[0011] The present disclosure also aims to provide a battery pack having a structure that facilitates venting control when a thermal event occurs.

[0012] The present disclosure also aims to provide a battery pack capable of suppressing or blocking heat propagation to neighboring battery modules when a thermal event occurs.

#### Technical Solution

[0013] According to one aspect of the present disclosure, there is provided a battery pack including: a case having a base plate and configured to provide an inner space; a battery module located inside the case; and a venting cover coupled to the case, the venting cover covering at least one surface of the battery module, and the venting cover configured such that at least a portion of the venting cover is movable in an outward direction of the battery module.

[0014] In addition, the battery module may be configured to enable upward venting of at least one of gas, flame, particles and heat.

[0015] In addition, the battery module may have a venting hole formed on an upper surface of the battery module.

[0016] In addition, the venting cover may be configured such that at least a portion of the venting cover moves upward when a thermal event occurs from the battery module.

[0017] In addition, the venting cover may be configured to form a gap between the venting cover and an upper surface of the battery module.

[0018] In addition, a distance between the venting cover and the battery module may be configured to increase when a thermal event occurs from the battery module.

[0019] In addition, the case may include a partition wall installed on the base plate and configured to partition the inner space, and the venting cover may be installed on the partition wall.

[0020] In addition, the venting cover may include: a first moving portion configured to cover at least one surface of the battery module and having a plate shape; a first fixing portion fixed to an end of the partition wall; and a first bending portion configured to connect the first fixing portion and the first moving portion.

[0021] In addition, the battery pack may further include a first elastic member positioned between the first moving portion and the battery module.

[0022] In addition, the first moving portion may be configured to be located outward from the end of the partition wall when a thermal event occurs from the battery module.

[0023] In addition, the case may include a pack cover configured to cover the venting cover, and the venting cover may be installed on the pack cover.

[0024] In addition, the venting cover may include: a second moving portion configured to cover at least one surface of the battery module and having a plate shape; a second fixing portion fixed to a lower surface of the pack cover; and a second bending portion configured to connect the second fixing portion and the second moving portion.

[0025] In addition, the battery pack may further include a second elastic member positioned between the second moving portion and the pack cover.

[0026] A vehicle according to an aspect of the present disclosure includes a battery pack of the present disclosure.

[0027] In addition, the at least a portion of the venting cover may be configured to move in the outward direction from a first position that is proximal to an upper surface of the battery module to a second position that is distal from the upper surface of the battery module when a thermal event occurs from the battery module.

[0028] In addition, the battery pack may further include a partition wall on the base plate and connected to the venting cover, and a portion of the partition wall may be exposed by the venting cover.

[0029] In addition, an exposed surface of the portion of the partition wall that is exposed by the

venting cover may be located higher than the at least a portion of the venting cover that is movable in the outward direction.

[0030] In addition, the first moving portion may be movable relative to the first fixing portion, and a position of the first bending portion may be movable with a movement of the first moving portion.

[0031] In addition, the first bending portion may have an inclined surface.

#### Advantageous Effects

[0032] According to at least one of the embodiments of the present disclosure, venting control of a battery pack may be facilitated.

[0033] According to at least one of the embodiments of the present disclosure, thermal runaway may be suppressed or blocked when a thermal event occurs.

---

## Description

### DESCRIPTION OF DRAWINGS

[0034] The accompanying drawings illustrate a preferred embodiment of the present disclosure and, together with the detailed description of the invention, serve to provide further understanding of the technical idea of the present disclosure, and thus, the present disclosure is not construed as being limited to the drawings.

[0035] FIG. 1 is a perspective view illustrating a battery pack according to an embodiment of the present disclosure.

[0036] FIG. 2 is a partially exploded view of the battery pack in FIG. 1.

[0037] FIG. 3 is an enlarged view of area A in FIG. 2.

[0038] FIG. 4 is a front view of the configuration in FIG. 3.

[0039] FIG. 5 is an enlarged view of area A in FIG. 2 when a thermal event occurs.

[0040] FIG. 6 is a front view of the configuration in FIG. 5.

[0041] FIG. 7 is a diagram illustrating a modified embodiment of the configuration in FIG. 6.

[0042] FIG. 8 is a diagram illustrating another modified embodiment of the configuration in FIG. 4.

[0043] FIG. 9 is a diagram illustrating a change in FIG. 8 when a thermal event occurs.

[0044] FIG. 10 is an enlarged view of a battery pack according to another embodiment of the present disclosure.

[0045] FIG. 11 is a top view of the configuration in FIG. 10.

[0046] FIG. 12 is a drawing illustrating a change in FIG. 10 when a thermal event occurs.

[0047] FIG. 13 is a top view of the configuration in FIG. 12.

### BEST MODE

[0048] Hereinafter, preferred embodiments of the present disclosure will be described in detail with reference to the accompanying drawings. Prior to the description, it should be understood that the terms used in the specification and the appended claims should not be construed as limited to general and dictionary meanings, but interpreted based on the meanings and concepts corresponding to technical aspects of the present disclosure on the basis of the principle that the inventor is allowed to define terms appropriately for the best explanation.

[0049] Therefore, the configurations proposed in the embodiments and drawings of this specification indicate only the most preferable embodiment of the present disclosure and do not represent all technical ideas of the present disclosure, so it should be understood that various equivalents and modifications could be made thereto at the time of filing the application.

[0050] FIG. 1 is a perspective view illustrating a battery pack according to an embodiment of the present disclosure. FIG. 2 is a partially exploded view of the battery pack in FIG. 1. Referring to FIGS. 1 and 2, a battery pack according to an embodiment of the present disclosure may include a case 100, a battery module 200, and a venting cover 300.

[0051] The case **100** may provide a space therein. The case **100** may form the exterior of the battery pack. The case **100** may have a cuboid shape. The case **100** may include a base plate **110**, a side wall **130**, a partition wall **120**, and a pack cover **140**.

[0052] The battery module **200** may be stored inside the case **100**. A plurality of battery modules **200** may be provided, and the plurality of battery modules **200** may be located, installed, coupled, fastened, or fixed inside the case **100**. The battery module **200** may include a battery cell. In this case, the battery cell may indicate a secondary battery. A plurality of battery cells may be provided to configure the battery module **200**. The battery module **200** may have a cuboid shape.

[0053] The venting cover **300** may be coupled, fastened, fixed, installed, or fixed to the case **100**. The venting cover **300** may cover at least one surface of the battery module **200**. For example, a plurality of venting covers **300** may be provided to cover at least one of an upper surface, a side surface, a front surface, and a back surface of the battery module **200**. In addition, each of the plurality of venting cover **300** may be provided for each of the battery modules **200**. In addition, the venting cover **300** may be configured such that at least a portion thereof is movable in the outward direction of the battery module **200**. For example, in the case where the venting cover **300** covers the upper surface of the battery module **200**, the venting cover **300** may be configured to move upward. In addition, for example, in the case where the venting cover **300** covers the front surface of the battery module **200**, the venting cover **300** may be configured to move forward.

[0054] According to this configuration of the present disclosure, when a thermal event occurs in the battery module **200**, at least a portion of the venting cover **300** may move toward the outside of the battery module **200**. This may guide the flow of venting gas **g** or ignitable particles **s** discharged from the battery module **200**. Therefore, the thermal safety of the battery pack may be improved.

[0055] FIG. **3** is an enlarged view of area A in FIG. **2**. FIG. **4** is a front view of the configuration in FIG. **3**. FIG. **5** is an enlarged view of area A in FIG. **2** when a thermal event occurs. FIG. **6** is a front view of the configuration in FIG. **5**. Referring to FIGS. **3** to **6**, a battery module **200** of a battery pack according to an embodiment of the present disclosure may be configured to enable upward venting.

[0056] A thermal event may occur from a battery cell located inside the battery module **200**. The back, left, and right surfaces of the battery module **200** may be covered by the partition walls **120**. In addition, the front surface of the battery module **200** may be covered by the side wall **130**. Accordingly, the venting gas **g** or ignitable particles **s** may be configured to be discharged upward from the battery module **200** or in the +Z-axis direction. In this case, the venting cover **300** may be configured to cover the upper surface of the battery module **200**.

[0057] According to this configuration of the present disclosure, the venting gas **g** and ignitable particles **s** may move at least a portion of the venting cover **300** upward. The venting cover **300** may facilitate the discharge of venting gas **g** and ignitable particles **s**.

[0058] Referring to FIGS. **3** to **6**, the battery module **200** of a battery pack according to an embodiment of the present disclosure may have a venting hole **210** formed on the upper surface thereof. The venting cover **300** may cover the venting hole **210**.

[0059] According to this configuration of the present disclosure, the venting gas **g** and ignitable particles **s** may be discharged upward or in the +Z-axis direction through the venting hole **210**. The discharged venting gas **g** and ignitable particles **s** may move at least a portion of the venting cover **300** upward. The venting cover **300** may facilitate the discharge of venting gas **g** and ignitable particles **s**.

[0060] Referring to FIGS. **3** to **6**, the venting cover **300** of a battery pack according to an embodiment of the present disclosure may be configured such that at least a portion thereof moves upward when a thermal event occurs from the battery module **200**.

[0061] According to this configuration of the present disclosure, the venting cover **300** may facilitate the discharge of venting gas **g** and ignitable particles **s**.

[0062] Referring to FIGS. **3** to **6**, the venting cover **300** of a battery pack according to an

embodiment of the present disclosure may form a gap **370** between the venting cover **300** and the upper surface of the battery module **200**.

[0063] According to this configuration of the present disclosure, the venting gas **g** and ignitable particles **s** discharged from the battery module **200** may apply pressure to the entire area of the venting cover **300**. This may facilitate the movement of the venting cover **300** and the discharge of the venting gas **g** and ignitable particles **s**.

[0064] In addition, according to this configuration of the present disclosure, the gap **370** between the battery module **200** and the venting cover **300** may improve the insulation effect. For example, the venting gas **g** and ignitable particles **s** discharged from one of the plurality of battery modules **200** may be transmitted to neighboring battery modules **200**. In this case, the venting cover **300** covering the neighboring battery module **200** may prevent the neighboring battery module **200** from being directly exposed to the venting gas **g** or ignitable particles **s**. In addition, the heat transfer to the neighboring battery module **200** may be minimized.

[0065] Referring to FIGS. **3** to **6**, the venting cover **300** of a battery pack according to an embodiment of the present disclosure may be made of a material having excellent heat resistance or flame retardancy. For example, the venting cover **300** may be made of at least one of a mica material, a silicone pad, or an aerogel pad. In addition, the venting cover **300** may be configured as a thin metal plate coated with a material having excellent heat resistance or flame retardancy. For example, the venting cover **300** may be configured as a thin metal plate coated with at least one of a mica material, a silicone pad, or an aerogel pad.

[0066] According to this configuration of the present disclosure, the insulation effect between neighboring battery modules **200** may be improved. As a result, the thermal safety of the battery pack may be improved.

[0067] Referring to FIGS. **3** to **6**, the venting cover **300** of a battery pack according to an embodiment of the present disclosure may include a first moving portion **310**, a first fixing portion **320**, and a first bending portion **330**. The first moving portion **310** may have a square plate shape. The first moving portion **310** may cover at least one surface of the battery module **200**.

[0068] The first fixing portion **320** may be fixed to an end of the partition wall **120**. For example, the first moving portion **310** may cover the upper surface of the battery module **200**, and the first fixing portion **320** may be fixed to the upper portion or upper end of the partition wall **120**. The first fixing portion **320** may be fastened, coupled, or attached to the partition wall **120**.

[0069] The first bending portion **330** may connect the first fixing portion **320** and the first moving portion **310**. The first fixing portion **320**, the first moving portion **310**, and the first bending portion **330** may be formed integrally. In addition, a plurality of first bending portions **330** and a plurality of first fixing portions **320** may be provided. For example, four first bending portions **330** and four first fixing portions **320** may be provided, and may be respectively positioned at four corner areas of the first moving portion **310**. The first fixing portion **320** may be positioned outward from the first moving portion **310**. For example, the first fixing portion **320** may be positioned higher than the first moving portion **310**. Alternatively, the first moving portion **310** may be positioned inward from the first fixing portion **320**. For example, the first moving portion **310** may be positioned lower than the first fixing portion **320**.

[0070] When a thermal event occurs from the battery module **200**, the first moving portion **310** may move outward or upward. The movement of the first moving portion **310** may be performed by the first bending portion **330** being bent. For example, the first bending portion **330** may be bent or folded upward around the first fixing portion **320**. As a result, the first moving portion **310** may move upward.

[0071] According to this configuration of the present disclosure, when a thermal event occurs, the movement of the venting cover **300** may be facilitated, and the discharge of venting gas **g** and ignitable particles **s** may be facilitated.

[0072] Referring to FIGS. **3** to **6**, the first moving portion **310** of a battery pack according to an

embodiment of the present disclosure may be configured to be located outward from the end of the partition wall **120** when a thermal event occurs from the battery module **200**. For example, in the case where the venting cover **300** covers the upper surface of the battery module **200**, the first moving portion **310** may be positioned lower than the upper end of the partition wall **120**. In addition, if a thermal event occurs, the first moving portion **310** may be positioned higher than the upper end of the partition wall **120**.

[0073] According to this configuration of the present disclosure, when a thermal event occurs, the first moving portion **310** may be positioned higher than the upper end of the partition wall **120**, thereby facilitating the discharge of venting gas *g* and ignitable particles *s*.

[0074] FIG. **7** is a diagram illustrating a modified embodiment of the configuration in FIG. **6**. Referring to FIG. **7**, a battery pack according to an embodiment of the present disclosure may further include a first elastic member **410** positioned between the first moving portion **310** and the battery module **200**. For example, the first elastic member **410** may be positioned between the inner surface of the first moving portion **310** and the upper surface of the battery module **200**. The first elastic member **410** may provide a restoring force to the first moving portion **310** in the upward direction or the +Z-axis direction.

[0075] According to this configuration of the present disclosure, when a thermal event occurs, the bending of the first bending portion **330** or the movement of the first moving portion **310** may be facilitated due to the pressure of the venting gas *g* and the restoring force of the first elastic member **410**.

[0076] FIG. **8** is a diagram illustrating another modified embodiment of the configuration in FIG. **4**. FIG. **9** is a diagram illustrating a change in FIG. **8** when a thermal event occurs. Referring to FIGS. **8** and **9**, a case **100** of a battery pack according to an embodiment of the present disclosure may include a pack cover **140** covering the venting cover **300**, and the venting cover **300** may be installed on the pack cover **140**.

[0077] The pack cover **140** may have a square plate shape. The pack cover **140** may be fastened, coupled, fixed, or attached to the side wall **130** or the partition wall **120**. The pack cover **140** may cover the upper surfaces of a plurality of battery modules **200** or a plurality of venting covers **300**. The venting cover **300** may be installed, coupled, fixed, or attached to the inner surface of the pack cover **140**.

[0078] According to this configuration of the present disclosure, the installation of the venting cover **300** may be facilitated.

[0079] Referring to FIGS. **8** and **9**, the venting cover **300** of a battery pack according to an embodiment of the present disclosure may include a second moving portion **340**, a second fixing portion **350**, and a second bending portion **360**. The second moving portion **340** may have a square plate shape. The second moving portion **340** may cover at least one surface of the battery module **200**.

[0080] The second fixing portion **350** may be fastened, coupled, fixed, or attached to the inner surface of the pack cover **140**. For example, the second moving portion **340** may cover the upper surface of the battery module **200**.

[0081] The second bending portion **360** may connect the second fixing portion **350** and the second moving portion **340**. The second fixing portion **350**, the second moving portion **340**, and the second bending portion **360** may be formed integrally. In addition, a plurality of second bending portions **360** and a plurality of second fixing portions **350** may be provided. For example, four second bending portions **360** and four second fixing portions **350** may be provided, and may be respectively positioned at four corner areas of the second moving portion **340**. The second fixing portion **350** may be positioned outward from the second moving portion **340**. For example, the second fixing portion **350** may be positioned higher than the second moving portion **340**.

Alternatively, the second moving portion **340** may be positioned inward from the second fixing portion **350**. For example, the second moving portion **340** may be positioned lower than the second

fixing portion **350**.

[0082] When a thermal event occurs from the battery module **200**, the second moving portion **340** may move outward or upward. The movement of the second moving portion **340** may be performed by the second bending portion **360** being bent. For example, the second bending portion **360** may be bent or folded upward around the second fixing portion **350**. As a result, the second moving portion **340** may move upward.

[0083] According to this configuration of the present disclosure, when a thermal event occurs, the movement of the venting cover **300** may be facilitated, and the discharge of venting gas *g* and ignitable particles *s* may be facilitated.

[0084] Referring to FIGS. **8** and **9**, a battery pack according to an embodiment of the present disclosure may further include a second elastic member **420** positioned between the second moving portion **340** and the pack cover **140**. For example, the second elastic member **420** may be positioned between the outer surface of the second moving portion **340** and the inner surface of the pack cover **140**. The second elastic member **420** may provide a restoring force to the second moving portion **340** in the upward direction or the +Z-axis direction.

[0085] According to this configuration of the present disclosure, when a thermal event occurs, the bending of the second bending portion **360** or the movement of the second moving portion **340** may be facilitated due to the pressure of the venting gas *g* and the restoring force of the second elastic member **420**.

[0086] FIG. **10** is an enlarged view of a battery pack according to another embodiment of the present disclosure. FIG. **11** is a top view of the configuration in FIG. **10**. FIG. **12** is a drawing illustrating a change in FIG. **10** when a thermal event occurs. FIG. **13** is a top view of the configuration in FIG. **12**.

[0087] Referring to FIGS. **10** to **13**, a battery module **200** of a battery pack according to an embodiment of the present disclosure may be configured to enable forward venting. In this case, the venting cover **300** may be configured to cover the front surface of the battery module **200**.

[0088] According to this configuration of the present disclosure, the venting gas *g* and the ignitable particles *s* may move at least a portion of the venting cover **300** forward or in the +X-axis direction. The venting cover **300** may facilitate the discharge of the venting gas *g* and ignitable particles *s*.

[0089] Referring to FIGS. **10** to **13**, the venting cover **300** of a battery pack according to an embodiment of the present disclosure may form a gap **380** between the venting cover **300** and the front surface of the battery module **200**.

[0090] According to this configuration of the present disclosure, the venting gas *g* and ignitable particles *s* discharged from the battery module **200** may apply pressure to the entire area of the venting cover **300**. As a result, the movement of the venting cover **300** may be facilitated, and the discharge of the venting gas *g* and ignitable particles *s* may be smooth.

[0091] In addition, according to this configuration of the present disclosure, the gap **380** between the battery module **200** and the venting cover **300** may improve the insulation effect. For example, the venting gas *g* and ignitable particles *s* discharged from one of the plurality of battery modules **200** may be transmitted to the neighboring battery module **200**. In this case, the venting cover **300** covering the neighboring battery module **200** may prevent the neighboring battery module **200** from being directly exposed to the venting gas *g* or ignitable particles *s*. In addition, the heat transfer to the neighboring battery module **200** may be minimized.

[0092] Referring to FIGS. **10** to **13**, the venting cover **300** of a battery pack according to an embodiment of the present disclosure may include a first moving portion **310**, a first fixing portion **320**, and a first bending portion **330**. The first moving portion **310** may have a square plate shape. The first moving portion **310** may cover at least the front surface of the battery module **200**.

[0093] The first fixing portion **320** may be fixed to an end of the partition wall **120**. For example, the first moving portion **310** may cover the front surface of the battery module **200**, and the first fixing portion **320** may be fixed to the front end of the partition wall **120**. The first fixing portion



**320** may be fastened, coupled, or attached to the partition wall **120**.

[0094] The first bending portion **330** may connect the first fixing portion **320** and the first moving portion **310**. The first fixing portion **320**, the first moving portion **310**, and the first bending portion **330** may be formed integrally. In addition, a plurality of first bending portion **330** and a plurality of first fixing portion **320** may be provided. For example, four first bending portions **330** and four first fixing portions **320** may be provided, and may be respectively positioned at four corner areas of the first moving portion **310**. The first fixing portion **320** may be positioned outward from the first moving portion **310**. For example, the first fixing portion **320** may be positioned forward from the first moving portion **310**. Alternatively, the first moving portion **310** may be positioned inward from the first fixing portion **320**. For example, the first moving portion **310** may be positioned backward or inward from the first fixing portion **320**.

[0095] When a thermal event occurs from the battery module **200**, the first moving portion **310** may move outward, forward, or in the +X-axis direction. The movement of the first moving portion **310** may be performed by the first bending portion **330** being bent. For example, the first bending portion **330** may be bent or folded forward around the first fixing portion **320**. As a result, the first moving portion **310** may move forward or in the +X-axis direction.

[0096] According to this configuration of the present disclosure, when a thermal event occurs, the movement of the venting cover **300** may be facilitated, and the discharge of the venting gas g and ignitable particles s may be facilitated.

[0097] Referring to FIGS. **10** to **13**, the first moving portion **310** of a battery pack according to an embodiment of the present disclosure may be configured to be located outward, forward, or in the +X-axis direction from the end of the partition wall **120** when a thermal event occurs from the battery module **200**. For example, in the case where the venting cover **300** covers the front surface of the battery module **200**, the first moving portion **310** may be positioned behind the front end of the partition wall **120**. In addition, when a thermal event occurs, the first moving portion **310** may be positioned ahead of the front end of the partition wall **120**.

[0098] According to this configuration of the present disclosure, when a thermal event occurs, the first moving portion **310** may be positioned ahead of the front end of the partition wall **120**, thereby facilitating the discharge of venting gas g and ignitable particles s.

[0099] A vehicle according to the present disclosure may include two or more battery cell assemblies according to the present disclosure. The battery cell assembly according to the present disclosure may be applied to a vehicle such as an electric vehicle or a hybrid vehicle. In addition, the vehicle according to the present disclosure may further include various other components included in the vehicle in addition to the battery cell assembly. For example, the vehicle according to the present disclosure may further include a car body, a motor, or a control device such as an ECU (electronic control unit), in addition to the battery cell assembly according to the present disclosure.

[0100] Meanwhile, although terms indicating directions such as upward, downward, left, right, forward, and backward are used in this specification, it is obvious to those skilled in the art that these terms are only for convenience of explanation and may vary depending on the location of the target object or the location of the observer.

[0101] As described above, although the present disclosure has been described with reference to limited embodiments and drawings, the present disclosure is not limited thereto, and various modifications and variations are possible within the technical idea of the present disclosure and the scope of equivalence of the claims to be described below by those skilled in the art to which the present disclosure pertains.

## Claims

- 1.** A battery pack comprising: a case having a base plate and configured to provide an inner space; a battery module located inside the case; and a venting cover coupled to the case, the venting cover covering at least one surface of the battery module, and the venting cover being configured such that at least a portion of the venting cover is movable in an outward direction of the battery module.
  - 2.** The battery pack according to claim 1, wherein the battery module is configured to enable upward venting of at least one of gas, flame, particles and heat.
  - 3.** The battery pack according to claim 1, wherein the battery module has a venting hole formed on an upper surface of the battery module.
  - 4.** The battery pack according to claim 2, wherein the venting cover is configured such that at least a portion of the venting cover moves upward when a thermal event occurs from the battery module.
  - 5.** The battery pack according to claim 1, wherein the venting cover is configured to form a gap between the venting cover and an upper surface of the battery module.
  - 6.** The battery pack according to claim 1, wherein a distance between the venting cover and the battery module is configured to increase when a thermal event occurs from the battery module.
  - 7.** The battery pack according to claim 1, wherein the case comprises a partition wall installed on the base plate and configured to partition the inner space, and wherein the venting cover is installed on the partition wall.
  - 8.** The battery pack according to claim 7, wherein the venting cover comprises: a first moving portion configured to cover at least one surface of the battery module and having a plate shape; a first fixing portion fixed to an end of the partition wall; and a first bending portion configured to connect the first fixing portion and the first moving portion.
  - 9.** The battery pack according to claim 8, further comprising a first elastic member positioned between the first moving portion and the battery module.
  - 10.** The battery pack according to claim 8, wherein the first moving portion is configured to be located outward from the end of the partition wall when a thermal event occurs from the battery module.
  - 11.** The battery pack according to claim 1, wherein the case comprises a pack cover configured to cover the venting cover, and wherein the venting cover is installed on the pack cover.
  - 12.** The battery pack according to claim 11, wherein the venting cover comprises: a second moving portion configured to cover at least one surface of the battery module and having a plate shape; a second fixing portion fixed to a lower surface of the pack cover; and a second bending portion configured to connect the second fixing portion and the second moving portion.
  - 13.** The battery pack according to claim 12, further comprising a second elastic member positioned between the second moving portion and the pack cover.
  - 14.** A vehicle comprising the battery pack according to claim 1.
-