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(54) **FAN ASSEMBLY**

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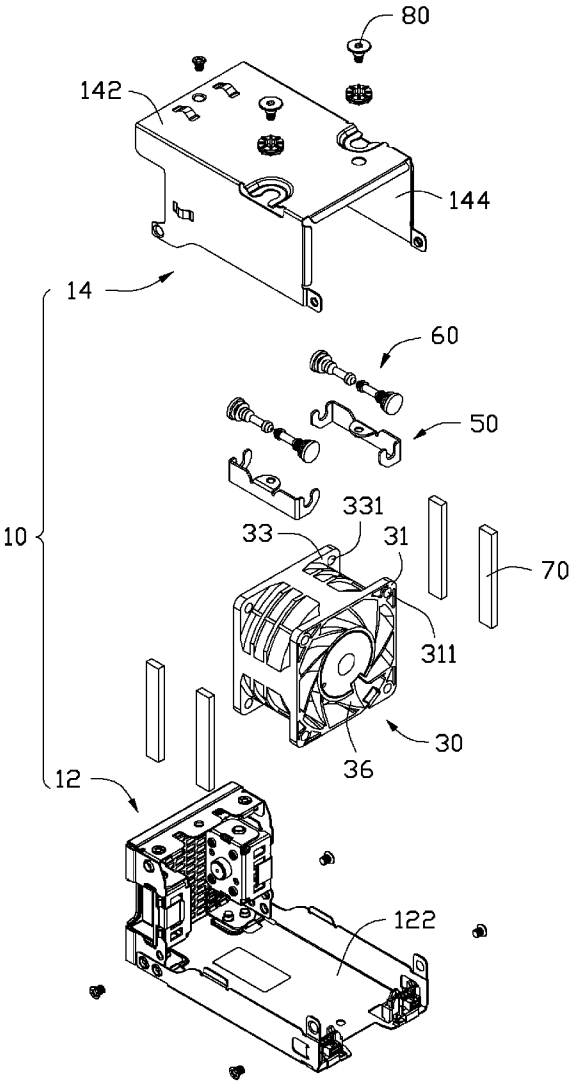
(57) **ABSTRACT**

A fan assembly includes a chassis, a fan module located in the chassis, a first gasket, a second gasket, a fastener, and a bracket. The fan module includes a front panel and a rear panel. A first gasket extends through the front panel. The second gasket extends through the rear panel. The fastener is pivotable about the first gasket and the second gasket. The bracket is mounted to the chassis and is fixed to the fastener



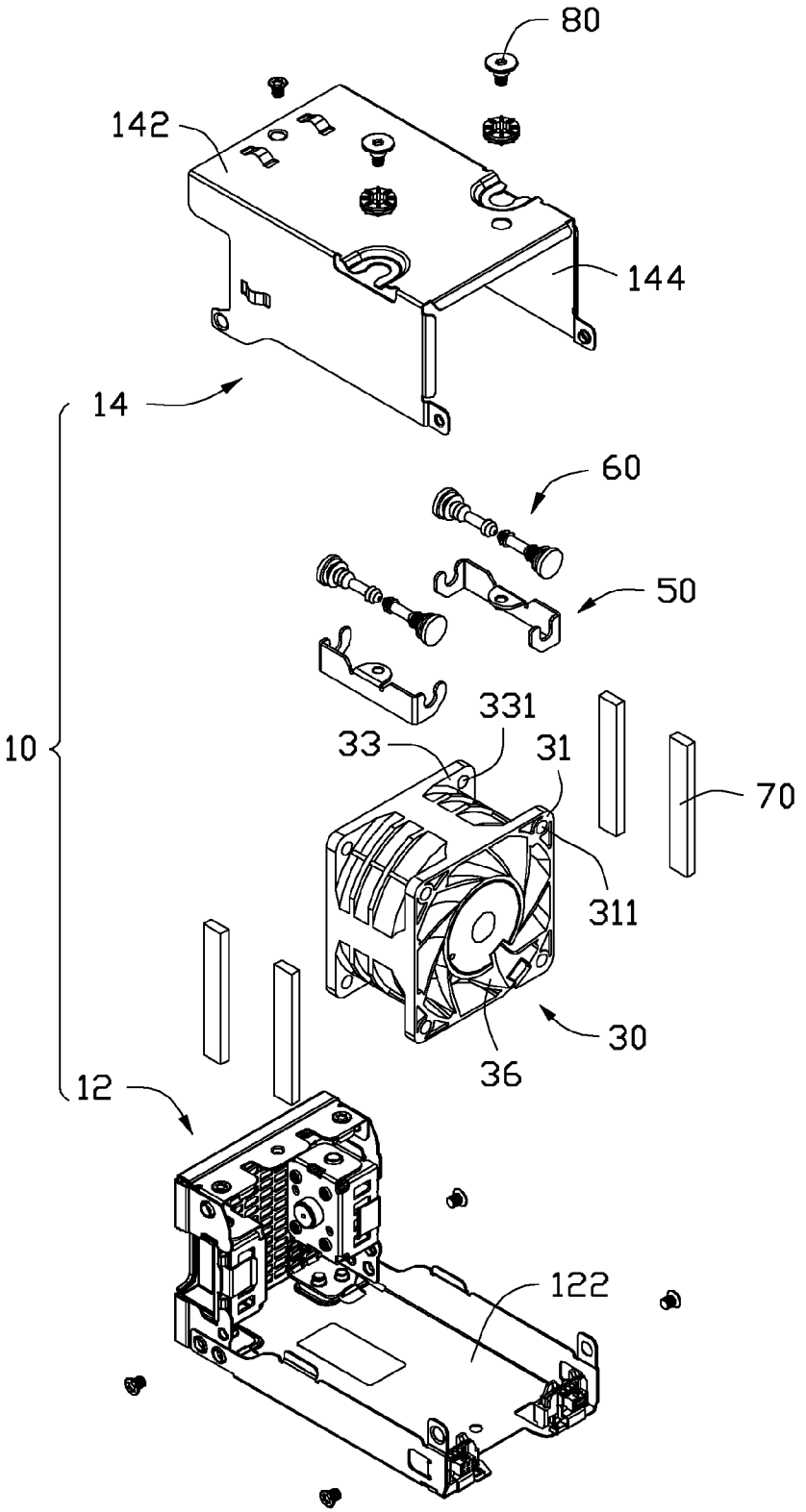


FIG. 1

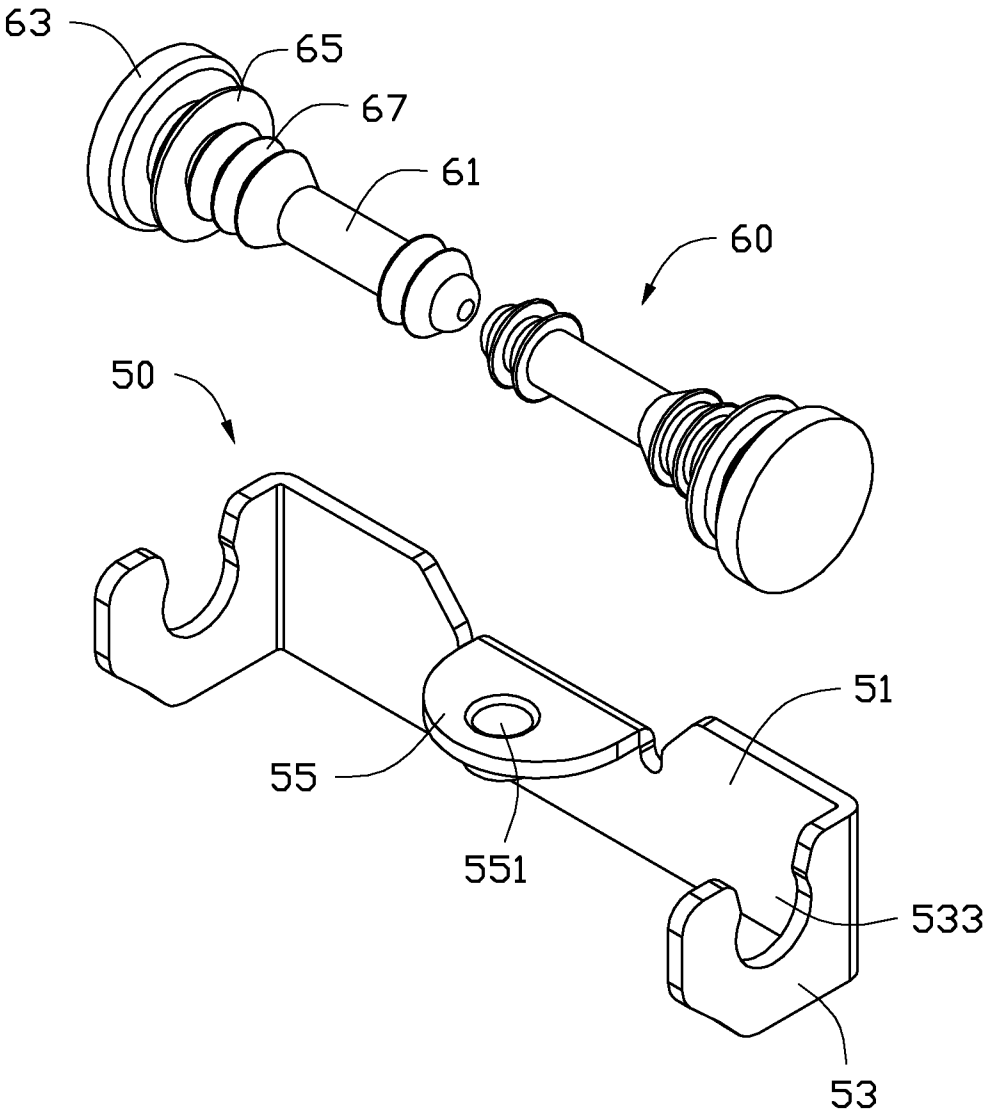


FIG. 2

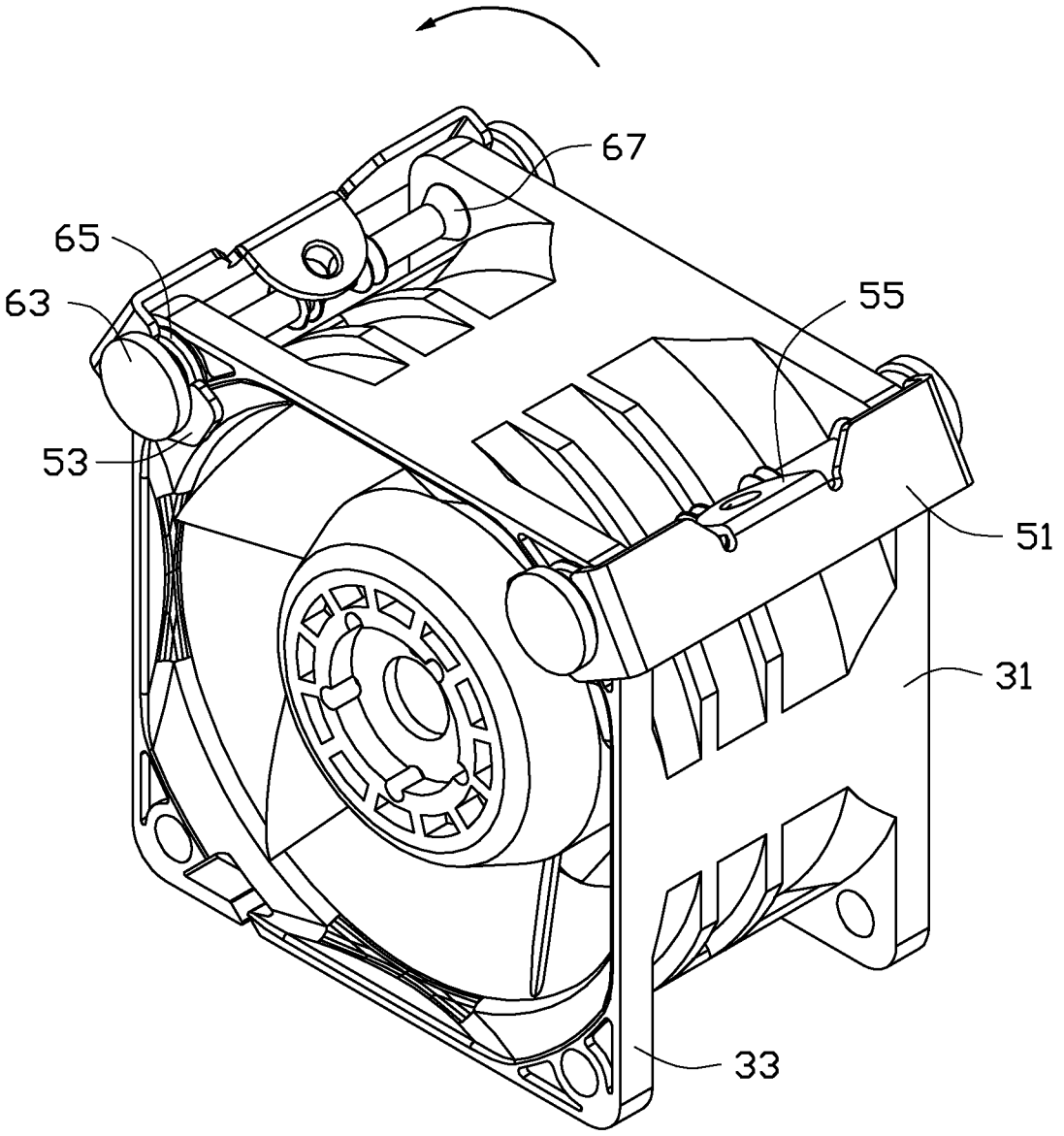


FIG. 3

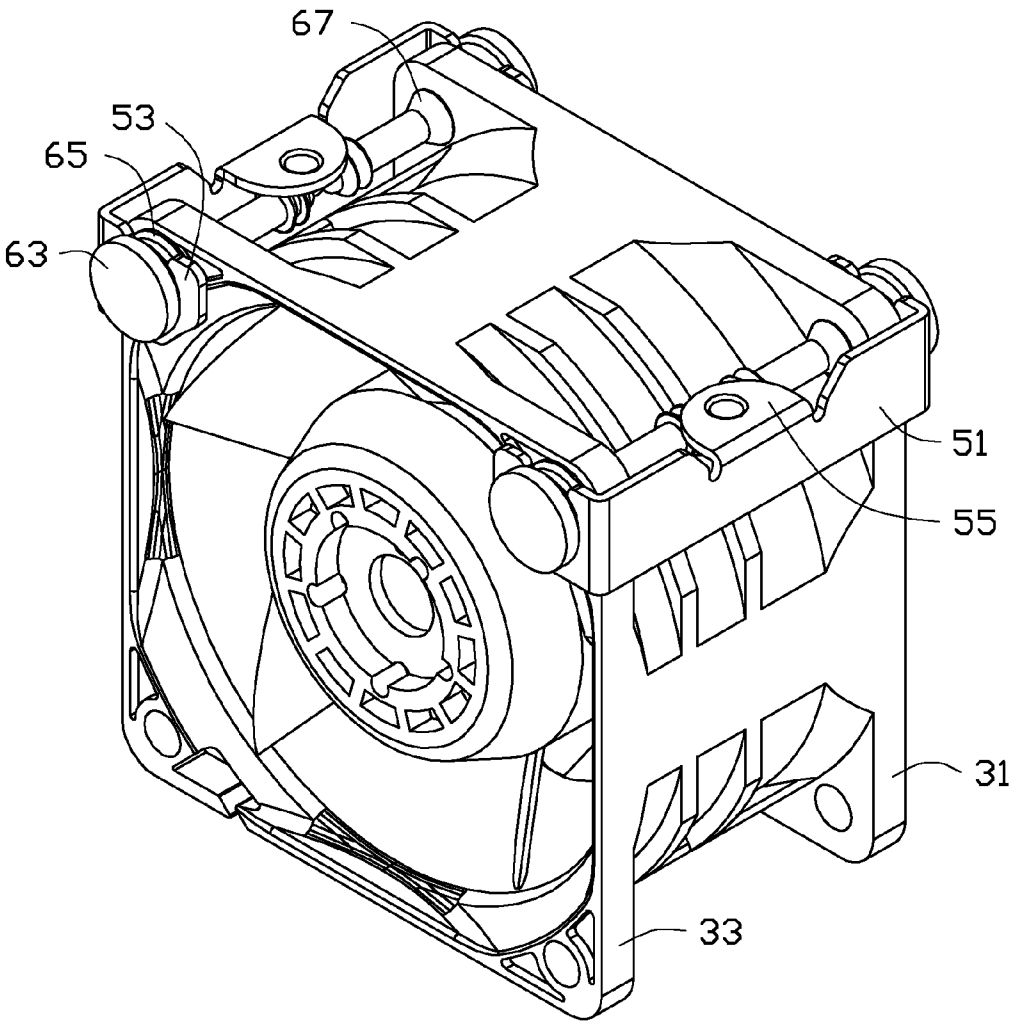


FIG. 4

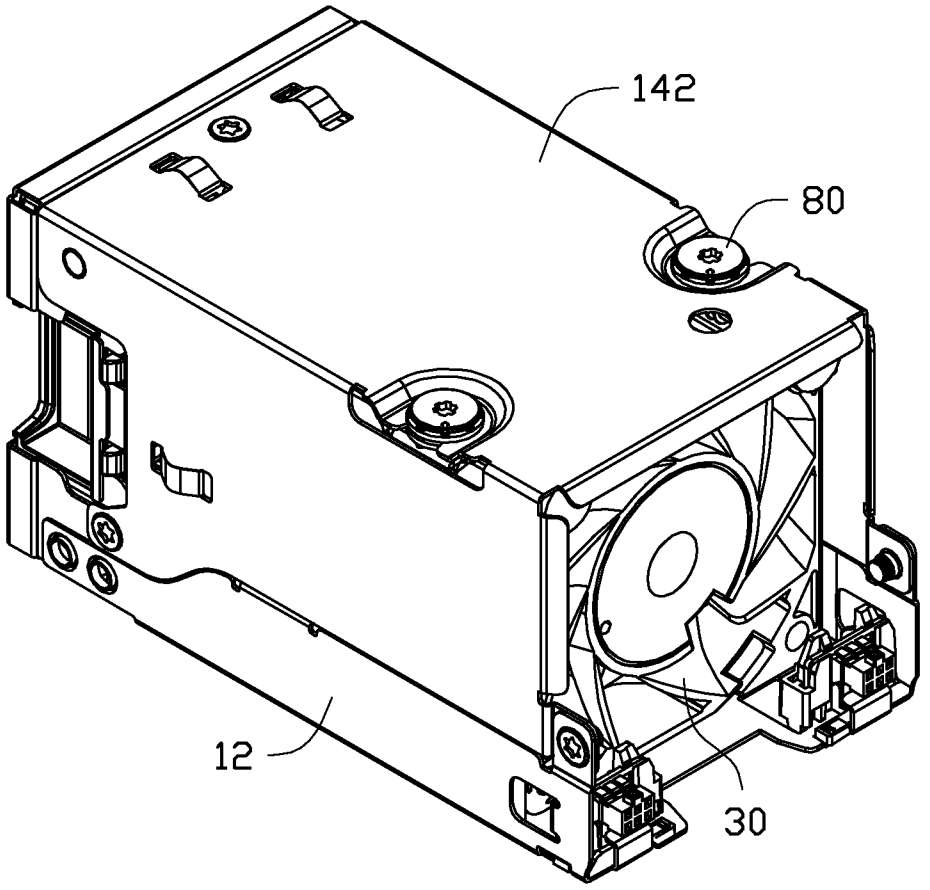


FIG. 5

FAN ASSEMBLY

BACKGROUND

[0001] 1. Technical Field

[0002] The disclosure generally relates to a fan assembly, especially to a fan assembly within a server enclosure for dissipating heat from electronic components.

[0003] 2. Description of Related Art

[0004] In the computer industry, a computer system, such as a server, is often configured to facilitate reliable and continuous operation. Computer systems typically have multiple power supplies and fans, and each device is usually screwed to the server chassis. If one of these components fails or malfunctions, the component may affect continuing operation of the system until a service technician can replace the failed component. Heat dissipation devices, such as fans, are provided in conventional computers to remove heat from heat generation components. However, when the fan is working, vibration generated from the fan will affect other electronic elements. There is room for improvement within the art.

BRIEF DESCRIPTION OF THE DRAWINGS

[0005] Many aspects of the embodiments can be better understood with reference to the following drawings. The components in the drawings are not necessarily drawn to scale, the emphasis instead being placed upon clearly illustrating the principles of the embodiments. Moreover, in the drawings, like reference numerals designate corresponding parts throughout the several views.

[0006] FIG. **1** is an isometric, exploded view of a fan module in one embodiment.

[0007] FIG. **2** is an isometric view of a fastener and two gaskets of the fan module of FIG. **1**.

[0008] FIG. **3** is an assembled view of the fan module, four gaskets and two fasteners of FIG. **1**.

[0009] FIG. **4** is similar to FIG. **3**, but the two fasteners are rotated to another position.

[0010] FIG. **5** is an assembled view of the fan assembly of FIG. **1**.

DETAILED DESCRIPTION

[0011] The disclosure is illustrated by way of example and not by way of limitation in the figures of the accompanying drawings in which like references indicate similar elements. It should be noted that references to "an" or "one" embodiment in this disclosure are not necessarily to the same embodiment, and such references mean "at least one."

[0012] FIG. **1** is one embodiment of a fan assembly **10**. The fan assembly **10** can be used in an electronic device, such as a laptop computer, or a portable computer for example, to dissipate heat from a plurality of heat generating elements. The fan assembly **10** includes a chassis **12**, a bracket **14**, a fan module **30**, two fasteners **50**, four gaskets **60**, and four strip cushions **70**.

[0013] The chassis **12** includes a bottom wall **122**. The bracket **14** includes a top wall **142** and two sidewalls **144**. The two sidewalls **144** are substantially perpendicular to the top wall **142**.

[0014] The fan module **30** includes a front panel **31**, a rear panel **33**, and a plurality of blades **36**. A first through hole **311** is defined in the front panel **31**, and second through hole **331** is defined in the rear panel **33**.

[0015] Each of the four strip cushions **70** may include foam to absorb vibration from the fan module **30**.

[0016] FIG. **2** illustrates an isometric view of one of the two fasteners **50** and two of the four gaskets **60**. Each fastener **50** comprises a connecting piece **51**, a mounting piece **55**, and two pivot pieces **53**. The two pivot pieces **53** are located on opposite ends of the connecting piece **51**. The two pivot pieces **53** are substantially perpendicular to the connecting pieces **51**. A cutout **533** is defined in each of the two pivot pieces **53** to engage with the gasket **60**. The cutout **533** is substantially C-shaped. An inlet direction of the cutout is substantially perpendicular to the mounting piece **55**. The mounting piece **55** is substantially perpendicular to the connecting piece **51**. The mounting piece **55** is substantially perpendicular to the two pivot pieces **53**. A mounting hole **551** is defined in the mounting piece **55**.

[0017] Each gasket **60** includes a head **63**, a shoulder **65**, a holding portion **67** and an insert portion **61**. The head **63** is located on an end of the insert portion **61**. A diameter of the head **63** is larger than a diameter of each of the first through hole **311** and the second through hole **331**. A diameter of the shoulder **65** is also larger than a diameter of each of the first through hole **311** and the second through hole **331**. The holding portion **67** can be engaged with the first through hole **311** and the second through hole **331**. The gasket **60** may include rubber.

[0018] FIG. **3** and FIG. **4** illustrate two assembled views of the fan module **30**, two gaskets **60** and one fastener **50**. A first gaskets is inserted into the first through hole **311** from an outer side of the front panel **31**. A second gasket is inserted into the second through hole **331** from an outer side of the rear panel **33**. The two gaskets **60** are inserted toward each other along different directions. The two gaskets **60** are engaged with the front panel **31** and the rear panel **33**. One of fasteners **50** is mounted to the two gaskets **60** and is pivotable about the two gaskets **60**. Each cutout **533** of the fastener **50** is engaged with each of the two gaskets **60**. When the fastener **50** is mounted to the two gaskets **60**, each cutout **533** is located between each shoulder **65** and head **63** of each gasket **60**. The two pivot pieces **53** are located on two outer sides of the front panel **31** and the rear panel **33**. The fastener **50** is rotated about the two gaskets **60** and the mounting piece **55**, which is horizontally placed.

[0019] FIG. **5** illustrates an assembly view of the fan assembly **10**. The assembled fan module **30** is moved into the bracket **14**. The mounting piece **55** is mounted to the top wall **142** through two bolts **80**. The four cushions **70** are located on two lateral sides of the fan module **30**, between the two sidewalls **144** of the bracket **14** and the fan module **30**. The bracket **14** is then mounted to the chassis **12**. The fan assembly **10** is assembled.

[0020] The gaskets **60** and the cushions **70** can isolate the fan module **30** and the bracket **14**, so that vibration transferred from the fan module **30** is reduced.

[0021] It is to be understood, however, that even though numerous characteristics and advantages have been set forth in the foregoing description of embodiments, together with details of the structures and functions of the embodiments, the disclosure is illustrative only and changes may be made in detail, especially in the matters of shape, size, and arrangement of parts within the principles of the disclosure to the full extent indicated by the broad general meaning of the terms in which the appended claims are expressed.

What is claimed is:

1. A fan assembly, comprising:

a chassis,

a fan module located in the chassis, the fan module comprising a front panel and a rear panel;

a first gasket extending through the front panel;

a second gasket extending through the rear panel;

a fastener pivotable about the first gasket and the second gasket; and

a bracket mounted to the chassis and fixed to the fastener.

2. The fan assembly of claim **1**, wherein a first through hole is defined in the front panel, and a second through hole is defined in the rear panel, the first gasket extends through the first through hole and is secured to the front panel, and the second gasket extends through the second through hole and is secured to the rear panel.

3. The fan assembly of claim **2**, wherein the first gasket and the second gasket are resilient.

4. The fan assembly of claim **3**, wherein each of the first gasket and the second gasket comprises a head, and a diameter of the head is larger than a diameter of each of the first through hole and the second through hole.

5. The fan assembly of claim **4**, wherein each of the first gasket and the second gasket comprises a shoulder, the shoulder is located between the head and an insert portion, a diameter of the shoulder is larger than the diameter of each of the first through hole and the second through hole, and a portion of each of the first gasket and the second gasket to receive the fastener is located between the head and the shoulder.

6. The fan assembly of claim **1**, wherein the fastener comprises two pivot pieces, and a cutout is defined in each of the two pivot pieces to engage with the first gasket and the second gasket.

7. The fan assembly of claim **6**, wherein the cutout is substantially C-shaped.

8. The fan assembly of claim **6**, wherein the fastener further comprises a connecting piece and a mounting piece, the bracket is fixed to the mounting piece, the two pivot pieces are located on opposite ends of the connecting piece, the two pivot pieces are substantially perpendicular to the connecting piece, the mounting piece is substantially perpendicular to the connecting piece, and the mounting piece is substantially perpendicular to the two pivot pieces.

9. The fan assembly of claim **8**, wherein an inlet direction of each of the cutouts is substantially perpendicular to the mounting piece.

10. The fan assembly of claim **1**, further comprising a plurality of strip cushions, wherein the fan module is covered by the bracket and the plurality of strip cushions is located between the fan module and the bracket.

11. A fan assembly, comprising:

a chassis,

a fan module located in the chassis, the fan module comprising a front panel and a rear panel;

a first gasket extending through the front panel along a first direction;

a second gasket extending through the rear panel along a second direction;

a fastener, mounted to the first gasket and the second gasket; and

a bracket mounted to the chassis and fixed to the fastener.

12. The fan assembly of claim **11**, wherein a first through hole is defined in the front panel, and a second through hole is defined in the rear panel, the first gasket extends through the first through hole and is secured to the front panel, and the second gasket extends through the second through hole and is secured to the rear panel.

13. The fan assembly of claim **12**, wherein the first gasket and the second gasket are resilient.

14. The fan assembly of claim **13**, wherein each of the first gasket and the second gasket comprises a head, and a diameter of the head is larger than a diameter of each of the first through hole and the second through hole.

15. The fan assembly of claim **14**, wherein each of the first gasket and the second gasket comprises a shoulder, the shoulder is located between the head and an insert portion, a diameter of the shoulder is larger than the diameter of each of the first through hole and the second through hole, and a portion of each of the first gasket and the second gasket to receive the fastener is located between the head and the shoulder.

16. The fan assembly of claim **11**, wherein the fastener comprises two pivot pieces, and a cutout is defined in each of the two pivot pieces to engage with the first gasket and the second gasket.

17. The fan assembly of claim **16**, wherein the cutout is substantially C-shaped.

18. The fan assembly of claim **16**, wherein the fastener further comprises a connecting piece and a mounting piece, the bracket is fixed to the mounting piece, the two pivot pieces are located on opposite ends of the connecting piece, the two pivot pieces are substantially perpendicular to the connecting piece, the mounting piece is substantially perpendicular to the connecting piece, and the mounting piece is substantially perpendicular to the two pivot pieces.

19. The fan assembly of claim **18**, wherein an inlet direction of each of the cutouts is substantially perpendicular to the mounting piece.

20. The fan assembly of claim **11**, further comprising a plurality of strip cushions, wherein the fan module is covered by the bracket and the plurality of strip cushions is located between the fan module and the bracket.

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