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(54) **Dew formation preventing system**

(57) With the present invention, there is provided a dew formation preventing system suitable for use in refrigeration devices (C) comprising at least one body (B); at least one inner volume (A) formed by the body (B); at least one door (D) and/or at least one drawer (F) connected to the body (B) and allowing access and/or preventing access to the inner volume (A); and at least one gasket (2) interposed between the contact area (1) of the body (B) with the door (D) and/or the drawer (F) and the

door (D) and/or the drawer (F) and preventing air exchange between the inner volume (A) and the outside environment (E). The said dew formation preventing system comprises at least one bracket (3) located on the inner-facing side of the outer surface (D1, F1) of the door (D) and/or the drawer (F), at least one side of which extends to the gasket (2) and whose heat transfer coefficient is higher than that of the said outer surface (D1, F1).

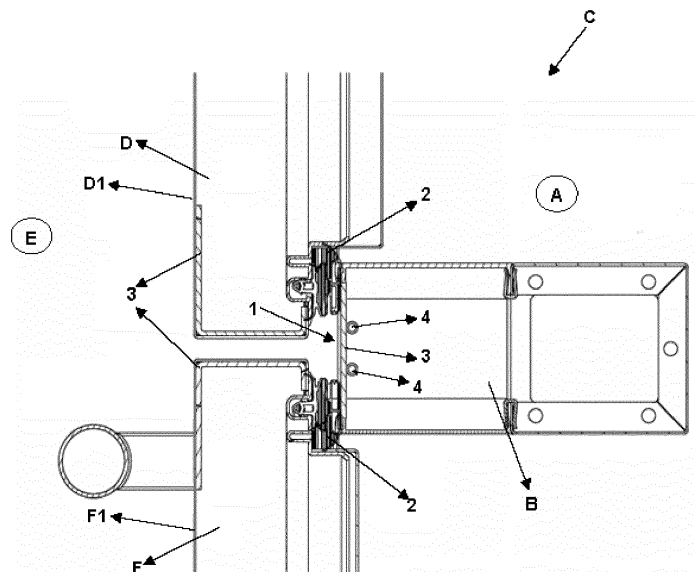


Figure - 1

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Description**Field of the Invention**

[0001] The present invention relates to dew formation preventing systems used to prevent dew from being formed on refrigeration devices, particularly on door gaskets.

Prior Art

[0002] In refrigeration devices such as refrigerators, flexible gaskets are used that are interposed between the door of the refrigeration device and the body, and prevent air exchange between the inner volume of the refrigeration device and outside environment where the refrigeration device is situated. These gaskets cool down due to low temperature of the inner volume in the refrigeration device. Moisture in the outside environment condenses on the gasket because of the low temperature of the said gasket. This is called as dew formation in the prior art. Said dew formation may occur on the outside of the gasket, on the outer surface of the door of the refrigeration device, or on the contact area where the gasket contacts to the body.

[0003] In order to prevent dew formation on refrigeration devices, various applications are available. One of these applications is to heat those areas where dew formation occurs by means of a heating resistance. However, in these applications, the heating resistance increases production cost of the device while at the same time increasing energy consumption.

[0004] In prior art document US2012017612A, there is disclosed a system for preventing dew formation on refrigeration devices. In the said system, hot refrigerant exiting the compressor of the refrigeration device is delivered to such areas as gasket, contact area and door where dew formation occurs through hot gas pipes. Thus, the temperature of the said areas is maintained higher than the condensation temperature of the steam so as to prevent dew formation. However, in the system disclosed in this document, the temperature of the hot gas pipes may not always be sufficient for preventing dew formation. Furthermore, in the system disclosed in US2012017612A, dew formation cannot be prevented when the compressor in the refrigeration device is not operated.

Brief Description of the Invention

[0005] With the present invention, there is provided a dew formation preventing system suitable for use in refrigeration devices comprising at least one body; at least one inner volume formed by the body; at least one door and/or at least one drawer connected to the body and allowing access and/or preventing access to the inner volume; and at least one gasket interposed between the contact area of the body with the door and/or drawer and

the door and/or drawer and preventing air exchange between the inner volume and the outside environment. The said dew formation preventing system comprises at least one bracket located on the outer inner-facing side of the door and/or drawer, at least one side of which extends to the gasket and whose heat transfer coefficient is higher than that of the said outer surface.

[0006] In the inventive dew formation preventing system, heat of the outside environment is forced to the gasket by means of the said bracket. Thus, with the heat of the outside environment, dew formation on the gasket, on the outer surface of the door and drawer is prevented in a reliable manner.

Object of the Invention

[0007] It is an object of the present invention to provide a dew formation preventing system in order to prevent dew from being formed on refrigeration devices.

[0008] Another object of the present invention is to provide a dew formation preventing system wherein an active heater is not employed.

[0009] Another object of the present invention is to provide a dew formation preventing system that prevents dew from being formed even if the compressor in the refrigeration device is halted.

[0010] A further object of the present invention is to provide a reliable dew formation preventing system.

Description of the Drawings

[0011] An embodiment of the dew formation preventing system according to the present invention is illustrated in the annexed drawing, wherein;

Figure 1 is a side sectional view of a refrigeration device in which dew formation preventing system is used.

[0012] All the parts illustrated in the drawing are individually assigned a reference numeral and the corresponding terms of these numbers are listed as follows:

Refrigeration device	(C)
Body	(B)
Inner volume	(A)
Door	(D)
Outer surface	(D1, F1)
Outside environment	(E)
Drawer	(F)
Contact area	(1)
Gasket	(2)
Bracket	(3)
Hot gas pipe	(4)

Description of the Invention

[0013] Due to the fact that the temperature of an inner volume of a refrigeration device is low, moisture in the outside environment may condense on the outer surface of the door connected to the inner volume, on the gasket and/or on the contact area where the gasket contacts to the body of the refrigeration device. Such condensation, also called dew formation, is an undesired phenomenon for users, and it also reduces service life of the material where it is formed. Therefore, the present invention provides a dew formation preventing system in order to prevent dew being formed on refrigeration devices, particularly on gasket.

[0014] The inventive dew formation preventing system, as illustrated in figure 1, is suitable for use in refrigeration devices (C) comprising at least one body (B); at least one inner volume (A) formed by the body (B); at least one door (D) and/or drawer (F) connected to the body (B) and allowing access and/or preventing access to the inner volume (A); and at least one gasket (2) interposed between the contact area (1) of the body (B) with the door (D) and/or the drawer (F) and the door (D) and/or the drawer (F) and preventing air exchange between the inner volume (A) and the outside environment (E). The said dew formation preventing system comprises at least one bracket (3) which is positioned inside the door (D) or drawer, located on the inner-facing side (not facing the outside environment (E)) of the outer surface (D1, F1) of the door (D) or drawer, at least one side of which extends to the gasket (2) and whose heat transfer coefficient is higher than that of the said outer surface (D1, F1).

[0015] In the dew formation preventing system according to the present invention, the bracket (3) having a high heat transfer coefficient conveys the heat of the outside environment (E) to the gasket (2). Thus, the temperature of the gasket (2) is increased with the heat of the outside environment (E). Thanks to the increase in the temperature of the gasket (2), dew formation is prevented. And with the utilization of the heat of the outside environment (E) in order to prevent dew formation, there is no need for an active heater such as resistance.

[0016] In an alternative embodiment of the invention, the dew formation preventing system comprises at least another bracket (3) located on the contact area (1) on its side facing to the body (B) and at least one side of which extends to the gasket (2), and at least one hot gas pipe (4) in contact with the said bracket (3). In this embodiment, the hot refrigerant exiting the compressor (not shown) in the refrigeration device (C) passes through the hot gas pipe (4) and heats the bracket (3) located in the contact area (1). The bracket (3) heated by the said hot refrigerant in turn heats the gaskets (2). Thus, in addition to the heat of the outside environment (E), the heat of the hot refrigerant is also used to prevent dew formation on the gaskets (2). In this embodiment, since the temperature of the gaskets (2) is increased with the heat of

the outside environment (E), even if the operation of the compressor is halted, dew formation can be prevented in any circumstances.

[0017] In a preferred embodiment of the invention, the said bracket (3) directly contacts the outer surface (D1, F1) of the door (D) or the drawer (F). In an alternative embodiment, a fluid (i.e. paste or gel) with a high heat transfer coefficient is provided between the bracket (3) and the said outer surface (D1, F1). Thus, the heat of the outside environment (E) is better received by the bracket (3).

[0018] In the inventive dew formation preventing system, the heat of the outside environment (E) is forced to the gasket (2) by means of the said bracket (3). Thus, with the heat of the outside environment (E), dew formation on the gasket (2), on the outer surface (D1, F1) of the door (D) and the drawer (F) is prevented in a reliable manner.

Claims

1. A dew formation preventing system suitable for use in refrigeration devices (C) comprising at least one body (B); at least one inner volume (A) formed by the body (B); at least one door (D) and/or at least one drawer (F) connected to the body (B) and allowing access and/or preventing access to the inner volume (A); and at least one gasket (2) interposed between the contact area (1) of the body (B) with the door (D) and/or the drawer (F) and the door (D) and/or the drawer (F) and preventing air exchange between the inner volume (A) and the outside environment (E), **characterized by** comprising;
 - at least one bracket (3) which is positioned inside the door (D) and/or the drawer (F), located on the inner-facing side of the outer surface (D1, F1) of the door (D) and/or the drawer (F), at least one side of which extends to the gasket (2) and whose heat transfer coefficient is higher than that of the said outer surface (D1, F1).
2. A dew formation preventing system according to claim 1, **characterized by** comprising at least another bracket (3) located on the contact area (1) on its side facing to the body (B) and at least one side of which extends to the gasket (2), and at least one hot gas pipe (4) in contact with the said bracket (3) and through which hot refrigerant exiting the compressor is passed.
3. A dew formation preventing system according to claim 1, **characterized in that** the bracket (3) directly contacts the said outer surface (D1, F1).
4. A dew formation preventing system according to claim 1, **characterized by** comprising a fluid provid-

ed between the bracket (3) and the outer surface (D1, F1) and having a high heat transfer coefficient.

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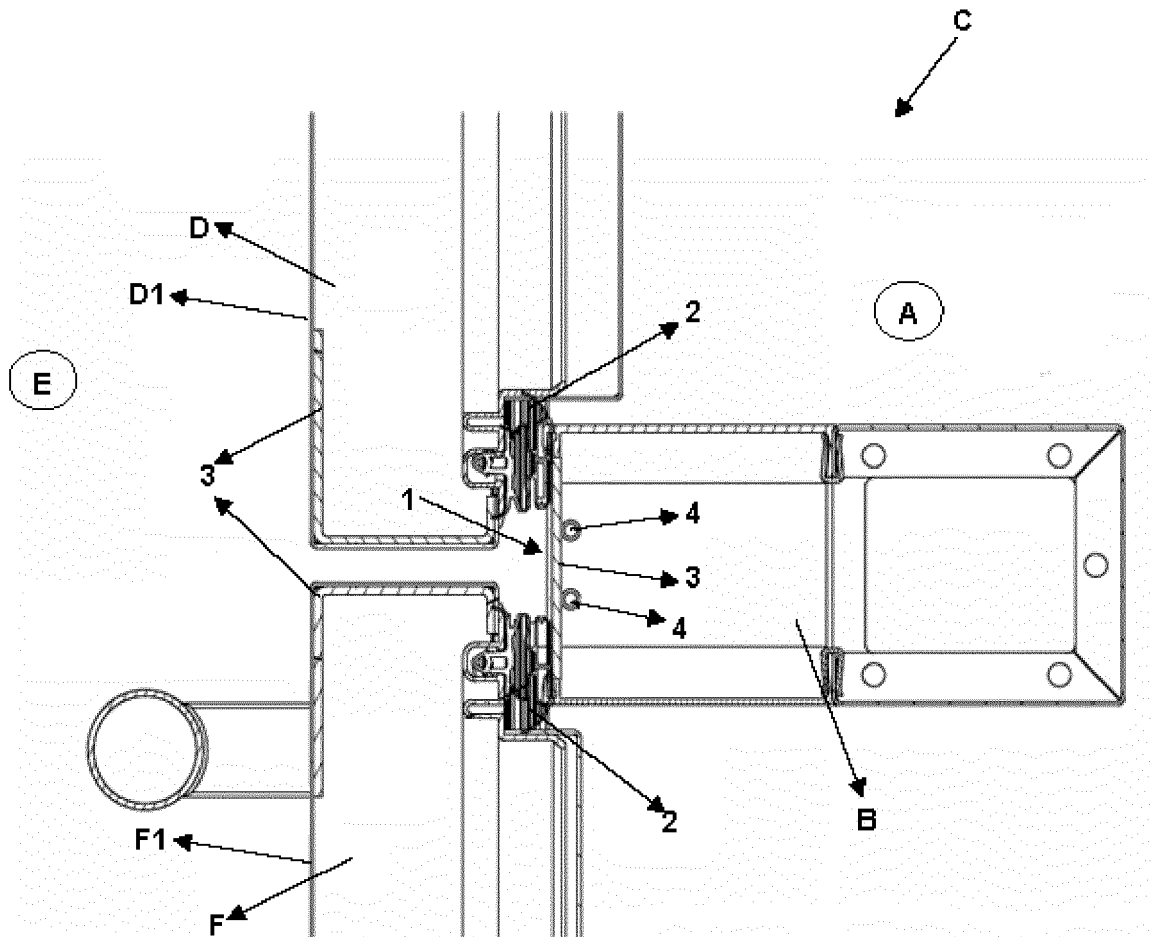


Figure - 1

REFERENCES CITED IN THE DESCRIPTION

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Patent documents cited in the description

- US 2012017612 A [0004]