

DESCRIPTION

TITLE OF INVENTION: REFRIGERATOR

TECHNICAL FIELD

[0001] The present invention relates to a refrigerator having a plurality of doors.

BACKGROUND ART

[0002] As a general refrigerator, in a refrigerator having a plurality of doors, a refrigerator in which a decorative member is provided on a door is known.

For example, Patent Literature 1 discloses a refrigerator in which color shading and an integrated pattern are applied to a decorative exterior plate forming a door of the refrigerator.

CITATION LIST

PATENT LITERATURES

[0003] Patent Literature 1: JP 2015-111034 A

SUMMARY OF INVENTION

TECHNICAL PROBLEM

[0004] However, in a refrigerator such as that disclosed in Patent Literature 1, color shading and a pattern applied to a decorative exterior plate are applied so as to be emphasized as respective different things, and the color shading and the pattern do not correspond to each other.

As a result, there is a problem that a door looks unnatural.

[0005] The present invention has been made in order to solve the above-described

problem, and in a refrigerator having a plurality of doors, it is intended to provide a refrigerator whose door is subjected to decoration with a natural change in which a gradation and a pattern are combined, thereby enhanced in design.

SOLUTION TO PROBLEM

[0006] A refrigerator according to the present invention includes at least one door whose front surface is configured with a door member, the door member being subjected to a gradation along a direction from a first end toward a second end of the door member and subjected to a pattern overlapped with the gradation so as to be faded out depending on the gradation.

ADVANTAGEOUS EFFECTS OF INVENTION

[0007] According to the refrigerator concerning the present invention, in the refrigerator having the plurality of doors, the refrigerator whose door is subjected to the decoration with a natural change in which the gradation and the pattern are combined, thereby enhanced in design can be provided.

BRIEF DESCRIPTION OF DRAWINGS

[0008] FIG. 1 is a diagram explaining a configuration example of a refrigerator according to a first embodiment, and is a front view as viewed from the front in a state where the refrigerator is placed. FIG. 1A shows a refrigerator having six doors in a vertical direction, FIG. 1B shows a refrigerator having five doors in the vertical direction, and FIG. 1C shows a refrigerator having three doors in the vertical direction.

FIG. 2 is a cross-sectional view for explaining a configuration example of each door member included in a plurality of doors of the refrigerator in the first embodiment.

FIG. 2A is a cross-sectional view showing a configuration example of a patterned door member, and FIG. 2B is a cross-sectional view showing a configuration example of a single color door member.

FIG. 3 is a diagram for explaining an example of another pattern applied to the patterned door member in the first embodiment.

FIG. 4 is a view for explaining an example of another pattern applied to the patterned door member in the first embodiment.

FIG. 5 is a view for explaining an example of another pattern applied to the patterned door member in the first embodiment.

FIGS. 6A to 6C are diagrams for explaining examples of other patterns applied to the patterned door member in the first embodiment.

FIG. 7 is a view for explaining an example of another pattern applied to the patterned door member in the first embodiment.

FIG. 8 is a view for explaining an example of another pattern applied to the patterned door member in the first embodiment.

FIG. 9 shows examples of a door member subjected to a gradation in a left-right direction in the first embodiment. FIG. 9A is a diagram showing an example of a door member subjected to a gradation in which the left is the brightest and the right is the darkest, and FIG. 9B is a diagram showing an example of a door member subjected to a gradation in which the right is the brightest and the left is the darkest.

FIG. 10 shows examples of a door member subjected to a gradation in a diagonal direction in the first embodiment. FIG. 10A is a diagram showing an example of a door member subjected to a gradation in which an upper left end is the brightest and a lower right end is the darkest, and FIG. 10B is a diagram showing an example of a door member subjected to a gradation in which an upper right end is the

brightest and a lower left end is the darkest.

DESCRIPTION OF EMBODIMENTS

[0009] Hereinafter, an embodiment of the present invention will be described in detail with reference to the drawings.

First Embodiment

In a first embodiment, it is assumed that a refrigerator is a general household refrigerator and a refrigerator having a plurality of doors.

FIG. 1 is a diagram explaining configuration examples of refrigerators 1a to 1c according to the first embodiment, and is a front view as viewed from the front in a state where each of the refrigerators 1a to 1c is placed.

FIG. 1A shows the refrigerator 1a having six doors in a vertical direction, FIG. 1B shows the refrigerator 1b having five doors in the vertical direction, and FIG. 1C shows the refrigerator 1c having three doors in the vertical direction.

In the following description, the refrigerators 1a to 1c are collectively referred to as a refrigerator 1.

Note that, in FIG. 1, doors of the refrigerator 1 are closed.

[0010] As shown in FIGS. 1A to 1C, at least one of the plurality of doors of the refrigerator 1 (21a, 22a in FIG. 1A, 2b in FIG. 1B, and 2c in FIG. 1C) has a gradation and a pattern.

Specifically, at least one of the plurality of doors of the refrigerator 1 is configured by attaching a decorative door member subjected to a gradation and a pattern to a front surface of the door. The door member is made of, for example, a plate-like glass.

[0011] A door member of a door 2a of the refrigerator 1a shown in FIG. 1A, a door

member of the door 2b of the refrigerator 1b shown in FIG. 1B, and a door member of the door 2c of the refrigerator 1c shown in FIG. 1C are each subjected to a gradation that gradually darkens from an upper part (see 101 in FIG. 1A, 103 in FIG. 1B, and 105 in FIG. 1C) toward a lower part (see 102 in FIG. 1A, 104 in FIG. 1B, and 106 in FIG. 1C).

Further, the door members of the door 21a and the door 22a of the refrigerator 1a shown in FIG. 1A, the door member of the door 2b of the refrigerator 1b shown in FIG. 1B, and the door member of the door 2c of the refrigerator 1c shown in FIG. 1C are each subjected to a pattern of a plurality of straight lines in a horizontal direction.

A specific method of applying the gradation and the pattern to the door member will be described later.

[0012] As described above, in each of the door members of the door 2a, the door 2b, and the door 2c, brightness is reduced so that the brightness is highest at the upper part of the door member and gradually becomes lower toward the lower part of the door member. In addition, as the brightness decreases, the pattern appears to be faded out from the upper part of the door member toward the lower part of the door member.

Further, as shown in FIGS. 1A to 1C, with respect to an end having the lowest brightness of the door member of each of the doors 2a, 2b, 2c subjected to the gradation and the pattern, door members located on a side opposite to an end having the highest brightness of the door member of each of the doors 2a, 2b, 2c subjected to the gradation and the pattern (four door members 107 shown in FIG. 1A, four door members 108 shown in FIG. 1B, and two door members 109 shown in FIG. 1C) are subjected to a single color tone.

[0013] As described above, in the refrigerators 1a to 1c, in a state where the refrigerators 1a to 1c are placed, each of the doors 2a to 2c includes the door member

having a brightness difference so as to gradually darken from the upper part toward the lower part and subjected to the pattern that appears to be gradually faded out depending on the brightness difference. Further, in the refrigerators 1a to 1c, in the state where each of the refrigerators 1a to 1c is placed, the door members located below the end having the lowest brightness of the door member subjected to the gradation and the pattern include the door members subjected to the single color tone.

As a result, the refrigerators 1a to 1c can make a user feel a natural change in decoration as if the pattern is included in the lower door members of the refrigerators 1a to 1c, even though no gradation and pattern decoration is applied to the lower door members.

Note that, in the first embodiment, among the door members included in one or more doors of the refrigerator 1, a door member to which a gradation and a pattern are applied is also referred to as a “patterned door member”.

Further, in the first embodiment, among the door members included in one or more doors of the refrigerator 1, a door member to which no gradation and pattern is applied and to which a single color decoration is applied is also referred to as a “single color door member”.

[0014] Here, in the refrigerator 1, configuration examples of the patterned door member and the single color door member will be described in detail. Note that, in the following description, it is assumed that the door member is made of glass.

FIG. 2 is a cross-sectional view for explaining a configuration example of each door member included in a plurality of doors of the refrigerator 1 in the first embodiment. FIG. 2A is a cross-sectional view showing a configuration example of a patterned door member, and FIG. 2B is a cross-sectional view showing a configuration example of a single color door member. As an example, FIG. 2A is a cross-sectional

view taken along a line A-A' of FIG. 1A, and FIG. 2B is a cross-sectional view taken along a line B-B' of FIG. 1A.

[0015] As shown in FIG. 2A, the patterned door member is obtained by stacking a gradation layer (202 in FIG. 2A), a pattern layer (203 in FIG. 2A), a base color layer (204 in FIG. 2A), and a protective layer (205 in FIG. 2A) on a door member (201 in FIG. 2A).

Note that, in the gradation layer, a degree to which gradation becomes darker can be set as appropriate.

In addition, in FIG. 2A, for convenience of description, wavy lines are used and shown, but details of a pattern to be applied in the pattern layer can be appropriately set. Here, for example, it is assumed that a pattern of a plurality of straight lines is applied in an appropriate color in a horizontal direction (see FIG. 1). As shown in FIG. 2A, the pattern is applied to an entire surface of the patterned door member, and by overlapping the gradation thereon, is applied so that the pattern is faded out by the gradation. As a result, the patterned door member appears to have a change in brightness depending on the gradation, and as the brightness decreases, the pattern superimposed on the gradation becomes invisible.

In addition, in FIG. 2A, for convenience of explanation, hatching is used and shown, but an appropriate color tone is applied to the base color layer in a single color. Note that, in the first embodiment, "a color tone is applied in a single color" means that the color tone is applied without any space, and the color tone includes one containing metallic or pearl feeling.

Further, in FIG. 2A, the gradation and the pattern are applied to separate layers, but it is not limited thereto, and the gradation and the pattern may be jointly applied to one layer.

[0016] On the other hand, as shown in FIG. 2B, the single color door member is obtained by applying the base color layer (204 in FIG. 2B) and the protective layer (205 in FIG. 2B) to the door member (201 in FIG. 2B).

Details of the base color layer and the protective layer in the single color door member are the same as the details of those in the patterned door member shown in FIG. 2A.

[0017] As shown in FIG. 2, the single color door member can be decorated with fewer layers as compared to the patterned door member.

Therefore, in the refrigerator 1, by using the single color door member with a small number of decorative layers, for the door member of the door to which no gradation and pattern is applied, it is possible to suppress costs associated with production of the door member of the refrigerator 1.

[0018] Note that FIGS. 2A and 2B each show an example of a decoration order when the door member is made of glass, but the decoration order is not limited thereto, and the decoration order of the gradation (202 in FIG. 2A) and the pattern (203 in FIG. 2A) may be reversed.

[0019] Next, a specific method of applying a gradation, a pattern, or a color tone to the patterned door member and the single color door member will be described.

For example, the gradation, the pattern, or the color tone is applied to the patterned door member and the single color door member, by directly printing a gradation resin coating layer, a pattern resin coating layer, or a color tone resin coating layer on the door members.

The gradation, the pattern, or the color tone may be applied by attaching a decorative film to which a gradation, a pattern, or a color tone is decoratively added to the door member.

[0020] As described above, in the refrigerator 1 according to the first embodiment, a door member included in at least one of a plurality of doors of the refrigerator 1 is subjected to decoration in which a gradation and a pattern are combined, so that the pattern appears to be faded out depending on the gradation. In addition, in the refrigerator 1 according to the first embodiment, with respect to an end having the lowest brightness of the door member to which the gradation and the pattern are applied, a door member located on a side opposite to an end having the highest brightness of the door member to which the gradation and the pattern are applied and having no gradation or pattern is subjected to a single color tone.

This allows a user to feel a natural change in decoration of the door of the refrigerator 1 and also allows the user to feel as if the door member without gradation and pattern decoration has a pattern, so that the refrigerator 1 having high design properties can be obtained. In addition, since the single color tone is applied to a door member of at least one of the plurality of doors of the refrigerator 1, the number of decorative layers t can be reduced, so that the costs can be reduced.

[0021] In the above description, as an example, the pattern applied to the patterned door member has the plurality of horizontal straight lines as shown in FIG. 1, but it is not limited thereto.

Hereinafter, other patterns applied to the patterned door member will be described with reference to examples.

[0022] FIGS. 3 to 8 are diagrams for explaining examples of other patterns applied to the patterned door member in the first embodiment.

Note that FIGS. 3 to 8 each show one patterned door member subjected to a gradation and a pattern.

[0023] For example, as shown in FIG. 3, in a state where the refrigerator 1 is placed,

the pattern applied to the patterned door member may have a plurality of horizontal lines having fluctuations.

When a color of the base color layer (see 204 in FIG. 2A) superimposed on the pattern layer to which the pattern of the plurality of lines having fluctuations is applied is set to a metallic color, the door of the refrigerator 1 can make a user feel like a metallic patterned door, and when the color is set to a brown color, the door of the refrigerator 1 can make the user feel like a woodgrain patterned door, thereby further enhancing the design of the refrigerator 1.

[0024] Further, for example, as shown in FIG. 4, in a state where the refrigerator 1 is placed, the pattern applied to the patterned door member may have a plurality of horizontal lines whose heights or intervals in a height direction are different from each other.

Since the pattern has random lines, the refrigerator 1 having the door can give an organic impression to a user in spite of a geometric pattern.

[0025] Also, for example, as shown in FIG. 5, in a state where the refrigerator 1 is placed, the pattern applied to the patterned door member may be a pattern of arrow feathers represented by a plurality of figures that forms lines in a horizontal direction depending on a set and directionality of the figures.

By indicating the directionality of lines by the set of figures, it is possible to provide the refrigerator 1 having the door that gives an impression of movement to a user, as compared to a pattern using a single kind of line.

[0026] Further, for example, as shown in FIGS. 6A to 6C, the pattern applied to the patterned door member may be a pattern in which any figures are arranged closely.

By making the pattern have no directionality in vertical and horizontal directions, the refrigerator 1 can make a connection between doors look natural to a

user.

[0027] Further, for example, as shown in FIG. 7, the pattern applied to the patterned door member may be a diagonal stripe pattern or a pattern in which diagonal stripes are crossed. Note that FIG. 7 shows the pattern in which the diagonal stripes are crossed, as an example.

By applying a diagonal pattern, it is possible to dispose the pattern on the entire patterned door member even with a small printing area, and by reducing an amount of ink used, it is possible to provide a patterned door member with suppressed costs.

For example, as shown in FIG. 7, when the diagonal pattern is applied, as compared with a case where the pattern of the plurality of horizontal lines having fluctuations is applied as shown in FIG. 3, there are many blank portions, so that an amount of ink used in a printed layer of the pattern is small.

[0028] Further, for example, as shown in FIG. 8, the pattern applied to the patterned door member may be a pattern in which random figures are radially arranged.

By applying the pattern in which random figures are arranged, the user can hardly feel a gap of the pattern between the doors. Thereby, defective products are reduced and production efficiency of the refrigerator 1 is increased.

[0029] As described above, the pattern applied to the patterned door member can be set as appropriate.

[0030] Note that, in the above first embodiment, the door member is made of glass, but this is merely an example, and the door member may be made of, for example, a metal steel plate or stone.

Further, in the above-described first embodiment, the door member has a plate shape, but this is merely an example, and the door member may be an exterior material used for the refrigerator 1. For example, the door member may be a member having a

curved shape over the entire surface or a member having a rounded corner.

[0031] Further, in the above first embodiment, as shown in FIG. 1, as an example, the refrigerator 1 is assumed to have a plurality of doors in the vertical direction, but this is only an example.

For example, the refrigerator 1 may have a plurality of doors on the left and right.

[0032] Further, in the above first embodiment, the front surface of at least one door 2a, 2b, or 2c of the plurality of doors of the refrigerator 1 is configured with the door member subjected to the gradation that gradually darkens from the upper part toward the lower part in the vertical direction and the pattern that appears to be faded out depending on the gradation, in a state where the refrigerator 1 is placed, but this is only an example.

For example, the front surface of at least one door 2a, 2b, or 2c of the plurality of doors of the refrigerator 1 may be configured with the door member subjected to a gradation that gradually brightens from the upper part toward the lower part in the vertical direction and a pattern that appears to be faded out depending on the gradation, in a state where the refrigerator is placed.

[0033] Also, for example, the front surface of at least one of the plurality of doors of the refrigerator 1 may be configured with a door member subjected to a gradation that gradually darkens from the left toward the right in a left-right direction and a pattern that appears to be faded out depending on the gradation, or may be configured with a door member subjected to a gradation that gradually brightens from the left toward the right and a pattern that appears to be faded out depending on the gradation, in a state where the refrigerator 1 is placed (see, for example, FIGS. 9A and 9B).

In addition, for example, the front surface of at least one of the plurality of

doors of the refrigerator 1 may be configured with a door member subjected to a gradation that gradually darkens from one end toward another end on a diagonal line and a pattern that appears to be faded out depending on the gradation (see FIGS. 10A and 10B).

The front surface of at least one of the doors of the refrigerator 1 is only required to be configured with a door member subjected to a gradation from one end toward another end and a pattern that appears to be faded out depending on the gradation.

[0034] Further, in the above-described first embodiment, for example, the gradation is applied from one end toward another end of the door member, such as from the upper part toward the lower part of the door member as shown in FIG. 1, but this is just one example. The gradation does not necessarily have to start from one end of the door member, and the one end may have a portion with constant brightness. The gradation is only required to be applied along a direction from one end toward another end of the door member.

[0035] As described above, according to the first embodiment, the refrigerator 1 includes at least one door 2a, 2b, or 2c whose front surface is configured with a door member, the door member being subjected to a gradation along a direction from one end toward another end of the door member and subjected to a pattern overlapped with the gradation so as to be faded out depending on the gradation. As a result, a user can feel a natural change in decoration of the door of the refrigerator 1, so that design of the refrigerator 1 can be enhanced.

[0036] Further, according to the first embodiment, the refrigerator 1 is configured so that, with respect to an end having lower brightness of the door member subjected to the gradation and the pattern, a door member located on a side opposite to an end having

higher brightness of the door member subjected to the gradation and the pattern is subjected to a single color tone. Thereby, it is possible to make the user feel as if the pattern is included in the door member to which no gradation and pattern decoration is applied. Further, in the refrigerator 1, by using the single color door member with a small number of decorative layers, for the door member of the door that is not subjected to the gradation and the pattern, it is possible to suppress costs associated with production of the door member of the refrigerator 1.

[0037] It is to be noted that any constituent element in the embodiment can be modified or any constituent element in the embodiment can be omitted within the scope of the invention of the present application.

INDUSTRIAL APPLICABILITY

[0038] The refrigerator according to the present invention is configured so that the door is subjected to the decoration with a natural change in which the gradation and the pattern are combined, thereby enabling the design to be enhanced. Therefore, it is applicable to a refrigerator provided with a plurality of doors.

REFERENCE SIGNS LIST

[0039] 1a, 1b, 1c: refrigerator, 2a, 2b, 2c, 21a, 22a: door

CLAIMS

1. A refrigerator comprising
at least one door whose front surface is configured with a door member, the door member being subjected to a gradation along a direction from a first end toward a second end of the door member and subjected to a pattern overlapped with the gradation so as to be faded out depending on the gradation.
2. The refrigerator according to claim 1, wherein
with respect to an end having lower brightness of the door member subjected to the gradation, a door member located on a side opposite to an end having higher brightness of the door member subjected to the gradation is subjected to a single color tone.
3. The refrigerator according to claim 1, wherein
the door member is subjected to the gradation and the pattern, by directly printing a resin coating layer of the gradation and a resin coating layer of the pattern on the door member.
4. The refrigerator according to claim 1, wherein
the door member is subjected to the gradation and the pattern, by attaching a decorative film to which the gradation and the pattern are decoratively added to the door member.
5. The refrigerator according to claim 1, wherein
the pattern has horizontal straight lines in a state where the refrigerator is

placed.

6. The refrigerator according to claim 1, wherein
the pattern has horizontal lines with fluctuations in a state where the refrigerator is placed.
7. The refrigerator according to claim 1, wherein
the pattern has a plurality of horizontal lines whose heights or intervals in a height direction are different from each other, in a state where the refrigerator is placed.
8. The refrigerator according to claim 1, wherein
the pattern has a plurality of figures that forms lines in a horizontal direction depending on a set and directionality of the figures, in a state where the refrigerator is placed.
9. The refrigerator according to claim 1, wherein
the pattern is a pattern in which any figures are arranged closely.
10. The refrigerator according to claim 1, wherein
the pattern is a diagonal stripe pattern or a pattern in which diagonal stripes are crossed.
11. The refrigerator according to claim 1, wherein
the pattern is a pattern in which random figures are arranged radially.

12. The refrigerator according to any one of claims 1 to 11, wherein
in a state where the refrigerator is placed,
the first end is an upper part of the door member,
the second end is a lower part of the door member, and
the door member is subjected to the gradation that gradually darkens from the
upper part of the door member toward the lower part of the door member.