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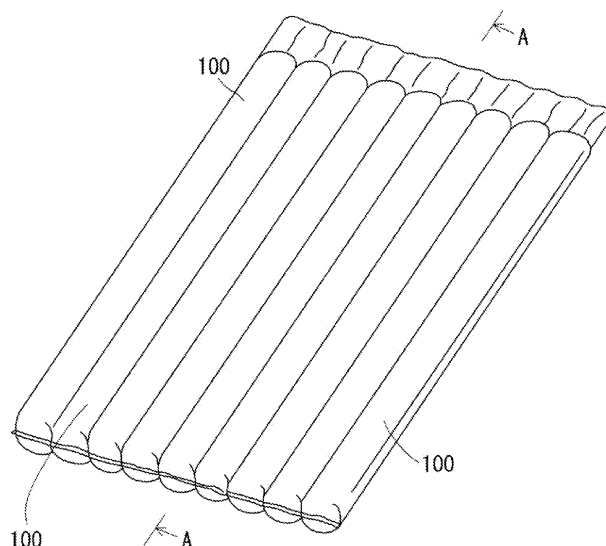
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(54) **AIR-FILLED PACKAGING PRODUCT**

(57) Provided is an air-filling type packaging material. The air-filling type packaging material includes a plurality of air-cells, an air passage, a communication passage, and a sealing member. The plurality of air-cells are divided by adhesion of an upper sheet and a lower sheet and performing a shock-absorbing function. The air passage is formed by adhesion of an upper sheet and a lower sheet such that external air flows into the air-cell. The

communication passage is formed by adhesion of the upper and lower sheets, and connected to the air passage at one side thereof and connected to the air-cell to discharge air at the other side thereof. The sealing member is disposed in the communication passage between a portion thereof connected to an air passage and a portion thereof connected to the air-cell to prevent air filled in the air-cell from flowing backward.

【Figure 1】



## Description

[Technical Field]

**[0001]** The following disclosure relates to an air-filling type packaging material, and in particular, to an air-filling type packaging material that facilitates injection and sealing of air.

[Background Art]

**[0002]** Generally, various kinds of package materials are applied to outer surfaces of products to minimize product damage during transportation and storage.

**[0003]** Recently, in order to achieve the shock-absorbing property of package materials, air-filling type packaging materials with improved shock-absorbing property are well-known. In the air-filling type packaging materials, synthetic films are applied to the outer surface thereof, and a plurality of air-cells filled with air are provided therein to improve their shock-absorbing property.

**[0004]** In such typical air-filling type packaging materials, although their performance is largely influenced by the degree of integrity of a check valve for air-injection and sealing of the plurality of air-cells, the integrity of the check valve is not easy to achieve, and its fabrication process is relatively complex.

[Disclosure]

[Technical Problem]

**[0005]** Accordingly, the present disclosure provides an air-filling type packaging material that does not require a high-quality check valve and can be fabricated through a simple process.

**[0006]** The present disclosure also provides an air filling type packaging material that can retain its shock-absorbing function because even when a portion or part of air-cells is damaged, sealing of other air-cells is not affected.

[Technical Solution]

**[0007]** Embodiments of the present invention provide air-filling type packaging materials including: a plurality of air-cells divided by adhesion of an upper sheet and a lower sheet and performing a shock-absorbing function; an air passage formed by adhesion of an upper sheet and a lower sheet such that external air flows into the air-cell; a communication passage formed by adhesion of the upper and lower sheets, and connected to the air passage at one side thereof and connected to the air-cell to discharge air at the other side thereof; and a sealing member disposed in the communication passage between a portion thereof connected to an air passage and a portion thereof connected to the air-cell to prevent air filled in the air-cell from flowing backward.

**[0008]** In some embodiments, the communication passage may be disposed parallelly along a side surface of the air-cell.

**[0009]** In other embodiments, the sealing member may be formed of a V-shaped sheet that is disposed between the upper sheet and the lower sheet, and faces the air passage at a sharp tip thereof and the air-cell at both ends thereof.

**[0010]** In still other embodiments, the sealing member may be disposed between the upper sheet and the lower sheet, and may adhere to the upper sheet and the lower sheet.

**[0011]** In even other embodiments, the air-filling type packaging material may further include an embossed sheet that allows the sealing member to more easily adhere to the upper sheet and the lower sheet.

**[0012]** In yet other embodiments, the air-cell may have a bent shape.

**[0013]** In further embodiments, the upper sheet and the lower sheet that form the air-cell may be partially adhered to each other such that the air-filling type packaging material is bent by blocking air from flowing into a portion of the air-cell.

**[0014]** Other features and aspects will be apparent from the following detailed description, the drawings, and the claims.

[Advantageous Effects]

**[0015]** In air-filling type packaging materials according to embodiments, air can be quickly and easily filled in a plurality of air-cells through a communication passage via a single air passage. Also, since a sealing member can be together formed without a separate complicated process by adhering an upper sheet and a lower sheet to each other to form the air-cell. Accordingly, the air-filling type packaging materials are economic and efficient compare to a typical packaging material.

**[0016]** Also, since the sealing member maintains the sealing of the respective air-cells, even when a portion of air-cells are damaged, other air-cells are not affected in their sealing characteristics, retaining their shock-absorbing function.

**[0017]** Furthermore, since the air-filling type packaging material can be used not in a simple flat shape but in a cube-shape, its usability can increase and the time taken for packaging can be shortened.

[Description of Drawings]

**[0018]**

FIG. 1 is a perspective view illustrating an air-filling type packaging material according to an embodiment of the present invention.

FIG. 2 is an exploded perspective view illustrating an air-filling type packaging material according to an embodiment of the present invention.

FIG. 3 is a cross-sectional view illustrating an air-filling type packaging material according to an embodiment of the present invention.

FIG. 4 is a cross-sectional view taken along line A-A of FIG. 1 to illustrate an air-filling type packaging material according to an embodiment of the present invention.

FIG. 5 is a cross-sectional view illustrating an air-filling type packaging material according to another embodiment of the present invention.

FIG. 6 is a cross-sectional view illustrating an air-filling type packaging material according to another embodiment of the present invention.

FIG. 7 is a cross-sectional view illustrating an air-filling type packaging material according to another embodiment of the present invention.

[Best Mode]

**[0019]** Exemplary embodiments of the present invention will be described below in more detail with reference to the accompanying drawings. The present invention may, however, be embodied in different forms and should not be construed as limited to the embodiments set forth herein. Rather, these embodiments are provided so that this disclosure will be thorough and complete, and will fully convey the scope of the present invention to those skilled in the art.

**[0020]** Hereinafter, exemplary embodiments of the present invention will be described in detail with reference to the accompanying drawings.

**[0021]** An air-filling type packaging material may include an upper sheet 10 and a lower sheet 20. The upper sheet 10 and the lower sheet 20 may adhere to each other to form partitions such as air-cells, air passages, and communication passages. Hereinafter, components that are formed by the adhesion between the upper sheet 10 and the lower sheet 20 will be described in detail.

**[0022]** FIG. 1 is a perspective view illustrating an air-filling type packaging material according to an embodiment of the present invention. FIG. 2 is an exploded perspective view illustrating an air-filling type packaging material according to an embodiment of the present invention.

**[0023]** Referring to FIGS. 1 and 2, the air-filling type packaging material may include an air-cell 100, an air passage 200, and a communication passage 300.

**[0024]** The air-cell 100 may be divided by adhesion of the upper sheet 10 and the lower sheet 20 such that the air-cell 100 absorbs a shock from the outside.

**[0025]** The air passage 200 may allow air from the outside to pass through. More specifically, the air passage 200 may serve as an external air passage that allows air to flow into the air-cell 100.

**[0026]** For this, the communication passage 300 may be connected to the air passage 200 at one side thereof (hereinafter, referred to as a communication passage air inlet 310), and may be connected to the air-cell 100 at

the other side thereof (hereinafter, referred to as a communication passage air outlet 320).

**[0027]** The communication passage 300 may be disposed parallelly along the edge of the air-cell 100.

**[0028]** FIG. 3 is a cross-sectional view illustrating an air-filling type packaging material according to an embodiment of the present invention.

**[0029]** Referring to FIG. 3, the air-filling packaging material may include an upper sheet 10 and a lower sheet 20, which adhere to each other to form an air-cell 100. In the drawing, an air passage 200 may be disposed over an air-cell 100. The air-cell 100 and the air passage 200 may be connected to each other through a communication passage 300.

**[0030]** Thus, external air received through the air passage 200 may flow into the communication passage 300 through a communication passage air inlet 310 of the communication passage 300. External air flowing into the communication passage 300 may be discharged into the air-cell 100 through a communication passage air outlet 320 of the communication passage 300 connected to the air-cell 100, filling the air-cell 100 with air.

**[0031]** The air-filling type packaging material may include a sealing member 400.

**[0032]** Referring again to FIG. 2, the sealing member 400 of the air-filling type packaging material may facilitate air flow into the air-cell 100 and prevent air from leaking from the air-cell 100 to the outside.

**[0033]** More specifically, in the air-filling type packaging material, external air may flow into the air-cell 100 through the communication passage 300. In this case, the sealing member 400 may be formed inside the communication passage 300 such that air filled in the air-cell 100 does not leak.

**[0034]** For this, the sealing member 400 may be disposed between the communication passage air inlet 310 formed at one side of the communication passage 300 and the communication passage air outlet 320 formed at the other side of the communication passage 300.

**[0035]** The sealing member 400 may be formed of a synthetic resin sheet, and may be formed inside the communication passage 300. The sealing member 400 may include a V-shaped sheet 410, whose sharp tip faces the air passage 200, and whose both ends face the air-cell 100. The V-shaped sheet 410 may be disposed between the upper sheet 10 and the lower sheet 20, and may be adhered to the upper sheet 10 and the lower sheet 20 when the upper sheet 10 and the lower sheet 20 are adhered to each other.

**[0036]** Accordingly, the sealing member 400 may be formed between the upper sheet 10 and the lower sheet 20 through a single adhesion process without a separate thermal adhesion process.

**[0037]** Hereinafter, an operation of the sealing member 400 including the V-shaped sheet 410 will be described in detail.

**[0038]** FIG. 4 is a cross-sectional view taken along line A-A of FIG. 1 to illustrate an air-filling type packaging

material according to an embodiment of the present invention.

**[0039]** Referring to FIG. 4, external air flowing through the air passage 200 may flow into the communication passage 300 through the communication passage air inlet 310 of the communication passage 300, and then may flow into the communication passage air outlet 320 of the communication passage 300 connected to the air-cell 10 by the V-shaped sheet 410. More specifically, external air flowing into the communication passage 300 may easily flow between the V-shaped sheet 410 and the inner sidewall of the communication passage 300 by the shape of the sheet 410

**[0040]** External air flowing into the communication passage air outlet 320 may flow into the air-cell 100 to fill the air-cell 100. When the air-cell 100 is completely filled with air, air may flow backward into the V-shaped sheet 410 of the sealing member 400. Accordingly, both surfaces of the V-shaped sheet 410 facing the air-cell 100 may become more distant from each other, and may adhere to the inner sidewalls (i.e., the upper sheet 10 and the lower sheet 20 that form the communication passage 300) of the communication passage 300, respectively, preventing air from flowing backward to the outside.

**[0041]** Due to the movement of the sealing member 400, the air-filling type packaging material may not require a separate operation that prevents air filled in the air-cell 100 from leaking to the outside. In other words, the sealing member 400 may serve as a check valve.

**[0042]** Since the sealing member 400 serves as a check valve, the air-filling type packaging material may have a shock-absorbing function without a separate operation for retaining air filled therein.

**[0043]** In one embodiment, the air-filling type packaging material may further include an embossed sheet 500.

**[0044]** Referring to FIG. 4, the embossed sheet 500 may assist the sealing member 400 to effectively perform its function.

**[0045]** More specifically, the embossed sheet 500 may be disposed in the V-shaped sheet 410 of the sealing member 400, and may assist the V-shaped sheet 410 to easily adhere to the upper sheet 10 and the lower sheet 20 when air flows backward. In other words, since the embossed sheet 500 is disposed in the V-shaped sheet 410, air flowing backward may allow the V-shaped sheet 410 to smoothly adhere to the upper sheet 10 and the lower sheet 20.

**[0046]** FIG. 5 is a cross-sectional view illustrating an air-filling type packaging material according to another embodiment of the present invention.

**[0047]** Referring to FIG. 5, the air-filling type packaging material may have a communication passage 300 connected to an air-cell 100. The communication passage 300 may have a narrow width and a bent structure that consider a difference between the pressure of air flowing from the outside and air flow backward from the air-cell 100. Thus, air filled in the air-cell 100 may be prevented

from flowing backward.

**[0048]** FIG. 6 is a cross-sectional view illustrating an air-filling type packaging material according to another embodiment of the present invention.

**[0049]** When a communication passage is linearly disposed along air-cells, and the air-cells are completely filled with air, the communication passage may be blocked. In order to overcome such a limitation, the air-cells 100 and the communication passages 300 may be formed in a bent pattern, not in a linear pattern. In this case, even when the air-cells are filled with air, the air-filling type packaging material may maintain its straight and flat shape.

**[0050]** FIG. 7 is a cross-sectional view illustrating an air-filling type packaging material according to another embodiment of the present invention.

**[0051]** Referring to FIG. 7, the air-filling type packaging material may have a structure in which an upper sheet 10 and a lower sheet 20 thereof may be partially adhered to each other to block air flow. The air-filling type packaging material may be formed to have a flat shape, which has a shock-absorbing effect when applied to the respective surfaces of a cube.

**[0052]** However, the air-filling type packaging material may be used while being folded in a cube-shape. Since it is not easy to fold a portion of the air-cell filled with air, other portions thereof that can be easily folded or bent may be adhered to the upper and lower sheets such that air is not filled therein.

**[0053]** Thus, when air is filled in the air-cell 100, the air-cell 100 may be easily folded at the portion W of the air-cell 100. Accordingly, the air-filling type packaging material can be utilized in various shapes such as box.

**[0054]** The above-disclosed subject matter is to be considered illustrative and not restrictive, and the appended claims are intended to cover all such modifications, enhancements, and other embodiments, which fall within the true spirit and scope of the present invention. Thus, to the maximum extent allowed by law, the scope of the present invention is to be determined by the broadest permissible interpretation of the following claims and their equivalents, and shall not be restricted or limited by the foregoing detailed description.

## Claims

1. An air-filling type packaging material comprising:

- a plurality of air-cells divided by adhesion of an upper sheet and a lower sheet and performing a shock-absorbing function;
- an air passage formed by adhesion of an upper sheet and a lower sheet such that external air flows into the air-cell;
- a communication passage formed by adhesion of the upper and lower sheets, and connected to the air passage at one side thereof and con-

connected to the air-cell to discharge air at the other side thereof; and

a sealing member disposed in the communication passage between a portion thereof connected to an air passage and a portion thereof connected to the air-cell to prevent air filled in the air-cell from flowing backward.

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2. The air-filling type packaging material of claim 1, wherein the communication passage is disposed parallelly along a side surface of the air-cell. 10
3. The air-filling type packaging material of claim 1, wherein the sealing member is formed of a V-shaped sheet that is disposed between the upper sheet and the lower sheet, and faces the air passage at a sharp tip thereof and the air-cell at both ends thereof. 15
4. The air-filling type packaging material of claim 3, wherein the sealing member is disposed between the upper sheet and the lower sheet, and adheres to the upper sheet and the lower sheet. 20
5. The air-filling type packaging material of claim 3, further an embossed sheet that allows the sealing member to more easily adhere to the upper sheet and the lower sheet. 25
6. The air-filling type packaging material of claim 1, wherein the air-cell has a bent shape. 30
7. The air-filling type packaging material of claim 1, wherein the upper sheet and the lower sheet that form the air-cell are partially adhered to each other such that the air-filling type packaging material is bent by blocking air from flowing into a portion of the air-cell. 35

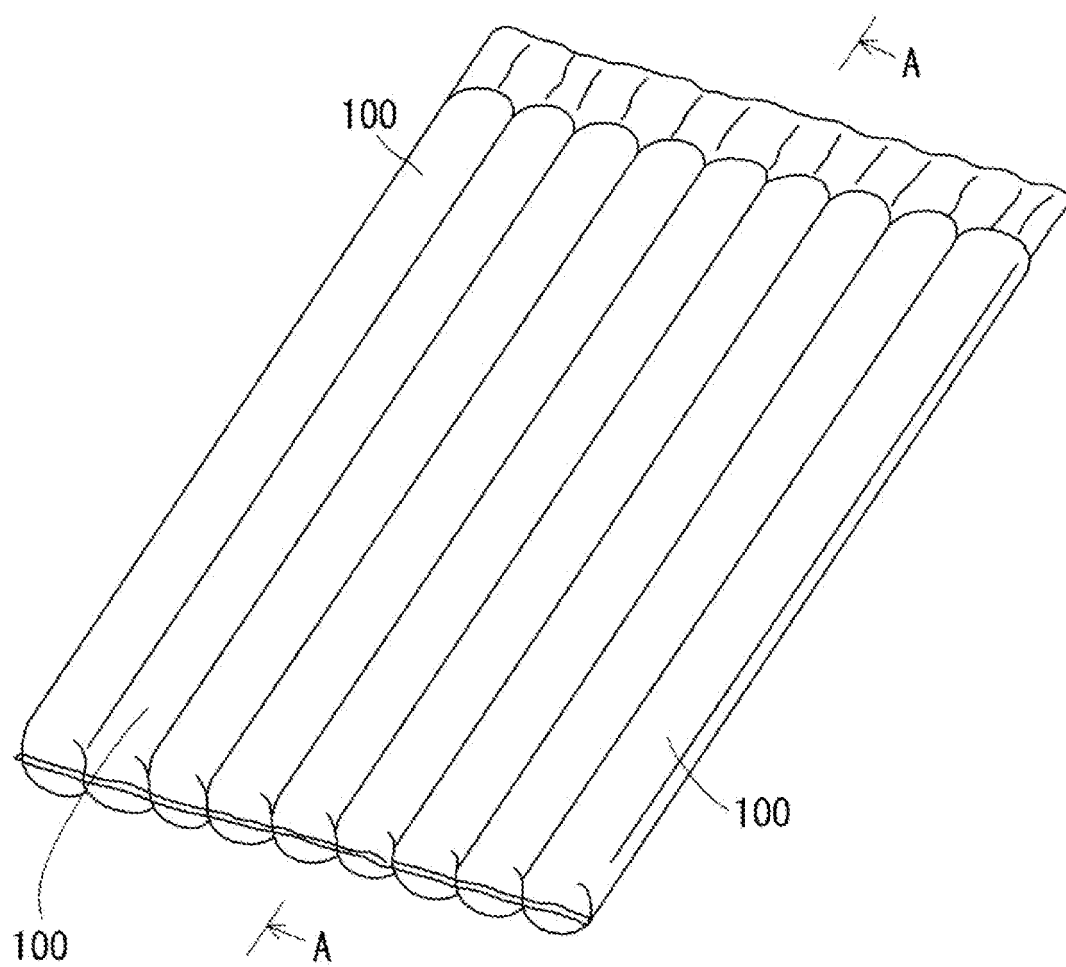
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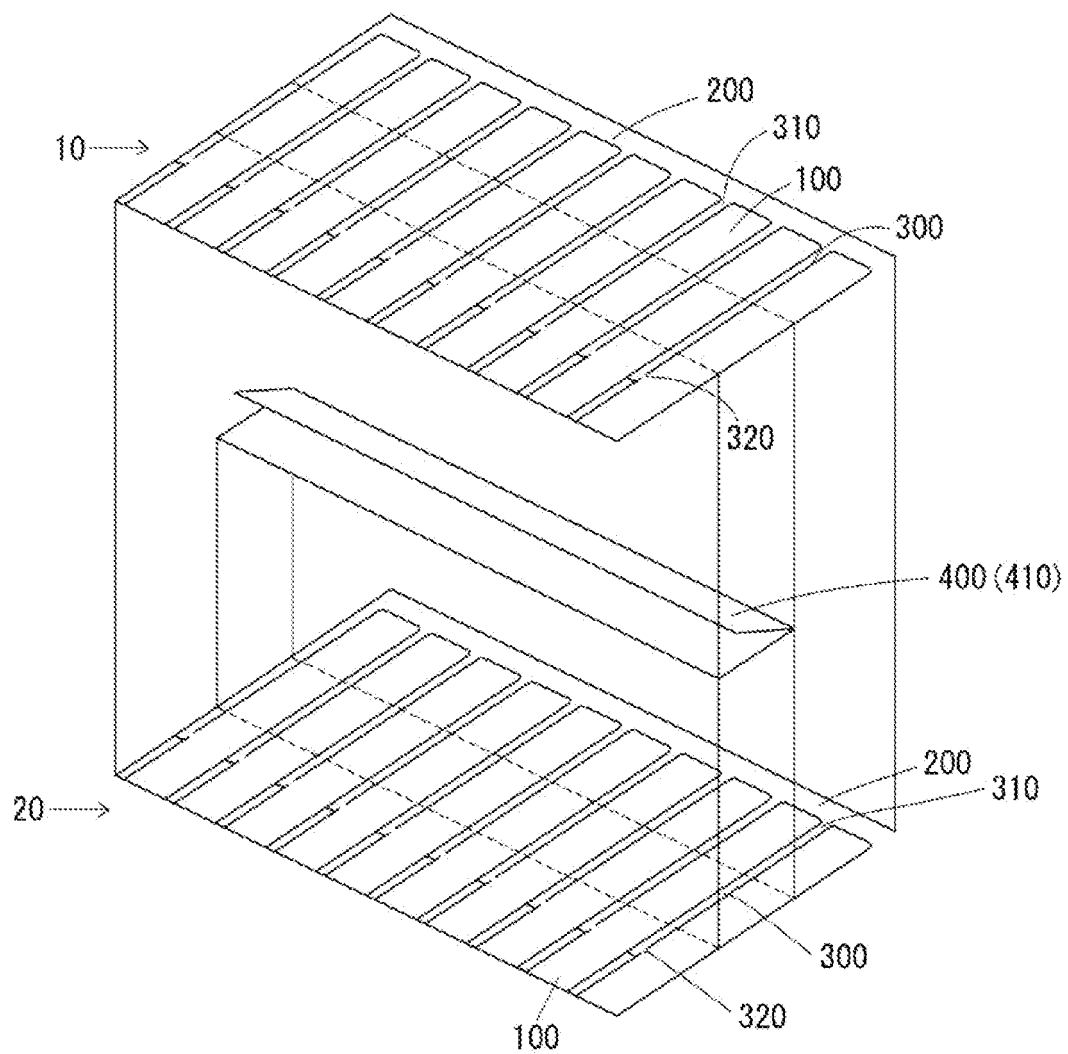
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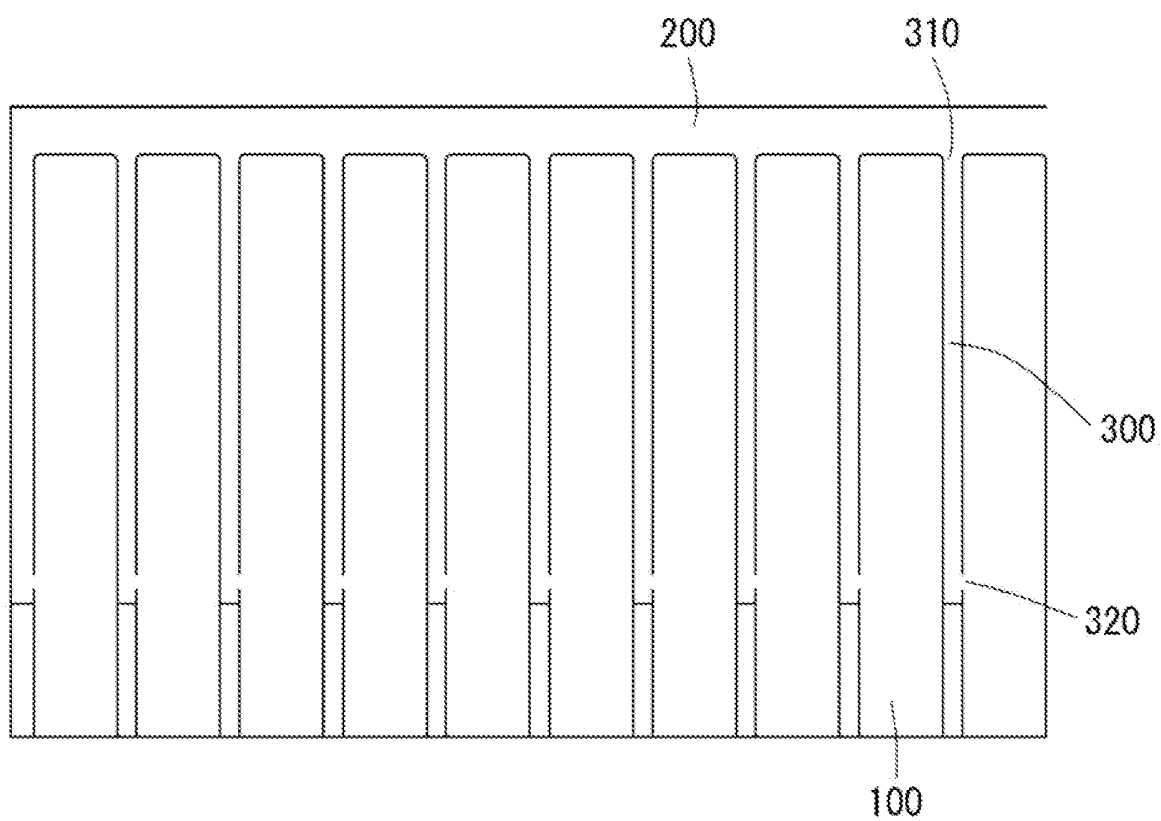
【Figure 1】



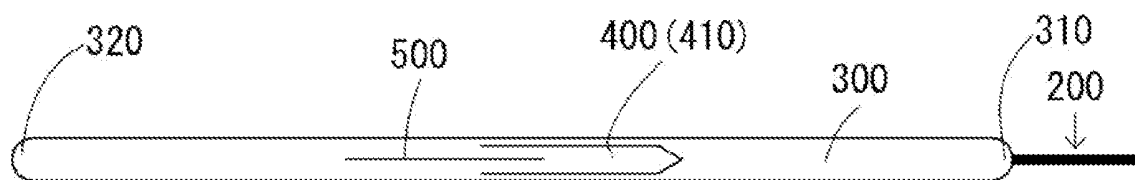
【Figure 2】



【Figure 3】

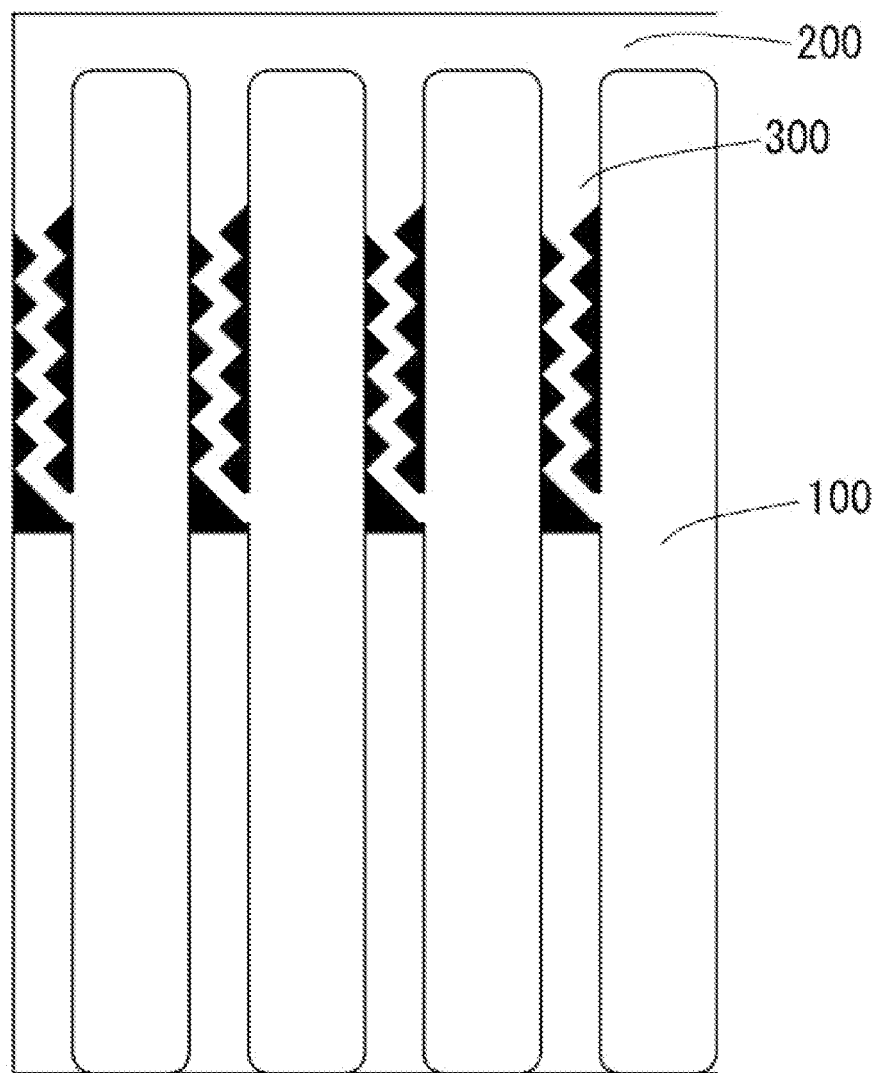


【Figure 4】

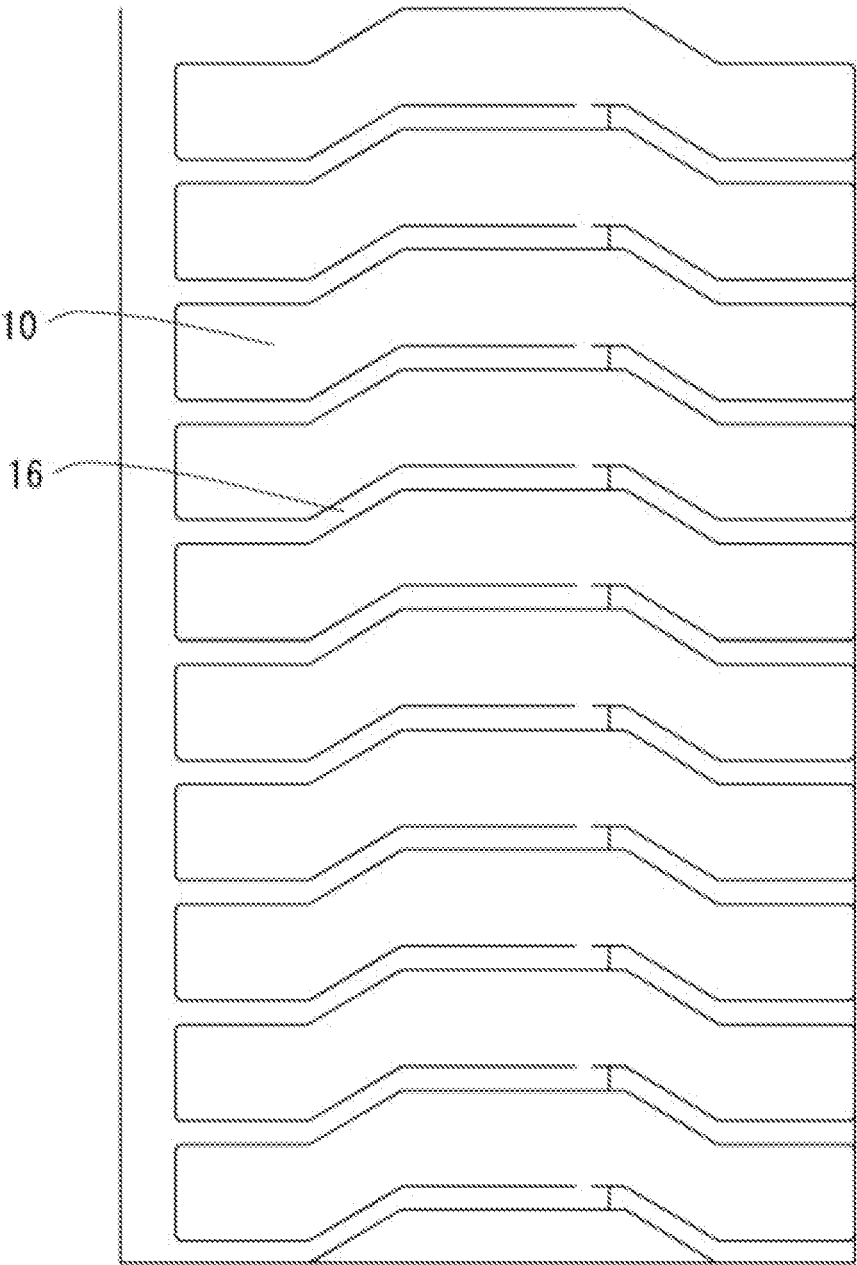




【Figure 5】



【Figure 6】



【Figure 7】

