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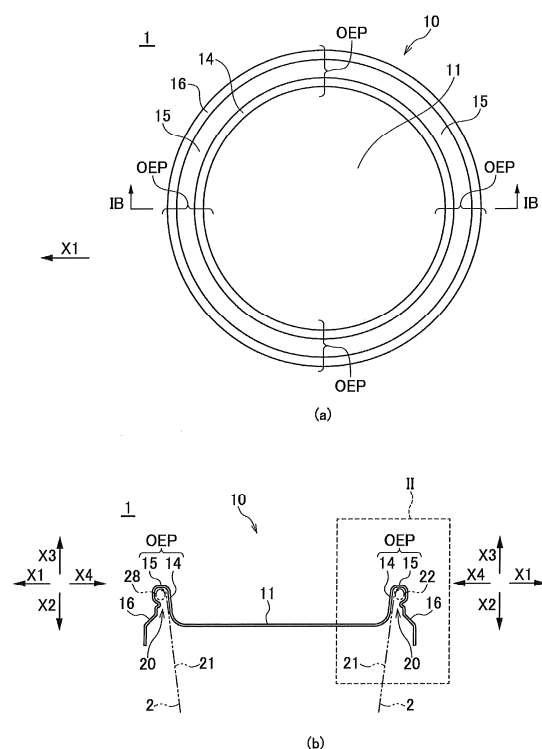
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(54) **BEVERAGE CONTAINER LID**

(57) A beverage container lid is capable of transmitting a sense of click fitting to a person at the time of fitting the lid to a beverage container, prevent blocking at the time of strongly pushing lids in a state of being overlapped with each other, and suppress reduction of removal strength.

Provided is a beverage container lid including: a top plate 11; an inner fitting portion 14 provided on an outer peripheral side of the top plate 11, the inner fitting portion 14 extending upward; a top portion 15 provided along an outer periphery of the inner fitting portion 14, the top portion 15 extending outward and being continuous with the inner fitting portion 14; and an outer fitting portion 16 provided along an outer periphery of the top portion 15, the outer fitting portion 16 extending downward and being continuous with the top portion 15, wherein the outer fitting portion 16 includes an under rib 31 that is bent inward with respect to an outermost end 15a of the top portion 15, a narrowed portion 32 that extends downward under the under rib 31 that is bent and returns outward and is located inside with respect to the outermost end 15a of the top portion 15, and a stack rib 33 that extends downward while expanding in diameter from a lower side of the narrowed portion 32 to an outward side of the top portion 15.

FIG. 2



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Description

Technical Field

[0001] The present invention relates to a beverage container lid to be fitted to a beverage container.

Background Art

[0002] Conventionally, many beverage shops such as fast food shops and convenience stores sell a beverage such as juice or coffee such that the beverage contained in a beverage container may not spill from an opening of the beverage container while carrying the beverage container, by covering the opening of the beverage container such as a plastic (synthetic resin) cup or a paper cup with a beverage container lid.

[0003] Patent Literature 1 describes a paper lid having a flat lid shape. The paper lid disclosed in Patent Literature 1 can be freely fitted to a container by an annular concave portion constituted by an inner fitting portion, a top portion, and an outer fitting portion provided on an outer peripheral side of a top plate.

[0004] However, according to the paper lid disclosed in Patent Literature 1, the outer fitting portion has a straight shape without any bent portion. At the time of fitting the annular concave portion of the paper lid having such a shape to the opening of the beverage container, a sense of click fitting is not transmitted to a person, and therefore, there is a problem that it is not possible to know whether or not the paper lid is properly fitted into the beverage container.

[0005] Further, paper lids before use are often conveyed and stored in a state of being overlapped with each other. If these paper lids in a state of being overlapped with each other are strongly pushed, the paper lids are fitted to each other to cause blocking, and there is also a problem that labor for separating the fitted paper lids is required.

[0006] Furthermore, in a case where the paper lid described in Patent Literature 1 is fitted and closed to the beverage container containing a hot beverage, the rigidity of the paper lid is reduced by steam due to the hot beverage, and the size of the paper lid expands outward. As a result, the removal strength at the time of removal of the paper lid from the opening of the beverage container is reduced, and the paper lid is easily removed by accident, so that there is also a problem that the hot beverage spills from the opening.

Citation List

Patent Literature

[0007] Patent Literature 1: Japanese Patent No. 6978606

Summary of Invention

Technical Problem

[0008] Therefore, the present invention has been made in view of the above-described problems, and an object of the present invention is to provide a beverage container lid capable of transmitting a sense of click fitting to a person at the time of fitting the lid to an opening of a beverage container, preventing blocking at the time of strongly pushing lids in a state of being overlapped with each other, and preventing the lid from being easily removed by suppressing reduction of the removal strength at the time of fitting the lid to the beverage container containing a hot beverage.

Solution to Problem

[0009] A first aspect of the present invention is a beverage container lid to be fitted to a beverage container, the beverage container lid including: a top plate; an inner fitting portion provided on an outer peripheral side of the top plate, the inner fitting portion extending upward; and a top portion provided along an outer periphery of the inner fitting portion, the top portion extending outward and being continuous with the inner fitting portion; and an outer fitting portion provided along an outer periphery of the top portion, the outer fitting portion extending downward and being continuous with the top portion, wherein the outer fitting portion includes an under rib that is bent inward with respect to an outermost end of the top portion, a narrowed portion that extends downward under the under rib that is bent and returns outward and is located inside with respect to the outermost end of the top portion, and a stack rib that extends downward while expanding in diameter from a lower side of the narrowed portion to an outward side of the top portion.

[0010] A second aspect of the present invention is the beverage container lid according to the first aspect, wherein the stack rib includes an enlarged diameter portion and an extended portion, the enlarged diameter portion being enlarged outward in diameter, the extended portion extending downward and being enlarged in diameter with an enlarged diameter angle that is more gradual than that of the enlarged diameter portion.

[0011] A third aspect of the present invention is the beverage container lid according to the first aspect made of paper.

Advantageous Effects of Invention

[0012] According to the present invention having the above-described configuration, it is possible to transmit a sense of click fitting to a person at the time of fitting the lid to a beverage container, prevent blocking at the time of strongly pushing lids in a state of being overlapped with each other, and prevent the lid from being easily removed by suppressing reduction of removal strength at the time of fitting the lid to the beverage container containing a hot beverage.

Brief Description of Drawings

[0013]

Fig. 1 is an exploded perspective view of a beverage container lid according to an embodiment of the present invention, and a beverage container to which the lid is fitted.

Fig. 2(a) is a schematic plan view illustrating an example of a paper lid according to the embodiment of the present invention, and Fig. 2(b) is a schematic cross-sectional view taken along line IB-IB in Fig. 2(a).

Fig. 3 is an enlarged schematic cross-sectional view illustrating inside of a broken-line frame II in Fig. 2(a). Fig. 4 is a view for describing an operation of a preceding stage of fitting the beverage container lid to the beverage container.

Fig. 5 is a view for describing an operation of a succeeding stage of fitting the beverage container lid to the beverage container.

Fig. 6 is a view illustrating a state in which a beverage container containing a hot beverage is closed by the beverage container lid.

Fig. 7 is a view illustrating a state before actual use in which beverage container lids are transferred or stored in a stacked manner.

Fig. 8 is a view showing a result of evaluating three items including removal strength, a sense of click fitting, and an antiblocking property, regarding a beverage container lid to which the present invention is applied.

Fig. 9 is a diagram showing a result of measuring changes in a load (N) and a displacement (mm) in evaluating a sense of click fitting in Fig. 8.

Description of Embodiment

[0014] Hereinafter, an embodiment of a beverage container lid to which the present invention is applied will be described in detail with reference to the drawings.

[0015] Fig. 1 is an exploded perspective view of a beverage container lid 1 according to an embodiment of the present invention and a beverage container 2 to which the lid 1 is fitted. The beverage container 2 is, for example, a bottomed cylindrical paper cup which is made of paper, which includes an opening 3 having an edge 3a at an upper portion thereof, and which is often used to contain a beverage 6 such as juice or coffee to sell the beverage.

[0016] The beverage container 2 is not limited to paper, and may be made of other materials such as plastic. In a case where the beverage container 2 is made of plastic, environmentally friendly biodegradable plastic or the like may be used.

[0017] The beverage container 2 is used for the purpose of selling the beverage 6 by closing the opening 3 with the beverage container lid 1.

[0018] The beverage container lid 1 is made of paper, but is not limited to paper, and may be made of other materials such as plastic. In a case where the beverage container lid 1 is made of plastic, environmentally friendly biodegradable plastic or the like may be used.

[0019] Fig. 2(a) is a schematic plan view illustrating an example of the paper lid according to the embodiment of the present invention, and Fig. 2(b) is a schematic cross-sectional view taken along line IB-IB in Fig. 2(a). Fig. 3 is an enlarged schematic cross-sectional view illustrating inside of a broken-line frame II in Fig. 2(b).

[0020] As shown in Figs. 2(a), 2(b), and 3, the beverage container lid 1 is configured by a blank 10 mainly made of paper, and includes a top plate 11, an inner fitting portion 14, a top portion 15, and an outer fitting portion 16. A shape of the beverage container lid 1 in plan view is, for example, a circular shape. Hereinafter, in Figs. 2 and 3, an outward side (direction X1) refers to an outer direction centered on the beverage container 2 made of, for example, a paper cup to be fitted, a downward side (direction X2) refers to a lower direction in a case where the beverage container 2 is placed on a bottom surface, and an upward side (direction X3) refers to an upper direction in a case where the beverage container 2 is placed on the bottom surface. In addition, an inward side (direction X4) refers to an inner direction centered on the beverage container 2 made of, for example, a paper cup to be fitted. However, the downward side (direction X2) and the upward side (direction X3) are not limited to a completely vertically downward direction and a completely vertically upward direction, and include an obliquely downward direction shifted from the vertically downward direction and an obliquely upward direction shifted from the vertically upward direction.

[0021] In addition, the top plate 11 is responsible for a function of preventing so-called scattering and leakage of contents in the beverage container 2, which is an original function of a lid as the beverage container lid 1, and the remaining peripheral edge portion OEP (the inner fitting portion 14, the top portion 15, and the outer fitting portion 16) is responsible for a function of fitting to the beverage container 2.

[0022] The top plate 11 extends outward (direction X1) from the center of the beverage container lid 1. The top plate 11 includes a top surface 11a and a container surface 11b. The container surface 11b is on a back surface of the top surface 11a. The container surface 11b faces a container portion of the beverage container 2 when the beverage container lid 1 is fitted to the beverage container 2.

[0023] The inner fitting portion 14 is provided on the peripheral edge portion OEP of the beverage container lid 1 along an outer periphery of the top plate 11 and extends upward (direction X3). The inner fitting portion 14 is configured continuously with the top plate 11. The inner fitting portion 14 may be raised up to the top portion 15 with substantially the same diameter, in other words, in the substantially vertical direction in the cross-sectional

view, but is not limited to such an example, and may be gradually increased in diameter outward up to the top portion 15.

[0024] The top portion 15 is provided on the peripheral edge portion OEP of the beverage container lid 1 along an outer periphery of the inner fitting portion 14, extends outward (direction X1), and is folded back downward (direction X2). An end portion located on an outermost side (direction X1) of the top portion 15 is referred to as an outermost end 15a. The top portion 15 is configured continuously with the inner fitting portion 14. The top portion 15 includes a curved surface that protrudes upward (direction X3) in its cross section.

[0025] The outer fitting portion 16 is provided on the peripheral edge portion OEP of the beverage container lid 1 along an outer periphery of the top portion 15 and extends downward (direction X2). The outer fitting portion 16 is configured continuously with the top portion 15. The outer fitting portion 16 faces the inner fitting portion 14 at a distance. Under the top portion 15 and between the inner fitting portion 14 and the outer fitting portion 16, an annular concave portion 20 having the inner fitting portion 14 and the outer fitting portion 16 as respective surrounding walls and the top portion 15 as a bottom is provided. The annular concave portion 20 is fitted to the beverage container 2. At this time, the inner fitting portion 14 is fitted to a container portion inner peripheral surface 21 of the beverage container 2, and the outer fitting portion 16 is fitted to an outer peripheral surface of a curled portion 28 of the beverage container 2.

[0026] The outer fitting portion 16 is configured by an under rib 31, a narrowed portion 32, and a stack rib 33 continuously provided from the top.

[0027] The under rib 31 is bent inward (direction X4) from the outermost end 15a of the top portion 15. The under rib 31 can form a bent shape by bending an outer surface and an inner surface of the top portion 15 outward centering a point P1, then by folding the bent outer surface and the bent inner surface centering a point P2, and further folding the folded outer surface and the folded inner surface at a point P3. It is assumed that the point P2 and the point P3 constituting the bending shape of the under rib 31 are located inward (direction X4) of the point P1 at the top portion.

[0028] The narrowed portion 32 extends downward from the point P3 of the under rib 31, and is located inward (in the direction X4) from the outermost end 15a of the top portion 15. The narrowed portion 32 extends downward (direction X2) while providing substantially the same diameter. Therefore, in the cross-sectional view shown in Fig. 3, the narrowed portion 32 is configured to have a shape that hangs substantially vertically downward. However, the narrowed portion 32 is not limited to the case of having substantially the same diameter, and a case of extending downward (direction X2) while expanding or contracting in diameter is included. It is assumed that the narrowed portion 32 is located inward (direction X4) of the top portion 15.

[0029] The stack rib 33 extends downward while expanding outward in diameter from the lower side of the narrowed portion 32. The stack rib 33 itself may expand in diameter outward from the top portion 15 at the time when the stack rib 33 extends downward while expanding outward in diameter. The stack rib 33 may have an enlarged diameter portion 33a that is enlarged outward in diameter, and an extended portion 33b that is extended downward while being enlarged in diameter with an enlarged diameter angle that is more gradual than an enlarged diameter angle of the enlarged diameter portion 33a. However, such a configuration of the extended portion 33b is not essential and may be omitted. By providing the stack rib 33 in this manner, the beverage container 2 can be guided to the annular concave portion 20 via the stack rib 33 at the time of fitting the annular concave portion 20 to the beverage container 2.

[0030] That is, in a cross-sectional view, the beverage container lid 1 bends upward (direction X3) from the top plate 11 at the inner fitting portion 14, bends outward (direction X1) at the top portion 15, and bends downward (direction X2) at the outer fitting portion 16. That is, the top plate 11, the inner fitting portion 14, the top portion 15, and the outer fitting portion 16 are obtained from one blank 10.

[0031] At the time of fitting the beverage container lid 1 configured as described above to the beverage container 2, first, as shown in Fig. 4(a), the curled portion 28 is brought into contact with the stack rib 33 by covering the beverage container 2 with the beverage container lid 1. By pushing the beverage container lid 1 from above in this state, the curled portion 28 of the beverage container 2 is guided into the annular concave portion 20 via the stack rib 33.

[0032] Further, by pushing the beverage container lid 1 from above, as shown in Fig. 4(b), the curled portion 28 approaches the under rib 31 while sliding on an inner surface of the narrowed portion 32 upward from below from the stack rib 33. The narrowed portion 32 is configured to have a diameter smaller than that of the stack rib 33, and to extend downward (in the direction X2) while providing substantially the same diameter. Therefore, in the process in which the curled portion 28 slides while pushing the inner surface of the narrowed portion 32 outward, a force by which the narrowed portion 32 returns inward (direction X4) acts on the curled portion 28. As a result, a pushing force of a certain degree is required in the process in which the curled portion 28 slides on the inner surface of the narrowed portion 32.

[0033] Next, as illustrated in Fig. 5(a), the curled portion 28 reaches the under rib 31 bent inward (direction X4). By further pushing the beverage container lid 1 from above in this state, the curled portion 28 is pushed into the depth of the annular concave portion 20 while the outer fitting portion 16 including the under rib 31 elastically bends outward (direction X1). Then, as illustrated in Fig. 5(b), after the curled portion 28 surmounts the under rib 31, the outer fitting portion 16 including the under rib 31 that elastically bent outward (direction X1) returns in-

ward. In the process in which the under rib 31 returns, vibration is generated by the curled portion 28 hitting the inner surface of the outer fitting portion 16, and as a result, a sense of click fitting is transmitted to a person.

[0034] Since the under rib 31 is bent further inward (direction X4) from the narrowed portion 32, it is necessary to apply a larger pushing force in the process in which the curled portion 28 surmounts the under rib 31 from the narrowed portion 32, but since the outer fitting portion 16 can be greatly bent outward (in the direction X1) by the large pushing force, a return force is increased accordingly, and the sense of click fitting can be transmitted more clearly.

[0035] Further, Fig. 6 is a view illustrating a state in which the beverage container 2 containing a hot beverage is closed by the beverage container lid 1. Since the rigidity of the beverage container lid 1 made of paper is lowered by high-temperature steam due to the hot beverage, the diameter may be expanded outward (direction X1), but the under rib 31 exerts a force that suppresses the outward (direction X1) expansion of the diameter. Then, by providing the narrowed portion 32 on the downward side (direction X2) with respect to the under rib 31, as indicated by an arrow in the figure, the narrowed portion 32 acts together with the under rib 31 in a direction in which the outer fitting portion 16 is held without expanding outward. As a result, it is possible to prevent the beverage container lid 1 from being easily removed from the beverage container 2, and to prevent the hot beverage from spilling from the beverage container 2.

[0036] Further, Fig. 7 is a view illustrating a state before actual use in which beverage container lids 1 are transferred or stored in a stacked manner. When a plurality of beverage container lids 1 are stacked, the top portion 15 of a lower lid is guided to the annular concave portion 20 via the stack rib 33 of an upper lid. Since the top portion 15 of the lower lid is locked by the narrowed portion 32 in the annular concave portion 20 of the upper lid, it is possible to prevent the lids from blocking with each other. As described above, since the narrowed portion 32 acts together with the under rib 31 in the direction in which the outer fitting portion 16 is held without expanding outward, it is possible to more firmly prevent blocking between the beverage container lids 1 that are stacked.

[0037] Therefore, according to the beverage container lid 1 having the above-described configuration, it is possible to transmit a sense of click fitting to a person at the time of fitting the lid to the beverage container 2, prevent blocking at the time of strongly pushing lids in a state of being overlapped with each other, and prevent the lid from being easily removed by suppressing reduction of removal strength at the time of fitting the lid to the beverage container 2 containing the hot beverage.

Example 1

[0038] Hereinafter, an example in which an effect of the beverage container lid 1 to which the present invention is

applied has been experimentally examined will be described.

[0039] In the experimental examination, evaluation was performed on three items of the removal strength at the time of fitting to the beverage container 2 described above, the sense of click fitting, and an antiblocking property. Fig. 8 illustrates an evaluation result. As the experimental examination, in addition to an example of the present invention provided with the shape of the beverage container lid 1 described above, comparative examples 1 and 2 were evaluated in the same manner. In the comparative examples 1 and 2, the under rib 31 is provided similarly to the example of the present invention, but a configuration corresponding to the narrowed portion 32 is not provided, and this portion is enlarged outward in diameter from the lower side the under rib 31. Incidentally, the example 1 of the present invention uses a lid made of paper, the comparative example 1 uses a lid made of paper, and the comparative example 2 uses a lid made of resin. The removal strength was measured using a push pull gauge, and the sense of click fitting and the antiblocking property were measured using a compression tester.

[0040] First, for the removal strength at the time of fitting the lid to the beverage container 2, the beverage container 2 is filled with a beverage at room temperature or the hot beverage, and closed with the lid of each of the present invention and the comparative examples 1 and 2 once. Next, the strength when the lid of each of the closed the example of the present invention and the comparative examples 1 and 2 is removed from the beverage container 2 at an angle of 45 degrees is measured.

[0041] As shown in Fig. 8, in the example of the present invention, the measurement result of the removal strength was 9.5 N at the time of filling the beverage at room temperature, and 5.9 N at the time of filling the hot beverage, and a decrease amount at the time of filling the hot beverage, which is a difference value, was 3.6 N. In the comparative example 1, the measurement result of the removal strength was 9.4 N at the time of filling the beverage at room temperature, and 4.1 N at the time of filling the hot beverage, and the decrease amount at the time of filling the hot beverage, which is the difference value, was 5.3 N. In the comparative example 2, the measurement result of the removal strength was 9.8 N at the time of filling the beverage at room temperature, and 6.7 N at the time of filling the hot beverage, and the decrease amount at the time of filling the hot beverage, which is the difference value, was 3.1 N.

[0042] In the comparative example 2, the decrease amount was small as the resin material is used, but as a result of comparison between the example of the present invention and the comparative example 1 in both of which paper is used, the decrease amount in the example of the present invention was smaller, and it was clearly shown that the removal strength at the time of filling a hot beverage was high. It can be seen that a result of the experimental examination supports that providing the

narrowed portion 32, together with the under rib 31, exerts a force in a direction in which the outer fitting portion 16 is held without expanding outward, and as a result, the removal strength increases.

[0043] Further, with respect to the antiblocking property, for each of the present invention and the comparative example 1, the lids were pushed in a stacked manner, and the strength by which the lids were fitted to each other was measured. It can be said that as the strength is higher, the lids are less likely to be fitted to each other, and the antiblocking property is excellent. The comparative example 2 was not included in the examination, since the material is different.

[0044] As a result of the experiment, it can be seen that the example of the present invention is superior to the comparative example 1 also in the antiblocking property, since the example of the present invention was 28.5 N, whereas the comparative example 1 was 17.7 N. Regarding the antiblocking property, it was also confirmed that the above-described effect by providing the narrowed portion 32 in addition to the under rib 31 was exhibited.

[0045] The sense of click fitting was examined by measuring a load change when the lid of each of the example of the present invention and the comparative examples 1 and 2 was fitted to the beverage container 2.

[0046] Fig. 9 shows results of measuring changes in load (N) and displacement (mm) for each lid. The displacement when the lid is placed on the beverage container 2 and no load is applied is set to 0 mm. In this state, while a load is gradually applied to the lid, changes in displacement and load are continuously measured. The load was measured by a load cell, and the displacement was measured by a displacement meter of a compression tester.

[0047] For reference, a measurement result of a conventional product in which the under rib 31 is not provided at all in the outer fitting portion 16 is also shown, but this only shows a behavior in which the load gradually increases according to the displacement.

[0048] In the comparative examples 1 and 2, the load increased at once and then decreased as the displacement was increased. This is a force necessary for elastically bending the outer fitting portion 16 outward when the curled portion 28 of the beverage container 2 surmounts the under rib 31. After the curled portion 28 surmounts the under rib 31, the load is rapidly released, which is a stage where the outer fitting portion 16 that has bent outward returns inward. In the process of releasing the load, it is assumed that the difference value from the maximum load to the minimum load corresponds to the above-described sense of click fitting. In the comparative example 1, the difference value was 32.6 N, and in the comparative example 2, the difference value was 34.0 N, both of which were good results.

[0049] In the example of the present invention, when the curled portion 28 of the beverage container 2 first surmounts the narrowed portion 32, a force necessary for

elastically bending the outer fitting portion 16 outward is applied, and thus a peak of a first load appears near the displacement of 2 mm. Thereafter, in a case where the displacement is further increased, a force necessary for elastically bending the outer fitting portion 16 outward is applied when the curled portion 28 of the beverage container 2 surmounts the under rib 31, and as a result, a second load peak appears near the displacement of 5 mm. In the example of the present invention, it is assumed that the difference value from the maximum load to the minimum load in the process of releasing the load after the displacement of 5 mm at which the peak of the second load surmounts the under rib 31 appears corresponds to the above-described sense of click fitting. In the example of the present invention, the difference value was 30.5 N, and a good result was obtained.

[0050] In particular, in the example of the present invention, as compared with the comparative examples 1 and 2, it can be seen that a drop when the load is released from the maximum load is sharp, and the slope of the peak of the load is also sharper. Therefore, it is also shown that it is possible to transmit the sense of click fitting more clearly. In addition, according to the example of the present invention, after being preliminarily bent by the narrowed portion 32, the curled portion surmounts the under rib in the vicinity of the displacement of 5 mm, so that it is possible to give a feeling of surmounting the under rib without applying a large force as compared with the comparative examples 1 and 2, and it is possible to give a similar sense of click fitting.

[0051] Further, in Fig. 9, a behavior from a larger displacement to a smaller displacement indicates a load change when the lid is removed from the beverage container 2. In the example of the present invention, it is necessary to first surmount the under rib 31 at the displacement of 5 mm and surmount the narrowed portion 32 at the displacement of 2 mm, and thus it is necessary to surmount two peaks before the lid is removed. Therefore, it can be seen that the example of the present invention can prevent the lid from being easily removed from the beverage container 2.

Reference Signs List

[0052]

1	Beverage container lid
2	Beverage container
3	Opening
3a	Edge
10	Blank
11	Top plate
11a	Top surface
11b	Container surface
14	Inner fitting portion
15	Top portion
16	Outer fitting portion
20	Annular concave portion

21	Container portion inner peripheral surface	
28	Curled portion	
31	Under rib	
32	Narrowed portion	
33	Stack rib	5
33a	Enlarged diameter portion	
33b	Extended portion	

Claims

- 10
1. A beverage container lid to be fitted to a beverage container, the beverage container lid comprising:
- a top plate;
- an inner fitting portion provided on an outer peripheral side of the top plate, the inner fitting portion extending upward; and
- a top portion provided along an outer periphery of the inner fitting portion, the top portion extending outward and being continuous with the inner fitting portion; and
- an outer fitting portion provided along an outer periphery of the top portion, the outer fitting portion extending downward and being continuous with the top portion, wherein
- the outer fitting portion includes an under rib that is bent inward with respect to an outermost end of the top portion, a narrowed portion that extends downward under the under rib that is bent and returns outward and is located inside with respect to the outermost end of the top portion, and a stack rib that extends downward while expanding in diameter from a lower side of the narrowed portion to an outward side of the top portion.
- 15
- 20
- 25
- 30
- 35
2. The beverage container lid according to claim 1, wherein
- the stack rib includes an enlarged diameter portion and an extended portion, the enlarged diameter portion being enlarged outward in diameter, the extended portion extending downward and being enlarged in diameter with an enlarged diameter angle that is more gradual than an enlarged diameter angle of the enlarged diameter portion.
- 40
- 45
3. The beverage container lid according to claim 1, wherein
- the beverage container lid is made of paper.
- 50

55

FIG. 1

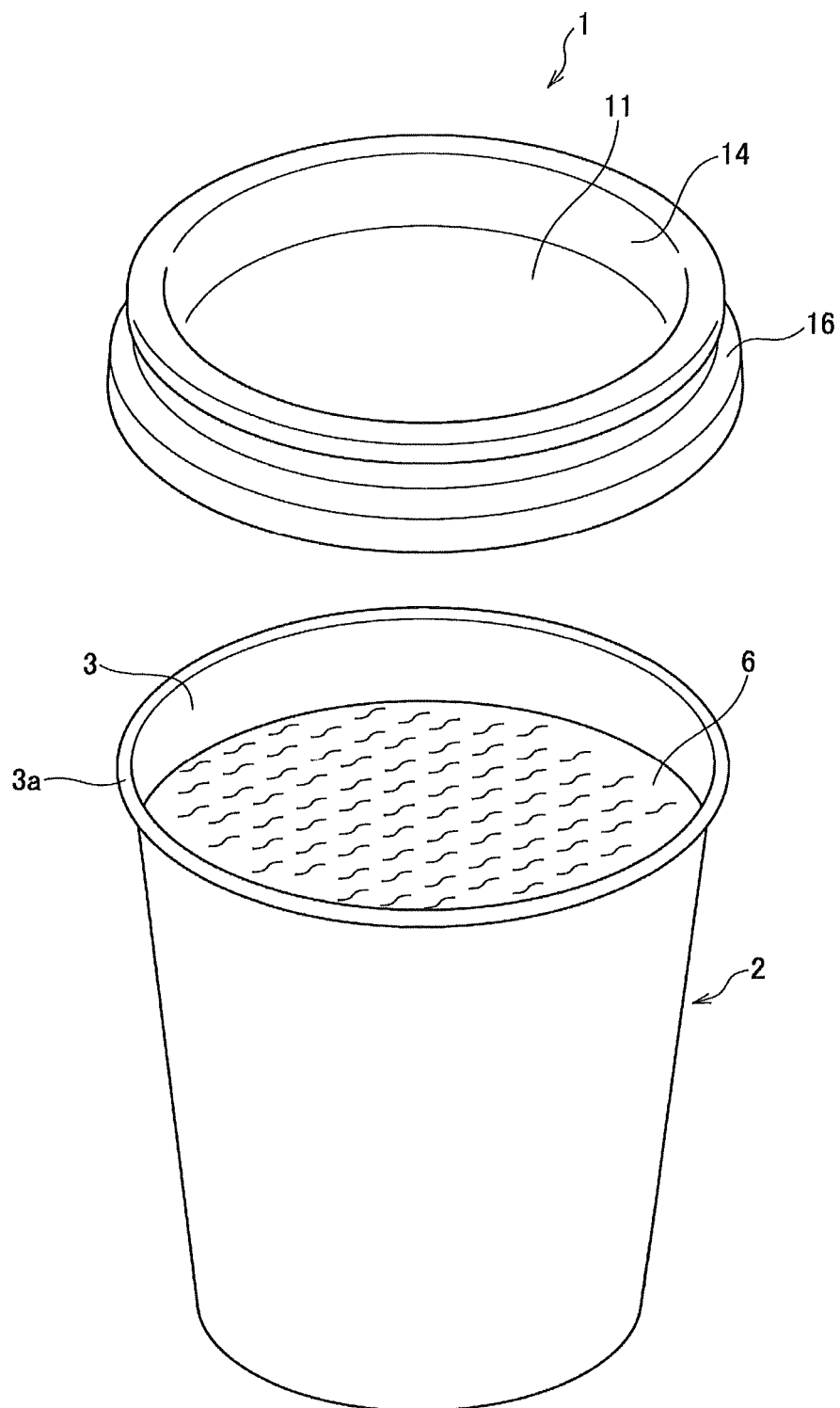


FIG. 2

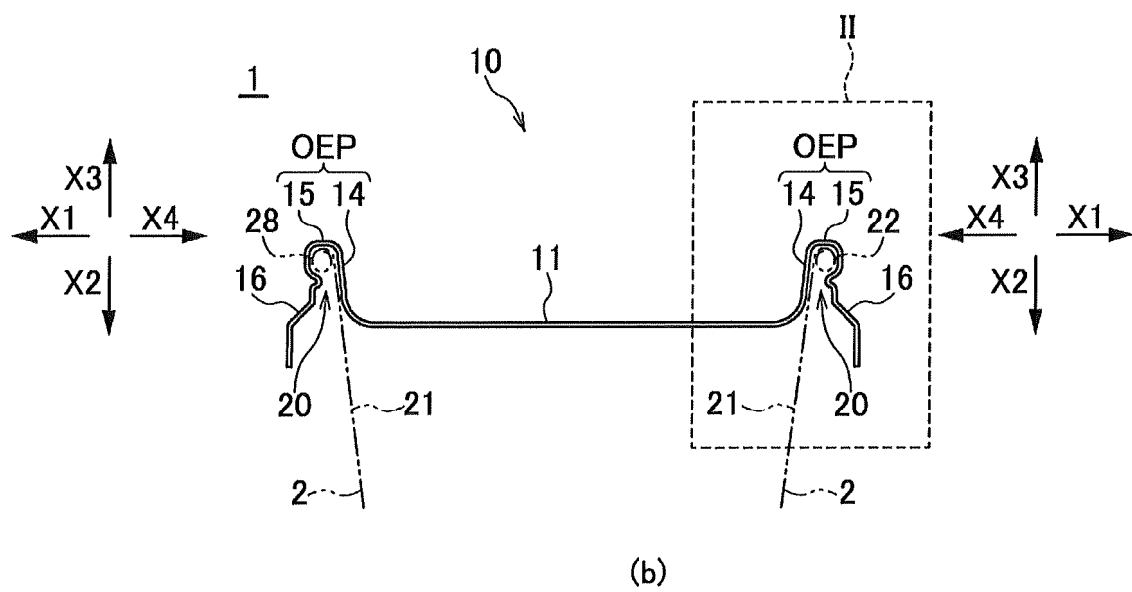
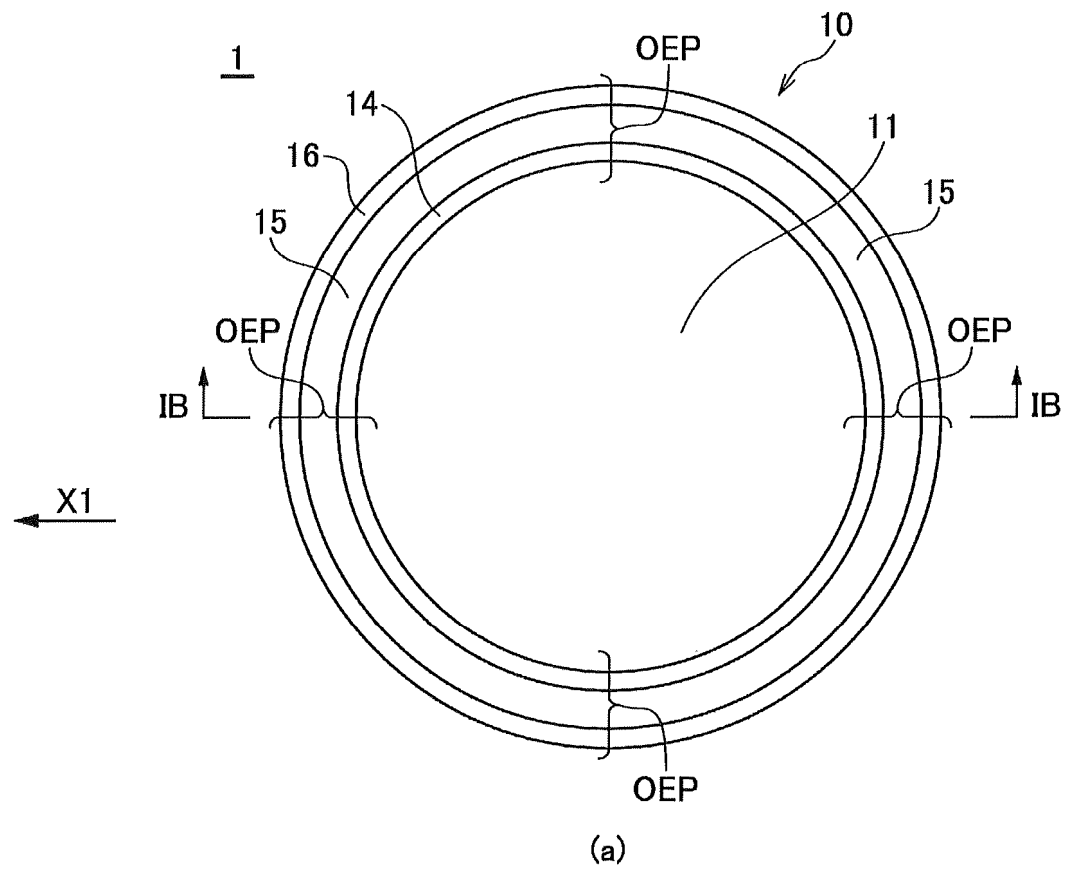


FIG. 3

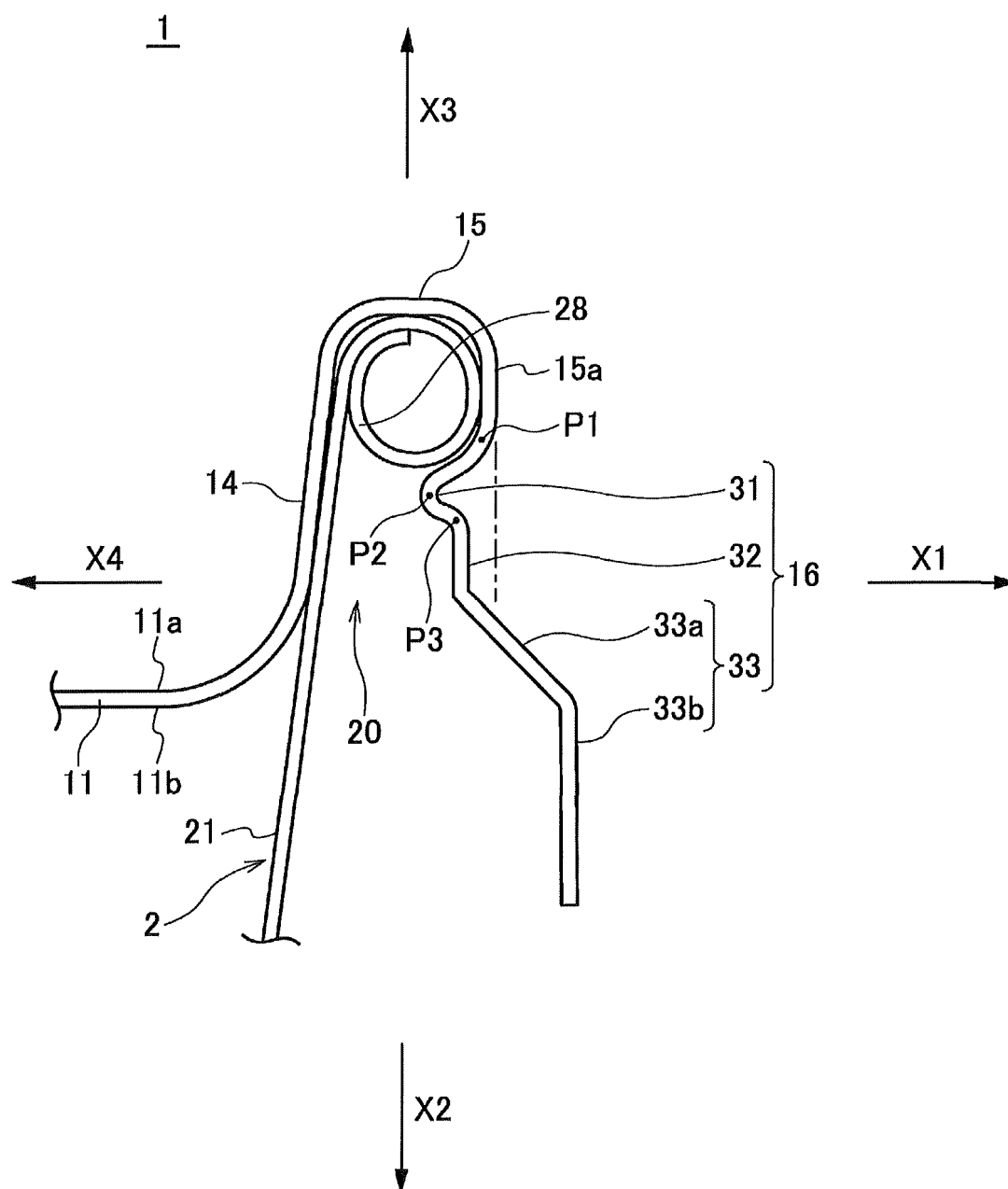


FIG. 4

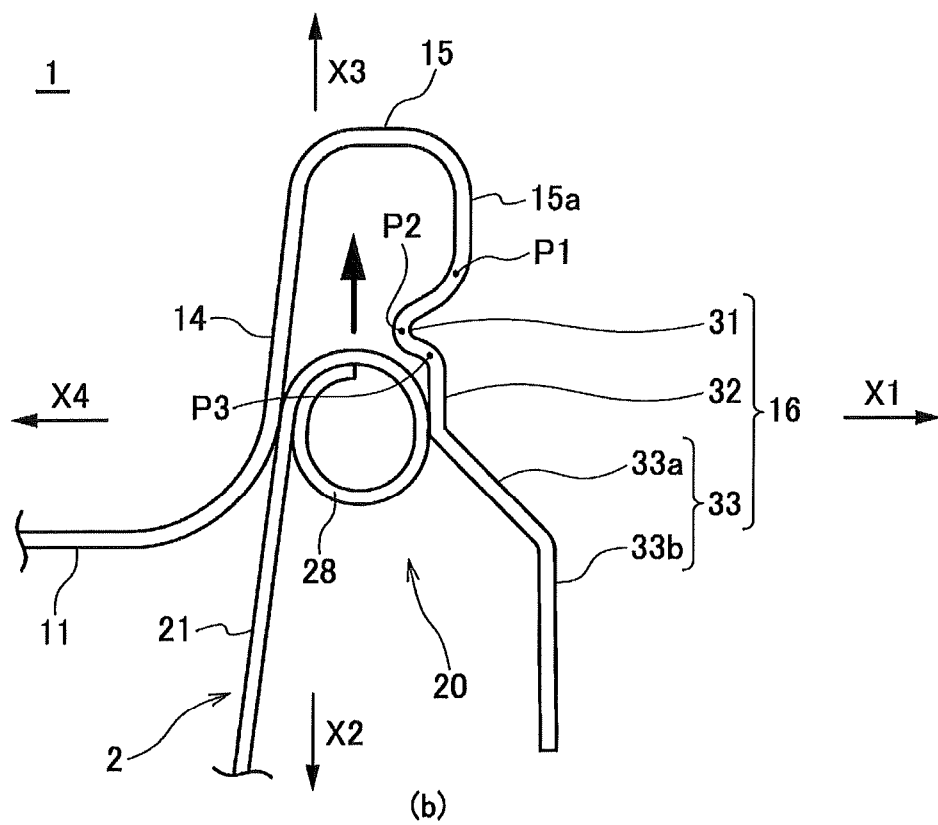
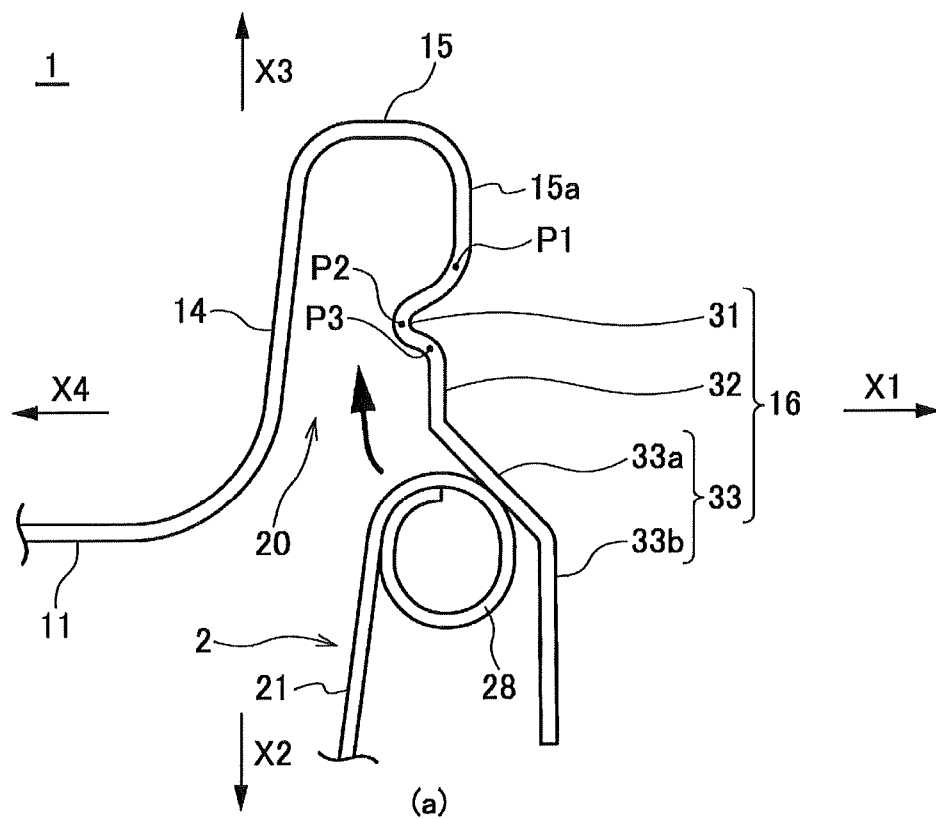
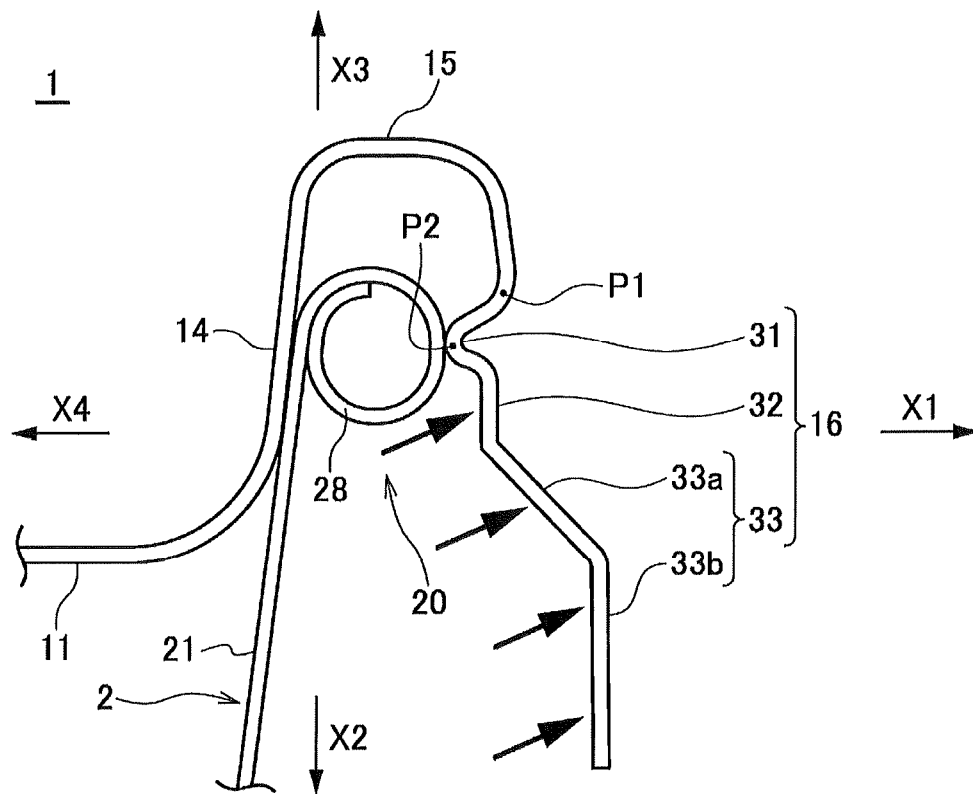
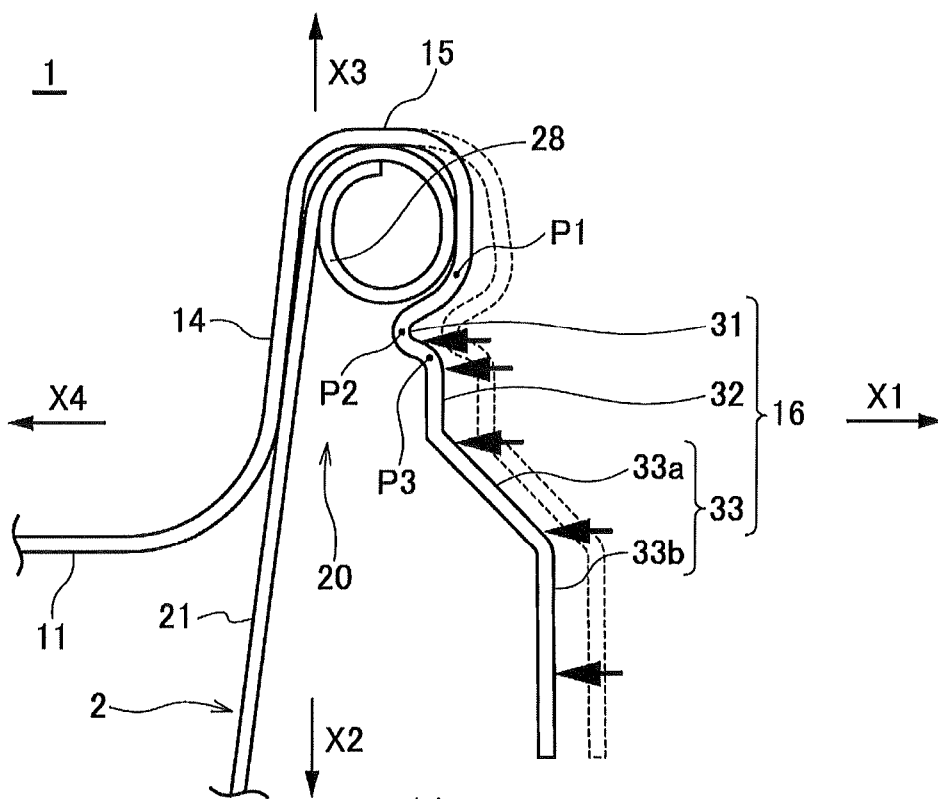


FIG. 5

(a)



(b)

FIG. 6

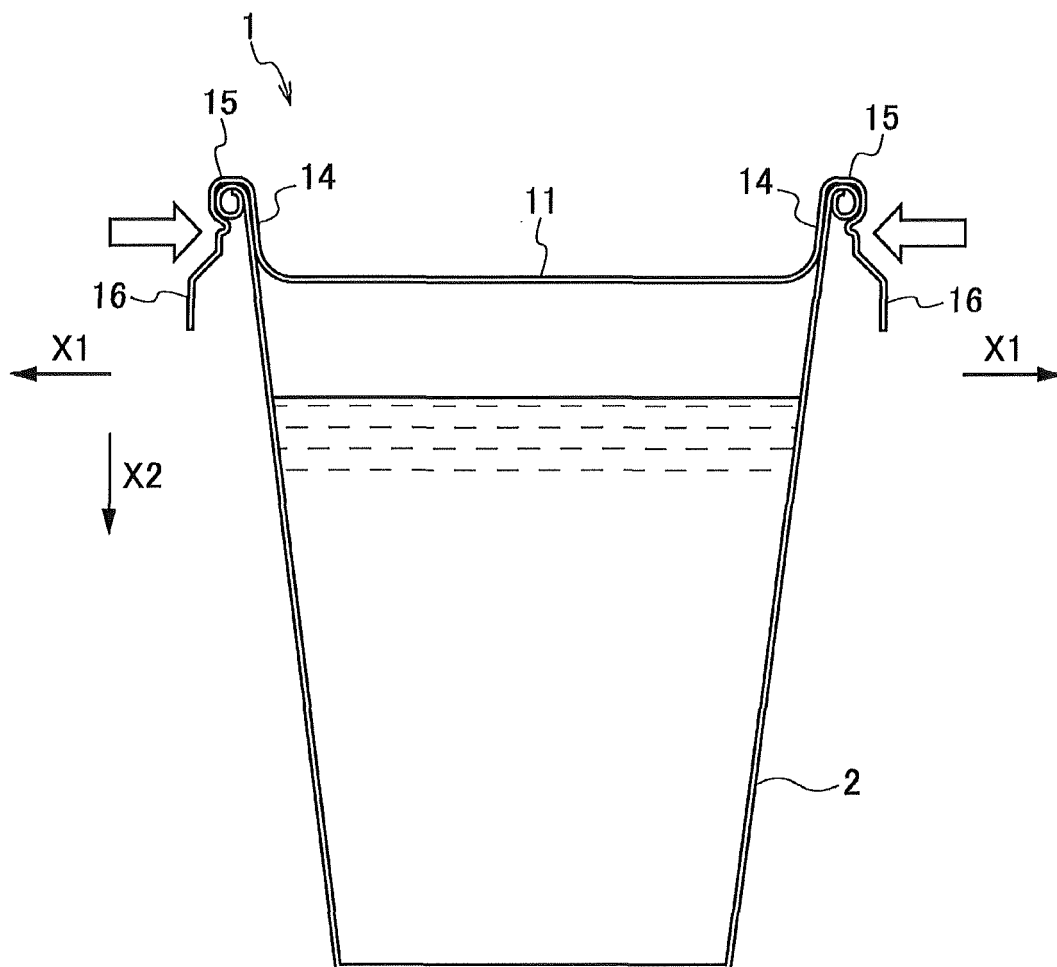


FIG. 7

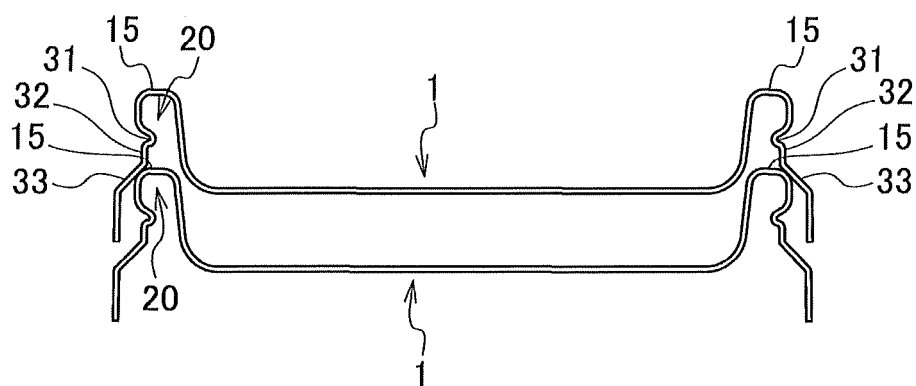


FIG. 8

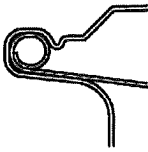
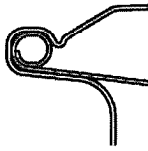
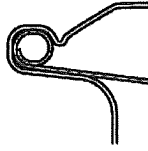
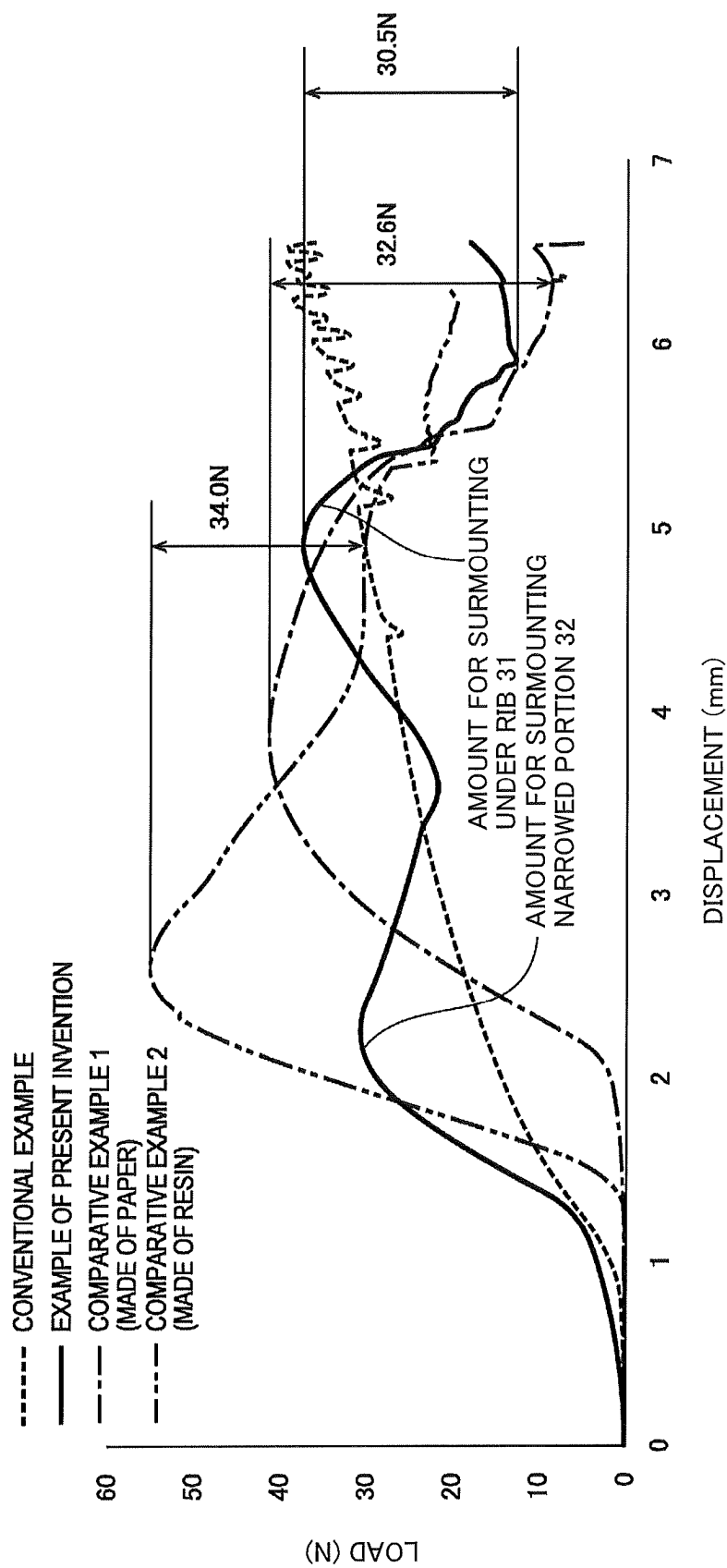
	EXAMPLE OF PRESENT INVENTION		COMPARATIVE EXAMPLE 1 (MADE OF PAPER)		COMPARATIVE EXAMPLE 2 (MADE OF RESIN)	
SHAPE OF RIB						
REMOVAL STRENGTH	ROOM TEMPERATURE		ROOM TEMPERATURE		ROOM TEMPERATURE	
	9.5N	5.9N	9.4N	4.1N	9.8N	6.7N
DIFFERENCE VALUE OF REMOVAL STRENGTH	3.6N		5.3N		3.1N	
BLOCKING	28.5N		17.7N		-	
SENSE OF CLICK FITTING	30.5N		32.6N		34.0N	

FIG. 9



INTERNATIONAL SEARCH REPORT

International application No.

PCT/JP2024/022808

A. CLASSIFICATION OF SUBJECT MATTER

B65D 43/08(2006.01)i; **B65D 3/00**(2006.01)i
FI: B65D43/08 200; B65D3/00 B

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

B65D43/08; B65D3/00

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Published examined utility model applications of Japan 1922-1996
Published unexamined utility model applications of Japan 1971-2024
Registered utility model specifications of Japan 1996-2024
Published registered utility model applications of Japan 1994-2024

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	JP 2021-20713 A (TOKAN KOGYO CO., LTD.) 18 February 2021 (2021-02-18) paragraphs [0009]-[0029], fig. 1-8	1-2
Y		3
Y	WO 2020/049769 A1 (TOKAN KOGYO CO., LTD.) 12 March 2020 (2020-03-12) paragraph [0001], fig. 1-5	3
Y	JP 7-237644 A (TOPPAN PRINTING CO., LTD.) 12 September 1995 (1995-09-12) paragraph [0013], fig. 2	3
Y	JP 2020-37433 A (TOKAN KOGYO CO., LTD.) 12 March 2020 (2020-03-12) paragraph [0001], fig. 1-5, 16-18	3

☐ Further documents are listed in the continuation of Box C.☒ See patent family annex.

* Special categories of cited documents:

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“P” document published prior to the international filing date but later than the priority date claimed

“T” later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention

“X” document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone

“Y” document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art

“&” document member of the same patent family

Date of the actual completion of the international search

21 August 2024

Date of mailing of the international search report

10 September 2024

Name and mailing address of the ISA/JP

Japan Patent Office (ISA/JP)
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Japan

Authorized officer

Telephone No.

INTERNATIONAL SEARCH REPORT
Information on patent family members

International application No.
PCT/JP2024/022808

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Patent document cited in search report			Publication date (day/month/year)	Patent family member(s)	Publication date (day/month/year)
JP	2021-20713	A	18 February 2021	(Family: none)	
WO	2020/049769	A1	12 March 2020	US 2021/0237945	A1
				paragraph [0001], fig. 1-5	
				EP 3848297	A1
				CN 112154105	A
				TW 202010689	A
JP	7-237644	A	12 September 1995	(Family: none)	
JP	2020-37433	A	12 March 2020	JP 2022-164854	A

REFERENCES CITED IN THE DESCRIPTION

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Patent documents cited in the description

- JP 6978606 B [0007]