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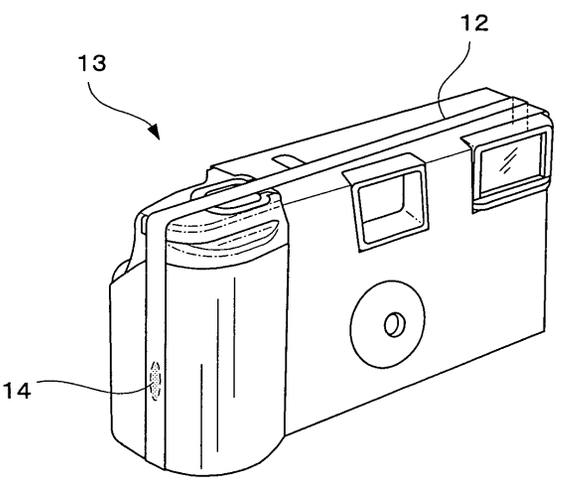
(54) LIFTING DEVICE FORMING STRUCTURE AND CHEMICAL CONTAINER HAVING THE STRUCTURE

(57) This invention provides a novel structure for forming a suspender to be attached to an article. The suspender 12 is partly adhered to an article 13 to be suspended with an adhesive 14 or the like. The suspender 12 can be stretched in a length direction and is composed of a strip made of plastics film having properties of rarely shrinking after elongation. The suspender is stretched when used.

Fig. 1



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Description

Field of the Invention

[0001] The present invention relates to a structure for forming a suspender fixed to an article for suspending the article and to a medication container having the suspender-forming structure.

Background Art

[0002] It is well known that a suspender is attached to various articles for suspending the articles. Typically these suspenders are in the form of a cord or a strip having a length required for suspending the article. They are attached at their one end or both ends to the article to be suspended.

[0003] However, it may be difficult to directly attach the suspender, generally a cord type suspender, to an article although depending on the type of the article. For example, in the case of a single-use camera, usually a suspender cord or the like is not attached to a single-use camera because the camera is packaged with a plastics film before use and because of increased costs. Thus, it is inconvenient to carry such single-use camera without a suspender cord. A case cover having a suspender cord was proposed, for example, in Japanese Unexamined Patent Publication No.Hei 6-269311.

[0004] Containers, for example, PET bottles, steel cans or aluminum cans containing health beverages, refreshing drinks, tea or the like need not always use a suspender. Thus, various types of suspenders to be attached to the containers in need have been proposed as in Japanese Utility Model Registrations Nos. 3041654; 3054989; and 3065786.

[0005] For example, a medication container for medical use having a certain kind of structure involves a difficulty in fixing a suspender to the container. This problem will be described with reference to drawings.

[0006] Medication containers having various structures are available. For example, Japanese Utility Model Publication Hei 4-No. 22745 discloses a medication container having a double-ended needle for mixing and injecting a medication in intravenous drip of injection drugs mainly such as antibiotics as shown in Fig.16 contained in small vials as shown in Fig.16.

[0007] A medication container 1' of this kind has a container main body 2' made of plastic and deformable under compression. The container main body 2' has an opening 3a at an upper position. The opening 3a has a seal 4a sealed with an elastic material. The seal 4a is provided with a cylindrical support ring 5 upwardly extending to lie erect and removably fitted therein.

[0008] The support ring 5 supports a double-ended needle 6 with a pair of needle points 6a, 6b formed at upper and lower ends and communicating with each other. The needle 6 is slidable upward and downward and is supported such that when the needle is moved downward, the lower needle point 6b pierces the seal 4a of the opening 3.

[0009] The support ring 5 is covered with a protective cap 7. The support ring 5 and the protective cap 7 can be suitably removed by a screwed portion 7a. A joint between the support ring 5 and the protective cap 7 is covered with a shrink film 8 to guarantee that the cap is not opened yet. At the joint between the support ring 5 and the protective cap 7, a perforation (not shown) is formed. The view may be seen as if the shrink film 8 were separated from the support ring 5 and the protective cap 7, but actually it is closely contacted with them.

[0010] When in use, the protective cap 7 under the shrink film 8 is held, and unscrewed in an unscrewing direction, the shrink film 8 is cut off at the perforation so that an upper portion of the film 8 above the perforation is removed along with the protective cap 7. (Fig. 17(A)).

[0011] Then the upper needle point 6a is inserted into a sealed opening B1 of the vial B and the double-ended needle 6 is slided downward along the support ring 5 so that the lower needle point 6b is made to successively pierce the seal portion 4a, and a seal film 9a of an intermediate plug 9 to cause the vial B to internally communicate with the container main body 2'. Then, the contents of the vial B and the container main body 2' are mingled together and the mixture is returned to the container main body 2' (Fig.17(B)). Thereafter the vial B is removed (Fig.17(C)).

[0012] The medication container 1' containing the mixture of the medication and the solution is suspended from a stand (not shown) for suspension using a suspension aperture 10 (Fig.16) in a tag integrally formed at an underside of the container main body 2' to carry out drip administration of the medication.

[0013] However, the above-mentioned conventional medication container having the double-ended needle necessitates removal of the vial from the container before carrying out intravenous drip and takes time in the preparation for intravenous drip.

[0014] To do without removal of the vial B, an outlet for taking out the medication is provided below the main body 2' in a way that intravenous drip can be performed with the vial attached to the container. In this case, the suspension aperture 10 is to be eliminated, and a problem remains on what suspender is used.

[0015] An example of such suspender may be a U-shaped handle 11 formed of a rigid plastic as shown in Fig.18 and fixed to the support ring 5 as shown in Fig.16.

[0016] However, there are single-use cameras of different sizes. When a camera is suspended with a conventional camera case having a suspension cord, it is necessary to use camera cases of different sizes corresponding to the sizes of cameras. Consequently a suspender would be conveniently usable if it is used without hindering the packaging film for the camera, and if it is inexpensive and can be attached to the camera in advance.

[0017] Conventional suspenders for suspension of a

PET bottle or like containers are detached from the containers so that they easily become lost. Thus the suspender is often missing in case of need. A suspender attached to a container is convenient to use, but the suspender may become a nuisance if the suspender is not used or is placed on display in a store. Moreover, it incurs an additional cost.

[0018] Furthermore it would become difficult to package an article with a shrink film 8 for guarantee of non-opening if the foregoing conventional handle 11 is attached to the support ring 5 of the medication container having a double-ended needle as shown in Fig.16.

[0019] A first object of the invention is to provide a novel suspender-forming structure which is absolutely unparalleled. The present invention provides a structure for forming a suspender to be attached to an article. A second object of the invention is to provide a medication container having the suspender-forming structure of the invention which allows intravenous drip with a vial attached to a container.

Description of the Drawings

[0020]

Fig.1 is a perspective view showing an example in which the suspender of the invention is applied to a thrownaway camera.

Fig.2 is a perspective view showing a thrownaway camera having the suspender of Fig.1 in a state as actually used.

Fig.3 is a perspective view showing another example in which the suspender of the invention is applied to a thrownaway camera.

Fig.4 is a perspective view showing an example in which the suspender of the invention is applied to a PET bottle.

Fig.5 is a perspective view showing the PET bottle having the suspender of Fig.4 in a state as actually used.

Fig.6 shows an embodiment of the medication container having a double-ended needle according to the invention. Fig.6(a) is a front view. Fig.6(b) is a side view.

Fig.7 is a perspective view of the medication container having a double-ended needle as shown in Fig.6.

Fig.8 is a section view of Fig.6(b) when viewed in a direction of A.

Fig.9 is an enlarged perspective view of an upper portion of the medication container having a double-ended needle as shown in Fig.6.

Fig. 10 is an exploded perspective view of the medication container having a double-ended needle as shown in Fig.6.

Fig. 11 is a perspective view showing the medication container having a double-ended needle as shown in Fig.6 in a state as actually used.

Fig.12 is an enlarged perspective view of an upper portion of a modified embodiment of the medication container of Fig.6.

Fig.13 is an enlarged perspective view of an upper portion of a further modified embodiment of the medication container of Fig.6.

Fig.14 is an enlarged perspective view of an upper portion of an additionally modified embodiment of the medication container of Fig.6.

Fig.15 is an enlarged perspective view of an upper portion of a modified embodiment of the medication container of Fig.14 in a state as actually used.

Fig.16 is a front view partly in section showing a conventional medication container having a double-ended needle partly in section.

Fig.17 is a sectional view showing a procedure using the medication container having a double-ended needle as shown in Fig.16.

Fig.18 is a front view of a medication container having a double-ended needle and provided with a conventional suspender.

Disclosure of the Invention

[0021] The above-described first object of the invention can be achieved by a structure for forming a suspender which is at least partly attached to an article to be suspended and which is composed of a strip of plastics film and having properties of being stretchable in a length direction and stretched in use.

[0022] In a strip made of plastics film, an elongation at break is preferably in the range of 500% or more in a tensile test by radioautography using a dumbbell specimen measuring 3 mm in width X 3 cm in length.

[0023] In the strip suspender made of plastics, an extension elastic modulus is preferably 10% or less.

[0024] In the strip made of plastics film, an initial strength required for elongation is preferably in the range of 5 to 70 N. The initial strength corresponds to the tensile force at yield point wherein the strip begins to elongate.

[0025] In the strip made of plastics film, preferably a rate of 100% tensile stress to 50% tensile stress is in the range from 1 to 1.5.

[0026] The strip of plastics film useful as the suspender 12 preferably has a thickness of 50 to 500 μm.

[0027] The strip of plastics film useful as the suspender 12 has preferably a rib for keeping the shape, the rib extending in a length direction.

[0028] Preferably the suspender of the invention is fixed to an article to be suspended by fixing a fixing portion to the article, such that a non-fixing portion is substantially not loosened along the article.

[0029] Preferably the suspender is colored.

[0030] The second object of the invention can be achieved by a medication container which is characterized by the foregoing suspender-forming structure at an upper portion of the container main body with an outlet

for taking out the contents at a lower position, the outlet being sealed with an elastic material.

[0031] The container main body has an opening in an upper position for mixing and injecting the medication, the opening being sealed with an elastic material. At a seal portion of the opening, a cylindrical support ring is extending upwardly and removably fitted. A double-ended needle which is slidable upwardly and downwardly is fitted in the support ring. The needle having a pair of upper and lower needle points and a through-hole extending vertically therethrough is so supported that when sliding downward, the lower needle point is made to pierce the seal portion of the opening in the main body. The support ring is covered with a protective cap. The two ends of the suspender (which constitute the suspender-forming structure) are preferably fixed to an outer periphery of the support ring.

[0032] At least a joint between the support ring and the protective cap is preferably covered with a shrink film together with the fixing portion of the suspender.

[0033] It is desirable that a part of the suspender is removably attached to the top surface of the protective cap.

Best Mode for Carrying Out the Invention

[0034] An example of the suspender-forming structure of the invention which is applied to a single-use camera will be described with reference to Figs 1 to 3.

[0035] A suspender 12 which is a strip made of plastics film as shown in Fig. 1 is wound around an outside (surfaces of the bottom, side and top) of a single-use camera 13. The suspender is fixed to the surface of the side and/or the surface of the bottom of the camera 13 via a fixing portion 14 (only one side is illustrated in Figs. 1 to 3). In the illustrated example, the camera 13 is packaged with packaging cardboard except a shutter portion and a lens portion, and the suspender 12 is fixed to the cardboard. When the camera 13 is not packaged with packaging cardboard, the suspender 12 can be fixed directly to the plastics main body of the camera 13. The fixing portion 14 may be fixed by conventional fixing methods, e.g., using an adhesive or by heat seal. Generally single-use cameras are on sale as packaged with a packaging film. However, Fig. 1 shows the single-use camera from which a packaging film is removed for convenience of illustration.

[0036] In the strip made of plastics film as the suspender 12, an elongation at break is in the range of 500% or more in a tensile test by radioautography using a dumbbell specimen measuring 3 mm in width and 3 cm in length, preferably about 500 to about 2000%, more preferably about 600 to about 2000%. The elongation at break can be measured according to the method prescribed in JIS Z1702.

[0037] Examples of plastic materials for such polymer films are polyethylene, polypropylene and like polyolefins. Among them, linear low-density polyolefins are more preferable because they mostly exhibit satisfactory ductility or elongation at break in the above-mentioned ranges when used alone. In particular, polyethylene prepared using metallocene as a catalyst is more suitable since its elongation at break, extension elastic modulus, initial strength, and rate of 100% tensile stress to 50% tensile stress can be easily adjusted to a suitable range, by adjusting its thickness etc. in independent use or by adjusting its thickness in multi-layer use or a mixing rate when using together with other resins.

[0038] Even a plastic film having a elongation at break of less than 500% (such as films made of polypropylene) and formed of one species of plastics may be given the foregoing range of elongation at break by incorporating or depositing a thermoplastic elastomer such as SEBS in a suitable amount (5 to 50 wt.%).

[0039] The film made of plastics for use as the suspender 12 may has a single layer structure or a multi-layer structure when so required. When a material for the film to be deposited is polypropylene, a multi-layer film (a layer of polyethylene and a layer of polypropylene) is suitable. More specifically such multi-layer film may be formed by depositing polypropylene on both sides of the polyethylene layer so as to impart the ductility and elongation at break in said desired range to the multi-layer film.

[0040] In the foregoing embodiment of the multi-layer film, the ductility and elongation at break of the multi-layer film can be adjusted to said desired range by changing the density of polyethylene in an intermediate layer or by using a random polymer or a homopolymer as polypropylene in two outer layers.

[0041] The plastics film useful as the suspender 12 is made of a material having properties of scarcely shrinking after elongation. Preferred materials are those having an extension elastic modulus of 10% or less. The extension elastic modulus can be measured according to the method prescribed in JIS L1013.

[0042] The plastics film useful as the suspender 12 has suitably an initial strength required for elongation in the range of about 5 to about 70 N, preferably about 10 to about 50 N. If the initial strength is too high, a great burden is imposed on the physical strength, namely the film is inferior in handleability.

[0043] The plastics film useful as the suspender 12 has preferably a rate of 100% tensile stress to 50% tensile stress in the ranging from 1 to 1.5. In this range, the film can be elongated with a substantially uniform force. The term "50% tensile stress" refers to stress required for elongating the length of the film to 1.5 times, and "100% tensile stress" refers to stress required for elongating the length of the film to 2 times. These values can be measured according to the method defined in JIS K7311.

[0044] The plastics film useful as the suspender 12 can be formed by conventional molding methods such as inflation molding methods, T die molding methods or the like. The suspender 12 can be easily elongated if

the film is cut at a right angle to a direction of resin flow (to the extrusion direction). Hence this method is preferable.

[0045] The plastics film useful as the suspender 12 can be easily elongated by partly reducing the width of the film, or can be more firmly fixed by extending the width of the fixing portion. The width of the suspender 12 can be suitably determined depending on the materials to be used, thickness, articles to which the film is fixed, etc. Generally the width thereof is 5 to 20 mm.

[0046] The suspender 12 as described above can be easily attached to a camera by being merely fixed and is not bulky since it is a thin film. The suspender 12 requires no hole or no hook for its attachment to the camera main body. The suspender 12 can be used without modifying a mold for making the camera main body. The plastics film useful as the suspender 12 can be made at low costs and the cost can be lower.

[0047] In the example of Fig.1, the suspender 12 takes the shape of a loop formed along an outer periphery of the camera 13 so that even when the suspender 12 is stretched in use, the packaging cardboard covering the camera will not become broken. If the suspender 12 has an original length of, e.g., 20 cm, it can be elongated to a length of 60 to 100 cm in use as shown in Fig. 2 so that the camera can be hung from our neck or our shoulder.

[0048] Fig.3 is a perspective view of another example of a single-use camera having the suspender of the present invention. In the illustrated example, the packaging film 15 for packaging the single-use camera is formed of the material used for making the suspender 12, and a suspender 12' is defined by a perforation 15a formed in the packaging film 15. A fixing portion 14 to be fixed to the camera main body is formed in a specified portion of the film 15 corresponding to the suspender 12'. In use, the packaging film 15 is cut away along the perforation 15a, whereby the suspender 12' is left. The suspender 12', when stretched, forms the same suspender as shown in Fig.2.

[0049] The stretchable suspenders 12, 12' as described above can be used for containers such as PET bottles, aluminum cans, steel cans or the like containing refreshing drinks, tea, health beverages or the like. Figs. 4 and 5 show embodiments wherein a stretchable suspender 12p is fixed to a PET bottle 16. The material for the suspender 12p is the same as used for the suspender 12 attached to the foregoing single-use camera. Therefore, a detailed description is omitted.

[0050] In the illustrated example, the stretchable suspender 12p is fixed to both sides above the trunk of the PET bottle 16 via a fixing portion 14. The suspender 12p extends, before stretch, from an upper portion of one side of the bottle trunk to a bottom of the bottle along the side of the bottle trunk to run across the bottom and further extends upward from the bottom of the bottle along the other side to an upper portion of the bottle trunk. The suspender 12p arranged as described above does not cause a nuisance even when not used.

[0051] In use of the suspender 12p, the suspender 12p is stretched as in the case of the foregoing single-use camera (see Fig.5). In the illustrated example, the PET bottle 16 is capable of containing 500 mml of a liquid. The suspender 12p has a length of 40 cm before stretch and can be stretched to about 1 to about 1.5 m, whereby it can be suspended from our shoulder or our neck. The suspender 12p may be fixed directly to the main body of the PET bottle 16 or attached to a plastic film (label) on the bottle indicative of the name of an article of commerce.

[0052] An example of the stretchable suspender of the invention as described above which is applied to a medication container having a double-ended needle will be described with reference to Figs. 6 to 15. Like reference numerals in the following description as well as in the prior art were used for like constituent members.

[0053] A medication container 1 has a pair of openings 3a, 3b above and below a container main body 2 formed of plastics or the like, deformable under compression and accommodating a solution. The openings 3a, 3b have seal portions 4a, 4b made of an elastic material as shown in Fig. 8.

[0054] A cylindrical support ring 5 upwardly extends around the seal portion 4a of the upper opening 3a and is removably fitted therein as shown in Fig.8. The support ring 5 supports a double-ended needle 6 with a pair of upper and lower needle points 6a, 6b communicating with each other such that the needle 6 is slidable upward and downward. The needle 6 is supported such that when the needle slides downward, the lower needle point 6b pierces the seal 4a of the upper opening 3a.

[0055] The support ring 5 is covered with a protective cap 7. The support ring 5 is suitably detachably connected to the protective cap 7 via a fitting portion 7a. Fixed to the external periphery of the support ring 5 are both ends of the suspender 12 composed of a stretchable strip of the film made of plastics. The plastics film used as the suspender 12 is the same as described in respect of the foregoing embodiment of the suspender for the single-use camera.

[0056] If the suspender 12 is fixed as scarcely loosed along the protective cap 7 as shown in the figure such that the protective cap 7 can not be easily removed without stretching the suspender 12, it would additionally provide a guarantee for non-opening of the protective cap 7. Hence, this structure is preferable. The suspender 12 is stretchable to a length sufficient to allow suspension even after insertion of the vial B (see Fig.17) into the support ring 5.

[0057] A maximum gap of about 0.5 to about 3 mm between the top surface of the protective cap 7 and the suspender 12 may be formed to provide an opening for inserting the finger therein in stretching the suspender 12. Or as shown in Fig.12, if the suspender 12 is partly removably adhered to the top surface of the protective cap 7 as with an adhesive A, it may give a guarantee for

non-opening of the protective cap 7.

[0058] The support ring 5 and the protective cap 7 as well as the fixing portion of the suspender 12 are covered with a shrink film 8 as shown in a magnified view of Fig.9. In the illustrated example, the shrink film 8 extends from the periphery of the bottom of the support ring 5 through the outer periphery of the support ring 5 and the protective cap 7 to the periphery of the top surface of the protective cap 7 to achieve packaging in a sleeve form.

[0059] The shrink film 8 is depicted as an opaque film in Fig.9 for the convenience sake of illustration but as a transparent film in Figs.6 to 8. The shrink film 8 has the perforation 8a in a joint between the support ring 5 and the protective cap 7 as shown in Fig.9.

[0060] The opening 3b formed at the underside of the container main body 2 is used as an outlet for taking out the medication as shown in Fig.8. A cap 17 made of plastics for closing the seal portion 4b covers the opening 3b and is adhered thereto as a guarantee for non-opening of the opening 3b. The plastics cap 17 includes a cap main body 17a, a thin wall portion 17b (see an enlarged view of Fig.8), and a disc-shaped sealing portion 17c, these portions being integrally formed. When the sealing portion 17c is twisted with fingers, the thin wall portion 17b is cut and separated from the main body 17a, so that the internal seal portion 4b is seen.

[0061] A method of using the medication container of such structure with the double-ended needle will be described with reference to Figs.10 and 11.

[0062] When the protective cap 7 under the shrink film 8 is held and is turned in a direction of separation and removal, the perforation 8a of the shrink film 8 is cut. An upper half of the shrink film 8 cut off by the perforation 8a is pulled off from the protective cap 7.

[0063] Then the protective cap 7 is unscrewed from the screwed portion 7a with the support ring 5. Then, it is pulled off from the support ring 5. In pulling off, the plastic film constituting the suspender 12 is pulled and stretched to a required length while holding the plastic film together with the protective cap 7 or holding the plastic film alone.

[0064] Thereafter the upper needle point 6a is made to pierce a sealed opening (reference numeral B1 of Fig. 17(b)) of the vial B. The double-ended needle 6 is made to slide downward along the support ring 5. Then the lower needle point 6b is made to successively pierce the seal portion 4 and a seal film 9a of an intermediate plug 9 (Fig.8) so that the vial is made to internally communicate with the container main body 2, allowing the contents of the vial and the main body 2 to become mixed after which the mixture is returned to the main body 2 of the container. At that time, the vial B can remain pierced with the upper needle point 6a.

[0065] In this way, the medication container 1 having the double-ended needle and accommodating the mixture of the medication and the solution is used in drip administration by suspending the suspender 12 from the stand S for suspension as shown in Fig.11.

[0066] Without limitation to the above-mentioned embodiment, the suspender 12 is a part of the shrink film 8 as shown in Fig.13, and is defined by the perforation 8b formed in the shrink film 8. A part of the suspender portion of the film defined by the perforation 8b may be fixed to the article to be suspended.

[0067] The strip of plastics film useful as the suspender 12 may be provided with a rib 18 which extends in a length direction of the strip of plastics film to keep the shape as shown in Fig.14. The rib 18 for keeping the shape may be formed by integrally forming a thick wall portion constituting the rib in the strip when molding the film, or by laminating, adhering or depositing another layer. One or more ribs 18 for keeping the shape may be provided. The rib 18 may have various sectional shapes including a flat rectangular shape, a half-round shape and the like. The rib 18 may be provided only at a part of the suspender 12 according to the purpose instead of all over the suspender 12.

[0068] When the suspender 12 is applied to the medication container as described above, the protective cap 7 is removed after stretching the suspender 12, and the vial is inserted. When the protective cap 7 is taken off, the suspender 12 becomes loose and may be placed on the double-ended needle 6 and on the support ring 5 in which case the suspender 12 is to be displaced. However, the suspender 12 having the rib for keeping the shape is prevented from causing the foregoing incident because of the shape-keeping ability after elongation of the suspender 12. Thus the insertion of the vial can be quickly done.

[0069] In the case of this application, the shape-keeping rib 18 has a width size corresponding to about 20 to about 60% of the entire width of the strip of plastics film and may have a thickness of 50 to 300 μm. The rib need not be formed over the overall length of the suspender 12. For example, as shown in Fig.15, the part of the suspender 12 having the shape-keeping rib 18 after elongation of the suspender 12 is higher in height than when the vial is inserted. Namely in this case, the loosened part of the suspender 12 not having the shape-keeping rib 18 does not obstruct the insertion of the vial.

[0070] In the foregoing example, the medication container having the double-ended needle was described. However, the stretchable suspender of the invention can be further applied to a medication container having an outlet for taking out a solution of the medication alone, or a medication container of the type which is provided with an upper opening for mixing and injecting a medication and a lower opening for taking out a solution of the medication, but which is not provided with a double-ended needle.

[0071] The suspender of the invention can be applied to various articles as well as to the above-mentioned examples.

[0072] As apparent from the foregoing description, the suspender of the present invention is fixed to various

articles in advance and is used as stretched in use so that it can be compactly accommodated before use. Further, the suspender of the invention which comprises a plastics film can be provided at low costs.

[0073] Even if the medication container of the invention is of the type having a double-ended needle wherein a shrink film covers a support ring and a protective cap on the ring for guaranteeing non-opening of the protective cap, the suspender has a structure wherein the suspender composed of a strip of plastics film stretchable in a length direction is fixed to the support ring and the shrink film covers the same, whereby the suspender does not hamper the shrink film and intravenous drip can be done with a vial combined therewith.

Claims

1. A structure for forming a suspender, the suspender being composed of a strip of plastics film which is at least partly attached to an article to be suspended, the suspender having properties of being stretchable in a length direction and being stretched in use.

2. The structure for forming a suspender according to claim 1, wherein the strip of plastics film has an elongation at break in the range of 500% or more in a tensile test by radioautography using a dumbbell specimen measuring 3 mm in width and 3 cm in length.

3. The structure for forming a suspender according to claim 1, wherein the strip of plastics film has an extension elastic modulus of 10% or less.

4. The structure for forming a suspender according to claim 1, wherein the strip of plastics film has an initial strength required for elongation in the range of about 5 to about 70 N.

5. The structure for forming a suspender according to claim 1, wherein the strip of plastics film has a rate of 100% tensile stress to 50% tensile stress in the range from 1 to 1.5.

6. The structure for forming a suspender according to claim 1, wherein the strip of plastics film has a thickness of 50 to 500 μm.

7. The structure for forming a suspender according to claim 1, wherein the strip of plastics film has a rib extending in a length direction of the film to keep the shape of the film.

8. The structure for forming a suspender according to claim 1, wherein the fixing portion is fixed to the article to be suspended while the non-fixing portion thereof is substantially not loosened along the article to be suspended.

9. The structure for forming a suspender according to claim 1, wherein the suspender is colored.

10. A medication container having the suspender-forming structure as defined in any one of claims 1 to 9 at an upper portion of the container main body, the container main body having an outlet for taking out contents therein, the outlet being sealed with an elastic material in a lower position.

11. The medication container according to claim 10, wherein an opening for mixing and injecting the medication which opening is sealed with an elastic material is further formed at an upper portion of the container main body, the opening being provided with an upwardly extending and removably fitted cylindrical support ring at a seal portion of the opening, the support ring supporting a double-ended needle which has a pair of upper and lower points and a through-hole extending vertically therethrough, the needle being upwardly and downwardly slidable and supported such that when downwardly sliding, the lower needle point is made to pierce the seal portion of the opening, the support being covered with a protective cap, both ends of the suspender being fixed to an outer periphery of the support ring, the suspender having the suspender-forming structure as defined in any one of claims 1 to 9.

12. The medication container according to claim 11, wherein at least a joint between the support ring and the protective cap is covered with a shrink film along with the fixing portion of the suspender.

13. The medication container according to claim 11, wherein a part of the suspender is removably attached to the top surface of the protective cap.

Fig. 1

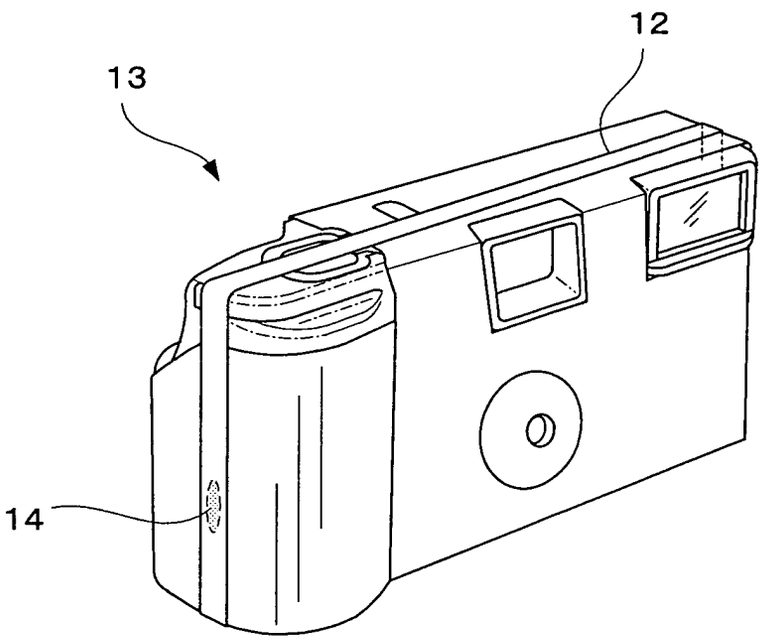


Fig. 2

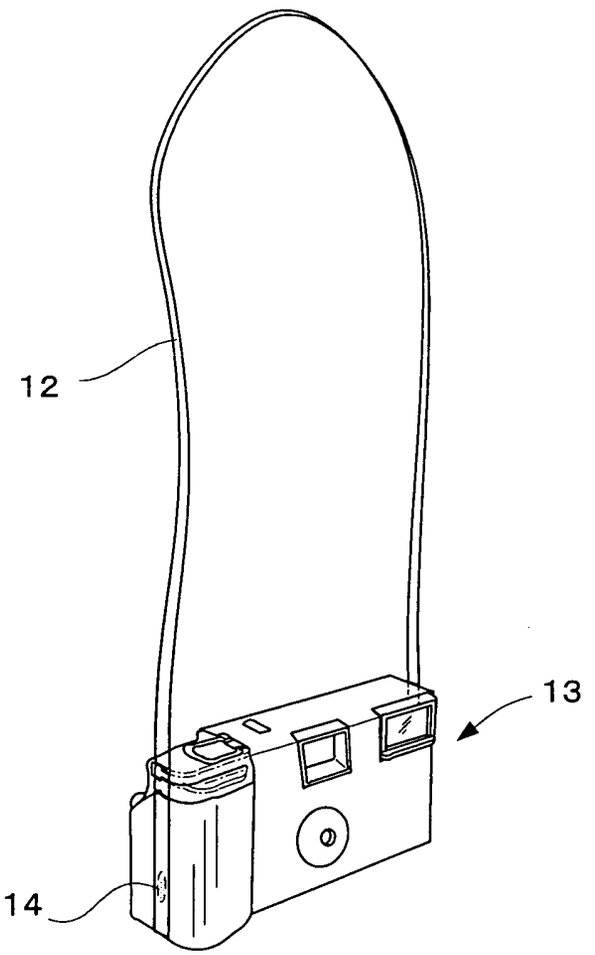


Fig. 3

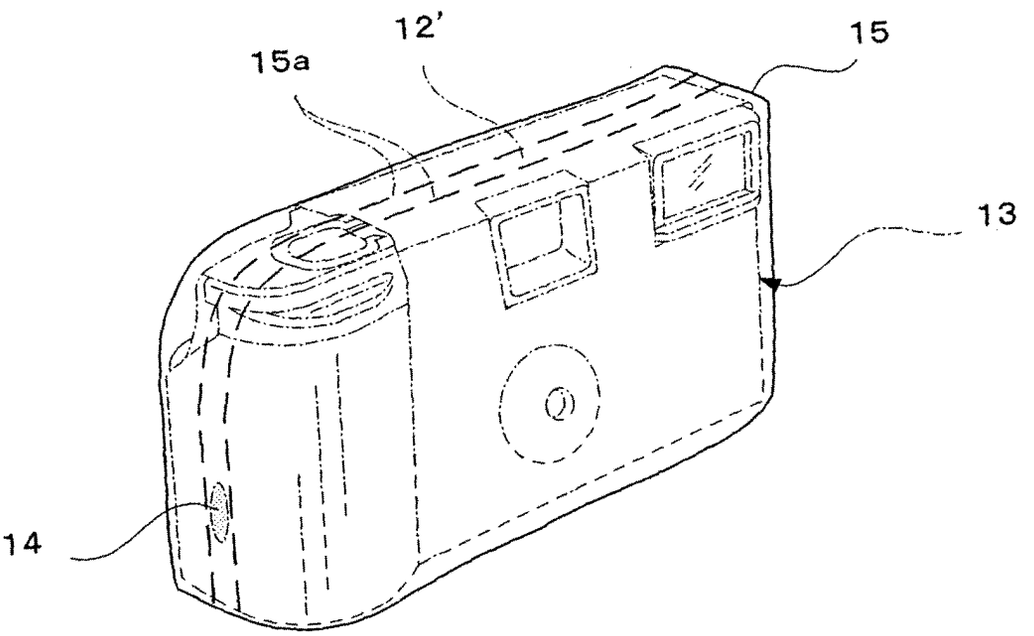


Fig. 4

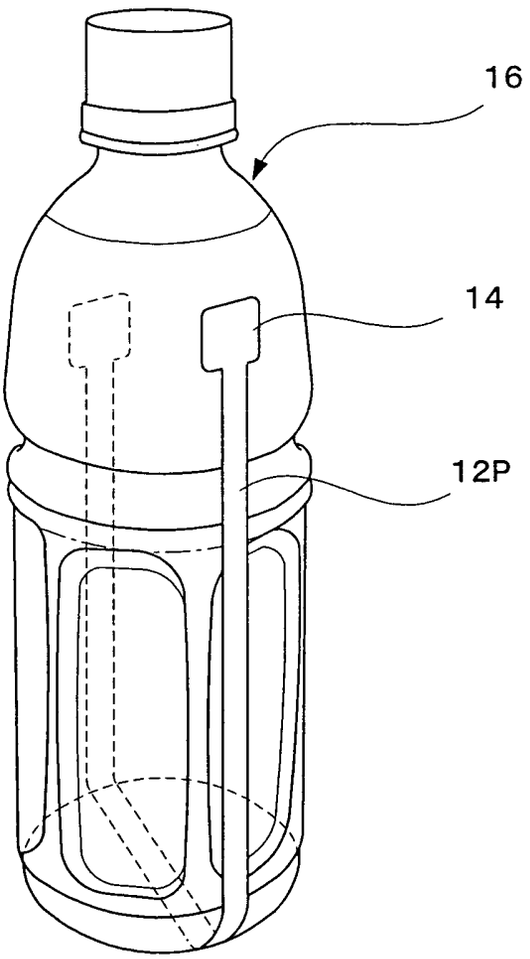


Fig. 5

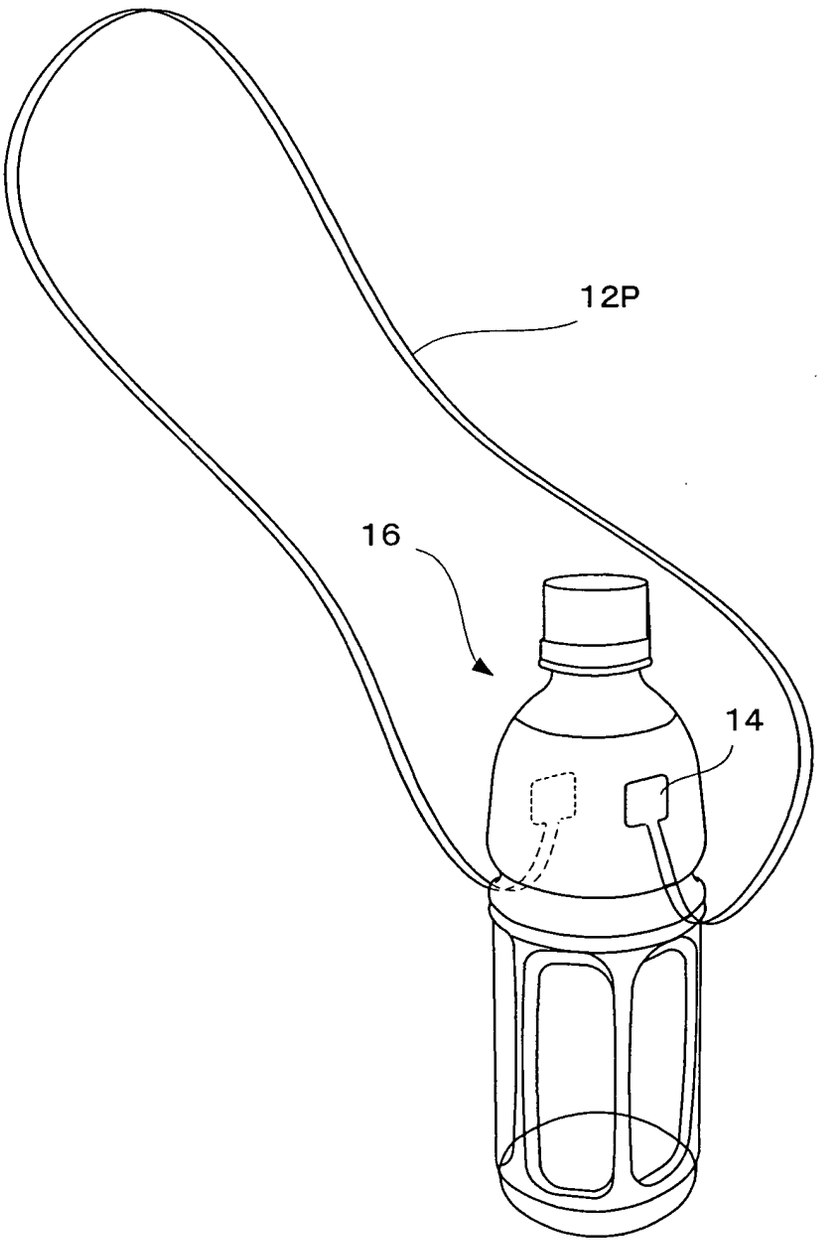


Fig. 6

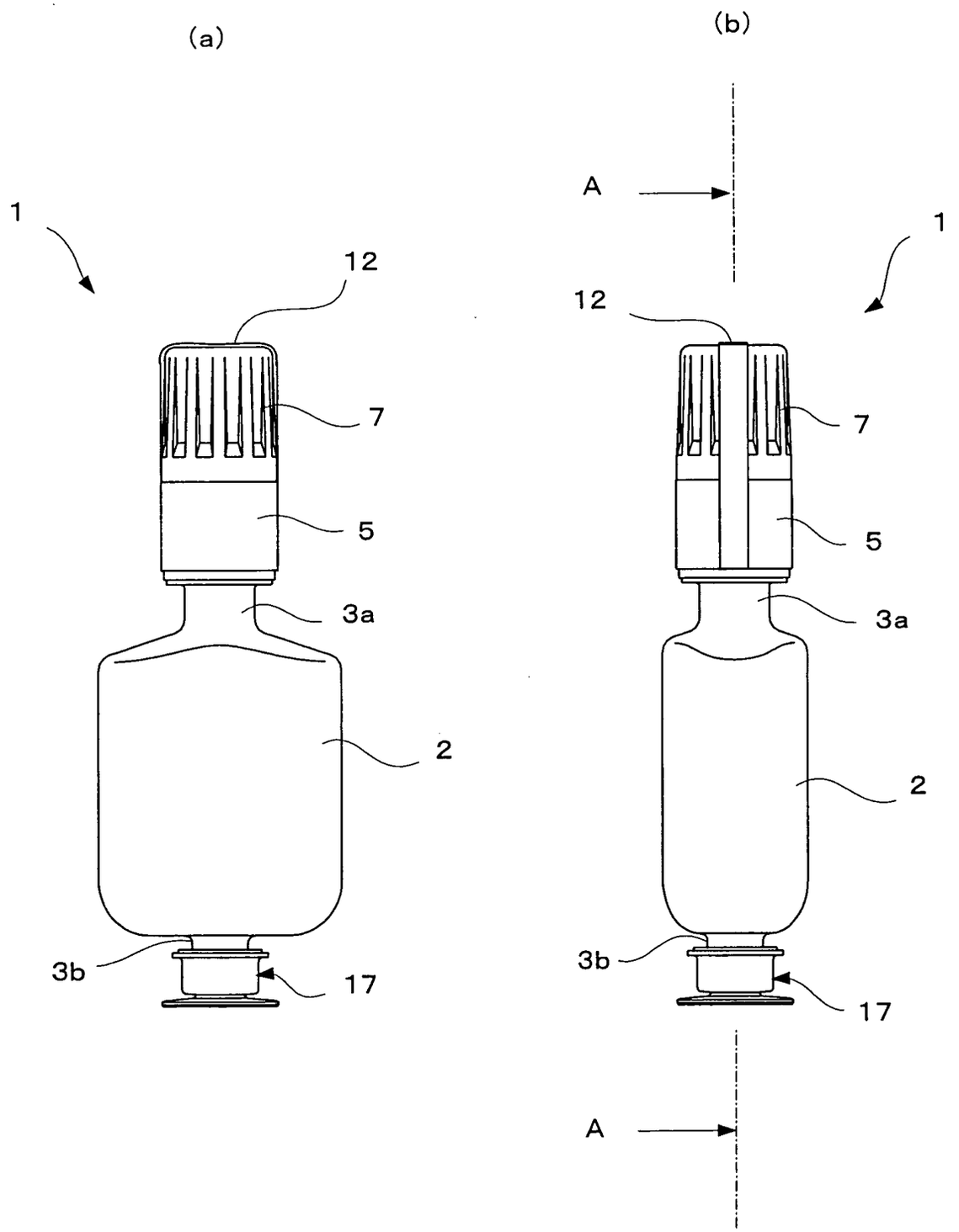


Fig. 7

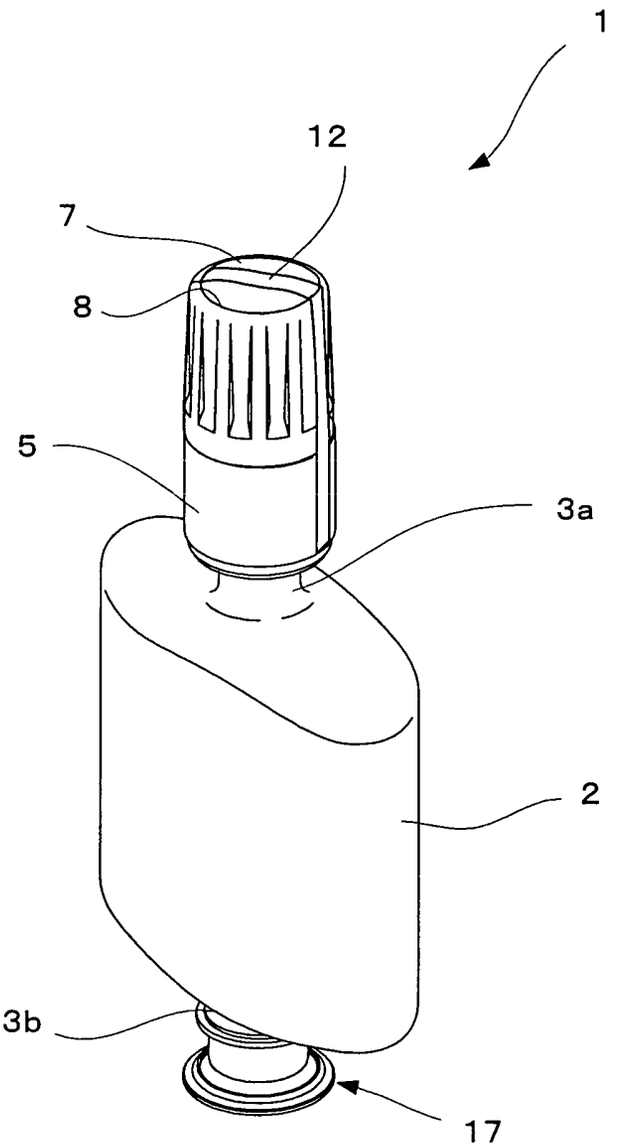


Fig. 8

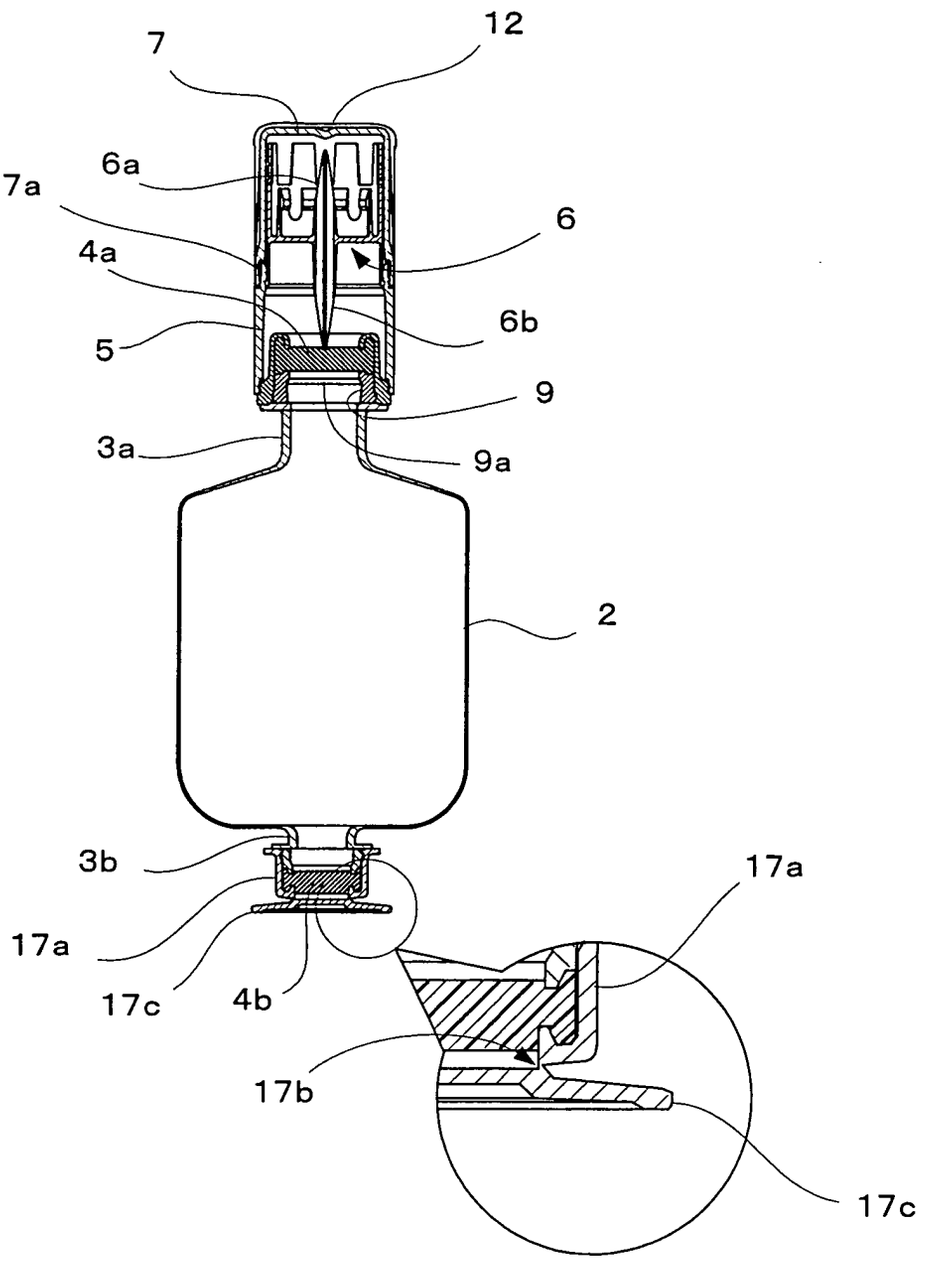


Fig. 9

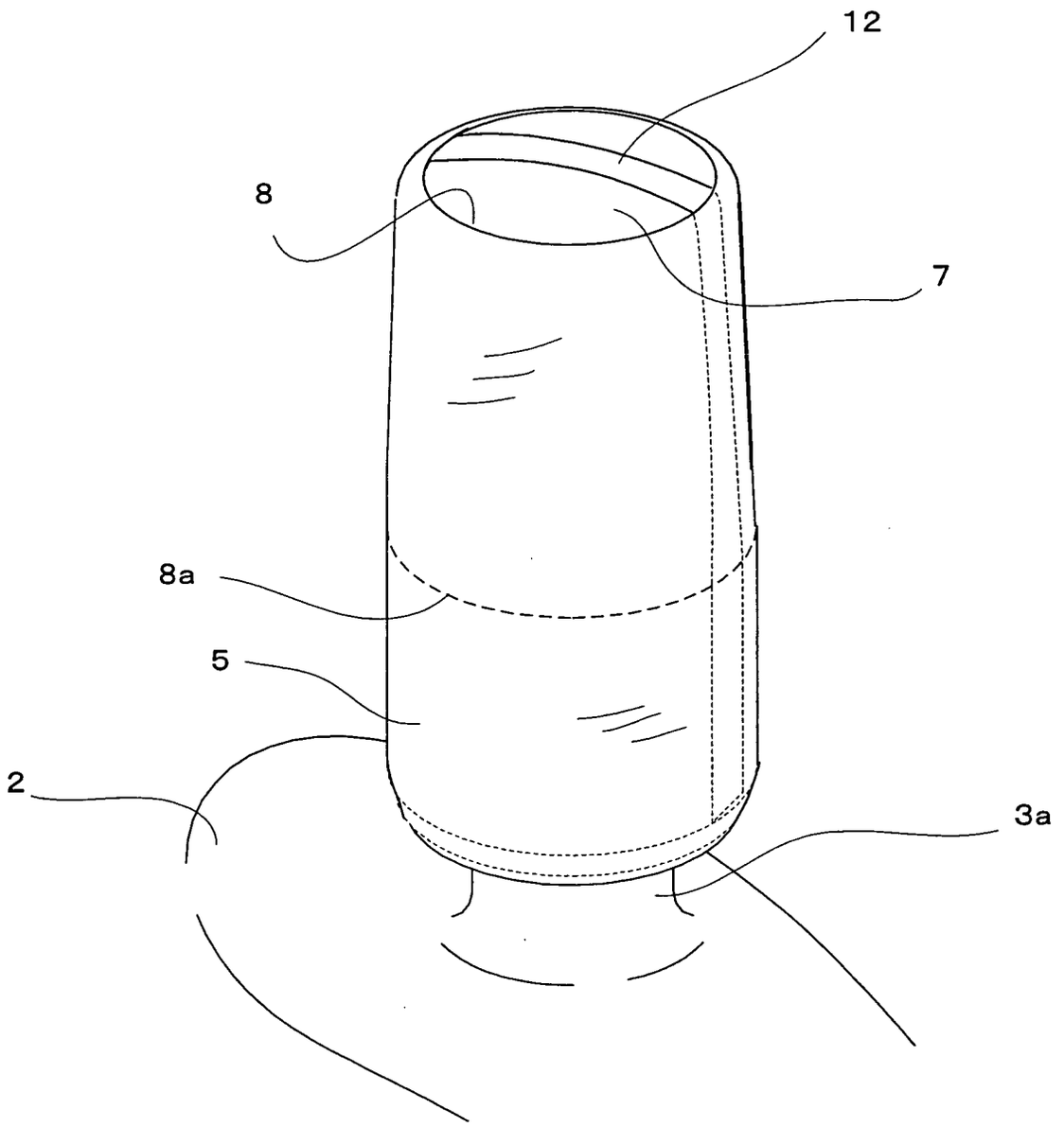


Fig. 10

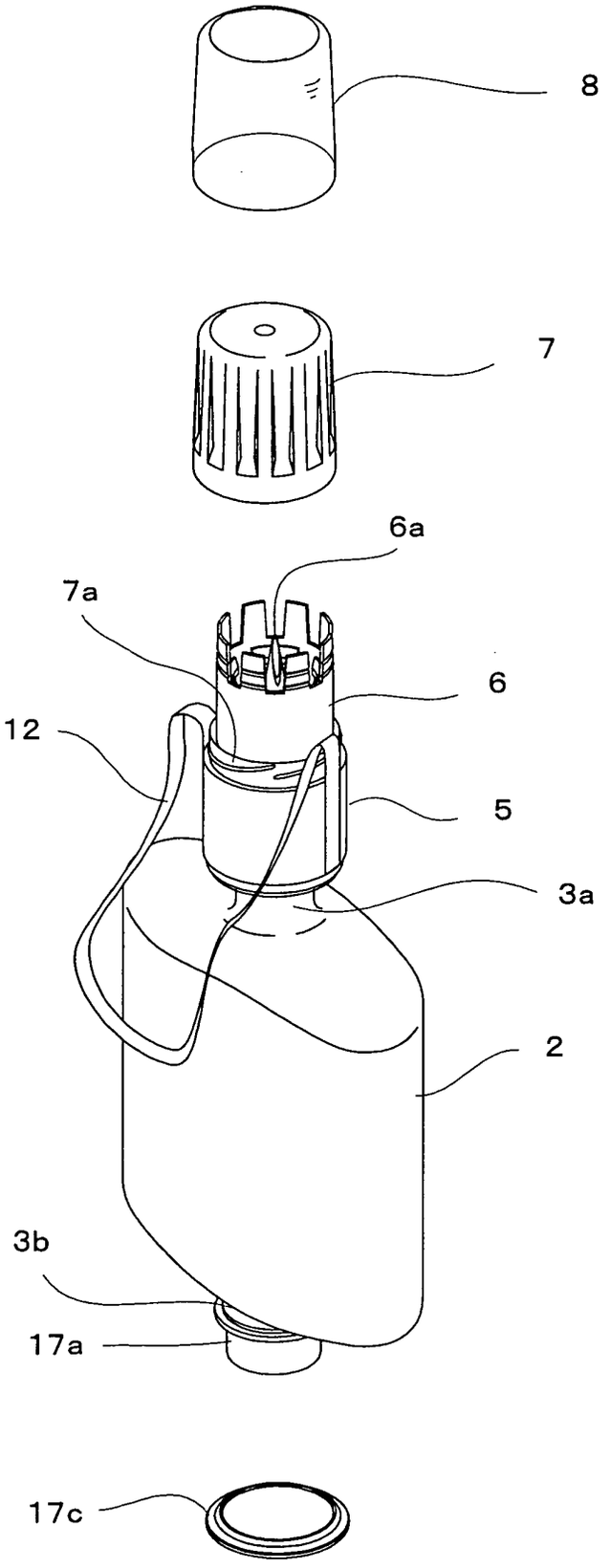


Fig. 11

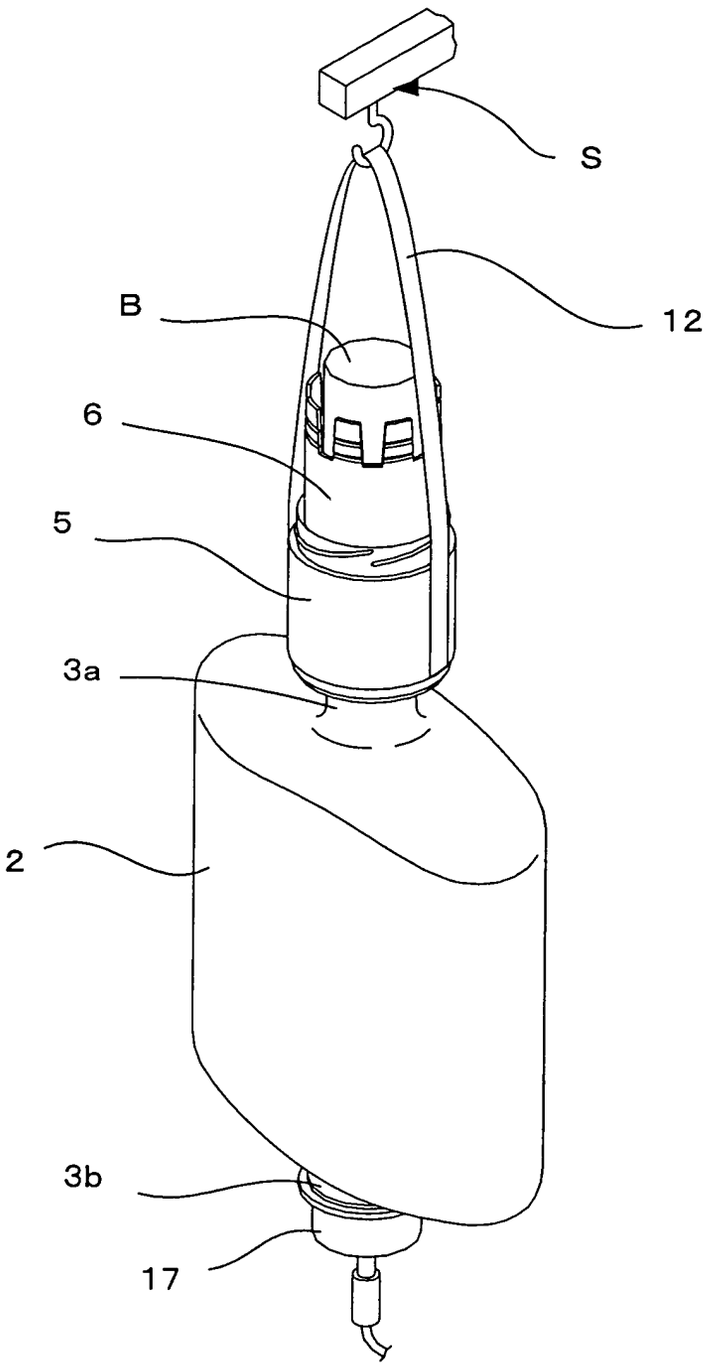


Fig. 12

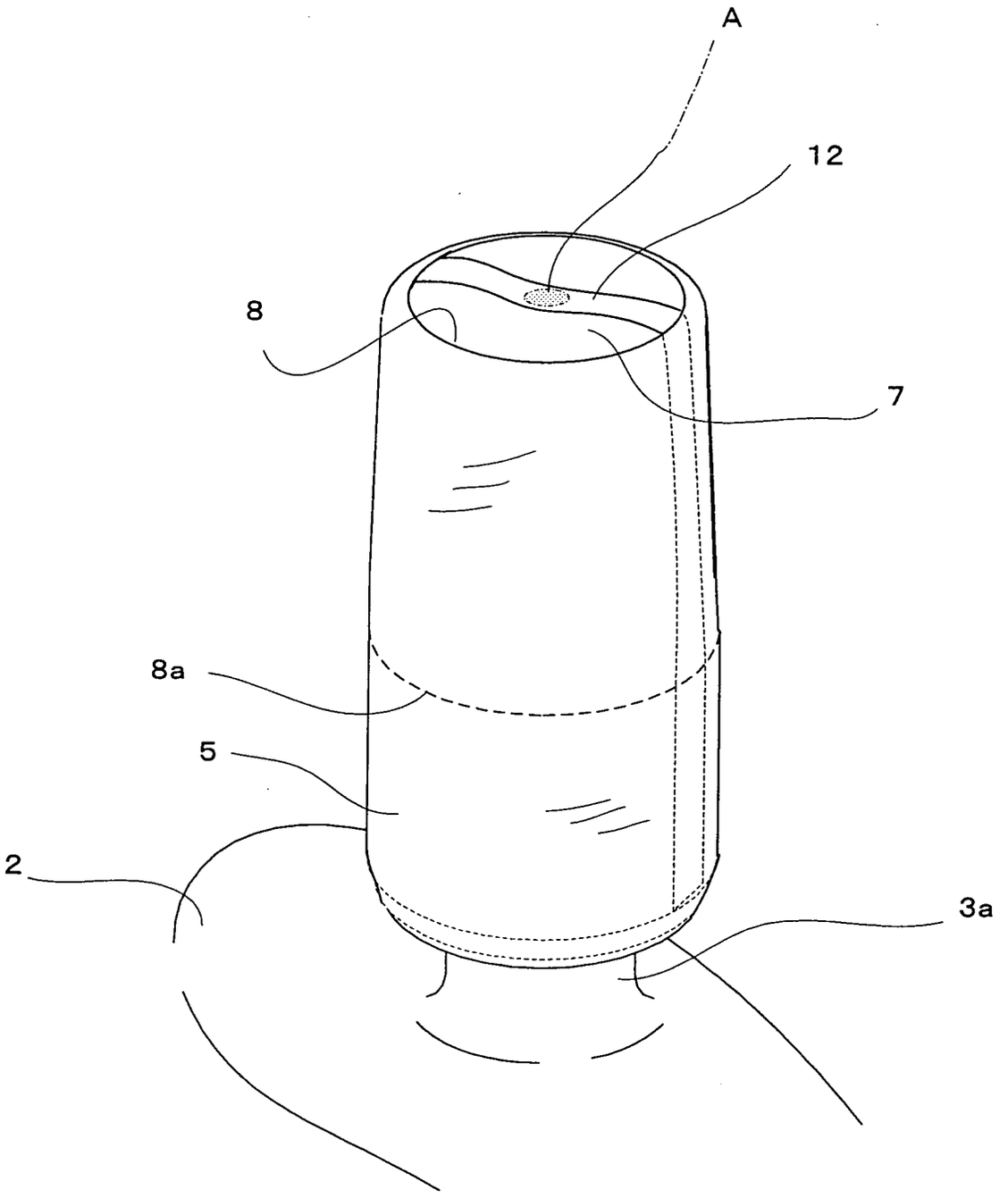


Fig. 13

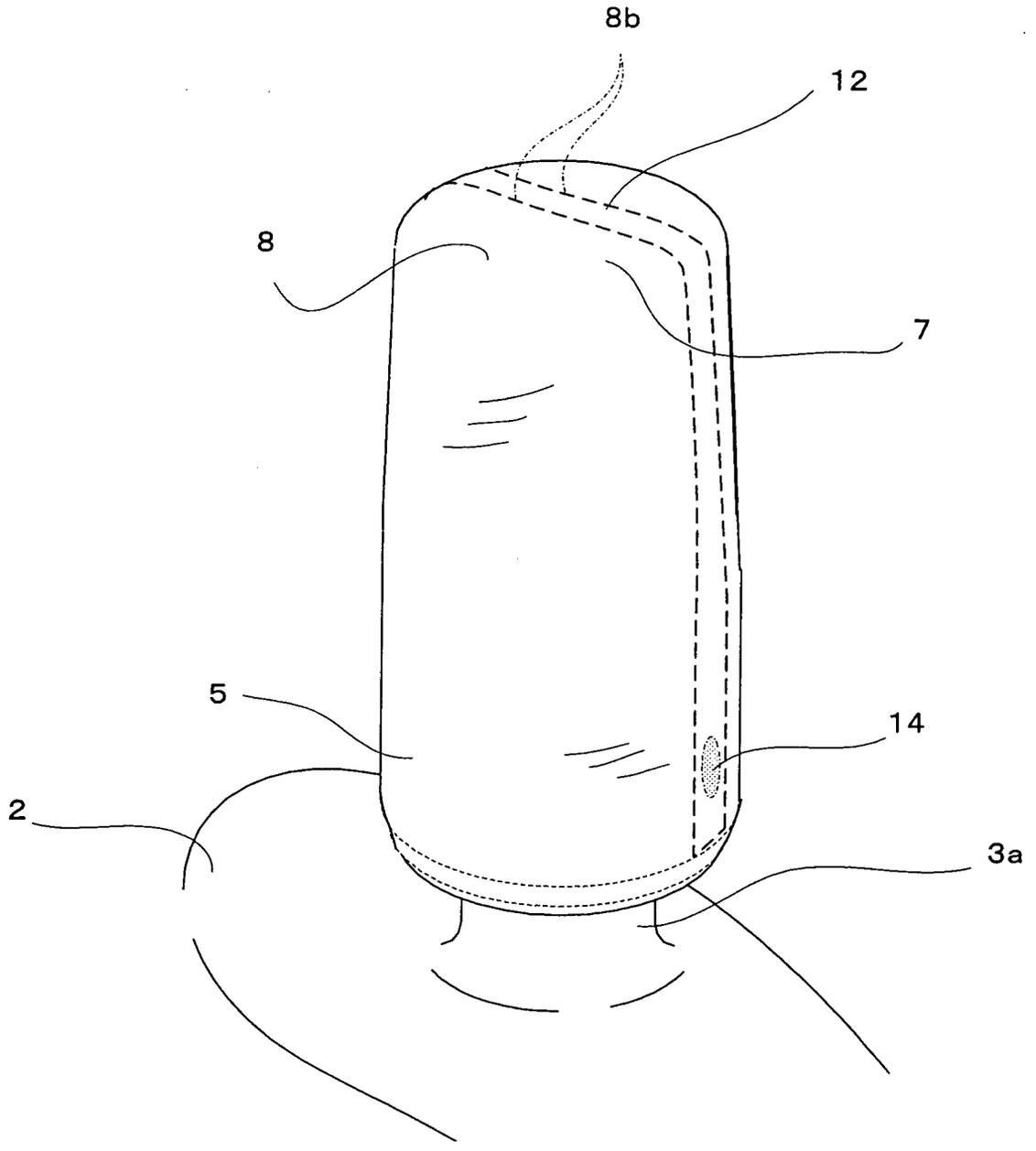


Fig. 14

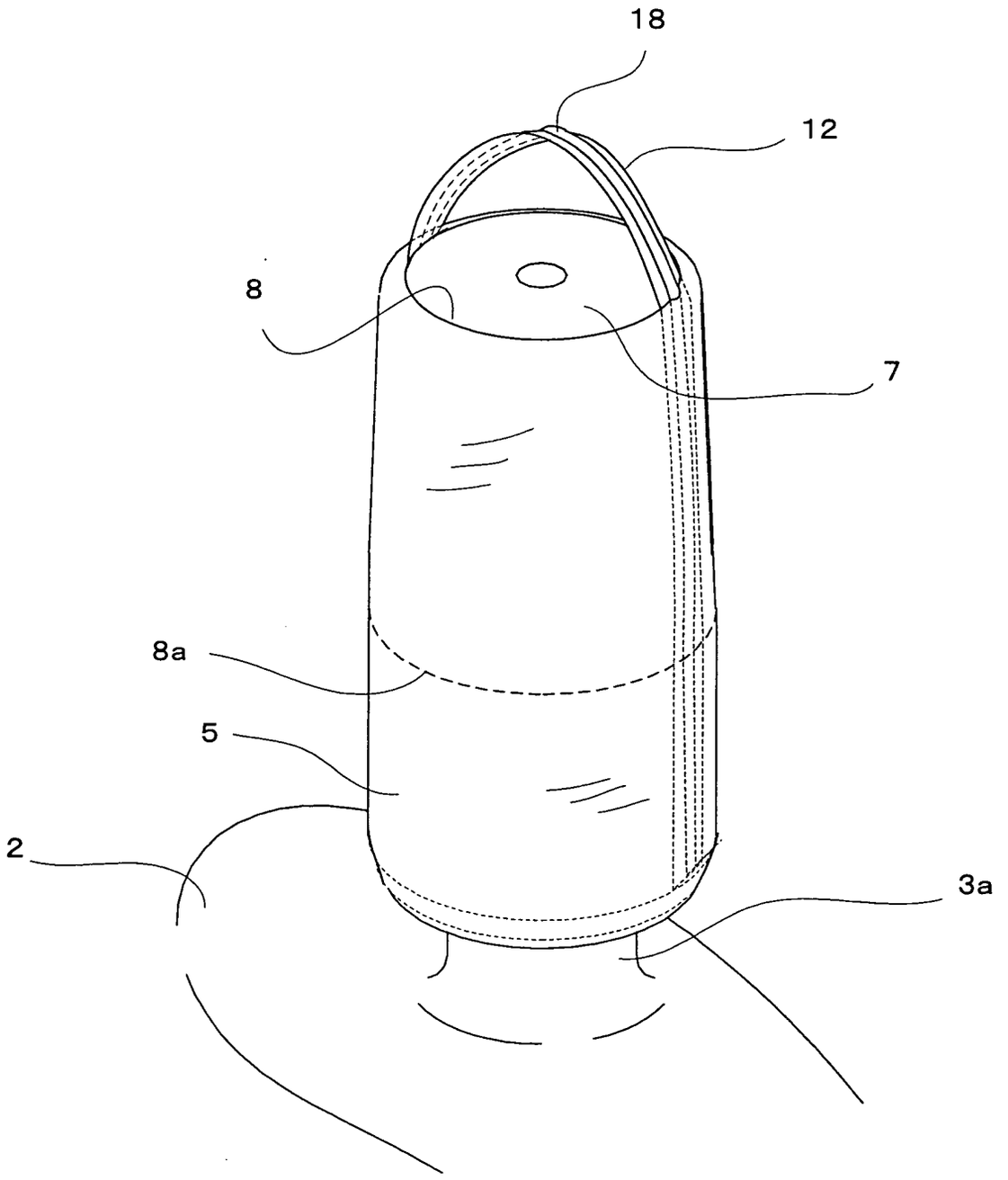


Fig. 15

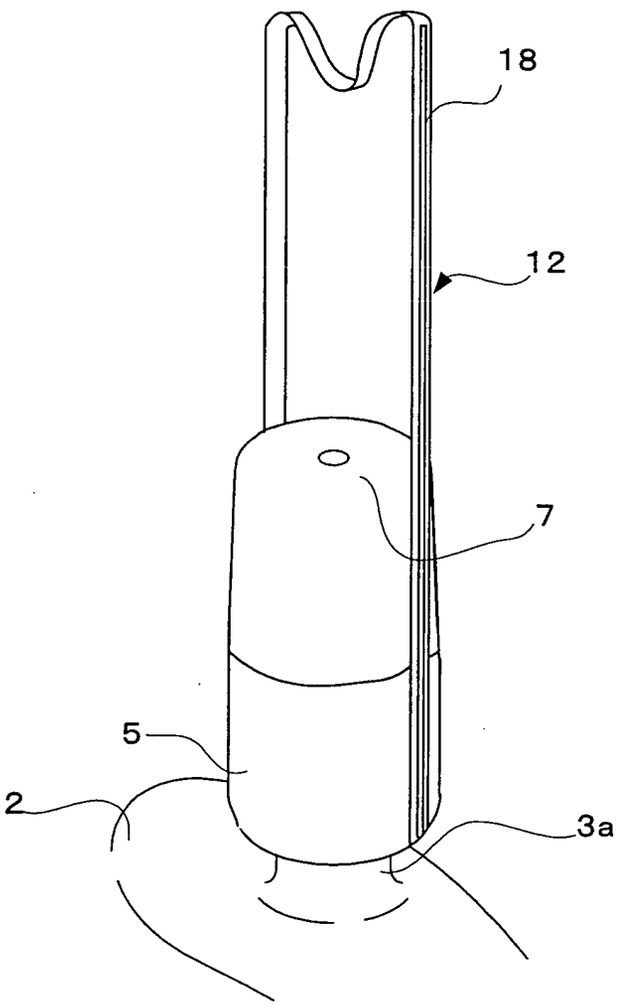


Fig. 16

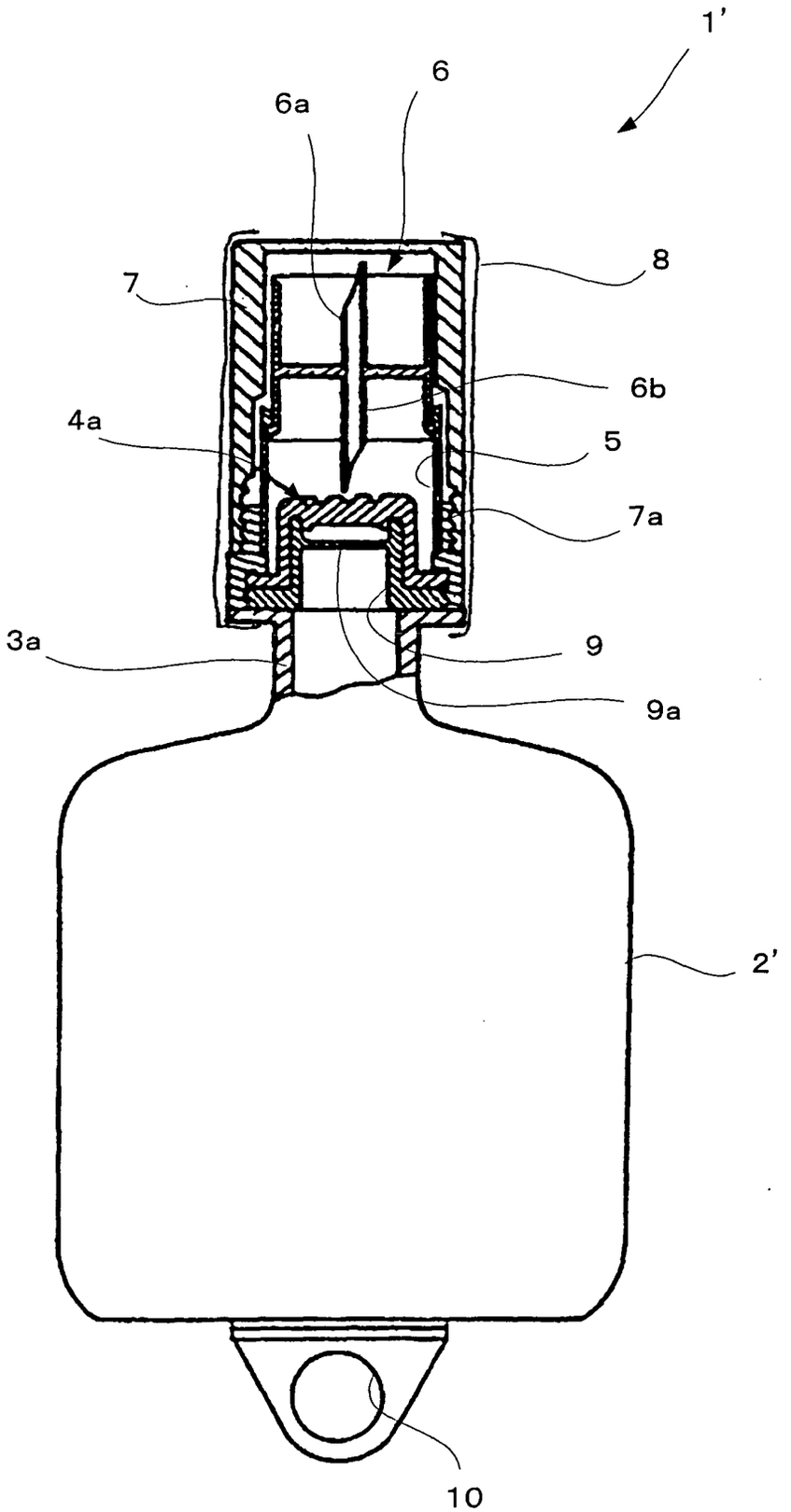


Fig. 17

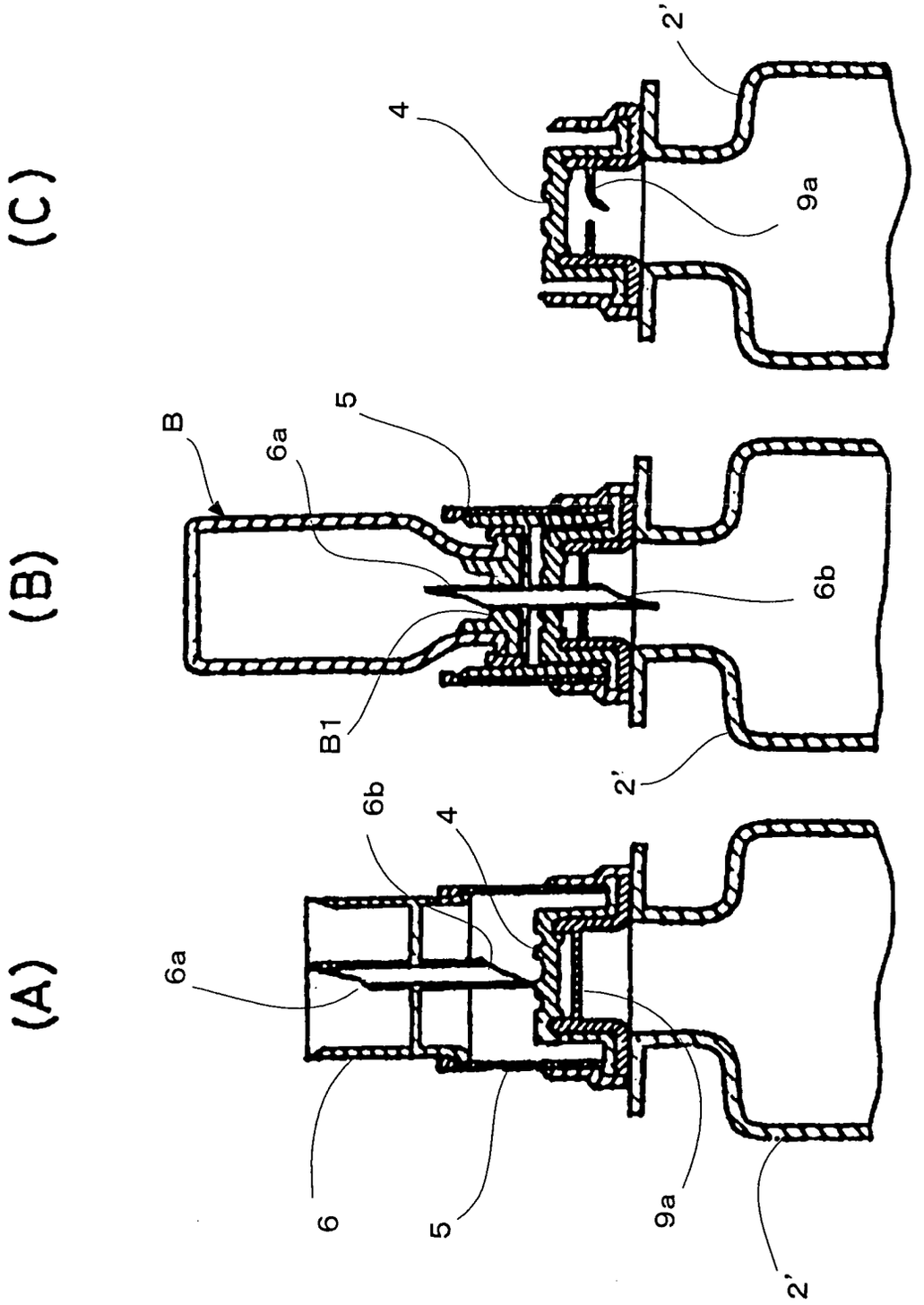
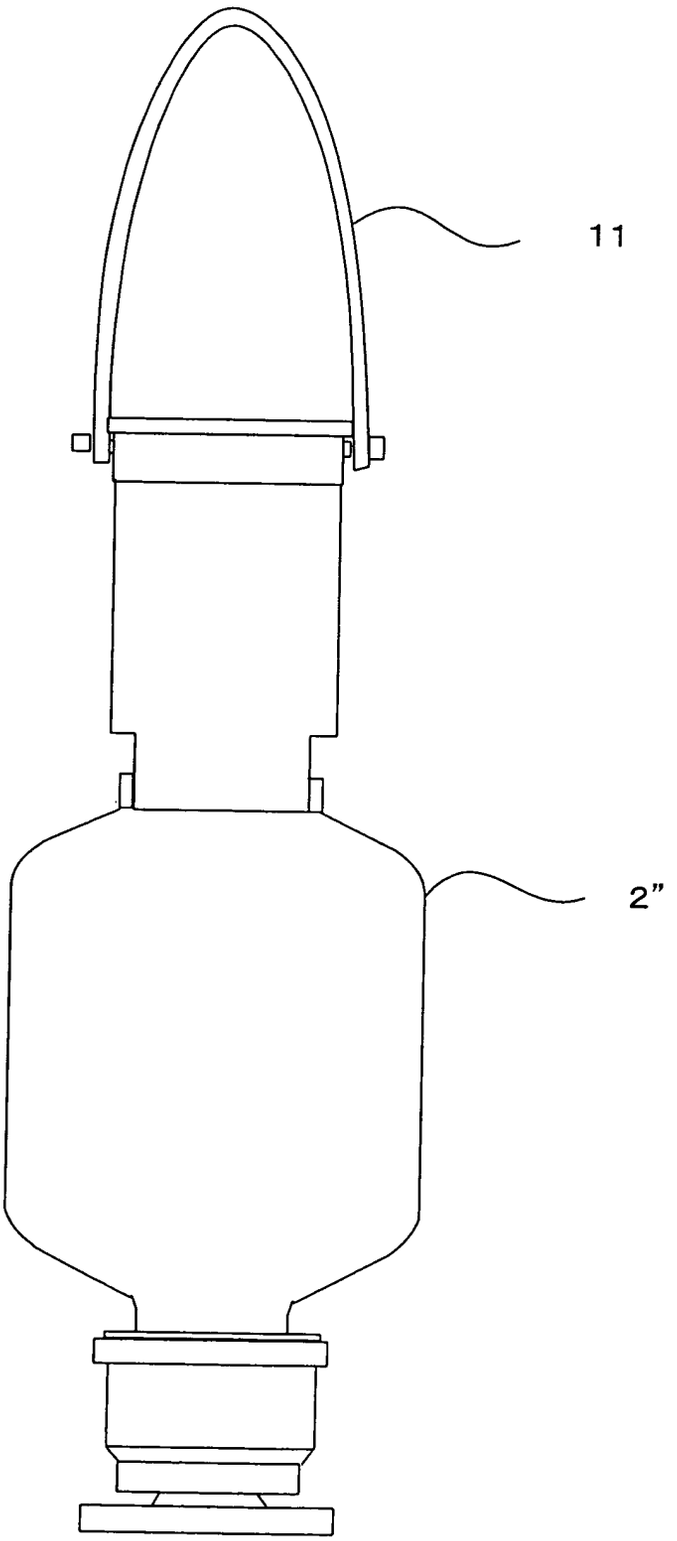


Fig. 18



INTERNATIONAL SEARCH REPORT

International application No.
PCT/JP03/12200

A. CLASSIFICATION OF SUBJECT MATTER
Int.Cl[7] B65D25/22

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)
Int.Cl[7] B65D25/22, 25/28, A61J1/20

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

Jitsuyo Shinan Koho	1922-1996	Toroku Jitsuyo Shinan Koho	1994-2003
Kokai Jitsuyo Shinan Koho	1971-2003	Jitsuyo Shinan Toroku Koho	1996-2003

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.
Y	JP 11-157547 A (Kao Corp.), 15 June, 1999 (15.06.99), Claims; Par. Nos. [0013], [0016] to [0017], [0026]; Figs. 1 to 6 (Family: none)	1-13
Y	CD-ROM of the specification and drawings annexed to the request of Japanese Utility Model Application No. 41589/1993(Laid-open No. 11545/1995) (Kabushiki Kaisha Yamamon), 21 February, 1995 (21.02.95), Full text; all drawings (Family: none)	1-13

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

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"&" document member of the same patent family

Date of the actual completion of the international search 08 December, 2003 (08.12.03)	Date of mailing of the international search report 24 December, 2003 (24.12.03)
Name and mailing address of the ISA/ Japanese Patent Office Facsimile No.	Authorized officer Telephone No.

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INTERNATIONAL SEARCH REPORT

International application No.
PCT/JP03/12200

C (Continuation). DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
Y	Microfilm of the specification and drawings annexed to the request of Japanese Utility Model Application No. 104886/1978(Laid-open No. 21967/1980) (Moriya Sangyo Kabushiki Kaisha), 13 February, 1980 (13.02.80), Description, page 1, lines 15 to 16; Figs. 1, 3 (Family: none)	7,10-13
Y	Microfilm of the specification and drawings annexed to the request of Japanese Utility Model Application No. 179371/1980(Laid-open No. 101739/1982) (Takatoshi TSUCHIHASHI), 23 June, 1982 (23.06.82), Description, page 3, lines 1 to 2; Fig. 3 (Family: none)	7,10-13
Y	CD-ROM of the specification and drawings annexed to the request of Japanese Utility Model Application No. 1060/1992(Laid-open No. 86836/1993) (Kaneka Corp., Kabushiki Kaisha Onishi Koruku Kogyosho), 22 November, 1993 (22.11.93), Par. Nos. [0033] to [0035]; Fig. 1 (Family: none)	9,10-13
Y	JP 2000-70341 A (Otsuka Pharmaceutical Co., Ltd.), 07 March, 2000 (07.03.00), Full text; all drawings (Family: none)	10-13
Y	JP 8-126683 A (Fujisawa Pharmaceutical Co., Ltd., Nissho Corp.), 21 May, 1996 (21.05.96), Full text; all drawings & EP 843992 A1 & US 5826713 A1 & WO 96/13241 A1	10-13

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