



(12) **EUROPEAN PATENT APPLICATION**

(43) Date of publication:
06.10.2010 Bulletin 2010/40

(51) Int Cl.:
B65D 8/20 (2006.01)

(21) Application number: **10157100.8**

(22) Date of filing: **19.03.2010**

(84) Designated Contracting States:
AT BE BG CH CY CZ DE DK EE ES FI FR GB GR HR HU IE IS IT LI LT LU LV MC MK MT NL NO PL PT RO SE SI SK SM TR
Designated Extension States:
AL BA ME RS

(71) Applicant: **Poli-Box Italiana S.R.L.**
26845 Codogno (LO) (IT)

(72) Inventor: **Rosso, Leonardo**
26845, Codogno LO (IT)

(74) Representative: **Modiano, Micaela Nadia et al**
Modiano & Partners
Via Meravigli, 16
20123 Milano (IT)

(30) Priority: **01.04.2009 IT MI20090523**

(54) **Container for fluids**

(57) A container for fluid products in general, particularly low-density fluids, comprising a container body (2) that defines a free rim to which an end cap (3) is seamed, which defines an opening that can be closed by a closure element; the container body (2) is made of thermoplastic

material and defines, at the free rim, a lip (10) that can be jointly connected to the peripheral rim (20) of the end cap (3) made of metallic material by means of a triple seam, the lip (10) being adapted to act as a sealing gasket between the end cap (3) and the container body (2).

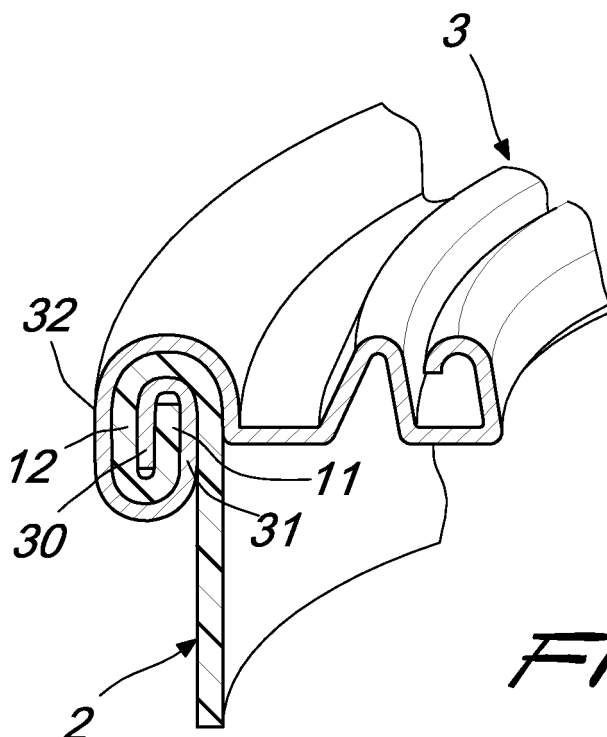


Fig. 7

Description

[0001] The present invention relates to a container for fluid products in general, particularly low-density fluids.

[0002] As is known, fluid products in general, such as for example paints, water-based paints and the like, are currently contained in cans provided by means of a body made of tinplate, to which a tinplate end cap is applied which is coupled by seaming to said body.

[0003] Containers or cans are further known, as disclosed for example in EP 1 102 705, whose body is made of plastic material and whose end cap is connected by means of a mechanical connection obtained by pinching.

[0004] This type of solution does not allow optimum stability and further does not prove to be capable of being used for products with low or very low density.

[0005] The aim of the invention is to solve the problems described above, by providing a container for fluid products in general, particularly low-density fluids, which makes it possible to have a container body made of plastic material to which an end cap made of tinplate is connected thereby allowing to ensure optimum tightness characteristics.

[0006] Within this aim, an object of the invention is to provide a container that makes it possible to have particularly high tightness values without thereby causing complications during production.

[0007] Another object of the present invention is to provide a container for fluid products in general which, thanks to its particular characteristics of construction, is capable of ensuring highest reliability and safety of use.

[0008] Another object of the present invention is to provide a container that can be obtained easily starting from commonly commercially available elements and materials and is also competitive from a merely economical point of view.

[0009] This aim as well as these and other objects that will become better apparent hereinafter, are achieved by a container for fluid products in general, particularly low-density fluids, according to the invention, comprising a container body that defines a free rim to which an end cap is seamed, which defines an opening that can be closed by a closure element, **characterized in that** said container body is made of thermoplastic material and defines, at said free rim, a lip that can be jointly connected to the peripheral rim of said end cap made of metallic material by means of a triple seam, said lip being adapted to act as a sealing gasket between said end cap and said container body.

[0010] Further characteristics and advantages of the present invention will become better apparent from the description of a preferred but not exclusive embodiment of a container for fluid products in general, particularly low-density fluids, illustrated by way of non-limiting example in the accompanying drawings, wherein:

Figure 2 is an exploded perspective view of the container body and of the end cap;

Figure 3 is a view of the detail of the peripheral region of the end cap and of the lip prior to seaming;

Figures 4, 5, 6 and 7 are sectional views in succession of the steps for seaming between the container body and the end cap;

Figures 8 and 9 are exploded sectional views of a different embodiment of the rim for allowing optimum emptying of the container;

Figure 10 is a view of a stack of empty container bodies inserted in one another.

[0011] With reference to the figures, the container for fluid products in general, particularly low- or very low-density fluids, generally designated by the reference numeral 1, has a container body 2, to which an end cap 3 is seamed in order to obtain a container which is, for example, constituted by a can; the end cap has an opening which is closed by a closure element, constituted for example by a lid.

[0012] A peculiarity of the invention consists in that the container body has a cylindrical or frustum-shaped configuration with a bottom and defines a free rim at which a lip 10 is provided which extends radially on a plane which is substantially perpendicular to the axis of the container body.

[0013] The container body can be made of a thermoplastic material such as grade 5 HD, i.e., high-density polyethylene copolymer, or optionally grade 12 polypropylene copolymer.

[0014] In order to increase the elasticity of the materials used, which is necessary for the deformation of the lip, during seaming, in both cases 15 to 25%, preferably 20%, of grade 20 low-density polyethylene are added advantageously.

[0015] The end cap 3 made of tinplate can be applied over the lip 10 and has a peripheral rim 20 which terminates with a rim 21 which is folded downwardly.

[0016] The end cap 3 is arranged, as shown in Figure 3, over the lip 10 and then the usual seaming operations are performed with successive folds which make it possible to provide with the rim 20 a rising inner portion 30 which is connected to a descending portion 31, which in turn is associated with a rising outer portion 32 connected to the body of the end cap 3.

[0017] The lip 10 remains seamed between the portions 30, 31 and 32 and has a descending inner portion 11 which is connected to a rising portion 12, which in turn is connected to the lateral portion of the container body 2.

[0018] Advantageously, the thickness of the lip is greater than the thickness of the end cap, thus achieving a seaming that extends continuously and makes it possible to retain the portions of the lip and of the upper rim of the container between the folded portions of the end cap, so that the lip acts as a gasket element, without the necessity to introduce the traditional sealants which are inserted when a container body made of tinplate is

Figure 1 is a schematic perspective view of the container according to the invention;

seamed with an end cap made of tinplate.

[0019] The assembly makes it possible to provide extremely high tightness values, which are optimum even if very low-density liquids are introduced in the container.

[0020] According to what is shown in Figures 8 and 9, a solution is provided which allows to achieve optimum emptying of the container, since there are no rims that protrude inwardly.

[0021] In particular, the end cap designated by the reference numeral 3' has the same elements for connection to the container body 2, and therefore they are designated by the same reference numerals in the drawings; the difference consists in that the upper rim of the container body defines, on its inner surface, a portion 40 that is flared outwardly and in which an inner containment rim 41 is accommodated for mating with a closure element constituted for example by a lid.

[0022] The inner containment rim 41 is arranged substantially flush with the inner surface of the container body 2, so that it does not constitute any hindrance to the outflow of the product.

[0023] The rim 41, at the upper end, is connected to an outer fold 42, which is arranged in an upward region, whereas in a downward region it is connected to a lower curve 43, which in turn is connected to a rising rim 44, joined to the rim 20 by means of an inclined rim 45.

[0024] It should also be added to the above that the flared shape of the rim 40, together with a container body 2 which is frustum-shaped, allows insertion of the empty container bodies and stacking of the same when they are closed by the lid.

[0025] From what has been described above it is evident that the invention achieves the proposed aim and objects and in particular the fact is stressed that a container for fluid products in general is provided which has a body made of plastic material to which an end cap made of tinplate is connected which is seamed with a triple seaming process, so that the lip is inserted in the folded portions, providing an optimum sealing element.

[0026] Another important aspect further consists in the fact that the materials used make it possible to provide a desired degree of elasticity to the material, which can bend easily without being subject to breakage or tears.

[0027] The invention thus conceived is susceptible of numerous modifications and variations, all of which are within the scope of the appended claims.

[0028] All the details may further be replaced with other technically equivalent elements.

[0029] In practice, the materials used, as well as the contingent shapes and dimensions, may be any according to requirements.

[0030] The disclosures in Italian Patent Application No. MI2009A000523 from which this application claims priority are incorporated herein by reference.

[0031] Where technical features mentioned in any claim are followed by reference signs, those reference signs have been included for the sole purpose of increasing the intelligibility of the claims and accordingly, such

reference signs do not have any limiting effect on the interpretation of each element identified by way of example by such reference signs.

Claims

1. A container for fluid products in general, particularly low-density fluids, comprising a container body (2) that defines a free rim to which an end cap (3, 3') is seamed, which defines an opening and can be closed by a closure element, **characterized in that** said container body (2) is made of thermoplastic material and defines, at said free rim, a lip (10) that can be jointly connected to the peripheral rim (20) of said end cap (3, 3') made of metallic material by means of a triple seam, said lip (10) being adapted to act as a sealing gasket between said end cap (3, 3') and said container body (2).
2. The container according to claim 1, **characterized in that** said container body (2) is made of grade 5 high-density polyethylene copolymer mixed with grade 20 low-density polyethylene in a percentage comprised between 15 and 25%, preferably 20%.
3. The container according to claim 1, **characterized in that** said container body (2) is made of grade 12 polypropylene copolymer mixed with grade 20 low-density polyethylene in a percentage comprised between 15 and 25%, preferably 20%.
4. The container according to one or more of the preceding claims, **characterized in that** said lip (10) extends radially on a plane that is substantially perpendicular to the axis of said container body (2).
5. The container according to one or more of the preceding claims, **characterized in that** said lip (10) is thicker than said end cap (3, 3').
6. The container according to one or more of the preceding claims, **characterized in that** before seaming said end cap (3) made of metallic material has a substantially flat peripheral rim (20) and terminates with a rim (21) that is folded downward.
7. The container according to one or more of the preceding claims, **characterized in that** said container body (2) defines, on the inner surface, a portion (40) which is flared outwardly to accommodate an inner containment rim (41), which is arranged substantially flush with the inner surface of said container body (2).
8. The container according to one or more of the preceding claims, **characterized in that** said inner containment rim (41) of said end cap (3') is connected, at its upper end, to an outer fold (42) and, at its lower

end, to a lower curve (43) which is connected to a rising rim (44) joined to said rim (20) by means of an inclined rim (45).

5

10

15

20

25

30

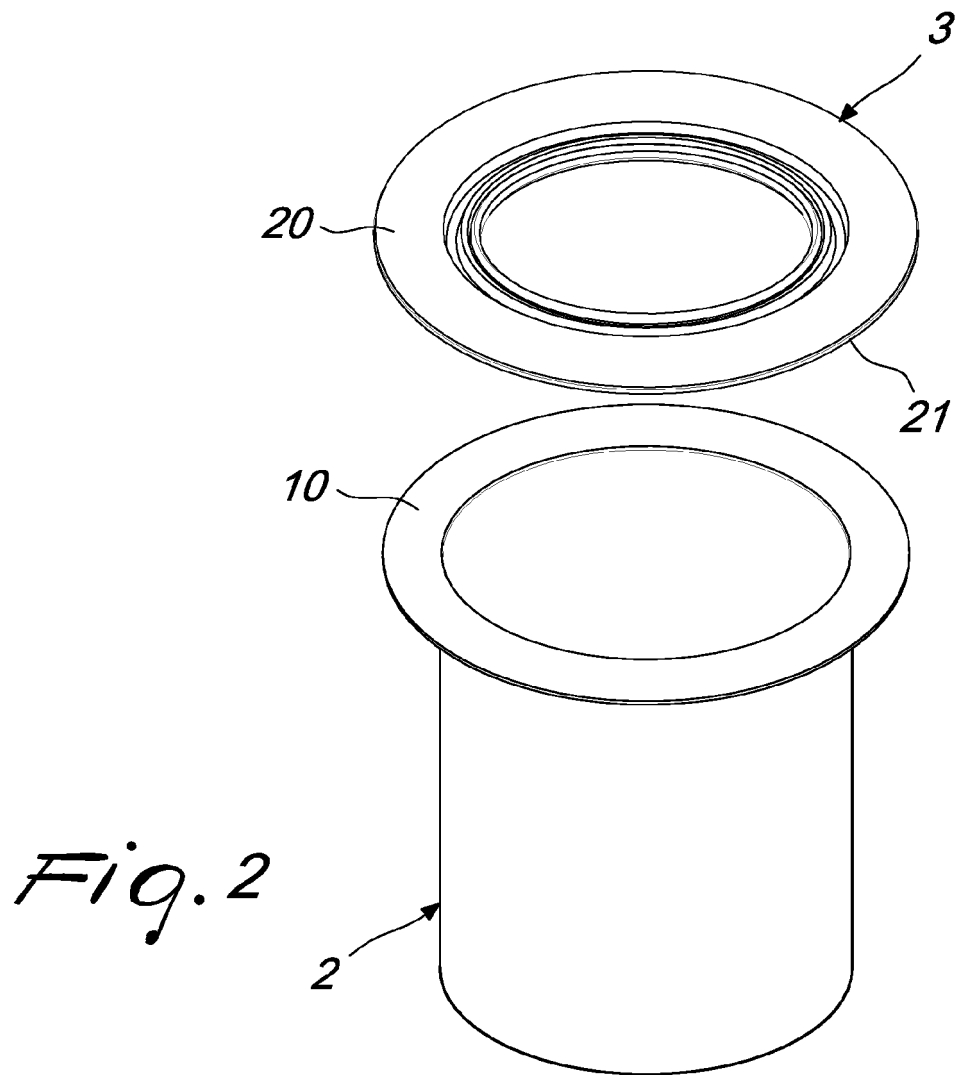
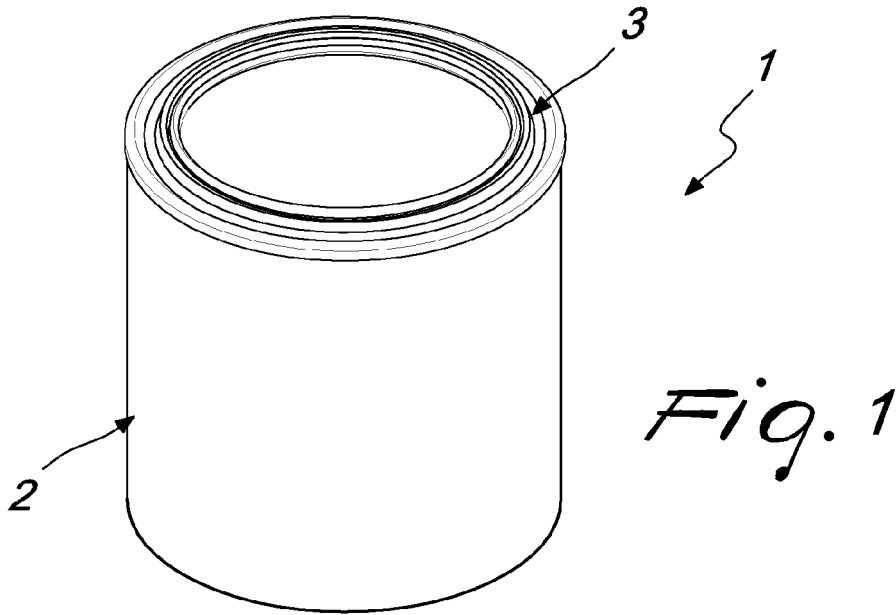
35

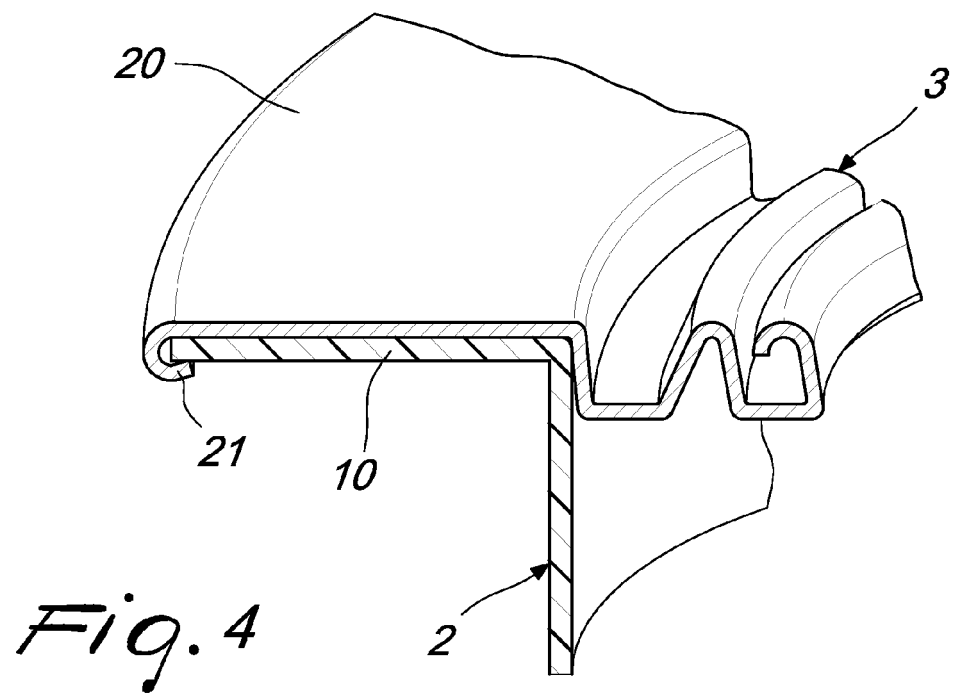
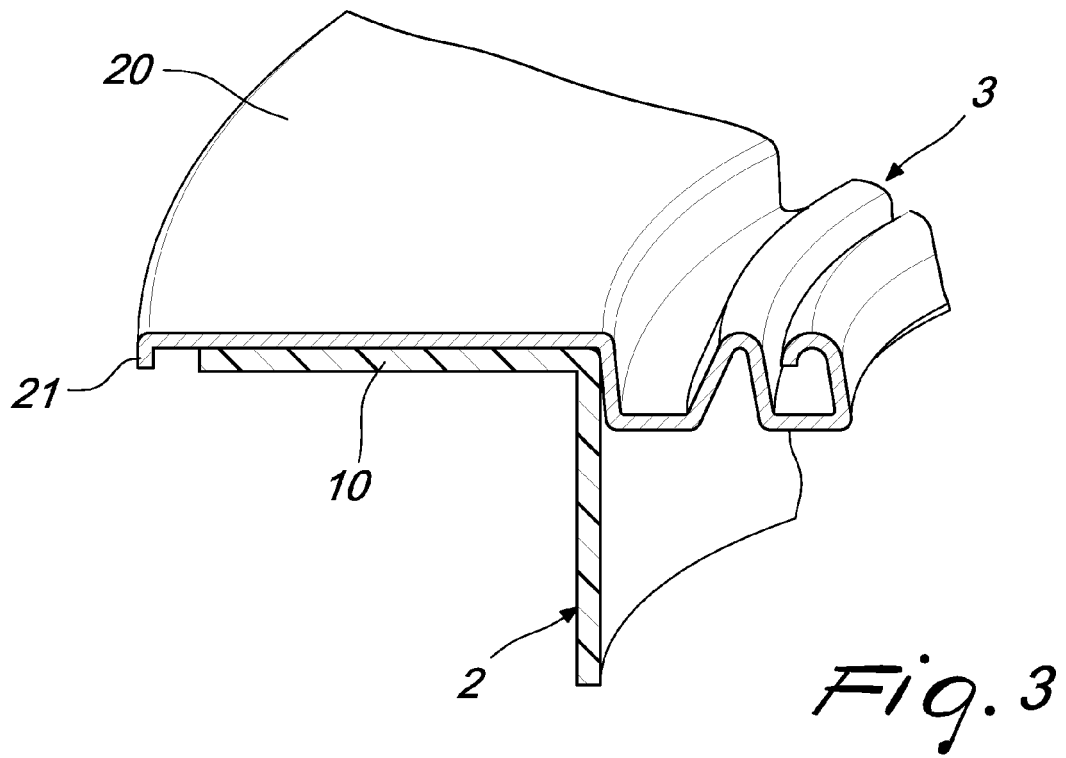
40

45

50

55





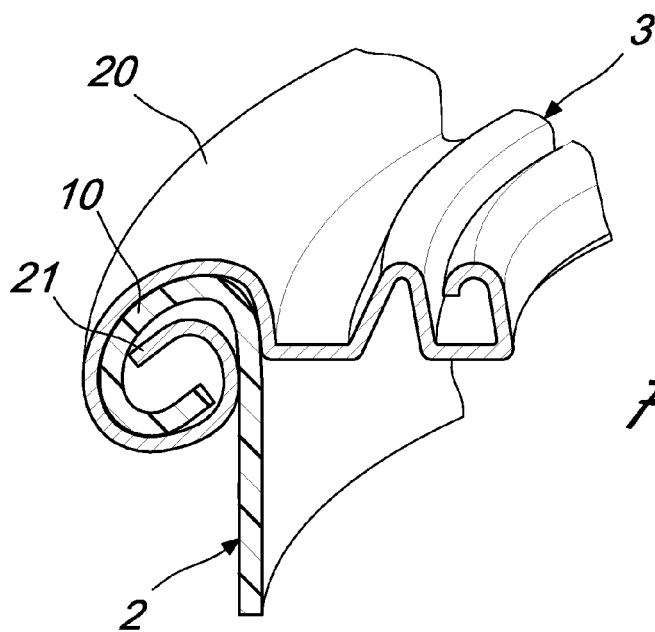


Fig. 5

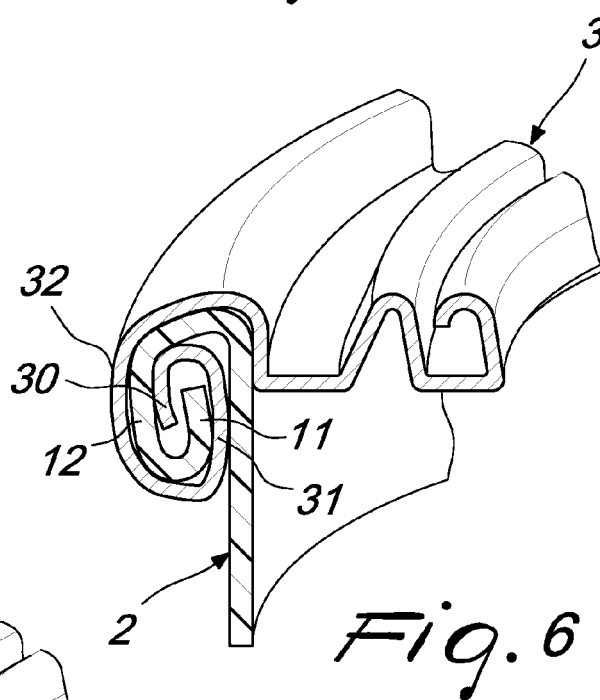


Fig. 6

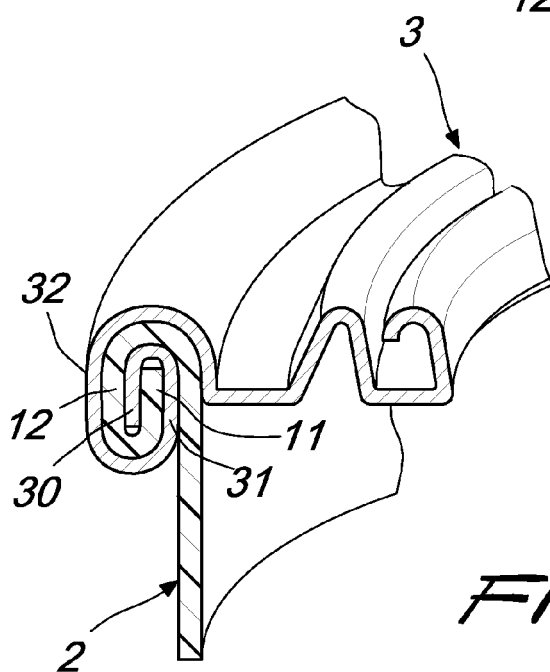
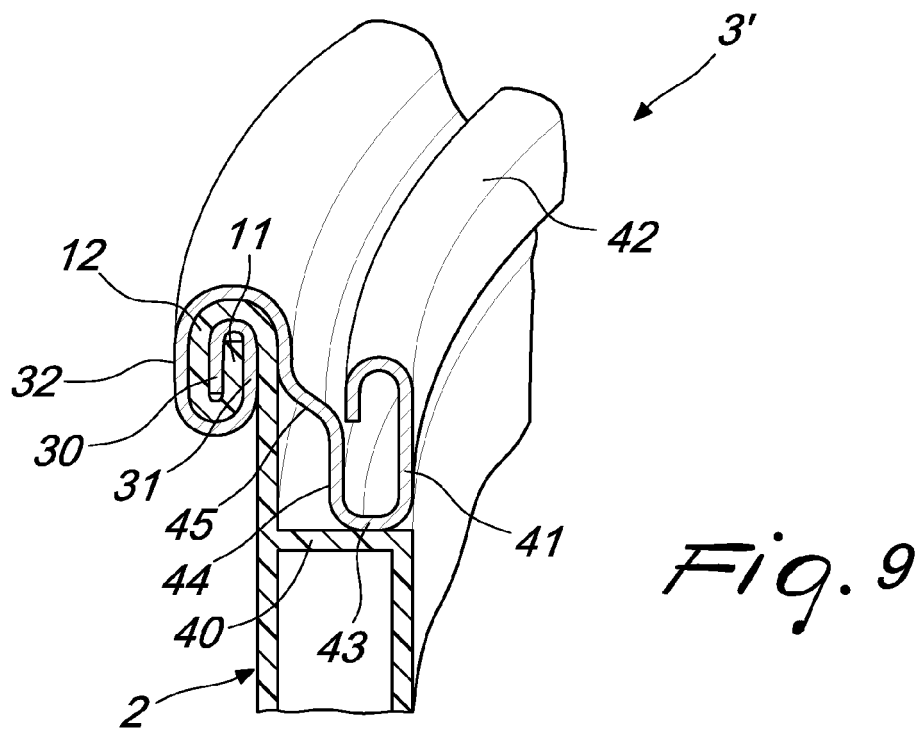
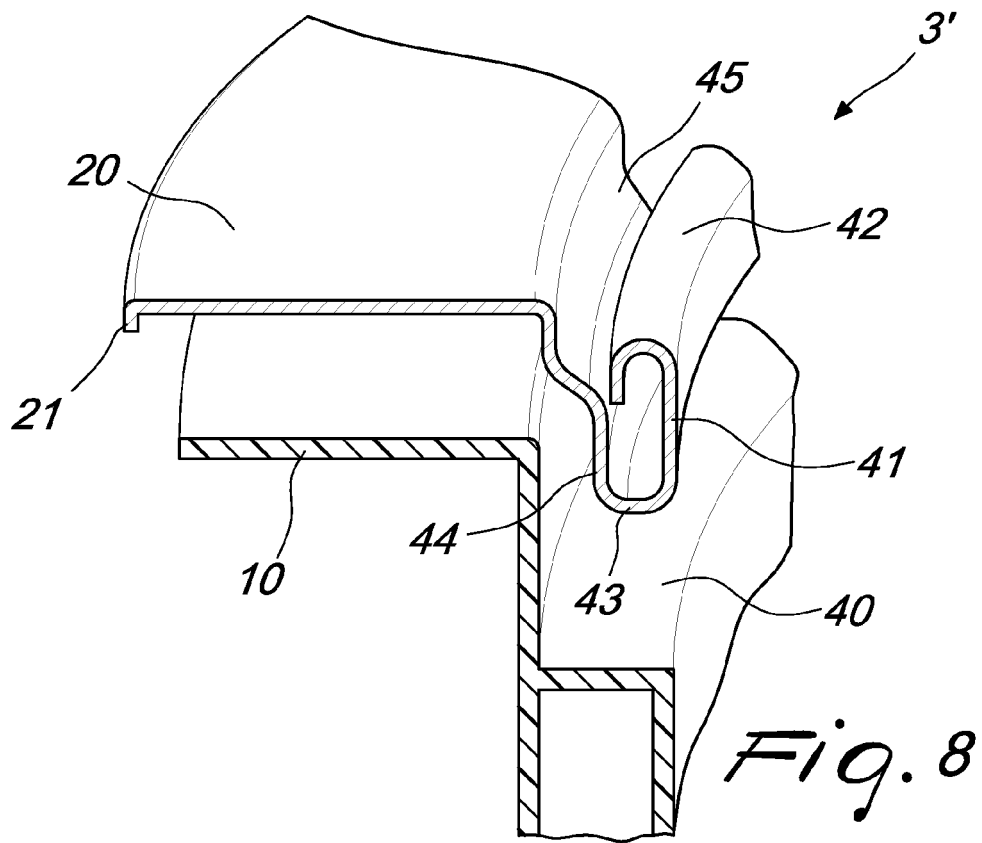


Fig. 7



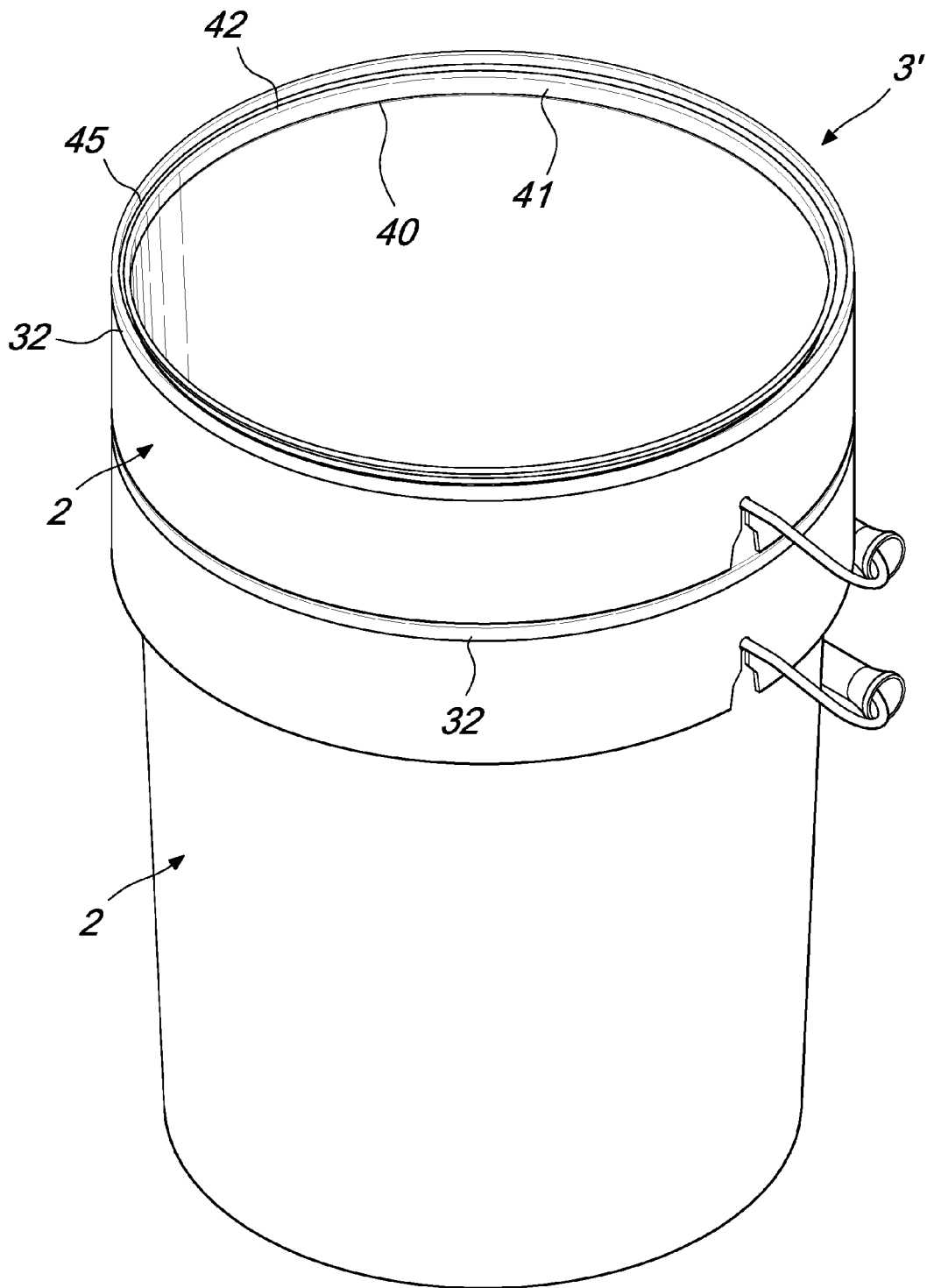


Fig. 10

REFERENCES CITED IN THE DESCRIPTION

This list of references cited by the applicant is for the reader's convenience only. It does not form part of the European patent document. Even though great care has been taken in compiling the references, errors or omissions cannot be excluded and the EPO disclaims all liability in this regard.

Patent documents cited in the description

- EP 1102705 A [0003]
- IT MI20090523 A [0030]