



Europäisches Patentamt
European Patent Office
Office européen des brevets



(11) **EP 1 184 287 A1**

(12) **EUROPEAN PATENT APPLICATION**

(43) Date of publication:
06.03.2002 Bulletin 2002/10

(51) Int Cl.7: **B65D 1/02**

(21) Application number: **00119045.3**

(22) Date of filing: **02.09.2000**

(84) Designated Contracting States:
**AT BE CH CY DE DK ES FI FR GB GR IE IT LI LU
MC NL PT SE**
Designated Extension States:
AL LT LV MK RO SI

(72) Inventor: **Higuchi, Mitsuo**
Nakakoma-gun, Yamanashi (JP)

(74) Representative:
EGLI-EUROPEAN PATENT ATTORNEYS
Horneggstrasse 4 Postfach 473
8034 Zürich (CH)

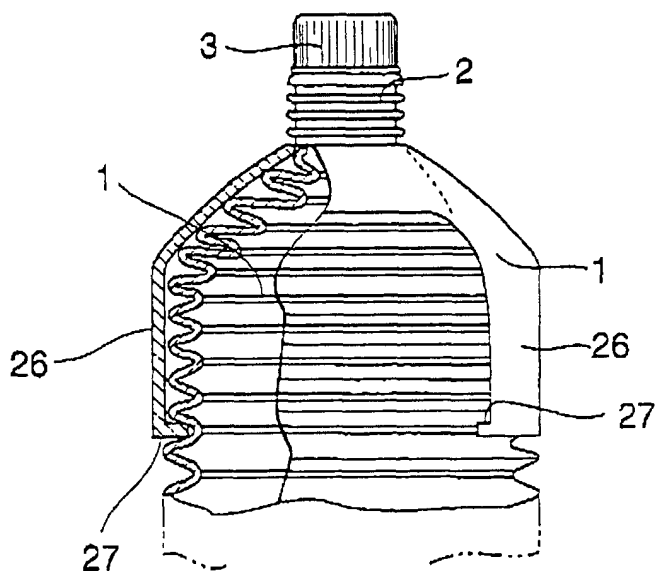
(71) Applicant: **Gohsho Company, Ltd.**
Nakakoma-gun, Yamanashi (JP)

(54) **Collapsible, synthetic resin container**

(57) A synthetic resin liquid container for containing drinking water, juice, milk and other liquids is provided. The synthetic resin liquid container has a body (1) that

can substantially reduce its volume when a vertical and/or twisting stress is supplied to the body (1), and a form-retaining means (26,27) to be used after compression of the container body (1) for keeping it compressed.

Fig. 18



EP 1 184 287 A1

Description

BACKGROUND OF THE INVENTION

Field of the Invention

[0001] The present invention relates to a synthetic resin liquid container for containing drinking water, juice, milk and other liquids.

Description of the Related Art

[0002] Today, it is said that an ordinary family produces garbage at an average of 800g per day. And the total amount of garbage produced by not only families but also plants and offices all over the world may reach astronomical figures. Therefore, waste disposal is one of the biggest social issues of today. Recently, synthetic resin containers called "mini bottles" have come into wide use and demand for such bottles has dramatically increased. In fact, the amount of waste mini bottles occupies not less than 15% of the above-described total amount of garbage, as the Director General of the Environment Agency reported.

[0003] Therefore, recycling these synthetic resin containers, which are difficult to incinerate, has been suggested. And now, separate collection of garbage is generally carried out by separating garbage into several categories such as "food garbage", "synthetic resin container" and others.

[0004] The problem is to collect empty synthetic resin containers since such containers are bulky and thus occupy a lot of space so that transporting these empty containers is like carrying air. Further, the fact that recycling service companies are generally paid based on the weight of garbage they recovered may contribute to their unwillingness for collecting such containers.

SUMMARY OF THE INVENTION

[0005] Accordingly, an object of the present invention is to provide a synthetic resin container that can be sufficiently resistant to intense oscillation during transport while containing liquid therein and can substantially reduce its volume when it is empty and collected as garbage, thereby enabling transporting much larger number of containers at one time.

[0006] A synthetic resin liquid container is provided which has a body that can substantially reduce its volume when a vertical and/or twisting stress is applied to the body, and a form-retaining means to be used after compression of the container body for keeping it compressed.

[0007] In one aspect of the present invention, the container body comprises a relatively hard and thin side wall with accordion-shaped contour formed on its surface, and sequentially reduced radiuses from both the upper and bottom ends toward the middle of the body, for fa-

cilitating operation of substantially reducing the volume of container as described above.

[0008] In another aspect of the present invention, the container body comprises a plurality of longitudinal grooves on the surface of its side wall, and a star-shaped cross section, for facilitating operation of substantially reducing the volume of container as described above.

[0009] In still another aspect of the present invention, the container body comprises a relatively hard and thin side wall, and a number of continuous or non-continuous oblique grooves on the side wall, for facilitating operation of substantially reducing the volume of container as described above.

[0010] In still another aspect of the present invention, the container body comprises a relatively thin side wall and a number of recesses formed thereon, for facilitating operation of substantially reducing the volume of container as described above.

[0011] In still another aspect of the present invention, the container body further comprises a belt attached to the opening of the container body, and the belt is in turn connected to a cap, for an aid in keeping the container compressed.

[0012] In still another aspect of the present invention, the opening of the container body can be embedded into the container body by pressing the opening for keeping the container compressed.

[0013] In still another aspect of the present invention, the container body also comprises a retainer means which is shorter than the height of the body and has a plurality of legs suspended from the neck portion of the body, with each leg having a claw portion at the tip which engages with the rim of the bottom of the container body for retaining the substantially reduced volume of the container body.

[0014] Alternatively, in still another aspect of the present invention, the container body also has a retainer member provided on the lower portion of the body, the retainer member having a side wall which is shorter than that of the body, extends in upward direction and has, at the circumferential rim of the side wall thereof, a claw that can be engaged with the top of side wall of the container body.

BRIEF DESCRIPTION OF THE DRAWINGS

[0015]

Figure 1 shows a front view of the container body of the present invention according to Example 1.

Figure 2 shows a front view of the container body of the present invention according to Example 2.

Figure 3 shows a cross-sectional view of the container body cut from Figure 2, line a-a.

Figure 4 shows a front view of the container body of the present invention according to Example 2.

Figure 5 shows an expanded view of a portion in

the dashed line circle shown in Figure 2.

Figure 6 shows a front view of the containers with substantially reduced volume which are arranged for space saving according to Example 2.

Figure 7 shows a front view of the container body of the present invention according to Example 3.

Figure 8 shows a front view of the container body of the present invention according to Example 4.

Figure 9 shows a front view of the container in a compressed state which is provided with a means for retaining its substantially reduced volume according to Example 1.

Figure 10 shows a belt which permanently connects the cap and the container body.

Figure 11 shows a front view of the container body in a compressed state which is provided with a means for retaining its substantially reduced volume according to Example 5.

Figure 12 shows a front view of the container body according to Example 5 in its normal state, which is provided with a means for retaining its substantially reduced volume once the container is compressed. Figure 13 shows a front view of the container body according to Example 5 in its compressed state, which is provided with a means for retaining its substantially reduced volume once the container is compressed.

Figure 14 shows a front view of the container body according to Example 6 in its normal state, which is provided with a means for retaining its substantially reduced volume once the container is compressed. Figure 15 shows a front view of the container body according to Example 2 in its compressed state, which is provided with a means for retaining its substantially reduced volume once the container is compressed.

Figure 16 shows a front view of the container body according to Example 7 in its compressed state, which is provided with a means for retaining its substantially reduced volume once the container is compressed.

Figure 17 shows a front view of retaining means for retaining a container body compressed according to Example 8.

Figure 18 shows a front view of the container which has such a configuration that it may have substantially reduced volume when compressed according to Example 8.

DESCRIPTION OF THE PREFERRED EMBODIMENT

Example 1

[0016] Figure 1 shows a liquid container body (1) made of flexible plastic synthetic resin, and a relatively hard opening (2) with reduced radius provided at the top of the body (1). Figure 1 also shows a cap member (3) covering the opening (2).

[0017] The container body (1) has a surrounding side wall (4) which is provided with an accordion-shaped contour (5) on its surface between the opening (2) and the bottom of the body (1) across the height of the container body (1).

[0018] For use, the container body (1) may be filled with liquid such as mineral water using any conventional means, and then sealed with a cap member (3) before it is put on a market. Such a filled container body (1) may be transported almost safely even under oscillation since the accordion like contour (5) of the side wall (4) may provide a buffering function.

[0019] Now, the container body (1) is emptied and compressed into a direction toward the middle of the body (1). The container may be easily compressed due to flexibility and plasticity of the container body (1) as well as the accordion-shaped contour (5) of the side wall (4).

[0020] Alternatively, the container body (1) may be placed on the ground and then crushed by foot if the container body cannot be squashed easily by hand.

[0021] The squashed container body (1) may have thus sufficiently reduced volume.

[0022] The present inventors put conventional green tea bottles (500ml; height 21cm×radius 7cmØ) which are commercially available to the test, by compressing the bottles after making their side walls (4) an accordion-shaped contour (5) as that of the present invention. The results showed that all the container bodies (1) tested were compressed to one-fourth of its original height, which was equal to 5 cm or less. These heights were equal to about two-fold (2L) of those of the relatively hard taper portions (11) of respective container bodies (1), the taper portions (11) being provided just below the opening (2) of the container body (1).

[0023] It should be easily understood that such compressed bottles may be easily transported for, for example, recycling since their size are now one-fourth or smaller than their original size. The problem is whether the container bodies (1) can be kept in a compression form prior and during transportation. Various containers made of different materials were tested for this point though results showed that some were kept compressed for a long period of time, others for several hours, and even others had only very short period of time such as a few minutes and soon to tend to recover their original shapes.

[0024] Accordingly, the container body (1) is capped again with a cap member (3) at the opening (2) to prevent air introduction into the container body (1) after compression, as shown in Figure 9, so that the container body (1) can keep its compressed form.

[0025] However, a capping member (3) may often be discarded or lost after detached from the container body (1) and thus cannot be capped with a cap member (3) after compression of the container body (1).

[0026] Accordingly, improvement in the present invention is to attach the capping member (3) permanently

to the container body (1). For example, Figure 10 shows a belt (6) which is made of thin, flexible, plastic resin plate, the plate with openings (7) and (8) close to both ends. The cap (3) has a circumferential side wall and a dovetail groove (9) on the periphery of the side wall. One of the above-described openings (7) provided in the belt (6) is fitted into the dovetail groove (9) while the other (8) is fitted into the proximal end of screw portion (10) provided on the outer surface of the opening (2) of the container body (1).

[0027] As a result, the cap (3) is permanently fixed to the container body (1) so that it may not be lost after once detached. Thus, the container body (1) can be kept compressed by recapping with the cap (3) on the opening of the container body (1) after compression.

[0028] As already described above, the compressed body (1) has a height equal to about two-fold (2L) of that of the taper portion (5) (L). In another embodiment, the container body (1) may be further compressed into smaller size.

[0029] In this example, as shown in Figure 11, the taper portion (11) and opening (2) of the container body (1), and optionally a loosely fitted cap (3) are flipped into the container body (1) when the container body (1) is compressed such that these parts may be accommodated in the container body. As a result, neither the taper (11) nor the cap may not contribute to the height of the compressed container body (1) so that the body height may be reduced to the same height as those of taper portion (11) and/or cap (L1), thus greatly reducing the bulk of the container.

Example 2

[0030] In alternative embodiment, the container body (1) may be compressed by applying a horizontal force (not a vertical force) in order to substantially reduce the volume of the container body (1).

[0031] Particularly, as shown in Figure 2, the container body (1) may have a plurality of grooves (12) provided on the outer surface thereof with each groove running into the longitudinal direction and being evenly spaced each other. The container body (1) has a star-shaped cross-section (13) as shown in Figure 3.

[0032] Alternatively, a number of oblique grooves (14) may be formed on the side wall of the container body for horizontal compression as shown in Figures 4 and 5.

[0033] In summary, the emptied container bodies (1) shown in Figures 2 to 5 could be reduced to a size equal to one-third of their original sizes by compressing of the container body (1) them in such a similar manner as laundry is squeezed to remove moisture.

[0034] The container body (1) may be capped with a cap (3) after compressed to keep it compressed as described above. A lot of compressed containers (1) can be transported by arranging them in a line with each containers (1) being placed upside down shown in Fig.6.

Example 3

[0035] In another embodiment, the container body (1) may be compressed by applying both vertical and horizontal forces.

[0036] Particularly, the container body (1) has a number of recesses such as oblique grooves (15) formed on the surrounding wall (4) thereof as shown in Figure 7, or a continuous spiral groove (16) on the side wall thereof arranged with each parallel line spaced each other in a oblique but relatively horizontal direction as shown in Figure 8. Of course, in the case of the container body (1) in Figure 8 the groove (16) can be discontinuous.

[0037] Thus, an empty container body (1) may be easily compressed merely by applying a vertical pressure since, due to such configuration, not only vertical force but also another force in turning direction are generated and transmitted to the container body (1) such that synthetic force of the two may easily press the container body down.

Example 4

[0038] Various other examples of means for keeping the container body (1) in a compressed form may be contemplated. For example, cover members (17) are shown in Figures 12 and 13, which are fitted on the lower portion of container body (1).

[0039] These cover members (17) are generally manufactured from the same material as the container body (1), and may be sold along with the container body (1) containing liquid therein. The cover member (17) is shaped like a bowl with a claw (18) extruding inwardly at the upper open rim.

[0040] Thus, once compressed in vertical direction the empty container body (1) is accommodated in the cover member (17) so that the empty container body (1) can keep its compression form.

[0041] One example is shown in Figure 13 in which the container body (1) has an accordion-shaped contour (5) on the side wall (4) thereof. In this example, the top protrusion of the accordion contour (5) - i.e., the protrusion (19) of the accordion contour (5) just below the taper portion (11) - will engage with the claw (18) of the cover (17). Accordingly, it is important to make the height or depth of the cover member (17) equal to that of the container body (1) in a maximally compressed state.

[0042] Preferably, the top protrusion (19) of the container body (1) may have a larger radius than other protrusions in the same accordion contour as shown in Figure 12.

[0043] In this case, the container body (1) may have an accordion contour with each protrusion therein having successively reduced radiuses toward the middle portion (20) across the container length such that the side wall of the container body (1) may be almost evenly

and horizontally folded to be accommodated in the next cover member (17) when the container body (1) is pressed into the cover member (17) as shown in Figure 14, thus enabling easy compressing operation of the container. The cover member (17) may be formed as a tube or another form such that it has a discontinuous side wall with a hole or holes (23) from that of the as shown in Figure 16.

Example 5

[0044] The cover member (15) may be one which is fit into the lower portion of the container body (1) as described above, or a retainer (24) generally manufactured from the same material as the container body (1) in any form such as those shown in Figures 16 to 18.

[0045] For example, the retainer (24) may comprise a disk having a hole (25) at its center in which the opening (2) of the container body (1) can fit, and a plurality of leg members (26) under the disk. The leg members (26) can be bumped into engagement with the side wall of the container body (1), and has a claw member (27) at their ends which is adjusted to fit on the container body (1).

[0046] Typically the retainer (24) may be put on the market together with the container body (1). When emptied container body (1) is compressed, the claw members (27) of the retainer (24) are engaged with the bottom surface of the container body (1) thereby enabling the container to keep its compression form.

[0047] In summary, the present invention could provide substantially reduced volume of an after-used container body, resulting in saving garbage storage space, thereby enabling a large amount of after-used containers to be transported at one time. This space-saving contributes to expansion of recycling such containers.

[0048] Further, the container body of the present invention is provided with a retainer means for keeping its compression form so that once compressed the container may not return to its normal shape.

[0049] The above examples are provided to illustrate the invention but not limit its scope. Other variations of the invention will be readily apparent to one of ordinary skill in the art and are encompassed by the appended claims.

Claims

1. A synthetic resin liquid container comprising:

a container body having an opening, a side wall which is made of a flexible and relatively hard plastic synthetic resin, and
a form that facilitates operation of substantially reducing the volume of the container body by applying a vertical and/or twisting force;

a cap member for covering the opening; and
a retainer means for keeping the reduced volume of the container body.

2. The synthetic resin liquid container according to claim 1 wherein said container body comprises a relatively hard and thin side wall with accordion-shaped contour formed on its surface for facilitating operation of substantially reducing the volume of container body.

3. The synthetic resin liquid container according to claim 2 wherein said container body comprises sequentially reduced radiuses from both the upper and bottom ends toward the middle of the body.

4. The synthetic resin liquid container according to claim 1 wherein said container body comprises a relatively hard thin side wall, a plurality of longitudinal grooves formed thereon, and a star-shaped cross section, for facilitating operation of substantially reducing the volume of container.

5. The synthetic resin liquid container according to claim 1 wherein said container body comprises a relatively hard and thin side wall, and a number of continuous or non-continuous oblique grooves formed thereon, for facilitating operation of substantially reducing the volume of container.

6. The synthetic resin liquid container according to claim 1 wherein said container body comprises a relatively thin side wall and a number of recesses formed thereon, for facilitating operation of substantially reducing the volume of container.

7. The synthetic resin liquid container according to any one of claims 1 to 6 wherein said container body further comprises a belt attached to the opening of the container body, and the belt is in turn connected to a cap, for an aid in keeping the container compressed.

8. The synthetic resin liquid container according to any one of claims 1 to 6 wherein said opening of the container body can be embedded into the container body by pressing the opening for keeping the container compressed, for an aid in keeping the container compressed.

9. The synthetic resin liquid container according to any one of claims 1 to 7 wherein said container body further comprises a retainer means which is shorter than the height of the body and has a plurality of legs suspended from the neck portion of the body, each leg having a claw portion at the tip which engages with the rim of the bottom of the container body for retaining the substantially reduced volume

of the container body.

10. The synthetic resin liquid container according to any one of claims 1 to 8 wherein said container body further comprises a retainer means provided on the lower portion of the body, the retainer member having a side wall which is shorter than that of the body, extends in upward direction and has, at the circumferential rim of the side wall thereof, a claw that can be engaged with the top of said side wall of the container body.

15

20

25

30

35

40

45

50

55

Fig. 1

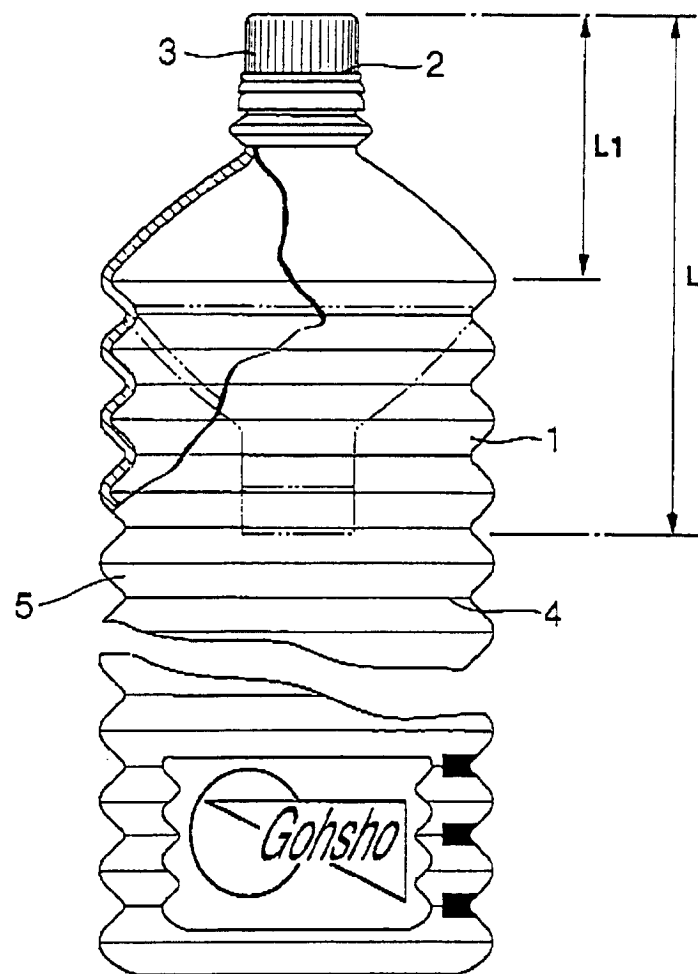


Fig. 2

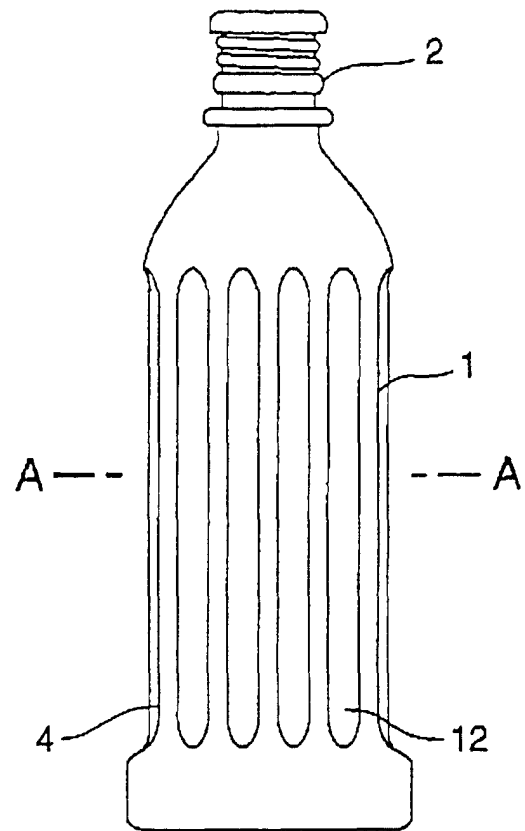


Fig. 3

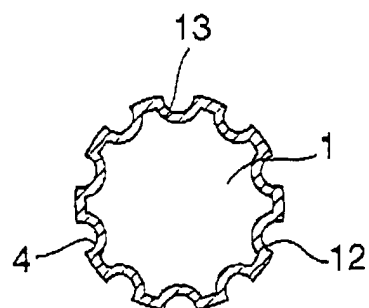


Fig. 4

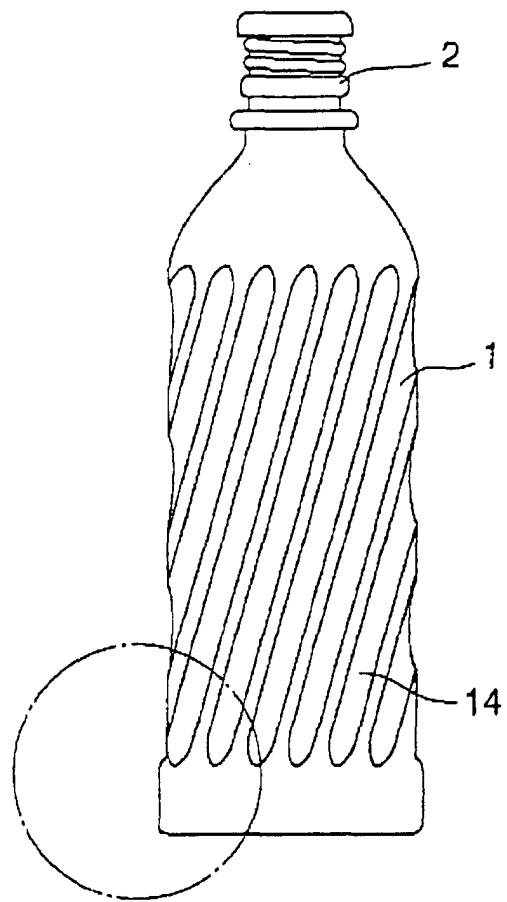


Fig. 5

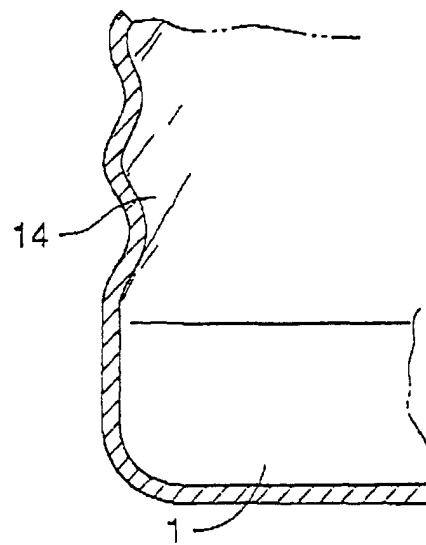


Fig. 6

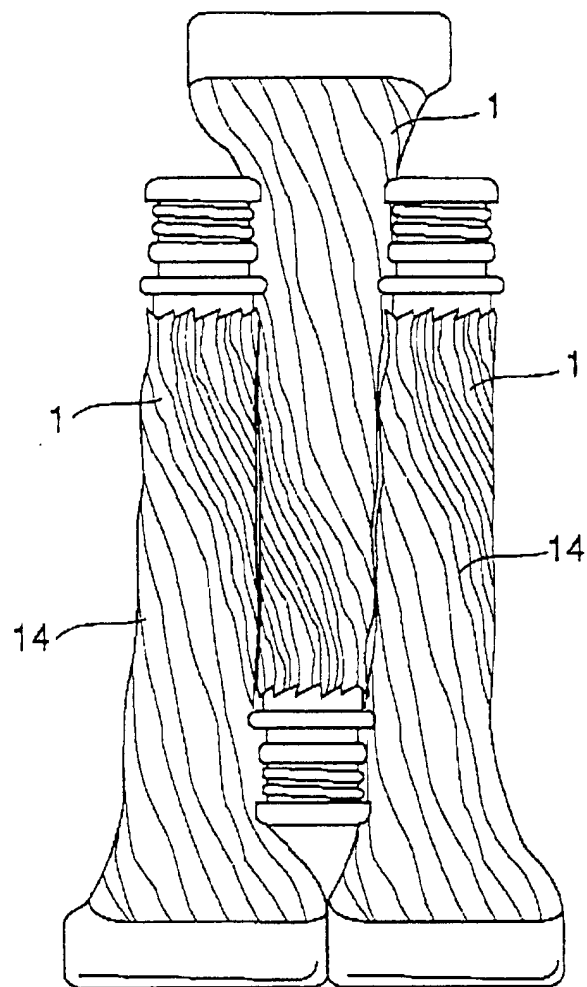


Fig. 7

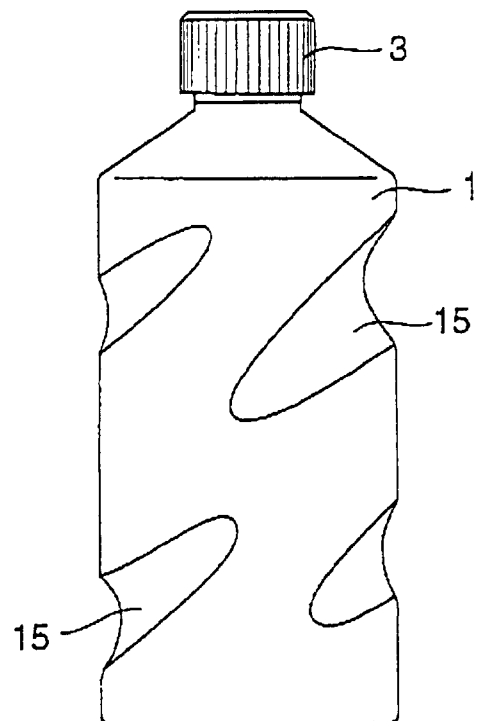


Fig. 8

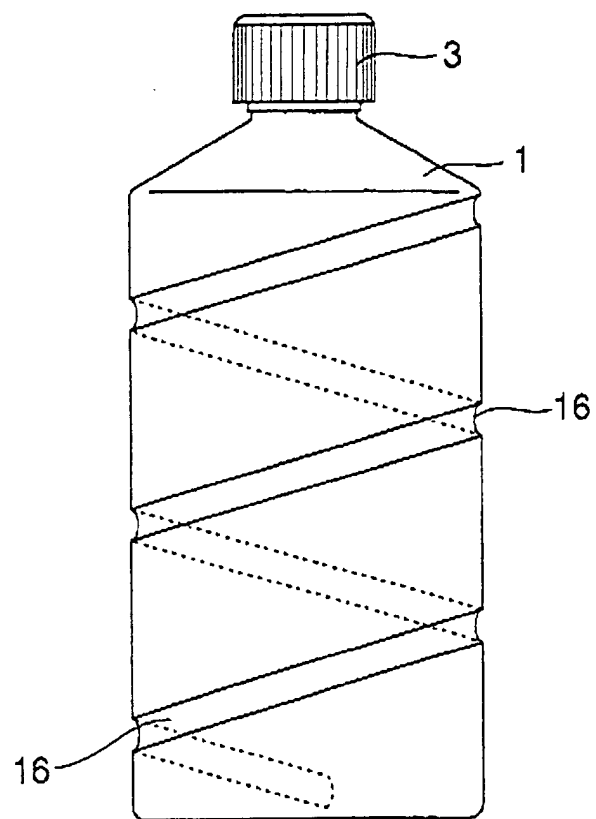


Fig. 9

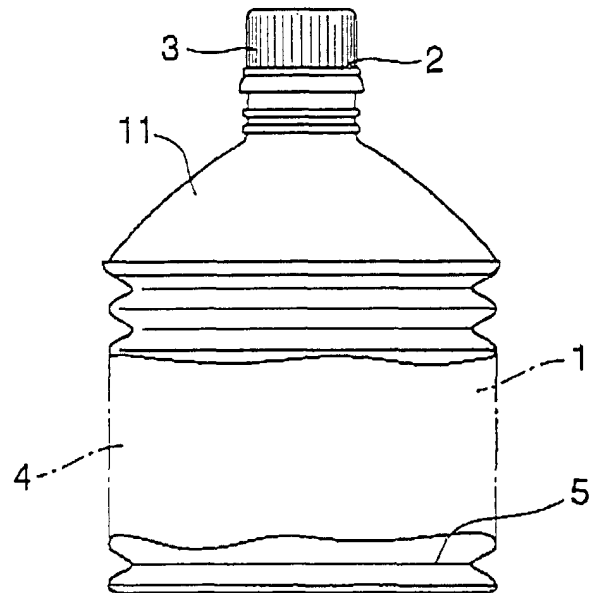


Fig. 10

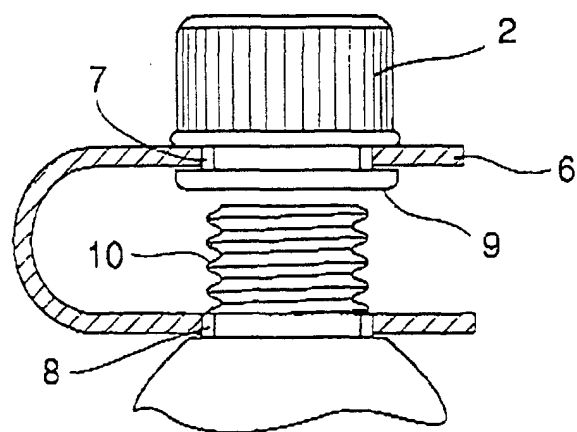


Fig. 11

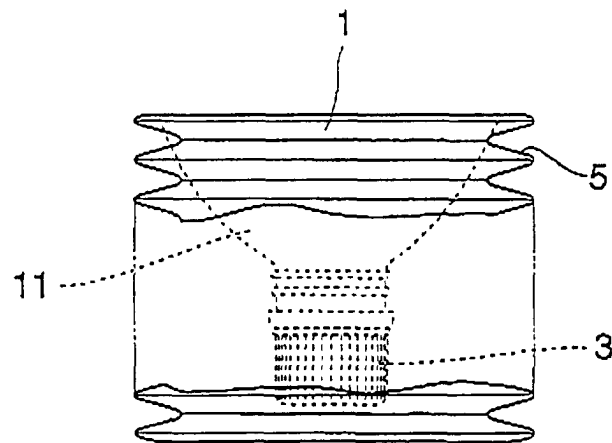


Fig. 12

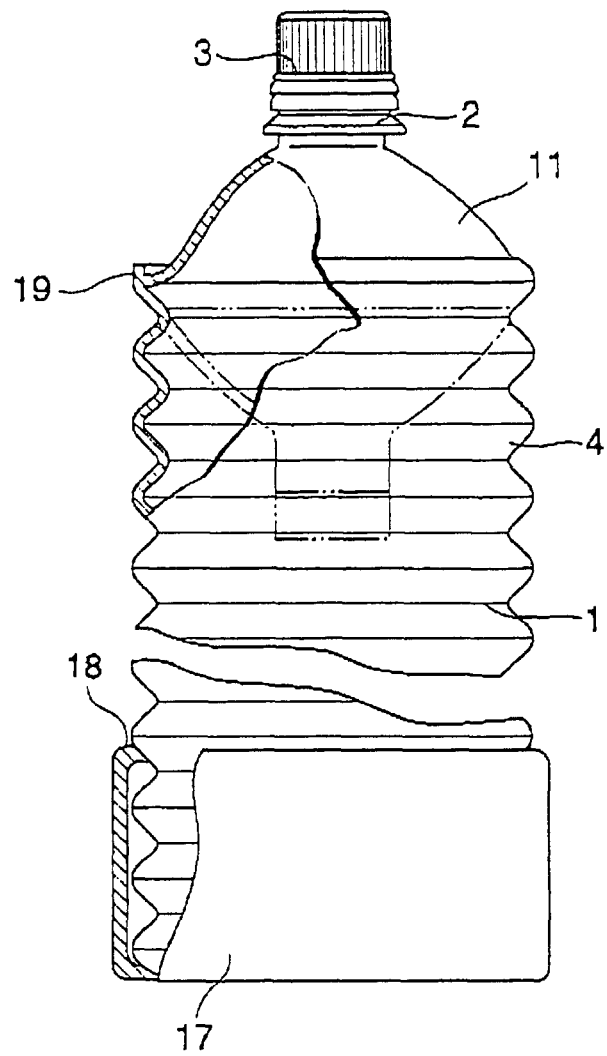


Fig. 13

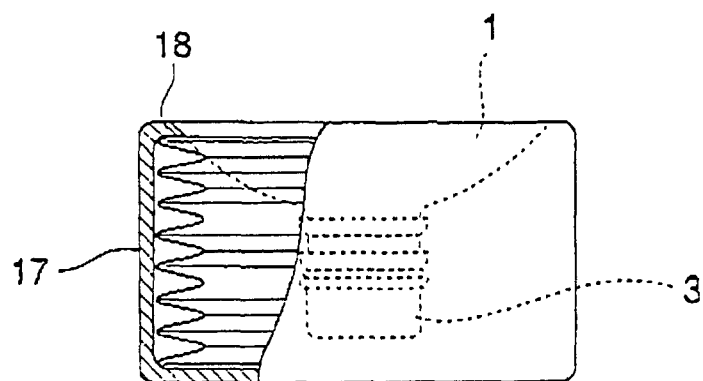


Fig. 14

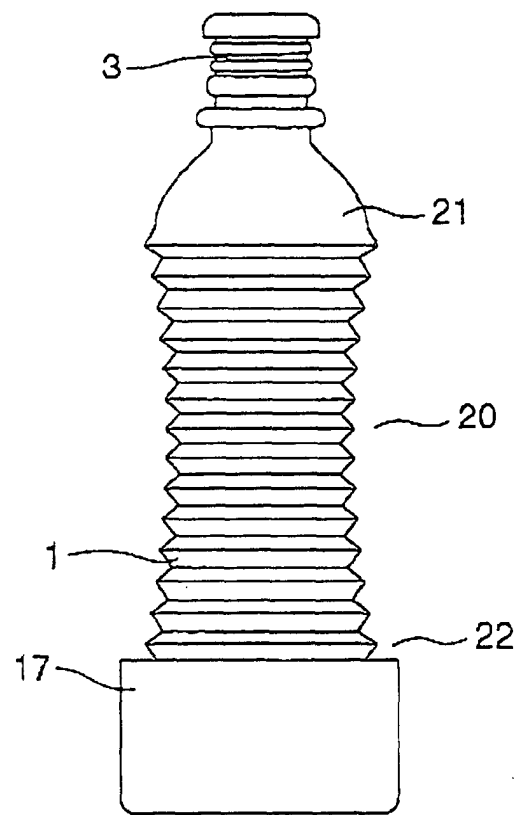


Fig. 15

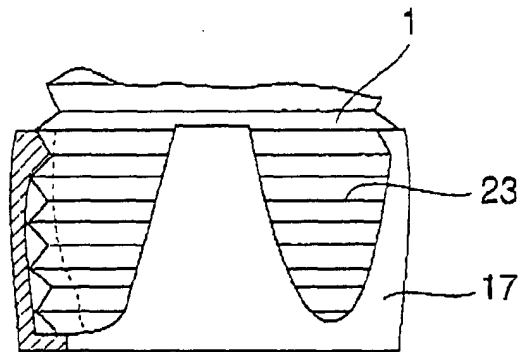


Fig. 16

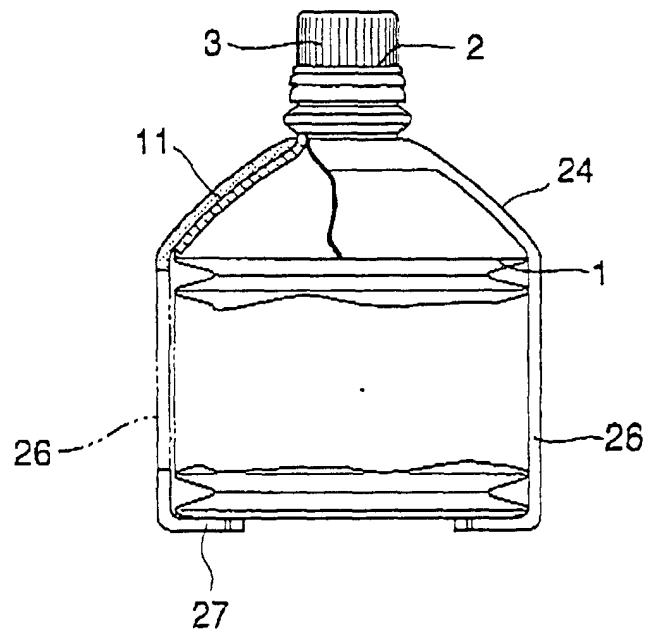


Fig. 17

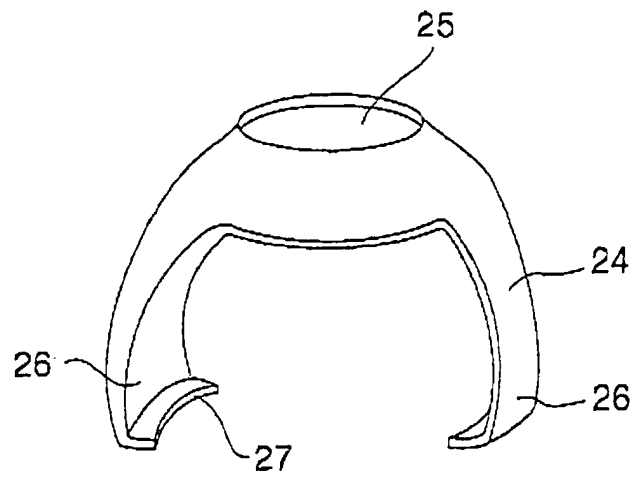
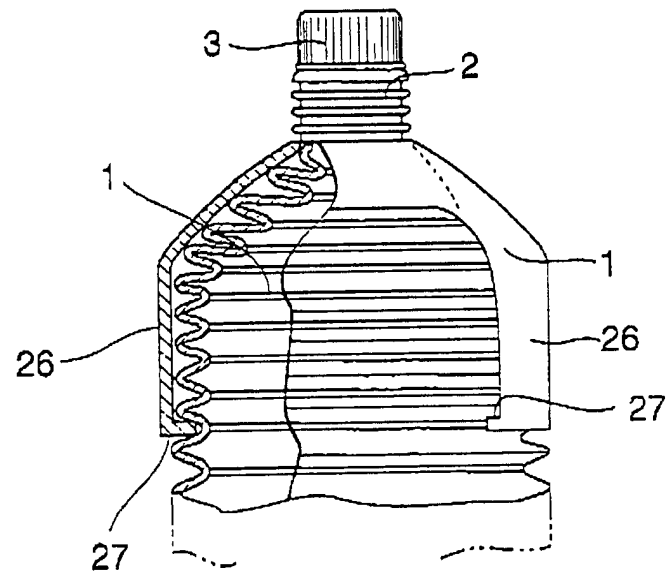


Fig. 18





European Patent
Office

EUROPEAN SEARCH REPORT

Application Number
EP 00 11 9045

DOCUMENTS CONSIDERED TO BE RELEVANT			
Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (Int.Cl.7)
X	EP 0 733 557 A (MAZDA) 25 September 1996 (1996-09-25) * column 5, line 46-48 - column 7, line 11-21; figures 1-8 *	1-3,8	B65D1/02
X	DE 196 49 787 A (SIMKO) 4 June 1998 (1998-06-04) * column 5, line 56-68; figures 3,4,20 *	1-3,8	
X	EP 0 666 222 A (THE PROCTER & GAMBLE COMP.) 9 August 1995 (1995-08-09) * page 1-10; figures 1-14 *	1,2,4	
X	FR 1 567 740 A (BAY-SCHMITH) 16 May 1969 (1969-05-16) * page 5-6; figures 3,4 *	1,2,4	
X	US 4 865 211 A (HOLLINGSWORTH) 12 September 1989 (1989-09-12) * column 5, line 45-58; figures 1-8 *	1,5	
X	GB 966 896 A (PARKER) 19 August 1964 (1964-08-19) * page 1-2; figures 1-5 *	1,5	TECHNICAL FIELDS SEARCHED (Int.Cl.7) B65D
X	EP 0 599 421 A (BENIACAR) 1 June 1994 (1994-06-01) * column 1-4; figures 1-3 *	1,6	
X	WO 93 09031 A (HAWKINS) 13 May 1993 (1993-05-13) * page 1-34; figures 1-20 *	1,6	
X	US 5 711 445 A (ROBBINS) 27 January 1998 (1998-01-27) * column 1-6; figures 1-5 *	1,7	
-/--			
The present search report has been drawn up for all claims			
Place of search THE HAGUE		Date of completion of the search 7 February 2001	Examiner Vollering, J
CATEGORY OF CITED DOCUMENTS X : particularly relevant if taken alone Y : particularly relevant if combined with another document of the same category A : technological background O : non-written disclosure P : intermediate document T : theory or principle underlying the invention E : earlier patent document, but published on, or after the filing date D : document cited in the application L : document cited for other reasons & : member of the same patent family, corresponding document			

EPO FORM 1503 03 92 (P/MC01)



European Patent
Office

EUROPEAN SEARCH REPORT

Application Number
EP 00 11 9045

DOCUMENTS CONSIDERED TO BE RELEVANT			
Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (Int.Cl.7)
X	EP 0 719 710 A (ZELLER PLASTIC) 3 July 1996 (1996-07-03) * column 1-3; figures 1-4 *	1,9	
X	WO 90 08698 A (OSBAKK) 9 August 1990 (1990-08-09) * page 2, line 18-24; figures 1-4 *	1,2,8,10	
			TECHNICAL FIELDS SEARCHED (Int.Cl.7)
The present search report has been drawn up for all claims			
Place of search THE HAGUE		Date of completion of the search 7 February 2001	Examiner Vollering, J
CATEGORY OF CITED DOCUMENTS X : particularly relevant if taken alone Y : particularly relevant if combined with another document of the same category A : technological background O : non-written disclosure P : intermediate document T : theory or principle underlying the invention E : earlier patent document, but published on, or after the filing date D : document cited in the application L : document cited for other reasons & : member of the same patent family, corresponding document			

EPO FORM 1503 03/02 (P04001)

**ANNEX TO THE EUROPEAN SEARCH REPORT
ON EUROPEAN PATENT APPLICATION NO.**

EP 00 11 9045

This annex lists the patent family members relating to the patent documents cited in the above-mentioned European search report. The members are as contained in the European Patent Office EDP file on
The European Patent Office is in no way liable for these particulars which are merely given for the purpose of information.

07-02-2001

Patent document cited in search report		Publication date	Patent family member(s)	Publication date
EP 733557	A	25-09-1996	WO 9611145 A	18-04-1996
			US 5638995 A	17-06-1997
			AU 7862694 A	02-05-1996
			KR 183959 B	15-04-1999
DE 19649787	A	04-06-1998	NONE	
EP 666222	A	09-08-1995	WO 9521102 A	10-08-1995
FR 1567740	A	16-05-1969	DK 118205 B	20-07-1970
			DE 1778802 A	28-10-1971
			US 3608268 A	28-09-1971
US 4865211	A	12-09-1989	NONE	
GB 966896	A		NONE	
EP 599421	A	01-06-1994	IT 1256112 B	28-11-1995
			AT 148414 T	15-02-1997
			AU 663418 B	05-10-1995
			AU 5072293 A	09-06-1994
			CA 2103391 A	25-05-1994
			DE 69307842 D	13-03-1997
			DE 69307842 T	28-08-1997
			ES 2099898 T	01-06-1997
			IL 107638 A	12-09-1996
			JP 7089524 A	04-04-1995
			US 5562221 A	08-10-1996
WO 9309031	A	13-05-1993	NZ 240448 A	27-06-1995
			AT 147036 T	15-01-1997
			AU 668111 B	26-04-1996
			AU 2797392 A	07-06-1993
			BG 61804 B	30-06-1998
			BG 98742 A	28-07-1995
			BR 9206695 A	24-10-1995
			CA 2122457 A	13-05-1993
			CN 1072643 A, B	02-06-1993
			CZ 9401056 A	19-10-1994
			DE 69216421 D	13-02-1997
			DE 69216421 T	07-08-1997
			DK 609348 T	23-06-1997
			EP 0609348 A	10-08-1994
			ES 2099286 T	16-05-1997
			FI 941994 A	23-06-1994
			GR 3023012 T	30-07-1997

EPC FORM P0459

For more details about this annex : see Official Journal of the European Patent Office, No. 12/82

**ANNEX TO THE EUROPEAN SEARCH REPORT
ON EUROPEAN PATENT APPLICATION NO.**

EP 00 11 9045

This annex lists the patent family members relating to the patent documents cited in the above-mentioned European search report. The members are as contained in the European Patent Office EDP file on
The European Patent Office is in no way liable for these particulars which are merely given for the purpose of information.

07-02-2001

Patent document cited in search report	Publication date	Patent family member(s)	Publication date
WO 9309031 A		HK 1005176 A	24-12-1998
		HU 69002 A, B	28-08-1995
		JP 2688543 B	10-12-1997
		JP 7500305 T	12-01-1995
		KR 250377 B	01-04-2000
		MX 9206286 A	01-08-1993
		NO 941584 A	23-06-1994
		OA 9937 A	15-11-1994
		PL 170904 B	28-02-1997
		RO 111051 B	28-06-1996
		RU 2118602 C	10-09-1998
		SG 43011 A	17-10-1997
		SK 49494 A	05-06-1996
		US 5642826 A	01-07-1997
		ZA 9208343 A	11-05-1993
US 5711445 A	27-01-1998	US 5417337 A	23-05-1995
		US 5226551 A	13-07-1993
		AU 6633094 A	08-11-1994
		CA 2160344 A	27-10-1994
		CN 1124944 A	19-06-1996
		EP 0694010 A	31-01-1996
		JP 9500851 T	28-01-1997
		WO 9424002 A	27-10-1994
		US 5549213 A	27-08-1996
		US 5392941 A	28-02-1995
		US 5575398 A	19-11-1996
		US 5533638 A	09-07-1996
		AU 3476393 A	15-08-1994
		BR 9204396 A	18-05-1993
		CA 2082703 A	13-05-1993
		MX 9206522 A	30-06-1994
		WO 9416957 A	04-08-1994
		US 5244125 A	14-09-1993
EP 719710 A	03-07-1996	DE 4447137 A	04-07-1996
WO 9008698 A	09-08-1990	NO 890456 A	06-08-1990
		AT 130562 T	15-12-1995
		AU 628931 B	24-09-1992
		AU 5040190 A	24-08-1990
		BR 9007076 A	08-10-1991
		CA 2045675 A	04-08-1990
		CN 1044624 A, B	15-08-1990
		DD 292194 A	25-07-1991
		DE 69023779 D	04-01-1996

EPO FORM P0489

For more details about this annex : see Official Journal of the European Patent Office, No. 12/82

**ANNEX TO THE EUROPEAN SEARCH REPORT
ON EUROPEAN PATENT APPLICATION NO.**

EP 00 11 9045

This annex lists the patent family members relating to the patent documents cited in the above-mentioned European search report. The members are as contained in the European Patent Office EDP file on
The European Patent Office is in no way liable for these particulars which are merely given for the purpose of information.

07-02-2001

Patent document cited in search report	Publication date	Patent family member(s)	Publication date
WO 9008698 A		DE 69023779 T	02-05-1996
		DK 533661 T	04-03-1996
		EP 0533661 A	31-03-1993
		ES 2021935 A	16-11-1991
		ES 2082848 T	01-04-1996
		FI 95018 B	31-08-1995
		JP 4503202 T	11-06-1992
		RU 2016817 C	30-07-1994
		US 5240130 A	31-08-1993

EPO FORM P0459

For more details about this annex : see Official Journal of the European Patent Office, No. 12/82