



(19)

Europäisches Patentamt

European Patent Office

Office européen des brevets



(11)

EP 0 905 030 A1

(12)

EUROPEAN PATENT APPLICATION

(43) Date of publication:
31.03.1999 Bulletin 1999/13

(51) Int. Cl.⁶: **B65D 1/02, B65D 41/56**

(21) Application number: **97202985.4**

(22) Date of filing: **29.09.1997**

(84) Designated Contracting States:
**AT BE CH DE DK ES FI FR GB GR IE IT LI LU MC
NL PT SE**

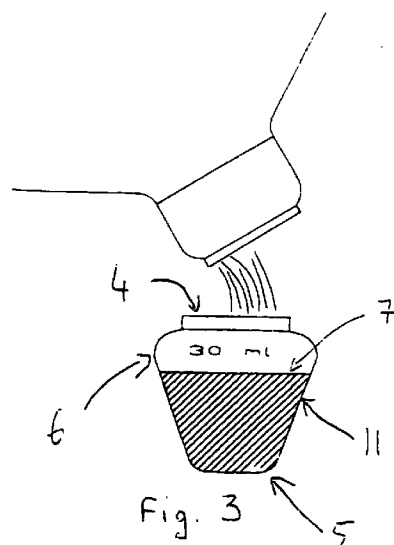
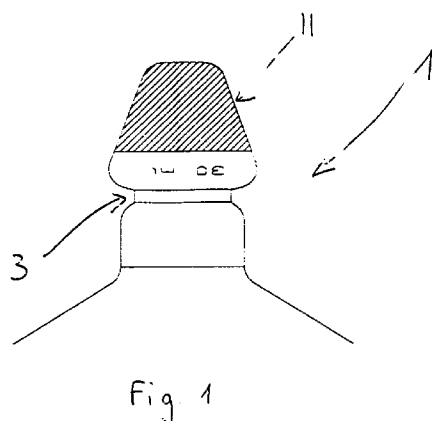
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(54) Container having a frangible and reclosable closure, used as a measuring cup

(57) The invention relates to a container (1) having a break off or separable part (11) which can be used for re-closing the container, and whereby the separable part (11) can be used as a dosing device because it comprises a volume to that purpose. The invention also relates to a process for using such a separable part.



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Description

Technical field

[0001] The present invention relates to a container comprising a separable or break-off part, whereby the separation of this part opens the container, and more particularly to a container for which the separable part can be used for re-closing the container.

Background of the invention

[0002] Containers with a separable part are widely used in the field of consumer products. Usually the separable part is allowing opening of a sealed container once separated from the rest of the container. Indeed, prior to separation, the internal volume comprised in the container is isolated from the outside of the container, the removal of the separable part giving access to this internal volume. Such a mechanism is simplifying the manufacturing process of a container, as the sealed container is produced in only one part, without need for producing a closure manufactured separately which would be removed at opening, thus having the same role than a separable closure made from a separable part. Furthermore, a closure made from a separable part does not require to be placed onto the container like a closure manufactured separately would, so that an additional manufacturing operation is saved when using a closure made from a separable part. Various manufacturing processes for producing a container with a separable part have been disclosed, such as the process described in US-A-3 325 860 whereby the bottle is blow molded and filled prior to be integrally sealed and while it is retained in the mold, after which the bottle is integrally sealed with thermoplastic material. Another possible manufacturing process for producing a container with a separable part is described in US-A-5 238 157, whereby the container is comprising an integral cap, i.e. the separable part, and is formed from a laminated flat blank. US-A-5 238 157 is also introducing a further improvement to combine the advantages of a closure manufactured separately with the advantages of a separable part. The improvement consists in designing the separable part so that it can co-operate with the opening provided by its separation of the rest of the container, in such a manner that the container can be re-closed repeatedly by applying the co-operating separable part onto the opening. This improvement is developed further in US-A-4 917 267. Such a co-operating separable part consequently fulfills the other function which is usually also fulfilled by a closure manufactured separately, i.e. the re-closing function.

[0003] The present invention relates to a container, the container having a sealed state, an opened state and a re-closed state, the sealed container having a main internal volume isolated from the outside of the container, the container comprising a separable part,

the separation of the separable part providing an opening in the container, the container being opened after separation of the separable part, the separable part cooperating with the opening of the container so that the container can be repeatedly re-closed by applying the separable part onto the opening. Such a container is known from US-A-5 238 157 or from US-A-4 917 267.

[0004] In another aspect of the invention, the invention also relates to a process for using a separable part of a container, the process comprising a separation step and a re-closing step, the separation step consisting in breaking off the separable part, the re-closing step consisting in re-closing the container by applying the separable part onto an opening.

[0005] Among the advantages of existing containers with a separable part providing opening and re-closing is the fact that they are manufactured using a single process, thus simplifying greatly production and reducing significantly the manufacturing costs. Furthermore, the content of such containers can be maintained completely isolated from the outside of the container prior to the first opening by separation of the separable part. This is particularly useful for efficiently protecting products sensitive to moisture, to germs or to oxidation, for example.

[0006] While having these and other advantages, such containers with a separable part have disadvantages. For example, in the field of consumer products, such containers often need to be provided together with a dosing device, such as a scoop, which is manufactured separately from the container. This causes a significant increase of the manufacturing costs. Usually, such dosing devices manufactured separately are inserted within the container during the filling step. This method requires a special procedure which renders the manufacturing process even more complicated. Furthermore, the user will often have to dig into the product contained in the container to gain access to the dosing device, operation which the user is often reluctant to, particularly if the content comprises chemically aggressive products. It should also be noted that such dosing devices manufactured separately are normally made from a material different from the material from which the container is made, so that the dosing device and the container normally have to be recycled separately.

[0007] The invention seeks to provide a container and a process of the above mentioned kind, whereby the container is provided with a dosing device which is easy to manufacture, readily accessible to the user and which can be recycled together with the container.

Summary of the invention

[0008] The present invention provides a container in a manner to satisfy the aforementioned object.

[0009] The container of the invention is characterised in that the separable part comprises an auxiliary volume, whereby the auxiliary volume is part of the main

internal volume when the container is sealed.

[0010] In another aspect, the present invention also provides a process in a manner to satisfy the aforementioned object.

[0011] The process of the invention is characterised in that the process further comprises a dosing step, the dosing step consisting in using a volume provided in the separable part for dosing the content of the container after the separation step.

Detailed description of the invention

[0012]

Figure 1 is a view of a portion of a container in a sealed state according to the invention showing the separable part.

Figure 2 is a view of a portion of a container in an opened state according to the invention showing the separable part.

Figure 3 is presenting the dosing step according to the process of the invention.

Figure 4 is a view of a portion of a container in a re-closed state according to the invention showing the separable part co-operating with the opening.

[0013] The invention relates to a container 1 having a sealed state, an opened state and a re-closed state. By a sealed state, it is meant that the sealed container is such that the content of the container is isolated from the outside of the container and has been isolated from the outside of the container since manufacture of the container. Consequently, the container will be in a sealed state up to first opening of the container. First opening leads to the opened state of the container. The first opening of the container is obtained by separation of the separable part 11 of the container. Once in the opened state, the user has access to the content of the container through an opening 2 in the container wall caused by the separation of the separable part 11. The separation of the separable part provides an opening 2 in the container giving access to the internal volume of the container because the separable part contains an auxiliary volume which is part of the main volume of the container, so that the removal of the separable part will remove the auxiliary volume, thus putting the remaining volume, i.e. the main volume less the auxiliary volume, in communication with the outside of the container. Once it is in an opened state, the container can be re-closed, so that it is in the re-closed state. The container can normally be repeatedly opened and re-closed. The re-closing can be provided by applying the separable part 11 of the container back onto the opening 2 of the container created by the removal of the separable part. The separable part co-operates with the opening of the

container for that purpose.

[0014] During the sealed state, the content of the container is isolated from the outside of the container. What is meant by isolated is that the content of the container has minimised contact with the outside of the container. Indeed, it may be possible to have a see-through container, so that the content is not isolated from the light produced outside of the container. It is also possible that the container is made from a material having a limited gas transfer rate, so that egress or ingress of gas may be possible. However, the content is substantially isolated from the outside of the container as far as solid or liquid materials are concerned.

[0015] What is meant by a separable part is that the part 11 of the container is originally part of the container 1, meaning that the container 1 was manufactured straight away with this part 11 being included to its structure. This is to be differentiated from a separated closure, for example, which is manufactured separately from the container and is usually added to the container after the container has been filled with its content. By separable it is meant that the separable part comprises separation means. Separation means include a groove 3 weakening the container structure in the area separating the separable part from the rest of the container. Also included are separation means such as semi-perforation. The shape of the container itself may provide a separation means in so far as the structure of the container is weakened in the region separating the separable part from the rest of the container. Other separation means known from the man skilled in the art are also included.

[0016] The auxiliary volume in the separable part can be used for dosing purposes. Indeed, the auxiliary volume opens to the general environment after separation, so that the auxiliary volume can be accessed. The auxiliary volume therefore forms a cavity in which dosing can take place. Such a cavity would not exist if the separable part were flat. Dosing can take place through the opening corresponding to the communication between the main internal volume of the container and the auxiliary volume prior to separation of the separable part. Preferably this dosing opening 4 has a shape which is facilitating dosing, and which may facilitate pre-treatment also. The dosing opening 4 preferably has a substantially circular contour, which may also be provided with a beak. The separable part is preferably rigid to facilitate handling. Similarly, the opening 2 on the container should have a shape such that controlled pouring is facilitated. This means that it may also comprise a beak and/ or have a substantially circular shape.

[0017] The separable part of the container co-operates with the opening on the container so as to re-close it when pushed onto it. The co-operation may be obtained by various means. A first possibility is to have a co-operation between the opening of the container and the dosing opening. Indeed, these two openings normally have similar dimensions as they normally cor-

respond to each other when the container is in the sealed state prior to separation. This means that the dosing opening may be such that it can enclose a neck at the top of which the opening of the container could be found. Such a fitting could be made possible by using a relatively soft material for at least one part of the co-operating parts, whereby the soft material could be expended or compressed relatively easily. Even in the case of a container made from only one material, softness can be chosen by acting on the thickness of the material, for example. Such a cooperation could be reinforced by a system comprising a groove or a ridge, which may be interlocking, or may be made at an angle or straight. Altogether, various other co-operating means known to the man skilled in the art may be used. For example, co-operation could be reinforced by a rib provided around the external surface of the portion of the separable part which is opposite to the dosing opening, the rib further co-operating with the opening of the container.

[0018] However, this first possibility is not the preferred possibility because the auxiliary volume can be used for containing the content of the container, for example while dosing, after what the same auxiliary volume would be used for closing the container thanks to the dosing opening, so that remains of the content of the container may leak down onto the container. Indeed, it is preferred to use the portion 5 of the separable part which is opposed to the dosing opening for closing the container. In such a case, leaking would not occur as the dosing opening would be kept away from the container. Indeed, if the opening 2 of the container is on the top when the container is upright, and if the opening 2 of the container is closed using the portion 5 of the separable part which is opposite to the dosing opening 4, the dosing opening 4 will be turned towards the upper side, so that leakage would be avoided. The portion 5 of the separable part closing the container may close it in various manners. For example, it may have a substantially conical shape 5, so that part only of the cone will be pushed in the opening of the container to obstruct it. In an other embodiment, the portion opposite to the dosing opening is provided with a skirt fitting onto the part of the container comprising the opening, so as to close it. Closure may be completed by various closing means known from the man skilled in the art, including a groove, a ridge or a thread for example.

[0019] The separable part of the container may comprise various means in order to facilitate dosing. For example, the separable part of the container may comprise a see-through portion 6 or may even be completely transparent. By see-through it is meant that a user could distinguish the level of the content of the auxiliary volume through a portion of the separable part in order to control the dosing. Dosing may also be facilitated by integrating a dosing line 7 or a set of dosing lines. Another feature which would facilitate dosing would be to incorporate stabilising means. Such stabil-

ising means could for example consist in flattening the portion 5 of the separable part which is opposed to the dosing opening, so that the separable part may be laid stable onto a flat surface during dosing. This is not at all contradictory with the re-closing function of the separable part because, for example, a conical shape may have a flat cut out at its extremity, or a skirt may have an even contour which would allow to stabilise the separable part while dosing.

[0020] The container of the invention is preferably made using a blow moulding process, but other processes known in the art may be used, such as injection moulding or using a laminated blank, as long as the main and auxiliary volumes are provided. Normally, the container of the invention is a unitary container. Most preferably, it could be made from a form-fill-seal process, whereby the main part of the container is formed first, the main part being filled with the content of the container through an un-sealed part of the container, after what the un-sealed part is sealed to obtain the sealed container of the invention. It is possible to have the forming step taking place at a pre-production stage, while the container is filled and sealed on the production site. An advantage of a container according to the invention is that it is tamper-proof, as the separable part is normally irreversibly separable from the rest of the container. The material used for the container may also be of various sorts. Preferably, thermoplastic resins are used. The container may be made from a single material but also from a blend, a co-extruded or from a laminated material. It may be more or less rigid or may have parts which are more rigid than others, by modifying the thickness of the material used for example. In a preferred embodiment, polyolefin resins are used, preferably polyethylene or polypropylene. Such resins may be made using various methods, including Ziegler Natta or Metallocene catalysis. Various combinations of material may be used in order to reach the required chemical or mechanical characteristics for the container.

[0021] The container normally contains flowable materials. The term "flowable materials" does not include gaseous materials, but encompasses materials which are flowable under gravity or may be pumped. Such materials include liquids, pastes, gels, emulsions or powders. The container may also comprise gas or a gas head. In a preferred embodiment, the content of the container is a detergent formulation, which may comprise surfactants and perfume as well as various other components of such formulations. The detergent formulation may be in the form of a powder, of a gel or of a liquid.

[0022] The process of the invention is particularly useful if the container comprises such a content. Indeed, consumer products in general and detergent products in particular often require dosing of part of the whole content of the container. This dosing step is provided according to the process of the invention thanks to the separable part having a cavity formed from its auxiliary

volume. More generally, such a process may be applied to any suitable separable part having a volume provided in the separable part for dosing. This step takes place after separation as the separable part has to be removed for dosing. Normally, dosing is made in the volume of the separable part by pouring directly part of the content of the container within the separable part. The separable part may also be used for pre-treatment as described in EP-B-0559829 or in EP-B-0559771. For that purpose, it may comprise pre-treatment means known in the art. A further use of the separable part is as a dispensing device. Such a use is described in EP-B-0288346. Indeed, the separable part can be used for dispensing the content of the auxiliary volume through the dosing opening. Preferably, use is made of the dosing step while machine washing of close by inserting the separable part within the machine.

[0023] An example of a sequence of these steps would be as follows: a user is opening the sealed container by separating the separable part from the rest of the container. Subsequently, the user may pour part of the content of the container into the separable part in order to dose the product. After dosing, the user may use part of the content of the separable part of the container for pre-treating clothes -if the process is applied to a container comprising a detergent formulation- or other materials by pouring part of the content comprised in the separable part directly onto the materials to be treated. The user may then dispose of the rest of the product contained in the separable part for dispensing, for example by placing it into a washing machine. After using the product, the consumer may re-close the container using the separable part. As the separable part is preferably re-usable, such a sequence can be repeated, apart from the first step, indeed separation is normally irreversible.

[0024] Generally, at first opening, the dispensing step follows directly the pre-treatment step, the pre-treatment step follows directly the dosing step, and the dosing step follows directly the separation step. The last step of the sequence is usually the re-closing step.

[0025] It should be noted that such an invention allows manufacture of more environmentally friendly packages because the separable part fulfils numerous functions which were fulfilled in the past by a variety of different component parts, so that a consistent saving of materials can be made. Furthermore, as the separable part is normally made of the same material as the rest of the container, contamination is minimised during recycling.

[0026] The separable part may additionally be used as a display for a brand name, a logo, or a safety warning and, in more general term, may comprise various embossed information.

[0027] The separated part may also comprise various means facilitating grabbing by the user, in order to facilitate opening, tight closing or transportation for example. Such means include specific moulding of the external surface of the separable part for that purpose.

Claims

1. A container (1), the container having a sealed state, an opened state and a re-closed state, the sealed container having a main internal volume isolated from the outside of the container, the container comprising a separable part (11), the separation of the separable part providing an opening (2) in the container, the container being opened after separation of the separable part (11), the separable part (11) cooperating with the opening (2) of the container so that the container can be repeatedly re-closed by applying the separable part (11) onto the opening, characterised in that the separable part (11) comprises an auxiliary volume, whereby the auxiliary volume is part of the main internal volume when the container is sealed.
2. The container according to claim 1, whereby the auxiliary volume is used for dosing purposes through a dosing opening (4), the dosing opening corresponding to the communication between the main internal volume and the auxiliary volume prior to separation of the separable part (11).
3. The container according to claim 2, whereby the cooperation with the opening of the container is provided by obstructing the opening of the container with the portion (5) of the separable part (11) which is opposite to the dosing opening (4).
4. The container according to claim 2, whereby the portion of the separable part (11) which is opposite to the dosing opening comprises stabilising means (5).
5. The container according to claim 1, whereby the container is a blow moulded container produced using a form-fill-seal process.
6. The container according to claim 1, whereby the container contains a flowable material, preferably a liquid, most preferably a liquid detergent.
7. The container according to claim 1, whereby the container is made from thermoplastic resins, preferably polyolefin resins, most preferably polyethylene.
8. A process for using a separable part (11) of a container (1), the process comprising a separation step and a re-closing step, the separation step consisting in breaking off the separable part (11), the re-closing step consisting in re-closing the container by applying the separable part (11) onto an opening (2), characterised in that the process further comprises a dosing step, the dosing step consisting in using a volume provided in the separable part (11) for dosing the content of the container after the sep-

aration step.

9. The process according to claim 8, whereby the process further comprises a pretreatment step, whereby the content of the container is poured into the separable part (11), and poured from the separable part (11) onto a material to be treated by the content of the container. 5
10. The process according to claim 8, whereby the process further comprises a dispensing step, whereby the content of the container is poured into the separable part (11) and the separable part (11) containing the content of the container is used to dispense the content of the container through an opening, preferably during washing cycle of a machine washing of clothes. 10 15

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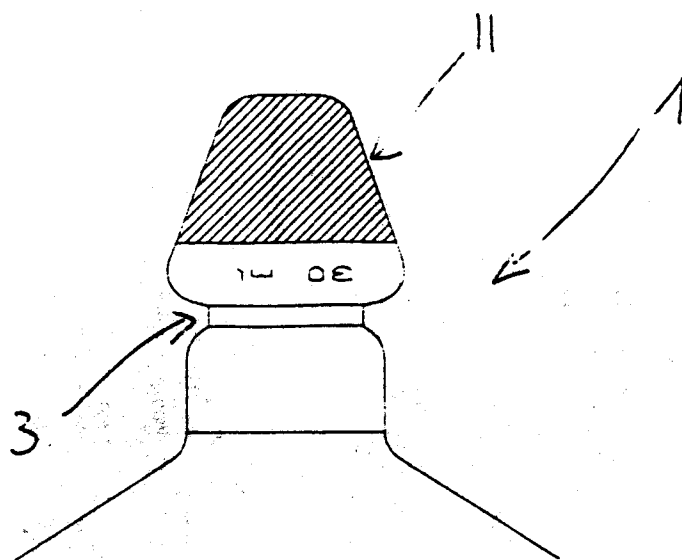


Fig. 1

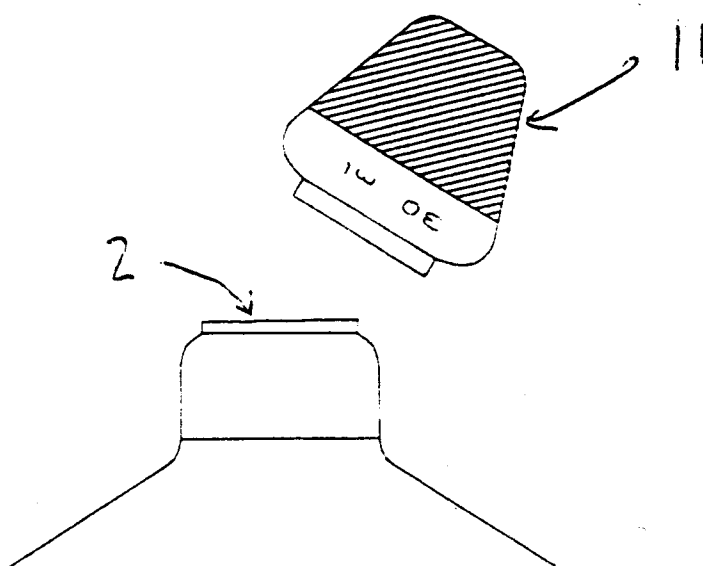
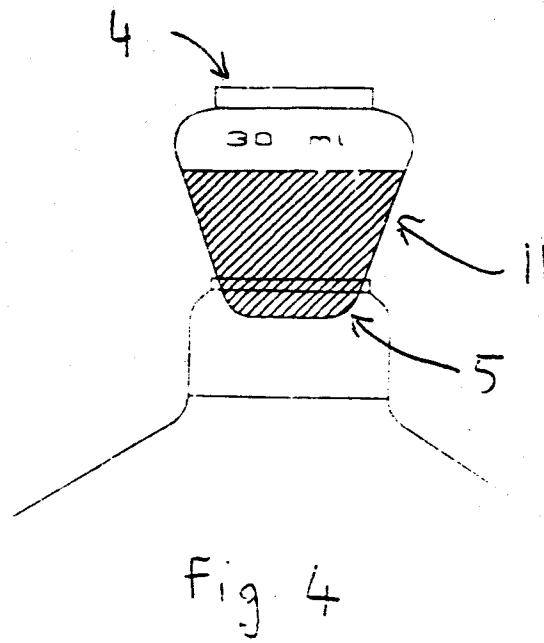
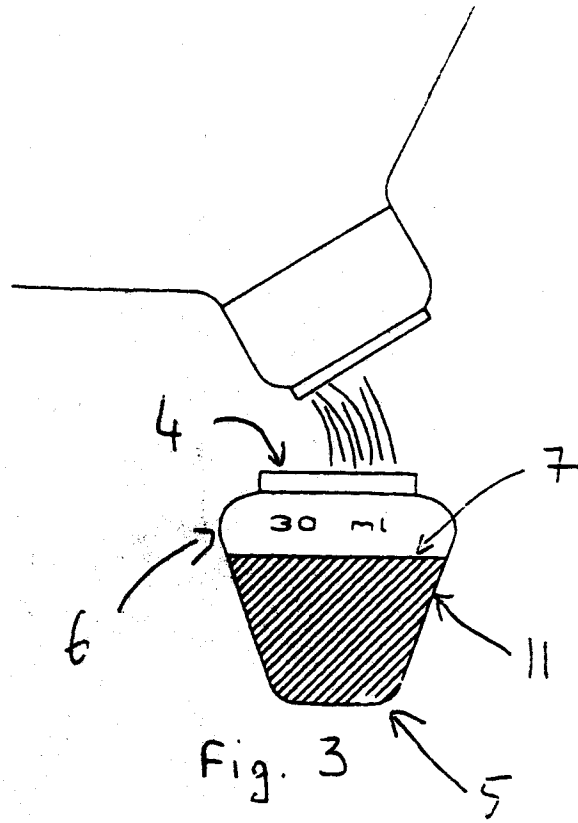


Fig. 2





European Patent
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EUROPEAN SEARCH REPORT

Application Number
EP 97 20 2985

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.6)
X	US 3 187 966 A (KLYGIS)	1-4,6-10	B65D1/02
Y	* the whole document *	5	B65D41/56

Y	US 4 513 871 A (MEIERHOEFER)	5	
	* column 4, line 52 - line 63 *		

X	FR 1 142 720 A (VAN PEBORGH)	1-4,6-10	
	* the whole document *		

X	CH 289 564 A (TUBOPLAST S.A.)	1-4,6-10	
	* the whole document *		

A	US 4 174 238 A (FOWLES)	1-10	
	* the whole document *		

			TECHNICAL FIELDS SEARCHED (Int.Cl.6)
			B65D
The present search report has been drawn up for all claims			
Place of search		Date of completion of the search	Examiner
THE HAGUE		20 February 1998	Pernice, C
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 03.82 (P04C01)

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

EP 97 20 2985

This annex lists the patent family members relating to the patent documents cited in the above-mentioned European search report.
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20-02-1998

Patent document cited in search report	Publication date	Patent family member(s)	Publication date
US 3187966 A	08-06-65	NONE	
US 4513871 A	30-04-85	AU 4297885 A	31-12-85
		BR 8506724 A	23-09-86
		CA 1233787 A	08-03-88
		DK 24686 A	17-01-86
		EP 0183723 A	11-06-86
		GB 2172274 A,B	17-09-86
		IN 160034 A	20-06-87
		JP 62501959 T	06-08-87
		WO 8505611 A	19-12-85
		US 4574965 A	11-03-86
FR 1142720 A	20-09-57	NONE	
CH 289564 A		NONE	
US 4174238 A	13-11-79	US 4127208 A	28-11-78
		AR 214125 A	30-04-79
		AU 523026 B	08-07-82
		AU 3381478 A	06-09-79
		BE 864858 A	03-07-78
		BR 7801483 A	26-09-78
		CA 1092998 A	06-01-81
		CH 627703 A	29-01-82
		DE 2809855 A	21-09-78
		DK 111878 A	15-09-78
		FI 780731 A	15-09-78
		FR 2383845 A	13-10-78
		GB 1590516 A	03-06-81
		JP 1334971 C	11-09-86
		JP 53113688 A	04-10-78
		JP 61003691 B	04-02-86
		LU 79215 A	28-06-78
		NL 7802685 A	18-09-78
		SE 433340 B	21-05-84
		SE 7802813 A	15-09-78
		US 4171236 A	16-10-79
		ZA 7800566 A	27-12-78