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(54) **HYGIENE CAP FOR A CAN**

(57) The invention relates to a hygiene cap (1/11) for detachably covering a top end of a can such as a drink can, which hygiene cap comprises a cap top (2) configured for attaching the hygiene cap rotatably to the top end of a can, wherein the cap top comprises a flap portion (7/13) with an edge adjacent to a slit (6/12), wherein in a neutral position the flap portion and the edge lay flush with the cap top and in a depressed position the edge and the slit form a through section for an opener (14) arranged on the top end of a can.

The invention also relates to a combination of a hygiene cap (1/11) according to the invention and a can such as a drink can, wherein the hygiene cap is rotatably attached to and covers a top end of the can, which top end comprises an outlet (16) and an opener (14) for opening the outlet, wherein in the depressed position of the flap portion (7/13) the cap top can be rotated relative to the top end of the can between a first position in which the opener is covered by the cap top and a second position wherein the opener extends through the through section of the cap top.

The invention also relates to a method (20) for hygienically opening a can according to a combination according to the invention, comprising the steps of:

- depressing (21/23) the flap portion for opening the through section;
- rotating (24) the cap top from the first to the second position for exposing the opener through the through section;
- opening (25) the outlet with the opener.

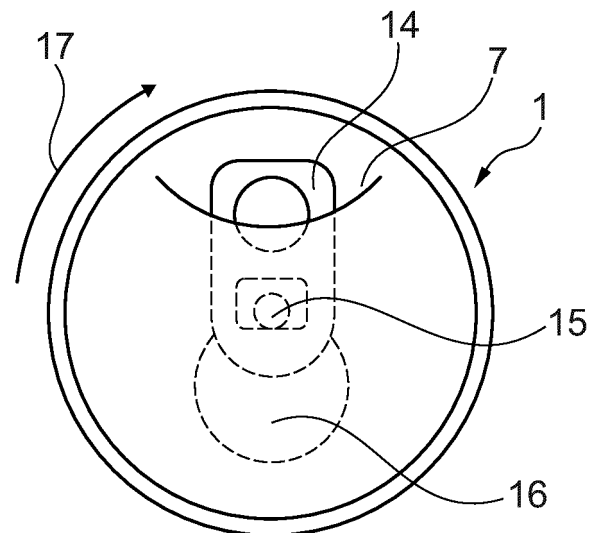


Fig. 4b

Description

[0001] The invention relates to a hygiene cap for detachably covering a top end of a can such as a drink can, which hygiene cap comprises a cap top configured for attaching the hygiene cap rotatably to the top end of a can.

[0002] The invention also relates to a combination of a hygiene cap and a can such as a drink can and to a method for hygienically opening a combination of a hygiene cap and a can.

[0003] Cans such as beverage or drink cans serve as packaging for the drink, but also as the vessel from which the drink is consumed. For that purpose the top end or lid of the can contains a drinking outlet and an opener for opening that outlet. While drinking from the can, the drinking outlet and its surroundings come in contact with the mouth of the consumer of the drink, potentially exposing the consumer to harmful contaminants that may have gathered on the top end such as for example dust or pathogens such as viruses, bacteria or fungi.

[0004] In order to reduce the risk of exposing a consumer to contaminants, a hygiene cap is known as described in US 2008/230544 A1, which relates to a hygiene cap provided for a can having a lid formed with an outlet and an opener for opening the outlet, the hygiene cap comprising a cap body interposed between an outer surface of the lid and the opener and rotating about the lid; and a cleaner attached under the cap body and cleaning the outer surface of the lid as the cap body rotates.

[0005] A drawback of the known hygiene cap, is that the through portion for actuating the opener allows contaminants to settle on the lid of the can while the can is for example transported, handled or stored. The cleaner arranged under the hygiene cap may be able to wipe some of the contaminants that have accumulated on the lid away from the outlet, but the hygiene cap doesn't prevent contaminants to reach the lid in the first place.

[0006] It is an object of the invention to reduce or even remove the above mentioned disadvantage.

[0007] This object is achieved according to the invention with a hygiene cap according to the preamble, which is characterized in that the cap top comprises a flap portion with an edge adjacent to a slit, wherein in a neutral position the flap portion and the edge lay flush with the cap top and in a depressed position the edge and the slit form a through section for an opener arranged on the top end of a can.

[0008] The cap top can be arranged on top of a can for covering the top end or lid of the can. In the neutral position, the flap portion lays flush with the cap top and prevents contaminants to reach the top end of the can. In order to access the opener on the top end of the can, the flap portion can be depressed so that a through section opens through which the opener can be accessed. When during use the hygiene cap is rotatably attached to the top end of a can, the through section, formed between the edge of the flap portion and the slit, and the

opener can be aligned by rotating the cap top in the depressed position, so that the opener can extend through the through section to above the cap top. The opener can then be actuated, still without the risk of contaminating the top end of the can.

[0009] Also advantageous of a hygiene cap according to the invention, is that a can can be opened with potentially contaminated hands with a vastly reduced risk of the contaminating the can. A drink can then safely be consumed without the possibility to clean the hand.

[0010] In another embodiment of a hygiene cap according to the invention, the slit is closed by a perforated line, which perforated line is torn upon the first transition from the neutral to the depressed position.

[0011] By providing a perforated line along the slit, a consumer can easily verify that the through section has not been opened and that the top end has been effectively protected from contamination. Upon depressing the flap portion, the perforated line tears to form the slit allowing the through section to be opened.

[0012] In a preferred embodiment of a hygiene cap according to the invention, the hygiene cap comprises a skirt extending from the cap top for at least partly covering the top portion of the can.

[0013] While drinking from a can, the mouth of the consumer contacts the outlet and its surroundings. This includes the top portion of the wall of the can. By incorporating a skirt in the hygiene cap, the top portion of the can that is in direct contact with the mouth of a consumer can be covered as well. This further extends the protection of the consumer by ensuring no contaminants can settle on the portion of the can that comes into contact with the mouth of the consumer. The skirt can for example be formed from a thin-walled material such as a plastic foil.

[0014] Also according to the invention, is an embodiment of a hygiene cap wherein the skirt is profiled corresponding with the profile of the top portion of the can.

[0015] Typically the top portion of a can is profiled due to production processes and for improved handling and strength of the can. By ensuring that the profile of the skirt corresponds with the profile of the top portion of the can, a good and secure fit can be obtained that still allows the cap top to be rotated relative to the top end of the can.

[0016] In another embodiment of a hygiene cap according to the invention, the skirt comprises a protrusion such as a groove or a ridge for locking the hygiene cap to a ridge or groove on a can.

[0017] A protrusion in the skirt, which in a thin-walled skirt forms a ridge on one side and a groove on the opposite side of the skirt wall, allows the hygiene cap to lock into place by interaction with a circumferential ridge or groove on the top portion of the can such as for example the ridge where the lid or top end of the can is joined with the main body of the can. The hygiene cap then positively locks onto the top edge of the can, but still allows for the hygiene cap to be removed by a consumer.

[0018] Another embodiment of a hygiene cap accord-

ing to the invention, is a hygiene cap wherein the slit extends between a first distance from the rotation axis of the top cap to a second distance from the circumference of the top cap and where the first distance is greater than or equal to zero and the second distance is greater than zero.

[0019] The slit can have several forms, adjusted to allow proper actuation of the opener. In order to form a usable flap portion that does not reduce the strength of the top cap unnecessarily, the slit extends from a first distance from the rotation axis to a second distance from the circumference of the cap top. A minimal second distance to the circumference of the cap top ensures enough strength for the hygiene cap to be rotated with the flap portion in the depressed position.

[0020] Also an embodiment of a hygiene cap according to the invention, is a hygiene cap wherein the slit is an arc of a circle.

[0021] A slit in the form of an arc of a circle, allows for the flap portion to form a through section in the depressed position, without introducing a pointed segment of the edge of the flap, reducing the risk of the pointed segment catching on to a protrusion on the top end of the can unwantedly.

[0022] The invention also relates to a combination of a hygiene cap according to the invention and a can such as a drink can, wherein the hygiene cap is rotatably attached to and covers a top end of the can, which top end comprises an outlet and an opener for opening the outlet, wherein in the depressed position of the flap portion the cap top can be rotated relative to the top end of the can between a first position in which the opener is covered by the cap top and a second position wherein the opener extends through the through section of the cap top.

[0023] In the neutral position of the flap portion, the cap top can be rotated relative to the top end of the cap whilst keeping the top end covered. In order to expose the opener, the flap portion can be pushed into the depressed position in order to open the trough section in a first position wherein the flap preferably does not cover the opener. When the cap top is now rotated to the second position, the flap portion can go below the opener by means of which the opener is exposed through the through section such that it can be actuated for opening the outlet.

[0024] In all positions, the top end the can is covered such that unwanted contamination of the top end of the can is prevented.

[0025] Another embodiment of a combination according to the invention, is a combination wherein the top end of the can comprises a rivet and the cap top comprises a through hole, whereby the hygiene cap is attached to the rivet by means of the through hole in the top cap.

[0026] Openers for cans are often attached to a top end of a can by means of a rivet or similar pin. The pin can also be used to rotatably attach the hygiene cover to, ensuring a secure attachment of the hygiene cap during the production stages or thereafter.

[0027] The invention furthermore relates to a method for hygienically opening a can according to a combination according to the invention, comprising the steps of:

- 5 - depressing the flap portion for opening the through section;
- rotating the cap top from the first to the second position for exposing the opener through the through section;
- 10 - opening the outlet with the opener.

[0028] By depressing the flap portion in the first location the through section is opened. Subsequent rotation of the cap top to the second position allows the opener to extend through the through section. The opener can then be used to open the outlet of the can. The can can then for example be served to a consumer providing security to the consumer that the outlet has not been contaminated before and during opening.

15 **[0029]** In another embodiment of a method according to the invention, the step of depressing the flap portion for opening the through section also includes the step of tearing the perforated line to allow the slit to open.

[0030] A hygiene cap may be provided with a slit closed by a perforated line, which must initially be torn to open the slit for allowing the through section to open.

[0031] Also an embodiment of a method according to the invention, is a method further comprising the step of:

- 20 25 30 - detaching the hygiene cap from the top end of the can for exposing the outlet.

[0032] By removing the hygiene cap, the previously covered areas are exposed, so that a consumer can consume the beverage whereby the mouth only touches previously covered areas around the outlet preventing contaminants to be introduced in the mouth of the consumer.

[0033] These and other features of the invention will be elucidated in conjunction with the accompanying drawings.

Figure 1 shows a cross-sectional view of a first embodiment of a hygiene cap according to the invention.

45 Figure 2 shows a top view of the first embodiment of a hygiene cap according to the invention.

Figure 3 shows a top view of a second embodiment of a hygiene cap according to the invention with an alternative slit shape.

50 Figure 4a and 4b show a schematic top view of a combination according to the invention of the first embodiment of the hygiene cap and a can in respectively the first and the second position.

Figure 5 shows a flow diagram of an embodiment of a method according to the invention.

[0034] In figure 1 a cross-sectional view of a hygiene cap 1 is shown. At the circumference of the top cap 2, a

thin-walled skirt 3 is arranged for covering the top portion of a can. The profile of the skirt 3 conforms with the profile of a top portion of a can. An inwardly faced protrusion 4 forms a circumferential ridge for interlocking with a ridge or groove on the top portion of the can while allowing rotation along the rotation axis 5 of the hygiene cap 1.

[0035] In figure 2 a top view of the hygiene cap 1 of figure 1 is shown. In the top cap 2, a slit 6 is formed along an arc of circle. The slit 6 defines the flap portion 7. The slit 6 extends from a first distance 8 from the rotation axis 5, to a second distance 9 from the circumference 10 of the top cap.

[0036] In figure 3 a top view of a second embodiment of a hygiene cap 11 according to the invention with an alternative shape of the slit 12 is shown forming flap portion 13. The shape of the slit 12 can be adapted to suit different kinds of openers or to obtain larger or smaller flap portions for example depending on the stiffness of the material.

[0037] Figure 4a and 4b show a schematic top view of a combination of a hygienic cap 1 and a can, of which the opener 14 is attached using rivet 15 to the top of the can. The outlet 16 as well as the opener 14 are covered as indicated by the dashed contours. When the top cap of the hygienic cap 1 is rotated with the flap portion 7 in neutral position, the hygienic cap 1 will remain fully covering the top end of the can since the flap portion 7 lies flush with the rest of the top cap.

[0038] If in the first position of the top cap with respect to the can as depicted in figure 4a the flap portion 7 is depressed into the depressed position and subsequently the top cap is rotated in the direction indicated by the arrow 17 into the second position as depicted in figure 4b, the opener 14 gets accessible through the through section. The flap portion 7 is partly covered by the opener 14. The opener 14 can then be actuated to open the outlet 16, while the latter remains covered during the entire handling.

[0039] In figure 5 a flow diagram 20 is shown, where in the first step 21 the flap portion is depressed for opening the through section. The first step 21 can comprise a further step 22 of tearing a perforated line followed by or combined with the step 23 of depressing the flap portion to the depressed position. In the next step 24 the cap top is rotated from the first to the second position for exposing the opener through the through section. In a subsequent step 25, the outlet is opened with the opener. In an embodiment of a method according to the invention, the hygiene cap is detached from the can in a last step 26 of the method.

Claims

1. A hygiene cap for detachably covering a top end of a can such as a drink can, which hygiene cap comprises a cap top configured for attaching the hygiene cap rotatably to the top end of a can, **characterized**

in that the cap top comprises a flap portion with an edge adjacent to a slit, wherein in a neutral position the flap portion and the edge lay flush with the cap top and in a depressed position the edge and the slit form a through section for an opener arranged on the top end of a can.

2. A hygiene cap according to claim 1, wherein the slit is closed by a perforated line, which perforated line is torn upon the first transition from the neutral to the depressed position.
3. A hygiene cap according to claim 1 or 2, comprising a skirt extending from the cap top for at least partly covering the top portion of the can.
4. A hygiene cap according to claim 3, wherein the skirt is profiled corresponding with the profile of the top portion of the can.
5. A hygiene cap according to claim 3 or 4, wherein the skirt comprises a protrusion such as a groove or a ridge for locking the hygiene cap to a ridge or groove on a can.
6. A hygiene cap according to any of the preceding claims, wherein the slit extends between a first distance from the rotation axis of the top cap to a second distance from the circumference of the top cap and where the first distance is greater than or equal to zero and the second distance is greater than zero.
7. A hygiene cap according to any of the preceding claims, wherein the slit is an arc of a circle.
8. Combination of a hygiene cap according to any of the preceding claims and a can such as a drink can, wherein the hygiene cap is rotatably attached to and covers a top end of the can, which top end comprises an outlet and an opener for opening the outlet, wherein in the depressed position of the flap portion the cap top can be rotated relative to the top end of the can between a first position in which the opener is covered by the cap top and a second position wherein the opener extends through the through section of the cap top.
9. Combination according to claim 8, wherein the top end of the can comprises a rivet and the cap top comprises a through hole, whereby the hygiene cap is attached to the rivet by means of the through hole in the top cap.
10. Method for hygienically opening a can according to a combination according to any of claims 8-9, comprising the steps of:

- depressing the flap portion for opening the

through section;

- rotating the cap top from the first to the second position for exposing the opener through the through section;

- opening the outlet with the opener.

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- 11.** Method for hygienically opening a can according to claim 10 for a hygiene cap according to claim 2, wherein the step of depressing the flap portion for opening the through section also includes the step of tearing the perforated line to allow the slit to open.

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- 12.** Method for hygienically opening a can according to claim 10 or 11, further comprising the step of:

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- detaching the hygiene cap from the top end of the can for exposing the outlet.

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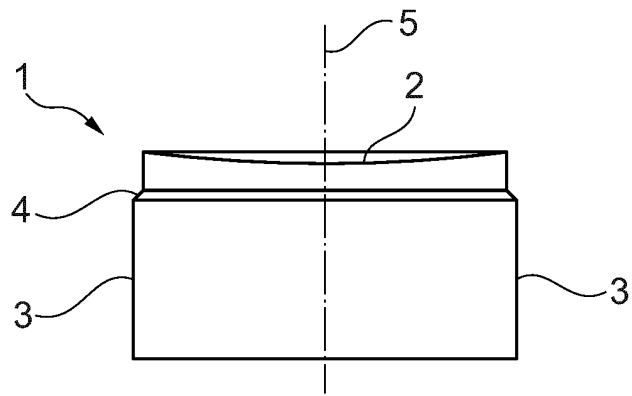


Fig. 1

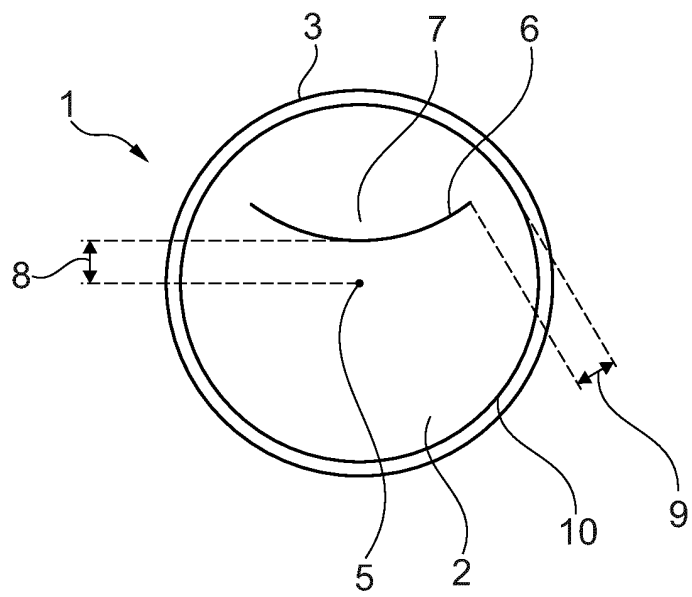


Fig. 2

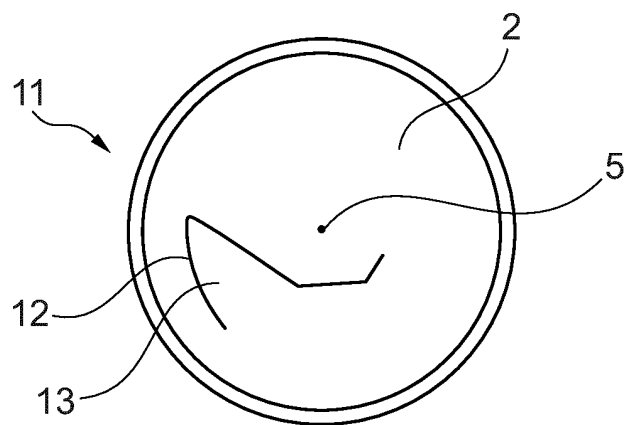


Fig. 3

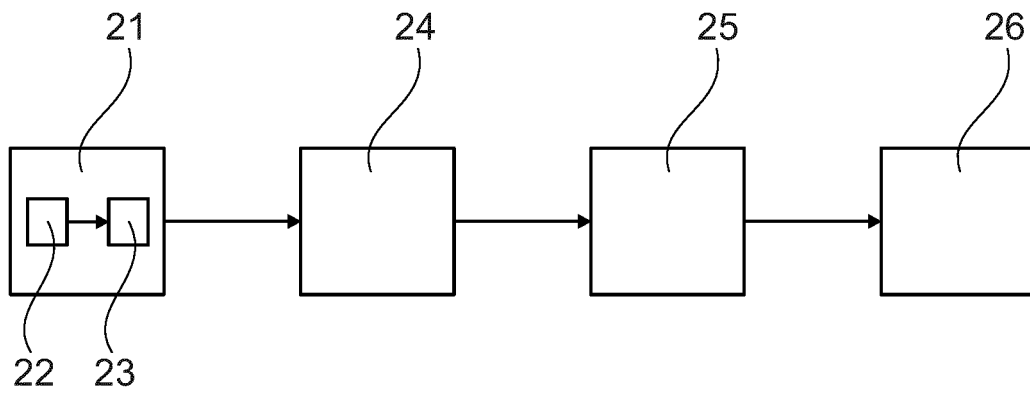
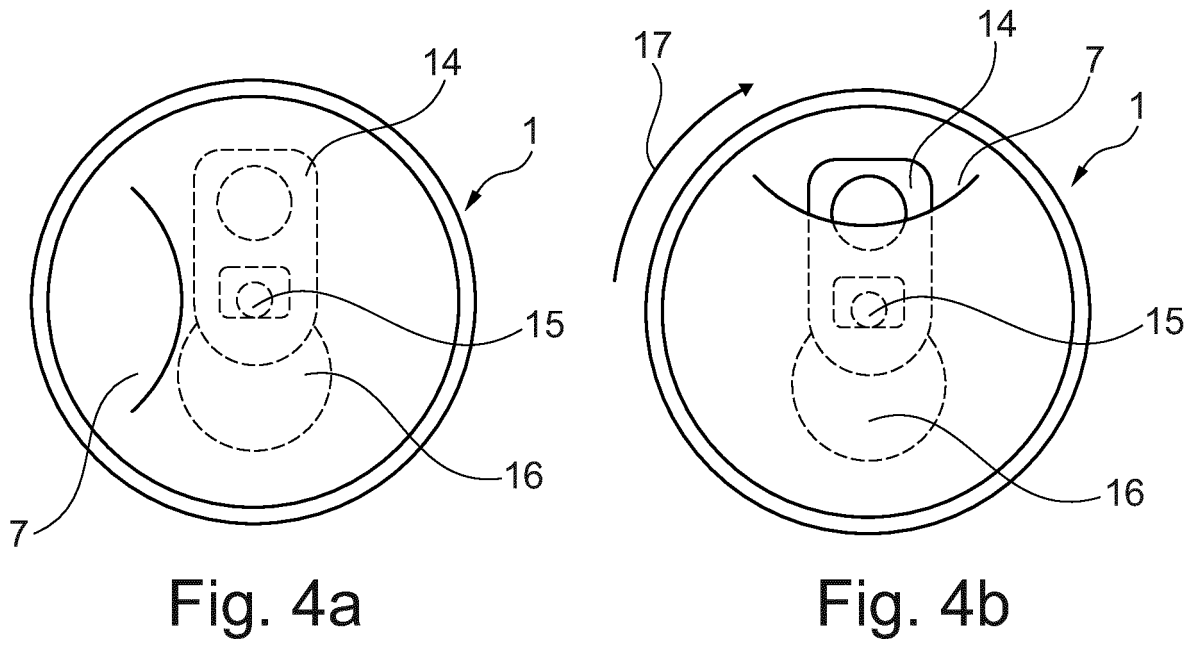


Fig. 5



EUROPEAN SEARCH REPORT

Application Number
EP 20 18 9809

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DOCUMENTS CONSIDERED TO BE RELEVANT			
Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (IPC)
X	EP 3 689 772 A1 (KIM KYUNG MAN [KR]) 5 August 2020 (2020-08-05)	1-7	INV. B65D17/28
A	* paragraph [0121] * * paragraph [0018] - paragraph [0130] *	8-12	B65D17/52
A	US 6 290 084 B1 (LOUIE CHUN CHIU [US]) 18 September 2001 (2001-09-18) * column 3 - column 6; figures 9-17 *	1-12	
A	DE 10 2017 009922 A1 (CMT VISION UG HAFTUNGSBESCHRAENKT [DE]) 25 April 2019 (2019-04-25) * paragraph [0019] - paragraph [0025]; figure 1 *	1-7	
			TECHNICAL FIELDS SEARCHED (IPC)
			B65D
The present search report has been drawn up for all claims			
Place of search The Hague		Date of completion of the search 3 February 2021	Examiner Le Bihan, Nicolas
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			

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

EP 20 18 9809

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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
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REFERENCES CITED IN THE DESCRIPTION

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