



(12) **EUROPEAN PATENT APPLICATION**

(43) Date of publication:
29.06.2016 Bulletin 2016/26

(51) Int Cl.:
D06F 39/02 (2006.01) C11D 17/00 (2006.01)

(21) Application number: **15200491.7**

(22) Date of filing: **16.12.2015**

(84) Designated Contracting States:
AL 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 RS SE SI SK SM TR
Designated Extension States:
BA ME
Designated Validation States:
MA MD

- **ANDRENACCI, Luca**
60035 Jesi (AN) (IT)
- **TARABU', Roberto**
60036 Montecarotto (AN) (IT)
- **CATANI, Romina**
60035 Jesi (AN) (IT)
- **KHALFAOUI, Zakaria**
62019 Recanati (MC) (IT)
- **MATARAZZI, Filippo**
06023 Gualdo Tadino (PG) (IT)
- **FALSETTI, Alessandro**
10145 Torino (IT)

(30) Priority: **23.12.2014 IT PR20140096**

(71) Applicant: **Indesit Company S.p.A.**
60044 Fabriano (AN) (IT)

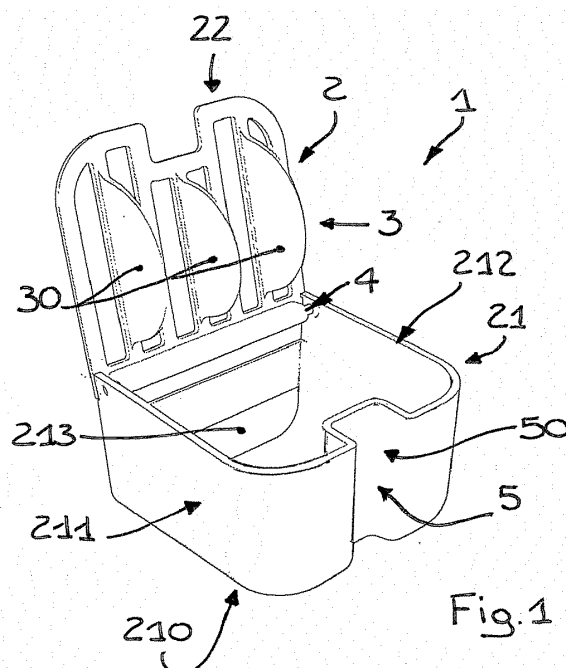
(72) Inventors:
• **PITTALIS, Giacomo**
60018 Montemarciano (AN) (IT)
• **POLVERINI, Elisa**
60039 Staffolo (AN) (IT)

(74) Representative: **Santonicola, Paolo**
Indesit Company S.p.A.
Viale Aristide Merloni 47
60044 Fabriano (AN) (IT)

(54) **AN ACCESSORY APPLICABLE TO A HOUSEHOLD APPLIANCE FOR WASHING LAUNDRY AND A HOUSEHOLD APPLIANCE COMPRISING THE ACCESSORY**

(57) An accessory applicable removably inside a drawer for detergents of a household appliance for washing laundry, said accessory (1) comprising an opening device (2) of a water-soluble and single-dose detergent cartridge. The opening device (2) comprises:
- a tray (21) for positioning the detergent cartridge;
- a lid (22) of the tray (21), the lid (22) comprising means (3) for perforating the cartridge.

The lid (22) is movable between an open position in which the perforating means (3) enable positioning the cartridge inside a volume identified by the tray (21) and a closed position in which the perforating means (3) project inside the volume in order to perforate the cartridge.



Description

[0001] The present invention relates to an accessory applicable to a household appliance for washing laundry and a household appliance comprising the accessory.

[0002] In particular the accessory has been developed to enable an effective use of single-dose cartridges constituted by a water-soluble casing containing the detergent.

[0003] The present invention also relates to a washing method for laundry implemented by a household appliance comprising the accessory.

[0004] Single-dose cartridges are known that contain liquid detergent destined for use in washing machines. The external cladding of these cartridges is water-soluble such that in contact with the cartridge the cladding dissolves and releases the detergent contained in the cartridge. These cartridges are marketed with the instruction to place them together with the laundry on the lower bottom of the rotary washing drum of the washing machine.

[0005] A drawback of this constructional solution is linked to the fact that sometimes the external cladding of the cartridges might undergo a delay in dissolving.

[0006] In fact too much time might be required of the washing machine to flood the washing compartment with a sufficient level of liquid to reach the cartridge. Further, the same laundry items constitute an obstruction to the water in reaching the external cladding of the cartridge. Consequently the detergent might be released with a delay with respect to the start of the cycle and thus negatively influence the degree of cleanliness that can be obtained.

[0007] What is more, if the external cladding is not completely water-dissolved, there is the further drawback that it can remain deposited between the laundry or in mechanical parts of the machine usually difficult to access, thus requiring the user to remove it manually.

[0008] A washing machine of the above-described type is also known from Italian patent no. RN2011A000087 in which to the inserting a cartridge into a dedicated seating is added the perforation thereof by cutters that are not accessible from the outside. This solution is adopted for realising the household appliance and includes the use of non-removable integrated cutters in the machine. Further, the cutters must not be reachable by a user during normal functioning.

[0009] In this context, the technical task on which the present invention is based is to disclose a washing machine which enables improving the effectiveness of the wash when single-dose water-soluble cartridges are used.

[0010] The defined technical task and the specified aims are substantially achieved by an accessory for a washing machine comprising the technical characteristics set out in one or more of the appended claims.

[0011] Further characteristics and advantages of the present invention will become more apparent from the following indicative, and hence non-limiting, description

of a preferred, but not exclusive, embodiment of a washing machine as illustrated in the appended drawings, in which:

- 5 - figures 1 and 2 show two perspective views of an accessory according to the present invention;
- figure 3 shows a perspective view of a household appliance integrating the accessory of figures 1 and 2.

[0012] In the accompanying figures, reference number 1 denotes an accessory applicable to a household appliance for washing laundry. The accessory enables an effective use of single-dose cartridges constituted by a water-soluble casing containing the detergent. The accessory 1 is removably positionable internally of a detergent drawer of a household appliance for washing items of laundry (see figure 3). The accessory 1 is compatible with a wide range of washing machines present on the market and can be marketed apart or together with the purchase of a new washing machine. The fact that the accessory can be marketed apart means that it can be applied to washing machines already sold. Figures 1 and 2 show the accessory separated from the household appliance 10.

[0013] The accessory 1 comprises an opening device 2 of a water-soluble and single-dose detergent cartridge.

[0014] The device 2 comprises a tray 21 for positioning the detergent cartridge. The tray 21 thus defines a housing for receiving the cartridge.

[0015] The opening device 2 further comprises a lid 22 of said tray 21.

[0016] The lid 22 comprises perforating means 3 of the cartridge. In the solution provided by way of example in the appended drawings the perforating means 3 comprise at least a cutter, and preferably comprise a plurality of flanked cutters 30. The cutters 30 are advantageously unremovably connected to remaining parts of the lid 22. In particular they are made of a plastic material and advantageously are realised in a single body with the remaining parts of the lid 22.

[0017] The lid 22 is movable between a closed position and an open position. In the open position the perforating means 3 enable positioning the cartridge inside a volume identified by the tray 21.

[0018] In particular, in the open position of the lid 22 the perforating means 3 (or in any case the cutters 30) are at least partly (preferably entirely) external of said volume identified by the tray 21. In a position of complete opening of the lid 22 the cutters 30 are entirely external of the volume of the tray 21. In the closed position the perforating means 3 (the cutters 30) project internally of said volume for perforating the cartridge. The above description with reference to the plurality of cutters 30 can be repeated even only with reference to at least a cutter (there might in fact be only one cutter).

[0019] The cover 22 is advantageously hinged to the tray 21.

[0020] The accessory 1 also comprises elastic means 4 which push said lid 22 from the closed position towards the open position. The elastic means 4 thus act on one or more connecting hinges of the lid 22 to the tray 21. In this way, in the absence of constraints or external forces the lid 22 remains open. The lid 22 advantageously comprises at least a hole 220 for inlet of the washing liquid into the tray 21.

[0021] The tray 21 comprises:

- a lower bottom 210;
- a lateral wall 211 which develops from the lower bottom 210. The lateral wall 211 (superiorly) identifies an opening 212 which can be occluded by said lid 22.

[0022] In the solution illustrated in the appended figures the lateral wall 211 extends along three flanks. The lateral wall 211 has an interruption 213 located between two of the three flanks. The interruption 213 enables, for example, the outflow of the water from inside the tray 21.

[0023] The bottom 210 is inclined with respect to a plane identified by the lid 22 in the closed position. In particular, when the accessory is applied to a household appliance 10 the bottom 210 is inclined with respect to a horizontal plane. This facilitates extraction thereof from the tray 21.

[0024] The tray 21 comprises centring means 5 with respect to the detergent drawer. The centring means 5 preferably comprise a groove 50 which develops along said lateral wall 211 between the bottom 210 and the opening 212. The bottom 50 extends perpendicularly to a plane identified by the lid 22 in the closed position. When the accessory 1 is applied to the household appliance the groove 50 develops vertically. When the accessory 1 is applied to the household appliance it is advantageously positioned jointed in a detergent drawer of the household appliance.

[0025] A further object of the present invention is a household appliance 10 for washing laundry. Typically this is a washing machine or a washer-dryer. The household appliance 10 comprises a drawer 6 for introducing detergent. The household appliance 10 further comprises a washing compartment connected to the drawer 6 by means of a channel. In this way the detergent introduced into the drawer can flow into the washing compartment. In this regard the household appliance 10 further comprises spraying means of the drawer which introduce water and which facilitate conveying of the detergent from the drawer 6 to the washing compartment.

[0026] The spraying means advantageously enable inlet of water through said inlet hole 220 fashioned on the lid 22 or via the interruption 213 of the lateral wall 211.

[0027] The household appliance 10 further comprises an accessory 1 having one or more of the characteristics described above;

[0028] The drawer 6 comprises a plurality of compartments 61 (advantageously each is destined for introduction of a detergent, for example a softener, a detergent

etc.)

[0029] The tray 21 of the accessory 1 is removably inserted in one of said compartments 61. The removable connection of the accessory also enables improving the washing of the accessory 1.

[0030] The household appliance 10 also assumes a first configuration in which the drawer 6 for introducing detergent is open and a second configuration in which the drawer 6 for introducing the detergent is closed. In the first configuration of the drawer 6 the lid 22 projects externally of the detergent drawer 6 (typically it projects upwards). On passing from the first to the second configuration, the lid 22 autonomously closes.

[0031] The present invention relates to a method for loading detergent in a household appliance for washing laundry. The household appliance 10 advantageously comprises steps of:

- opening a drawer 6 for introducing detergent in which an accessory 1 is located having one or more of the characteristics described herein above; said step determining the opening of the lid 22 of the accessory 1 by elastic retroaction;
- introducing a water-soluble and single-dose cartridge of detergent into said tray 21; in the accompanying drawings the cartridge is not illustrated;
- closing the drawer 6.

[0032] During the closing of the drawer 6 the lid 22 comes into contact with an abutment 60 of the household appliance which causes closure of the lid 22 on the tray 21 with a consequent perforation of the water-soluble cartridge (see figure 3). In fact the closing of the drawer 6 is such that the abutment 60 performs a movement with respect to the hinge that connects the lid 22 to the tray 21.

[0033] The abutment 60 is advantageously part of the border of the drawer 6 (or in any case of the top of the household appliance 10).

[0034] When the drawer 6 is closed the compartment in which it is inserted maintains the lid 22 closed on the tray 21.

[0035] When, on termination of the washing cycle, the drawer 6 is re-opened the retroaction exerted by the elastic means 4 and the cessation of external treatment forces determine the re-opening of the lid 22.

[0036] The invention thus conceived makes it possible to achieve multiple advantages.

[0037] This firstly enables obtaining a machine 1 that enables optimising the use of the single-dose cartridges of detergent even in household appliances lacking in specific predispositions for them, such as for example a majority of household appliances at present on the market.

[0038] Secondly it enables minimising the known risks linked to a delayed dissolving of the water-soluble cartridge.

[0039] The invention as it is conceived is susceptible to numerous modifications and variants, all falling within the scope of the inventive concept characterised thereby.

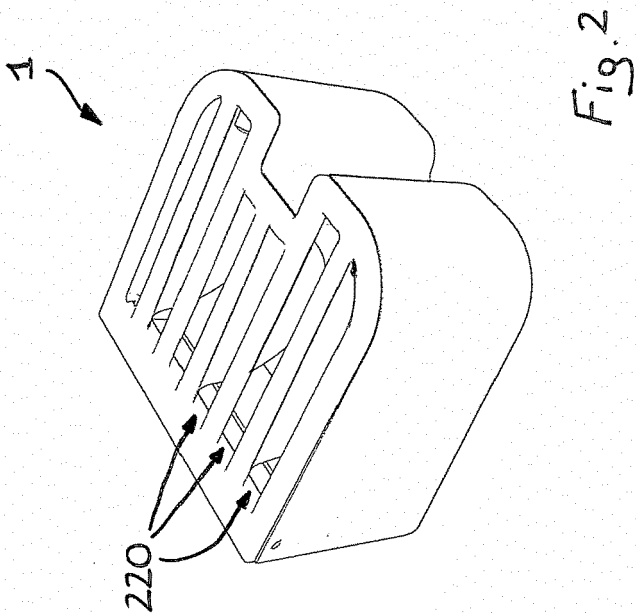
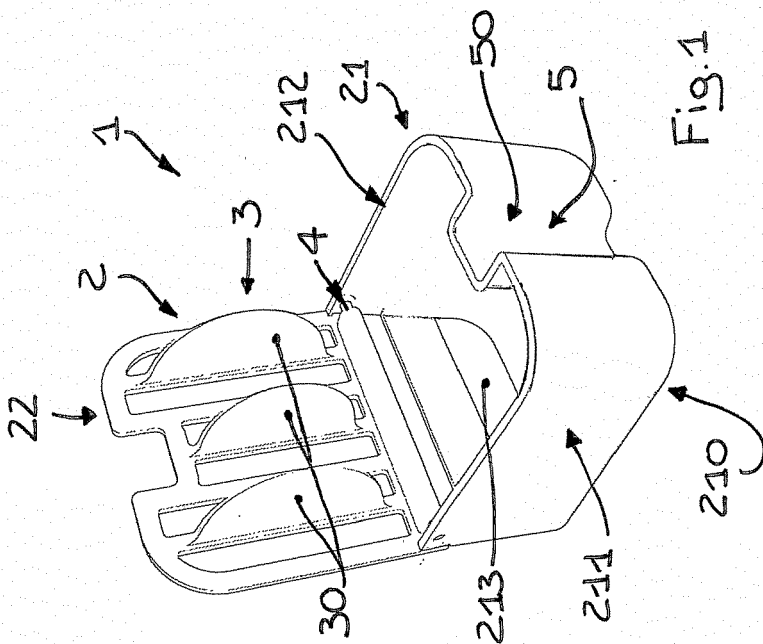
Moreover, all details may be replaced with other technically equivalent elements. In practice, all the materials used, as well as the dimensions, can be any according to requirements.

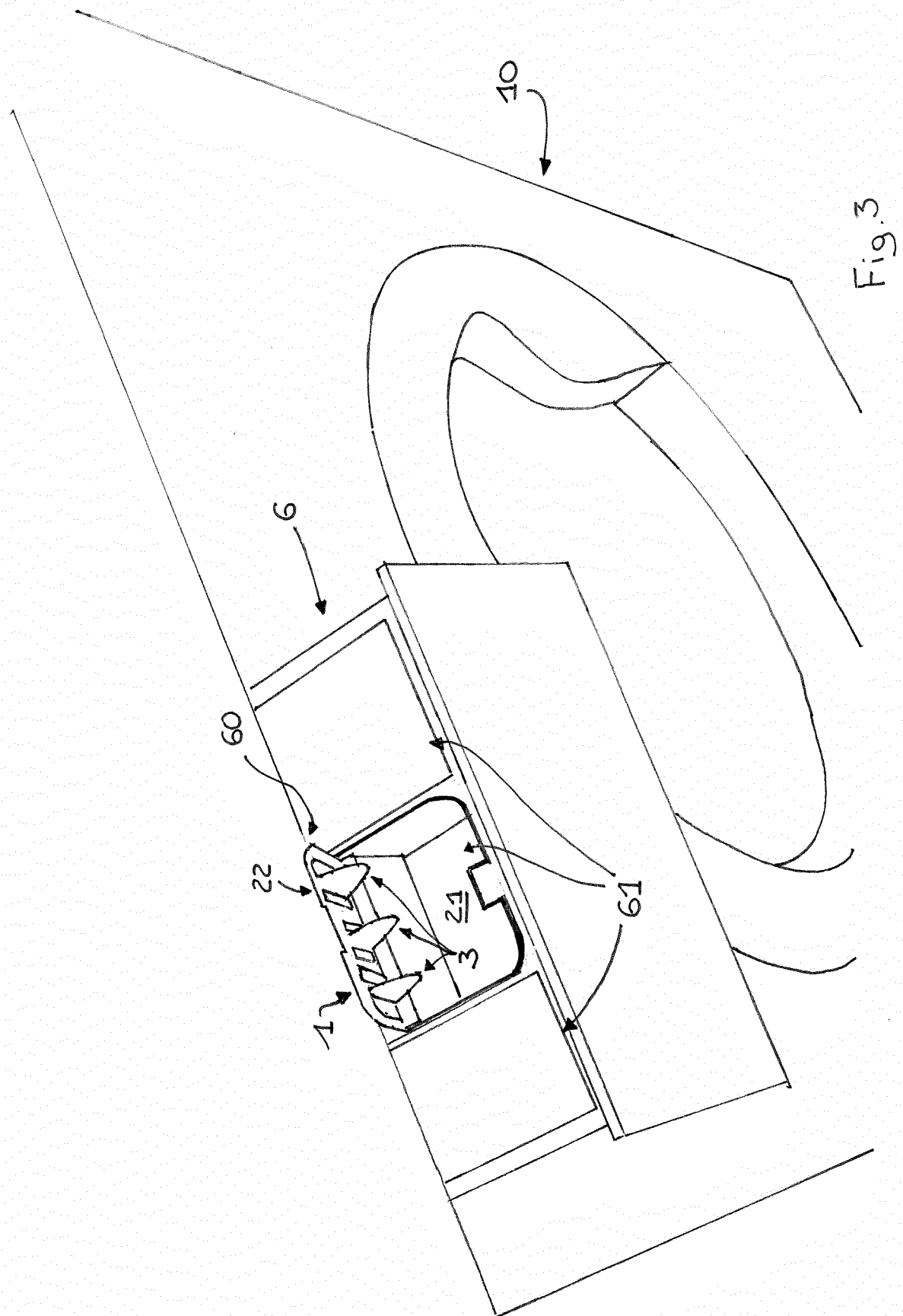
Claims

1. An accessory applicable removably inside a drawer for detergents of a household appliance for washing laundry, said accessory (1) comprising an opening device (2) of a water-soluble and single-dose detergent cartridge, said opening device (2) comprising:
 - a tray (21) for positioning the detergent cartridge;
 - a lid (22) of said tray (21), said lid (22) comprising perforating means (3) of the cartridge, said lid (22) being mobile between an open position in which the perforating means (3) enable positioning the cartridge inside a volume identified by the tray (21) and a closed position in which the perforating means (3) project inside said volume in order to perforate the cartridge.
2. The accessory according to claim 1, **characterised in that** in the open position of the lid (22) the perforating means (3) are at least partly external of said volume identified by the tray (21).
3. The accessory according to claim 1 or 2, **characterised in that** it comprises elastic means (4) which push said lid (22) from the closed position towards the open position.
4. The accessory according to any one of the preceding claims, **characterised in that** said lid (22) is hinged to the tray (21).
5. The accessory according to any one of the preceding claims, **characterised in that** said tray (21) comprises:
 - a lower bottom (210);
 - a lateral wall (211) which develops from the lower bottom (210), said lateral wall (211) superiorly identifying an opening (212) which can be occluded by said lid (22).
6. The accessory according to claim 5, **characterised in that** said tray (21) comprises centring means (5) with respect to the drawer for detergents, said centring means (5) comprising a groove (50) which develops along said lateral wall (211) between the bottom (210) and the opening (212).
7. The accessory according to claim 5 or 6, **characterised in that** the bottom (210) is inclined with respect

to a plane identified by the lid (22) in the closed position.

8. A household appliance for washing laundry, comprising:
 - a drawer (6) for introducing detergent comprising a plurality of compartments (61);
 - an accessory (1) according to any one of claims from 1 to 7, the tray (21) of said accessory (1) being removably inserted in one of said compartments (61).
9. The household appliance according to claim 8, **characterised in that** it assumes at least a first configuration in which said drawer (6) for introducing detergent is open and a second configuration in which said drawer (6) for introducing the detergent is closed; in the first configuration the lid (22) projecting outside the drawer for detergents (6); when passing from the first configuration to the second configuration, the lid (22) closing autonomously.
10. A method for loading detergent in a household appliance for washing laundry, comprising steps of:
 - opening a drawer (6) for introducing detergent in which an accessory according to any one of claims from 1 to 7 is located; said step determining the opening of said lid (22) by elastic retroaction;
 - introducing a water-soluble and single-dose cartridge in said tray (21);
 - closing the drawer (6); during closure of the drawer (6) the lid (22) coming into contact with an abutment (60) of the household appliance which causes closure of the lid (22) on the tray (21) with a consequent perforation of the water-soluble cartridge.







EUROPEAN SEARCH REPORT

 Application Number
 EP 15 20 0491

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Place of search Munich		Date of completion of the search 22 February 2016	Examiner Fachin, Fabiano
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EPO FORM 1503 03.82 (P04C01)

**ANNEX TO THE EUROPEAN SEARCH REPORT
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This annex lists the patent family members relating to the patent documents cited in the above-mentioned European search report.
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