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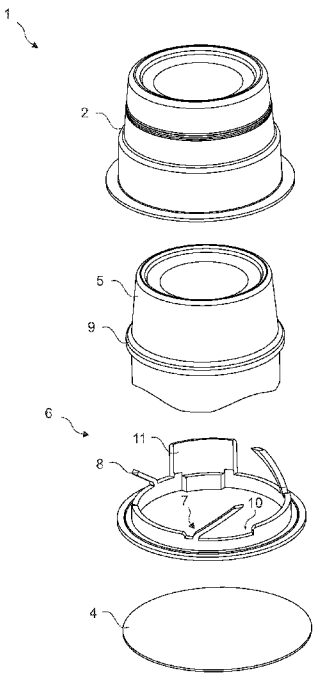
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[Continued on next page]

(54) Title: A CAPSULE SUITABLE TO BE USED IN COFFEE MACHINES

Figure 1



(57) Abstract: The present invention relates to a capsule (1) suitable to be used in coffee machines, comprising a housing (2) wherein the coffee is stored, an opening (3) arranged on the lower surface of the housing (2), a folio (4) enabling the opening (3) to be covered and a cutting apparatus (5) that is disposed inside the housing (2) concentrically, that moves downwards inside the housing (2) when pressure is exerted by the housing (2) ceiling and that enables the folio (4) to be detached from the housing (2) by cutting the folio (4) partially or completely.

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DESCRIPTION

A CAPSULE SUITABLE TO BE USED IN COFFEE MACHINES

The present invention relates to a capsule suitable to be used in coffee machines and wherein the coffee raw material is stored.

In coffee machines, the usage of the single use capsule wherein the coffee raw material is stored is known. During the preparation of the beverage, for example Turkish coffee, by mixing the raw material by water, the raw material stored in the capsule has to be delivered to the brewing chamber or the cup. In the state of the art, coffee machines are known, providing that some portion of the folio covering the capsule is torn/cut and as the folio opens like a lid, the coffee raw material in the capsule is poured or emptied by turning the capsule upside down. One of the problems encountered in the capsules suitable to be used in this type of machines is that the blades providing the cutting of the folio may cut the hand of the user while the capsule is being taken out of the coffee machine after the capsule is emptied. Another problem is that the blades may increase the height of the capsule by protruding from the capsule and that the capsule may get caught with the coffee machine while being taken out thereof.

In the state of the art International Patent Application No. WO2011007266, a coffee machine and a capsule comprising the blades that cut the folio are disclosed.

In the state of the art International Patent Application No. WO2011154866, a capsule is disclosed which is turned upside down by the arm on the coffee machine pushing thereon, thus pouring the contents therein.

The aim of the present invention is the realization of a capsule suitable to be used in coffee machines and that is enabled to be safely taken out of the coffee machine after being used.

The capsule realized in order to attain the aim of the present invention, explicated in the claims comprises a housing wherein the coffee raw material is stored, a folio that enables the housing opening to be closed, a cutting apparatus that is movably disposed into the housing and that enables the folio to be cut, a frame that is seated onto the periphery of the housing opening so as to remain under the folio and a spring that is

disposed on the frame, that is compressed by the cutting apparatus when the cutting apparatus gets out of the housing to cut the folio and that, afterwards, pushes the cutting apparatus back into the housing. In the capsule of the present invention, as the cutting apparatus moves out of the housing, the folio enabling the closing of the housing opening is partially or completely cut by the cutter on the cutting apparatus along the housing opening so as to be opened. At the same time, the cutting apparatus presses onto the spring and enables the spring to bear against the frame. After the pressure exerted onto the cutting apparatus is removed, the spring applies pressure onto the cutting apparatus so as to push the cutting apparatus into the housing. After the capsule is used, the spring and the cutting apparatus enters the housing again and enables the capsule to be taken out without getting caught with any element on the inner surface of the coffee machine. By means of the present invention, the user is prevented from seeing the cutting apparatus when out of the housing.

In an embodiment of the present invention, the spring has a pusher arm that extends in an inclined manner with respect to the cutting apparatus and that bears against the cutting apparatus so as to push the cutting apparatus back into the housing. By means of this embodiment, the pushing distance of the spring is increased, thus the cutting apparatus is pushed for a longer distance and is returned to its first position inside the housing.

In another embodiment of the present invention, the cutting apparatus comprises a flange that surrounds the lateral surface of the cutting apparatus, that enables the spring to be compressed by applying pressure onto the spring when the cutting apparatus moves out of the housing and that enables the compressed spring to push the cutting apparatus. By means of the flange, the spring is enabled to push the cutting apparatus in a convenient manner.

In another embodiment of the present invention, the end of the pusher arm extending towards the cutting apparatus is integrated with the flange that surrounds the lateral surface of the cutting apparatus. In this embodiment, the cutting apparatus is enabled to be produced as a single piece with the frame, thus improving the production costs. The frame and the cutting apparatus produced together are placed into the housing.

In another embodiment of the present invention, a recess wherein the spring is seated when the springs are folded onto the frame is provided on the frame. When the cutting apparatus moves out of the housing and the flange applies pressure onto the spring so as to compress the spring, the spring enters the recess and enables the flange to bear against the upper edge of the frame, thus preventing of crashing or breaking of the spring by the flange.

In another embodiment of the present invention, the frame is fixed onto the housing by means of a mounting extension so as to prevent the energy stored on the spring from pushing the frame out of the housing instead of pushing the cutting apparatus into the housing after the pressure exerted onto the spring is removed.

In the capsule of the present invention, the cutting apparatus is enabled to be pushed into the housing by means of the flange thanks to the energy stored by the compressed spring and thus, the cutting apparatus providing the cutting of the folio closing the capsule is prevented from contacting the user. Moreover, by means of the spring capsule design, the quality perception of the user is improved.

The capsule realized in order to attain the aim of the present invention is illustrated in the attached figures, where:

Figure 1 – is the exploded view of a capsule.

Figure 2 – is the exploded view of a capsule in the compressed state of the spring.

The elements illustrated in the figures are numbered as follows:

1. Capsule
2. Housing
3. Opening
4. Folio
5. Cutting apparatus
6. Frame
7. Spring

8. Pusher arm
9. Flange
10. Recess
11. Mounting extension

The capsule (1) suitable to be used in coffee machines, comprises a housing (2) wherein the coffee to be brewed is stored, an opening (3) arranged on the lower surface of the housing (2), a folio (4) enabling the opening (3) to be covered and a cutting apparatus (5) that is disposed inside the housing (2) concentrically, that moves downwards inside the housing (2) when pressure is exerted by the housing (2) ceiling and that enables the folio (4) to be detached from the housing (2) by cutting the folio (4) partially or completely. The folio (4) is preferably produced from aluminum or tin. The housing (2) can be in form of a cylinder or quadrangular prism. The coffee in the housing (2) can be particularly Turkish coffee or instant coffee. The folio (4) is attached on the sides surrounding the housing (2) opening (3) so that the cutting apparatus (5) remains inside the housing (2). The capsule (1) opens as the cutting apparatus (5) cuts the folio (4) by moving along the housing (2) when force is applied on the housing (2).

The capsule (1) of the present invention is suitable to be used in the coffee machines and comprises a frame (6) that is disposed on the periphery of the opening (3) as a single piece with the housing (2) or fixed on the inner surface of the housing (2) and at least one spring (7) that is fixed to the side of the frame (6) facing the interior of the housing (2) or that is produced as a single piece with the frame (6), that extends from the frame (6) towards the cutting apparatus (5), that stretches by resting on the cutting apparatus (5) when the cutting apparatus (5) is moved downwards in the housing so as to cut the folio (4) and that enables the cutting apparatus (5) to be pushed back into the housing (2) after the folio (4) cutting process. The capsule (1) is opened as a force is exerted from the housing (2) ceiling, thus stretching the housing (2) ceiling inwards to push the cutting apparatus (5) out of the housing (2) and the cutting apparatus (5) moves out of the housing (2) to cut the folio (4). At the same time, the cutting

apparatus (5) bears against the spring (7). As the folio (4) is cut and the pressure exerted onto the housing (2) is removed, the spring (7) pushes the cutting apparatus (5) into the housing (2), back to its initial position before the folio (4) is cut.

When the capsule (1) is placed into the coffee machine, especially into the Turkish coffee machine and pressure is applied onto the housing (2), the cutting apparatus (5) moves out of the housing (2) and the cutting apparatus (5) engages with the spring (7) so as to compress the spring (7). After the pressure exerted onto the housing (2) is removed, the spring (7) applies pressure onto the cutting apparatus (5) in the reverse direction and enables the cutting apparatus (5) to enter the housing (2). Thus, problems encountered by the user while detaching the capsule (1) after using it are solved. Moreover, as the cutting apparatus (5) enters the housing (2), the cutter parts of the cutting apparatus (5) remain inside the housing (2), preventing the user from being wounded.

In an embodiment of the present invention, the spring (7) has a pusher arm (8) that extends from the upper edge of the frame (6) towards the cutting apparatus (5) in an angled manner. By means of the pusher arms (8) extending towards the cutting apparatus (5) inside the housing (2), the spring (7) is enabled to push the cutting apparatus (5) for a longer distance. Moreover, by means of the pusher arms (8), the torque exerted by the spring (7) is increased, thus enabling the cutting apparatus (5) to be more efficiently pushed into the housing (2). As preferably half of the cutting apparatus (5) moves out of the housing (2), the spring (7) is compressed and the pusher arms (8) are folded onto the frame (6) and then the pusher arms (8) push the cutting apparatus (5) back into the housing (2).

In another embodiment of the present invention, the capsule (1) comprises a flange (9) that surrounds the outer surface of the cutting apparatus (5), that enables the springs (7) to be compressed by pressing onto the springs (7) as the cutting apparatus (5) moves downwards and that enables the cutting apparatus (5) to fit into the housing (2) by being pushed upwards by the springs (7) stretching after the force exerted onto the cutting apparatus (5) through the housing (2) is removed after the folio (4) cutting process. By means of the flange (9) surrounding the lateral surface of the cutting

apparatus (5), the springs (7) are enabled to be pressed on and the cutting apparatus (5) is enabled to be pushed back into the housing (2) when the cutting apparatus (5) moves out of the housing (2).

In another embodiment of the present invention, the flange (9) is connected to the pusher arm (8). The pusher arm (8) is connected to the flanged (9) from its end contacting the flange (9) and thus the housing apparatus (5) and the frame (6) become a single piece. After being pushed out of the housing (2), the cutting apparatus (5) compresses the spring (7) and then the spring (7) pushes the cutting apparatus (5) back.

In another embodiment of the present invention, the capsule (1) comprises at least one recess (10) that is arranged on the upper edge of the frame (6), that is connected to the springs (7) and that enables the springs (7) to be aligned with the upper edges of the frame (6) and enables the flange (9) to be seated onto the upper edge of the frame (6) without any gaps by gathering the springs (7) whereon the flange (9) applies pressure during the folio (4) cutting process. The recess (10) prevents the cutting apparatus (5) from crashing the spring (7), thus the spring (7) from being broken when the spring (7) is completely compressed and folded onto the frame (6) while the cutting apparatus (5) moves out of the housing (2). The springs (7) whereon the flange (9) applies pressure during the folio (4) cutting process are gathered into the recess (10) and the springs (7) become coplanar with the upper edge of the frame (6). Thus, by means of the recess (10), the springs (7) do not prevent the cutting apparatus (5) from completing its downward movement and the cutting apparatus (5) is enabled to cut the folio (4) as desired.

In another embodiment of the present invention, the capsule (1) comprises a mounting extension (11) that is disposed on the frame (6) and that enables the frame (6) to be fixed to the housing (2). The frame (6) is fixed to the inner surface of the housing (2) by means of the mounting extension (11) so as to prevent the energy stored on the spring (7) from dislodging the frame (6) when the spring (7) is compressed after the frame (6) is seated into its place. In this embodiment, by keeping the frame (6) fixed with respect to the cutting apparatus (5), it is provided that the element that is moved by the spring (7) is the cutting apparatus (5).

By means of the spring (7) of the present invention, the cutting apparatus (5) cutting the folio (4) is kept away from the user and the pusher arms (8) resting on the flange (9) enable the cutting apparatus (5) to be gathered back into the housing (2). Thus, the risk of wounds is eliminated by improving the safety of the user. Moreover, the discharge of the capsule (1), the length of which is relatively increased as the cutting apparatus (5) moves out of the housing (2), out of the coffee machine is facilitated.

CLAIMS

1 – A capsule (1) that is suitable to be used in coffee machines, **comprising** a housing (2) wherein the coffee to be brewed is stored, an opening (3) arranged on the lower surface of the housing (2), a folio (4) enabling the opening (3) to be covered and a cutting apparatus (5) that is disposed inside the housing (2) concentrically, that moves downwards inside the housing (2) when pressure is exerted by the housing (2) ceiling and that enables the folio (4) to be detached from the housing (2) by cutting the folio (4) partially or completely, **characterized by** a frame (6) that is disposed on the periphery of the opening (3) as a single piece with the housing (2) or fixed on the inner surface of the housing (2) and at least one spring (7) that is fixed to the side of the frame (6) facing the interior of the housing or that is produced as a single piece with the frame (6), that extends from the frame (6) towards the cutting apparatus (5), that stretches by resting on the cutting apparatus (5) when the cutting apparatus (5) is moved downwards in the housing so as to cut the folio (4) and that enables the cutting apparatus (5) to be pushed back into the housing (2) after the folio (4) cutting process.

2 – A capsule (1) as in Claim 1, **characterized by** the spring (7) that has a pusher arm (8) that extends from the upper edge of the frame (6) towards the cutting apparatus (5) in an angled manner.

3 – A capsule (1) as in any one of the above claims, **characterized by** a flange (9) that surrounds the outer surface of the cutting apparatus (5), that enables the springs (7) to be compressed by pressing onto the springs (7) as the cutting apparatus (5) moves downwards and that enables the cutting apparatus (5) to fit into the housing (2) by being pushed upwards by the springs (7) stretching after the force exerted onto the cutting apparatus (5) through the housing (2) is removed after the folio (4) cutting process.

4 – A capsule (1) as in Claim 3, **characterized by** the flange (9) that is connected to the pusher arm (8).

5 – A capsule (1) as in any one of the above claims, **characterized by** at least one recess (10) that is arranged on the upper edge of the frame (6), that is connected to the

springs (7) and that enables the springs (7) to be aligned with the upper edges of the frame (6) and enables the flange (9) to be seated onto the upper edge of the frame (6) without any gaps by gathering the springs (7) whereon the flange (9) applies pressure during the folio (4) cutting process.

6 – A capsule (1) as in any one of the above claims, **characterized by** a mounting extension (11) that is disposed on the frame (6) and that enables the frame (6) to be fixed to the housing (2).

Figure 1

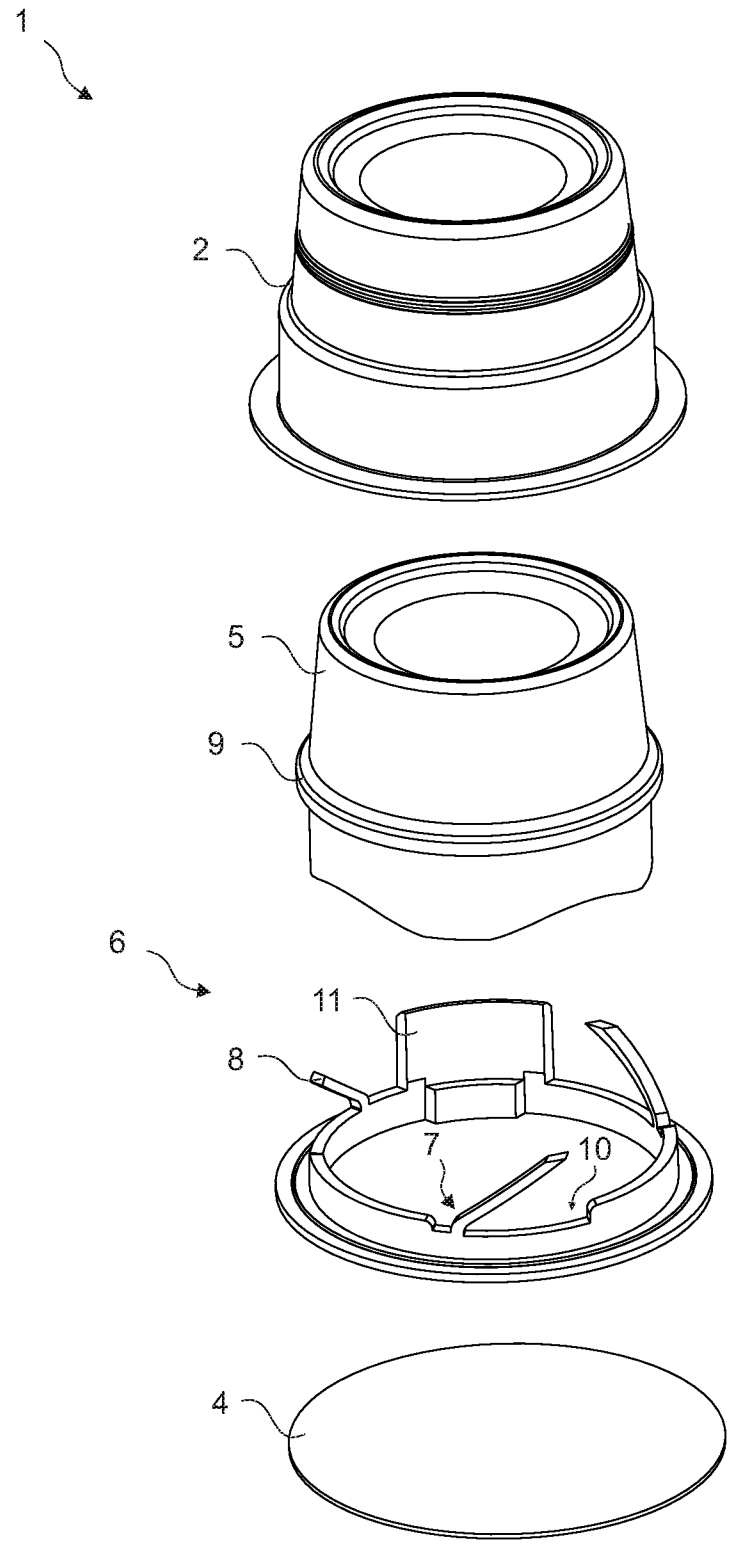
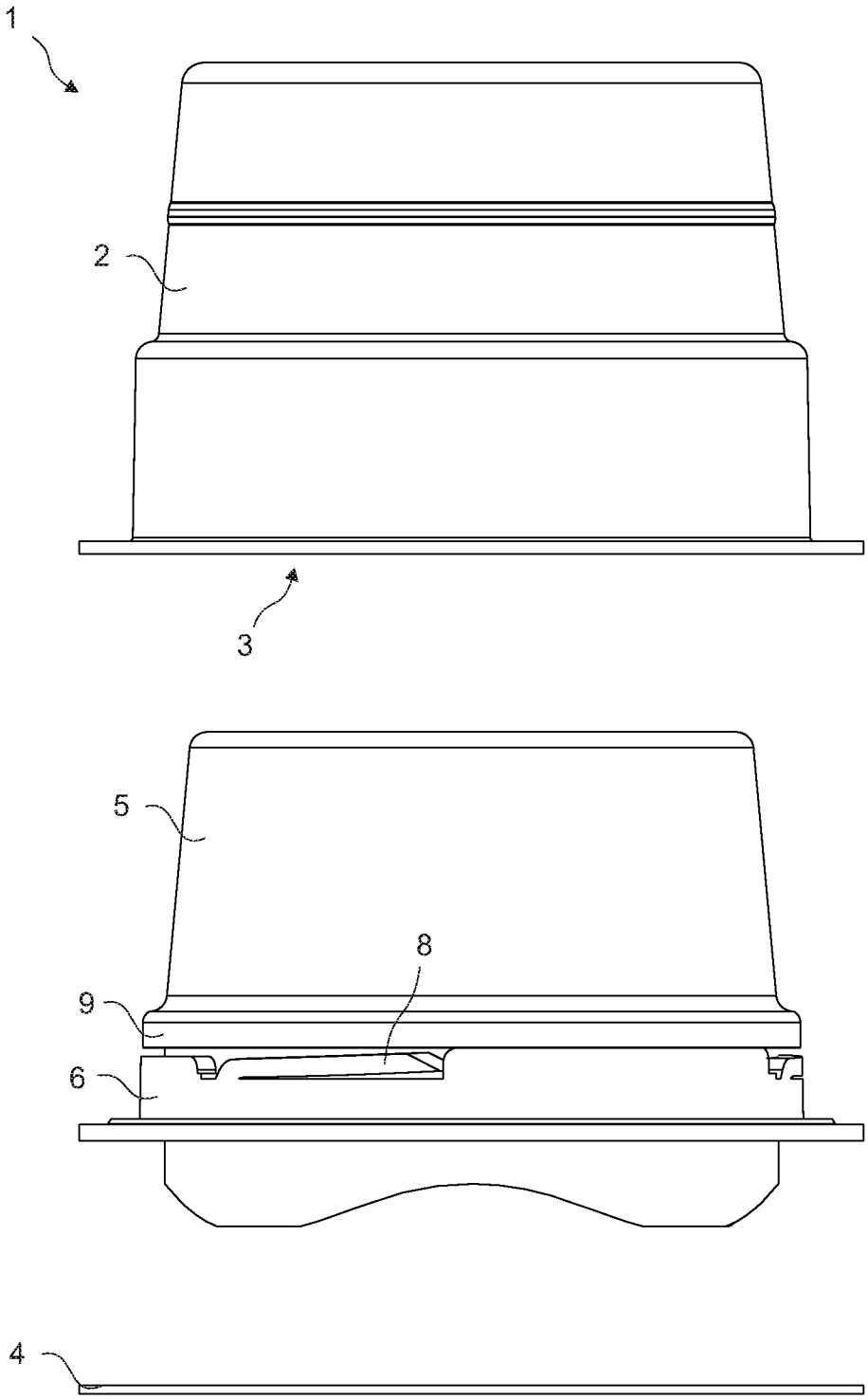


Figure 2



INTERNATIONAL SEARCH REPORT

International application No
PCT/TR2015/050192

A. CLASSIFICATION OF SUBJECT MATTER
INV. B65D85/804
ADD.

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)
B65D

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)
EPO-Internal

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
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A	WO 2011/007266 A1 (HAREMLIK GIDA DEKORASYON VE EKIPMANLARI TICARET SANAYI LTD SIRKETI [TR]) 20 January 2011 (2011-01-20) the whole document	1-6
A	WO 2008/087099 A2 (SWISS CAFFE ASIA LTD [CN]; AARDENBURG KEES [CH]) 24 July 2008 (2008-07-24) the whole document	1-6

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[X] Further documents are listed in the continuation of Box C.

[X] See patent family annex.

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Date of the actual completion of the international search	Date of mailing of the international search report
29 February 2016	22/03/2016

Name and mailing address of the ISA/	Authorized officer
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INTERNATIONAL SEARCH REPORT

International application No
PCT/TR2015/050192

C(Continuation). DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
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INTERNATIONAL SEARCH REPORT

Information on patent family members

International application No
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