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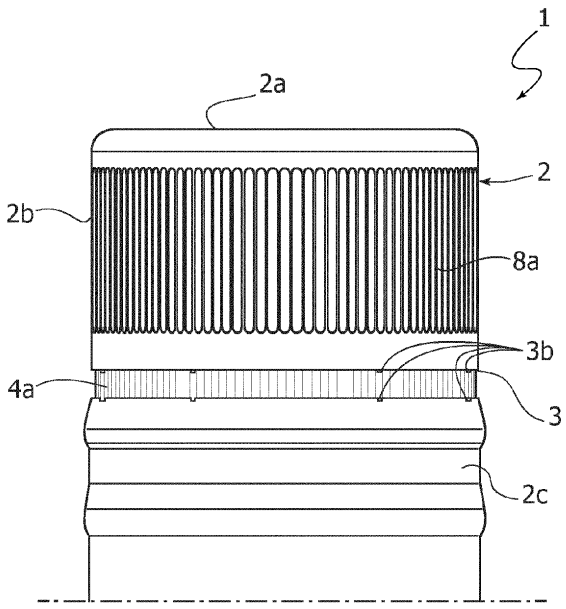
(54) Closure for bottles of wine or liquor, of the type able to clearly show a tamper

(57) A closure for bottles for wine or spirits comprises a cylindrical metal shell (2), having a head (2a) and a skirt with an upper portion (2b) and a lower portion (2c), with a pre-incision (3), at a predefined height from the head (2a), that delimits the boundary between the upper portion (2b) and the lower portion (2c). The closure also comprises a cap made of rigid plastic material (4), designed to be received within the metal shell (2) and in the proximity of the head (2a). The height of the plastic cap (4) is greater than the height of the upper portion (2b) of the skirt (2) so that the lower portion of the skirt (2c) and the internal cap (4) have mutually co-operating cylindrical surfaces of substantially constant diameter so that, upon first unscrewing with breaking of the skirt (2) along the pre-incision (3), the lower portion (2b) of the skirt (2) slides out of the plastic cap (4) and drops downwards, leaving exposed a peripheral portion (4a) of the cap (4) projecting underneath the upper portion (2b) of the skirt. Moreover, upon subsequent reclosing, the lower portion (2c) of the skirt (2) does not cover the plastic cap (4) completely again so that it appears evident that the bottle has been opened.

FIG. 3



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Description

[0001] The present invention relates to closures for bottles for wine or spirits.

[0002] There has been known for decades and widely used the system of closing bottles for wine or spirits that envisages the use of caps made of metal (in particular, aluminium) with a plastic insert or a seal, in which the metal cap, which is originally cylindrical and smooth, is formed on the neck of the bottle with a system of rolling, an operation that is performed after the bottle has been filled.

[0003] The rolling operation, in addition to causing the aluminium wall of the cap to adhere on the thread of the neck of the bottle, clinches the bottom edge against a lip present on the neck of the bottle itself so as to fix the metal cap to the glass, preventing the latter from possibly sliding off the bottle.

[0004] As is known, the cap comprises two distinct portions joined together by a pre-incision, i.e., a line of separation that has pre-cut slits and metal bridges approximately 1 mm long that hold together the two portions that form the cap. Said bridges are broken when the bottle is opened for the first time, and the two portions that form the cap are separated from one another. The upper portion in the form of a top is removed, whilst the lower skirtlike portion remains fitted on the neck of the bottle.

[0005] With this type of solution, however, there is the disadvantage that it is not possible to ensure for the consumer the absence of any tampering; namely, if, after opening, the lower skirtlike portion of the cap is brought back into its original position, i.e., in contact with the upper portion in the form of a top and the complementary ends of the bridges are made to mate, the cap assumes a condition in which it appears as if it were intact. In this case, only a person skilled in the sector with a close analysis is able to understand whether the bottle has been opened or not. This type of solution hence does not guarantee total safety for the consumer in so far as the bottle may have been opened, the product contained inside it meddled with, and the cap purposely re-closed.

[0006] Moreover, the upper portion in the form of a top of the cap, after opening, has sharp edges that are potentially dangerous for the consumer.

[0007] This absence of a total safety may seriously damage the image of the producer in the case where his products are adulterated with the addition of liquids harmful for the health or that alter in any case the quality of the original product. Moreover, the absence of safety could lead to situations in which the health of the consumer is jeopardized.

[0008] In other solutions, to avoid rolling of the metal cap on the thread of the bottle, and hence improve the aesthetic factor, a threaded plastic insert is used to be inserted in the cap itself, said insert or top being known and being normally used for closing plastic bottles for mineral water. Said top is obtained with a process of injection moulding and subsequent removal by unscrewing. Said process is, however, very complex, slow and involves the use of costly equipment.

[0009] There are moreover known in the art closures for bottles for wine or spirits comprising a cylindrical metal shell, with a thickness of from 0.200 mm to 0.300 mm, having a head and a skirt with an upper portion and a lower portion, with a pre-incision, at a predefined height from the head, that delimits the boundary between the upper portion and the lower portion, and a cap made of rigid plastic material, designed to be received within the metal shell and in the proximity of the head of the shell.

[0010] Closures of this type are known for example from the document No. EP 1 254 059 B1, and are currently readily available on the market. Said document shows in particular a closure according to the preamble of Claim 1.

[0011] It should moreover be noted that from the document No. US 2010/044336 A1 there is also known a closure with an internal cap that extends downwards underneath the line of pre-incision of the outer shell in order to render visible the bottom part of the internal cap after the bottle has been opened for the first time. However, in said known solution, the lower portion of the outer shell has a top edge that is turned inwards within a circumferential groove of the internal cap so that the bottom part of the internal cap becomes visible only after deformation of said inwardly turned top edge, with total removal of the closure from the bottle. Said deformation gives rise to uncertain and unreliable operation at the moment when the closure is put back on the bottle and upon each subsequent reopening thereof.

[0012] The object of the present invention is to provide a closure for bottles for wine or spirits of the type referred to above that will make it possible to render evident any tampering and that will be simple and economically advantageous to produce and will afford safe and reliable operation.

[0013] With a view to achieving said object, the subject of the invention is a closure for bottles for wine or spirits having the characteristics specified in Claim 1.

[0014] In a preferred embodiment, the cylindrical metal shell is rendered fixed with respect to the plastic cap through a shape fit that envisages ribbings both on the inner part of the shell and on the outer part of the cap so as to prevent rotation of one element with respect to the other.

[0015] In one embodiment, the cap made of rigid plastic material is provided with windows having tabs projecting inwards, obtained by injection moulding and extracted from the mould by tear-away mould release, which during rotation engage with the thread made on the neck of the glass bottle to provide closing thereof; however, it is likewise possible to provide the internal cap with an internal thread of a conventional type.

[0016] Furthermore, the height of the peripheral portion of the cap that projects underneath the upper portion of the skirt is chosen so as to prevent the hands of the consumer from coming into contact with the sharp edges

that are formed on the upper portion of the skirt after opening of the bottle, thus preventing any possible cuts or accidental injuries to the consumer.

[0017] In a preferred embodiment, there is moreover provided a seal designed to be set between the cap made of rigid plastic material and the mouth of the bottle.

[0018] In one embodiment, the cylindrical wall of the internal cap has a bottom end edge having a plurality of notches set at the same angular distances apart.

[0019] Further characteristics and advantages of the invention will emerge from the ensuing description with reference to the annexed drawings, which are provided purely by way of non-limiting example and in which:

- Figure 1 is a partially sectioned view of a bottle with a closure according to the present invention;
- Figure 2 is a perspective view of the closure in the condition where it is sealed by the producer;
- Figure 3 is a perspective view of the closure in the open and subsequently re-closed condition;
- Figure 4 is a perspective view of a detail of the closure according to the invention; and
- Figure 5 is a perspective view of a detail of the closure according to the invention.

[0020] The present invention regards a cylindrical metal closure designated as a whole by 1, and in particular an aluminium closure for bottles for wine or spirits.

[0021] The primary purpose of the closure according to the invention is to render promptly evident the integrity of the closure. This becomes possible by the particular conformation of the closure according to the present invention, which after the first opening and breaking of the bridges, no longer enables return to the starting condition, i.e., that of the bottle closed.

[0022] The closure according to the invention comprises a cylindrical metal shell 2, with a thickness of from 0.200 mm to 0.300 mm, having a head 2a and a skirt formed by an upper portion 2b and a lower portion 2c.

[0023] There is moreover provided a pre-incision 3, at a predefined height from the head 2a, that delimits the boundary between the upper portion 2b and the lower portion 2c of the skirt. The pre-incision 3 has pre-cut slits 3a and metal bridges 3b, with a dimension of approximately 1 mm, which hold together the two portions 2b and 2c that form the skirt. Said bridges 3b are broken when the bottle is opened for the first time, thus creating teeth on the circumferential edge of the free end of the upper portion of the skirt and cavities on the top circumferential edge of the lower portion of the skirt. As illustrated in Figure 1, the closure further comprises a cap made of rigid plastic material 4, received within the metal shell in the proximity of the head 2a of the shell. The cap 4 is provided with means for screwing on the thread 10 of the neck of a bottle. Figure 1 is a partially sectioned view of the closure in the condition where it is mounted on the neck of the bottle.

[0024] With reference to Figure 3, which illustrates the condition of bottle re-closed, it may be noted that the height of the plastic cap 4 is greater than the height of the upper portion 2b of the skirt 2.

[0025] The lower portion of the skirt 2c and the internal cap 4 have mutually co-operating cylindrical surfaces of substantially constant diameter so that, upon first unscrewing with breaking of the skirt 2 along the pre-incision 3, the lower portion 2c of the skirt slides out of the plastic cap 4 and drops downwards, leaving a peripheral portion 4a of the cap 4 exposed. The peripheral portion 4a projects underneath the upper portion 2b of the skirt 2 by a few millimetres.

[0026] With this type of closure, during subsequent re-closing of the bottle, the lower portion 2c of the skirt 2 does not cover the plastic cap 4 again completely so that it appears evident that the bottle has been opened. To render opening of the bottle more evident usually the cap 4 is made of a colour that is in contrast with that of the metal shell.

[0027] With particular reference to Figure 3, after opening, the upper portion 2b of the skirt has sharp edges that are formed on the circumferential end. Sharp teeth are moreover present that are due to breaking of the aforesaid bridges 3b. The fact that the cap 4 has a height greater than the height of the upper portion 2b of the skirt hence forms a shield or barrier that prevents the consumer from coming into contact with said sharp edges and teeth, thus considerably reducing the possibility of accidental injuries.

[0028] With reference to a preferred embodiment, the cylindrical metal shell 2 is rendered fixed with respect to the plastic cap 4 through a shape fit that envisages co-operating ribbings 8a and 8b both on the inner part of the shell (8a) and on the outer part (8b) of the cap 4 so as to prevent rotation of one element with respect to the other. With this arrangement, use of special glues for fixing the two elements is avoided, said operation being costly and potentially dangerous to health since the cap is likely to come into contact with the beverage contained in the bottle and there is a danger of contamination of the contents.

[0029] Of course, the fit between the two elements can be obtained in any known way, for example with a force fit or interference fit, where said fit guarantees that the elements turn fixed with respect to one another, preventing any relative rotation between them. In the embodiment illustrated in Figure 4, the cap made of rigid plastic material 4 does not have an internal thread for fixing to the neck 6 of the bottle. In this case, the means for screwing the cap made of rigid plastic material 4 on the neck of the bottle comprise a plurality of windows 9 made in the cylindrical wall of the cap 4 and provided with tabs projecting inwards (9a), said tabs being obtained by injection moulding and being extracted from the mould by tear-away mould release.

[0030] The windows 9 are made on the side walls of the cap following a helical geometry. During rotation, the

tabs 9a engage in a complementary way the thread 10 made on the neck of the glass bottle, thus enabling closing of the bottle.

[0031] The tabs 9a have the function of fixing the cap made of rigid plastic material 4, to the neck 6 of the glass bottle by co-operating with the thread 10.

[0032] With reference to the embodiment illustrated in Figure 5, the cylindrical wall of the internal cap 4 has a bottom end edge having a plurality of notches 4b set at the same angular distances apart. In this embodiment, the means for screwing the cap made of rigid plastic material 4 on the neck of the bottle comprise a thread on the inner lateral walls of the cap 4.With reference to the embodiment illustrated in the drawings, there is moreover provided a gasket or seal element 5 in the form of a moulded disk made of plastic material. Said seal 5 is set between the cap 4 and the mouth of the bottle.

[0033] With reference to Figure 3, when the bottle is re-closed, the projecting part of the plastic cap, i.e., the peripheral portion 4a, does not return into its seat, but pushes the lower portion 2c of the skirt downwards, thus rendering evident that the closure has been tampered with.

[0034] As has already been said, to highlight tampering, normally the moulded plastic cap is red or else has a colour different from the colour of the metal shell and in contrast therewith.

[0035] The closure according to the present invention makes it possible to distinguish clearly and unequivocally between bottles that have been opened and ones that are still closed and sealed, moreover providing a shield that prevents contact with the sharp edges, and thus overcoming the disadvantages of the known solutions.

[0036] Of course, without prejudice to the principle of the invention, the details of construction and the embodiments may vary widely with respect to what has been described and illustrated purely by way of example herein, without thereby departing from the scope of the present invention.

Claims

1. A closure for bottles for wine or spirits comprising:

   - a cylindrical metal shell (2), with a thickness of from 0.200 mm to 0.300 mm, having a head (2a) and a skirt with an upper portion (2b) and a lower portion (2c), with a pre-incision (3), at a predefined height from the head (2a), that delimits the boundary between said upper portion (2b) and said lower portion (2c);
   - a cap made of rigid plastic material (4), designed to be received within the metal shell (2) and in the proximity of the head (2a) of the shell, said cap (4) being provided with means for screwing on the thread (10) of the neck of a bottle,

   the closure being **characterized in that** the height of the plastic cap (4) is greater than the height of the upper portion (2b) of the skirt (2), and **in that** the lower portion of the skirt (2c) and the internal cap (4) have mutually co-operating cylindrical surfaces of substantially constant diameter so that, upon first unscrewing with breaking of the skirt (2) along the pre-incision (3), the lower portion (2c) of the skirt (2) slides out of the plastic cap (4) and drops downwards, leaving exposed a peripheral portion (4a) of the cap (4) projecting underneath the upper portion (2b) of the skirt so that, upon subsequent reclosing, the lower portion (2c) of the skirt (2) does not cover the plastic cap (4) completely again, so that it appears evident that the bottle has been opened.

2. The closure for bottles for wine or spirits according to Claim 1, **characterized in that** the cylindrical metal shell (2) is rendered fixed with respect to the plastic cap (4) through a shape fit that envisages ribbings (8) both on the inner part of the shell (2) and on the outer part of the cap (4) so as to prevent rotation of one element with respect to the other.

3. The closure according to Claim 1 or Claim 2, **characterized in that** said means for screwing the cap made of rigid plastic material (4) on the neck of the bottle comprise a plurality of windows (9) made in the cylindrical wall of the cap (4) and provided with tabs projecting inwards (9a), said tabs being obtained by injection moulding and extracted from the die by tear-away mould release.

4. The closure according to any one of the preceding claims, **characterized in that** the height of said peripheral portion (4a) of the cap (4) that projects underneath the upper portion (2b) of the skirt is chosen so as to prevent the consumer from coming into contact with the sharp edges that are formed on the upper portion of the shell after the bottle is opened.

5. The closure according to any one of the preceding claims, **characterized in that** it further comprises a seal (5) designed to be set between said cap made of rigid plastic material (4) and the mouth of the bottle.

6. The closure according to any one of the preceding claims, **characterized in that** the cylindrical wall of the internal cap (4) has a bottom end edge having a plurality of notches set at the same angular distances apart.

FIG. 1

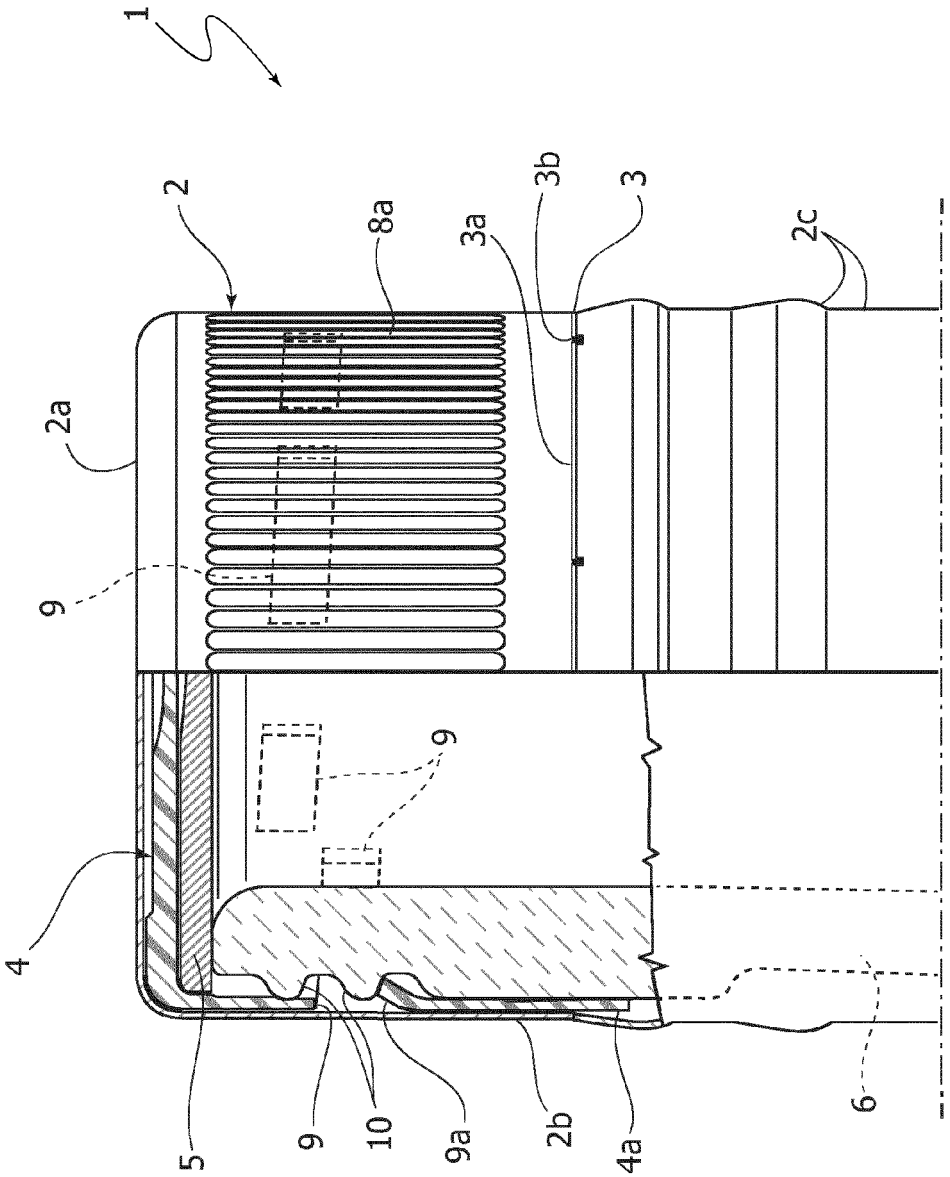


FIG. 3

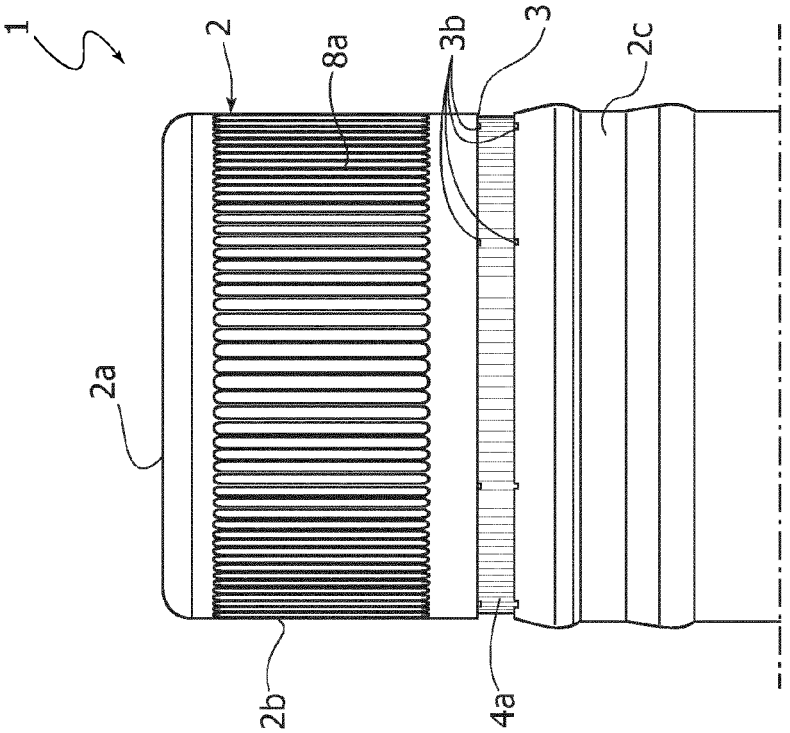


FIG. 2

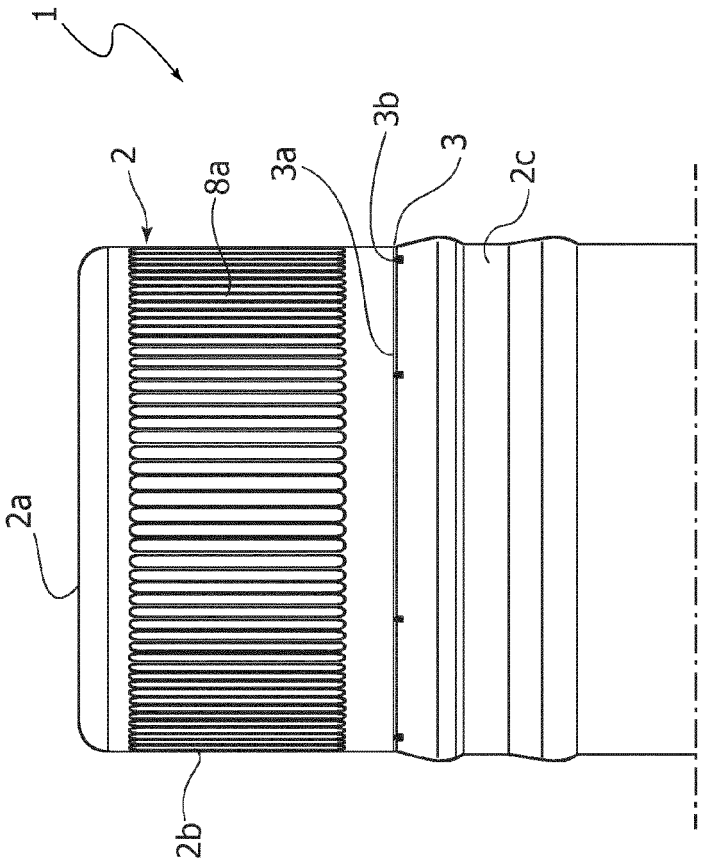


FIG. 5

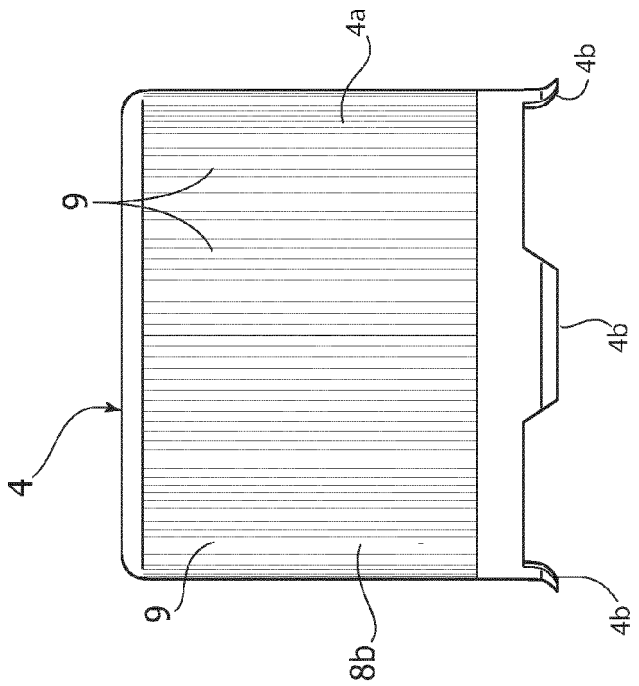
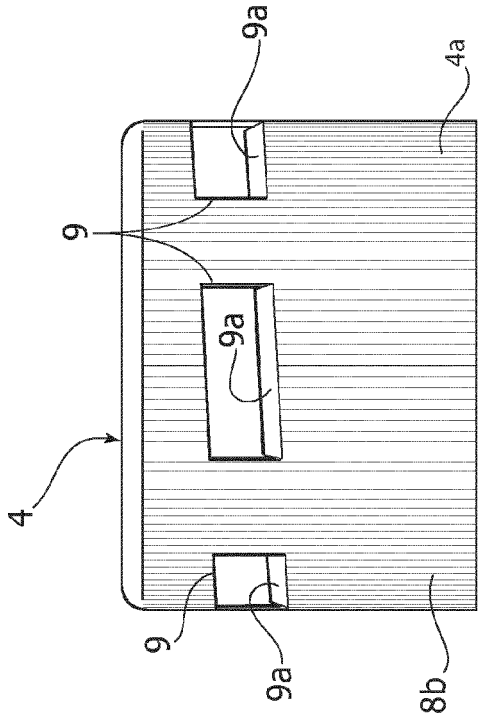


FIG. 4



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Application Number
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B65D

The present search report has been drawn up for all claims

Place of search	Date of completion of the search	Examiner
Munich	30 January 2013	Leijten, René

CATEGORY OF CITED DOCUMENTS

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