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(54) **LOCK FOR TRANSPORTABLE CONTAINERS, SUCH AS TRUNKS, SUITCASES, CASES,
TROLLEYS AND THE LIKE**

SCHLOSS FÜR TRANSPORTIERBARE BEHÄLTER WIE SCHRANKKOFFER, REISEKOFFER,
KÄSTEN, GEPÄCKKULI UND DERGLEICHEN

SERRURE POUR RÉCIPIENTS TRANSPORTABLES, TELS QUE DES MALLES, DES VALISES,
DES CAISSES, DES CHARIOTS OU ANALOGUES

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EP 3 438 385 B1

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Description

[0001] The present invention relates to a lock for transportable containers, such as trunks, suitcases, cases, trolleys and the like. The present description also relates to a transportable container, such as trunks, suitcases, cases, trolleys and the like, that implements at least one above mentioned lock.

[0002] As is known, the heterogeneous category of transportable containers available on the market includes trunks, cases, suitcases, trolleys (and others), that differ in shape, dimensions, materials, functions, as well as in intended use, type of transportable objects and reference customers.

[0003] In this context, it is possible to identify a product category composed of trunks, cases or suitcases that ensure the integrity of the contents thanks to suitable technical solutions and to an appropriate choice of materials.

[0004] More precisely, these containers are composed of two mutually articulated half-shells, made of high-strength polymeric material, which, when arranged in the closed configuration, isolate hermetically the compartment formed inside them, effectively preventing the entry of water, dust and contaminant agents in general.

[0005] In even greater detail, according to an embodiment that is by now established, the compartment is maintained hermetically isolated from outside by a gasket extended along the edge of one of the half-shells, which is compressed elastically by the other half-shell when the container is closed again, preventing indeed the inflow of water, dust and other impurities.

[0006] For these particularities, products of this type are appreciated especially by professional customers, who have to transport apparatuses and equipment which are very sensitive to impacts or contaminations.

[0007] In this regard, the maintaining of the closed configuration is ensured by one or more locks, chosen in a number that is adequate for the dimensions of the container and for the clamping strength that one wishes to generate. Document US 2011/067462 A1 discloses an example of such a lock.

[0008] Each lock comprises a clamp, which is externally articulated to one of the two half-shells and forms a tooth engageable with a lip that protrudes from the other half-shell, so as to ensure indeed the mutual locking of the half-shells. Clearly, the reopening of the container is entrusted to the action of the user, who must grip a terminal flap of the clamp in order to cause its rotation in the opposite direction with respect to the closure direction, forcing the disengagement of the tooth from the lip and allowing indeed the mutual movement of the half-shells.

[0009] However, this constructive solution is not free from drawbacks.

[0010] The locking ensured by the clamp is not completely reliable: in the event of impacts, in fact, the stresses transmitted can cause a further elastic deformation of

the gasket and a slight movement of one half-shell with respect to the other. Sometimes the extent of this movement is in any case sufficient to make the tooth lose its grip on the lip, allowing the rotation of the clamp and the unintentional opening of the container. Clearly, this is an entirely unwanted event, which causes severe damage and inconvenience and must therefore be avoided.

[0011] In order to try to obviate these drawbacks, various solutions have been proposed in the past which however have not been completely satisfactory, because they entail significant structural complications and/or an oversizing of the lock components (which however imposes considerable efforts for normal opening and closing actions of the container) and/or are in any case not very easy to handle.

[0012] The aim of the present invention is to solve the problems described above, by providing a lock for transportable containers that ensure safe locking of the half-shells, contrasting effectively the accidental opening of the container in the case of impacts.

[0013] Within this aim, an object of the invention is to provide a container provided with at least one lock capable of ensuring safe locking of the half-shells and of contrasting efficiently accidental opening in the event of impacts.

[0014] Another object of the invention is to provide a lock that ensures an effective locking of the half-shells with a structurally simple solution that ensures in any case easy disengagement methods, without requiring significant efforts.

[0015] Another object of the invention is to provide a lock and a container that ensure high reliability in operation.

[0016] Another object of the present invention is to propose a lock that uses a technical and structural architecture that are alternative to those of locks of the known type.

[0017] Another object of the invention is to provide a lock and a container that can be obtained easily starting from commonly commercially available elements and materials.

[0018] Yet another object of the invention is to provide a lock and a container that have modest costs and are safe in application.

[0019] This aim and these and other objects that will become better apparent hereinafter are achieved by a lock according to claim 1 and by a transportable container according to claim 10.

[0020] Further characteristics and advantages of the invention will become better apparent from the description of a preferred but not exclusive embodiment of the lock and of the container according to the invention, illustrated by way of non-limiting example in the accompanying drawings, wherein:

Figure 1 is a perspective view of the lock according to the invention;

Figure 2 is a perspective exploded view of the lock

of Figure 1;

Figure 3 is a front elevation view of the lock according to the invention, mounted on a container according to the invention;

Figure 4 is a sectional view of Figure 3, taken along the line IV-IV;

Figure 5 is a sectional view of Figure 3, taken along the line V-V;

Figure 6 is the same sectional view of Figure 5, in a different relative position of the components of the lock;

Figure 7 is a perspective view of a container according to the invention, implementing some locks according to the invention.

[0021] With reference to the figures, the reference numeral 1 generally designates a lock for transportable containers 100, such as suitcases, trunks, cases, trolleys and the like.

[0022] As will be further reaffirmed hereinafter, both the lock 1 and the container 100, provided with one or more locks 1, are the subject matter of the present description and of the protection claimed herein.

[0023] It is therefore certainly appropriate to specify right now that any reference to the containers 100 is to be intended here as being extended to any type of product (suitcases, trunks, cases, trolleys or others) capable of accommodating objects and tools of various types, both for private use and for professional use.

[0024] The container 100 comprises two half-shells 101 which can move between at least one closed configuration, in which they delimit an internal compartment for accommodating objects, and at least one open configuration, for free access to the compartment. Usually, but not exclusively, the movement between the two configurations occurs by rotation of one of the half-shells 101 (the upper one, which acts as a lid) with respect to the other, wherein this rotation is made possible by one or more hinges installed on the rear walls of the half-shells 101.

[0025] Without abandoning the protective scope claimed herein, in the compartment of the container 100 it is thus possible to accommodate tools, apparatuses, electronic equipment or others, in professional use, as well as clothes, objects of various types and personal belongings, in private use.

[0026] In the preferred application and in the accompanying figures, the container 100, for mainly professional use, is a kind of rigid trunk, made of polymeric material with high impact strength and provided with suitable solutions that ensure complete tightness and therefore the capacity to prevent the entry of water, humidity, dust and contaminating agents in general. For example, hermetic tightness can be ensured by a gasket interposed between the half-shells 101 and normally compressed by them in an elastic manner in the closed configuration.

[0027] In any event, it is stated once more that the protective scope claimed herein is certainly to be understood

as also referred to other types of rigid or non-rigid containers 100 made of any materials.

[0028] According to the invention, the lock 1 comprises first of all a clamp 2, which can be articulated to one of the half-shells 101 (to the upper one in the accompanying figures), substantially with one first end portion 2a thereof.

[0029] The clamp 2 is provided with at least one protruding tooth 3, which can engage a lip 102 which protrudes from the other half-shell 101 (the lower one in the accompanying figures) in a position for locking, by hindrance, the half-shells 101, when indeed said half-shells 101 are in the closed configuration.

[0030] Therefore, if one takes care to arrange the clamp 2 in the locking position (the one in which it is shown in the accompanying figures), it is normally impossible to open the container 100.

[0031] The lock 1 according to the invention comprises moreover a lever 4 which is articulated to the clamp 2: the lever 4 is provided with at least one protruding hook 5, which is kept elastically engaged with the lip 102 (Figure 5) when the clamp 2 is in the locking position.

[0032] More precisely, and as can be seen from the accompanying figures, the lip 102, together with the adjacent wall of the container 100, forms a groove 103: according to methods that will be described hereinafter (for one possible embodiment), as long as the clamp 2 is in the locking position, the hook 5 of the lever 4 is kept inserted in the groove 103.

[0033] In this manner, even if an event occurs which tends to disengage the clamp 2 from the lip 102 (for example a fall of the container 100, with consequent transmission of forces to the half-shells 101 and subsequent relative movement), the movement of the clamp 2 is in any case prevented by the lever 4, because its hook 5 remains in any case inserted in the groove 103 and engaged with the lip 102.

[0034] The lever 4 has a first terminal flap 4a which substantially faces and is proximate to, (at least) in the locking position, a second end portion 2b of the clamp 2, which is opposite with respect to the first end portion 2a.

[0035] A traction applied to the first flap 4a thus causes the disengagement of the hook 5 from the lip 102 and, by virtue of this close arrangement (which is evident for example in Figure 5), also the rotational actuation of the clamp 2, so as to disengage also the tooth 3 from said lip 102. In fact, as soon as the lever 4 is moved, in order to disengage the hook 5, its first flap 4a rests on the second end portion 2b of the clamp 2 (Figure 6): by continuing the traction on the first flap 4a, the rotation of the clamp 2, actuated by the lever 4, is caused.

[0036] It is useful to specify that the term "traction", as indicated above, obviously references the action performed by the user who pulls the lever 4 toward himself (opposite with respect to the container 100), gripping it indeed at the first flap 4a. This action imparts a moment to the lever 4, which therefore rotates about its own rotational axis (clockwise in the case of the accompanying

figures), at which the clamp 2 is articulated.

[0037] In normal use conditions, with the half-shells 101 in closed configuration and the clamp 2 in locking position, the lever 4 prevents any accidental movement of said clamp 2 and therefore the unwanted opening of the container 100 following impacts.

[0038] In the meantime, the opening of the container 100 (the release of the lock 1) is achieved in a completely practical and easy way by simply pulling toward oneself the lever 4, thus causing initially the disengagement of the hook 5 from the lip 102 and, after a small rotation, also the disengagement of the tooth 3 (rotationally actuated, with the entire clamp 2, by the lever 4).

[0039] It should be noted also that one wishes to lock the container 100 in the closed configuration it is sufficient to act only on the clamp 2 in order to rotationally actuate the lever 4, obtaining automatically the engagement of its hook 5 with the lip 102. In order to obtain this result, the user must simply press the clamp 2 and/or rotate the second portion 2b toward the container 100, indeed forcing the engagement of the tooth 3 and of the hook 5 with the lip 102.

[0040] In the embodiment shown in the accompanying figures by way of non-limiting example of the application of the invention, the clamp 2 comprises a substantially plate-like shell 6 having a rectangular shape (as can be seen clearly from Figure 3, for example). The shell 6 is bent at a perimetric edge, which forms the first end portion 2a and is crossed by a channel 7 for the insertion of a first pivot, for the articulation of the clamp 2 to the corresponding half-shell 101.

[0041] It is specified that the first pivot can be provided with the lock 1 or not, and for example can be inserted not only in the channel 7 but also in ribs 104 that protrude eternally from the half-shells 101, as indeed in the solution of the accompanying figures.

[0042] The shell 6 has a recess 8 for the rotatable accommodation of the lever 4; when the lock 1 is mounted on the container 100, the shell 6 conceals from view the lever 4, which is indeed accommodated in the recess 8, thus protecting it from shocks and impacts. The first flap 4a (and the lever 4) is maintained in any case accessible from outside (in order to be able to open the container 100), since the recess 8 is open on the opposite side with respect to the cited perimetric edge (where indeed the first flap 4a is facing).

[0043] Indeed in order to be able to actuate it easily, keeping it in any case protected from shocks and accidental impacts, the first flap 4a is according to the invention substantially aligned with the second end portion 2b of the clamp 2 (it is at the same vertical level), at least in the locking position.

[0044] More particularly, the lever 4 is articulated to the clamp 2 at a second pivot 9: the second pivot 9 is arranged parallel to the channel 7 (and therefore to the first pivot already mentioned) and is inserted in respective aligned seats 10, which are formed along the sides of the recess 8, which are constituted in turn by correspond-

ing shaped crests 11 of the shell 6.

[0045] The recess 8 is thus delimited on the bottom by the shell 6 itself, on two sides by the crests 11 and, on another side, by the folded perimetric edge of the shell 6 itself, while on the opposite side with respect to the perimetric edge it is open, in order to allow access to the lever 4. The shell 6 therefore conceals almost completely from view the lever 4, protecting it from shocks and impacts, which could otherwise cause the accidental disengagement of the lock 1. Only a deliberate action on the first flap 4a can allow the opening of the container 100.

[0046] With further reference to the embodiment of the accompanying figures, which does not limit the application of the invention, each crest 11 has a respective tooth 3; moreover, the (two) teeth 3 and the hook 5 are arranged substantially side by side, at least in the locking position.

[0047] Usefully, in the preferred embodiment the lever 4 has, opposite with respect to the first terminal flap 4a, a second elastically deformable terminal flap 4b. In greater detail, the second terminal flap 4b, by virtue of a convenient choice of the dimensions and of its spatial arrangement, is configured to deform elastically at the locking position (as shown in Figure 5).

[0048] In this manner, the (elastic) coupling reaction generated by the second flap 4b in the locking position, indeed due to its deformation, keeps the hook 5 automatically engaged with the lip 102 (it keeps it inserted in the groove 103).

[0049] In this embodiment, it is therefore the deformation that the second flap 4b undergoes in the locking position that ensures that the hook 5 remains engaged with the lip 102 as desired, in order to prevent the accidental disengagement of the lock 1.

[0050] Clearly, when the lever 4 is rotated by gripping and pulling the first flap 4a toward oneself, there is an increase in the elastic deformation of the second flap 4b, as can be seen also from Figure 6.

[0051] More particularly, the second terminal flap 4b is substantially constituted by a curved protrusion which is directed in the opposite direction with respect to the clamp 2. It is not excluded, however, to resort to different embodiments for the second terminal flap 4b, which are in any case within the protective scope claimed herein. For example, it is not excluded to arrange a spring or a body made of elastomeric material on the lever 4, configured to press on the corresponding half-shell 101 in the locking position, thus being deformed elastically in the same way as the protrusion of the accompanying figures.

[0052] Advantageously, the external face of the shell 6, opposite the crests 11, has at least one knurled area 12, in order to allow the user an easier grip.

[0053] Favorably, the terminal portion of the crests 11, which is opposite the first end portion 2a, has a rounded profile (as shown clearly by Figures 1, 2 and 4, for example), for easier grip.

[0054] Usefully, the lock 1 can comprise a device for

selectively enabling rotation by traction of the lever 4. As already noted extensively, the traction of the lever 4 is the one that allows disengagement of the hook 5 first and then of the teeth 3, for the rotation of the clamp 2 and thus the movement of one half-shell 101 with respect to the other. Therefore, the device can be activated/deactivated indeed in order to allow/prevent the movement of the lever 4 and the rotational actuation of the clamp 2. The device can be a body that is mounted so as to be normally in interference with the rotation of the lever 4 and configured so that it can be brought reversibly to an enabling condition, in which it does not hinder the trajectory of the lever 4 and thus does not resist its motion. Enabling can be provided for example by turning a key (which indeed moves the above mentioned body), so as to allow only the designed user (who has the key) to act on the lock 1 to open the container 100. The device thus acts as a kind of padlock or in any case as a further safety, giving an interesting additional particularity to the lock 1 according to the invention.

[0055] As already anticipated, like the lock 1, a container 100, of the type of trunks, suitcases, cases, trolleys and the like, also is the subject matter of the present description (and of the protection claimed herein).

[0056] According to various shapes, dimensions, materials and intended uses, said container 100 comprises two half-shells 101, which can move between at least one closed configuration, in which they delimit an internal compartment for accommodating objects (and in which the container 100 of Figure 7 is shown), and at least one open configuration, for free access to the compartment.

[0057] Furthermore, at least one of the half-shells 101 has a protruding lip 102.

[0058] This container 100 thus comprises at least one lock 1 having the specifications presented in the previous paragraphs (and, particularly, at least a lever 4 that is kept engaged with the lip 102, preventing accidental openings, and can rotationally actuate the clamp 2, for the disengagement of said lock 1).

[0059] It is useful to specify that the container 100 can be provided with any number of locks 1 according to the invention (optionally also in addition to locks of another type), without abandoning the protective scope claimed herein.

[0060] The operation of the lock and of the container according to the invention is as follows.

[0061] After the half-shells 101 have been moved to the closed configuration, the user can lock them by acting on the locks 1, taking care to rotate (anticlockwise, in the example of the figures) the clamp 2 of each one of them up to the locking position, in which, as shown, each tooth 3 engages the lip 102, preventing by hindrance the subsequent rotation of the half-shell 101 that is located upward with respect to the other.

[0062] When the clamp 2 moves to the locking position, it actuates the lever 4 until it causes the engagement of its hook 5 with the lip 102: the hook 5 is retained in the groove 103 by the coupling reaction generated, on the

opposite side, by the elastic deformation of the second terminal flap 4b of said lever 4, pressed against the upper half-shell 101.

[0063] Without specific actions on the lever 4, it is thus impossible to obtain the movement of the clamp 2.

[0064] This is true also in case of impacts or falls of the container 100 such as to cause a further elastic deformation of the sealing gasket and a movement of one half-shell 101 with respect to the other. In fact, even if the teeth 3 temporarily lose their grip on the lip 102, the hindrance provided by the hook 5, kept elastically inserted in the groove 103, prevents the unwanted rotation of the clamp 2 to which the lever 4 is articulated.

[0065] Furthermore, any traction applied only to the lever 2 causes the hook 5 to insert itself further in the groove 103, thus opposing even more forcefully the disengagement of the lock 1 and vice versa causing a stronger clamping.

[0066] The lock 1 according to the invention (and the container 100 that implements it) ensures therefore a safe and effective locking of the half-shells 101, contrasting effectively accidental opening in case of impacts.

[0067] At the same time, the unlocking methods are particularly easy and ergonomic, requiring minimal effort: the user simply has to pull the lever 4a toward himself, using only one or in any case a small number of fingers, to be inserted under the first flap 4a, in order to obtain the disengagement of the hook 5 first and then, by actuation of the clamp 2, of the teeth 3, thus allowing the rotation of said clamp 2 and therefore the movement of one half-shell 101 with respect to the other.

[0068] These results are achieved with a structurally simple solution, which in practice requires just two components that are straightforward to provide in practice (the clamp 2 and the lever 4). Moreover, it should be noted that the intended aims and object are achieved by virtue of a particular interaction between the components, of the couplings conveniently established and of the chosen arrangement, without resorting to the oversizing of the lock 1, therefore without requiring considerable efforts for locking and unlocking and without having to provide any opposite thrust or movement with the thumb, as instead occurs in known solutions.

[0069] The selective enabling device allows to add a further function to the lock 1, making it actuatable only by the designated user.

[0070] The invention thus conceived is susceptible of numerous modifications and variations, as defined by the appended claims; all the details may further be replaced with other technically equivalent elements.

[0071] In the exemplary embodiments described, individual characteristics, given in relation to specific examples, may actually be replaced with other different characteristics that exist in other exemplary embodiments.

[0072] In practice, the materials used, as well as the dimensions, may be any according to the requirements and the state of the art.

[0073] Where technical features mentioned in any

claim are followed by reference signs, those reference signs have been included for the sole purpose of increasing the intelligibility of the claims and accordingly such reference signs do not have any limiting effect on the interpretation of each element identified by way of example by such reference signs.

Claims

1. A lock (1) for transportable containers, such as trunks, suitcases, cases, trolleys and the like, containers (100) comprising two half-shells (101) which can move between at least one closed configuration, in which they delimit an internal compartment for accommodating objects, and at least one open configuration, for free access to the compartment, and comprising:

- a clamp (2), which can be articulated to one of the half-shells (101) substantially with a first end portion (2a) thereof and is provided with at least one protruding tooth (3), which can engage a lip (102) that protrudes from the other one of the half-shells (101) in a position for locking, by hindrance, the half-shells (101) arranged in the closed configuration,

- a lever (4), which is articulated to said clamp (2) and is provided with at least one protruding hook (5), which is kept elastically engaged with the lip (102) when said clamp (2) is in said locking position,

said lever (4) being provided with a first terminal flap (4a) which substantially faces and is proximate to, in said locking position, a second end portion (2b) of said clamp (2), which is opposite with respect to said first portion (2a), traction applied to said first flap (4a) causing the disengagement of said hook (5) from the lip (102) and the rotational actuation of said clamp (2) for the disengagement of said tooth (3) from the lip (102),

said lock (1) being **characterized in that** at least in said locking position said first flap (4a) is substantially aligned with said second end portion (2b) of said clamp (2), so as to be substantially at the same vertical level with respect to said second end portion (2b) of said clamp (2), the vertical direction corresponding substantially to the direction linking the two end portions (2a, 2b) of the clamp (2), in order to be able to actuate said first flap (4a) easily, keeping said first flap (4a) in any case protected by said second end portion (2b) of said clamp (2) from shocks and accidental impacts.

2. The lock according to claim 1, **characterized in that** said clamp (2) comprises a substantially plate-like shell (6) having a rectangular shape, which is bent

at a perimetric edge, forming said first end portion (2a) and being crossed by a channel (7) for insertion of a first pivot, for the articulation of said clamp (2) to the corresponding half-shell (101), said shell (6) being provided with a recess (8) for the rotatable accommodation of said lever (4), which is open at the opposite side with respect to said perimetric edge for access to said first flap (4a), which is substantially aligned with said second end portion (2b) of said clamp (2), at least in said locking position.

3. The lock according to claim 2, **characterized in that** said lever (4) is articulated to said clamp (2) at a second pivot (9), which is parallel to said channel (7) and is inserted in respective aligned seats (10) formed along the sides of said recess (8), which are constituted by corresponding shaped crests (11) of said shell (6).

4. The lock according to claim 3, **characterized in that** each one of said crests (11) is provided with a respective said tooth (3), said teeth (3) and said hook (5) substantially facing each other, at least in said locking position.

5. The lock according to one or more of the preceding claims, **characterized in that** said lever (4) has, on the opposite side with respect to said first terminal flap (4a), a second elastically deformable terminal flap (4b), which is configured for its elastic deformation at said locking position, the coupling reaction generated by said second flap (4b) in said locking position keeping said hook (5) engaged with the lip (102).

6. The lock according to claim 5, **characterized in that** said second terminal flap (4b) is substantially constituted by a curved protrusion which is directed in the opposite direction with respect to said clamp (2).

7. The lock according to one or more of the preceding claims, **characterized in that** the external face of said shell (6), which lies opposite said crests (11), has at least one knurled area (12) for easier grip.

8. The lock according to one or more of the preceding claims, **characterized in that** the terminal portion of said crests (11), which lies opposite said first end portion (2a), has a rounded profile for easier grip.

9. The lock according to one or more of the preceding claims, **characterized in that** it comprises a device for selectively enabling rotation by traction of said lever (4), which can be activated/deactivated to allow/prevent the movement of said lever (4) and the rotational traction of said clamp (2).

10. A transportable container, such as trunks, suitcases,

cases, trolleys and the like, comprising two half-shells (101), which can move between at least one closed configuration, in which they delimit an internal compartment for accommodating objects, and at least one open configuration, for free access to the compartment, at least one of said half-shells (101) having a protruding lip (102), **characterized in that** it comprises at least one lock (1) according to one or more of the preceding claims.

Patentansprüche

1. Ein Schloss (1) für Transportbehälter, wie Schrankkoffer, Reisekoffer, Kästen, Trolleys und dergleichen, wobei die Behälter (100) zwei Halbschalen (101) umfassen, die sich zwischen mindestens einer geschlossenen Anordnung, in welcher sie einen Innenraum zur Aufnahme von Gegenständen bestimmen, und mindestens einer offenen Anordnung für den freien Zugriff auf den Innenraum bewegen können; Folgendes umfassend:

- eine Klammer (2), die im Wesentlichen an einem ersten Endabschnitt (2a) derselben gelenkig mit einer der Halbschalen (101) verbunden werden kann und mit mindestens einem vorstehenden Zahn (3) ausgestattet ist, welcher in eine Lippe (102) eingreifen kann, die in einer Position zum Verschließen durch Behinderung aus der anderen der Halbschalen (101) herausragt, wenn die Halbschalen (101) sich in der geschlossenen Anordnung befinden,
- einen Hebel (4), der gelenkig mit der Klammer (2) verbunden und mit mindestens einem vorstehenden Haken (5) ausgestattet ist, welcher elastisch mit der Lippe (102) in Eingriff gehalten wird, wenn die Klammer (2) in der Verschlussposition ist,

wobei der Hebel (4) mit einer ersten Endklappe (4a) ausgestattet ist, die in der Verschlussposition einem zweiten Endabschnitt (2b) der Klammer (2) im Wesentlichen zugewandt ist und an ihn angrenzt, der dem ersten Abschnitt (2a) gegenüberliegt; wobei auf die erste Klappe (4a) ausgeübter Zug das Lösen des Hakens (5) von der Lippe (102) und die Drehbetätigung der Klammer (2) zum Trennen des Zahns (3) von der Lippe (102) veranlasst; wobei das Schloss (1) **dadurch gekennzeichnet ist, dass** zumindest in der Verschlussposition die erste Klappe (4a) im Wesentlichen mit dem zweiten Endabschnitt (2b) der Klammer (2) fluchtet, so dass sie sich im Wesentlichen auf demselben vertikalen Niveau wie der zweite Endabschnitt (2b) der Klammer (2) befindet; wobei die vertikale Richtung im Wesentlichen der Richtung entspricht, die die beiden Endabschnitte (2a, 2b) der Klammer (2) verbindet,

um die erste Klappe (4a) leicht betätigen zu können, wobei die erste Klappe (4a) in jedem Fall durch den zweiten Endabschnitt (2b) der Klammer (2) vor Stößen und zufälligem Aufprall geschützt wird.

2. Das Schloss gemäß Anspruch 1, **dadurch gekennzeichnet, dass** die Klammer (2) eine im Wesentlichen plattenähnliche Schale (6) mit rechteckiger Form umfasst, die an einer Umfangskante gebogen ist und so den ersten Endabschnitt (2a) bildet und von einem Kanal (7) zum Einführen eines ersten Drehzapfens zur gelenkigen Verbindung der Klammer (2) mit der entsprechenden Halbschale (101) durchquert wird; wobei die Schale (6) mit einer Vertiefung (8) für die drehbare Aufnahme des Hebels (4) versehen ist, die an der Seite offen ist, welche der Umfangskante gegenüberliegt, zum Zwecke des Zugriffs auf die erste Klappe (4a), welche mindestens in der Verschlussposition im Wesentlichen mit dem zweiten Endabschnitt (2b) der Klammer (2) fluchtet.
3. Das Schloss gemäß Anspruch 2, **dadurch gekennzeichnet, dass** der Hebel (4) mit der Klammer (2) gelenkig an einem zweiten Drehzapfen (9) verbunden ist, der parallel zu dem Kanal (7) und in entsprechende ausgerichtete Sitze (10) eingeführt ist, die entlang den Seiten der Vertiefung (8) geformt sind, welche aus entsprechenden geformten Oberteilen (11) der Schale (6) bestehen.
4. Das Schloss gemäß Anspruch 3, **dadurch gekennzeichnet, dass** jedes der Oberteile (11) mit dem dazugehörigen Zahn (3) versehen ist, wobei der Zahn (3) und der Haken (5) zumindest in der Verschlussposition einander im Wesentlichen zugewandt sind.
5. Das Schloss gemäß einem oder mehreren der obigen Ansprüche, **dadurch gekennzeichnet, dass** der Hebel (4) auf der Seite, die der ersten Endklappe (4a) gegenüberliegt, eine zweite elastisch verformbare Endklappe (4b) hat, die für ihre elastische Verformung in der Verschlussposition ausgebildet ist, wobei die Kopplungsreaktion, die von der zweiten Klappe (4b) in der Verschlussposition erzeugt wird, den Haken (5) mit der Lippe (102) in Eingriff hält.
6. Das Schloss gemäß Anspruch 5, **dadurch gekennzeichnet, dass** die zweite Endklappe (4b) im Wesentlichen aus einem gekrümmten Vorsprung besteht, der in die der Klammer (2) entgegengesetzte Richtung ausgerichtet ist.
7. Das Schloss gemäß einem oder mehreren der obigen Ansprüche, **dadurch gekennzeichnet, dass** die Außenseite der Schale (6), die den Oberteilen (11) gegenüberliegt, mindestens eine gerändelte Fläche (12) zum besseren Greifen hat.

8. Das Schloss gemäß einem oder mehreren der obigen Ansprüche, **dadurch gekennzeichnet, dass** der Endabschnitt der Oberteile (11), der dem ersten Endabschnitt (2a) gegenüberliegt, ein abgerundetes Profil zum besseren Greifen hat. 5
9. Das Schloss gemäß einem oder mehreren der obigen Ansprüche, **dadurch gekennzeichnet, dass** es eine Vorrichtung zum selektiven Ermöglichen der Drehung durch Zug des Hebels (4) umfasst, die aktiviert/deaktiviert werden kann, um die Bewegung des Hebels (4) und das drehende Ziehen der Klammer (2) zu gestatten/zu verhindern. 10
10. Ein Transportbehälter, wie zum Beispiel Schrankkoffer, Reisekoffer, Kästen, Trolleys und dergleichen, der zwei Halbschalen (101) umfasst, die sich zwischen mindestens einer geschlossenen Anordnung, in welcher sie einen Innenraum zur Aufnahme von Gegenständen bestimmen, und mindestens einer offenen Anordnung für den freien Zugriff auf den Innenraum bewegen können; wobei mindestens eine der Halbschalen (101) eine vorstehende Lippe (102) hat; **dadurch gekennzeichnet, dass** er mindestens ein Schloss (1) gemäß einem oder mehreren der obigen Ansprüche umfasst. 20 25

Revendications

1. Serrure (1) destinée à des contenants transportables, tels que des malles, des valises, des coffres, des chariots et similaires, les contenants (100) comprenant deux demi-enveloppes (101) mobiles entre au moins une configuration fermée, dans laquelle elles délimitent un compartiment intérieur destiné à recevoir des objets, et au moins une configuration ouverte, permettant d'accéder librement au compartiment, et comprenant :
- une bride (2), qui peut être articulée par rapport à l'une des demi-enveloppes (101) sensiblement avec une première partie extrémité (2a) de celle-ci, et dotée d'une dent saillante au moins (3), qui peut venir en prise avec une lèvre (102) qui fait saillie à partir de l'autre des demi-enveloppes (101) dans une position de verrouillage, par blocage, des demi-enveloppes (101) agencées dans la configuration fermée,
 - un levier (4), qui est articulé par rapport à ladite bride (2), et qui est doté d'un crochet saillant (5) au moins, qui est maintenu en prise de manière élastique avec la lèvre (102) lorsque ladite bride (2) se trouve dans ladite position de verrouillage,
- ledit levier (4) étant doté d'un premier rabat terminal (4a) qui, dans ladite position de verrouillage, fait sensiblement face et est proximal à une seconde partie

extrémité (2b) de ladite bride (2), qui est opposée à ladite première partie (2a), une traction appliquée audit premier rabat (4a) provoquant la mise hors de prise dudit crochet (5) de la lèvre (102) et l'actionnement en rotation de ladite bride (2) pour mettre ladite dent (3) hors de prise de la lèvre (102), ladite serrure (1) étant **caractérisée en ce que**, au moins dans ladite position de verrouillage, ledit premier rabat (4a) est sensiblement aligné avec ladite seconde partie extrémité (2b) de ladite bride (2), afin d'être sensiblement au même niveau vertical que ladite seconde partie extrémité (2b) de ladite bride (2), la direction verticale correspondant sensiblement à la direction qui joint les deux parties extrémités (2a, 2b) de la bride (2), afin de pouvoir actionner facilement ledit premier rabat (4a), en maintenant dans tous les cas ledit premier rabat (4a) protégé par ladite seconde partie extrémité (2b) de ladite bride (2), vis-à-vis de chocs et d'impacts accidentels.

2. Serrure selon la revendication 1, **caractérisée en ce que** ladite bride (2) comprend une enveloppe sensiblement similaire à une plaque (6) qui présente une forme rectangulaire, qui est pliée au niveau d'un bord périmétrique, en formant ladite première partie extrémité (2a), et qui est traversée par un canal (7) destiné à l'insertion d'un premier pivot, destiné à l'articulation de ladite bride (2) par rapport à la demi-enveloppe correspondante (101), ladite enveloppe (6) étant dotée d'un renforcement (8) destiné à recevoir en rotation ledit levier (4), qui est ouvert du côté opposé par rapport audit bord périmétrique pour accéder audit premier rabat (4a), qui est sensiblement aligné avec ladite seconde partie extrémité (2b) de ladite bride (2), au moins dans ladite position de verrouillage. 30 35
3. Serrure selon la revendication 2, **caractérisée en ce que** ledit levier (4) est articulé par rapport à ladite bride (2) au niveau d'un second pivot (9), qui est parallèle audit canal (7) et qui est inséré dans les sièges alignés respectifs (10) formés le long des côtés dudit renforcement (8), qui sont constitués par des crêtes de formes correspondantes (11) de ladite enveloppe (6). 40 45
4. Serrure selon la revendication 3, **caractérisée en ce que** chacune desdites crêtes (11) est dotée d'une dite dent respective (3), lesdites dents (3) et ledit crochet (5) se faisant sensiblement face, au moins dans ladite position de verrouillage. 50
5. Serrure selon l'une quelconque des revendications précédentes, **caractérisée en ce que** ledit levier (4) présente, sur le côté opposé audit premier rabat terminal (4a), un second rabat terminal déformable élastiquement (4b), qui est configuré pour se déformer élastiquement au niveau de ladite position de 55

verrouillage, la réaction d'accouplement générée par ledit second rabat (4b) dans ladite position de verrouillage maintenant ledit crochet (5) en prise avec la lèvre (102).

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6. Serrure selon la revendication 5, **caractérisée en ce que** ledit second rabat terminal (4b) est constitué sensiblement par une saillie incurvée qui est dirigée dans la direction opposée à ladite bride (2).

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7. Serrure selon l'une quelconque des revendications précédentes, **caractérisée en ce que** la face extérieure de ladite enveloppe (6), qui se situe à l'opposé desdites crêtes (11), présente au moins une zone moletée (12) pour une préhension plus facile.

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8. Serrure selon l'une quelconque des revendications précédentes, **caractérisée en ce que** la partie terminale desdites crêtes (11), qui se situe à l'opposé de ladite première partie extrémité (2a), présente un profil arrondi pour une préhension plus facile.

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9. Serrure selon l'une quelconque des revendications précédentes, **caractérisée en ce qu'elle** comprend un dispositif destiné à permettre sélectivement une rotation suite à une traction dudit levier (4), qui peut être activé / désactivé afin de permettre / d'empêcher le déplacement dudit levier (4) et la traction en rotation de ladite bride (2).

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10. Contenant transportable, tel qu'une malle, une valise, un coffre, un chariot et similaire, comprenant deux demi-enveloppes (101) mobiles entre au moins une configuration fermée, dans laquelle elles délimitent un compartiment intérieur destiné à recevoir des objets, et au moins une configuration ouverte, permettant d'accéder librement au compartiment, l'une au moins desdites demi-enveloppes (101) présentant une lèvre saillante (102), **caractérisé en ce qu'il** comprend au moins une serrure (1) selon l'une quelconque des revendications précédentes.

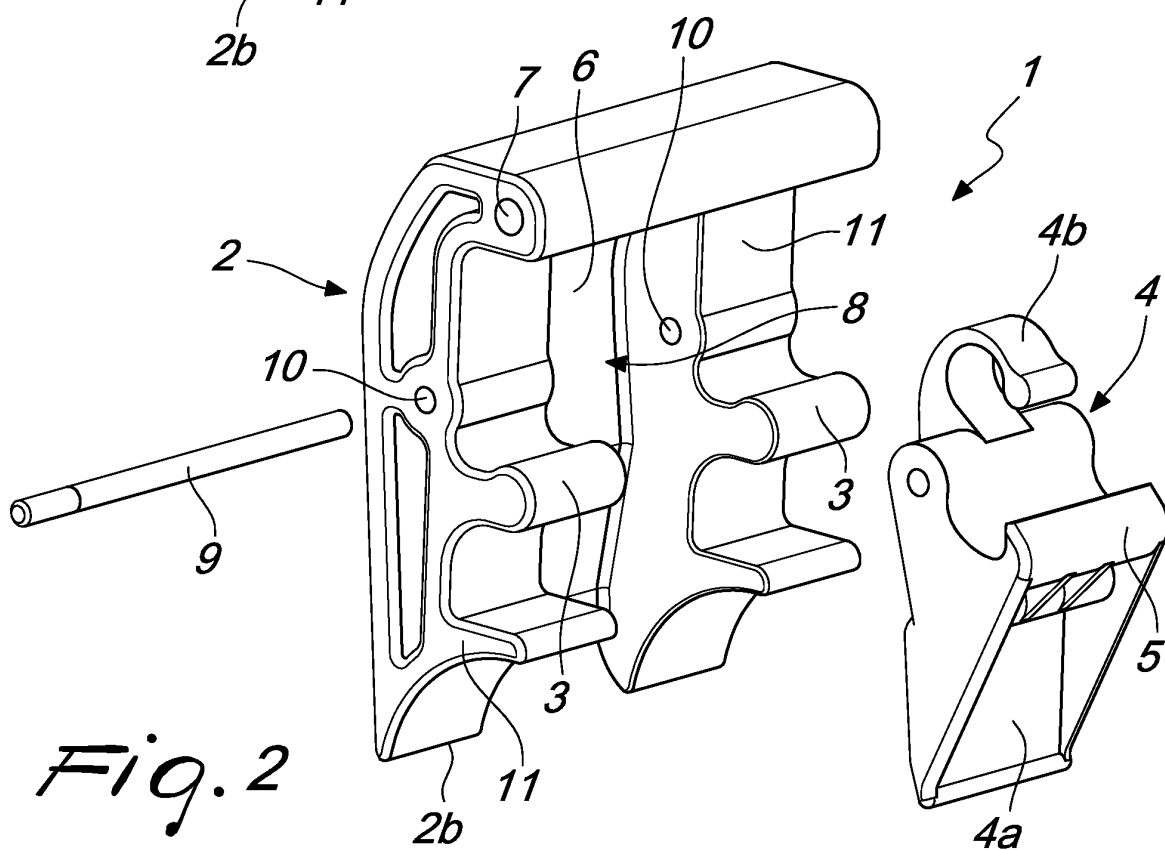
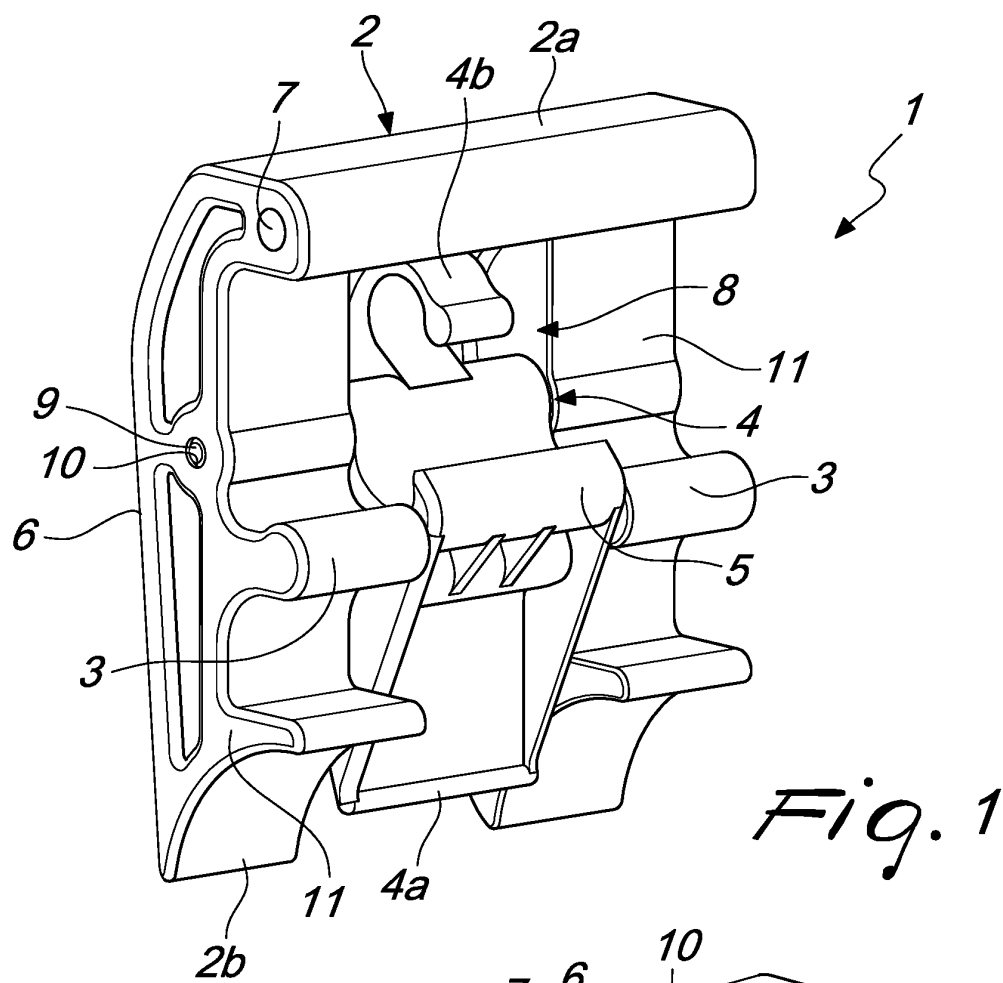
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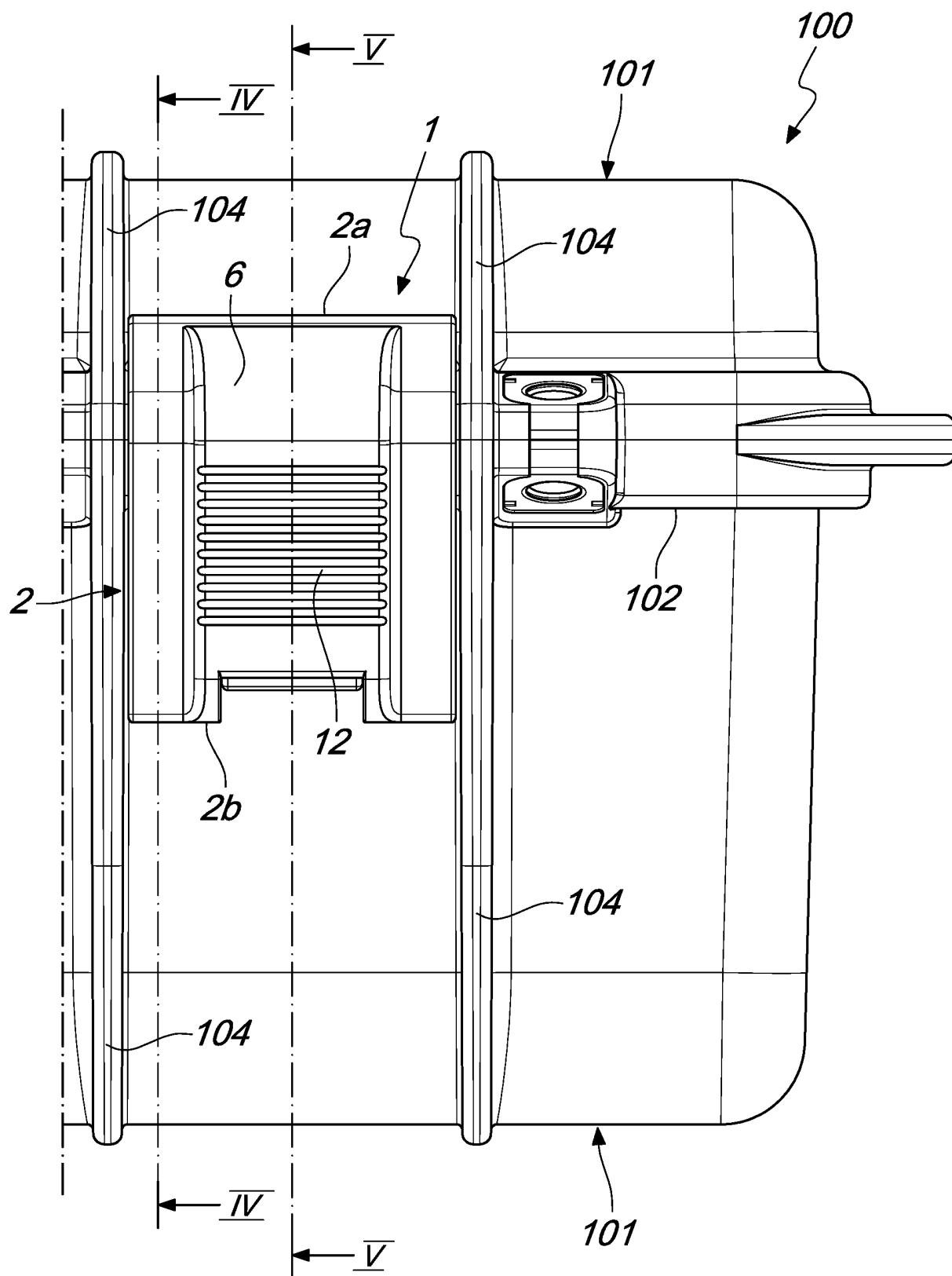


Fig. 3

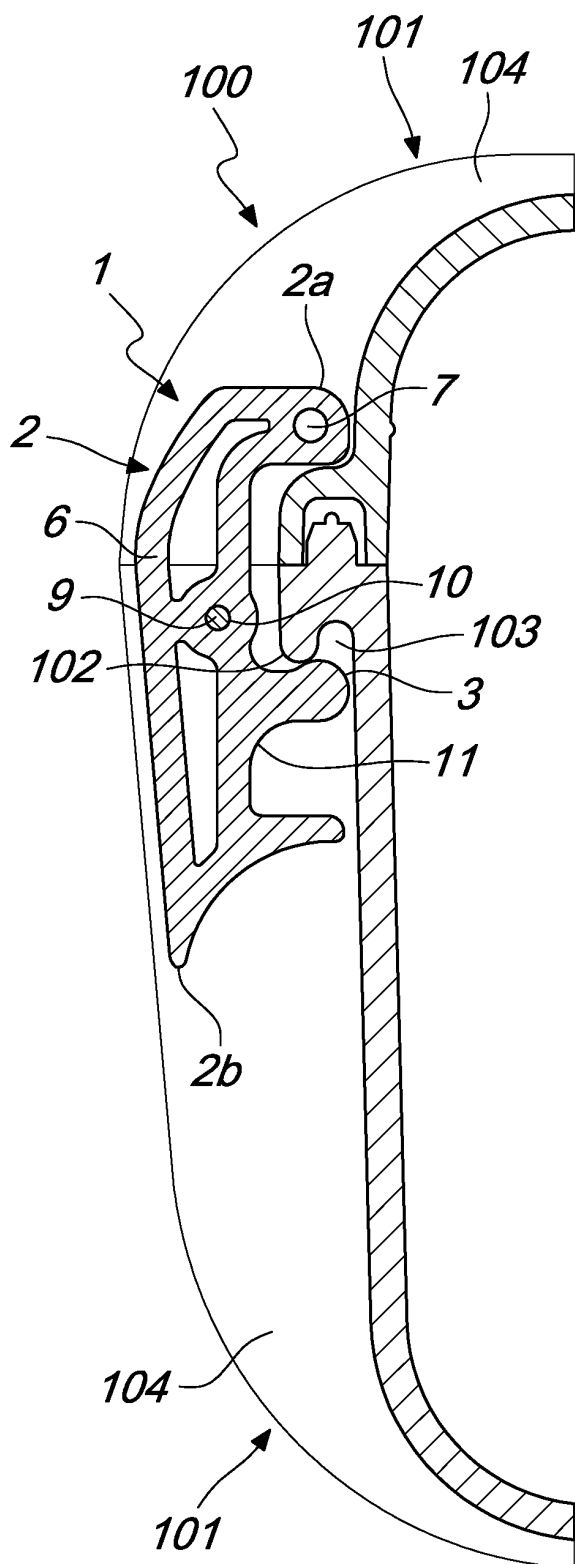


Fig. 4

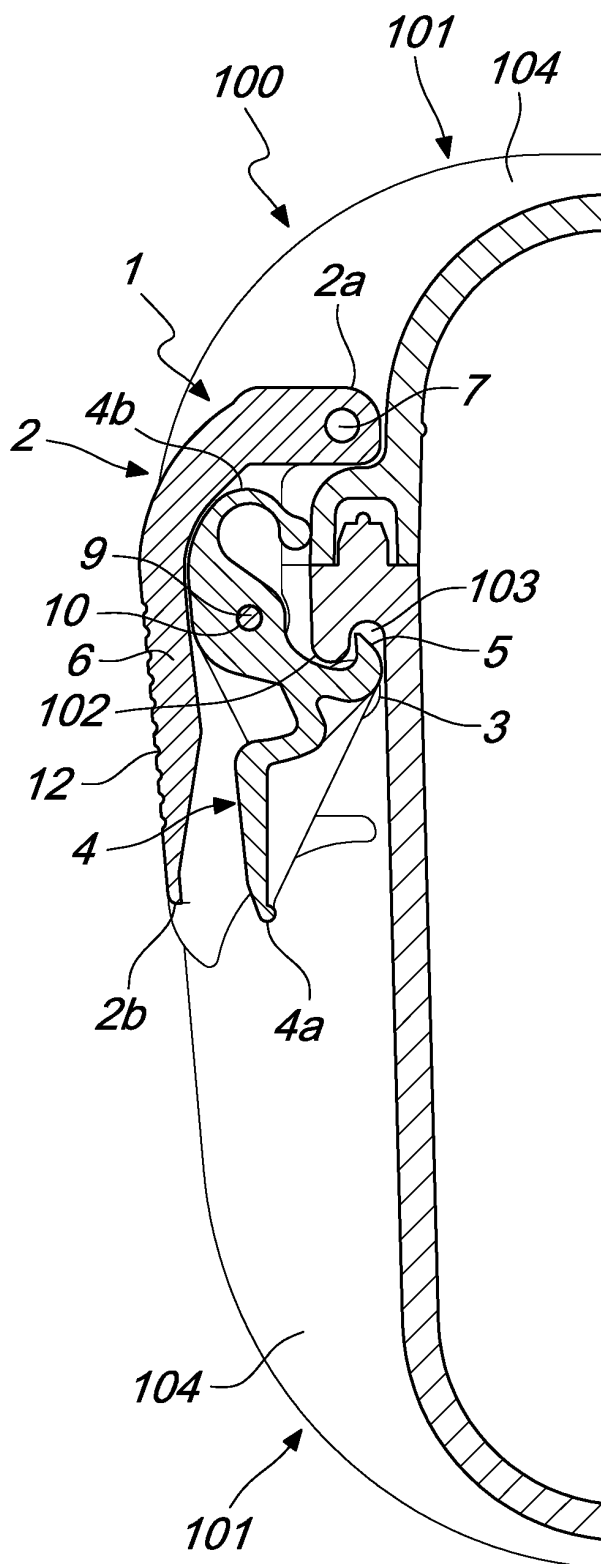


Fig. 5

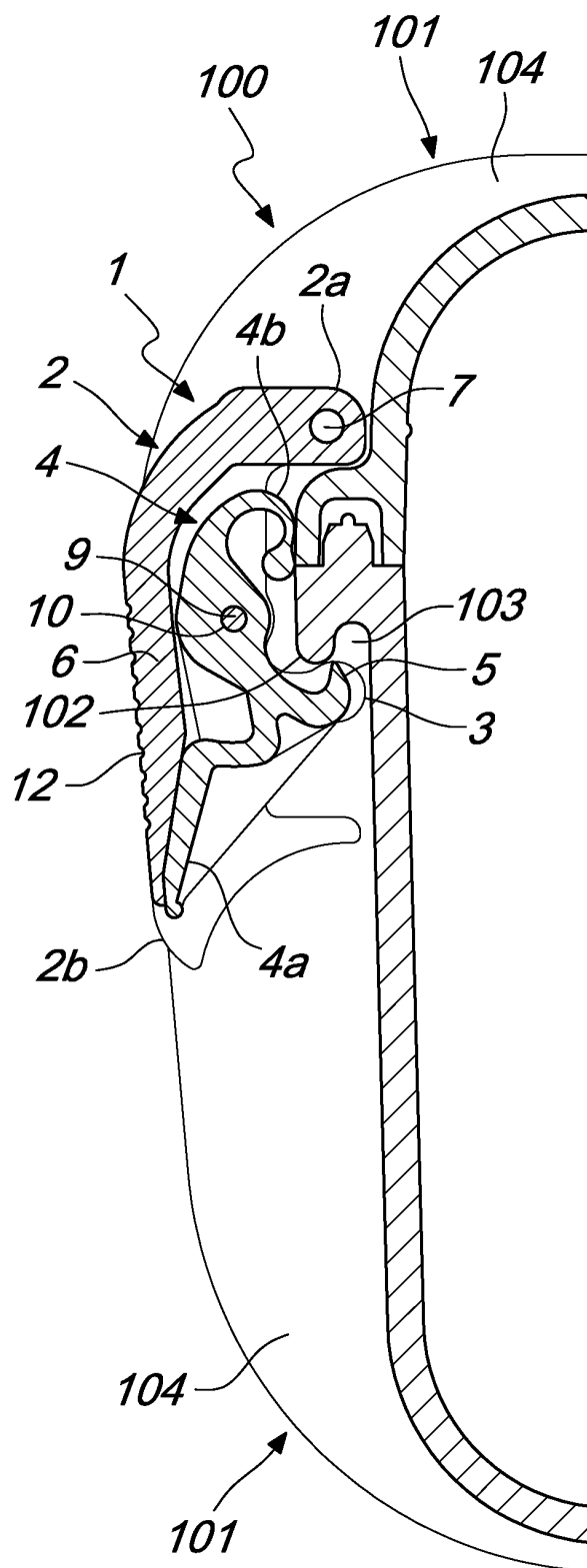
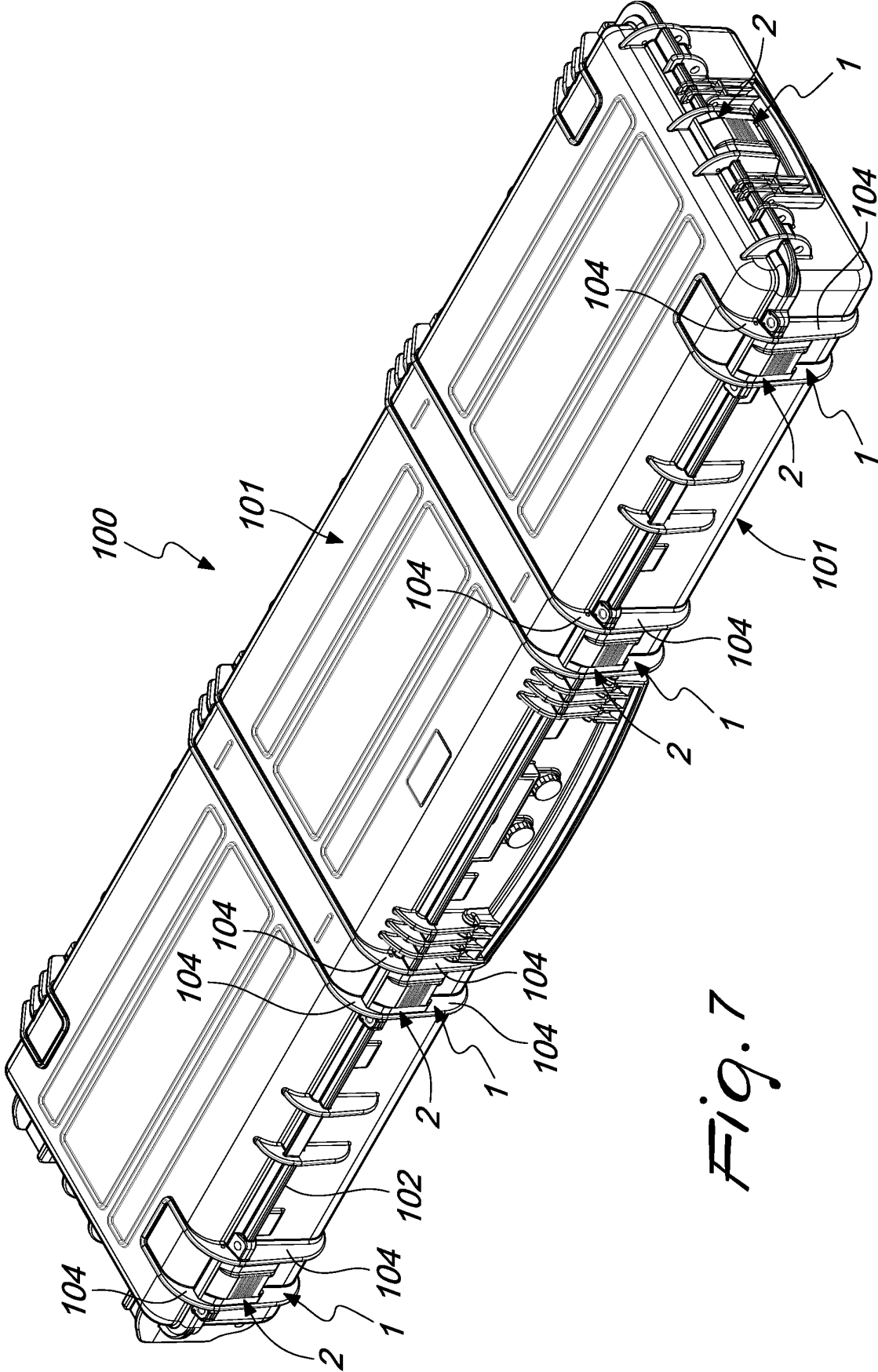


Fig. 6



REFERENCES CITED IN THE DESCRIPTION

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