



(12) **EUROPEAN PATENT APPLICATION**

(43) Date of publication: **26.03.2014** **Bulletin 2014/13** (51) Int Cl.: **E05B 83/10** ^(2014.01) **E05C 17/52** ^(2006.01)
(21) Application number: **13185495.2**
(22) Date of filing: **23.09.2013**

(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 (30) Priority: 24.09.2012 IT BO20120512	(71) Applicant: Pastore & Lombardi S.p.A. Bologna (IT) (72) Inventor: Hilbe, Luca 40123 Bologna (IT) (74) Representative: Modiano, Micaela Nadia Modiano & Partners (IT) Via Meravigli, 16 20123 Milano (IT)
---	--

(54) **Locking assembly, and engagement element, of the door of vehicles**

(57) Assembly for locking the door (A) of vehicles (B), of the type of vans, trucks, lorries, semi-trailer trucks, trailers and the like, which comprises at least one base plate (2), which can be coupled rigidly to the chassis (C) of a vehicle (B), proximate to an opening for access to an internal compartment, and a lever (3), which is anchored rigidly to a rod (4) that can be supported rotatably by a door (A) for closing the compartment, the plate (2) and the lever (3) being affected by first coupling means (5), which can be actuated at a first angular position of the lever (3) and with the door (A) arranged in the configuration for closing the compartment, in order to lock the door (A), the plate (2) and the lever (3) being further affected by second coupling means, which can be actuated at at least one second angular position of the lever

(3) and with the door (A) partially rotated with respect to the closed configuration, in order to lock the door (A) in at least one partially open configuration, the first coupling means (5) comprising a first, curved end (3a) of the lever (3) which can be engaged by interlocking below a cross-member (6), which is supported in a cantilever manner by the plate (2).

The second coupling means comprise a contoured engagement element (11), which is anchored externally to a second end (3b) of the lever (3), which is opposite the first end (3a), and can engage by elastic forcing with the crossmember (6), at the at least one second angular position of the lever (3) and with the door (A) partially rotated with respect to the closed configuration, in order to lock the door (A) in the at least one partially open configuration.

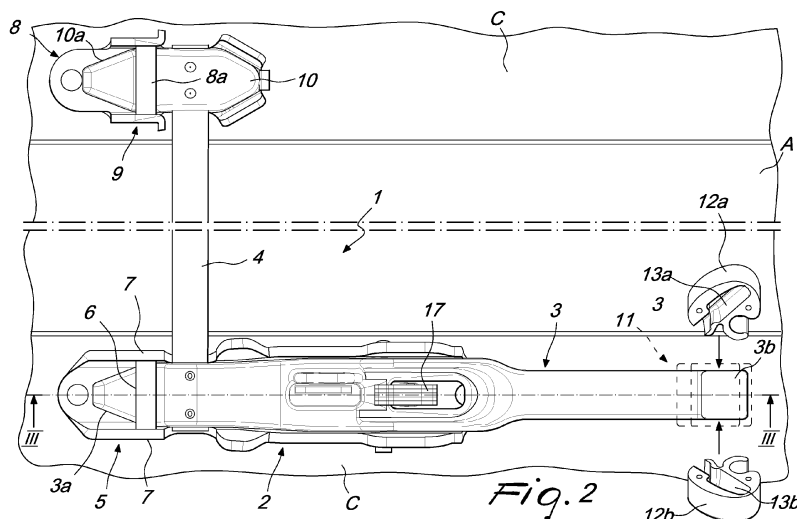


Fig. 2

Description

[0001] The present invention relates to a locking assembly, and an engagement element, of the door of vehicles.

[0002] In the field of vehicles, and more specifically of vehicles of the type of vans, lorries, trucks, etc., apparatuses are widely used which are also known as undersill devices and are adapted to the stably lock the rear door, in a configuration for closing the internal compartment of the body, with which typically such vehicles are provided, in order to allow the storage of the goods to be transported.

[0003] Such apparatuses thus prevent the accidental opening of the door, but can be actuated by a user who wants to gain access to the compartment.

[0004] According to methods that are substantially known, undersill devices are thus provided with a contoured plate, which can be fixed to the body (below the door for example), and a lever, which is rigidly supported by the base of a vertical rod, which is rotatably mounted on the door.

[0005] In this manner, when the door is arranged to close the compartment, the lever is arranged proximate to the plate and can be engaged, with one of its ends, with a corresponding retaining element, provided on the plate itself, thus defining the secured configuration of the door.

[0006] Moreover, in order to strengthen the coupling of the door to the body, undersill devices also comprise a pawl element, which is in turn rigidly supported by the top of the vertical rod, and which, when the door is pulled to on the body, can be engaged with a further plate (sometimes called a "strike plate") which is anchored to the frame of the vehicle (for example above the door).

[0007] In order to gain access to the compartment, the user simply has to actuate the lever, in order to determine the simultaneous disengagement of the lever and of the pawl element (which is integral with it), respectively from the plate and from the strike plate, and thus be able to rotate the door allowing entry inside the vehicle.

[0008] One of the technical problems that the firms that make the undersill devices described above are called on to solve, in the face of increasingly frequent requests by customers, is that of ensuring the ability to stably lock the door in a second configuration, in which it is rotated by a few degrees with respect to the locked position, in order to keep it essentially ajar, and make it possible to at least change the air between the internal compartment and the external environment.

[0009] Implementation solutions have thus been proposed which make it possible to lock the door in the second configuration mentioned above, thanks to modifications to the lever and to other elements, which are mounted both on the plate and on the lever itself, precisely in order to allow the user to anchor the lever to the plate after rotating the door by a few degrees.

[0010] However, such implementation solutions are

not devoid of drawbacks.

[0011] In fact they involve the need to make major modifications to the structure of the plate and of the lever, thus making their use impossible on undersill devices that are already on the market or which in any case have already been produced, but for which the new functionality described above is in some cases required, and, what is more, determining an unwanted increase of the overall cost of the product.

[0012] Moreover, it must be noted that often the contrivances adopted have been found to be insufficient in ensuring the locking against accidental impacts and/or other stresses to which the door is subjected, such as, for example, stresses owing to the action of the wind, blowing at right angles to the door.

[0013] In fact, in order to allow an easy actuation by the user who wants to unlock the door, the conventional solutions are of negligible size, weight and mechanical strength, in order to prevent the coupling that was achieved from requiring a considerable force in order to be undone. This however makes the locking unstable, and, as noted, makes it easy to defeat by external forces that might affect the door.

[0014] The aim of the present invention is to solve the above mentioned problems, by providing an assembly that ensures the locking of the door of a vehicle in the partially open configuration as well, in which the internal compartment is thus placed in communication with the external environment.

[0015] Within this aim, an object of the invention is to provide an element that makes it possible to perform the locking of the door of a vehicle in the partially open configuration, in which the internal compartment is thus placed in communication with the external environment.

[0016] Another object of the invention is to provide a locking assembly that ensures the locking of the door in the partially open configuration, with a coupling that is secure and stable, even against shocks and violent stresses brought to bear on the door, without affecting the ease of actuation for the user.

[0017] A further object of the invention is to provide an engagement element that can be adopted on closure devices of existing doors, without requiring structural modifications to such doors.

[0018] A still further object of the invention is to provide a locking assembly that ensures a high reliability of operation.

[0019] Another object of the invention is to provide a locking assembly that can be easily implemented using elements and materials that are readily available on the market.

[0020] Another object of the invention is to provide a locking assembly that is low cost and safely applied.

[0021] This aim, these objects and others that will become more apparent hereinafter are achieved by an assembly for locking the door of vehicles, of the type of vans, trucks, lorries, semi-trailer trucks, trailers and the like, comprising at least one base plate, which can be

coupled rigidly to the chassis of a vehicle, proximate to an opening for access to an internal compartment, and a lever, which is anchored rigidly to a rod that can be supported rotatably by a door for closing the compartment, said plate and said lever being affected by first coupling means, which can be actuated at a first angular position of said lever and with the door arranged in the configuration for closing the compartment, in order to lock the door, and by second coupling means, which can be actuated at at least one second angular position of said lever and with the door partially rotated with respect to the closed configuration, in order to lock the door in at least one partially open configuration, said first coupling means comprising a first, curved end of said lever which can be engaged by interlocking below a crossmember, which is supported in a cantilever manner by said plate, **characterized in that** said second coupling means comprise a contoured engagement element, which is anchored externally to a second end of said lever, which is opposite said first end, and can engage by elastic forcing with said crossmember, at said at least one second angular position of said lever and with the door partially rotated with respect to the closed configuration, in order to lock the door in the at least one partially open configuration.

[0022] This aim and these objects are also achieved by an engagement element for assemblies for locking the door of vehicles, of the type of vans, trucks, lorries, semi-trailer trucks, trailers and the like, said assemblies comprising at least one base plate, which can be coupled rigidly to the chassis of a vehicle, proximate to an opening for access to an internal compartment, and a lever, which is anchored rigidly to a rod that is supported rotatably by a door for closing the compartment, the plate and the lever being affected by coupling means, which can be actuated at a first angular position of the lever and with the door arranged in the configuration for closing the compartment, in order to lock the door, the coupling means comprising a first, curved end of the lever which can be engaged by interlocking below a crossmember, which is supported in a cantilever manner by the plate, **characterized in that** it comprises a shell, which defines internally a recess that is shaped complementarily to said second end, for shape mating with said lever, and a contoured surface portion, which defines an elastic accommodation seat for the crossmember, at at least one second angular position of the lever and with the door partially rotated with respect to the closed configuration, in order to lock the door in at least one partially open configuration.

[0023] Further characteristics and advantages of the invention will become better apparent from the description of a preferred, but not exclusive, embodiment of the locking assembly and of the engagement element according to the invention, which are illustrated by way of non-limiting example in the accompanying drawings wherein:

Figure 1 is a view of the locking assembly according to the invention, applied to a vehicle, in a first configuration of use;

Figure 2 is a view of the locking assembly according to the invention, in the first configuration of use, showing how the engagement element is mounted; Figure 3 is a sectional view of Figure 2 taken along the line III-III;

Figure 4 is a view of the locking assembly according to the invention, in a second configuration of use;

Figure 5 is a perspective view of the engagement element;

Figure 6 is an exploded perspective view of the engagement element.

[0024] With reference to the figures, the reference numeral 1 generally designates a locking assembly of the door A of vehicles B; the vehicles B can be of any type (as can the doors A), while remaining within the scope of protection claimed herein, but according to the preferred application the vehicles B are of the type of vans, trucks, lorries, semi-trailer trucks, trailers and the like and the assembly 1 enables the locking of the rear door A of such vehicles B, which is normally designed for closing an internal compartment used for the storage and transport of different types of goods.

[0025] Thus reference shall be made to such preferred application in the present discussion, but it should be noted from this point onward that the adoption is not ruled out of the assembly 1 according to the invention in different applications, according to specific requirements, while remaining within the scope of protection claimed herein.

[0026] It should further be noted from this point onward that the possibility exists of providing a door A with two or more assemblies 1 according to the invention, just as the possibility is not ruled out of installing, on the same vehicle B, an assembly 1 (or even two or more) for each door A that may be provided (such as for example in the example shown in the accompanying figures, where the vehicle B is provided with two doors A, each one of which is lockable by means of a respective assembly 1).

[0027] In any case, the assembly 1 comprises at least one base plate 2, which can be rigidly coupled to the chassis C of the vehicle B, proximate to an opening for access to the internal compartment, and a lever 3, which is anchored rigidly to a rod 4 that can be supported rotatably by the door A for closing the compartment.

[0028] The plate 2 and the lever 3 are thus affected by first coupling means 5, which can be actuated (manually by a user) at a first angular position of the lever 3 and with the door A arranged in the configuration for closing the compartment (shown in Figures 1, 2 and 3), in order to lock the door A, guarding against its accidental opening and preventing unwanted access to the compartment.

[0029] In more detail, according to substantially conventional methods, the first coupling means 5 can comprise a first, curved end 3a of the lever 3 which can be

engaged by interlocking below a crossmember 6, which is supported in a cantilever manner by the plate 2 (for example thanks to two mutually parallel side walls 7 which extend from the plate 2).

[0030] Moreover, the plate 2 and the lever 3 are affected by second coupling means, which can in turn be actuated (by a user) at at least one second angular position of the lever 3 and with the door A partially rotated with respect to the closed configuration (as in Figure 4), in order to lock the door A in at least one partially open configuration, in order to allow at least a change of air between the internal compartment and the external environment.

[0031] It should be noted that the locking assembly 1 according to the invention can also comprise an abutment plate 8 (also called a "strike plate"), which in turn can be coupled rigidly to the chassis C of the vehicle B, usually above the door A (and substantially in vertical alignment with the plate 2).

[0032] The plate 8 comprises detachable anchoring means 9 for a pawl element 10, which in turn can be rigidly keyed for example on the top of the rod 4, i.e. at the opposite end to the lever 3 and to the plate 2.

[0033] More precisely, such detachable anchoring means 9 can comprise a contoured end nose 10a of the pawl element 10, which is adapted to engage with a sort of bracket 8a, which is supported by the plate 8.

[0034] So in fact, the rotation of the lever 3 integrally determines the movement of the pawl element 10, which, while the lever 3 engages with the plate 2 thanks to the first coupling means 5, couples with the plate 8 by way of the detachable anchoring means 9, thus consolidating the stable locking of the door A in the configuration for closing the compartment.

[0035] It should be noted that the plate 8, the pawl element 10 and the detachable anchoring means 9 can be made according to different methods, including conventional (and for example according to what can be seen in the accompanying figures), and we will therefore not discuss such components further.

[0036] According to the invention, the second coupling means comprise a contoured engagement element 11, which is anchored externally to a second end 3b of the lever 3, which is opposite the first end 3a; such contoured element 11 can engage by elastic forcing with the crossmember 6, when the lever 3 is arranged in the second angular position and when the door A is partially rotated with respect to the closed configuration, so as to ensure the locking of the door A in the partially open configuration as well.

[0037] In particular, according to an embodiment of important practical interest, cited by way of non-limiting illustration of the application of the invention, the contoured engagement element 11 comprises a shell 12, preferably made of a polymeric material, which defines internally a recess 13, which is shaped complementarily to the second end 3b of the lever 3, so as to enable the shape mating of the contoured element 11 with the lever

3.

[0038] Moreover, to ensure the desired locking of the door A in the partially open configuration, the shell 12 has a contoured surface portion, which defines an elastic accommodation seat 14 for the crossmember 6, so as to prevent further rotations of the door A and thus achieving the set objective.

[0039] More specifically, in the preferred embodiment, which is shown in the accompanying figures (see for example Figures 5 and 6) by way of non-limiting illustration of the application of the invention, the contoured surface portion comprises a substantially non-elastic expansion 15 of the shell 12, which can be inserted (as shown in Figure 4) below the crossmember 6 at the second angular position of the lever 3 (and when the door A is partially rotated with respect to the closed configuration).

[0040] Moreover, the contoured surface portion of the shell 12 comprises a tab 16, which, together with the expansion 15 which it is placed opposite, delimits the seat 14.

[0041] The tab 16 is elastically deformable, in order to allow, by elastic forcing, the accommodation in the seat 14 of the second end 3b of the lever 3, and subsequently the extraction.

[0042] Positively therefore, as can be seen in particular from an examination of Figure 4, in the event the door A is subjected to a stress that is substantially perpendicular to the lever 3 and is directed toward the vehicle B (for example caused by the wind or by an accidental impact by a person outside), the expansion 15 opposes the disengagement of the element 11 from the crossmember 6 (and thus the accidental unlocking of the door A, thus keeping it in the partially open configuration), because it abuts against the plate 2 (and in particular against the bottom of it).

[0043] Symmetrically, if door A is subjected to a stress that is substantially perpendicular to the lever 3 but is directed away from the vehicle B (and tending thus to completely open the door A), the expansion 15 abuts against the crossmember 6 and again opposes the disengagement of the element 11 from the crossmember 6 (and thus the unwanted unlocking of the door A).

[0044] More specifically, in the preferred embodiment, the shell 12 comprises two half-shells 12a, 12b which have a mutually mirror-symmetrical shape (see for example Figure 6): each half-shell 12a, 12b thus has a respective half-recess 13a, 13b, for their keying on opposite sides (according to the respective directions for mounting shown schematically in Figure 2), on the second end 3b of the lever 3.

[0045] To ensure the stable shape mating of the element 11 to the lever 3, the shell 12 thus comprises means of mutual fixing of the half-shells 12a, 12b, upon their keying on the second end 3b of the lever 3.

[0046] In particular, the mutual fixing means comprise a pair of screws (or the like), which can be inserted in respective pairs of female screw seats 14a, 14b which are mutually aligned and are provided in each one of the

half-shells 12a, 12b.

[0047] Conveniently, the lever 3 is made of steel, preferably selected of the type of forged steel, while the plate 2 is made of sheet metal, but it should be noted that the possibility is not ruled out of providing the lever 3, the plate 2 (and every other component of the assembly 1 according to the invention) in any material, according to specific requirements, while remaining within the scope of protection claimed herein.

[0048] The engagement element for assemblies 1 for locking the door A of vehicles B, of the type of vans, trucks, lorries, semi-trailer trucks, trailers and the like, is indicated for use on assemblies 1 which comprise at least one base plate 2, which can be coupled rigidly to the chassis C of the vehicle B, proximate to an opening for access to an internal compartment, and a lever 3, which is anchored rigidly to a rod 4 that is supported rotatably by a door A for closing the compartment.

[0049] The plate 2 and the lever 3 are affected by coupling means (for example the first coupling means 5 mentioned previously), which can be actuated at a first angular position of the lever 3 and when the door A is arranged in the configuration for closing the compartment, in order to lock the door A.

[0050] The coupling means can thus comprise a first, curved end 3a of the lever 3 which is engaged by interlocking below a crossmember 6, which is supported in a cantilever manner by the plate 2.

[0051] According to the invention, the engagement element comprises a shell 12, which defines internally a recess 13 which is shaped complementarily to the second end 3b of the lever 3, for shape mating with it, and a contoured surface portion, which defines an elastic accommodation seat 14 for the crossmember 6, at at least one second angular position of the lever 3 and when the door A is partially rotated with respect to the closed configuration, so as to determine the locking of the door in at least one partially open configuration.

[0052] Use of the locking assembly and of the engagement element according to the invention is the following.

[0053] Firstly, when the door A of a vehicle B (of the type of a truck, van etc.) is arranged so as to close the internal compartment, the lever 3 makes it possible to lock the door, thus ensuring its coupling to the chassis C and guarding against the danger of accidental opening.

[0054] When in fact the door A is arranged in the closed position, the lever 3 can be laid on the base 2 (thus arranging it substantially in parallel with the base and with the door A, in the above mentioned first angular position) and the first end 3a of the lever 3 can thus be inserted below the crossmember 6, opposing the rotation of the door A and thus preventing access to the compartment (optionally, together with the action of the pawl element 10 coupled to the plate 8).

[0055] If on the other hand the user wants to gain access to the compartment, he/she can grip the lever 3 (at the opposite end with respect to the first end 3a) and impose a rotation upon it, in order to disengage it from

the plate 2 and thus be able to move the door A at will.

[0056] If the stable positioning of the door A in a partially open configuration is required, in order for example to enable the free exchange of air between the internal compartment and the external environment, it is possible to use the engagement element 11.

[0057] More precisely, after acting on the door A until it is brought to form an angle of a few degrees with respect to the ideal plane containing the opening for access to the compartment (and thus having it arranged in the manner in which it is partially shown in Figure 4), the user can rotate the lever 3 until it is brought to the second angular position, so that the second end 3b, and the engagement element 11 which is anchored externally to it, are proximate to the plate 2, and more precisely until elastic forcing results in the accommodation of the crossmember 6 in the seat 14.

[0058] As noted, the choice to define the accommodation seat 14 between a substantially rigid (and in fact conveniently oversized) expansion 15 and, opposite it, an elastically deformable tab 16, first of all makes it possible for the element 11 (thanks to the expansion 15) to oppose and resist shocks and stresses even if violent (typically directed at right angles to the door A). Moreover (thanks to the tab 16), accommodation and extraction of the crossmember 6 can be performed easily and without requiring heavy effort from the user (following a push exerted in a direction substantially parallel to the door A).

[0059] Moreover, it can immediately be seen that the engagement element 11 (and as a consequence the locking assembly 1) according to the invention can be effectively adopted on existing levers 3 (and plates 2) and/or which are already on the market, in that it is sufficient to conveniently shape the recess 13 of the shell 12 in order to ensure the coupling of the element 11 to the lever 3, without requiring structural modifications of the lever or of the plate 2.

[0060] In practice it has been found that the locking assembly and the engagement element according to the invention fully achieve the set aim, in that the ability to anchor the engagement element externally to the second end of the lever associated with the door and to engage it by elastic forcing with the crossmember coupled to the chassis of the vehicle makes it possible to achieve the locking of the door in the partially open configuration, in which the internal compartment of the vehicle is thus placed in communication with the external environment.

[0061] The invention, thus conceived, is susceptible of numerous modifications and variations, all of which are within the scope of the appended claims. Moreover, all the details may be substituted by other, technically equivalent elements.

[0062] In the embodiments illustrated, individual characteristics shown in relation to specific examples may in reality be interchanged with other, different characteristics, existing in other embodiments.

[0063] An additional, technically equivalent component can be applied to the lever 3, linking it to a button

17 that is elastically pivoted to the plate 2 and is usually arranged in interference with respect to the rotation of the lever 3, and which can be manually actuated in order to release it, so as to give the assembly 1 further assurances against the accidental unlocking of the door A (when this is arranged in a partially open configuration).

[0064] In practice, the materials employed, as well as the dimensions, may be any according to requirements and to the state of the art.

[0065] The disclosures in Italian Patent Application No. BO2012A000512 from which this application claims priority are incorporated herein by reference.

[0066] 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. An assembly for locking the door (A) of vehicles (B), of the type of vans, trucks, lorries, semi-trailer trucks, trailers and the like, comprising at least one base plate (2), which can be coupled rigidly to the chassis (C) of a vehicle (B), proximate to an opening for access to an internal compartment, and a lever (3), which is anchored rigidly to a rod (4) that can be supported rotatably by a door (A) for closing the compartment, said plate (2) and said lever (3) being affected by first coupling means (5), which can be actuated at a first angular position of said lever (3) and with the door (A) arranged in the configuration for closing the compartment, in order to lock the door (A), and by second coupling means, which can be actuated at at least one second angular position of said lever (3) and with the door (A) partially rotated with respect to the closed configuration, in order to lock the door (A) in at least one partially open configuration, said first coupling means (5) comprising a first, curved end (3a) of said lever (3) which can be engaged by interlocking below a crossmember (6), which is supported in a cantilever manner by said plate (2), **characterized in that** said second coupling means comprise a contoured engagement element (11), which is anchored externally to a second end (3b) of said lever (3), which is opposite said first end (3a), and can engage by elastic forcing with said crossmember (6), at said at least one second angular position of said lever (3) and with the door (A) partially rotated with respect to the closed configuration, in order to lock the door (A) in the at least one partially open configuration.
2. The locking assembly according to claim 1, **characterized in that** said contoured engagement element (11) comprises a shell (12) which defines internally a recess (13) that is shaped complementarity with respect to said second end (3b), for the shape mating of said contoured element (11) with said lever (3).
3. The locking assembly according to claims 1 and 2, **characterized in that** said shell (12) has a contoured surface portion which defines an elastic accommodation seat (14) for said crossmember (6).
4. The locking assembly according to one or more of the preceding claims, **characterized in that** said contoured surface portion comprises a substantially non-elastic expansion (15) of said shell (12), which can be inserted below said crossmember (6) at said at least one second angular position of said lever (3), and a tab (16), which is arranged opposite said expansion (15) and can be deformed elastically for accommodation in said seat (14) and for extraction, by elastic forcing, of said second end (3b), said seat (14) being delimited by said expansion (15) and by said tab (16), upon a force applied to the door (A) that is substantially perpendicular to said lever (3) and is directed toward the vehicle (B), said expansion (15) abutting against said plate (2) and contrasting the disengagement of said element (11) from said crossmember (6), upon a force applied to the door (A) that is substantially perpendicular to said lever (3) and is directed away from the vehicle (B), said expansion (15) abutting against said crossmember (6) and contrasting the disengagement of said element (11) from said crossmember (6).
5. The locking assembly according to one or more of the preceding claims, **characterized in that** said shell (12) comprises two half-shells (12a, 12b) which have a mutually mirror-symmetrical shape, each one of said half-shells (12a, 12b) having a respective half-recess (13a, 13b), for their keying, on opposite sides, on said second end (3b) of said lever (3), said shell (12) comprising means for the mutual fixing of said half-shells (12a, 12b) upon their keying on said second end (3b), for the stable shape mating of said element (11) with said lever (3).
6. The locking assembly according to claim 5, **characterized in that** said mutual fixing means comprise a pair of screws, which can be inserted in respective pairs of female threads (14a, 14b) which are mutually aligned and are provided in each one of said half-shells (12a, 12b).
7. The locking assembly according to one or more of the preceding claims, **characterized in that** said shell (12) is made of a polymeric material.
8. The locking assembly according to one or more of the preceding claims, **characterized in that** said le-

ver (3) is made of steel, preferably selected of the type of forged steel, said plate (2) being made of sheet metal.

9. An engagement element for assemblies (1) for locking the door (A) of vehicles (B), of the type of vans, trucks, lorries, semi-trailer trucks, trailers and the like, said assemblies (1) comprising at least one base plate (2), which can be coupled rigidly to the chassis (C) of a vehicle (B), proximate to an opening for access to an internal compartment, and a lever (3), which is anchored rigidly to a rod (4) that is supported rotatably by a door (A) for closing the compartment, the plate (2) and the lever (3) being affected by coupling means, which can be actuated at a first angular position of the lever (3) and with the door (A) arranged in the configuration for closing the compartment, in order to lock the door (A), the coupling means comprising a first, curved end (3a) of the lever (3) which can be engaged by interlocking below a crossmember (6), which is supported in a cantilever manner by the plate (2), **characterized in that** it comprises a shell (12), which defines internally a recess (13) that is shaped complementarily to said second end (3b), for shape mating with said lever (3), and a contoured surface portion, which defines an elastic accommodation seat (14) for the crossmember (6), at at least one second angular position of the lever (3) and with the door (A) partially rotated with respect to the closed configuration, in order to lock the door (A) in at least one partially open configuration.

35

40

45

50

55

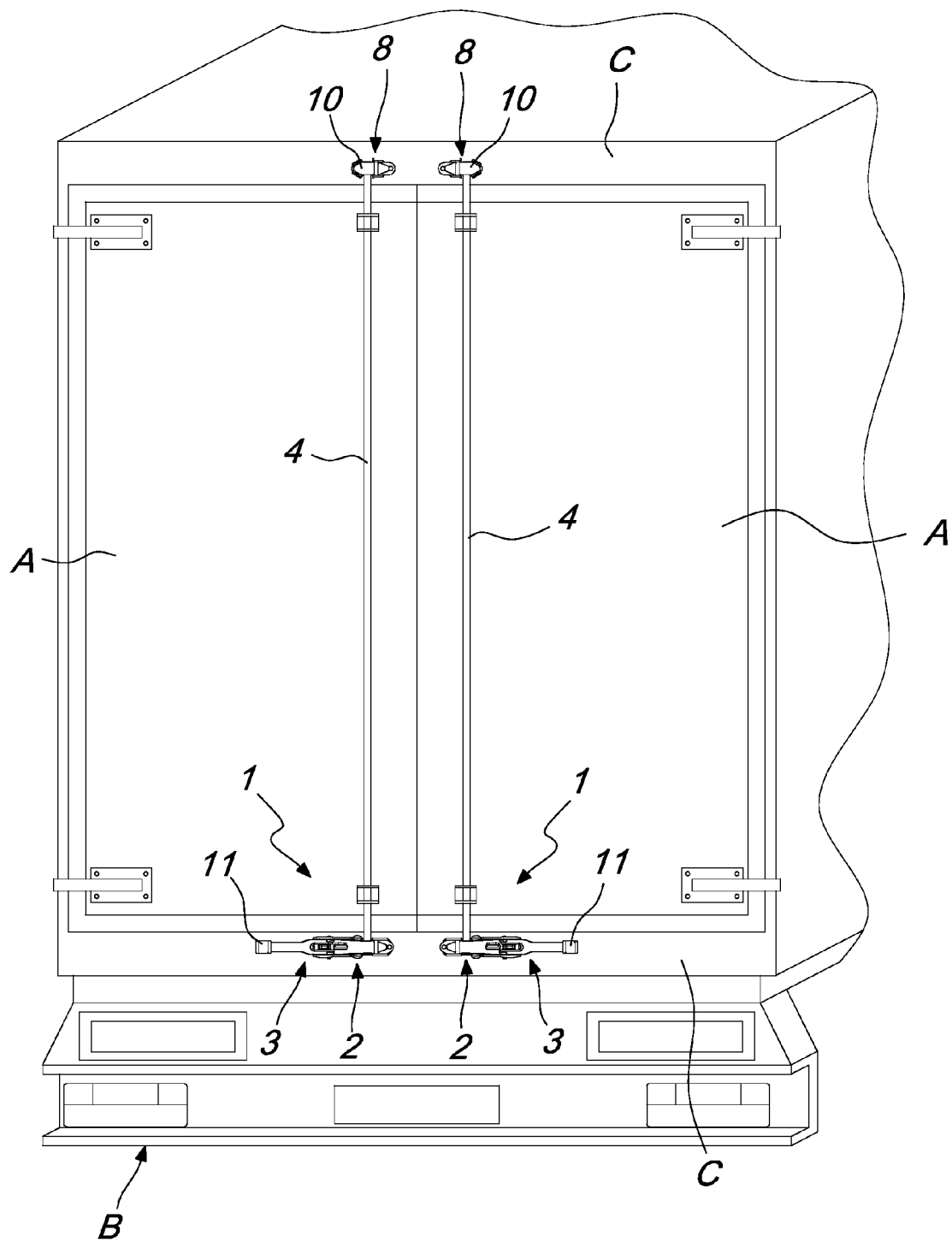
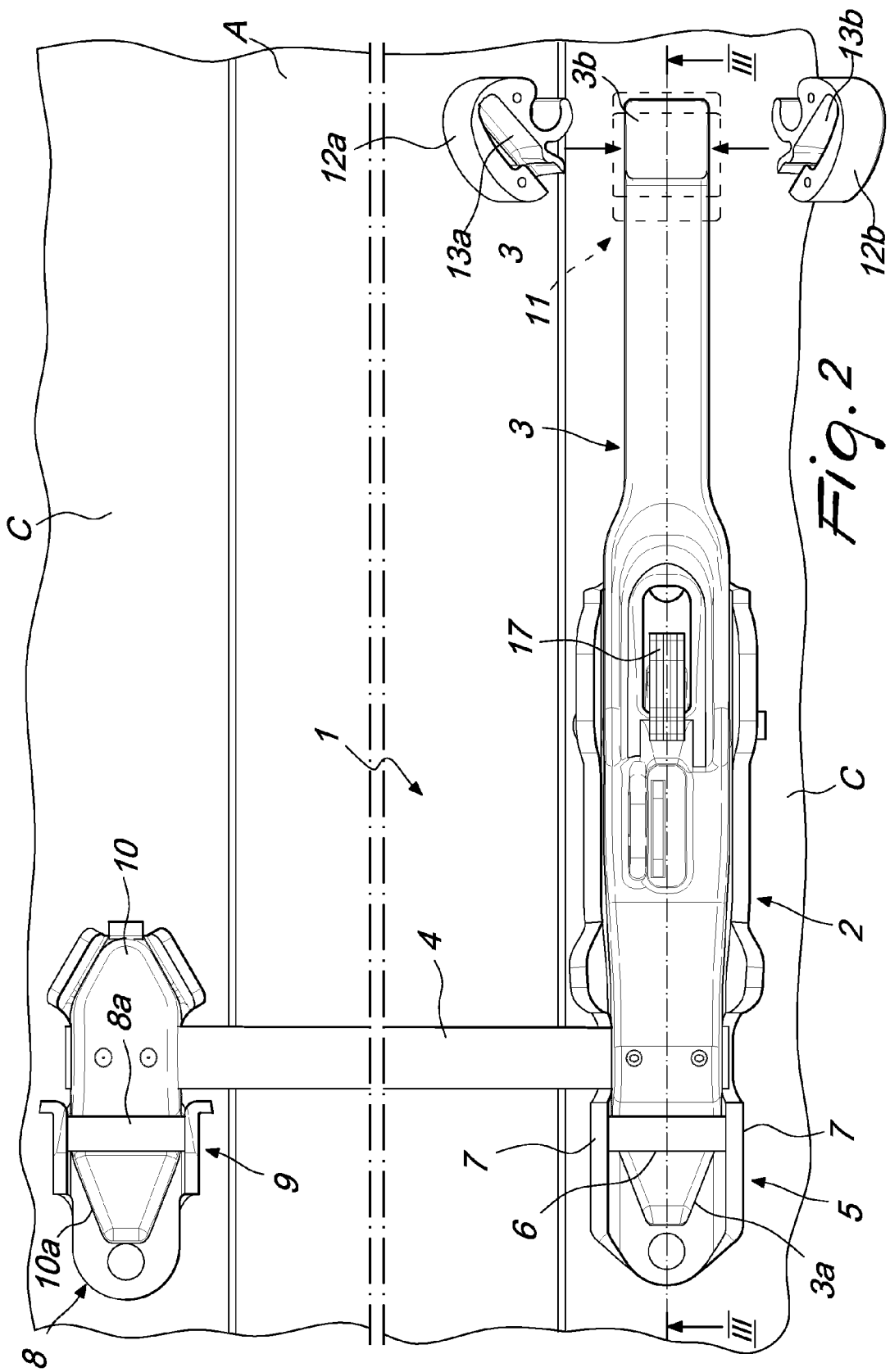


Fig. 1



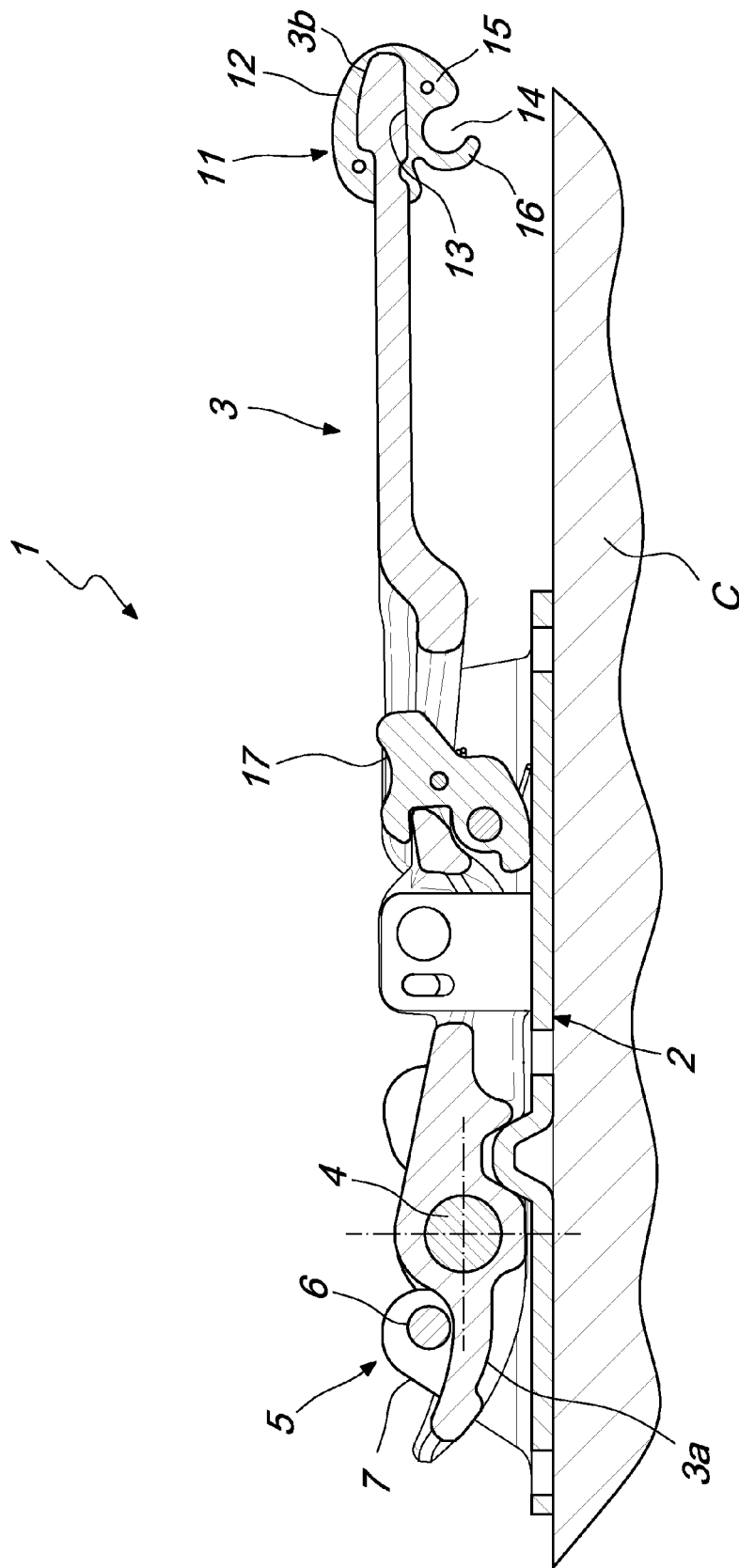
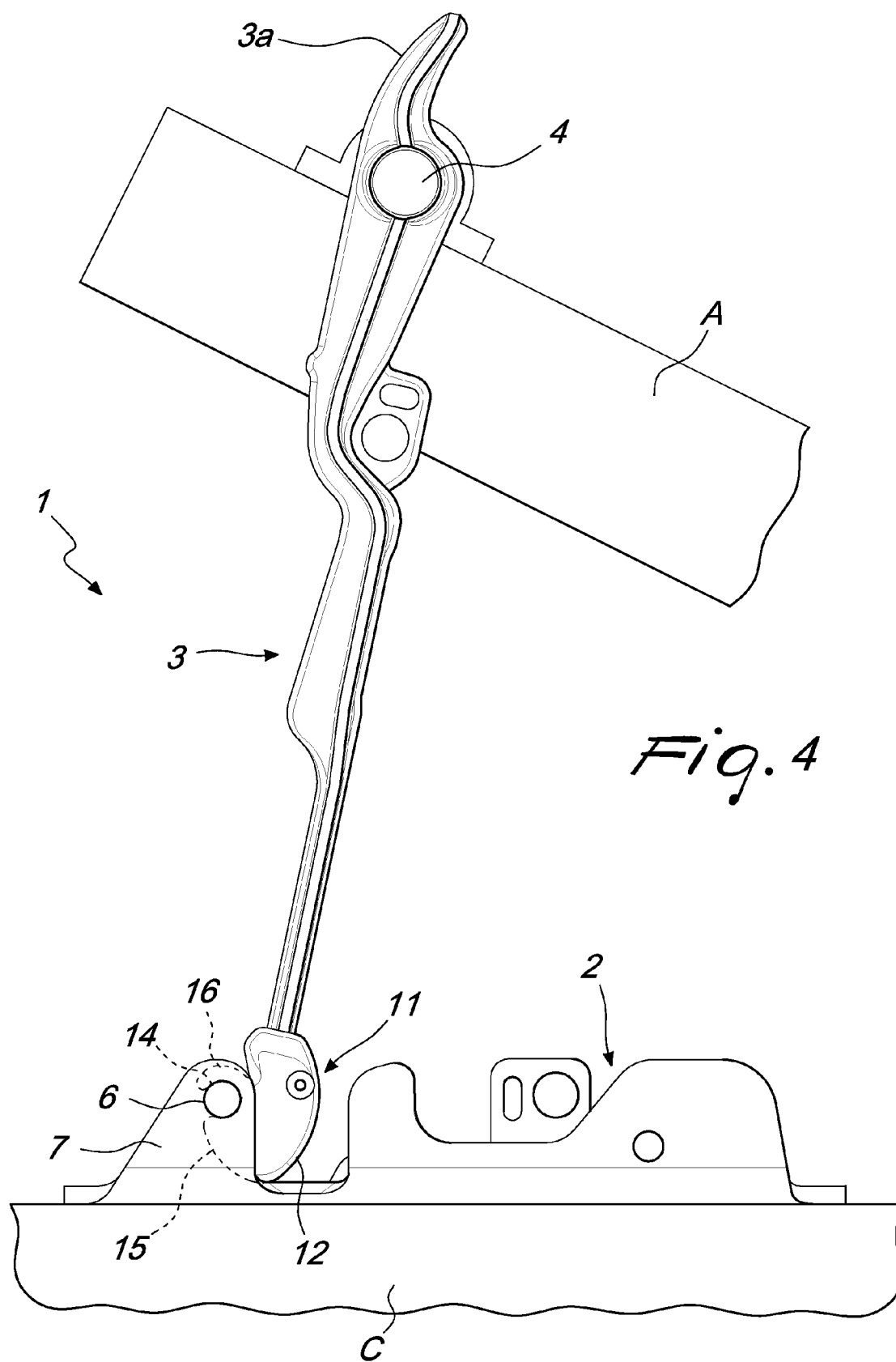


Fig. 3



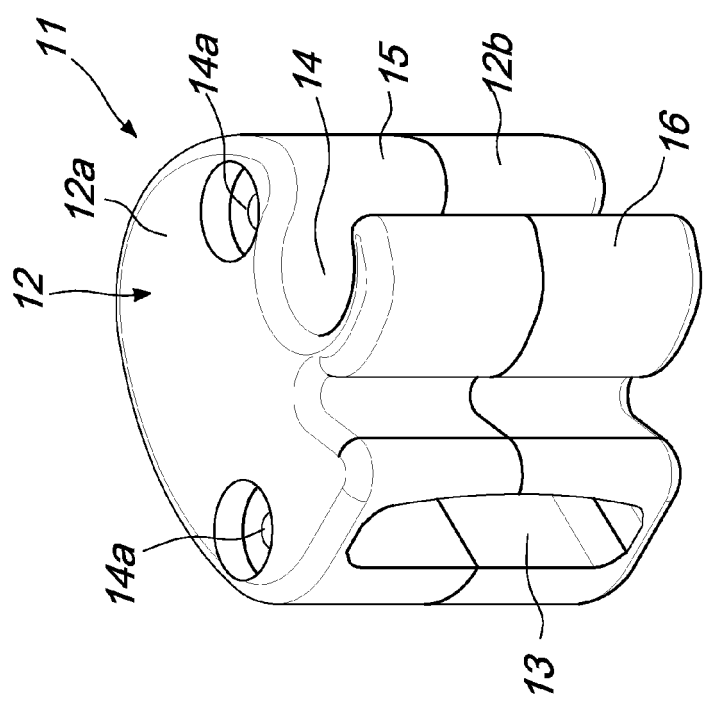
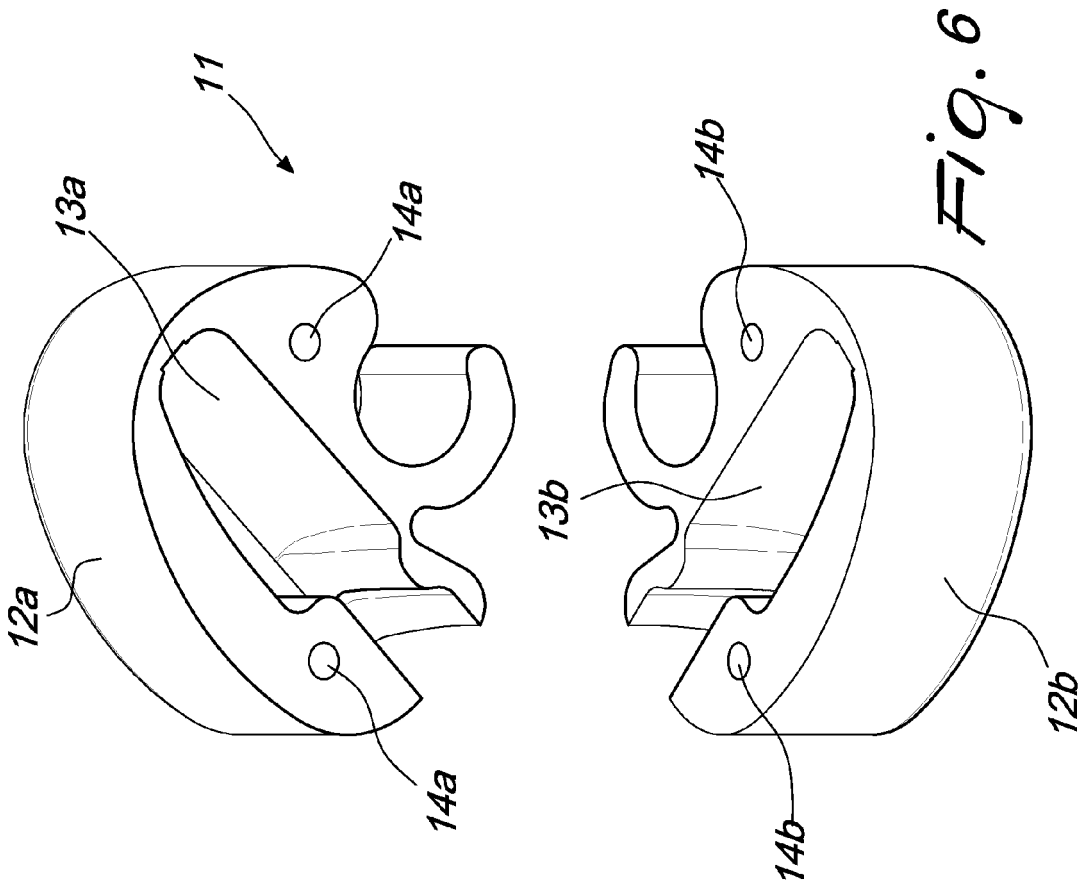


Fig. 5

Fig. 6



EUROPEAN SEARCH REPORT

Application Number
EP 13 18 5495

DOCUMENTS CONSIDERED TO BE RELEVANT			
Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (IPC)
X	EP 1 830 020 A1 (PASTORE & LOMBARDI SRL [IT]) 5 September 2007 (2007-09-05)	1,4,7,8	INV.
A	* paragraph [0010] - paragraph [0052]; figures 1-8 *	2,3,5,6,9	E05B65/12 E05C17/52
X	----- WO 2008/003816 A1 (FINCLIP OY [FI]; HURSKAINEN KIMMO [FI]) 10 January 2008 (2008-01-10) * page 3, line 9 - line 29; claim 9; figure 1 *	9	
X	----- EP 1 101 988 A2 (RAYMOND A & CIE [FR]) 23 May 2001 (2001-05-23) * abstract; figures 6,10 *	9	
X	----- US 2005/121559 A1 (KING ROBERT W [US]) 9 June 2005 (2005-06-09) * abstract; figures 1,5 *	9	
A	----- DE 100 44 006 A1 (SCHMITZ CARGOBULL AG [DE]) 21 March 2002 (2002-03-21) * paragraph [0014] - paragraph [0026]; figures 1-5 *	1,8,9	TECHNICAL FIELDS SEARCHED (IPC)
A	----- DE 20 2009 004481 U1 (FUTURE PRODUCT ENTWICKLUNGS UN [DE]; HENSSGEN INTERNAT B V [NL]) 19 August 2010 (2010-08-19) * paragraph [0015] - paragraph [0020]; figures 1-4 *	1,8,9	E05B E05C F16L
A	----- US 372 034 A (G. H. LUSK) 25 October 1887 (1887-10-25) * page 1, line 41 - page 2, line 30; figures 1-6 *	1,9	
The present search report has been drawn up for all claims			
Place of search The Hague		Date of completion of the search 5 December 2013	Examiner Pérez Méndez, José F
CATEGORY OF CITED DOCUMENTS X : particularly relevant if taken alone Y : particularly relevant if combined with another document of the same category A : technological background O : non-written disclosure P : intermediate document T : theory or principle underlying the invention E : earlier patent document, but published on, or after the filing date D : document cited in the application L : document cited for other reasons & : member of the same patent family, corresponding document			

 1
EPO FORM 1503 03.02 (P04C01)

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

EP 13 18 5495

This annex lists the patent family members relating to the patent documents cited in the above-mentioned European search report.
The members are as contained in the European Patent Office EDP file on
The European Patent Office is in no way liable for these particulars which are merely given for the purpose of information.

05-12-2013

Patent document cited in search report	Publication date	Patent family member(s)	Publication date
EP 1830020	A1	05-09-2007	NONE
WO 2008003816	A1	10-01-2008	NONE
EP 1101988	A2	23-05-2001	AT 309498 T 15-11-2005 CZ 20004272 A3 11-07-2001 DE 19955654 A1 23-05-2001 DE 50011554 D1 15-12-2005 EP 1101988 A2 23-05-2001 ES 2251928 T3 16-05-2006
US 2005121559	A1	09-06-2005	NONE
DE 10044006	A1	21-03-2002	NONE
DE 202009004481	U1	19-08-2010	NONE
US 372034	A	25-10-1887	NONE

EPO FORM P0459

For more details about this annex : see Official Journal of the European Patent Office, No. 12/82

REFERENCES CITED IN THE DESCRIPTION

This list of references cited by the applicant is for the reader's convenience only. It does not form part of the European patent document. Even though great care has been taken in compiling the references, errors or omissions cannot be excluded and the EPO disclaims all liability in this regard.

Patent documents cited in the description

- IT BO20120512 A [0065]