

(19) World Intellectual Property Organization
International Bureau



(43) International Publication Date
29 June 2006 (29.06.2006)

PCT

(10) International Publication Number
WO 2006/068562 A1

(51) International Patent Classification:
B62D 25/24 (2006.01) **B62D 65/06** (2006.01)

(21) International Application Number:
PCT/SE2004/002000

(22) International Filing Date:
22 December 2004 (22.12.2004)

(25) Filing Language: Swedish

(26) Publication Language: English

(71) Applicant (for all designated States except US): **VOLVO
LASTVAGNAR AB** [SE/SE]; S-405 08 Göteborg (SE).

(72) Inventor; and

(75) Inventor/Applicant (for US only): **STÅLHAMMAR,
Carl** [SE/SE]; Scolandersgata 9C, S-417 27 Göteborg
(SE).

(74) Agent: **FRÖHLING, Werner**; Volvo Technology Corpo-
ration, Corporate Patents, 06820, M1.7, S-405 08 Göteborg
(SE).

(81) Designated States (unless otherwise indicated, for every
kind of national protection available): AE, AG, AL, AM,
AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN,
CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI,
GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE,
KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD,
MG, MK, MN, MW, MX, MZ, NA, NI, NO, NZ, OM, PG,
PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SM, SY,
TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU,
ZA, ZM, ZW.

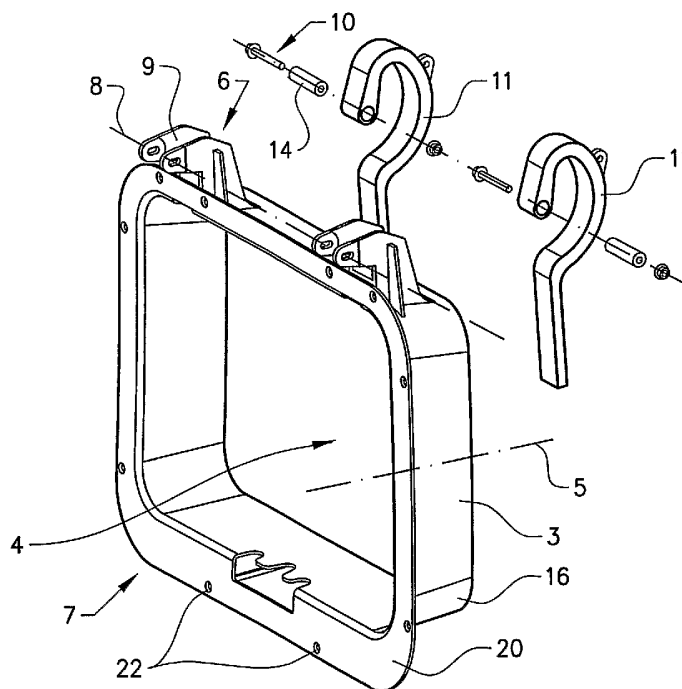
(84) Designated States (unless otherwise indicated, for every
kind of regional protection available): ARIPO (BW, GH,
GM, KE, LS, MW, MZ, NA, SD, SL, SZ, TZ, UG, ZM,
ZW), Eurasian (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM),
European (AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI,
FR, GB, GR, HU, IE, IS, IT, LT, LU, MC, NL, PL, PT, RO,
SE, SI, SK, TR), OAPI (BF, BJ, CF, CG, CI, CM, GA, GN,
GQ, GW, ML, MR, NE, SN, TD, TG).

Published:

— with international search report

For two-letter codes and other abbreviations, refer to the "Guid-
ance Notes on Codes and Abbreviations" appearing at the begin-
ning of each regular issue of the PCT Gazette.

(54) Title: A MODULE FOR A LID AND A METHOD FOR ASSEMBLING A LID



(57) Abstract: A module (1) for a lid on a vehicle, which module comprises a frame (3) which defines an opening (4) and extends at least partially around a geometric longitudinal axis (5). The frame (3) is provided with a means (6) for pivotably coupling a lid and the frame (3). The frame (3) further has a member (7) for fitting the module (1) to a vehicle shell as the module is moved toward the vehicle shell essentially in the direction of the geometric longitudinal axis (5).

A module for a lid and a method for assembling a lid

FIELD OF THE INVENTION

5

The present invention relates to a module for a lid on a vehicle according to the preamble to patent claim 1 and to a method for assembling a lid on a vehicle according to the preamble to patent claim 21.

10

BACKGROUND TO THE INVENTION AND PRIOR ART

In the production and assembly of various components intended for vehicles, such as trucks, simple and rational methods are sought which can raise production efficiency and reduce the necessary assembly time in the factory. At the same time, higher and higher demands are being placed upon the performance and look of the vehicle. In trucks, the cab is often provided with a storage compartment to which access is gained by opening a side lid of the body. Preferably, for the provision of such a storage compartment, a space is used which is delimited in the cab by means of other components, such as bed, floor, various shield plates, etc. and which is situated inside the cab completely above the cab floor.

In order to make it possible to open and close the storage compartment, an openable lid is provided as a part of the body. Apart from the lid having to provide an opening function and, in the closed state, ensure that the compartment is sealed against the environment, it is also important that the lid, in the closed state, is disposed in line with and in the same plane as adjacent body parts, such as a vehicle door, in order to give the vehicle the desired look.

- 2 -

According to the prior art, the assembly of the lid is realized by individual components, such as hinges, seals, locking mechanisms, etc., being individually assembled step by step on a shell of the vehicle body.

5 The traditional assembly of the storage compartment lid is, however, time-consuming and costly, since all the individual components have to be fitted to the shell within certain given tolerances relative to each other and to the shell in order to achieve the desired end
10 result. This means that exacting requirements are placed both upon measurement accuracy of the produced components and upon staff involved in the assembly of the lid.

15 OBJECT OF THE INVENTION AND SUMMARY OF THE INVENTION

One object of the invention is to provide a module of the type described in the introduction, which module can reduce at least some of the discussed drawbacks in
20 assembling a lid of a vehicle.

The object is achieved by the provision of a module as claimed in patent claim 1.

25 With such a module, there is a prospect, prior to assembling the lid on the vehicle, of determining the position of the lid in relation to the frame and hence, indirectly, the position of the lid in relation to another component, such as a shell, to which the frame
30 is fitted in a subsequent step. For example, the position of the lid relative to the frame can be fixed in a fixture, such that, when the frame is subsequently fitted to the vehicle, the lid automatically acquires the correct position in relation to the rest of the
35 vehicle body. Furthermore, through the provision of a module which has a member for fitting the module to a vehicle shell as the module is moved toward the vehicle shell essentially in the direction of the longitudinal axis, the module is disposed along the periphery of an

- 3 -

opening in a vehicle body in order to make use of an already existing space inside, for example, a truck cab.

5 The above means that the assembly of the lid and associated components on the vehicle can be carried out in a quality-safe and time-saving manner which requires fewer work operations in the final assembly of the lid compared with the prior art.

10

In a preferred embodiment of the invention, the module comprises a means for guiding the position of the frame in relation to another component. The guide means can be one or more surfaces of the frame for interaction
15 with corresponding surfaces of the other component. Through the use of a guide means, the position of the module relative to a fixture can be ensured, and, when fitted to a vehicle, the position of the module relative to a vehicle shell can be ensured.

20

Apart from its function of supporting the lid and any other components, the frame can also be used to create an esthetic framing of the opening to a storage compartment and to receive a seal against which a lid
25 can bear, for sealing such a storage compartment against the environment.

A further object of the invention is to provide a method of the type defined in the introduction, which
30 method can reduce at least some of the discussed drawbacks associated with the assembly of a lid on a vehicle.

The object is achieved by the provision of a method as
35 claimed in patent claim 21.

As a result of such a method, a lid can be disposed in an opening in a vehicle body, and the position of the lid in relation to the frame, and hence, indirectly,

- 4 -

the position of the lid in relation to a vehicle body, can be fixed in advance, thereby substantially facilitating the final assembly of the lid on the vehicle.

5

The invention also relates to a vehicle comprising a vehicle body, a floor and a module according to the invention disposed above the floor, and to a use of a module according to the invention to provide an opening
10 and closing function for an internal compartment in a vehicle body for a truck.

Other advantageous distinguishing features and functions of various embodiments of the invention
15 emerge from the following description and dependent patent claims.

BRIEF DESCRIPTION OF DRAWING FIGURES

20 There follows below, with reference to the appended drawings, a detailed description of embodiments of the invention cited as examples.

In the drawings:

25

figure 1 is a side view of a part of a vehicle body showing a door and a lid arranged as a part of the body through the use of a module according to the invention,

30 figure 2 is an enlarged part-view of figure 1 illustrating the module according to the invention, wherein the lid is raised,

figure 3 is a perspective view of a module according to
35 the invention provided with a lid,

figure 4 is a perspective view of a module according to the invention,

- 5 -

figure 5 is an enlarged part-view of figure 2,

figure 6 is an enlarged view corresponding to figure 1,
in which the lid and the module are removed,

5

figure 7 is a perspective view of a module according to
the invention provided with guide means, and

figure 8 is a cross-sectional view of a module
10 according to the invention provided with a damper.

DETAILED DESCRIPTION OF PREFERRED EMBODIMENTS OF THE INVENTION

15 In figures 1 and 2, a vehicle body 18 is illustrated on
which there is disposed a module 1 according to the
invention. In figure 1, the module is essentially
covered by a lid 2 coupled to the module, while in
figure 2 the lid is raised so that the module 1 is
20 exposed and access to a storage compartment inside the
lid is possible. In the illustrated example, the lid 2
is disposed essentially in line with and in the same
plane as a neighboring door 19.

25 In figures 3 and 4, a module 1 according to the
invention for assembling a lid on a vehicle is
illustrated in perspective. In figure 3, a lid 2 is
fitted to the module 1 and the module is complete for
assembly on a vehicle, while in figure 2 the module 1
30 is shown without a lid. The module 1 comprises a frame
3 which defines an opening 4 and extends at least
partially around a geometric longitudinal axis 5.
Although, in the embodiment represented in figure 3,
the frame 3 extends the whole way round the
35 longitudinal axis 5, in another embodiment the frame
might extend only partially around the longitudinal
axis 5. The frame 3 is provided with a means 6 for
pivotably coupling a lid 2 and the frame 3, and the
frame 3 further has a member 7 for fitting the module 1

- 6 -

to a vehicle shell as the module 1 is moved toward the vehicle shell essentially in the direction of the longitudinal axis 5.

- 5 The coupling means 6 provides a geometric rotation axis 8, which rotation axis 8 has an extent which is essentially perpendicular to the direction of the geometric longitudinal axis 5, for pivoting of the lid 2 about the rotation axis 8. In order for the lid 2 to
10 be adjustable in relation to the frame 3 in the direction of the geometric longitudinal axis 5, the geometric rotation axis 8 can be arranged adjustably in relation to the frame 3.
- 15 In the illustrated example in figures 3 and 4, the coupling means 6 has two hinge sleeves 9, each provided with a swivel pin 10 for rotatable coupling to two brackets 11. In figure 5 is illustrated how a respective swivel pin 10 can be disposed between two
20 mutually spaced fastening devices 12. The movable arrangement of the respective swivel pin 10 in a groove 13 in the respective fastening device 12 such that it can be locked in various positions allows the position of the geometric rotation axis 8 to be varied. The
25 swivel pins 10 are locked in place in the hinge sleeves 9 by means of screw joints, and bushes 14 can further be disposed on the brackets 11 to facilitate a rotary motion between the swivel pins 10 and the brackets 11.
- 30 The brackets 11, in turn, are bound to the lid 2. The brackets 11 can be hook-shaped in order to obtain the desired swivel motion of the lid 2 upon rotation about the rotation axis 8. The brackets 11 can further be bound to the lid 2 by screw joints, weld joints, or the
35 like, or can be produced integrally with the lid. Preferably, as illustrated in figures 3 and 5, the brackets 11 are arranged to run via openings 15 in the frame 3 when the lid 2 is swiveled. This produces a compact design, while, at the same time, the extent of

- 7 -

the frame 3 in the direction of the longitudinal axis 5 is not limited by the position of the brackets 11.

The frame 3 has a first part 16 with a principal extent
5 essentially parallel with the direction of the longitudinal axis 5, which part 16 defines the opening 4 in the module 1. The length of this first part 16 is, however, indirectly dependent on the size and position
10 of the coupling means 6, and also on the size of a second opening at which the module 1 is intended to be fitted.

Figure 6 illustrates a second opening 17 of this kind in the vehicle body 18. The illustrated body section 18
15 is situated directly adjacent to the door 19 and is shown from the outside with the omission of certain outer plates. Usually, the second opening 17 is only somewhat larger than the opening 4 in the frame 3, but is smaller than the extent of the frame 3 inclusive of
20 the coupling means 6. This because it is desirable that the coupling means 6, in relation to the lid 2, can be disposed on the opposite side of the wall, shell or the like which has the opening 17 in the vehicle body 18.

25 This, in turn, means that the extent of the first part 16 in the direction of the longitudinal axis 5 must be limited and designed to allow the frame 3 initially to be swiveled into the opening 17 such that the coupling means 6 is at least partially positioned behind the
30 wall or shell which has the opening, and thus inside the body, when the module is fitted from the outside. Thereafter, the module 1 can be finally positioned by being moved essentially in the direction of the longitudinal axis 5.

35

In addition, the frame 3 has a second part 20, see figure 4 and 5, which is connected to the first part 16. The second part 20 has an extent which is essentially perpendicular to the direction of the

- 8 -

geometric longitudinal axis 5. This second part 20 also constitutes a section for principal binding of the module 1 to the vehicle shell 21, preferably through the arrangement of one or more screw joints with screw
5 direction essentially in the direction of the longitudinal axis 5.

By principal binding is meant that this binding is what essentially secures the module 1 to the second
10 component 21, without which binding the module would not be able to be maintained in the desired place. This does not however preclude other auxiliary fastening devices from also being disposed in other positions.

15 The assembly member 7 can therefore comprise a flange 20 with a principal extent in a plane whose normal is directed essentially parallel with the direction of the longitudinal axis 5. The flange 20 preferably extends essentially round about the whole of the opening 4 in a
20 region immediately outside the opening 4. The flange 20 can be provided with one or preferably a plurality of holes 22 for the reception of fastening devices, such as screws or the like.

25 As a result of the assembly member 7 having a section 20 which has a principal extent essentially perpendicular to the longitudinal axis 5, the module 1, when fitted, can be positioned in the direction of the longitudinal axis 5 in relation to the vehicle shell 21
30 of the truck body 18. The module 1 can be disposed in the opening 17 such that the frame 3 is applied along the periphery of the opening 17 so that the first part 16 bearing the hinge sleeves 9 is disposed around the inside of the body 18, while the second part 20 is
35 disposed such that it bears against the shell 21 or the like of the body. The second part 20 is therefore disposed around the outside of the shell 21 and, insofar as the second part 20 is not provided with

- 9 -

other external components, it will be exposed when the lid 2 is opened.

In figure 7 is illustrated that the module 1 can
5 comprise a means 23 for guiding the position of the
frame 3 in relation to a second component 21.
Preferably, the guide means 23 has at least one
reference surface 24a, 24b, 24c intended to interact
with a surface of the second component. For example,
10 the guide means 23 can comprise three surfaces 24a,
24b, 24c for bearing against corresponding surfaces of
the second component 21 when the module 1 and the
second component are brought together in the direction
of the longitudinal axis 5. The guide means can further
15 comprise one or more guide pins intended to interact
with corresponding holes in the second component in
order to guide the module 1 in directions perpendicular
to the direction of the longitudinal axis 5. For
example, two guide pins 25, 26 can be used to guide the
20 module in the X-direction 27, corresponding to lateral
adjustment of the module 1 in figure 7 and to a
reference surface 28 disposed on the bottom edge of the
frame 3, or alternatively of a component disposed on
the frame, and to guide the module 1 in the Y-direction
25 29, corresponding to vertical adjustment of the module
1 in figure 7.

As exemplified above, two or more reference surfaces
are preferably used to fix the module 1 and, where
30 guide pins 25, 26 are used, then these can be provided
by casting during production of the frame 3. The guide
pins are expediently disposed in the second part 20 of
the frame 3, adjoining the reference surfaces 24a, 24b,
24c, which are intended for positioning in the
35 direction of the longitudinal axis 5. It should be
pointed out, however, that in another embodiment the
module could instead be provided with means for
receiving guide pins disposed on the second component
21.

- 10 -

This second part 20 of the frame 3 can further be provided with said holes 22, for screw fastening the module 1 to the vehicle shell 21, in the direction of the longitudinal axis 5. The positioning of the module in the direction of the longitudinal axis 5 can therefore be achieved by parts of the flange 20 constituting reference surfaces 24a, 24b, 24c, which, as the module 1 is clamped in place, bear against corresponding surfaces of the second component 21. The module is thereby also fixed in the direction of the longitudinal axis 5. Through use of the guide means 23, the position of the module 1 can therefore be fixed relative to, for example, a shell 21 of a vehicle body.

Apart from the coupling means 6, the frame 3 can also be provided with other functions and/or components. One example is the arrangement of a locking mechanism 30 for locking the lid 2 in the closed state. The locking mechanism 30 can expediently be disposed in the frame 3 on essentially the opposite side to the coupling means 6 in relation to the longitudinal axis 5. Since it is usually desirable to open the lid 2 by a motion from the bottom upward, then the coupling means 6 is expediently disposed at the upper end 31 of the frame 3 and the locking mechanism 30 is expediently disposed at the lower end 32 of the frame 3. In order to receive the locking mechanism, the second component 21 can be configured with a corresponding recess 33, see figure 6.

In figure 8 is illustrated, in a cross-sectional view A-A (in figure 2), that, as previously described, the module 1 comprises at least one said bracket 11, which, at a first end 34, is rotatably coupled to the frame 3 for rotation about a rotation axis 8. At a second end 35, the bracket has devices for coupling to a lid 2. The module 1 can further comprise a damper 36, or can be used together with a damper, preferably in the form

- 11 -

of one or more piston/cylinder mechanisms 37. Such a piston/cylinder mechanism, for example of the pneumatic spring type, can at a first end 38 be coupled to the bracket 11 so as to influence the necessary opening and/or closing force when the lid 2 is opened and closed. Through suitable configuration of the bracket 11 and choice of coupling position 39 between the bracket 11 and the piston/cylinder mechanism 37, this mechanism can be disposed essentially in the direction of the longitudinal axis 5. In the embodiment in figure 6, this means that the piston/cylinder mechanism 37 is arranged essentially horizontally. A horizontal assembly means that, upon opening and closure of the lid 2, the cylinder 40 pivots about a horizontal axis. The cylinder 40 will deviate more or less from the direction of the longitudinal axis 5, depending on the position of the lid 2. Preferably, however, the piston/cylinder mechanism 37 is arranged such that its extent in the longitudinal direction is essentially parallel with the direction of the longitudinal axis 5 for at least some position of the bracket 11/the lid 2. At a second end 41 which is intended to be fastened to a second component, such as a vehicle shell, the piston/cylinder mechanism 37 can be provided with a connecting device 42. In a preferred embodiment, the connecting device is some form of snap-coupling part 42.

For example, a part of a tube made of a relatively flexible material is used to couple the mechanism to a shaft of the second component. The tube can be configured so as to be snapped onto the shaft by application of a force essentially in the direction of the longitudinal axis 5. Thereafter, relatively large forces can be transmitted from the mechanism to the shaft in the direction from the mechanism to the shaft. As a result of the snap function, a certain force can also be transmitted in the opposite direction. There is, however, a possibility of configuring the snap

- 12 -

function such that the module can be removed by being acted upon by a certain force directed essentially in the direction of the longitudinal axis 5 in the direction away from the second component, so that the
5 piston/cylinder mechanism 37 is released from the shaft by means of the snap coupling function 42.

When the module 1 according to the invention is disposed on a vehicle body, the module can be disposed
10 above the floor of the vehicle in order to provide an opening and closing function for an internal compartment in the body. In the cab of a truck there is often a compartment which is usable for storage, more precisely there is often a bed present in the cab and
15 between the bed and the floor a compartment is formed which can be used to store luggage. Access to such a luggage compartment is expediently made via a side wall of the cab and the compartment is often situated, with respect to the direction of travel, directly behind the
20 door of the vehicle. The module is therefore suitable for providing an opening and closing function for an internal compartment in a vehicle body of a truck.

The invention also relates to a method for assembling a
25 lid 2 on a vehicle 18. According to the method, a module 1 according to the invention is applied along the periphery of an opening 17 in a vehicle body 18. As described above, the module 1 comprises the frame 3 which defines the opening 4 and extends partially
30 around the geometric longitudinal axis 5, the frame 3 being provided with said means 6 for pivotably coupling a lid 2 and the frame 3.

Expediently, the module 1 and the vehicle shell 21 are
35 brought together during assembly by the module 1 being moved toward the vehicle shell 21 essentially in the direction of the longitudinal axis 5. Initially, however, the frame 3 of the module 1 will be somewhat tilted in relation to the opening 17 to allow the

- 13 -

coupling means 6 to be swung in behind the wall 18 in which the opening 17 is disposed. The frame 3 can then be raised so as subsequently to be moved in the direction of the longitudinal axis 5 for the purpose of fitting it to the wall 18 surrounding the opening 17. Preferably, the module 1 is principally bound to the vehicle shell 21 by means of one or more screw joints with screw direction essentially in the direction of the longitudinal axis 5. By principal binding is meant that this binding is what essentially secures the module 1 to the second component 21, as previously described above.

According to an advantageous embodiment of the method according to the invention, the module 1, prior to being fitted to the vehicle shell 21, is disposed in a fixture (not shown) for adjusting the mutual positioning of the frame 3 of the module 1 and said lid 2 bound to the frame 3 by the coupling means 6. By means of an adjustment function of the coupling means 6, the lid 2 can thereby be adjusted such that the lid 2 automatically acquires an intended position when the module 1 is fitted to the vehicle 18.

There is naturally an opportunity for a person skilled in the art to modify the module according to the invention, and the method according to the invention, within the scope of the invention, and it is emphasized that the invention is only limited to the scope of protection defined by the subsequent patent claims.

Patent claims

1. A module (1) for a lid (2) on a vehicle, which
5 module comprises a frame (3) which defines an opening
(4) and extends at least partially around a geometric
longitudinal axis (5), the frame (3) being provided
with a means (6) for pivotably coupling a lid (2) and
the frame (3), and the frame (3) having a member (7)
10 for fitting the module (1) to a vehicle shell (21) as
the module is moved toward the vehicle shell
essentially in the direction of the geometric
longitudinal axis (5).
- 15 2. The module as claimed in claim 1, characterized
in that the assembly member (7) has a section (20) for
principal binding of the module (1) to a vehicle shell
(21), through the arrangement of one or more screw
joints with screw direction essentially in the
20 direction of the geometric longitudinal axis (5).
3. The module as claimed in any preceding claim,
characterized in that the assembly member (7) has a
section (20) which has a principal extent essentially
25 perpendicular to the longitudinal axis (5).
4. The module as claimed in any preceding claim,
characterized in that the assembly member (7) comprises
at least one flange (20) with a principal extent in a
30 plane whose normal is directed essentially parallel
with the longitudinal axis (5).
5. The module as claimed in claim 4, characterized
in that said at least one flange (20) extends
35 essentially round about the whole of the opening (4) in
a region immediately outside the opening (4).

- 15 -

6. The module as claimed in any preceding claim, characterized in that the frame (3) has a first part (16) with a principal extent essentially parallel with the direction of the longitudinal axis (5), which part
5 defines the opening in the frame (3).

7. The module as claimed in any preceding claim, characterized in that the module (1) comprises a further means (23) for guiding the position of the
10 frame in relation to a second component (21).

8. The module as claimed in claim 7, characterized in that the guide means (23) comprises at least one reference surface (24a, 24b, 24c).
15

9. The module as claimed in claim 6, characterized in that the coupling means (6) is disposed on the first part (16).

20 10. The module as claimed in any preceding claim, characterized in that the coupling means (6) provides a geometric rotation axis (8), which rotation axis (8) has an extent which is essentially perpendicular to the direction of the geometric longitudinal axis (5), for
25 pivoting of a lid (2) about the rotation axis (8).

11. The module as claimed in claim 10, characterized in that the geometric rotation axis (8) is arranged adjustably in relation to the frame (3) in
30 the direction of the longitudinal axis (5), in order to adjust the position of a lid (2) in relation to the frame (3).

12. The module as claimed in any preceding claim, characterized in that the frame (3) is provided with a
35 means (30) for locking a lid (2) in relation to the frame (3) in the closed state of the lid (2).

- 16 -

13. The module as claimed in any preceding patent claim, characterized in that the module (1) comprises at least one bracket (11), which, at a first end, is rotatably coupled to the frame (3) by coupling means
5 (6) and, at a second end, has devices for coupling to a lid (2).

14. The module as claimed in any preceding patent claim, characterized in that the module comprises a
10 damper (36) for influencing the necessary opening and/or closing force when the lid (2) is opened and closed.

15. The module as claimed in claim 14, characterized in that the damper comprises at least one
15 piston/cylinder mechanism (37).

16. The module as claimed in patent claim 13, characterized in that at least one piston/cylinder
20 mechanism (37) for essentially horizontal assembly is coupled to said at least one bracket (11) in order to influence the necessary opening and/or closing force when the lid (2) is opened and closed.

25 17. The module as claimed in patent claim 13, characterized in that at least one piston/cylinder mechanism (37) is coupled to said at least one bracket (11) in order to influence the necessary opening and/or closing force when the lid (2) is opened and closed,
30 which piston/cylinder mechanism (36) is arranged such that, in the fitted state of the module (1), the extent of the piston/cylinder mechanism (36) in the longitudinal direction is essentially parallel with the longitudinal axis (5) for at least some position of the
35 bracket (11).

18. A vehicle comprising a body (18), a floor and a module as claimed in any one of claims 1-17, characterized in that the module is disposed above the

- 17 -

floor in order to provide an opening and closing function for an internal compartment in the body (18).

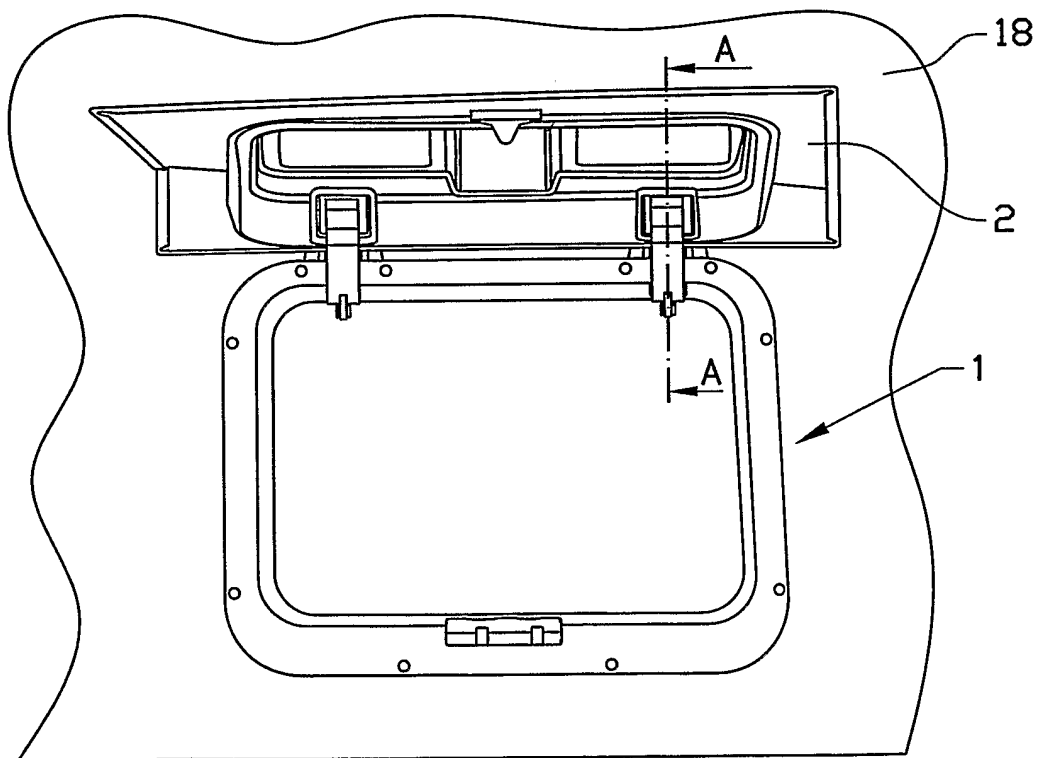
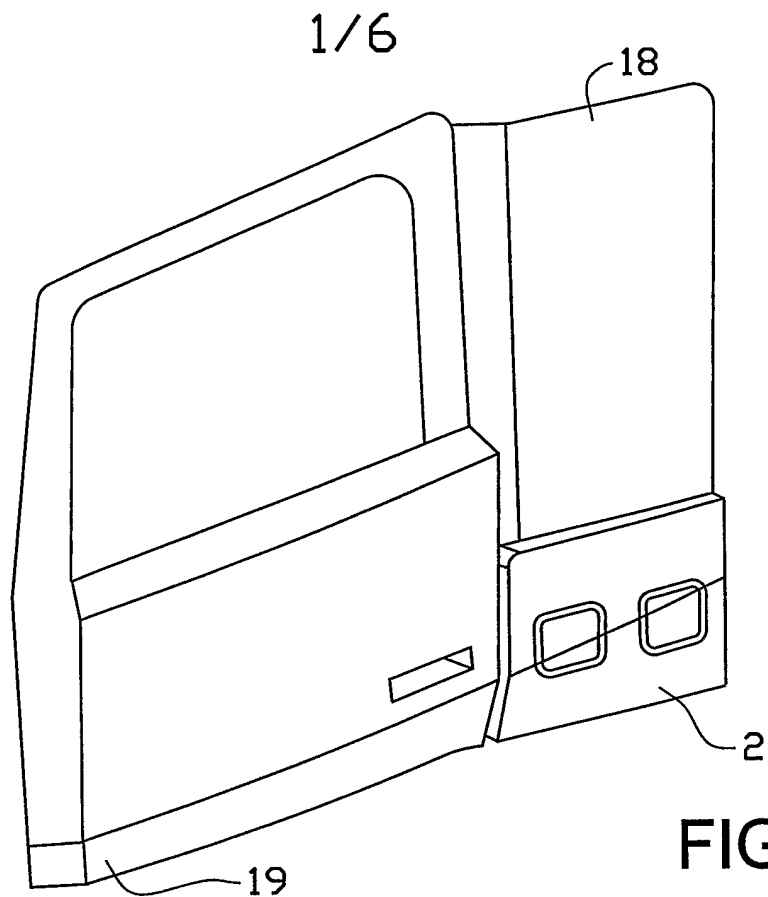
19. The vehicle as claimed in claim 18,
5 characterized in that the body (18) is intended for a truck and the module (1) is disposed in a side wall of the body.

20. A use of a module (1) as claimed in any one of
10 claims 1-17 in order to provide an opening and closing function for an internal compartment in a vehicle body (18) for a truck.

21. A method for assembling a lid (2) on a vehicle,
15 wherein a module (1), including a frame (3) which defines an opening (4) and extends at least partially around a geometric longitudinal axis (5), the frame (3) being provided with a means (6) for pivotably coupling a lid (2) and the frame (3), is applied along the
20 periphery of an opening (4) in a vehicle body (18) by movement essentially in the direction of the geometric longitudinal axis (5).

22. The method as claimed in claim 21 or 22,
25 wherein the module (1) is principally bound to the vehicle shell (21) by means of one or more screw joints with screw direction essentially in the direction of the longitudinal axis (5).

30 23. The method as claimed in any one of claims 21-23, wherein the module (1), prior to being fitted to the vehicle shell (21), is placed in a fixture for adjusting the mutual positioning of the frame (3) of the module and a lid (2) bound to the frame (3) by the
35 coupling means (6).



2/6

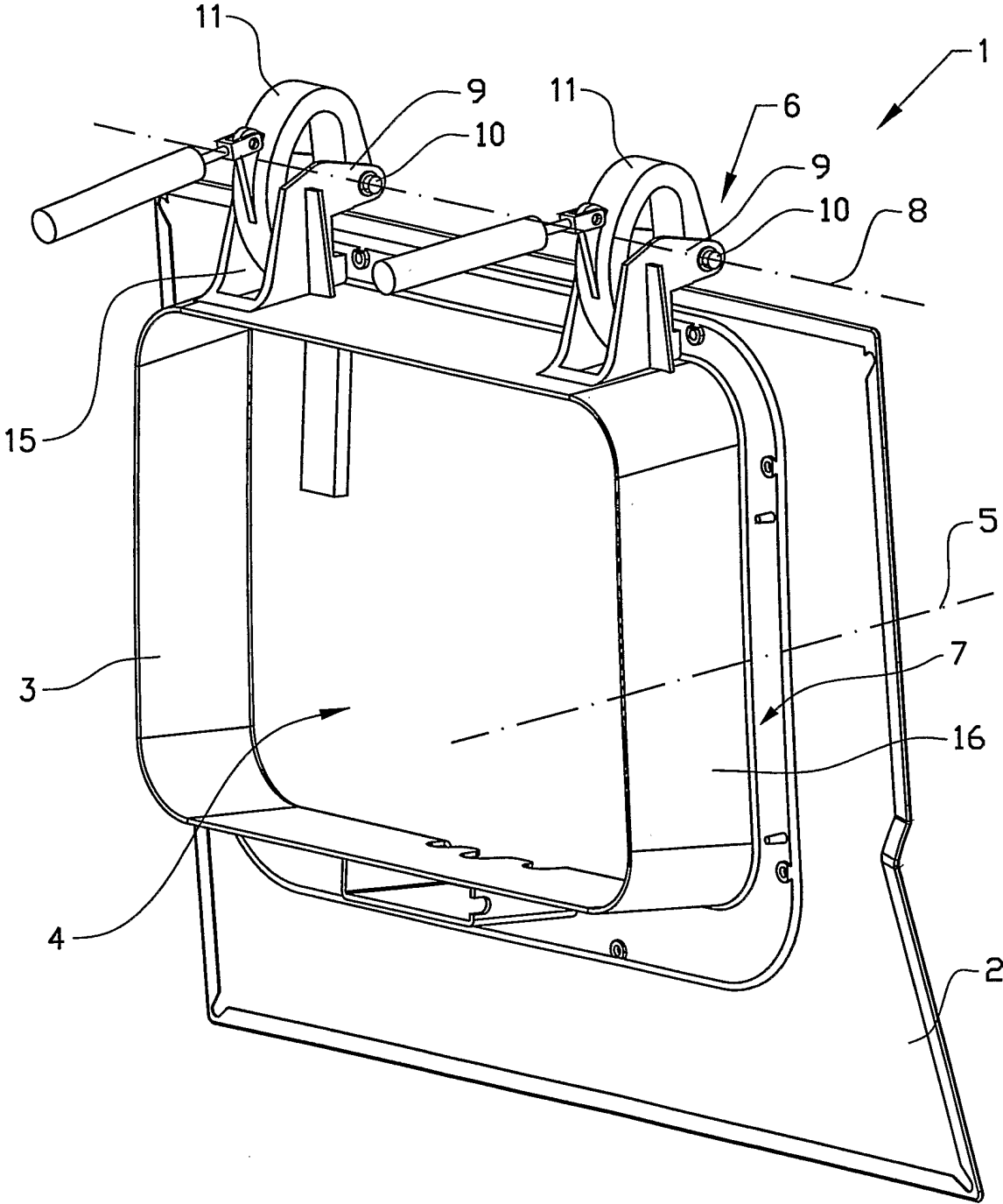


FIG. 3

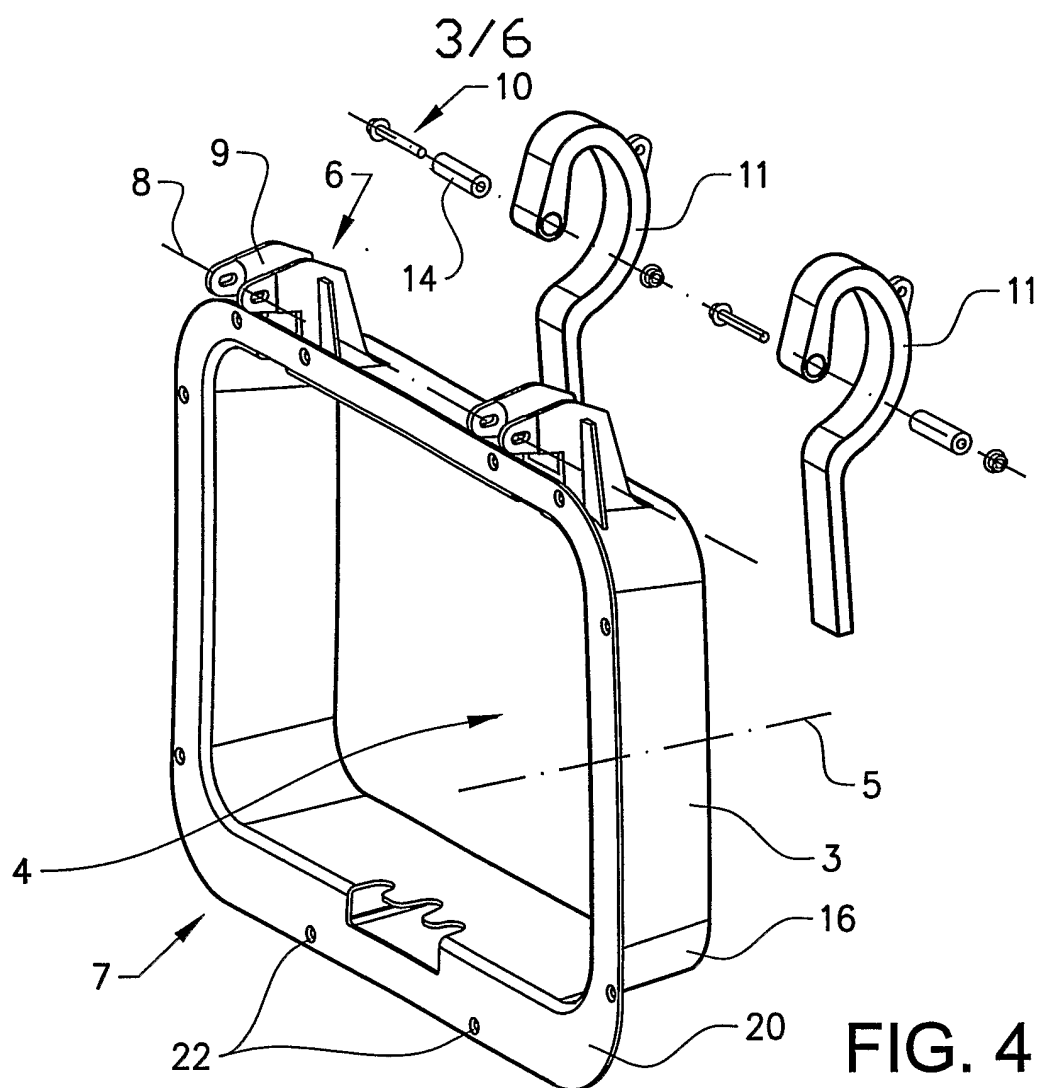


FIG. 4

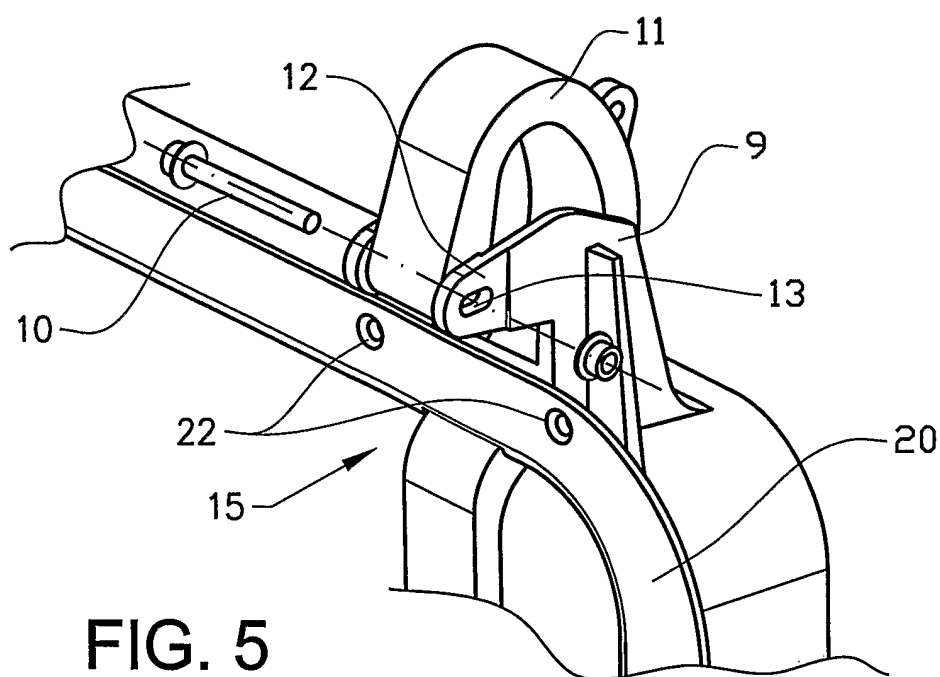


FIG. 5

4/6

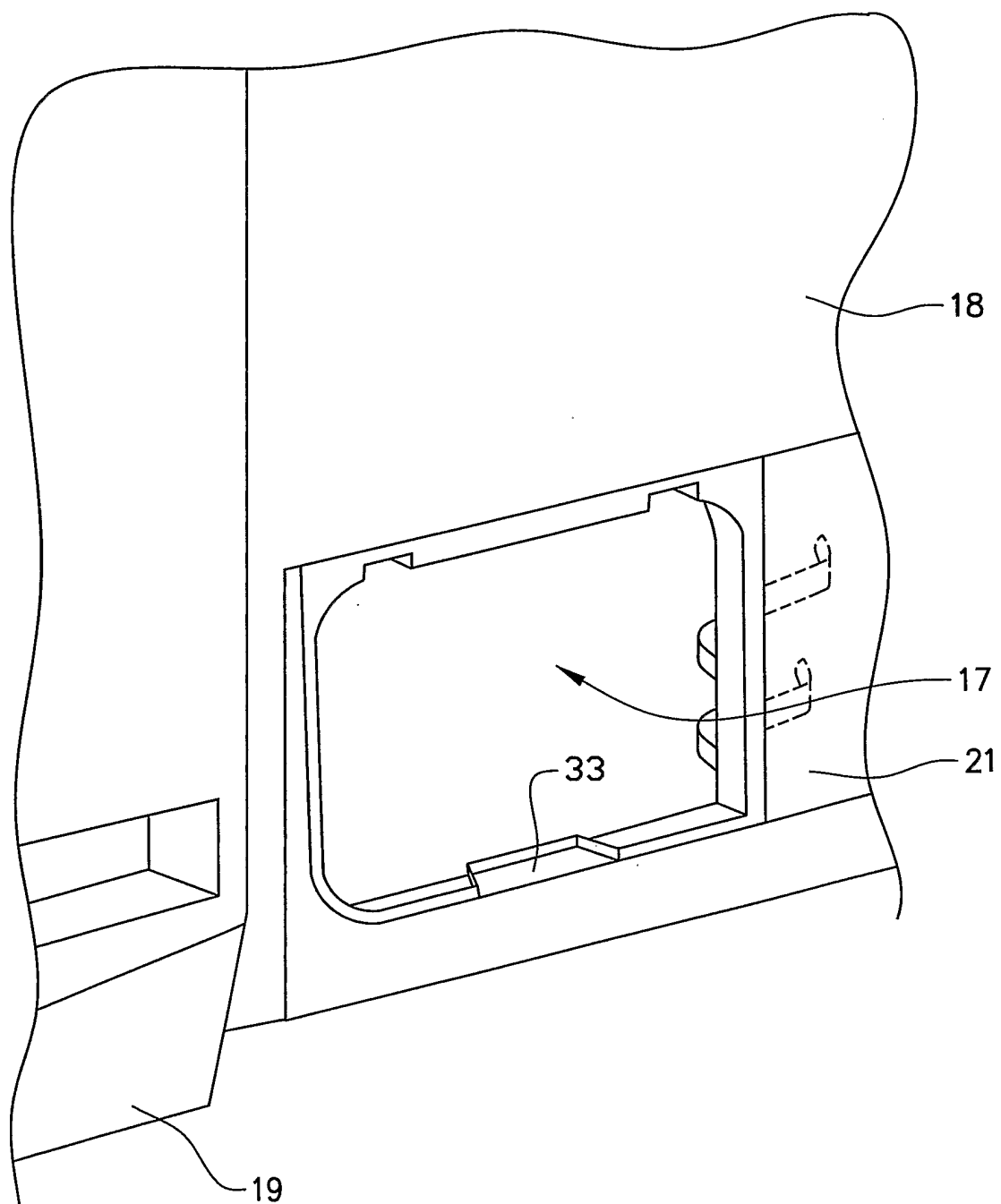
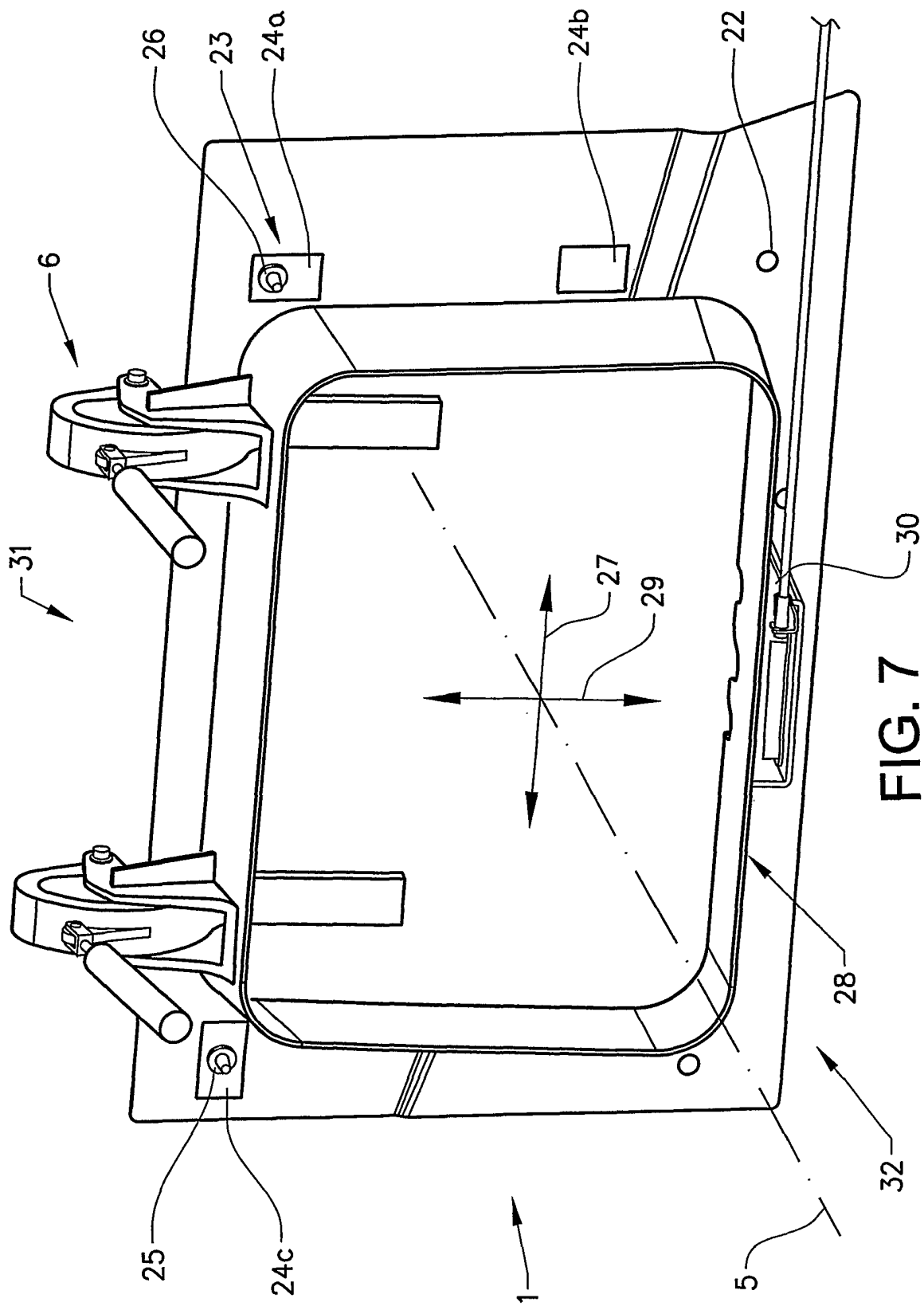
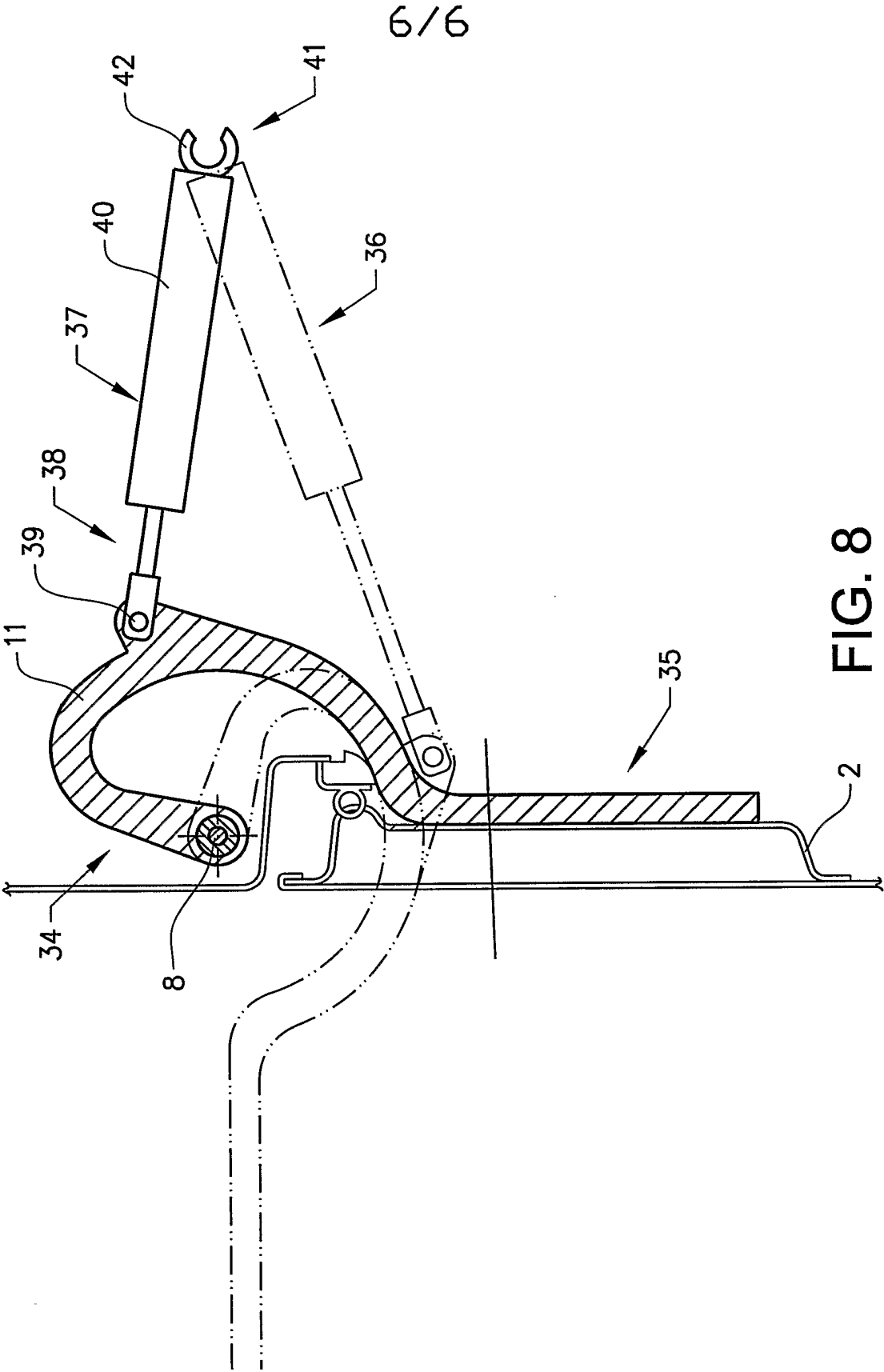


FIG. 6

5/6





INTERNATIONAL SEARCH REPORT

International application No.

PCT/SE 2004/002000

A. CLASSIFICATION OF SUBJECT MATTER

IPC7: B62D 25/24, B62D 65/06

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

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

IPC7: B62D, E06B

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

SE,DK,FI,NO classes as above

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

EPO-INTERNAL, WPI DATA, PAJ

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	EP 1308375 A2 (RAUFOSS GERMANY GMBH), 7 May 2003 (07.05.2003), column 2, line 14 - line 56; column 3, line 20 - line 30, figures 1,4, abstract --	1-10,12-23
X	DE 10012754 A1 (VOLKSWAGEN AG), 20 Sept 2001 (20.09.2001), column 3, line 1 - line 40, figure 2, abstract --	1-4,6-10,12, 21-22
X	US 5775375 A (NORMAN LEE CALHOUN), 7 July 1998 (07.07.1998), column 2, line 9 - line 55, abstract --	1,4,6,10,21

☒ Further documents are listed in the continuation of Box C.☒ See patent family annex.

* Special categories of cited documents:

- "A" document defining the general state of the art which is not considered to be of particular relevance
- "E" earlier application or patent but published on or after the international filing date
- "L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)
- "O" document referring to an oral disclosure, use, exhibition or other means
- "P" document published prior to the international filing date but later than the priority date claimed

- "T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention
- "X" document of particular relevance: the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone
- "Y" document of particular relevance: the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art
- "&" document member of the same patent family

Date of the actual completion of the international search

5 July 2005

Date of mailing of the international search report

06-07-2005

Name and mailing address of the ISA/
Swedish Patent Office
Box 5055, S-102 42 STOCKHOLM
Facsimile No. +46 8 666 02 86

Authorized officer

Mimmi Westman/MP
Telephone No. +46 8 782 25 00

INTERNATIONAL SEARCH REPORT

International application No.

PCT/SE 2004/002000

C (Continuation). DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	DATABASE WPI Week 200222 Derwent Publications Ltd., London, GB Class Q13, AN 1998-380927 & JP 3266015 B2 (NISSAN MOTOR CO LTD) 18 March 2002 (2002-03-18) abstract --	1,21
A	DE 3738931 A1 (ADAM OPEL AG), 1 June 1989 (01.06.1989), whole document --	1-23
A	DE 10243041 B3 (DECOMA (GERMANY) GMBH), 29 January 2004 (29.01.2004), whole document -- -----	1-23

INTERNATIONAL SEARCH REPORT

Information on patent family members

International application No.

PCT/SE 2004/002000

EP	1308375	A2	07/05/2003	DE	10153724 A	15/05/2003
DE	10012754	A1	20/09/2001	NONE		
US	5775375	A	07/07/1998	AU	690052 B	09/04/1998
				AU	2007297 A	18/12/1997
				BR	9703505 A	06/10/1998
				CA	2201634 A,C	10/12/1997
				DE	59702656 D	00/00/0000
				EP	0813015 A,B	17/12/1997
				ES	2152058 T	16/01/2001
				JP	3207373 B	10/09/2001
				JP	10061869 A	06/03/1998
DE	3738931	A1	01/06/1989	NONE		
DE	10243041	B3	29/01/2004	NONE		