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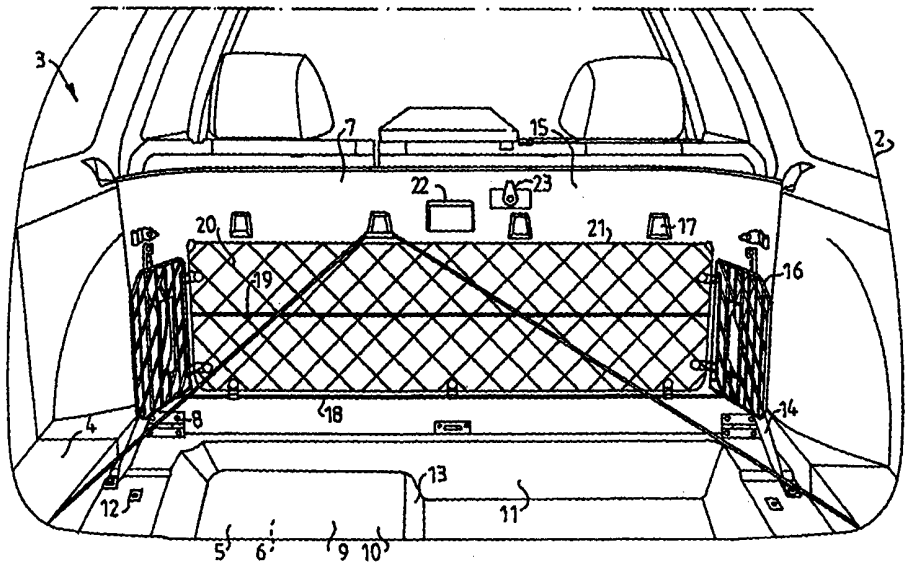
(54) Title: LOADING COMPARTMENT



(57) Abstract

The invention relates to a loading compartment (1) in a vehicle (2), comprising a recess (5) in the floor (4) of the vehicle (2) and a cover (7), which in a closed position essentially covers the recess (5) and in an open position allows access to a storage space (6) defined by the recess (5), which cover (7) is articulately mounted in the floor (4). A load-receiving element (9) matched to the shape of the recess (5) is detachably disposed in the recess (5), which load-receiving element (9) is provided with load-receiving surfaces (10, 11) for fixing and lending support to goods placed on the load-receiving element (9). At least one supporting member (16, 17) is disposed on the cover (7) so as to fix goods placed in the storage space (6).

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Loading compartment

The present invention relates to a loading compartment in a vehicle, comprising a recess in the floor of the vehicle and a cover which in a closed position essentially covers the recess and in an open position allows access to a storage space defined by the recess, which cover is articulately mounted in the floor.

In the transportation of goods such as food bags and cardboard boxes, a vehicle is often used. The goods are then placed preferably in the boot of the vehicle. The boot can be separate from the passenger compartment of the vehicle, such as in vehicles of the saloon car type, or can constitute a part of the passenger compartment, such as in station wagon or estate car models.

In existing vehicles, the floor of the boot is provided with a recess which defines a storage space in which a spare wheel and/or a battery can be stored. The recess is covered with a cover, which is articulately mounted in the floor. In the closed position of the cover, the cover constitutes a part of the floor of the vehicle on which goods can be placed.

The goods placed on the floor of the boot have proved however to have a tendency to tip over and/or move while the vehicle is moving, which means that the goods may be damaged or the goods may damage the furnishings of the vehicle.

An object of the present invention is therefore to produce a loading compartment in a vehicle which fixes and lends support to the goods in the vehicle and hence prevents the goods from tipping over and/or moving in the vehicle.

This is achieved by virtue of a loading compartment of the kind stated in the introduction in which at least one supporting member is disposed on the cover so as to fix and lend support to goods placed in the storage space.

This is also achieved by virtue of a loading compartment of the kind stated in the introduction in which a load-receiving element matched to the shape of the recess is detachably disposed in the recess, which load-receiving element is provided with load-receiving surfaces for fixing and lending support to goods placed on the load-receiving element.

The load-receiving surfaces of the load-receiving element and the supporting member disposed on the cover fix and lend support to the goods, so that the goods are prevented from tipping over and/or moving.

The invention will be described in greater detail below with reference to an embodiment shown in the appended drawings, in which:

Fig. 1 shows a loading compartment in a vehicle in a view seen from the rear of the vehicle, and

Fig. 2 shows a perspective view of the loading compartment according to Fig. 1.

In Fig. 1, a loading compartment 1 is shown in a vehicle 2 in a view seen from the rear of the vehicle 2. According to the illustrative embodiment shown, the vehicle 2 is of the station wagon type, in which the rear hatch or the rear door to the boot 3 of the vehicle 2 is open. In Fig. 2, the loading compartment 1 according to Fig. 1 is shown in perspective. The floor 4 of the boot 3 is provided with

a recess 5, which defines a storage space 6 for a spare wheel and battery (not shown).

A cover 7 is articulately mounted in the floor 4 by means of hinges 8. In Fig. 1, the cover 7 is raised into an open position, which allows access to the storage space 6. In a closed position, the cover 7 essentially covers the recess 5, so that the cover 7 coincides with the plane of the floor 4.

In the recess 5 there is disposed a load-receiving element 9. The load-receiving element 9 is removable to allow access to the storage space 6. Preferably, the load-receiving element 9 is shaped as a casing and provided with load-receiving surfaces in the form of a bottom surface 10 and side surfaces 11, which fix and lend support to goods (not shown) which are placed on the load-receiving element 9. The load-receiving element 9 is preferably made of injection-moulded plastic, but other materials are also conceivable. The bottom surface 10 is patterned to further lend support to goods placed on the surface 10, so that the said goods are prevented from sliding and moving in the loading compartment 1. The load-receiving element 9 is preferably detachably connected to the floor 4 by means of fastening devices 12, such as clips or screws. In Fig. 1, the bottom surface 10 is provided with a step 13, so that two levels of the bottom surface 10 are formed. This allows adaptation to goods of different sizes. It is nevertheless conceivable for the bottom surface 10 just to have one level. The shape of the load-receiving element 9 is preferably matched to the recess.

The cover 7 is articulately fitted to a front edge of the recess 5 in relation to the vehicle 2 and a load-receiving belt 14 is disposed between the cover 7 and the floor 4 on

each side of the cover 7, which belt 14, together with the cover 7, prevents goods from being thrown forward in the vehicle 2. On the underside 15 of the cover 7, that is to say that side of the cover 7 which, in the closed position of the cover 7, is facing the recess 5, there are disposed first and second supporting members 16,17. The first supporting members comprise supporting flaps 16 articulately mounted on the cover 7, which supporting flaps, with the aid of the load-receiving belts 14, are automatically folded out from the cover 7 when the cover 7 is raised from the closed into the open position. The supporting flaps 16 are spring-tensioned, so that, in the closed position of the cover 7, they are folded in and bear against the cover 7 and, in the open position of the cover 7, they are folded out and extend essentially at right-angles to the cover 7. The second supporting members comprise fastening members 17, disposed on the cover 7, for suspension of goods. According to the illustrative embodiment, the fastening members 17 are constituted by a plurality of hooks which are disposed on the underside 15 of the cover 7. An elastic cord 18 is disposed in the loading compartment 1, which cord can be fastened to the fastening members 17 so as to fix and lend support to the goods placed on the load-receiving element 9. An elastic strap 19 is clamped to the underside 15 of the cover 7, which strap 19 can be placed around the goods. On the underside 15 of the cover 7 there is also disposed a net 20, in which the goods can be placed. The net 20 forms a pocket, which is spring-loaded with the aid of an elastic band 21.

The cover 7 is provided with a handle 22, which can be gripped in order to raise and lower the cover 7. A locking device 23 ensures that the cover 7 is locked when in the lowered, closed position. In order to fix the cover 7 in the raised, open position, one or more leaf springs (not

shown) are arranged in the region of the hinges 8. The leaf springs are configured such that the cover 7 snaps into a bent section of the leaf spring, which means that the cover 7 assumes a fixed position. When in this raised position, the cover 7 slopes preferably rearward in relation to the vehicle 2 at an angle of around 85 degrees between the floor 4 and the underside 15 of the cover 7. This angle of the cover 7 prevents goods from being thrown upward and forward in case of violent motions of the vehicle 2.

It is conceivable for goods to be placed in the loading compartment 1 with the load-receiving element 9 removed. The goods are thus placed directly in the storage space 6 formed by the recess 5. The supporting members 16, 17 fix and lend support to the goods which are placed in the storage space 6.

It is also conceivable to provide the loading compartment 1 just with the load-receiving element 9, the support surfaces 10, 11 of which fix and lend support to the goods which are placed on the load-receiving element 9.

Patent Claims

1. Loading compartment in a vehicle (2), comprising a recess (5) in the floor (4) of the vehicle (2) and a cover (7) which in a closed position essentially covers the recess (5) and in an open position allows access to a storage space (6) defined by the recess (5), which cover (7) is articulately mounted in the floor (4), characterized in that at least one supporting member (16, 17) is disposed on the cover (7) so as to fix and lend support to goods placed in the storage space (6).

2. Loading compartment according to Claim 1, characterized in that a first supporting member (16) comprises supporting flaps (16) articulately mounted on the cover (7).

3. Loading compartment according to Claim 2, characterized in that the supporting flaps (16) are spring-tensioned, so that, in the closed position of the cover (7), they are folded in and bear against the cover (7) and, in the open position of the cover (7), they are folded out and extend essentially at right-angles to the cover (7).

4. Loading compartment according to any one of Claims 1 - 3, characterized in that the cover (7) is articulately fitted to a front edge of the recess (5) in relation to the vehicle (2) and in that at least one load-receiving belt (14) is disposed between the cover (7) and the floor (4), which belt (14), together with the cover (7), prevents goods from being thrown forward in the vehicle (2).

5. Loading compartment according to any one of Claims 1 - 4, characterized in that a second supporting member (17) comprises fastening members (17), disposed on the cover (7), for suspension of goods.

6. Loading compartment according to Claim 5, characterized in that an elastic cord (18) is disposed in

the loading compartment (1), which cord can be fastened to the fastening members (17) so as to fix and lend support to the goods placed in the recess (5).

7. Loading compartment according to any one of Claims 1 - 6, characterized in that a load-receiving element (9) having load-receiving surfaces (10, 11) is detachably disposed in the recess, which element (9) is removable to allow access to the storage space (6).

8. Loading compartment according to Claim 7, characterized in that the load-receiving element (9) is shaped as a casing, in which the load-receiving surfaces (10, 11) are constituted by a bottom surface (10) and side surfaces (11).

9. Loading compartment in a vehicle (2), comprising a recess (5) in the floor (4) of the vehicle (2) and a cover (7), which in a closed position essentially covers the recess (5) and in an open position allows access to a storage space (6) defined by the recess (5), which cover (7) is articulately mounted in the floor (4), characterized in that a load-receiving element (9) matched to the shape of the recess (5) is detachably disposed in the recess (5), which load-receiving element (9) is provided with load-receiving surfaces (10, 11) for fixing and lending support to goods placed on the load-receiving element (9).

10. Loading compartment according to Claim 9, characterized in that the load-receiving element (9) is shaped as a casing, in which the load-receiving surfaces (10, 11) are constituted by a bottom surface (10) and side surfaces (11).

11. Loading compartment according to Claim 9 or 10, characterized in that at least one supporting member (16, 17) is disposed on the cover (7) so as to fix and lend support to goods placed on the load-receiving element (9).

12. Loading compartment according to Claim 11, characterized in that a first supporting member (16)

comprises supporting flaps (16) articulately mounted on the cover (7).

13. Loading compartment according to Claim 12, characterized in that the supporting flaps (16) are spring-tensioned, so that, in the closed position of the cover (7), they are folded in and bear against the cover (7) and, in the open position of the cover (7), they are folded out and extend essentially at right-angles to the cover (7).

14. Loading compartment according to any one of Claims 9 - 13, characterized in that the cover (7) is articulately fitted to a front edge of the recess (5) in relation to the vehicle (2) and in that at least one load-receiving belt (14) is disposed between the cover (7) and the floor (4), which belt (14), together with the cover (7), prevents goods from being thrown forward in the vehicle (2).

15. Loading compartment according to any one of Claims 9 - 14, characterized in that a second supporting member (17) comprises fastening members (17), disposed on the cover (7), for suspension of goods.

16. Loading compartment according to Claim 15, characterized in that an elastic cord (18) is disposed in the loading compartment (1), which cord can be fastened to the fastening members (17) so as to fix and lend support to the goods placed on the load-receiving element (9).

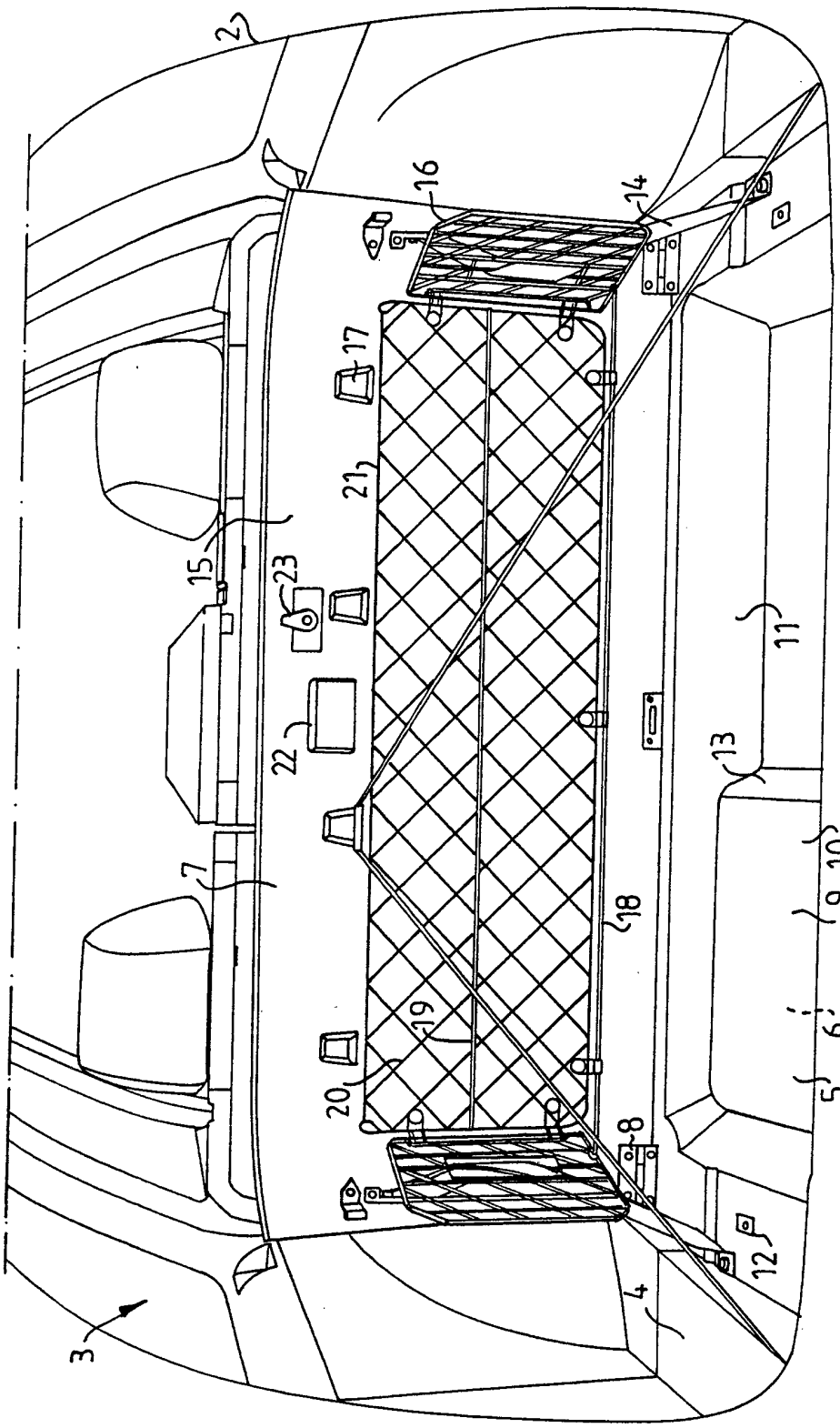

FIG. 1

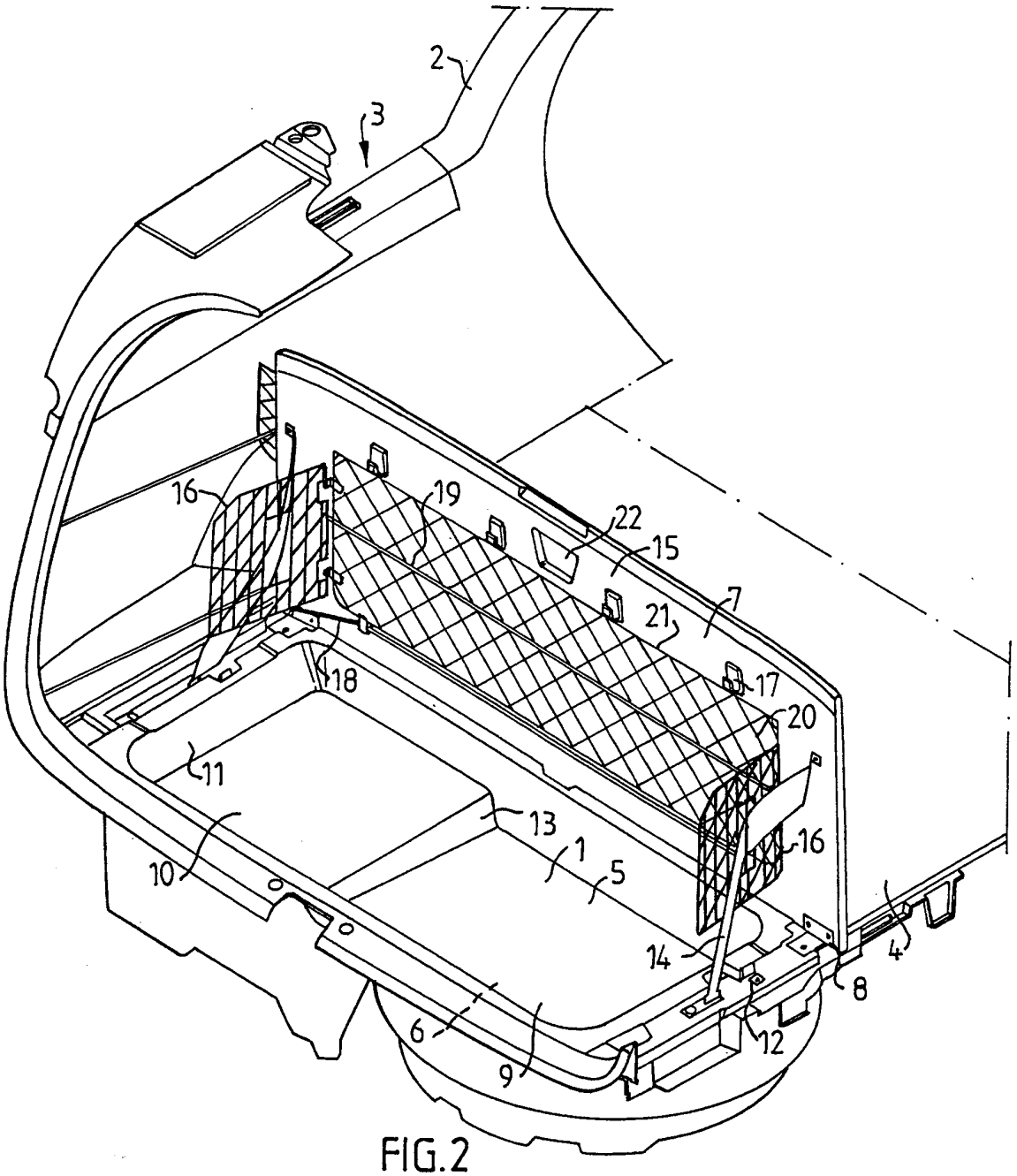

FIG.2

INTERNATIONAL SEARCH REPORT

International application No.
PCT/SE 99/02403

A. CLASSIFICATION OF SUBJECT MATTER

IPC7: B60R 5/04, B60R 7/02
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: B60R, B62D

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)

EPODOC

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	DE 19802077 A1 (VOLKSWAGEN AG), 6 August 1998 (06.08.98), column 1, line 57 - column 2, line 15, figures 5-8, abstract	1,7-10
Y		2,4,6,12, 14-16
	--	
X	DE 3332695 A1 (VOLKSWAGENWERK AG), 28 March 1985 (28.03.85), page 5, line 19 - line 35, figure 2	1
Y		2,4-8
	--	
X	US 5636890 A (J.G. COOPER), 10 June 1997 (10.06.97), abstract	9,10
	--	

[X] Further documents are listed in the continuation of Box C. [X] See patent family annex.

* Special categories of cited documents:
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Date of the actual completion of the international search	Date of mailing of the international search report
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INTERNATIONAL SEARCH REPORT

International application No.
PCT/SE 99/02403

C (Continuation). DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
Y	WO 9501891 A1 (ATLANTIC AUTOMOTIVE COMPONENTS), 19 January 1995 (19.01.95), figures 1,7, abstract --	2,4,12,14
Y	CA 2137634 A (MALINOWSKI, L. ET AL), 22 Sept 1998 (22.09.98), page 5, line 12 - line 35; page 6, line 10 - line 23, figures 3,4,7, abstract --	2,5,6,12,15, 16
A	DE 4340675 A1 (BAYERISCHE MOTOREN WERKE AG), 1 June 1995 (01.06.95) -- --------	1-16

INTERNATIONAL SEARCH REPORT

International application No.
PCT/SE99/02403

Box I Observations where certain claims were found unsearchable (Continuation of item 1 of first sheet)

This international search report has not been established in respect of certain claims under Article 17(2)(a) for the following reasons:

1. ☐ Claims Nos.:
because they relate to subject matter not required to be searched by this Authority, namely:

2. ☐ Claims Nos.:
because they relate to parts of the international application that do not comply with the prescribed requirements to such an extent that no meaningful international search can be carried out, specifically:

3. ☐ Claims Nos.:
because they are dependent claims and are not drafted in accordance with the second and third sentences of Rule 6.4(a).

Box II Observations where unity of invention is lacking (Continuation of item 2 of first sheet)

This International Searching Authority found multiple inventions in this international application, as follows:

A loading compartment according to claims 1-8 in which a supporting member is arranged on a lid.

A loading compartment according to claims 9-16 in which loadreceiving surfaces are arranged in a recess.

1. ☐ As all required additional search fees were timely paid by the applicant, this international search report covers all searchable claims.

2. ☒ As all searchable claims could be searched without effort justifying an additional fee, this Authority did not invite payment of any additional fee.

3. ☐ As only some of the required additional search fees were timely paid by the applicant, this international search report covers only those claims for which fees were paid, specifically claims Nos.:

4. ☐ No required additional search fees were timely paid by the applicant. Consequently, this international search report is restricted to the invention first mentioned in the claims; it is covered by claims Nos.:

Remark on Protest

☐ The additional search fees were accompanied by the applicant's protest.

☐ No protest accompanied the payment of additional search fees.

INTERNATIONAL SEARCH REPORT

Information on patent family members

02/12/99

International application No.
PCT/SE 99/02403

Patent document cited in search report	Publication date	Patent family member(s)	Publication date
DE 19802077 A1	06/08/98	NONE	
DE 3332695 A1	28/03/85	NONE	
US 5636890 A	10/06/97	AU 4765296 A	11/08/97
		WO 9726175 A	24/07/97
WO 9501891 A1	19/01/95	US 5392972 A	28/02/95
CA 2137634 A	22/09/98	AT 151025 T	15/04/97
		DE 69402407 D,T	09/10/97
		EP 0667260 A,B	16/08/95
		ES 2100616 T	16/06/97
		JP 7277067 A	24/10/95
DE 4340675 A1	01/06/95	NONE	