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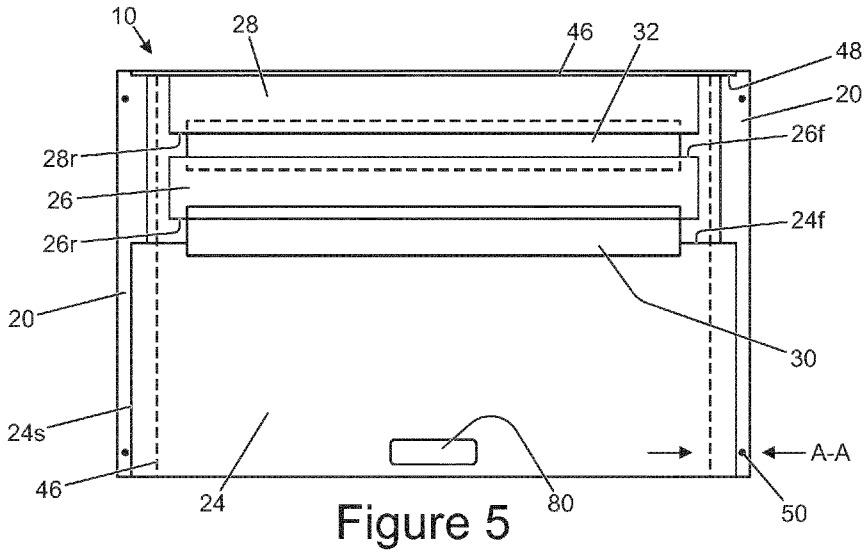


Figure 5

(57) Abstract: A load floor system (10) for a vehicle load space, the system comprising: a load floor 5 having a load portion (24), a slave portion (26) and a pivot portion (28); and a guide (20), wherein: the load portion (24) is slidable within the guide (20) and connectable along a forward edge (24f) to a rearward edge (26r) of the slave portion (26); and the pivot portion (28) is pivoted along a forward edge (28f) and connectable along a rear edge (28r) to a forward edge (26f) of the slave portion, wherein the pivot portion (24) 10 pivots in dependence on the position of the load portion (24) in the guide (20).

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LOAD FLOOR SYSTEM

TECHNICAL FIELD

The present invention relates to a load floor system. In particular but not exclusively the invention relates to a load floor system for a vehicle load space. Aspects of the invention relate to a load floor system, a variable length luggage strap, a folding load floor and a vehicle.

BACKGROUND

Load spaces at the rear or back of vehicles provide storage for several items. To make use of the forward-most part of the load space a user may be required to reach into the load space over a rear bumper of the vehicle.

The present invention seeks to mitigate this requirement.

SUMMARY OF INVENTION

Aspects of the invention are defined in the appended claims.

In an aspect of the invention there is provided a load floor system for a vehicle load space, the system comprising: a load floor having a load portion, a slave portion and a pivot portion; and a guide. In an embodiment the load portion is slidable within the guide and connectable along a forward edge to a rearward edge of the slave portion. Optionally the pivot portion is pivoted along a forward edge and connectable along a rear edge to a forward edge of the slave portion, wherein the pivot portion pivots in dependence on the position of the load portion in the guide.

The load floor system advantageously provides a system for translating goods in the load space of the host vehicle. In embodiments of the invention the load floor is movable between a stowed condition and a deployed condition. In the stowed condition the load floor advantageously forms a bulk head for the host vehicle load space.

In an embodiment a sub floor is accessible when the load floor is in the stowed condition. Optionally the sub floor comprises one or more surface features arranged to provide a high friction surface. Further optionally the sub floor comprises one or more apertures arranged to permit fluid egress from the host vehicle load space to a drainage system of the host vehicle.

The sub floor may comprise one or more luggage straps. Advantageously the luggage straps can be used to retain luggage on the sub-floor.

In an embodiment the load floor system comprises a bumper guard deployable to cover a bumper of a host vehicle when the load floor is in the stowed condition. The bumper guard can advantageously be used to cover and protect the bumper of the host vehicle when moving goods into and out of the host vehicle load space.

The load floor may comprise a surface layer and the guide may comprise a surface finisher, wherein an uppermost surface of each of the surface layer and the surface finisher are substantially flush when the load floor is in the deployed condition. This advantageously gives a flat load space surface when the load floor is in the deployed configuration permitting large goods to be stored across the whole load space surface.

Optionally the guide comprises a bearing means arranged to permit the load portion to slide within the guide.

The guide may comprise a cover portion arranged to retain the load portion within the guide. Optionally the guide comprises a fixing means arranged to fix the load floor system to a host vehicle.

In an embodiment the sub floor is formed by bodywork of a host vehicle.

Each connection between the load portion and the slave portion, and the slave portion and the pivot portion, may comprise a hinge. Each hinge may be a fabric hinge.

The one or more luggage straps may each comprise two strap portions arranged to engage in a plurality of configurations to provide a variable length of the one or more luggage straps. Advantageously this allows for different size luggage items to be strapped to the sub floor. In an embodiment a first one of said two strap portions comprises magnetic elements and a second one of said two strap portions comprises metallic elements, wherein the magnetic and metallic elements are magnetically engageable in a plurality of configurations to provide said variable length of the one or more luggage straps.

In another aspect of the invention there is provided a variable length luggage strap comprising two strap portions, wherein a first one of said two strap portions comprises magnetic elements and a second one of said two strap portions comprises metallic elements, wherein the magnetic and metallic elements are magnetically engageable in a plurality of configurations to provide said variable length luggage strap.

In another aspect of the invention there is provided a folding load floor comprising: a slidable load portion having a forward edge and a rearward edge; a slave portion having a forward edge and a rearward edge connectable to the forward edge of the load portion; and a pivot portion having a pivotable forward edge and a rearward edge connectable to the forward edge of the slave portion.

Each connection between the load portion and the slave portion, and the slave portion and the pivot portion, may comprise a hinge. Optionally each hinge is a fabric hinge.

In another aspect of the invention there is provided a vehicle comprising a load floor system, a variable length luggage strap, or a folding load floor as hereinbefore mentioned.

Within the scope of this application it is expressly intended that the various aspects, embodiments, examples and alternatives set out in the preceding paragraphs, in the claims and/or in the following description and drawings, and in particular the individual features thereof, may be taken independently or in any combination. That is, all embodiments and/or features of any embodiment can be combined in any way and/or combination, unless such features are incompatible. The applicant reserves the right to change any originally filed claim or file any new claim accordingly, including the right to amend any originally filed claim to depend from and/or incorporate any feature of any other claim although not originally claimed in that manner.

BRIEF DESCRIPTION OF THE FIGURES

The invention is described herein with reference to the figures in which:

Figure 1 schematically shows a load floor system in a deployed condition according to an embodiment of the invention;

Figure 2 schematically shows a load floor system in a stowed condition according to an embodiment of the invention;

Figure 3 schematically shows a load floor system in a deployed condition according to an embodiment of the invention;

Figure 4 schematically shows a load floor system in a stowed condition according to an embodiment of the invention;

Figure 5 schematically shows a load floor system according to an embodiment of the invention;

Figure 6 shows a cross section through A-A of Figure 5;

Figures 7a to 7c schematically shows conditions of a load floor system according to an embodiment of the invention;

Figure 8 shows a sub floor of a load floor system according to an embodiment of the invention;

Figures 9a and 9b show embodiments of a sub floor of a load floor system according to an embodiment of the invention;

Figure 10 schematically shows a luggage strap along B-B of Figure 8 according to an embodiment of the invention;

Figures 11a to 11d schematically show configurations of a luggage strap through B-B of 8 according to an embodiment of the invention;

Figure 12 shows a handle of a load floor system according to an embodiment of the invention;

Figure 13 shows a load floor system according to an embodiment of the invention;

Figure 14 shows a load floor system according to an embodiment of the invention; and,

Figures 15a to 15c schematically shows stages of movement of a load floor system according to an embodiment of the invention.

DETAILED DESCRIPTION

Throughout the description the terms front, back, top and bottom are to be given their conventional meanings in relation to a standard forward facing of a vehicle. The terms left and right are used to describe the respective sides of the vehicle when viewed from the rear of the vehicle facing forwards towards the front.

A longitudinal axis is defined passing through the front and rear of the vehicle and parallel to a normal standing of the vehicle. A transverse axis is defined perpendicular to the longitudinal axis and parallel to a normal standing of the vehicle.

A vertical axis is defined passing through the top and bottom of the vehicle and perpendicular to the longitudinal and transverse axes.

Figures 1 to 4 show a load floor system 10 according to an embodiment of the invention. The load floor system is installable in a load space 12 behind rear seats 14 in a vehicle 16. It will be appreciated that the load floor system is also installable in other areas such as a front load space of a rear engine vehicle or otherwise.

The load floor system comprises a load floor 18 and a guide 20. The load floor 18 is movable relative to the guide 20 between a deployed, or flat, condition as shown in Figures 1 and 3, and a stowed, or folded, condition as shown in Figures 2 and 4. Advantageously, as shown in Figures 3 and 4, the load floor system can be used to translate items such as a bag 22 from a rearward position in the load space 12, shown in Figure 3, to a forward position in the load space, shown in Figure 4. This enables a user of the load floor system to use the load space 12 of their vehicle 16 without leaning or reaching into it. Further advantageously the stowed, or folded, condition forms a bulkhead at the forward-most position of the load space 12 to catch items stored on the load floor from rolling into a cabin of the vehicle.

Figures 5 and 6 schematically show the construction of the load floor system 10. The load floor 18 comprises a load portion 24, a slave portion 26 and a pivot portion 28. The load portion 24 is connectable along a forward edge 24f to a rearward edge 26r of the slave portion 26. In turn the slave portion 26 is connectable along a forward edge 26f to a rearward edge 28r of the pivot portion 28.

In an embodiment of the invention a first fabric hinge 30 connects the load portion 24 to the slave portion 26, and a second fabric hinge 32 connects the slave portion 26 to the pivot portion 28. It will be appreciated that in other embodiments of the invention the fabric hinges 30, 32, may be replaced by mechanical or other hinge types.

As schematically shown in Figure 5 the load floor system 10 may comprise two guides 20 positioned substantially parallel to sides 24s of the load portion 24. It should be noted that the guides 20 shown in Figure 5 show only a load bearing portion of each guide 20 as will be explained.

Figure 6 shows a cross-sectional view through A-A as shown in Figure 5. As shown the load portion 24 of the load floor 18 runs in the guide 20. In an embodiment of the

invention the load portion runs on a load bearing portion 34 of the guide 20 which has a load bearing surface 36. The load portion 24 may directly contact the load bearing surface 36 of the guide 20. In other arrangements one or more bearings 38 or similar may be provided at or on the load bearing surface 36 to support the load portion 24 of the load floor 18. In some embodiments the guide 20 further comprises a cover portion 40 arranged to prevent the load portion 24 lifting out of the guide 20. As mentioned above, Figure 5 only shows the load bearing surface 36 and does not show the cover portion 40 of the guide 20.

A vertical gap 42 is provided between the load bearing portion 34 of the guide 20, the load portion 24 of the load floor 18 and the cover portion 40 of the guide 20 to allow sliding movement of the load portion 24 within the guide 20. A horizontal gap 44 is also provided between the load portion 24 and the guide 20 similarly to allow sliding movement of the load portion 24 relative to the guide 20. Both the vertical and horizontal gaps 42, 44 are selected to minimize vertical and lateral movement of the load portion 24 of the load floor 18.

As shown in Figure 5 only the load portion 24 runs in the guides 20. The slave portion 26 is not directly constrained by the guide 20. Instead the fabric hinges 30, 32 constrain the movement of the slave portion 26 linking it to any movement of the load portion 24 and the pivot portion 28. The pivot portion 28 is pivoted about a shaft 46 housed, in an embodiment, in a bore 48 in the guide 20. It will be appreciated that the shaft 46 may pivot about an alternative point, for example in bodywork of the vehicle, which is fixedly related to the guide 20.

Figure 6 illustrates a fixing 50 which is used to fixedly connect the guide 20 to a body 52 of the host vehicle. The fixing 50 may comprise a bolt or other suitable fixing means. A plurality of fixings 50 may be used to connect each guide 20 to the vehicle as shown in Figure 5. In embodiments of the invention the guide is formed from a rigid material, for example metal, such as aluminium, or plastic.

In embodiments of the invention the load floor 20 comprises a surface layer 54 onto which items may be placed as shown in Figures 3 and 4. The surface layer 54 may be formed of leather, carpet, or other material suitable for the floor of a vehicle load space. A corresponding material is applied to the guide 20 to provide a guide finisher 56. Advantageously the uppermost surfaces of the surface layer 54 and guide finisher 56 are substantially flush, or level, so that when the load floor is in the

deployed, flat, condition the load floor system 10 has a seamless appearance across its complete width within the load space of the vehicle. It will be appreciated that in some embodiments the guide finisher 56 may be removably attached to the guide 20 to allow access to the guide fixings 50.

The load portion 24, slave portion 26 and pivot portion 28 may comprise a rigid material, for example metal such as aluminium, onto which the surface layer 54 is applied. In embodiments of the invention the surface layer 54 may be fixed only to the load portion 24 and the pivot portion 28 to allow the surface layer to slide over the slave layer as the load floor system is moved between the deployed, flat, condition and the stowed, folded, condition. Other arrangements for attaching the surface layer 54 to the load portion 24, slave portion 26 and pivot portion 28 may also be useful.

Figures 7a to 7c schematically show the load floor system 10 in three conditions. Figure 7a shows the load floor system 10 in a deployed, flat, condition as hereinbefore discussed, Figure 7c shows the load floor system in a stowed, folded, condition as hereinbefore discussed, and Figure 7b shows a condition between the deployed and stowed conditions. Arrow 58 illustrates the sliding movement of the load portion 24 required to move the load floor system from the deployed condition, Figure 7a, to the stowed condition, Figure 7c.

Force applied in the direction shown by arrow 58 causes the load portion 24 to slide in the guide 20 in a forward direction. The force is passed by the slave portion to the pivot portion 28 which rotates in response, as indicated by arrow 60, about the pivot 46. In an embodiment the rotation is promoted by the pivot shaft 46 being positioned below the plane in which the load portion slides. In alternative embodiments the pivot portion 28 is rotationally offset, in the deployed, flat, condition, with respect to the plane in which the load portion slides again to promote rotational movement of the pivot portion in response to a translational force applied to the load portion at arrow 58.

It follows that, when in the stowed or non-deployed conditions of Figure 7c or b, a translational force applied to the load portion in the opposite direction to arrow 58 causes the pivot portion to rotate in the opposite direction to the arrow 60 and thus the load floor move rearward toward the deployed, or flat, condition as shown in Figure 7a.

As schematically shown in Figures 5 and 7 the first fabric hinge 30 connecting the load portion 24 to the slave portion 26 may be positioned on or attached to the uppermost side of the load portion 24 and slave portion 26. The second fabric hinge 32 connecting the slave portion 26 to the pivot portion 28 may be positioned on or attached to the underside of the slave portion 26 and pivot portion 28. This embodiment advantageously allows for the load floor to fold without stretching the fabric hinge.

In embodiments of the invention the slave portion 26 of the load floor may be pivoted at the rearward edge 26r via a shaft movable within the guide 20.

When in the stowed, or folded, condition as shown in Figure 7c, the load floor system reveals a sub floor 62 as shown in Figure 8. The sub floor 62 may be part of the host vehicle bodywork (for example 52 in Figure 6) or may be part of the load floor system installable on the vehicle bodywork.

The sub floor may comprise one or more perforations or surface features as shown in Figures 9a and 9b. For example, in an embodiment of the invention, Figure 9a shows the sub floor 62 comprising a plurality of surface features 64 forming a pattern. The surface features 64 may comprise a material with a high friction coefficient, such as rubber, to provide a grip surface for any goods placed on the sub floor 62. Figure 9b shows the sub floor 62 comprising a plurality of perforations 66, which may for example provide a link to a water egress system in the vehicle bodywork and/or the passage of heat from an underfloor heater, or alternative heat source, positioned beneath the sub floor 62 such that heat can pass through the perforations 66 to dry luggage placed on the sub floor. Each of these examples are advantageous in that goods placed on the sub floor 62 are able to drain.

As shown in Figure 8, the sub floor 62 may, in embodiments of the invention, comprise luggage straps 68 which may be used when the load floor system is in the stowed, folded, configuration to retain luggage. Figure 10 schematically shows a view through the plane B-B shown in Figure 8. As shown, the luggage straps 68 comprise first and second strap portions 70, 72. A first one of the strap portions 72 is provided with a series of magnetic elements 74 along its length positioned at intervals corresponding to metallic elements 76 provided in the second one 70 of the strap portions. Magnetic engagement of the magnetic and metallic elements 74, 76 releasably locks the strap portions to each other providing the overall strap 68 for

retaining luggage. The strap portions 70, 72 may comprise a soft material, for example leather, in which the magnetic and metallic elements 74, 76 are embedded so they are not visible. Figure 8 shows two straps 68 positioned in the sub floor however other numbers of straps such as one, three or more may be used.

Figures 11a to 11d show schematic cross sections through B-B of Figure 8. As shown in Figures 11a to 11d, the distribution of the magnetic elements 74 relative to the metallic elements 76 is such that multiple strap lengths can be formed to retain luggage items 78, such as suit cases, bags, umbrellas, etc, of differing sizes. For example a suit case 78 may be retained by the large strap length shown in Figure 11a, in which the first and second strap portions 70, 72 only just overlap so that one of the magnetic elements 74 magnetically engages with one of the metallic elements 76. In another example, shown in Figure 11b, a bag 78 may be retained by a medium strap length in which the first and second strap portions 70, 72 overlap so that three of the magnetic elements 74 magnetically engage with three of the metallic elements 76. In another example, shown in Figure 11c, an umbrella 78 may be retained by a short strap length in which the first and second strap portions 70, 72 overlap so that one of the magnetic elements 74 magnetically engages with one of the metallic elements 76.

It will be appreciated that three of each of the magnetic and metallic elements 74, 76 enables five strap lengths to be formed. However, it will also be appreciated that more magnetic and metallic elements 74, 76 can be used to advantageously give more strap lengths and/or a stronger engagement of the two strap portions in each of the above-mentioned configurations.

In an embodiment, shown in Figure 11d, additional magnetic and metallic elements 74', 76' are positioned at a base end of each strap portion 72, 70 so that opposing magnetic and metallic elements 74, 76 magnetically engage to form a stowed configuration of the strap. It will be appreciated that the strap may be stowed, with the strap portions overlapping, so that the load floor can be moved to the deployed position shown in Figure 7c. In other example embodiments magnetic or metallic elements are positioned along the entire length of the strap portions 70, 72.

As shown in Figures 1 to 5 and 12 to 14, in embodiments of the invention, a handle is provided in or on the load portion 24 of the load floor 18 to facilitate user movement of the load floor system between the deployed, flat, condition and the stowed, folded,

condition. The handle may be formed through a cut-out 80, as shown in Figure 5, or a depression 82, as shown in Figure 12. Where a cut-out 80 is used the surface layer 54 may be finished around or wrapped into the cut-out 80. Similarly where a depression 82 is used the surface layer 54 may be finished around the depression 82, as shown in Figure 12, or wrapped into the depression (not shown). Other arrangements may be useful.

Figures 13 and 14 schematically show an embodiment of the invention in which a bumper guard 90 is provided through attachment to the sub floor 62. The bumper guard 90 is stowable below or beneath the load floor 18 when the load floor is in the deployed, flat, condition, and can be deployed to drape over a bumper 92 when the load floor is in the stowed, folded, condition. In embodiments of the invention the bumper guard 90 is made from a flexible material, for example leather or carpet. Advantageously the bumper guard 90 covers the bumper 92 to prevent direct contact between a user and the bumper 92 when leaning or reaching into the load space.

Notwithstanding the foregoing description it will be appreciated that the load floor as described herein can, in embodiments of the invention, be powered or motorised to move between the deployed, or flat, and stowed, or folded, conditions. In an embodiment of the invention shown schematically in Figures 15a to 15c this is provided by a motorised screw thread 94 positioned in or adjacent to the guide 20 and motorized by a motor 96. A ball screw 98 connected to the load portion 24 moves along the screw thread 94 as the screw thread is longitudinally rotated by the motor 96. For example, when the motor 96 rotates the screw thread in a first direction the ball screw 98 moves forward and translates the load portion 24 in the direction of arrow 100 toward the stowed, folded, configuration shown in Figure 15c. It follows that reversal of the direction of rotation causes the ball screw 98 to move rearward in an opposite direction of arrow 100 and toward the deployed, flat, condition shown in Figure 15a.

In embodiments of the invention a control switch or other control means, for example a gesture sensor, is positioned inside the vehicle load space enabling control by a user of the motorised or other movement of the load floor. The motor 96 may be equipped with a load sensor to detect pinch or snagging of the load floor during movement. A controller configured to control the motor may be arranged to stop the motor in dependence on an abnormal load.

All of the features disclosed in this specification (including any accompanying claims, abstract and drawings) may be combined in any combination, except combinations where at least some of such features and/or steps are mutually exclusive.

Each feature disclosed in this specification (including any accompanying claims, abstract and drawings), may be replaced by alternative features serving the same, equivalent or similar purpose, unless expressly stated otherwise. Thus, unless expressly stated otherwise, each feature disclosed is one example only of a generic series of equivalent or similar features.

The invention is not restricted to the details of any foregoing embodiments. The invention extends to any novel one, or any novel combination, of the features disclosed in this specification (including any accompanying claims, abstract and drawings), or to any novel one, or any novel combination, of the steps of any method or process so disclosed. The claims should not be construed to cover merely the foregoing embodiments, but also any embodiments which fall within the scope of the claims.

CLAIMS

1. A load floor system for a vehicle load space, the system comprising:
   a load floor having a load portion, a slave portion and a pivot portion; and
   a guide, wherein:
   the load portion is slidable within the guide and connectable along a forward edge to a rearward edge of the slave portion which is not slidable in or directly constrained by the guide; and
   the pivot portion is pivoted along a forward edge and connectable along a rear edge to a forward edge of the slave portion,
   wherein the pivot portion pivots in dependence on the position of the load portion in the guide.

2. A load floor system as claimed in claim 1, wherein the load floor is movable between a stowed condition and a deployed condition.

3. A load floor system as claimed in claim 2, comprising a sub floor accessible when the load floor is in the stowed condition.

4. A load floor system as claimed in claim 3, wherein the sub floor comprises one or more surface features arranged to provide a high friction surface.

5. A load floor system as claimed in claim 3 or claim 4, wherein the sub floor comprises one or more apertures arranged to permit fluid egress from a host vehicle load space to a drainage system of the host vehicle.

6. A load floor system as claimed in any of claims 3 to 5, wherein the sub floor comprises one or more luggage straps.

7. A load floor system as claimed in any of claims 2 to 6, comprising a bumper guard deployable to cover a bumper of a host vehicle when the load floor is in the stowed condition.

8. A load floor system as claimed in any of claims 2 to 7, wherein the load floor comprises a surface layer and the guide comprises a surface finisher, wherein

an uppermost surface of each of the surface layer and the surface finisher are substantially flush when the load floor is in the deployed condition.

9. A load floor system as claimed in any preceding claim, wherein the guide comprises a bearing means arranged to permit the load portion to slide within the guide.

10. A load floor system as claimed in any preceding claim, wherein the guide comprises a cover portion arranged to retain the load portion within the guide.

11. A load floor system as claimed in any preceding claim, wherein the guide comprises a fixing means arranged to fix the load floor system to a host vehicle.

12. A load floor system as claimed in any of claims 3 to 11, wherein the sub floor is formed by bodywork of a host vehicle.

13. A load floor system as claimed in any preceding claim, wherein each connection between the load portion and the slave portion, and the slave portion and the pivot portion, comprises a hinge.

14. A load floor system as claimed in claim 13, wherein each hinge is a fabric hinge.

15. A load floor system as claimed in claim 6 or any of claims 7 to 14 when depending through claim 6, wherein the one or more luggage straps each comprise two strap portions arranged to engage in a plurality of configurations to provide a variable length of the one or more luggage straps.

16. A load floor system as claimed in claim 15, wherein a first one of said two strap portions comprises magnetic elements and a second one of said two strap portions comprises metallic elements, wherein the magnetic and metallic elements are magnetically engageable in a plurality of configurations to provide said variable length of the one or more luggage straps.

17. A variable length luggage strap comprising two strap portions, wherein a first one of said two strap portions comprises magnetic elements and a second

one of said two strap portions comprises metallic elements, wherein the magnetic and metallic elements are magnetically engageable in a plurality of configurations to provide said variable length luggage strap.

18. A folding load floor comprising:
a slidable load portion having a forward edge and a rearward edge;
a slave portion having a forward edge and a rearward edge connectable to the forward edge of the load portion; and
a pivot portion having a pivotable forward edge and a rearward edge connectable to the forward edge of the slave portion.

19. A folding load floor as claimed in claim 18, wherein each connection between the load portion and the slave portion, and the slave portion and the pivot portion, comprises a hinge.

20. A folding load floor as claimed in claim 19, wherein each hinge is a fabric hinge.

21. A vehicle comprising a load floor system as claimed in any of claims 1 to 16, a variable length luggage strap as claimed in claim 17, or a folding load floor as claimed in any of claims 18 to 20.

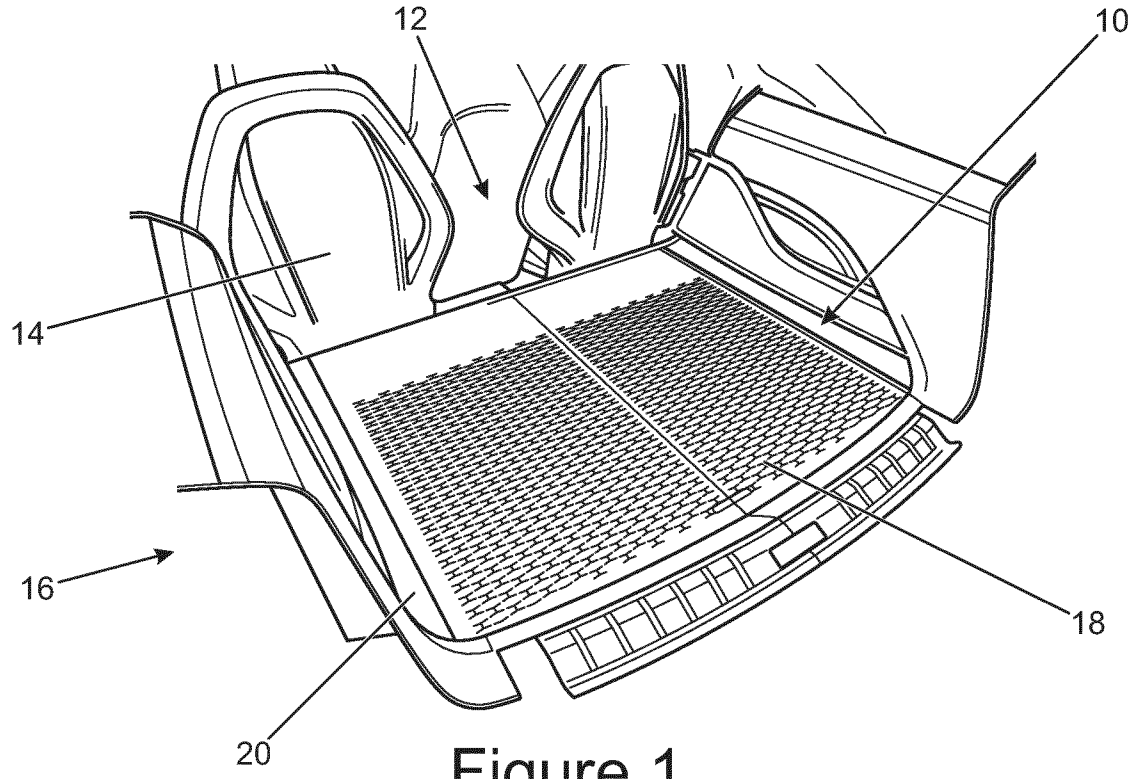


Figure 1

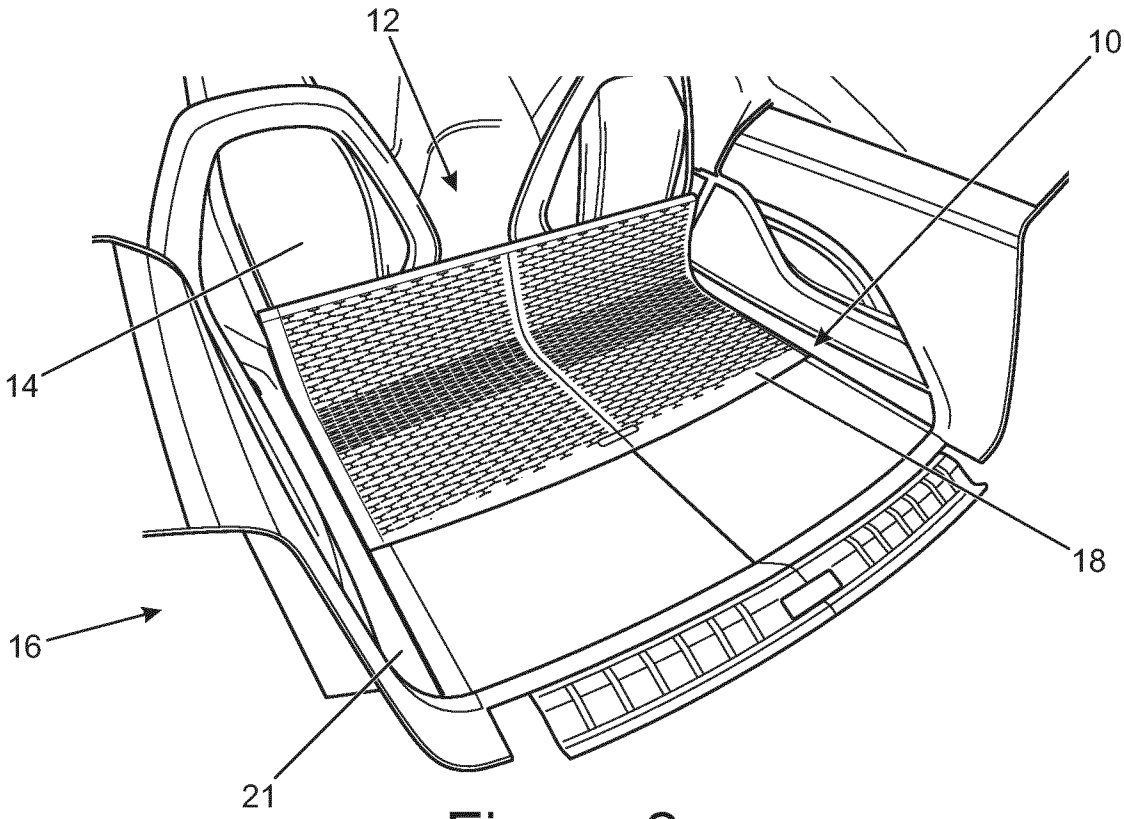


Figure 2

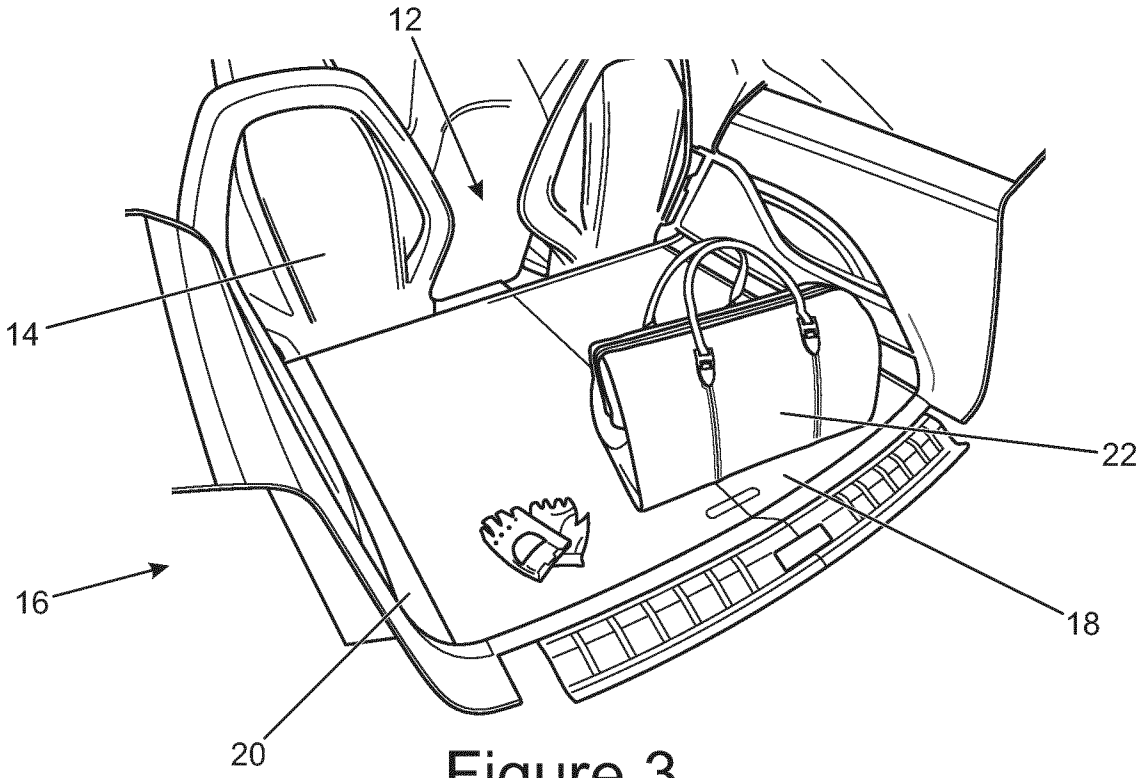


Figure 3

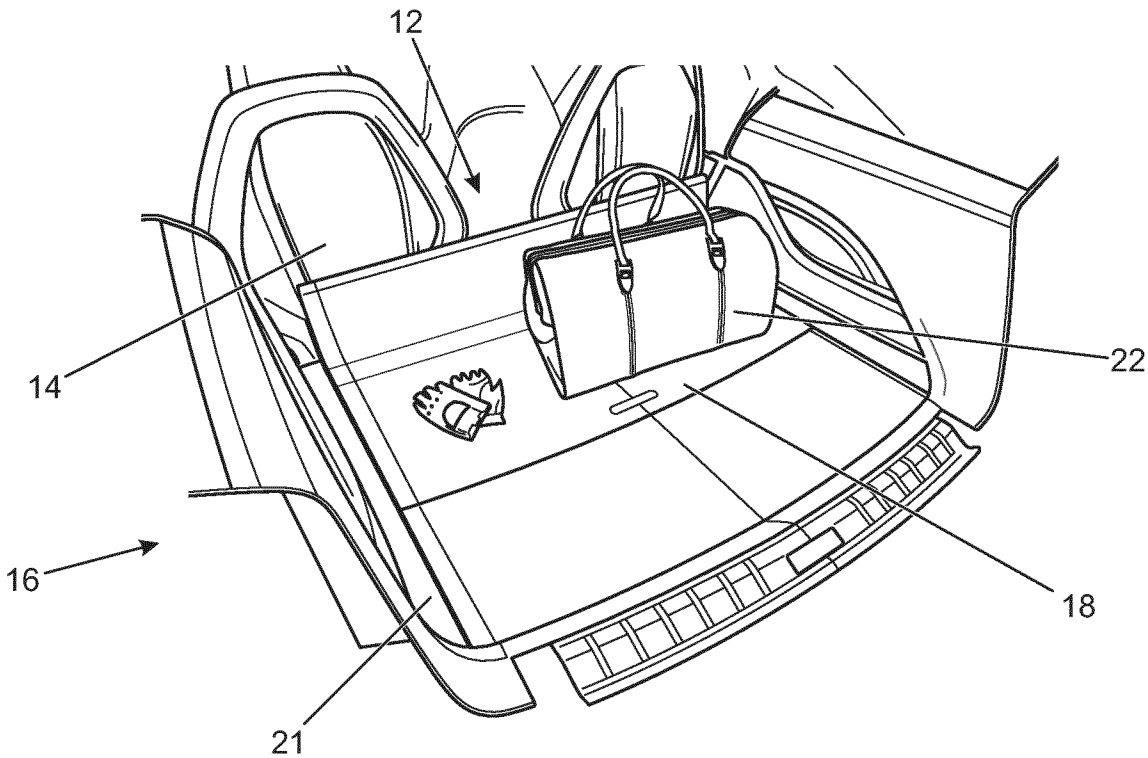


Figure 4

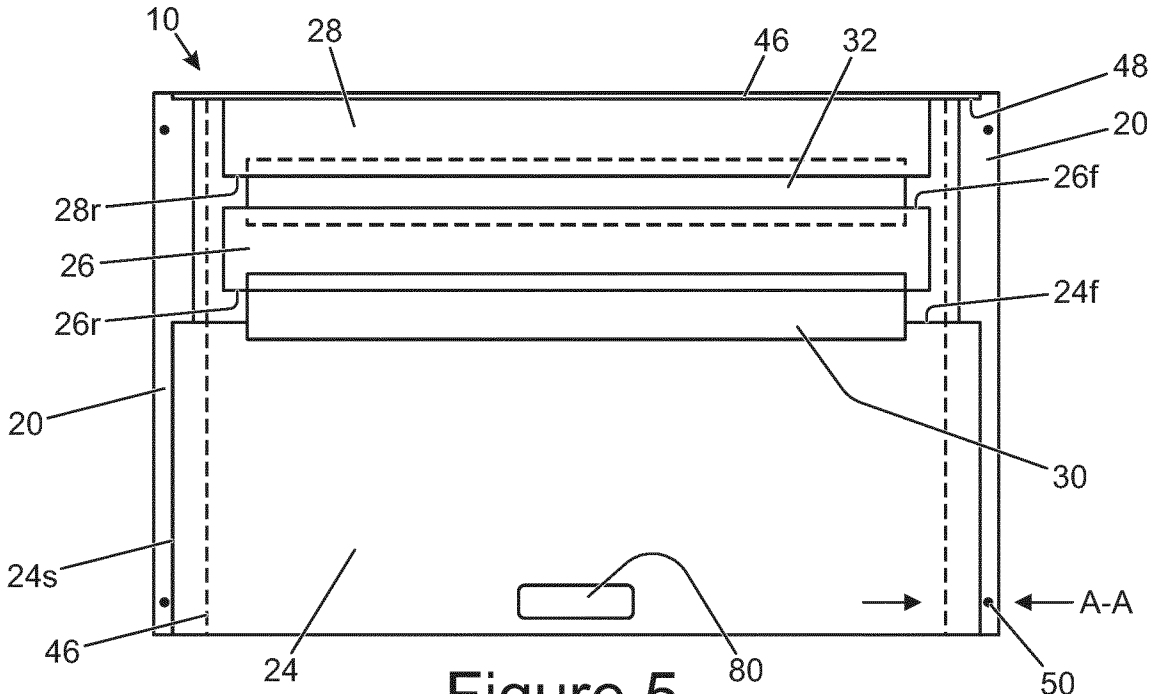


Figure 5

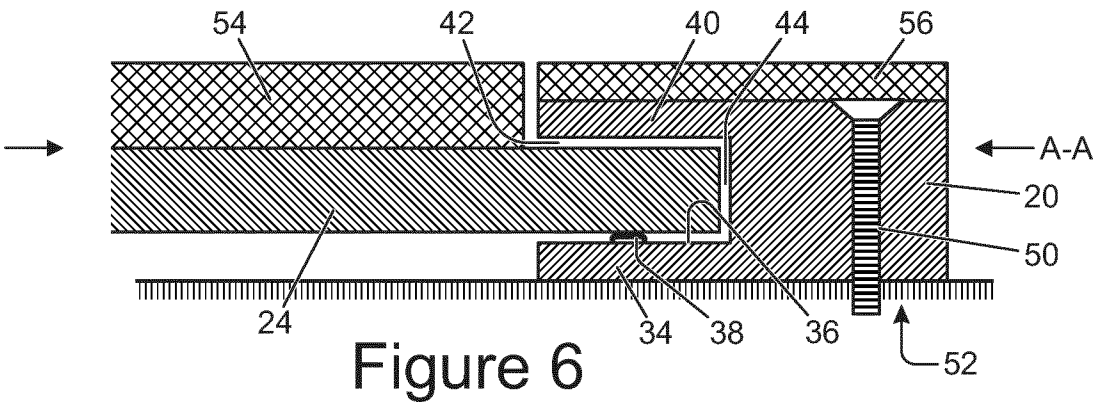


Figure 6

Figure 7a

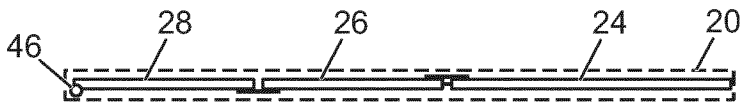


Figure 7b

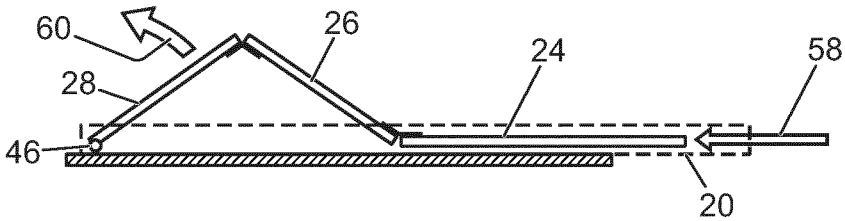
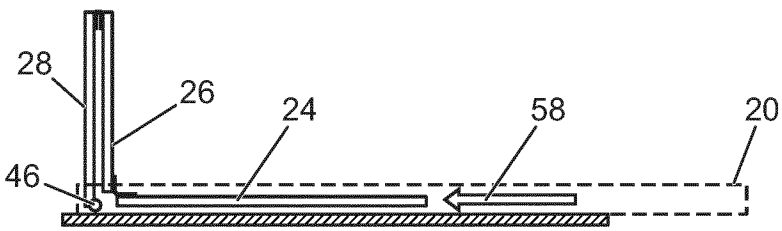


Figure 7c



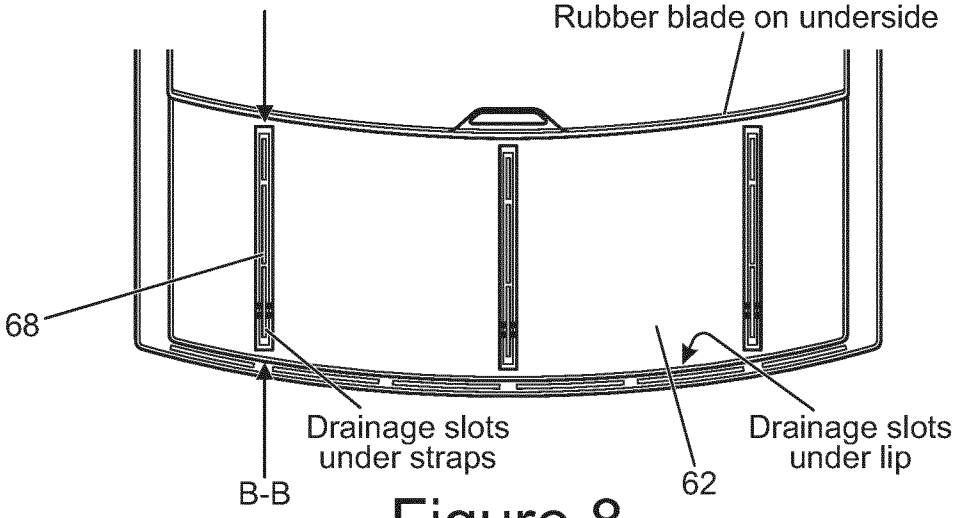


Figure 8

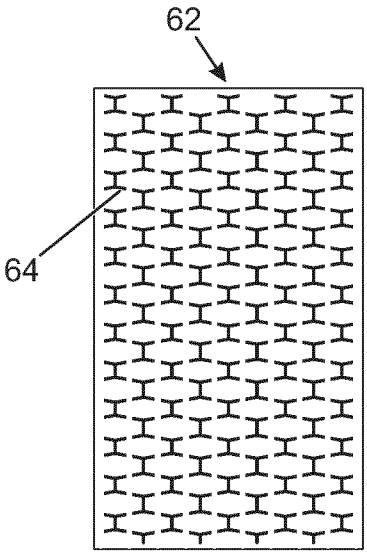


Figure 9a

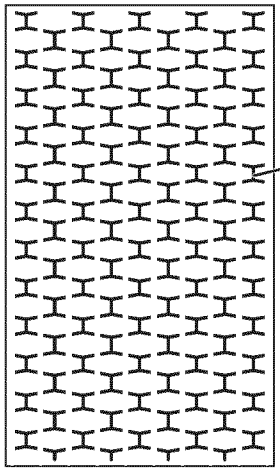


Figure 9b

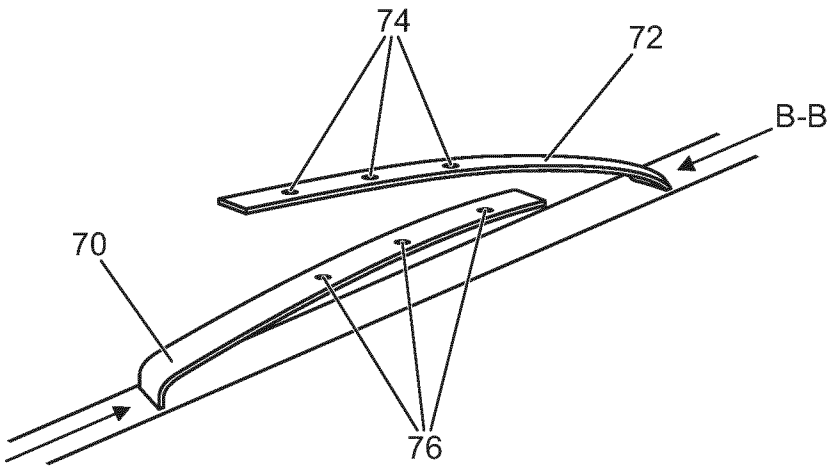


Figure 10

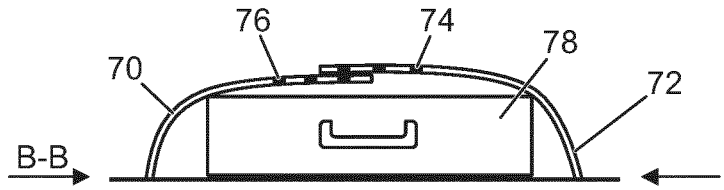


Figure 11a

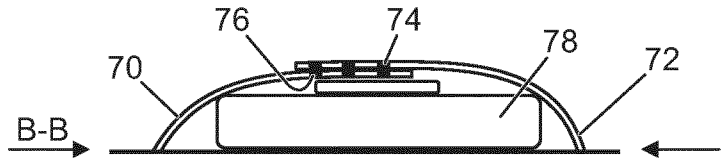


Figure 11b

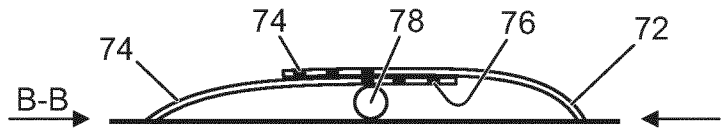


Figure 11c

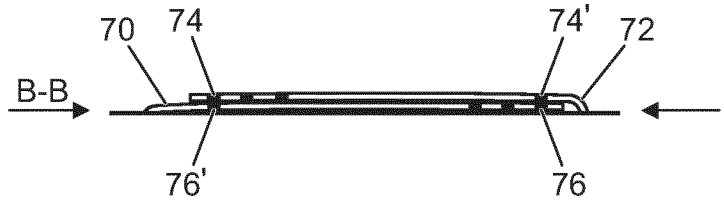


Figure 11d

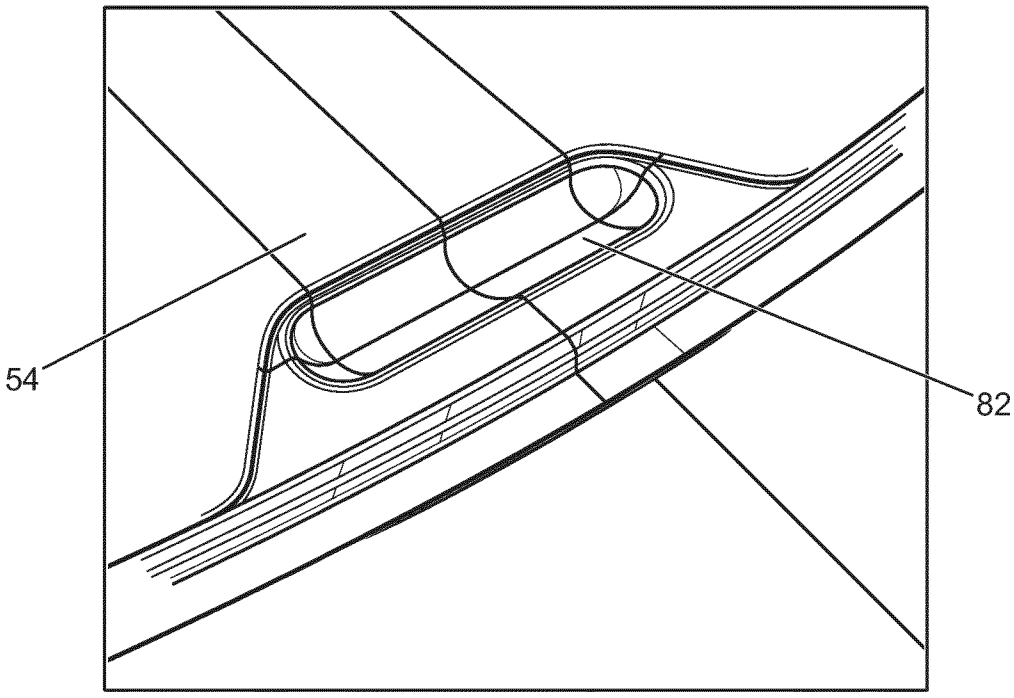


Figure 12

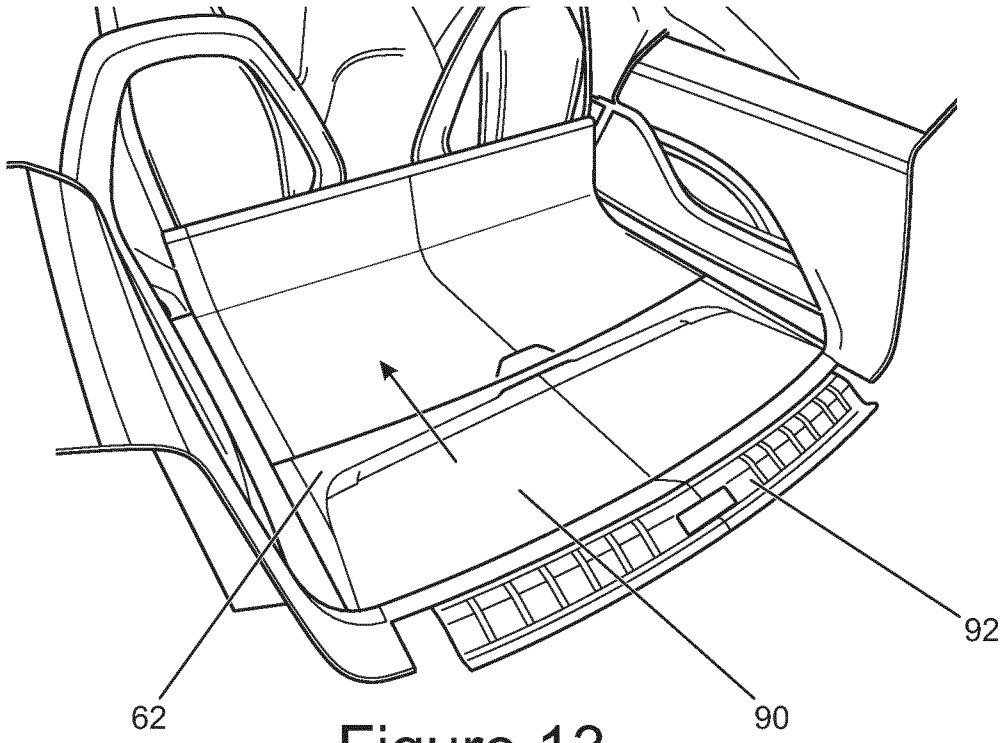


Figure 13

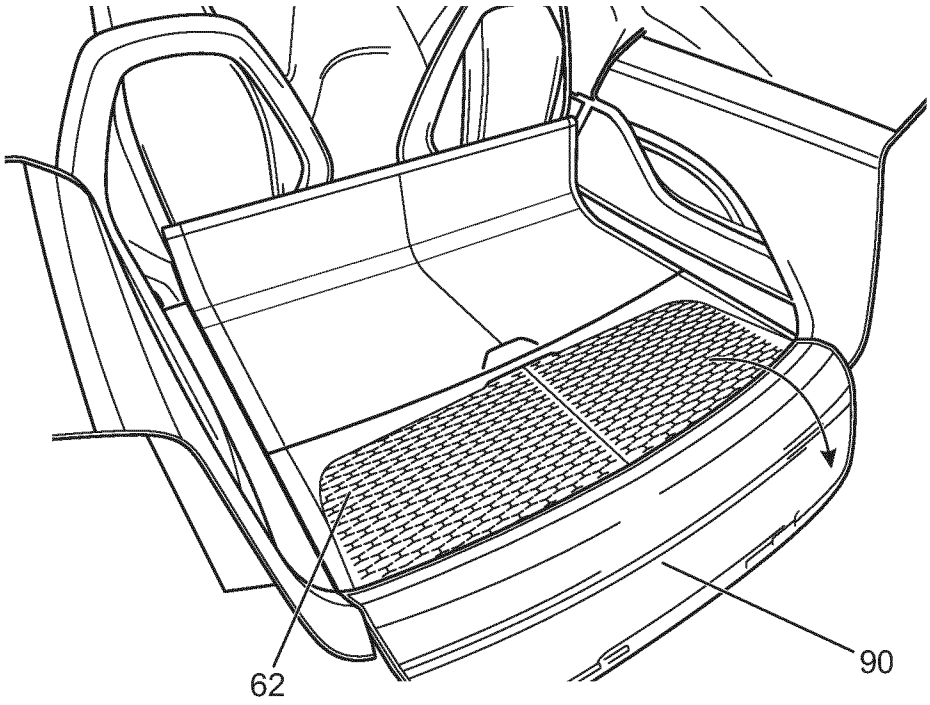


Figure 14

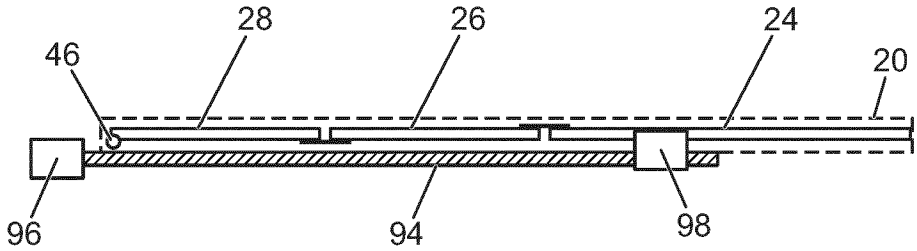


Figure 15a

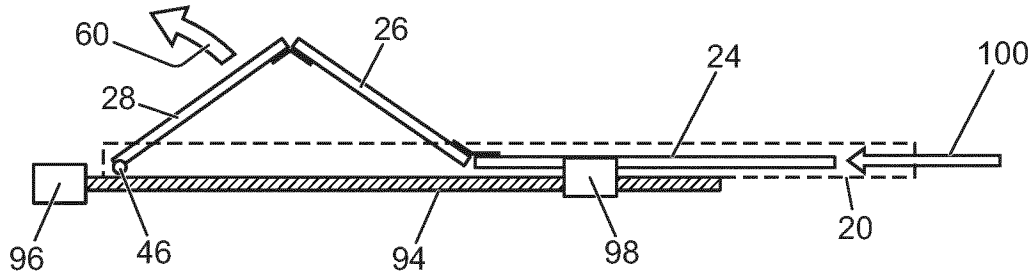


Figure 15b

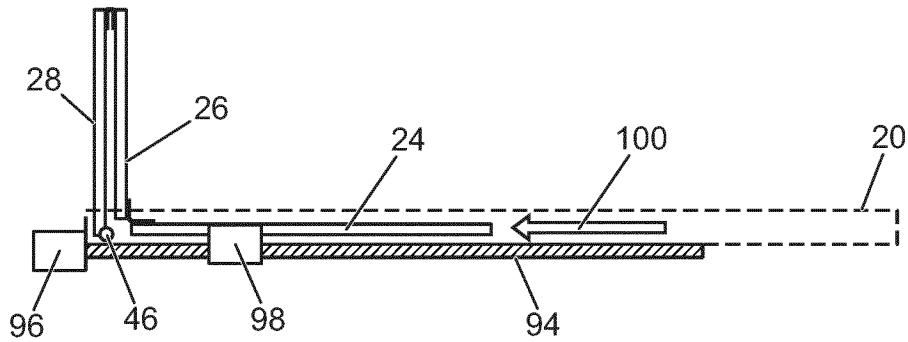


Figure 15c

INTERNATIONAL SEARCH REPORT

International application No
PCT/EP2017/076967

A. CLASSIFICATION OF SUBJECT MATTER
INV. B60R5/04 B60R13/01
ADD.

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)
B60R

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

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)
EPO-Internal, WPI Data

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	EP 2 292 468 A1 (SKODA AUTO AS [CZ]) 9 March 2011 (2011-03-09)	1-6,8,9, 11-16, 18-21
Y	paragraphs [0024] - [0041]; figures 1-13	7
X	DE 10 2012 203906 A1 (BOS GMBH [DE]) 19 September 2013 (2013-09-19) paragraph [0022] - paragraph [0028]; figures 1-7	1-16, 18-21
X	DE 10 2013 211212 A1 (BAYERISCHE MOTOREN WERKE AG [DE]) 18 December 2014 (2014-12-18)	1-16, 18-21
Y	paragraph [0027] - paragraph [0043]; figures 1-9	7

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[X] Further documents are listed in the continuation of Box C.

[X] 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	Date of mailing of the international search report
22 November 2017	24/01/2018

Name and mailing address of the ISA/	Authorized officer
European Patent Office, P.B. 5818 Patentlaan 2 NL - 2280 HV Rijswijk Tel. (+31-70) 340-2040, Fax: (+31-70) 340-3016	Busuiocescu, Bogdan

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Form PCT/ISA/210 (second sheet) (April 2005)

INTERNATIONAL SEARCH REPORT

International application No
PCT/EP2017/076967

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 02/40326 A1 (PICKARD STEPHEN CLIFFORD [AU]) 23 May 2002 (2002-05-23) the whole document	7
A	US 2015/237938 A1 (O'NEILL DEVIN [US]) 27 August 2015 (2015-08-27) the whole document	16

1

INTERNATIONAL SEARCH REPORT

International application No.
PCT/EP2017/076967

Box No. II Observations where certain claims were found unsearchable (Continuation of item 2 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 No. III Observations where unity of invention is lacking (Continuation of item 3 of first sheet)

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

see additional sheet

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 fees, this Authority did not invite payment of additional fees.

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.:

1-16, 18-21

Remark on Protest

☐ The additional search fees were accompanied by the applicant's protest and, where applicable, the payment of a protest fee.

☐ The additional search fees were accompanied by the applicant's protest but the applicable protest fee was not paid within the time limit specified in the invitation.

☐ No protest accompanied the payment of additional search fees.

FURTHER INFORMATION CONTINUED FROM PCT/ISA/ 210

This International Searching Authority found multiple (groups of) inventions in this international application, as follows:

1. claims: 1-16, 18-21

A folding load floor comprising: a slidable load portion having a forward edge and a rearward edge;a slave portion having a forward edge and a rearward edge connectable to the forward edge of the load portion; and a pivot portion having a pivotable forward edge and a rearward edge connectable to the forward edge of the slave portion.

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2. claim: 17

A variable length luggage strap comprising two strap portions, wherein a first one of said two strap portions comprises magnetic elements and a second one of said two strap portions comprises metallic elements, wherein the magnetic and metallic elements are magnetically engageable in a plurality of configurations to provide said variable length luggage strap.

INTERNATIONAL SEARCH REPORT

Information on patent family members

International application No
PCT/EP2017/076967

Patent document cited in search report	Publication date	Patent family member(s)	Publication date
EP 2292468 A1	09-03-2011	AT 556891 T	15-05-2012
		EP 2292468 A1	09-03-2011
DE 102012203906 A1	19-09-2013	NONE	
DE 102013211212 A1	18-12-2014	NONE	
WO 0240326 A1	23-05-2002	AT 318738 T	15-03-2006
		AU 1481702 A	27-05-2002
		DE 60117596 T2	01-02-2007
		EP 1349753 A1	08-10-2003
		JP 4045576 B2	13-02-2008
		JP 2004513027 A	30-04-2004
		US 2004164587 A1	26-08-2004
		WO 0240326 A1	23-05-2002
US 2015237938 A1	27-08-2015	NONE	