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(54) Title: PLUGGABLE DAMPER FLOOR PROFILE

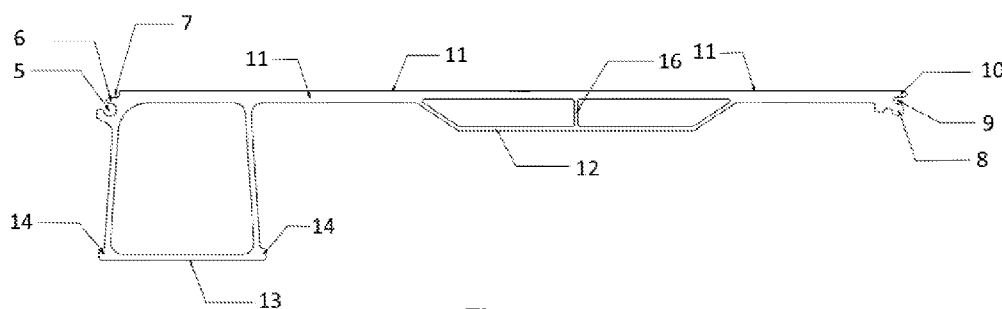


Figure 3

(57) Abstract: The invention is the floor profile (3) of the aluminum box type dumpers used for the transportation of the construction materials, having a pluggable construction, wherein the invention relates to a floor profile body (11), which houses the other components on, at the side, or beneath itself, and bears the impact, abrasion and force effect by bearing the load on itself, contacting elements in different forms created on the floor profile body (11), the intermediate cross (12) located underneath the floor profile body (11), which supports the floor profile body (11) with regard to reinforcement and resistance, the intermediate cross reinforcement (16), which ensures that the main cross (12) is reinforced, the wedge homing protrusion (14), which makes sure that impact dampener element is attached to the floor profile body (11) with the interlocking method, and the wedge surface (13) located on the bottom surface of the wedge homing protrusion (14), which secures the impact dampener element.



## PLUGGABLE DAMPER FLOOR PROFILE

### 5 FIELD OF THE INVENTION

The invention consists mainly of the floor profiles of the aluminum box type  
dumpers, having a pluggable construction used for the transportation of the  
construction materials, excavation and ruin waste and fine granular materials for  
10 mining in the main road and off-road conditions.

### BACKGROUND OF THE INVENTION

Currently, the floor of the dumper vessel consists of a floor sheet and supporting  
15 crosses welded at full length of the lower part of the sheet. Supporting crosses are  
designed as open "V" or "U" shapes and are used to increase the strength of the  
dumper vessel. As mentioned reinforcement crossings have an open end, bevel  
ends are applied to the crosses after the welding method, thus crosses are  
deformed.

20

The current method consists of welding the floor sheet located on the lower floor of  
the dumper vessel with the supporting crosses mounted on the lower surface of the  
floor sheet. In case of inconveniences in the above-mentioned method, the dumper  
vessel can be overloaded; cracks can occur on floor crosses and floor sheets, which  
25 can lead to deformations.

In addition, in case the distance between the floor supporting cross and the floor  
sheet is excessive, due to the fact that the welding between reinforcements is done  
without any extra reinforcement, permanent deflections and deformations occur in  
30 the floor sheets due to the load effect. Above mentioned deformations are pot-  
shaped and cause the weight to stick to the inner surface of the dumper vessel and  
prevent the effective discharge of the load. The adherence of the transported weight  
with the dumper vessel creates an imbalance each time the dumper is being raised  
and thus increases the risk of tipping over of the weight. Also, as all the weight can

not be unloaded, the vehicle's curb weight and thus the fuel consumption are increased.

5 In addition, since the floor sheets and the floor reinforcement crosses are joined by welding, in case of possible damage, floor sheets are patch-welded, or the sheet is replaced. Patching will cause extra costs and an increase in the weight of the vehicle, and in case of sheet change, costs and workmanship will be increased.

10 Utility model/patent application with EP3210860 application number discovered after the technical investigations is related with a construction including at least one dumper panel, and a profile connection connecting the panel connection to another panel, pole and/or a rear wall frame. As you can see, there is not any advance about the reinforcement crosses mounted to the dumper floor panel lower surface in the above-mentioned application.

15

Another application discovered after the technical investigations with DE1860902 application number is related with the side frame disposed on the long edges of the support crossings to be used for overlapping the joining edges of the support crossings. As you can see, there is not any advance about the mounting on the panel of the supporting crosses mounted to the dumper floor panel lower surface and about the floor panel in the above-mentioned application.

20

As a result, many improvements are implemented in dumper floor panel structures, thus new constructions are needed in order to eliminate the above-mentioned disadvantages and solve the existing problems.

25

## **OBJECT OF THE INVENTION**

30 The presented invention is related to a dumper floor profile meeting the above-mentioned requirements, eliminating all disadvantages and introducing some additional advantages.

The main purpose of the invention is to provide a long-lasting dumper floor profile with high strength by eliminating the necessity of a welding application between the

floor sheet and the floor crossing and thus eliminating any possible deformations arising from the welding application.

Another purpose of this invention is to provide a panel with low labor cost which is faster to repair in possible modification cases thanks to the hot-plug application not requiring any additional repairing part and the base elements joined with the interlocking method.

Another purpose of this invention is opening the ends of the crosses and preventing any possible faux pas in the floor sheet thanks to the shapes of the supporting crosses.

Another purpose of the invention is to provide a lighter and easy-to-install dumper floor profile capable of providing the same level of strength with less and lighter floor supporting crosses by ensuring a strength advantage thanks to the section structure of the floor.

The above-mentioned invention which will be detailed below, is a dumper floor panel structure with a dumper vessel storing and carrying the load and a lower belt for connecting the dumper vessel floor to the side panels, wherein, the invention relates to at least one lower profile and one upper floor profile supporting the dumper vessel from the lower part of the vessel to provide it some strength, and a floor panel created by engaging one lower and one upper floor profile thanks to their shapes.

The structural and characteristic properties of the invention, along with all the advantages can be more clearly understood thanks to the figures below and the related detailed explanations. Which is why an evaluation shall be made considering those figures and detailed explanations.

## SHORT DESCRIPTION OF THE FIGURES

In order to best understand the advantages of the current invention along with the additional components, the invention shall be evaluated along with the figures described below.

- 5 Figure 1 is the perspective view of the dumper vessel, in which the dumper floor profiles of the invention are used.

Figure 2 is the top perspective view of the dumper floor profiles of the invention.

Figure 3 is a front view of the dumper floor profile of the invention.

- 10 Figure 4 is the perspective view of the vehicle with dumper, in which the dumper floor profiles of the invention are used.

Figure 5 is a front view of an alternative structure of the invention, in which the impact dampener elastic wedge is used.

## REFERENCE NUMBERS

- 15 1.The dumper vessel  
2.The lower belt  
3.The floor profile  
4.The elastic wedge  
5.The homing lower recess  
20 6.The homing middle protrusion  
7.The homing upper recess  
8.The homing lower protrusion  
9.The homing middle recess  
10.The homing upper protrusion  
25 11.The floor profile body  
12.The intermediate cross  
13.The wedge surface  
14.The wedge homing protrusion  
15.The dumper chassis  
30 16.The intermediate cross reinforcement

## DETAILED DESCRIPTION OF THE INVENTION

In this detailed explanation, the preferred structures of the dumper floor profile (3) of the invention are explained, only in order to better understand the subject matter of the invention without creating any restrictive effect.

Figure 1 shows the perspective view of the dumper vessel (1), in which the dumper floor profiles (3) of the invention are used. Aluminum box type dumper vehicle comprises the dumper vessel (2) and the dumper chassis (13). The dumper vessel (2) consists of at least one lower fascia (2) located on the vehicle bottom surface, at least one floor profile (5) located on the vehicle bottom surface and the vehicle side edges; and it is the part located on top of the dumper vehicle, in which the materials to be transported are placed in, and the load is stored and transported. The lower fascia (2), which makes sure the horizontal and vertical forces created by the load are carried, and the floor profile (4) is borne to the dumper vessel (1) and connected to the other side panels, and the floor profile (3) are attached together by weld bonding method.

Figure 3 shows a front view of the dumper floor profile (3) of the invention. Accordingly, the floor profile (3) contains more than one floor profile bodies (11), which house the other components on, at the side, or beneath themselves, and bear the impact abrasion and force effect by bearing the load on themselves; at least one homing lower recess (5), the homing lower protrusion (8), the homing middle protrusion (6), the homing upper recess (7), and the homing upper protrusion (10) created on the sides of the floor profile body (11); and at least one intermediate cross (12) at least one wedge surface (13), at least one intermediate cross reinforcement (16), and at least one wedge homing protrusion (14) created on the bottom surface of the floor profile body (11).

As indicated in Figure 5, in the preferred embodiment of the invention, the elastic wedge (4) serves as the impact dampener between the aluminum box type dumper vessel (1) and the dumper chassis (13); the dumper chassis (13) and the dumper

vessel (1) do not contact one another thanks to the impact effect of the load and the route, thus preventing these two components from mechanically damaging one another. The elastic wedge (4) is attached to the floor profile (3) by the interlocking method thanks to the geometric shape of the wedge homing protrusion (14) created  
5 below the floor profile body (11), and smoothly seated on the wedge surface (13) on the lower surface of the wedge homing protrusion (14). Thereby, the elastic wedge (4) is fixed to the dumper vessel (1) so that it cannot move horizontal and vertical directions.

10 The main cross (12) supports the floor profile (3) with regard to reinforcement and resistance, and by preventing its deflection under load effect, prevents the load in the dumper vessel (1) to adhere inside of the dumper vessel (1) because of the deflection. In an embodiment of the invention, the part of the floor profile body (11),  
15 in which the main cross (12) is formed has a thinner structure compared to the other zones. This prevents faux pas and deformation to the floor profile (3), supports its resistance, and reduces its weight.

The intermediate cross reinforcement (16) located underneath the floor profile body (11) ensures that the main cross (12) is reinforced. The main cross (12) and the  
20 intermediate cross reinforcement (16) was produced in a rectangular shape and longitudinally with the extrusion method, and it has protrusions and recesses, which make sure it is intertwined with the floor profile body (11).

More than one floor profile (3) and the floor profile body (11) are attached together  
25 by forming a bearing with the interlocking method using the form connection created by their geometrical structures. This form connection is completed by:

- connecting the homing lower recess (5) created at edge of the floor profile body (11) with the homing lower protrusion (8) located on another floor profile body (11),

- connecting the homing middle recess (9) created at edge of the floor profile body (11) with the homing middle protrusion (6) located on another floor profile body (11), and
- 5 - connecting the homing upper recess (7) created at edge of the floor profile body (11) with the homing upper protrusion (10) located on another floor profile body (11).

In this way, the dumper basin base created by connecting more than one floor profiles (11) is fixed so that it cannot carry out linear or rotational movement in horizontal and vertical directions.

10

The homing lower recess (5) and the homing lower protrusion (8), the homing middle recess (9) and the homing middle protrusion (6), the homing upper recess (7) and the homing upper protrusion (10) have a form, which makes it possible to connect them one another with the interlocking method.

15



## CLAIMS

1. The floor profile (3) of the aluminum box type dumpers having a pluggable construction used for the transportation of the materials **wherein it comprises;**
- 5
- more than one floor profile bodies (11), which bears the impact abrasion and force effect by bearing the load on themselves,
  - at least one homing lower recess (5), which connects more than one floor profile bodies (11) created on the sides of the floor profile body (11),
- 10
- at least one homing lower protrusion (8) created on the sides of the floor profile body (11), which connects more than one floor profile bodies (11) with one another by joining with the homing lower recess (5),
  - at least one homing upper recess (7), which connects more than one floor profile bodies (11) created on the sides of the floor profile body
- 15
- at least one homing upper protrusion (10) created on the sides of the floor profile body (11), which connects more than one floor profile bodies (11) one another by joining with the homing upper recess (7),
  - at least one homing middle recess (9), which connects more than one
- 20
- floor profile bodies (11) created on the sides of the floor profile body (11),
  - at least one homing middle protrusion (6) created on the sides of the floor profile body (11), which connects more than one floor profile bodies (11) with one another by joining with the homing middle recess (9),
- 25
- at least one intermediate cross (12) located under the floor profile body (11), which supports the floor profile body (11) with regard to reinforcement and resistance, and prevents its deflection under load effect, thus preventing the load to adhere inside of the dumper vessel.
  - at least one intermediate cross reinforcement (16) located underneath
- 30
- the floor profile body (11), which ensures that the main cross (12) is reinforced,
  - the wedge homing protrusion (14) created below the floor profile body (11), which makes sure that the impact dampener element is fixed to the floor profile body (11) with the interlocking method,

- the wedge surface (13) located on the bottom surface of the wedge homing protrusion (14), and securing the impact dampener element
- .
- 5    2. A dumper floor profile (3) according to claim 1, wherein it comprises the wedge homing protrusion (14), and an impact dampening elastic wedge (4) positioned underneath the wedge surface (13) between the dumper chassis and the dumper vessel.
- 10   3. A dumper floor profile (3) according to claim 1, wherein the part of the floor profile body (11), in which the main cross (12) is formed has a thinner structure compared to the other zones.

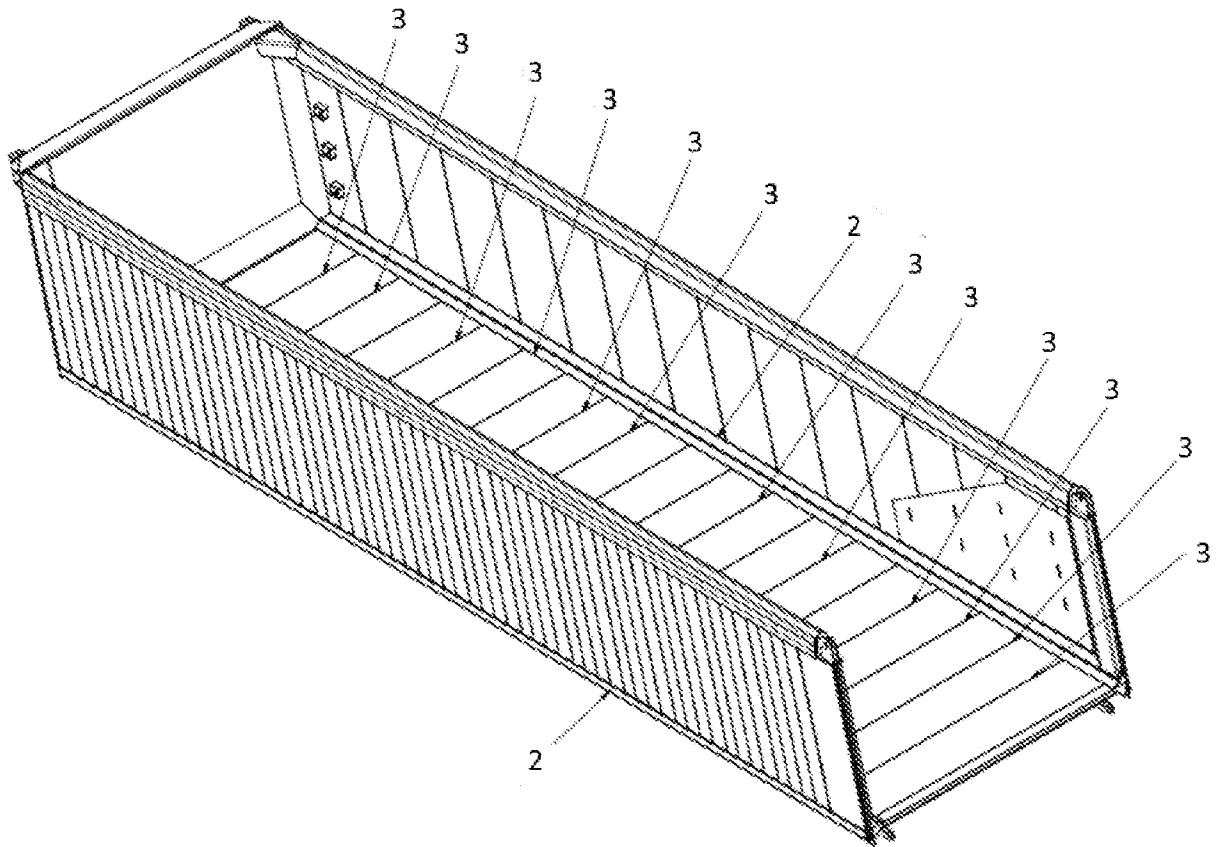


Figure 1

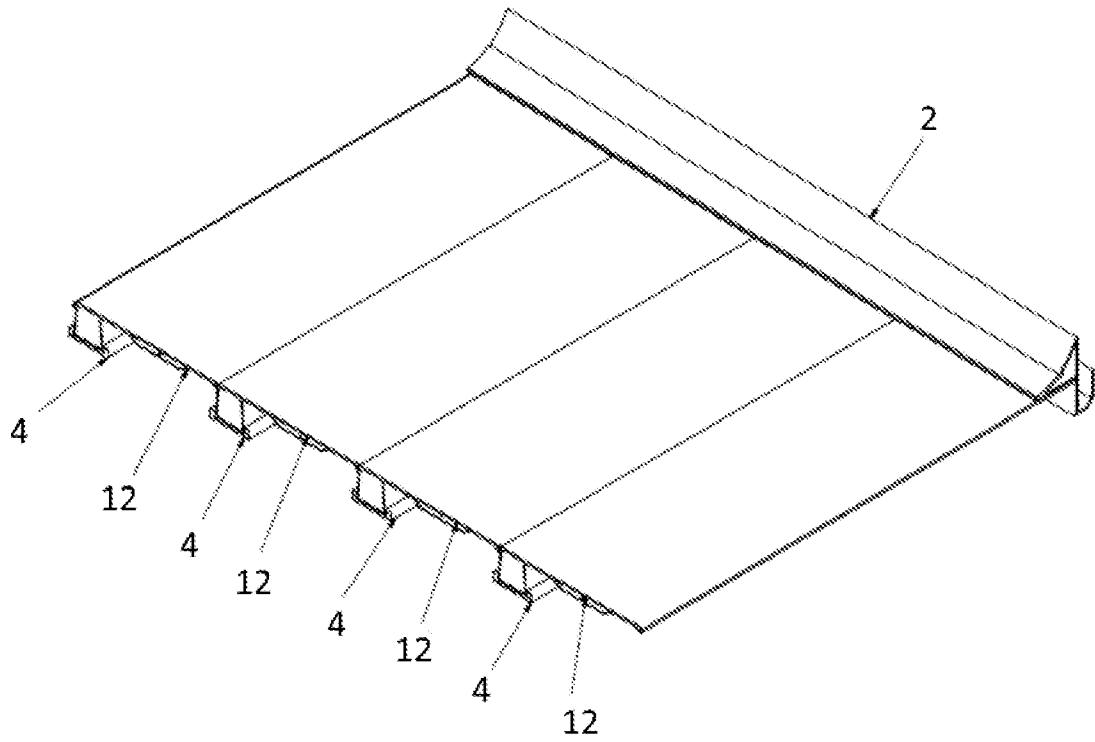


Figure 2

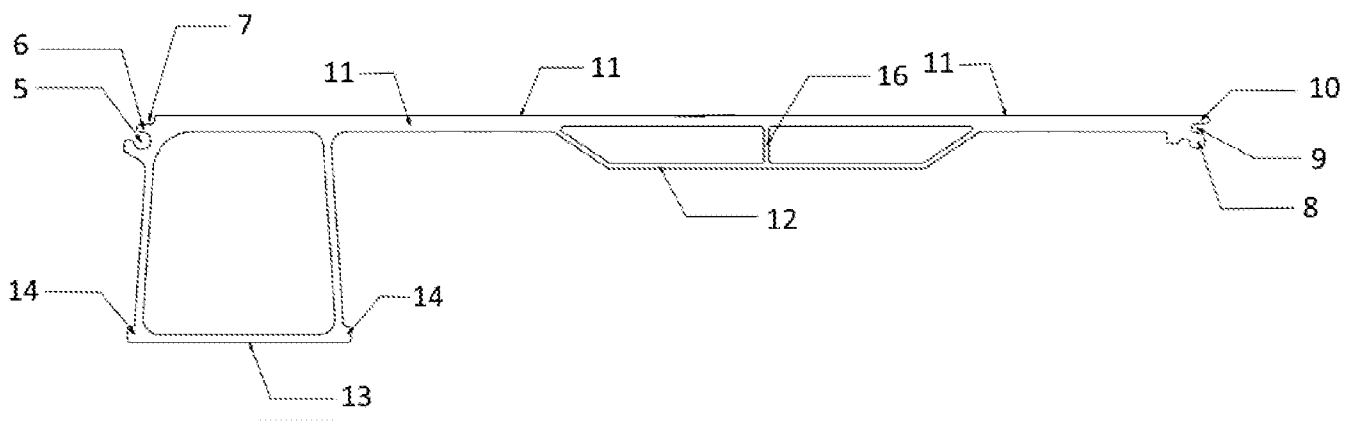


Figure 3

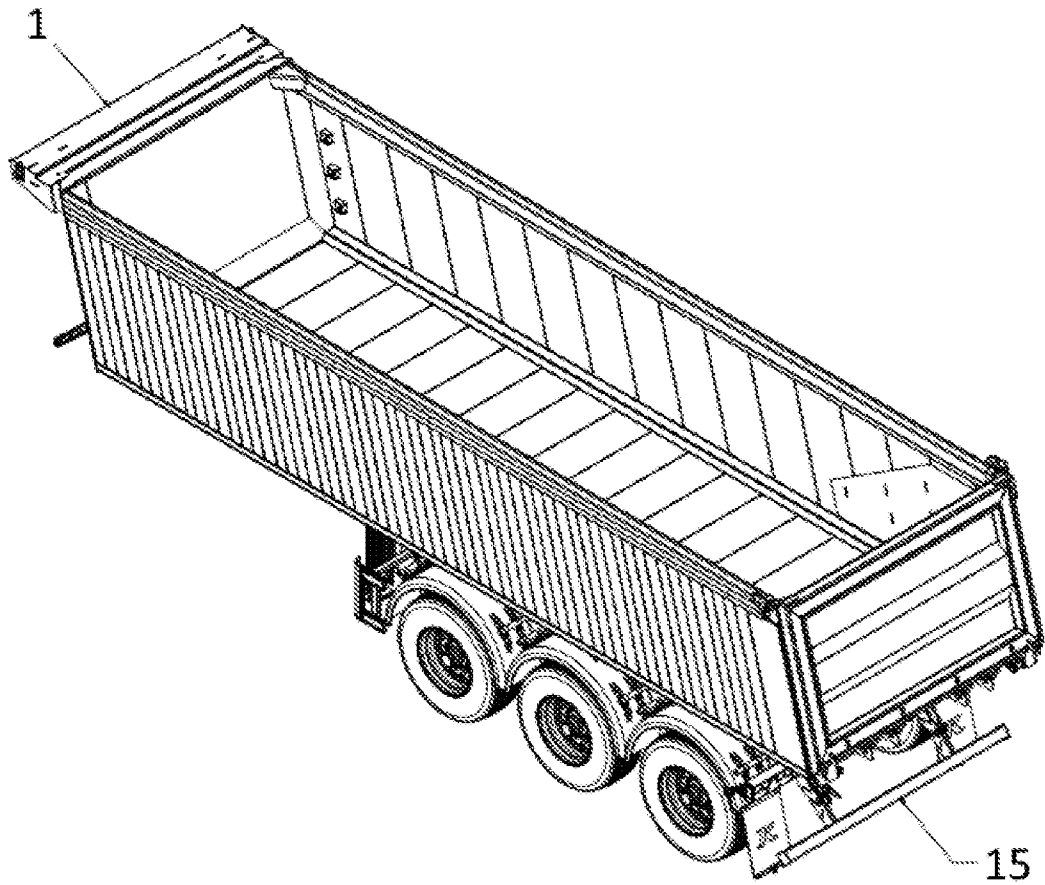


Figure 4

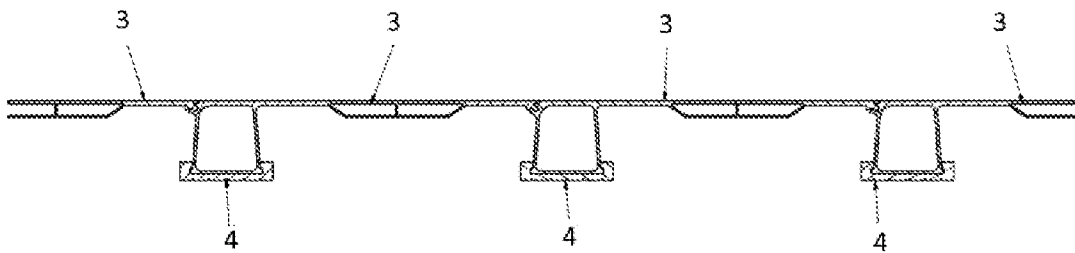


Figure 5

## INTERNATIONAL SEARCH REPORT

International application No.

PCT/TR2019/050687

<b>A. CLASSIFICATION OF SUBJECT MATTER</b>		
B62D 25/20 (2006.01)i		
According to International Patent Classification (IPC) or to both national classification and IPC		
<b>B. FIELDS SEARCHED</b>		
Minimum documentation searched (classification system followed by classification symbols)		
B62D 25/20		
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)		
<b>C. DOCUMENTS CONSIDERED TO BE RELEVANT</b>		
Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
Y	TR 201809313 A (TIRSAN TREYLER SANAYİ VE TİCARET ANONİM ŞİRKETİ) 29 June 2018 (2018-06-29) entire document	1-3
Y	US 5351990 A (GREAT DANE TRAILERS [US]) 04 October 1994 (1994-10-04) Figures 4-5	1-2
Y	GB 2419573 A (UNWIN C N LTD [GB]) 03 May 2006 (2006-05-03) Figure 1	1-2
Y	US 2018334195 A1 (FORD GLOBAL TECH LLC [US]) 22 November 2018 (2018-11-22) entire document	1-3
Y	GB 2529745 A (UNWIN C N LTD [GB]) 02 March 2016 (2016-03-02) Figure 6	1-2
A	US 7575264 B1 (MARTIN MARIETTA MATERIALS INC [US]) 18 August 2009 (2009-08-18) whole document	1-3
<input type="checkbox"/> Further documents are listed in the continuation of Box C. <input type="checkbox"/> See patent family annex.		
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29 April 2020		29 April 2020
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