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(72) Inventors:  

- **Bekhøj Jensen, Mads**  
**8250 Egå (DK)**
- **Bekhøj Halvorsen, Tobias**  
**8380 Trige (DK)**
- **Balslev, Niels Christian**  
**8250 Egå (DK)**

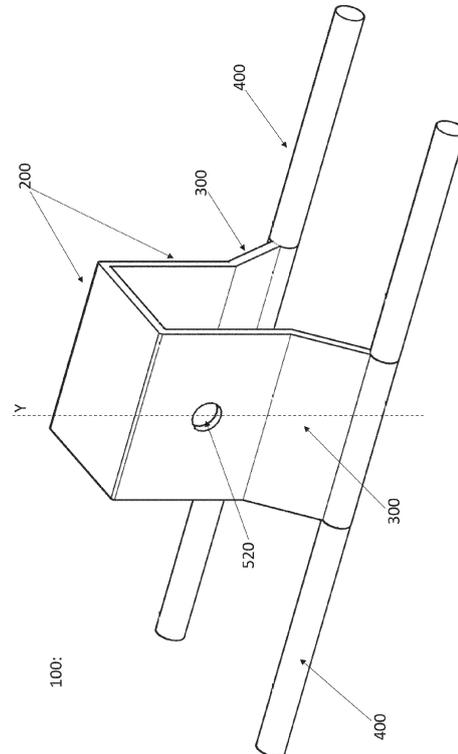
(71) Applicant: **Scaffco Holding A/S**  
**8330 Trige (DK)**

(74) Representative: **Patrade A/S**  
**Ceresbyen 75**  
**8000 Aarhus C (DK)**

(54) **KEDER ROOF SYSTEM AND KEDER SHEET DEVICE**

(57) The present invention relates to a keder roof system (10) comprising: at least two opposing keder rails (20), a keder sheet (40), at least two keder sheet devices (100), wherein the keder sheet system can take at least two positions: an unforced position (UP), wherein the keder sheet is hanging unforced from the keder rails, such as hanging freely downwards due to gravity, and a forced position (FP), wherein the keder sheet is affected by being forced upwards, such as by the wind, wherein said at least two keder sheet devices are forcing the keder sheet to form at least two channels (600). The present invention further relates to a keder sheet device (100) configured for being attached to a keder roof system (10).

Furthermore, the present invention further relates to a method for draining a keder roof system (10).



**Fig. 1**

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## Description

### FIELD OF THE INVENTION

**[0001]** The present invention relates to a keder roof system comprising: at least two opposing keder rails, wherein said keder rails each comprise: a keder receiving portion, preferably a plurality of keder receiving portions, a keder sheet, wherein the keder sheet comprises: at least two keder cords positioned at two opposing ends of the keder sheet, at least two keder sheet devices, wherein said at least two keder cords are inserted respectively into the keder receiving portion of the keder rails, wherein the keder sheet system can take at least two positions: an unforced position, wherein the keder sheet is hanging unforced from the keder rails, such as hanging freely downwards due to gravity, and a forced position, wherein the keder sheet is affected by being forced upwards, such as by the wind, wherein said at least two keder sheet devices are forcing the keder sheet to form at least two channels.

**[0002]** The invention further relates to a keder sheet device configured for being attached to a keder roof system, said keder sheet device comprising: an attachment portion for attaching the keder sheet device to the system, at least one leg, preferably two legs, at least one keder sheet forcing element, preferably two keder sheet forcing elements, wherein the at least one leg is connected to the attachment portion at the proximal end of the leg, and wherein the keder sheet forcing element is positioned at the distal end of the leg.

**[0003]** The invention further relates to a method for draining a keder roof system, wherein said method comprises the steps of: providing a keder roof system, providing at least two keder sheet devices, attaching the keder sheet devices to the keder roof system, preferably to a bearing element of the system, such as to two respective keder rails, forming at least two channels at the keder sheet by the keder sheet devices, preferably providing a forced lowest point of the keder sheet in a y-axis when the keder sheet is being affected by wind by being forced upwards, and draining rainwater by leading the water away from the keder sheet in the formed channel when the keder sheet is collecting rain water.

### BACKGROUND OF THE INVENTION

**[0004]** Today, numerous solutions for keder roof systems are available, however, all the keder roof systems are despite the main function of providing temporary weather protection, not protected against leaking of rainwater inside the system. It is a known and very widespread problem that rainwater is leaking inside the system, such as dripping down from the keder rails, which can cause a lot of problems since the inside of the system must be kept dry for different reasons and purposes.

**[0005]** The keder roof system is very popular and is a

used solution in multiple applications in the residential, commercial, industrial, infrastructure and event sectors.

**[0006]** Therefore, it is necessary to solve the leaking problem while still using a known keder roof system.

**[0007]** Hence, an improved keder roof system and/or a device for attaching to a keder roof system suitable for draining a keder roof system making it non-leaking would be advantageous, and further a resistant, mechanically strong, economical solution with longevity would be advantageous.

### OBJECT OF THE INVENTION

**[0008]** It is an object of the present invention to provide an alternative to the prior art.

**[0009]** In particular, it may be seen as an object of the present invention to provide a system, a device and/or a method that solves the above mentioned problems by ensuring that rain water never gets in contact with the keder rails and thereby making a keder roof system entirely non-leaking without having to change the entire construction, proportions and/or structure of the system but by using said keder sheet device.

### DESCRIPTION OF THE INVENTION

**[0010]** Thus, the above described object and several other objects are intended to be obtained in a first aspect of the invention by providing a keder roof system, such as a temporary keder roof system, wherein said keder roof system comprises:

- at least two opposing keder rails, wherein said keder rails each comprise:
  - a keder receiving portion, preferably a plurality of keder receiving portions,
- a keder sheet, wherein the keder sheet comprises:
  - at least two keder cords positioned at two opposing ends of the keder sheet,
- at least two keder sheet devices, preferably devices according to claim 4, wherein said at least two keder cords are inserted respectively into the keder receiving portion of the keder rails,

wherein the keder sheet system can take at least two positions:

- an unforced position, wherein the keder sheet is hanging unforced from the keder rails, such as hanging freely downwards due to gravity,
- a forced position, wherein the keder sheet is affected by being forced upwards, such as by the wind, wherein said at least two keder sheet devices is forcing the keder sheet to form at least two channels.

**[0011]** The invention is particularly, but not exclusively, advantageous for providing a system, wherein water, such as rainwater, never gets in contact with the keder rails. If water enters the keder rails, the water will leak and/or be dripping inside the system, which can course a lot of problems, since the inside of the system must be kept dry for different reasons and purposes.

**[0012]** By using the keder sheet device, it is possible to make any known keder roof system entirely non-leaking without having to change the entire construction, proportions and/or structure of the system but by using said keder sheet device.

**[0013]** The keder sheet device provides a draining function suitable for all keder sheets.

**[0014]** The keder sheet device can be attached at any suitable position of the keder roof system, such that the channels made at the keder sheet can be made wherever needed in the system.

**[0015]** The number of keder sheet devices comprised in the keder roof system can be increased according to the size of the keder roof system.

**[0016]** In the context of the present invention, a "keder roof system" may be understood as keder roof systems being a temporary weather protection solution ideally suited to multiple applications in the residential, commercial, industrial, infrastructure and event sectors.

**[0017]** In the context of the present invention, "keder sheet" may be understood as a roof cloth, a roof sheet, or any cloth/sheet suitable for being used in a keder roof system.

**[0018]** In the context of the present invention, "keder rail" may be understood as a keder beam, or the like.

**[0019]** In the context of the present invention, "channel" may be understood as a draining channel, a trench, a groove, a gutter or any suitable definition for a form made of/in/at/by the keder sheet suitable for leading the water away from the keder sheet.

**[0020]** In a second aspect, the invention further relates to a keder sheet device configured for being attached to a keder roof system, preferably a keder roof system of the first aspect, said keder sheet device comprising:

- an attachment portion for attaching the keder sheet device to the system, preferably to a keder rail or any bearing element of the system,
- at least one leg, preferably two legs,
- at least one keder sheet forcing element, preferably two keder sheet forcing elements, and
- optionally a locking mechanism,

wherein the at least one leg is connected to the attachment portion at the proximal end of the leg, and wherein the keder sheet forcing element is positioned at the distal end of the leg.

**[0021]** The second aspect of the invention is particularly, but not exclusively, advantageous for providing a device which makes it possible to make any known keder roof system entirely non-leaking without having to

change the entire construction, proportions and/or structure of the system but by using said keder sheet device.

**[0022]** The keder sheet device provides a draining function suitable for all keder sheets.

**[0023]** The keder sheet device can be attached at any suitable position of a keder roof system, such that the channel of the keder sheet can be made wherever needed in the system. The number of keder sheet devices can be increased according to the size of the system.

**[0024]** In the context of the present invention, a "keder sheet device" may be understood as a manipulator device, or the like.

**[0025]** In one embodiment of the invention, the keder sheet device forms at least two channels in a forced position, said channels providing a rainwater draining function such that rain water never gets in contact with the keder rail.

**[0026]** The embodiment is particularly, but not exclusively, advantageous for ensuring that a keder roof system is non-leaking inside the system.

**[0027]** In one embodiment of the invention, the keder sheet device forms at least two channels in a forced position, said channels are provided at a distance (D) being at least 1 cm from the keder rail, and/or wherein the formed channels are provided at a distance (D) being at most 100 cm from the keder rail.

**[0028]** The embodiment is particularly, but not exclusively, advantageous for ensuring that the channels are not provided too close or too far from the rails, such that the draining function is always ensured to be optimal and favourable.

**[0029]** In one embodiment of the invention, the keder sheet device provides a forced lowest point of the keder sheet in a y-axis.

**[0030]** The embodiment is particularly, but not exclusively, advantageous for ensuring that rainwater cannot enter the keder rails.

**[0031]** In one embodiment of the invention, the keder sheet device comprises at least one leg protruding in an angle ( $\alpha$ ) from vertical being above  $0^\circ$  and below  $90^\circ$ .

**[0032]** The embodiment is particularly, but not exclusively, advantageous for providing a distance of the channels to the keder rail.

**[0033]** In one embodiment of the invention, the keder sheet device comprises a forcing element, said forcing element being a rod.

**[0034]** The embodiment is particularly, but not exclusively, advantageous for providing a keder sheet device where the keder is forced in the most optimal way to form a channel where the rods are provided.

**[0035]** In one embodiment of the invention, the keder sheet device comprises a forcing element, said forcing element manipulating the sheet in a longitudinal direction (L).

**[0036]** The embodiment is particularly, but not exclusively, advantageous for ensuring that the channel and thereby the draining function is made in the correct

direction. The water must be drained in a longitudinal direction, such that the water is led toward the free ends of the sheet. If the draining is made in a transverse direction, the water would be led directly towards the rails, and thereby causing a risk of a leaking system.

**[0037]** In one embodiment of the invention, the keder sheet device comprises an attachment portion, said attachment portion is surrounding at least three surfaces of a keder rail when being attached on a keder rail.

**[0038]** The embodiment is particularly, but not exclusively, advantageous for providing a device that is easy to attach to the keder roof system and further is securely attached.

**[0039]** It should be understood that the surrounding of the surfaces of the rails can be both directly and indirectly. There could be other elements that the device is also surrounding when being attached to the system.

**[0040]** In one embodiment of the invention, the keder sheet comprises an attachment portion, said attachment portion is secured to a keder roof system by a locking mechanism.

**[0041]** The embodiment is particularly, but not exclusively, advantageous for providing a reliably and strong attachment.

**[0042]** In one embodiment of the invention, the locking mechanism is at least one bolt, preferably two bolts.

**[0043]** The embodiment is particularly, but not exclusively, advantageous for providing an adjustable attachment.

**[0044]** In one embodiment of the invention, the two bolts are provided through two opposite positioned holes of the attachment portion such that the bolts are attaching the keder sheet device to a keder roof system, preferably to a keder rail, by pressure.

**[0045]** In one embodiment of the invention, the locking mechanism comprises: a click function, a hinge and/or a pressure fit function.

**[0046]** The embodiment is particularly, but not exclusively, advantageous for providing a reliable, strong and secure attachment.

**[0047]** In one embodiment of the invention, the keder sheet device is made in metal or polymer, preferably:

- being welded, wherein the material preferably is steel, or
- being extruded, wherein the material preferably is aluminium, or
- being 3D printed, wherein the material preferably is nylon.

**[0048]** The embodiment is particularly, but not exclusively, advantageous for providing a device that can be manufactured by many desired production methods and in any desired material.

**[0049]** In one embodiment of the invention, the keder sheet is made of polymer and/or is a composite material, such as:

- a PVC material,
- a coated plastic material,
- a glass fiber,
- woven material, or
- polyethylene.

**[0050]** The embodiment is particularly, but not exclusively, advantageous for allowing numerous of different sheet materials to be used while still providing a non-leaking and dry system.

**[0051]** In one embodiment of the invention, the keder sheet device is symmetrical around a vertical line (X) seen from the front, and/or the keder sheet device is symmetrical around a vertical line (Y) seen from the side.

**[0052]** The embodiment is particularly, but not exclusively, advantageous for providing a device easy to manufacture and possibly easy to stack.

**[0053]** In one embodiment of the invention, a plurality of keder sheet devices is attached to one keder roof system.

**[0054]** The embodiment is particularly, but not exclusively, advantageous for providing the possibility to ensure even a huge keder roof system to be made non-leaking and dry along the entire length of the system.

**[0055]** In a third aspect, the invention further relates to a method for draining a keder roof system, preferably a system according to the first aspect, and preferably with a device according to the second aspect, wherein said method comprises the steps of:

- providing a keder roof system comprising at least:
  - two opposing keder rails, wherein two keder cords of a keder sheet are inserted into the keder rails,
  - providing at least two keder sheet devices,
  - attaching the keder sheet devices to the keder roof system, preferably to a bearing element of the system, such as to two respective keder rails,
  - forming at least two channels at the keder sheet by the keder sheet devices, preferably providing a forced lowest point of the keder sheet in a y-axis, when the keder sheet is being affected by wind by being forced upwards,
  - draining rainwater by leading the water away from the keder sheet in the formed channels, when the keder sheet is collecting rainwater,

wherein the steps of the method can be executed in any order and/or executed simultaneously.

**[0056]** The third aspect of the invention is particularly, but not exclusively, advantageous for providing a method for forming channels in a forced position, said channels providing a rainwater draining function such that rainwater never gets in contact with the keder rail.

**[0057]** The method can be applied to any desired keder roof system.

**[0058]** The first, second and third aspect of the present invention may each be combined with any of the other aspects. These and other aspects of the invention will be apparent from and elucidated with reference to the embodiments described hereinafter.

**[0059]** Embodiments from the system, device and method should all be seen as applicable to each other.

#### DESCRIPTION OF THE DRAWING

**[0060]** Various examples are described hereinafter with reference to the figures. Like reference numerals refer to like elements throughout. Like elements will, thus, not be described in detail with respect to the description of each figure. It should also be noted that the figures are only intended to facilitate the description of the examples. They are not intended as an exhaustive description of the claimed invention or as a limitation on the scope of the claimed invention. In addition, an illustrated example need not have all the aspects or advantages shown. An aspect or an advantage described in conjunction with a particular example is not necessarily limited to that example and can be practiced in any other examples even if not so illustrated, or if not so explicitly described.

**[0061]** Exemplary embodiments of the invention are described in the figures, whereon:

Figure 1 illustrates a 3D drawing of a keder sheet device.

Figure 2 illustrates a cross-section of a keder sheet device and a keder sheet with water.

Figure 3 illustrates a system of two keder sheet devices and a keder sheet in a forced position.

Figure 4 illustrates a system without keder sheet devices and a keder sheet in an unforced and a forced position.

Figure 5 illustrates from an upper view a system of a plurality of keder sheet devices.

Figure 6 illustrates from below a system of a plurality of keder sheet devices.

#### DETAILED DESCRIPTION OF THE INVENTION

**[0062]** Exemplary examples will now be described more fully hereinafter with reference to the accompanying drawings. In this regard, the present examples may have different forms and should not be construed as being limited to the descriptions set forth herein. Accordingly, the examples are merely described below, by referring to the figures, to explain aspects.

**[0063]** The terminology used herein is for the purpose of describing particular examples only and is not intended to be limiting. As used herein, the terms "comprises" "comprising" "includes" and/or "including" when used in this specification specify the presence of stated features, integers, steps, operations, elements, and/or components, but do not preclude the presence or addition of one or more other features, integers, steps, operations,

elements, components, and/or groups thereof.

**[0064]** Unless otherwise defined, all terms used herein (including technical and scientific terms) have the same meaning as commonly understood by those skilled in the art to which this invention pertains. It will be further understood that terms, such as those defined in commonly used dictionaries, should be interpreted as having a meaning that is consistent with their meaning in the context of the relevant art and will not be interpreted in an idealized or overly formal sense unless expressly so defined in the present specification.

**[0065]** FIG. 1 illustrates a 3D drawing of a keder sheet device 100 configured for being attached to a keder roof system, said keder sheet device 100 comprising:

- an attachment portion 200 for attaching the keder sheet device 100 to the system, preferably to a keder rail or any bearing element of the system, in the embodiment of the device illustrated in FIG. 1, the attachment portion 200 further comprises two holes 520 being a part of a locking mechanism for inserting locking elements through the holes, locking elements such as bolts ,
- at least one leg 300, preferably two legs, in FIG. 1 the device comprises two legs,
- at least one keder sheet forcing element 400, preferably two keder sheet forcing elements, the forcing elements illustrated in FIG. 1 are two rods 400,

wherein the at least one leg 300 is connected to the attachment portion 200 at the proximal end 310 of the leg 300, and

wherein the keder sheet forcing element 400 is positioned at the distal end of the leg 320.

**[0066]** Furthermore, FIG. 1 illustrates a keder sheet device 100 wherein the forcing element 400 is a rod and a device wherein at least one leg 300 is protruding in an angle ( $\alpha$ ) from vertical being above  $0^\circ$  and below  $90^\circ$  (see FIG. 2). In FIG. 1 the device comprises two legs 300.

**[0067]** Moreover, FIG. 1 illustrates a keder sheet device 100, wherein the keder sheet device is symmetrical around a vertical line (X) seen from the front, and wherein the keder sheet device is symmetrical around a vertical line (Y) seen from the side.

**[0068]** This symmetrical embodiment should not necessarily be seen as limiting for the invention, but just as a preferred embodiment.

**[0069]** The illustrated keder sheet device 100 of FIG. 1 is preferably made in metal or polymer, preferably:

- being welded, wherein the material preferably is steel, or
- being extruded, wherein the material preferably is aluminium, or
- being 3D printed, wherein the material preferably is nylon.

**[0070]** FIG. 2 illustrates a cross-section of a keder

sheet device 100 and a keder sheet 40 with rainwater W, the keder sheet 40 is preferably a part of a keder sheet system 10.

**[0071]** FIG. 2 illustrates the keder sheet device 100 forming a channel 600 at a keder sheet 40. The position illustrated in FIG. 2 is a forced position FP. The channel 600 formed is providing a water draining function, such that rainwater W never gets in contact with the keder rail 20.

**[0072]** The channel 600 is preferably provided at a distance D being at least 1 cm from the keder rail 20, and the formed channel 600 is provided at a distance D being at most 100 cm from the keder rail 20.

**[0073]** Moreover, the keder sheet device 100 illustrated in FIG. 2 provides a forced lowest point (LP) of the keder sheet 40 in a y-axis and a device wherein at least one leg 300 is protruding in an angle ( $\alpha$ ) from vertical being above 0° and below 90°. In FIG. 1 the device comprises two legs 300.

**[0074]** Furthermore, the attachment portion 200 of the keder sheet device 100 is secured to a keder roof system 10 by a locking mechanism 500. The locking mechanism is at least one bolt 510, preferably two bolts, as illustrated in FIG. 2.

**[0075]** The two bolts 510 are provided through two opposite positioned holes 520 of the attachment portion 200, such that the bolts are attaching the keder sheet device 100 to a keder roof system 10, preferably to a keder rail 20, by pressure, such as illustrated in FIG. 2.

**[0076]** However, it should be understood that within the invention the locking mechanism 500 might alternately be a click function, a hinge and/or a pressure fit function (not shown).

**[0077]** Additionally, in FIG. 2 the keder sheet device 100 comprises an attachment portion 200, said attachment portion is surrounding at least three surfaces of a keder rail 20, when being attached on a keder rail 20.

**[0078]** In FIG. 2 the system illustrated is suitable for performing a method for draining a keder roof system 10, wherein said method comprises the steps of (not shown):

- providing a keder roof system 10 comprising at least:
  - two opposing keder rails 20, wherein two keder cords 50 of a keder sheet 40 are inserted into the keder rails 20,
- providing at least two keder sheet devices 100,
- attaching the keder sheet devices 100 to the keder roof system 10, preferably to a bearing element of the system 10, such as to two respective keder rails 20,
- forming at least two channels 600 at the keder sheet 40 by the keder sheet devices 100, preferably providing a forced lowest point LP of the keder sheet 40 in a y-axis, when the keder sheet is being affected by wind by being forced upwards, and
- draining water W, such as rainwater, by leading the water away from the keder sheet 40 in the formed

channels 600, when the keder sheet 40 is collecting water W,

wherein the steps of the method can be executed in any order and/or executed simultaneously.

**[0079]** FIG. 3 illustrates a system 10 of two keder sheet devices 100 and a keder sheet 40 in a forced position FP. The keder roof system 10 of FIG. 3, such as a temporary keder roof system, comprises:

- at least two opposing keder rails 20, wherein said keder rails each comprise:
  - a keder receiving portion 30, preferably a plurality of keder receiving portions,
  - a keder sheet 40, wherein the keder sheet comprises:
    - at least two keder cords 50 positioned at two opposing ends of the keder sheet 40, wherein said at least two keder cords 50 are inserted respectively into the keder receiving portion 30 of the keder rails 20,
- at least two keder sheet devices 100,

**[0080]** The system 10 can take two positions being:

- an unforced position UP, wherein the keder sheet 40 is hanging unforced from the keder rails 20, such as hanging freely downwards due to gravity (not shown), and
- a forced position FP as illustrated, wherein the keder sheet 40 is affected by being forced upwards, such as by the wind, wherein said at least two keder sheet devices 100 are forcing the keder sheet 40 to form at least two channels 600.

**[0081]** It should be understood that the keder sheet only takes one of the positions at a time.

**[0082]** In FIG. 3 the keder sheet system 10 is illustrated in a forced position FP, wherein the keder sheet 40 is affected by being forced upwards (U), such as by the wind, wherein said at least two keder sheet devices 100 are forcing the keder sheet 40 to form at least two channels 600.

**[0083]** The keder sheet devices 100 are devices as illustrated in FIG. 1.

**[0084]** The illustrated keder sheet 40 of FIG. 3 is preferably made of polymer and/or a composite material, such as:

- a PVC material,
- a coated plastic material,
- a glass fiber,
- woven material, or
- polyethylene.

**[0085]** FIG. 4 illustrates a system 10 without keder sheet devices 100 and a keder sheet 40 in an unforced position UP and a forced position FP. In other words, FIG. 4 illustrates prior art.

**[0086]** The keder sheet system 10 can take at least two positions, an unforced position and a forced position. It is seen that in the forced position FP wherein the keder sheet 400 is affected by being forced upwards, such as by the wind, water would be directed directly down to the keder rails 20.

**[0087]** It should be understood that the keder sheet 40 only takes one of the positions at a time.

**[0088]** FIG. 5 and FIG. 6 illustrate an overall keder roof system 10 wherein a plurality of keder sheet devices 100 is attached to one keder roof system 10.

**[0089]** The keder sheet device 100 comprises a forcing element 30, said forcing element manipulating the keder sheet 40 in a longitudinal direction (L).

**[0090]** FIG. 5 is an upper view of a keder roof system 10 with a plurality of keder sheet devices 100.

**[0091]** FIG. 6 is a view from below of a keder roof system 10 with a plurality of keder sheet devices 100.

**[0092]** It should be understood that the keder sheet devices in FIGS. 2-6 are illustrated as being attached to keder rails 20. However, the keder sheet devices 100 can take other embodiments, shapes and forms, and may be attached to other parts of the system 10, preferably to bearing elements of the keder roof system. The embodiment of the sheet devices 100 illustrated through the FIGS. 1-6 is a preferred embodiment, but the invention is not limited to that specific embodiment.

**[0093]** Although the present invention has been described in connection with the specified embodiments, it should not be construed as being in any way limited to the presented examples. The scope of the present invention is set out by the accompanying claim set. In the context of the claims, the terms "comprising" or "comprises" do not exclude other possible elements or steps. Also, the mentioning of references such as "a" or "an" etc. should not be construed as excluding a plurality. The use of reference signs in the claims with respect to elements indicated in the figures shall also not be construed as limiting the scope of the invention. Furthermore, individual features mentioned in different claims may possibly be advantageously combined, and the mentioning of these features in different claims does not exclude that a combination of features is not possible and advantageous.

## Claims

1. A keder roof system (10), such as a temporary keder roof system, wherein said keder roof system comprises:

- at least two opposing keder rails (20), wherein said keder rails each comprise:

- a keder receiving portion (30), preferably a plurality of keder receiving portions,

- a keder sheet (40), wherein the keder sheet comprises:

- at least two keder cords (50) positioned at two opposing ends of the keder sheet,

- at least two keder sheet devices (100), preferably devices according to claim 4, wherein said at least two keder cords (50) are inserted respectively into the keder receiving portion (30) of the keder rails (20),

wherein the keder sheet system (10) can take at least two positions:

- an unforced position (UP), wherein the keder sheet (40) is hanging unforced from the keder rails (20), such as hanging freely downwards due to gravity, and

- a forced position (FP), wherein the keder sheet (40) is affected by being forced upwards, such as by the wind, wherein said at least two keder sheet devices (100) are forcing the keder sheet (40) to form at least two channels (600).

2. A keder sheet device (100) configured for being attached to a keder roof system (10), preferably a keder roof system (10) of claim 1, said keder sheet device (100) comprising:

- an attachment portion (200) for attaching the keder sheet device (100) to the system (10), preferably to a keder rail (20) or any bearing element of the system,

- at least one leg (300), preferably two legs,

- at least one keder sheet forcing element (400), preferably two keder sheet forcing elements, and

- optionally a locking mechanism (500),

wherein the at least one leg (300) is connected to the attachment portion (200) at the proximal end of the leg (310), and

wherein the keder sheet forcing element (400) is positioned at the distal end of the leg (320).

3. A keder roof system (10) and/or a keder sheet device (100) according to any preceding claims, wherein the keder sheet device (100) forms at least two channels (600) in a forced position (FP), said channels providing a rain water draining function, such that rain water never gets in contact with the keder rail (20).

4. A keder roof system (10) and/or a keder sheet device (100) according to any preceding claims, wherein the

- keder sheet device (100) forms at least two channels (200) in a forced position (FP), said channels (600) are provided at a distance (D) being at least 1 cm from the keder rail (20), and/or wherein the formed channels (600) are provided at a distance (D) being at most 100 cm from the keder rail (20).
5. A keder roof system (10) and/or a keder sheet device (100) according to any preceding claims, wherein the keder sheet device (100) provides a forced lowest point (LP) of the keder sheet (40) in a y-axis.
  6. A keder roof system (10) and/or a keder sheet device (100) according to any preceding claims, wherein the keder sheet device (100) comprises at least one leg (300) protruding in an angle ( $\alpha$ ) from vertical being above  $0^\circ$  and below  $90^\circ$ .
  7. A keder roof system (10) and/or a keder sheet device (100) according to any preceding claims, wherein the keder sheet device (100) comprises a forcing element (400), said forcing element being a rod.
  8. A keder roof system (10) and/or a keder sheet device (100) according to any preceding claims, wherein the keder sheet device (100) comprises a forcing element (400), said forcing element manipulating the keder sheet (40) in a longitudinal direction (L).
  9. A keder roof system (10) and/or a keder sheet device (100) according to any preceding claims, wherein the keder sheet device (100) comprises an attachment portion (200), said attachment portion is surrounding at least three surfaces of a keder rail (20) when being attached on a keder rail.
  10. A keder roof system (10) and/or a keder sheet device (100) according to any preceding claims, wherein the keder sheet device (100) comprises an attachment portion (200), said attachments portion being secured to a keder roof system (10) by a locking mechanism (500).
  11. A keder roof system (10) and/or a keder sheet device (100) according to any preceding claims, wherein the locking mechanism (500) is at least one bolt (510), preferably two bolts.
  12. A keder roof system (10) and/or a keder sheet device (100) according to any preceding claims, wherein two bolts (500) are provided through two opposite positioned holes (520) of the attachment portion (200), such that the bolts are attaching the keder sheet device (100) to a keder roof system (10), preferably to a keder rail (20), by pressure.
  13. A keder roof system (10) and/or a keder sheet device (100) according to any preceding claims, wherein the locking mechanism comprises: a click function, a hinge and/or a pressure fit function.
  14. A keder roof system (10) and/or a keder sheet device (100) according to any preceding claims, wherein a plurality of keder sheet devices is attached to one keder roof system.
  15. A method for draining a keder roof system (10), preferably a system according to claim 1, and preferably with a device (100) according to claim 4, wherein said method comprises the steps of:
    - providing a keder roof system (10) comprising at least:
      - two opposing keder rails (20), wherein two keder cords (30) of a keder sheet (40) are inserted into the keder rails (20),
      - providing at least two keder sheet devices (100),
      - attaching the keder sheet devices (100) to the keder roof system (10), preferably to a bearing element of the system, such as to two respective keder rails (20),
      - forming at least two channels (600) at the keder sheet (40) by the keder sheet devices (100), preferably providing a forced lowest point (LP) of the keder sheet (40) in a y-axis, when the keder sheet is being affected by wind by being forced upwards, and
      - draining water (W), such as rain, by leading the water away from the keder sheet (40) in the formed channels (600), when the keder sheet is collecting water,
 wherein the steps of the method can be executed in any order and/or executed simultaneously.

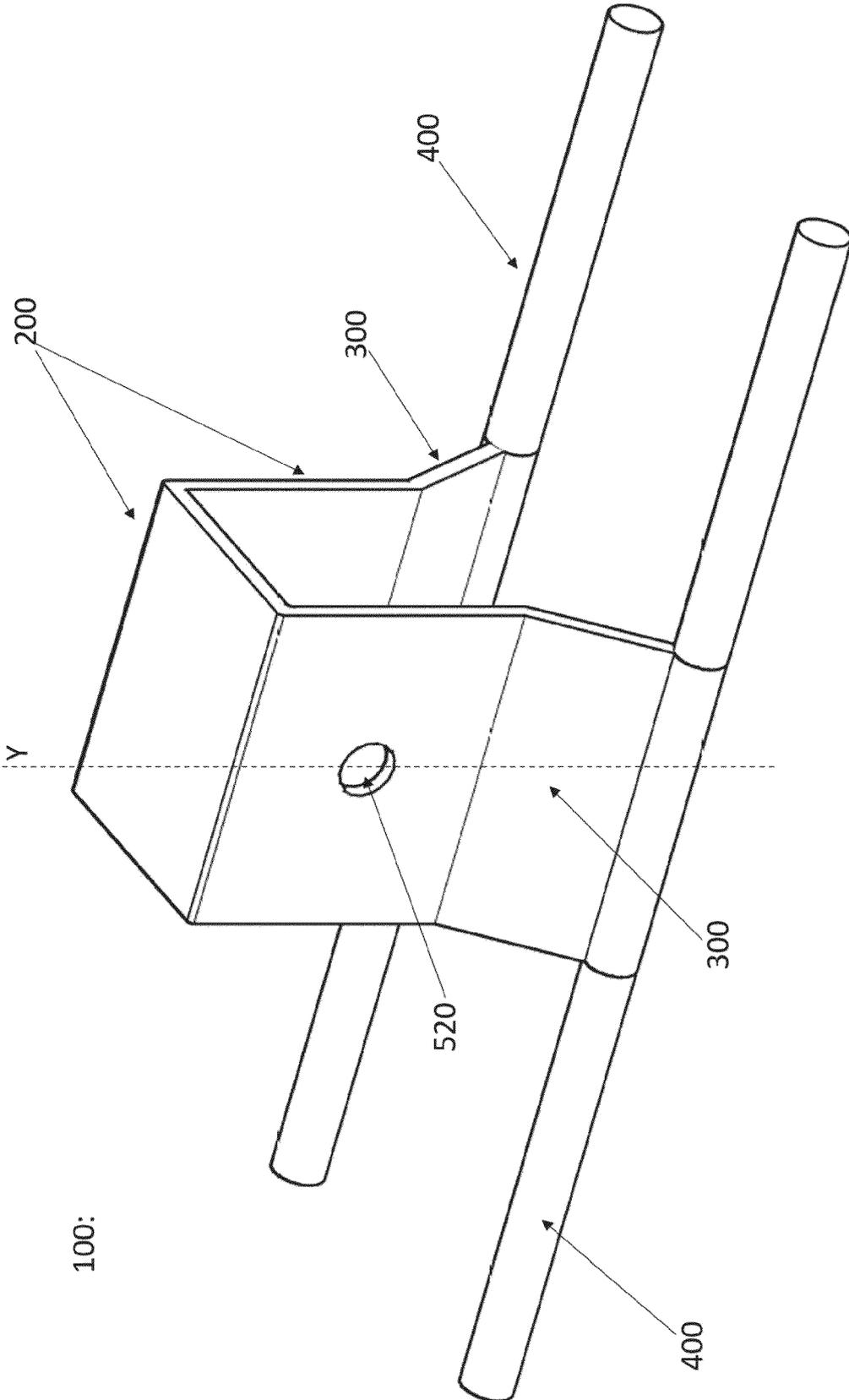


Fig. 1

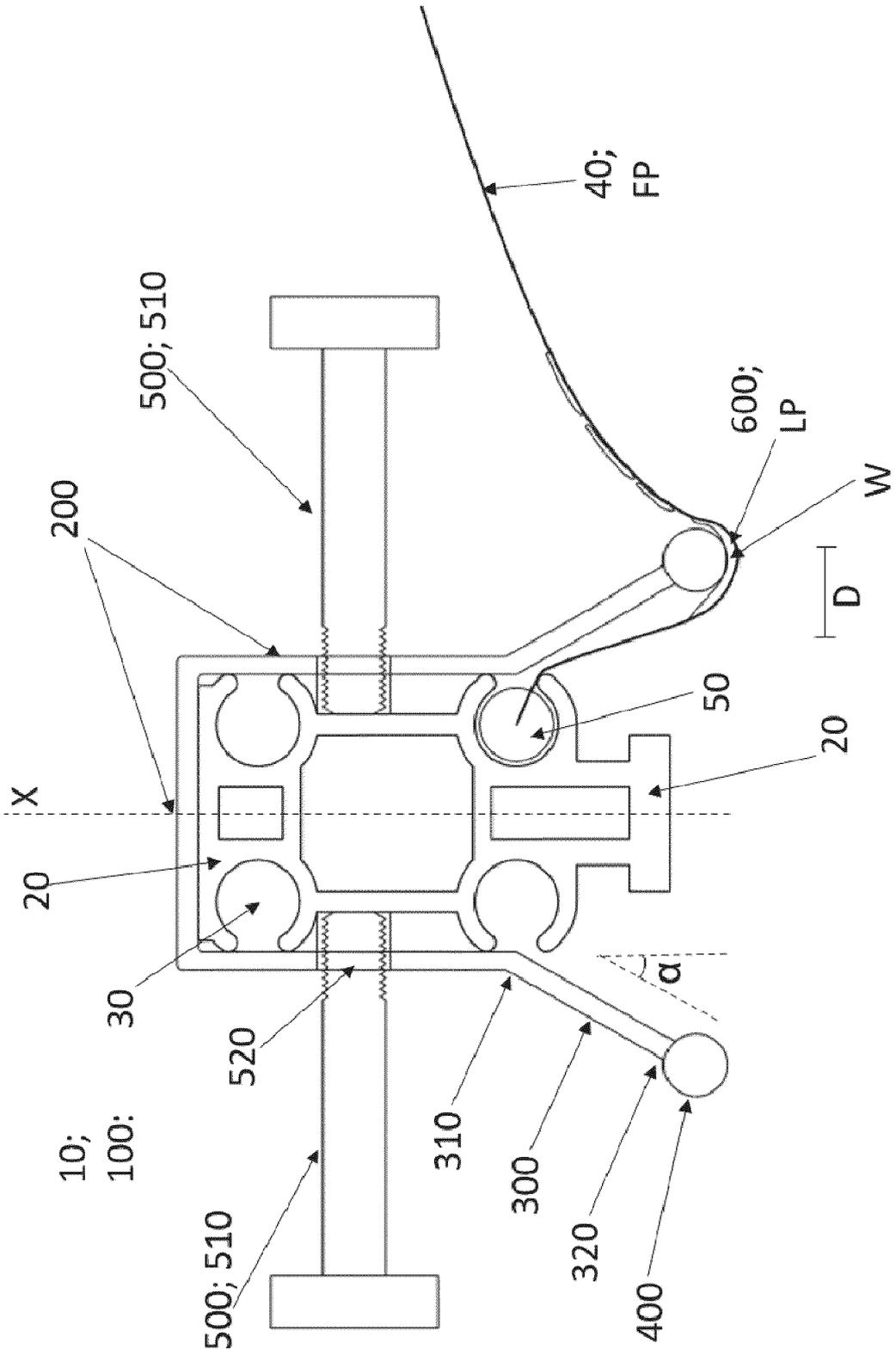


Fig. 2

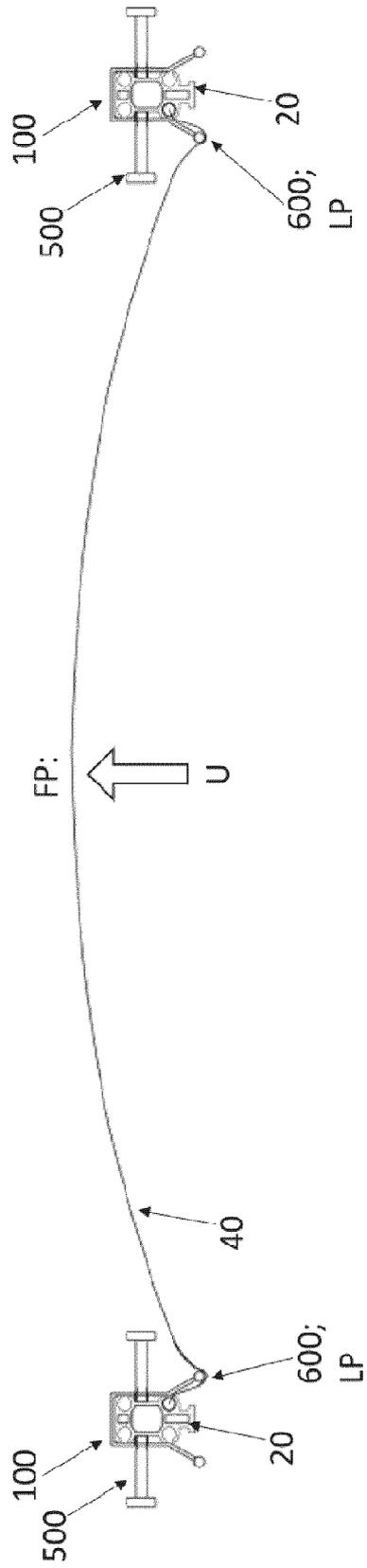


Fig. 3

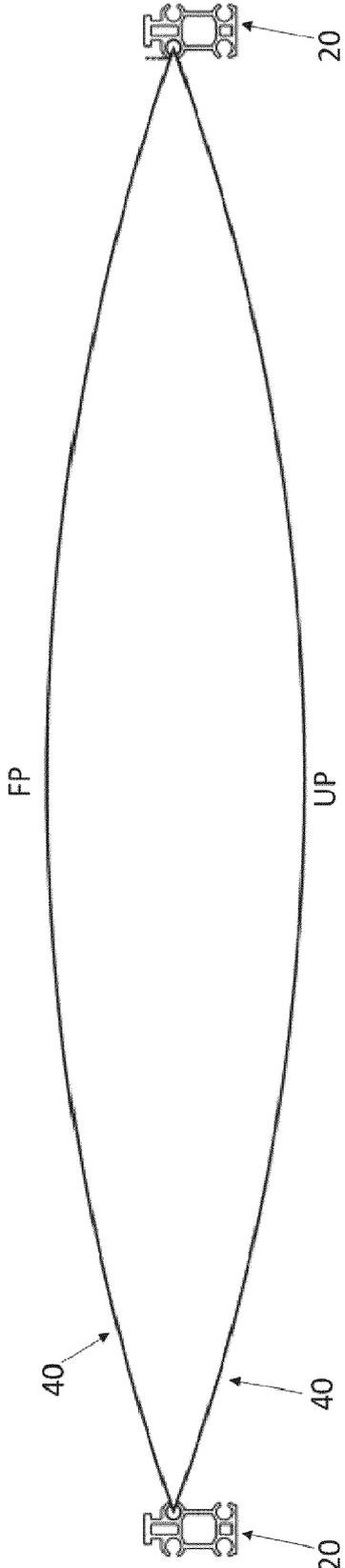


Fig. 4

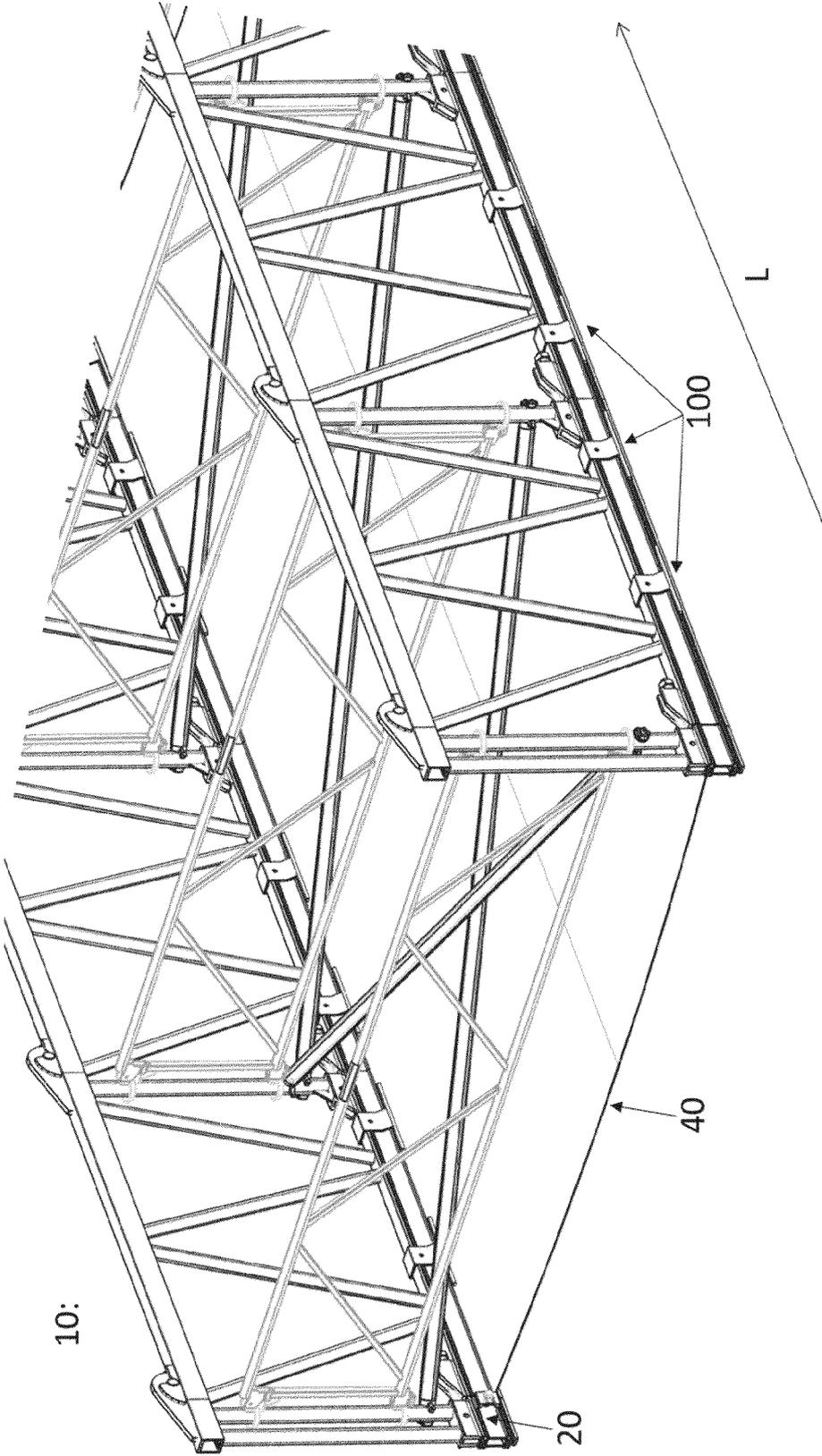


Fig. 5

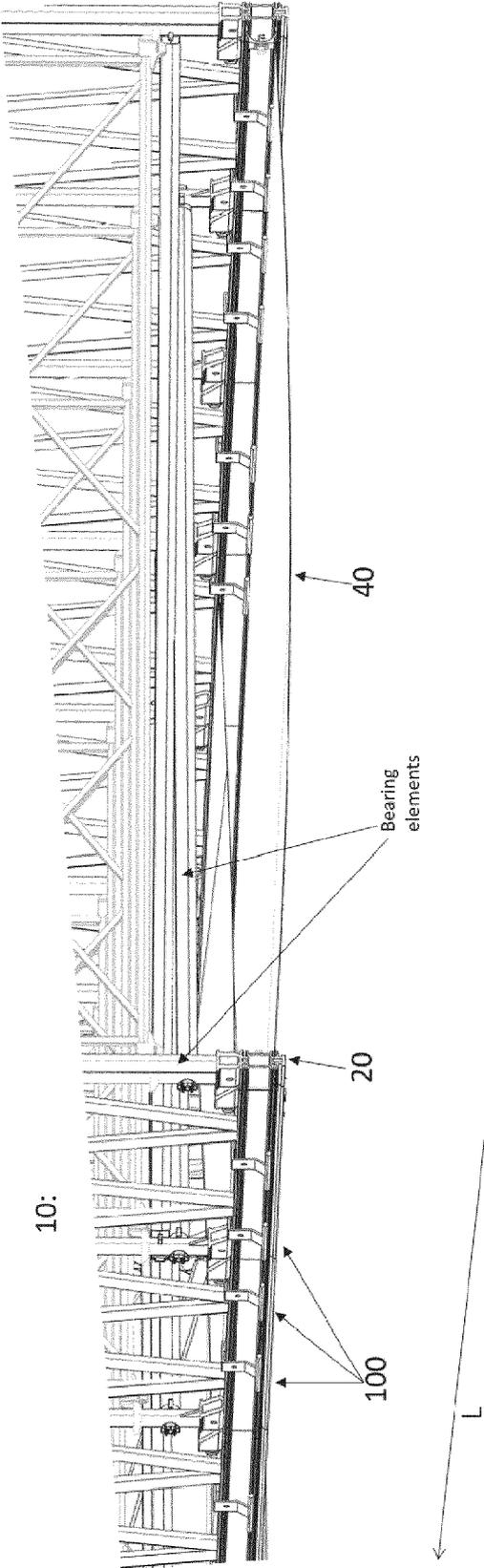


Fig. 6



**PARTIAL EUROPEAN SEARCH REPORT**

Application Number

under Rule 62a and/or 63 of the European Patent Convention.  
This report shall be considered, for the purposes of subsequent proceedings, as the European search report

**EP 23 18 4184**

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DOCUMENTS CONSIDERED TO BE RELEVANT			
Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (IPC)
X	US 5 333 425 A (NICKERSON DAVID C [US] ET AL) 2 August 1994 (1994-08-02) * figures *	1-11, 13-15	INV. E04H15/64
X	DE 43 26 471 A1 (VECTOR GES ZUR VERARBEITUNG KO [DE]) 9 February 1995 (1995-02-09) * figure 2 *	1, 3, 5, 7, 8, 10, 11, 13, 14	
X	WO 2010/114388 A1 (DELTA SYSTEMS AS [NO]; STRAND GUNNAR [NO]) 7 October 2010 (2010-10-07) * figures *	1, 6, 8	
X	US 2017/328068 A1 (SHARGANI AFSHIN [US]) 16 November 2017 (2017-11-16) * figures 22B, 24 *	1, 6, 8	
A	DE 100 28 262 A1 (LAYHER W VERMOGENSVERW GMBH [DE]) 13 December 2001 (2001-12-13) * figure 5 *	1-15	
			TECHNICAL FIELDS SEARCHED (IPC)
			E04H
INCOMPLETE SEARCH			
The Search Division considers that the present application, or one or more of its claims, does/do not comply with the EPC so that only a partial search (R.62a, 63) has been carried out.			
Claims searched completely :			
Claims searched incompletely :			
Claims not searched :			
Reason for the limitation of the search: <b>see sheet C</b>			
Place of search	Date of completion of the search	Examiner	
The Hague	15 December 2023	Demeester, Jan	
CATEGORY OF CITED DOCUMENTS		T : theory or principle underlying the invention E : earlier patent document, but published on, or after the filing date D : document cited in the application L : document cited for other reasons	
X : particularly relevant if taken alone Y : particularly relevant if combined with another document of the same category A : technological background O : non-written disclosure P : intermediate document		& : member of the same patent family, corresponding document	

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EPO FORM 1503 03.82 (P04E07)



**INCOMPLETE SEARCH  
SHEET C**

Application Number

**EP 23 18 4184**

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**Claim(s) completely searchable:**

1, 15

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**Claim(s) searched incompletely:**

2-14

**Reason for the limitation of the search:**

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**See search opinion**

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

EP 23 18 4184

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

15-12-2023

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Patent document cited in search report	Publication date	Patent family member(s)	Publication date
<b>US 5333425</b>	<b>A</b>	<b>02-08-1994</b>	<b>NONE</b>
-----			
<b>DE 4326471</b>	<b>A1</b>	<b>09-02-1995</b>	<b>NONE</b>
-----			
<b>WO 2010114388</b>	<b>A1</b>	<b>07-10-2010</b>	<b>AU 2010232007 A1 13-10-2011</b>
		<b>BR PI1014043 A2</b>	<b>12-04-2016</b>
		<b>EP 2414605 A1</b>	<b>08-02-2012</b>
		<b>NO 333081 B1</b>	<b>25-02-2013</b>
		<b>US 2012090655 A1</b>	<b>19-04-2012</b>
		<b>WO 2010114388 A1</b>	<b>07-10-2010</b>
-----			
<b>US 2017328068</b>	<b>A1</b>	<b>16-11-2017</b>	<b>NONE</b>
-----			
<b>DE 10028262</b>	<b>A1</b>	<b>13-12-2001</b>	<b>AT E358754 T1 15-04-2007</b>
		<b>DE 10028262 A1</b>	<b>13-12-2001</b>
		<b>EP 1162325 A2</b>	<b>12-12-2001</b>
		<b>PL 347964 A1</b>	<b>17-12-2001</b>
-----			

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