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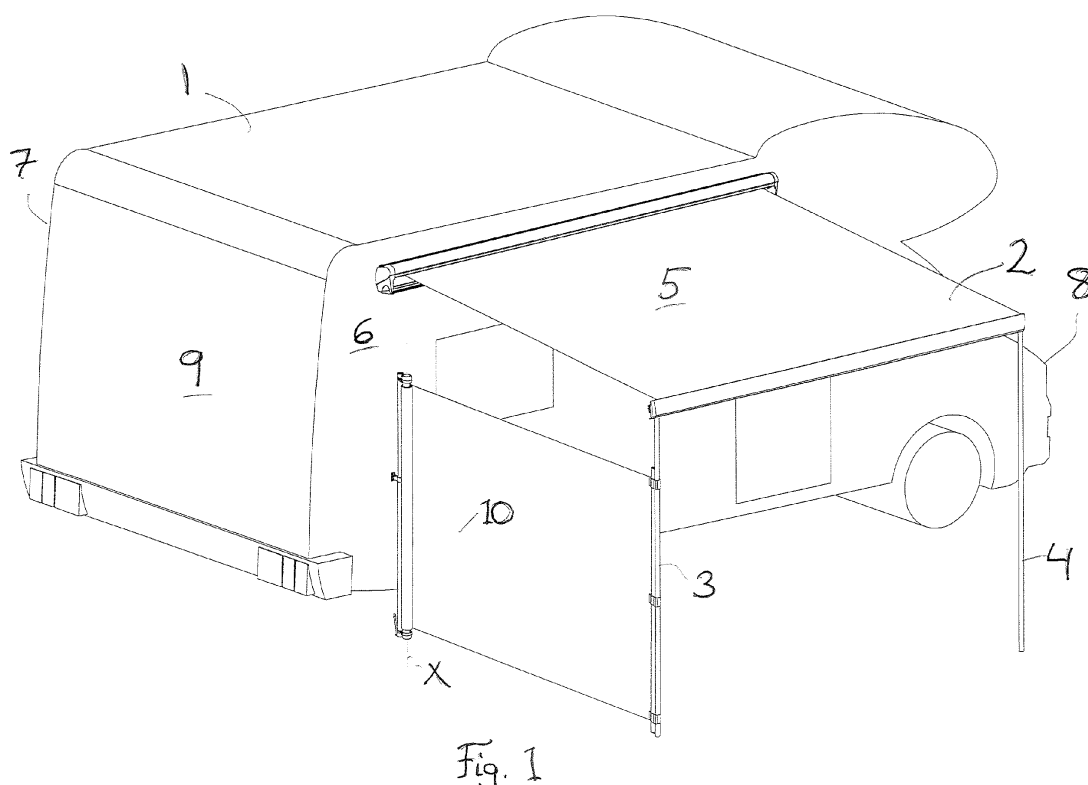
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(54) **Detachable screen arrangement for a vehicle**

(57) The present invention relates to a screen arrangement (10) for a vehicle (1) such as a wind screen arrangement, sun screen arrangement or a privacy screen arrangement. The screen arrangement (10) comprises a screen (11) displaceable between an extended position and a retracted position. The screen (11) is wound around a first bar (12). The first bar (12) is connected to a substantially parallel second bar (13) having

a connection device (20) permitting the second bar (13) to be pivotally connected to the vehicle (1), while being adjustable in a direction along the length of the second bar (13). The connection device (20) thus provides for a slip, or slide, connection between the vehicle and the second bar (13) of the screen arrangement (10). The present invention provides for a screen arrangement which is easy to deploy and which permits adjustment after being deployed.



Description

TECHNICAL FIELD

[0001] The present invention relates to a screen arrangement, such as a wind screen, sun screen or privacy screen, for a vehicle such as a recreational vehicle (RV), caravan or van, which can be detachably connected to the vehicle using a connection device. The connection device enables the screen of the screen arrangement to be adjusted to an appropriate position, even after being deployed, and it enables a fast deployment.

BACKGROUND OF THE INVENTION

[0002] Wind screen arrangements (also known as privacy spacers, privacy screen, or sunscreens) are commonly mounted on the side of a recreational vehicle (RV) to provide privacy, wind protection and/or sun protection to a user. Such screen arrangement can comprise a roller blind of canvas, for example as disclosed in the patent publication of CH682759A5 in the name of Bretscher AG. The roller blind comprises a hollow column covering a reel on which the blind is rolled up. The distal end of the blind is attached to a pull rod, also known as a tension rod, by which the blind can be extracted from the reel to an extended position. The column with the reel is detachably attached to the RV using a hook element attached to the RV, onto which the column comprising the reel can be hung by means of a receiving element.

SUMMARY OF THE INVENTION

[0003] It is an object of the present invention to provide for a screen arrangement which is easy to deploy while still being flexible in terms of enabling the screen arrangement to be adjusted after being deployed. The objects are met, or at least partly met, by a screen arrangement for a vehicle, such as a recreational vehicle (RV), caravan or van. The screen arrangement comprises a screen adapted to be wound and unwound about a first axis, for example a first bar, between an extended position and a retracted position. The screen comprises a proximal end and a distal end with respect to the first axis. The proximal end of the screen is connected indirectly, to an elongated member, such as a second bar or a housing, extending substantially parallel with the first axis. The elongated member has at least one connection device arranged thereto. The at least one connection device comprises a first connection member adapted to be detachably connected to the vehicle, and a second connection member connected to the elongated member. The second connection member is slideably connected to the elongated member enabling the position of the at least one connection device to be displaced along a portion of the length of the elongated member.

[0004] The screen arrangement is advantageously a wind screen arrangement, sun screen arrangement

and/or privacy screen arrangement.

[0005] The screen arrangement is easily deployed by connecting it to the vehicle and the height of the screen arrangement can quickly be adjusted after connection with the vehicle, this can be useful if the vehicle is parked on rocky terrain or in a slope.

[0006] According to an aspect, the first connection member and the second connection member are pivotally connected with a pivot connection. By using a pivot connection, movement of the vehicle will not be fully transferred to the screen and movements of the screen will not be fully transferred to the vehicle, as the pivot joint can partly compensate for such a movement. For example, a user who steps on the door step with the purpose of entering the vehicle, will tilt the vehicle a few degrees due to his or hers weight. Such transfer of a tilting motion of the vehicle, will effectively be reduced by the pivot connection of the connection device. The screen arrangement can comprise at least one connection device, or two or more.

[0007] According to an aspect, the second connection member of the connection device is formed by a snap on connection, enabling the elongated member to be detachably connected thereto.

[0008] According to an aspect, the second connection member of the connection device comprises a first and a second grip member adapted to extend around at least a portion of the elongated member, preferably the second bar. The grip members extend from opposite directions around the elongated member and substantially form an open slot into which the elongated member can be inserted. The grip members provide for a sturdy snap on connection which can be slideable along the length of the elongated member.

[0009] According to an aspect, the screen arrangement is adapted to be deployed to parts of an awning of the vehicle. This simplifies the deployment of the screen arrangement. In an embodiment, the distal end of the screen is adapted to be connected to a support leg of an awning arranged to the vehicle. In cases where a tension bar, or pull bar, is arranged to the distal end of the wind screen, the tension bar can be adapted to be connected to a support leg of the awning arranged to the vehicle. The distal end of the wind screen, and/or the tension bar, can be attached to a vertical bar, in this case the support leg of the awning, using at least one strap member, preferably at least two strap members. The tension bar can also comprise means to enable a stand alone configuration.

[0010] According to an aspect, the first connection member of the connection device is adapted to be connected to a connection site arranged on the vehicle, the connection site of the vehicle can be adapted to receive and connect to the support leg of the awning. To provide a flexible connection device and to reduce the number of connection sites on the vehicle, the first connection member of the connection device of the screen arrangement can be the same as the connection member of a

support leg of an awning. The first connection member of the connection device and a support leg of the awning can thus share the connection site on the vehicle.

[0011] According to an aspect, the first bar comprises a first and a second end, the elongated member comprises a first and a second end. The first end of the first bar is connected to the first end of the elongated member, and the second end of the first bar is connected to the second end of the elongated member.

[0012] According to an aspect, the second connection member is slideable, along at least 20 % of the length of the elongated member, preferably along 20-90 % along the length of the elongated member.

[0013] According to an aspect, the pivot connection is formed by a flexible material, flexible elastic material, or a pivot connection having a fixed pivot axis, such as a pin. In an embodiment, the fixed pivot axis, such as a pin, provides for a swivel connection to the first and/or the second connection member of the connection device.

[0014] According to an aspect, the connection device is formed by plastic material, such as polypropylene, polyethylene, polyurethane, or mixtures thereof.

[0015] According to an aspect, the elongated member has a connection device configured to pivotally connect the elongated member to the vehicle, while being adjustable in a direction along the length of the elongated member. The connection device thus provides for a slip, or slide, connection between the vehicle, and the elongated member of the screen arrangement.

[0016] The solution provides for a screen arrangement which is easy to deploy and which is flexible in terms of permitting a user to adjust the position of the elongated member, and thus the wind screen, even after the screen arrangement has been deployed and connected to the vehicle.

[0017] A screen arrangement according to the present invention can be used with any type of vehicle, although recreational vehicles, caravans or vans are preferred vehicles as they generally tend to use awnings.

BRIEF DESCRIPTION OF THE DRAWINGS

[0018] Embodiments of the present invention will be described in greater detail with reference to the accompanying figures in which;

figure 1 shows a recreational vehicle with an awning having support legs, a screen arrangement detachably connected to the side of the recreational vehicle and to one of the support legs of the awning;
figure 2a shows the screen arrangement with the screen in a retracted position;
figure 2b shows the screen arrangement with the screen in an extended position, or deployed and;
figure 3a-3b show parts of the screen arrangement and the connection device in greater detail.

DETAILED DESCRIPTION OF PREFERRED EMBODIMENTS

[0019] Figure 1 shows a recreational vehicle 1, hereafter referred to only as the RV 1, parked and with an awning 2 deployed. The awning 2 comprises a first and a second support leg 3, 4 and a fabric 5. The RV 1 has a first and a second longitudinal side 6, 7, a front and a rear side 8, 9. The awning 2 is of conventional type and will not be described further herein. To block the wind, sun, or to provide privacy to a user, a screen arrangement 10, in this case a wind screen arrangement, can be positioned between the RV 1 and one of the support legs 3, 4 of the awning 2. In figure 1, the screen extends between the first support leg 3 and the first longitudinal side 6 of the RV 1 but could be mounted in other positions. The screen arrangement 10 is detachably connected to the RV 1 and will be described in greater detail hereafter.

[0020] Figure 2a shows the screen arrangement 10 in a retracted position, while figure 2b shows the screen arrangement 10 in the extended position, or deployed. In figure 2b, the screen 11 is exposed, providing wind shelter, sun shelter, and/or privacy, dependent on the purpose of deployment, deployment position, and type of fabric of material used as screen 11. The screen arrangement 10 comprises a screen 11, wound up around a first axis X, in the shown embodiment formed by a first bar 12, permitting the screen to be deployed to the extended position and retracted again. The first bar 12 can be formed integrally with the screen 11 or be a separate element attached to the screen 11. The first bar 12 is connected to an elongated member 13, in this case a second bar 13, which extends substantially parallel, or parallel, with the first bar 12. The second bar 13, could be a bar, as shown in figure 2a-2b, or a housing to the screen 11, or parts of a housing or the like.

[0021] The first and the second bars 12, 13 each comprises a first and a second end 12a, 12b, 13a, 13b. The first end 12a of the first bar 12 is connected to the first end 13a of the second bar 13, and the second end 12b of the first bar 12 is connected to the second end 13b of the second bar 13. The second bar 13 function as a support bar to the first bar 12 enabling the first bar 12 to be positioned at an appropriate position with respect to the RV 1.

[0022] The screen 11 has a proximal end (not shown) attached to the first bar 12 and a distal end 14 attached to a tension bar 16. The distal end 14 of the screen 11 is connected to the support leg 3 (as seen in figure 1) using three strap elements 17, optionally snap on elements, which also can be used to secure the tension bar 16 to the first and the second bars 12, 13 when the screen 11 is in the retracted position. In some cases it can be sufficient to have only one strap element 17, or at least two strap elements. It is also feasible that the distal end 14 of the screen is not provided with a tension bar and that the connection elements, such as a strap element or a snap on elements, or a plurality of

strap elements or a snap on elements, are provided directly on the screen.

[0023] The tension bar 16 comprises means enabling the tension bar 16 to be positioned in a stand alone configuration. By stand alone configuration is meant that the tension bar 16 can retain the screen 11 in an extended position without being connected to a support leg 3 of an awning 2. Instead, only strings can be used to support the tension bar 16 in a stand alone configuration.

[0024] Figures 3a-3b show parts of the screen arrangement 10 in greater detail, and more precisely the area around the first ends 12a, 13a of the first and the second bars 12, 13, parts of the RV 1 is also shown. As is noticed, the screen 11 is in the retracted position. The second bar 13 is provided with a connection device 20, which is adapted to connect the second bar 13 to the RV 1 in a displaceable, or adjustable, manner. The connection device 20 is adapted to be connected with a connection site 21 on the RV 1. The connection site 21 can also be used to the first support leg 3 as an alternative attachment point if the support leg 3 of the awning 2 cannot be deployed to the ground as seen in figure 1 for example.

[0025] The connection device 20 comprises a first and a second connection member 22, 23 pivotally connected to each other with a pivot connection 24. The pivot connection 24 is in the shown embodiment formed by a pin 25, which forms a pivot axis, to which the first and the second connection members are connected. Instead of a pin 25, the first and the second connection members 22, 23 can be connected by flexible material, such as a piece of elastic material, rubber, synthetic rubber, or other thermoplastic material with suitable properties, other suitable materials are cloth, fabric, or optionally a sheet of flexible metal can also be used, to provide the pivot connection.

[0026] The first connection member 22 is adapted cooperate with the connection site 21 of the RV 1 and is configured accordingly. In the shown embodiment, the first connection member 22 is formed as a substantially rectangular plate adapted to fit to the connection site 21 of the RV 1.

[0027] The second connection member 23 is displaceably, or adjustably, attached to the second bar 13 so that it can be displaced along the length of the second bar 13, as indicated by the arrow in figures 2b and 3a. By having a displaceable connection device 20, with respect to the second bar 12 of the screen arrangement 10, the screen 11 of the screen arrangement 10 can be adjusted to a desired position in an easy manner, even after deployment. The second connection member 23 should be displaceable along a portion of the length of the second bar 13, preferably along 20 % of the length of the second bar 13, more preferable along 20-90 % along the length of the second bar 13.

[0028] In the shown embodiment, the second connection member 23 is slideably attached to the second bar 13. In practice, as the first connection member 22 of the connection device 20 is connected to the RV 1, the sec-

ond bar 13 is displaceably arranged to the second connection member 23 of the connection device 20 in a slideable manner. The second connection member 23 comprises a first and a second grip member 26, 27 (of which only 1 is shown in figures 3a-3b) forming a substantially U- formed connection site, or an open ended slot, into which the second bar 13 can be inserted and retained. The second connection member 23 can be a snap on connection enabling the second bar 13 to be detachably connected to the second connection bar 13. Other connection types than a snap on connection are feasible. The connection device 20 thus provides the screen arrangement 10 with both a slide connection and a pivot connection.

[0029] The connection device 20 can be manufactured by a thermoplastic material such as polypropylene, polyethylene, polyurethane or mixtures thereof. Sheet metal such as sheet steel or sheet aluminum can also be used.

[0030] The screen 11 can be manufactured from any suitable material such as woven materials, woven composite materials, nonwoven materials, fabrics manufactured from of natural and/or synthetic fibers, for example, nylon, cotton, wool, silk, polyester, polyacrylic, polyolefin, etc.

[0031] The screen 11 can be self retracting, i.e. cooperating with spring member, spring means, bias means or any other resilient means to make it self retracting about the first axis, pr the first bar is such is present.

Claims

1. A screen arrangement (10) for a vehicle (1), said screen arrangement (10) comprising a screen (11) adapted to be wound and unwound about a first axis (X) between an extended position and a retracted position, said screen (11) comprises a proximal end (15) and a distal end with respect to said first axis (X), **characterized in that** said proximal end of said screen (11) is connected to an elongated member (13) extending substantially parallel with said first axis (X), said elongated member (13) comprises at least one connection device (20) arranged thereto, said at least one connection device (20) comprises a first connection member (22) adapted to be detachably connected to said vehicle (1), and a second connection member (23) connected to said elongated member (13), said second connection member (23) being slideably connected to said elongated member (13) enabling the position of the at least one connection device (20) to be displaced along a portion of the length of said elongated member (13).
2. The screen arrangement (10) according to claim 1, wherein said first connection member (22) and said second connection member (23) are pivotally connected by a pivot connection (24, 25).

3. The screen arrangement (10) according to claim 1 or 2, wherein said first axis (X) is formed by a first bar (12), wherein said proximal end of said screen (11) is connected to said first bar (12), and in that said first bar (12) is connected to said elongated member (13). 5
4. The screen arrangement (10) according to any of the preceding claims, wherein said second connection member (23) of said connection device (20) is formed by a snap on connection, enabling the elongated member (13) to be detachably connected thereto. 10
5. The screen arrangement (10) according to claim 4, wherein said second connection member (23) of said connection device (20) comprises a first and a second grip arm (26, 27), and in that said first and grip arms (26, 27) are adapted to extend around at least a portion of said elongated member (13). 15 20
6. The screen arrangement (10) according to any of the preceding claims, wherein said distal end (15) of said screen (11) is adapted to be connected to a support leg (3, 4) of an awning (2) arranged to said vehicle (1). 25
7. The screen arrangement (10) according to any of the preceding claims, wherein said distal end (15) of said screen (11) is attached to a tension bar (16), and in that said tension bar (16) is provided with at least one connection member, such as a strap element (17), or a snap on connection. 30
8. The screen arrangement (10) according claim 7, wherein said at least one connection member is adapted to be connected to a support leg (3, 4) of an awning (2) arranged to said vehicle (1). 35
9. The screen arrangement (10) according claim 7 or 8, wherein said tension bar (16) comprises means enabling said tension bar (16) to be positioned in a stand alone configuration. 40
10. The screen arrangement (10) according claim 8 or 9, wherein said first connection member (22) of said connection device (20) is adapted to be connected to a connection site (21) arranged on said vehicle (1), said connection site (21) being adapted to receive and connect to said support leg (3, 4) of said awning (2). 45 50
11. The screen arrangement (10) according any of the preceding claims, wherein said first axis (X) is formed by a first bar (12) comprising a first and a second end (12a, 12b), said elongated member (13) comprises a first and a second end (13a, 13b), and in that said first end (12a) of said first bar (12) is connected to said first end (13a) of said elongated member (13), and in that said second end (12b) of said first bar (12) is connected to said second end (13b) of said elongated member (13). 55
12. The screen arrangement (10) according any of the preceding claims, wherein said second connection member (23) is slideable along at least 20 % of the length of said elongated member (13).
13. The screen arrangement (10) according to any of the claims 2-12, wherein said pivot connection (24) is formed by a flexible material, flexible elastic material, or a pivot connection having a fixed pivot axis, such as a pin (25).
14. The screen arrangement (10) according any of the preceding claims, wherein said elongated member (13) is formed by a bar (13), or a housing covering said first axis (X).
15. The screen arrangement (10) according any of the preceding claims, wherein said vehicle (1) is a recreational vehicle (1), caravan, or van.

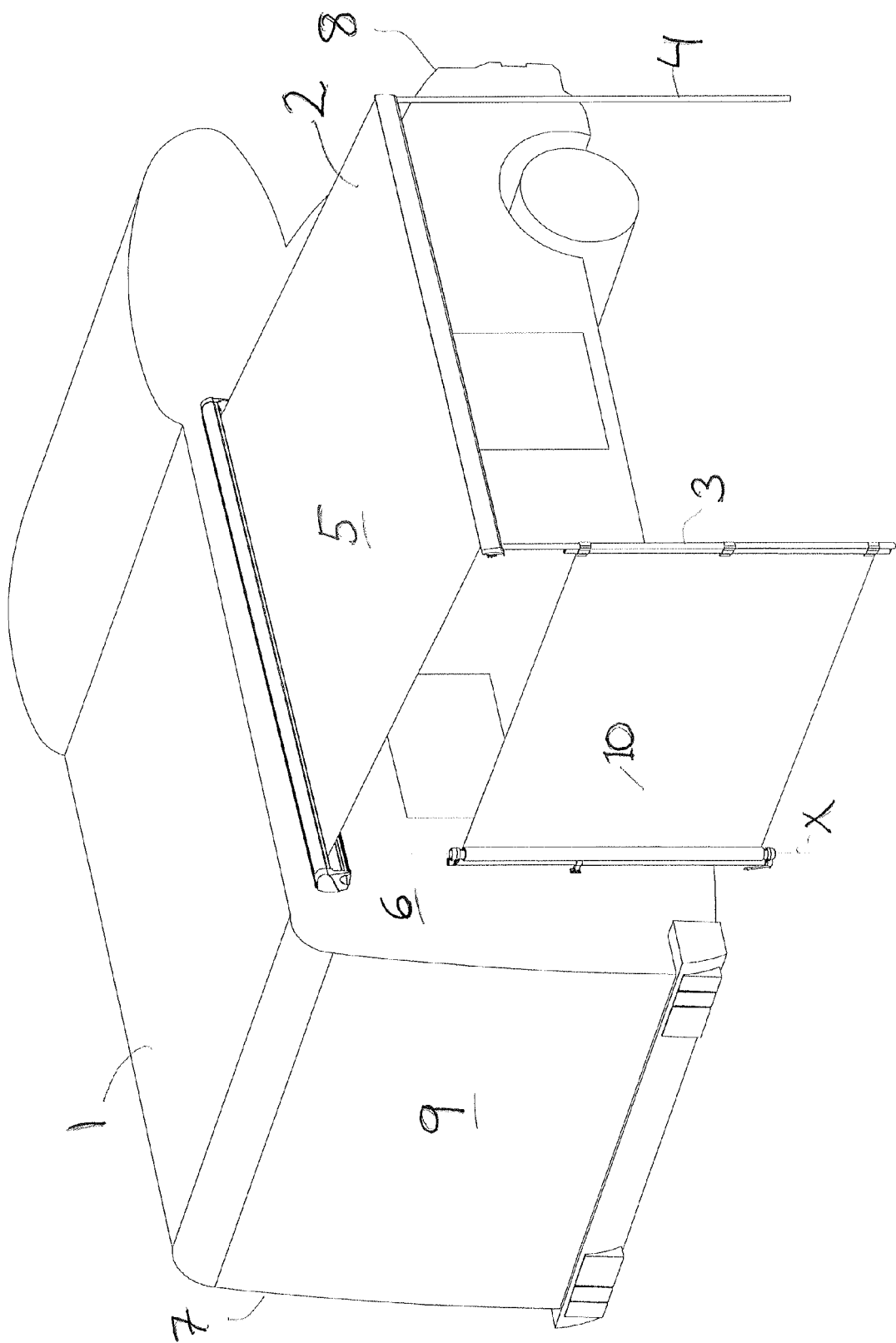
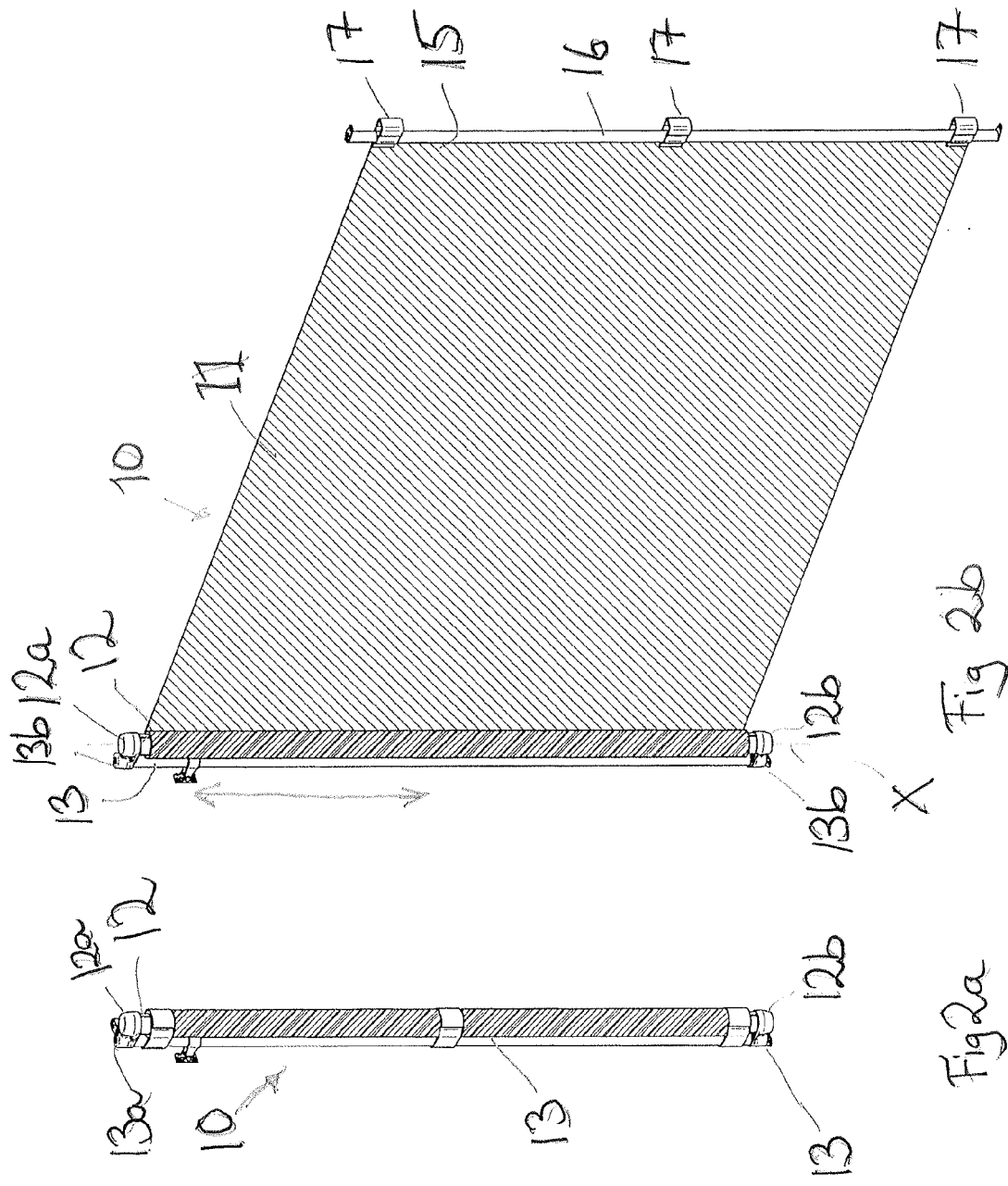


Fig. 1



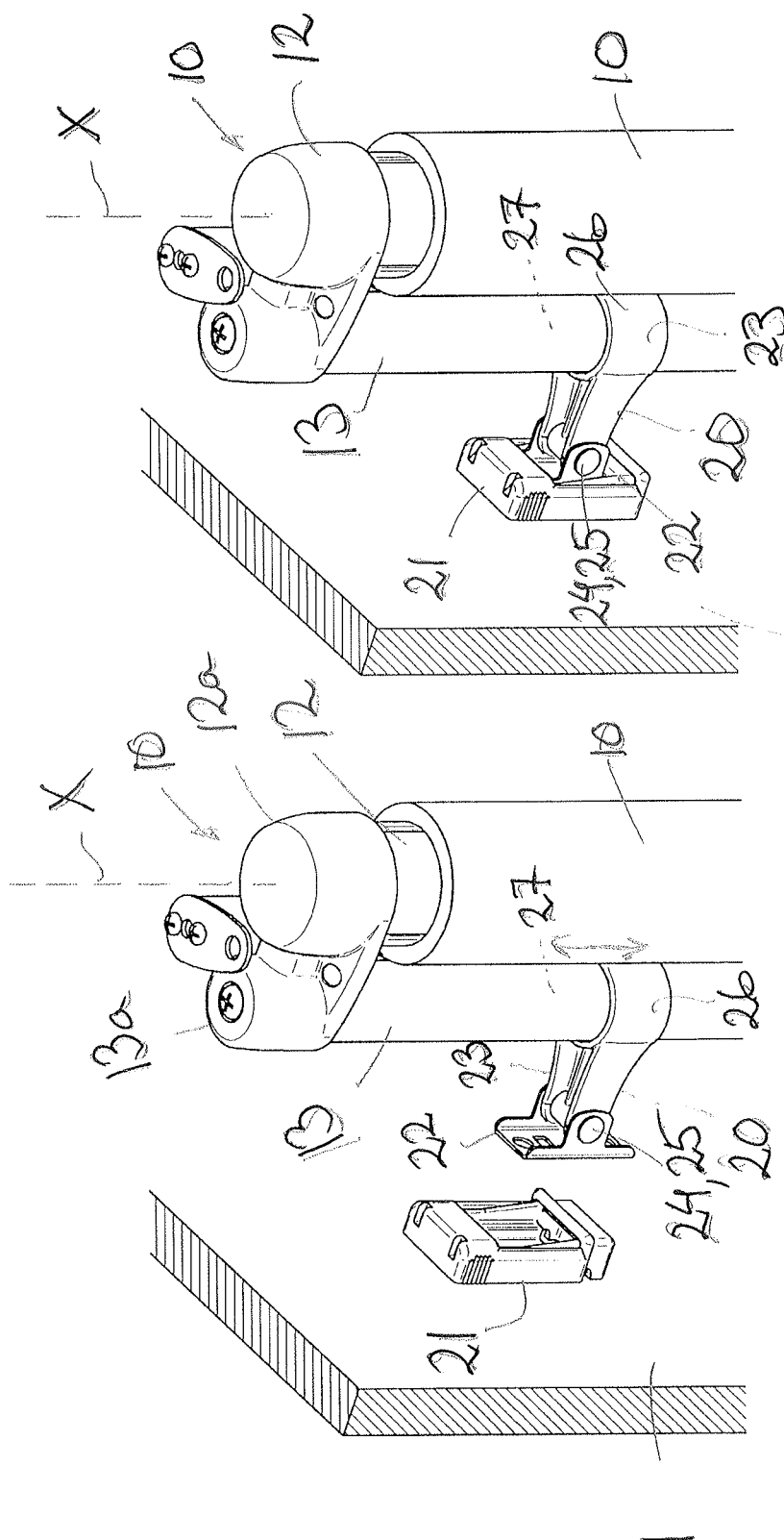


Fig. 3a

Fig. 3b



EUROPEAN SEARCH REPORT

Application Number
EP 11 17 8886

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	WO 98/02323 A1 (BAE HAN GI [KR]) 22 January 1998 (1998-01-22) * abstract; figures 1-3 * * page 4, line 22 - page 5, line 2 * -----	1-15	INV. E06B9/00 E04F10/06 E04H15/08 B60P3/34
A	US 5 549 129 A (BECKER KENT [US]) 27 August 1996 (1996-08-27) * the whole document * -----	1-15	
A	DE 202 04 939 U1 (WAREMA RENKHOFF GMBH & CO KG [DE]) 25 July 2002 (2002-07-25) * the whole document * -----	1-15	
			TECHNICAL FIELDS SEARCHED (IPC)
			E06B E04F E04H B60P E01F B60J
The present search report has been drawn up for all claims			
Place of search The Hague		Date of completion of the search 28 February 2012	Examiner Cornu, Olivier
CATEGORY OF CITED DOCUMENTS 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		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 & : member of the same patent family, corresponding document	

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EPO FORM 1503 03/82 (P04C01)

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

EP 11 17 8886

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The members are as contained in the European Patent Office EDP file on
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28-02-2012

Patent document cited in search report		Publication date	Patent family member(s)	Publication date
WO 9802323	A1	22-01-1998	NONE	
US 5549129	A	27-08-1996	NONE	
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REFERENCES CITED IN THE DESCRIPTION

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