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(54) **Awning fitted with a support device for the roll, and a support device for the awning roll**

(57) Awning, sunblind or similar in which a roll (16) is provided comprising a rotatably suspended shaft (17) and canvas (18) wound around it, in which the roll (16) is supported by at least one support device (1), charac-

terised in that the support device (1) functionally comprises at least a support element (2) fitted with a sliding surface (4) and a pressure means to press the support element (2) against the roll (16) with a supporting force.

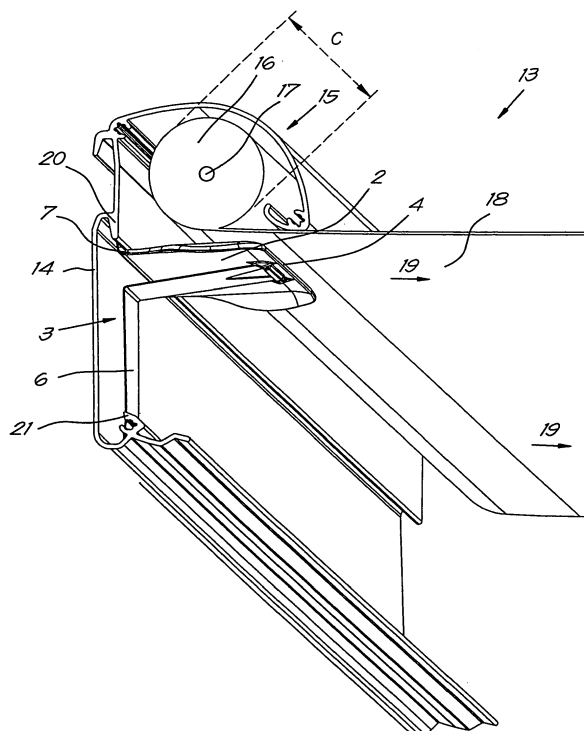


Fig. 2

Description

[0001] The present invention relates to an awning, sunshade or similar fitted with a device to support the roll.

[0002] More particularly the invention concerns an awning, sunshade or similar in which a roll is provided comprising a rotatably suspended shaft and a canvas, curtain blind or similar wound around this.

[0003] Depending on how far the roll is unwound, it has a different diameter and weight, whereby the roll is thickest when the awning, sunshade or similar is wound.

[0004] The roll is suspended at the ends of the shaft and to reduce sag or flexion due to the forces acting thereon, it can be fitted with a support device at one or more points.

[0005] Awnings, sunshades or canopies are usually attached to a fixed carrying structure and offer temporary protection against sunlight or unfavourable weather conditions but are also used for decorative or other purposes.

[0006] A support device conventionally comprises a small roller which is rotatably suspended below and against the roll. Thus it offers a certain support to the roll and thus prevents the roll from sagging too far in the centre.

[0007] One drawback is that the roll is very locally supported, causing friction forces to occur at this point during winding and unwinding the canvas, which are locally concentrated and cause premature wear and damage to the canvas at these locations.

[0008] Another great disadvantage is that the support roller is attached at a fixed and non-variable height, which means that during unwinding the canvas or similar and the associated reduction in diameter of the roll, it initially offers maximum support to the roll but this support is reduced or even disappears completely as the canvas or similar is unwound and the diameter of the roll is thus reduced.

[0009] A further disadvantage is that the tension of the canvas or similar on the roll due to the clamping force of the bending arms of the awning, sunblind or similar can cause the roller to bend horizontally, whereby the support roller, suspended at a fixed place is no longer sitting below the roll and thus can offer no or only greatly reduced support.

[0010] Another further disadvantage is that in order to guarantee that the support rollers continue to rotate freely around their shaft with minimum force consumption, these shafts must be and remain lubricated, and this must not be hindered due to the accumulation of dust or dirt. In practice, however, lubrication is not performed or is scarcely performed, so that there is a risk of the roller blocking, whereby the friction forces which occur on winding and unwinding the canvas further increase, leading to accelerated wear.

[0011] Another support mechanism is described in EP 1 835 089 A2 wherein a hollow cylindrical support element is mounted over almost the entire length of the roll.

[0012] One disadvantage of this support element is

that it is large, whereby the overall construction of the sunblind or awning is enlarged, which is visually disadvantageous, and a lot of material is required in production.

[0013] Another disadvantage is that this mechanism is only suitable for rolls which are wound or unwound along the top.

[0014] Another further disadvantage is that the support element is susceptible to accumulation of dirt due to its hollow construction.

[0015] A further disadvantage of this support mechanism is that the roll must not only be rotatably mounted but must also be able to move in the horizontal direction, giving a more complex construction which requires regular maintenance and lubrication.

[0016] A further disadvantage is that this method of support is based on the fact that the roll is drawn against the support element by the unwinding mechanism. This gives an increased risk of blocking. In fact, if the friction between roll and support element for any reason is increased locally, the force exerted on the support element by the unwinding mechanism via the roll is increased whereby the friction further increases. This creates an auto-increasing unrolling resistance which gives a risk of stiffness or blocking.

[0017] A further disadvantage of this manner of support is that the support element is rigidly mounted and fixed over its entire length, whereby faults can easily occur in its good functioning, for example if there is a local thickening in the partly or totally wound canvas due for example to dirt attached to the canvas, a foreign body accidentally wound up with the canvas such as a leaf, or a fold, seam or repair in the canvas.

[0018] The object of the present invention is to offer a solution to at least one of the above and other disadvantages by providing an awning, sunblind or similar in which a roll is provided comprising a rotatably suspended shaft and a canvas, curtain blind or similar wound around it, wherein the extent to which the canvas is wound can vary between two extreme values, respectively a first value corresponding to the state in which the awning, sunblind or similar is fully closed and a second value corresponding to the state in which it is fully opened and wherein the roll is supported on at least one support device, wherein the support device functionally comprises at least one support element which is fitted with a sliding surface and a pressure means to press the support element against the roll with a supporting force for the majority of the values between said first and second values.

[0019] One advantage is that the pressure with which the support element is pressed against the roll to prevent flexion, due to the functioning of the pressure-generating means, can be held more constant irrespective of the diameter of the wound or unwound roll, whereby the roll obtains support during all or the majority of the different degrees to which it can be rolled up.

[0020] A further advantage is that apart from a small rotation about a hinge point, there are no moving parts

in the support device and this therefore cannot give rise to stiffness or poor function or even blocking.

[0021] In a preferred embodiment the pressure-generating means comprises a bent leaf spring.

[0022] One advantage of this is that the leaf spring can be produced cheaply.

[0023] A further advantage is that as a result space is saved and it is possible to make the awning, sunblind or similar aesthetically more pleasing and attractive.

[0024] A further advantage is that logos, other messages, special identification or other marks can easily be applied to a leaf spring.

[0025] In a further preferred embodiment the support element is produced in the form of a flat or curved plate which extends past the roll.

[0026] One advantage of this is that the support element can create a large contact surface with the roll, whereby the forces acting thereon can be evenly distributed over a large area with the consequence that local wear, damage or deformation of the canvas can be countered to a maximum extent or prevented.

[0027] A further advantage is that if the roll bends in the horizontal direction under the tension of the canvas, the roll and the canvas still remain adequately supported.

[0028] According to a preferred feature of the invention, the support element consists of self-lubricating plastic such as for example polyoxymethylene (POM) or polyamide (PA6).

[0029] This has the advantage that there is a low friction between the canvas and the support element and no lubrication is required.

[0030] In a further preferred embodiment the support element is pivotally connected with the roll suspension structure, for example by providing along one long side an upright edge which forms an angle with the upper edge of the support element and which fits into a corresponding groove in the suspension structure.

[0031] The advantage of this is that the support device can be produced simply and cheaply.

[0032] With the aim of understanding the features of the invention more clearly, as an example with no limitative character, a preferred embodiment of an awning fitted with a device to support a roll according to the invention is described in detail below, with reference to the enclosed drawings in which:

Figure 1 shows schematically and in perspective the constituent parts of a device for supporting a roll;
Figure 2 shows schematically and in perspective a side view of an awning according to the invention fitted with the device from figure 1.

[0033] Figure 1 shows schematically and in perspective the constituent elements of a device 1 for supporting a roll, comprising a flat rectangular support element 2 and a leaf spring 3.

[0034] The support element 2 is here fitted on the top with a sliding surface 4 made of a self-lubricating plastic.

[0035] Here the leaf spring 3 is made of metal and it is bent, forming an angle A between the two legs 5 and 6 of the leaf spring 3.

[0036] A springy effect is thus achieved when the leaf spring 3, for example but not necessarily, is loaded in the direction indicated by arrow B.

[0037] The flat support element 2 has along one long edge a straight upright edge 7 which in the present case extends over a great length 8 of the support element 2.

[0038] Furthermore the support element 2 has a hollow stop 9 which runs parallel with the length direction CC' of the support element 2 and in which the end 10 of the leaf spring 3 fits loosely. This stop is fitted on the opposite edge and side 11 of the upright edge 7.

[0039] The device 1 according to the invention is assembled simply by moving the leaf spring 3 in the direction indicated by the arrow 12 up to the underside 11 of the support element 2 and placing the end 10 of the leaf spring 3 in the hollow stop 9.

[0040] Figure 2 shows schematically and in perspective a side view of part of an awning 13 in which the device 1 shown in figure 1 is mounted.

[0041] This part of the awning 13 consists of a carrier 14 which is mounted against a fixed base, for example against the side of a caravan, not shown here for clarity.

[0042] This carrier 14 is formed by an extruded profile which also forms a cover 15 in which the roll 16 rotating about shaft 17 is mounted. Around the shaft 17 in this case, as shown in figure 2, a canvas 18 is wound which is tensioned in direction 19.

[0043] The device 1 according to the invention is mounted on the fixed carrier by hooking it with the upright edge 7 of the support element 2 behind a shoulder 20 provided and at the same time inserting the leg 6 of the leaf spring 3 into a groove 21 provided for it.

[0044] This can only be achieved by compressing the leaf spring 3 to a certain extent whereby the support element 2 is firmly clamped and presses with pretension at the bottom against the roller.

[0045] It is clear that this form of mounting is very simple and that also demounting in the reverse order is very simple, which accelerates the inspection, cleaning, repair or replacement of the components of the awning.

[0046] The function of the awning according to the invention is very simple and is as follows:

The leaf spring 3 exerts a pressure force on the support element 2 which is mounted freely pivoting around the upright edge 7 and shoulder 20 and which is largely directed upwards.

[0047] As a result the top of the support element 2, fitted with a sliding surface 4, is pressed with a greater or lesser, fixed, upwardly directed pressure on the canvas 18 and roll 16 and supports these, countering sagging of the roll 16 and the shaft 17.

[0048] When winding and unwinding the canvas 18 on the roll 16, the canvas 18 slides over the sliding surface

4 of the support element 2.

[0049] When winding and unwinding the canvas 18, the diameter C of the roll 16 increases and decreases, an upward pressure force of the support element 2 continues to act on the sliding surface 4 under the influence of the cooperating leaf spring 3 to support the roll 16 and shaft 17 via the sliding surface 4, whereby the loosely pivotable suspension of the support element 2 on the shoulder 20 and upright edge 7 allows a degree of rotation of the support element 2.

[0050] The support element 2 is thus designed to be elongated and flat so as to create a large sliding contact area 4 of the canvas 18 on the roll 16, largely countering or preventing local load, deformation and wear of the canvas 18.

[0051] The support element 2 can have rounded sides and / or corners.

[0052] The pressure-generating means can be a lever arm or pulley construction whereby gravity on a mass is converted into a force on the support element 2.

[0053] In the present case both the spring 3 and the support element 2 are made of the same material, for example a plastic, and where applicable are made of one piece.

[0054] Mainly for wider support elements, several springs can be mounted per support element.

[0055] The present invention is in no way restricted to the embodiment described as an example and shown in the figures, but an awning and a device according to the invention can be produced in various forms and in particular various dimensions without leaving the context of the invention.

Claims

1. Awning, sunblind or similar wherein a roll (16) is provided comprising a rotatably suspended shaft (17) and canvas, curtain blind or similar (18) wound around it, wherein the extent to which the canvas (18) is rolled up can vary between two extreme values, respectively a first value corresponding to the state in which the awning, sunblind or similar is fully closed and a second value corresponding to the state in which it is fully opened, and wherein the roll (16) is supported by at least one support device (1), **characterised in that** the support device (1) functionally comprises at least one support element (2) fitted with a sliding surface (4) and a pressure means to press the support element (2) with a supporting force against the roll (16) for the majority of the values between said first and second values.
2. Awning, sunblind or similar according to claim 1, **characterised in that** the supporting force is exerted for all values between the two said extreme values.
3. Awning, sunblind or similar according to any of the preceding claims, **characterised in that** the sliding surface (4) of the support element (2) is made of a self-lubricating plastic.
4. Awning, sunblind or similar according to any of the preceding claims, **characterised in that** the support element (2) is pivotally connected with a fixed carrier (14).
5. Awning, sunblind or similar according to any of the preceding claims, **characterised in that** the fixed carrier (14) is fitted with a shoulder (20) and the support element (2) is fitted with an upright edge (7), whereby these engage loosely pivotable in each other.
6. Awning, sunblind or similar according to claim 4 or 5, **characterised in that** the fixed carrier (14) forms part of the cover (15) of the awning, sunblind or similar.
7. Awning, sunblind or similar according to any of the preceding claims, **characterised in that** the support element (2) extends past the roller (16).
8. Awning, sunblind or similar according to any of the preceding claims, **characterised in that** the said pressure means comprise at least one spring (3).
9. Awning, sunblind or similar according to claim 8, **characterised in that** the spring is a leaf spring (3).
10. Awning, sunblind or similar according to claim 9, **characterised in that** the leaf spring (3) is produced in a bent form.
11. Awning, sunblind or similar according to claim 10, **characterised in that** a first free end (10) of the leaf spring (3) is engaged in a recess or hollow stop (9) of the support element (2) and the other free end (6) rests in a groove (21) in the fixed carrier (14).
12. Awning, sunblind or similar according to any of claims 1 to 7, **characterised in that** said pressure means comprises a lever arm mechanism with a weight.
13. Device (1) for supporting a roll (16) comprising a rotatably suspended shaft (17) and a canvas, curtain blind or similar (18) wound around this, wherein the extent to which the canvas (18) is wound can vary between two extreme values, respectively a first value corresponding to the state in which the awning, sunblind or similar (18) is fully closed and a second value corresponding to the state in which this is fully opened, **characterised in that** the device (1) functionally comprises at least one support element (2)

fitted with a sliding surface (4) and a pressure means (3) to press the support element (2) with a support force against the roll (16) for the majority of the values between said first and second values.

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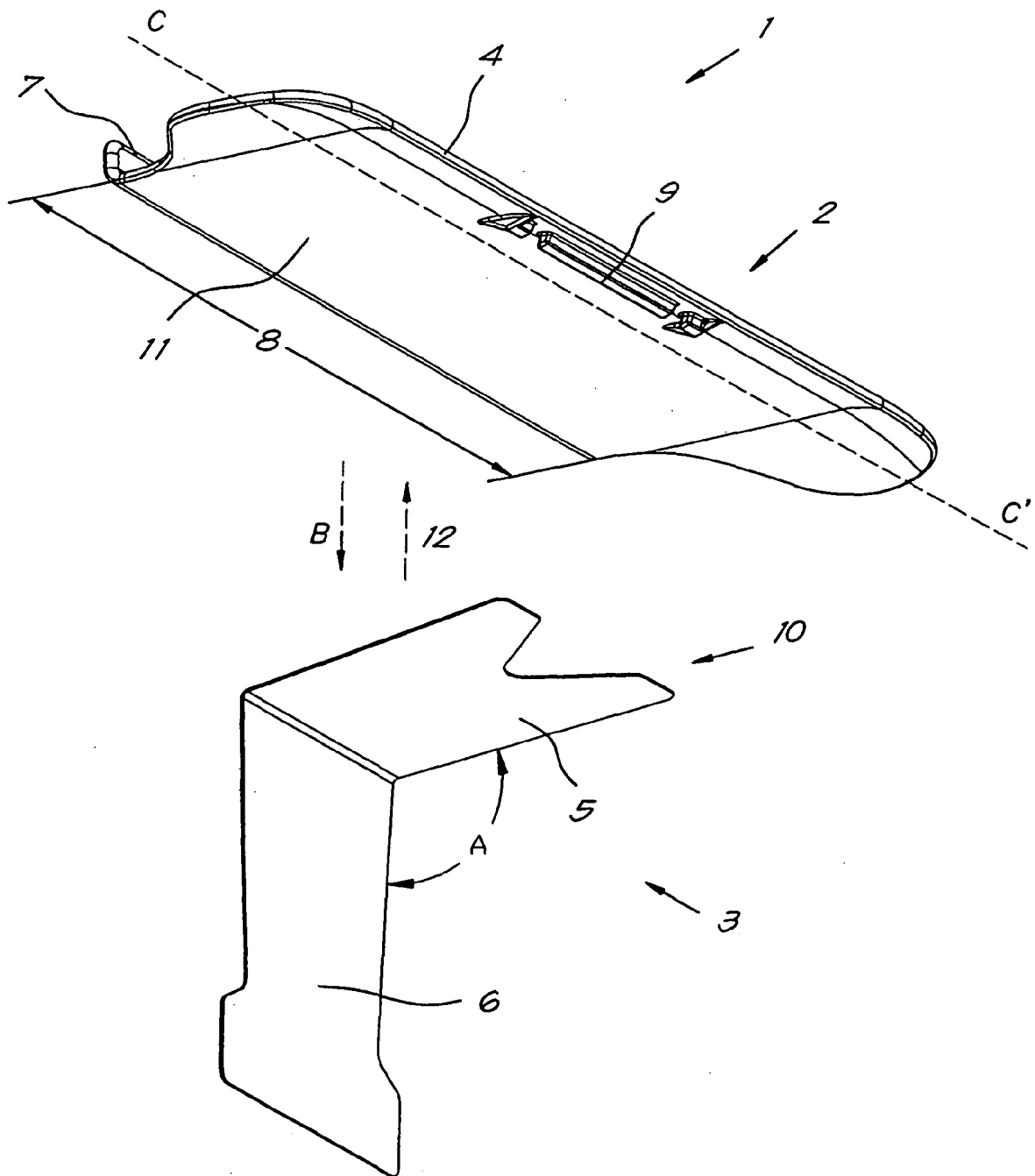


Fig. 1

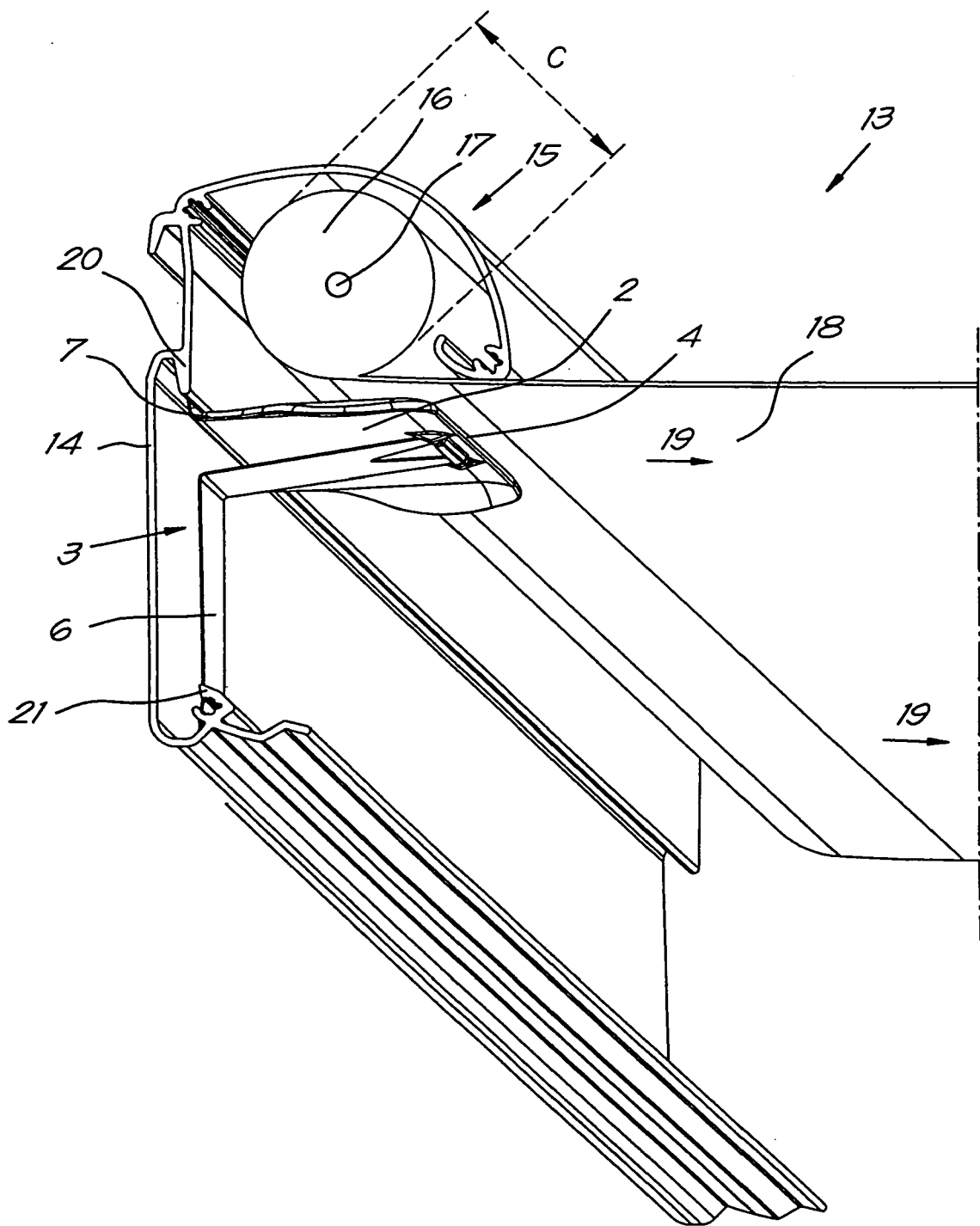


Fig. 2

REFERENCES CITED IN THE DESCRIPTION

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Patent documents cited in the description

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