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(54) **AWNING SYSTEM**

MARKISENSYSTEM

SYSTÈME D'AUVENT

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(73) Proprietor: **Alcre (Best) B.V.**

5683 CP Best (NL)

(72) Inventor: **NAE, Dan**

5683 CP Best (NL)

(74) Representative: **Algemeen Octrooi- en
Merkenbureau B.V.**

P.O. Box 645

5600 AP Eindhoven (NL)

(56) References cited:

EP-A1- 0 108 424 EP-A1- 0 841 442

EP-A1- 2 722 460 EP-A2- 2 631 383

EP 3 851 610 B1

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Description

[0001] The present invention relates to an awning system comprising:

- a tubular first roller body with an axis,
- a front strip,
- a cloth which is connected, on a first side, to the roller body and which is connected, on a second side which is situated opposite the first side, to the front strip,
- two elongate guides which extend parallel to each other and which enclose an angle with the horizontal of between 0 and 25 degrees, wherein the front strip extends between the two guides and the front strip is guidable by the guides between a first, non-shading, position situated at first ends of the two guides, in which first position the cloth is wound, at least largely, around the roller body in a first winding direction, and a second, shading, position situated at second ends of the two guides which are situated opposite the respective first ends of the two guides, in which second position the cloth is at least largely unwound from the roller body,
- at least one second roller body which is provided concentrically with respect to the first roller body and is rigidly connected to the first roller body for joint rotation about the axis,
- at least one elongate flexible transmission member which is connected to the front strip and is wrapped around one of the at least one second roller body,
- drive means for rotatably driving the first roller body and the second roller body about the axis, and
- control means for controlling the drive means.

[0002] Various embodiments of such awning systems are known. In particular as the front strip performs a larger transition from the first, non-shading, position to the second, shading, position, the cloth, in the second, shading, position of the front strip, will have a greater tendency to sag, which is visually undesirable. Said tendency increases as the cloth becomes heavier, which may be the case, in particular, when it rains. By making the cloth slope in the second, shading, position, rainwater may in principle run off the cloth. However, if the cloth sags, the rainwater will remain on the cloth and actually aggravate the sagging of the cloth. Partly for this reason, the aim in practice is to roll up the cloth if rain is expected soon, which means that the front strip will end up in the first, non-shading, position. The abovementioned tendency will be less pronounced if the cloth is tensioned more tightly. With known blind systems, this tensile stress is generated, for example, by means of draw springs which form part of a rope system and are incorporated in the front strip, with the ropes not only running through the front strip, but also through, or at least along, the guides.

[0003] European publication EP 2722460 A1 describes an awning system corresponding to the preamble of claim 1 and in which use is made of an electromagnet

for operating a hook which, in a position thereof, engages with an engagement element which forms part of a slidable carrier. The use of the electromagnet results in a reduced operational reliability, in particular because the electronics are sensitive to moisture such as may result from rainfall.

[0004] European publication EP 841442 A1 describes a veranda tent having a deployment lath which can be moved in guides each being formed by a fixed guide and a movable guide which movable guides are movable in respect to the deployment lath.

[0005] European publication EP 108424 A1 describes a sunshade fitting which is convertible into a veranda curtain fitting. This fitting makes use of a labyrinth for locking the curtain and relies on gravity for its functioning.

[0006] European publication EP 2631383 A1 describes a building extension having carriages at the position of which a line or cable is mounted which is connected via rollers to a gas spring. The associated cloth is always held taut.

[0007] It is now an object of the invention to provide an awning system according to the preamble, by means of which a higher tensile stress can be produced in the cloth while the front strip is in the second, shading, position. This is solved by an awning system according to claim 1. The awning system according to the invention comprises at least one locking mechanism which is configured to lock the front strip in the second position, and the control means are configured to actuate the drive means in such a way that the cloth is subjected to tensile stress while the locking mechanism locks the front strip in the second position. The use of such a locking mechanism makes it possible to build up a relatively high tensile stress in the cloth, in which case the tensile stress in the cloth does not depend on a spring. As a result thereof, the risk of the cloth sagging in the second, shading, position of the front strip can be reduced.

[0008] According to the invention, the at least one locking mechanism comprises a combination of a first locking body and a second locking body which are configured to cooperate in a locking manner, wherein the control means are configured to actuate the drive means in such a way that, during the displacement from the first position to the second position, the front strip, in order to tension the cloth in the second position of the front strip, initially passes the second position to a limited extent and assumes a third position and subsequently moves back to the second position from the third position, wherein the locking mechanism is configured to not yet be active in a locking manner while the front strip passes the second position and to be active in a locking manner when it reaches the third position from the second position. By means of such an embodiment, it is possible to achieve a highly reliable locking of the front strip.

[0009] According to the invention, the control means are configured in such a way that, when being displaced from the second position, while the locking mechanism is active, to the first position, to first displace the front

strip from the second position in the direction of the third position towards a fourth position, as a result of which displacement, the locking activity of the locking mechanism is cancelled and to subsequently displace the front strip from the fourth position to the first position. In this way, an automatic unlocking of the locking mechanism may take place, which unlocking is necessary in order to displace the front strip from the second position to the first position.

[0010] A highly reliable and, in addition, relatively simple embodiment for automatically locking the locking mechanism can, according to the invention, be obtained since the first locking body is provided with a cam track and the second locking body is provided with a cam which cam and cam track are configured to allow the cam to move along at least a first part of the cam track due to the displacement of the front strip from the first position to the second position via the third position, wherein the cam bears against a locking part of the cam track as soon as the front strip has reached the second position from the third position.

[0011] In this case, a further improvement is according to the invention achieved since the cam and the cam track are configured to allow the cam to move from the locking part along at least a second part of the cam track due to the displacement of the front strip from the second position to the first position via the fourth position, wherein the first part of the cam track preferably differs from the second part of the cam track. In this way, an automatic unlocking of the locking mechanism in a reliable manner may take place.

[0012] The cam and/or the cam track is according to the invention pivotable, more preferably pivotable to and fro, about a pivot axis.

[0013] Orienting the pivot axis vertically, according to the invention, offers the advantage that the force of gravity does not have to have an effect on the position of the cam or cam track.

[0014] The awning system can be used in a very satisfactory manner above an existing glass canopy. Alternatively, the awning system may also be used as a stand-alone sunblind. For said use, it may be advantageous if the system furthermore comprises two posts for supporting the two respective guides at their respective second ends. The guides may then be connected to a façade of a building near their first ends or may also be supported by posts at their first ends.

[0015] The awning system may in particular be provided in a very satisfactory manner as a system which is suitable for different extension lengths, if the at least one elongate flexible transmission member is, at one end thereof, connected to the front strip and, at a second end of the transmission member which is situated opposite the first end of the transmission member, is connected to the at least one second roller body, wherein, in the first position of the front strip, the transmission member is wound around the associated second roller body to a first degree along a second winding direction which is oppo-

site to the first winding direction, and, in the second position of the front strip, the transmission member is wound around the associated second roller body to a second degree, which is greater than the first degree, in the second winding direction, if the at least one elongate flexible transmission member is belt-like and/or if the at least one elongate flexible transmission member is wound around two mutually displaceable, preferably slidable, rotating members and the awning system comprises a spring member which is active between the two rotating members.

[0016] The abovementioned spring member is preferably a gas spring, in particular because the spring constant thereof can be more independent than that of a mechanical compression spring.

[0017] From the point of view of ease of installation, it is furthermore preferred if the spring member extends in a profiled section which also comprises one of the guides.

[0018] In a further embodiment, one of the two rotating members is fixedly connected to an associated guide and the other rotating member is displaceable, preferably slidable, with respect to this associated guide, as a result of which the position of the respective rotating members with respect to the associated guide can be controlled in a satisfactory manner.

[0019] If the slidable rotating member extends between the rotating member, which is fixedly connected to the associated guide, and an associated second roller body, it is possible to achieve an advantageous transmission of force if the at least one elongate flexible transmission member is subjected to a tensile load in order to take the cloth to the shading position. This advantage is also useful when there is no locking mechanism. Thus, this invention involves an awning system comprising

- a tubular first roller body with an axis,
- a front strip,
- a cloth which connected, on a first side, to the roller body and which is connected, on a second side which is situated opposite the first side, to the front strip,
- two elongate guides which extend parallel to each other and which enclose an angle with the horizontal of between 0 and 25 degrees, wherein the front strip extends between the two guides and the front strip is guidable by the guides between a first, non-shading, position situated at first ends of the two guides, in which first position the cloth is wound, at least largely, around the roller body in a first winding direction, and a second, shading, position situated at second ends of the two guides which are situated opposite the respective first ends of the two guides, in which second position the cloth is at least largely unwound from the roller body,
- at least one second roller body which is provided concentrically with respect to the first roller body and is rigidly connected to the first roller body for joint rotation about the axis,
- at least one elongate flexible transmission member

which is connected to the front strip and is wrapped around one of the at least one second roller body,

- drive means for rotatably driving the first roller body and the second roller body about the axis,
- control means for controlling the drive means,

wherein, furthermore, the at least one elongate flexible transmission member is fitted around two mutually displaceable rotating members and the awning system comprises a spring member which is active between the two rotating members and one of the two rotating members is fixedly connected to an associated guide and the other rotating member is displaceable with respect to this associated guide and wherein, furthermore, the slidable rotating member extends between the rotating member, which is fixedly connected to the associated guide, and an associated second roller body.

[0020] The invention will be explained in more detail by means of the description of a possible embodiment of a system according to the invention with reference to the following figures, in which:

Fig. 1 shows an isometric view of an embodiment of an awning system according to the invention.

Fig. 2 shows an isometric view of the awning system from Fig. 1, in which parts of the awning system have not been illustrated for the sake of clarity.

Fig. 3 shows an isometric view and the circled portion 8 from Fig. 2 in more detail.

Fig. 4 shows an isometric view and the circled portion 9 from Fig. 2 in more detail.

Fig. 5 shows an isometric view of a first portion of a locking mechanism forming part of the awning system according to the invention.

Fig. 6 shows a top view of a second portion of the locking mechanism.

Fig. 7 shows a horizontal cross section of the locking mechanism.

Fig. 8 shows a detail similar to that from Fig. 3 of an alternative embodiment of an awning system according to the invention.

[0021] Figs. 1 and 2 show an awning system 1 in an unwound, shading position. The system 1 comprises a cassette 26, guide profiles 2, 3 which are supported by posts 4, a sunshade cloth 5 and a front strip 6. The cassette 26, guide profiles 2, 3, posts 4 and front strip 6 are made of aluminium, but may also be made of a different kind of material. The cassette 26 is attached to a fixed structure (not shown in any more detail) such as the façade of a house. The guide profiles 2, 3 are inclined downwards from the structure and make an angle of approximately 10 degrees with a horizontal plane. The guide profiles 2, 3 are mutually connected by at least one horizontal cross beam (not shown in any more detail) which extends at right angles to the guide profiles 2, 3 below and is connected to the guide profiles at its ends. Such a cross beam may also comprise lighting, such as

LED spotlights. One edge of cloth 5 is connected to winding mechanism 27 and the opposite edge is connected to the front strip 6. The cloth 5 is made of polyacrylate, PVC, glass fibre or another kind of cloth-like material.

[0022] On the side of each guide 2, 3, system 1 furthermore comprises a gas spring 17, and a transmission member which is configured as a nylon band 10. The winding mechanism 27 is accommodated inside the cassette 26. Winding mechanism 27 comprises a tubular roller body 7 around which the cloth 5 is wound in a first winding direction in case the awning system is in the non-shading position, contrary to Figs. 1 and 2. Furthermore, for each of the two bands 10, the winding mechanism 27 comprises a concentric annular winding body 11 which is rigidly connected to the ends of the roller body 7. System 1 is at least substantially symmetrical, as a result of which the left-hand side and right-hand side of awning system 1 are identical.

[0023] Furthermore, the tube of the roller body 7 of winding mechanism 27 is provided with a tube motor 12, i.e. an electromotor, preferably a servomotor. Tube motor 12 has a dedicated control unit which can be programmed. The tube motor 12, more specifically the control unit thereof, receives wireless command signals from a remote control 16.

[0024] At one end, each nylon band 10 is connected to a slide 14 and at the other end to a winding body 11 around which the band 10 is wound between two retaining discs 30, a part of its length being wound in a second winding direction which is opposite to the abovementioned first winding direction of cloth 5. Each band 10 is successively wound around pulleys 31a, 31b, 31c, 31d (Fig. 3), 28a and 28b (Fig. 4), viewed from the associated winding body 11.

[0025] Pulleys 31a, 31c and 31 d are mounted with respect to a bearing body 41 which is fixedly fitted inside and to the associated guide profile 2, 3. Pulley 31b is mounted with respect to a bearing body 42 which is rigidly provided at the end of the piston rod of a gas spring 17. Bearing body 42 is furthermore provided with a guide body 43 which cooperates with a guide (not shown in any more detail) inside the associated guide profile 2, 3. In this way, the bearing body 42 can slide to and fro in the length direction of the associated guide profile. The gas spring 17 is attached to the bearing body 41 by its end which is situated opposite bearing body 42.

[0026] Pulleys 28a and 28b are mounted with respect to a bearing body 13 (Fig. 4), each of which are provided at the ends of the guide profiles 2, 3 situated opposite winding bodies 11 and are rigidly connected thereto. Slides 14 are each provided with a groove 15 which is configured to cooperate in a guiding manner with a guide edge (not shown in any more detail) inside the associated guide profile 2, 3.

[0027] Figs. 5, 6 and 7 show a locking mechanism such as the awning system 1 is provided therewith at each of the ends of each guide profile 2, 3 situated opposite winding bodies 11. Each of the two locking mechanisms com-

prises a drop-shaped swing body 18 which can pivot to and fro about vertical pivot axis 20 with respect to an associated bearing body 13. Each swing body is 18 provided with a pin 21 opposite pivot axis 20.

[0028] Each locking mechanism furthermore comprises a locking body 33, the top surface of which is provided with a cam track. The cam track comprises a funnel-shaped opening 34, adjoining cam track sections 22, 23, 24 and 25 and end positions 36, 37, 38 which are situated between said cam track sections and where the direction of the cam track always reverses. The locking bodies 33 are rigidly connected to the front strip 6, more specifically via end caps 29 which are provided at the mutually opposite ends of the front strip 6. In Fig. 4, the front strip 6 is in a shading position, whereas the front strip 6 in Fig. 5 is in the non-shading position (outside Fig. 5), in which front strip 6 closes-off cassette 26, so that the winding mechanism 27 inside the cassette 26 is protected.

[0029] The operation of awning system 1 will be described below. The starting situation is one in which the cloth 5 is wound around roller body 7 virtually completely and in which the front strip 6 is in the non-shading position and closes off cassette 26. The bands 10 are then unwound virtually completely from the associated winding bodies 11, because slides 14 which are rigidly connected to the front strip 6 are also close to the cassette 26 and because the bands 10 have been fitted around the pulleys 28a, 28b above posts 4.

[0030] By means of remote control 16, tube motor 12, more specifically its control unit, is actuated to rotate roller body 7 and thus also winding bodies 11 in the direction 61 (Fig. 3). As a result thereof, the bands 10 will be wound around winding bodies 11 and the front strip 6 will be pulled in the direction of the posts 4 by the bands 10, as a result of which the cloth 5 is unwound from the roller body 7. During this unwinding, the slides 14, more specifically their grooves 15, cooperate with the guides in the guide profiles 2, 3.

[0031] During unrolling of the cloth 5, the diameter of the cloth 5 which is still wound around roller body 7 will decrease and the diameters of the bands 10 which are wound around the winding bodies 11 will, by contrast, increase. It should be noted, again, that the winding directions of the cloth 5 on the one hand and the bands 10 on the other hand are opposite to each other. In order to compensate for the changing diameters, more specifically in order to ensure that both the cloth 5 and the bands 10 remain at a desired tension, during unrolling, the gas springs 17 will first become longer and will become shorter as soon as the diameters of the wound bands 10 become larger than the diameter of the wound cloth 5, in which case the distance between pulleys 31b on the one hand and pulleys 31d on the other hand varies.

[0032] When unrolling the cloth 5 as described above, the pin 21 will at a certain moment become caught in the funnel 34 of the cam track of the moving locking body 33. Subsequently, pin 21 will hit flank 35 of cam track section 22, as a result of which pin 21 will follow the

curved track of cam track section 22. To this end, swing body 18 pivots about axis 20. The control unit of tube motor 12 is programmed to stop the movement of front strip 6 shortly before pin 21 is due to reach end position 36.

[0033] Then, the control unit of tube motor 12 is programmed to reverse the direction of rotation of roller body 7 for a short time, so that roller body 7 rotates in direction 62 (Fig. 3). As a result thereof, cloth 5 is to a certain degree wound onto the roller body 7 again and the bands 10 are, by contrast, unwound from winding bodies 11 to a limited degree. Pin 21 will then touch flank 40 of cam track section 23 and follow cam track section 23 further until pin 21 touches end position 37. In this position, the front strip 7 is situated in the second, shading, position within the definitions of the following claims. From this position, tube motor 12 is programmed to cause roller body 7 to rotate further in direction 62 to a limited degree, so that the cloth 5 is tensioned to a desired degree. Thereafter, tube motor 12 is programmed to assume a blocking position, so that the tensile stress in the cloth 5 is maintained. Gas springs 17 do not contribute in any way to keep the cloth 5 tensioned.

[0034] In order to bring the front strip 6 into the non-shading position again, the tube motor 12 is programmed to rotate roller body 7 in direction 61, based on a control signal from the remote control 16, as a result of which pin 21 will touch flank 39 of cam track section 24 and follows cam track section 24 until just before the moment when pin 21 is due to reach end position 38. Subsequently, the programming of tube motor 12 will ensure that roller body 7 rotates in direction 62, as a result of which pin 21 will follow cam track section 25 and will leave the cam track via funnel 34. Further rotation of roller body 7 in direction 62 will furthermore result in the front strip returning to the original non-shading position, after which the tube motor 12 is programmed to stop.

[0035] The above description of awning system 1 should not be interpreted as being limiting for the invention, since numerous other embodiments are also possible without departing from the scope of the invention. Instead of being attached to a fixed structure and being supported by posts 4, an awning system according to the invention may, for example, also be free-standing in order, for example, to create a shelter from sunshine and/or rain. In this case, system 1 is supported by posts 4 at both ends of the guides 2, 3.

[0036] The awning system 1 may also be installed above a(n existing) transparent canopy by means of installation means, as a result of which posts 4 are obsolete. The awning system is very suitable to maintain a relatively high tension in the cloth thereof, as a result of which the risk of sagging is limited and the awning system is even more suitable to serve as protection from rain.

[0037] In a further variant and with reference to Fig. 3, it is also possible for the positions of the bearing bodies 41 and 42 to be swapped, as it were. Such a variant is illustrated in Fig. 8. Components which correspond to

components in Fig. 3 are denoted by the same reference numerals. The bearing bodies 141a and 141b are fixedly fitted inside and to the associated guide profiles 2, 3. Pulley 131a is mounted with respect to bearing body 141a and pulley 131b is mounted with respect to bearing body 141b. Pulley 131d is mounted with respect to bearing body 142 which is slidable with respect to the associated guide profiles 2, 3 in a reciprocating manner. A pulley such as pulley 31c in Fig. 3 is absent. However, a guide-wheel 132 for belt 10 is provided and is rotatably mounted with respect to bearing body 141b. The variant from Fig. 8 has the advantage that a tensile stress generated in the band 10 by the excitation of electromotor 12 will be passed onto the slides 14 more smoothly, as a result of which the displacement of cloth 5 from the non-shading position to the shading position may also be smoother. Incidentally, this advantage is also useful if no locking mechanism as explained by means of Figs. 5, 6 and 7 were to be used.

[0038] Although with the described awning system 1, the cloth 5 slopes in the shading position of the front strip 6, it is also possible to use the invention with an awning system in which the cloth does not slope in the shading position, but is oriented horizontally.

Claims

1. Awning system (1) comprising

- a tubular first roller body (7) with an axis,
 - a front strip (6),
 - a cloth (5) which is connected, on a first side, to the roller body and which is connected, on a second side which is situated opposite the first side, to the front strip,
 - two elongate guides (2, 3) which extend parallel to each other and which enclose an angle with the horizontal of between 0 and 25 degrees, wherein the front strip extends between the two guides and the front strip is guidable by the guides between a first, non-shading, position situated at first ends of the two guides, in which first position the cloth is wound, at least largely, around the roller body in a first winding direction, and a second, shading, position situated at second ends of the two guides which are situated opposite the respective first ends of the two guides, in which second position the cloth is at least largely unwound from the roller body,
 - at least one second roller body (11) which is provided concentrically with respect to the first roller body and is rigidly connected to the first roller body for joint rotation about the axis,
 - at least one elongate flexible transmission member (10) which is connected to the front strip and is wrapped around one of the at least one second roller body,
 - drive means (12) for rotatably driving the first roller body and the second roller body about the axis,
 - control means for controlling the drive means,
- the awning system furthermore comprising at least one locking mechanism which is configured to lock the front strip in the second position, and the control means are configured to actuate the drive means in such a way that the cloth is subjected to tensile stress while the locking mechanism locks the front strip in the second position, **characterised in that** the at least one locking mechanism comprises a combination of a first locking body (33) and a second locking body (18) which are configured to cooperate in a locking manner, wherein the control means are configured to actuate the drive means in such a way that, during the displacement from the first position to the second position, the front strip, in order to tension the cloth in the second position of the front strip, initially passes the second position to a limited extent and assumes a third position and subsequently moves back to the second position from the third position, wherein the locking mechanism is configured to not yet be active in a locking manner while the front strip passes the second position and to be active in a locking manner when it reaches the third position from the second position, the control means being configured in such a way that, when being displaced from the second position, while the locking mechanism is active, to the first position, to first displace the front strip from the second position in the direction of the third position towards a fourth position, as a result of which displacement, the locking activity of the locking mechanism is cancelled and to subsequently displace the front strip from the fourth position to the first position, the first locking body being provided with a cam track (34, 22, 23, 24, 25) and the second locking body being provided with a cam (21) which cam and cam track are configured to allow the cam to move along at least a first part of the cam track due to the displacement of the front strip from the first position to the second position via the third position, wherein the cam bears against a locking part (37) of the cam track as soon as the front strip has reached the second position from the third position, the cam and the cam track being configured to allow the cam to move from the locking part along at least a second part of the cam track due to the displacement of the front strip from the second position to the first position via the fourth position, wherein the first part of the cam track differs from the second part of the cam track, the cam and/or the cam track is pivotable about a pivot axis (20) and the pivot axis is oriented vertically.

2. Awning system according to claim 1, wherein the system furthermore comprises two posts (4) for sup-

porting the two respective guides at their respective second ends.

3. Awning system according to claim 1 or 2, wherein the at least one elongate flexible transmission member is, at one end thereof, connected to the front strip and, at a second end of the transmission member which is situated opposite the first end of the transmission member, is connected to the at least one second roller body, wherein, in the first position of the front strip, the transmission member is wound around the associated second roller body to a first degree along a second winding direction which is opposite to the first winding direction, and, in the second position of the front strip, the transmission member is wound around the associated second roller body to a second degree, which is greater than the first degree, in the second winding direction. 5 10 15
4. Awning system according to one of the preceding claims, wherein the at least one elongate flexible transmission member is belt-like. 20
5. Awning system according to one of the preceding claims, wherein the at least one elongate flexible transmission member is wrapped around two mutually displaceable, preferably slidable, rotating members (31b, 31d) and the awning system comprises a spring member (17), preferably a gas spring, which is active between the two rotating members. 25 30
6. Awning system according to Claim 4 or 5, wherein the spring member extends in a profiled section (3) which also comprises one of the guides. 35
7. Awning system according to Claim 4, 5 of 6, wherein one of the two rotating members (31b) is fixedly connected to an associated guide (43) and the other rotating member (31d) is displaceable, preferably slidable, with respect to this associated guide (43). 40
8. Awning system according to Claim 7, wherein the slidable rotating member extends between the rotating member, which is fixedly connected to the associated guide, and an associated second roller body. 45

Patentansprüche

1. Markisensystem (1), umfassend 50
 - einen rohrförmigen ersten Rollenkörper (7) mit einer Achse,
 - eine Frontleiste (6),
 - ein Tuch (5), das auf einer ersten Seite mit dem Rollenkörper verbunden ist und das auf einer zweiten Seite, die der ersten Seite gegenüberliegt, mit der Frontleiste verbunden ist, 55

- zwei längliche Führungen (2, 3), die sich parallel zueinander erstrecken und die einen Winkel mit der Horizontalen von zwischen 0 und 25 Grad einschließen, wobei sich die Frontleiste zwischen den zwei Führungen erstreckt und die Frontleiste durch die Führungen zwischen einer ersten, nicht verschattenden Position, die sich an ersten Enden der zwei Führungen befindet, wobei in der ersten Position das Tuch, zumindest größtenteils, um den Rollenkörper in einer ersten Wicklungsrichtung gewickelt ist, und einer zweiten, verschattenden Position, die sich an zweiten Enden der zwei Führungen befindet, die sich gegenüber den jeweiligen ersten Enden der zwei Führungen befinden, wobei in der zweiten Position das Tuch größtenteils von dem Rollenkörper abgewickelt ist, führbar ist,
- mindestens einen zweiten Rollenkörper (11), der konzentrisch in Bezug auf den ersten Rollenkörper bereitgestellt ist und starr mit dem ersten Rollenkörper zur gemeinsamen Drehung um die Achse verbunden ist,
- mindestens ein längliches flexibles Übertragungselement (10), das mit der Frontleiste verbunden ist und um einen des mindestens einen zweiten Rollenkörpers gewickelt ist,
- Antriebsmittel (12) zum drehenden Antreiben des ersten Rollenkörpers und des zweiten Rollenkörpers um die Achse,
- Steuermittel zum Steuern der Antriebsmittel,

wobei das Markisensystem ferner mindestens einen Verriegelungsmechanismus umfasst, der dazu ausgelegt ist, die Frontleiste in der zweiten Position zu verriegeln, und wobei die Steuermittel dazu ausgelegt sind, die Antriebsmittel derart zu betätigen, dass das Tuch einer Zugspannung ausgesetzt wird, während der Verriegelungsmechanismus die Frontleiste in der zweiten Position verriegelt, **dadurch gekennzeichnet, dass** der mindestens eine Verriegelungsmechanismus eine Kombination aus einem ersten Verriegelungskörper (33) und einem zweiten Verriegelungskörper (18) umfasst, die dazu ausgelegt sind, in einer verriegelnden Weise zusammenzuwirken, wobei die Steuermittel dazu ausgelegt sind, die Antriebsmittel derart zu betätigen, dass während der Verschiebung von der ersten Position zu der zweiten Position die Frontleiste, um das Tuch in der zweiten Position der Frontleiste zu spannen, zunächst die zweite Position in einem begrenzten Maß passiert und eine dritte Position einnimmt und sich anschließend von der dritten Position zurück zu der zweiten Position bewegt, wobei der Verriegelungsmechanismus dazu ausgelegt ist, noch nicht in einer verriegelnden Weise zu wirken, während die Frontleiste die zweite Position passiert, und in einer verriegelnden Weise zu wirken, wenn sie die dritte Position von der zweiten Position erreicht, wobei die Steuer-

mittel derart ausgelegt sind, dass sie, wenn sie von der zweiten Position zu der ersten Position verschoben werden, während der Verriegelungsmechanismus wirkt, zunächst die Frontleiste von der zweiten Position in die Richtung der dritten Position hin zu einer vierten Position verschieben, wobei infolge der Verschiebung die verriegelnde Wirkung des Verriegelungsmechanismus aufgehoben wird, und anschließend die Frontleiste von der vierten Position zu der ersten Position verschieben, wobei der erste Verriegelungskörper mit einer Nockenbahn (34, 22, 23, 24, 25) versehen ist und der zweite Verriegelungskörper mit einem Nocken (21) versehen ist, wobei Nocken und Nockenbahn dazu ausgelegt sind, zu ermöglichen, dass sich der Nocken entlang zumindest eines ersten Teils der Nockenbahn aufgrund der Verschiebung der Frontleiste von der ersten Position zu der zweiten Position über die dritte Position bewegt, wobei der Nocken gegen einen verriegelnden Teil (37) der Nockenbahn drückt, sobald die Frontleiste die zweite Position von der dritten Position erreicht hat, wobei der Nocken und die Nockenbahn dazu ausgelegt sind, zu ermöglichen, dass sich der Nocken von dem verriegelnden Teil entlang zumindest eines zweiten Teils der Nockenbahn aufgrund der Verschiebung der Frontleiste von der zweiten Position zu der ersten Position über die vierte Position bewegt, wobei sich der erste Teil der Nockenbahn von dem zweiten Teil der Nockenbahn unterscheidet, wobei der Nocken und/oder die Nockenbahn um eine Schwenkachse (20) schwenkbar ist und die Schwenkachse vertikal ausgerichtet ist.

2. Markisensystem nach Anspruch 1, wobei das System ferner zwei Pfosten (4) zum Stützen der zwei jeweiligen Führungen an ihren jeweiligen zweiten Enden umfasst.
3. Markisensystem nach Anspruch 1 oder 2, wobei das mindestens eine längliche flexible Übertragungselement an einem Ende davon mit der Frontleiste verbunden ist und an einem zweiten Ende des Übertragungselements, das dem ersten Ende des Übertragungselements gegenüberliegt, mit dem mindestens einen zweiten Rollenkörper verbunden ist, wobei in der ersten Position der Frontleiste das Übertragungselement um den zugehörigen zweiten Rollenkörper in einem ersten Ausmaß entlang einer zweiten Wicklungsrichtung, die entgegengesetzt zu der ersten Wicklungsrichtung ist, gewickelt ist, und in der zweiten Position der Frontleiste das Übertragungselement um den zugehörigen zweiten Rollenkörper in einem zweiten Ausmaß, das größer als das erste Ausmaß ist, in der zweiten Wicklungsrichtung gewickelt ist.
4. Markisensystem nach einem der vorhergehenden Ansprüche, wobei das mindestens eine längliche fle-

xible Übertragungselement riemenartig ist.

5. Markisensystem nach einem der vorhergehenden Ansprüche, wobei das mindestens eine längliche flexible Übertragungselement um zwei zueinander verschiebbare, vorzugsweise gleitfähige, Drehelemente (31b, 31d) gewickelt ist, und wobei das Markisensystem ein Federelement (17), vorzugsweise eine Gasfeder, umfasst, die zwischen den zwei Drehelementen wirkt.
6. Markisensystem nach Anspruch 4 oder 5, wobei sich das Federelement in einem Profilabschnitt (3) erstreckt, der auch eine der Führungen umfasst.
7. Markisensystem nach Anspruch 4, 5 oder 6, wobei eines der zwei Drehelemente (31b) fest mit einer zugehörigen Führung (43) verbunden ist und das andere Drehelement (31d) in Bezug auf die zugehörige Führung (43) verschiebbare, vorzugsweise gleitfähig, ist.
8. Markisensystem nach Anspruch 7, wobei sich das gleitfähige Drehelement zwischen dem Drehelement, das fest mit der zugehörigen Führung verbunden ist, und einem zugehörigen zweiten Rollenkörper erstreckt.

Revendications

1. Système d'auvent (1) comprenant

- un premier corps de rouleau tubulaire (7) avec un axe,
- une bande avant (6),
- une toile (5) qui est reliée, sur un premier côté, au corps de rouleau et qui est reliée, sur un deuxième côté qui est situé à l'opposé du premier côté, à la bande avant,
- deux guides allongés (2, 3) qui s'étendent parallèlement l'un à l'autre et qui font un angle avec l'horizontale compris entre 0 et 25 degrés, où la bande avant s'étend entre les deux guides et la bande avant peut être guidée par les guides entre une première position de non-ombrage située au niveau de premières extrémités des deux guides, dans cette première position la toile est enroulée, au moins en grande partie, autour du corps de rouleau dans une première direction d'enroulement, et une deuxième position d'ombrage, située au niveau de deuxièmes extrémités des deux guides qui sont situées à l'opposé des premières extrémités respectives des deux guides, dans cette deuxième position la toile est, au moins en grande partie, déroulée du corps de rouleau,
- au moins un deuxième corps de rouleau (11)

qui est prévu de manière concentrique par rapport au premier corps de rouleau et est relié de manière rigide au premier corps de rouleau pour une rotation conjointe autour de l'axe,

- au moins un élément de transmission flexible allongé (10) qui est relié à la bande avant et est enroulé autour de l'un de l'au moins un deuxième corps de rouleau, 5

- un moyen d'entraînement (12) pour entraîner en rotation le premier corps de rouleau et le deuxième corps de rouleau autour de l'axe, 10

- des moyens de commande pour commander le moyen d'entraînement, le système d'auvent comprenant en outre au moins un mécanisme de verrouillage qui est configuré pour verrouiller la bande avant dans la deuxième position, et les moyens de commande sont configurés pour actionner le moyen d'entraînement de sorte que la toile soit soumise à une contrainte de traction lorsque le mécanisme de verrouillage verrouille la bande avant dans la deuxième position, **caractérisé en ce que** l'au moins un mécanisme de verrouillage comprend une combinaison d'un premier corps de verrouillage (33) et d'un deuxième corps de verrouillage (18) qui sont configurés pour coopérer de manière verrouillée, où les moyens de commande sont configurés pour actionner le moyen d'entraînement de sorte que, pendant le déplacement de la première position à la deuxième position, la bande avant, afin de tendre la toile dans la deuxième position de la bande avant, dépasse initialement la deuxième position de manière limitée et prend une troisième position et revient ensuite à la deuxième position depuis la troisième position, où le mécanisme de verrouillage est configuré pour ne pas encore être actif de manière verrouillée tandis que la bande avant dépasse la deuxième position et pour être actif de manière verrouillée lorsqu'elle atteint la troisième position depuis la deuxième position, les moyens de commande étant configurés de sorte que, lors du déplacement de la deuxième position, tandis que le mécanisme de verrouillage est actif, à la première position, pour déplacer d'abord la bande avant de la deuxième position dans la direction de la troisième position vers une quatrième position, à la suite de ce déplacement, l'activité de verrouillage du mécanisme de verrouillage soit annulée et pour déplacer ensuite la bande avant de la quatrième position à la première position, le premier corps de verrouillage étant pourvu d'un chemin de came (34, 22, 23, 24, 25) et le deuxième corps de verrouillage étant pourvu d'une came (21), lesquels came et chemin de came sont configurés pour permettre à la came de se déplacer le long d'au moins une première partie du chemin de came en raison 55

du déplacement de la bande avant de la première position à la deuxième position via la troisième position, où la came prend appui contre une partie de verrouillage (37) du chemin de came dès que la bande avant a atteint la deuxième position depuis la troisième position, la came et le chemin de came étant configurés pour permettre à la came de se déplacer depuis la partie de verrouillage le long d'au moins une deuxième partie du chemin de came en raison du déplacement de la bande avant de la deuxième position à la première position via la quatrième position, où la première partie du chemin de came diffère de la deuxième partie du chemin de came, la came et/ou le chemin de came peut/peuvent pivoter autour d'un axe de pivotement (20) et l'axe de pivotement est orienté verticalement.

2. Système d'auvent selon la revendication 1, dans lequel le système comprend en outre deux montants (4) pour supporter les deux guides respectifs à leurs deuxièmes extrémités respectives.
3. Système d'auvent selon la revendication 1 ou 2, dans lequel l'au moins un élément de transmission flexible allongé est, à une extrémité de celui-ci, relié à la bande avant et, à une deuxième extrémité de l'élément de transmission qui est située à l'opposé de la première extrémité de l'élément de transmission, est relié à l'au moins un deuxième corps de rouleau, où, dans la première position de la bande avant, l'élément de transmission est enroulé autour du deuxième corps de rouleau associé à un premier degré le long d'une deuxième direction d'enroulement qui est opposée à la première direction d'enroulement, et, dans la deuxième position de la bande avant, l'élément de transmission est enroulé autour du deuxième corps de rouleau associé à un deuxième degré, qui est supérieur au premier degré, dans la deuxième direction d'enroulement.
4. Système d'auvent selon l'une des revendications précédentes, dans lequel l'au moins un élément de transmission souple allongé est en forme de courroie.
5. Système d'auvent selon l'une des revendications précédentes, dans lequel l'au moins un élément de transmission flexible allongé est enroulé autour de deux éléments rotatifs mutuellement déplaçables, de préférence coulissants (31b, 31d) et le système d'auvent comprend un élément à ressort (17), de préférence un ressort à gaz, qui est actif entre les deux éléments rotatifs.
6. Système d'auvent selon la revendication 4 ou 5, dans lequel l'élément à ressort s'étend dans une section profilée (3) qui comprend également l'un des

guides.

7. Système d'auvent selon la revendication 4, 5 ou 6, dans lequel l'un des deux éléments rotatifs (31b) est relié de manière fixe à un guide associé (43) et l'autre élément rotatif (31d) est déplaçable, de préférence coulissant, par rapport à ce guide associé (43). 5
8. Système d'auvent selon la revendication 7, dans lequel l'élément rotatif coulissant s'étend entre l'élément rotatif, qui est relié de manière fixe au guide associé, et un deuxième corps de rouleau associé. 10

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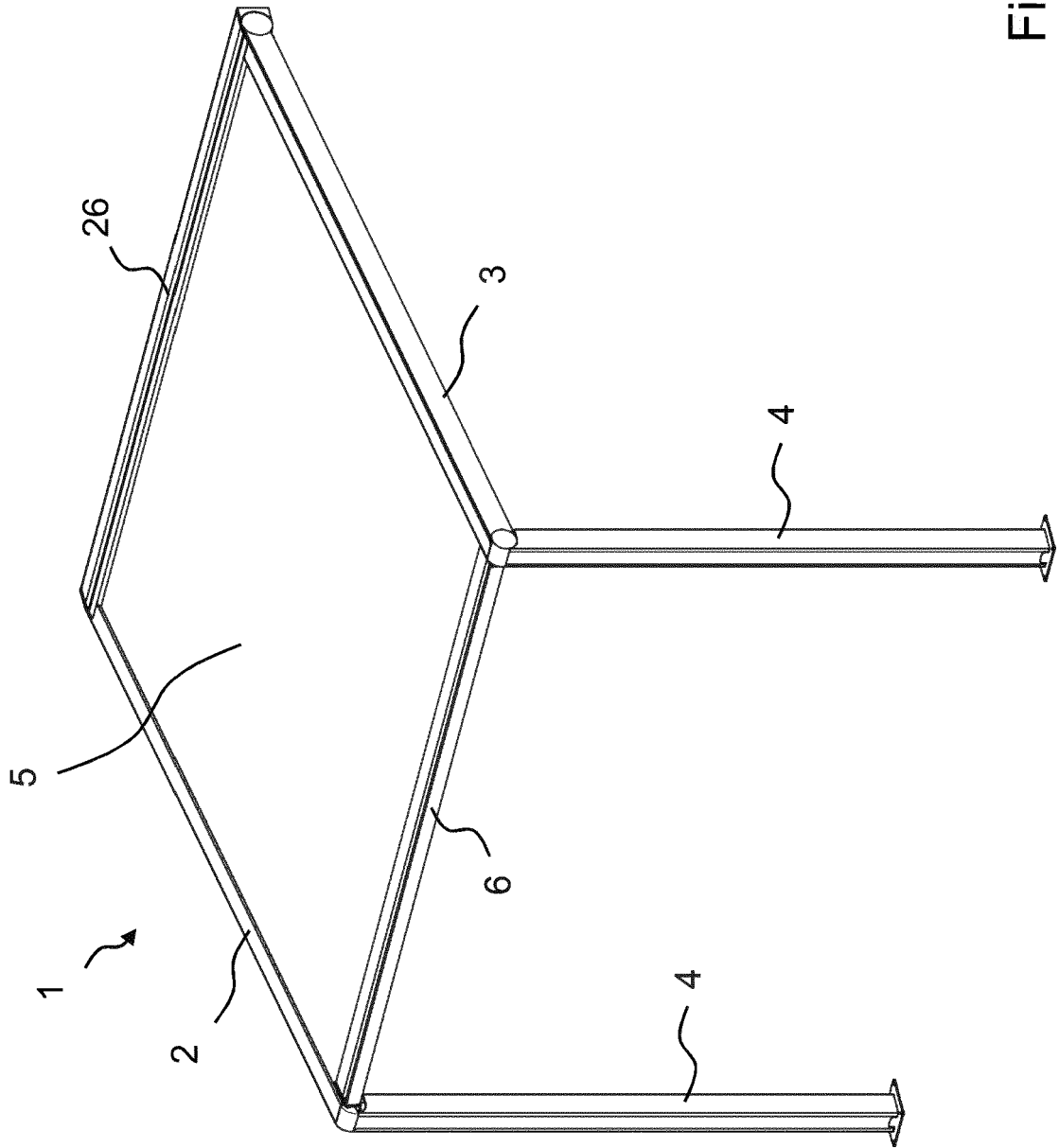


Fig. 1

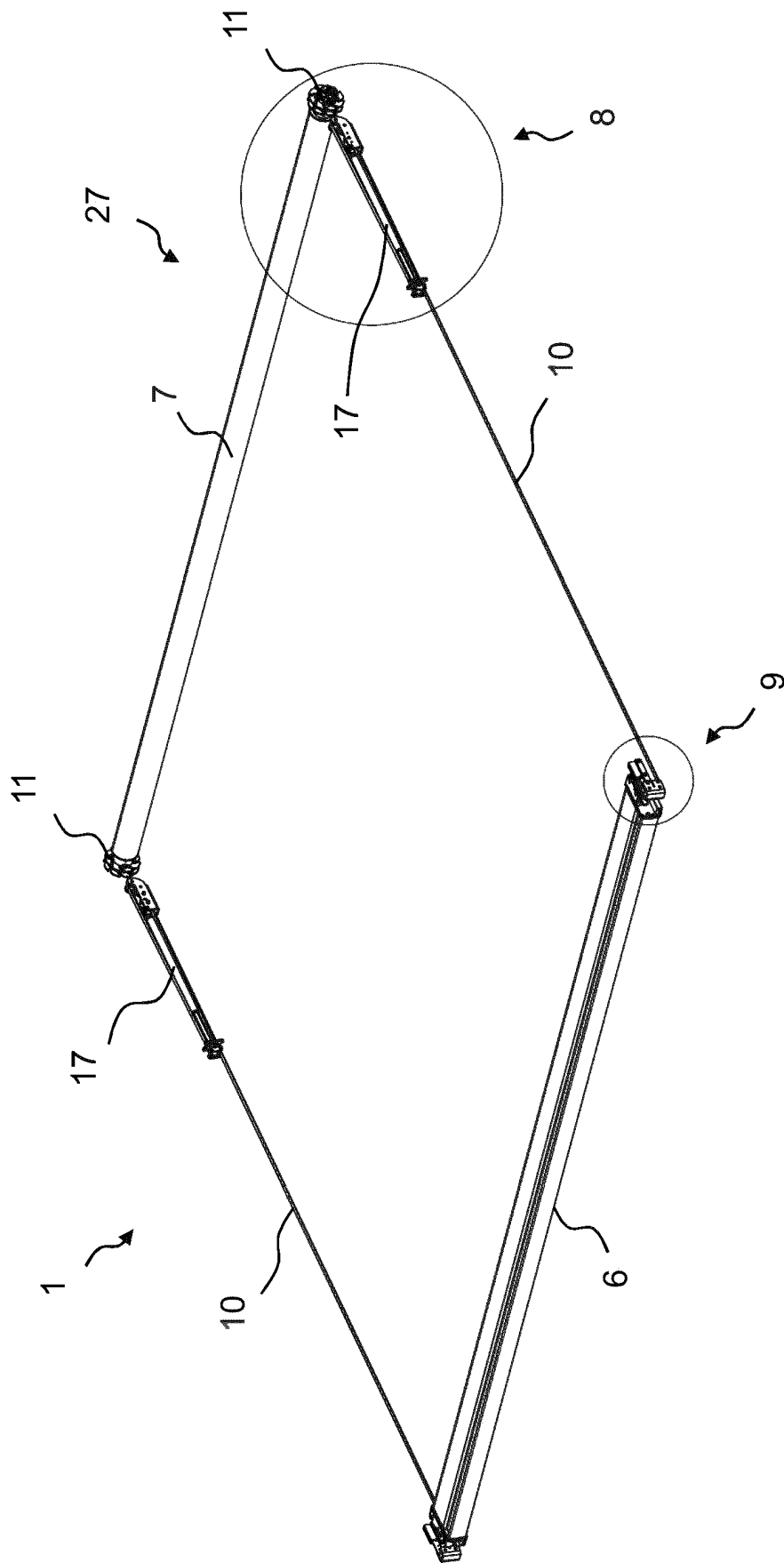


Fig. 2

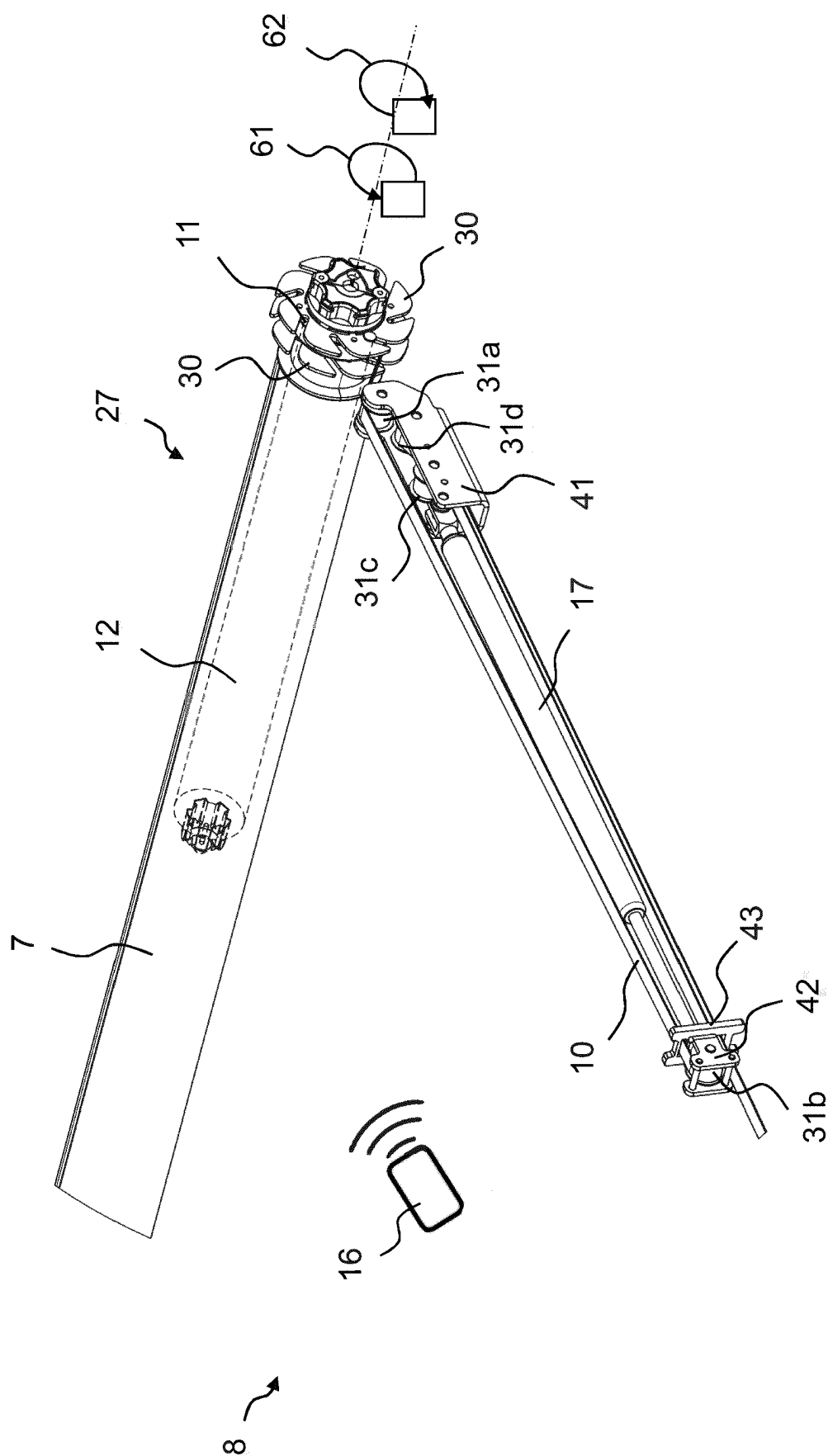


Fig. 3

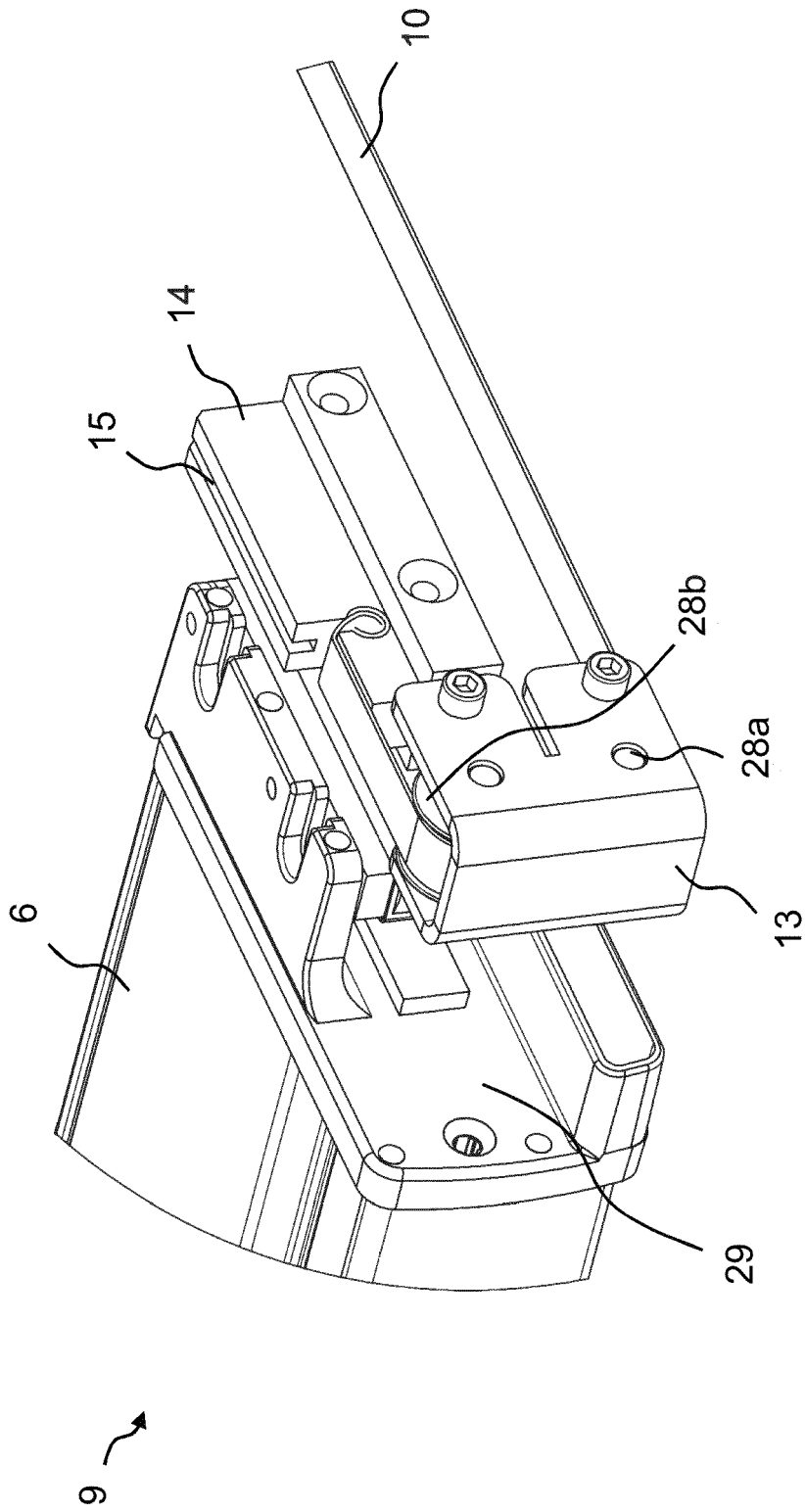


Fig. 4

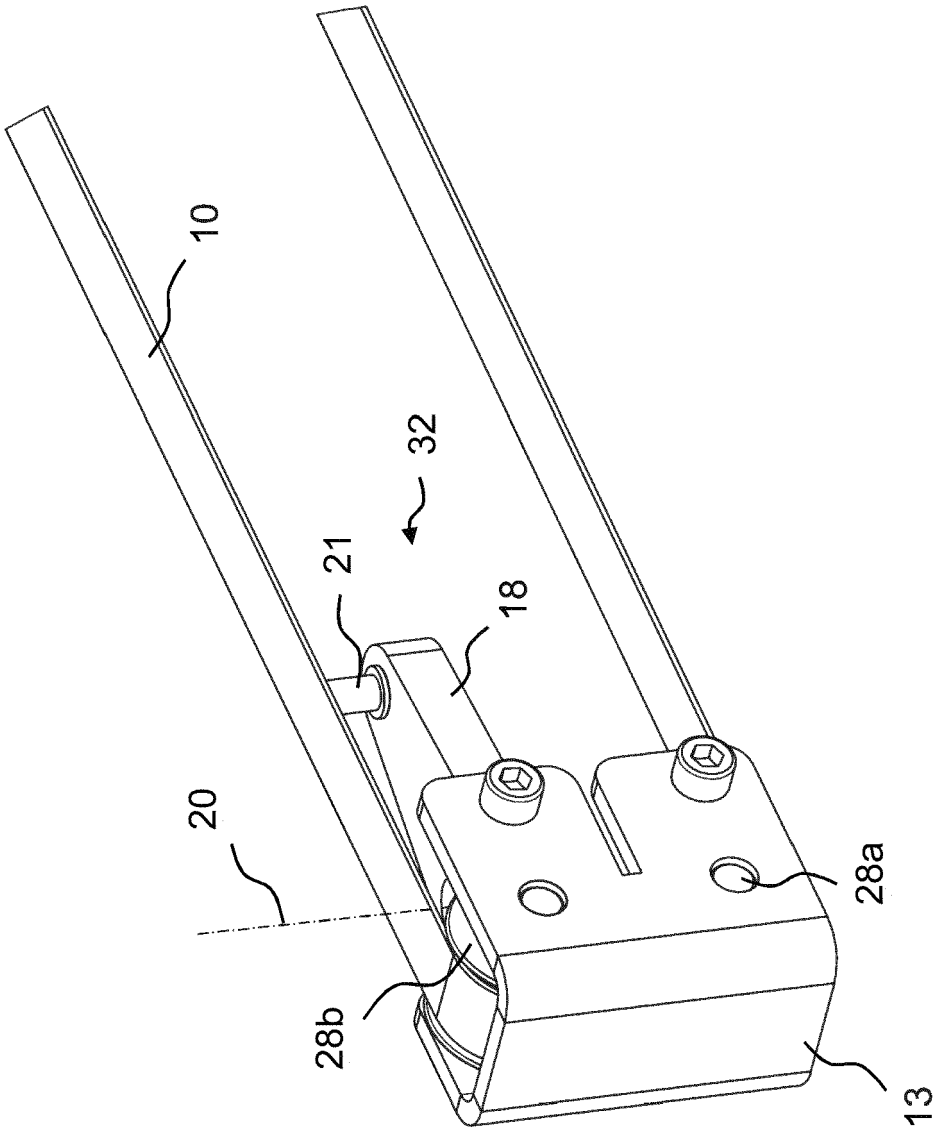


Fig. 5

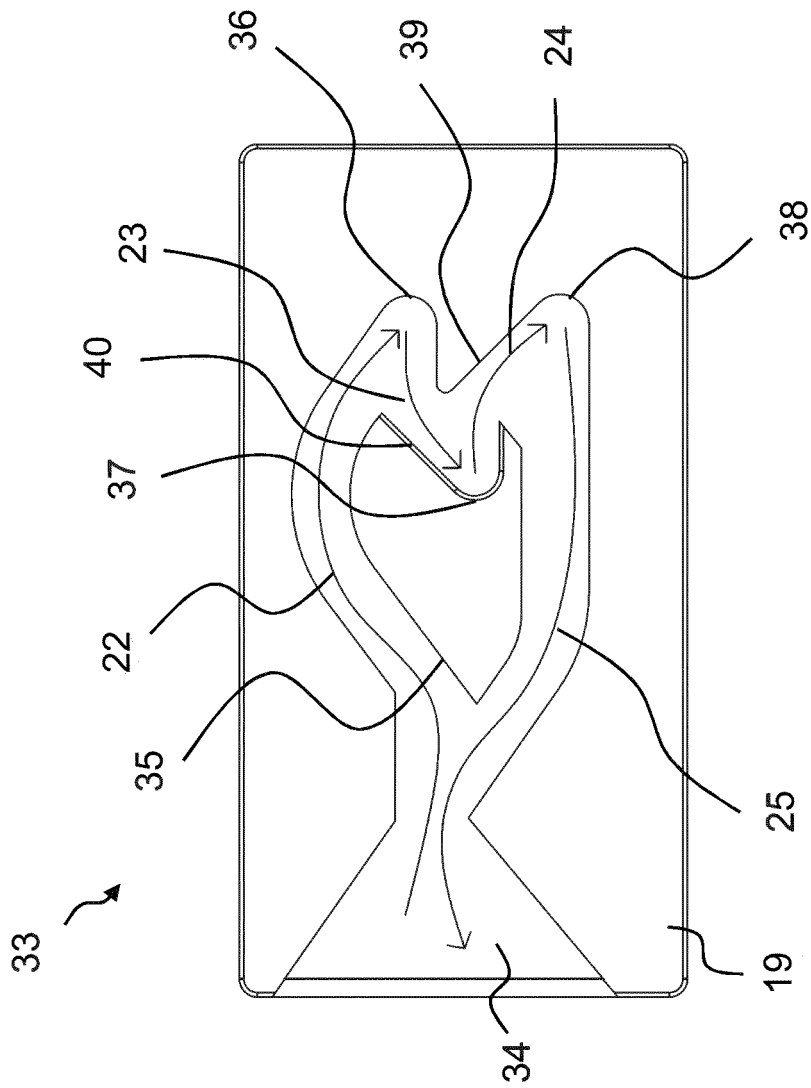


Fig. 6

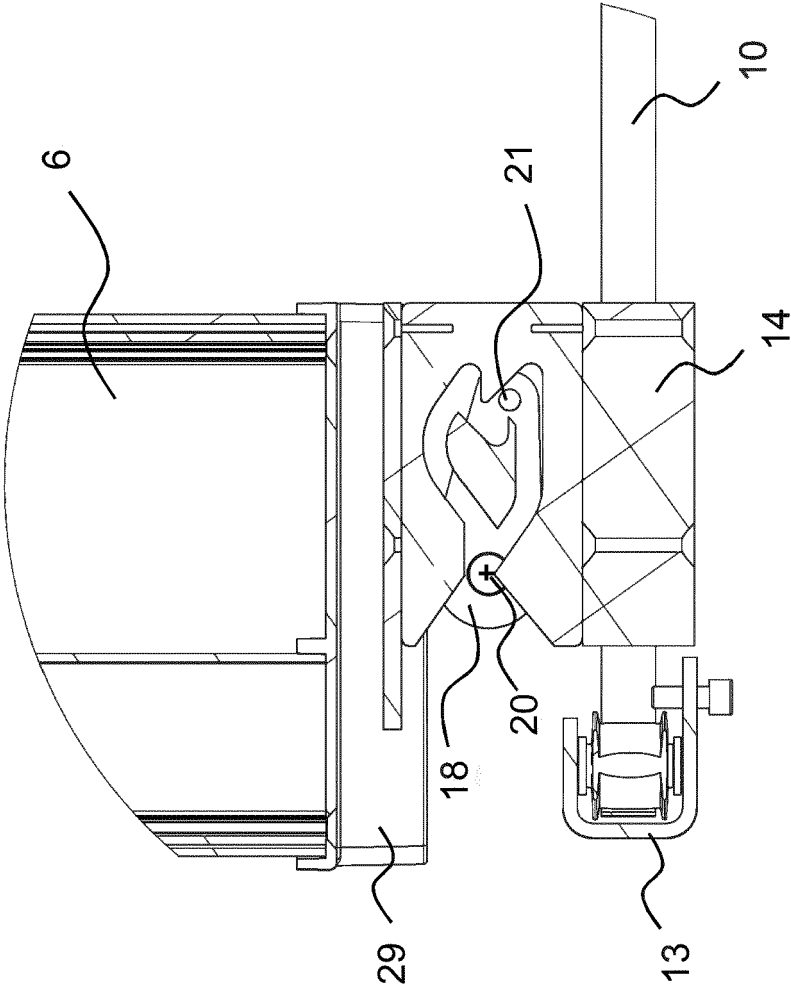


Fig. 7

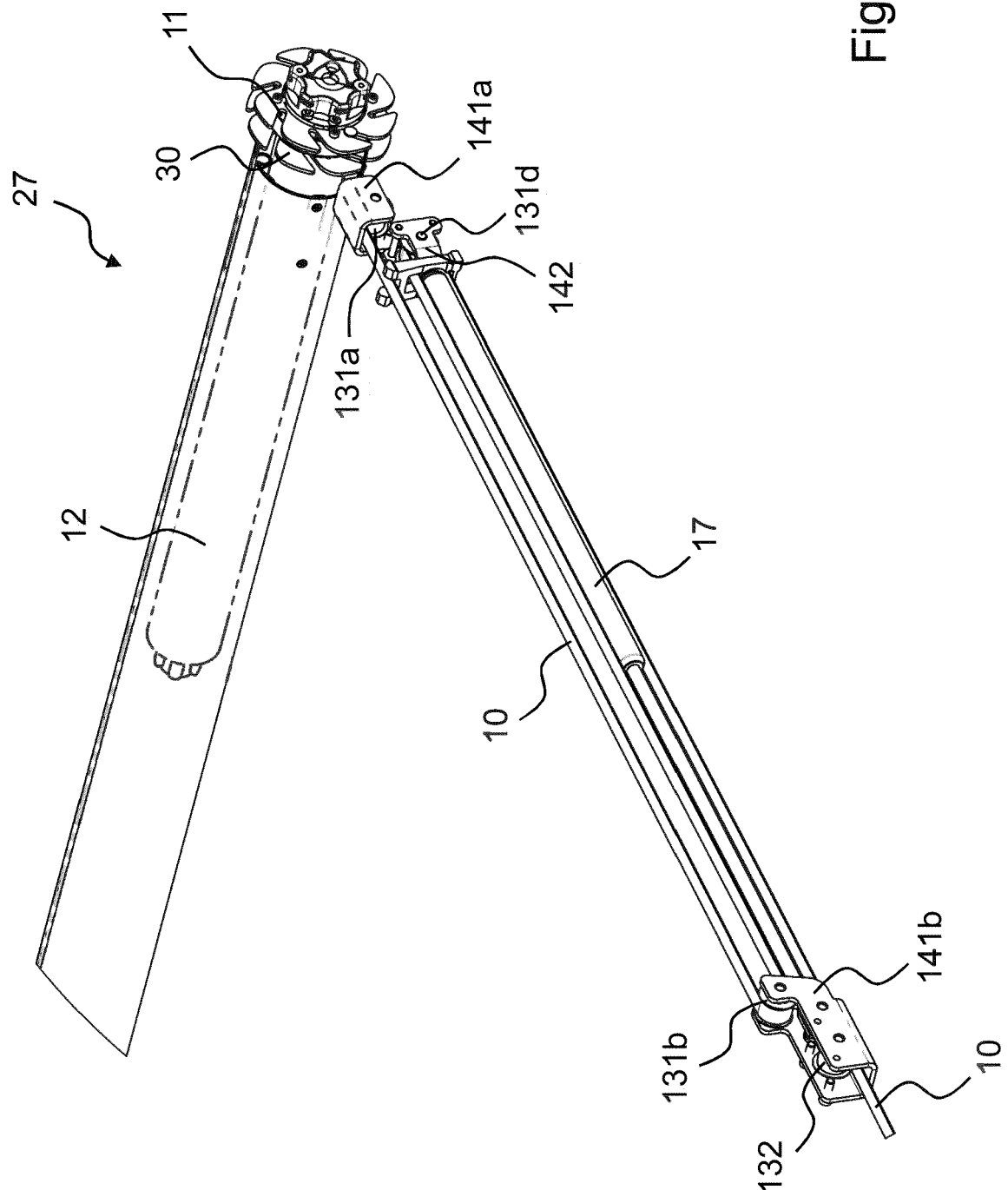


Fig. 8

REFERENCES CITED IN THE DESCRIPTION

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Patent documents cited in the description

- EP 2722460 A1 [0003]
- EP 841442 A1 [0004]
- EP 108424 A1 [0005]
- EP 2631383 A1 [0006]