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RAIL ARRANGEMENT FOR AWNINGS AND AWNING EQUIPPED THEREWITH

Description

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The invention relates to a sliding rail arrangement for awnings, in particular for folding awnings, according to the preamble of patent claim 1 and further to an awning equipped therewith.

10 A sliding rail arrangement of the generic type is known from KR 101 653 114 B1. A similar sliding rail arrangement as shown in DE 10 2004 022 352 A1 comprises a guide rail with a sliding track, a carriage mounted for displacement along the sliding track, a fabric supporting profile mounted on the carriage via a bearing axle, and an anti-rotation protection acting between the fabric supporting profile and the carriage.

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For the background of the invention, reference is made to the aforementioned folding awnings, in which the awning fabric is not wound onto a winding shaft - as is the case with a conventional folding arm awning - but is divided into strip zones. These are demarcated by the so-called fabric supporting profiles, which are slidably
20 mounted in the lateral guide rails of the awning running in the direction of projection. The guide rails themselves, together with end rails connecting them at their ends, form a supporting frame for the awning, which is mounted to be stationary on a building and/or on supports.

25 The frontmost fabric support profile in the direction of projection, known as the projection profile, can be moved by a drive in and against the direction of projection, enabling the awning to be extended and retracted. In the retracted state, the strip zones, which hang downwards like a baldachin between the fabric supporting profiles, are increasingly tightened by the pulling of the fabric supporting profiles when
30 the projection profile is extended until, in the fully extended position of the awning, the awning fabric is essentially stretched to form a kind of pergola roof.

With such folding awnings, the fabric supporting profiles are bolted at their ends to carriages via a bearing axis. These carriages are mounted in a track in the respective profiled guide rail so that they can be moved on rollers.

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The disadvantage of this known design is the fact that the carriage can twist around the bearing axis when bolted to the respective fabric supporting profile due to the lack of a rotation locking. The rollers then come into contact with the lateral webs of the profile when the carriage is moved in the profiled track, which leads to increased wear on the track and the rollers as well as disturbing noise development.

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By means of an elaborate pivot bearing construction it is possible to limit the rotation of the carriage, however, if the axis is not arranged exactly centrally between pairs of track rollers, the carriage will still rotate with the disadvantages mentioned above.

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It has also been attempted by means of an elastically compressible plastic element between the carriage and the fabric supporting profile to prevent relative twisting of these two components, but this has also proved to be not reliably effective. When tightening the fastening screw in the axis bearing between the carriage and the fabric supporting profile, it can happen that the screw connection is too tight and the carriage twists relative to the fabric supporting profile, causing the same problem described above. The only remedy here is to work with a very defined tightening torque of the screw connection, so that the plastic element is compressed to a certain extent, but the carriages can align themselves exactly parallel to the running direction between the webs of the profiled guide rails during the first run. All in all, however, the assembly and adjustment of the components involved here for low-wear and low-noise operation of the awning are meticulous and thus time-consuming to carry out.

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Given the described problem, it is an object of the invention to improve a sliding rail arrangement in a structurally simple manner, in particular with regard to its wear resistance and low noise in operation.

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This object is achieved by the features specified in claim 1, according to which the following features are provided for the mechanically engaging anti-rotation protection acting between the fabric supporting profile and the carriage:

- 5 - a receiving opening on the fabric supporting profile or carriage and a pin projection engaging therein on the carriage or fabric supporting profile form the anti-rotation protection,
- the carriage has a bearing body preferably with rollers rotatably mounted thereon,
- the bearing body is provided with a support shoulder surrounding the bearing axis
- 10 for supporting the fabric supporting profile to be mounted thereon, and
- the pin projection is formed in one piece with the support shoulder.

In this way, the carriage and the associated fabric supporting profile are kept in exact alignment with each other, so that the carriage with its rollers moves cleanly along

15 between the profile webs of the track and contact with these webs is avoided. Accordingly, wear and noise are minimal.

The anti-rotation protection is formed on the one hand by an opening on the fabric supporting profile or carriage and on the other hand by a pin projection on the carriage or fabric supporting profile. The rotational mobility between carriage and guide

20 rails is thus blocked by a simple positive mechanical engagement.

Each carriage has a bearing body with rollers rotatably mounted thereon, whereby the bearing body is provided with a support shoulder surrounding the bearing axis

25 for supporting the fabric support profile to be mounted thereon and the pin projection is formed in one piece with this support shoulder. This represents a particularly robust design of the anti-rotation protection.

Advantageously, the pin projection and the receiving opening are aligned with each other in such a manner that the running direction of the respective carriage and the

30 longitudinal direction of the fabric supporting profile are located in mutually

orthogonal centre planes of the carriage and the fabric supporting profile due to the thus acting anti-rotation protection. Due to the guidance at both ends of the fabric supporting profiles, these are effectively protected against tilting during the sliding movement for extending and retracting the awning.

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Furthermore, the pin projection can project axially parallel from the circumferential edge of the support shoulder pointing in the axial direction, so that a maximum-length torque arm acts for the anti-rotation protection.

- 10 Finally, according to a further embodiment of the invention, the free end of the pin projection can be configured to taper conically, which makes it particularly easy to insert the pin projection into the receiving opening.

- As mentioned at the outset, the invention also relates to an awning and in particular a folding awning in which a sliding rail arrangement as described above is provided between the guide rails and the respective fabric supporting profiles.
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- Further features, details and advantages of the invention will be apparent from the following description of an embodiment example with reference to the accompanying drawings, in which:
- 20

- Fig. 1 shows a perspective view of a folding awning in the extended state of the awning fabric,
- 25 Fig. 2 shows an enlarged, partially broken away perspective representation of detail II according to Fig. 1,
- Fig. 3 shows a perspective view of a carriage with fabric supporting profile in an intermediate assembly step,

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- Fig. 4 shows a vertical section through a carriage with fabric supporting profile in the vertical longitudinal centre plane of the carriage,
- 5 Fig. 5 shows a cross-section of a guide rail showing a view of the carriage and fabric supporting profile,
- Fig. 6 shows a longitudinal section through a guide rail with carriage and view of the fabric supporting profile with anti-rotation protection, and
- 10 Fig. 7 shows a longitudinal section analogous to Fig. 6 without anti-rotation protection between the carriage and fabric supporting profile.
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- Fig. 1 illustrates the basic structure of the folding awning shown. The awning has a rectangular supporting frame 1 in a plan view, which is composed of lateral guide rails 3, 4 running in the downward direction A of an awning cover 2 and end rails 5, 6 connecting their ends.
- 20
- With one end rail 5 the awning is mounted on a building wall 7 via corresponding brackets (not shown), the opposite end rail 6 rests on supports 8, 9, which for example stand on a terrace 10 to be covered.
- 25
- In the example shown, the awning cover 2 is an awning fabric 12 which is fastened with its end pointing in the direction of projection A in a projection profile 11 running transversely to the direction of projection A and guided in the guide rails 3, 4 so as to be displaceably driven in this direction. The awning fabric 12 is further divided into individual strip zones 13 in the manner of a

baldachin and is fastened with the edge of each of its zones 13 to a fabric supporting profile 14. The ends of the latter are freely guided in the guide rails 3, 4 so as to be displaceable in the direction of projection A and are displaced under the influence of gravity and the pulling effect of the projection profile 11 from a retracted position of the awning with the folds of the individual strip zones 13 hanging downwards into the extended position shown in Fig. 1, in which the awning fabric 12 is pulled with the fabric supporting profiles 14 by the driven projection profile 11 in the direction of projection A and is stretched flat when it reaches the end rail 6 on the projection side.

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The displaceability of the fabric supporting profiles 14 in the guide rails 3, 4 is achieved by a sliding rail arrangement as shown in detail in Figs. 2 to 6. For this purpose, the guide rails 3, 4 each have a track 16 - see in particular Fig. 5 - implemented by inner profile webs 15, in which carriages 17 carrying the fabric supporting profiles 14 run along on corresponding pairs of rollers 18. The four rollers 18 of the two pairs of rollers per carriage 17 are rotatably mounted on a bearing body 19 of the carriage 17.

As can be seen in particular from Figs. 3 to 5, the fabric supporting profiles 14 are mounted at their ends 20 via a bearing axis 21 on the respective carriage 17. The bearing axes 21 are formed by a screw bolt inserted from above into a receiving bore 22 in the bearing body 19 and secured by a lock nut 23 on the bearing body 19, which bolt engages with its lower end through corresponding receiving openings 24 in the fabric supporting profiles 14. The respective fabric supporting profile 14 is fixed by screwing a cap nut 25 onto the fabric supporting profile 14 from below, which is thus anchored to the carriage 17 by pressing it against a support shoulder 26 formed downwards on the bearing body 19 and surrounding the bearing axis 21.

Between the fabric supporting profile 14, which is thus mounted rotatably on the carriage 17, a pin projection 27 is formed in one piece on the bearing body 19 to prevent rotation, which projection projects downwards in this direction from the circumferential edge 28 of the support shoulder 26, which points parallel to the axial direction of the bearing axis 21. The free end 34 of the pin projection 27 is formed to taper conically. As a functional partner to the pin projection 27, a round receiving opening 30 is provided at a corresponding location in the upper wall 29 of the fabric supporting profile 14, which is rectangular in cross-section, into which the pin projection 27 plunges when the bearing axis 21 is inserted into the respective fabric supporting profile 14 and, by this positive engagement, blocks a rotation between the carriage 17 and the fabric supporting profile 14 about the bearing axis 21. These two components are thus aligned and fixed relative to each other in such a manner that - as can be seen in Fig. 6 - the running direction L17 of the carriages 17 and the longitudinal direction L14 of the respective fabric supporting profile 14 are located in mutually orthogonal centre planes M17 and M14 of the carriage 17 and fabric supporting profile in 14. Each carriage 17 can thus be moved in the guide rails 3, 4 parallel to the direction of projection A without tilting and accordingly without interfering contact with the profile webs 15 of the track 16.

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To visualise this advantage, Fig. 7 shows a situation in which a carriage 17' is connected to the fabric supporting profile 14 without an anti-rotation protection. This can cause the carriage 17' to tilt in the track 16 with the disadvantages and problems mentioned above.

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For the sake of completeness, the drive of the carriage 17 should be explained with reference to Fig. 2, which is connected to a fabric supporting profile 14 forming the projection profile 11 in a manner secured against rotation as shown in Figs. 3 to 5. A circulating drive belt 31 is provided in each of the guide rails

3, 4, which is guided over a deflection pulley 32 at the downstream end of the guide rails 3, 4. At the other end of the guide rails 3, 4, the drive belt 31 is guided over a corresponding drive roller and can thus be reversibly driven to retract and extend the awning. The carriages 17 of the projection profile 11 are
5 connected to the drive belts 31 by a clamping plate 33, so that the drive belts 31 entrain the respective carriage 17 during its synchronous movement.

PATENTKRAV

1. Løbeskinnearrangement til markiser, navnlig til foldemarkiser, omfattende

- en styreskinne (3, 4) med en løbebane (16),
- en løbevogn (17), som er lejret forskydelt langs løbebanen (16),
og
- et markisedugstøtteprofil (14), der er monteret på løbevognen (17)
via en lejeakse (21), såvel som
- en antirotationsbeskyttelse, der virker mellem
markisedugstøtteprofilet (14) og løbevognen (17), hvilken
antirotationsbeskyttelse er dannet af en modtageåbning (30) på
markisedugstøtteprofilet (14) henholdsvis løbevognen (17), og et
stiftfremspring (27), som griber ind deri på løbevognen (17)
henholdsvis markisedugstøtteprofilet (14),
- hvorved løbevognen (17) omfatter et lejelegeme (19), fortrinsvis
med ruller (18), som er monteret roterbart derpå,

kendetegnet ved, at

- lejelegemet (19) er udstyret med en støtteskulder (26), der omgiver
lejeaksen (21) med henblik på understøtning af
markisedugstøtteprofilet (14), som skal monteres derpå, og
stiftfremspringet (27) er dannet som integreret med støtteskulderen
(26).

2. Løbeskinnearrangement ifølge krav 1,

kendetegnet ved, at stiftfremspring (27) og modtageåbning (30) er orienteret
således i forhold til hinanden at, på grund af antirotationsbeskyttelsen,
løberetningen (L17) for løbevognen (17) og længderetningen (L14) for
markisedugstøtteprofilet (14) befinder sig i indbyrdes ortogonale midterplaner
(M17; M14) for løbevognen (17) og markisedugstøtteprofilet (14).

3. Løbeskinnearrangement ifølge krav 1 eller 2,

kendetegnet ved, at stiftfremspringet (20) rager aksialt frem og parallelt med periferikanten (28) af støtteskulderen (27), pegende i retning af lejeaksen (21).

4. Løbeskinnearrangement ifølge et af kravene 1 til 3,

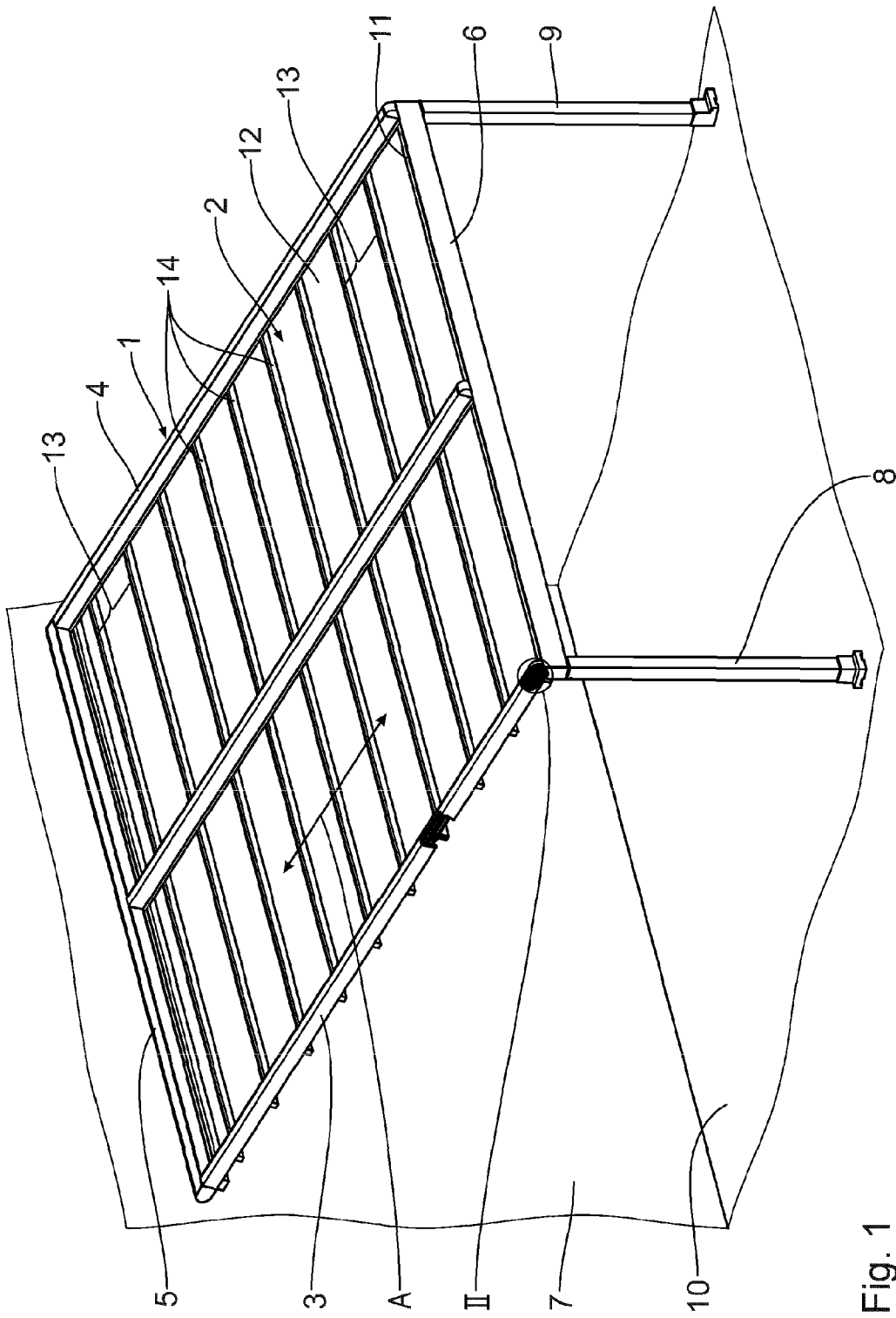
kendetegnet ved, at den frie ende (34) af stiftfremspringet (27) er dannet til at tilspidse konisk.

5. Markise, navnlig foldemarkise, omfattende

- en støtteramme (1) med laterale styreskinner (3, 4) for markisedækket (2), og som strækker sig i retning af udfaldsretningen (A) for markisedækket (2), samt endeskinner (5, 6), der strækker sig på tværs deraf med henblik på den stationære montering af markisen på en bygning (7) og/eller på understøtningen (8, 9),
- hvorved markisedækket (2) er dannet af en baldakinlignende markisedug (12), som er opdelt i strimmelzoner (13) og er ført hen over markisedugstøtteprofiler (14), som er monteret forskydeligt på styreskinnerne (3, 4),

kendetegnet ved

- løbeskinnearrangementer ifølge et af kravene 1 til 4 mellem styreskinnerne (3, 4) og markisedugstøtteprofilerne (14).



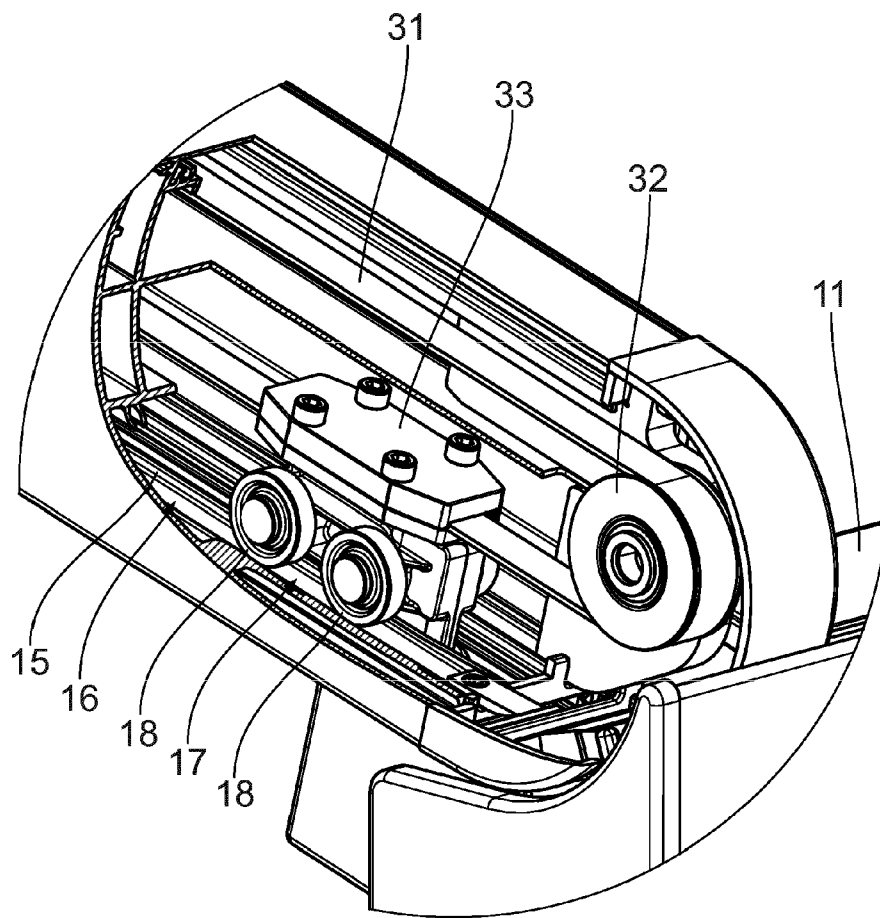


Fig. 2

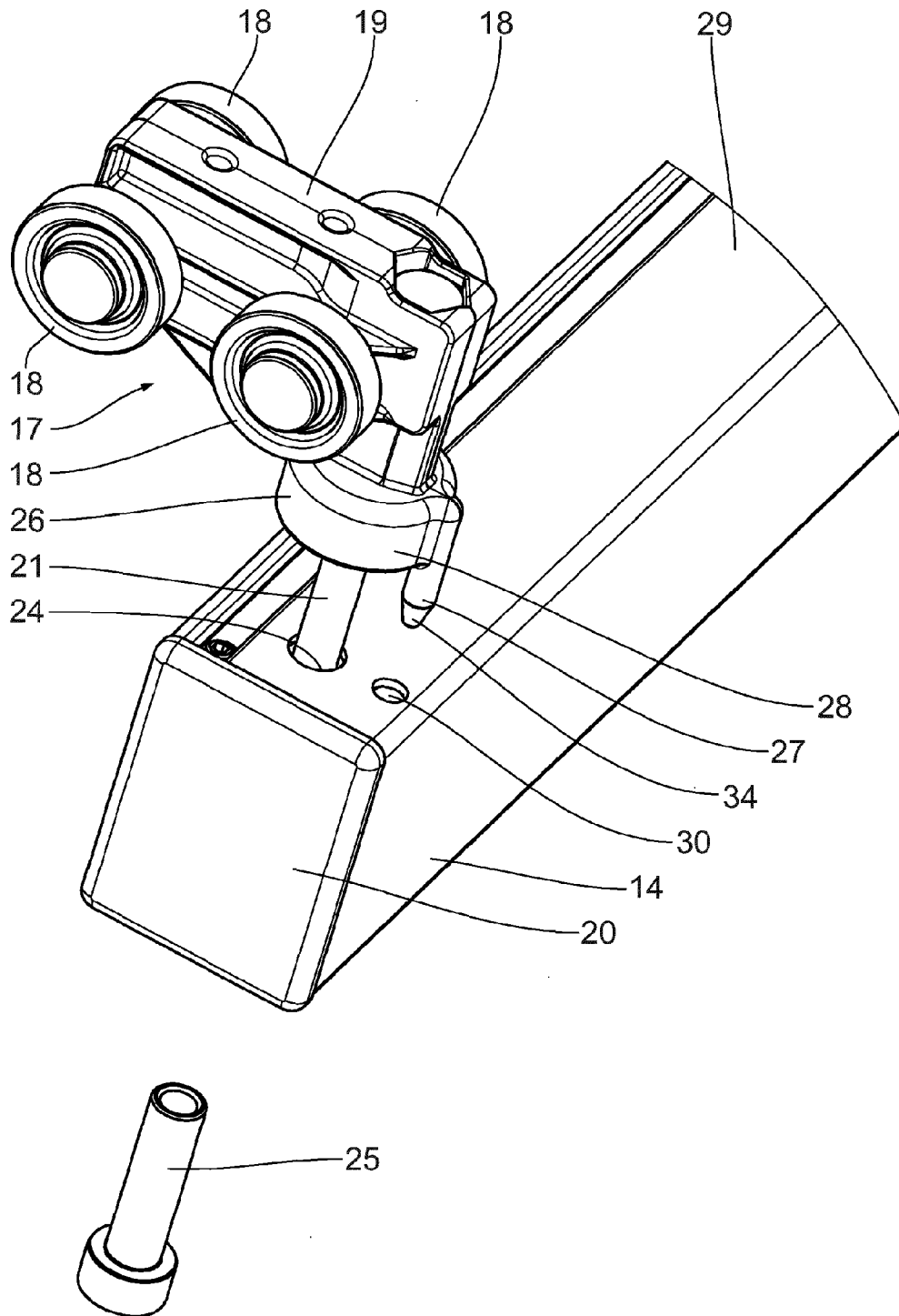


Fig. 3

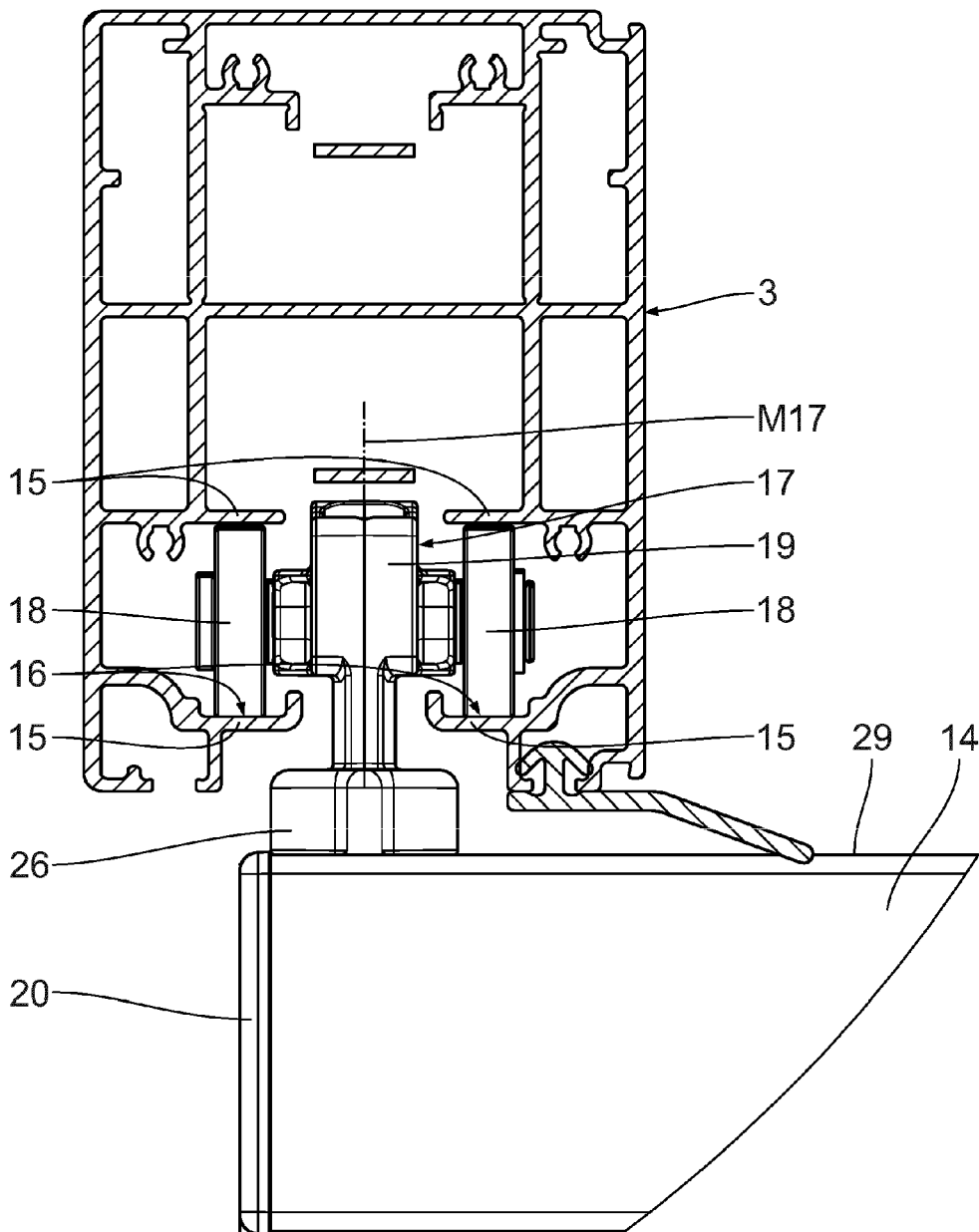


Fig. 5

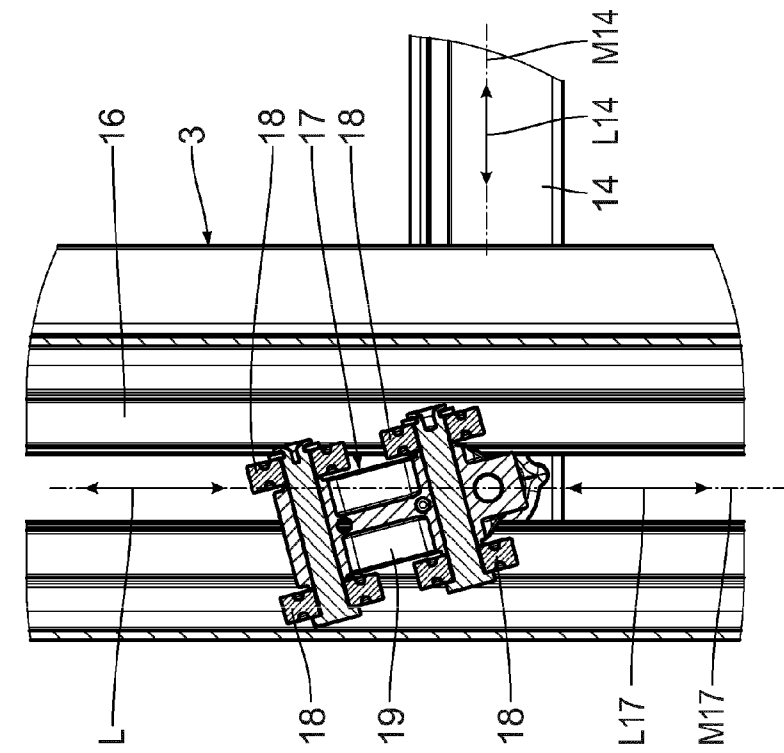


Fig. 7

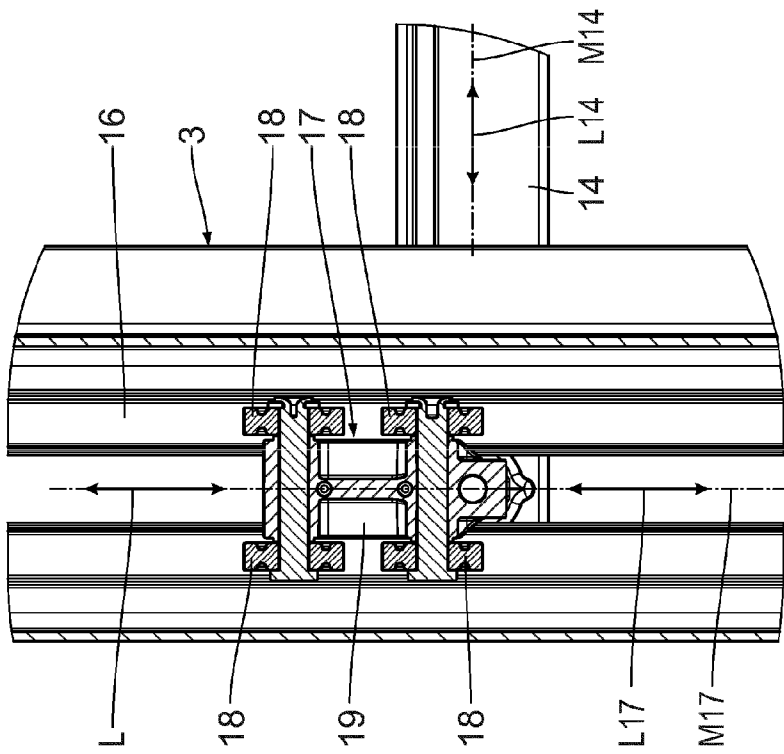


Fig. 6