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(54) Benævnelse: **Vægkonsol til en markise med justerbar vinkelindstilling**

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Description

The invention relates to a wall console for an awning with angle adjustment.

An example of a wall console comprising an angle adjustment device for the awning is disclosed in EP 0 821 118 B1. In this document, a support pipe having a round cross-section is used as a support for the awning, said support pipe being provided with a groove running parallel to the longitudinal axis. The support pipe is mounted in a round receptacle of the wall console, wherein a cam, which is displaceably mounted on the wall console, engages the groove of the support pipe. The rotational position of the support pipe of the awning, and therefore the angle of inclination thereof relative to the horizontal is variable by adjusting the position of the cam by means of a spindle mechanism. This adjustment mechanism has an elaborate constructional design and is suitable only for awnings having support pipes with a round cross-section.

From DE 77 25 749 U1, a hinge for awnings is known that is formed by a horizontal pivot axis, which runs between two support plates disposed on the square support pipe of the awning, and a holder, mounted rotatably to the pivot axis, for the articulated arms 20 of the awning.

This solution has a rather elaborate constructional design, too. Furthermore, this solution only allows the drop-out direction of the drop-out profile comprising the awning fabric to be adjusted, but not, however, the angle of the support mechanism of the awning, in other words substantially that of the support pipe and of the awning shaft comprising the fabric roll held thereon, and of covers or housing elements that may be provided as well. Therefore, it is impossible to adjust the angle of these awning parts to particular customer requirements or structural conditions that must be observed when installing the awning, for example if the awning is to be mounted to an inclined rafter.

A wall console comprising the features in the preamble of claim 1 is known from DE10014144U1.

The invention is based on the objective of providing a wall console for an awning with angle adjustment the design of which is much less elaborate than that of prior art awnings, all the while being rugged and providing an angle adjustment that is easy to perform.

According to patent claim 1, this objective is achieved by a wall console that comprises:

- a mounting bracket mountable to a part of a building, in particular to a building wall;
- a retaining bracket adjustable with respect to the mounting bracket about a horizontal pivot axis; and
- a receptacle on the retaining bracket for a support member, in particular a support pipe, of an awning,
- wherein the horizontal pivot axis is formed between mounting bracket and retaining bracket by a flexible connection web formed in one piece with these two brackets.

The basic design of the wall console according to the invention is such that it comprises only one body consisting of a mounting bracket and a retaining bracket as well as a connection web, wherein the angle adjustment can be performed by a controlled deformation of the connection web between mounting bracket and retaining bracket. No special tool is required to do so. Taking into account the known structural criteria, the bending stiffness of the connection web needs to be adapted to the weight of the awning and the dimensions thereof and to the tolerances the awning needs to have when exposed to wind and water loads.

Preferred embodiments of the wall console are set out in the dependent claims. According thereto, the wall console may consist of a shaped part preferably extrusion moulded from an aluminium alloy. The wall console according to the invention is thus particularly suitable for an economical and cost-effective mass production.

According to another preferred embodiment, the bending angle of the retaining bracket can be fixed in relation to the mounting bracket at least in one direction of rotation by means of a stop screw. This prevents the awning held by wall consoles of this type from rolling up in windy weather and from being pressed down by water pockets. The stop screw is preferably inserted in a corresponding threaded hole at the free end of the retaining bracket and abuts, with its front end remote from the head, against the mounting bracket when in the stop position. The maximum angle of inclination defined by the stop position is thus easily adjustable by actuating the stop screw.

In order to further improve the wall console according to the invention, the front end of the stop screw may, in a further development of the invention, be pivotably and rotatably coupled with the mounting bracket. The retaining bracket of the wall console, and therefore the awning in its selected angular position, can thus be protected from rolling up and from being pressed down.
This pivotable and rotational coupling of the front end of the of the stop screw with the mounting bracket may preferably be implemented in such a way that the front end of the stop screw comprises a coupling pin that engages, via a through-opening, a recess in the rear side thereof when in the mounting position. The coupling pin is then secured in said recess by means of a retaining element arranged such as to allow for rotational and pivotal clearance, thus ensuring that although the stop screw is secured in this recess only loosely, it is possible to rotate the screw and adjust the angular position thereof, and therefore to adjust the angle of the retaining bracket about the pivot axis formed by the flexible connection web.

Further features, details and advantages of the invention will be apparent from the ensuing description of exemplary embodiments, taken in conjunction with the attached drawings, in which

Figs. 1 and 2 each show a side view of a wall console of a first embodiment in two different angular positions of the retaining bracket,

Figs. 3 and 4 show side views similar to Figs. 1 and 2 in a second embodiment of the wall console, and

Figs. 5 and 6 show side views similar to Figs. 1 and 2 with partial sectional views of a third embodiment of a wall console.

As can be seen from Figs. 1 and 2, the wall console 1 shown there comprises a substantially plate-shaped mounting bracket 2 that comprises a plane rear side 3 and a projection 5 on its front side 4, the projection 5 having a ramp-shaped cross-section. The mounting bracket 2 is to be secured to a building wall 7, for example, by means of mounting screws 6.

The wall console further comprises a retaining bracket 8 that is pivotable relative to the mounting bracket 2 about a horizontal pivot axis S, said retaining bracket 8 having a plate-shaped design as well and being provided, on its outer side remote from the mounting bracket 2, with an upwardly open receptacle 9 for a support pipe 10 of an awning not shown in more detail here. The cross-sectional shape of the receptacle 9 as shown in Figs. 1 and 2 is adapted to the square shape of the support pipe 10. The support pipe 10 is secured in the receptacle 9 by means of clamping screws not shown in more detail.

The horizontal pivot axis S between mounting bracket 2 and retaining bracket 8 is formed by a flexible connection web 11 formed in one piece with these two brackets 2, 8. Compared to the retaining bracket 8, the wall thickness of the connection web 11 is reduced by an inner recess 12 that resembles an eyelet when seen in a side view. The bending stiffness of the connection web 11 can be adapted to the respective conditions such as the weight, drop-out length and width of the awning by adapting the wall thickness w of the connection web 11.

At the free end 13 of the retaining bracket 8, a stop screw 15 is inserted into a threaded hole 14, which is outlined by dashed lines, from the side remote from the building wall 7, wherein the stop screw 15 abuts, with its front end 17 remote from the head 16, against the mounting bracket 2, as the case may be, in in the region of the front side 18 of the projection 5.

In the initial position of the retaining bracket 8 shown in Fig. 1, in which the connection web 11 is substantially not exposed to a bending force yet, the retaining bracket 8 is parallel to the front side of the projection 5. The receptacle 9 is therefore inclined downwards to a considerable degree so there is a relatively large angle of inclination N1 of the receptacle 9, and therefore of the awning held thereby, relative to the horizontal H.

Fig. 2 shows the position of the retaining bracket 8 when pivoted in the anti-clockwise direction in relation to Fig. 1, said pivoting movement being made possible by a bending of the connection web 11 of the mounting console. The pivoting movement up to a bending angle B can be performed by actuating the retaining bracket 8 in a pivoting direction R (Fig. 1). The stop screw 15 can then be screwed further into the threaded hole 14 until the front end 17 thereof abuts against the mounting bracket 2 again.

As an alternative to the actuation described above, the pivoting movement of the retaining bracket in the pivoting direction R may also be brought about, starting from the position shown in Fig. 1, by screwing in the stop screw 15 directly.

The angle of inclination N2 of the awning in relation to the horizontal H is much smaller compared to the position in Fig. 1 with an angle of inclination N1. The stop screw 15 further protects the awning from being pressed down as the stop screw 15 prevents the retaining bracket 8 from being pivoted about the pivot axis S in the clockwise direction.

In the embodiment shown in Figs. 1 and 2, the connection web 11 – and therefore the pivot axis S – is arranged at the top in the region of the projection 5 of the mounting bracket 2 such that the retaining bracket 8 extends substantially downwards. In contrast thereto, a virtually upside-down embodiment is shown in Figs. 3 and 4. There, the wall console 1' is configured as a mounting bracket 2 configured as a flat plate without projection 5. The connection web 11 to the retaining bracket 8 is again formed in one piece with both brackets 2, 8 and is, in this embodiment, arranged in the lower region of the mounting bracket 2. The retaining bracket 8 is thus oriented substantially upwardly. The free end 13 thereof is again provided with a threaded hole 14 with a stop screw 15 disposed therein. On its side remote from the mounting bracket 2, the retaining bracket 8 has a receptacle 9 for the support pipe 10. In this embodiment, the receptacle is formed by two side walls 19, 20 arranged opposite to each other, said side walls 19, 20 being arranged such as to define a shape of the receptacle 9 between them that matches the square profile of the support pipe 10. In the embodiment according to Figs. 1 and 2, the receptacle 9 is formed by a profile element 21 having an L-shaped cross-section.

In the initial position of the retaining bracket 8 shown in Fig. 3, in which the connection web 11 is not exposed to a bending force yet, the angle of inclination N3 in relation to the horizontal is virtually 0°. The bending angle B can be increased by pivoting the retaining bracket 8 about the pivot axis S in the pivoting direction R. By doing so, the angle of inclination increases until the greater angle N4 in relation to the horizontal H is reached as shown in Fig. 4. The stop screw 15 is again screwed in until the front end 17 thereof abuts against the mounting bracket 2. The awning held in the receptacle 9 by the support pipe 10 is thus protected from rolling up in windy weather, for example.

The third embodiment of the wall console 1'' according to Figs. 5 and 6 corresponds to the design of the wall console 1' according to the exemplary embodiment shown in Figs. 3 and 4, the wall console comprising the mounting bracket 2, connection web 11, retaining web 8 and receptacle 9. Identical components therefore carry the same reference numerals and are not discussed again. The only difference compared to the wall console 1' is how the front end 17 of the stop screw 15 is coupled with the mounting bracket 2. To this end, the front end 17 of the stop screw 15 is elongated by means of a coupling pin 22 arranged coaxially thereto, the coupling pin 22 being arranged in a through opening 23 in the mounting bracket 2 towards a recess 24 formed in the rear side 3 thereof such that there is relatively large clearance. On the end of the coupling pin 22, a locking element 25 in the form of a washer is arranged that has a much greater diameter than the through opening 23. The washer is however smaller than the dimensions of the recess 24, so the locking element 25, the coupling pin 22 and therefore the stop screw 15 are coupled with the mounting pin as a whole in such a way that there is rotational and pivotal clearance. The coupling of the stop screw 15 with the mounting bracket 2 ensures that the awning is not only protected from rolling up as in the embodiment according to Figs. 3 and 4 but also from being pressed down. Consequently, the awning is protected from rolling up and from being pressed down both in the straight position shown in Fig. 5 and in the position shown in Fig. 6 where the awning is inclined downwards in relation to the horizontal H about the angle of inclination N6.

The mounting brackets 2, retaining brackets 8, recesses 9 and connection webs 11 of the embodiments of the wall console 1, 1', 1'' shown in Figs. 1 to 6 are in each case configured as one-piece shaped parts extrusion moulded from an aluminium alloy. The longitudinal extension relative to the longitudinal direction of the profile amounts to a few centimetres. For each awning, two or more wall consoles 1, 1', 1'' of this type are secured to the housing wall 7 in such a way as to be evenly distributed along the width of the awning, the awning is inserted with its support pipe 10 into the receptacle 9 of the respective wall console 1, 1', 1'', and the angle of the awning is then adjusted by applying a corresponding bending force to the retaining bracket 8.

Patentkrav

1. Vægkonsol til en markise med vinkelindstilling, og som har:

- en montageflig (2), som kan fastgøres ved en bygningsdel ved en bygningsvæg (7),
- en holdeflig (8), som kan justeres i forhold til montagefligen (2) omkring en vandret vippeakse (S), og
- en modtagelsesdel (9) ved holdefligen (8) og beregnet til en bæredel, især et bærerør (10), i en markise,
- **kendetegnet ved, at**

den vandrette vippeakse (S) mellem montagefligen (2) og holdefligen (8) er dannet ved hjælp af et i et stykke med de to flige (2, 8) udformet bøjeligt forbindelsessteg (11).

2. Vægkonsol ifølge krav 1, **kendetegnet ved, at** den består af en strengpresset profildel.

3. Vægkonsol ifølge krav 2, **kendetegnet ved, at** profildelen består af en aluminiumslegering, der kan strengpresses.

4. Vægkonsol ifølge et af de foregående krav, **kendetegnet ved, at** holdefligens (8) vippevinkel (B) kan fikseres i forhold til montagefligen (2) i det mindste i en uddrejningsretning (R) ved hjælp af en anslagsskrue (15).

5. Vægkonsol ifølge krav 4, **kendetegnet ved, at** anslagsskruen (15) er indsat i et tilsvarende gevindskåret hul (14) ved den frie ende af holdefligen (8), hvilken anslagsskrue (15) i en anslagsstilling har sin forende (17) – fjernt fra et hoved (16) – liggende an mod montagefligen (2).

6. Vægkonsol ifølge et af kravene 1 til 4, **kendetegnet ved, at** forenden (17) af anslagsskruen (15) er svingbart og drejeligt sammenkoblet med montagefligen (2).

7. Vægkonsol ifølge krav 6, **kendetegnet ved, at** forenden (17) af anslagsskruen (15) har en koblingsstift (22), som via en gennemgangsåbning (23) i montagefligen (2), kan indgribe i en udtagning (24) i montagefligens bagside (3) og være fastgjort i denne udtagning ved hjælp af et holdeorgan (25), som muliggør et dreje- og vippespillerum.

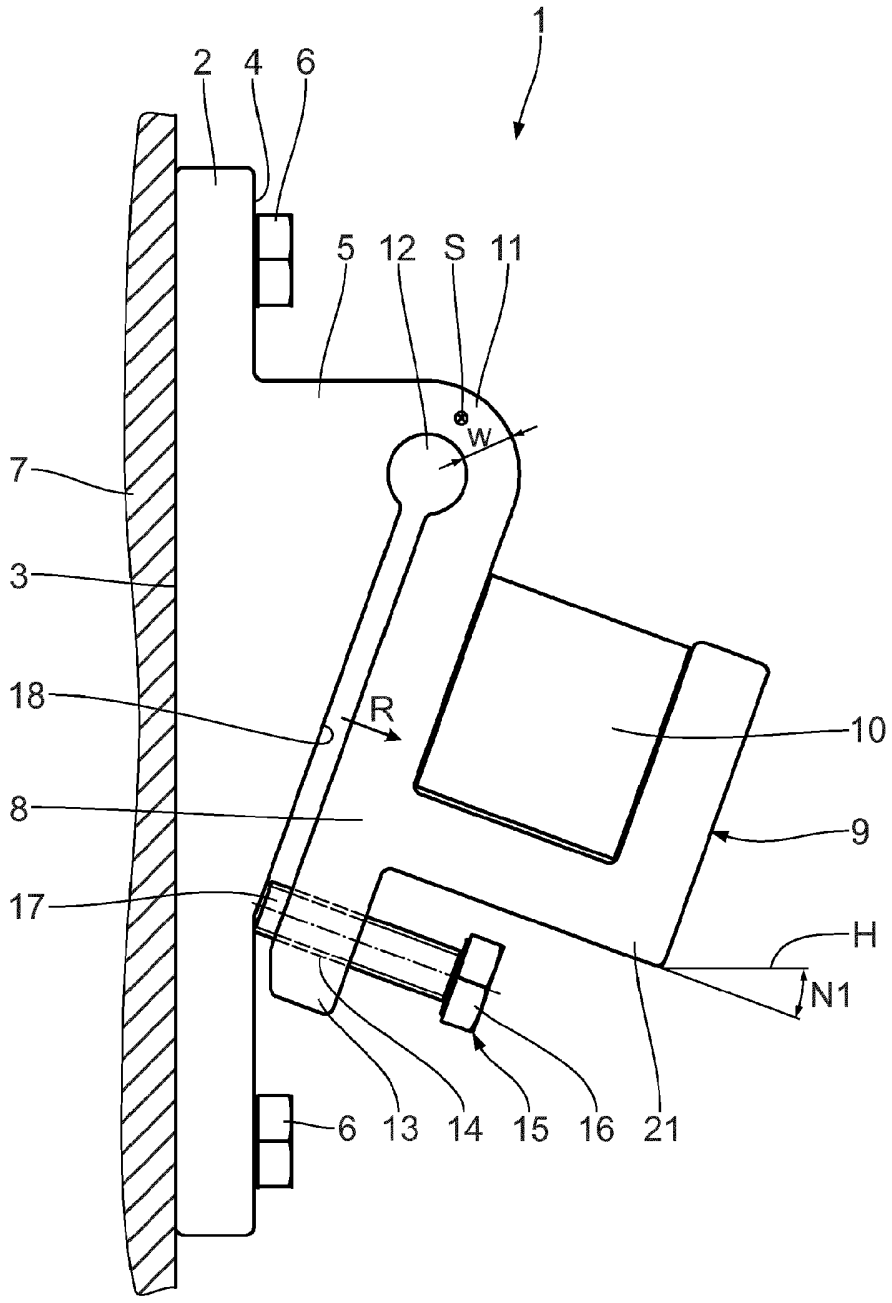

Fig. 1

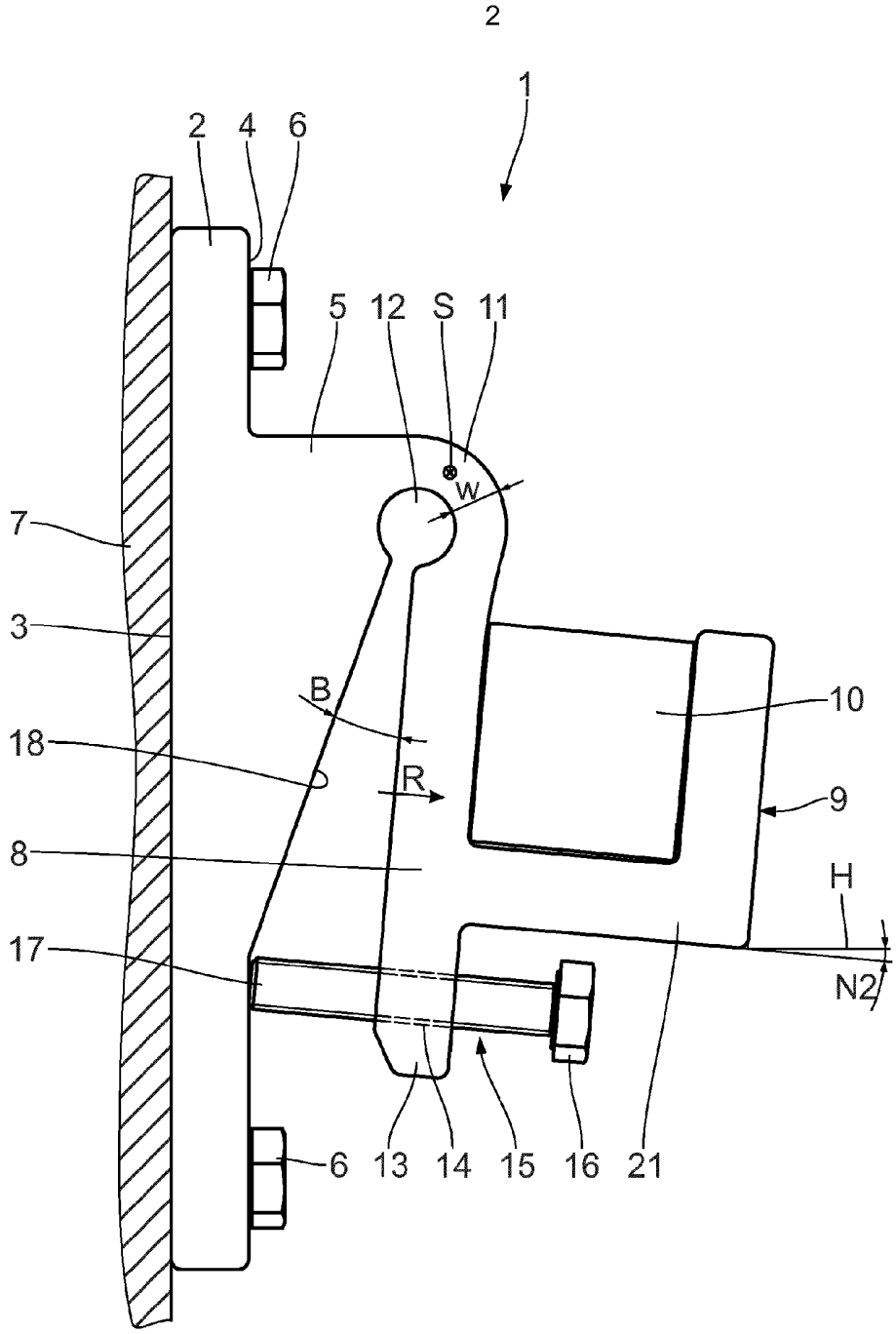

Fig. 2

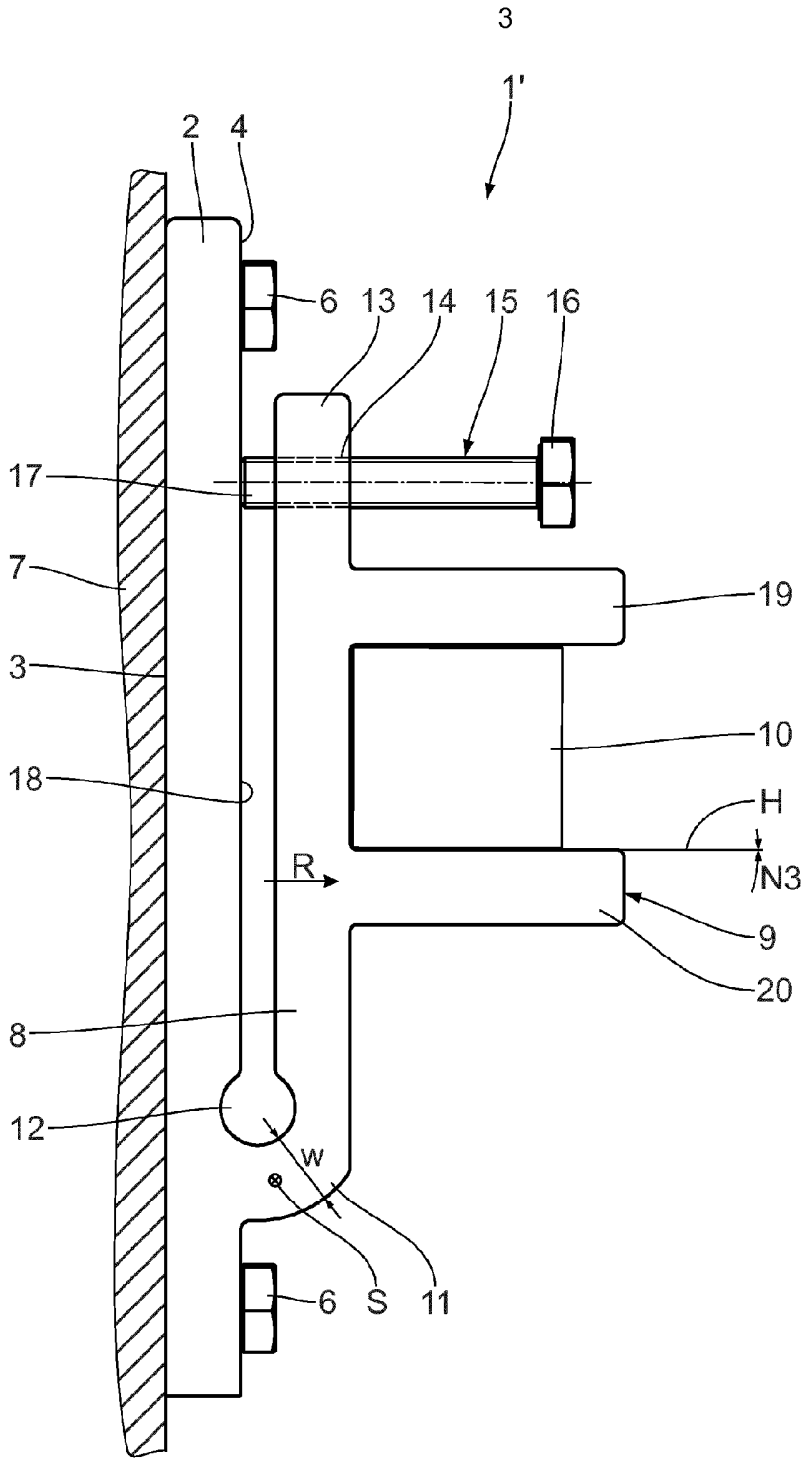

Fig. 3

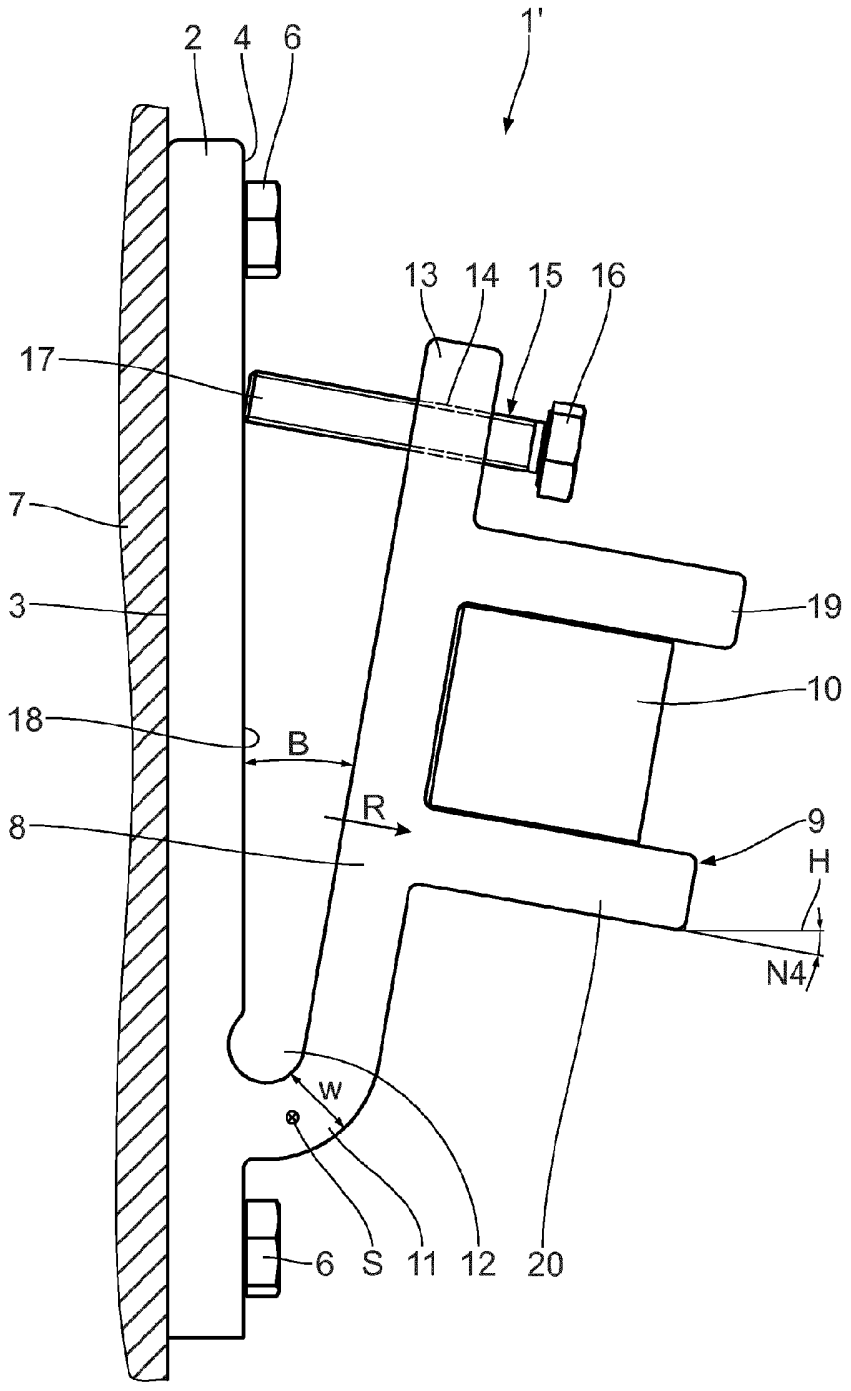

Fig. 4

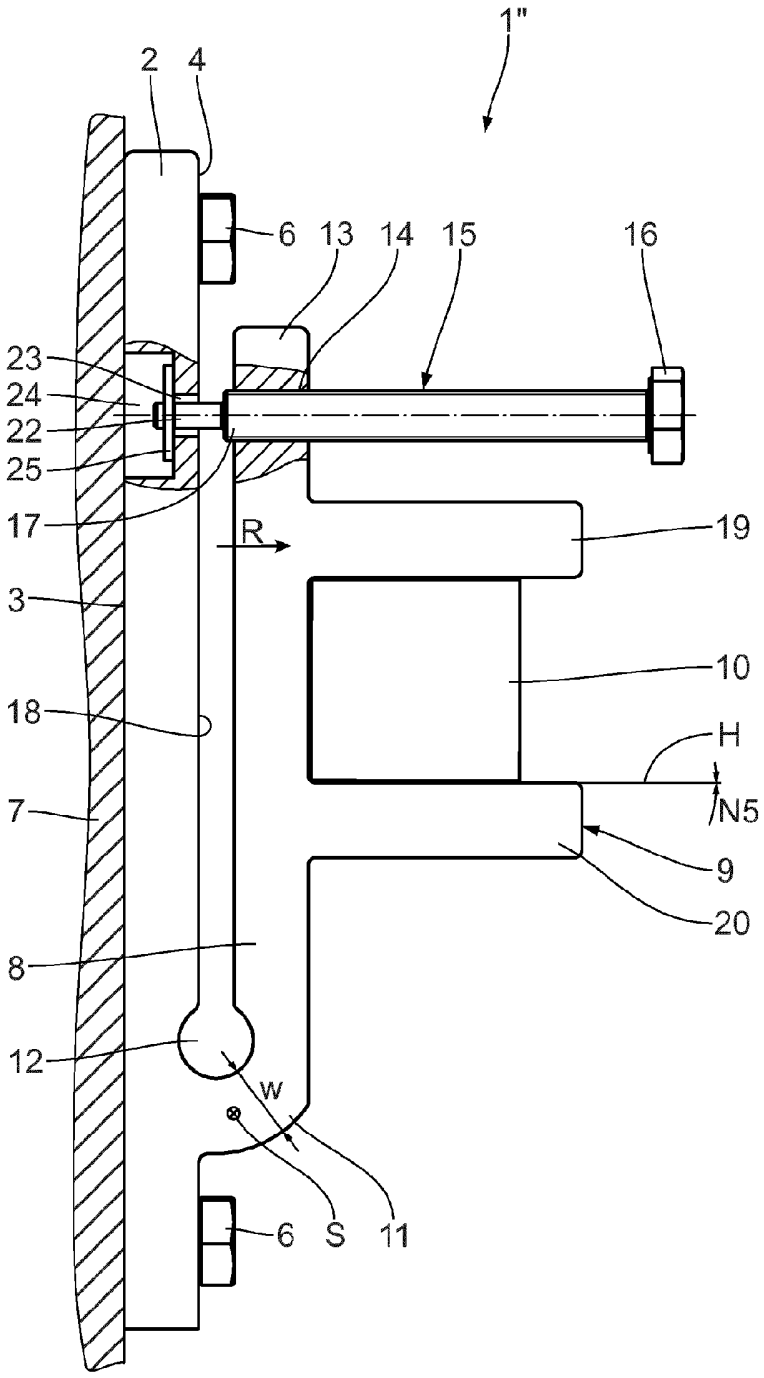

Fig. 5

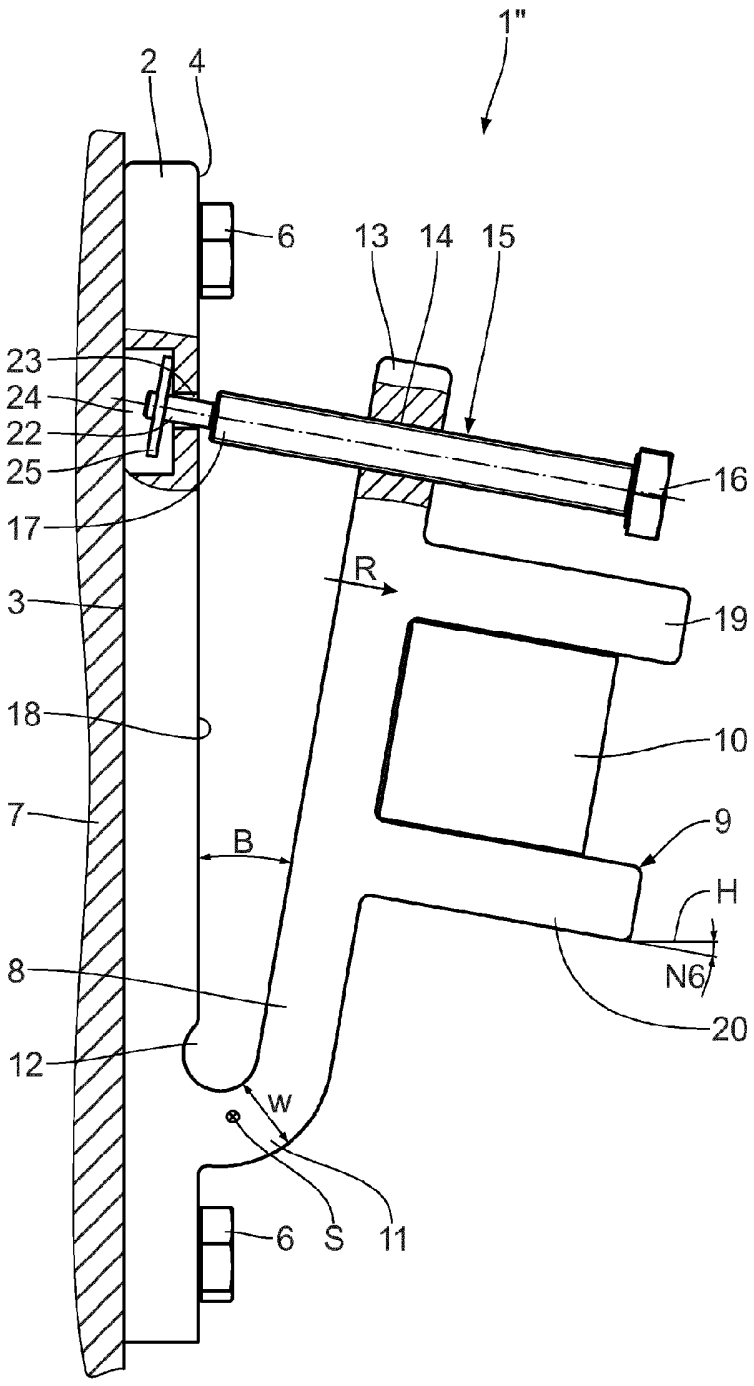

Fig. 6