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### (54) Building extension

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**Description**

**[0001]** The present invention relates to a building extension comprising a higher longitudinal support and a lower longitudinal support lying at a distance therefrom, between which cross supports extend, wherein panels can be mounted in the space between the longitudinal supports and cross supports, wherein the higher longitudinal support is provided with fastening means for connection to a wall of structural engineering construction, such as a facade of a building, a side wall, external wall or partition.

**[0002]** Such a building extension is generally known in the prior art. Panels made from glass or plastic can be provided in the space between the longitudinal support and cross supports. A building extension of this type is often built from profiles which, together with the use of the panels, require a precisely defined construction. However, the wall against which the building extension is placed is not always straight. Particularly over substantial lengths, such as more than 3 metres, a deviation from a pure straight line often appears to exist which is such that the mounting of the higher longitudinal support poses a problem.

**[0003]** In the prior art, it is proposed to compensate for deviations in the facade through the local mounting of filling material behind said support during mounting of the higher longitudinal support. Such a system, which involves working with filling parts, requires a lot of installation time and may impact on the strength of the fastenings. Furthermore, the disadvantage exists that, in building extensions in the prior art, fastenings must be implemented on the facade at places where the facade has insufficient load-bearing capacity, as in the case of joints in a stone wall. As a result, the fastening of the building extension becomes insufficiently strong. FR 2786215 A1 shows a building extension in the form of a veranda, comprising a higher longitudinal support and a lower longitudinal support lying at a distance therefrom, between which cross supports extend, wherein panels can be mounted in the space between the longitudinal supports and cross supports, wherein the higher longitudinal support is provided with fastening means for connection to a wall of a structural engineering construction, wherein the fastening means comprises an auxiliary support extending substantially over the length of the higher longitudinal support, said auxiliary support being arranged for fastening to the wall, and comprising one side which is to be pointed towards the wall, and comprising an opposite-lying side to which a fastening profile is mounted which is movable over a limited path in the direction from the higher longitudinal support to the lower longitudinal support, and wherein the higher longitudinal support is provided with a fastening element which cooperates with the fastening profile whereby the fastening profile is provided with a receptacle cavity and the fastening element is provided with a protrusion protruding into the receptacle cavity.

**[0004]** Particularly if the panels are weighed down with snow or another solid substance, the weight of such a building extension and, more particularly, the part of the weight bearing down on the facade, may be substantial. It is then important that the building extension and the fastenings have a high degree of rigidity. The panels can be formed from any suitable material, preferably transparent material, such as polycarbonate or glass.

**[0005]** The present invention provides for an improved construction, with which it is possible to implement a strong connection of the building extension on the facade in a simple manner, wherein the rigidity of the construction and the strength of the fastening to the facade remain guaranteed.

**[0006]** This is achieved in a building extension according to claim 1 in that the fastening means comprise an auxiliary support extending substantially over the length of this higher longitudinal support, said auxiliary support being arranged for fastening to the facade, and comprises one side which is facing the facade, and comprises an opposite side to which a fastening profile is provided which is movable over a limited path in the direction from the higher longitudinal support towards the lower longitudinal support, wherein this higher longitudinal support is provided with a fastening element which cooperates with the fastening profile.

**[0007]** According to the invention, the fastening profile is provided with at least one fastening receptacle with a cavity, and the fastening element comprises a protrusion protruding into this cavity.

**[0008]** In another embodiment, the fastening profile comprises at least one protrusion extending away from the facade, and the fastening element is provided with at least one fastening receptacle with a cavity, wherein the protrusion protrudes into the cavity.

**[0009]** According to the present invention, an auxiliary support is first provided against the facade. Such an auxiliary support may comprise a profile made from a deformable material, which profile is preferably relatively supple in the assembly direction and which can closely follow any irregularities on the outside of the facade. In other words: the outer limit of the auxiliary support essentially follows the outer limit of the facade. As a result, the auxiliary support can be fastened to the facade in an optimal manner. Furthermore, it can thus be made possible to realize the fastening of the auxiliary support only in the required position in the facade.

**[0010]** As the auxiliary support is provided with a fastening profile with one or more fastening elements which are movable to a limited extent in a direction perpendicular to the facade, the fastening elements can be positioned precisely in line, irrespective of the irregularities of the facade. The fastening profile may be a profile made from one piece, but may also consist of different parts which can be provided on the auxiliary support and moved in relation to the auxiliary support independently from one another. In general, the maximum movement of the fastening profile in relation to the

auxiliary support will be between 0 and 2 cm, for example 1 cm. However, a greater maximum movement is preferred, for example a maximum movement between 0 and 10 cm, so that larger deviations in the facade can be accommodated.

**[0011]** Subsequently, it is possible to connect the higher longitudinal support, which is more or less straight and has a high rigidity, to the fastening profile in a simple manner, since the higher longitudinal supports generally consist of one profile.

**[0012]** Subsequently or previously, it is possible to fasten the position of the fastening profile in the direction from the higher longitudinal support to the lower longitudinal support in relation to the auxiliary support using fastening means, such as screws, glue or the like. In addition, the structure of the auxiliary support and the fastening profile can be arranged in such a way that the fastening profile can never get into an unwanted position in relation to the auxiliary support, i.e. can come loose from it or can come into an area in which it is not able to transfer the forces from the higher longitudinal support to the auxiliary support.

**[0013]** According to the present invention, the combination of the fastening receptacle and protrusion is arranged in such a way that the mounting position differs from the operating position. More particularly, an automatic interlocking occurs due to the movement of the higher longitudinal support from the mounting position to the operating position. Such an interlocking can be achieved by constructing the protrusion as a ball, wherein a shaft extends from the ball, said shaft being connected to the higher longitudinal support, and by providing the associated cavity in the receptacle of the fastening profile with a relatively limited mounting opening. As a result, the ball with the shaft can be inserted into the cavity in the fastening receptacle in only one position. Pivoting is then possible without fear of the higher longitudinal support coming loose.

**[0014]** It will be understood that the construction of the protrusion and the receptacle described above can be reversed, i.e. that the receptacle with the cavity is located in the higher longitudinal support and the protrusion is provided on the fastening profile. Furthermore, other types of reciprocal fastening between the fastening profile and the higher longitudinal support can be present. Movability of the fastening profile in relation to the auxiliary support provides for the simple assembly of the higher longitudinal support described above.

**[0015]** It is possible to mount the cross supports in advance to the higher and possibly the lower longitudinal supports and to connect them as one whole to the auxiliary support and subsequently support the lower longitudinal support on at least one substantially vertical column, preferably two vertical columns, for example on the longitudinal ends thereof. It is also possible to support each of at least two of the cross supports on a vertical column at a predefined distance from the higher longitudinal support and the lower longitudinal support. An auxiliary longitudinal support is mounted to the underside of the cross supports, which auxiliary longitudinal support is then supported on the columns.

**[0016]** According to an advantageous embodiment of the present invention, assembly is considerably simplified if the cross supports are fastened to the higher longitudinal support only at a later stage. It is then possible, after mounting the auxiliary support, first to mount the higher longitudinal support which, due to its size and weight, is relatively simple to handle, and then to mount the cross supports to the higher longitudinal support. This can be achieved, for example, by providing the cross supports with a movable lock projecting therefrom and by providing the longitudinal support with a cam cooperating therewith. As a result, each cross support can be positioned in a simple manner against the higher longitudinal support or can be hooked into it, and the cross support can be pushed firmly against the higher longitudinal support by means of the lock, and the reciprocal position thereof can be defined. It is also possible to provide the longitudinal support with a lock projecting therefrom, and to provide the cross support with a cam cooperating therewith. The lock is, for example, movable through an excenter.

**[0017]** The separate mounting of the higher longitudinal support and the cross supports can be advantageous if the higher longitudinal support is provided with a receptacle for a cloth roll.

**[0018]** After the mounting of the cross supports and the connection of the cross supports to the lower longitudinal support, the space between the cross supports can be filled with panels, for example by providing glass panels or the like. Obviously, this can also be performed in advance.

**[0019]** According to one advantageous embodiment, the lower longitudinal support is a gutter-shaped profile. In a particular embodiment of the invention, this U-shaped profile has a first, shorter leg on which the cross supports are supported, and a second, longer opposite-lying leg. The shorter leg is preferably 20% shorter than the longer leg. According to a particular embodiment of the invention, the underside of each cross support is supported on the upper side of the shorter leg. As a result, it is not necessary to adapt the cross support in such a way that it is lowered in relation to the second leg, for example by providing a notch in the end to be supported. When the described U-shaped profile is used, drainage channels, which run out into the gutter, can be mounted in the upper side of the cross support. Shortening of the shorter leg with at least 4 cm in relation to the longer leg will generally be sufficient such that the ends of the cross supports no longer visible from the front side of the building extension through shielding by the longer leg of the U-shaped profile.

**[0020]** According to a particular embodiment of the invention, the longer leg is provided with a strengthening profile mounted therein. Particularly if building extensions with greater lengths are used and only a limited number of vertical columns, for example only on each side of the building extension, are used to support the lower longitudinal support,

demanding requirements are imposed on the rigidity of the lower longitudinal support. Particularly if the lower longitudinal support is made from aluminium, plastic or materials of this type and the structural height thereof is limited for aesthetic reasons, the strength of such materials is insufficient to achieve a limited bending in the case of longer spans, for example of 4 metres and more. When loading the panels of the building extension with snow or another solid substance, a considerable load will also bear down on the longitudinal support. In particular, demanding requirements are imposed on the bending of the longitudinal support. A maximum bending of 1 cm per 200 cm is normally maintained for building extensions of this type.

**[0021]** For this reason, according to an advantageous embodiment of the invention, a strengthening profile, such as a separate steel profile, which may, in particular, be a C-profile, is used in the longer leg, the strengthening profile extending substantially over the entire height and entire length of the longer leg. An I-profile or an H-profile is also possible. Optimum moment strength can be achieved through the extension over the entire height of the longer leg. The longer leg is preferably provided with a cavity in which such a profile can be accommodated. As indicated above, the higher longitudinal support is preferably provided with a receptacle for a cloth roll with a cloth. A tensioning mechanism is then present for the free end of the cloth in at least two cross supports on each side of the building extension. As a result, the force is distributed at the free end of the cloth and the front strip. The second from outermost cross support is preferably provided with a tensioning mechanism, so that the tensile forces are distributed at the front strip and the latter will not become warped. Other locations of one and/or more tensioning mechanisms are of course also possible. The cloth can move along the underside of the cross supports, and therefore inside the building extension, but according to an advantageous embodiment the cloth moves along the upper side of the cross supports, and therefore outside the building extension. Unwanted heating of the space in the building extension can thus be avoided as much as possible. Two cross supports of the building extension are preferably provided with a tensioning mechanism. This may, for example, be a gas spring with a tensioning line, band or cable conventionally used in the prior art connected thereto, said tensioning line being connected via a reversing roller at the bottom end of the cross support to the front strip provided at the free end of the cloth. The cloth preferably moves with the aid of a (sliding) carriage along the cross support concerned. The cross supports are preferably provided with such a carriage, on which the front strip of the cloth is provided, on which front strip, on the other hand, the tensioning line connected to the tensioning mechanism is provided. However, it is also possible for every other cross support to be provided with such a carriage.

**[0022]** According to an advantageous embodiment of the invention, for a better distribution of the forces of the building extension, each cross support is provided with such a carriage on which the front strip of the cloth is fastened.

**[0023]** The invention also relates to a structural engineering construction comprising a facade and a building extension as described above.

**[0024]** The invention further relates to a method for fastening a building extension, as described above, to a facade in order to form a structural engineering construction, comprising:

fastening said auxiliary support to the facade, mounting said fastening profile movable over a limited path on the auxiliary support, moving the fastening profile over the auxiliary support in order to obtain a straight fastening area, bringing said fastening element provided on the higher longitudinal support into cooperation with the fastening profile (11) when in the mounting position whereby said protrusion (14, 41) is accommodated into said receptacle cavity (13, 30), pivoting the fastening element with respect to the fastening profile to the operating position, thereby automatically interlocking the receptacle cavity (13, 30) and the protrusion (14, 41) and thereby connecting the higher longitudinal support (4) to the fastening profile (11),- fastening at least two cross supports to the higher longitudinal support, fastening a lower longitudinal support to a free end of the cross supports, supporting the building extension on at least one substantially vertically positioned column.

**[0025]** Support of the building extension is only possible on a limited number of substantially vertical columns if the building extension is fastened with the auxiliary support to a rigid and strong construction, such as a facade of a building.

**[0026]** In a further embodiment, connecting a higher longitudinal support to the fastening profile comprises the positioning in a first mounting position of a protrusion provided on the fastening element in a receptacle cavity provided in the fastening profile, preferably over the entire length thereof, and thereafter the moving of the higher longitudinal support to a second operating or end position in order to lock the protrusion into the receptacle cavity.

**[0027]** A facade of a building nearly always comprises irregularities, and the method comprises the deformation of the auxiliary support against the facade in order to accommodate the irregularities, whereas the fastening profile remains more or less straight. The fastening profile can of course also comprise different parts to be mounted on the auxiliary support, which parts can be moved independently from one another in relation to the auxiliary support. In this way, the fastening profile parts can be positioned in such a way that they are aligned with respect to one another. The higher longitudinal support can then be connected to the fastening profile parts.

**[0028]** The method preferably comprises the fastening of the fastening profile in relation to the auxiliary support by means of a fastening means.

**[0029]** The invention will be explained in detail below on the basis of an example embodiment shown in the drawings. In the drawings:

Figure 1 shows schematically a perspective view of an example of a building extension according to the invention. Figure 2 shows a side view of the assembly of the auxiliary support and the mounting of the higher longitudinal support. Figure 2a shows an alternative mounting of the higher longitudinal support. Figure 2b shows a top view of the building extension according to Figures 2 and 2a.

5 Figure 3 shows the higher longitudinal support fastened to the facade and the cross support mounted at a distance therefrom.  
 Figure 4 shows the cross support mounted to the higher longitudinal carrier.  
 Figure 5 shows a side view of a detail of the cross support and the lower longitudinal support and column according to Figure 1.  
 10 Figure 6 shows a detail of the fastening of the cloth front strip on the carriage.

**[0030]** Figure 1 shows an example of a building extension 1 according to the invention. A building extension 1 of this type is also known as a terrace covering, but it must be understood that any type of building extension which can be mounted against a facade 2, such as a conservatory, falls within the scope of the present invention.

15 **[0031]** A higher longitudinal support 4 is fastened to the facade 2 in a manner to be described below, and a number of parallel cross supports 6 extend from this higher longitudinal support 4 which cross supports are fastened to the lower longitudinal support 5 which in turn is supported on columns 3. Panels such as panes of glass 7 are mounted in the space between the longitudinal supports and cross supports. A cloth 8 of an awning can be moved back and forth over the cross supports, and is fastened with the front strip 23 thereof to carriages 9 which move over the cross supports.

20 **[0032]** The fastening of the higher longitudinal support 4 to the facade 2 will be described below first. For this purpose, reference is made to Figures 2/2a/2b. Figure 2 shows an auxiliary support 10. This is a profile with a length which roughly corresponds to the length of the higher longitudinal support. Due to the relatively long length in relation to the thickness of the auxiliary support 10 (seen in a direction perpendicular to the surface of the facade), the auxiliary support 10 is relatively rigid in the height direction, but relatively supple in a direction perpendicular to the surface of the facade. In 25 other words, in the height direction (a vertical direction parallel to the surface of the facade), the auxiliary support is more difficult to deform than in the thickness direction (a direction perpendicular to the surface of the facade). This auxiliary support 10 is fastened to the facade 2 in any manner known as such in the prior art. This can be carried out using bolts and the like, wherein special auxiliary building extensions can possibly be used.

30 **[0033]** As the facade 2 is often not straight, seen in the longitudinal direction thereof (see Figure 2b) and the higher longitudinal support 4 is a straight and rigid profile, a problem can occur given that deviations are not tolerable through combination with the remainder of the structure. This is solved according to the invention by fastening the auxiliary profile 10 which is relatively supple in the thickness direction (a direction perpendicular to the surface of the facade) against the facade, wherein the irregularities in the facade are followed, i.e. the auxiliary support or the auxiliary profile 10 follows the deviations in the surface of the facade 2 in the thickness direction perpendicular to the surface of the facade.

35 **[0034]** As shown in Figure 2, the auxiliary support 10 is provided with a protrusion 29 preferably projecting over the entire length thereof. A fastening profile 11 can move back and forth thereover in the direction of the arrow 12, i.e. in a direction perpendicular to the facade wall 2. The protrusion 29 is provided with a ridge which prevents the fastening profile 11 from being able to move in a direction away from the facade from the auxiliary support. In each of the positions of the fastening profile 11, the cavity 13 will be supported on the protrusion 29 in such a way that a load imposed thereon 40 can be transferred into the auxiliary support 10.

**[0035]** Figure 2 also shows that the higher longitudinal support 4 is provided with a protrusion 14 provided with a ball which fits into the cavity 13 of the fastening profile 11.

45 **[0036]** Figure 2a shows an alternative fastening of the higher longitudinal support 4 to the auxiliary support 10. The fastening profile 11 is provided with a protrusion 14 of a ball which fits into the receptacle cavity 13 provided in the higher longitudinal support 4.

**[0037]** In the conditions shown in Figures 2 and 2a, the higher longitudinal support 4 is not yet connected to the cross support 6.

50 **[0038]** According to the present invention, the protrusion 14 can be positioned in the receptacle cavity 13 with the higher longitudinal support 4 being substantially horizontal. From this position, the higher longitudinal support can be pivoted downwards to the correct position. The correct position is determined by the cross support which is subsequently to be fastened thereto.

**[0039]** In general, a fastening receptacle will be present over the entire length of the fastening profile 11. The fastening profile and therefore the fastening receptacles also, can also be mounted in separate parts on the auxiliary carrier. By moving the fastening profile 11 to a differing extent according to arrow 12 in relation to the facade, the profile can be set in a straight line. In principle, the profile 11 can be adjusted after the higher longitudinal support 4 has been mounted. In other words, after fastening the higher longitudinal support 4 to the fastening profile 11, a desired in-between position of the higher longitudinal support 4 in relation to the facade can be achieved by sliding. The final condition can be fixed with screws (not shown) or glue 31. Such a final position is shown in Figure 3.

[0040] In the position shown in Figure 3, the shaft 38 connected to the ball is at some distance from the limitation of the fastening receptacle 11. The angular position of the higher longitudinal support is determined here by the cross support and the position of the cross support 6 is in turn determined by the height at which the lower longitudinal support 5 is supported.

5 [0041] After mounting the higher longitudinal support, one or more covering profiles 40 can be mounted in order to ensure that the building extension is watertight. On the upper side, the auxiliary support 10 is provided with a strip 30 of flexible material which grips the covering strip 40 and holds it in place.

10 [0042] Figures 2 and 4 show that the higher longitudinal support 4 is provided with a interlocking cam 17, and the cross support 6 is provided with a movable lock 16. The cross support 6 is hooked in on the upper side in the higher longitudinal support 4 and is then slided downwards, as a result of which the lock 16 moves along the cam 17. By means of the subsequent drawing in of the lock 16 into the cross support 6, a particularly rigid reciprocal fastening of the cross support in relation to the higher longitudinal support 4 can be achieved. This mutual fixing can furthermore be particularly precise. According to a preferred embodiment, the lock 16 then moves with the aid of an excenter 18, as shown schematically in Figure 4.

15 [0043] Figure 5 shows a cross support being supported on the lower longitudinal carrier 5. The lower longitudinal carrier is supported on the columns. The lower longitudinal support 5 is a substantially U-shaped profile with a first, longer leg 24 and an opposite-lying second, shorter leg 25 on which shorter leg the underside of the cross support rests. As a result, a drainage profile present in the cross support opens out above the top edge of the shorter leg 5 and water and the like can flow away without hindrance in the gutter, formed within the U-shaped profile, and can be removed via 20 the columns 3. The connection between the lower longitudinal support and the cross support 6 is established here by means of a hinge 32. It will be understood that any other conceivable construction can be applied. Since the weight that must be borne by the lower longitudinal support may be relatively high, and relatively long spans are required between the columns 3, wherein it is generally not desirable to use more than two such columns 3, demanding requirements are imposed on the bending rigidity of the lower longitudinal support. According to a preferred embodiment of the invention, 25 in order to meet these rigidity requirements in the case of aluminium profiles or plastic profiles also, the longer leg 24 is constructed as hollow and a strengthening profile 26 is present therein. The strengthening profile can have any other rigidity-imparting shape, such as a C, an I or an H. The profile is preferably made from steel. As the strengthening profile 26 extends over the entire height and length of the longer leg 24, a substantial increase in the strength and rigidity of the higher leg can be obtained with a relatively limited wall thickness. It must be understood that a strength increase of 30 this type can also be achieved by providing the lower longitudinal support in any manner with additional profiles, if, for example, said support is manufactured by extrusion. This depends on the requirements imposed by both the weight of the cross supports, i.e. the depth of the building extension, and the length of the building extension, i.e. the distance between the columns 3.

35 [0044] Fastening of the column 3 to the lower longitudinal support may comprise a construction known in the prior art, and is achieved in the present example embodiment in that a recess 33 is present in column 3, extending over the entire height thereof, and is subsequently closed off by a covering strip 34 (see also Figure 1). An endplate 35 is fastened to the crosscut end of the column 3 and this endplate 35 is provided with an opening 36 for the insertion of a bolt 37 for fastening to the lower longitudinal support.

40 [0045] According to an alternative support, the cross support can be brought to rest directly on the columns. For this purpose, an auxiliary longitudinal support, is then mounted to the underside of the cross supports, which auxiliary longitudinal support is then supported on the columns. The lower longitudinal support is then constructed as a rigid drainage gutter. The columns can, for example, be positioned more or less inwards, so that a cross support or an end cross support respectively is supported on the columns.

45 [0046] As shown in Figure 2, the higher longitudinal support is provided with a cloth roll 15, from which the cloth 8 can be unrolled. An electric motor (not shown) can be present to drive said roll. The cloth roll 15 is located in a gutter 39, in which rainwater and contaminants can be collected. This gutter is connected in a manner not shown in detail to the previously described drainage channel 28 of the cross supports.

50 [0047] The front end of the cloth 8 is provided with a front strip 23, and this front strip 23 is connected to carriages 9 which are movable over the upper side of the cross supports 6. Each cross support 6 can be provided with a carriage of this type. Details of the connection of the front strip 23 to the carriage 9 are shown in Figure 6. This shows that a securing lip 27 is present, by means of which, on the one hand the connection of the front strip 23 with the carriage 9 can be implemented by hooking in, but, on the other hand it is prevented that the front strip 23 moves out of the carriage 9 concerned by wafting up.

55 [0048] At the position of the carriages 9, a line or cable 22 is mounted (see Figure 5), which is connected via a reversing roller 19 and a number of further rollers 20 to a gas spring 21. In general, such a line or cable 22 will be mounted for only some carriages 9, for example 2 or 3 carriages. All carriages 9 can of course also be provided with such a line or cable 22. In this way, the line 22 and therefore the front strip 23 of the cloth 8 are always held taut, irrespective of the position thereof on the roof, i.e. irrespective of the extent of covering of the glass supports or glass panes 7. Instead of

a gas spring, a construction with different types of springs or an otherwise arranged construction can be used.

**[0049]** The building extension is fastened to the facade by first fastening the auxiliary support 10 to the facade. Since the auxiliary support 10 is formed by a profile which is easily deformable in the longitudinal direction, this auxiliary support can follow the deviations in the straight surface in the facade.

5 **[0050]** A fastening profile 11 which is movable over a limited path is then mounted to the auxiliary support 10. The fastening profile is provided with one or more protrusions 29 over the entire length of the auxiliary support 10 over which the fastening profile 11 can be moved. By means of ridges provided on the protrusion 29, the fastening profile cannot slide from the auxiliary support 10 in the direction pointing away from the facade. The facade comprises irregularities and, due to the deformation in the longitudinal direction of the auxiliary support against the facade, the irregularities are 10 accommodated, whereas the fastening profile remains more or less straight. The fastening profile 11 may also consist of separate parts, which are mounted separately onto the auxiliary support 10.

**[0051]** The fastening profile 11 is then moved over the auxiliary support 10 in order to align the profile and compensate for the irregularities in the surface of the facade. As a result, a straight fastening area is created for the higher longitudinal support.

15 **[0052]** The higher longitudinal support 4 is connected to the fastening profile 11 by means of a fastening element 14 provided on the higher longitudinal support 4 and which cooperates with the fastening profile. The connection of the higher longitudinal support 4 to the fastening profile preferably comprises the mounting in a first mounting position of a protrusion 14 provided on the fastening element in a receptacle cavity 13 provided in the fastening profile 11, preferably over the entire length of the fastening profile, and then the movement of the higher longitudinal support to a second end 20 position or operating position in order to lock the protrusion into the receptacle cavity, wherein the mounting position differs from the operating position.

**[0053]** The higher longitudinal support can also be provided with a receptacle cavity 13 and the fastening profile can be provided with a protrusion 14. The fastening is then effected by moving the receptacle cavity 13 towards the protrusion 14 in such a way that the receptacle cavity 13 accommodates the protrusion. The higher longitudinal support is then 25 moved from this first mounting position to an end position in order to lock the protrusion in the receptacle cavity.

**[0054]** After connecting the higher longitudinal support to the facade by means of the auxiliary support and the fastening profile, at least two cross supports 6 are fastened to the higher longitudinal support 4. More than two cross supports 6 are preferably mounted, so that panels can be accommodated in the space between the longitudinal supports and the cross supports.

30 **[0055]** Subsequently, the lower longitudinal support 5 is attached to a free end of the cross supports 6. To provide support, the building extension is then supported on at least one substantially vertically placed column 3. The building extension is preferably supported on two columns 3. The columns can support the building extension in the case of the lower longitudinal support on the ends thereof or at a distance from the ends of the longitudinal supports and/or the cross supports.

35 **[0056]** The fastening profile 11 is preferably fastened in relation to the auxiliary support 10 by means of a fixing means 31. As a result, the fastening profile, with the higher longitudinal support connected thereto, can no longer move once the building extension is supported. The fixing means may comprise either glue or screws, or a combination of both.

List of components

40	1. Building extension	31. Glue
	2. Facade	32. Ball hinge
	3. Column	33. Recess
	4. Higher longitudinal support	34. Covering strip
45	5. Lower longitudinal support	35. Endplate
	6. Cross support	36. Opening
	7. Panel	37. Bolt
	8. Awning cloth	38. Shaft
	9. Carriage	39. Gutter
50	10. Auxiliary support	40. Covering profile
	11. Fastening profile	41. Spherical protrusion
	12. Arrow	
	13. Receptacle cavity	
	14. Protrusion	
55	15. Cloth roll	
	16. Lock	
	17. Cam	

(continued)

18. Excenter
19. Reversing roller
20. Roller
21. Gas spring
22. Line
23. Front strip
24. Long leg
25. Short leg
26. Rigid profile
27. Retaining lip
28. Drainage canal
29. Protrusion
30. Receptacle cavity

## Claims

1. Building extension (1) comprising a higher longitudinal support (4) and a lower longitudinal support (5) lying at a distance therefrom, between which cross supports (6) extend, wherein panels (7) can be mounted in the space between the longitudinal supports and cross supports, wherein the higher longitudinal support (4) is provided with fastening means for connection to a wall (2) of a structural engineering construction, wherein the fastening means comprises an auxiliary support (10) extending substantially over the length of the higher longitudinal support (4), said auxiliary support (10) being arranged for fastening to the wall (2), and comprising one side which is to be pointed towards the wall, and comprising an opposite-lying side to which a fastening profile (11) is mounted which is movable over a limited path in the direction from the higher longitudinal support (4) to the lower longitudinal support (5), and wherein the higher longitudinal support is provided with a fastening element which cooperates with the fastening profile (11) whereby either the fastening profile (11) is provided with a receptacle cavity (13) and the fastening element is provided with a protrusion (14) protruding into the receptacle cavity (13); or the fastening element is provided with a receptacle cavity (30) and the fastening profile (11) is provided with a protrusion (41) protruding into the receptacle cavity (30), wherein the fastening profile (11) and the fastening element are arranged in such a way that the fastening element can only be brought into cooperation with the fastening profile in a mounting position (11), and wherein through pivoting of the higher longitudinal support (4) in relation to the auxiliary support (10) to an operating position, the fastening element locks into the fastening profile (11), wherein the mounting position differs from the operating position.
2. Building extension according to one of the preceding claims, wherein panels are provided between the longitudinal supports and the cross supports.
3. Building extension according to one of the preceding claims, wherein each cross support (6) is mounted detachably in relation to the longitudinal support (4, 5).
4. Building extension according to Claim 3, wherein the cross support (6) is provided with a movable lock (16) projecting therefrom, and the longitudinal support (4, 5) is provided with a cam (17) cooperating therewith.
5. Building extension according to Claim 3, wherein the longitudinal support (4, 5) is provided with a movable lock (16) projecting therefrom, and the cross support (6) is provided with a cam (17) cooperating therewith.
6. Building extension according to one of the preceding claims, wherein the lower longitudinal support (5) is arranged as U-shaped profile, wherein each of the cross supports is supported on a first leg (25) of the U-shape, and a second, opposite-lying leg (24) of the U-shape is provided with a separate strengthening profile (26) extending substantially over the entire height and length of the lower longitudinal support (5).
7. Building extension according to Claim 6, wherein a channel (28) extends through the cross support and opens out in the U-shaped lower longitudinal support.

8. Building extension according to Claim 6 or 7, wherein the first leg (25) of the U-shaped profile is at least 20% shorter than the second, opposite-lying leg (24).

5 9. Structural engineering construction, comprising a facade (2) and a building extension (1) according to one of the preceding claims.

10 10. Method for fastening a building extension (1) to a facade (2) to form a structural engineering construction, **characterized in that** the building extension (1) is according to one of claims 1 to 8 and that it comprises:

- 10 - fastening said auxiliary support (10) to the facade (2),
- mounting said fastening profile (11) movable over a limited path on the auxiliary support (10),
- moving the fastening profile (11) over the auxiliary support (10) in order to obtain a straight fastening area,
- bringing said fastening element provided on the higher longitudinal support into cooperation with the fastening profile (11) when in the mounting position whereby said protrusion (14, 41) is accommodated into said receptacle cavity (13, 30),
- pivoting the fastening element with respect to the fastening profile to the operating position, thereby automatically interlocking the receptacle cavity (13, 30) and the protrusion (14, 41) and thereby connecting the higher longitudinal support (4) to the fastening profile (11),
- fastening at least two cross supports (6) to the higher longitudinal support (4),
- fastening a lower longitudinal support (5) to a free end of the cross supports (6),
- supporting the building extension on at least one substantially vertically positioned column (3).

25 11. Method according to Claim 10, wherein connecting a higher longitudinal support (4) to the fastening profile (11) comprises mounting in a first position a protrusion provided on the fastening element (14) in a receptacle cavity (13) provided over the entire length of the fastening profile (11) and thereafter moving the higher longitudinal support to an end position in order to lock the protrusion in the receptacle cavity.

30 12. Method according to Claim 10 or 11, comprising the fixing of the fastening profile in relation to the auxiliary support by means of a fixing means (31).

35 13. Method according to one of Claims 10 to 12, wherein the facade comprises irregularities and the method comprises the deformation of the auxiliary support against the facade in order to accommodate the irregularities, whereas the fastening profile remains more or less straight.

## Patentansprüche

1. Gebäudeerweiterung (1), die einen oberen Längsträger (4) und einen unteren Längsträger (5), der in einem Abstand davon liegt, umfasst, zwischen denen sich Querträger (6) erstrecken, wobei Tafeln (7) in dem Raum zwischen den Längsträgern und den Querträgern montiert werden können, wobei der obere Längsträger (4) mit Befestigungsmitteln zum Verbinden mit einer Wand (2) einer Hochbaukonstruktion versehen ist, wobei die Befestigungsmittel einen Hilfsträger (10) umfassen, der sich im Wesentlichen über die Länge des oberen Längsträgers (4) erstreckt, wobei der Hilfsträger (10) zum Befestigen an der Wand (2) vorgesehen ist, und die eine Seite umfasst, die zu der Wand zeigen soll, und die eine gegenüberliegende Seite umfasst, an der ein Befestigungsprofil (11) montiert ist, das über einen begrenzten Weg in der Richtung von dem oberen Längsträger (4) zu dem unteren Längsträger (5) bewegt werden kann, und wobei der obere Längsträger mit einem Befestigungselement versehen ist, das mit dem Befestigungsprofil (11) zusammenwirkt, wobei entweder das Befestigungsprofil (11) mit einem Aufnahmehohlraum (13) versehen ist und das Befestigungselement mit einem Vorsprung (14) versehen ist, der in den Aufnahmehohlraum (13) hineinragt; oder das Befestigungselement mit einem Aufnahmehohlraum (30) versehen ist und das Befestigungsprofil (11) mit einem Vorsprung (41) versehen ist, der in den Aufnahmehohlraum (30) hineinragt, wobei das Befestigungsprofil (11) und das Befestigungselement derart angeordnet sind, dass das Befestigungselement nur in einer Montageposition (11) mit dem Befestigungsprofil zum Zusammenwirken gebracht werden kann, und wobei durch Schwenken des oberen Längsträgers (4) bezüglich des Hilfsträgers (10) in eine Arbeitsposition, das Befestigungselement in das Befestigungsprofil (11) einrastet, wobei sich die Montageposition von der Arbeitsposition unterscheidet.
2. Gebäudeerweiterung nach einem der vorhergehenden Ansprüche, wobei zwischen den Längsträgern und den Querträgern Tafeln vorgesehen sind.

3. Gebäudeerweiterung nach einem der vorhergehenden Ansprüche, wobei jeder Querträger (6) bezüglich des Längsträgers (4, 5) lösbar befestigt ist.
4. Gebäudeerweiterung nach Anspruch 3, wobei der Querträger (6) mit einer beweglichen Sperrvorrichtung (16), die davon vorsteht, versehen ist, und der Längsträger (4, 5) mit einem Nocken (17) versehen ist, der damit zusammenwirkt.
5. Gebäudeerweiterung nach Anspruch 3, wobei der Längsträger (4, 5) mit einer beweglichen Sperrvorrichtung (16), die davon vorsteht, versehen ist, und der Querträger (6) mit einem Nocken (17) versehen ist, der damit zusammenwirkt.
10. Gebäudeerweiterung nach einem der vorhergehenden Ansprüche, wobei der untere Längsträger (5) als ein U-förmiges Profil vorgesehen ist, wobei jeder der Querträger auf einem ersten Schenkel (25) der U-Form getragen wird, und ein zweiter, gegenüber liegender Schenkel (24) der U-Form mit einem separaten Verstärkungsprofil (26) versehen ist, das sich im Wesentlichen über die gesamte Höhe und Länge des unteren Längsträgers (5) erstreckt.
15. Gebäudeerweiterung nach Anspruch 6, wobei sich ein Kanal (28) durch den Querträger erstreckt und in den U-förmigen unteren Längsträger mündet.
20. Gebäudeerweiterung nach Anspruch 6 oder 7, wobei der erste Schenkel (25) des U-förmigen Profils um mindestens 20 % kürzer ist als der zweite, gegenüberliegende Schenkel (24).
25. Hochbaukonstruktion, die eine Fassade (2) und eine Gebäudeerweiterung (1) nach einem der vorhergehenden Ansprüche umfasst.
30. 10. Verfahren zum Befestigen einer Gebäudeerweiterung (1) an einer Fassade (2), um eine Hochbaukonstruktion zu bilden, **dadurch gekennzeichnet, dass** die Gebäudeerweiterung (1) einem der Ansprüche 1 bis 8 entspricht, und dass das Verfahren Folgendes umfasst:
  - Befestigen des Hilfsträgers (10) an der Fassade (2),
  - Montieren des Befestigungsprofils (11), so dass es über einen begrenzten Weg auf dem Hilfsträger (10) bewegt werden kann,
  - Bewegen des Befestigungsprofils (11) über den Hilfsträger (10), um einen geraden Befestigungsbereich zu erhalten,
  - 35. - Bringen des Befestigungselements, das auf dem oberen Längsträger vorgesehen ist, zum Zusammenwirken mit dem Befestigungsprofil (11), wenn es sich in der Montageposition befindet, wobei der Vorsprung (14, 41) in dem Aufnahmehohlraum (13, 30) aufgenommen wird,
  - Schwenken des Befestigungselements bezüglich des Befestigungsprofils in die Arbeitsposition, dadurch automatisches Ineinandergreifen des Aufnahmehohlraums (13, 30) und des Vorsprungs (14, 41) und dadurch 40. Verbinden des oberen Längsträgers (4) mit dem Befestigungsprofil (11),
  - Befestigen von mindestens zwei Querträgern (6) an dem oberen Längsträger (4),
  - Befestigen eines unteren Längsträgers (5) an einem freien Ende der Querträger (6),
  - Tragen der Gebäudeerweiterung auf mindestens einem im Wesentlichen vertikal positionierten Pfeiler (3).
45. 11. Verfahren nach Anspruch 10, wobei das Verbinden eines oberen Längsträgers (4) mit dem Befestigungsprofil (11), das Montieren eines Vorsprungs, der auf dem Befestigungselement (14) vorgesehen ist, in einen Aufnahmehohlraum (13), der über der gesamten Länge des Befestigungsprofils (11) vorgesehen ist, in einer ersten Position, und im Anschluss daran, das Bewegen des oberen Längsträgers zu einer Endposition, um den Vorsprung in dem Aufnahmehohlraum einzurasten, umfasst.
50. 12. Verfahren nach Anspruch 10 oder 11, das das Fixieren des Befestigungsprofils bezüglich des Hilfsträgers mittels Fixiermitteln (31) umfasst.
55. 13. Verfahren nach einem der Ansprüche 10 bis 12, wobei die Fassade Unebenheiten aufweist und wobei das Verfahren die Deformation des Hilfsträgers gegen die Fassade umfasst, um die Unebenheiten aufzunehmen, während das Befestigungsprofil mehr oder weniger gerade bleibt.

**Revendications**

1. Extension de bâtiment (1) comprenant un support longitudinal supérieur (4) et un support longitudinal inférieur (5) situé à une distance de celui-ci, entre lesquels des supports transversaux (6) s'étendent, des panneaux (7) pouvant être montés dans l'espace entre les supports longitudinaux et supports transversaux, le support longitudinal supérieur (4) comportant un moyen de fixation pour une liaison à une paroi (2) d'une construction d'ingénierie structurelle, le moyen de fixation comprenant un support auxiliaire (10) s'étendant sensiblement sur la longueur du support longitudinal supérieur (4), ledit support auxiliaire (10) étant agencé pour une fixation à la paroi (2), et comprenant un côté qui doit être orienté vers la paroi, et comprenant un côté opposé sur lequel un profil de fixation (11) est monté, lequel est mobile sur un trajet limité dans la direction allant du support longitudinal supérieur (4) au support longitudinal inférieur (5), et le support longitudinal supérieur comportant un élément de fixation qui coopère avec le profil de fixation (11), ce par quoi, soit le profil de fixation (11) comporte une cavité de réceptacle (13) et l'élément de fixation comporte une saillie (14) faisant saillie dans la cavité de réceptacle (13) ; soit l'élément de fixation comporte une cavité de réceptacle (30) et le profil de fixation (11) comporte une saillie (41) faisant saillie dans la cavité de réceptacle (30), le profil de fixation (11) et l'élément de fixation étant agencés de telle sorte que l'élément de fixation peut uniquement être amené en coopération avec le profil de fixation dans une position de montage (11), et, par pivotement du support longitudinal supérieur (4) par rapport au support auxiliaire (10) jusqu'à une position de fonctionnement, l'élément de fixation se verrouillant dans le profil de fixation (11), la position de montage étant différente de la position de fonctionnement.
2. Extension de bâtiment selon l'une des revendications précédentes, dans laquelle des panneaux sont disposés entre les supports longitudinaux et les supports transversaux.
3. Extension de bâtiment selon l'une des revendications précédentes, dans laquelle chaque support transversal (6) est monté de manière détachable par rapport au support longitudinal (4, 5).
4. Extension de bâtiment selon la revendication 3, dans laquelle le support transversal (6) comporte un verrou mobile (16) faisait saillie depuis celui-ci, et le support longitudinal (4, 5) comporte une came (17) coopérant avec celui-ci.
5. Extension de bâtiment selon la revendication 3, dans laquelle le support longitudinal (4, 5) comporte un verrou mobile (16) faisait saillie depuis celui-ci, et le support transversal (6) comprend une came (17) coopérant avec celui-ci.
6. Extension de bâtiment selon l'une des revendications précédentes, dans laquelle le support longitudinal inférieur (5) est agencé sous la forme d'un profil en forme de U, chacun des supports transversaux étant supporté sur une première branche (25) de la forme de U, et une seconde branche opposée (24) de la forme de U comporte un profil de renforcement distinct (26) s'étendant sensiblement sur toute la hauteur et la longueur du support longitudinal inférieur (5).
7. Extension de bâtiment selon la revendication 6, dans laquelle un canal (28) s'étend à travers le support transversal et débouche dans le support longitudinal inférieur en forme de U.
8. Extension de bâtiment selon la revendication 6 ou 7, dans laquelle la première branche (25) du profil en forme de U est au moins 20 % plus courte que la seconde branche opposée (24).
9. Construction d'ingénierie structurelle, comprenant une façade (2) et une extension de bâtiment (1) selon l'une des revendications précédentes.
10. Procédé pour fixer une extension de bâtiment (1) à une façade (2) pour former une construction d'ingénierie structurelle, **caractérisé par le fait que** l'extension de bâtiment (1) est selon l'une des revendications 1 à 8 et **par le fait qu'il comprend :**
  - fixer ledit support auxiliaire (10) à la façade (2),
  - monter ledit profil de fixation (11) mobile sur un trajet limité sur le support auxiliaire (10),
  - déplacer le profil de fixation (11) sur le support auxiliaire (10) afin d'obtenir une zone de fixation droite,
  - amener ledit élément de fixation disposé sur le support longitudinal supérieur en coopération avec le profil de fixation (11) lorsqu'il est dans la position de montage, ce par quoi ladite saillie (14, 41) est reçue dans ladite cavité de réceptacle (13, 30),
  - faire pivoter l'élément de fixation par rapport au profil de fixation jusqu'à la position de fonctionnement, ver-

rouillant ainsi mutuellement et automatiquement la cavité de réceptacle (13, 30) et la saillie (14, 41), et reliant ainsi le support longitudinal supérieur (4) au profil de fixation (11),

- fixer au moins deux supports transversaux (6) au support longitudinal supérieur (4),

- fixer un support longitudinal inférieur (5) à une extrémité libre des supports transversaux (6),

5 - faire supporter l'extension de bâtiment sur au moins une colonne positionnée sensiblement verticalement (3) .

11. Procédé selon la revendication 10, dans lequel relier un support longitudinal supérieur (4) au profil de fixation (11) comprend monter dans une première position une saillie disposée sur l'élément de fixation (14) dans une cavité de réceptacle (13) disposée sur toute la longueur du profil de fixation (11), puis déplacer le support longitudinal supérieur 10 jusqu'à une position finale afin de verrouiller la saillie dans la cavité de réceptacle.

12. Procédé selon la revendication 10 ou 11, comprenant la fixation du profil de fixation par rapport au support auxiliaire à l'aide d'un moyen de fixation (31).

15 13. Procédé selon l'une des revendications 10 à 12, dans lequel la façade comprend des irrégularités et le procédé comprend la déformation du support auxiliaire contre la façade afin de s'adapter aux irrégularités, tandis que le profil de fixation reste plus ou moins droit.

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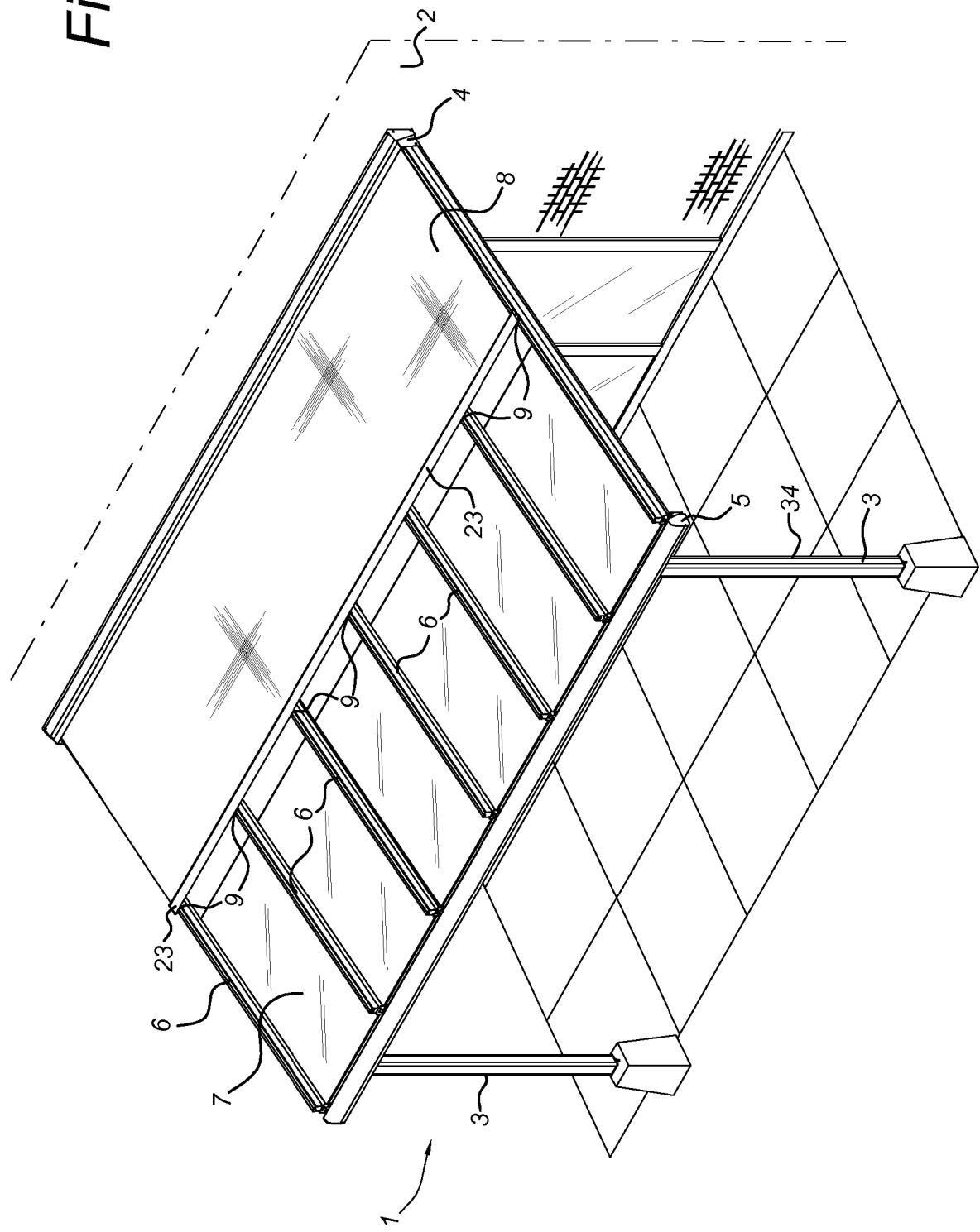
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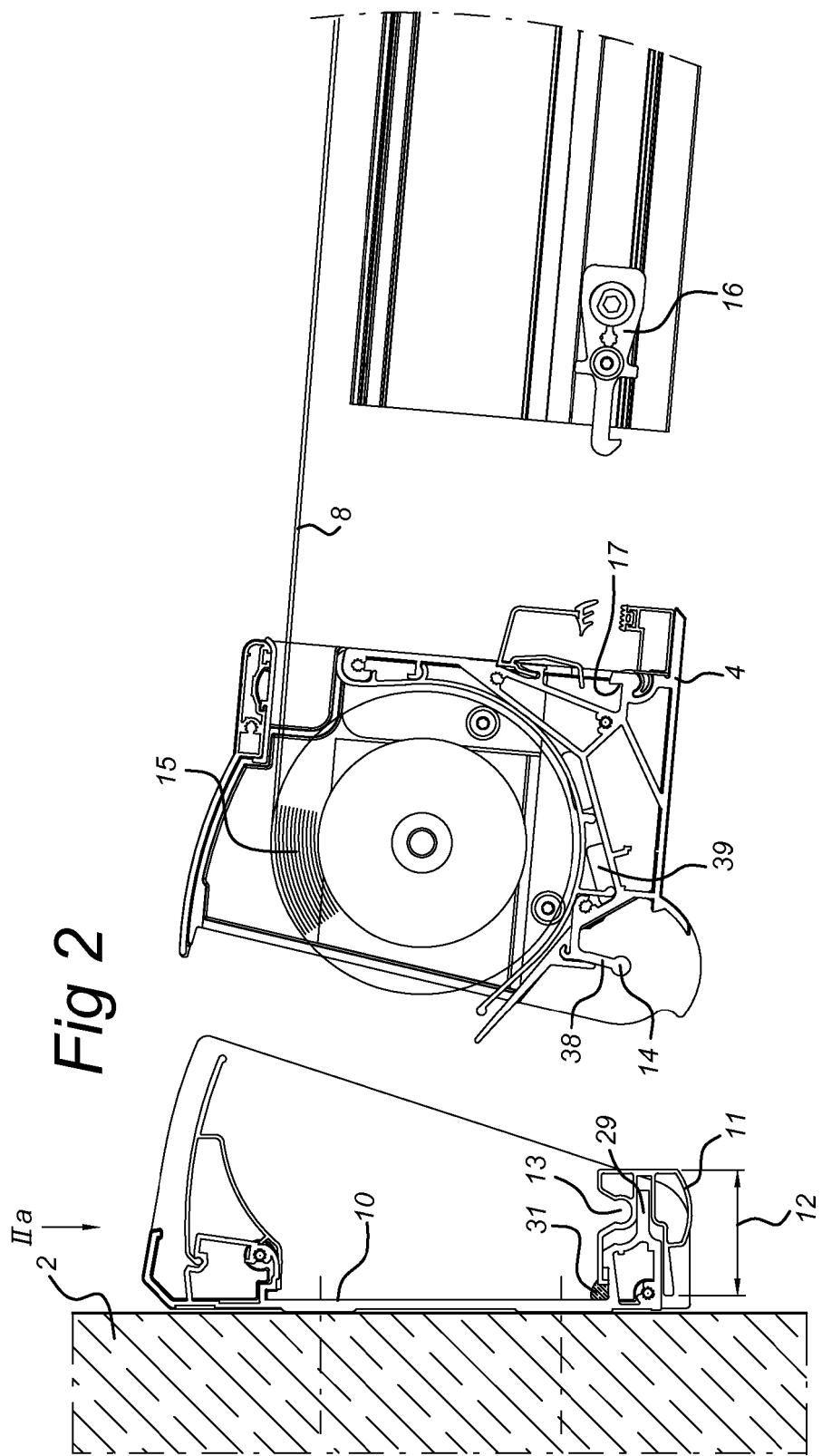
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Fig 1





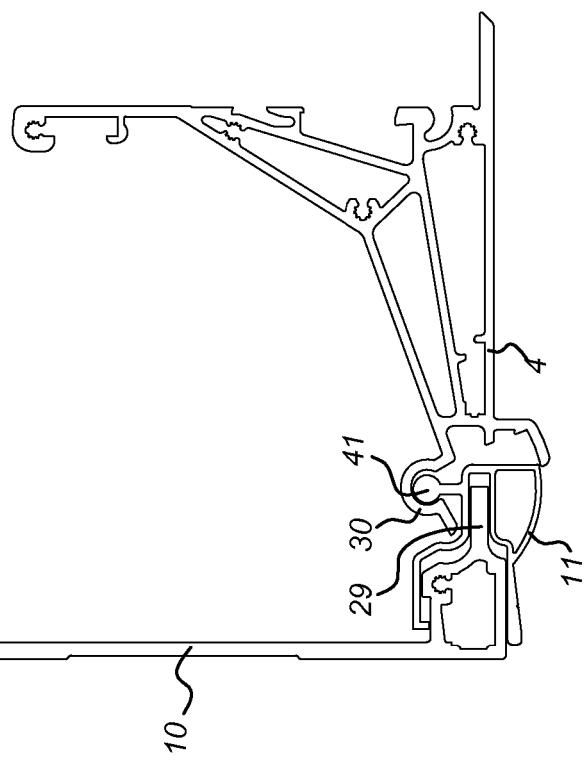
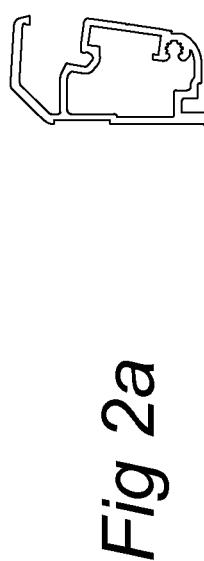
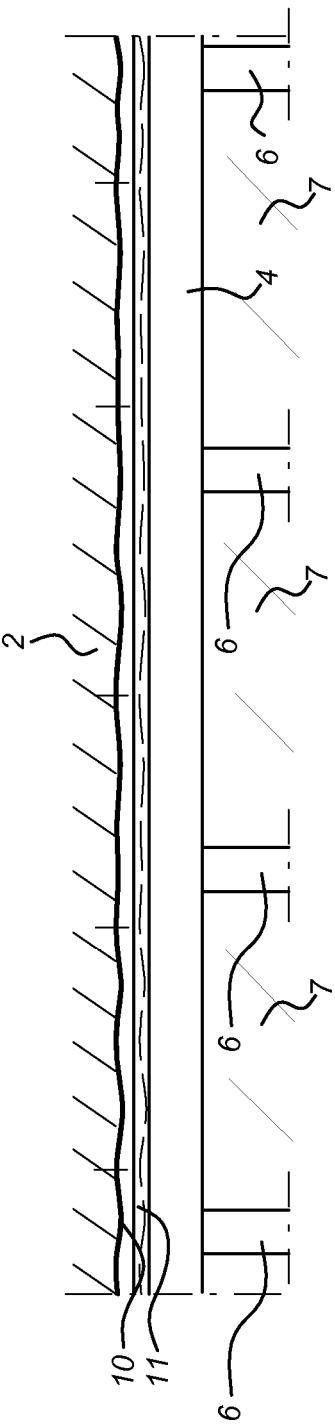
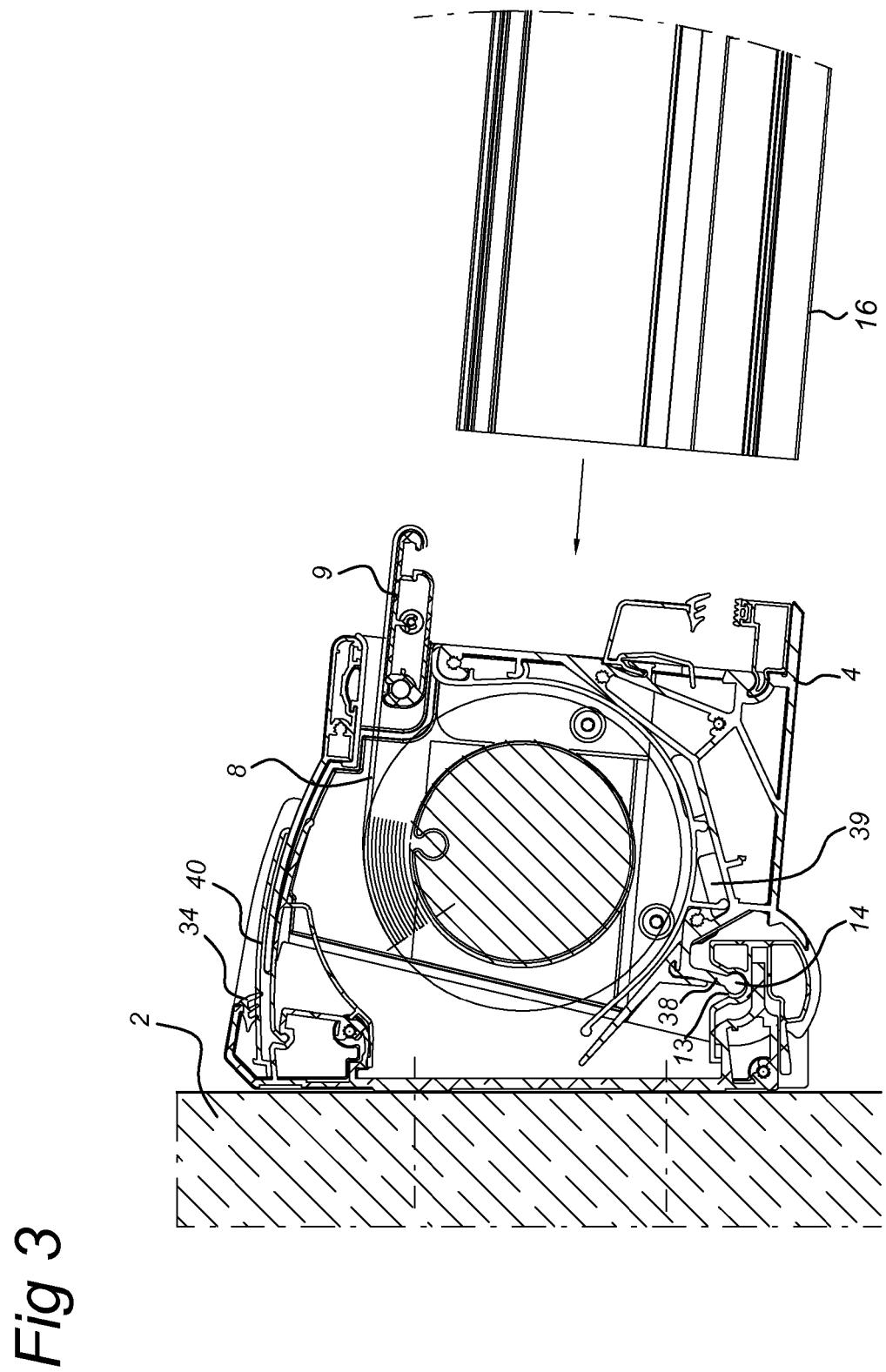


Fig 2b





*Fig 3*

Fig 4

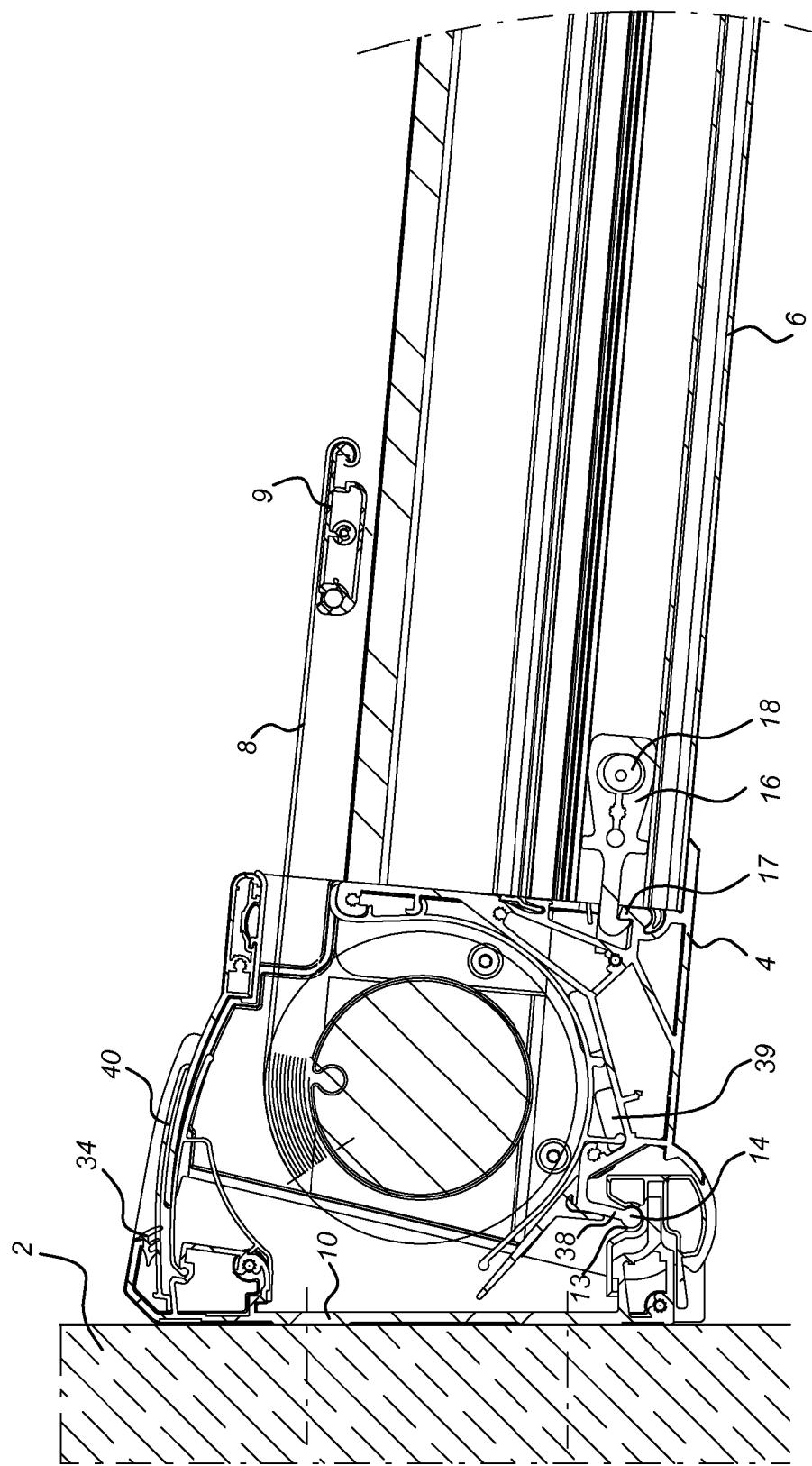
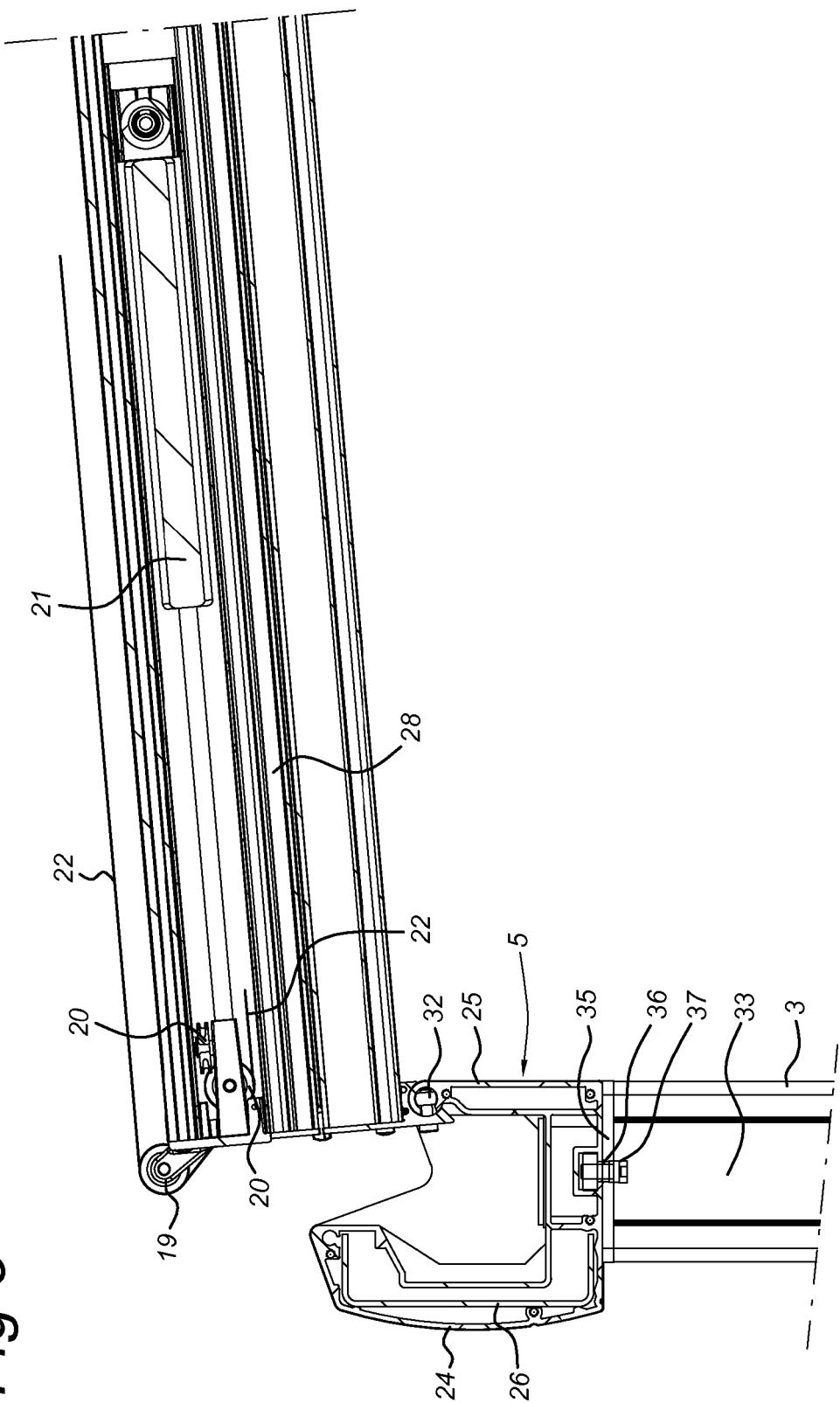
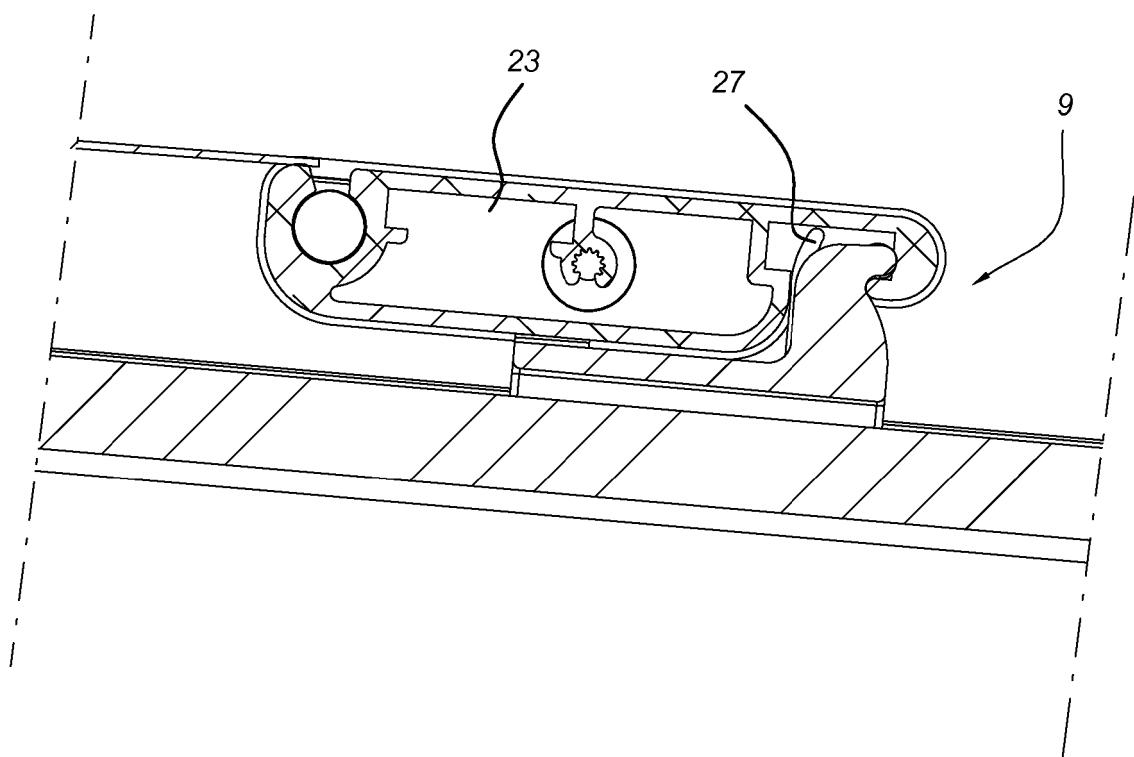


Fig 5



*Fig 6*



**REFERENCES CITED IN THE DESCRIPTION**

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**Patent documents cited in the description**

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