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(54) **ASSEMBLY OF A SCREEN DEVICE AND FASTENING MEANS FOR FASTENING A SCREEN CASING OF THIS SCREEN DEVICE**

(57) The present invention relates to an assembly of:
- a screen device (1), comprising a screen casing (7) which extends along a length direction, with a screen roller (2) which is accommodated in said screen casing so as to be able to rotate, with a screen (3) which is able to be rolled up onto and unrolled from said screen roller in order to cover a window or a door (4);
- a structure (8) in which the window or the door (4) is installed; and
- fastening means for fastening the screen casing (7) to the structure (8), comprising;
◦ first hook-on elements (9) on the screen casing (7); and
◦ a plurality of hook-on brackets (10, 11, 44, 45) which are fastenable distributed over the length direction to the first hook-on elements (9) and which each comprise:
▪ a hook-on leg (12) which extends in a first plane (A) and which has second hook-on elements (13) for thereon hooking of the first hook-on elements (9); and
▪ a fastening leg (14) which extends in a second plane (B, C), deviating from the first plane (A), for fastening to the structure (8).

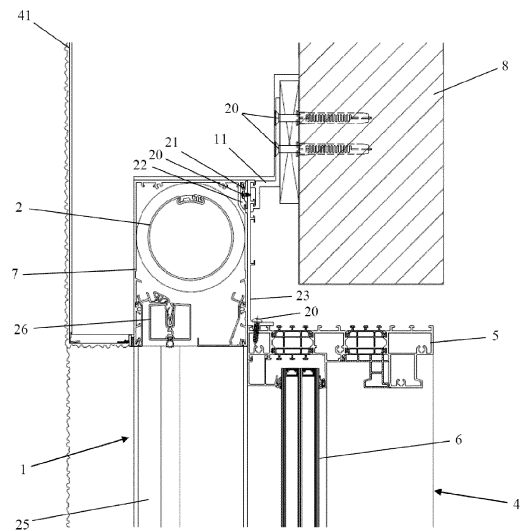


Fig. 17

Description

[0001] The present invention relates to an assembly of

- a screen device, comprising
 - a screen which is able to be rolled up onto and unrolled from a screen roller in order to cover a window or a door; and
 - a screen casing in which this screen roller is accommodated so as to be able to rotate;
- a structure in which the window or the door is installed; and
- fastening means for fastening the screen casing to the structure.

[0002] The aforementioned structure is a structural part of a building in which said window or said door is accommodated, said structural part ensuring strength and rigidity of this building. This may be, for example, a load-bearing wall or a frame, etc.

[0003] Such a window or such a door may be a separate window or a separate door, but may also be configured as a set of windows. Such a window or such a door is understood to refer to both the window or door profiles and the filling of these window or door profiles in the form of glazing and/or panels, etc.

[0004] In the case of screen devices which serve to cover windows or doors of a reduced width and in which the screen casing thus also has a reduced length, there are few or no problems. However, when these dimensions increase to above 3 metres, and especially when the length of the screen casing is above 3.6 metres, such a screen casing has to be secured in a satisfactory manner with respect to the structure in order to limit bending thereof, with associated problems.

[0005] In a situation in which the structure is directly accessible for fastening the screen casing thereto, this can be effected, for example, by fastening the screen casing itself to this structure using a plurality of screws. These screws then have to be fitted distributed over the length of the screen casing in a precise manner such that these screws do not hinder the rolling up and unrolling of the screen in such a screen casing and do not damage the screen in the process. In practice, these screws are not always provided in a proficient manner. In the case of maintenance or repair work which requires the screen casing to be removed, this solution also has the disadvantage that rigidity is lost when the screen casing is being repositioned.

[0006] In order to avoid these problems, it is also known to secure such a screen casing by means of a profile which is provided for that purpose and which is, on the one hand, provided over the length of the screen casing, for example by way of hooking engagement in a cavity provided therefor in the screen casing, and which is, on the other hand, fastenable to the structure using a plu-

rality of screws. This profile affords the advantage that the screen casing does not have to be pierced, with the risk of damage to the screen, and also affords the advantage that screw holes can be provided at predefined locations therein, such that a sufficient number of screws are provided in a satisfactorily distributed manner over the length of the screen casing in order to be able to ensure a satisfactory securing action. The screen casing can also be installed and removed in a simple manner without a loss in rigidity.

[0007] However, such a screen casing cannot always be fastened directly to this structure, but often has to remain at a distance therefrom in order to be able to roll up and unroll the screen in front of the window or the door. For energy reasons, such a screen casing may typically not be fastened to profiles of such a window or such a door. Such a screen casing often has to be fastened in a zone next to and above such a window or such a door, in which case an opening which is typically sealed with non-structural insulation material is located above this window. This problem typically occurs when installing a screen casing in a recess or a cavity. Various solutions have already been devised so as to nevertheless be able to secure such a screen casing in a sufficient manner with respect to the structure in such cases in order to avoid bending thereof. In practice, however, these solutions are little used, as a result of which securing action is not provided to a sufficient extent or is even omitted, with the consequence of associated problems.

[0008] Some known solutions of this kind for installation of a screen casing (7) in a cavity (50) are illustrated in Figures 1 and 2. In this case, insulation material (49) is provided in the cavity (50), between a load-bearing wall as structure (8) and façade covering (51). In this case, the structure (8) is then covered with this insulation material (49) and the façade covering (51) as covering materials (41).

[0009] In these illustrated solutions, a respective adapted fastening profile (19) is provided, which is installed, on the one hand, on top of the window or the door (4) and, on the other hand, on the structure (8). In order to install this fastening profile (19) on top of the window or the door (4), said fastening profile is installed, in the illustrated solutions, on top of the upper profile (5) of this window or the door (4), which contains glazing (6), for example. The fastening to the structure (8) is not illustrated, but can be effected in a plurality of known ways similar to the ways of fastening such a window or such a door (4). By way of example, this fastening profile (19) may be fastened to the structure (8) using known window anchors. The screen casing (7) of the illustrated screen devices (1) can then be fastened to this fastening profile (19), just as described above for the direct fastening of such a screen casing (7) to the structure (8). To this end, in Figure 1, the screen casing (7) has been fastened directly to this fastening profile (19) using screws (20). In Figure 2, provision has been made of an aforementioned hook-engagement profile (21) which has, on the one

hand, been fastened to the fastening profile (19) using a plurality of screws (20) distributed over the length thereof and which has, on the other hand, been engaged in hooking fashion in a hook-engagement slot (22) provided therefor in the screen casing (7).

[0010] However, the provision of such fastening profiles (19) is an expensive solution which is often not budgeted for and is therefore also often omitted. These fastening profiles (19) also cannot be used with sliding windows. In such cases, the window manufacturers themselves have to provide a solution for fastening and installing the screen casing (7). These solutions are often not sufficient to secure the screen casing (7) with respect to the structure (8). Screen casings (7) are thus for example typically fastened using known window anchors, which have, however, been designed for absorbing other forces and are not able to solve the problem of bending.

[0011] The aim of the present invention is to provide fastening means which can be used to fasten such a screen casing in a simple manner, this screen casing being able to be secured with respect to the structure in a simple manner and these fastening means being less expensive than the aforementioned fastening profiles, such that they are not omitted in practice.

[0012] This aim of the invention is achieved by providing an assembly of

- a screen device, comprising
 - a screen which is able to be rolled up onto and unrolled from a screen roller in order to cover a window or a door; and
 - a screen casing which extends substantially along a length direction and in which this screen roller is accommodated so as to be able to rotate;
- a structure in which the window or the door is installed; and
- fastening means for fastening the screen casing to the structure, comprising:
 - first hook-on elements which are provided on the screen casing; and
 - a plurality of hook-on brackets which are fastenable distributed over the length direction of the screen casing to the first hook-on elements, wherein each hook-on bracket:

■ comprises a hook-on leg:

- which extends substantially in a first plane; and
- which is provided with second hook-on elements for thereon hooking of the first hook-on elements in order to fasten the hook-on bracket to the first hook-on elements; and

■ comprises a fastening leg:

- which extends substantially in a second plane that deviates from the first plane; and
- which is provided for fastening the hook-on bracket to the structure.

[0013] By virtue of the fastening by means of a plurality of hook-on elements, the screen casing can be easily and smoothly fastened in a firm manner and also installed (removed) without a loss in rigidity. Due to the fact that a plurality of hook-on brackets are provided distributed over the length of the screen casing, and due to the fact that the plane in which the fastening leg extends deviates in each case from the plane in which the hook-on leg extends, it is also now possible for forces to be absorbed such that bending is avoided. In this case, the hook-on brackets are preferably provided in such a way that the fastening leg extends away from the screen casing in the fastened state, with the result that fastening to the structure, for the purpose of fastening the screen casing to the structure, can be implemented at a distance from this screen casing. If a screen casing then has to be arranged at a distance from this structure, these hook-on brackets can be used to bridge this distance when fastening the screen casing to this structure.

[0014] In a first, more specific embodiment, the second plane in this case extends substantially perpendicularly with respect to the first plane.

[0015] In a second, more specific embodiment, the second plane in this case extends substantially parallel to the first plane.

[0016] Such hook-on brackets can be produced in a much less expensive manner than the aforementioned fastening profiles from the prior art, such that the manufacturer of screen devices can also include said hook-on brackets as accessories with these screen devices. In this way, it is not necessary to purchase these hook-on brackets separately as fastening means and they are easily accessible when installing the screen casing, reducing the likelihood of them being omitted in practice.

[0017] In a preferred embodiment, the fastening leg is provided with a slot-shaped screw hole which extends substantially along a length direction between a first end and a second end, wherein the first end is arranged closer to the hook-on leg than the second end, and this fastening leg is additionally provided with a plurality of screw holes which are arranged distributed over the length direction next to the slot-shaped screw hole.

[0018] This slot-shaped screw hole allows such a hook-on bracket to first be fastened to the structure by means of a fastening screw through this screw hole, the hook-on bracket still being movable with respect to the structure along the length direction of this slot-shaped screw hole. It is thus possible for the screen casing to already be hooked onto this hook-on bracket by means of the hook-on elements, the hook-on bracket still being

movable in order to fasten the arrangement in a more precise manner with respect to the structure. It is subsequently possible for an additional fastening screw to be fitted through one of the additional screw holes in order to firmly fix the hook-on bracket to the structure.

[0019] In this case, the additional screw holes may be in the form of ordinary round screw holes or may possibly also be in the form of slot-shaped screw holes which extend substantially in a direction that deviates from the length direction in which the first-mentioned slot-shaped screw hole substantially extends.

[0020] In embodiments in which the second plane extends substantially perpendicularly with respect to the first plane, the fastening leg is preferably provided with a sawtooth profile, wherein this sawtooth profile comprises one saw tooth per additional screw hole. In this way, an aforementioned additional fastening screw, which is fitted in such an additional screw hole, will automatically be positioned at an angle with respect to the fastening screw which has been fitted first through the slot-shaped screw hole. This hook-on bracket will thus automatically be anchored in a firmer manner with respect to the structure, and the necessary forces can be transmitted.

[0021] The first hook-on elements preferably comprise at least one downwardly directed hook element, and the second hook-on elements preferably comprise at least one corresponding upwardly directed hook element. In this way, the screen casing can be hooked onto the hook-on brackets in a simple manner, the screen casing hanging from the hook-on brackets under the influence of gravity.

[0022] In a simple embodiment, provision may be made of a second downwardly directed first hook-on element and a corresponding second upwardly directed second hook-on element.

[0023] As an alternative, provision may be made of a second upwardly directed first hook-on element and a corresponding second downwardly directed second hook-on element. It is then for example possible for the hook-on brackets to be provided so as to be fastenable to the first hook-on elements via a rotating movement, the respective hook elements hooking into one another during this rotating movement.

[0024] The first hook-on elements are preferably in the form of hook-on ribs which extend substantially over the length direction of the screen casing and in this case preferably extend over virtually the entire length of the screen casing. In this case, the length of the hook-on ribs may then deviate slightly from the length of the screen casing, so as to for example provide head plates at the ends of the screen casing. Hook-on ribs which extend (almost) over the entire length of the screen casing make it possible to adapt the location of hook-on brackets in a simple manner taking account of surrounding circumstances. Such hook-on ribs may, for example, also be integrated into a profile in a simple manner by also extruding them during the forming of this profile.

[0025] Preferably, at least two first hook-on elements

are provided which are arranged at a distance one above the other, and at least two corresponding second hook-on elements are provided which are arranged at a corresponding distance one above the other. By means of a plurality of first hook-on elements and a plurality of corresponding second hook-on elements, the screen casing can be installed in a firm manner, in which case bending can be avoided as much as possible.

[0026] In order to provide the first hook-on elements on the screen casing, this screen casing is preferably provided with a hook-engagement slot. In this way, the screen casing can not only be used for installation in the given circumstances, but, in other situations, it can also be fastened to the structure directly where this is possible, or by means of an aforementioned hook-engagement profile according to the prior art.

[0027] In this case, the hook-engagement slot may be delimited by said first hook-on elements, the hook-on brackets being fastened directly to the screen casing by means of this hook-engagement slot.

[0028] As an alternative, it is for example possible for the fastening means to be provided with a hook-engagement profile which is able to engage in hooking fashion in the hook-engagement slot and which is provided with the first hook-on elements.

[0029] In this case, the hook-engagement slot is then preferably delimited at the top by a downwardly directed hook element and the hook-engagement profile is then preferably provided with a corresponding upwardly directed hook element in order to hook into the hook-engagement slot, with the result that the downwardly directed hook element can hook into the upwardly directed hook element.

[0030] Furthermore, this hook-engagement slot is preferably configured in a recessed manner with respect to the rear wall of the screen casing (the vertical wall which is provided to be arranged closest to the window or the door). With the hook-engagement profile engaging in hooking fashion in the hook-engagement slot, it can thus be ensured that these adjoin the screen casing to the greatest possible extent in order to produce a stable connection.

[0031] More specifically, the fastening means may also comprise a fastening profile, the first hook-on elements forming part of said fastening profile and said fastening profile being fastenable to the screen casing in order to provide the screen casing with the first hook-on elements.

[0032] In a more specific embodiment, the fastening profile may be of substantially L-shaped configuration, having a long leg which is provided with the first hook-on elements and which is provided for fastening to the screen casing, and a short leg which is provided for fastening at the top of a window profile of the window or the door. In this case, the long leg of this L-shaped fastening profile can then be provided in a simple manner for fastening against the rear wall of the screen casing. In an installed state, the short leg can then extend substantially horizontally above the window profile and be fastened to

this window profile.

[0033] This L-shaped fastening profile is fastened at the top of the window profile, but in contrast to the illustrated fastening profiles according to the prior art, much less material is required for this than in the case of the illustrated fastening profiles according to the prior art, and a fastening profile can now be provided for this which is fastenable to a plurality of window profile types, by virtue of the use of the hook-on brackets. In the prior art, the design of such a fastening profile had to be adapted depending on the window profile. This L-shaped fastening profile can therefore be developed in a much less expensive manner than the known fastening profiles according to the prior art.

[0034] In an alternative embodiment, said hook-engagement profile may be configured as said fastening profile, the hook-on elements then forming part of said hook-engagement profile.

[0035] Such a fastening profile may possibly be configured to be lower than the screen casing, but preferably extends virtually from the underside as far as the top side of the screen casing. In this case, the height of the fastening profile preferably amounts to virtually the height of the screen casing, but may also be configured to be slightly higher, so as to for example fasten this fastening profile to the structure in a simpler manner by means of the hook-on brackets.

[0036] This fastening profile is further preferably of substantially bar-shaped configuration. Still more preferably, this fastening profile is of hollow configuration, for the purpose of cost price, material costs, weight, processability, etc.

[0037] This fastening profile can also be developed independently of the various possible types of window profiles and can therefore be developed in a much less expensive manner than the known fastening profiles according to the prior art.

[0038] The present invention will now be explained in more detail by means of the following detailed description of some preferred embodiments of assemblies according to the present invention. The sole aim of this description is to give illustrative examples and to indicate further advantages and features of the present invention, and can therefore not be interpreted as a limitation of the area of application of the invention or of the patent rights defined in the claims.

[0039] Reference numerals are used in this detailed description to refer to the attached drawings, in which:

- Figure 1 shows a first assembly of a screen device and fastening means for fastening the screen casing of this screen device according to the prior art, in an installed state, in which the screen casing is cut through transversely;
- Figure 2 shows a second assembly of a screen device and fastening means for fastening the screen casing of this screen device according to the prior art, in an installed state, in which the screen casing

is cut through transversely;

- Figure 3 shows a hook-on bracket of an assembly from Figures 17 or 21 separately in side view;
- Figure 4 shows the hook-on bracket from Figure 3 separately in front view;
- Figure 5 shows a hook-on bracket of an assembly from Figures 18 or 22 separately in side view;
- Figure 6 shows the hook-on bracket from Figure 5 separately in bottom view;
- Figure 7 shows a hook-on bracket of an assembly from Figures 19 or 23 separately in side view;
- Figure 8 shows the hook-on bracket from Figure 7 separately in front view;
- Figure 9 shows a hook-on bracket of an assembly from Figures 20 or 24 separately in side view;
- Figure 10 shows the hook-on bracket from Figure 9 separately in bottom view;
- Figure 11 shows a hook-engagement profile of an assembly from Figure 2 or Figures 17 or 18 separately in side view;
- Figure 12 shows the hook-engagement profile from Figure 11 in perspective;
- Figure 13 shows a fastening profile of an assembly from Figures 21, 22, 23 or 24 separately in side view;
- Figure 14 shows a fastening profile of an assembly from Figures 17 or 18 separately in front view, with a hook-engagement profile fastened thereto;
- Figure 15 shows the fastening profile from Figure 14 with the hook-engagement profile fastened thereto in side view;
- Figure 16 shows a screen casing of a screen device of an assembly from Figure 2 or Figures 17-24 separately in cross section;
- Figure 17 shows a first assembly of a screen device and fastening means for fastening the screen casing of this screen device according to the invention, in an installed state, in which the screen casing is cut through transversely;
- Figure 18 shows a second assembly of a screen device and fastening means for fastening the screen casing of this screen device according to the invention, in an installed state, in which the screen casing is cut through transversely;
- Figure 19 shows a third assembly of a screen device and fastening means for fastening the screen casing of this screen device according to the invention, in an installed state, in which the screen casing is cut through transversely;
- Figure 20 shows a fourth assembly of a screen device and fastening means for fastening the screen casing of this screen device according to the invention, in an installed state, in which the screen casing is cut through transversely;
- Figure 21 shows a fifth assembly of a screen device and fastening means for fastening the screen casing of this screen device according to the invention, in an installed state, in which the screen casing is cut through transversely;

- Figure 22 shows a sixth assembly of a screen device and fastening means for fastening the screen casing of this screen device according to the invention, in an installed state, in which the screen casing is cut through transversely;
- Figure 23 shows a seventh assembly of a screen device and fastening means for fastening the screen casing of this screen device according to the invention, in an installed state, in which the screen casing is cut through transversely;
- Figure 24 shows an eighth assembly of a screen device and fastening means for fastening the screen casing of this screen device according to the invention, in an installed state, in which the screen casing is cut through transversely.

[0040] The assemblies illustrated in Figures 17-24 each comprise a structural wall as underlying structure (8). A respective window (4) is installed in this wall (8). This wall (8) is covered with covering materials (41) which have an insulating and/or aesthetic function in various known ways. In Figures 18, 20, 22 and 24, just like in the prior art, a cavity (50) between the structure (8) and façade covering (51) is provided with insulation material (49). In this case, the structure (8) is then covered with this insulation material (49) and the façade covering (51) as covering materials (41). Instead of such a wall (8), it is also possible for a structural frame to be provided as underlying structure.

[0041] The window (4) is constructed in each case from glazing (6) contained in a framework which is constructed from window profiles (5).

[0042] A respective screen device (1) is installed in front of the window (4), said screen device comprising a screen casing (7), with a screen roller (2) which is arranged therein so as to be able to rotate and on which a screen (3) is provided so as to be able to be rolled up and unrolled in order to free up or indeed cover the window (4). Lateral guides (25) of the illustrated screen device (1) are arranged on both lateral sides of the screen (3) below the screen casing (7), for the purpose of guiding the lateral sides of the screen (3) and/or a bottom slat (26) fastened at the bottom of the screen (3).

[0043] According to the invention, the screen casing (7) is fastened to the wall (8) by means of hook-on brackets (10, 11, 44, 45). In this case, a plurality of hook-on brackets (10, 11, 44, 45) are fastened, on the one hand, to the screen casing (7) so as to be distributed over the length of the screen casing (7) and are fastened, on the other hand, to the structure (8).

[0044] To this end, first hook-on elements (9) are provided in each case on the screen casing (7) and the hook-on brackets (10, 11, 44, 45) comprise second hook-on elements (13) with which the first hook-on elements (9) are hooked.

[0045] The respective first and second hook-on elements (9, 13) are provided in pairs in each case and arranged at a distance (t_1 , t_1' , t_2 , t_2') apart one above the

other. In this case, it may also be possible for more than two respective hook-on elements (9, 13) to be provided in each case.

[0046] In the embodiment illustrated, the first hook-on elements (9) comprise an upper rib-shaped downwardly directed hook element which delimits a hook-engagement cavity (40) which is open towards the bottom.

[0047] In the first, second, fifth and sixth embodiment, the first hook-on elements (9) comprise, at a distance (t_1) below the upper rib-shaped downwardly directed hook element, a lower rib-shaped downwardly directed hook element which likewise delimits a hook-engagement cavity (40) which is open towards the bottom.

[0048] In the third, fourth, seventh and eighth embodiment, the first hook-on elements (9) comprise, at a distance (t_1') from the upper rib-shaped downwardly directed hook element, a lower rib-shaped upwardly directed hook element which delimits a hook-engagement cavity (43) which is open towards the top.

[0049] In the embodiments illustrated, the second hook-on elements (13) comprise an upper rib-shaped upwardly directed hook element which is configured correspondingly to the upper rib-shaped downwardly directed first hook element (9) and which delimits a corresponding hook-engagement cavity (39) which is open towards the top. The upper downwardly directed first hook elements (9) can thus be hooked into the hook-engagement cavity (39) of the upper upwardly directed hook-on elements (13) of the hook-on brackets (10, 11, 44, 45), the upper upwardly directed hook elements (13) of the hook-on brackets (10, 11, 44, 45) hooking into the corresponding hook-engagement cavity (40) which is delimited by the corresponding upper first hook-on element (9).

[0050] In the first, second, fifth and sixth embodiment, the second hook-on elements (13) comprise, at a distance (t_2) below the upper rib-shaped upwardly directed hook element, a lower rib-shaped upwardly directed hook element which is configured correspondingly to the lower rib-shaped downwardly directed first hook element (9) and which delimits a corresponding hook-engagement cavity (39) which is open towards the top. In these embodiments, the first hook-on elements (9) can be hooked downwards from above into the corresponding second hook-on elements (13) in a simple manner.

[0051] In the third, fourth, seventh and eighth embodiment, the second hook-on elements (13) comprise, at a distance (t_2') below the upper rib-shaped upwardly directed hook element, a lower rib-shaped downwardly directed hook element which is configured correspondingly to the lower rib-shaped upwardly directed first hook element (9) and which delimits a corresponding hook-engagement cavity (46) which is open towards the bottom. In these embodiments, the first hook-on elements (9) can be hooked into the corresponding second hook-on elements (13) via a rotating movement. To this end, these second hook-on elements (13) are provided on a fixing element (48) which has, in a direction that deviates from the direction in which the rib-shaped second hook-on el-

elements (13) substantially extend, a maximum dimension (t_3) which is smaller than the distance (t_1) between the corresponding first hook-on elements (9). In this way, this fixing element (48) can be fitted freely between the first hook-on elements (9) in this direction. After the fixing element (48) has been fitted between the first hook-on elements (9), this fixing element (48) can be rotated in order to allow the second hook-on elements (13) to hook into the first hook-on elements (9).

[0052] In order to provide the screen casing (7) with the first hook-on elements (9), in the embodiments illustrated, this screen casing (7) is in each case provided with a hook-engagement slot (22) at the top of its rear wall (27), said hook-engagement slot being recessed into the rear wall (27). As indicated in Figure 16, this hook-engagement slot (22) is delimited at the top by a downwardly directed hook element (28) and is delimited at the bottom by an upwardly directed hook element (47). In the embodiment illustrated, this hook-engagement slot (22) extends over the length of the screen casing (7). In alternative, less preferred embodiments, it is also possible for a plurality of shorter hook-engagement slots (22) to be distributed over the length of the screen casing (7).

[0053] The first two embodiments illustrated (see Figures 17 and 18) are separately provided with a hook-engagement profile (21), which is able to engage in hooking fashion in this hook-engagement slot (22), and a fastening profile (23), which is fastenable to this hook-engagement profile (21) and which is provided with the first hook-on elements (9).

[0054] In the third and fourth embodiment, the downwardly directed hook element (28) and the upwardly directed hook element (47), which delimit the hook-engagement slot (22), directly form the first hook-on elements (9) with which the second hook-on elements (13) are hooked.

[0055] The last four embodiments illustrated (see Figures 21 to 24) are provided with a combined hook-engagement and fastening profile (24) which is able to engage in hooking fashion in the hook-engagement slot (22) and is provided with the first hook-on elements (9).

[0056] In the embodiments illustrated, the hook-engagement profile (21, 24) is in each case provided with an upwardly directed hook element (33) which delimits a hook-engagement cavity (38) and is able to engage in hooking fashion in the hook-engagement slot (22), in such a way that the downwardly directed hook element (28) of the screen casing (7) hooks into the hook-engagement cavity (38) of the hook-engagement profile (21, 24). In this way, the screen casing (7) can be hooked onto the hook-engagement profile (21, 24) in a simple manner without additional fastening means and can be suspended therefrom under the influence of gravity.

[0057] In order to allow the hook-engagement profile (21, 24) to bear against the screen casing (7) to the greatest possible extent, in the embodiments illustrated, the hook-engagement profile (21, 24) is in each case provided with bearing parts (34, 35) which are accommodated

in corresponding indentations (36, 37) in the screen casing (7).

[0058] In the embodiments illustrated, the hook-engagement profile (21, 24) in each case extends along the length direction of the screen casing (7) over virtually the entire length of this screen casing (7). In alternative, but less preferred embodiments, it would also be possible for a plurality of shorter hook-engagement profiles (21, 24) to be distributed over the length of the screen casing (7).

[0059] In the embodiments illustrated, the fastening profile (23, 24) is in each case provided with the first hook-on elements (9). By fastening this fastening profile (23, 24) to the screen casing (7) by means of or as the hook-engagement profile (21, 24), the screen casing (7) is provided with these first hook-on elements (9). In this case, these first hook-on elements (9) are then arranged at a distance (t_i , $t_{i'}$) apart on the top side of the screen casing (7).

[0060] The first fastening profile (23) illustrated is of substantially L-shaped configuration, as can be seen in Figure 15. A first side of a long leg (29) of this fastening profile (23) is provided with the first hook-on elements (9). The hook-engagement profile (21) is fastened to a second side, opposite to this first side of this long leg (29), by means of screws (20) in order to be able to fasten this fastening profile (23) to the screen casing (7). To this end, this hook-engagement profile (21) is provided at certain distances with corresponding screw holes (18). A short leg (30) is also provided so as to be upright with respect to the first side of this long leg (29). This short leg (30) is provided for fastening at the top of a window profile (5) of the window (4).

[0061] The second fastening profile (24) illustrated is of substantially bar-shaped configuration. This fastening profile (24) is of hollow configuration.

[0062] The hook-on brackets (10, 11, 44, 45) illustrated each comprise a hook-on leg (12) which is provided with the second hook-on elements (13), and a fastening leg (14) which is provided for fastening the hook-on bracket (10, 11, 44, 45) to the structure. To this end, this fastening leg (14) is provided with a slot-shaped screw hole (15) which extends substantially along a length direction between a first end (16) and a second end (17), wherein the first end (16) is arranged closer to the hook-on leg (12) than the second end (17). Furthermore, this fastening leg (14) is provided with a plurality of additional screw holes (18) which are arranged distributed over the length direction next to the slot-shaped screw hole (15). The slot-shaped screw hole (15) allows the hook-on bracket (10, 11, 44, 45) to first be fastened to the structure (8) by means of a first fastening screw (20) through this slot-shaped screw hole (15). The hook-on bracket (10, 11, 44, 45) is then still movable with respect to the structure (8) along the length direction of this slot-shaped screw hole (15). It is thus possible for the screen casing (7) to already be hooked onto this hook-on bracket (10, 11, 44, 45) by means of the hook-on elements (9, 13), the hook-

on bracket (10, 11, 44, 45) still being movable in order to fasten the arrangement in a more precise manner with respect to the structure (8). It is subsequently possible for an additional fastening screw (20) to be fitted through one of the additional screw holes (18) in order to firmly

[0063] The hook-on leg (12) in each case extends substantially in a first plane (A).

[0064] The fastening leg (14) in each case extends substantially in a second plane (B, C) that deviates from the first plane (A). In this case, the hook-on brackets (10, 11, 44, 45) are provided in such a way that the fastening leg (14) in each case extends away from the screen casing (7) in the fastened state. Fastening to the structure (8), for the purpose of fastening the screen casing (7) to the structure (8), can thus be implemented at a distance from this screen casing (7).

[0065] In the first and third hook-on bracket (11) illustrated (see Figures 3-4 and 7-8), an intermediate piece (31) is provided between the hook-on leg (12) and the fastening leg (14), said intermediate piece extending transversely with respect to the two planes (A, C), in such a way that these two planes (A, C) extend virtually parallel to one another. In the second and fourth hook-on bracket (10) illustrated (see Figures 5-6 and 9-10), the fastening leg (14) is arranged transversely with respect to the hook-on leg (12) and these two planes (A, B) extend virtually perpendicularly with respect to one another. In this second and fourth hook-on bracket (10) illustrated, the fastening leg (14) is provided with a sawtooth profile, wherein this sawtooth profile comprises one saw tooth (32) per additional screw hole (18). In this way, a screw (20) which is fitted into an additional screw hole (18) will extend at an angle with respect to a screw (20) which is fitted into the slot-shaped screw hole (15), as can be seen in Figures 18, 20, 22 and 24.

Claims

1. Assembly of

- a screen device (1), comprising

- a screen (3) which is able to be rolled up onto and unrolled from a screen roller (2) in order to cover a window or a door (4); and
- a screen casing (7) which extends substantially along a length direction and in which this screen roller (2) is accommodated so as to be able to rotate;

- a structure (8) in which the window or the door (4) is installed; and

- fastening means for fastening the screen casing (7) to the structure (8);

characterized in that the fastening means:

- comprise first hook-on elements (9) which are provided on the screen casing (7); and
- comprise a plurality of hook-on brackets (10, 11, 44, 45) which are fastenable distributed over the length direction of the screen casing (7) to the first hook-on elements (9), wherein each hook-on bracket (10, 11, 44, 45):

◦ comprises a hook-on leg (12):

- which extends substantially in a first plane (A); and
- which is provided with second hook-on elements (13) for thereon hooking of the first hook-on elements (9) in order to fasten the hook-on bracket (10, 11, 44, 45) to the first hook-on elements (9); and

◦ comprises a fastening leg (14):

- which extends substantially in a second plane (B, C) that deviates from the first plane (A); and
- which is provided for fastening the hook-on bracket (10, 11, 44, 45) to the structure (8).

2. Assembly according to Claim 1, **characterized in that** the fastening leg (14) is provided with a slot-shaped screw hole (15) which extends substantially along a length direction between a first end (16) and a second end (17), wherein the first end (16) is arranged closer to the hook-on leg (12) than the second end (17), and this fastening leg is provided with a plurality of additional screw holes (18) which are arranged distributed over the length direction next to the slot-shaped screw hole (15).

3. Assembly according to one of the preceding claims, **characterized in that** the first hook-on elements (9) comprise at least one downwardly directed hook element, and **in that** the second hook-on elements (13) comprise at least one upwardly directed hook element.

4. Assembly according to one of the preceding claims, **characterized in that** the first hook-on elements (9) are in the form of hook-on ribs which extend substantially over the length direction of the screen casing (7).

5. Assembly according to one of the preceding claims, **characterized in that** the screen casing (7) is provided with a hook-engagement slot (22) in order to provide the first hook-on elements (9) on the screen casing.

6. Assembly according to Claim 5, **characterized in that** the hook-engagement slot (22) is delimited by the first hook-on elements (9).

7. Assembly according to Claim 5, **characterized in that** the fastening means are provided with a hook-engagement profile (21) which is able to engage in hooking fashion in the hook-engagement slot (22) and which is provided with the first hook-on elements (9) in order to provide the screen casing (7) with the first hook-on elements (9). 5
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8. Assembly according to one of the preceding claims, **characterized in that** the fastening means comprise a fastening profile (21, 23, 24), the first hook-on elements (9) forming part of said fastening profile and said fastening profile being fastenable to the screen casing (7) in order to provide the screen casing (7) with the first hook-on elements (9). 15
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9. Assembly according to Claim 8, **characterized in that** the fastening profile (23) is of substantially L-shaped configuration, having a long leg (29) which is provided with the first hook-on elements (9) and which is provided for fastening to the screen casing (7), and a short leg (30) which is provided for fastening at the top of a window profile (5) of the window or the door. 25

10. Assembly according to Claim 7 and 8, **characterized in that** the first hook-on elements (9) form part of the hook-engagement profile (21). 30

11. Assembly according to one of the preceding claims, **characterized in that** the second plane (B) extends substantially perpendicularly with respect to the first plane (A). 35

12. Assembly according to Claims 2 and 11, **characterized in that** the fastening leg (14) is provided with a sawtooth profile, wherein this sawtooth profile comprises one saw tooth (32) per additional screw hole (18). 40

13. Assembly according to one of Claims 1 to 10, **characterized in that** the second plane (C) extends substantially parallel to the first plane (A). 45

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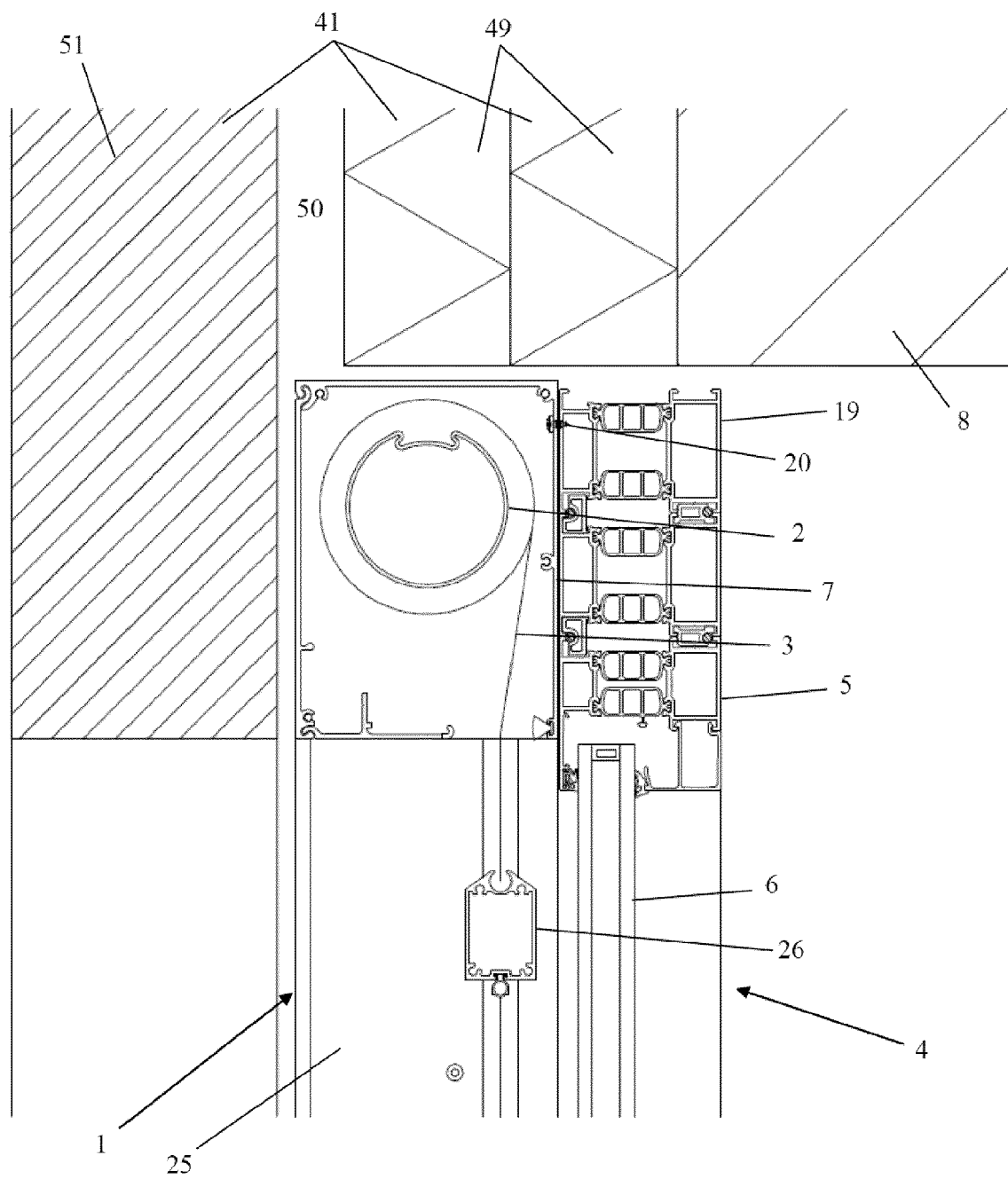


Fig. 1 PRIOR ART

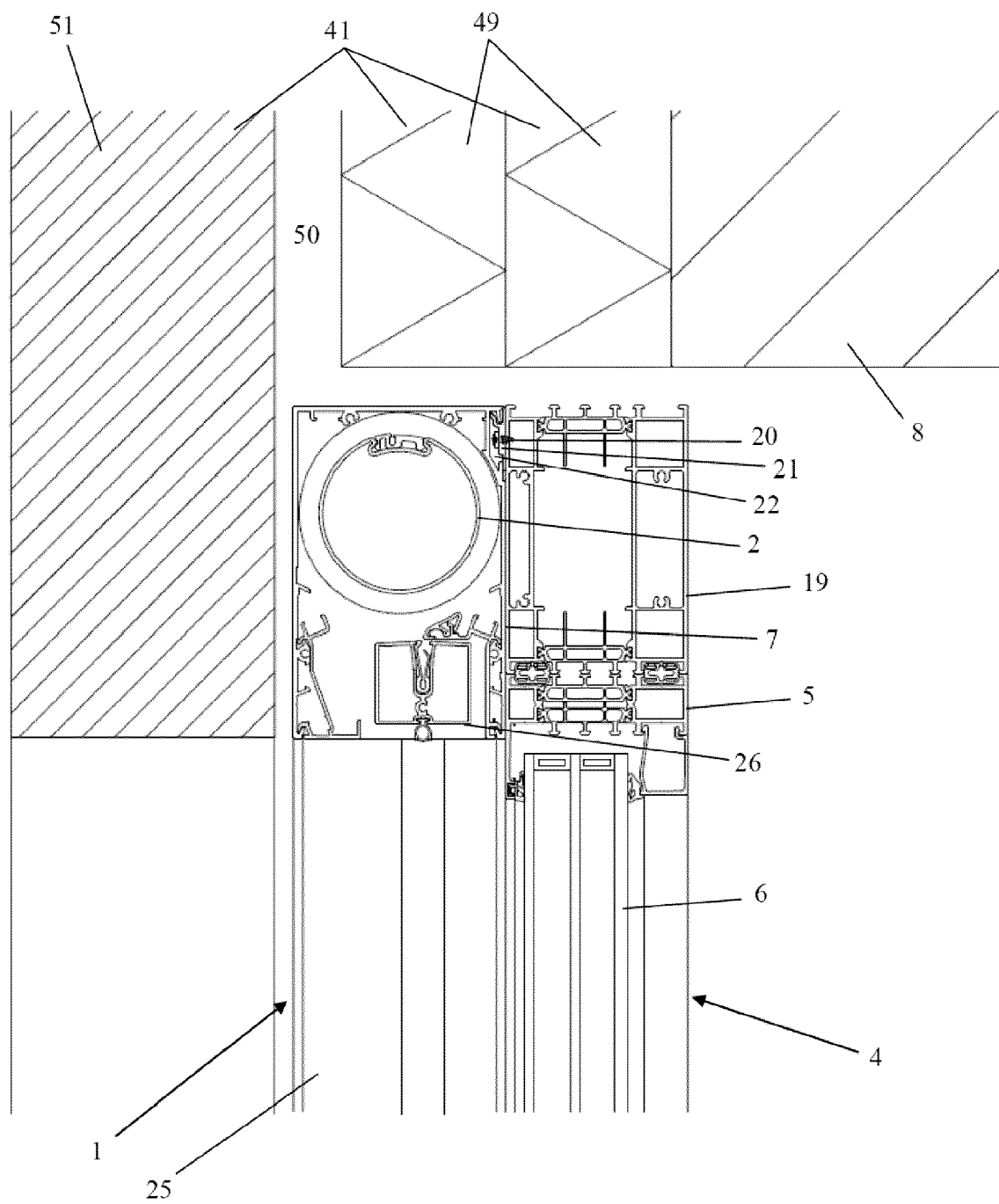


Fig. 2 PRIOR ART

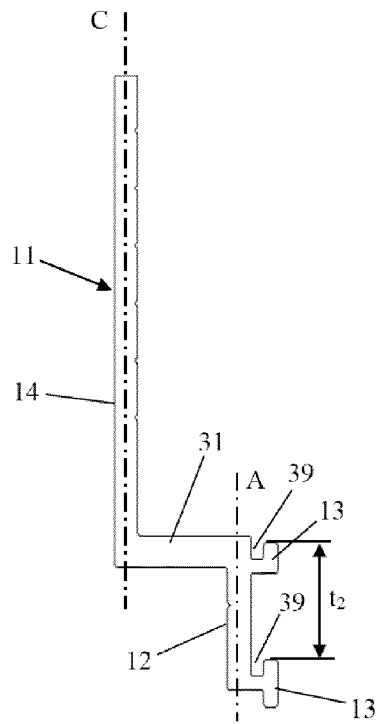


Fig. 3

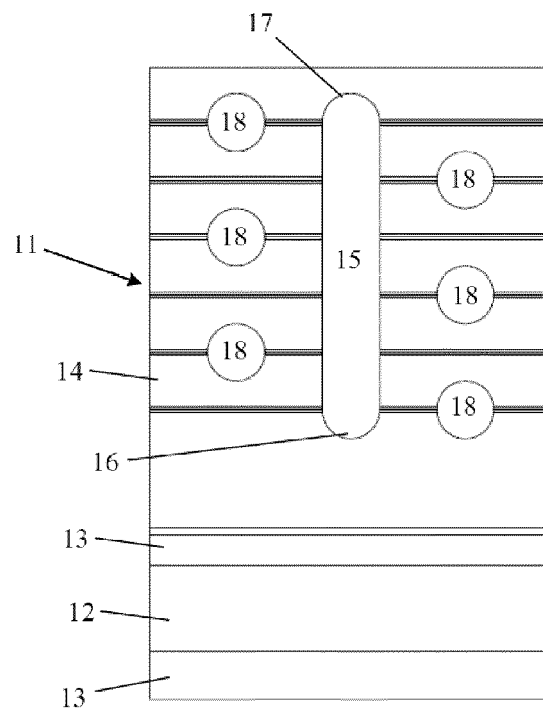


Fig. 4

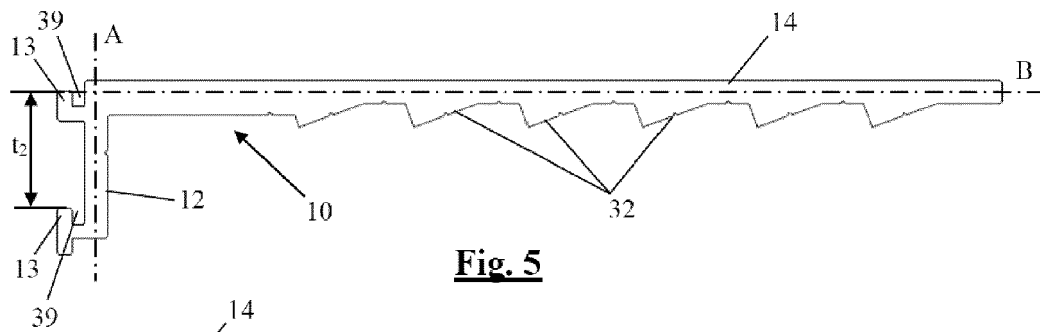


Fig. 5

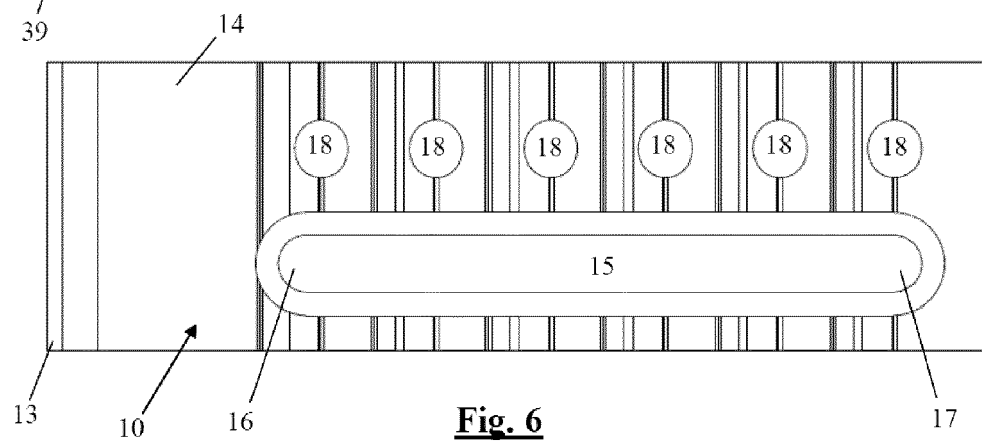
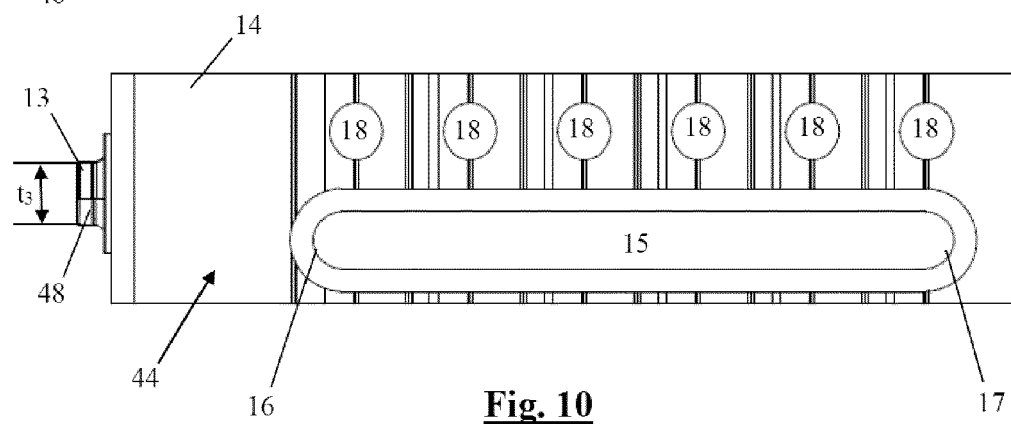
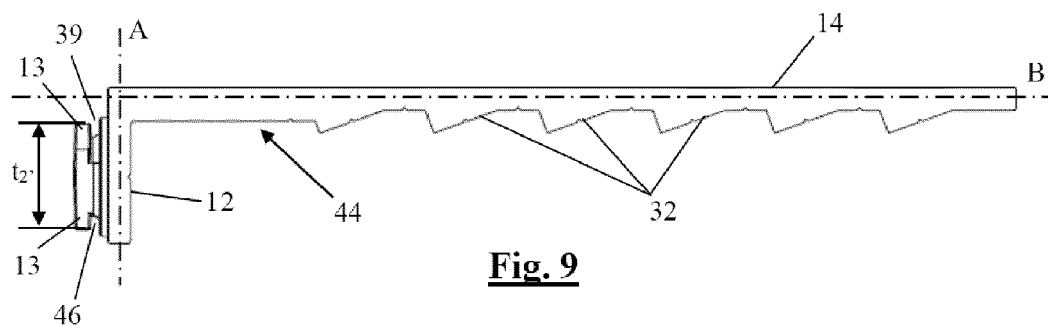
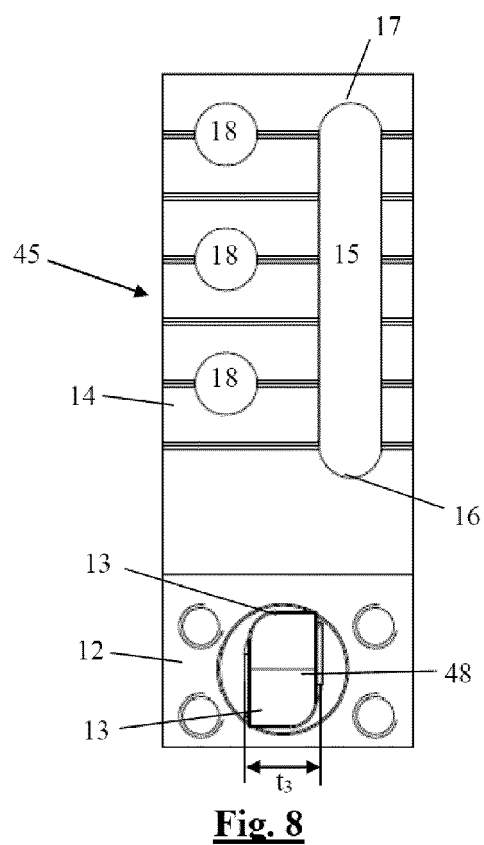
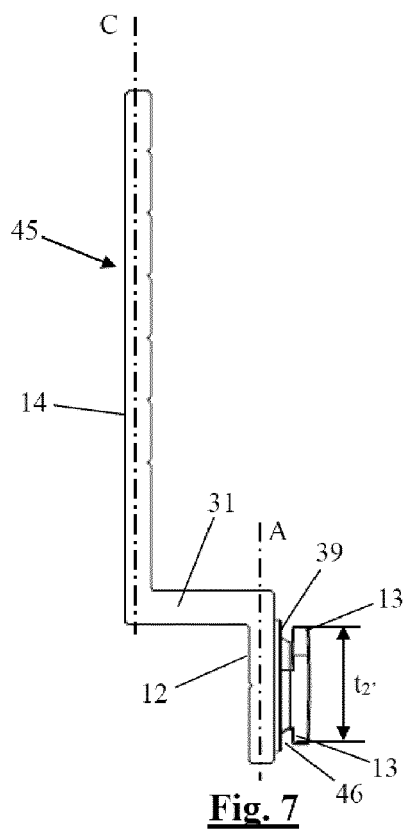


Fig. 6



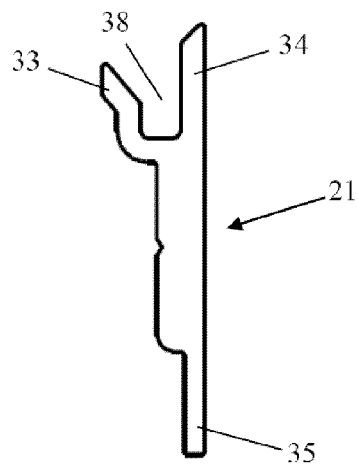


Fig. 11

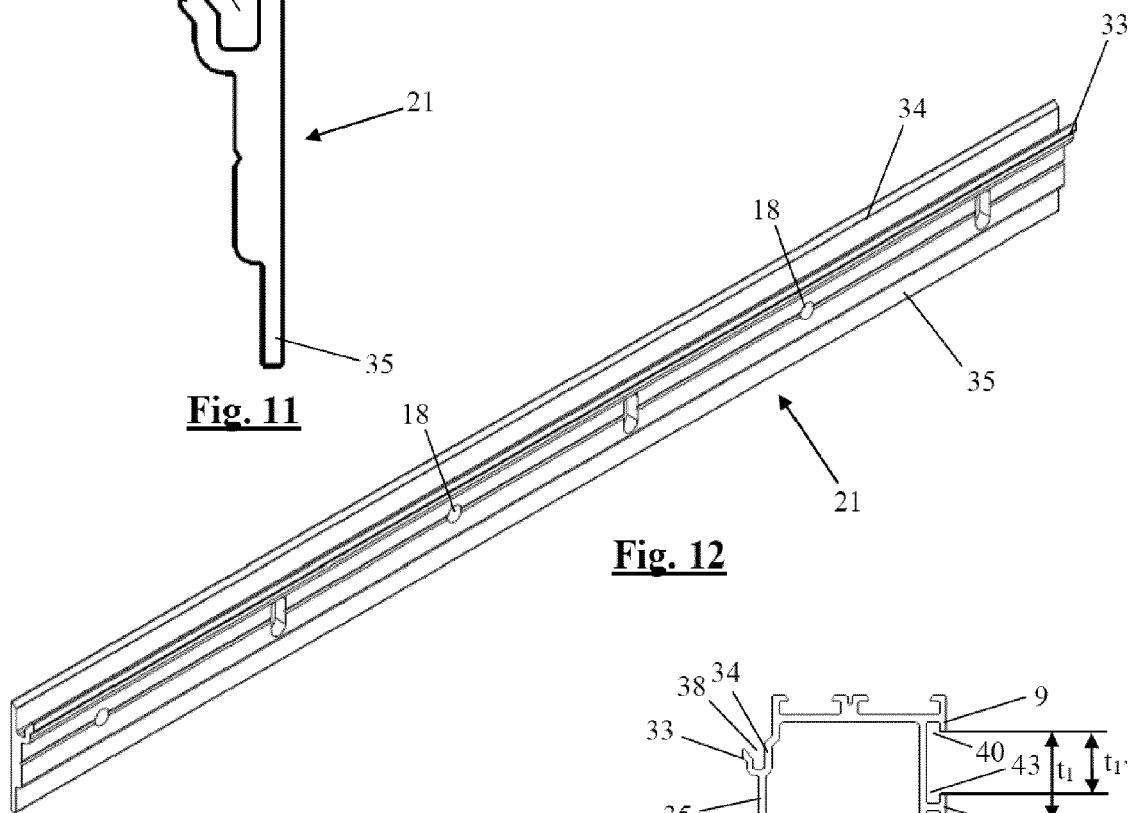


Fig. 12

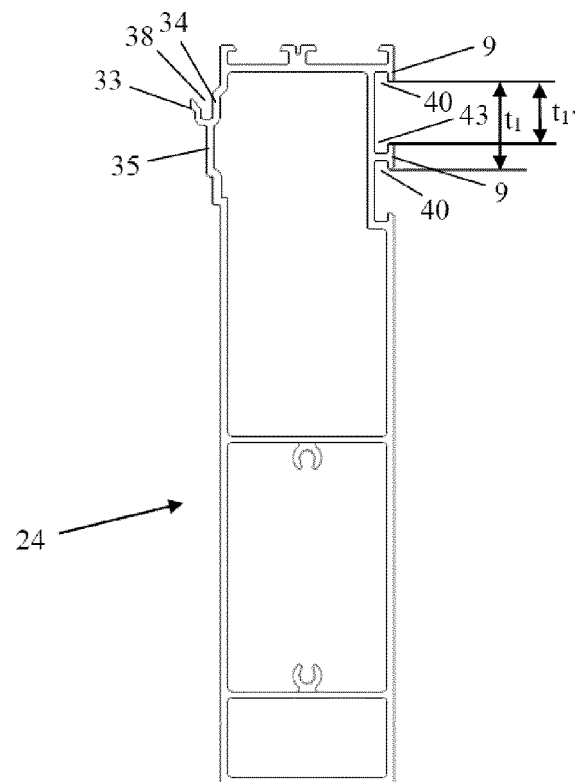


Fig. 13

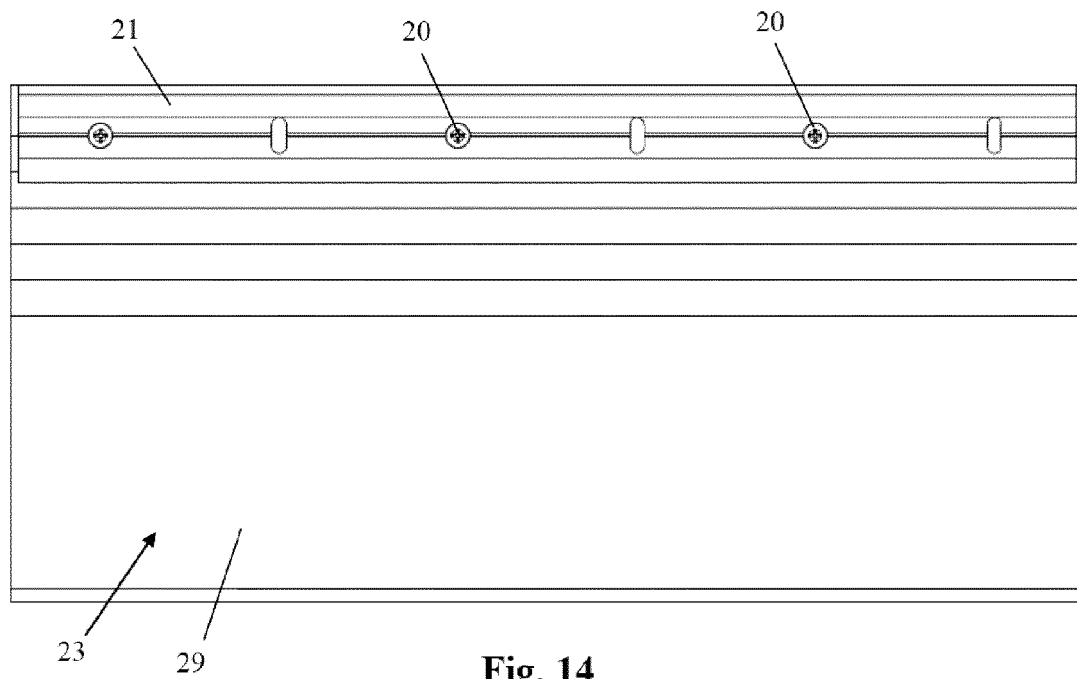


Fig. 14

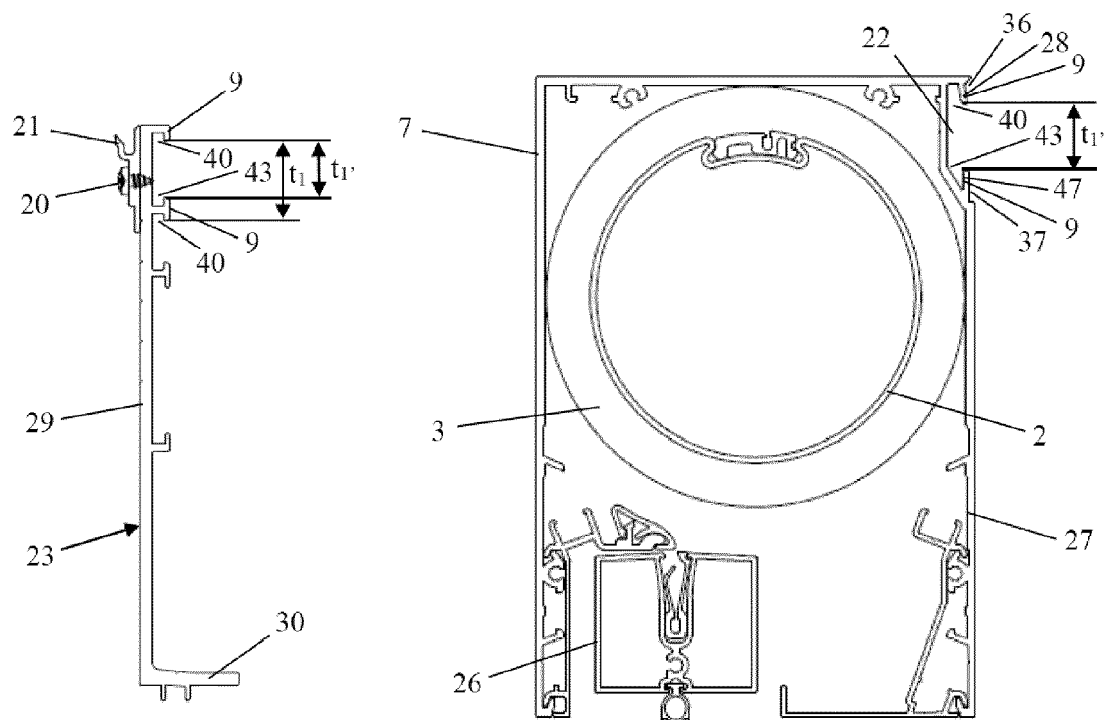


Fig. 15

Fig. 16

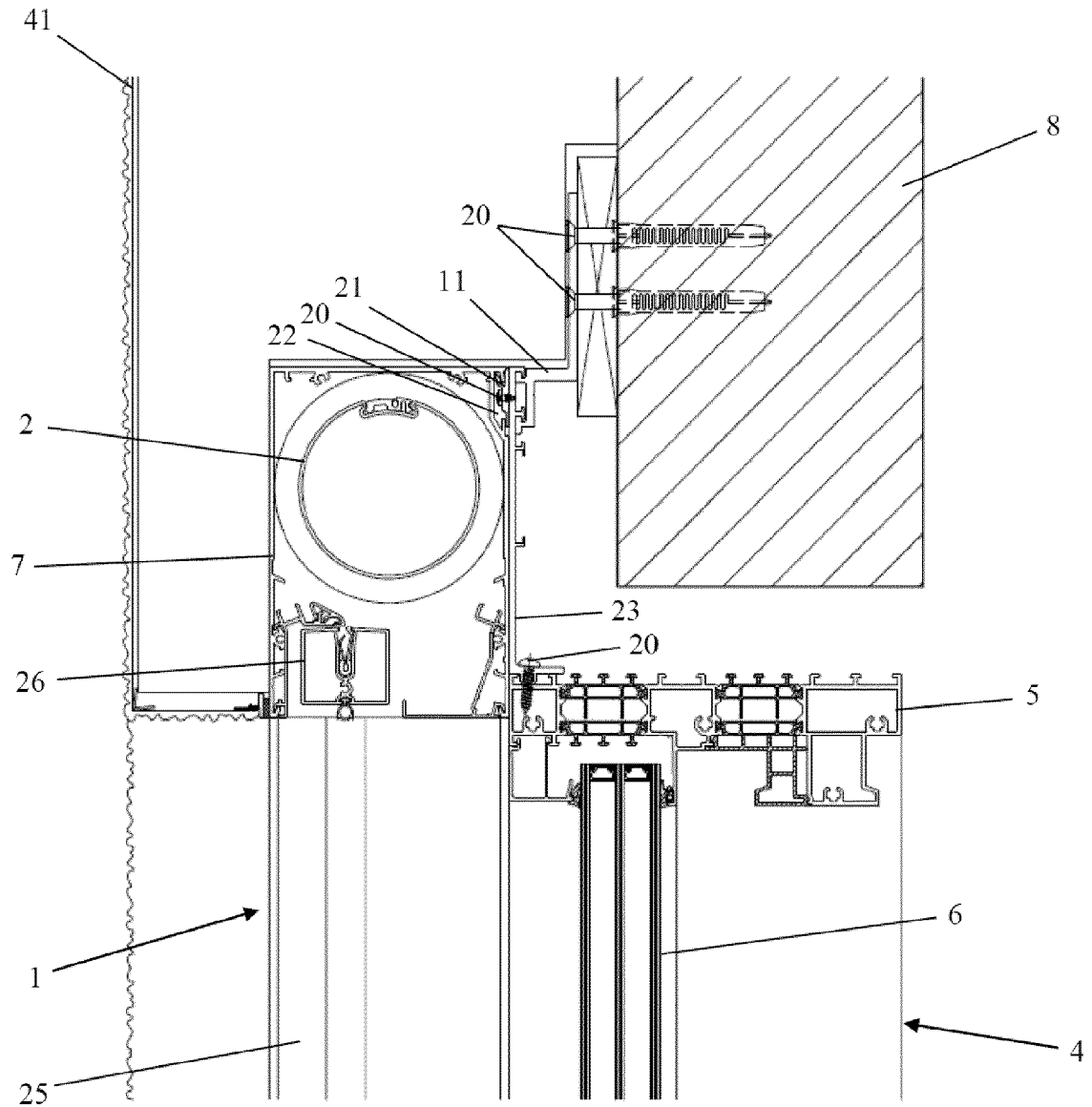


Fig. 17

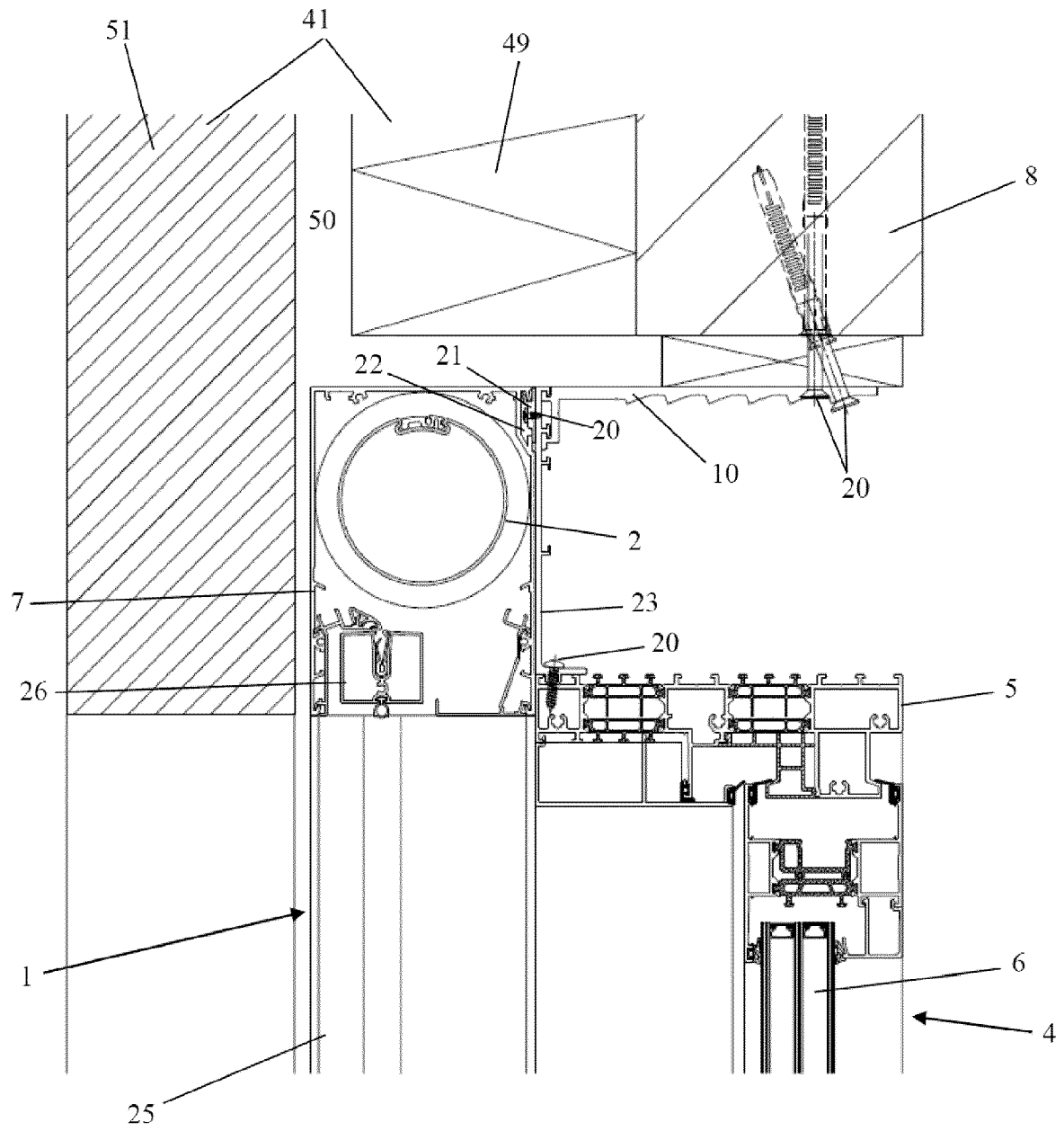


Fig. 18

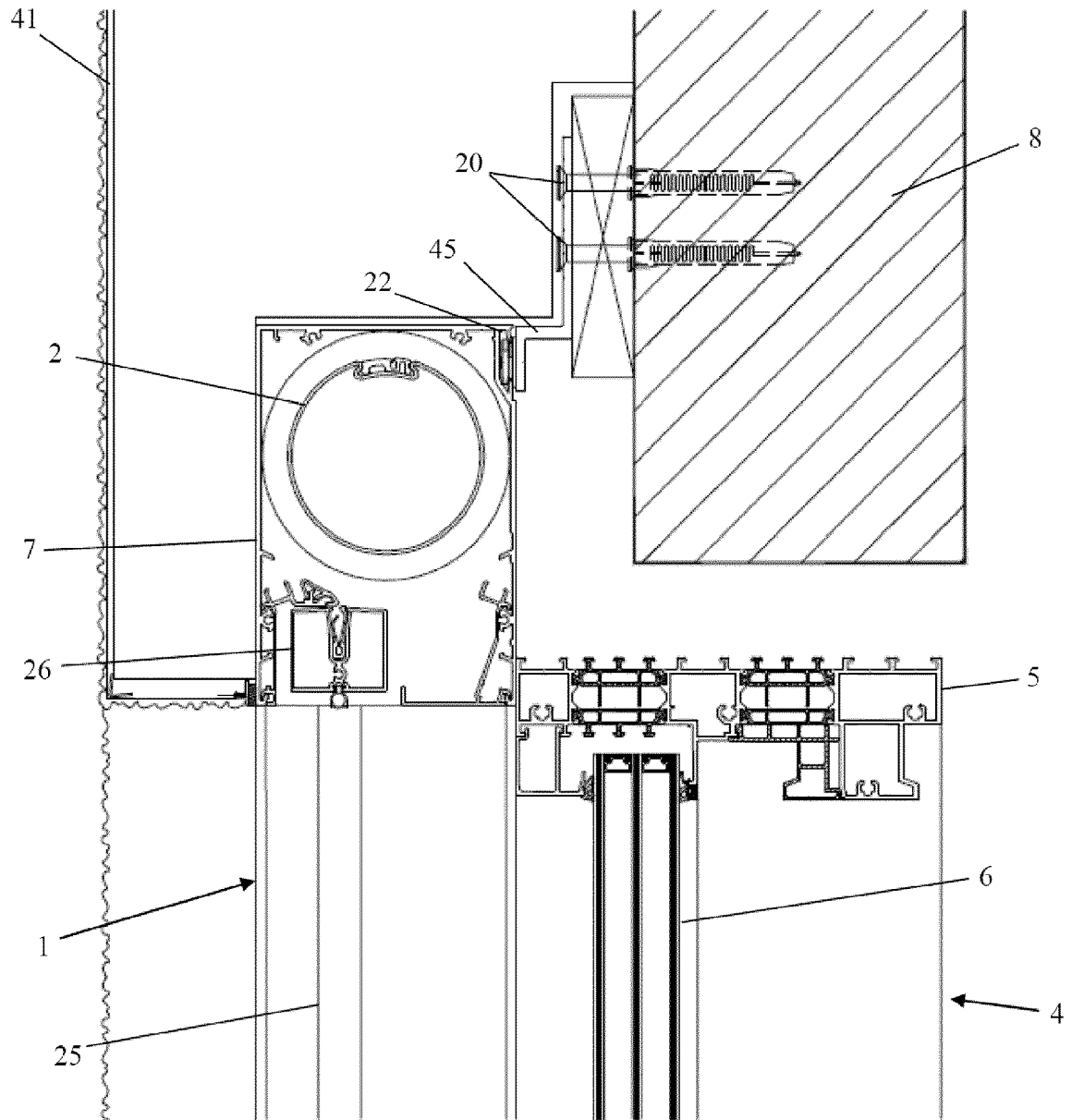


Fig. 19

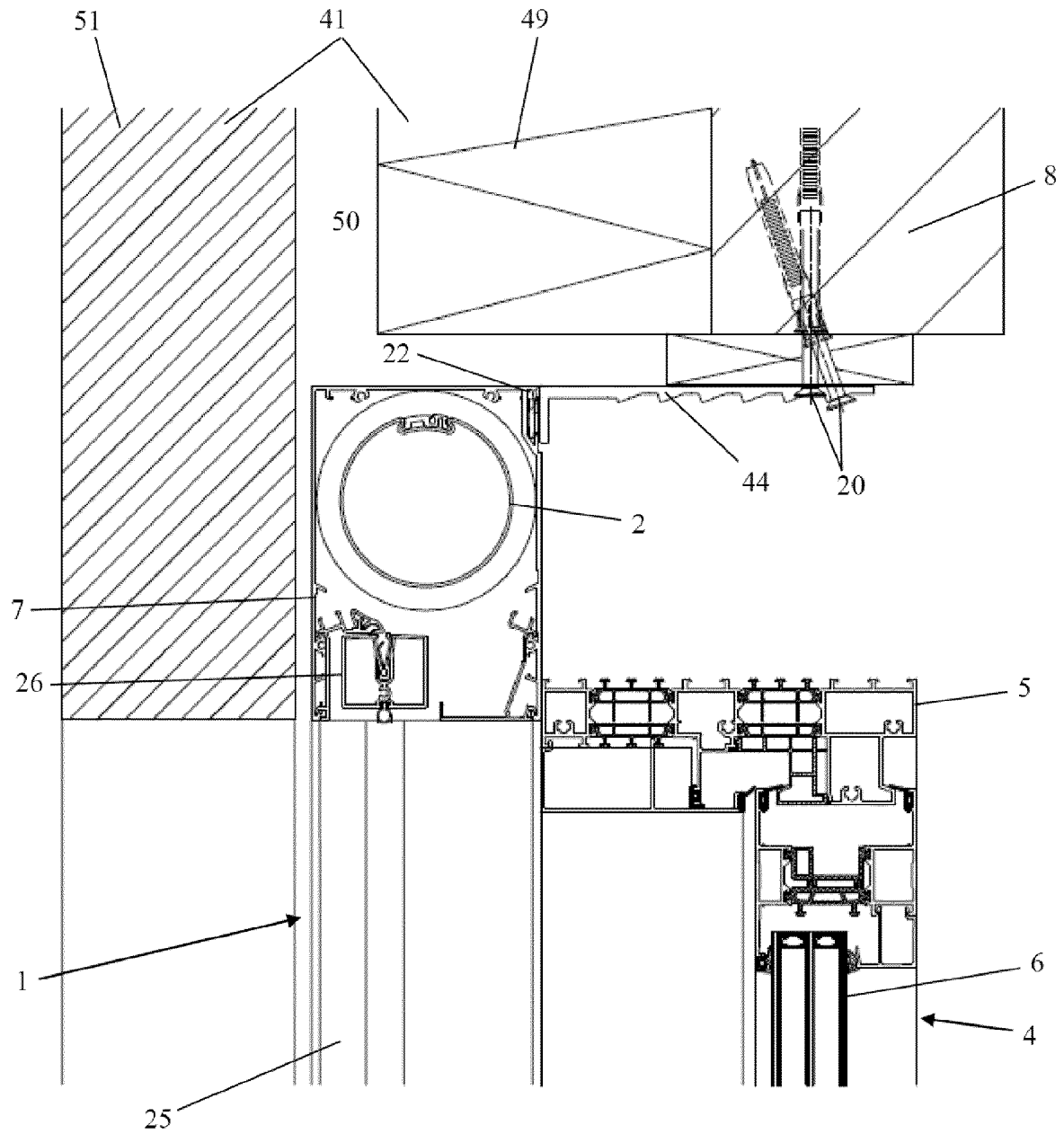


Fig. 20

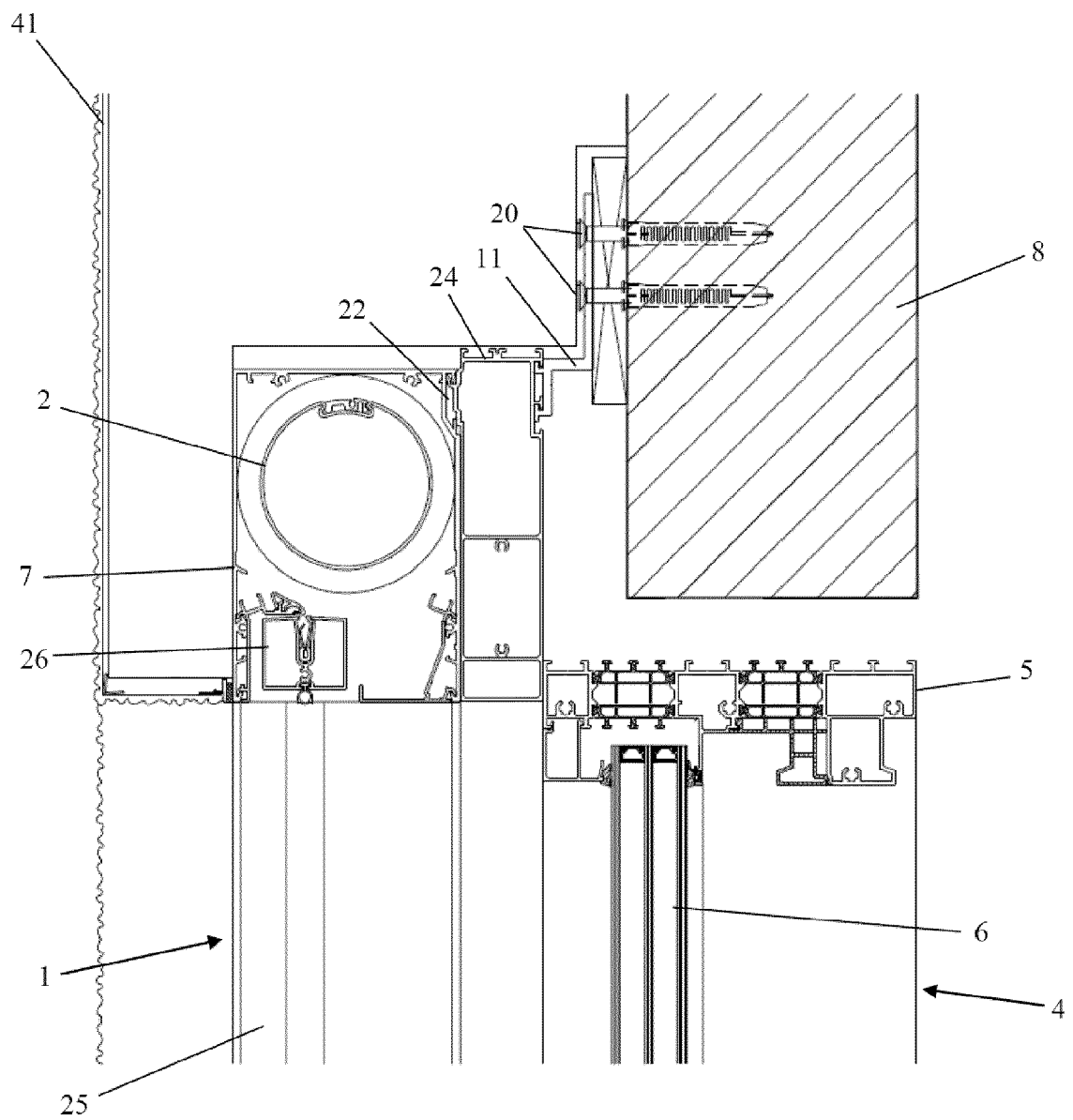


Fig. 21

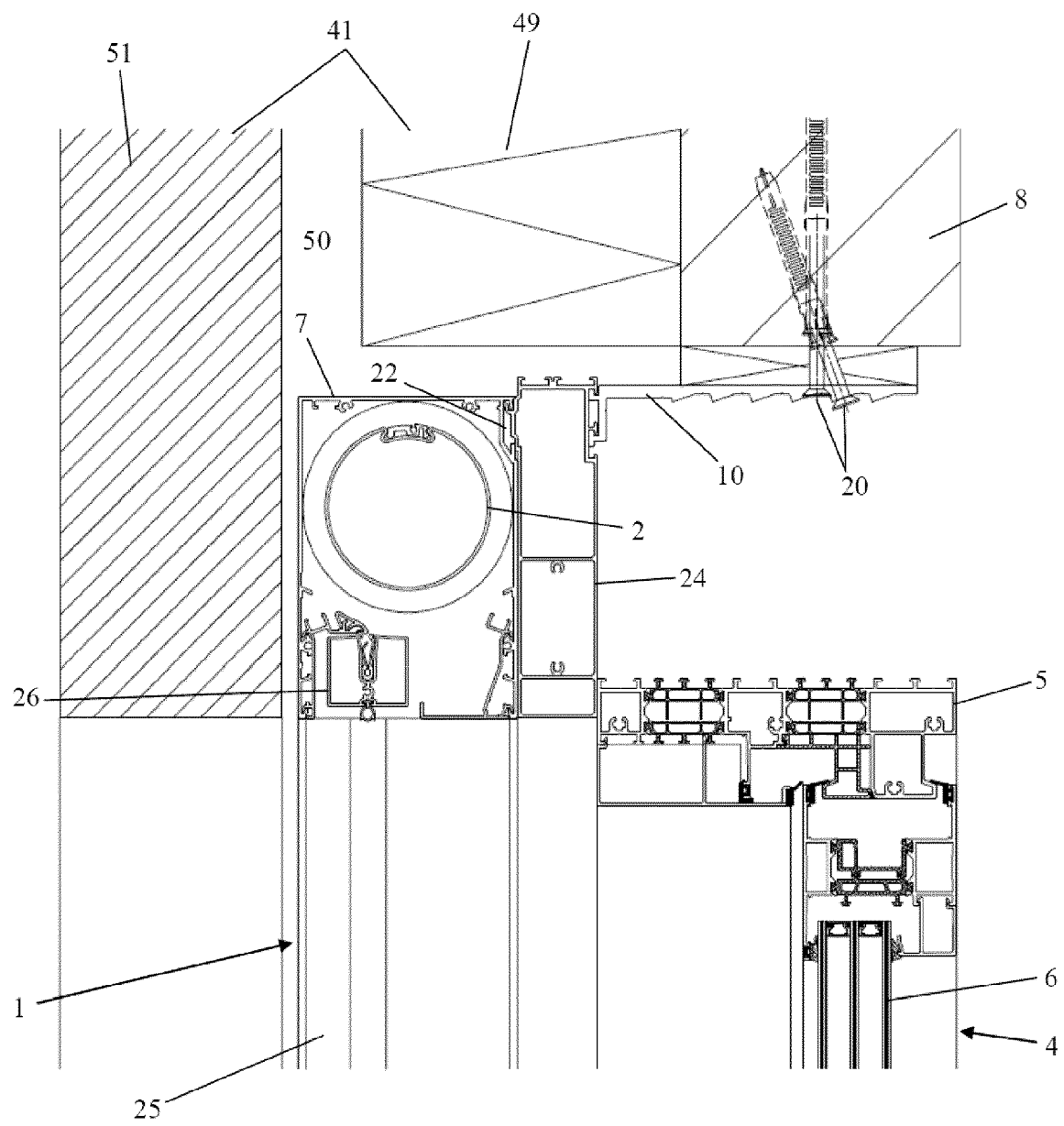


Fig. 22

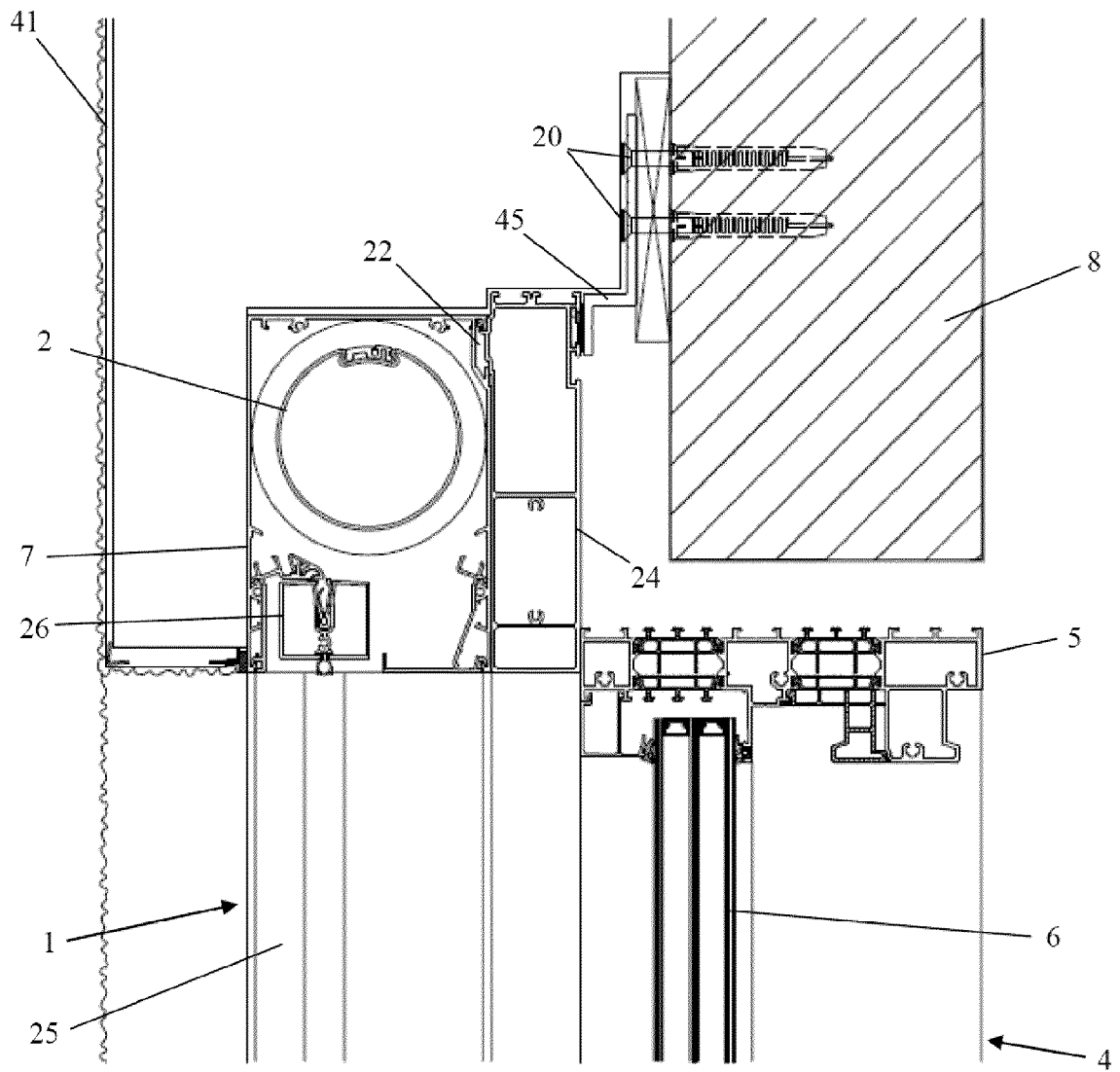


Fig. 23

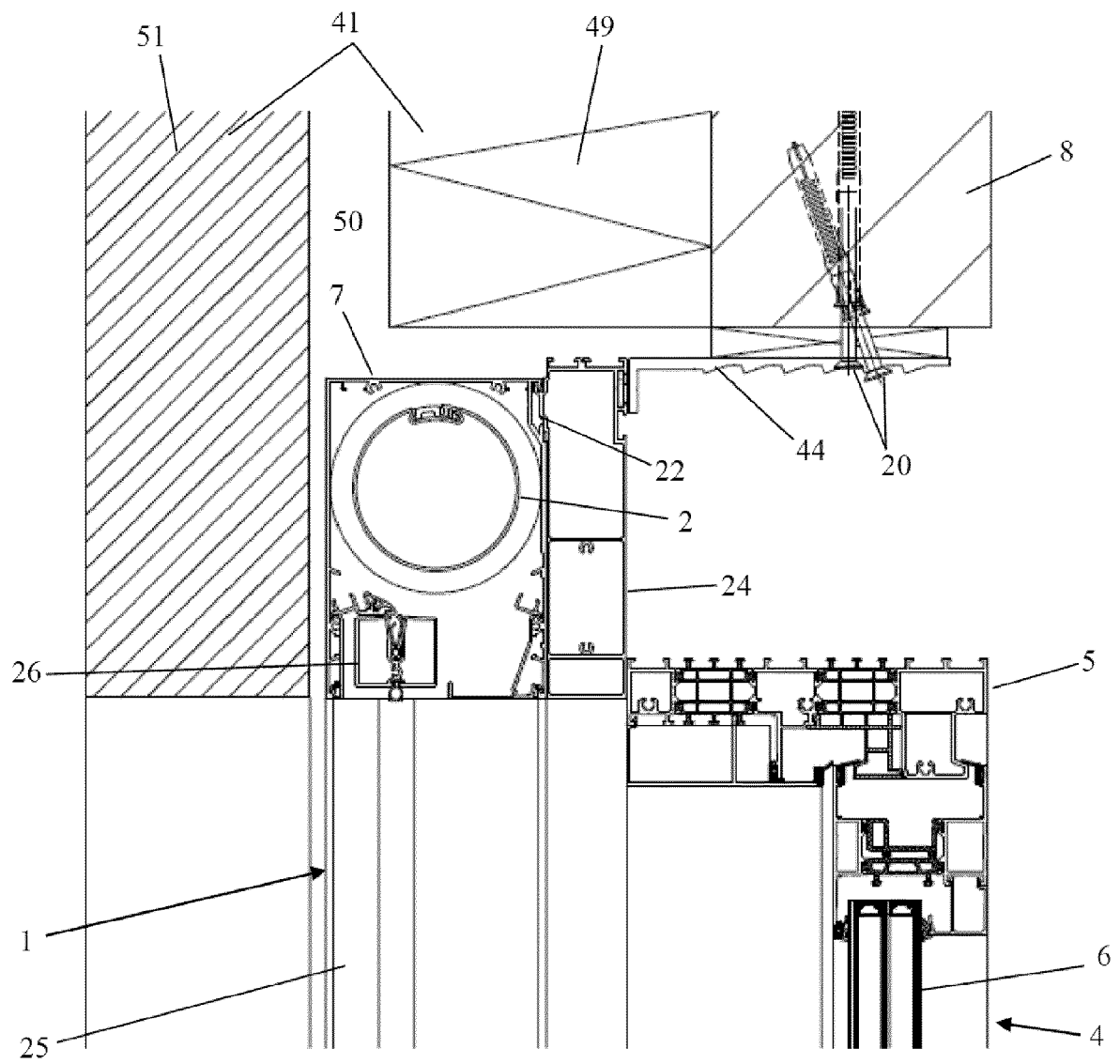


Fig. 24



EUROPEAN SEARCH REPORT

Application Number

EP 22 18 4056

DOCUMENTS CONSIDERED TO BE RELEVANT

Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (IPC)
X	JP H06 81564 A (NICHIBEI KK) 22 March 1994 (1994-03-22)	1-3, 11	INV. E06B9/17
A	* figures 1, 2, 3 * * paragraph [0007] * -----	4-10, 12, 13	
X	JP 3 150555 U (TACHIKAWA BLIND INDUSTRY CO.) 21 May 2009 (2009-05-21)	1, 2, 4-7, 11	
A	* paragraphs [0001], [0019], [0026] * * figures 1, 4, 5 * -----	3, 8-10, 12, 13	
The present search report has been drawn up for all claims			TECHNICAL FIELDS SEARCHED (IPC) E06B

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EPO FORM 1503 03.82 (P04C01)

Place of search Munich	Date of completion of the search 18 November 2022	Examiner Cornu, Olivier
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ANNEX TO THE EUROPEAN SEARCH REPORT
ON EUROPEAN PATENT APPLICATION NO.

EP 22 18 4056

5 This annex lists the patent family members relating to the patent documents cited in the above-mentioned European search report.
The members are as contained in the European Patent Office EDP file on
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18-11-2022

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