



(11) **EP 2 474 702 A1**

(12) **EUROPEAN PATENT APPLICATION**

(43) Date of publication:
11.07.2012 Bulletin 2012/28

(51) Int Cl.:
E06B 9/42 (2006.01)

(21) Application number: **11194508.5**

(22) Date of filing: **20.12.2011**

(84) Designated Contracting States:
AL AT BE BG CH CY CZ DE DK EE ES FI FR GB GR HR HU IE IS IT LI LT LU LV MC MK MT NL NO PL PT RO RS SE SI SK SM TR
Designated Extension States:
BA ME

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(30) Priority: **11.01.2011 DK 201170012**

(54) **Screening arrangement with releasable decorative cover on top rail**

(57) A screening arrangement (1) for screening an aperture of a frame, comprising a top element (4) and a screening body (6), said top element (4) is provided with a top rail (440) forming the front side of the top element (4) and being connected to a cover (430) of the top element (4), said top rail (440) and cover (430) extend between a first end and a second end, the screening arrangement furthermore includes a set of angular brackets (85), each angular bracket being adapted to cooperate with reception means in the back side of the top rail (440) and in the back side of the respective side rail (8,9), wherein an upper portion (431) of the cover (430) and the top rail (440) is releaseably connected by a T-shaped flange section (435) extending in a longitudinal direction between said first and second end of the cover (430), in order to easily change the appearance of the top rail.

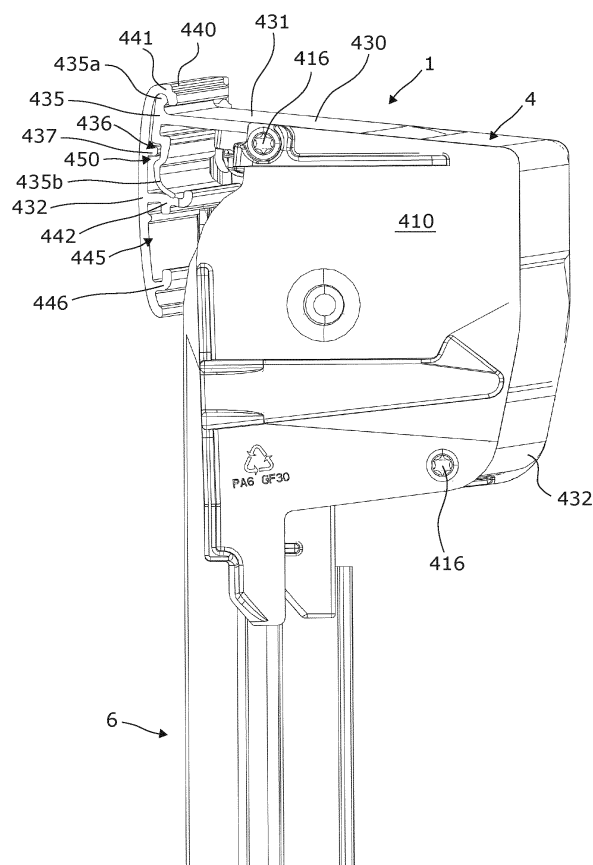


Fig. 2

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Description

[0001] The present invention relates to a screening arrangement for screening an aperture of a frame, comprising a top element and a screening body, said top element is provided with a top rail forming the front side of the top element and being connected to a cover of the top element, said top rail and cover extend between a first end and a second end, and wherein the screening arrangement further comprises two side rails, each of said side rails having a first end and second end, the second end of each side rail being adapted to be joined to the first and second end, respectively, of said top rail, and that the screening arrangement furthermore includes a set of angular brackets, each angular bracket being adapted to cooperate with reception means in the back side of the top rail and in the back side of the respective side rail.

[0002] Such screening arrangements are for instance known from WO 2008/131757, which discloses a screening arrangement wherein the top rail and the cover of the top element is made integral in one piece, and wherein the side rails are connected to the top element at the customer site by an artisan or the customer. Since the top rail in combination with the side rails is of major importance as to the overall appearance of the screening arrangement there is a desire of making it possible to also mount the top rail at the customer side, because it would make it possible to let the customer replace the rails in order to obtain a different appearance without replacing the entire screening arrangement.

[0003] With this background it is the object of the present invention to provide a screening arrangement, which makes it easier to change the appearance of the top rail at the installation site.

[0004] This and further objects are met by the provision of a screening arrangement of the kind mentioned in the introduction, which is furthermore **characterized in that** an upper portion of the cover and the top rail is releasably connected by a T-shaped flange section extending in a longitudinal direction between said first and second end of the cover.

[0005] With a releasable connection between the cover and the top rail of the top element the process of changing the overall appearance of the screening arrangement is made feasible and the T-shaped flange connection provides a solid connection between the top rail and the cover so that the function of the top rail is not impaired, i.e. the top rail may still comprise angular brackets at each end for mounting of the side rails. Moreover, the T-shaped flange section allows the top rail to be mounted on the cover by either a sliding engagement or as a snap-fit connection. The desired solid engagement between the top rail and the cover may be achieved if one of the top rail and the cover is provided with a T-shaped flange section and if both the top rail and the cover extends into a T-shaped flange section which are mutually adapted to provide a solid engagement.

[0006] As a further advantage, the cover and the top rail may be made of different materials. For instance the cover may be made of a plastic material so that the weight is kept at a minimum and the top rail may be made of a light weight metal such as aluminium, which has shown to be especially suitable for receiving angular brackets adapted for mounting of side rails. Because the top rail forms the front side of the top element it is furthermore appreciated that the position of the top rail is adjustable in the longitudinal direction with respect to the cover. Hence, the position of top rail with respect to the cover may be adjusted at the customer site during installation of the screening arrangement so as to compensate for any warping or irregularities in the frame where the screening arrangement is installed. The possibility of adjusting the longitudinal position of the top rail is especially appreciated when the top rail and the side rails are jointed by mitred ends as it allows the mitred end of the top rail and the side rails to be fitted precisely in order to obtain a smooth transition at the mitred joint.

[0007] Preferably, the cover connected to the top rail extends into a T-shaped flange section facing the front side of the top element, said T-shaped flange section extending in a longitudinal direction between said first and second end of the cover and being adapted to releasably cooperate with reception means in the back side of the top rail.

[0008] This configuration of the top element is especially advantageously when the cover is made of plastic as at least a portion of the flange section may be made thinner than the main body of the cover. Thereby the thinner portion of the flange section provides an especially suitable snap-fit function in that it may bend and flex during installation. Moreover, the provision of a T-shaped flange section facing the front side has shown to be a mechanically simple construction allowing the cover to be manufactured by extrusion and which still provides a solid connection between the cover and the top rail, which allows the side rails to be mounted on the angular brackets positioned in reception means in the back side of the top rail.

[0009] In a preferred embodiment, the top rail comprises a second reception means extending in the back side of the top rail in the longitudinal direction between said first end to said second end, and wherein said second reception means extend adjacent to and parallel with the reception means cooperating with the angular brackets.

[0010] By providing separate reception means in the back side of an upper portion of the top rail, the cover may be extruded in one piece to extend in substantially the full length of the top rail without any subsequent machining, which is required when both the flange section and the angular brackets are mounted in the same reception means such as a track extending in the longitudinal direction of the top rail. A separate reception means for connecting the top rail and the cover also makes it possible to adjust the position without being limited by the angular brackets as they are mounted in a

separate reception means.

[0011] By letting an upper edge of the top rail extend into a first wall section in the back side of the top rail so that it form a part of the second reception means in the back side of the top rail, the manufacturing may be even further facilitated and the transition from the front side of the upper edge of the top rail to the back side provides a pleasant appearance, viz. a rounded upper edge extending into the first wall section in the back side of the top rail.

[0012] In a further development of this embodiment an intermediate wall section extending in the longitudinal direction on the back side of the top rail between the upper edge and the lower edge of the top rail form part of the second reception means. Hence the reception means receiving the flange section of the cover may be a track formed by two wall sections extending in the longitudinal direction in the back side of the top rail. The wall sections in the back side of the top rail may be adapted to receive the flange section of the cover, i.e. the wall section may be adapted so that the top rail and the cover are connected by a snap-fit connection, alternatively by a sliding engagement.

[0013] In a further embodiment, the T-shaped flange section of the cover comprises a recess extending in the longitudinal direction between said first and second end pieces and the receptions means of the top rail comprises a protrusion adapted to cooperate with the recess of the T-shaped flange section.

[0014] The provision of a recess in the longitudinal direction of the flange section and a corresponding protrusion extending in the longitudinal direction between the wall sections forming the second receptions means provides for a better engagement between the flange section of the cover and the top rail during installation of the side rails, and prevents the flange section to be released from the reception means during installation when pressing the side rails against the angular brackets mounted in the first track of the top rail

[0015] In order to reduce the material consumption even further and still provide a cover with a substantially rigid main body portion, said cover comprises a further wall section forming a cavity extending in the longitudinal direction of the cover.

[0016] In the following the invention will be described in further detail by means of examples of embodiments with reference to the schematic drawings, in which

Fig. 1 is a perspective view of a screening arrangement in an embodiment of the invention,
 Fig. 2 shows, on a larger scale, a partial perspective view of a detail of the screening arrangement shown in Fig. 1,
 Fig. 3 shows, on a larger scale, a further partial perspective view of another detail of the screening arrangement shown in Fig. 1.

[0017] Fig. 1 show an embodiment of a screening ar-

5 rangement 1. The screening arrangement 1 is adapted to be mounted on a frame or a sash representing a window. It is noted that the terms "sash" or "frame" is to be understood as incorporating any substantially rectangular structure positioned in any opening in a building, whether in a wall or the roof, and surrounding an aperture to be screened. In the embodiment shown, the screening arrangement 1 comprises a top element 4 adapted to be positioned at the top of a sash or a frame, a screening body 6 and a bottom element 7. At an upper end edge, the screening body 6 is accommodated in the top element 4 and an opposed, lower end edge is fastened to the bottom element 7. In the embodiment shown, the bottom element 7 is adapted to act as a handle during operation of the screening arrangement 1, i.e. when moving the bottom element 7 and hence the screening body 6 between a non-screening position and a screening position, in which the screening body 6 covers the sash or frame aperture partly or fully. However, instead of being manually operated, the screening arrangement may be operated by other means, e.g. by electrical operating means.

[0018] Furthermore, the screening arrangement 1 comprises two side rails 8, 9 adapted to be connected to respective side pieces of a sash or frame, and to the top element 4. In the mounted position of the screening arrangement 1, opposite ends of the bottom element 7 and opposite side edges of the screening body 6 are guided along these side rails 8, 9. In the embodiment shown, the screening arrangement 1 comprises a roller blind having as its screening body 6 a cloth or fabric, and of which the top element 4 includes a spring-biased roller bar. However, other screening arrangements having other kinds of screening bodies and other configurations of the top element are conceivable as well.

[0019] In a preferred embodiment the screening body is a roller blind and the top element 440 comprises a roller shaft which is integral with one of the end pieces 410, 420. The integral connection between the roller shaft and the end piece is obtained by mounding the end piece 410, 420 and the roller shaft in one piece, i.e. without subsequent joining of any part, to form the one piece unit comprising the end piece and the roller shaft.

[0020] From Fig. 1 it is understood that the top element 4 has a left-hand end piece (not shown) and a right-hand end piece 410. The terms "left-hand" and "right-hand" refer to the orientation shown in for instance Fig. 1 and are utilized for reasons of convenience only. Similarly, the terms "front" and "back" are utilized to denote the sides of the screening arrangement 1, "front" being the side intended to face inwards into the interior of a building, and "back" the outwards facing side. The terms "upper" and "lower" refer to the orientation of the screening arrangement installed in a frame, where "upper" refers to the top piece of the frame and "lower" refers to the bottom piece of the frame.

[0021] The top element 4 comprises a cover 430 extending almost throughout the entire length of the top

element 4 from the left-hand end piece to end to the right-hand end piece 410, the end pieces thus constituting the end faces of the top element 4. At the side intended to face inwards into the room, i.e. the front side, the cover 430 is connected to a top rail 440 forming the front side of the top element 440. Moreover, the end pieces 410 are provided with coupling means adapted to be connected with a bracket member provided in a frame or sash aperture. The top rail 440 and the cover 430 are releasably connected and formed as separate portions of the top element 4. The end pieces 410 is adapted to be fastened to the cover 430 by means of e.g. a screw 416 inserted in screw holes of the end pieces and to be received in threaded tracks 449 in the cover. Alternatively, the end pieces 410 may be mounted on the cover 430 by means of a snap-fit connection. The top rail 440 has a slightly longer extension in the longitudinal direction than the cover portion 430.

[0022] In the mounted position of the screening arrangement 1, the top rail 440 is joined to side rails 8, 9 in mitred joints by means of angular brackets 85. To that end the top rails 440 has two mitred ends 432, 433, of which one mitred end 432 is shown in Fig. 2 to be joined to a respective mitred end of the left-hand side rail 9.

[0023] The top rail 440 has a predetermined height and each side rail 8, 9 has a predetermined width, and in the embodiment shown the predetermined height is substantially the same as the predetermined width. The mitre joint is preferably a 45° mitre joint, but other angles are conceivable.

[0024] The side edges of the screening body 6 are guided by the side rails 8, 9 in a manner known per se, for instance by means of a number of guide beads mounted at a distance from each other along each side edge. Hence, the side rails 8, 9 serve the purpose of improving the light-proofing properties of the screening arrangement, as they overlap the side edges of the screening body in the mounted position of the screening arrangement. Eventually, depending on the type of screening body and the installation situation, the side rails may contribute to holding the screening body in position. The bottom edge of the screening body 6 is connected with the bottom element 7 in any suitable manner, and the ends of the bottom element are advantageously guided by the side rails as well.

[0025] In a preferred embodiment of the invention, the screening arrangement comprises a parallel guidance cord system comprising two cords (not shown), one cord being adapted to extend from the left-hand lower corner of the sash, up through or along the bottom element 8 and further up to the top element 4. The other cord is routed in a mirror-inverted manner. At the top element 4, each cord is connected with a respective pre-tensioning device adapted to be connected with the top element 4. The pre-tensioning devices entail that the cords are held at a suitable tension all the time during use, thereby ensuring that the bottom element 7 at all times is kept substantially in parallel with the top and bottom pieces of the

sash or frame.

[0026] In the right-hand perspective side view of Fig. 2 the right-hand side rail 9 and the corresponding angular bracket of the top rail 440 has been removed. In the mounted condition, the angular bracket is mounted in a reception means 445 such as a track formed in a lower portion in the back side of the top rail 440, i.e. the portion of the top rail 440 closest to a bottom piece of a frame in the condition of use. The perspective left-hand view of Fig. 3 shows left-hand side angular bracket 85 positioned in reception means 445 of the top rail 440. In a preferred embodiment the reception means 445 is provided by a track extending in the longitudinal direction of the top rail between the left-hand side mitre 433 and the right-hand side mitre 432. The track is formed by wall sections 432, 446 extending from the back side of the top rail.

[0027] At the upper portion of the top rail 440 a second reception means 450 is provided and in the shown embodiment the second reception means 450 is also provided by a second track extending in the longitudinal direction of the top rail 440 between the left-hand side mitre and the right-hand side mitre. The second track is formed by an upper wall section 441 that may be formed by an upper edge of the top element 440, which upper edge extends into the upper wall section 441 on the back side of the top element 4, and an intermediate wall section 442 extending from the back side of the top element 440 between the upper and the lower portion of the top rail 440. As may be seen from Fig. 2, the first track 445 and the second track 450 shares the intermediate wall section 442 which, on one side forms part of the first track adapted to receive a leg of an angular bracket, and on the other side forms parts of the second track adapted to receive a T-shaped flange section 435 of the cover 430. Evidently, the top element 440 may comprise only one reception means adapted to receive both the angular brackets for mounting of the side rails 8, 9 and the T-shaped flange section 435 of the cover 430.

[0028] As may be seen from the partial perspective views of Fig. 2 and Fig. 3, the longitudinal direction of the cover 430 of the top element 4 has a substantially C-shaped cross section. The cover 430 has an upper portion 431 extending into the T-shaped flange section 435 facing the front side and a lower portion 432, which together forms the C-shaped cover acting as a shield protecting the screening body 6 such as a roller blind when stored in the top element 4. Preferably, the cover 430 made of a plastic material such as polycarbonate, which minimizes the overall weight of the top element 4 and allows it to be produced by extrusion.

[0029] The T-shaped flange section 435 is formed by a first and a second leg 435a, 435b extending from the longitudinal end edge of upper portion of the cover 430 and extending in the longitudinal direction of the cover 430. As seen from Fig. 2, when the top rail 440 and the cover 430 is connected to each other, the first leg 435a cooperates with the upper wall section of the top rail 440 and the second leg 435b cooperates with the intermedi-

ate wall section 442. Generally, the first flange leg 435a extends upwards from the upper portion of the cover and the second flange leg 435b extends downwards from the upper portion. Thereby the two flange legs 435a, 435b extending from the upper portion of the cover form a plate section facing the front of the top element 4. The top rail 440 may for instance be mounted on the cover 430 by sliding the first and second legs 435a, 435b into the track on the back side of the top rail 440. Evidently, the first and second flange legs 435a, 435b may have different lengths so that the flange section substantially is a L-shape, i.e. the cover may extend in to a flange section wherein one of the flange legs forming said plate section is shorter than the other.

[0030] In a preferred embodiment, the main body of the C-shaped portion of the cover 430 extending from the upper portion 431 to the lower portion 432 is substantially thicker than at least a portion of the T-shaped flange section 435. In Fig. 2 the second leg is substantially thinner than the first leg and the main body of the cover 430 so that the second leg may bend more than the remaining part of the cover 430. Hence instead of sliding the T-shaped flange section 435 into the reception means 445, 450 on the back side of the top rail 440 or vice versa, the top rail 440 may be mounted on the cover by a snap fit connection utilizing the thinner, bendable and therefore more resilient second leg of the T-shaped flange section 435. This may for instance be achieved by positioning the first leg of the T-shaped flange section against the upper wall section 441, which then preferably forms a recess adapted to receive at least a part of said first leg, and then pushing the lower portion of the top rail 440 towards the second leg of the T-shaped flange section 435 in order to press the second leg into a corresponding recess or holing means of the intermediate wall section 442. As shown in Fig. 2 the intermediate wall section 442 may extend from the back side of the top rail 440 so that the top rail forms a substantially T-shaped flange section, which is adapted to provide an engagement with the T-shaped flange section 435 of the cover 430.

[0031] The screening arrangement 1 may e.g. be delivered in a supply condition carried out at the manufacturer. In the supply condition, the angular brackets 85 are connected to the top rail 440 of the top element. At the installation site, the top element 4 is connected to the frame 2 for instance by guiding the coupling members of the end pieces 410 over the bracket members positioned at the upper ends of each side piece of the frame, and eventually the side rails 8, 9 are joined to the top rail 440 at the mitred ends by means of the angular brackets by pressing the side rails against the respective angular brackets so that a leg 85b (cf. Fig. 3) is received in reception means in the back side of the respective side rails 8, 9.

[0032] In order to ensure that the T-shaped flange section 435 is not released from the reception means 450 during installation of the side rails 8, 9, when connecting the side rails 8, 9 to the angular brackets, the reception

means 450 may comprises a protrusion 436 extending in the longitudinal direction of the reception means, and the T-shaped flange section 435 comprises a corresponding recess 436 in the longitudinal direction. I.e. at least leg 435a, 435b of the T-shaped flange section comprises a recess extending in the longitudinal direction of the top element 4 and the reception means adapted to receive the T-shaped flange section 435 comprises a corresponding protrusion adapted to cooperate with the recess. Evidently, the T-shaped flange section may comprise a protrusion and the reception means a recess, which are adapted to cooperate mutually. This will ensure that during mounting of the side rails by positioning the angular brackets in receptions means on the back side of the side rails 8, 9, the T-shaped flange section 435 is not released from the second reception means of the top rail 440. Generally, the T-shaped flange section and the reception means in the back side of the top rail are configured so that the T-shaped flange section is not released from the reception means during installation of the side rails.

[0033] The partial perspective view of Fig. 3 shows a top rail 440 having a first lower reception means 445 wherein an angular bracket 85 is mounted, and a second upper reception means 450 adapted to receive the substantially T-shaped flange section 435 of a cover 430, which T-shaped flange section faces the front of the screening arrangement. The angular bracket 85 has a first leg 85a accommodated in the first reception means 445, a second leg 85b adapted to be accommodated in reception means in the back side of a side rail and a third leg 85c closing off the second reception means 450, i.e. in the embodiment shown the top rails are mounted on the cover by means of a snap-fit connection provided by the T-shaped flange section and the walls of the second reception means. Alternatively, the top rail may be mounted by sliding the flange section into the second reception means before the angular bracket 85 is mounted in the first reception means.

[0034] The cover 430 of a preferred embodiment is formed by a substantially C-shaped wall section, which is provided with further wall sections 470, 480 forming a cavity 471, 481 extending in the longitudinal direction of the cover. This allows the wall sections of the cover to be made thinner and still obtaining a relatively rigid cover. This furthermore allows the cover to be made in other materials than metal such as plastic materials.

[0035] The invention should not be regarded as being limited to the described embodiments. Several modifications and combinations of the different embodiments will be apparent to the person skilled in the art. For instance, the substantially T-shaped flange sections does not have to extend continuously along the longitudinal direction of the top element and may extend in only a portion on the longitudinal direction of the top element. In this case the T-shaped flange sections may be provided at separate portions along the longitudinal direction and the individual shape of the flange sections may vary.

Claims

1. A screening arrangement (1) for screening an aperture of a frame, comprising a top element (4) and a screening body (6),
said top element (4) is provided with a top rail (440) forming the front side of the top element (4) and being connected to a cover (430) of the top element (4), said top rail (440) and cover (430) extend between a first end and a second end, and wherein the screening arrangement further comprises two side rails (8, 9), each of said side rails (8, 9) having a first end and second end (432, 433), the second end of each side rail (8, 9) being adapted to be joined to the first and second end, respectively, of said top rail (440), and that the screening arrangement furthermore includes a set of angular brackets (85), each angular bracket being adapted to cooperate with reception means in the back side of the top rail (440) and in the back side of the respective side rail (8,9), **characterized in that**
an upper portion (431) of the cover (430) and the top rail (440) is releaseably connected by a T-shaped flange section (435) extending in a longitudinal direction between said first and second end of the cover (430).
2. Screening arrangement according to claim 1, wherein the upper portion (431) of the cover (430) connected to the top rail (440) extends into a T-shaped flange section (435) facing the front side of the top element (4), said T-shaped flange section (435) extending in a longitudinal direction between said first and second end of the cover (430) and being adapted to releaseably cooperate with reception means (445) in the back side of the top rail (440).
3. A screening arrangement according to claim 1 to 2, said top rail (440) comprises a second reception means (450) extending in the back side of the top rail (440) in the longitudinal direction between said first end to said second end (432, 433), and wherein said second reception means (450) extend adjacent to and parallel with the reception means (445) cooperating with the angular brackets.
4. A screening arrangement according to any previous claim, wherein an upper edge of the top rail (440) extends into a first wall section (441) in the back side of the top rail (440) so that it form a part of the second reception means (450) in the back side of the top rail (440).
5. A screening arrangement according to claim 4, wherein a further wall section (442) extending in the longitudinal direction on the back side of the top rail (440) form part of the second reception means (450).
6. A screening arrangement according to any previous claim, wherein said T-shaped flange section (435) of the cover (430) comprises a recess (436) extending in the longitudinal direction between said first and second end pieces (410, 420) and the second reception means (450) of the top rail (440) comprises a protrusion (437) adapted to cooperate with the recess (436) of the T-shaped flange section (435).
7. A screening arrangement according to any previous claim, wherein said cover (430) comprises a further wall section (470, 480) forming a cavity (471, 481) extending in the longitudinal direction of the cover (430).

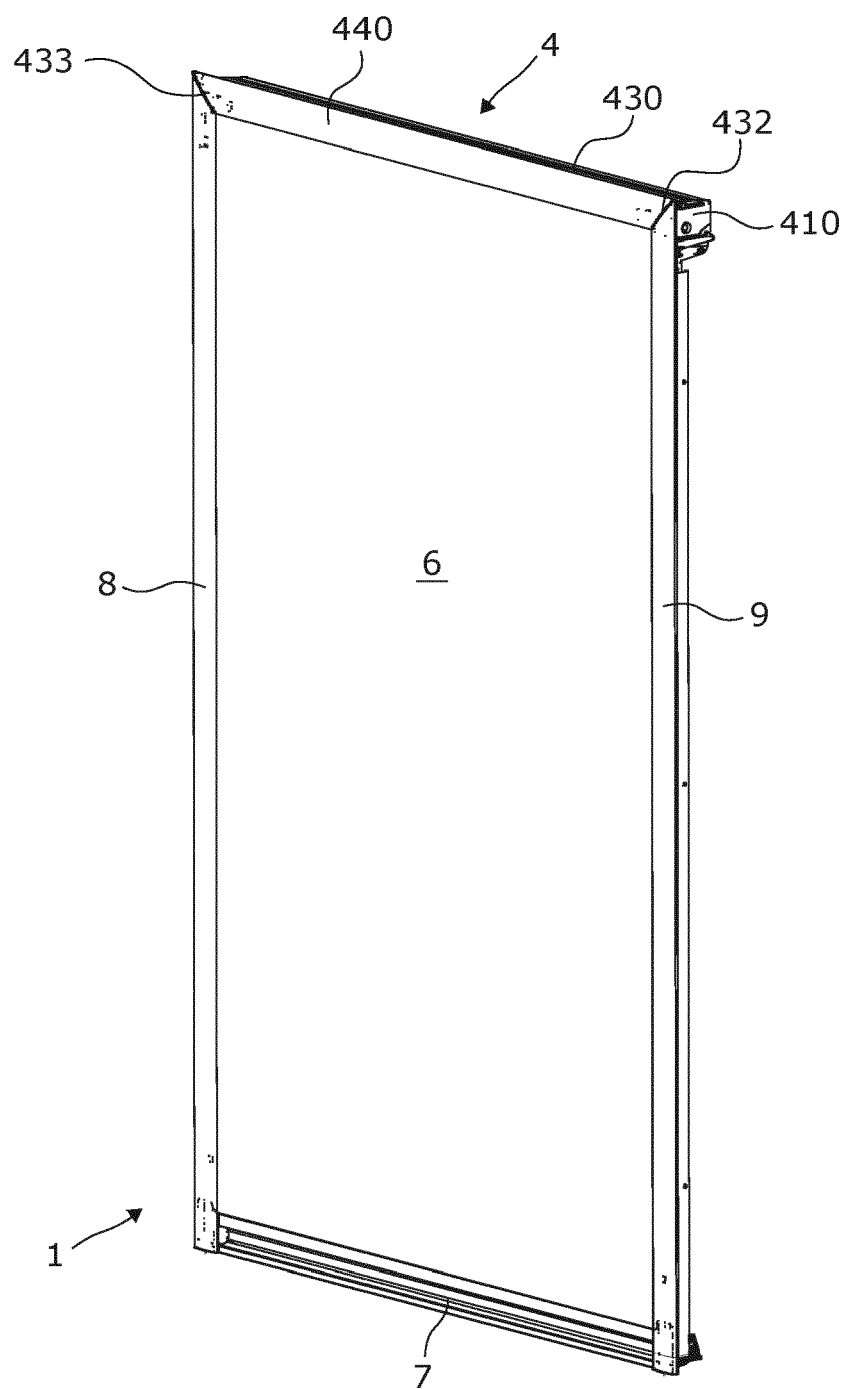


Fig. 1

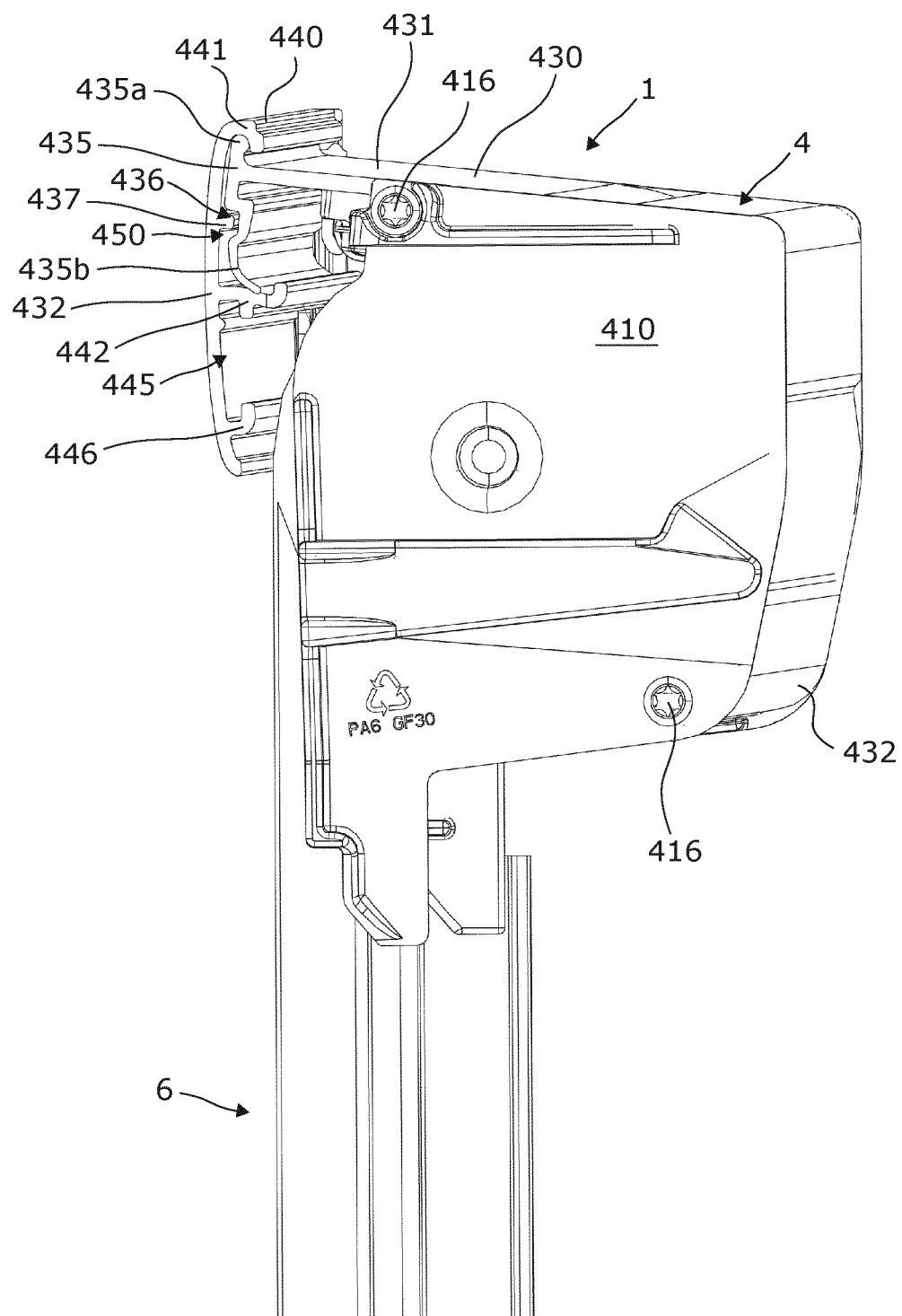


Fig. 2

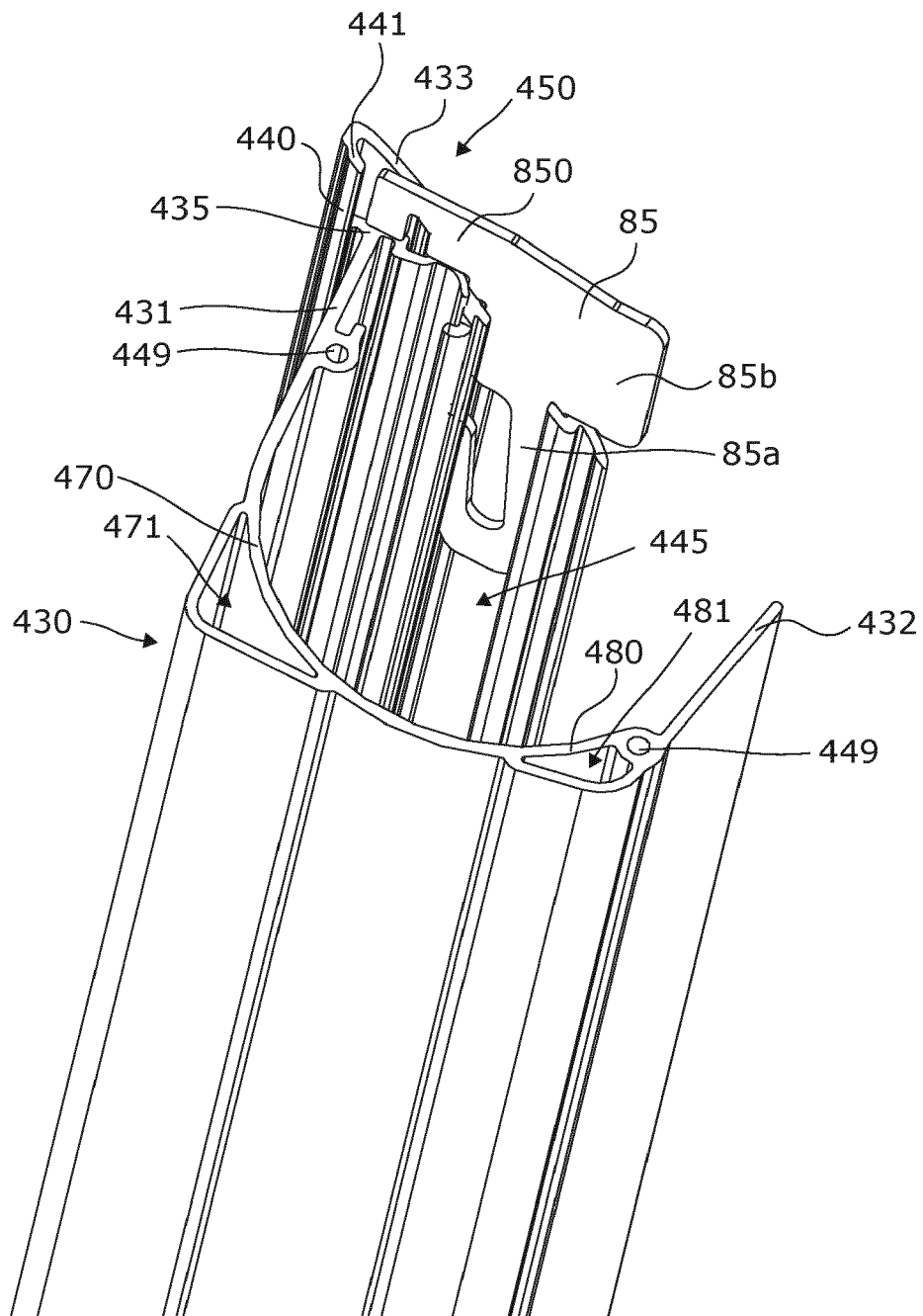


Fig. 3



EUROPEAN SEARCH REPORT

Application Number
EP 11 19 4508

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Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (IPC)
A,D	WO 2008/131757 A1 (VKR HOLDING AS [DK]; ANDERSEN HANS GRAM [DK]; STENULM STEFFEN [DK]) 6 November 2008 (2008-11-06) * the whole document *	1-7	INV. E06B9/42
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The present search report has been drawn up for all claims			
Place of search Munich		Date of completion of the search 16 April 2012	Examiner Merz, Wolfgang
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**ANNEX TO THE EUROPEAN SEARCH REPORT
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For more details about this annex : see Official Journal of the European Patent Office, No. 12/82

REFERENCES CITED IN THE DESCRIPTION

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