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(54) **Supporting means and screening device for use with such supporting means, and a window comprising such supporting means**

(57) The supporting means include a pair of bracket members (6) for mounting on each of a pair of opposed frame surfaces (4) of a frame structure. In order to bring a screening device from a non-mounted position to a mounted position, the screening device is moved in a mounting direction (A). The cross-sectional dimensions of the bracket member (6) increase in the mounting direction (A) over at least a part of the bracket member.

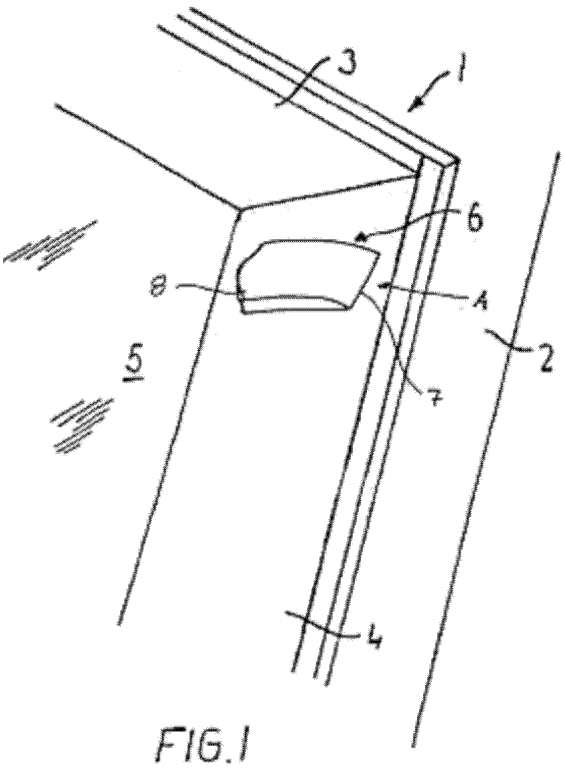

FIG.1

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Description

[0001] The present invention relates to means for supporting a screening device in a frame structure with frame members comprising top and bottom members as well as side members, said means comprising a pair of bracket members having a substantially continuous external surface for mounting on each of a pair of opposed frame surfaces of said frame structure, said screening device being brought from a non-mounted position to a mounted position by movement in a mounting direction.

[0002] Screening devices for windows and doors such as roller blinds, Venetian blinds, pleated blinds and internal and external shutters are conventionally supplied together with supporting brackets which are specifically adapted to the particular form of screening device and are engageable by engaging means provided on the screening device, typically at either end thereof. During installation of the screening device the supporting brackets must be mounted by the user himself, which frequently results in errors, in particular if different left-hand and right hand brackets are mixed up.

[0003] Although it is also known to incorporate supporting brackets for a specific type of screening devices in the frame structures of doors and windows during the production thereof, so that the door or window frame structure is supplied with pre-mounted supporting brackets, such brackets have normally been designed for use with a specific kind of screening devices such as roller blinds. If installation of another kind of screening devices such as a Venetian blind is desired it has been necessary in such case to replace the pre-mounted supporting brackets by brackets specifically designed for the desired screening device.

[0004] In addition, unavoidable production tolerances for the door or window frame structure may result in difficulties with respect to correct mounting of a screening device.

[0005] In DE patent No. 30 48 333 supporting means for a roller blind is disclosed comprising two support plates, one of which is provided with a slot for receiving a square pin in one end of the spring roller tube of the roller blind in a rotationally locked manner and the other one is provided with a circular hole. For alternative mounting of a Venetian blind, each support plate is provided with protrusions for engaging grooves in coupling members connected with the top casing of the Venetian blind, said members being pushed over the support plates. Subsequently, the side guide lists of the blind are mounted, said lists serving simultaneously as support for the coupling members and the top casing of the blind, i.e. as a safety against disconnection of the coupling member from the support plate.

[0006] Although this support arrangement allows for use of the same supporting brackets for different screening devices, the number of different screening devices is limited and it is a further disadvantage of this design that it has a less attractive appearance.

[0007] In US-A-3,614,045 a supporting arrangement is disclosed comprising elongate slotted rails secured to the side members of the frame structure and extending throughout the height thereof and coupling members provided with hook-shaped engaging members to engage in slots of said rails and projecting at right angles in front of the frame structure. The less attractive appearance of this arrangement limits its application to draperies, which will hide the supporting arrangement, and does not qualify to meet current demands for an aesthetical and functional design of windows and accessories like screening devices.

[0008] EP-A1-0 465 433 discloses an arrangement comprising a pair of identical tubular-shaped supporting brackets secure to opposed surfaces of frame side members, in each of which a transverse recess is formed to receive a resilient clamping member of a form restoring the outer cylindrical form of the supporting brackets. This design is intended only for roller blinds having engaging means in the form of projecting cylindrical pins at either end.

[0009] WO 96/07007 discloses a roller shade mounted between a pair of supporting brackets projecting at right angles from the front side of the frame structure and formed with an undercut groove to receive a coupling member in the form of a slide engaged by the roller shade.

[0010] In SE-B-415,904 a roller blind support is disclosed comprising a pair of L-shaped bracket members in which edge flange portions on either side of a rectangular slit are engaged by resilient legs of an insert slide which can be pushed into the recess and is engageable by engaging means on the roller blind.

[0011] Applicant's published international applications Nos. WO 99/07974 and WO 00/47858 describe supporting means in which the supporting means comprise a first pair of bracket members and a second pair of coupling members provided with engagement means for mutual engagement. In the first-mentioned document, the bracket members are provided with resilient engagement means, whereas in the second document, only the coupling members comprise resilient engagement means.

[0012] With the design of the supporting means disclosed in each of these documents a relatively attractive design meeting modern days user demands is provided, and utilization of a variety of screening devices using various forms of coupling members is made possible. However, in order to secure safe retention of the screening device, the bracket member must be formed in such a way that the coupling member is pushed over it either from inside the room or in a direction substantially parallel with the longitudinal direction of the corresponding frame member. Furthermore, the design possibilities are limited by the fact that the bracket member must be able to retain the coupling member, at least temporarily.

[0013] On this background it is the object of the invention to improve supporting means of the kind mentioned in the introduction with respect to the overall appearance and flexibility of use, and by which the mounting process

is additionally facilitated.

[0014] This and further objects is met by the provision of supporting means of the kind mentioned in the introduction, which are furthermore characterized in that the cross-sectional dimensions of each bracket member increase in the mounting direction over at least a part of the bracket member.

[0015] By forming the bracket members of the supporting means with increasing cross-sectional dimensions, seen in the mounting direction, the mounting is facilitated, as the screening device is easily orientated with respect to the bracket members. In case the supporting means furthermore comprises coupling members for co-operation with the bracket members, the user will experience a slightly increasing resistance when pushing the coupling member over the bracket member. Eventually, the appearance is improved, as the viewer will meet the smaller cross-sectional dimensions at the nearer portion of the bracket member.

[0016] The bracket member may have a substantially wedge-shaped or curved cross-section.

[0017] Although a wedge-shaped configuration provides for substantially the same advantages as the curved cross-section, the curved cross-section is preferred, due to its superior design qualities. In an advantageous further development of this preferred embodiment, the bracket member has curved cross-section in at least two directions. By providing the bracket member with a surface of double curvature, the mounting is rendered extremely simple, as the screening device may be mounted in virtually any direction ranging from, e.g. a direction parallel to the frame member in question to a direction substantially perpendicular thereto.

[0018] In an alternative embodiment, in which the supporting means furthermore comprises a pair of coupling members, each bracket member is provided with engagement means for engagement with corresponding engagement means of a corresponding coupling member. In combination with the easy installation due to the increasing cross-sectional dimensions of the bracket member, this embodiment entails a particularly safe retention of an arbitrary screening device.

[0019] In a particularly simple further development of this embodiment, the engagement means of each bracket member comprises a shoulder portion.

[0020] In order to secure the engagement between such a coupling member and the bracket member, the bracket member may comprise a protruding edge portion to cooperate with one or more corresponding recesses in the coupling member.

[0021] In an alternative embodiment, which is particularly suited for use with a roller blind, each bracket member is provided with means for reception of a respective end of a screening device, said means comprising a rectangular slot and a circular hole, respectively, and in which the reception means are covered in the non-mounted position of the screening device. By this design, the screening device may be mounted directly on the bracket member and the use of a coupling member is thus rendered superfluous.

[0022] In an embodiment, which is advantageous i.a. due to its aesthetic qualities, the cross-sectional dimensions of the part of each bracket member positioned at the remote end of the bracket member decrease in the mounting direction.

[0023] In a further aspect of the invention, a screening device is provided, said screening device comprising means for cooperation with the supporting means.

[0024] The cooperation means may comprise coupling members for cooperation with a respective bracket member. In an alternative embodiment, the screening device may be a roller blind having a roller shaft, and a respective end of said roller shaft may constitute the cooperation means.

[0025] In a still further aspect of the invention, a window comprising such supporting means is provided.

[0026] Yet another aspect of the invention provides for use of the supporting means for mounting on opposed frame surfaces in a frame structure.

[0027] In the following the invention will be described in further detail and with reference to the schematic drawings, in which

Fig. 1 is a perspective view of a window provided with an embodiment of supporting means for a screening device,

Fig. 2 is a perspective view, on a larger scale, corresponding to the bracket member in the embodiment shown in Fig. 1,

Fig. 3 is a perspective view, on a larger scale, of a bracket member in an alternative embodiment of the invention,

Fig. 4 is a cross-sectional view along the line IV-IV of the bracket member in the embodiment shown in Fig. 3, and

Fig. 5 is a perspective view, on a larger scale, of another embodiment of the invention.

[0028] Fig. 1 shows the upper right-hand corner of a window with a frame structure with a top member 1 and a side member 2. The frame structure will conventionally comprise a further side member and a bottom member, not shown in the figure. In the frame structure a sash structure is hingedly supported, said sash structure comprising a top member 3 and a right-hand side member 4, which together with a left-hand side member and a bottom member, not shown, frame a window pane 5.

[0029] With a view to mounting a screening device at the interior side of the window pane 5, a bracket member 6 has been secured to the side member 4 of the sash close to the top member 3, said bracket member constituting one of a pair of bracket members, the other of which is mounted on the opposite left-hand sash side member. It is noted that the sash thus constitutes the frame to be screened. It is, of course, obviously possible to mount the bracket members on any suitable frame, e.g. in order

to screen a frame of a fixed, i.e. not openable, window.

[0030] The bracket member 6 is formed as an element having a substantially continuous external surface. The bracket member 6 has a cross-section, which in the embodiment shown in Figs. 1 and 2 is slightly curved and starting from a first end edge 7 situated remote from the window pane 5 and ending in a second end edge 8 situated close to the window pane 5. The cross-sectional dimensions of the bracket member 6 increases from a first thickness at the first end edge 7 to a second thickness at the second end edge 8. The first thickness is relatively small, and thus, at the first end edge 7 of the bracket member 6, there is virtually no visible edge, as a smooth transition from the sash member 4 to the bracket member 6 is likewise provided. The orientation of the bracket member 6 and thus of the increasing cross-section defines the direction of mounting of the screening device indicated by arrow A. It is thus possible to position the first end edge 7 facing downwards or, as shown in Fig. 1, in a direction facing away from the window pane 5.

[0031] The bracket member 6 may be secured to the sash side member 4 by securing means provided on the side facing the sash side member as will be described in further detail below. Fig. 2 shows the securing means on the rear side of the bracket member. Two pins 20, 21 are designed with an exterior thread and have an interior cavity, for instance in the form of a hole and two grooves (not shown). At the mounting of the bracket member 6, the pins 20, 21 are taken into predrilled holes in the sash side members 4, and the bracket member 6 is subsequently pushed into place. This mounting is preferably performed in connection with the manufacture of the sash structure, such that the window is delivered with a premounted first pair of bracket members.

[0032] If, for some reason, it is desired to dismount the bracket member 6, the part of the bracket member 6 positioned above the surface of the sash member is removed with a suitable tool, following which the pins placed in the bores in the sash side members may be unscrewed with a suitable tool, for instance a tool mating the interior hole of the pins or the exterior tracks formed by the grooves.

[0033] The bracket member 6 of the embodiment shown in Figs. 1 and 2 is intended for cooperation with a coupling member. Such a coupling member is described in detail in Applicant's published international application WO 00/47858, the contents of which is incorporated herein by reference. To this end, the bracket member 6 is provided with engagement means in the form of shoulders 9 at the second end edge 8 to provide a snap engagement with resilient means of the coupling member.

[0034] An alternative embodiment is shown in Figs. 3 and 4. In this embodiment, the bracket member 106 has a mainly wedge-shaped configuration extending from a first end edge 107 to a second end edge 108, the end edge 107 having the smaller thickness being intended for mounting in a position in which it faces downwards or away from the window pane to define a mounting direction A. The bracket member 106 may cooperate with a coupling member as described in the above. However, in a particularly simple manner of utilization, the bracket member 106 itself comprises means for reception of the screening device. The bracket member 106 shown in Fig. 3 is thus provided with a circular opening 130 corresponding to one end of the roller shaft of a roller blind, whereas the other and opposite bracket member comprises a substantially rectangular opening corresponding to the opposite end of the roller shaft of the roller blind. As shown most clearly in Fig. 4, the opening 130 is covered by a thin bridge of material 131 at the visible face of the bracket member 106. The thin bridge of material 131 may e.g. be formed during manufacture of the bracket member, which is particularly simple if the bracket member is moulded from an appropriate plastic material. The bridge of material may also be formed by a separate element which is e.g. adhered to the bracket member. During mounting of a screening device such as a roller blind, the bridge of material is broken, e.g. by the roller shaft itself, such that the ends of the roller shaft may be retained in the reception means of the respective bracket member. It is of course conceivable to form the bracket members with reception means having other configurations in order to receive other kinds of screening devices.

[0035] Fig. 5 shows an embodiment, in which the cross-sectional dimensions of the bracket member 206 are such that the bracket member is curved in two dimensions. The bracket member 206 has a substantially rectangular plan view and extends, in one direction, from a first end edge 207 having a small thickness, to a second end edge 208 having a larger thickness, and in a direction substantially perpendicular thereto, from a third end edge 209 having a small thickness to a fourth end edge 210 having a larger thickness. The mounting directions possible with this design of the bracket member range from a first direction indicated by arrow A to a second direction indicated by arrow B, i.e. the screening device (not shown) may be mounted in an arbitrary direction in the interval of 90° delimited by these directions. The fourth end edge 210 protrudes slightly over a lower edge 240. The recess formed under the fourth end edge 210 and the lower edge 240 functions as an engagement means in case the bracket member 206 is to be used with a coupling member as described in the above.

[0036] It is noted that the bracket member to be mounted on the opposed frame surface may be identical, as indicated in the drawing and described in the above. In particular, it is noted that the bracket member 206 of the Fig. 5 embodiment may be turned 90° due to the possibility of mounting the screening device within an interval of mounting directions.

[0037] With an appropriate design of the bracket member of the above embodiments, further engagement means, e.g. in the form of a snap lock, may be rendered superfluous.

[0038] 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.

[0039] For example the present invention comprises the following embodiments:

1. Means for supporting a screening device in a frame structure with frame members comprising top and bottom members as well as side members, said means comprising a pair of bracket members (6; 106; 206) having a substantially continuous external surface for mounting on each of a pair of opposed frame surfaces of said frame structure, said screening device being brought from a non-mounted position to a mounted position by movement in a mounting direction, in which the cross-sectional dimensions of each bracket member (6;106;206) increase in the mounting direction (A,B) over at least a part of the bracket member.
2. Supporting means according to embodiment 1, in which the cross-section of each bracket member (106) is substantially wedge-shaped.
3. Supporting means according to embodiment 1, in which the cross-section of each bracket member (6; 206) is curved.
4. Supporting means according to embodiment 3, in which the cross-section of each bracket member (206) is curved in at least two directions.
5. Supporting means according to any of the preceding embodiments, in which the supporting means furthermore comprises a pair of coupling members, and in which each bracket member (6;206) is provided with engagement means (9;240) for engagement with corresponding engagement means of a corresponding coupling member.
6. Supporting means according to embodiment 5, in which the engagement means of each bracket member comprises a shoulder portion (9).
7. Supporting means according to any one of embodiments 5 and 6, in which the bracket member (206) comprises a protruding edge portion.
8. Supporting means according to any one of the preceding embodiments, in which each bracket member (106) is provided with means (130) for reception of a respective end of a screening device, said means comprising a rectangular slot and a circular hole (130), respectively, and in which said means (130) are covered (131) in said non-mounted position of the screening device.
9. Supporting means according to any one of the preceding embodiments, in which the cross-sectional dimensions of the part of each bracket member positioned at the remote end of the bracket member decrease in the mounting direction.
10. A screening device comprising means for cooperation with supporting means according to any of embodiments 1 to 9.
11. A screening device according to embodiment 10, in which said cooperation means comprise coupling members for cooperation with a respective bracket member (6;206).
12. A screening device according to embodiment 10, in which screening device comprises a roller blind having a roller shaft, and in which said cooperation means are constituted by a respective end of said roller shaft.
13. A window comprising a frame structure with frame members including top and bottom members as well as side members, in which the pair of bracket members according to embodiment 1 to 9 are premounted on opposed surfaces of the side members of the frame.
14. Use of a pair of supporting means according to the embodiments 1 to 9 for mounting on opposed frame surfaces in a frame structure.

Claims

1. Means for supporting a screening device in a frame structure with frame members comprising top and bottom members as well as side members, said means comprising a pair of bracket members (6; 106; 206) having a substantially continuous external surface for mounting on each of a pair of opposed frame surfaces of said frame structure, said screening device being brought from a non-mounted position to a mounted position by movement in a mounting direction, the cross-sectional dimensions of each bracket member (6;106;206) increase in the mounting direction (A,B) over at least a part of the bracket member from a first thickness at a first end edge (7) to a second thickness at a second end edge (8), characterized in that the first thickness is relatively small, and thus, at the first end edge (7) of the bracket member (6), there is virtually no visible edge, as a smooth transition from the side member (4) to the bracket member (6) is provided.

2. Supporting means as claimed in claim 1, in which the cross-section of each bracket member (106) is substantially wedge-shaped.

3. Supporting means as claimed in claim 1, in which the cross-section of each bracket member (6;206) is curved.

4. Supporting means as claimed in claim 3, in which the cross-section of each bracket member (206) is curved in at least two directions.

5. Supporting means as claimed in any of the preceding claims, in which the supporting means furthermore comprises a pair of coupling members, and in which each bracket member (6;206) is provided with engagement means (9;240) for engagement with cor-

responding engagement means of a corresponding coupling member.

6. Supporting means as claimed in claim 5, in which the engagement means of each bracket member comprises a shoulder portion (9).

7. Supporting means as claimed in any one of claims 5 and 6, in which the bracket member (206) comprises a protruding edge portion.

8. Supporting means as claimed in any one of the preceding claims, in which the cross-sectional dimensions of the part of each bracket member positioned at the remote end of the bracket member decrease in the mounting direction.

9. A screening device comprising means for cooperation with supporting means as claimed in any of claims 1 to 9.

10. A screening device as claimed in claim 10, in which said cooperation means comprise coupling members for cooperation with a respective bracket member (6;206).

11. A screening device as claimed in claim 10, in which screening device comprises a roller blind having a roller shaft, and in which said cooperation means are constituted by a respective end of said roller shaft.

12. A window comprising a frame structure with frame members including top and bottom members as well as side members, c h a r a c t e r i z e d in that the pair of bracket members claimed in any one of claims 1 to 9 are premounted on opposed surfaces of the side members of the frame.

13. Use of a pair of supporting means as claimed in any one of claims 1 to 9 for mounting on opposed frame surfaces in a frame structure.

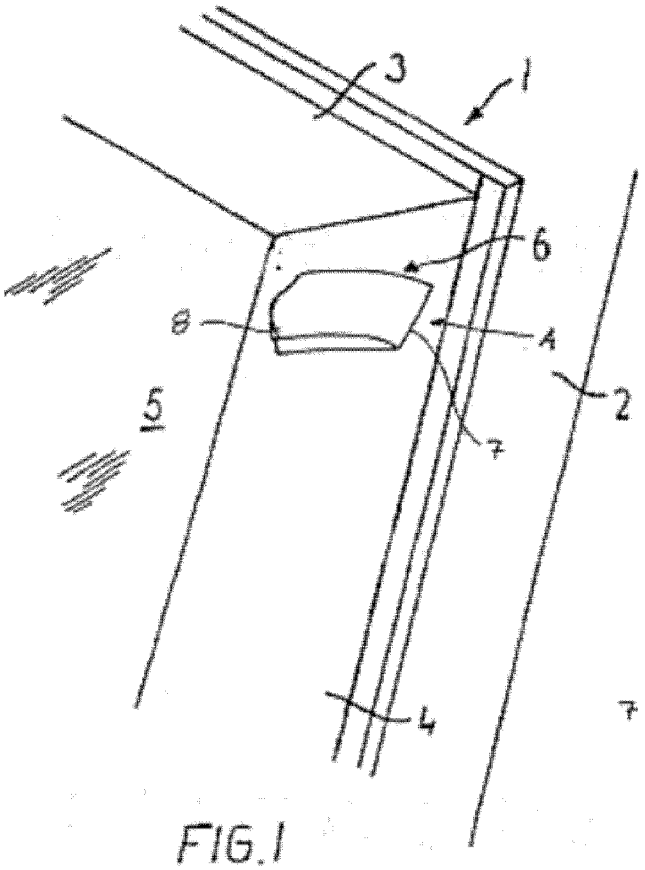

FIG.1

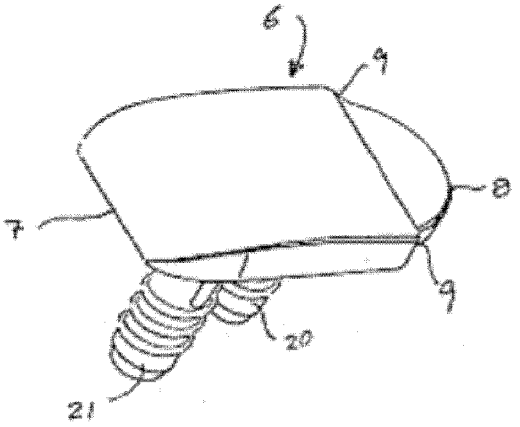

FIG. 2

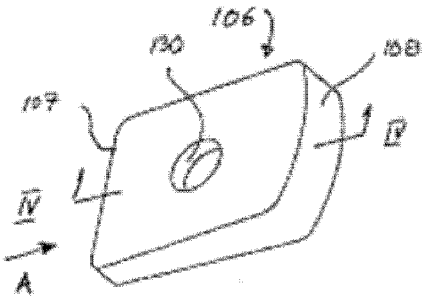

FIG.3

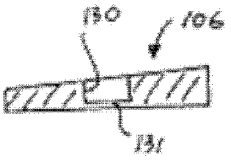

FIG.4

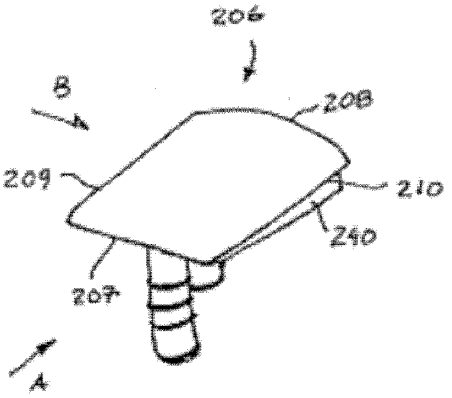

FIG.5

REFERENCES CITED IN THE DESCRIPTION

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