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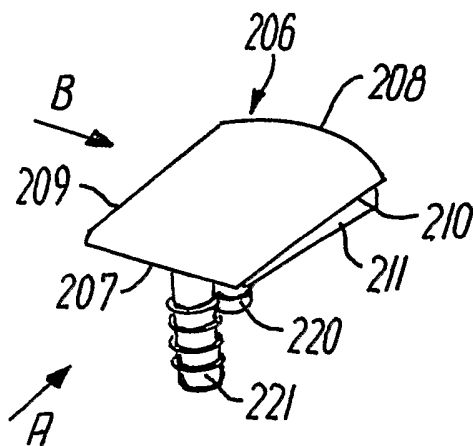
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(54) Title: SUPPORTING MEANS FACILITATING THE INSTALLATION OF A SCREENING DEVICE, AND A WINDOW FOR COOPERATION WITH THE SUPPORTING MEANS



(57) Abstract: A bracket member (206) is intended for mounting on a frame piece of a window or door and comprises a first set of engagement means in the form of pins (220, 221). The pins are intended for cooperation with a second set of engagement means in the corresponding frame piece. In order to secure correct positioning of the bracket member, the first set of engagement means provide a distinctive indication for the mounting of the bracket members on the frame pieces.

Supporting means facilitating the installation of a screening device, and a window for cooperation with the supporting means

The present invention relates to means for supporting a screening device in a frame structure having at least one pair of opposed frame pieces, said supporting means comprising a pair of bracket members, each bracket member being intended for mounting on a respective frame piece of said pair of opposed frame pieces, each bracket member defining at least one mounting direction and comprising a first set of engagement means intended for cooperation with a second set of engagement means in the corresponding frame piece.

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 coupling 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. By the development of more generally applicable supporting means, this problem has been diminished but nevertheless remains, as the supply of screening devices has increased over the years.

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 for mutual engagement.

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 piece. Furthermore, the design possibilities are limited by the fact that the bracket member must be able to retain the coupling member, at least temporarily.

5 Supporting means alleviating to a great extent these disadvantages and corresponding to the kind mentioned in the introduction are disclosed in Applicant's co-pending international application No. PCT/DK2004/000507. However, there is still a risk that the supporting means, in particular the bracket members, are not mounted correctly.
10 In many cases, removal of the bracket members is difficult and may even only be possible by destruction of parts of or of the entire bracket member.

On this background it is the object of the invention to improve supporting means of the kind mentioned in the introduction with respect
15 to a facilitated mounting.

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 each first set of engagement means provide a distinctive indication for the mounting of the bracket members on the
20 frame pieces.

By incorporating the indication for the correct mounting into the set of engagement means, the mounting brackets may only be positioned in the correct position, or in the case of more than one correct position, in one of these. There is thus no need for providing special instructions for
25 the mounting in the form of enlarged drawings in the installation guide or separate marking of e.g. the outwards facing side of the bracket members. This is even more advantageous in the case of multi-purpose supporting means, in which the different parts of the outer side of a bracket member are often only discernible with difficulty.

30 Preferably, said first set of engagement means comprises at least two pins, and said indication is provided by the number and/or dimensions of the pins. This provides for a simple and reliable indication and securing of the bracket members.

In a preferred embodiment, the first set of engagement means

comprises two cross-sectionally circular pins with different diameters, and that the ratio between the diameters lies in the interval 1.1 to 1.5, preferably 1.25.

In order to increase the reliability of a correct mounting even further, the two pins are positioned such that a line drawn between the respective centres of said pins forms an angle with the intended direction of mounting. The angle preferably differs from 45°.

Alternatively, the first set of engagement means may comprise two pins, and at least one of the pins may have a substantially rectangular cross-section.

As a further alternative, the first set of engagement means may comprise three pins, and the centres of the pins form the corners of an isosceles triangle.

The cross-section of each bracket member may be curved defining at least one mounting direction. In a further development of this embodiment, the cross-section of each bracket member is curved in at least two directions defining at least two mounting directions.

In a further aspect of the invention a window comprising a frame structure having at least one pair of opposed frame pieces is provided. The window is intended for cooperation with supporting means in that each frame piece comprises a second set of engagement means for receiving the corresponding first set of engagement means of the bracket members of the supporting means.

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 supporting means for a screening device according to a first embodiment of the invention,

Fig. 2 is a perspective view, on a larger scale, of the bracket member of the supporting means in the first embodiment shown in Fig. 1,

Figs. 3 to 5 show schematic and simplified plan views of details of a window and supporting means in the first embodiment of the invention,

Figs. 6 to 8 show schematic and simplified plan views of details of a window and supporting means in a second embodiment of the invention,

5 Figs. 9 to 11 show schematic and simplified plan views of details of a window and supporting means in a third embodiment of the invention,

Fig. 12 is a perspective view, on a larger scale, of the supporting means in an alternative, fourth embodiment of the invention,

10 Figs. 13 to 15 show schematic and simplified plan views of details of a window and supporting means in the fourth embodiment of the invention, and

Fig. 16 shows an exploded perspective view of a fifth embodiment of the supporting means according to the invention.

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

With a view to mounting a screening device at the interior side of the window pane 5, supporting means according to the invention are provided. The supporting means comprise a bracket member 6 which has been secured to the side piece 4 of the sash close to the top piece
25 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 piece. 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
30 openable, window.

The bracket member 6 is formed as an element having 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. Furthermore, the bracket member 6 comprises side edges 9 and 10. The cross-sectional dimensions of the bracket member 6 increase 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 piece 4 to the bracket member 6 is 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. As long as the screening device may easily be mounted on the bracket members, it is 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.

The bracket member 6 is secured to the sash side piece 4 by a first set of engagement means provided on rear side, i.e. the side which in the mounted position faces the sash side piece 4. The first set of engagement means cooperate with a second set of engagement means in the sash side piece 4 as will be described in further detail below. Fig. 2 shows the first set of engagement means on the rear side of the bracket member 6. In the embodiment shown, the first set of engagement means comprises two pins 20, 21 designed with an exterior thread and having an interior cavity, for instance in the form of a hole and two grooves (not shown in detail). At the mounting of the bracket member 6, the pins 20, 21 are taken into the second set of engagement means corresponding to the first set of engagement means of the bracket member 6. In the embodiment shown the second set of engagement means are provided in the form of predrilled holes, cf. Fig. 5, in the sash side pieces 4, and the bracket member 6 is subsequently pushed into place. This mounting may be performed in connection with the manufacture of the sash structure, such that the window is delivered with a pre-mounted first pair of bracket members, or may easily be carried out by the person installing the screening device, e.g. in the case when a screening device is delivered with supporting means including bracket members.

If, for some reason, it is desired to dismount the bracket mem-

ber 6, the part of the bracket member 6 positioned above the surface of the sash piece is removed with a suitable tool, following which the pins placed in the bores in the sash side pieces 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. Another pair of bracket members may then be positioned on the sash side pieces. It is of course conceivable to provide the pins with a smooth outer surface, or with any suitable kind of holding means.

In order to ensure that the supporting means are mounted in the correct orientation with respect to the frame, the first set of engagement means of the bracket members provides an indication for the mounting as will be described in the following:

In the embodiment of Figs. 1 and 2, the indication of the first set of engagement means is provided by forming the two pins 20 and 21 with different diameters.

Referring now to Figs. 3 to 5, it may be seen that the pin 20 closest to the side edge 9 has a slightly larger diameter than the other pin 21. Moreover, the pins 20 and 21 are positioned such that a line z drawn between the respective centres of the pins 20 and 21 forms an angle with the intended direction of mounting, arrow A , the line z constituting the hypotenuse of the right-angled triangle having as its two smaller sides distances x and y parallel with the side edges 9 and 10 and the first end edge 7, respectively. It is noted that this angle is preferably not 45° , i.e. distance x does not correspond to distance y .

Turning now to Fig. 5, the second set of engagement means in the right-hand sash side piece 4 are formed as holes 40 and 41 having diameters corresponding in substance to the diameters of pins 20 and 21, respectively, and being positioned such that the first end edge 7 of the bracket member 6 is positioned correctly with respect to the mounting direction indicated by arrow A .

Correspondingly, the second set of engagement means of left-hand sash side piece 104 are, as shown in Fig. 3, formed as holes 140 and 141, the positions of which ensure that the first end edge 7 of the bracket member 6 is positioned correctly also on this sash side piece

104. It is noted that the side edge 10 of the mounting bracket 6 positioned on the left-hand sash side piece 104 faces downwards, whereas it faces upwards on the right-hand sash side piece 4.

The ratio between the diameters of the pins 20 and 21 should
5 be relatively close to 1 in order to satisfy requirements as to appearance, but should, of course, not be too close to 1 so as not to compromise the distinction between the possible manners of orientating the bracket members. Preferably, the ratio lies in the interval 1.1 to 1.5, most preferable 1.25. One or the other of pins 20 and 21 may be
10 provided with the larger diameter.

Figs. 6 to 8 show a further embodiment of the supporting means according to the invention. Elements having the same or analogous function as elements of the embodiment of Figs. 1 to 5 are denoted by the same reference numerals to which "" has been added.

15 In this embodiment the indication is provided by forming the first set of engagement means by three pins 20', 21' and 22' having substantially the same diameters and being positioned such that distance x' corresponds to distance y', the line z' thus forming an angle of substantially 45° with the intended mounting direction A. In this
20 manner, the centres of the pins form the corners of an isosceles triangle.

The sash side pieces 4' and 104' are provided with second set of engagement means in the form of holes 40', 41', 42' and 140', 141', 142', respectively.

Furthermore, although it is preferred that the first and second
25 sets of engagement means have a circular shape in order to allow easy removal of the bracket member as described in the above, the invention is not limited to this shape. As shown in the third embodiment of Figs. 9 to 11, pin 20'' of bracket member 6'' has a substantially rectangular shape, and pin 21'' a circular shape. Corresponding holes 40'', 41'' and
30 140'', 141'' are formed in sash side pieces 4'' and 104'', respectively.

For each of the above embodiments it applies that the mounting direction may instead follow the longitudinal direction of the sash side piece in question, i.e. a mounting direction at right angles to the direction indicated by arrow A. In this case the second set of

engagement means on the sash side pieces are provided in a corresponding manner providing the bracket member with the desired orientation.

The bracket members of the above embodiments are intended
5 for cooperation with coupling members. 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 of e.g. the embodiment of Figs. 1 to 5 is provided with shoulders 8a at the transition between the side edges 9
10 and 10 and the second end edge 8 to provide a snap engagement with resilient means of the coupling member. Other forms of engagement with the screening device are of course conceivable.

Eventually, it is noted that the same bracket member may be utilized for the left-hand and right-hand sash side pieces. However, it is
15 of course possible to provide different designs of the two bracket members of the supporting means according to the invention.

In the alternative, fourth embodiment shown in Fig. 12, elements having the same or analogous function as in the embodiment of Figs. 1 to 5 are denoted by the same reference numerals to which 200
20 has been added.

In this embodiment 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
25 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
30 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 211. The recess formed under the fourth end edge 210 and the lower edge 211 functions as a coupling

means in case the bracket member 206 is to be used with a coupling member as described in the above.

The bracket member 206 is provided with a first set of engagement means in the form of two pins 220 and 221. In the embodiment shown, the indication provided by the first set of engagement means is obtained in that these pins are formed with different diameters, as is the case in the embodiment of Figs. 1 to 5. Other indication provisions are of course conceivable, e.g. the ones shown in Figs. 6 to 8 and 9 to 11, respectively.

10 The pin 221 thus has a slightly larger diameter than the pin 220, e.g. 25% larger, the ratio thus being 1.25. As shown in Fig. 13, the left-hand side sash piece 304 is provided with a second set of engagement means in the form of holes 340 and 341 for receiving the pins 220 and 221, respectively. In the mounted position of the bracket member 206, the first end edge 207 faces downwards to provide mounting of the screening device in the mounting direction corresponding to the arrow B, whereas the third end edge 209 faces outwards, to the left in Fig. 13, in the direction away from the pane, in order to allow mounting in the direction indicated by the arrow A. As mentioned in the above, mounting of the screening device is possible between the directions indicated by the arrows A and B.

Referring now to Fig. 15, the right-hand side sash piece 204 is provided with a second set of engagement means in the form of holes 240 and 241 for receiving the pins 220 and 221, respectively. The position of the second set of engagement means entails that the first end edge 207 of the bracket member 206 faces outwards away from the pane to allow mounting in the direction indicated by the arrow A, and the third end edge faces downwards to allow mounting following the direction indicated by arrow B. Also in this side, mounting is possible within a range of substantially 90° between arrows A and B.

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. However, it is of course possible to provide different designs of the two bracket members of the supporting means

according to the invention. This may e.g. be the case in the embodiment shown in Fig. 12 and Figs. 13 to 15, in which it may be desirable to have mirror-inverted bracket members for the left-hand and right-hand side sash pieces.

- 5 The form of the engagement means of the first and second sets may vary, one example being shown in the embodiment of Fig. 16. In this alternative, fifth embodiment shown in Fig. 16, elements having the same or analogous function as in the embodiment of Figs. 1 to 5 are denoted by the same reference numerals to which 400 has been added.
- 10 The bracket member 406 of the supporting means in this embodiment is provided with a first set of engagement means comprising separate pins 420 and 421 with different diameters. The pins 420 and 421 cooperate on one hand with corresponding holes 412 and 413 in the bracket member itself, and on the other hand with a corresponding second set
- 15 of engagement means in the frame of sash, in which the supporting means are to be mounted. Pins 420 and 421 are inserted into holes 412 and 413 up to a line 420a and 421a, respectively, either before or after the pins 420 and 421 with their opposite ends have been inserted into the second set of engagement means.
- 20 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.

C L A I M S

1. Means for supporting a screening device in a frame structure having at least one pair of opposed frame pieces, said supporting means comprising a pair of bracket members (6; 6'; 6"; 206; 406), each
5 bracket member being intended for mounting on a respective frame piece (4,104; 4',104'; 4'',104''; 204,304) of said pair of opposed frame pieces, each bracket member defining at least one mounting direction (A,B) and comprising a first set of engagement means (20,21; 20',21',22'; 20'',21''; 220,221) intended for cooperation with a second set
10 of engagement means in the corresponding frame piece, characterized in that each first set of engagement means provide a distinctive indication for the mounting of the bracket members on the frame pieces.

2. Supporting means according to claim 1, characterized in that said first set of engagement means comprises at least two pins
15 (20,21; 20',21',22'; 20'',21''; 220,221), and that said indication is provided by the number and/or dimensions of the pins.

3. Supporting means according to claim 2, characterized in that the first set of engagement means comprises two cross-sectionally circular pins (20,21;220,221) with different diameters, and that the ratio
20 between the diameters lies in the interval 1.1 to 1.5, preferably 1.25.

4. Supporting means according to claim 3, characterized in that the two pins (20,21;220,221) are positioned such that a line (z) drawn between the respective centres of said pins forms an angle with the intended direction (A,B) of mounting.

25 5. Supporting means according to claim 4, characterized in that said angle differs from 45°.

6. Supporting means according to claim 2, characterized in that the first set of engagement means comprises two pins (20'',21''), and that at least one of the pins (20'') has a substantially
30 rectangular cross-section.

7. Supporting means according to claim 2, characterized in that the first set of engagement means comprises three pins (20',21',22'), and that the centres of the pins form the corners of an isosceles triangle.

8. Supporting means according to any one of the preceding claims, characterized in that the cross-section of each bracket member (6; 206; 406) is curved defining at least one mounting direction (A,B).

5 9. Supporting means according to claim 8, characterized in that the cross-section of each bracket member (206) is curved in at least two directions defining at least two mounting directions (A,B).

10 10. A window comprising a frame structure having at least one pair of opposed frame pieces for cooperation with supporting means according to any one of claims 1 to 9, characterized in that each frame piece (4,104; 4',104'; 4'',104''; 204,304) comprises a second set of engagement means for receiving the corresponding first set of engagement means of the bracket members (6; 6'; 6''; 206; 406) of
15 the supporting means.

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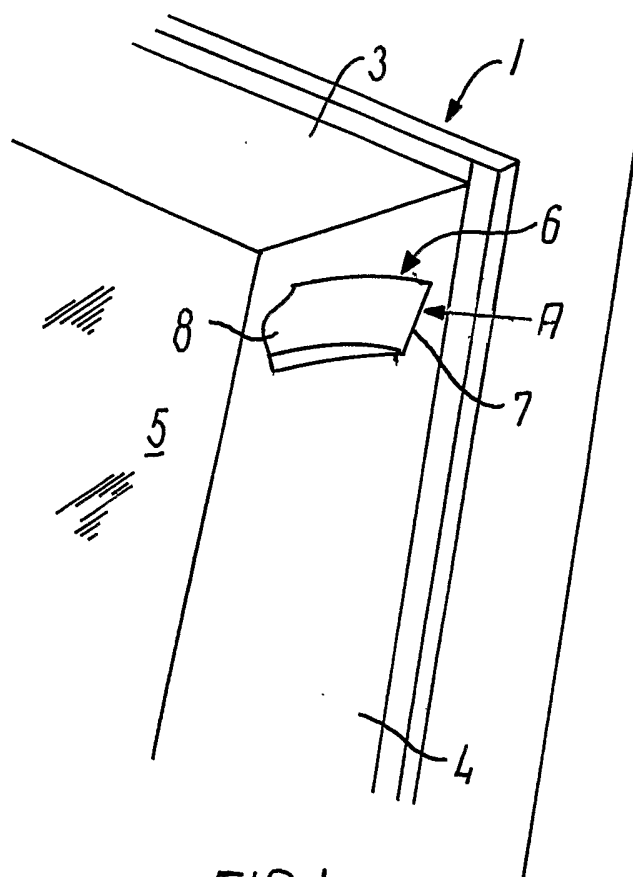


FIG. 1

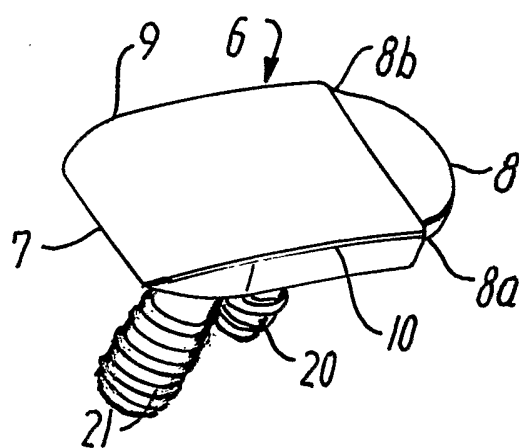


FIG. 2

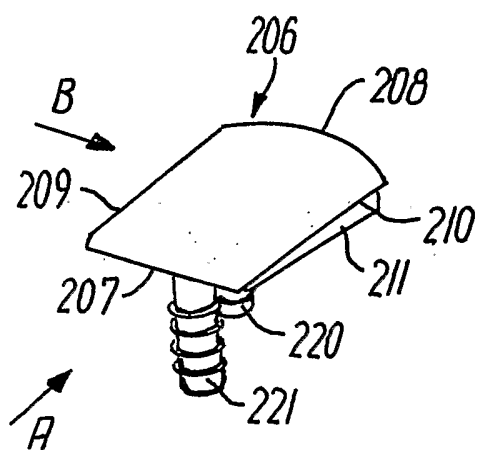


FIG. 12

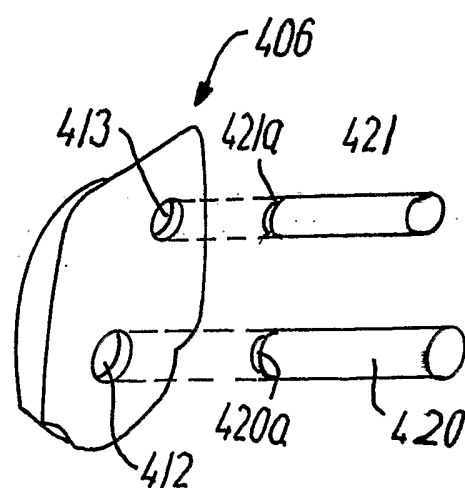


FIG. 16

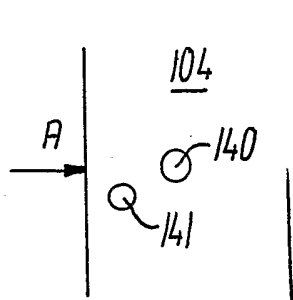


FIG. 3

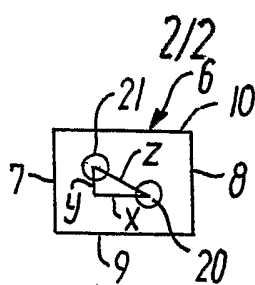


FIG. 4

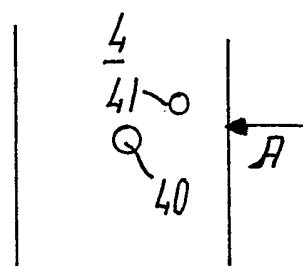


FIG. 5

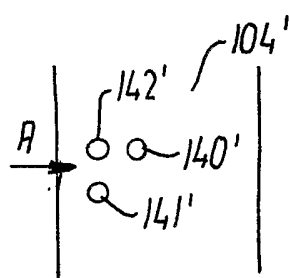


FIG. 6

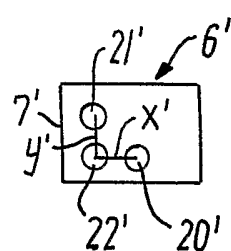


FIG. 7

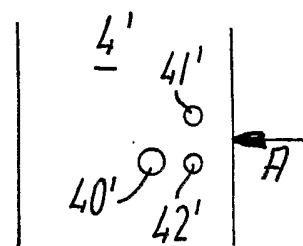


FIG. 8

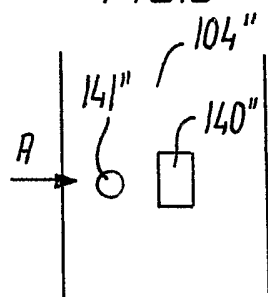


FIG. 9.

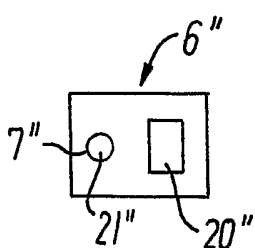


FIG. 10

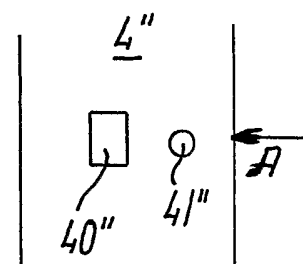


FIG. 11

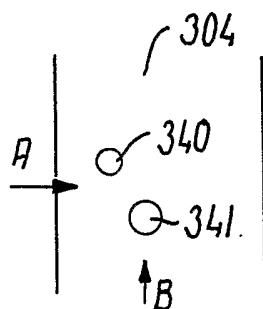


FIG. 13

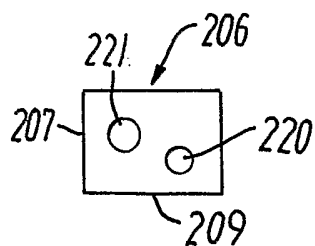


FIG. 14

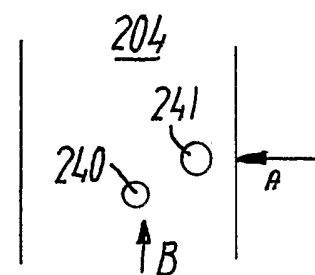


FIG. 15

INTERNATIONAL SEARCH REPORT

PCT/DK2005/000695

A. CLASSIFICATION OF SUBJECT MATTER E06B9/323 E06B9/50		
According to International Patent Classification (IPC) or to both national classification and IPC		
B. FIELDS SEARCHED		
Minimum documentation searched (classification system followed by classification symbols) E06B		
Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched		
Electronic data base consulted during the international search (name of data base and, where practical, search terms used) EPO-Internal		
C. DOCUMENTS CONSIDERED TO BE RELEVANT		
Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	US 3 614 045 A (RUDOLPH J. CEGIELSKI JR) 19 October 1971 (1971-10-19) column 2, lines 4-25; claim 1; figures 2,3	1,10
X	US 6 131 867 A (MALLEK ET AL) 17 October 2000 (2000-10-17) column 9, line 45 - column 10, line 26; figures 27a-c	1,10
X	US 4 418 739 A (WOOLNOUGH ET AL) 6 December 1983 (1983-12-06) column 6, line 62 - column 7, line 16; figures 10-14	1,10
X	US 819 362 A (MILLER J C) 1 May 1906 (1906-05-01) page 1, lines 26-64; figures 1-3	1,10
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☒ Further documents are listed in the continuation of Box C. ☒ See patent family annex.		
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Date of the actual completion of the international search 25 January 2006		Date of mailing of the international search report 08/02/2006
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