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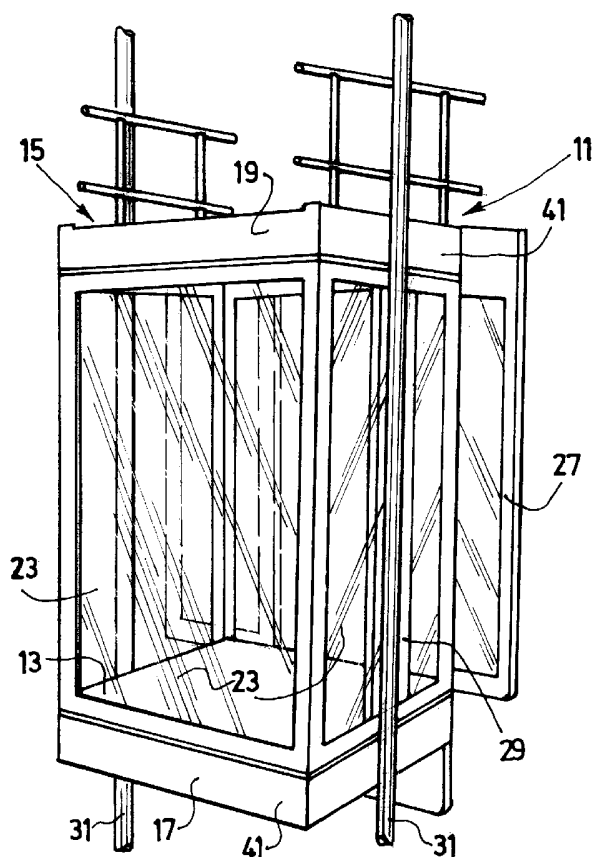
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[Continued on next page]

(54) Title: GLASS-WALLED ELEVATOR CAR



(57) Abstract: The invention relates to an elevator car (11) of the kind comprising a car (13) accommodating persons to transport and a supporting arch (15) with vertical framing posts, on which the car (13) is mounted with shock absorbing connection elements, wherein the car (13) comprises transparent glass panels (23) between its posts, characterized in that the arch posts are arranged with a variable spacing behind vertical elements of the car such as posts, a control panel (29) or a mirror panel, so that they are not visible for people inside the car (13), and wherein the car (13) is provided with a finish cover (41) in continuity with said glass panels (23) to hide said arch posts while allowing some clearance for movement between the car (13) and the arch (15).



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GLASS-WALLED ELEVATOR CAR

5 This invention relates to a glass-walled elevator car.

Prior art glass-walled elevator cars 1 as shown by Figure 1 generally have arch posts 3 showing through the glass panels 7, which are unsightly for the passengers.

The invention aims at correcting this disadvantage and provides an elevator car of the kind comprising a car accommodating persons to transport and a supporting arch with vertical framing posts, on which the car is mounted with shock absorbing connection elements, wherein the car comprises transparent glass panels between its posts, characterized in that the arch posts are arranged with a variable spacing behind vertical elements of the car such as posts, a control panel or a mirror panel, so that they are not visible for people inside the car, and wherein the car is provided with a finish cover in continuity with said glass panels to hide said arch posts while allowing some clearance for movement between the car and the arch.

Thus the arch posts can be arranged in the angles of the car, the entrance side angle and the rear angle, being at a maximum spacing corresponding to the depth of the elevator car.

20 They can be arranged in side surface parts of the car, e.g. in a panel, and close by, with a minimum car support distance of about 500mm corresponding e.g. substantially to the width of a control panel.

They can also be arranged in pairs in the angles of the car and in the side surface parts of the car, e.g. at the ends of these surface parts.

25 The car posts are advantageously stiff profiles with a small thickness, e.g. shaped as a corner with an L-shaped cross-section, arranged in angles with the point turned outwards, and so are the arch posts, so that the car posts and the arch posts are placed side by side with a small total thickness in an angle.

In the side surface parts of the car, the car post may be a plate and the arch post a thin profile with an S-shaped cross-section substantially complementary of the cross-section of gripper parts for the glass panels attached to the car post plate.

In the angles or side parts, a car post can be made up of the gripper parts of the adjacent glass panels attached rigidly to each other in an angle or a plane, respectively, and the arch post is arranged in the opening of the assembly.

35 Of course, this arrangement is applicable to rectangular box-shaped cars but also to cylindrical cars or cars with other shapes.

The cover part concealing the arch posts is attached integral with the glass part, substantially flush therewith or lying against it and standing out slightly. It can have the shape of an appropriately profiled housing and also offers enough inside space to accommodate the arch posts with some clearance.

5 This cover part advantageously extends to the lower base and to the roof of the car.

The invention is illustrated below with exemplary embodiments of the invention and with reference to the appended drawings, in which:

Figure 1 is a perspective view of a glass-walled elevator car according to prior
10 art mounted in an elevator shaft;

Figure 2 is a similar view of the structure of a glass-walled elevator car as per the invention;

Figure 3 is a view of the car of Figure 2 covered and set up in the elevator shaft;

Figure 4 is a cross-sectional view of an angle of the car;

15 Figure 5 is a cross-sectional view of the implantation of two arch posts on one side part of the car; and

Figure 6 is a view similar to Figure 5 for one arch post in a cylindrical car.

An elevator car 11 as per the exemplary embodiment of the invention is represented in Figure 3, and the structure of the car is shown in Figure 2.

20 This car comprises the passenger car itself 13 and a supporting arch 15 on which the car 13 is mounted and suspended by means of rubber shock absorbing elements (not represented).

The supporting arch 15 comprises a bottom base 17 and a top base 19 that are connected rigidly by means of four vertical framing posts 21 arranged each at one
25 corner of the car.

The passenger car 13 is a rectangular box and comprises three vertical flat glass panels 23 attached to the corner posts 25 of the car. The doors 27 of the car, which are also made of glass and e.g. made of two glass panels with a central opening, are mounted on the fourth side.

30 A control panel 29 is arranged vertically in the middle part of one of the sides facing a car guide rail 31 and hiding it. This panel is slightly offset inwards of the plane of the glass panel 23 but it can be level with it and divide it into two equal or unequal parts on both sides thereof.

A mirror panel (not represented) can be arranged on the opposite side of the car
35 for passengers' enjoyment and to hide the other guide rail 31.

The assembly of arch posts 21 and car posts 25 is more specifically represented in Figure 4.

The car posts 25 are metal corner profiles with an L-shaped cross-section and with arms 33 having the same width. They are arranged each in an angle of the car, with the arms 33 of the profile contiguous with the walls of the angle and the tip of the profile turned outwards.

5 These posts 25 accommodate gripping parts 35 for the glass panels 23, with a gripping part 35 riveted on each arm 33 of the profile. These gripping parts 35 are h-shaped profiles, and the glass panels 23 are held tight between the parallel arms 39 of the "h" with interposed foam pads 37. They extend perpendicularly to each other in the angle over the height of the car, on either side of the car post arms.

10 The angle of the car receives a corner cover 41 on the inside and the outside of the car, which forms a vertical profile housing 43 with a generally L-shaped cross-section with the tip turned outwards and having a width slightly greater than the thickness of the glass panels 23. This cover 41 may be a finishing metal sheet in brushed stainless steel attached (glued) to the flat sides of the gripping parts 35 and
15 formed to match said L-shaped housing 43 in order to cover the inside and outside of the car corner at right angles with a similar metal sheet, level with or standing out slightly from the glass panels 23.

 The angle part of the cover housing 43 that is thus formed accommodates the arch post 21 of the car, which is a rigid profile with an L-shaped cross-section slightly
20 greater than that of the car post 25, which is arranged parallel with and is slightly spaced (3 to 5mm) from the car post and the cover 41. Thus the clearance of the car 11 on its supporting arch 15 is allowed within the limits of a small clearance.

 A pair of arch posts on the car side 21' can optionally (Figure 5) be mounted in a car panel, e.g. a control panel 29, at a sufficient distance of at least 500mm to allow
25 proper support of the car by the arch, while the other two arch posts are arranged in the angles of the car or in another car panel, e.g. a mirror panel, with a minimum distance for stable car support. The arch posts 21' are profiles with an S-shaped cross-section that are arranged opposite each other at each end of the panel 29. They are arranged parallel to the gripping parts 35' of the glass panels 23', at a small distance therefrom,
30 and substantially complementary of the cross-section of these gripping parts 35' within the clearance of the car in its arch (3-5mm). The gripping parts 35' are attached (riveted) to a vertical plate forming a car post 45, opposing each other at the ends thereof. In this case, the cover 47 is that of the control panel, which is attached integrally with the glass panels 23' that are accommodated and provides a space
35 between its wall and the arch posts 21' to allow some movement of the car on its supporting arch.

Similarly, an arch post 21''' with an appropriate cross-section profile, u-shaped in this case, may be accommodated with some clearance in the (U-shaped) hollow space of the assembly between the two parts of the gripping parts 35'' of two adjacent glass panels 23'', as represented in Figure 6, e.g. for a cylindrical car or a car having another
5 shape, or in a curved part 49 of a car.

CLAIMS

1. Elevator car (11) of the kind comprising a car (13) accommodating persons to transport and a supporting arch (15) with vertical framing posts (21), on which the car (13) is mounted with shock absorbing connection elements, wherein the car (13) comprises transparent glass panels (23) between its posts (25), characterized in that the arch posts (21) are arranged with a variable spacing behind vertical elements of the car such as posts (25), a control panel (29) or a mirror panel, so that they are not visible for people inside the car (13), and wherein the car (13) is provided with a finish cover (41) in continuity with said glass panels (23) to hide said arch posts (21) while allowing some clearance for movement between the car (13) and the arch (15).
2. Elevator car as per claim 1, characterized in that the arch posts (21) are arranged in the angles of the car (13), the entrance side angle and the rear angle, being at a maximum spacing corresponding to the depth of the elevator car (13).
3. Elevator car as per claim 1, characterized in that the arch posts (21) are arranged in side surface parts of the car, e.g. in a panel, and close by, with a minimum car support distance of about 500mm corresponding e.g. substantially to the width of a control panel (29).
4. Elevator car as per claim 1, characterized in that the arch posts (21) are arranged in pairs in the angles of the car (13) and in the side surface parts of the car (13).
5. Elevator car as per any one of the preceding claims, characterized in that the car posts (25) are stiff profiles with a small thickness, e.g. shaped as a corner with an L-shaped cross-section, arranged in angles with the point turned outwards, and so are the arch posts (21), so that the car posts (25) and the arch posts (21) are placed side by side with a small total thickness in an angle.
6. Elevator car as per claims 3 and 4, characterized in that in the side surface parts of the car (13), the car post may be a plate (45) and the arch post (21') a thin profile with an S-shaped cross-section substantially complementary of the cross-section of gripper parts (35') for the glass panels (23') attached to the car post plate (45).
7. Elevator car as per any one of claims 1 to 4, characterized in that in the angles or side parts, a car post can be made up of the gripper parts (35'') of the adjacent glass panels (23'') attached rigidly to each other in an angle or a plane, respectively, and the arch post (21'') is arranged in the opening of the assembly.
8. Elevator car as per any one of the preceding claims, characterized in that the cover part (41) concealing the arch posts (21) is attached integral with the glass part (23), substantially flush therewith or lying against it and standing out slightly.

9. Elevator car as per claim 8, characterized in that the cover part (41) has the shape of an appropriately profiled housing and also offers enough inside space to accommodate the arch posts (21) with some clearance.
10. Elevator car as per claim 8 or 9, characterized in that the cover part (41) extends
5 to the lower base (17) and to the roof (19) of the car.

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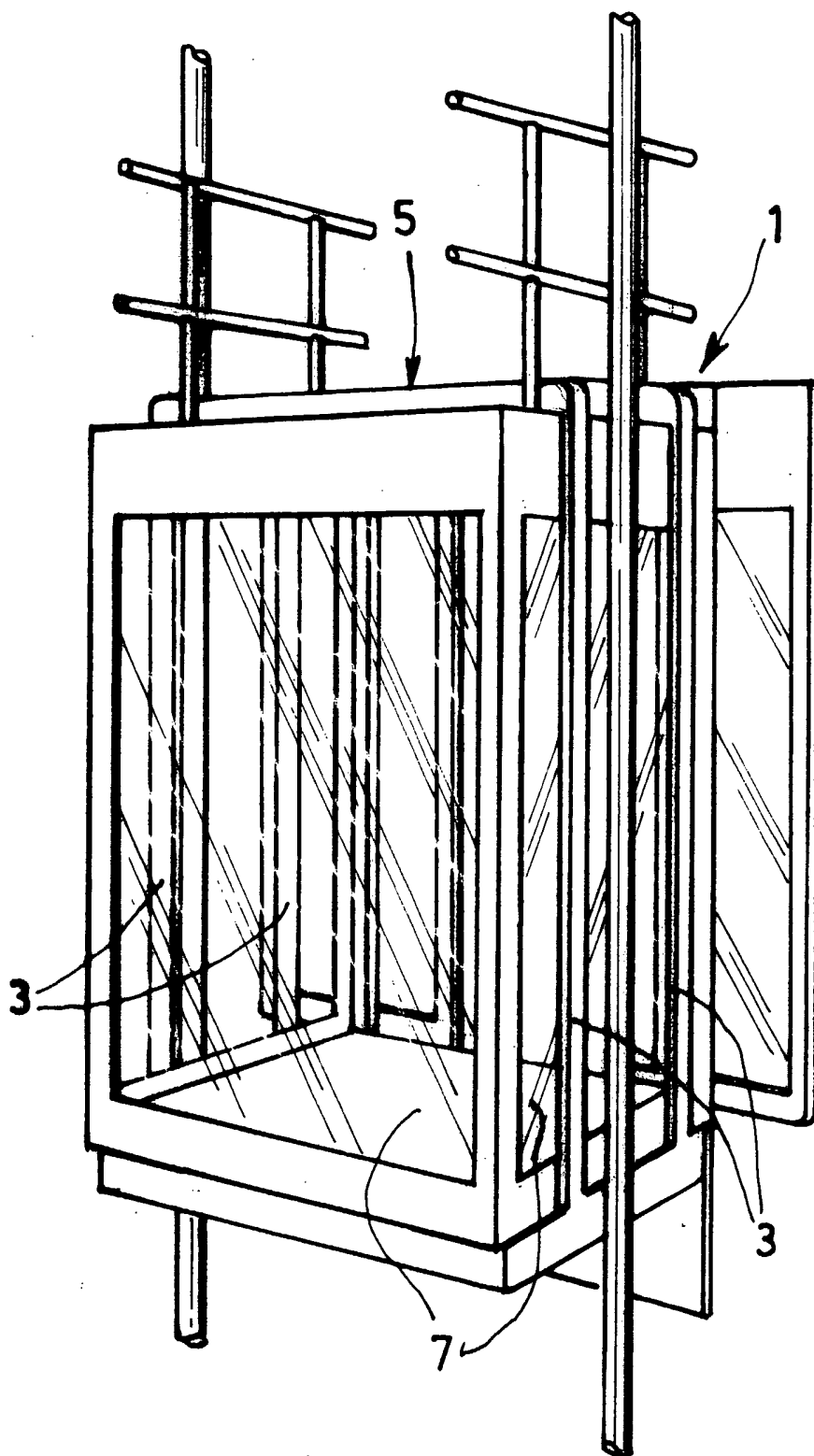


FIG.1

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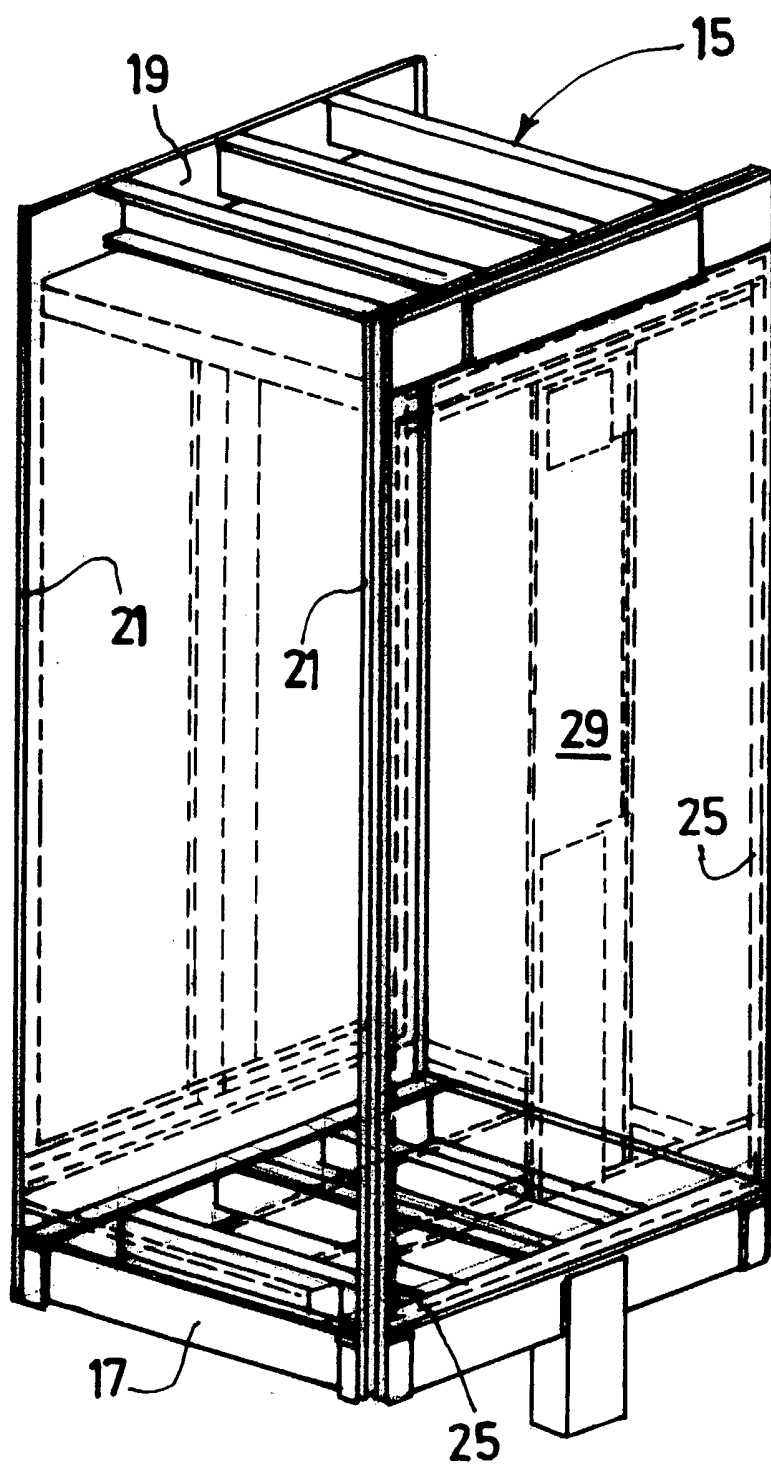


FIG. 2

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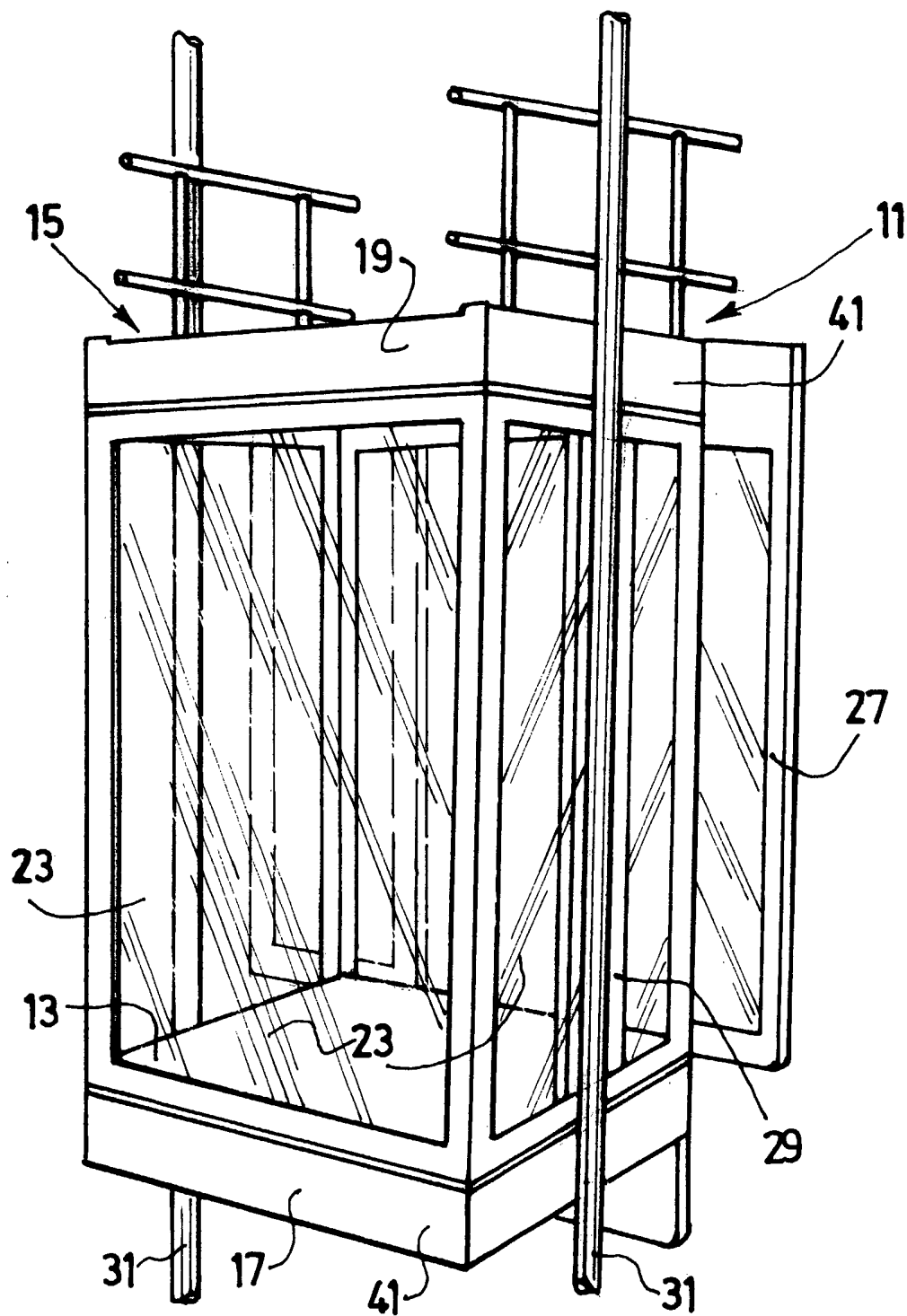
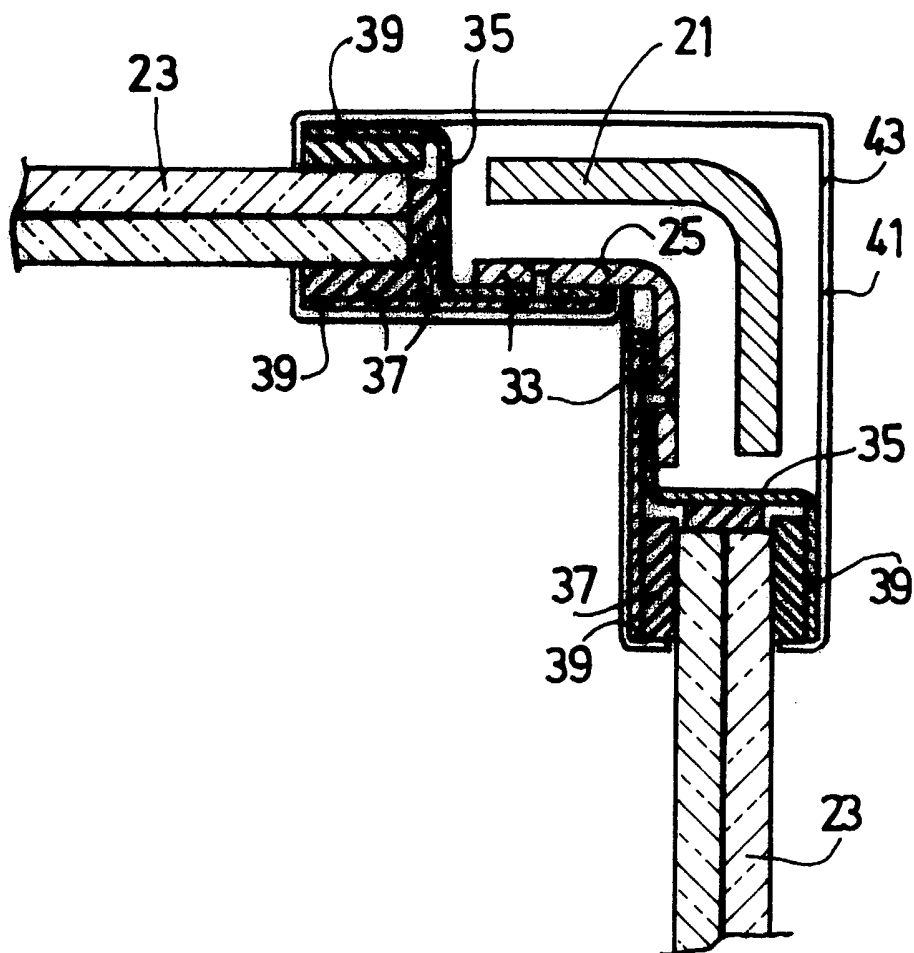


FIG. 3

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FIG. 4

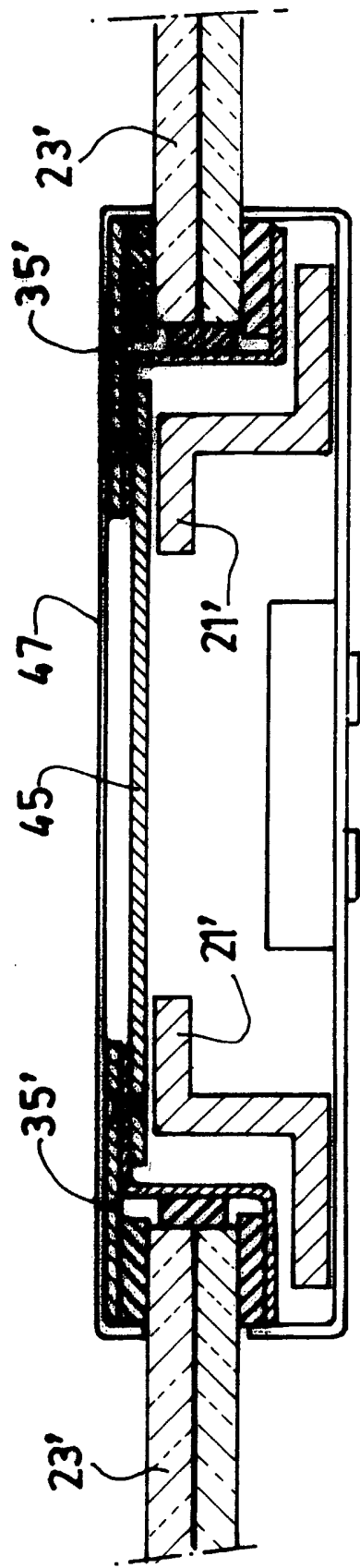


FIG. 5

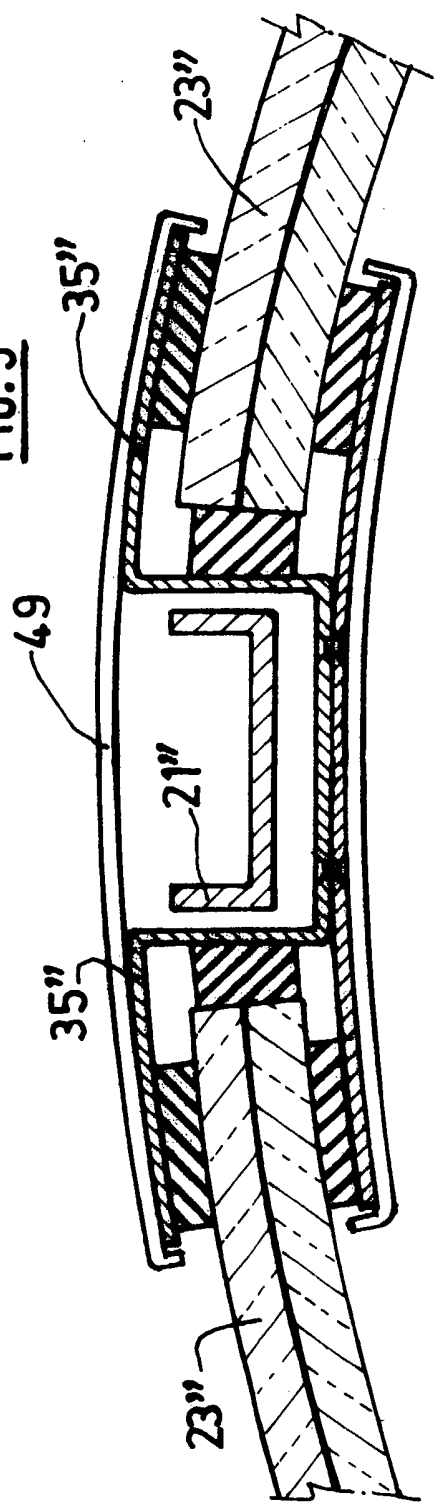


FIG. 6

INTERNATIONAL SEARCH REPORT

International Application No
PCT/IB2005/000833

A. CLASSIFICATION OF SUBJECT MATTER
B66B11/02

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)
B66B

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, PAJ, WPI Data

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	US 5 581 057 A (FERRARIO ET AL) 3 December 1996 (1996-12-03) column 2, line 25 - column 3, line 9 -----	1-10
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☐ Further documents are listed in the continuation of box C.

☒ Patent family members are listed in annex.

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Date of the actual completion of the international search

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Information on patent family members

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