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(54) A suspended scaffold and a method of replacing windows using a suspended scaffold

(57) The invention relates to a method of replacing frames (5) in facade openings above ground floor level, such as frames (5) around windows, and to a suspended scaffold for use in such a replacement. According to the invention, a suspended scaffold is initially erected through the window, permitting one or more persons to work at the external side of the window, following which the old frame (5) is removed, optionally piecewise. The new frame (13) is arranged on the scaffold at the external side of the facade during the erection of it, so that the parts of the scaffold passing through the window opening also pass through the new frame, and the new frame (13) is inserted from the external side after the removal of the old one (5), following which the necessary finishing treatment is carried out from the scaffold.

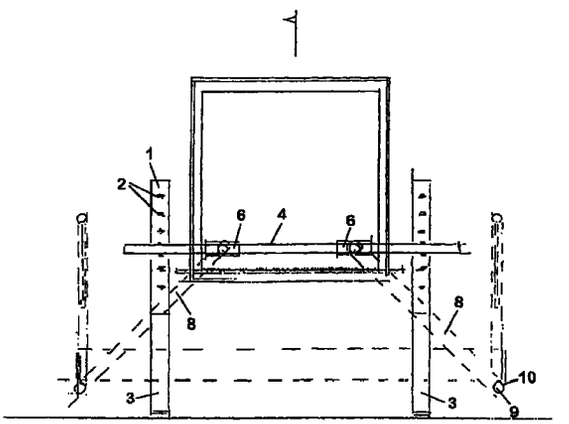

FIG. 1

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Description

[0001] The invention relates to a method of replacing frames in facade openings above ground floor level, such as frames around windows, wherein a suspended scaffold is initially erected through the window, permitting one or more persons to work at the external side of the window, and then the old frame is removed, optionally piecewise.

[0002] In the known methods of this type, it is known to reduce the costs of scaffold mounting by using suspended scaffolds. However, this involves the problem that insertion of a new frame in one piece is not possible, because parts of the scaffold extend through the window opening. Therefore, for replacement jobs, it is necessary either to use a scaffold which is built up from ground level, or to insert the new frame piecewise. Both of these options are time-consuming and costly.

[0003] To solve this problem, the method according to the invention stipulates that the new frame is arranged on the scaffold during the erection of it, so that the parts of the scaffold passing through the window opening also pass through the new frame, and that, after the removal of the old frame, the new frame is inserted, following which the necessary external finishing treatment is carried out from the scaffold. Thus, in the method, a complete new frame is inserted in one integral piece in replacement of the old removed frame, and since the new frame, already before or during the erection of the suspended scaffold, is placed around the girders which connect the external side with the internal side of the scaffold, the new window frame may be inserted in one piece without dismantling the scaffold.

[0004] External insulation and subsequent jointing are then carried out using the scaffold in a conventional manner. The insertion of pane elements cannot be performed, unless the window is divided into sections, In case of sectionally divided windows, there will always be a section through which the girders of the scaffold between the outer and inner sides pass, and which, consequently, cannot be provided with a pane portion before the scaffold has been dismantled.

[0005] As stated in claims 2 and 3, the new frame may be arranged either at the external side or at the internal side, and it will depend on the type of the window and other circumstances which of the two options is the most expedient one.

[0006] Further, as stated in claim 4, the invention relates to a suspended scaffold for suspension from within a facade opening, such as a window in a building, with an internal engagement part adapted to engage the internal wall face around the window and external engagement parts adapted to engage the external wall face around the window and to carry a working platform for one or more persons, said engagement parts being kept together by girders, which pass through the window, and internal and external load-bearing beams extending in parallel with the wall faces, characterized in that the girders pass through the window opening at a distance from all frame parts, and that the load-bearing beams, which extend in parallel with the external wall face, for connecting the external engagement parts with the girders extend at such a distance from the external wall face that there is room between the load-bearing beams and the wall face for the passage of a frame part which is intended for insertion into the window opening.

[0007] With the suspended scaffold according to the invention it is easy to carry out the method according to claim 1, as the window frame may be suspended in a simple manner from the girders when these are mounted, and there will be enough room between the girders and the frame for the insertion so that an artisan can insert the frame into the facade opening without difficulty when the old frame has been removed.

[0008] An example of the suspended scaffold of the invention will be described below with reference to the drawing, in which

fig. 1 shows a plan view of the scaffold seen from the inside,

fig. 2 shows a plan view of the scaffold of fig. 1 seen from the outside,

fig. 3 is a sectional view through the scaffold of figs. 1 and 2 in the mounted position, and

figs. 4-6 correspond to figs. 1-3, but illustrate a frame as it may be arranged when the scaffold is erected.

[0009] The scaffold shown in fig. 1 has internal engagement parts at each side of the window, The engagement parts are formed as vertical rods 1 which engage the wall along their respective sides of the window, A part 3 is provided in extension of the vertical part 1 of each rod and extends obliquely outwards from the wall and down toward the internal floor, said inclined part 3 having a foot by means of which the inclined part rests on the floor. A plurality of horizontal carriers 2 is provided at the vertical part 1 of each rod. A beam 4 lies on a respective horizontal carrier 2 at a suitable height so that it passes across the lower part of the window opening. Two connecting elements 6 connect the beam 4 with its respective horizontal girder 7, which extends through the window opening at a suitable distance from side parts as well as bottom parts of the frame 5 which is to be replaced. Externally, and at a distance from the outer wall, each girder is connected with a respective load-bearing beam 8 which extends in parallel with the outer wall and down to engagement parts 9, which constitute the engagement with the outer wall. The external parts of the suspended scaffold are shown in dashed line in fig. 1. As will be seen, the load-bearing beams extend in an inclined direction along the external wall away from the window, so that the engagement parts 9

will engage their respective sides of the window.

[0010] At the engagement parts 9, there are girders 10 which extend horizontally away from the outer wall, and between which a working surface 11 is mounted. A railing 12 surrounds the working surface 11 in the usual manner.

[0011] Figs. 4, 5 and 6 show how a new window frame 12 may be suspended from the girders 7 during the insertion, so that the girders 6 are moved through the frame 13. It appears from fig. 5 that the new frame can hang freely down, because no engagement parts are arranged in the area just below the suspended scaffold, and because the load-bearing beams 8 extend at such a distance from the external wall face that there is room for the frame 13 in this area. The new frame 13 may therefore be suspended outside the window opening in many other ways, but it is necessary that the girders 7, which interconnect internal and external parts of the suspended scaffold, pass through the frame 13. It is also necessary that the girders pass through the window opening at such a distance from frame parts that there is room for the mounting of the new frame 13 between the girders 7 and the opening in the facade.

[0012] In the replacement, the old window frame 5 is sawn through at one or several places, and is removed piecewise. Then the new frame 13 may be passed up into the opening and be secured to the masonry in the usual manner, and the external finishing treatment can now take place using the suspended scaffold before this is dismantled and is ready for use for the replacement of the next window.

Claims

1. A method of replacing frames in facade openings above ground floor level, such as frames around windows, wherein a suspended scaffold is initially erected through the window, permitting one or more persons to work at the external side of the window, and then the old frame (5) is removed piecewise, **characterized** in that the new frame (13) is arranged on the scaffold during the erection of it so that the parts of the scaffold (7) passing through the window opening also pass through the new frame (13), and that, after the removal of the old frame (5), the new frame (13) is inserted, following which the necessary external finishing treatment is carried out from the scaffold.

2. A method according to claim 1, **characterized** in that the new frame (13) is arranged at the external side of the facade opening.

3. A method according to claim 1, **characterized** in that the new frame (13) is arranged at the internal side of the facade opening.

4. A suspended scaffold for erection from within a facade opening, such as a window in a building, with an internal engagement part (2) adapted to engage the internal wall face around the window and external engagement parts (9) adapted to engage the external wall face around the window and to carry a working platform (11) for one or more persons, said engagement parts (2, 9) being kept together by girders (7), which pass through the window opening, and internal and external load-bearing beams (4, 8) extending in parallel with the wall faces, **characterized** in that the girders (7) pass through the window opening at a distance from all frame parts, and that the load-bearing beams (8), extending in parallel with the external wall face, for connecting the external engagement parts (9) with the girders (7) extend at such a distance from the external wall face that there is room between the load-bearing beams (8) and the wall face for the passage of a frame part which is intended for insertion into the window opening.

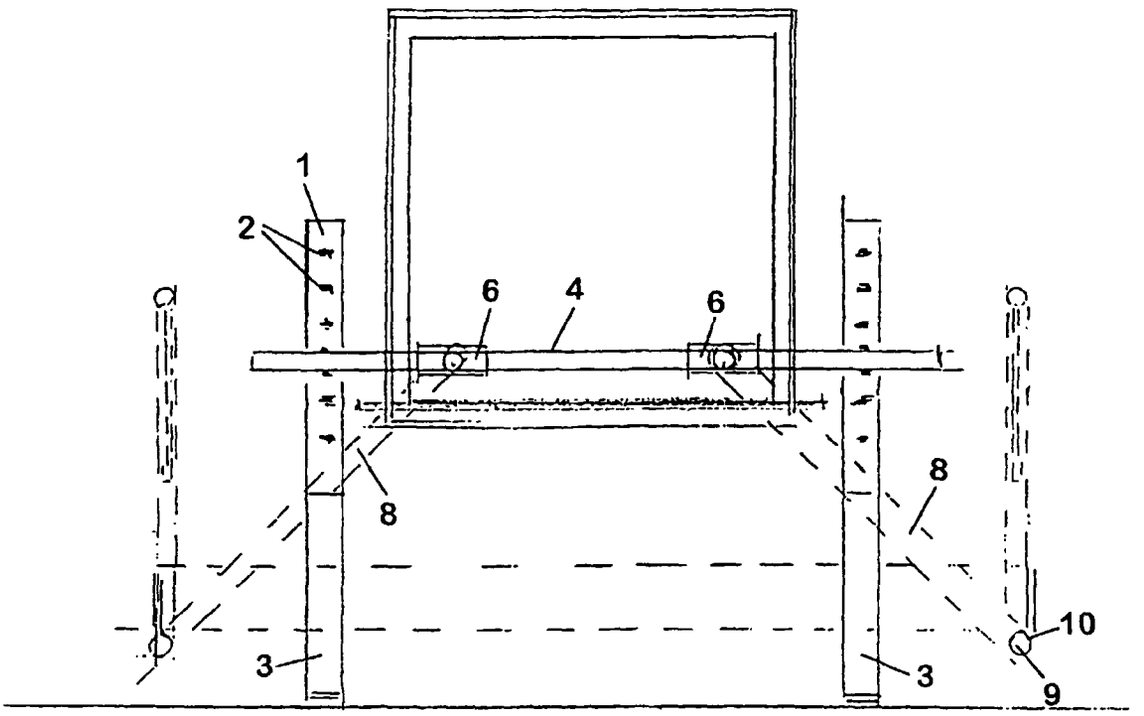

FIG. 1

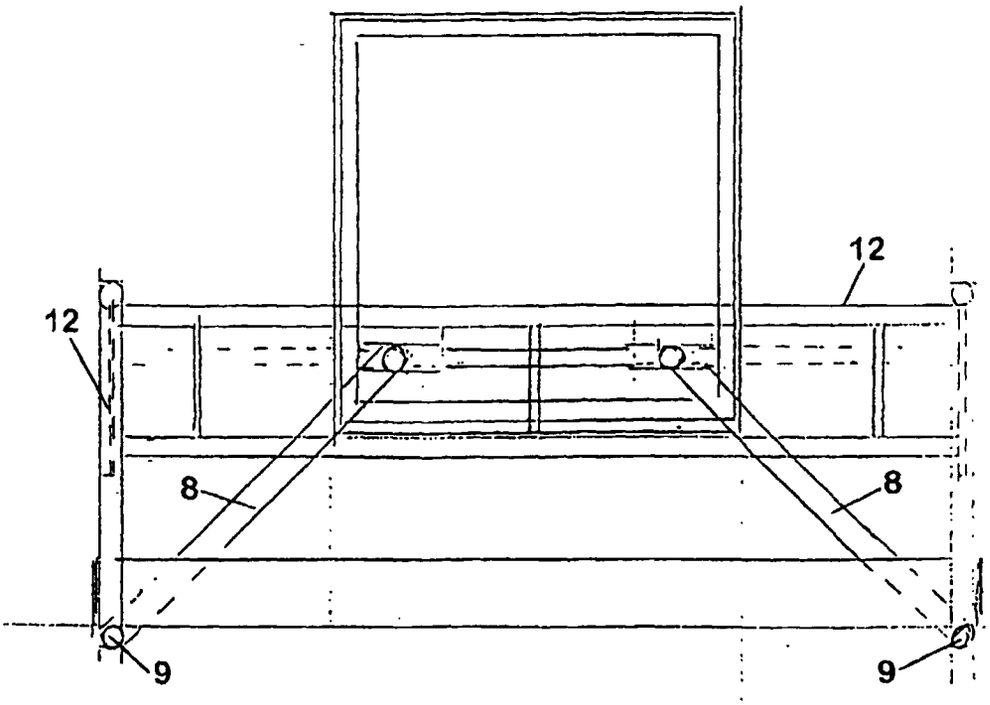

FIG. 2

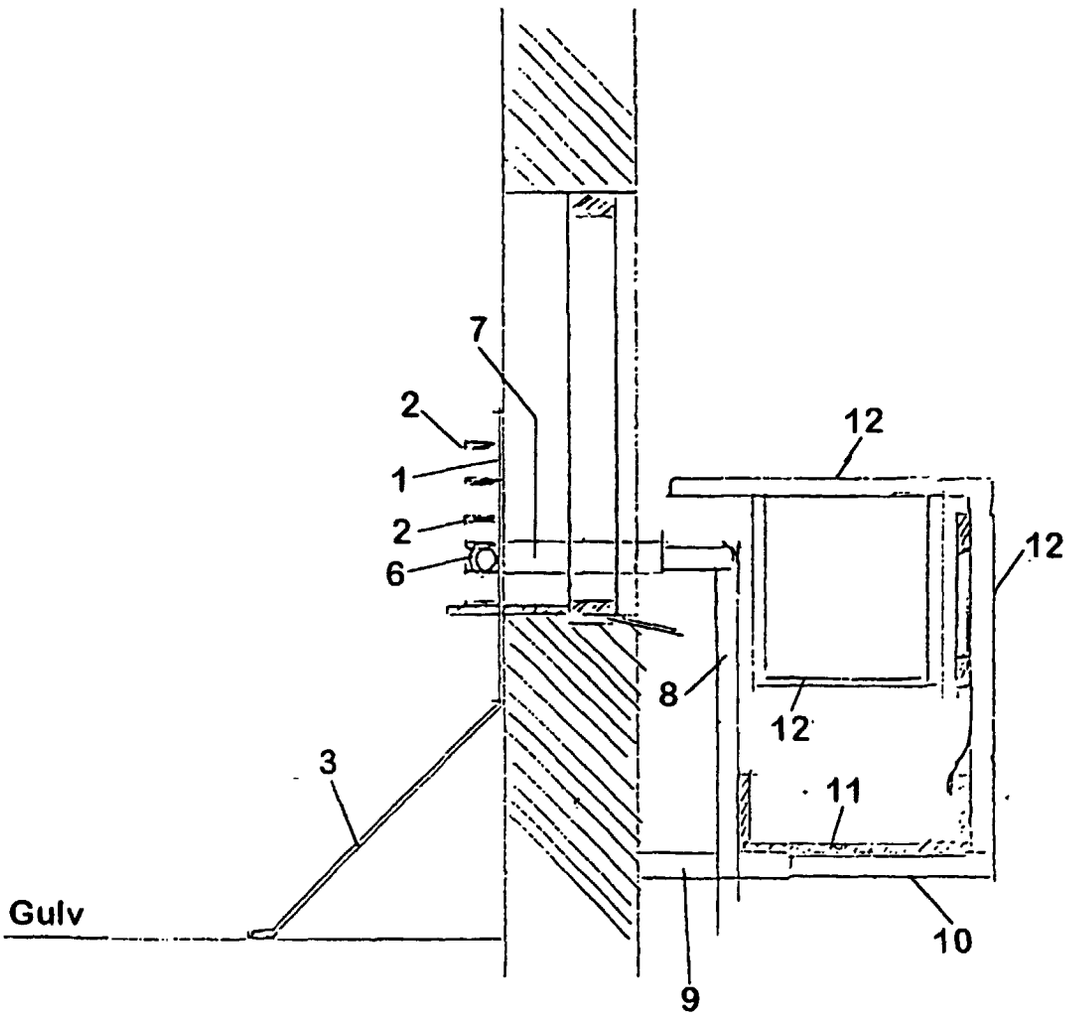

FIG. 3

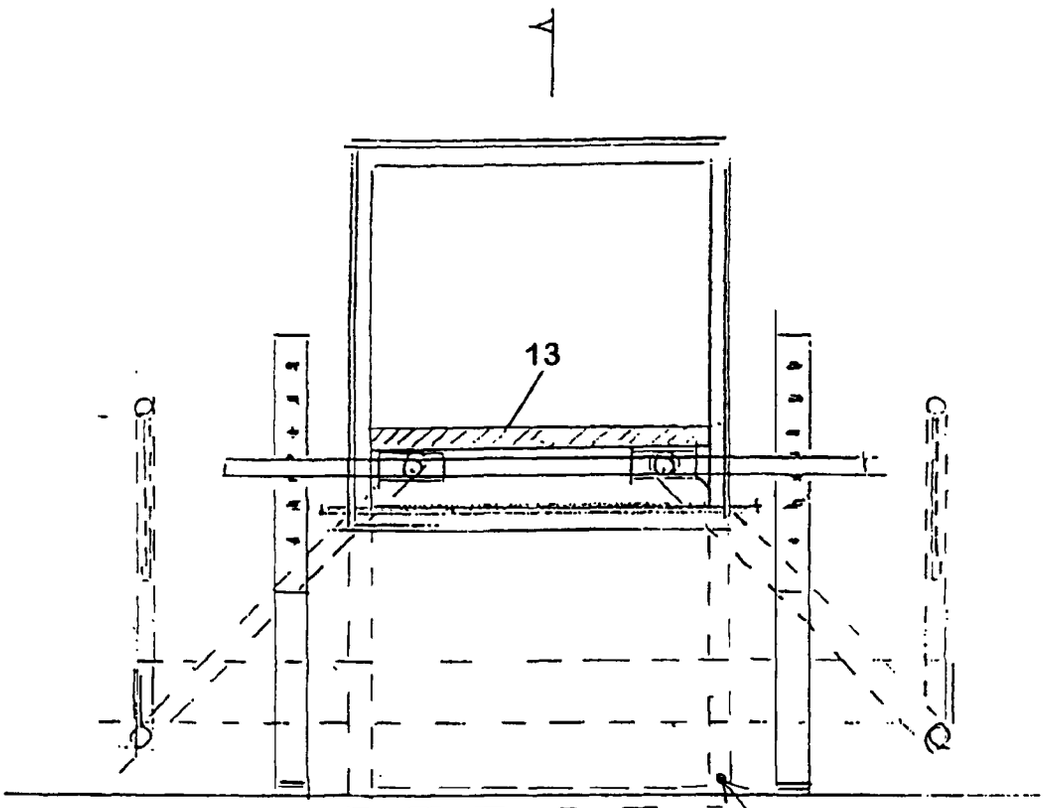

FIG. 4

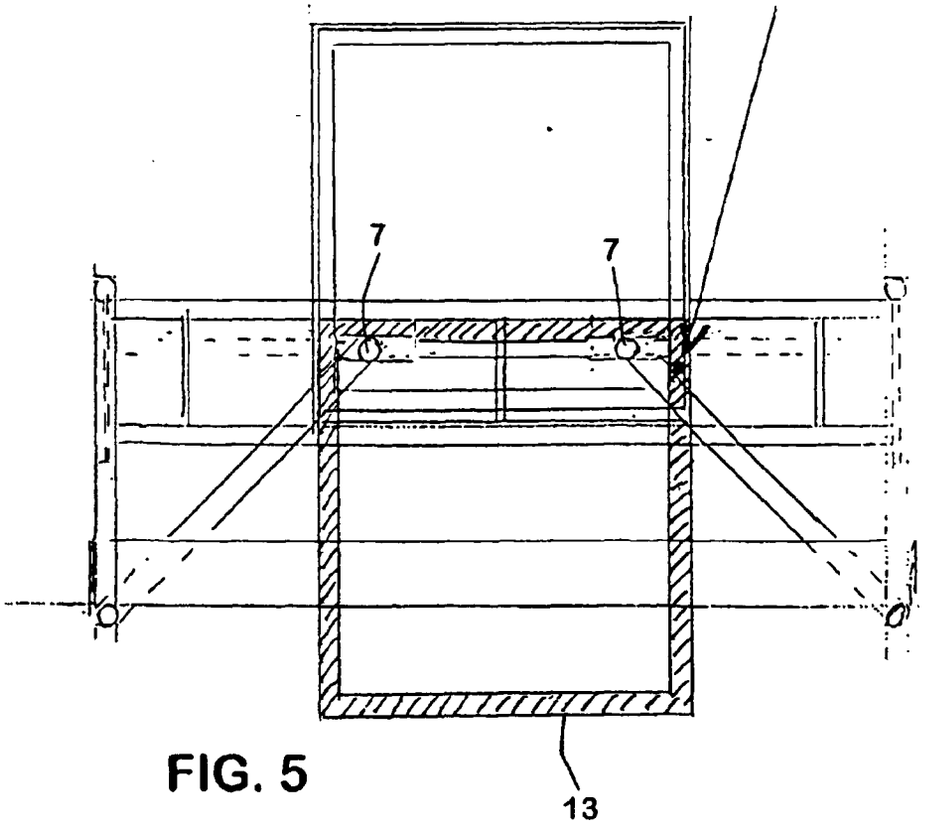

FIG. 5

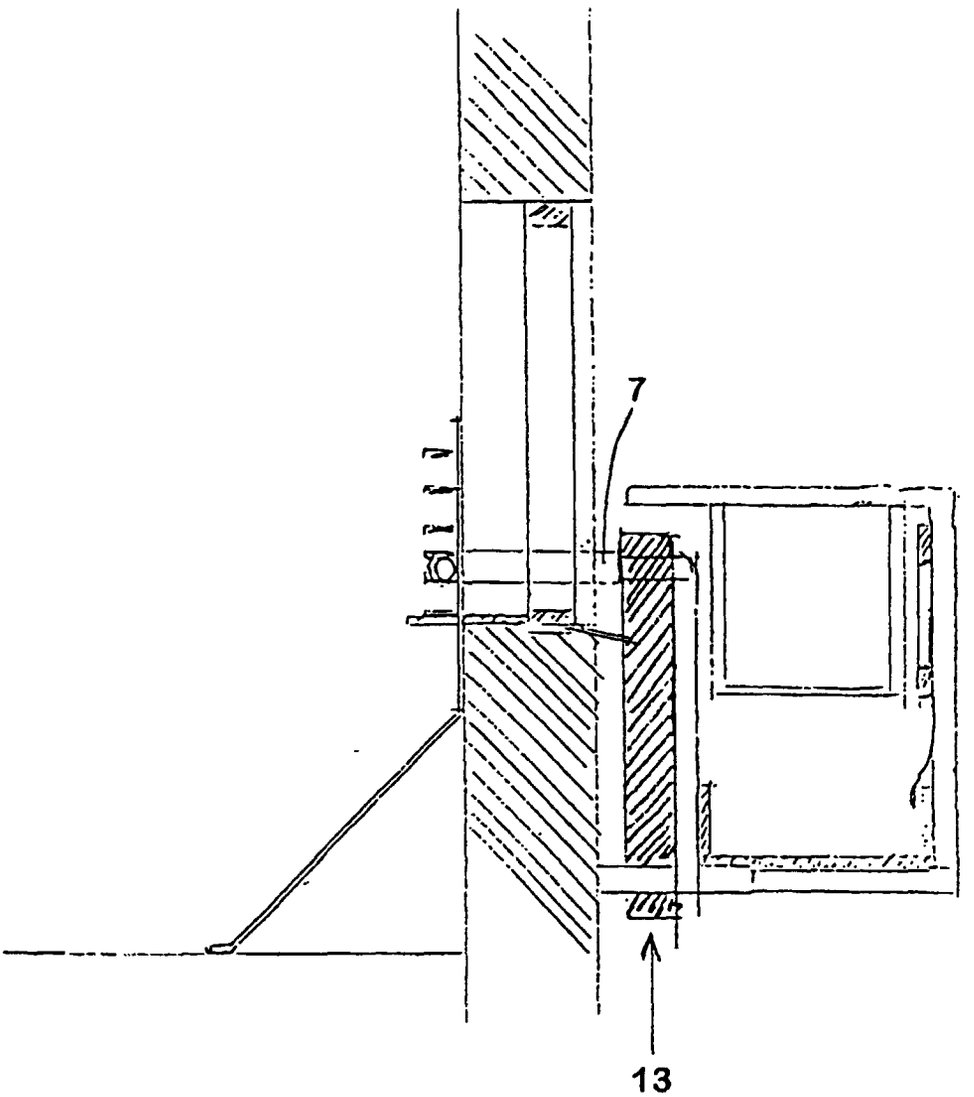

FIG. 6

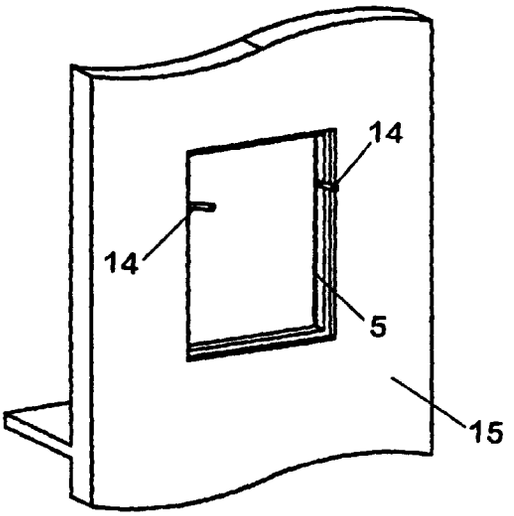

FIG. 7

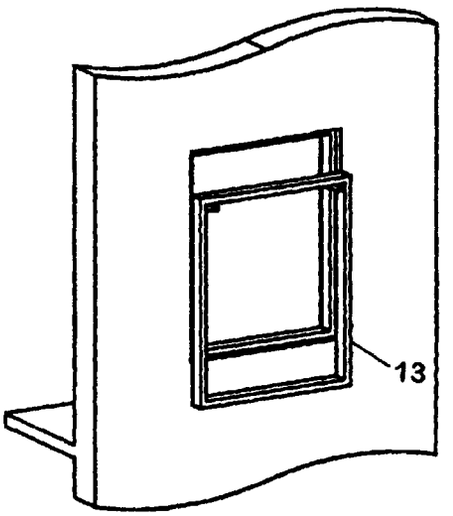

FIG. 8

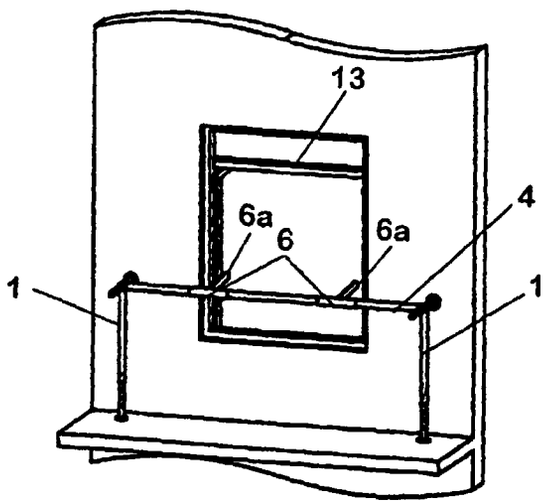

FIG. 9

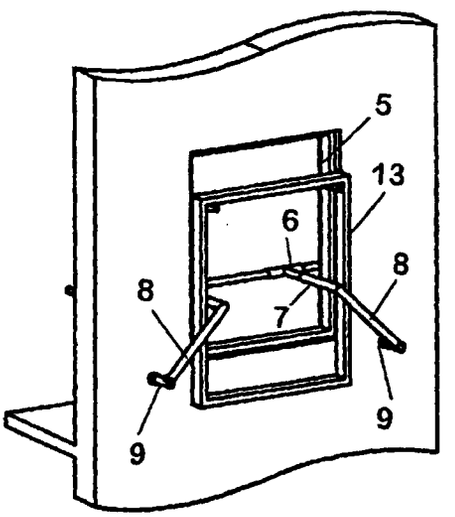

FIG. 10

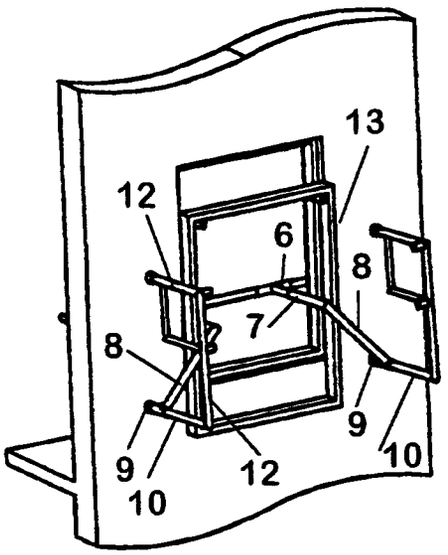

FIG. 11

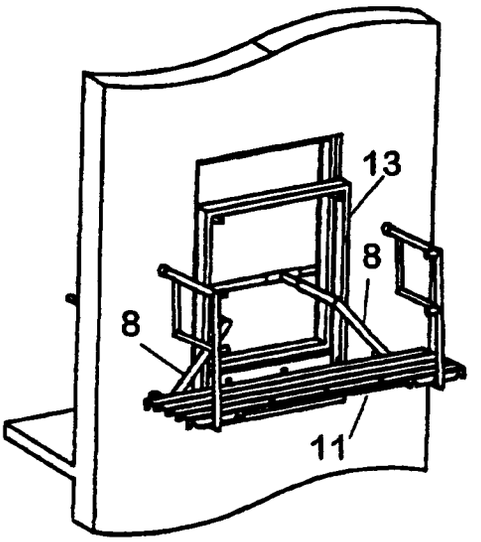

FIG. 12

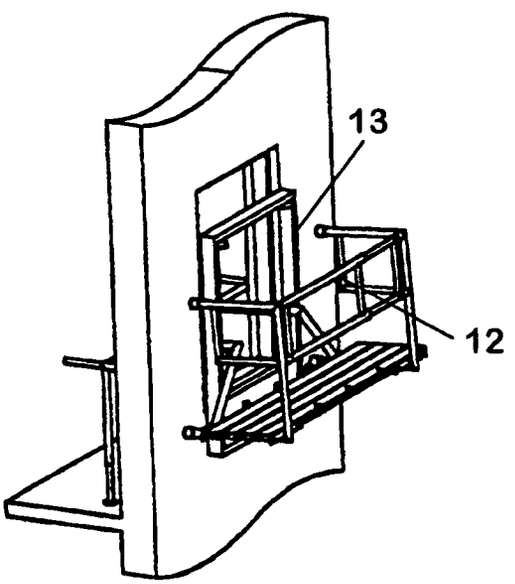

FIG. 13

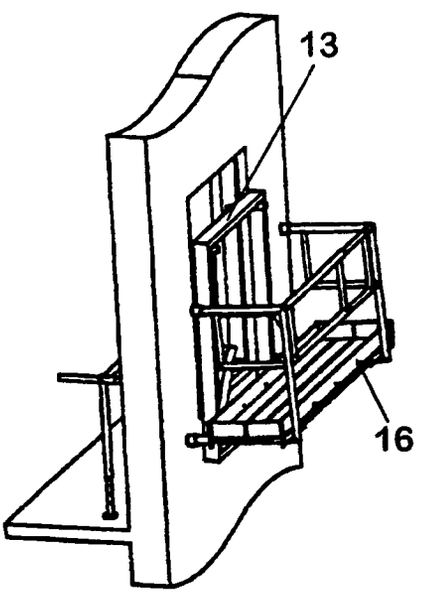

FIG. 14

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EUROPEAN SEARCH REPORT

Application Number
EP 99 10 6612

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Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (Int.Cl.6)
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A	WO 96 32553 A (JORO LIMITED ;ROWLANDS CLIVE HENRY STUART (GB); JORDAN STEPHEN JOH) 17 October 1996 (1996-10-17) -----		

TECHNICAL FIELDS SEARCHED (Int.Cl.6)
E04G
A47L

The present search report has been drawn up for all claims

Place of search	Date of completion of the search	Examiner
THE HAGUE	8 July 1999	Andlauer, D

CATEGORY OF CITED DOCUMENTS

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