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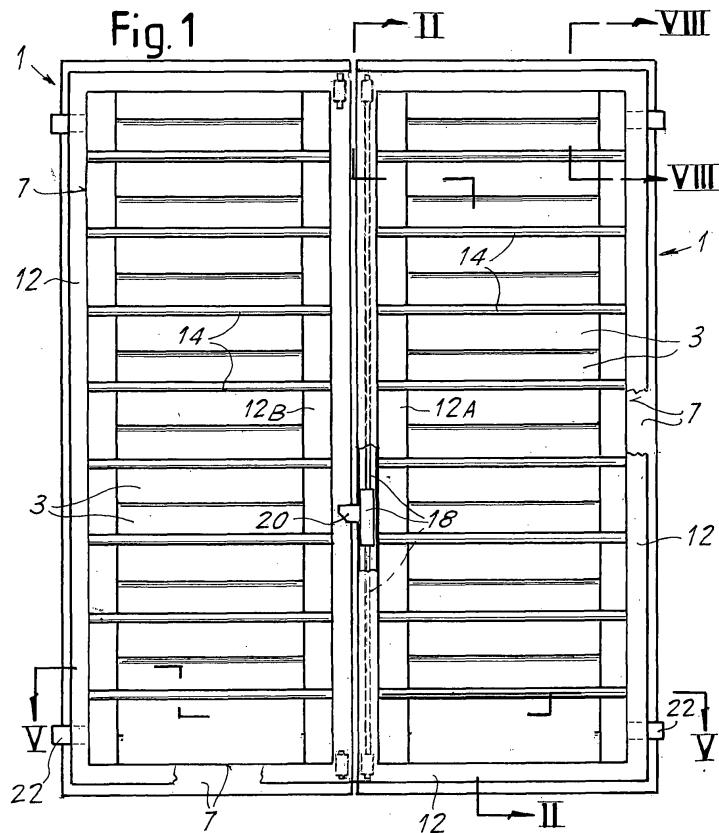
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(54) A shutter combined with a separable metal armor-plating

(57) Each panel of the shutter is formed by a conventional wooden structure -with frame (1), louvers (3), and by a grating with metal frame (12) fastened to the inner surface of the shutter (1) and equipped with hori-

zontal metal rods (14) in correspondence of the inner edge of at least some of the louvers (3); the members (22) for hinging and the connection members (18, 20) for closing are part of the metal frames (12) of the grating.



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Description

[0001] The invention relates to a shutter - generally of the wooden type - which is combined with a metal armor-plating. Armor-plated shutters are currently produced with armor plating totally incorporated in the wooden part, which leads to production and maintenance drawbacks.

[0002] The invention overcomes the aforesaid drawbacks of armor-plated shutters and offers other objects and advantages, which shall be apparent from the text below.

[0003] In the shutter in question, each panel of the shutter is composed of a conventional wooden or similar structure (with frame and inclined horizontal slats or louvers) and by a grating with metal frame fastened to the inner surface of the panel of the shutter and equipped with horizontal metal elements in correspondence of the inner edge of at least some or all of the louvers; the members for hinging to the opening and the connection members for closing are provided on the metal frames of the grating.

[0004] In a practical embodiment, the metal frames of the grating are housed in right-angled perimeter seats of the panels of the wooden structure, and fastened thereto with screws parallel to the plane on which the frames lie and inaccessible when the shutters are in the closed position.

[0005] The aforesaid horizontal metal elements can be developed as rods that extend along the inner edge of the louvers and in slots provided in the uprights of the wooden structure.

[0006] The invention will be better understood by following the description and accompanying drawing, which shows a non-limiting practical example of the invention. In the drawing:

- Figure 1 is an overall front view;
- Figure 2 is a section according to II-II of Figure 1;
- Figures 3 and 4 show in the same section as Figure 2 the two wooden (shutter) and metal (grating) components;
- Figure 5 is a section according to V-V of Figure 1;
- Figures 6 and 7 show in the same section as Figure 5 the two wooden (shutter) and metal (grating) components;
- Figure 8 is a greatly enlarged local section according to VIII-VIII of Figure 1;
- Figure 9 shows a greatly enlarged detail of Figure 5; and
- Figure 10 shows a possible variant with respect to Figure 9.

[0007] According to what is illustrated, the number 1 indicates the rectangular frames - made of wood or other material - substantially corresponding to those of the shutters, with inclined horizontal slats or louvers engaged with the uprights 1A of the frames; the number 5 indicates vertical retaining bars fastened to the outer surface of

the frames of the shutters for the purpose of ensuring retention of the louvers. On the inner surface (with the shutter closed) the frames 1, 1A present a right-angled perimeter seat 7 (see in particular Figures 3, 6 and 8), which along the inner sides of the frames 1 have different depths, greater 7A and lesser 7B, than those 7 of the other sides (see Figure 6), in order to house the closing system. The inner surface of the vertical sides 1A of the frames 1 present transverse slots 9 in correspondence of at least some or all of the louvers 3, in the drawing with one slot 9 in correspondence of alternate louvers (see in particular Figure 3). As already described - besides the differences in width - the right-angled seats 7, 7A, 7B extend along the four sides of each of the shutter panels 1, 3 described.

[0008] A metal frame 12, which advantageously can be tubing with a square (or rectangular) section, which forms the principal element of a reinforcing grating of the respective panel, is housed inside said right-angled seat 7, 7A, 7B at the periphery of each of the two shutter panels 1. Horizontal metal rods 14, which extend between the uprights of the frame 12, are welded to each frame 12; these rods 14 are placed at the same distance from one another as the transverse slots 9 of the uprights 1A of the shutter panels 1; said rods 14 are housed in said slots 9 when the frame 12 is positioned in the right-angled seat 7 in the panel 1; consequently said rods 14 are placed in correspondence of the inner edge of alternate louvers 3.

[0009] The metal frames 12 are secured to the frames 1 of the panel of the wooden or similar shutter, by means of wood screws 16, which (see in particular Figures 9 and 10) pass through the metal frame 12 and are screwed into the frame 1, 1A, parallel to the fronts of the shutter but inaccessible from the outside when the armor plated shutter is closed in the opening for which it is intended.

[0010] As can be clearly seen in Figures 1 and 5, with the assembly of the shutters closed, the inner vertical sides 12A, 12B of the metal frames 12 fastened to the two panels are mutually abutting, and conventional metal devices 18, 20 for closing the shutters are fitted thereon. The outer vertical sides of the metal frames 12 are instead equipped with the relevant sections 22 of the hinges, which cooperate with the respective sections secured to the opening for which the shutter assembly 1, 12 is intended.

[0011] Therefore, from the above it is apparent that the assembly of each armor-plated shutter comprises a metal part 12, 14, 16, 18, 20, 22, the frames 12 of which are directly hinged to the opening - with fixed metal casing if required - for which the assembly is intended, while the other part of the two wooden panels 1, 1A, 3, 5 is fastened with the screws 16 to the metal frames 12, and is easily separable from the part of the metal frames 12 for any replacement or maintenance operations, by loosening the screws with the shutters open or removed.

[0012] As well as the components 22 of the hinges, other security components can be welded to the metal

frames 12, such as the T-shaped plate fastened to the upright 12, to protect the slit between the two uprights 12A and 12B in the closed position. The outer uprights of the metal frames 12 can present seats for hinging to the vertical jambs of the opening or of the metal casing. 5

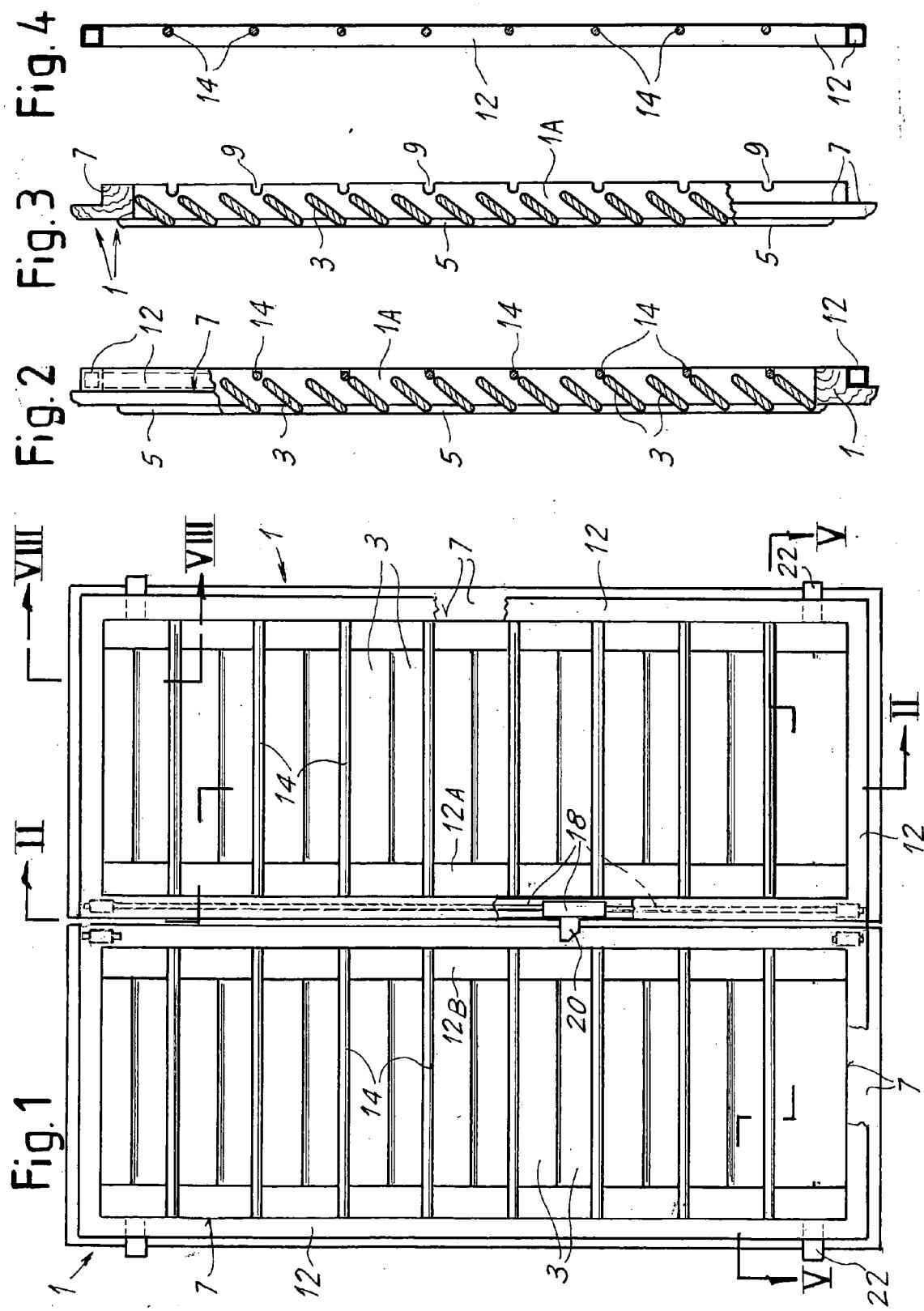
[0013] It is understood that the drawing only shows an example provided by way of a practical demonstration of the invention, which can vary in forms and arrangements without however departing from the scope of the concept underlying the invention. Any reference numbers in the appended claims are provided to facilitate reading of the claims with reference to the description and to the drawing, and do not limit the scope of protection represented by the claims. 10

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Claims

1. A shutter for windows, French windows or the like, combined with a metal armor plating, **characterized in that** each panel of the shutter is formed by a conventional wooden or similar structure (1, 1A, 3) with frame (1, 1A) and inclined horizontal slats or louvers (3), and by a grating (12, 14) with metal frame (12) fastened to the inner surface of the wooden frame (1) of the shutter and with horizontal metal elements (14) extending in correspondence of the louvers; the members for hinging to the opening and the connection members (18, 20) for closing being part of the grating. 20 25 30
2. Shutter as claimed in claim 1, **characterized in that** the metal frames (12) of the grating are housed in right-angled perimeter seats (7) of the panels (1, 1A) of the wooden structure. 35
3. Shutter as claimed in claim 1 or 2, **characterized in that** the metal frames (12) are fastened to the conventional wooden or similar structure (1, 1A, 3) with screws (16) parallel to the plane on which these frames lie and therefore inaccessible from the outside when the shutters are closed. 40
4. Shutter as claimed in at least claim 1, **characterized in that** said horizontal metal elements (14) extend as rods along the inner edge of at least part of the louvers and in slots (9) in the uprights (1A) of the wooden structure. 45
5. A shutter combined with a separable metal armor plating; all as described above and represented by way of example in the accompanying drawing. 50

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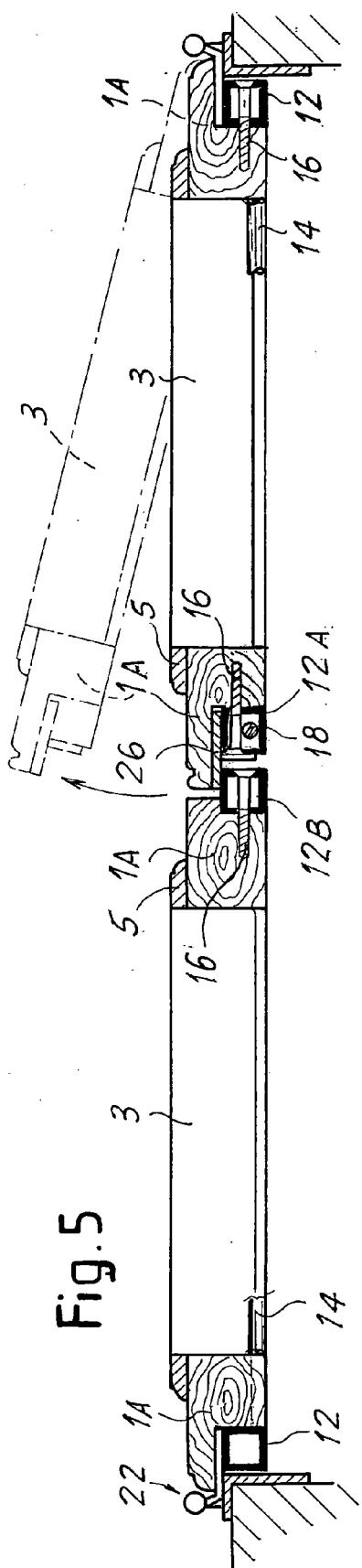


Fig. 6

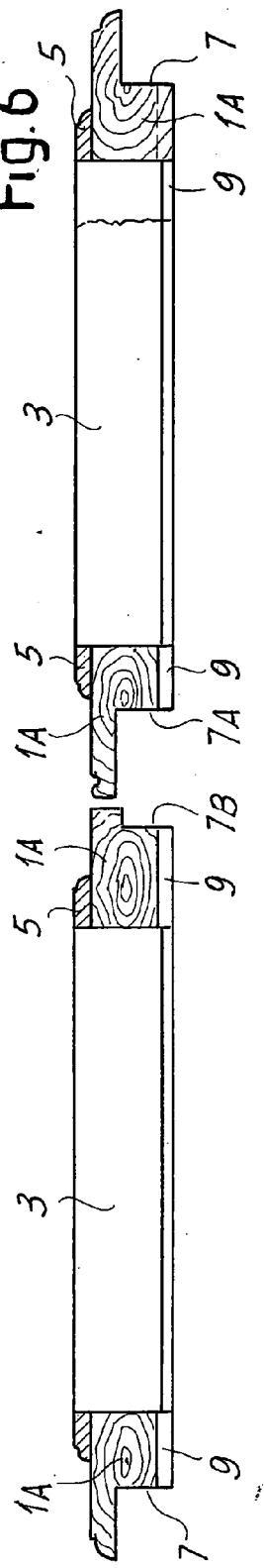
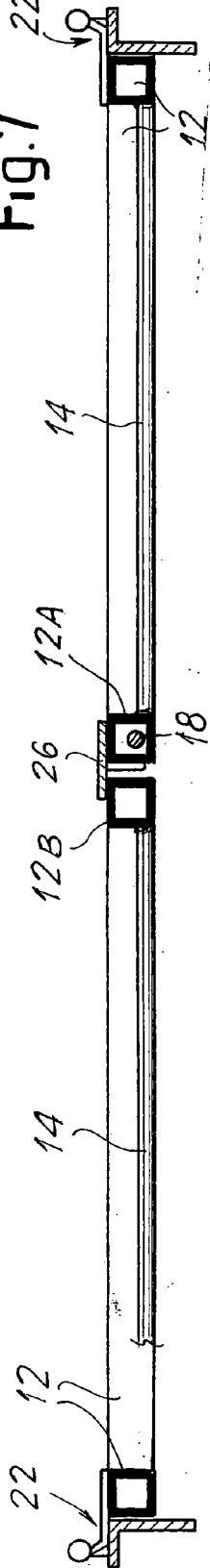
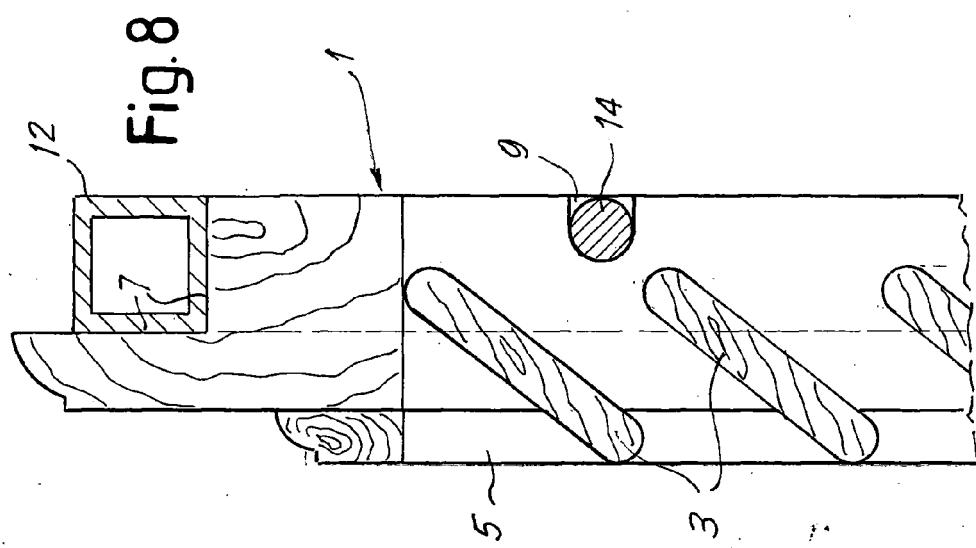
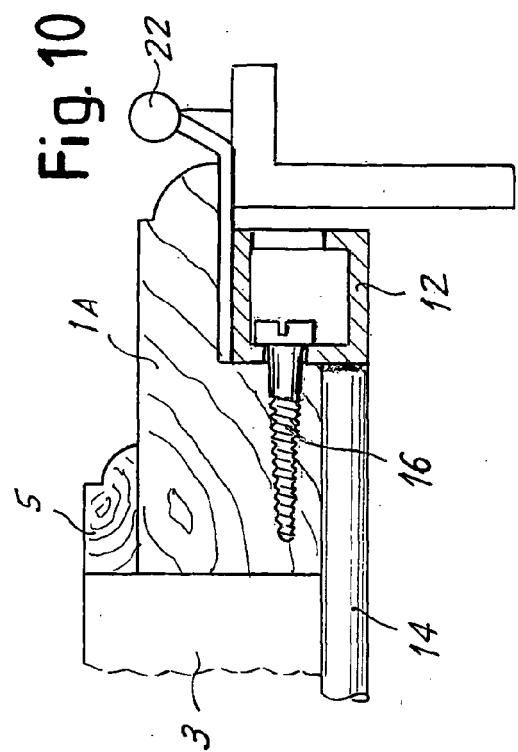
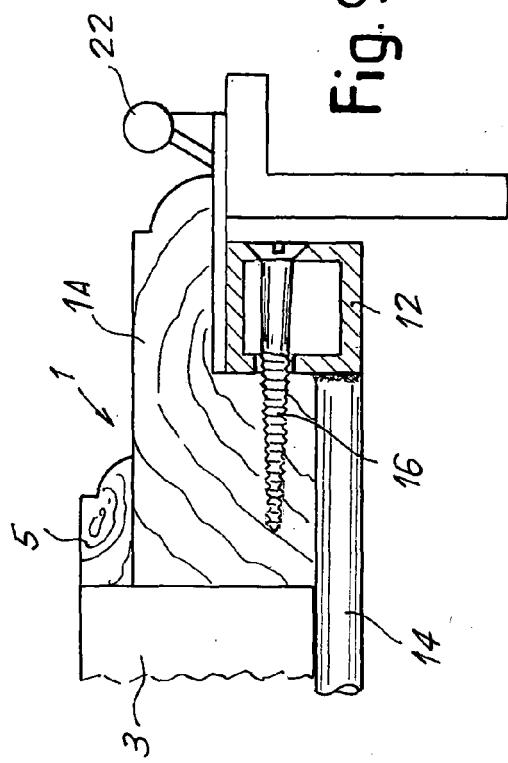


Fig. 7 22







EUROPEAN SEARCH REPORT

Application Number
EP 08 42 5641

DOCUMENTS CONSIDERED TO BE RELEVANT			
Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (IPC)
X	US 5 481 829 A (WAYTASHEK DAVE G [US]) 9 January 1996 (1996-01-09) * column 1, line 57 - column 2, line 67 * * column 4, line 31 - column 5, line 47 * * column 6, line 45 - line 49 * * figures 1-5 *	1-5	INV. E06B9/04 E06B7/08
A	JP 2004 360345 A (WORLDVIEW KK) 24 December 2004 (2004-12-24) * the whole document *	1-5	

TECHNICAL FIELDS SEARCHED (IPC)			
E06B			
The present search report has been drawn up for all claims			
3	Place of search	Date of completion of the search	Examiner
	The Hague	20 February 2009	Cornu, Olivier
CATEGORY OF CITED DOCUMENTS		T : theory or principle underlying the invention E : earlier patent document, but published on, or after the filing date D : document cited in the application L : document cited for other reasons & : member of the same patent family, corresponding document	
X : particularly relevant if taken alone Y : particularly relevant if combined with another document of the same category A : technological background O : non-written disclosure P : intermediate document			

**ANNEX TO THE EUROPEAN SEARCH REPORT
ON EUROPEAN PATENT APPLICATION NO.**

EP 08 42 5641

This annex lists the patent family members relating to the patent documents cited in the above-mentioned European search report. The members are as contained in the European Patent Office EDP file on The European Patent Office is in no way liable for these particulars which are merely given for the purpose of information.

20-02-2009

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