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(54) **Method for manufacturing a wicket door in sectional door**

(57) A description is given of a method in which a sectional door, which is built up of hinged panels and a wicket door, is manufactured by making cuts in the material of the respective panel at the location where the wicket door is to be provided. The cuts are interrupted by material bridges via which the part to be cut out of the panel remains connected to a neighbouring part of the panel. Subsequently, coupling members, which are usually hinges, are fixed across the cuts and onto neighbouring parts of the panel, and the material bridges are severed, after which the peripheries of the parts are finished and the parts of the panel are assembled together.

The method is very time saving, in particular in the post-production stage preceding final assembly at the customer's location.

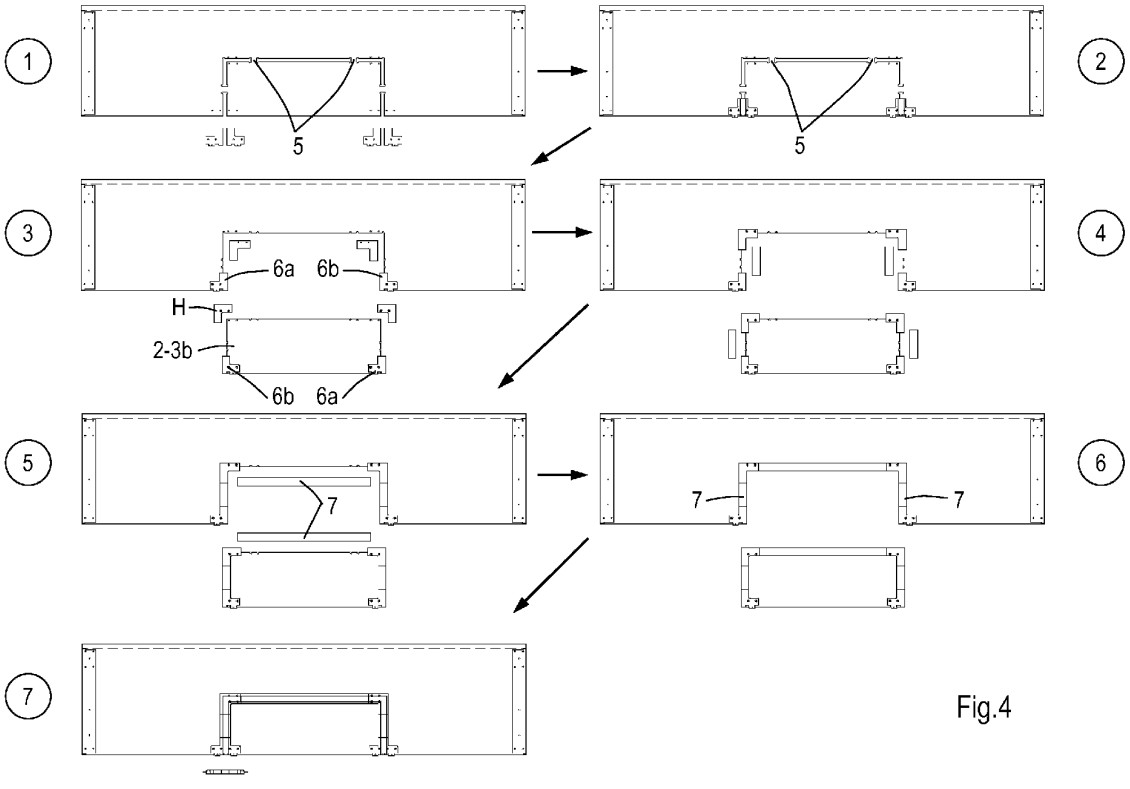

Fig.4

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Description

[0001] The present invention relates to a method in which a sectional door, which is built up of hinged panels and a wicket door, is manufactured by making cuts in the material of the respective panel at the location where the wicket door is to be provided.

[0002] Such a method is generally known. According to said method, cuts are made in the panels such that parts are cut out of the panels. At the location of the cut-out parts, the wicket door is to be provided. Assembling the various parts of the panels and the wicket door in a dimensionally stable manner at the production site involves a lot of measuring work and the drilling of holes at the measured locations. This method is time consuming because of the required dimensional accuracy of the positions of the hinges to be provided, and because the panels of the sectional door after installation at the customer's location must pivot well and also the wicket door must open and close smoothly. Moreover, the sectional door in combination with the wicket door must not exhibit warpage or torsion during opening and closing of the sectional door.

[0003] It is an object of the present invention to provide an improved, yet quick, method of manufacturing one or more wicket doors in overhead or sectional doors, which, in addition, must be readily installable at the customers' location.

[0004] To achieve this, the method according to the invention is **characterized in that** the cuts are interrupted by material bridges via which the part to be cut out of the panel remains connected to a neighbouring part of the panel,

- after which coupling members are fixed across the cuts and onto neighbouring parts of the panel, and the material bridges are severed,
- after which the peripheries of the parts are finished and the parts of the panel are assembled together.

[0005] An advantage of the method according to the invention resides in that the parts are not cut entirely, but initially, partly from the panels. By virtue thereof, the shape and integrity of the relevant panel remains intact, and in this condition the holes for the coupling members - in practice mostly the hinges- which coupling members are also used to interconnect the parts, can be drilled directly in the proper positions without fitting or measuring and the coupling members can then be provided in said drilled holes. When, subsequently, the material bridges are severed and the parts are entirely cut out of the panels, then, when said parts are provided again, the coupling members present cause the neighbouring panels to remain in place and further finishing of the wicket door and the respective parts of the panels can take place while the required dimensional tolerance is maintained. As the parts do not have to be kept in place each time, either manually or in a yoke, when the various holes are being formed in the parts for the purpose of the coupling members, the method according to the invention is very time saving for the manufacturer in the post-production stage of the sectional door.

[0006] An additional advantage resides in that the sectional doors can be marketed as a building kit, since all necessary holes have been pre-drilled in all parts with sufficient dimensional accuracy. Therefore, during final assembly, the consumer does not have to perform any measuring or drilling operations on the wicket door parts and sectional door parts. By virtue thereof, sectional door building kits for the handy do-it-yourselfer can be brought to market; which was hitherto unthinkable.

[0007] A preferred embodiment of the method according to the invention is **characterized in that** coupling members comprise hinges which form part of a multiple, four-part hinge which mutually couples the sectional door parts and wicket door parts of the panel as well as the panels of the sectional door.

[0008] The method according to the invention can advantageously be used in combination with a four-part hinge as disclosed in EP-2267262 A1 in the name of the current applicant.

[0009] Further, detailed, possible embodiments explained in the remaining claims are mentioned together with the associated advantages in the description given hereinbelow.

[0010] The method according to the present invention will be explained in greater detail with reference to the figures mentioned below, in which corresponding parts are provided with the same reference numerals. In the figures:

Figure 1 is a view of a sectional door composed of hinged panels, in which door a wicket door is provided;
Figure 2 shows a bottom panel of the sectional door of figure 1, which is successively subjected to steps 1-7 in the method according to the invention;
Figure 3 is a middlemost panel of the sectional door of figure 1, which is successively subjected to steps 1-4 in the method according to the invention; and
Figure 4 is a top panel of the sectional door of figure 1, which is successively subjected to steps 1-7 in the method according to the invention.

[0011] Figure 1 shows a sectional door 1 which is built up of mutually hinged panels 2-1, 2-2, and 2-3. In the upward or downward folding, movable sectional door 1, a wicket door 3 is schematically indicated in the figure. In the lowered position of the sectional door 1, the wicket door 3 can be opened and closed in a normal way, generally for allowing passage of people without it being required to open and close, respectively, the sectional door as a whole. At the location where the wicket door 3 is to be provided in the panels, indicated by means of reference numeral 2, cuts 4 are made in the material of a relevant panel of the sectional door. These cuts are usu-

ally made by means of milling or cutting. A practical width of said cuts is for example 23 mm.

[0012] The cuts 4 are provided in such a way that material bridges 5 remain intact via which the part to be cut out of the panel remains connected to a neighbouring part of the panel 2.

[0013] Based on the panels 2-1, 2-2 en 2-3 shown in the figures 2, 3 en 4, two or three parts of each panel are obtained, which parts preserve their integrity via the material bridges 5.

[0014] Figure 2 shows the bottom panel 2-1 of the sectional door 1, which is subjected to various schematically shown steps 1-7 in the method to be elucidated hereinbelow. The middlemost panel 2-2 which is subjected to steps 1-4 is shown in figure 3, and figure 4 shows the steps 1-7 for the top panel 2-3. For conciseness of the description, the following description of the steps of the method will be combined as much as possible. The reference numerals in figures 2-4 referring to the represented steps are encircled.

[0015] In step 1 of figure 2, coupling members 6 are provided across the cuts 4 and fixed to neighbouring parts 2-1a, 2-1b en 2-1c of the panel 2-1. The upper coupling members 6 shown here are, in this case, hinges 6a and 6b and the lower coupling members are corner pieces H to be provided on the lower angular points of the wicket door 3. In this case, the pivot holes concerned are drilled without having to be measured and the hinges 6a and 6b are screwed down in the pivot holes. This also applies to the middlemost and top panels 2-2, 2-3 shown in figures 3 and 4.

[0016] In step 2 of figures 2-4, the coupled hinges 6a and 6b are fixed. With reference to figure 2, first the lower strip 7 is attached under the wicket door 3 (steps 2 and 3), after which, in this case, doorstep 8 -as ultimate coupling member 6- is secured under the panel 2-1 (step 4). As a result, the neighbouring parts, such as 2-1a, 2-1b, 2-1c shown in fig. 2, are also interconnected now via the coupling members, or hinges. If, next, the material bridges 5 are severed, for example by means of cutting or milling, the respective parts 2-1b, 2-2b en 2-3b can be removed after the coupling members 6 have been disconnected (see steps 5, 3 and 3 van figures 2, 3 and 4, respectively).

[0017] Subsequently, the peripheries of the various parts can be finished by providing the remaining strips 7 to the panel parts and the sectional door parts (step 6 in fig. 1, steps 4 in fig. 3, and step 4, 5, 6 in fig. 4), after which the parts of each panel are assembled together.

[0018] The coupling members 6 and the various strips 7 are usually fixed onto the various parts by means of screwing, glueing or pop riveting.

[0019] When the sectional door 1 is assembled as a whole, it is advantageous if the hinges 6a/6b of the coupling members form part of a multiple hinge. Such hinges are capable of independently hinging along two mutually perpendicular shafts. The multiple hinge 6a/6b, 6a/6b couples, and enables hinging of, the sectional door parts and wicket door parts of the panel 2, and it couples and allows hinging of the panels 2-1, 2-2, 2-3 of the sectional door 1 with respect to one another.

[0020] Preferably, the hinge 6 is a four-part hinge comprising four mouldings or castings made of a lightweight material such as, respectively, synthetic resin or light metal, for example aluminium or magnesium.

Claims

1. A method in which a sectional door, which is built up of hinged panels and a wicket door, is manufactured by making cuts in the material of the respective panel at the location where the wicket door is to be provided,
   characterized in that the cuts are interrupted by material bridges via which the part to be cut out of the panel remains connected to a neighbouring part of the panel,

   - after which coupling members are fixed across the cuts and onto neighbouring parts of the panel, and the material bridges are severed,
   - after which the peripheries of the parts are finished and the parts of the panel are assembled together.

2. The method according to claim 1, **characterized in that** the cuts are made or the material bridges are severed by means of cutting and/or milling.

3. The method according to claim 1 or 2, **characterized in that** the coupling members comprise hinges.

4. The method according to claim 3, **characterized in that** the hinges form part of a multiple hinge which mutually couples the sectional door parts and wicket door parts of the panel as well as the panels of the sectional door.

5. The method according to claim 4, **characterized in that** the multiple hinge is a four-part hinge.

6. The method according to claim 3 or 4, **characterized in that** the multiple hinge is at least partly made of a lightweight material, such as synthetic resin or light metal, for example aluminium or magnesium.

7. The method according to any one of claims 1 to 6, **characterized in that** the peripheries of the parts of the panel are finished by providing strips.

8. The method according to claim 7, **characterized in that** the strips are fixed by means of screwing, glueing or pop riveting.

9. The method according to any one of claims 1 to 8,

characterized in that the coupling members are fixed onto the neighbouring parts of the panel by means of screwing, glueing or pop riveting.

10. The method according to any one of claims 1 to 9, **characterized in that** the sectional door is an overhead door or a folding door.

11. A building kit comprising component parts for the manufacture of a sectional door with panel parts and wicket door parts, wherein, by applying the method according to any one of the preceding claims 1 to 10, pre-drilled holes for mounting coupling members in the form of hinges are provided in proper positions in said parts of the panel.

12. A sectional door obtained by applying the method according to any one of claims 1 to 10.

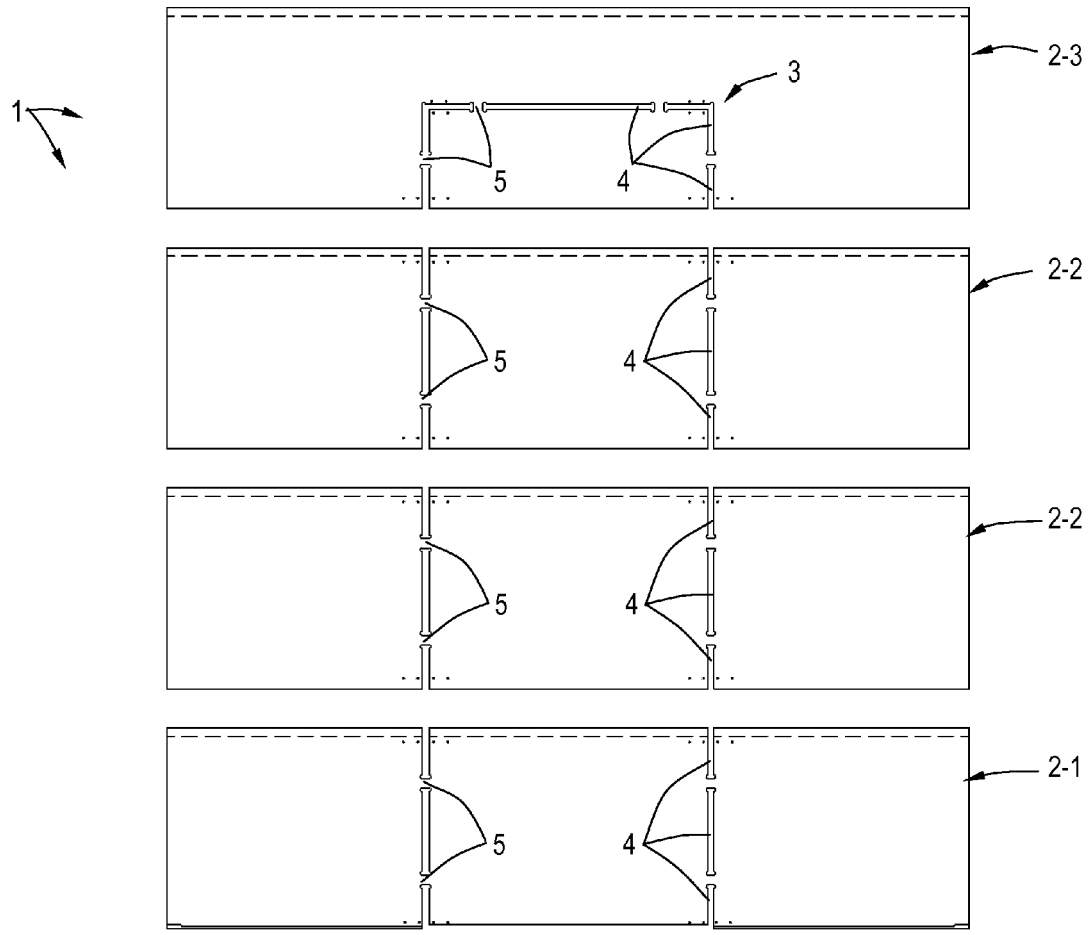

Fig.1

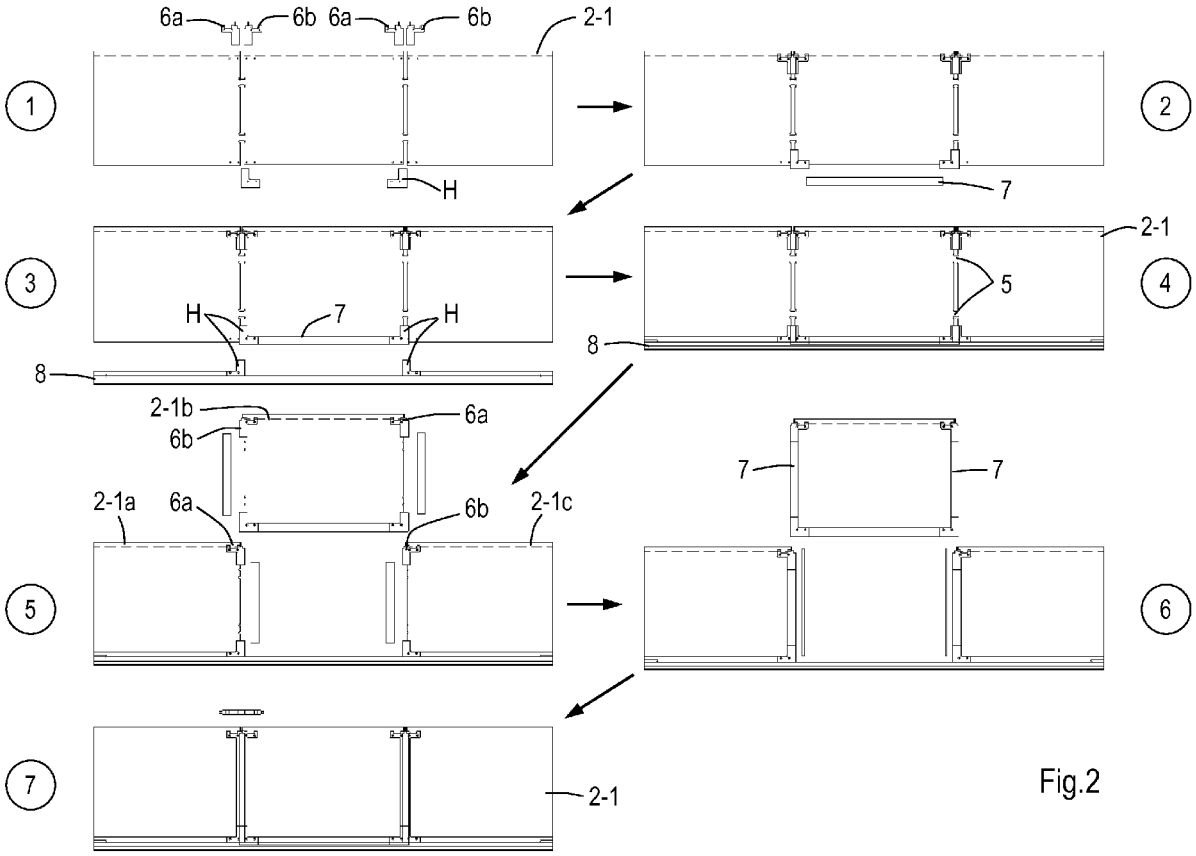

Fig.2

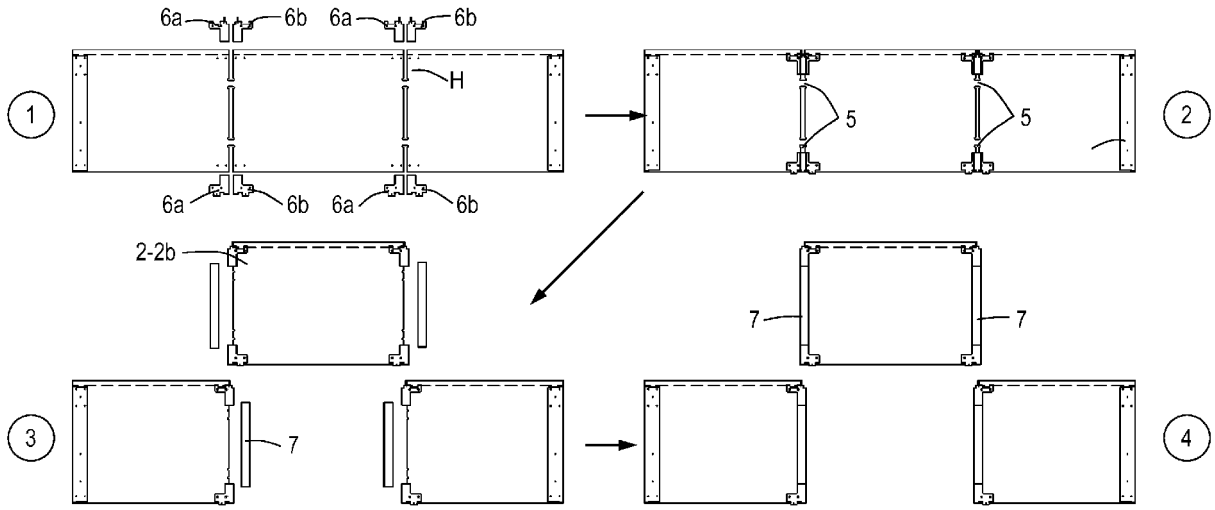

Fig.3

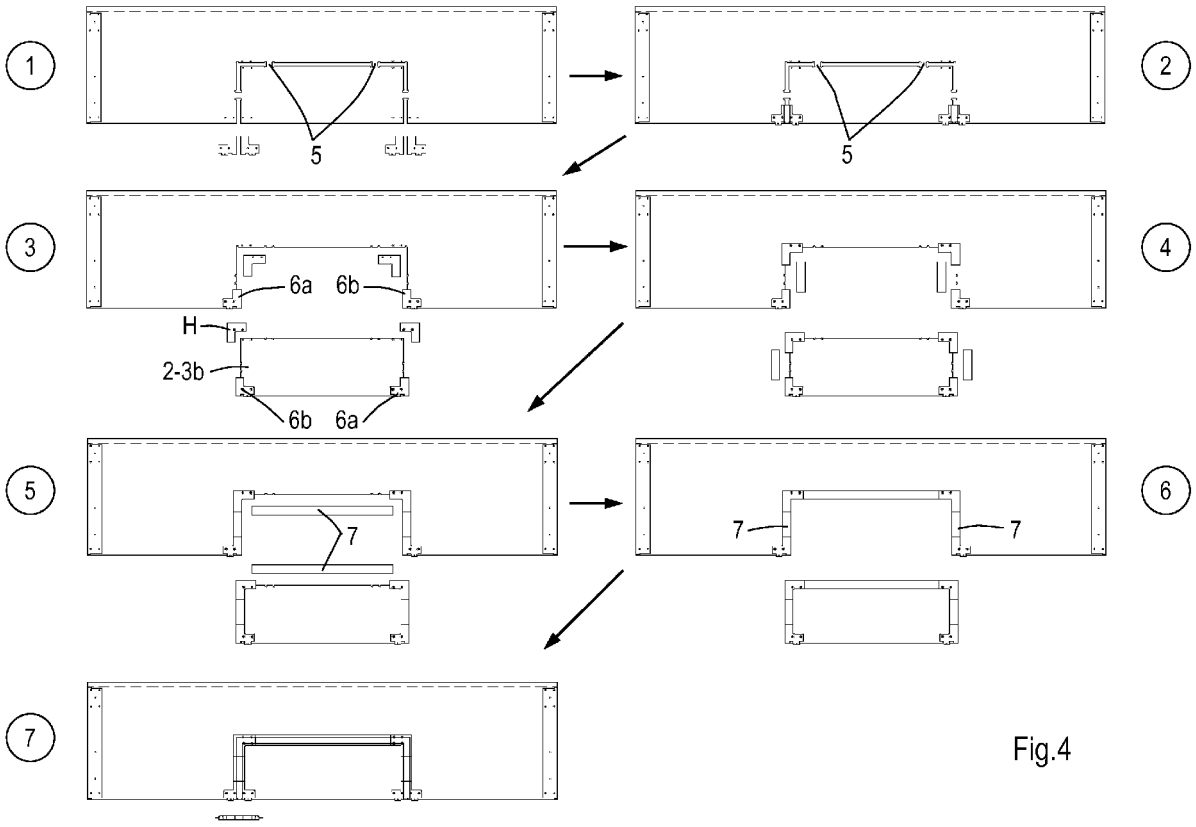

Fig.4

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EUROPEAN SEARCH REPORT

Application Number
EP 13 17 2452

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	DE 88 03 220 U1 (BUDACH TORE GMBH (DE)) 28 April 1988 (1988-04-28)	11,12	INV. E06B3/48
A	* page 4, paragraph 2 * * page 5, paragraph 5 - page 6, paragraph 2; figure 1 *	1	

X	WO 2007/133364 A2 (BRUNETTE BARRY J [US]; BRUNETTE JEFFERY A [US]) 22 November 2007 (2007-11-22)	11,12	
A	* page 13, line 25 - page 14, line 9; figure 11 * * page 16, line 5 - page 17, line 2 *	1	

X	EP 2 267 262 A1 (CONDOOR GROUP B V [NL]) 29 December 2010 (2010-12-29)	11,12	
A	* paragraphs [0001], [0002], [0004], [0007], [0013], [0020] - [0024]; figures 1A,1B,2 *	1	

			TECHNICAL FIELDS SEARCHED (IPC) E06B

The present search report has been drawn up for all claims

Place of search	Date of completion of the search	Examiner
The Hague	3 July 2013	Hellberg, Jan

CATEGORY OF CITED DOCUMENTS

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EPO FORM 1503 03.82 (P04C01)

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03-07-2013

Patent document cited in search report	Publication date	Patent family member(s)	Publication date
DE 8803220 U1	28-04-1988	NONE	
WO 2007133364 A2	22-11-2007	CA 2651245 A1	22-11-2007
		US 2007272366 A1	29-11-2007
		US 2012199296 A1	09-08-2012
		WO 2007133364 A2	22-11-2007
EP 2267262 A1	29-12-2010	NONE	

EPO FORM P0459

For more details about this annex : see Official Journal of the European Patent Office, No. 12/82

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Patent documents cited in the description

- EP 2267262 A1 **[0008]**