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(54) Swing window frame with glazing to facilitate cleaning

(57) A swing window frame with glazing to facilitate its cleaning, applicable both to windows that are already installed as well as to ones of new construction, irrespective of the type of opening with which they are fitted and the material used in the manufacture of same, characterised in that in addition to the traditional frame it includes a sash that surrounds the outside perimeter of the glazing included in each of the leaves of the windows.

A window frame according to claim 1, characterised in that it incorporates a set of hardware items which provide the swivel function, including amongst these hinges that maintain a respective protruding portion capable of being inserted in a corresponding cavity located advantageously in the frame of each respective leaf.

A window frame according to claims 1 and 2, characterised in that it includes other items of hardware aimed at providing closing means, which comprise hinges connected by means of pins to a closing fixture provided with openings sized so that they admit the insertion of two fingers to actuate two buttons at the same time, which, when pressed, permit the opening of the glazed part, by means of a swing action around a pivot pin.

EP 2 037 064 A1

Description

Object of the invention

[0001] The present invention refers to a swing window frame with glazing to facilitate its cleaning which contributes essential novel features and notable advantages in respect of the known means used for the same purposes according to the present state of the art.

[0002] More particularly, the present invention proposes the development of a window frame which, although constructed with currently known techniques, may be adapted in such a way that the glazed parts are suitably arranged so that they may be swung inwards towards the interior of the building by means of metal fixtures appropriately attached to the above-mentioned glazed parts in order to facilitate the operation of cleaning of same from the part of awkward access, through the use of current means, generally from the outside. The invention may be incorporated both into windows that are already installed and in newly built ones, irrespective of the material used in their construction (aluminium, wood, etc.) and regardless of the method of opening with which they are provided (swinging or sliding). The window frames proposed by the invention are essentially put into effect through the incorporation of an additional sash surrounding the glazing of the windows to which they are applied, with the added feature that the form of construction chosen also facilitates the replacement of single glazing with double glazing with an intermediate air space, which offers the user further advantages (noise and heat insulation).

[0003] The field of application of the invention lies in the industrial sector given over to the construction and installation of windows in general, irrespective of the type of materials that are used in their manufacture.

Background and summary of the invention

[0004] It is common knowledge to all what difficulties are presented by a large number of the windows currently installed with regard to access for cleaning purposes from at least one of the sides, usually from the side exposed towards the exterior of the building, are and mainly when these belong to high floors of buildings in which the cleaning operation from the exterior often represents a life-threatening risk for persons positioned at considerable heights, since, in order to gain access to clean certain parts, it is sometimes necessary to bend a part of the body over, resulting in exposure to the risk of a possible accidental fall. In view of the wide variety of existing windows, especially with regard to the means of opening they present, there are some that present more difficulty than others, such as for instance those that open by means of moving or sliding elements, as in these cases the leaves cross over each other when the window is opened so that there are parts that are always enclosed between both leaves to which it proves impossible to gain access to carry out the cleaning operation.

[0005] Taking into consideration how hard it is to clean windows with the present state of the art, to which reference was made in the preceding paragraph, the present invention has considered the fact of constructing windows by adding a further sash that surrounds the outside perimeter of the glazed part, while it may be provided with a hinge or the like at one of its sides so that it may be opened like a wicket in order to facilitate the cleaning of the outside of same. The technique proposed by the invention may be implemented both in windows and in fixed and framed glazed sections, besides including certain fixtures to be built into the sash that will assure a suitably tight fit and swinging around a hinge pin that may be arranged either vertically or horizontally.

[0006] The solution proposed by the present invention, in view of the difficulty of cleaning windows that exists with the current state of the art, may be applied irrespectively of the type of material of which they are composed (aluminium, wood, PVC, etc.), as essentially it consists of providing an additional sash surrounding the glazed part all round its outside edge, which does not prevent its installation either in cases in which the windows are already constructed and/or fitted, as in these cases it may be adapted perfectly too. It may also be provided in some glazed sections not fitted with windows that are awkward to gain access to for cleaning purposes from the outside on account of their dimensions and layout.

[0007] From the method of execution in which the frame proposed by the invention is developed, the task of replacing window panes is also facilitated, since, as they may be swung inwards towards the inside of the building, as explained above, a person would be able to carry out the job without running the risk of fatal falls, both in windows and in fixed glazed parts constructed as proposed by the invention.

Brief description of the drawings

[0008] These and other features and advantages of the invention will be made clear from the following detailed description of a preferred form of embodiment, offered merely as an illustrative and non-restrictive example, with reference to the accompanying drawings, in which there are represented:

Figure 1 is a general perspective view of a window developed as described by the invention;

Figure 2 illustrates an upper view of a cross section made of the window, which is shown in the drawing of figure 1, by means of which the different parts of the assembly may be observed more clearly;

Figure 3 is an elevational view of a portion of the window, according to figures 1 and 2, more specifically a glazed portion, which enables us to designate more clearly the different elements making up the

frame;

Figure 4 represents a diagrammatic exploded view of the drawing which is shown in figure 3, by means of which the different parts making up the technique proposed by the invention may be observed clearly, and

Figures 5 to 7 show specific drawings referring to items of hardware used in the invention.

Description of a form of preferred embodiment

[0009] As stated above, the detailed description of a window constructed in accordance with the proposal of the invention is going to be carried out in what follows with the aid of the adjoining drawings through which numerical references are used to designate the different parts of which it consists.

[0010] Thus, considering figure 1 first of all, a window may be observed constructed as explained in the invention, indicated with numerical reference 1, which has a frame 2 which may in this case be of aluminium, said window being of the sliding type with two leaves 3, 3', which slide along the frames 2, positioned horizontally and guided by runners 6 provided for this purpose. These leaves 3, 3' are provided with panes 5, which, in order to implement what is proposed by the invention, are surrounded all round their outside perimeter by an additional frame 4, 4', respectively, which are in turn provided on their vertical sides with hinges 7, 7' or other similar adapted fixture (referred to later on), which allow the glazed part 5 of both leaves to be swung inwards towards the inside of the building in order to proceed to their cleaning more conveniently, as may be observed clearly in the leaf 3 presented by the additional frame 4 of the swing open glazed part 5, also represented in figure 2 with the same numerical references, as from section A-A.

[0011] Both for the convenient swinging of the glazed part of the windows, and for assuring its proper closure in its corresponding opening, the invention envisages the incorporation hardware items arranged in internally preset positions in the outside frame by way of cavities provided in the appropriate place in the additional frame or sash 4 on both vertical sides (as represented in figures 3 and 4). In this way, as may be seen, at both opposite ends of one vertical side of said glazed part, a pre-set portion of the hinges 7 protrudes perpendicularly from the horizontal sides, adjacent to the end edges corresponding to the aforesaid vertical side. Each hinge shows a given protruding portion, which is in turn engaged in its respective hole (not shown) disposed conveniently in the sash 3 of the corresponding leaf. The relation between this protruding portion of each hinge and its respective hole is specified by the manufacturer, so that it offers a certain degree of clearance so as to act as a hinge on one side in order that this glazed part may be swung open.

[0012] Similarly, hinges 7' are also inserted on the opposite vertical side, but in this case in the middle part of the same side of the additional sash 4 a closing fixture 8 is fitted to it. This may be composed of a metallic material, usually of a rectangular configuration and partly embedded in an opening provided in the actual frame, from which a connection is made which links both hinges 7' of the same vertical side by means of appropriately disposed pins (13), which, with the aid of some type of spring (15) or the like, provided in the actual closing fixture 8, and a manual operation consisting specifically of inserting two fingers respectively in two holes 10 provided in the front plane of the closing fixture 8, located a pre-set distance apart in the longitudinal direction of the actual fixture. Thus, by means of this manual action both hinges 7' are pulled at the same time so that the glazed part can be swung open whenever we want to proceed to its cleaning.

[0013] In order to obtain proper sealing, between frames 3 and 4, the invention incorporates a sealing strip 11, as may be observed in figures 3 and 4. This strip is fitted with rubber seals 17 along its whole length, positioned adjoining the outer edges of the sash for weather sealing purposes. The exploded drawing represented in figure 4 also shows an example of the brackets 9 incorporated internally by the hinges 7, which form part of the closing fixtures. For greater clarity a larger-sized bracket 9 is shown in figure 5. These brackets are of a given size so as to enable the glass 5 to be supported suitably by their inner sides 17.

[0014] In the actual drawing represented in figure 5, we may also observe a way in which these hinges 7 could be suitably disposed in the interior of one of the sides of the bracket 9 by means of holes made in them in order that a hinge may be inserted respectively, for which purpose these holes have diameters proportional to the diameter of same, which partly present the respective superficial incorporation of one spring 14 to assure a stable position of these in their operational state.

[0015] The items of hardware also include the one referred to in the present description as a closing fixture 8, which is shown in the drawings of figures 6 and 7, where for the sake of greater clarity a section B-B has been represented, and which has the purpose of permitting the opening of the glazed part, by means of a manual operation consisting specifically of inserting the index finger and thumb into holes 10 and pressing the buttons 12 conveniently disposed in said holes, which overcome the action of a spring 15 incorporated internally in the actual closing fixture 9 by means of said manual operation. Upon pressing the buttons 12, these in turn pull on the hinges 7 by way of pins 13 linking the closing fixture 8 to said hinges.

[0016] This closing fixture 8 is generally provided on one side of the additional sash, on which side the coinciding hinges 7' will execute the closing function, while the hinges 7 on the opposite side will perform the hinge plate function, i.e. as a support or pivot pin so that the glazed part may be swing open. The pins 13 linking the

closing fixture 8 to the hinges 7' may be associated with these by means of holes 16 made for this purpose in one end of them.

[0017] It is not considered necessary to make the content of this description more extensive for an expert on the matter not only to be able to appreciate its scope and the advantages stemming from the invention, but also to develop and implement the object thereof.

[0018] However, it should be understood that the invention has been described according to a preferred embodiment of same, which may be susceptible to changes, in particular, in the general form, the dimensions of the piece and/or the materials used for the manufacture of the assemblage or of its parts, providing that these meet the requirements that assure the proper working and the application for which the present invention has been developed.

Claims

1. A swing window frame with glazing to facilitate its cleaning, applicable both to windows that are already installed as well as to ones of new construction, irrespective of the type of opening with which they are fitted and the material used in the manufacture of same, **characterised in that** in addition to the traditional frame it includes a sash (4) that surrounds the outside perimeter of the glazing (5) included in each of the leaves (3,3') of the window (1).

2. A window frame according to claim 1, **characterised in that** it incorporates a set of items of hardware which provide the swivel function, including amongst these hinges (7) that maintain a respective protruding portion capable of being inserted in a corresponding cavity located advantageously in the frame (3, 3') of each respective leaf.

3. A window frame according to claims 1 and 2, **characterised in that** it includes other items of hardware aimed at providing closing means, which comprise hinges (7') connected by means of pins 13 to a closing fixture (8) provided with openings (10) sized so that they admit the insertion of two fingers to actuate two buttons 12) at the same time, which, when pressed, permit the opening of the glazed part, by means of a swing action around a pivot pin.

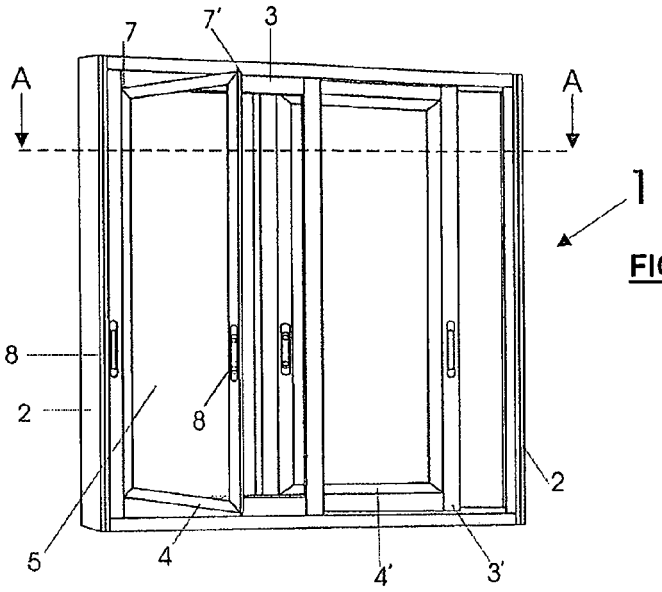
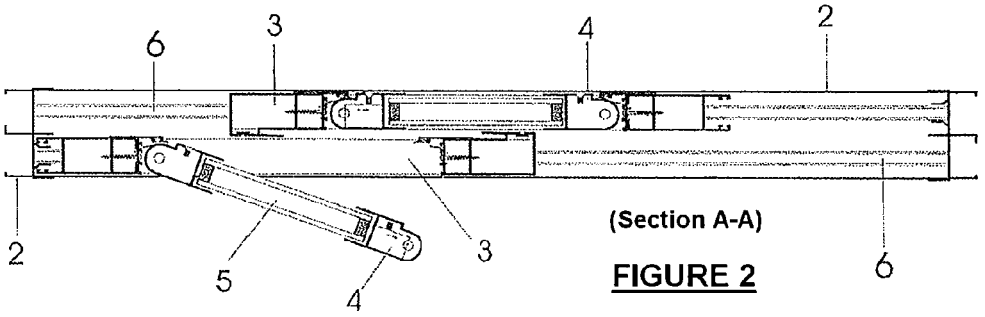


FIGURE 1



(Section A-A)

FIGURE 2

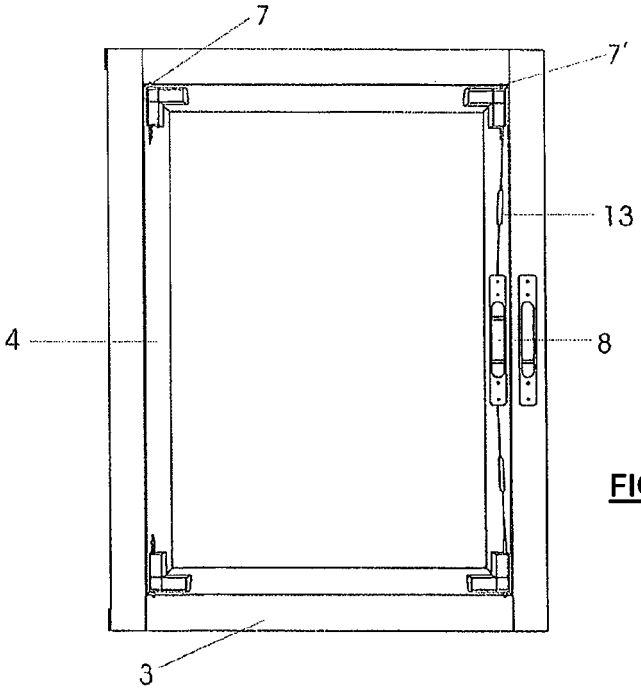


FIGURE 3

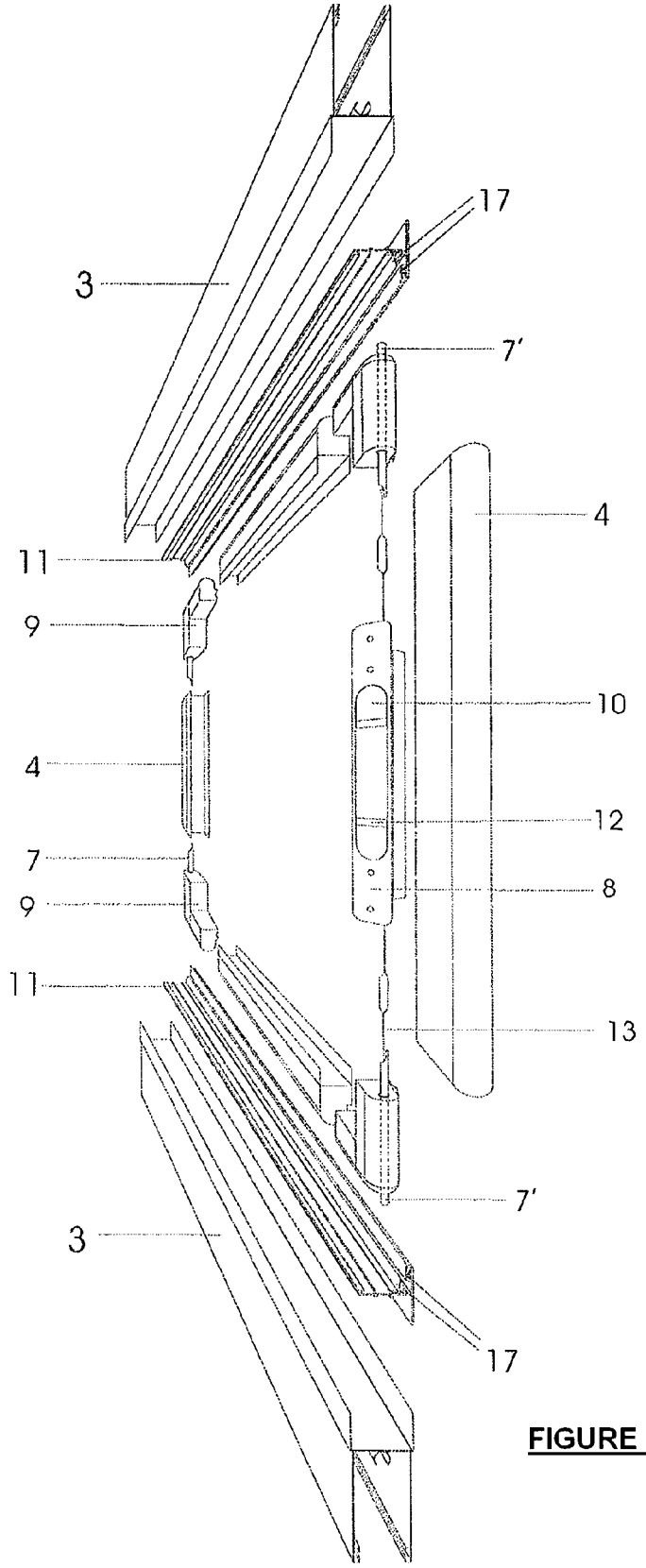


FIGURE 4

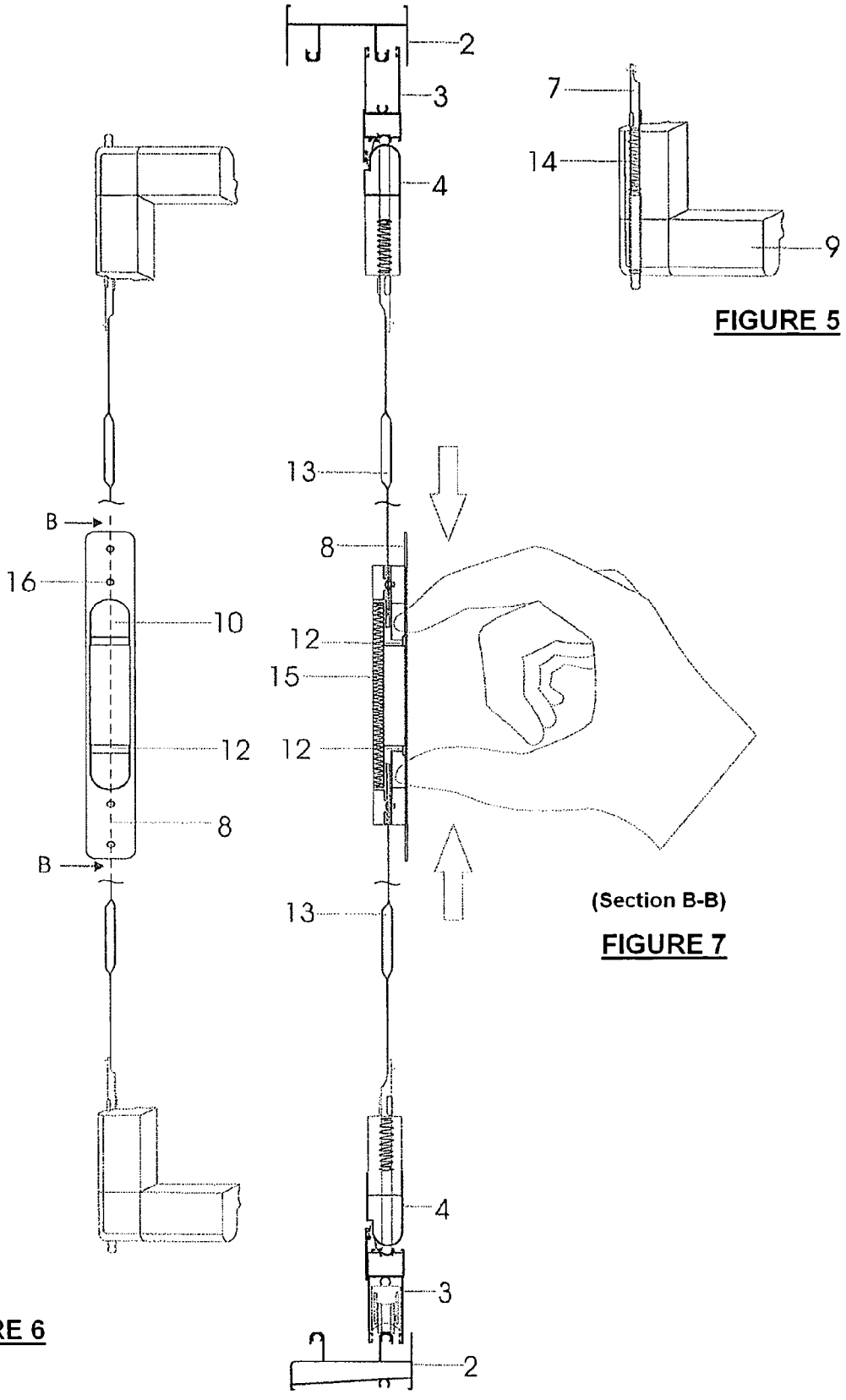


FIGURE 5

(Section B-B)

FIGURE 7

FIGURE 6

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EUROPEAN SEARCH REPORT

Application Number
EP 08 38 0259

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	FR 2 770 569 A (ALUMINIUM DU SUD EST [FR]) 7 May 1999 (1999-05-07) * page 1, line 19 - page 2, line 16; figures 1,2 *	1,2	INV. E05C9/04 E06B3/50
X	US 5 140 769 A (HICKSON EUGENE F [US] ET AL) 25 August 1992 (1992-08-25) * column 4, line 14 - column 5, line 38; figures 1-3,21,22 *	1,2	
X	CH 338 954 A (TURATI ENRICO [IT]; BOZZI ANGELO [IT]) 15 June 1959 (1959-06-15) * page 1, lines 30-50; figure 1 *	1,2	
A	WO 03/027427 A (LU ZHONGXUAN [CN]) 3 April 2003 (2003-04-03) * figure 1b *	1-3	

TECHNICAL FIELDS SEARCHED (IPC)

E06B
E05C
E05B

The present search report has been drawn up for all claims

Place of search	Date of completion of the search	Examiner
Munich	13 January 2009	Kofoed, Peter

CATEGORY OF CITED DOCUMENTS

X : particularly relevant if taken alone
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A : technological background
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2

ANNEX TO THE EUROPEAN SEARCH REPORT ON EUROPEAN PATENT APPLICATION NO. EP 08 38 0259

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
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13-01-2009

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