



Europäisches Patentamt
European Patent Office
Office européen des brevets



(11)

EP 1 516 974 A1

(12)

EUROPEAN PATENT APPLICATION

(43) Date of publication:
23.03.2005 Bulletin 2005/12

(51) Int Cl.7: **E04B 2/88**

(21) Application number: **03380206.7**

(22) Date of filing: **19.09.2003**

(84) Designated Contracting States:
**AT BE BG CH CY CZ DE DK EE ES FI FR GB GR
HU IE IT LI LU MC NL PT RO SE SI SK TR**
Designated Extension States:
AL LT LV MK

(72) Inventor: **Collado Izquierdo, Ramon**
08349 Cabrera de Mar (Barcelona) (ES)

(74) Representative: **Pastells Teixido, Manuel**
c/o PASTELLS & ARAGONES, S.L.,
Pau Claris, 138 5o 1a
08009 Barcelona (ES)

(71) Applicant: **Ramon Collado-Arquitecto, S.L.**
08349 Cabrera de Mar (Barcelona) (ES)

(54) **A double-walled skin construction arrangement**

(57) The two walls are prefabricated and ventilated and comprise curtains therebetween. The arrangement uses thermal bridge breaking sections and fire barriers and acoustic insulation between two stories, the inner as well as the outer wall comprising openable panels. The openable panels making up the outer and inner walls are apt to be opened in an independent manner, it being thus possible to only open those of one only wall, or to open those of both walls, these latter being made of glass or of another material or a composite. The two walls are separated by a chamber being aerated through openings being provided in the outer wall, air-conditioning and/or lighting systems being installed in said chamber. A sill has been provided in the opening being occupied by the openable panels of the inner wall.

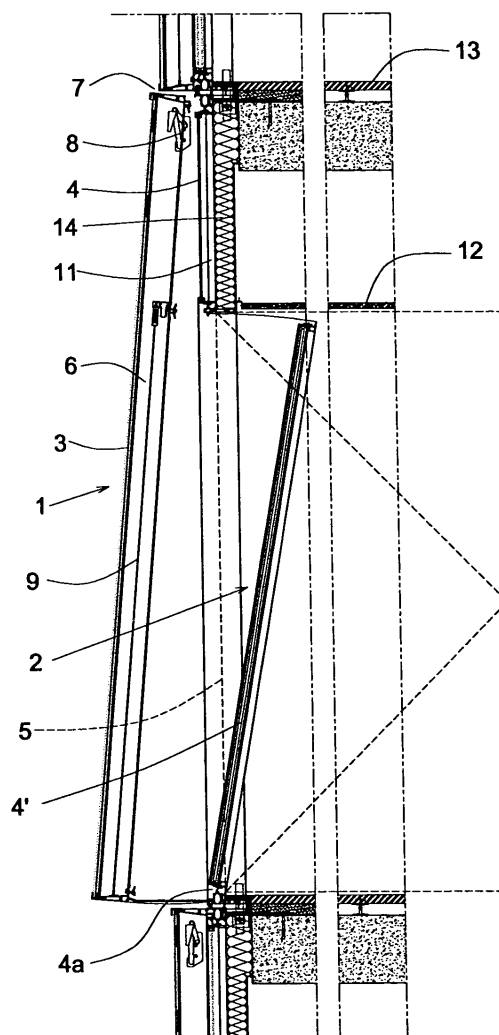


Fig. 4

EP 1 516 974 A1

Description

BACKGROUND OF THE INVENTION

[0001] Several types of building skins are known including those of the curtain wall type generally being free of openings for reasons regarding the air-conditioning control and in the tall buildings the wind action, this causing in some persons a psychological problem of claustrophobia in its turn resulting in a measure of labour absenteeism. Skins are also known which comprise an outer wall and an inner wall being separated by a chamber and being made up of panels.

SUMMARY OF THE INVENTION

[0002] This invention has as its object a double-walled skin construction arrangement being characterised in that the two walls are prefabricated and ventilated and comprise curtains therebetween, the arrangement using thermal bridge breaking sections and fire barriers and acoustic insulation between two stories, the inner as well as the outer wall comprising openable panels.

[0003] The panels making up the outer wall and the inner wall will be preferably made of glass in order to obtain a transparency between the inside and the outside but also an appearance of thickness, i.e. of depth, and above all in order to obtain favourable technical features such as an enhanced thermal and acoustic insulation of the building, as well as its tightness, and in consequence an enhanced comfort for the users. The outer wall will in this case protect the inner wall from the weather and pollution.

[0004] For a better protection and insulation both walls can be closed to the outside but ventilated in order to thus avoid condensations in the winter and an excessive warming up in the summer.

[0005] Another of the advantages is the avoidance of cold wall façades, a greater amount of comfort being obtained inside the building thanks to the elimination of a radiant surface.

[0006] The curtains being installed between the two walls prevent the penetration of the sunrays into the building thus in the summer allowing to save more energy thanks to a reduction of the solar energy input.

[0007] The outer wall comprises air inlets and outlets, the inner wall having openings forming windows which when being opened will cause the interior space of the building to be naturally aerated, the users thus getting a feeling as of an open façade.

[0008] Said windows can also be left open overnight in the summer in order to thus cool the building (by ridding it for example of the energy having been accumulated during the day due to the animal heat, the operation of diverse apparatuses such as computers, the lighting, etc.) by making use of the temperature difference between the day and night hours, the building being nevertheless protected in case of a storm, for exam-

ple.

[0009] The openable panels making up the outer and inner walls are apt to be opened in an independent manner, it being thus possible to only open the openings of the inner wall, or to open them together with the outer panels.

[0010] The panels making up the outer and inner walls will preferably be made of transparent glass thus allowing to save energy for the artificial lighting. One or both walls can nevertheless be made to be partially opaque, for example by means of using metallic panels such as those made of aluminium, or panels being made of other materials such as granite, marble, ceramics, stucco, etc., the transparency being thus lessened. Said walls can also be made to be partially translucent for example by treating the glass with a silk-screen process, or by using alabaster, etc.

[0011] Household systems can also be housed between both walls in order to air-condition the chamber being formed between them, or in order to install a lighting system for the façade or for indirectly lighting the interior spaces, for example.

[0012] These and other characteristics will be best made apparent by the following detailed description whose understanding will be made easier by the accompanying three sheets of drawings showing a practical embodiment being cited only by way of example not limiting the scope of the present invention.

DESCRIPTION OF THE DRAWINGS

[0013] In the drawings:

Figs. 1 and 2 illustrate each in an elevational view a part of the façade as seen from the outer wall side and from the inner wall side, respectively;

Figs. 3 and 4 show each in a sectional elevation this façade in the closed and open states, respectively; Figs. 5 and 6 represent each in a plan-view a detail of the façade's makeup with or without a dividing wall between two interior spaces, respectively; and Fig. 6 shows in a detail view a sectional elevation of the façade.

DETAILED DESCRIPTION

[0014] According to the drawings the skin being built as per the arrangement being the object of this invention comprises an outer wall (1) being formed by panels (3) being made of double rolled glass, and an inner wall (2) being formed by glass panels (4) and having openings (5) (Fig. 4) being occupied by windows formed by panels being made of two glass plates (4') being spaced from each other (Fig. 5) for insulation purposes, said windows being apt to be tipped open towards the inside by being tilted around their lower edge (4a).

[0015] Between said two walls (1) and (2) a chamber (6) is formed which is aerated through openings (7) be-

ing provided between the panels (3) of the wall (1) (Figs. 3 and 4).

[0016] Said panels (3) are upperly linked in a hinged connection by means of compass type hinges (8), for example, thus being apt to be tilted towards the outside.

[0017] Between the outer (1) and inner (2) walls curtains (9) are installed which are supported by the inner wall panels (3).

[0018] Numeral (10) denotes the possible installation between walls (1) and (2) of microventilators being connected to photovoltaic cells in order to enhance the ventilation of the chamber between the two walls above all in the summer; numeral (11) denotes a fire barrier; and also denoted are with numeral (12) the ceiling, with numeral (13) the floor, and with numeral (14) insulating barriers being mainly provided for soundproofing purposes.

[0019] The inner wall (2) will be as well provided with a fixed sill in the openings (5).

[0020] The example having been shown is made up of vertical panels, but the panels could also be horizontal. It must also be borne in mind that it will be possible to open the inner wall windows by using means other than the tiltable arrangement having been shown.

[0021] The invention can within its essentiality be put into practice in other embodiments only in detail differing from the one having been described above only by way of example, said other embodiments also falling within the scope of the protection being sought.

per claim 4, **characterised in that** air-conditioning and/or lighting systems are installed in said chamber.

- 5 6. A double-walled skin construction arrangement as per claim 1, **characterised in that** in the opening being occupied by the openable panels the inner wall is provided with a sill.

Claims

1. A double-walled skin construction arrangement being **characterised in that** the two walls are prefabricated and ventilated and comprise curtains therebetween, the arrangement using thermal bridge breaking sections and fire barriers and acoustic insulation between two stories, the inner as well as the outer wall comprising openable panels.
2. A double-walled skin construction arrangement as per claim 1, **characterised in that** the openable panels making up the outer and inner walls are apt to be opened in an independent manner, it being thus possible to only open those of one only wall, or to open those of both walls.
3. A double-walled skin construction arrangement as per claim 1, **characterised in that** the walls are made of glass or of another material or a composite.
4. A double-walled skin construction arrangement as per claim 1, **characterised in that** the two walls are separated by a chamber being aerated through openings being provided in the outer wall.
5. A double-walled skin construction arrangement as

Fig. 1

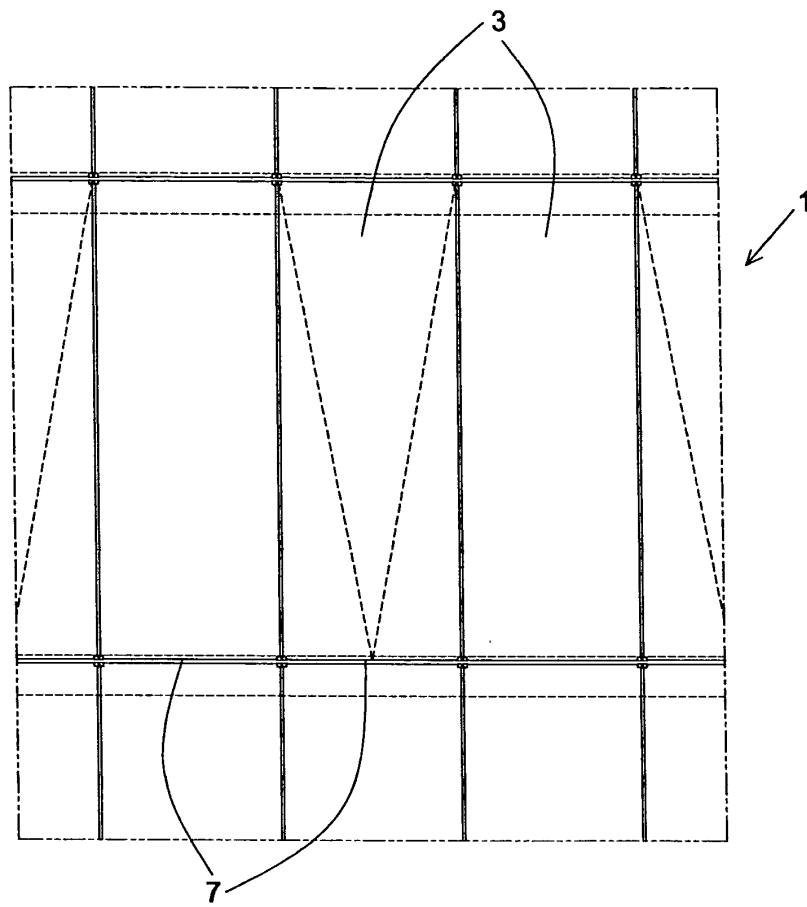
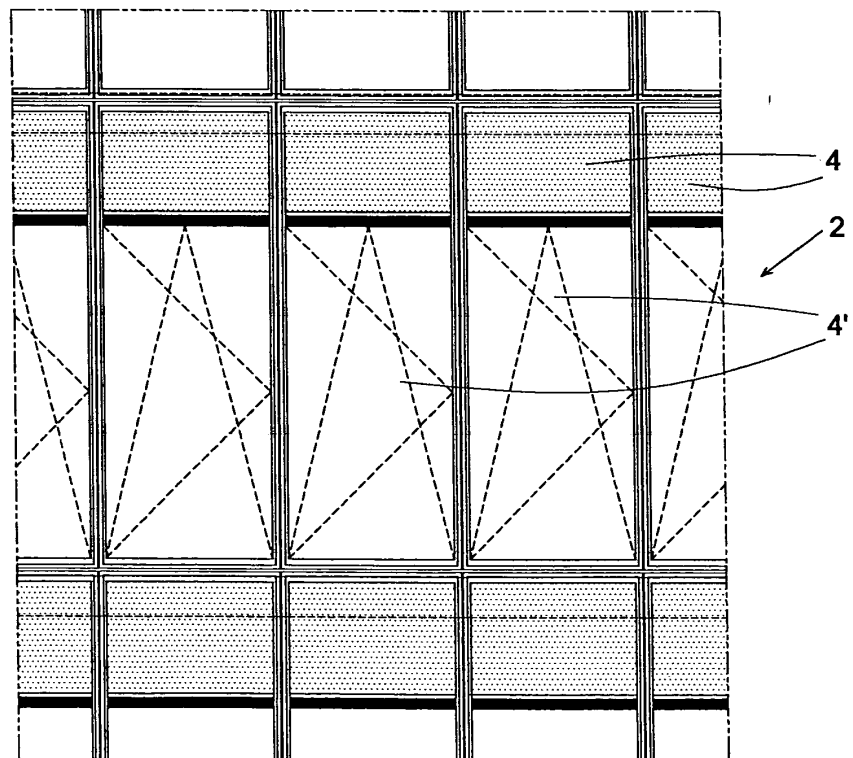


Fig.2



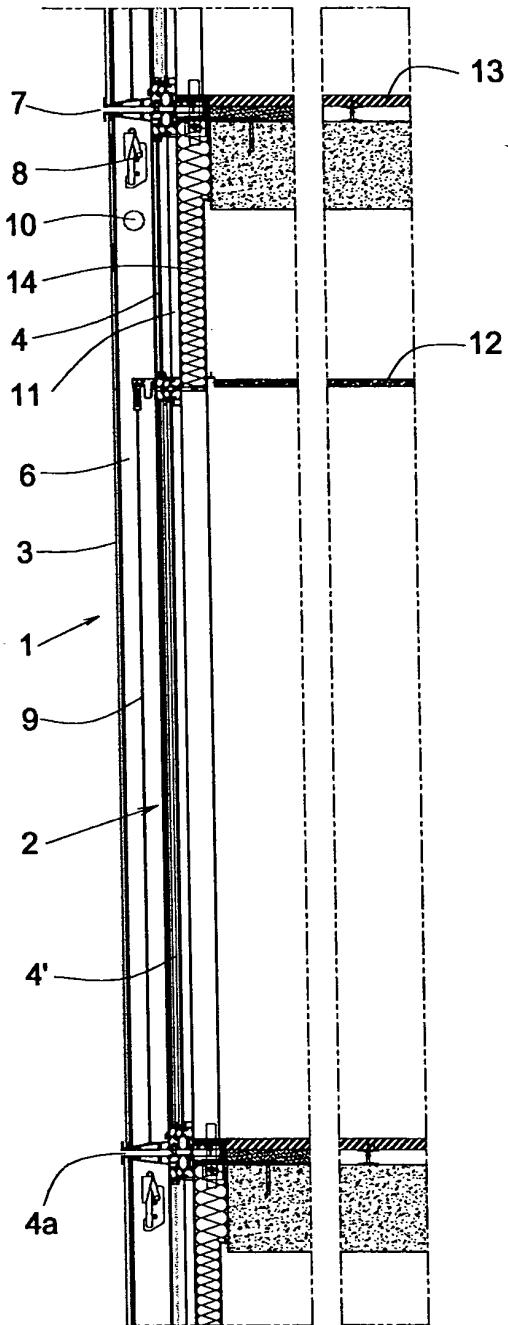


Fig. 3

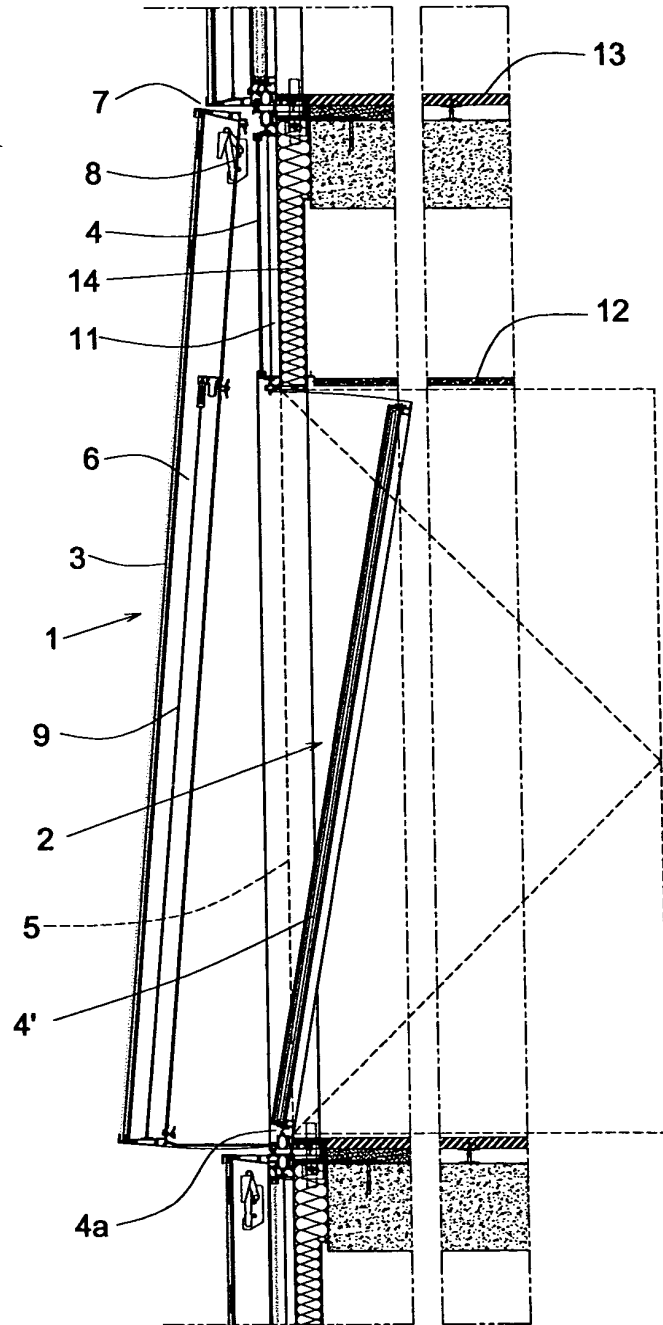


Fig. 4

Fig.6

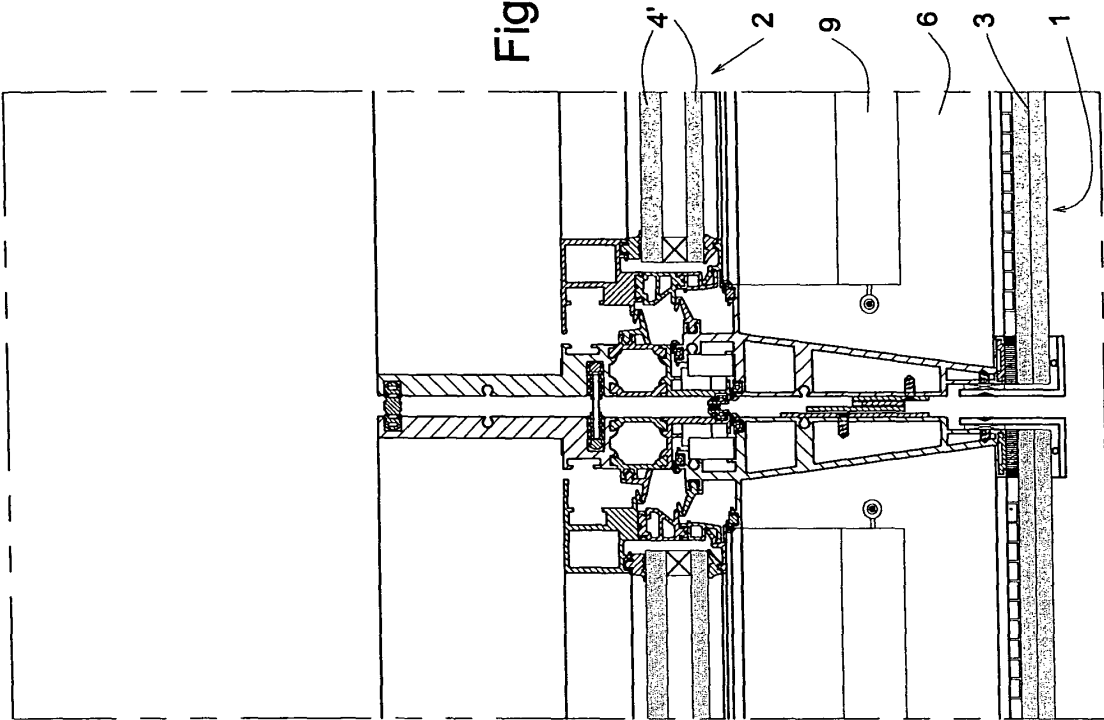
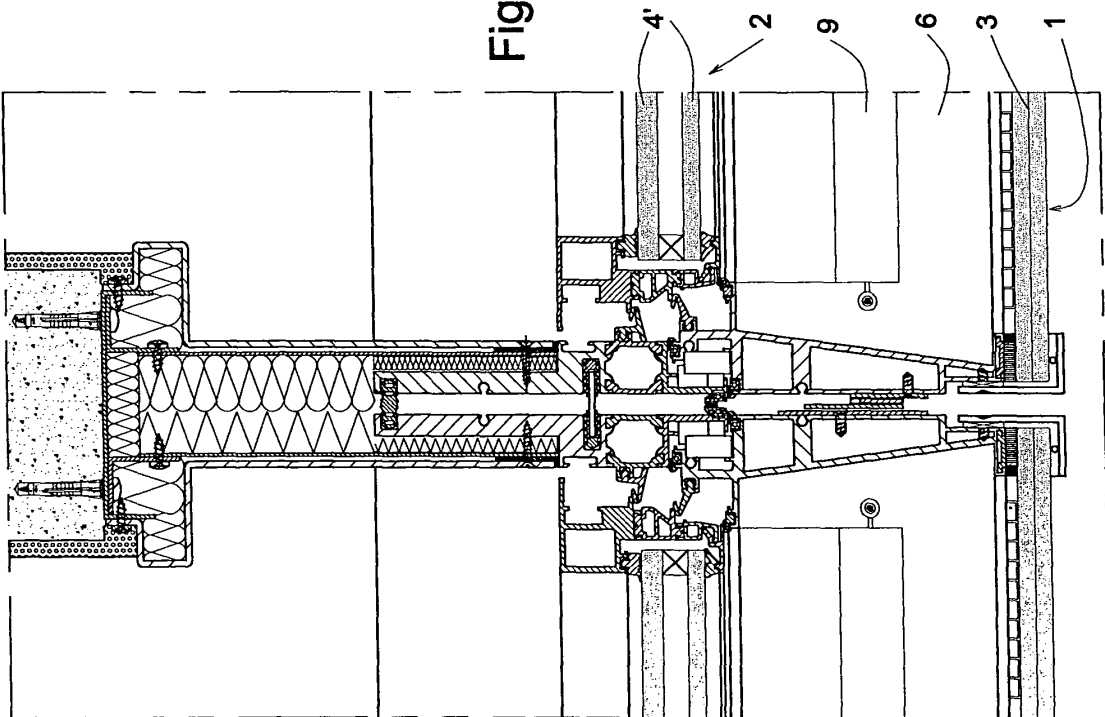


Fig.5



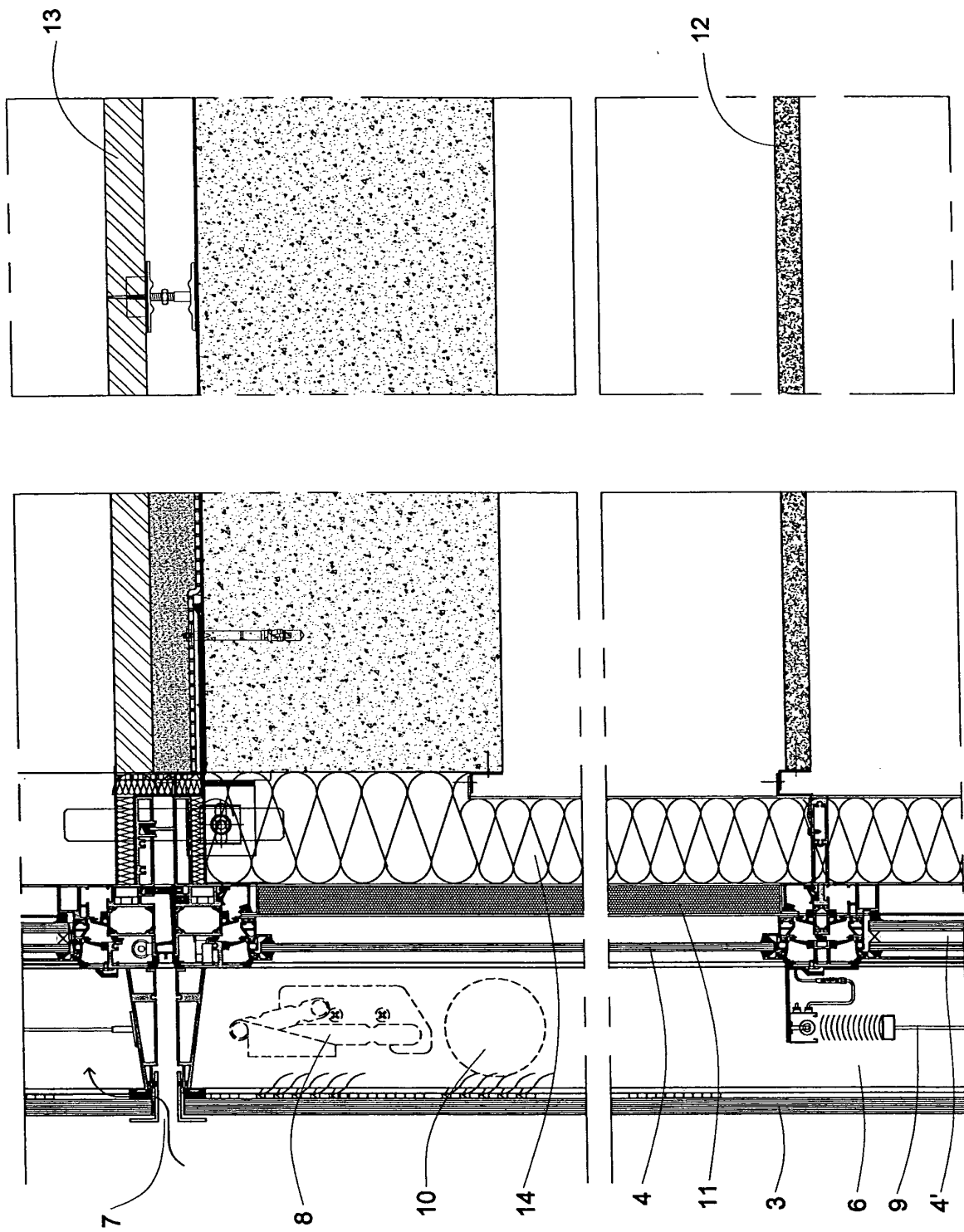


Fig. 7



European Patent
Office

EUROPEAN SEARCH REPORT

Application Number
EP 03 38 0206

DOCUMENTS CONSIDERED TO BE RELEVANT			
Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (Int.Cl.7)
X	DE 199 11 490 A (SPROTOFSKI HELMUT ;SCHLOSBAUER PAUL (DE)) 3 August 2000 (2000-08-03) * column 3, line 16 - column 8, line 53 * * column 14, line 48 - line 67; figures 1-6,11,12 *	1-6	E04B2/88
A	DE 196 35 466 A (FSL FENSTER SYSTEM LUEFTUNG) 19 March 1998 (1998-03-19) * column 5, line 19 - column 6, line 1; figure 1 *	1,5	
A	US 3 793 931 A (WILD E) 26 February 1974 (1974-02-26) * column 3, line 57 - column 4, line 37; figure 1 *	1	
A	DE 197 10 538 C (LENNEP EKKEHARD JATZLAU VON DI ;SCHULER JOERG DIPL ING (DE)) 2 July 1998 (1998-07-02) * column 6, line 58 - line 60; figure 1 *	1	
			TECHNICAL FIELDS SEARCHED (Int.Cl.7)
			E04B
The present search report has been drawn up for all claims			
Place of search THE HAGUE		Date of completion of the search 11 February 2004	Examiner Zuurveld, G
CATEGORY OF CITED DOCUMENTS 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 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			

3

EPO FORM 1503.03.82 (P04C01)

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

EP 03 38 0206

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.

11-02-2004

Patent document cited in search report	Publication date	Patent family member(s)	Publication date
DE 19911490 A	03-08-2000	DE 19911490 A1	03-08-2000
		AT 245249 T	15-08-2003
		AU 750987 B2	08-08-2002
		AU 2440500 A	18-08-2000
		CA 2360081 A1	03-08-2000
		DE 50002903 D1	21-08-2003
		WO 0045020 A1	03-08-2000
		EP 1147279 A1	24-10-2001
		NZ 513198 A	20-12-2002
DE 19635466 A	19-03-1998	DE 19635466 A1	19-03-1998
US 3793931 A	26-02-1974	CH 529271 A	15-10-1972
		DE 2239438 A1	08-03-1973
		FR 2150822 A1	13-04-1973
		JP 48035650 A	25-05-1973
DE 19710538 C	02-07-1998	DE 19710538 C1	02-07-1998
		CA 2231140 A1	14-09-1998
		PL 325223 A1	28-09-1998