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(54) Device for connecting pane retainers to profiled elements.

(57) Device for connecting pane retainers to profiled elements, which comprises a pane retainer profile (1) which has, in transverse cross-section, an end wing (2) which can be coupled to a plate (3) and is provided with an accommodation seat (4) for a weather strip (5) which presses on the plate (3) and can be extracted in a direction which is substantially parallel to the plate. A terminal insertion portion (6) can be inserted in a recess provided on a profiled element (8) which defines a plate supporting frame, provided with a tooth for engaging in a hollow defined within the recess. A plurality of shims is provided with means (13) for coupling to the profiled element (8) and elastically deformable means (16) which are suitable to engage against a surface (12) of the pane retainer profile (1) which is parallel to the plate (3) ; the wing (2), the terminal portion (6) and the accommodation seat (4) extend along substantially mutually parallel directions.

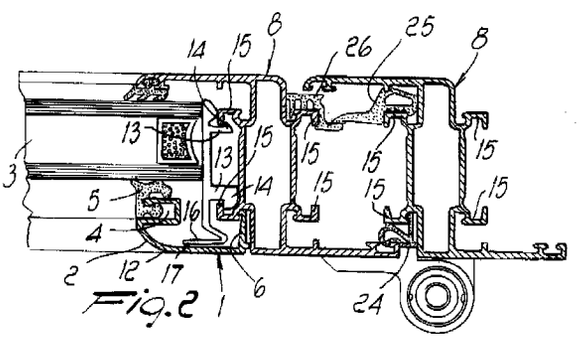

Fig. 2

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The present invention relates to a device for connecting pane retainers to profiled elements.

Various door- or window-frames made of metallic profiled elements are currently commercially available and have various problems related to the insertion of the glazed surfaces therein and most of all to their replacement in case of breakage and/or in case of replacement of double glazing with glass-boxes or with bulletproof panes and the like.

In particular, patent application no. 21476A/89 in the name of the same Applicant describes a profiled means for connecting pane retainers to a profiled element which although it functionally performs the task assigned thereto, has various structural problems.

The known means has a pane retainer profile provided with an element which can be coupled to a plate, a terminal portion for insertion into a recess defined in a supporting profiled element and an intermediate insertion portion provided with a tooth which engages an abutment on the supporting profiled element.

A weather strip is furthermore fitted on the pane retainer profile; said strip is locked on said element by means of a pair of teeth which engage against a guide or groove which extends parallel to the plate.

The greatest problem is related to the system for coupling the pane retainer profile to the supporting profiled element. In fact, with the plate, whether of the glass-box type or not, it is in practice extremely difficult to disassemble the pane retainer profile from the supporting profiled element.

This problem is furthermore aggravated by the weather strip, since it is fitted on the element which can be coupled with no possibility of extraction in a direction other than at right angles to said plate.

The aim of the present invention is to eliminate or substantially reduce the problems described above in known types of door- or window-frames by providing a device for coupling pane retainers to profiled elements which eliminates the problems of assembly and disassembly of the plate to and from the door- or window-frame.

Within the scope of the above aim, an object of the present invention is to provide a device which allows better insertion and better positioning of the plate within the door- or window-frame.

Not least object of the present invention is to provide a connecting device which is relatively easy to manufacture and at competitive costs.

This aim, these objects and others which will become apparent hereinafter are achieved by a device for connecting pane retainers to profiled elements according to the invention, characterized in that it comprises a pane retainer profile which has, in transverse cross-section, a terminal wing which can be coupled to a plate and is provided with an accommodation seat for a weather strip which presses on said plate and is extractable in a direction substantially parallel to said plate, and a terminal insertion portion insertable in a recess provided on a profiled element defining a plate supporting frame, provided with a tooth for coupling in a hollow defined within said recess, and a plurality of shims provided with means for coupling to said profiled element and elastically deformable means for engaging against a surface of said pane retainer profile which is parallel to said plate, said wing, said terminal portion and said accommodation seat extending along substantially mutually parallel directions.

Further characteristics and advantages of the invention will become apparent from the description of a preferred but not exclusive embodiment of a device for coupling pane retainers to profiled elements in general according to the invention, illustrated only by way of non-limitative example in the accompanying drawings, wherein:

figure 1 is a perspective exploded view of a device according to the invention;

figure 2 is a sectional view of the device according to the invention;

figure 3 is a sectional enlarged detail view of the device;

figure 4 is a sectional view of another enlarged detail of the device;

figure 5 is a sectional view of the step of coupling the pane retainer profile to the profiled element; and

figure 6 is a sectional view of the step of removal of the pane retainer profile from the profiled element.

With reference to the above figures, a device for connecting pane retainers to profiled elements comprises a pane retainer profile 1 which has, in a single body and in transverse cross-section, a terminal wing 2 which can be coupled to a plate 3, constituted by a double glazing, a glass-box, an opaque panel or any other type of plate.

The wing 2 is provided with an accommodation seat 4 for a weather strip 5 which presses, as more clearly shown in figure 2, on the plate 3 and can be extracted, as more clearly illustrated in figure 6, in a direction which is substantially parallel to the plate 3.

The pane retainer profile 1 is furthermore provided with a terminal insertion portion 6 which can be inserted in a first recess 7 provided on a profiled element 8 which defines a supporting frame of the plate 3. The portion 6 has a tooth 9 for engaging in a hollow 10 defined within the first recess 7 and a ridge 22 which rests on the profiled element 8.

The device possibly comprises one or more pressers 11 which are provided with means for coupling to the profiled element 8 and elastically deformable means which lock against a surface 12 of the pane retainer profile 1 which is parallel to the plate 3, in order to keep the pane retainer profile in position when the pane is not inserted.

The means for locking each presser 11 comprise a pair of portions 13 which protrude from each presser 11 and have an end provided with teeth 14 which engage, in a snap-together manner, within complementary recesses 15 defined on the profiled element 8.

The elastically deformable means comprise a terminal portion 16 which is substantially V-shaped, selectively upright or inverted, and rests against the surface 12 of the pane retainer profile 1 with a thicker portion 17.

Differently from the pane retainer profile 1, which has an elongated longitudinal extension, the presser 11 is an element which has a set length which is much shorter than the profile 1. In fact, in order to correctly install the plates 3 in known frames, the presser is currently inserted and also acts as pane shim. The present invention advantageously uses the shims 11 both to shim the plate and to allow assembly and disassembly of the profile 1 when the plate is not inserted.

The wing 2, the terminal portion 6 and the accommodation seat 4 extend along mutually substantially parallel directions.

The accommodation seat 4 is provided with a groove, designated by the same reference numeral 4, whose opening is parallel to the plate 3 and is directed on the opposite side with respect to the shim 11. The groove 4 has, on a wall which is adjacent to the plate 3, an expansion 18 on which the strip 5 engages. Said strip has a hollow 19 within which the expansion 18 enters, a cylindrical portion 20 and a contact surface 21 which rests directly on the plate 3.

As more clearly illustrated in figure 6, the complementary configuration of the groove 4 and of the strip 5 allows to extract the strip 5 from said groove in order to create a bending space for the profile 1, as will become apparent hereinafter.

The profiled element 8 comprises the first recess 7 and a second recess 23 which is defined on the profiled element 8 on the side opposite to the alignment portions 13. The recesses 7 and 23 accommodate strip 24, 25 and 26 which provide, in cooperation with another profiled element 8, selectively movable and fixed contact surfaces of opening door- or window-frames, as more clearly illustrated in figures 2, 5 and 6. In particular, as more clearly shown in figure 4, the fixed contact strip 24 has a circular portion which is compressed, as shown in figure 2, by the action of one profiled element 8 on another identical profiled element.

The profiled element 8 is in fact provided with portions which are substantially symmetrical with respect to a plane which lies on the axis of the profiled element 8, and can be used both to constitute the frame of a sash and to provide the walled-in casing or the frame for separating different sashes or sashes of different sizes.

The profiled element 8 finally has a wing 27 which is parallel to the plate and is provided with a channel 28 in which a possibly yielding weather strip 29 is inserted, together with the strip 5, in order to facilitate the assembly of the profiled element 1. It should be noted that only one of the two strips 5 and 29 may be elastically yielding.

Insertion of the profile 1 is performed as shown in figure 5, i.e. by applying pressure on said profile along a direction which is substantially perpendicular to said plate 3.

As regards removal, as more clearly shown in figure 6, it is first of all necessary to remove the strip 5, which is extracted from the groove 4 along a direction which is parallel to the plate 3. Then the profile 1 is bent toward the plate 3 in order to disengage the tooth 9 from the hollow 10. In this bending action, the terminal portion 16 of each shim 11 is compressed, and once extraction has been performed correctly it resumes its normal shape. The raised portion 22, by constituting a rotation fulcrum, facilitates the bending, since it keeps the terminal portion 6 slightly raised from the profiled element 8.

It has been observed that the invention achieves the intended aim and objects, advantageously improving and simplifying the removal of plates, made of both transparent and opaque material, from door- or window-frames of any kind, and using a profiled element which defines both the frame of the casing and the sash separation frame.

The invention thus conceived is susceptible to numerous modifications and variations, all of which are within the scope of the inventive concept. All the details may furthermore be replaced with other technically equivalent elements.

In practice, the materials employed, as well as the dimensions, may be any according to the requirements.

Where technical features mentioned in any claim are followed by reference signs, those reference signs have been included for the sole purpose of increasing the intelligibility of the claims and accordingly such reference signs do not have any limiting effect on the scope of each element identified by way of example by such reference signs.

Claims

1. Device for connecting pane retainers to profiled elements, characterized in that it comprises a pane retainer profile which has, in transverse cross-section, an end wing which can be coupled to a plate and is provided with an accommodation seat for a weather strip which presses on said plate and is extractable in a direction substantially parallel to said plate, and a terminal insertion portion insertable in a first recess provided on a

profiled element defining a plate supporting frame, provided with a tooth for coupling in a hollow defined within said first recess.

2. Device according to claim 1, characterized in that it comprises at least one presser provided with means for coupling to said profiled element and elastically deformable means for locking against a surface of said pane retainer profile which is parallel to said plate, said wing, said terminal portion and said accommodation seat extending along substantially mutually parallel directions.

3. Device according to the preceding claims, characterized in that said locking means of each presser comprise a pair of portions which protrude from said presser and end with teeth for engagement in a snap-together manner in complementary seats defined on said profiled element.

4. Device according to the preceding claims, characterized in that said elastically deformable means comprise a substantially V-shaped terminal portion of each presser which is selectively upright or inverted and is suitable to rest against said surface of said pane retainer profile.

5. Device according to one or more of the preceding claims, characterized in that said accommodation seat has a groove substantially parallel to said plate and an opening parallel to said plate, said groove having, on a wall adjacent to said plate, an expansion in engagement with said strip.

6. Device according to one or more of the preceding claims, characterized in that said terminal insertion portion has a ridge which rests on said profiled element.

7. Device according to one or more of the preceding claims, characterized in that said profiled element comprises said first recess and a second recess defined on said profiled element on the side opposite to said abutments, said recesses accommodating strips for providing, in cooperation with another profiled element, selectively fixed and movable contact surfaces of openable door- or window-frames.

8. Device according to one or more of the preceding claims, characterized in that said profiled element has portions which are substantially symmetrical with respect to a plane arranged on the axis of said profiled element.

9. Device according to one or more of the preceding claims, characterized in that said wing, said terminal portion and said accommodation seat are defined monolithically.

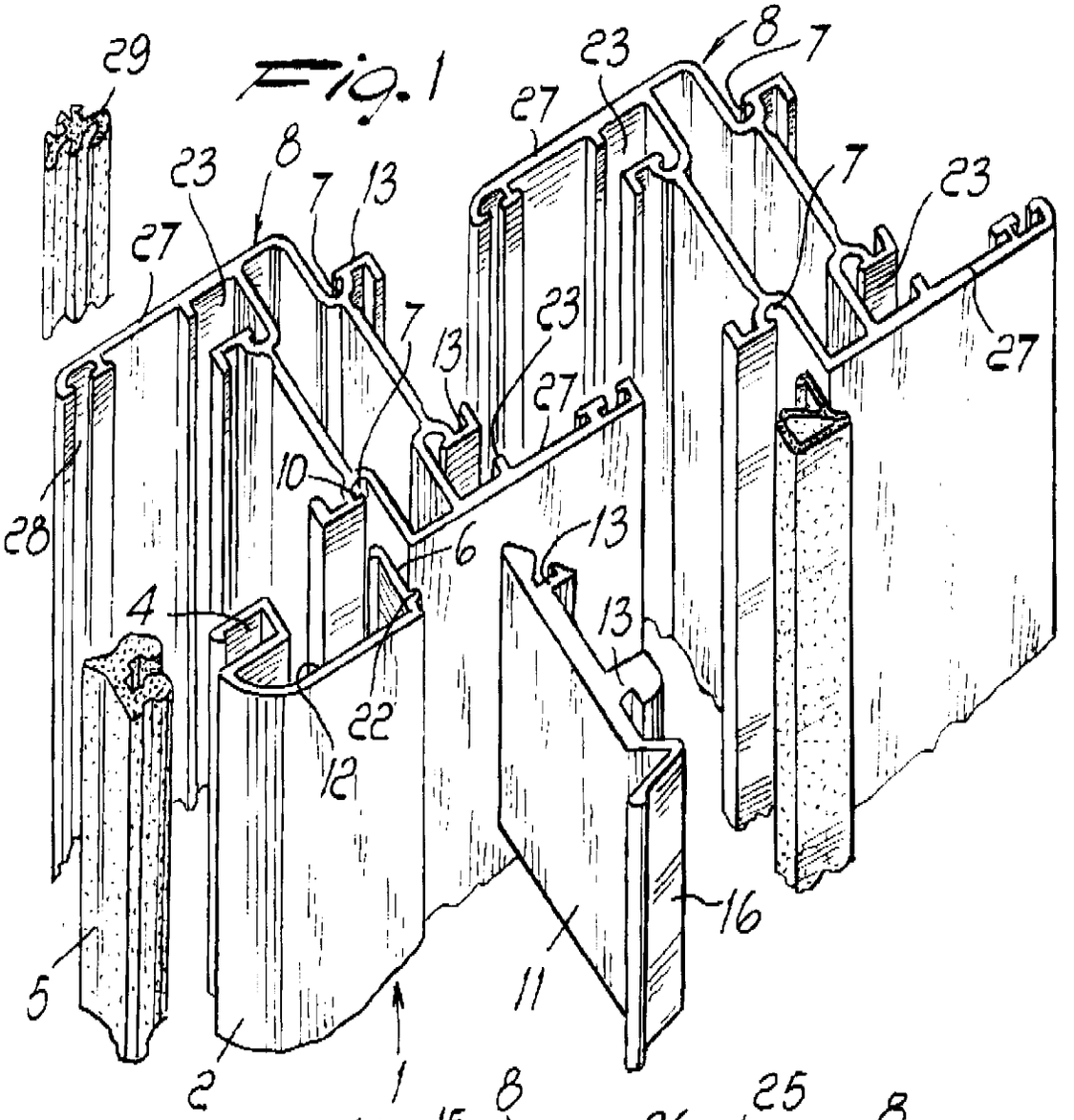
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Fig. 1

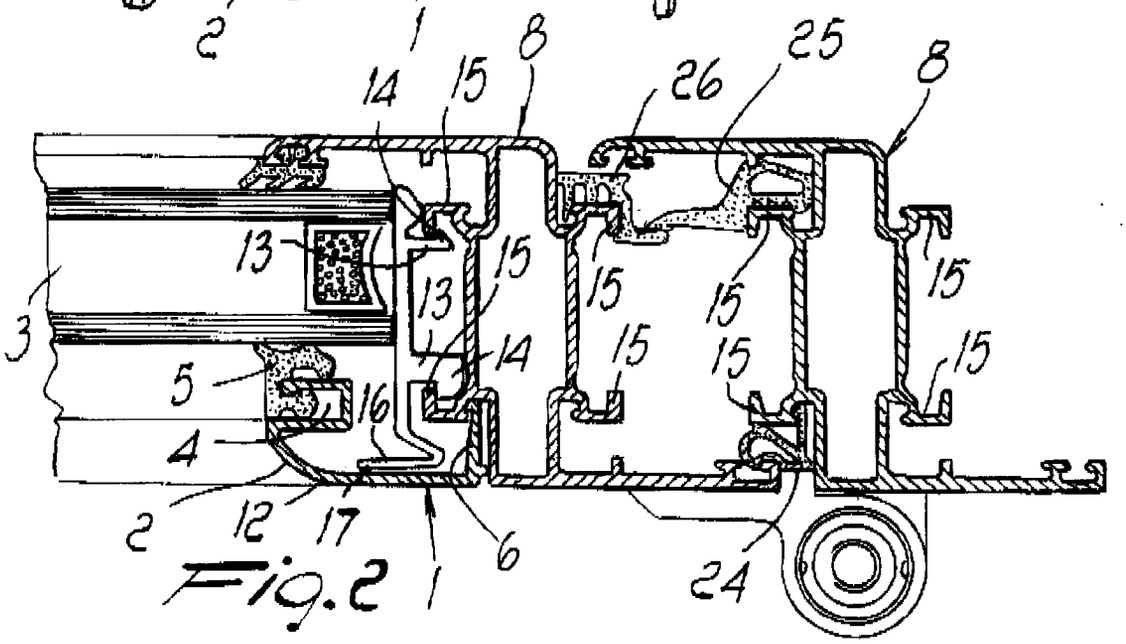
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Fig. 2

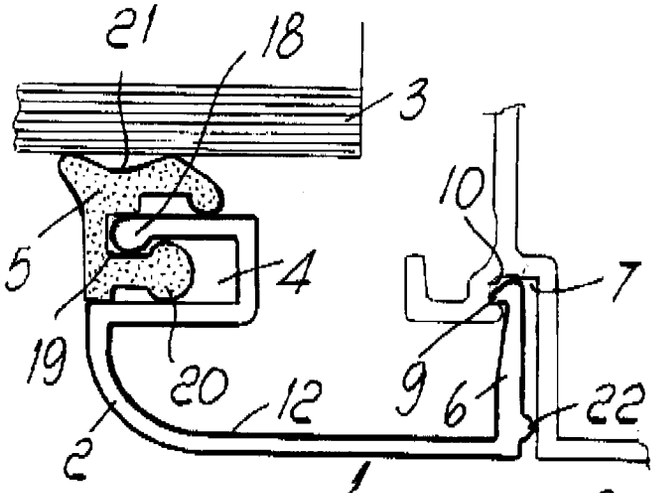

Fig. 3

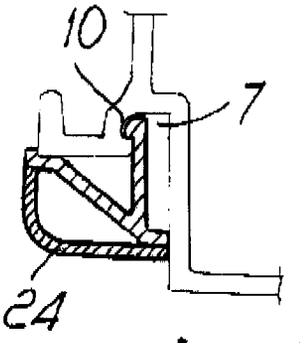

Fig. 4

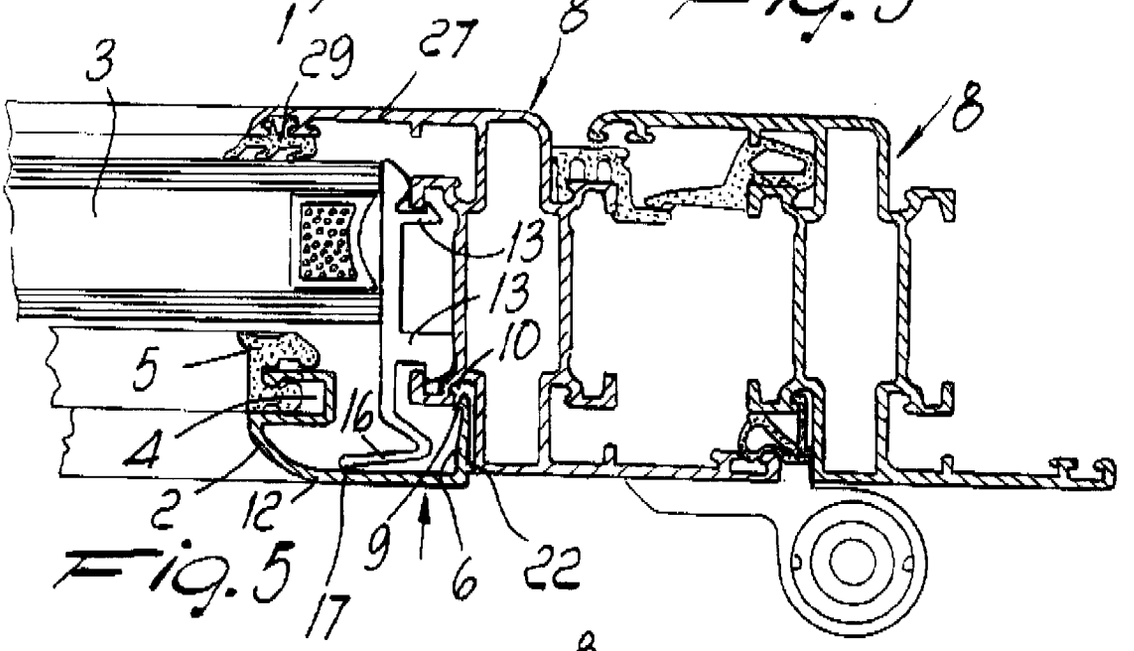

Fig. 5

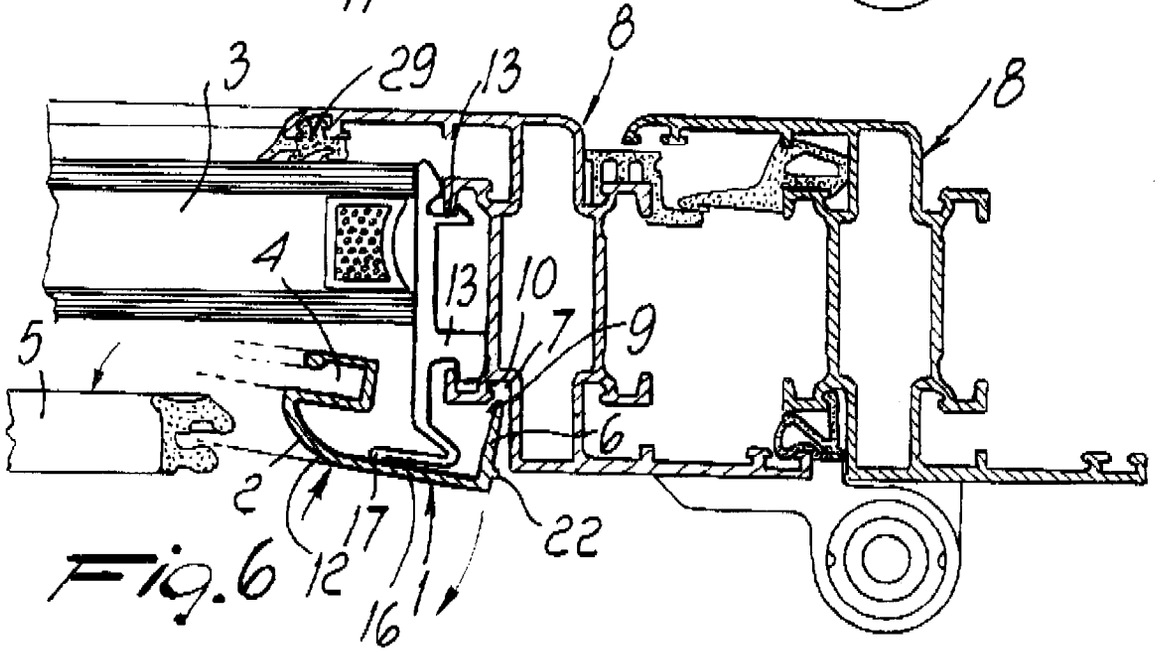

Fig. 6

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EUROPEAN SEARCH REPORT

Application Number EP 92 11 2497

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.5)
Y	US-A-4 841 700 (MATTHEWS) * column 3, line 53 - line 55 * * column 4, line 18 - line 25; figures *	1,5,9	E06B3/58
Y A	DE-A-3 323 957 (TEFO) * page 7, line 13 - page 8, line 20 * * page 9, paragraph 2; figure *	1,5,9 2,4	
A	DE-A-1 813 632 (SCHÜRMANN) * page 2, paragraph 1 - page 3, paragraph 4 * * page 4, paragraph 5 - page 5, paragraph 2; figures *	1,2,4,9	
A	DE-A-3 127 631 (TEFO) * page 6, paragraph 1 * * page 7, line 29 - page 9, line 9; figures 1,2 *	1,2,4,9	
A	DE-A-2 559 431 (TUMBRINK) * page 5, paragraph 1 - page 6, paragraph 1 * * page 7, paragraph 2 - page 8, paragraph 1; figures 2,3 *	1,6	TECHNICAL FIELDS SEARCHED (Int. Cl.5) E06B
A	FR-A-2 626 931 (O.C.M.A.) * page 4, line 33 - page 10, line 20; figures *	1,7-9	
A	GB-A-2 177 442 (WAVIN) * page 2, line 26 - line 36; figure 1 *	3	

The present search report has been drawn up for all claims

Place of search	Date of completion of the search	Examiner
THE HAGUE	27 OCTOBER 1992	DEPOORTER F.

CATEGORY OF CITED DOCUMENTS

X : particularly relevant if taken alone
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A : technological background
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