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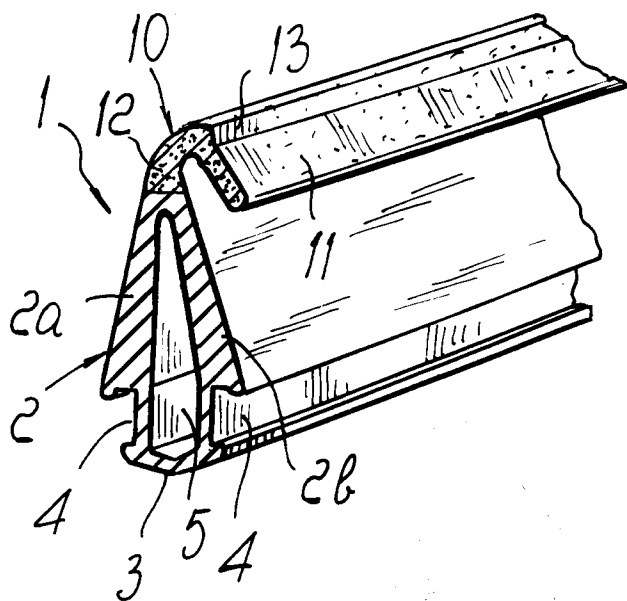
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I-20123 Milano (IT)(54) **Sealing device particularly for casements and the like.**

(57) Sealing device particularly for casements and the like including a sealing profiled element (1) which has different hardnesses in transverse cross-section. The body of the profiled element forms a coupling portion (2) made of semirigid material

which is rigidly associated with an end portion (10) made of relatively soft material. The body (2), in the coupling portion, forms an internal cavity (5) for the insertion of L-shaped joining elements (6) at the corners of the casement.

*Fig.1***EP 0 605 829 A1**

The present invention relates to a sealing device particularly for casements and the like.

As is known, a problem which is currently strongly felt in the manufacture of casements is related to the seals which are produced in order to obtain, for example, the so-called "open joint".

In the solutions currently in use, the gaskets to be used for casements with extruded aluminum profiled elements are different from those to be used for casements with thermal insulation, since the coupling regions of the gaskets on the casements are modified.

Furthermore, in the solutions of the known art the gaskets can be stiffened only in the region where they couple to the profiled elements, since the amount of material, generally rubber or similar plastic material, which forms the coupling tangs is increased; however, such gaskets generally have the drawback that they are easily subject to deformations, once they have been installed on the casement, so that poorly sealed regions unavoidably form on the casement.

Another severe problem related to the solutions of the known art is constituted by the fact that the corner region, i.e. the region where mutually perpendicular gaskets must mate, is particularly critical. It is thus unavoidable that considerable losses occur in these regions; such losses are due to the fact that it is not possible to form a complete joint and consequently close the extension of the sealing gasket.

Another drawback is furthermore constituted by the fact that spacer bars made of insulating plastic material are used, especially with thermally insulating profiled elements, and unavoidably widen the gasket coupling region, with consequent connection problems and difficulty in producing a correct abutment region for said gasket.

The aim of the present invention is to solve the problems described above by providing a sealing device specifically for casements and the like which allows to use the same type of gaskets both for normal casements made of extruded aluminum and for thermally insulating casements.

Within the scope of the above aim, a particular object of the invention is to provide a sealing device which allows to significantly improve the coupling in the corner regions, consequently improving the seal, since it is possible to form a complete joint for said gasket.

Another object of the present invention is to provide a sealing device wherein the particular structure of the gasket allows to insert said gasket directly on the aluminum profiled elements or bars prior to bar cutting, thus simultaneously cutting the bar and the gasket, with consequent improved manufacturing precision.

Another object of the present invention is to provide a sealing device which allows to configure the sealing gaskets so as to avoid subjecting them to deformations and furthermore allows, in the case of thermally insulating casements, to make the gasket act on a part made of thermally insulating material instead of on the metal part, as instead currently occurs.

This aim, these objects and others which will become apparent hereinafter are achieved by a sealing device particularly for casements and the like, according to the invention, characterized in that it comprises a sealing profiled element which has different hardnesses in transverse cross-section, the body of said profiled element forming a coupling portion made of semirigid material which is rigidly associated with an end portion made of relatively soft material, said body, in said coupling portion, forming an internal cavity for the insertion of L-shaped joining elements at the corners of the casement.

Further characteristics and advantages of the invention will become apparent from the following description of a preferred but not exclusive embodiment of a sealing device particularly for casements and the like, illustrated only by way of non-limitative example in the accompanying drawings, wherein:

figure 1 is a schematic perspective view of a possible embodiment of the gasket;

figure 2 is a perspective view of a shaped spacer bar for thermally insulating profiled elements; figures 3 and 4 are transverse sectional views of two different embodiments of the gasket, applied to a casement;

figure 5 is a schematic view of the device according to the invention applied to a thermally insulating casement;

figure 6 is a view of the gasket applied to a casement with no thermal insulation;

figure 7 is a view of a different embodiment of the gasket, with insertion from the front;

figure 8 is a perspective view of an L-shaped element for coupling in the corner regions of the sealing profiled elements.

With reference to the above figures, the sealing device particularly for casements and the like, according to the invention, comprises a sealing profiled element, generally designated by the reference numeral 1, which has a body constituted by a coupling region, generally designated by the reference numeral 2, made of semirigid material.

The coupling region 2 is provided with two arms 2a and 2b which merge toward the free end and are connected to the coupling end by means of a bridge 3.

At the coupling end there are oppositely arranged recesses 4 for connection in the seat.

An internal cavity 5 is formed inside the coupling body 2 in order to allow the insertion of L-shaped elements 6 for joining the sealing profiled elements at the corner regions of the casement.

The coupling portion, at its free end, is rigidly associated with an end portion 10 which is made of relatively soft material and preferably but not necessarily is shaped so that its end flap 11 is folded with respect to the connecting portion 12, which is rigidly associated with respect to the coupling body 2.

The end flap 11 is directed toward the gasket coupling body and is connected to the connecting portion 12 by means of a raised portion 13 which in practice allows to increase the sealing surface in order to produce optimum coupling to the facing profiled element.

According to what is shown in figure 4, a different embodiment is provided for and entails the adoption of a stiffening cross-member 15 arranged in the cavity 5 and mutually joining the two oppositely arranged arms 2a and 2b.

According to a further embodiment, shown in figure 7, there is a sealing profiled element, generally designated by the reference numeral 16, wherein the two arms, again designated by the reference numerals 2a and 2b, are not mutually joined by the bridge 3 at the coupling region, thus allowing elastic contraction of one arm with respect to the other for insertion into the cavity from the front.

The sealing device according to the invention is designed so that it is possible to use the same sealing profiled element both for thermally insulating casements and for casements with no thermal insulation.

For this purpose, the bars which join the two portions 20a and 20b of a profiled element with thermal insulation, generally designated by the reference numeral 20, are formed so that one bar 22 is of a conventional type and is connected to the related parts of the profiled element, whereas the other bar 23 has, on one of its faces, a tab 24 which protrudes laterally with respect to the body of the bar 23 and ends with a tooth 25 extending parallel to the extension of the body of the bar 23.

Said tab 24 performs a double function, as more clearly shown in figure 5.

First of all, the back or extrados of the tab 24 acts as an abutment edge for said gasket 1, so that in the forming of the so-called "open joint" the gasket couples directly, forming a seal, on a thermally insulating material; furthermore, the tooth 25 arranged at the free end of the tab 24 has the purpose of forming, directly on the profiled element, a seat 30 for the connection of the gasket.

In this manner, the same sealing profiled element is usable both for casements without thermal

insulation and for casements with thermal insulation.

Furthermore, by virtue of the exclusive shape of the bar 23, the external concavity, which must generally be covered by secondary gaskets or by extensions of the central gasket, is eliminated, thus avoiding stagnation of the water which is normally present in the external chambers of open-joint sealing systems.

From the above description it can thus be seen that the invention achieves the intended aim and objects, and in particular the fact is stressed that the sealing device described above, which is based on the use of a particular shape of a bar made of thermally insulating material in the manufacture of profiled elements with thermal insulation and cooperates with a gasket shaped so that it is substantially rigid in the coupling region and soft in the sealing region, allows to optimize the seals.

Furthermore, the sealing profiled element, designed so that it is substantially rigid, allows to absolutely avoid any deformation of the gasket and furthermore, in combination with the above described bar, is usable indifferently on profiled elements with thermal insulation and on profiled elements without thermal insulation.

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 contingent shapes and 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. Sealing device particularly for casements and the like, characterized in that it comprises a sealing profiled element (1) having different hardnesses in transverse cross-section, the body of said profiled element forming a coupling portion (2) made of semirigid material which is rigidly associated with an end portion (10) made of relatively soft material, said body, in said coupling portion (2), forming an internal cavity (5) for the insertion of L-shaped joining elements (6) at the corners of the casement.

2. Sealing device particularly for casements and the like, characterized in that it comprises, in a profiled element with thermal insulation, at least one of the bars (23) which join the two parts of the profiled element (20a, 20b) having a tab (24) which protrudes from the body of the bar and ends with a tooth (25) extending substantially parallel with respect to said bar (23).
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3. Sealing device according to the preceding claims, characterized in that said sealing profiled element (1) has a body constituted by two arms (2a, 2b) which merge at said end portion (10) and are joined, at their opposite end, by a bridge (3) which forms said cavity (5) in cooperation with said arms (2a, 2b).
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4. Sealing device according to one or more of the preceding claims, characterized in that it comprises, at the end of said arms (2a, 2b), on the side of the coupling region (2), recesses (4) for accommodating said sealing profiled element (1) in the coupling seat of the profiled element.
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5. Sealing device according to one or more of the preceding claims, characterized in that said end portion (10) is made of relatively soft material and has a connecting portion (12) ending with an end flap (11) folded toward said coupling body (2).
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6. Sealing device according to one or more of the preceding claims, characterized in that said end flap (11) is connected to said connecting portion (12) by means of a raised portion (13) suitable to increase the region of contact to provide the seal.
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7. Sealing device according to one or more of the preceding claims, characterized in that said sealing profiled element (1) has, in said coupling body (2), a cross-member (15) affecting said cavity (5) and suitable to stiffen the profiled element.
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8. Sealing device according to one or more of the preceding claims, characterized in that said arms (2a, 2b) which constitute said coupling body (2) are mutually separate at their free end in order to provide a mutual spacing elasticity suitable to allow the front insertion of said sealing profiled element (1) into a profiled element seat.
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9. Sealing device according to one or more of the preceding claims, characterized in that said bar (23) provided with a tab (24) is suitable to
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10. Sealing device according to one or more of the preceding claims, characterized in that said tooth (25) arranged at the end of said tab (24) of said bar (23) is suitable to form, in cooperation with an oppositely arranged tooth of the profiled element, a seat for accommodating a sealing profiled element.
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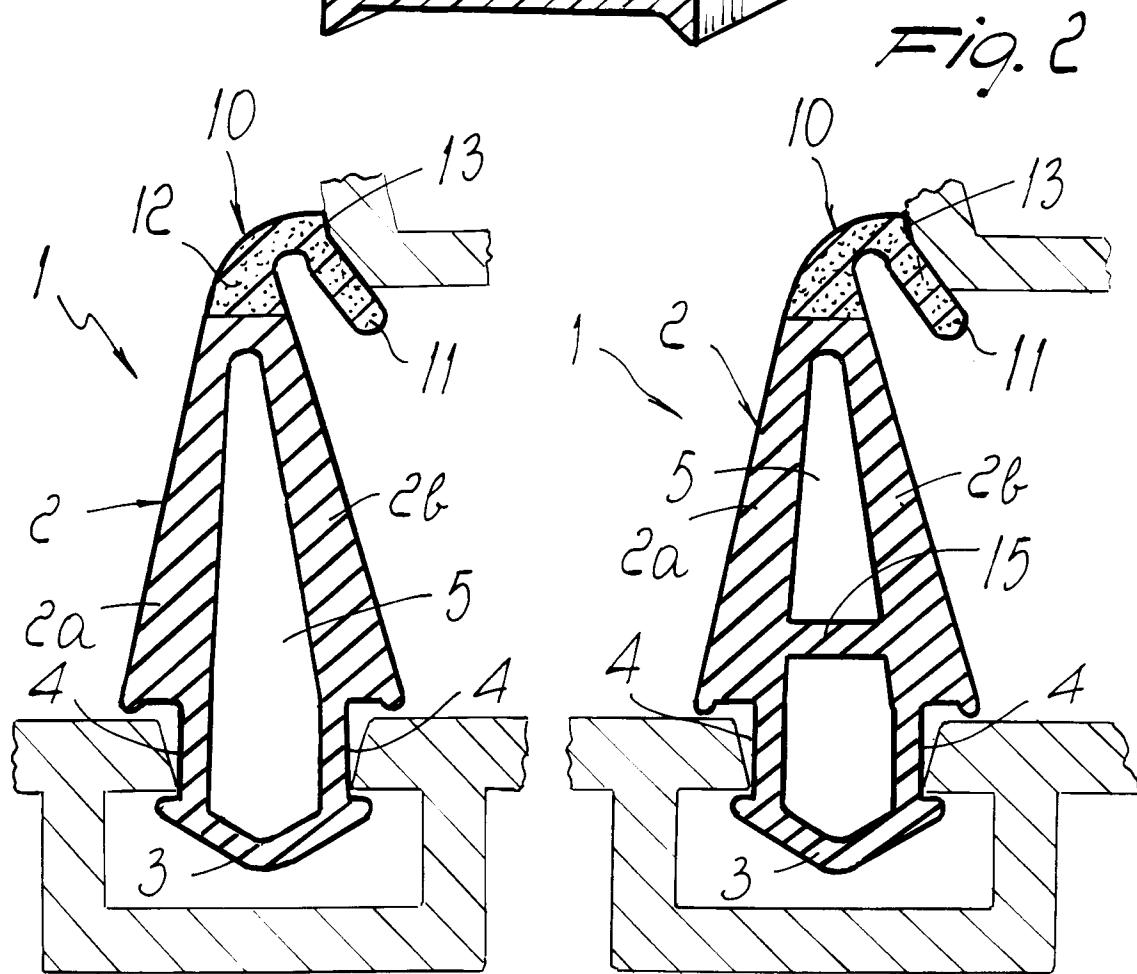
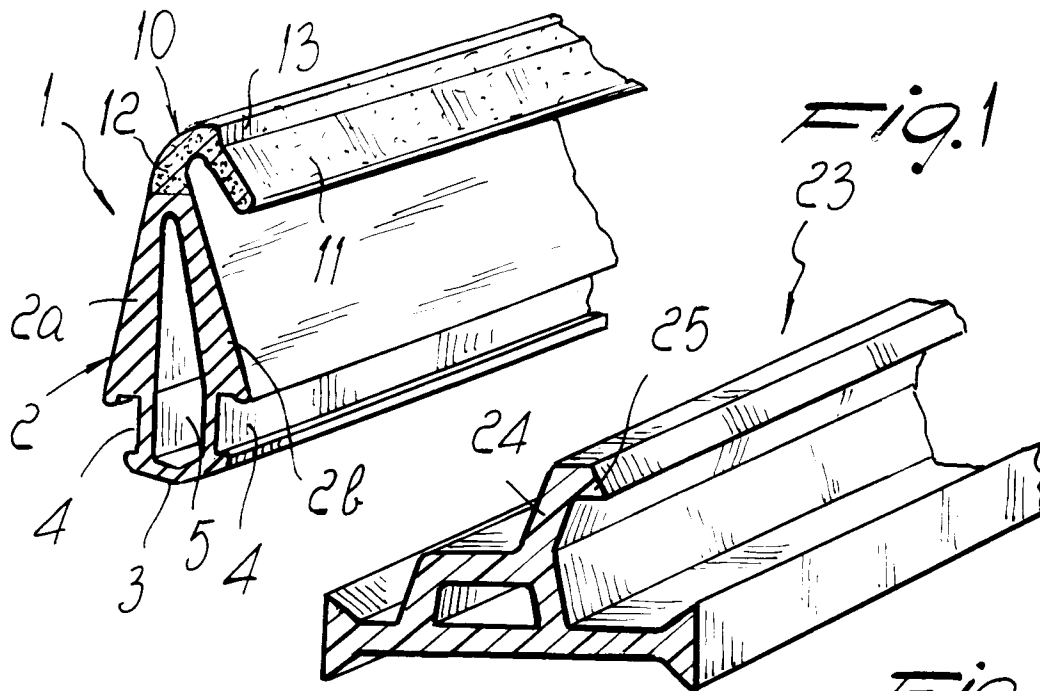
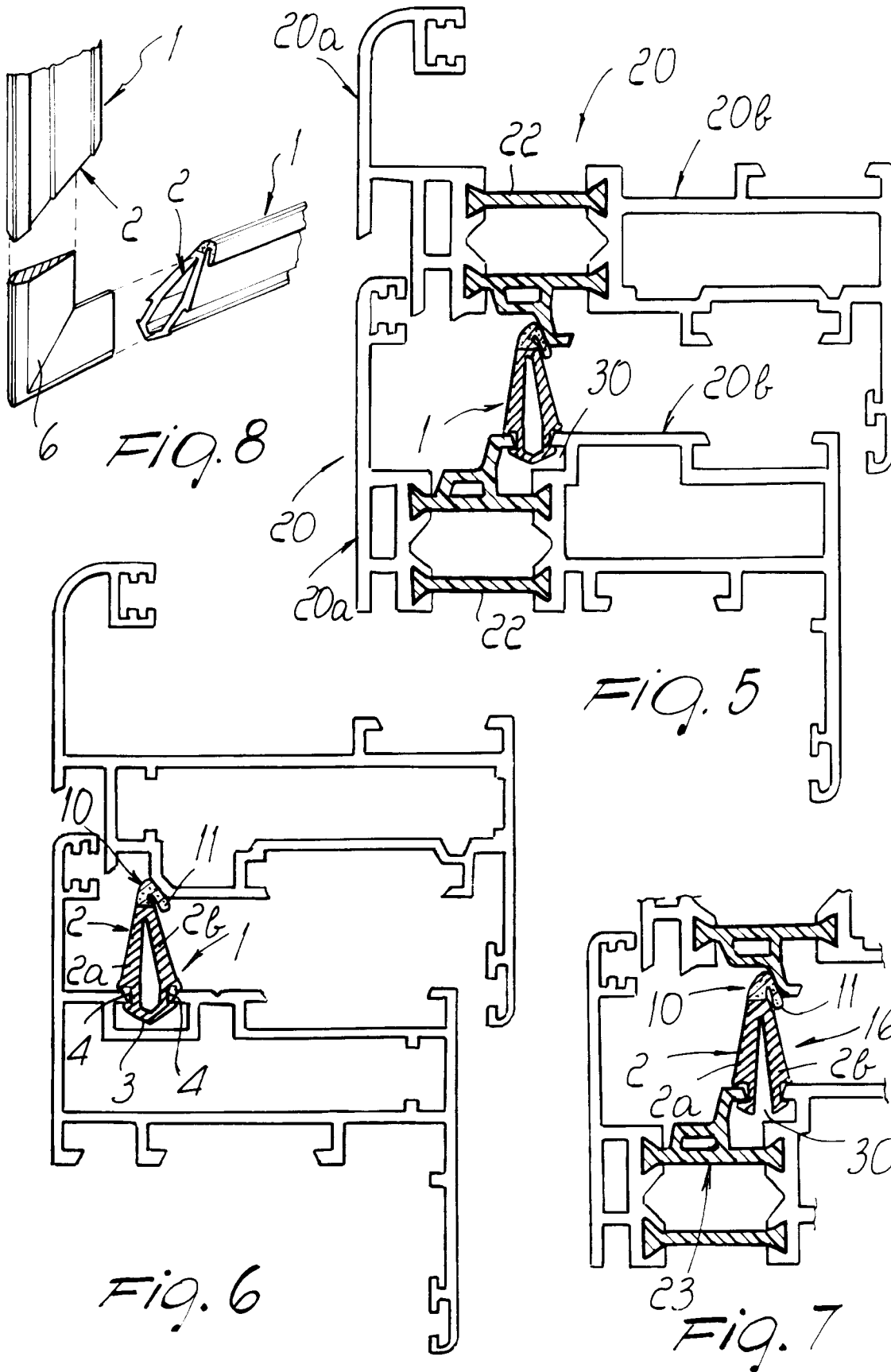


Fig. 3

Fig. 4





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EUROPEAN SEARCH REPORT

Application Number
EP 93 12 0402

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	NL-A-8 801 999 (REYNOTRADE) * page 2, line 30 - page 4, line 11; figures * ---	1-6,8-10	E06B7/23 E06B3/62 E06B3/26
Y	EP-A-0 247 533 (SAAR-GUMMIWERK) * column 2, line 44 - column 3, line 15; figure 1 * ---	1-6,8-10	
A	DE-A-23 59 972 (H. REICHSTADT) * page 9, paragraph 2 - page 10; figure 7 *	1	
A	DE-A-31 27 510 (W. HARTMANN) * figures 1,2 * ---	1	
A	DE-U-92 07 608 (BRÜGMANN FRISOPLAST) * figure 3 * -----	7	
			TECHNICAL FIELDS SEARCHED (Int.Cl.5)
			E06B
The present search report has been drawn up for all claims			
Place of search THE HAGUE		Date of completion of the search 5 April 1994	Examiner Kriekoukis, S
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			