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(54) Interlocking retainer for roller blinds.

(57) The interlocking retainer for roller blinds, constituted by slats (1) having a hook-shaped longitudinal edge (2) adapted to be inserted in a corresponding engagement seat (3) formed along a complementary longitudinal edge of the adjacent slats (1), comprises an anchoring element (5) consisting of a U-shaped metal claw. The metal claw (5) is adapted to be applied on the hook-shaped edge (2) of each slat (1) and to engage, in a snap-together manner, an opening (6) correspondingly formed on the engagement seat (3) of the adjacent slat (1).

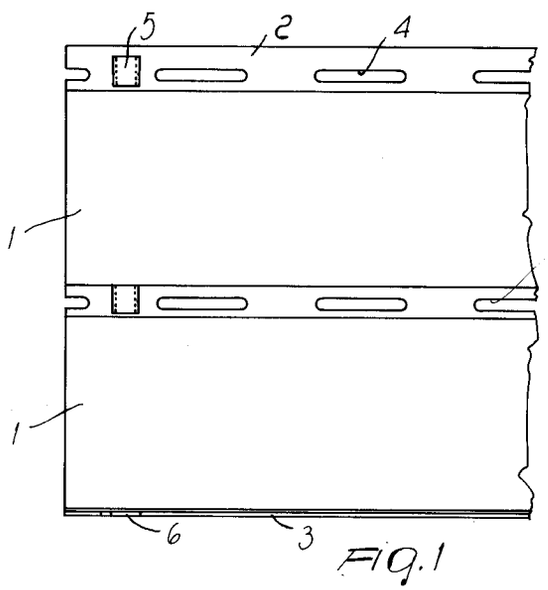

Fig.1

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The present invention relates to an interlocking retainer for roller blinds.

It is known that roller blinds, also known as roll-up shutters, constituted by slats formed of profiled elements made of plastics, aluminum, or steel and appropriately connected to each other, have been in use for a long time. In particular, said slats commonly have a hook-shaped longitudinal edge adapted to be inserted in a corresponding engagement seat formed along the complementary longitudinal edge of the adjacent slats.

Usually, said slats furthermore have, at said hook-shaped edge, a plurality of longitudinally aligned slots allowing light to pass partially when the roller blind is not fully lowered.

In order to prevent disengagement of the slats during transport or after installation of the roller blind, said slats have adapted interlocking retainers, provided according to various methods, such as the draw-forming of a recess on the hook-shaped edge, the insertion of a nail, or by means of end plugs. However, these retention systems have some drawbacks that limit the effectiveness of their use or disadvantageously affect the features of roller blinds.

More particularly, retention by draw-forming an appropriate recess is quick and effective, but it requires the slat to have no slots in the region where the recess is formed. If this is not so, that is to say, if the recess affects one of the slots already provided on the slats, the retainer would in fact be ineffective. It should also be noted that the installer frequently purchases preperforated profiled bars that he cuts to size and whereon he then forms the interlocking retainer.

The drawback observed in retainers formed by a nail is constituted by the fact that said nail can loosen in use. In many cases this system is accordingly not accepted.

End plugs, made of aluminum or steel, in turn have the drawback that they entail long fitting times and greater manipulation of the profiled elements, with a consequent increase in costs. Said end plugs are furthermore generally fixed precariously.

A principal aim of the present invention is to solve the mentioned problems, by providing an interlocking retainer for roller blinds allowing quick and easy assembly of the pre-perforated slats and ensuring durable efficiency during use.

Within the scope of this aim, an object of the present invention is to provide an interlocking retainer simple in concept, very sturdy, safely reliable in operation, and versatile in use.

This aim and these objects are both achieved, according to the invention, by the present interlocking retainer for roller blinds, constituted by slats having a hook-shaped longitudinal edge adapted to be inserted in a corresponding engagement seat formed along a complementary longitudinal edge of the adjacent slats, said retainer being characterized in that it comprises an anchoring element consisting of a U-shaped metal claw adapted to be applied on said hook-shaped edge of each slat and to engage, in a snap-together manner, an opening correspondingly formed on said engagement seat of the adjacent slat.

The details of the invention will become apparent from the following detailed description of a preferred embodiment of the interlocking retainer for roller blinds, illustrated by way of non-limitative example in the accompanying drawings, wherein:

figure 1 is a partial front view of a pair of slats of the roller blind according to the invention;

figure 2 is a corresponding side view of said slats;

figure 3 is a perspective view of the same portion of said roller blind;

figure 4 is a perspective view of said metal claw;

figure 5 is a longitudinal sectional view of an end portion of a slat provided with said claw, said portion being arranged adjacent to the complementary portion of a second slat with which it is associated;

figure 6 is an identical longitudinal sectional view of said end portions of the slats, in the assembly configuration;

figures 7, 8, 9, 10, and 11 are respective perspective views of further embodiments of said metal claw.

With particular reference to the above figures, the reference numeral 1 designates the slats of a roller blind provided with the interlocking retainer according to the invention.

The slats 1 consist, in a known manner, of profiled elements made of plastics, aluminum, or steel, having a hook-shaped longitudinal portion 2 along the upper edge and a complementary grooved engagement seat 3 along the lower edge. The hook-shaped portion 2 of each slat 1 is adapted to be inserted in a corresponding engagement seat 3 of the adjacent slat.

The slats 1 furthermore have a plurality of longitudinally aligned slots 4 at the hook-shaped edge 2.

The interlocking retainer has an anchoring element 5 consisting of a practically U-shaped metal claw adapted to be applied to the hook-shaped portion 2 of the slat. As clearly shown in detail in figure 4, the claw 5 has a bottom 5a and wings 5b with an appropriately rounded profile protruding therefrom.

The wings 5b of the metal claw 5 are engageable with an opening 6 correspondingly formed on the engagement seat 3 of the adjacent slat. More specifically, said opening 6 is formed astride the outer edge of the portion of the profiled

element forming the engagement seat 3 (see figure 3).

Conveniently, the wings 5b of the metal claw 5 have respective pairs of teeth 7 formed by cutting and folding corresponding flaps of said wings. Said teeth 7 are adapted to ensure better locking and better stability of the claw 5 inside the opening 6.

The metal claw 5 is conveniently applied at an end portion of each slat 6; in the working configuration, the wings 5b of the claw are arranged along planes perpendicular to the longitudinal axis of the slat.

A chamfer 8 is formed on the profiled element forming the engagement seat 3 at the corresponding end of the slat to be associated with the preceding slat; said chamfer is adapted to facilitate the insertion of the claw.

The operation of the retainer is easily understandable from the above description.

The slats 1 of the roller blind are provided, proximate to a corresponding end, with a respective metal claw 5, applied by pressing onto the hook-shaped longitudinal edge 2. It should be noted that the insertion of the metal claw 5 on the profiled element produces a deformation of said profiled element, so that the bottom 5a of the claw is co-planar with respect to said profiled element.

In the engagement position, the wings 5b of the claw protrude inside said hook-shaped longitudinal edge 2 of the slat.

The slat 1 correspondingly has, on the opposite longitudinal edge, forming the engagement seat 3, the chamfer 8 and the opening 6 (see figure 5).

The roller blind is assembled in a conventional manner by inserting the hook-shaped end 2 of the slats 1 in the complementarily shaped engagement seat 3 of the adjacent slats.

When this insertion is performed, the claw 5 engages the chamfer 8 of the profiled element forming said engagement seat 3, elastically deforming said profiled element until the wings 5b of the claw fit, in a snap-together manner, in the corresponding opening 6 (figure 6). This mutually anchors the two slats and prevents their subsequent sliding disengagement.

Figure 7 illustrates a different embodiment of the metal claw 5, wherein the bottom 5a has a wider shape and the wings 5b have a flattened head. This configuration allows to better affect the opening 6 formed in the engagement seat 3 of the adjacent slat, improving interlocking retention.

Said head of the wings 5a of the metal claw 5 conveniently has a slight concavity 9 (figure 8).

In another embodiment of the metal claw 5, shown in figures 9, 10, and 11, the wings 5b have an appropriate surface finish that is adapted to improve the stability of the coupling. This surface finish consists for example of adapted linear or intersecting knurlings or of a plurality of fretted incisions.

To conclude, the described interlocking retainer allows easy and rapid assembly of the slats of the roller blinds. In particular, the retainer can be assembled very quickly and does not entail complicated handling of the slats.

It should be stressed that the device can be advantageously used with pre-perforated slats. The metal claw 5 can in fact also be applied at one of the slots 4 of the profiled element, as shown by way of example in figure 1. Accordingly, this allows the installer to purchase preperforated profiled bars to be cut to size when they are to be used, subsequently installing the interlocking retainer.

The metal claws 5 are stably inserted in the slats 1, and therefore the effectiveness of the retainer is also ensured throughout the operating life of the roller blind.

The device is furthermore very sturdy and has a proportionally very low cost.

In the practical embodiment of the invention, the materials employed, as well as the shape and 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 interpretation of each element identified by way of example by such reference signs.

Claims

1. Interlocking retainer for roller blinds, constituted by slats (1) having a hook-shaped longitudinal edge (2) adapted to be inserted in a corresponding engagement seat (3) formed along a complementary longitudinal edge of the adjacent slats (1), said retainer being characterized in that it consists of an anchoring element (5) constituted by a U-shaped metal claw adapted to be applied on said hook-shaped edge (2) of each slat (1) and to engage, in a snap-together manner, an opening (6) correspondingly formed on said engagement seat (3) of the adjacent slat (1).

2. Device according to claim 1, characterized in that said metal claw (5) has a bottom (5a) from the opposite ends whereof respective wings (5b) with an appropriately rounded profile protrude, said wings (5b) being engageable, in a snap-together manner, with said opening (6) formed on said engagement seat (3) of the

adjacent slat (1).

3. Device according to claim 2, characterized in that said wings (5b) of said metal claw (5) have respective pairs of teeth (7) formed by cutting and folding corresponding flaps of said wings (5b).

4. Device according to claim 2, characterized in that said bottom (5a) of said metal claw (5) has a wider shape and that said wings (5b) have a flattened head.

5. Device according to claim 4, characterized in that said flattened head of said wings (5b) is slightly concave.

6. Device according to claim 2, characterized in that said wings (5b) of said metal claw (5) have a surface treatment adapted to improve the stability of the coupling with said opening (6).

7. Device according to claim 1, characterized in that a chamfer (8) is formed at the end of said longitudinal edge forming said engagement seat (3), proximate to said opening (6), and adapted to facilitate the insertion of said metal claw (5) of the adjacent slat.

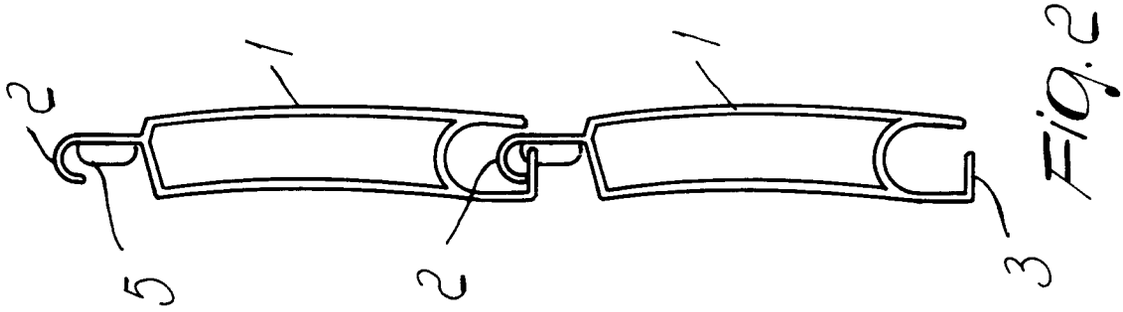


Fig.2

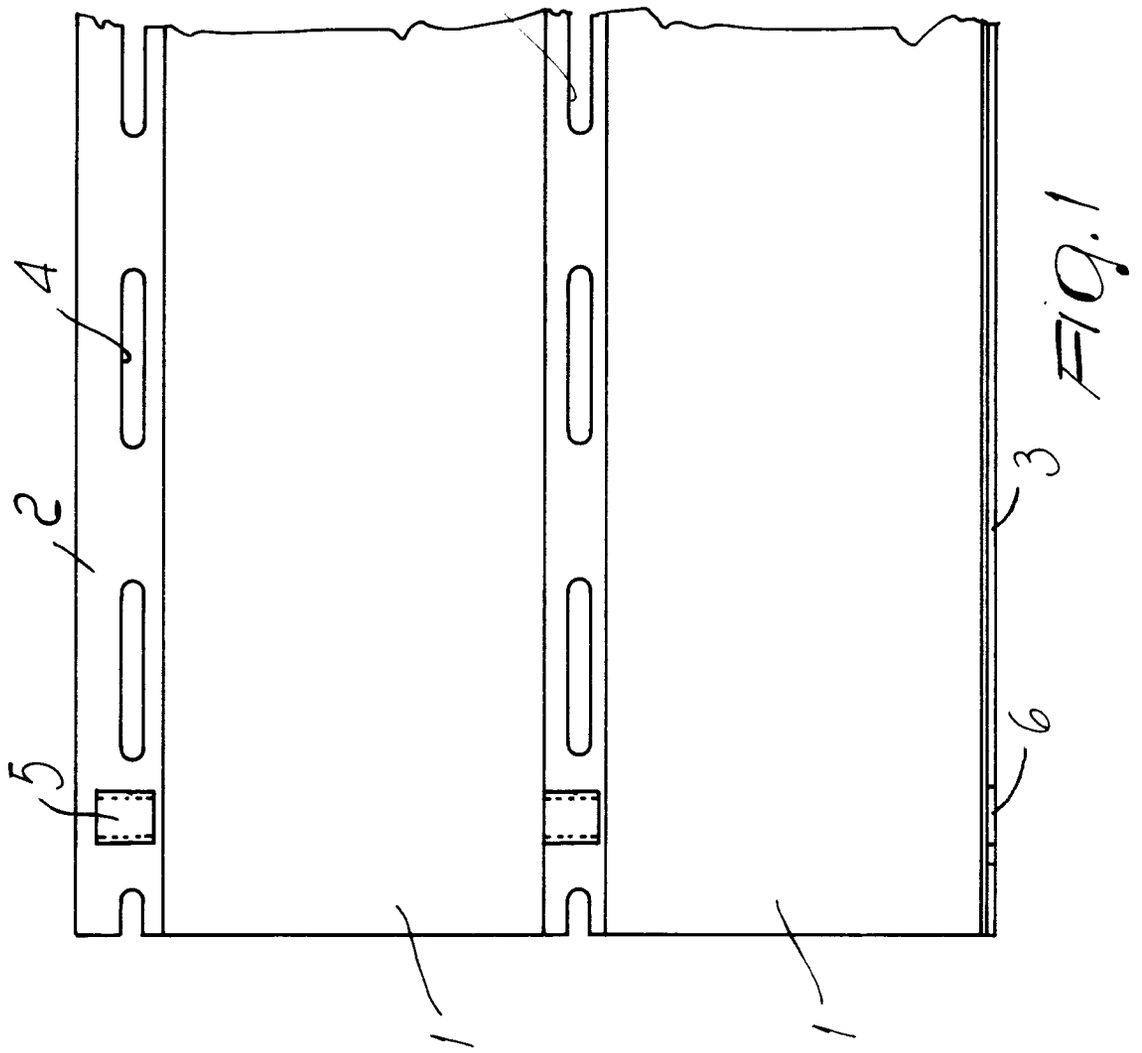


Fig.1

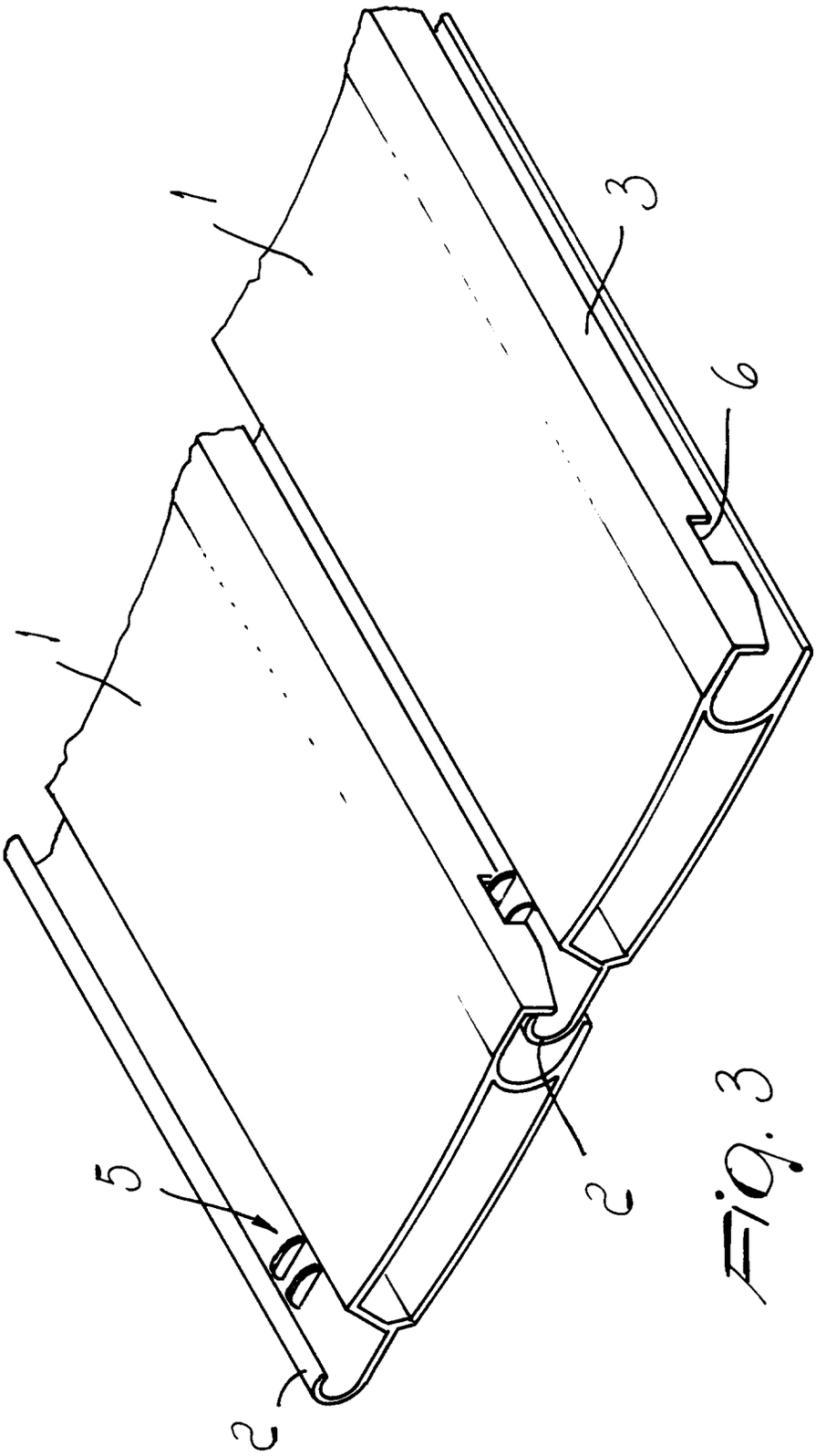


Fig. 3

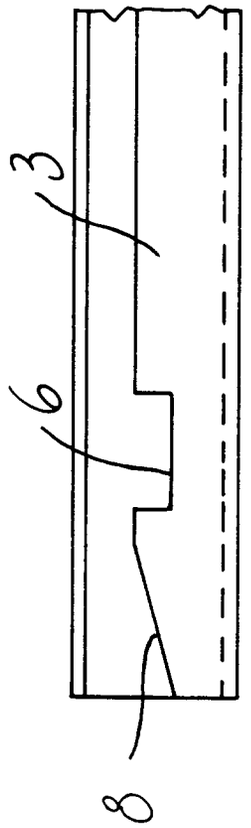
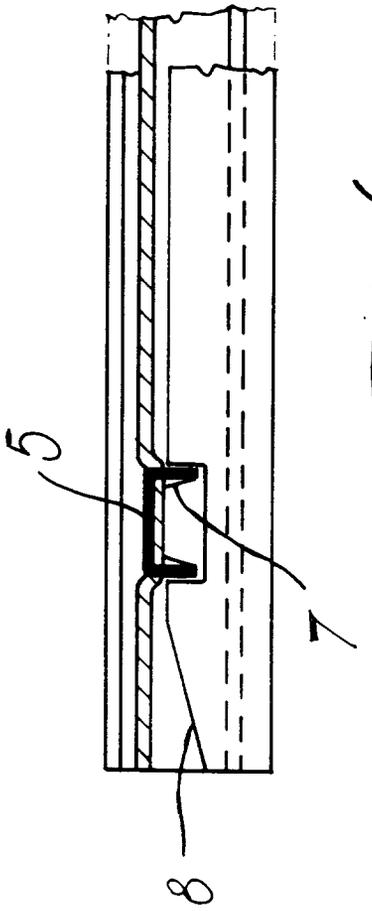


Fig.6



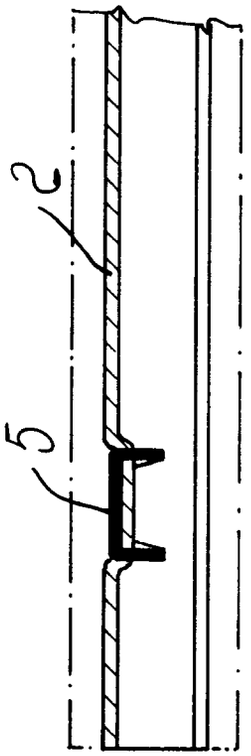


Fig.5

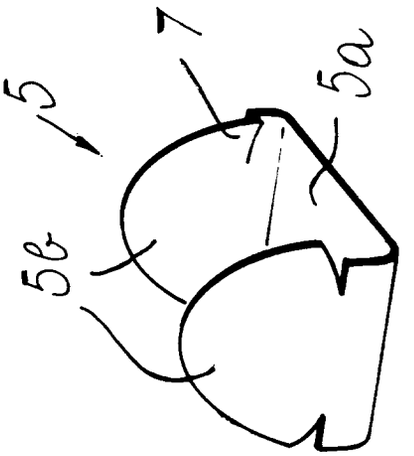


Fig.4

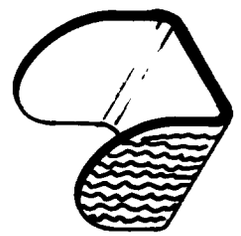


Fig.11

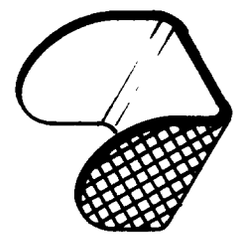


Fig.10

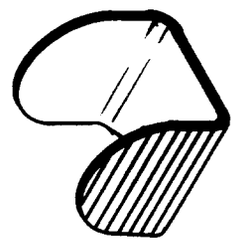


Fig.9

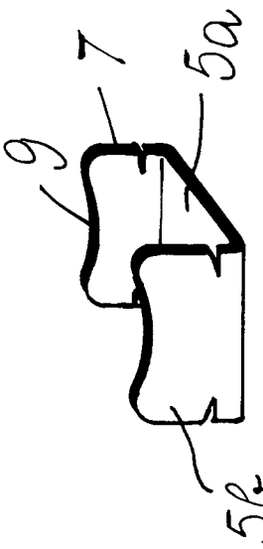


Fig.8

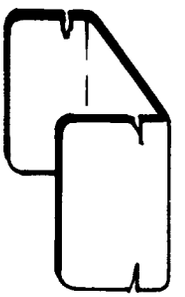


Fig.7

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EUROPEAN SEARCH REPORT

Application Number EP 95105745.4

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. 6)
A	AT - B - 357 740 (DYNA-PLASTIK-WERKE) * Totality * --	1-5	E 06 B 9/11 E 06 B 9/17
A	CH - A - 573 041 (EGLOFF GMBH) * Description; claims * --	1	
A	CH - A - 531 636 (HARDT) * Description; fig. 1,2 * --	1	
A	DE - A - 2 135 078 (FA. THEO FEST) * Description; fig. 1-4d * --	1	
A	FR - A - 2 579 660 (CITEA S.P.A.) * Totality * --	1	
A	DE - A - 2 303 525 (JANKE) * Totality * ----	1	TECHNICAL FIELDS SEARCHED (Int. Cl. 6) E 06 B F 16 B

The present search report has been drawn up for all claims

Place of search	Date of completion of the search	Examiner
VIENNA	04-07-1995	ROUSSARIAN

CATEGORY OF CITED DOCUMENTS

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