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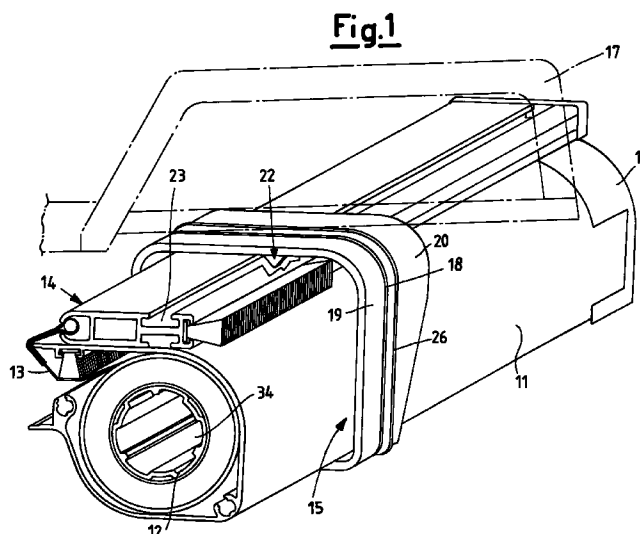
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(54) **Clamping band for a boxed mosquito net unit cuttable to length**

(57) In a boxed mosquito net unit cuttable to length, comprising essentially a box (11) internally containing a support roller (12) for a net (13), the net (13) being extractable from a longitudinal aperture provided in the box (11) and having fixed thereto a gripper bar (14) which enables the net to be pulled, there is provided a clamping band (15) which is of profiled annular form, is constructed of a plastics material, has a smooth inner surface and comprises in its outer surface a perimetral groove (18) perpendicular to an axis (X) of the band, to divide the band into two parts (19, 20) connected together by a thinned wall (21) and clamp the elements of the box and gripper bar together during cutting. The groove serves advantageously to guide the cutting blade in a direction perfectly perpendicular to the axis of the band and hence of all the elements of the entire mosquito net unit.



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Description

This invention relates to a clamping band for a boxed mosquito net unit cuttable to length.

Various types of boxed mosquito net units have been constructed and proposed, cuttable to length at the moment of their installation in an aperture or window, for adaptation to the size of this latter.

In these types of mosquito net unit, the box, usually of metal section construction, contains a roller about which the mosquito net is wound and which is subjected to a return action by appropriate elastic return elements which also enable it to be extracted for operative positioning to close the aperture.

All these types of mosquito net unit must be able to be cut to size to enable it to be installed within the desired aperture.

It must be noted that this cutting to size must involve not only the net, the roller on which it is wound and the box, but also the gripper bar.

Usually to make a correct cut, the box and gripper bar are held together within a thermo-shrinkable film. A series of spacers or wedges must also be provided to maintain the various elements mutually at rest during the cutting.

In spite of all these expedients it is always difficult to achieve a correct cut without the component elements shifting relative to each other.

A further expedient is to clamp all these elements together with a suitable disposable accessory at that end not provided with an endpiece, at which the cutting to size is to be effected. A special implement has therefore to be provided which simulates an endpiece and which is inserted in the roller, in the box and in the gripper bar, so as to clamp these properly together. If from a certain viewpoint this accessory solves the problem of clamping the components together, it does not however solve other problems connected with the cut.

There is always the problem of making a correct cut perpendicular to the axis of the mosquito net, this being extremely difficult to achieve, especially by a non-specialized user not provided with appropriate workshop tools. In addition, once the component elements have been cut they become released because of lack of the end accessory, which remains attached to the part cut away.

The technical problem of a making a cut straight and perpendicular to the axis of the mosquito net without using workshop tools and that of keeping the parts of the mosquito net in a correct position during the cutting is still to be solved.

An object of the invention is to solve the aforesaid problems in a boxed mosquito net unit cuttable to length.

A further object of the present invention is to achieve a safe and accurate cut between the parts, at the precise length at which this cut is required.

These objects are attained according to the present invention by providing a clamping band in accordance

with claim 1.

The characteristics and advantages of a clamping band for a boxed mosquito net unit cuttable to length according to the present invention will be more apparent from the ensuing description given by way of non-limiting example with reference to the accompanying schematic drawings, in which:

Figure 1 is a perspective view of a band according to the present invention located on a box of a mosquito net unit cuttable to length, a cutting saw being shown by dashed and dotted lines;

Figure 2 is an enlarged cross-section through the band and mosquito net unit of Figure 1, in correspondence with the cutting region;

Figure 3 is a perspective view of the band of Figure 1 alone;

Figure 4 is a plan view of the band of Figure 3 taken from below;

Figure 5 is a plan view of the band of Figure 3 taken from above;

Figure 6 is a partly sectional side elevation of the band of Figure 3;

Figure 7 shows a possible support element for association with that end of the box to be cut to length, its overall outer profile being shown by dashed and dotted lines; and

Figure 8 is a section through this support element.

Figures 1 and 2 show a perspective view of a boxed mosquito net unit cuttable to length, which comprises essentially a box 11 constructed of a light alloy section bar, within which there is provided a tube or roller 12 for supporting a net 13. To the free end of the net, which emerges from and is extractable from a longitudinal aperture provided in the box 11, there is fixed a bar 14 which acts as a grip for pulling the net.

This component configuration of the mosquito net unit can be seen at the open end of the box 11 at which the whole unit is cut to size, the other end being provided with an endpiece 16 already securely positioned. The second endpiece, not shown, is fixed when all the elements of the mosquito net unit have been cut to size.

At the free end without the endpiece, the box 11, internally containing the roller 12 and net 13, and the gripper bar 14 are located within a clamping band according to the present invention, indicated overall by 15, for cutting to size. The band 15 is constructed for example of a light but fairly rigid plastics material such as polypropylene by moulding, but can be constructed of any other suitable material.

The band 15 has a fairly smooth inner surface such as to facilitate its sliding on the box and gripper bar when these have been brought together. Preferably, elements can be provided to maintain the roller in its correct position axially centered within the section bar of the box at the end without the endpiece.

In a possible embodiment shown in Figures 7 and 8, these elements consist of a plate 30 provided with

pins 31 and 32 which are inserted into holes 33 in the section bar and into the central hole 34 in the roller 12 carrying the net 13.

The band 15 maintains the two main elements, ie the box and gripper bar, tightly together during the cutting of the mosquito net unit by a saw, shown schematically at 17. In the illustrated embodiment, the band is of square cross-section. This cross-section has three rounded corners and one corner cut at 45° at 27 along a direction parallel to a diagonal to tightly wrap the box and gripper bar held side by side and securely retain them in this position.

Besides performing this secondary clamping function, the band 15 of the present invention acts as a guide during the cutting of the various elements. In this respect, in the band there is provided a perimetral groove or recess 18 which divides the band into two parts 19 and 20, one upstream and the other downstream of the groove with reference to the free end without the endpiece. The two band parts 19 and 20 are connected together at the groove 18 by wall portions 21 which keep them together until the cut has been made and which define windows 25. The groove 18 is provided perpendicular to an axis X of the band 15.

Such a groove or recess 18 can be easily moved along the lateral surface both of the box and of the gripper bar while these latter are retained rigid with each other by the band. This is done when the user of the mosquito net unit has taken the necessary measurement and has marked this measurement on the box starting from the already applied endpiece, he then moving the band along the two elements, ie the box and gripper bar. This movement is continued until the groove in the band has been brought into correspondence with the measurement mark, which can be seen through a window provided between two wall portions 21. When in this position, and maintaining the band, the box and the gripper bar clamped together, the cut is made by inserting the saw blade into the groove in the band.

The blade is hence guided by the groove, to achieve, even with a manual saw indicated schematically at 17, a perfectly regular cut along the entire profile perpendicular to the axis, through the entire mosquito net unit (box, roller, net, gripper bar and possible brushes).

Advantageously, during the cutting the band maintains the various elements of the mosquito net unit clamped together both upstream and downstream of the cut, as already stated. These elements remain clamped together even after the cut has been made because the band is cut into two pieces, one of which remains at that end of the mosquito net unit now cut to size, and the other clamps together those excess parts cut away from the end.

From the inner surface of said band 15 there extends a tooth 22, positioned in a direction axial to the box, to the gripper bar and to a hypothetical axis of the band. The tooth 22 is arranged to be inserted into a recess 23 in the gripper bar 14 in a direction axial to the

section forming the gripper bar. By penetrating into this recess the tooth 22 retains the gripper bar always in the same position as the band slides along the box section and gripper bar. The tooth 22 has a tapering end 24 to facilitate its mounting on the band 15 and insertion into the recess 23 in the gripper bar 14.

With a cut made perfectly perpendicular to the box axis, the second endpiece can be then mounted with extreme accuracy, achieving for the mosquito net unit cut in this manner to the required length improved operation with time.

In a further preferred embodiment, an outwardly projecting perimetral step 26 can be positioned to the side of the groove 18 to facilitate the cutting operation. In this respect, the step 26 forms a lateral abutment to guide the blade of the saw 17 during its cutting movement, hence ensuring that the cut is linear and is formed in a direction perpendicular to the axis of the mosquito net unit.

An aid is hence provided which extremely simplifies the cutting to size of the entire structure of the mosquito net unit.

Claims

1. A clamping band for a boxed mosquito net unit cuttable to length, comprising essentially a box (11) internally containing a support roller (12) for a net (13), said net (13) being extractable from a longitudinal aperture provided in said box (11) and having fixed thereto a gripper bar (14) which enables the net to be pulled, characterised in that said band (15) is of profiled annular form, is constructed of a plastics material, has a smooth inner surface and comprises in its outer surface a perimetral groove (18) perpendicular to an axis (X) of said band, to divide said band into two parts (19, 20) connected together by a thinned wall (21).
2. A band as claimed in claim 1, characterised in that said thinned wall within said groove (18) consists of wall portions (21) defining windows (25) between them.
3. A band as claimed in claim 1, characterised in that to the side of said groove (18) there is provided an outwardly projecting perimetral step (26).
4. A band as claimed in claim 1, characterised in that from said smooth inner surface there extends a tooth (22) positioned in a direction parallel to the axis of said band (15), to be slidably inserted into a surface recess (23) provided in said gripper bar (14).
5. A band as claimed in claim 4, characterised in that said tooth (22) has a tapering end (24) arranged to facilitate its mounting onto said band (15) and insertion into said recess (23).

6. A band as claimed in claim 1, characterised by being shaped in cross-section as a square with three rounded corners and one corner cut at 45°, in order to tightly wrap said box and said gripper bar held side by side.

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Fig.1

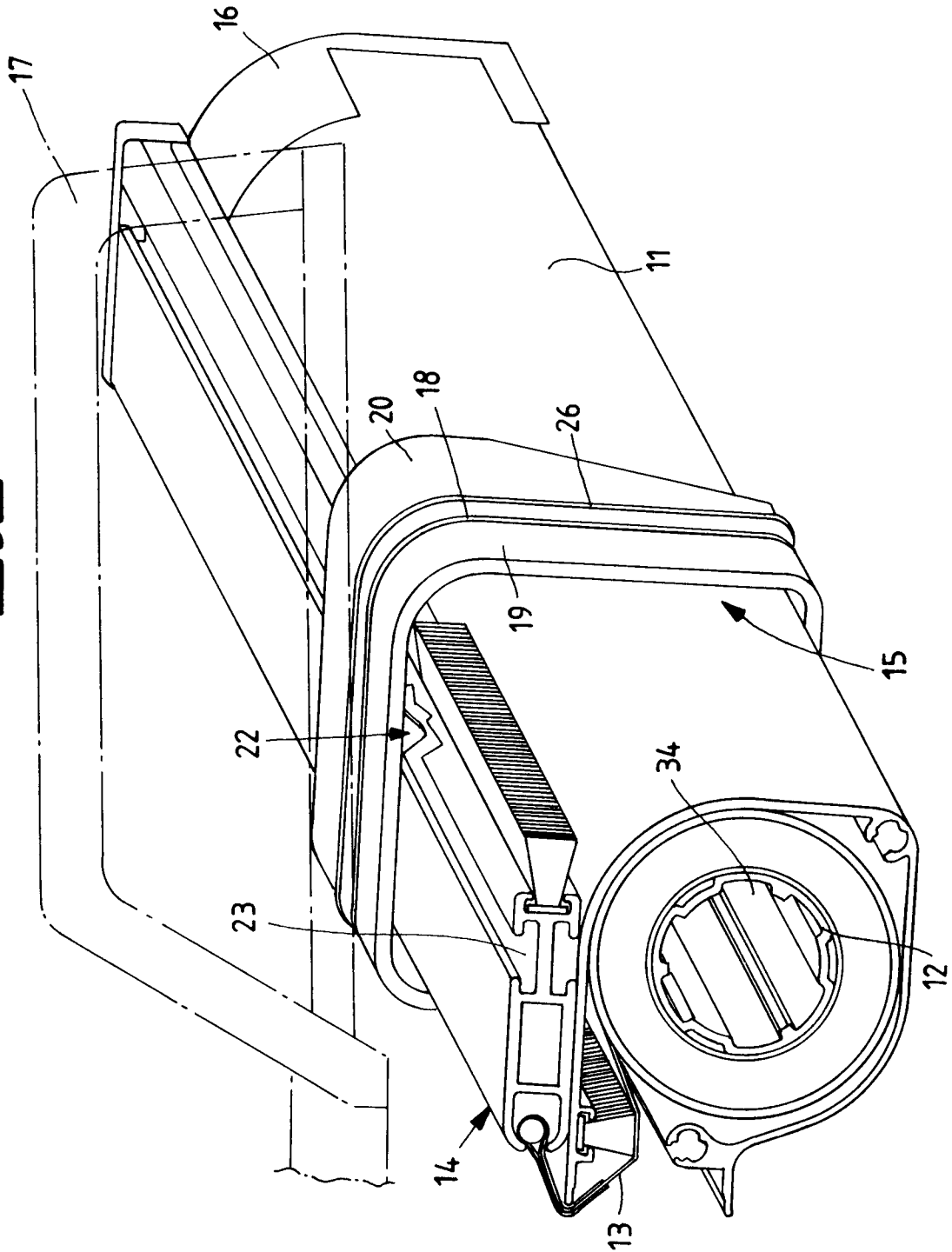


Fig.2

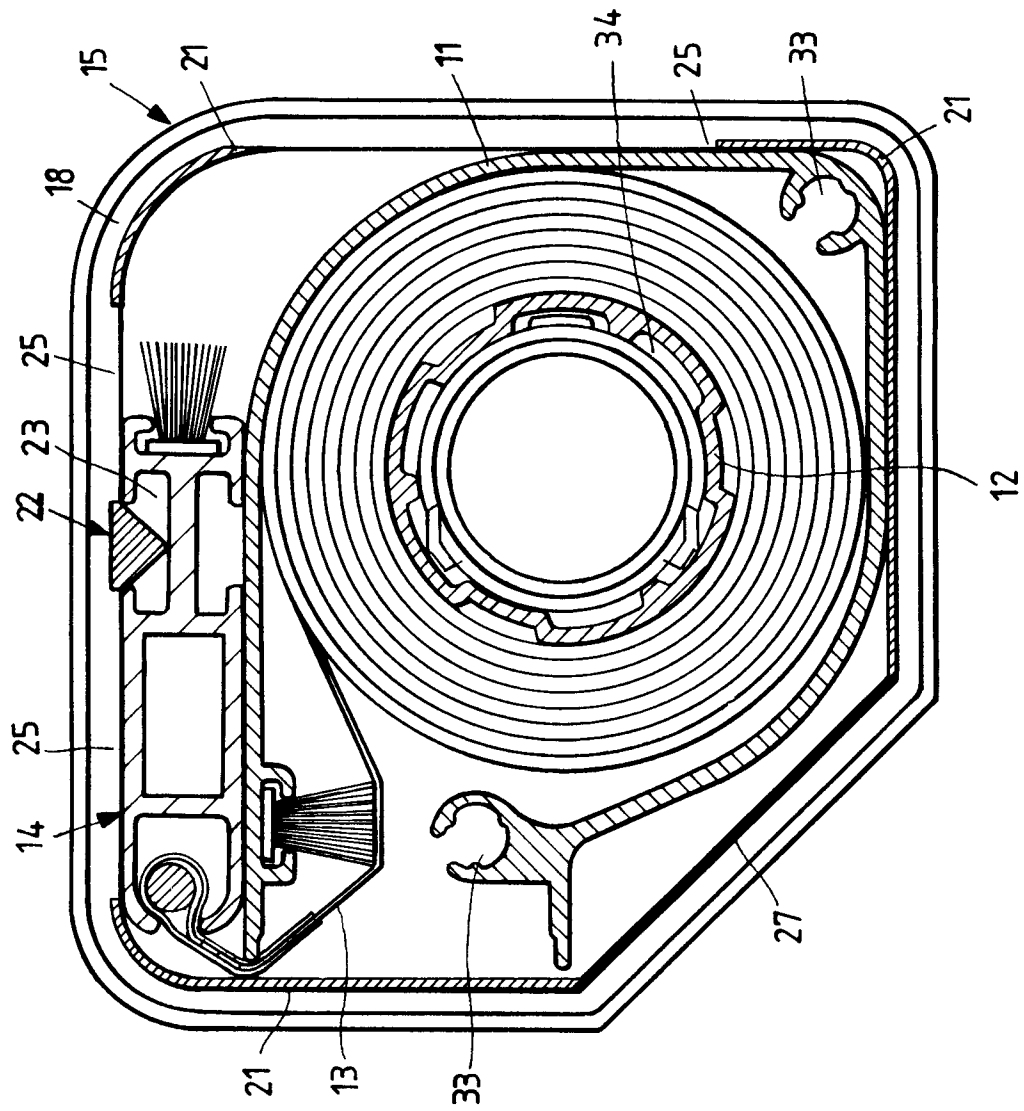


Fig.3

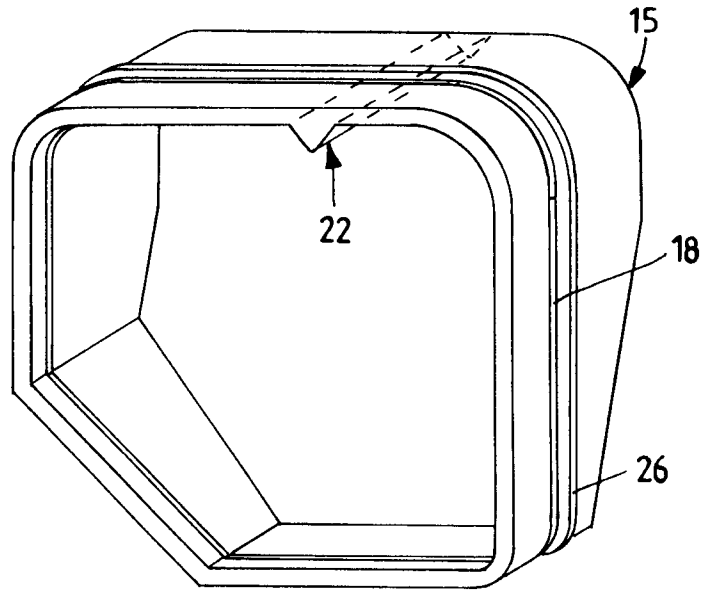


Fig.4

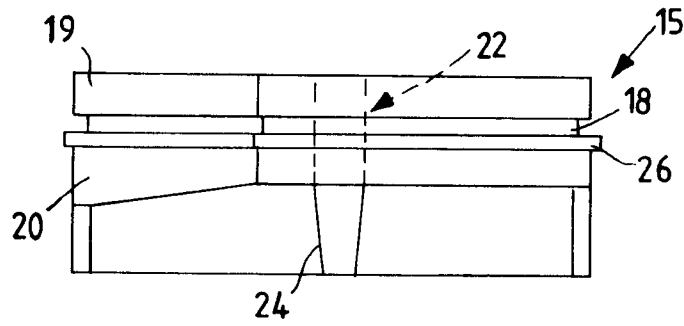


Fig.5

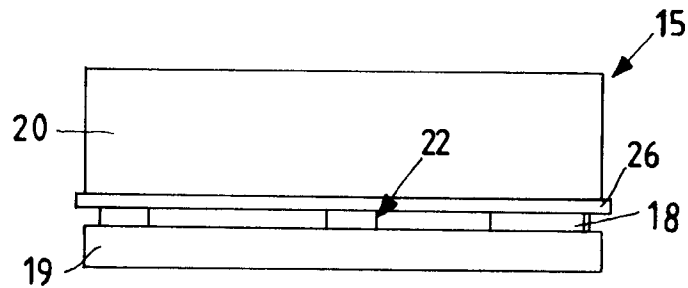


Fig.6

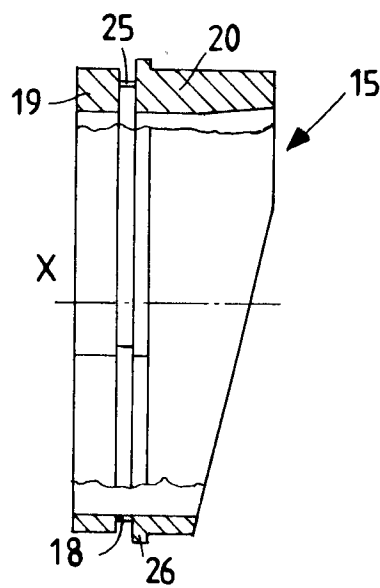


Fig.7

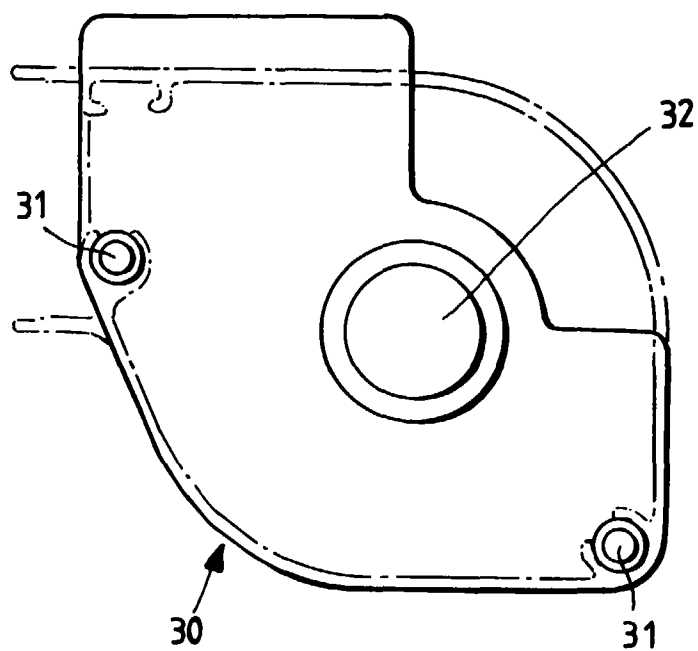
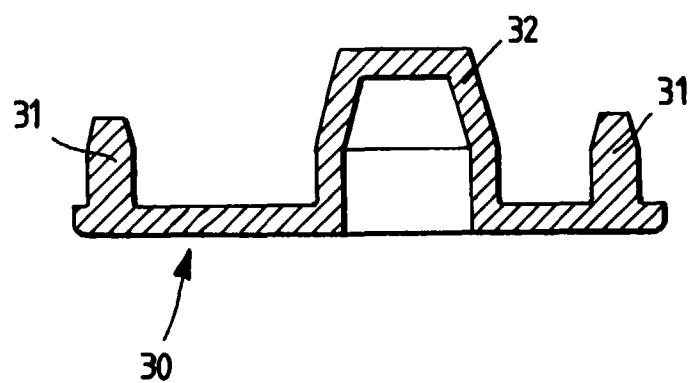


Fig.8





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EUROPEAN SEARCH REPORT

Application Number
EP 97 20 1760

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	FR 2 675 194 A (FRANCE COMBI SARL) * page 4, line 4 - line 10 * * page 6, line 28 - line 34 * * page 7, line 1 - line 4; figure 2 * ---	1,7	E06B9/54 B23D51/02
A	US 5 179 781 A (WEAVER ROGER) -----		
			TECHNICAL FIELDS SEARCHED (Int.Cl.6)
			E06B B23D
The present search report has been drawn up for all claims			
Place of search THE HAGUE		Date of completion of the search 23 September 1997	Examiner Peschel, G
<p>CATEGORY OF CITED DOCUMENTS</p> <p>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</p> <p>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</p>			

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