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(54) Hanger device for roof gutters

(57) A roof gutter hanger, having a first hanger member (100) adapted for mounting to a gutter and a second hanger member (200; 200') which comprises at least one fastening device (210) for releasable mounting to the first hanger member (100) via at least a first fastening device (110) in order to allow a selective connection

and disconnection of the two hanger members (100; 200). The hanger according to the invention facilitates installation and adjustment of the gutter hanger, is more rational to manufacture, is easier to retrofit and means that the gutter is more easily removable and replaceable.

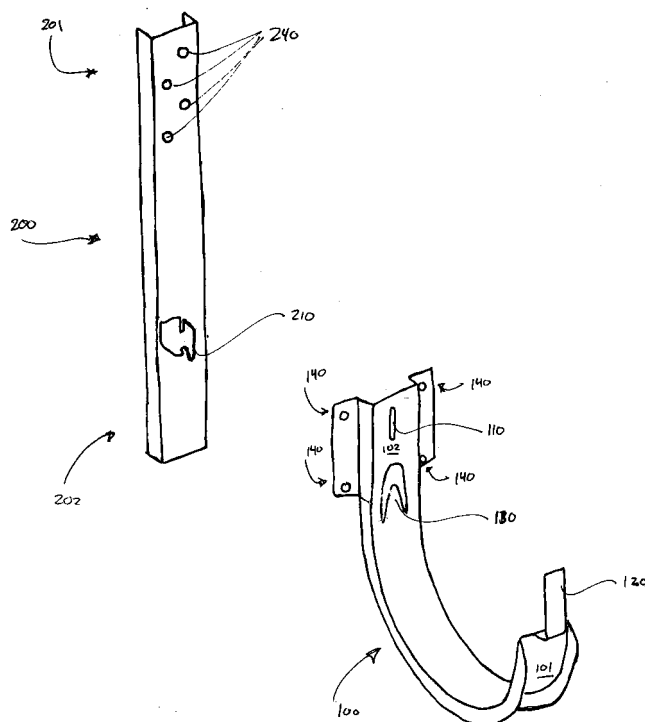


Fig. 1

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Description

[0001] The present invention relates to devices for hanging roof gutters. More specifically, the invention relates to a modular system for hanging roof gutters, and an associated adjusting apparatus.

[0002] Devices or brackets for hanging roof gutters are well known. A typical roof gutter bracket is shown in Fig. 9, and is as a rule made of a flat which is curved as shown, equipped with mounting holes 4 in one end and "gutter locks" 2 and 3 fastened with rivets to the flat. In those cases where it is not possible to mount the gutter brackets to an approximately vertical ridge board, but where the bracket must be mounted to the roof and subsequently bent, as indicated in Fig. 7, this results in a major lack of precision in the hanging. This may mean that the fall of the gutter is wrong, or that one of more gutter brackets do not provide optimal support for the gutter. When a conventional gutter bracket is mounted to a roof as shown in Fig. 7, the gutter bracket is first screwed in place on the roof. The gutter bracket is subsequently bent by hand in a direction as indicated by the arrow in Fig. 7, after which the gutter is laid therein. It is obvious that a method of this kind is very imprecise and, if great precision is required, very time-consuming.

[0003] Another problem with this known type of gutter bracket is that it is made of three main parts: the flat itself and the two gutter locks that are screwed or riveted to the flat. This is a time-consuming and laborious process and increases the manufacturing costs of the gutter bracket.

[0004] Gutter brackets which are made in one piece, i.e., one piece of metal that is cut and punched so that the gutter locks are integral parts of the actual hanger, are also known. However, these one-piece gutter brackets cannot be adjusted, for example, for mounting on a roof as described above.

[0005] Another disadvantage of the conventional bracket is that it is relatively time-consuming to dismantle, for example, in connection with the temporary removal of a gutter when, e.g., a painting job is to be done. In addition, the known bracket type is made in many lengths, to allow for different mounting positions, e.g., ridge boards, on the roof etc.

[0006] Therefore, there is considered to be a substantial need for a gutter hanger system which facilitates installation and adjustment, is more rational to manufacture, easier to retrofit and more easily removable and hence replaceable.

[0007] According to the invention, there is thus provided a roof gutter hanger of the aforementioned type and as disclosed in the preamble of the attached claims. Thus, the device is characterised in that a first hanger member is adapted for mounting to a gutter, wherein the first hanger member comprises means for attachment to a structure and at least a first fastening device. There is also a second hanger member which comprises means for attachment to a structure and at least a sec-

ond fastening device for releasable mounting to the first hanger member via the at least first fastening device, so as to allow a selective connection and disconnection of the two hanger members.

[0008] Preferred features of the system according to the invention are set forth in the attached patent claims.

[0009] Embodiments of the invention are set forth in the attached patent claims, and in the following description with reference to the attached drawings. It should be understood that the drawings merely show typical exemplary embodiments, and thus should not be understood as defining the limits of the invention. In the drawings the same parts are indicated by the same reference numerals, and these numerals are also used below.

[0010] Figure 1 is a perspective view of the roof gutter hanger according to the present invention, and shows the two main components, namely the gutter bracket 100 and the mounting 200.

[0011] Figure 2 shows the same components as Figure 1, but joined together.

[0012] Figure 3 shows two variants of the mounting 200, namely a longer variant 200 and a shorter variant 200'.

[0013] Figure 4 is a perspective view of the mountings 200 and 200' mounted on the ridge board of a house.

[0014] Figure 5 is a perspective view showing the mountings 200 mounted in a bent state to the roof of a house.

[0015] Figure 6 is a sectional view of the hanger according to the present invention, where the mounting 200 is shown screwed to a house roof 300 at an angle α relative to the horizontal plane. The mounting 200 is bent so that the second (lowermost) end of the mounting is almost vertical, and the actual gutter bracket is mounted thereon.

[0016] Figure 7 shows the previously mentioned known type of bracket mounted on a roof.

[0017] Figure 8 is a sectional view which shows principles and relevant variables for the bending of the mounting 200.

[0018] Figure 9 is a perspective view of the known bracket type mentioned above.

[0019] The roof gutter hanger according to the invention basically comprises a bracket 100 which preferably, but not necessarily, is in one piece, and a mounting 200, which may be of different lengths 200, 200'. The bracket has first and second ends 101, 102 and has "gutter locks" 120, 130 which are bent over the gutter to fasten it to the gutter bracket. Unlike the known type of bracket (see Fig. 9), the gutter locks on the bracket according to the invention are an integral part of the bracket. This eliminates at least one operation from the process of manufacturing the bracket. Furthermore, the bracket is equipped at one end with a first fastening device, in the described embodiment made in the form of a slot 110, capable of receiving at least a second fastening device or - in this embodiment - a tongue 210 which may be an integral part of the mounting 200, located at the second

end 202 of the mounting and arranged in such manner that it projects from the surface of the mounting. When the bracket 100 and the mounting 200 are to be assembled, the bracket is passed over the lower end of the mounting so that the tongue 210 passes through the slot 110; the bracket is then hooked onto the tongue 210. When the two parts are to be detached from one another, the bracket is lifted slightly so that the tongue 210 is disengaged from the bracket and the bracket can be pulled off the tongue. If so desired, the tongue 210 can be bent to prevent the bracket from being lifted up inadvertently.

The bracket 100 is also equipped with fastening means or mounting holes 140. This means that the bracket can be used without the mounting 200, in that it is fastened to a structure, for example, by means of nails or screws through the mounting holes 140. Even when the mounting and bracket are assembled, the mounting holes 140 can be used as an additional fastening.

[0020] The mounting 200 is fixed to the underlying roof or eaves using the mounting holes 240.

[0021] Figure 2 shows the mounting and the bracket when assembled. In this state, and when the mounting 200 or 200' has been fastened to a wall or roof 300 or the eaves 310, the gutter is placed in the gutter bracket and secured using the gutter locks 120, 130. If at a later stage there is a need to take the gutter down, for example, when cleaning or painting the structure behind the gutter, it is not necessary to release the gutter locks, as the entire length of the gutter can simply be lifted upwards, so that the tongue 210 is disengaged from the slot 110, and the whole gutter with gutter brackets can be lifted off. Similarly, the gutter and gutter brackets mounted thereon can easily be hooked back in place after, for example, the painting has been done.

[0022] Figure 3 shows two possible variants of the mounting according to the invention. They are in principle identical, but it is conceivable that, in particular when fixing the mounting to a roof, there will be a need for an extra long mounting. If the mounting is fixed to the eaves, it may be sufficient to use a shorter variant 200'.

[0023] Figure 4 shows in principle how the mountings are first installed in such a manner that the desired fall is obtained. It is believed to be considerably easier to both handle and install these mountings than a conventional gutter bracket. When the mountings are installed, the individual brackets are quickly and simply hung in place.

[0024] Figure 5 shows the mounting 200 installed in connection with a roof where for various reasons it has been necessary to install the actual mounting on the sloping roof. As mentioned, it is very difficult to do this in a precise manner with the known type of bracket, but with the hanger according to the invention the mounting 200 can be bent to the desired angle first and then screwed in place on the roof 300, whereupon the lower end of the mounting hangs almost vertically and the brackets 100 can easily be hung in place before the gut-

ters are laid and locked therein in a conventional manner.

[0025] Figure 6 shows the same principle, here too with the gutter bracket 100 mounted.

[0026] Thus, it can be seen from the figures that the bracket 100 can be fastened releasably to a gutter by means of fastening elements 120, 130, and that the bracket 100 is thus releasable from the mounting 200, 200' whilst the gutter locks 120, 130 fasten the bracket 100 to a gutter. The mounting 200, 200' is capable of being mounted to a structure, which may be a roof at an angle of α or a wall 300, eaves 310 or another structure, where the mounting is adjustable about a break point k (see Figure 8) in such manner that the second end 202 of the mounting can assume an angle β relative to the first end 201, so as to allow a precise installation of a gutter via the bracket 200 fixed on the mounting.

[0027] When the mounting 200 is bent and mounted to the structure, the second end of the mounting has an almost vertical position ($\alpha + 90^\circ$), whilst the first end 201 assumes an angle almost equal to α .

[0028] The skilled artisan will understand that the roof gutter hanger according to the invention may also include embodiments where instead of only one slot-and-tongue pair 110, 120, there may be a plurality of such pairs, i.e., two or more slots 110 and similarly two or more tongues 210.

[0029] Similarly, the slot or slots 110 may be of any shape, not necessarily elongate as shown in the drawings, and the second fastening device(s) 210 may also come in other forms than the illustrated tongue. For example, the second fastening device may be one or more pins, bolts or the like which fit into corresponding openings 110.

[0030] Furthermore, the skilled artisan will understand that the roof gutter hanger according to the invention may also include embodiments where the first fastening device 110 is, e.g., a tongue and the second fastening device 210 is, e.g., a slot, i.e., that the fastening devices have switched places.

Claims

1. A roof gutter hanger, **characterised by** a first hanger member (100) comprising at least a first fastening device (110), and a second hanger member (200; 200') comprising at least a second fastening device (210) for releasable mounting to the first hanger member (100) via the at least one first fastening device (110), so as to allow a selective connection and disconnection of the two hanger members (100, 200; 200').
2. A hanger according to claim 1, **characterised in that** the first hanger member (100) is adapted for mounting to a gutter and further comprises means (140) for attachment to a structure (300), and that

the second hanger member (200; 200') comprises means (240) for attachment to a structure (300).

(300) assumes an almost vertical position ($\alpha + 90^\circ$), whilst the first end (201) of the hanger member assumes an angle equal to α .

3. A hanger according to claim 1, **characterised by** two or more first fastening devices (110) and two or more second fastening devices (210). 5
4. A hanger according to claim 1 or 3, **characterised in that** the at least one first fastening device (110) is a slot and the second at least one fastening device (210) is a tongue. 10
5. A hanger according to claim 1 or 3, **characterised in that** the at least one first fastening device (110) is a tongue and the second at least one fastening device (210) is a slot. 15
6. A hanger according to claim 1 or 3, **characterised in that** the at least one first fastening device is an opening having a shape that permits releasable fastening of the at least one second fastening device (210), and that the at least one second fastening device (210) is a projecting element having a shape which permits releasable fastening of the at least one first fastening device (110). 20
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7. A hanger according to claim 1 or 3, **characterised in that** the at least one first fastening device (110) is a projecting element having a shape which permits releasable fastening of the at least one second fastening device (210), and that the at least one second fastening device (210) is an opening having a shape which allows releasable fastening of the at least one first fastening device (110). 30
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8. A hanger according to claim 1, **characterised in that** the first hanger member (100) can be releasably fastened to a gutter by means of fastening elements (120, 130), and that the first hanger member (100) is thus releasable from the second hanger member (220; 200') whilst the fastening elements (120, 130) fasten the first hanger member (100) to a gutter. 40
9. A hanger according to claim 1, **characterised in that** the second hanger member (200; 200') is capable of being mounted to a structure (300) which has an angle α relative to the horizontal plane, where the second hanger member (200; 200') is adjustable about a break point k in such manner that the second end (202) of the hanger member can assume an angle β relative to the first end (201) of the hanger member, so as to allow a precise installation of a gutter via the first hanger member (100). 45
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10. A hanger according to claim 9, **characterised in that** the second end (202) of the hanger member after adjustment and mounting to the structure

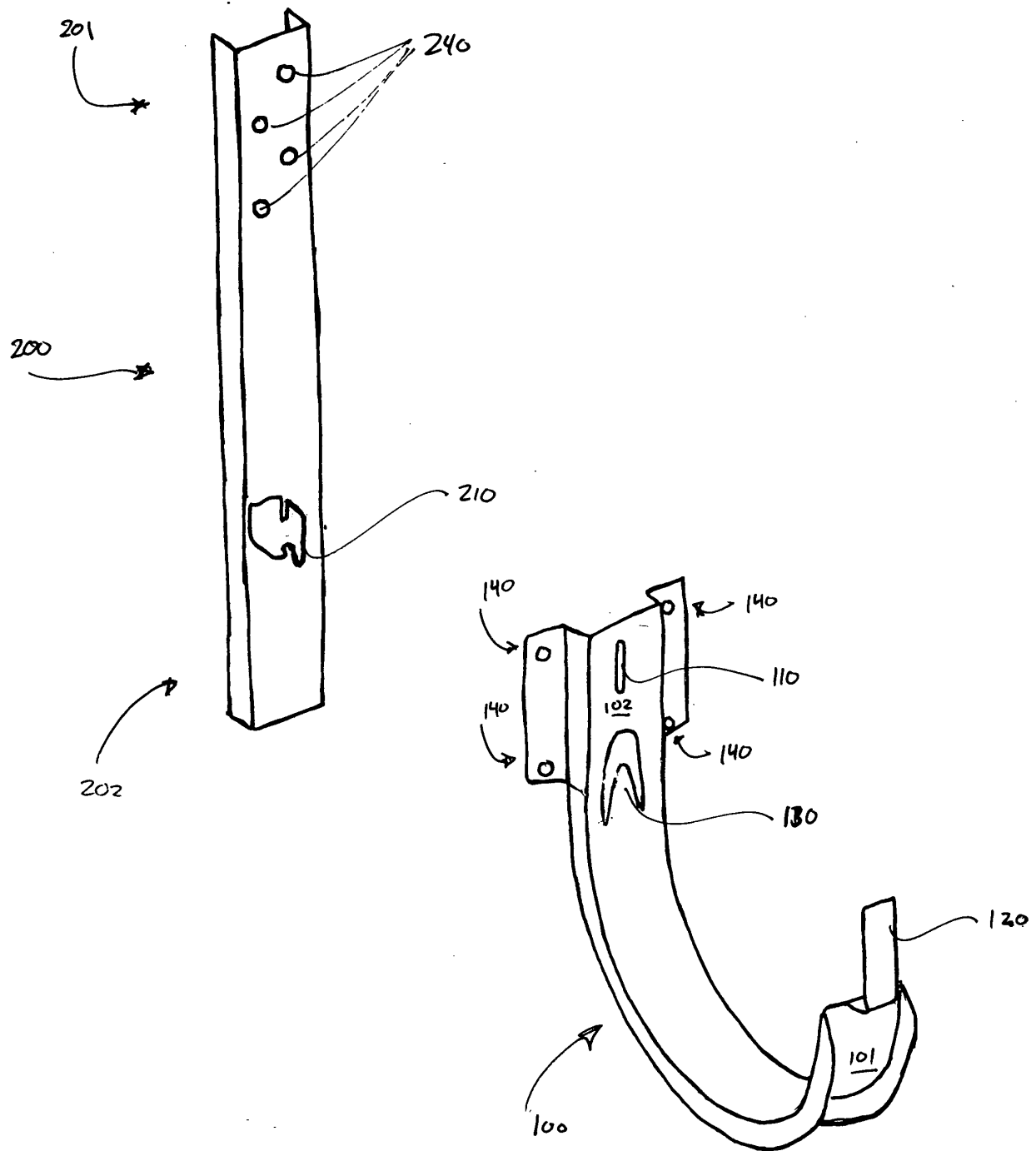


FIG. 1

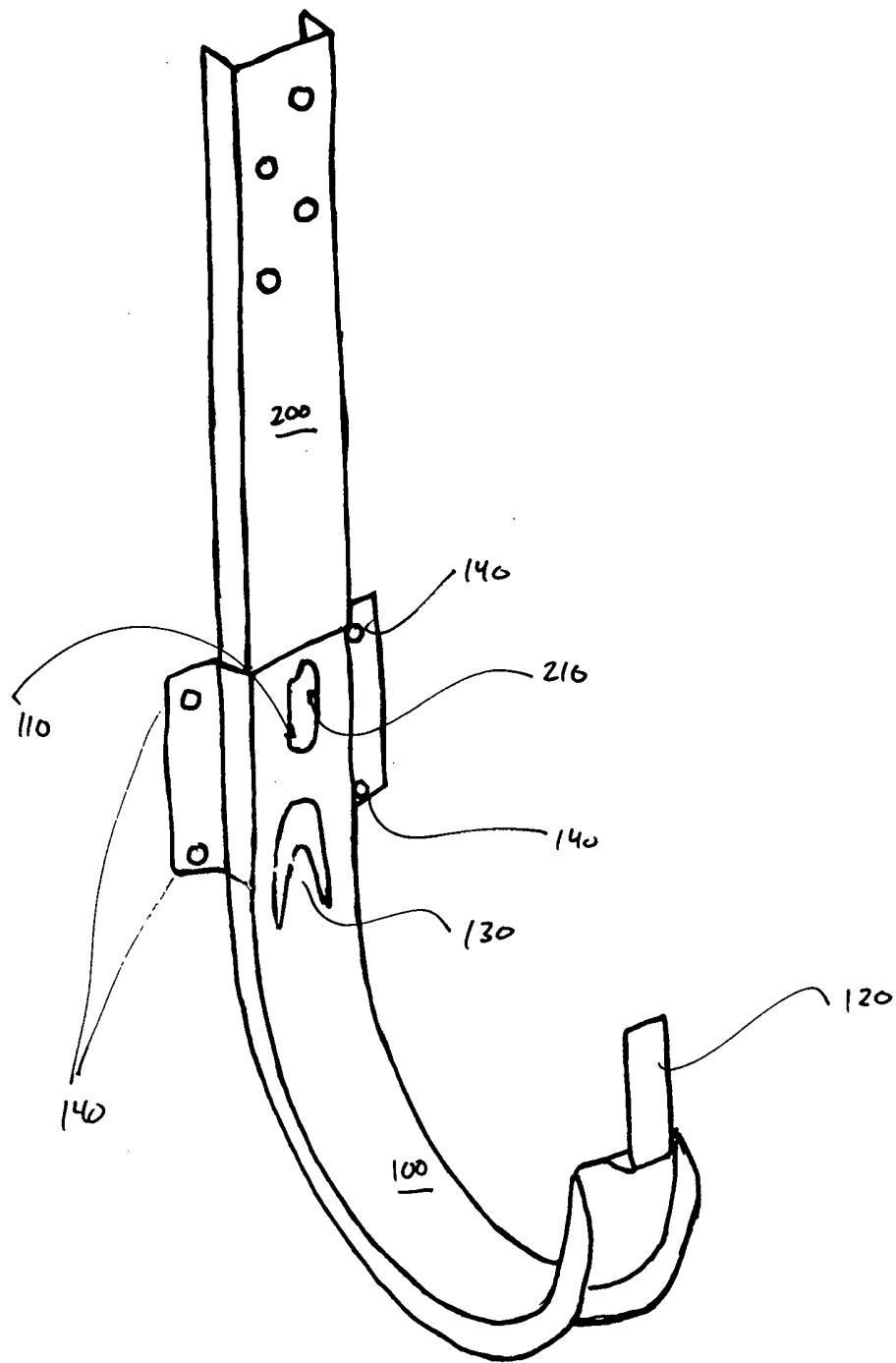


FIG. 2

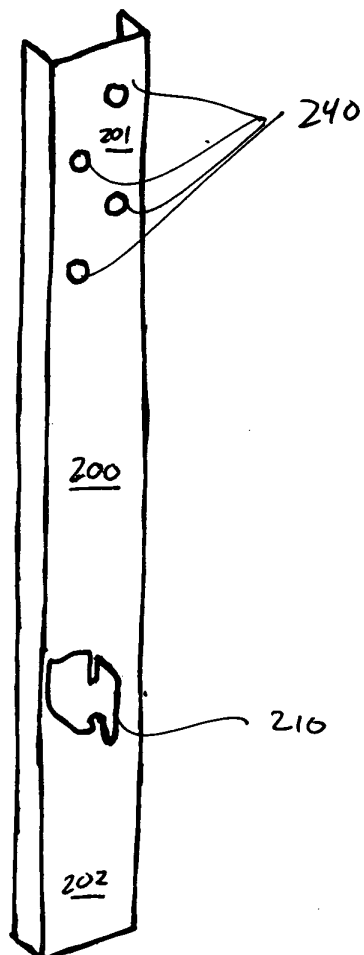
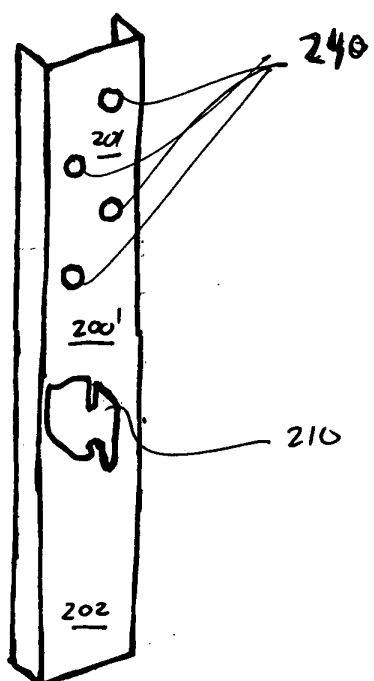


Fig. 3

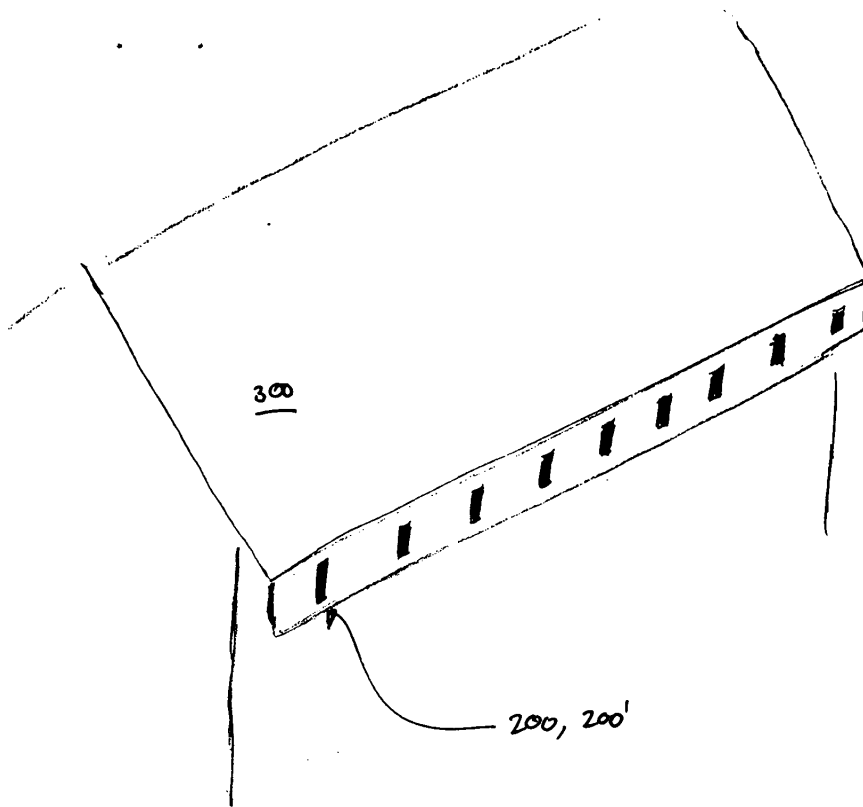


Fig 4

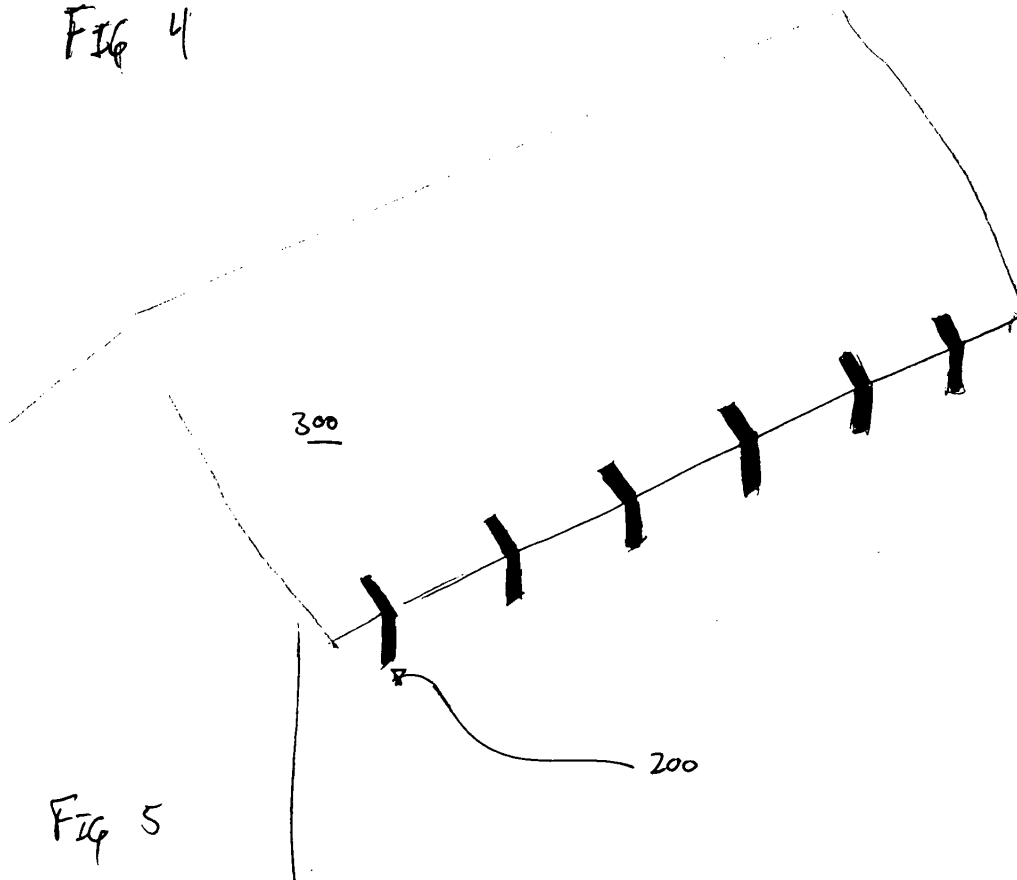
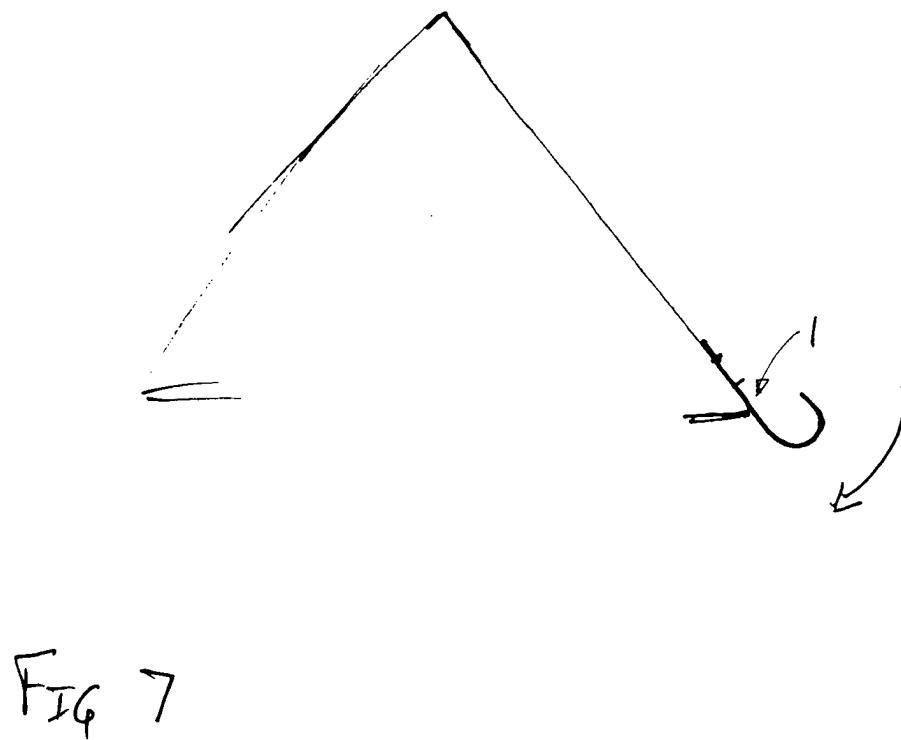
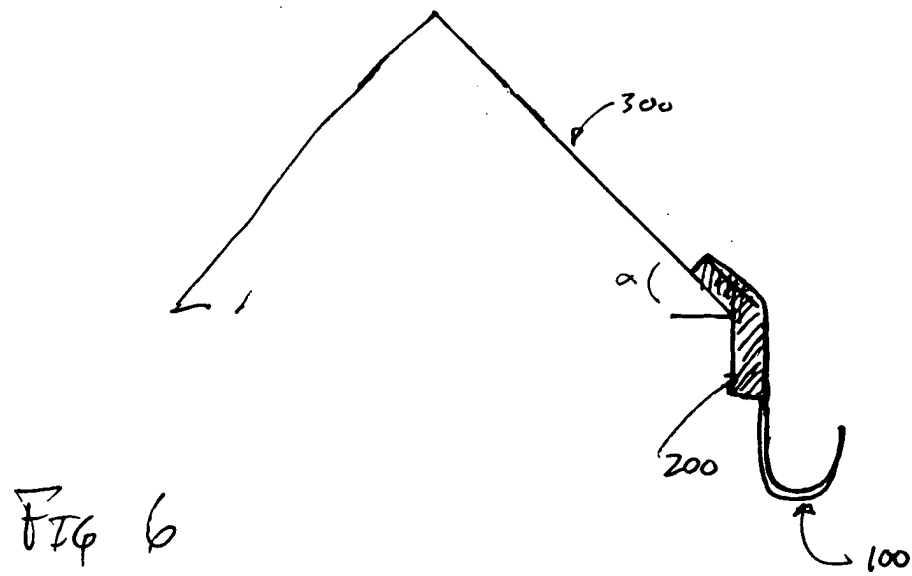


Fig 5



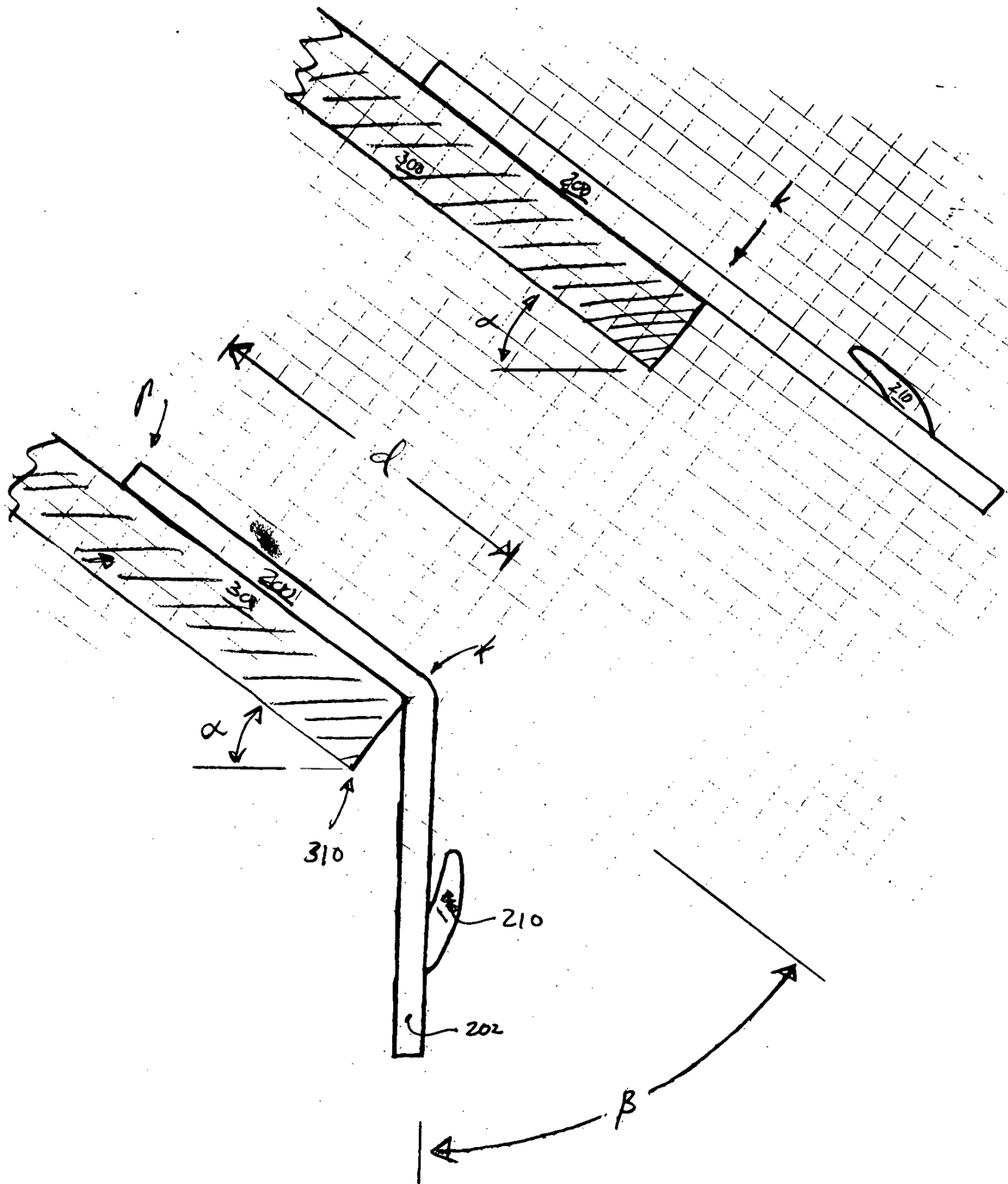


FIG. 8

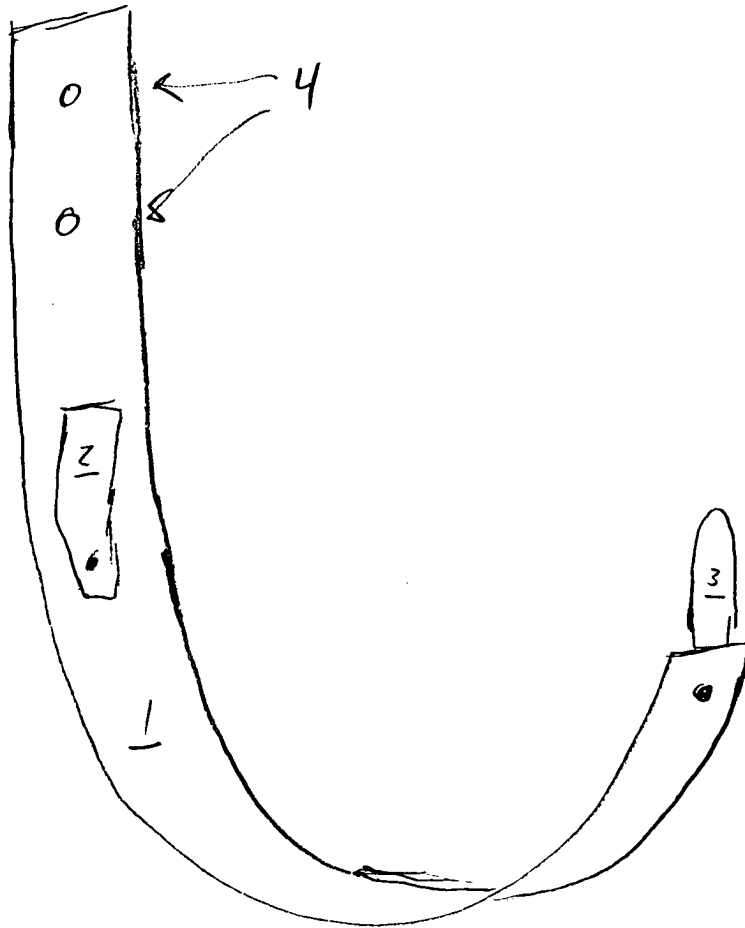


FIG. 9



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EUROPEAN SEARCH REPORT

Application Number
EP 03 00 3729

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	WO 96 19624 A (KEYTOWN PTY LTD ;AXFORD PAUL PHILLIP JOHN (AU)) 27 June 1996 (1996-06-27) * page 4, paragraph 3; figures *	1,5,7	E04D13/072
X	FR 1 539 908 A (VADOT RENE JEAN MARCEL) 20 September 1968 (1968-09-20) * page 2, column 2, line 7 - line 8 *	1,2,7-10	
X	US 1 755 453 A (MULLEN CHARLES P) 22 April 1930 (1930-04-22) * figures 1-6 *	1,3,5, 7-10	
X	GB 2 258 473 A (BROOME BARRY RICHARD) 10 February 1993 (1993-02-10) * figures *	1,3,4,6, 8	
X	FR 1 462 434 A (ETABLISSEMENTS MARAIS) 23 February 1967 (1967-02-23) * figure 14 *	1,5,7-10	
A	DE 70 46 013 U (GEORG MEZ) 8 October 1973 (1973-10-08) * page 10, paragraph 2 * * page 12, paragraph 2; figure 1 *	9,10	TECHNICAL FIELDS SEARCHED (Int.Cl.7) E04D
The present search report has been drawn up for all claims			
Place of search THE HAGUE		Date of completion of the search 4 June 2003	Examiner Demeester, J
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			

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

EP 03 00 3729

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
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04-06-2003

Patent document cited in search report		Publication date	Patent family member(s)	Publication date
WO 9619624	A	27-06-1996	AU 689012 B2	19-03-1998
			AU 4322196 A	10-07-1996
			WO 9619624 A1	27-06-1996
			EP 0799355 A1	08-10-1997
			NZ 297939 A	24-11-1997
FR 1539908	A	20-09-1968	BE 717191 A	02-12-1968
			LU 56364 A1	04-10-1968
			NL 6810973 A	11-02-1969
US 1755453	A	22-04-1930	NONE	
GB 2258473	A	10-02-1993	NONE	
FR 1462434	A	23-02-1967	NONE	
DE 7046013	U		NONE	