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(54) **Progressive support guides for large loads in furniture**

(57) Three consecutive sections (1), (2) and (3), in longitudinal axial alignment with the support bearings by intermediate section (2) prevent vertical and sideways pitching, with U-section (1) provided with a convex curvature (1.2) antagonistic of the convex rolling paths (1.3) both for displacement and lever head with respect to

bearing (4), inverse to the displacement and lever head of bearing (5) with respect to intermediate section (2), with bearings (7) and (8) also supporting section (3) in its retracted and extended positions, while a further bearing (6) together with (5) clamp and guide section (3) without pitching.

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Description

OBJECT OF THE INVENTION

[0001] The present invention relates to progressive support guides for large loads in furniture, from among telescoping means for this end provided with bearings.

[0002] This invention is characterised by a particular construction of the guides which allows full longitudinal axial alignment of the sections with the bearings, eliminating lateral pitching.

BACKGROUND OF THE INVENTION

[0003] Telescoping devices based on three progressive guides are well known and employed, for moving both small loads and medium or large loads, more specifically, on the order of 150 kg.

[0004] These telescoping devices have an imprecise motion, so that the longer their extension the greater lateral pitch, with the resulting maladjustment and functional insecurity problems.

[0005] This is also true of both common types of sliding devices which employ balls or bearings.

[0006] The applicant is not aware of any devices among the aforementioned type which employ bearings in the progression, of the characteristics which are disclosed in the present invention, preferably applicable to kitchen furniture.

DESCRIPTION OF THE INVENTION

[0007] The invention object of the present invention relates to progressive support guides for large loads in furniture, from among telescoping devices meant for horizontal displacement of loads up to 150 kg. and among these, preferably those provided with displacement and guide bearings for the guide sections.

[0008] The invention is characterised by a particular construction of the guides based on three sections inserted consecutively, allowing a full axial longitudinal alignment of these sections with the bearings, by means of a U-section with internally bent wing ends and provided with a convex upper part, antagonistic of a further similar curvature of the end of the U-section core.

[0009] Along this curvature, and as far as the proximities of its internal end, not curved, slides the upper bearing of the convex section, also placed on the internal side and next to the intermediate section, while a further two lower bearings of this second section, one next to the inner half and another central on the section, and both with a concave rolling surface, slide on the convex surface of the rolling path of the core of the first section wing ends, preventing sideways pitching of the telescoping extension of the unit.

[0010] Said rolling path while maintaining its curvature, is provided with two conical recesses for two housings which match these lower bearings at the upper

bearing's stop point, so that near the furniture closing points, the wheels slide due to the weight of the unit, achieving a perfect closing of the extendable set with the furniture.

[0011] The intermediate section is also provided with two bearings, one of which is central on the section and immediately above the top central one, vertically aligned, do that they house and clamp between them the sliding plate of the third section, and so fully eliminate any remaining sideways pitch.

[0012] This action is complemented by the third section resting on a fifth bearing, placed on the bottom and on the end of the intermediate section, preventing its vertical pitch, just as the intermediate section prevents it together with the first upper bearing and the pair of central bearings aligned vertically, so that the first lower bearing supports the third section when the latter is retracted.

DESCRIPTION OF THE DRAWINGS

[0013] Further characteristics and advantages of the present invention will become apparent in view of the accompanying drawings, where for purposes of illustration only and in no way meant as a definition of the limits of the invention, the following is shown:

[0014] Figure 1 shows two views of the telescoping guides of the invention extended, in elevation and plan view.

[0015] Figure 2 shows a transverse elevation view of the guide set.

[0016] Figures 3 to 5 show the construction of the three sections in their progressive order: internal, intermediate and external.

[0017] Figure 6 is an enlargement of the travelling bearing support placed in the top central area.

PREFERRED EMBODIMENT OF THE INVENTION

[0018] In view of the above, the present invention relates to progressive support guides for large loads in furniture, preferably for kitchen furniture and the like, such as bottle racks in wine cellars, from among telescoping devices for horizontal displacement and guidance of loads up to 150 kg., from among those provided with displacement and guidance bearings of the guide sections, based on three sections (1), (2) and (3), inserted consecutively, essentially characterised in that they allow a full longitudinal axial alignment of these sections with their bearings, with section (1) constructed as a U-section with the wing ends folded inwards (1.1) and provided with an upper convex curvature (1.2), antagonistic of a further similar curvature of the core end (1.4) of the U-section in a convex rolling path (1.3) for sliding and lever head with respect to bearing (4), and with a similar sliding and lever head function in an inverse position of bearing (5) with respect to intermediate section (2), also with a U-section and with opposing bent wing ends, al-

beit in a regular construction, while a further two lower end bearings (7) and (8), in their retracted and telescopically extended positions support inverted U section (3) with open wings and concave shape, while yet another central bearing (6), together with antagonistic bearing (5), clamp and guide section (3) as it extends without pitching. 5

[0019] The convex rolling path (1.2) is provided with two conical recesses (1.3.1) for housing lower bearings (7) and (6) at the end stop point of upper bearing (4), which by sliding force a perfect closing by gravity of the extendable unit with the furniture. 10

[0020] The essence of the invention is not altered by variations in materials, shape, size or arrangement of the composing elements, described in a non-limiting manner, and sufficing for its reproduction by an expert in the field. 15

Claims

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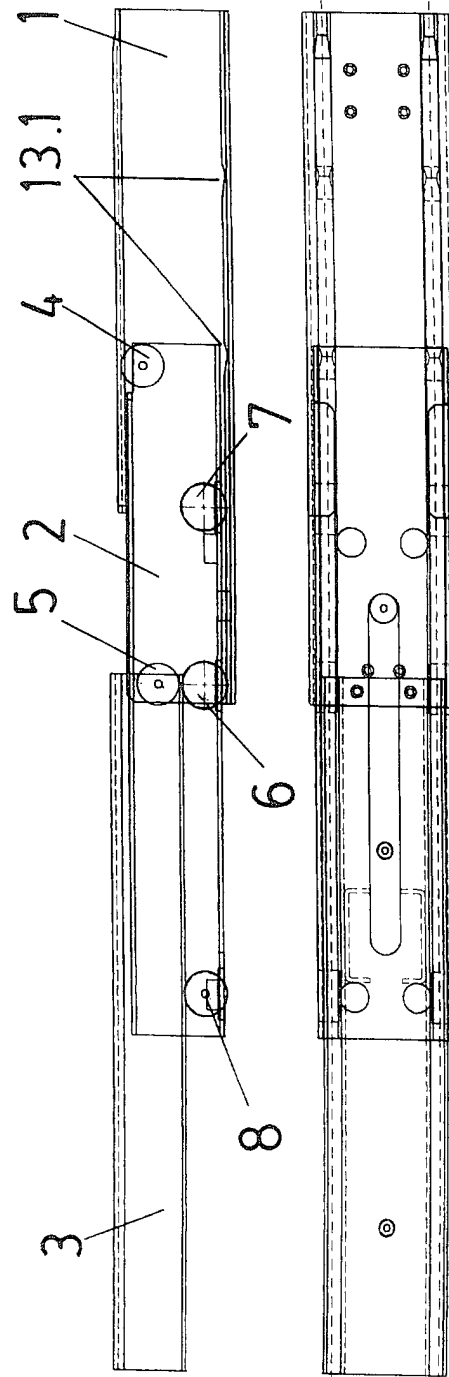
1. Progressive support guides for large loads in furniture, from among telescoping horizontal displacement devices for loads on the order of up to 150 kg., provided with displacement and guide bearings for the guide sections, based on three sections (1), (2) and (3) inserted consecutively, essentially **characterised in that** they allow the full axial longitudinal alignment of these sections with the bearings, preventing vertical and sideways pitching, with section (1) constructed as a U-section with inwardly bent wing ends (1.1) and provided with a top convex curvature (1.2) antagonistic of a further similar curvature of the end of the U-section core (1.4), in the convex rolling path (1.3) for sliding and lever head of bearing (4), and with a similar sliding and lever head function in inverted arrangement of bearing (5) with respect to intermediate section (2), while a further two lower end bearings (7) and (8), respectively, in the telescoping retraction and extension positions support section (3), while another central bearing (6), together with antagonistic bearing (5), clamp and guide said section (3) without pitching in its extension. 25 30 35 40

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2. Progressive support guides for large loads in furniture, as in above claim, **characterised in that** the convex rolling path (1.3) is provided with two conical recesses (1.3.1) for housing lower bearings (7) and (6) at the end point of upper bearing (4) which sliding force a perfect closing by gravity of the extractable set with the furniture. 50

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FIG.1



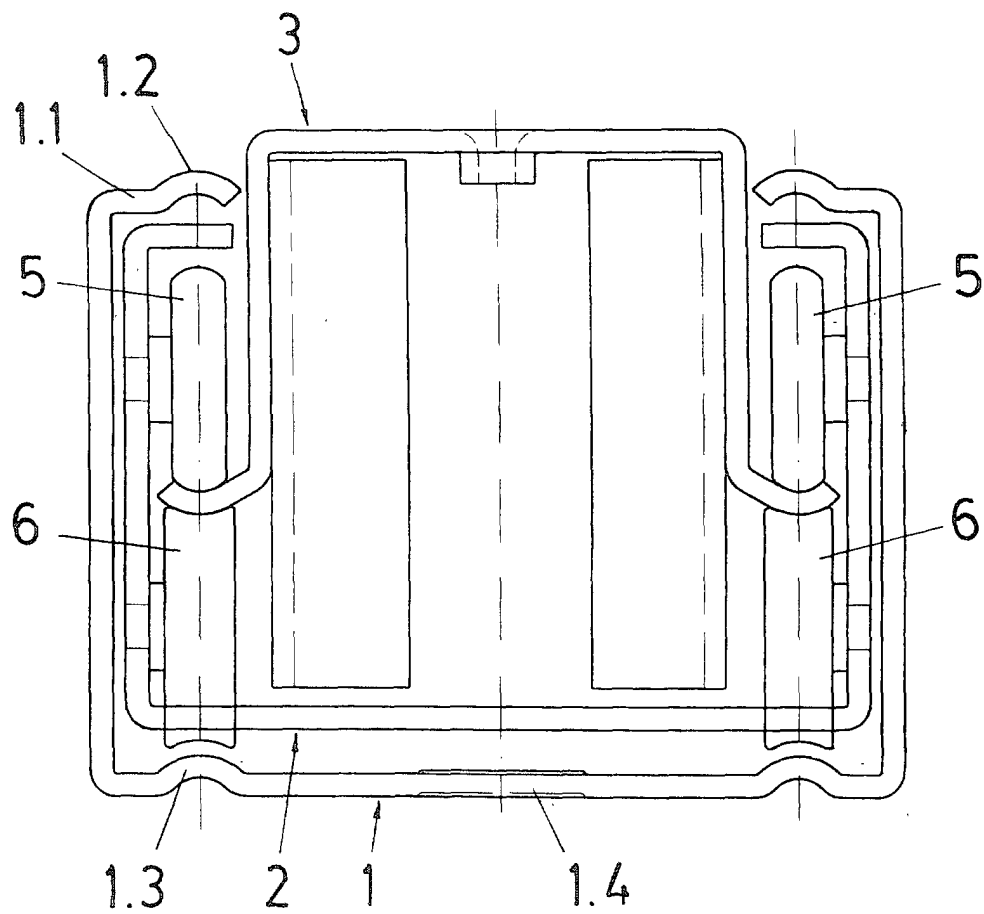
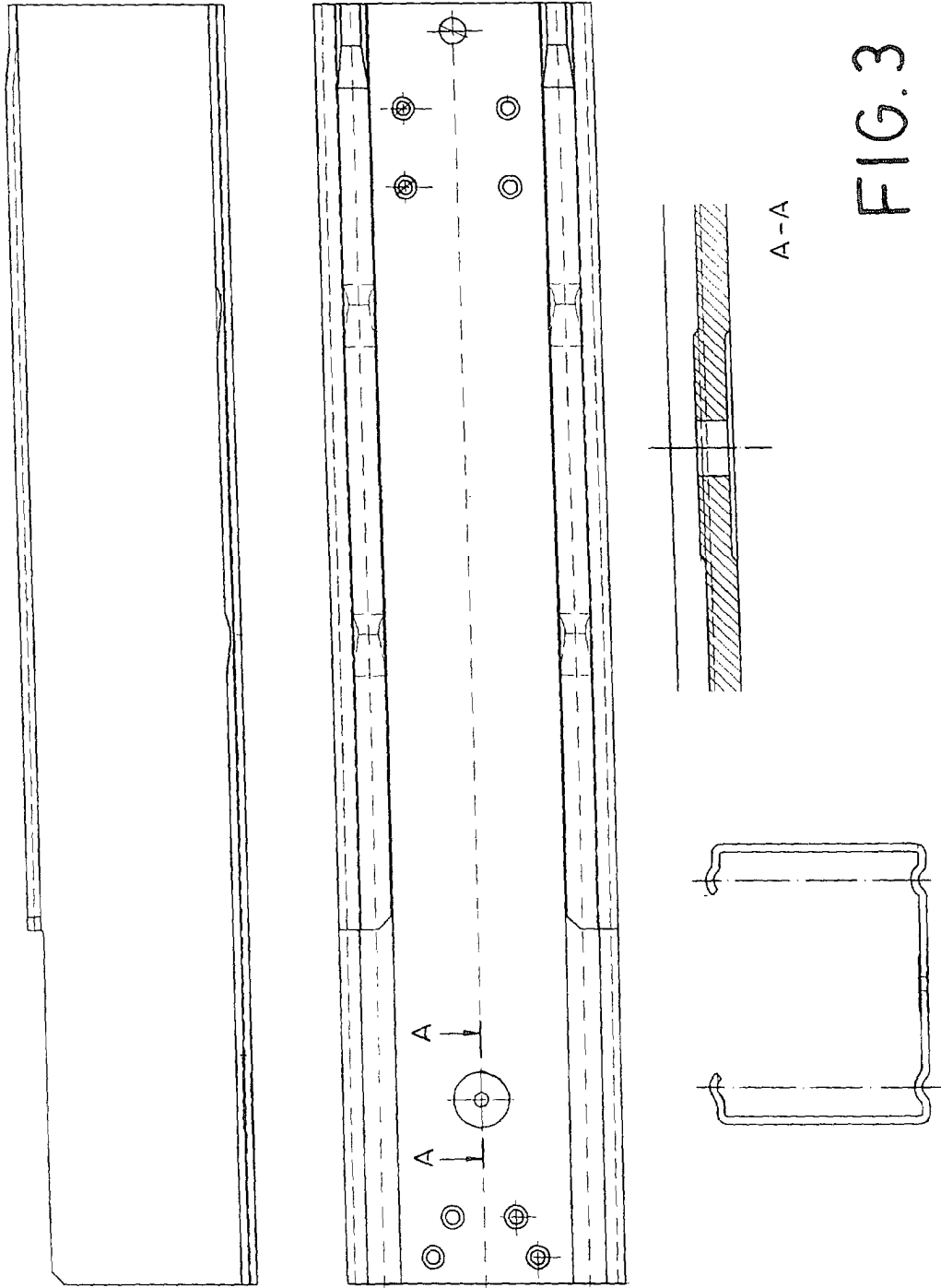
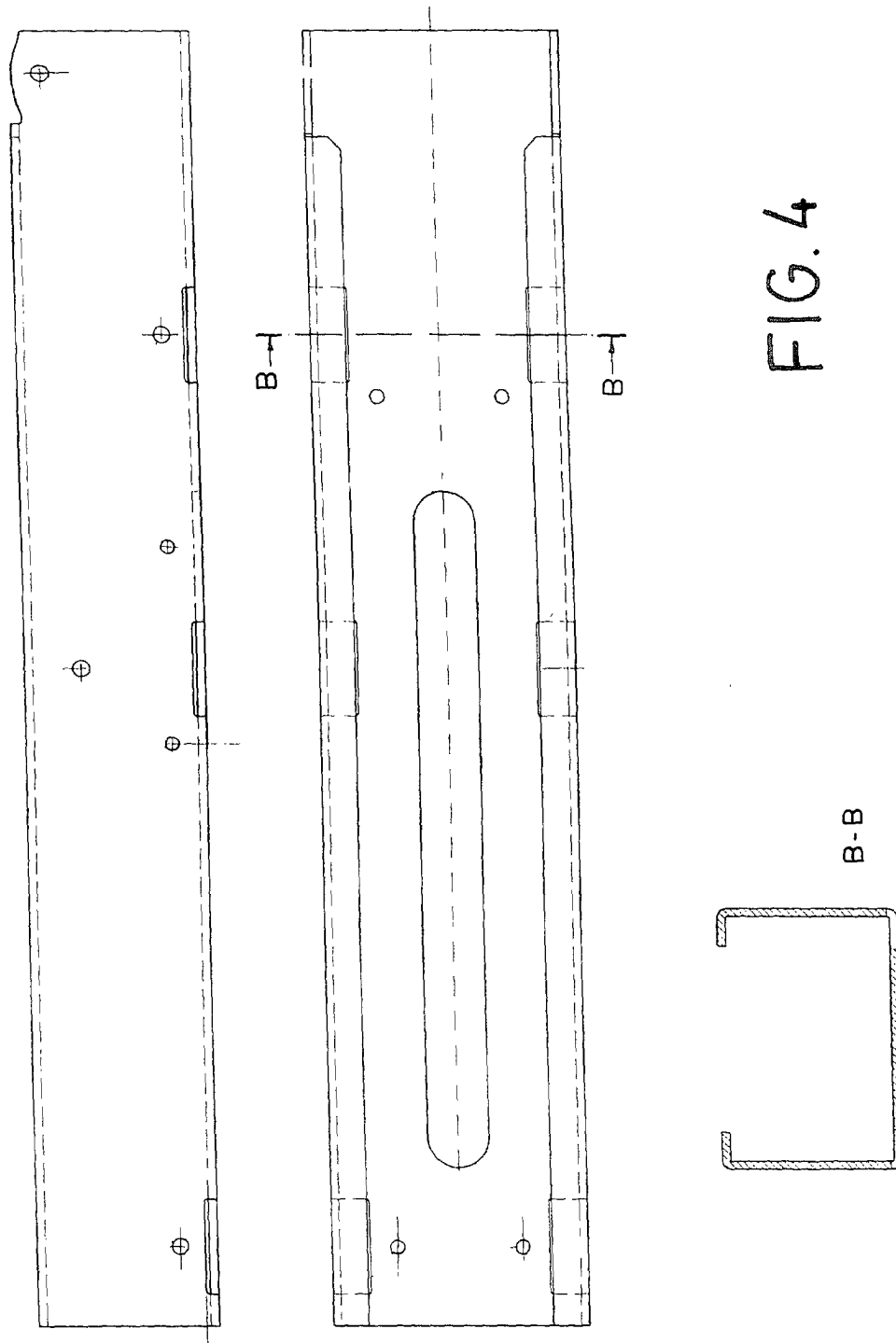


FIG. 2





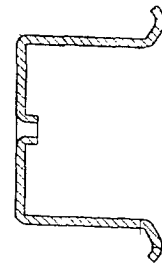
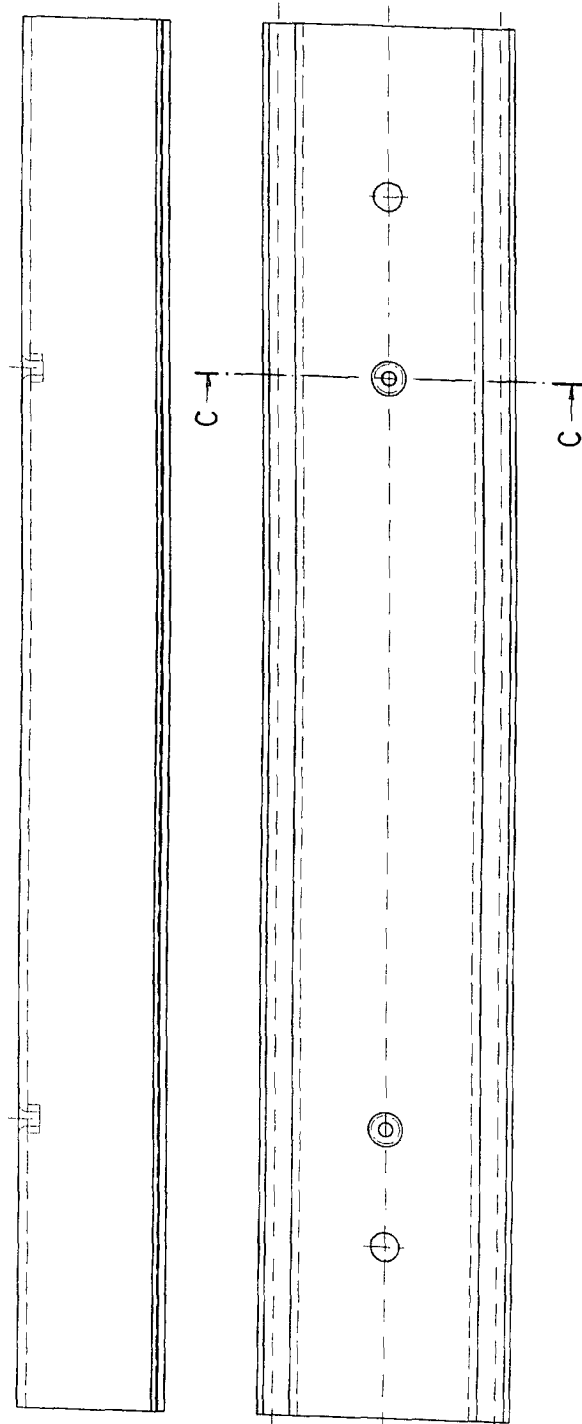
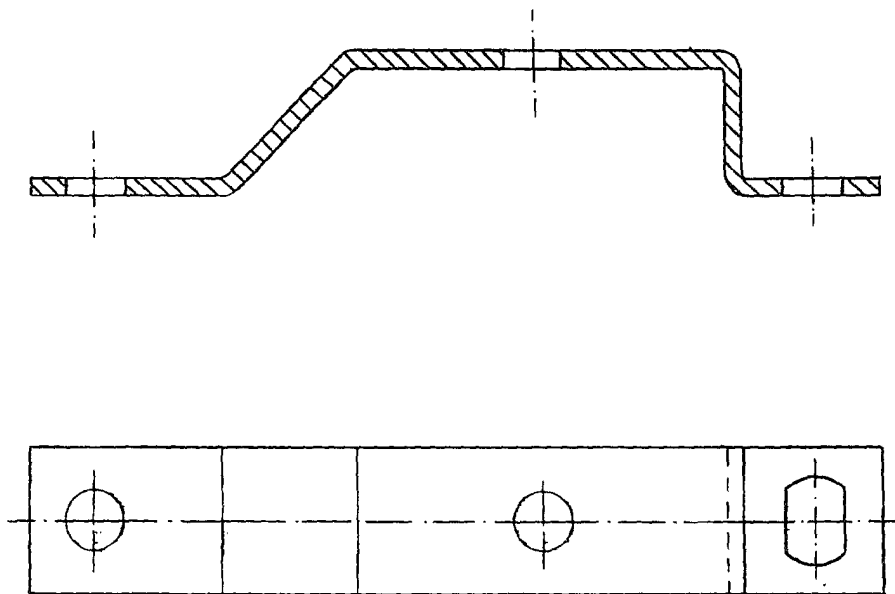


FIG. 5

FIG. 6





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EUROPEAN SEARCH REPORT

Application Number
EP 00 50 0039

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)
Y	DE 298 09 614 U (FULTERER GMBH) 10 September 1998 (1998-09-10) * page 3, paragraph 2 - page 4, paragraph 4 * * figures 1-8 *	1	A47B88/04 A47B88/10
Y	DE 23 54 669 A (GREEB MARTIN) 15 May 1975 (1975-05-15) * page 2, last paragraph * * page 7, last paragraph * * figure 3 *	1	
A	DE 299 06 227 U (VAUTH SAGEL GMBH & CO GRUNDSTU) 5 August 1999 (1999-08-05) * page 3, line 8 - line 12 * * page 5, line 1 - page 7, last line * * figures 1-8 *	1,2	
A	DE 197 51 384 A (FULTERER GMBH) 25 June 1998 (1998-06-25) * column 3, line 50 - line 67 * * figures 8,9,11 *	1,2	
			TECHNICAL FIELDS SEARCHED (Int.Cl.7)
			A47B
The present search report has been drawn up for all claims			
Place of search THE HAGUE		Date of completion of the search 28 August 2000	Examiner van Hoogstraten, 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			

EPO FORM 1503 03.92 (P04C01)

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

EP 00 50 0039

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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28-08-2000

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