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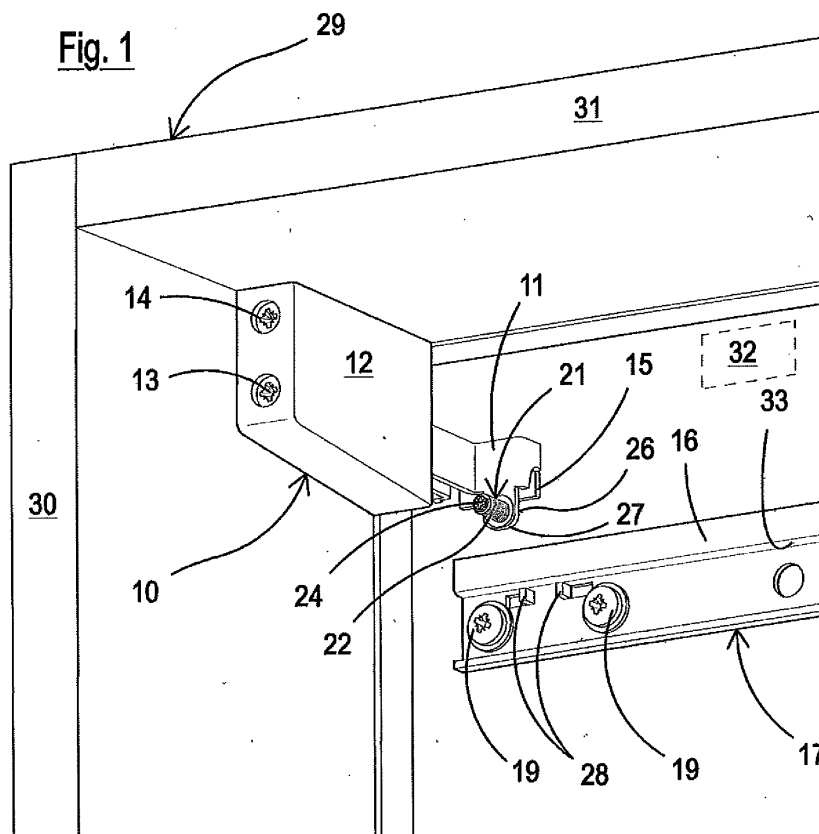
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(54) **Perfected anti-disengagement system for wall cupboards**

(57) An anti-disengagement system for wall cupboards wherein a cupboard (29) is hooked to a support (17) fixed to the wall (18) by means of a hook (11) of a hanging bracket device (10) of the type in which reciprocal constraint-releasable means (21) are positioned between said hook (11) and said support (17), consisting

of a bead (21) screwed onto said hook (11) and suitable for interfering with said support (17), is characterized in that blocking or stop elements (28) cooperate with said bead (21), against side movements of the bead (21) itself caused by horizontal forces acting on said cupboard (29).



Description

[0001] The present invention relates to a perfected anti-disengagement system for wall cupboards, hooked to a support fixed to the wall, generally a bar or metal plaque suitably shaped.

[0002] As is well-known to experts in the field, a system for constraining a cupboard to the wall envisages the use of a hanging bracket device comprising a hook which extends to the rear through the lining (if any) of the cupboard, to be freely hooked to the above-mentioned bar or plaque fixed to the wall.

[0003] Hanging brackets of this type are known, for example, from patents EP 0033179 B1 and EP 0632979 A1, to which reference should be made for further clarifications and which should be considered as being an integral part of the present description.

[0004] If direct upward forces are applied to the hooked cupboard, it can become disengaged from the support and fall, causing damage, even serious, not only to objects but above all to people.

[0005] This possibility is at present even more probable as it is becoming increasingly customary to assemble wall cupboards at relatively low heights from the floor, which increases the risk indicated above of accidental disengagement, above all on the part of children.

[0006] Furthermore, safety regulations have entered and are entering into force in various countries, which impose the provision of accidental anti-disengagement systems, associated with wall cupboards.

[0007] European patent application 10708147.3, filed on 05/03/2010, in the name of the same Applicant, proposes an extremely satisfactory solution to the above problem of avoiding the accidental disengagement of wall cupboards from their supports, caused by direct upward forces applied to the cupboard itself.

[0008] According to European patent application 10708147.3, to which reference should be made for clarifications and which should be considered as being an integral part of the present description, an anti-disengagement system is proposed for cupboards wherein a piece of furniture is hooked to a fixed wall support by means of a hook of a hanging bracket device, characterized in that reciprocal constraint-releasable means are envisaged between said hook and said support.

[0009] It is now deemed highly desirable, and requested, to prevent the accidental disengagement of a wall cupboard from its support, also due to horizontal forces, directed sideways with respect to the shoulders of the same cupboard, which can also be combined with vertical upward forces.

[0010] The general objective of the present invention is therefore to provide an anti-disengagement system for wall cupboards, hooked to a support fixed to the wall, for example, a shaped metal bar, which safely prevents an undesired disengagement of said cupboard from said bar, also caused by horizontal forces.

[0011] Another objective of the invention is to provide

an anti-disengagement system which is simple to construct and which does not complicate the assembly of the wall cupboard.

[0012] A further objective of the invention is to provide an anti-disengagement system which is easily releasable, i.e. which allows, if necessary, an easy and fast dismantling of the cupboard from the wall.

[0013] The objectives mentioned above are achieved, according to the invention, by a perfected anti-disengagement system as defined in the enclosed claims, main claim and dependent claims.

[0014] The structural and functional characteristics of the invention and its advantages with respect to the known art will appear clearly evident from the following description, referring to the enclosed drawings which show a possible illustrative embodiment of an anti-disengagement system for wall cupboards, produced according to the innovative principle of the invention.

[0015] In the drawings:

figure 1 is a perspective view illustrating an anti-disengagement system according to the invention with the wall cupboard in the hooking phase to a supporting bar fixed to the wall;

figure 2 is a raised view of the system of figure 1; figure 3 is a sectional view according to the line III-III of figure 2;

figure 4, is a perspective view illustrating the system of figure 1 hooked to the bar fixed to the wall, but not yet activated (operating);

figure 5 is a raised view of the system of figure 4; figure 6 is a sectional view according to the line VI-VI of figure 5;

figure 7 is a perspective view similar to figure 1, illustrating the anti-disengagement system in the activated blocking position on the wall of the cupboard; figure 8 is a raised view of the system of figure 7; figure 9 is a sectional view according to the line IX-IX of figure 8;

figure 10 is an enlarged detail of figure 8;

figure 11 is an enlarged detail of figure 9.

[0016] With reference first of all to figures 1-3 of the drawings, 10 indicates as a whole, a hanging bracket device of the type generally known, for example described by patents EP 0033179 B1 and EP 0632979 A1 to which reference should be made for any clarifications, and which should be considered as being an integral part of the present description, as examples of hanging brackets of the known type.

[0017] The hanging bracket described for purely illustrative and non-limiting purposes, is of the visible type, but the invention can also be equally applied to hanging brackets of the hidden type.

[0018] The hanging bracket 10 comprises a movable hook 11 extending from a box-shaped body 12.

[0019] A mechanism (known) for regulating the position in depth (horizontal) and in height (vertical) of the

hook 11, by means of respective screws 13, 14, is enclosed inside the box-shaped body 12.

[0020] The hook 11 terminates at the front with a tooth 15 destined for being connected to a corresponding section 16 of a metal bar 17 fixed to a wall 18 by means of dowels 19.

[0021] As can be clearly seen from the drawings, the section 16 of the bar 17 defines a channel 20 with the wall 18, where the tooth 15 is housed. The bar 17 has a "C"-shaped section, from whose upper wing the above section 16 extends vertically.

[0022] An anti-disengagement system cooperates with the tooth 15 of the hook 11, and with the bar 17, which, in the embodiment shown in the drawings, consists of a bead 21 comprising a threaded section 22, a tip 23, and a shaped head 24 for a maneuvering tool, for example a screwdriver 25.

[0023] Said bead 21 is screwed into a threaded seat 26, situated on a flange 27 extending downwards from the hook 11. The flange 27 is opposed to the tooth 15, at a suitable height beneath the same.

[0024] Characteristically, according to the invention, side blocking elements, or stops, for example in the form of a pair of opposed interspaced teeth 28 obtained directly from the bar 17, cooperate with the hook 15.

[0025] As can be clearly seen from the drawings, the bead 21 (figures 7-9) is positioned between said teeth 28 with a clearance, when in an operative position, as explained hereunder.

[0026] The hanging bracket device 10, produced as described above, is fixed to a wall cupboard, partially indicated with 29 and comprising shoulders 30, a top 31 and a possible lining 32. More specifically, two of said hanging brackets 10, of which only one is shown, are fixed in correspondence with the upper rear edges (right and left) of said cupboard 29.

[0027] The functioning of the anti-disengagement system according to the invention is clearly illustrated in the operative sequence of figures 1-9 and is briefly as follows.

[0028] The cupboard is hooked to the wall 18, with the bead 21 in the withdrawn non-operative position shown in figures 1-6, by inserting the tooth 15 of the hook 11 into the channel 20 (figures 4-6). In this way, due to the weight of the cupboard 29, the tooth 15 becomes engaged with the section 16 of the bar 17 (figures 4-6).

[0029] With the cupboard 29 thus positioned, the bead 21 is screwed, by means of the screwdriver 25, into the advanced operative position of figures 7-9, so as to insert the tip 23 in the "C"-shaped section of the bar 17, becoming engaged with the undercut formed by the upper horizontal wing 33 of the same.

[0030] In this way, it is evident how, in the case of the accidental application of direct upward forces to the cupboard 29, the interference between the bead 21 and bar 17, prevents disengagement of the tooth 15 from the section 16 of the same bar.

[0031] Furthermore, according to the invention, the presence of blocking teeth 28 or stops, between which

the bead 21 is positioned, prevents side movements of the same bead 21 and therefore the cupboard 29, when subjected to accidental side forces which could disengage the tooth 15 from the channel 20 of the bar 17 and cause the falling of the cupboard.

[0032] In the case of necessity, on the contrary, the intentional disengagement of the tooth 15 of the section 16 of the bar 17, is obtained by simply unscrewing the bead 21, thus bringing it back into the withdrawn non-operative position of figures 1-6.

[0033] The objectives indicated in the preamble of the description have therefore been achieved.

[0034] The protection scope of the present invention is defined by the enclosed claims.

Claims

1. An anti-disengagement system for wall cupboards wherein a cupboard (29) is hooked to a support (17) fixed to the wall (18) by means of a hook (11) of a hanging bracket device (10) of the type in which reciprocal constraint-releasable means (21) are positioned between said hook (11) and said support (17), consisting of a bead (21) screwed onto said hook (11) and suitable for interfering with said support (17), **characterized in that** side blocking or stop elements (28) cooperate with said bead (21), against side movements of the bead (21) itself caused by horizontal forces acting on said cupboard (29).
2. The system according to claim 1, **characterized in that** said side blocking or stop elements consist of opposed interspaced teeth (28) obtained from said support (17), said bead (21) being positioned in an operative position between said teeth (28).
3. The system according to claim 1, **characterized in that** said bead (21) comprises a threaded section (22), a tip (23) and a shaped head (24) for a maneuvering tool (25), said bead (21) is screwed inside a threaded seat (26) of said hook (11), so as to bring said tip (23) into engagement with said support (17) in the sense of preventing the accidental disengagement of said hook (11) from said support (17).
4. The system according to claim 1, **characterized in that** said bead (21) is screwed inside a threaded seat (26) situated on a flange (27) extending downwards from the hook (11), the flange (27) being opposite a tooth (15) of the hook (11) and being positioned at a suitable height beneath the same, so that the cupboard (29) can be hooked to the wall (18) with said bead (21) in a withdrawn position, the bead (11) is then screwed in an advanced position so as to block the tip (23) on the support (17), interfering with it, and positioning it between said blocking or stop elements (28).

5. The system according to claim 4, **characterized in that** said support (17) is a bar having a "C" section with a section (16) on which the tooth (15) of the hook (11) is hooked, the tip (23) of said bead (21) in an advanced position being engaged with said "C" section.

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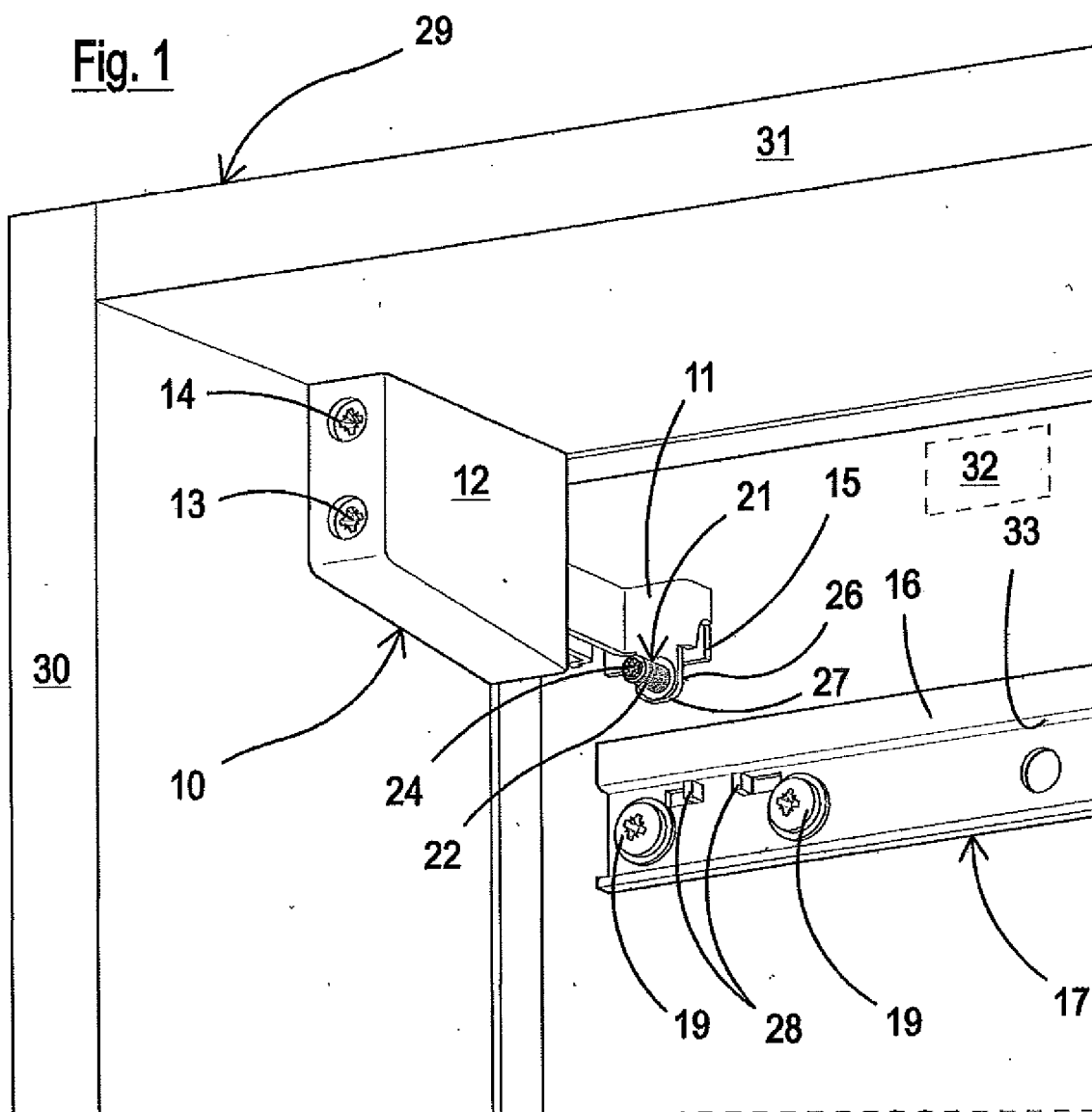


Fig. 2

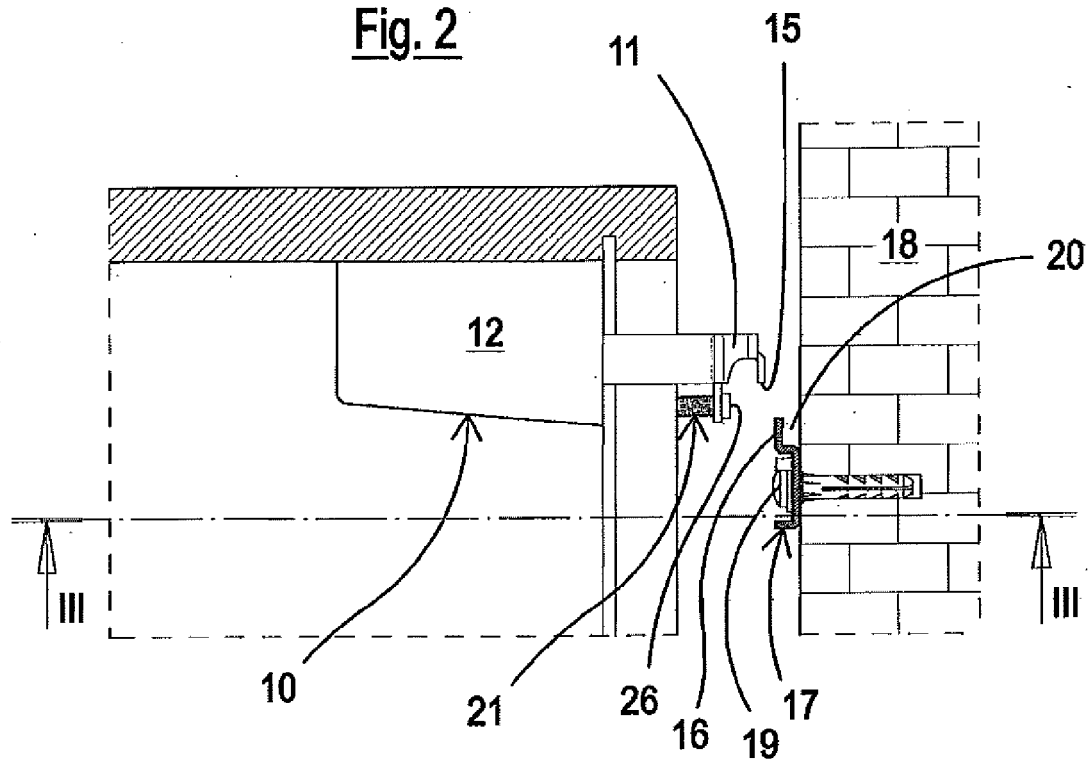
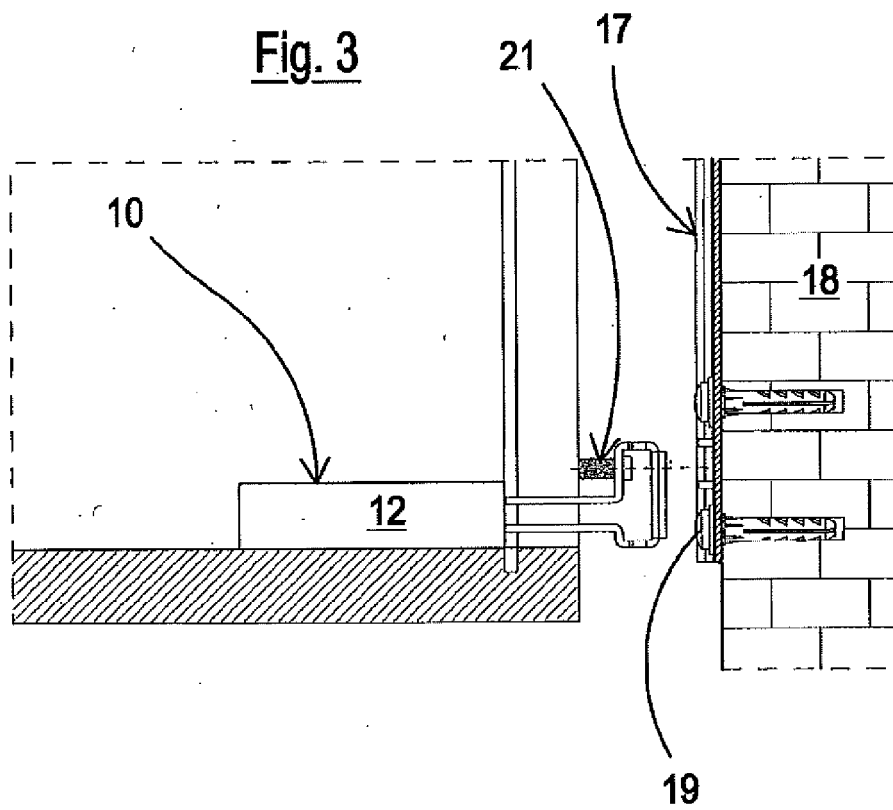


Fig. 3



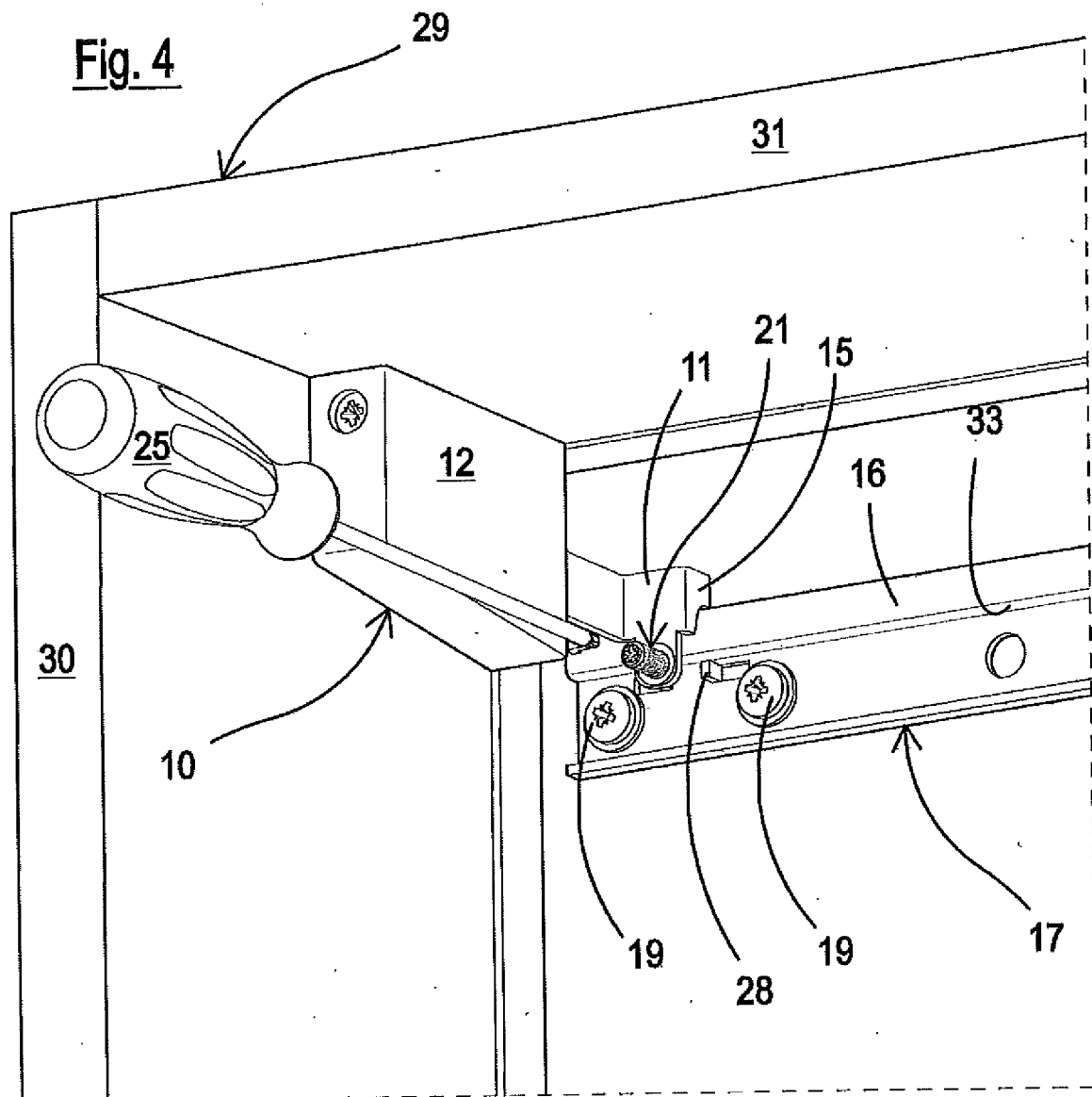


Fig. 5

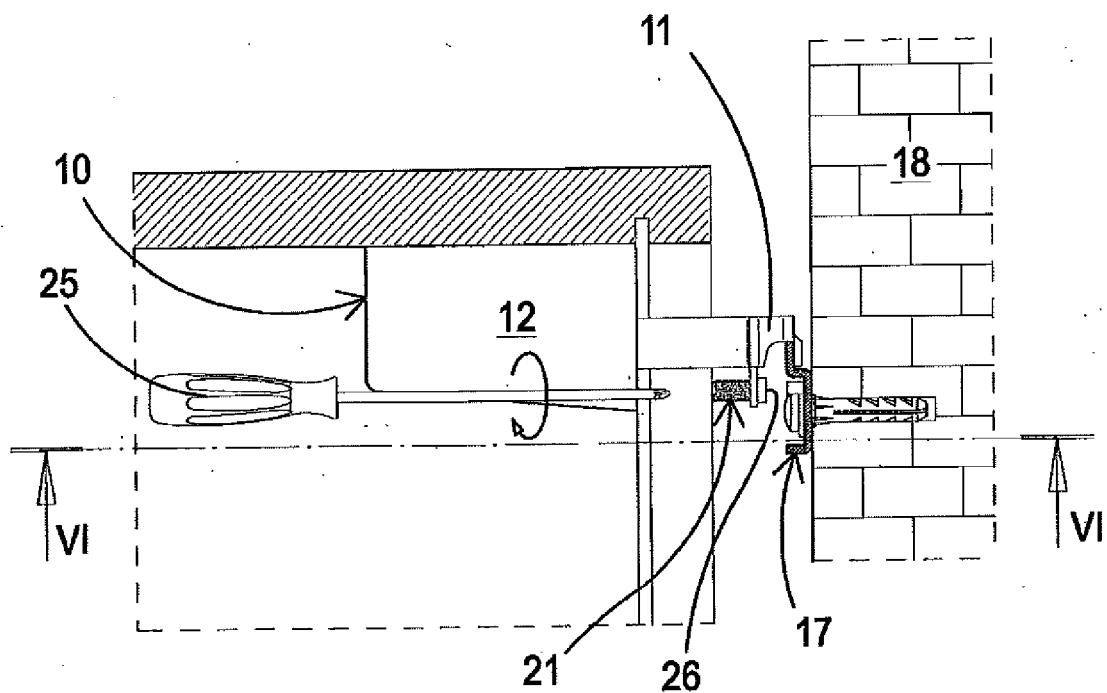
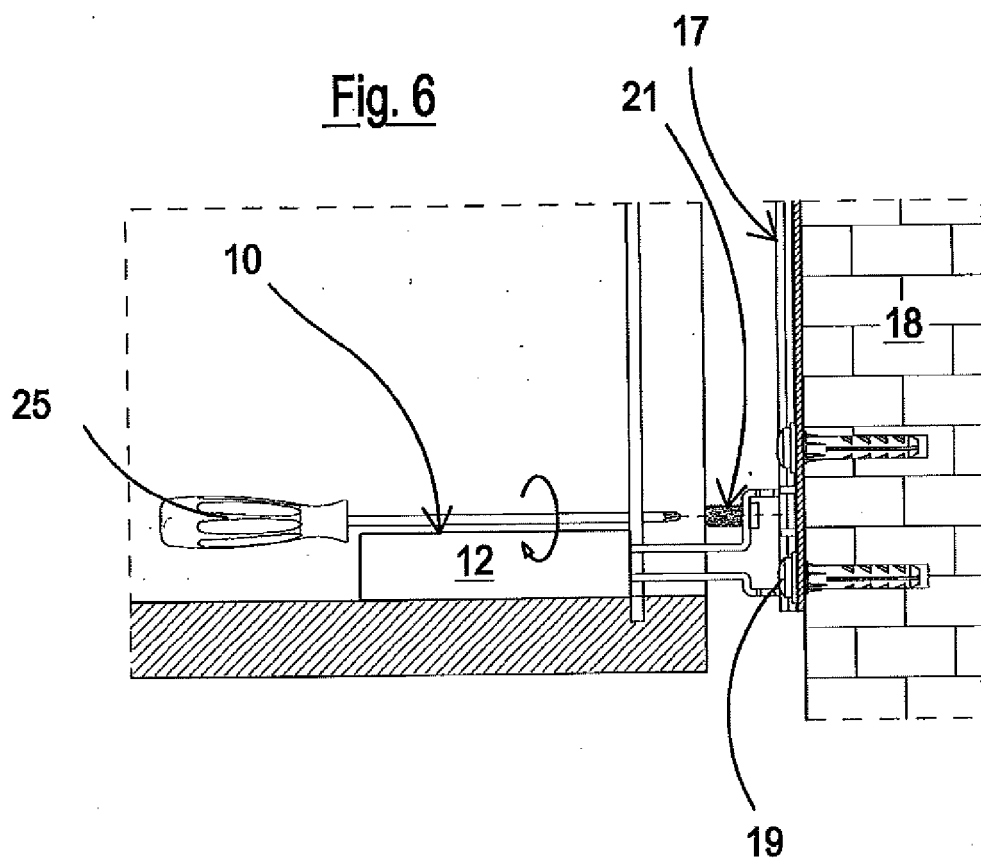


Fig. 6



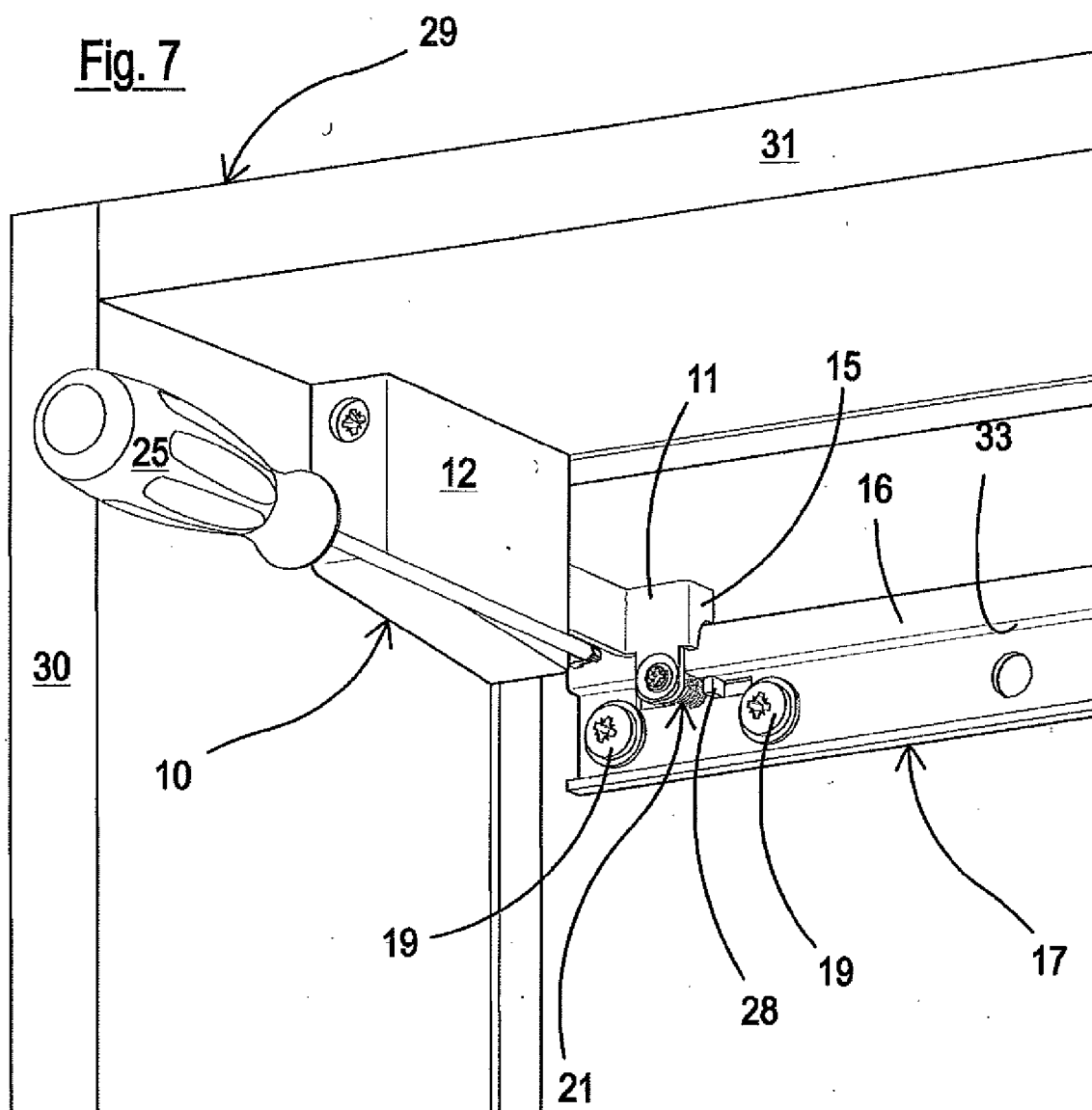


Fig. 8

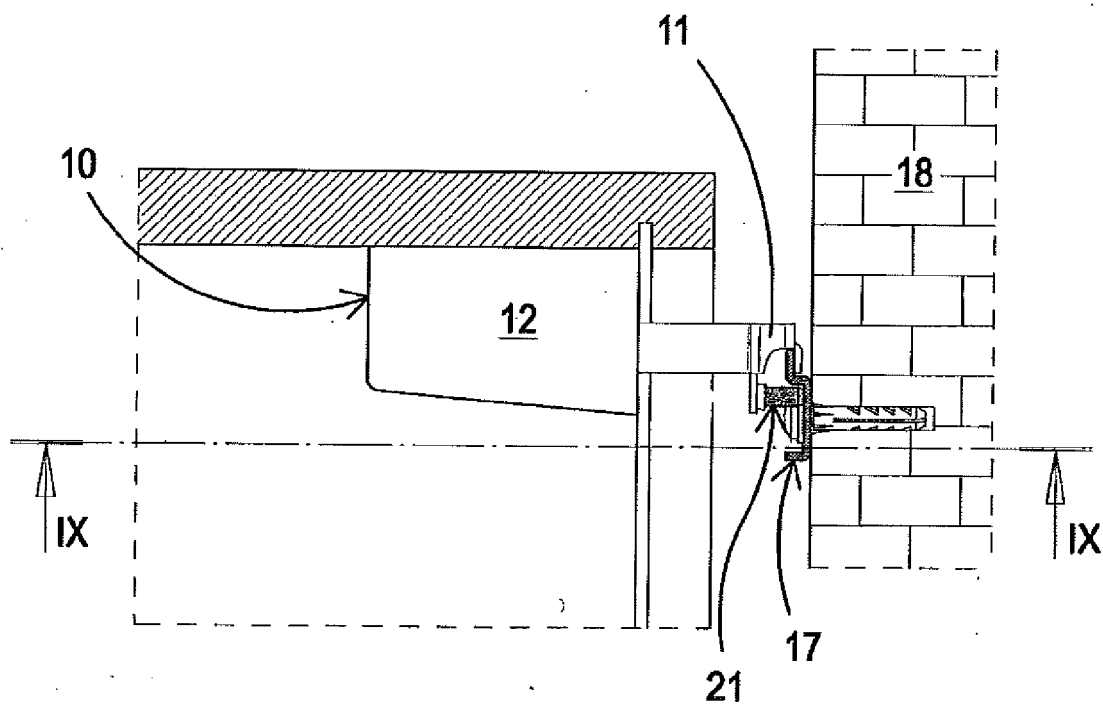
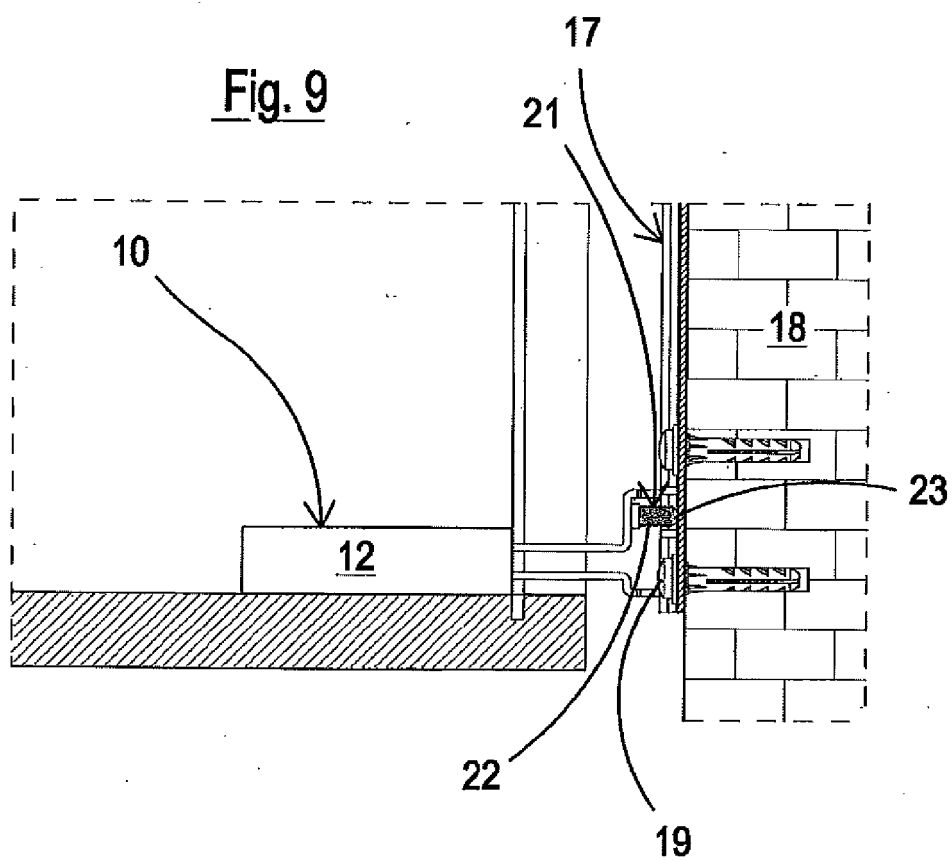
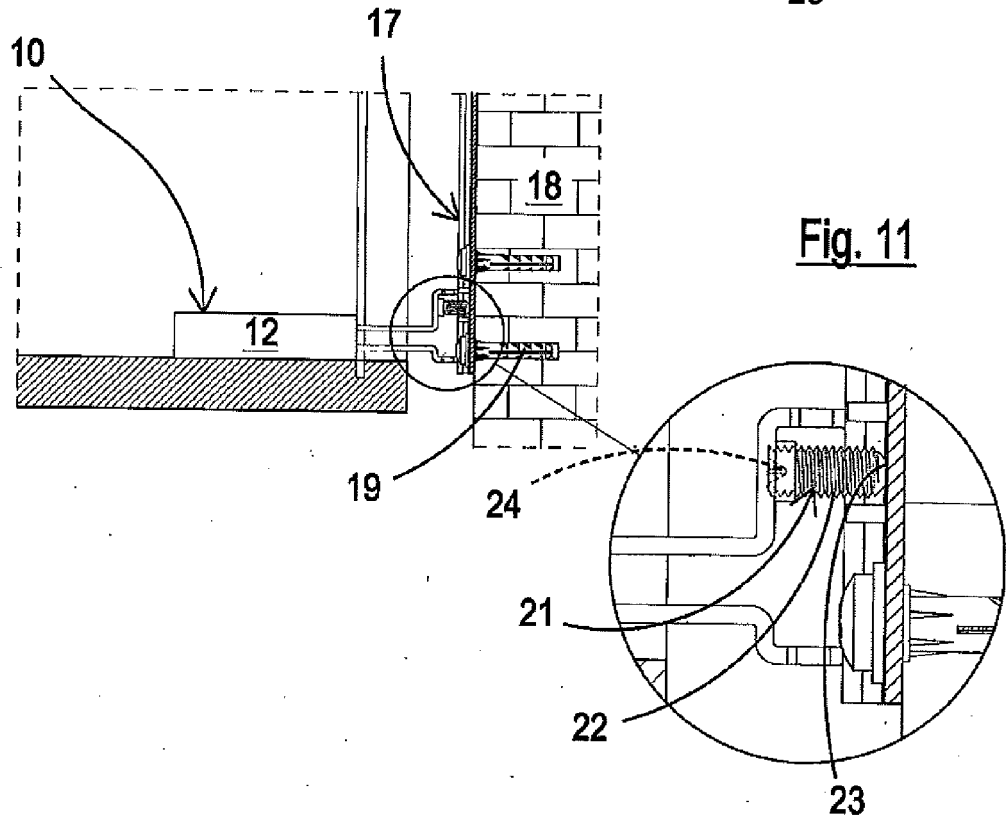
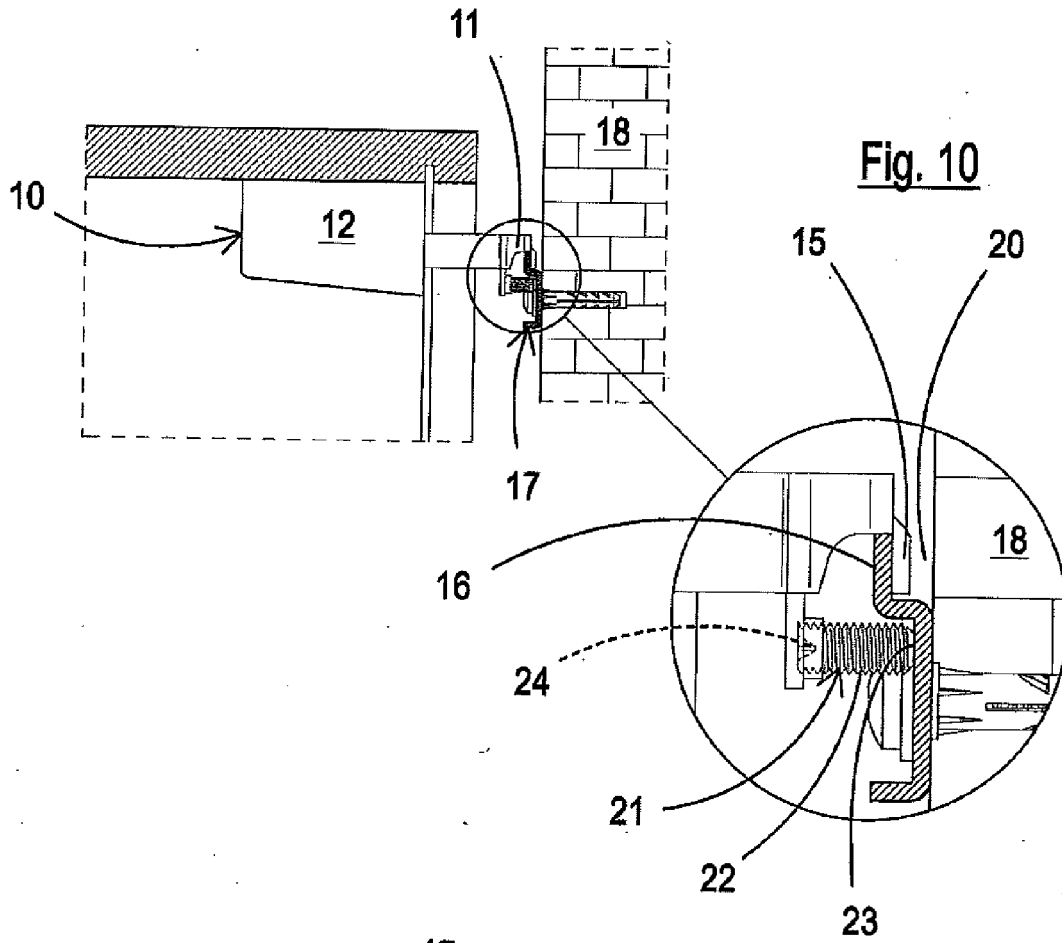


Fig. 9







EUROPEAN SEARCH REPORT

 Application Number
EP 14 16 4730

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A	* page 7, line 24 - page 8, line 12; figures 1-9c *	2,5	
X	US 5 964 438 A (CAMILLERI CHARLES [US]) 12 October 1999 (1999-10-12) * abstract; figures 1-9 *	1	
Y	US 5 222 611 A (WOOD ROBERT G [US] ET AL) 29 June 1993 (1993-06-29) * abstract; figures 1-8 *	4	
Y	WO 2010/121687 A1 (LEONARDO SRL [IT]; CATTANEO CARLO [IT]) 28 October 2010 (2010-10-28) * abstract; figures 1-8 *	4	
			TECHNICAL FIELDS SEARCHED (IPC)
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The present search report has been drawn up for all claims			
Place of search		Date of completion of the search	Examiner
The Hague		19 September 2014	Vehrer, Zsolt
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
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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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For more details about this annex : see Official Journal of the European Patent Office, No. 12/82

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