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(54) **Modular fastening system for shelves**

(57) A fastening modular system (1, 110) for a shelf (7) is described comprising a lower element (2) intended for being secured to a wall (3) and an upper element (5) associated in a sliding way with said lower element (2) and defining with it a supporting and fastening seat (6) for the shelf (7), a screw - nut screw (16; 25b, 128) for the adjustable sliding of the upper element with respect to the lower element and characterised in that it comprises a structurally independent stirrup (25, 125) wherein a nut screw (25b, 128) is made, said stirrup being removably associated with said upper element (5) in at least two predetermined positions in vertically space relation from each other.

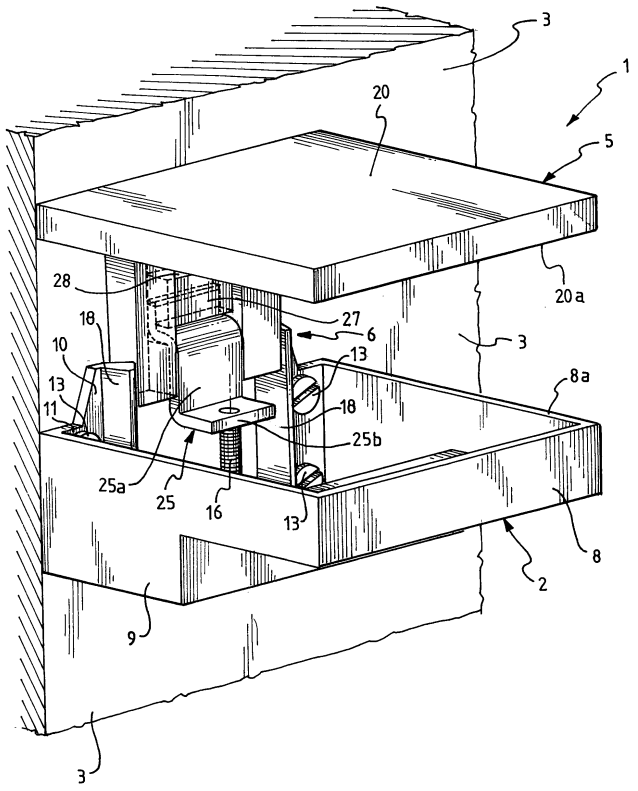

Fig. 1

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Description

Field of application

[0001] In its more general aspect, the present invention relates to a fastening system for shelves.

[0002] In particular, the present invention relates to a modular fastening system for shelves of the type comprising a lower element intended for being secured to a wall, and an upper element associated in a sliding way with said lower element and defining with it a supporting and fastening seat for a shelf.

[0003] The term "shelf" indicates any base plane for objects of various type, such as for example a shelf of a rack of a piece of furniture intended for being secured to a wall by means of a fastening system. The above base plane can be realised in wood, glass or in another material, such as for example a plastics material.

Prior art

[0004] Modular systems of the above type are widely used for fastening shelves on pre-existing wall structures or on a wall of a piece of furniture. In the field they are often called "plane-carrier" or "shelf-carrier" and they are essentially composed of a lower element and an upper element associated in a sliding way with each other so as to form, when used, a single body with substantially "C-like" profile defining a supporting and fastening seat for a shelf.

[0005] More in particular, the lower element is constituted by a body, substantially L-like shaped, comprising an horizontally arranged upper wing defining a supporting and fastening seat for the shelf, and a vertically arranged lower wing, wherein two opposite guides are formed, intended for engaging with corresponding grooves formed in the upper element.

[0006] Through holes are also formed in the vertical wing for fastening the lower element to wall by means of screws.

[0007] The upper element is also constituted by a substantially "L-like" shaped body and comprises an horizontally arranged upper wing defining a fastening surface for the shelf, and a vertically arranged lower wing equipped with said grooves for the vertical sliding with respect to the lower element on the guides of its vertical wing.

[0008] The above modular systems are also equipped with a screw - nut screw mechanism for regulating the excursion of the upper element with respect to the lower element, so as to ensure a suitable tightening of the shelf between the fastening surfaces of the upper element and of the lower element.

[0009] In particular, in prior art fastening systems for shelves, the nut screw is integrally made on the vertical wing of the upper element projecting therefrom, while the screw is made to pass through two aligned holes, a through one and a threaded one, respectively provided in said lower element and in said nut screw, so that, when used, the upper element can be shifted from or towards the lower element, in this latter case until the fastening surfaces of the lower element and of the upper element exert a pressure contact against the respective opposite surfaces of the shelf.

[0010] Although the above mentioned fastening systems are satisfactory from a functional point of view and substantially meeting the aim, they show the serious drawback that the maximum excursion possible for the mobile upper element with respect to the fixed lower element is strictly correlated with the usable length of the screw co-operating with the nut screw for the sliding of the upper element with respect to the lower element, and with the arrangement of the nut screw made on the vertical wing of the upper element.

[0011] Moreover, since in the manufacturing of the above fastening systems it is necessary to take into account space and functionality structural ties, the external sizing of the above systems is strictly correlated with the maximum thickness of the shelf provided in the design step, since an increase of the acceptable thickness interval for the shelf implies an extension of the length of the above sliding grooves, and thus a greater bulk for the whole shelf-carrier.

[0012] In this respect, the solutions undertaken by the prior art are essentially two: one of them consists in limiting the possible excursion of the thickness of the shelf which can be housed, and this is satisfactory for limiting the total bulk of the shelf-carrier but not from the point of view of the economy of production, since it obliges to put more models up for sale, each calibrated for a strict ambit of thickness. The other solution provides to house shelves with a more significant excursion of thickness, but this obliges the shelf-carrier to show greater external bulks, with significant project and design limitations.

[0013] For example, typically, the shelves start from a minimum thickness of 4 mm (small shelves in glass, for light use and minimum weight), up to current shelves in wood or other resistant materials, with thickness that can reach and even exceed 40 mm and more.

[0014] Following the first prior art solution indicated above, the whole thickness excursion indicated could be covered, and thus a response to the market requisites could be given, with a minimum of three different models having a bulk of about 10 mm more than the maximum shelf thickness provided for them. These components would always result far proportioned in comparison with the corresponding shelf, and thus it would be easier to give them a shape with a pleasant design. Following the second prior art solution, a single fastening system (shelf-carrier) succeeding in covering the whole excursion indicated above could not show a vertical space smaller than about 100 mm. If such a component can be pleasantly proportioned when used with a shelf of maximum thickness, it is on the contrary certainly too massive, and unpleasant to the sight, when used with a shelf of minimum thickness.

[0015] Summarising what above exposed, therefore, if one follows the first one of the above indicated solutions, it is necessary to have, on catalogue and in stock, a plurality of fastening systems structurally similar to each other but of different dimension so as to meet both the fastening requests of reduced thickness shelf and of greater thickness shelves. Following the second solution, vice versa, the dimensions of the fastening systems (upper and lower elements) and the length of the screw co-operating with the nut screw inevitably increase, but this necessarily implies a sensitive increase of the manufacturing costs of the fastening systems, a greater space thereof, not always acceptable, and an esthetical impact not welcome to the final user.

Summary of the invention

[0016] The technical problem underlying the present invention is that of providing a fastening modular system for shelves having such functional and structural characteristics as to overcome the drawbacks previously mentioned with reference to prior art fastening systems, and in particular a fastening modular system being universally applicable both to shelves having reduced thickness and to shelves having greater thickness.

[0017] This problem is solved by a fastening modular system for a shelf, comprising a lower element intended for being secured to a wall and an upper element associated in a sliding way with said lower element, and defining with it a supporting and fastening seat for the shelf, made integral with a screw - nut screw mechanism for the adjustable sliding of the upper element with respect to the lower element, characterised in that it comprises a structurally independent stirrup wherein said nut screw is formed, said stirrup being removably associated with said upper element in at least two predetermined positions in vertical spaced relation from each other.

[0018] The main advantage of the fastening modular system according to the invention lies in that the maximum excursion of the upper element with respect to the lower element is strongly increased, with the result that the system according to the invention is suitable for the fastening both of shelves of reduced thickness and of shelves of greater thickness.

[0019] This is advantageously attained without having to resort to an increase of the dimensions of the fastening system (and of the consequent manufacturing costs) which are therefore equivalent to those of the corresponding traditional fastening systems.

[0020] The characteristics and the advantages of the present invention will be apparent from the following description of fastening modular systems for shelves according two preferred embodiments given by way of indicative and non limiting example with reference to the annexed drawings.

Brief description of the drawings

[0021] In these drawings:

- figure 1 shows a perspective view of a fastening modular system for shelves according to a first embodiment of the invention,
- figures 2 and 3 show a section view of a detail of the fastening modular system of figure 1 in two different operative assembling steps,
- figures 4-7 shows each a side section view of the fastening modular system of figure 1 in a respective operative position,
- figure 8 shows, a perspective view of a fastening modular system for shelves according to a second embodiment of the invention,
- figures 9-12 shows each a side section view of the fastening modular system for shelves of figure 8 in a respective operative position.

Detailed description

[0022] Making reference to figures 1-7, a fastening modular system for a shelf according to the present invention is globally indicated with 1.

[0023] The system 1, so called shelf-carrier, comprises a lower element 2 intended for being secured to a wall 3, and an upper element 5 associated, in a removable way, with the lower element 2 and defining with it a seat 6 with substantially "C-like" profile for the fastening of a shelf 7 (not shown).

[0024] The lower element 2 and the upper element 5 are preferably realised in plastics or metallic material.

[0025] The lower element 2 is constituted by a body with substantially upturned L-like profile, the body comprising an horizontally arranged upper wing 8 and a vertically arranged lower wing 9 (with reference to wall 3). The lower wing 9 is equipped, on top, with an appendix 10 of a rear wall 11, this latter being provided with opposite holes (not shown) for the passage of screws 13 and, on the bottom, with a hole (not shown) for the passage of a screw 16 regulating the position of the upper element 5 with respect to the lower element 2 as it will be better explained hereafter in the description. The above screws 13 allow to fasten the lower element 2 to the wall 3 in a per se conventional way, for example by co-operating with respective screw anchors inserted in corresponding holes previously formed in the wall 3.

[0026] The lower wing 9 is also provided inside with two opposite guides 18 which, starting from the appendix 10, vertically extend for at least most of the vertical extension of the rear wall 11 of the lower wing 9.

[0027] The upper wing 8 of the lower element 2 shows, on top, a surface 8a for leaning and supporting a shelf 7

(not shown).

[0028] The upper element 5 is also constituted by a body with substantially upturned L-like profile, said body comprising an horizontally arranged upper wing 20 of greater dimensions and a vertically arranged wing 21 of smaller dimensions. In particular, the upper element 5 is mobile and removably associated with the lower element 2 by means of sliding of the lower wing 21 of the upper element 5 between the guides 18 of the lower element 2. Moreover, the upper wing 20 shows, on the bottom, a surface 20a which, in co-operation with the surface 8a of the upper wing 8 of the lower element 2, allows the fastening of a shelf 7 interposed in the appropriate seat 6 between said lower element 2 and said upper element 5.

[0029] According to the present embodiment of the invention, the fastening system 1 for shelves comprises a stirrup globally indicated with 25, such stirrup being structurally independent and removably associated with the upper element 5 in a plurality of predetermined positions in vertical spaced relation from each other.

[0030] More in particular, the stirrup 25 comprises a central portion 25a positioned onto the upper element 5 and connected to two terminal portions projecting from said central portion 25a in opposite directions, specifically a lower terminal portion 25b and an upper terminal portion 25c.

[0031] Moreover, the upper element 5 shows a niche 27 in a substantially central portion of the lower wing 21, said niche 27 extending from the lower end of the wing 21 substantially for the whole height thereof, and a plurality of seats 28 (in the example two) vertically spaced from each other by a predetermined entity made in the lower end 21 and in communication with the niche 27.

[0032] Advantageously, the thickness of the niche 27 is substantially equal or a little greater than that of the stirrup 25 so as to house the portion 25a of the stirrup 25 in a substantially hidden way when it is positioned onto the upper element 5. In this way, it is advantageously avoided that, when the fastening system 1 according to the invention is in use, the stirrup 25 occupies the space of the seat 6 interfering with the shelf inserted in said seat 6.

[0033] The lower terminal portion 25b advantageously shows a through and threaded hole 26 for crossing the screw 16 associated with the lower element 2 so as to regulate the vertical excursion of the mobile upper element 5 moving away or towards the fix lower element 2. In this respect, it is in fact to be noted that, with the stirrup 25 positioned onto the upper element 5 by means of its central portion 25a, the above through and threaded hole 26 is substantially aligned to the hole provided in the lower wing 9 of the lower element 2 for the passage of the regulation screw 16, such screw 16 thus being able to co-operate with the lower terminal portion 25b of the stirrup 25 for the regulation of the vertical excursion of the upper element 5 with respect to the lower element 2. In other words, the lower terminal portion 25c of the stirrup 25 substantially serves as nut screw for the screw 16 for the purpose of the above regulation.

[0034] The terminal portion 25c of the stirrup 25 has instead a substantially hook-like or L-like profile comprising a first wing 29 connected to the central portion 25 and a second wing or terminal wing 30. With the stirrup 25 positioned onto the upper element 5 by means of its central portion 25a, the terminal portion 25c is advantageously housed in a removable way in one of the seats 28 formed in the upper element 5.

[0035] In particular, in the present embodiment of the invention, each seat 28 comprises a recess 31 formed on the opposite side of the niche 27 and vertically delimited by a tooth 32 formed in the lower wing 21 of the upper element 5.

[0036] Advantageously, the recess 31 has a thickness substantially equal or a little greater than that of the stirrup 25 so that in the removable association of the stirrup 25 with the upper element 5, the terminal wing 30 is housed in the recess 31 of a seat 28 substantially abutting against a tooth 32. In this way, the possibility of an accidental, i.e. non voluntary, release, of the stirrup 25 from the upper element 5 is avoided during the assembly and/or use of the fastening system 1 according to the invention.

[0037] In the present embodiment of the invention, the fastening system 1 comprises two seats 28 in the upper element 5 vertically spaced from each other by a predetermined entity but obviously, on the basis of contingent and specific needs, it is possible to provide a greater number of seats 28 suitably spaced from each other in the upper element 5.

[0038] As regards the assembly of the fastening system 1 according to the invention, first the stirrup 25 is associated with the upper element 5 by hooking the same in one of the seats 28 according to the thickness of the shelf to be fastened. As shown in figures 2 and 3 for the seats 28, respectively upper and lower, this is carried out by inserting the upper portion 25c in a seat 28 until the wing 30 is housed in the recess 31 and then locating the central portion 25a of the stirrup 25 in the opposite niche 27 formed on the lower wing 21 of the upper element 5. The stirrup 25 will be thud hooked in a removable way to the upper element 5 while the abutment of the wing 30 against the tooth 32 of the respective seat 28 will avoid its accidental release. In the case of shelves with high thickness to be fastened, the stirrup 25 can be advantageously inserted in the lower seat 28 of the upper element 5 so as to space more the upper element 5 with respect to the lower element 2 and to have a corresponding seat 6 of greater height for the shelf, as it will be better explained hereafter. Vice versa, in the case of shelves with more reduced thickness, the stirrup 25 can be advantageously inserted in the upper seat 28 of the upper element 5 so as to have a smaller distance between the upper element 5 and the upper element 2 and a corresponding smaller height for the seat 6 of the shelf.

[0039] Subsequently, the upper element 5 with the stirrup 25 associated therewith is coupled to the lower ele-

ment 2 - (this latter previously secured to the wall 3 in a conventional way, for example by means of the above screws 13) - by inserting the lower wing 21 of the upper element 5 between the guides 18 of the lower element 2, making the stem of the regulation screw 16 pass in the respective passing hole provided in the lower wing 9 of the lower element 2 and finally screwing an end portion of the stem of the screw 16 in the threaded hole of the lower portion 25c of the stirrup 25 obtaining the coupling screw 16-nut screw 25c.

[0040] Once the assembly of the fastening system 1 has ended, the shelf to be fastened is arranged in the seat 6 between the lower element 2 and the upper element 5 and then the screw 16 is operated for regulating the position of the upper element 5 with respect to the lower element 2 by sliding the lower wing 21 of the upper element 5 between the guides of the lower element 2, until the shelf between the surfaces 8a and 20a respectively of the lower element 2 and of the upper element 5 is tightened.

[0041] Making now reference to figures 4 and 5, it can be noted that with the stirrup 25 hooked to the upper element 5 in the lower seat 28, the position of the mobile upper element 5 with respect to the fix lower element 2 can be regulated between a maximum opening A, to which a maximum vertical distance between fastening surfaces 8a and 20a respectively of the lower element 2 and of the upper element 5 corresponds, and a first intermediate opening B to which a first intermediate vertical distance between said surfaces 8a and 20a respectively of the lower element 2 and of the upper element 5 corresponds.

[0042] Moreover, making reference to figures 6 and 7, with the stirrup 25 hooked to the upper element 5 in the upper seat 28, the position of the mobile upper element 5 with respect to the fix lower element 2 can be regulated between a second intermediate opening C to which a second intermediate vertical distance between the surfaces 8a and 20a respectively of the lower element 2 and of the upper element 5 corresponds, and a minimum opening D to which a minimum vertical distance between the surfaces 8a and 20a respectively of the lower element 2 and of the upper element 5 corresponds. In this way, it is advantageously possible to cover a wide range of thickness for the shelf to be fastened without varying the dimensions of the fastening system (which can be manufactured according to the dimensional standards of the sector) and by exploiting the same usable length of the screw 16 in co-operation with the nut screw 25c (and corresponding stroke of the lower wing 21 of the upper element 5 between the guides 18 of the lower element 2) to attain greater or smaller openings depending on the stirrup 25 being respectively associated with the lower or upper seat 28 of the upper element 5.

[0043] According to a preferred embodiment of the invention, the vertical pitch P between the two lower and upper seats 28 of the upper element 5 (or between consecutive seats in case a greater number of seats is provided) is substantially equal to the usable length L of the screw 16 in co-operation with the nut screw 25c. In this way, the above first intermediate opening B and second intermediate opening C are substantially coincident (as it can be seen in the figures 5 and 6) thus advantageously attaining, in solution of continuity, the widest possibility to regulate the distance between the lower element 2 and the upper element 5.

[0044] Figure 8 describes a fastening system for shelves according to another embodiment of the invention, said fastening system for shelves being globally indicated with 110.

[0045] Elements of the fastening system 110 for shelves being structurally identical or equivalent to corresponding elements of the fastening system 1 for shelves above described will be given the same reference numbers and will not be further described.

[0046] The fastening system 110 differs from the one previously described since in that it comprises a structurally independent stirrup 125 having a through hole 129 next to an upper end and two appendixes 127 and 128 opposed to each other next to the opposite end.

[0047] Moreover, the lower wing 21 of the upper element 5 shows a plurality of through and threaded holes 129 vertically spaced from each other by a predetermined entity in a niche 132 which extends from the lower end of the wing 21 for almost the whole height thereof.

[0048] Advantageously, the thickness of the niche 132 is substantially equal or a little greater than that of the stirrup 125 so as to house said stirrup 125, in a substantially hidden way, in the lower wing 21 when it is positioned onto the upper element 5. In this way, in the use of the fastening system 110 according to the invention, the stirrup 125 is prevented from occupying the space of the seat 6 interfering with the shelf inserted in said seat 6.

[0049] It is also to be advantageously noted that the dimensions of each through and threaded hole 129 and the distance between consecutive holes 129 are such as to allow the housing of the appendix 127 in the lower hole 129 of a pair of consecutive holes 129 when the stirrup 125 is positioned onto the upper element 5 with its own hole 126 aligned to the upper hole 129 of said pair of consecutive holes 129.

[0050] In this way, in the use of the fastening system 110 according to the invention, the appendix 127 of the stirrup 125 is hidden since it is housed in a hole (lower) 129 of the upper element 5 or is hidden below the upper element 5.

[0051] The appendix 128 of the stirrup 125 advantageously shows a through and threaded hole (not illustrated) for crossing a screw 16 associated with the lower element 2 so as to regulate the vertical excursion of the mobile upper element 5 moving away or towards the fix lower element 2. In this respect, it is in fact to be noted that, with the stirrup 125 positioned onto the upper element 5, the above through and threaded hole of the appendix 128 is substantially aligned to the hole provided in the lower wing 9 of the lower element 2 for the passage

of the regulation screw 16, such screw 16 thus having the possibility to co-operate with the lower terminal portion 25b of the stirrup 25 for the regulation of the vertical excursion of the upper element 5 with respect to the lower element 2. In other words, the appendix 128 of the stirrup 125 substantially serves as nut screw for the screw 16 for the purposes of the above regulation.

[0052] As regards the assembly of the fastening system 110 according to the invention, the stirrup 125 is first fastened to the upper element 5 in correspondence with one of the holes 129 according to the thickness of the shelf to be fastened.

[0053] As shown in figures 9-12 for the holes 129, respectively upper and lower, this is carried out by lying the stirrup 125 onto the upper element 5 so as to be housed in the niche 132 with the appendix 127 also housed in a hole 129 of the upper element 5 or hidden under said upper element 5, and its own hole aligned to the hole 129 of the upper element chosen for the fastening, and thus screwing a screw 130 passing through the own hole of the stirrup 125 in the threaded hole 129 chosen for the fastening.

[0054] In the case of shelves with high thickness to be fastened, the stirrup 125 can be advantageously fastened in correspondence with the threaded lower hole 129 of the upper element 5 so as to space more the upper element 5 with respect to the lower element 2 and have a corresponding seat 6 of greater height for the shelf. Vice versa, in the case of shelves of more reduced thickness, the stirrup 125 can be advantageously fastened in correspondence with the upper threaded hole 129 of the upper element 5 so as to have a smaller distance between the upper element 5 and the upper element 2 and a corresponding smaller height for the seat 6 of the shelf.

[0055] Subsequently, the upper element 5 with the stirrup 125 associated therewith is coupled with the lower element 2 - (this latter previously secured to the wall 3 in a conventional way, for example by means of the above screws 13) - by inserting the lower wing 21 of the upper element 5 between the guides 18 of the lower element 2, making the stem of the regulation screw 16 pass in the respective hole provided in the lower wing 9 of the lower element 2 and finally screwing an end portion of the stem of the screw 16 in the threaded hole 126 of the appendix 128 of the stirrup 125, obtaining the coupling screw 16 - nut screw 128.

[0056] Once the assembly of the fastening system 1 has been ended, the shelf to be fastened is arranged in the seat 6 between the lower element 2 and the upper element 5 and thus action is taken onto the screw 16 for regulating the position of the upper element 5 with respect to the lower element 2 by sliding the lower wing 21 of the upper element 5 between the guides of the lower element 2, until the shelf between the surfaces 8a and 20a respectively of the lower element 2 and of the upper element 5 is fastened.

[0057] Making now reference to figures 9 and 10, it can be noted that with the stirrup 125 fastened to the upper element 5 in correspondence with the lower hole 129, the position of the mobile upper element 5 with respect to the fix lower element 2 can be regulated between a maximum opening A to which a maximum vertical distance between fastening surfaces 8a and 20a respectively of the lower element 2 and of the upper element 5 corresponds, and a first intermediate opening B to which a first intermediate vertical distance between said surfaces 8a and 20a respectively of the lower element 2 and of the upper element 5 corresponds.

[0058] Moreover, making reference to figures 11 and 12, with the stirrup 125 fastened to the upper element 5 in correspondence with the upper hole 129, the position of the mobile upper element 5 with respect to the fix lower element 2 can be regulated between a second intermediate opening C to which a second intermediate vertical distance between the surfaces 8a and 20a respectively of the lower element 2 and of the upper element 5 corresponds, and a minimum opening D to which a minimum vertical distance between the surfaces 8a and 20a respectively of the lower element 2 and of the upper element 5 corresponds. In this way, it is advantageously possible to cover a wide range of thickness for the shelf to be fastened without varying the dimensions of the fastening system (which can be manufactured according to the dimensional standards of the field) and exploiting the same usable length of the screw 16 in co-operation with the nut screw 128 (and corresponding stroke of the lower wing 21 of the upper element 5 between the guides 18 of the lower element 2) for attaining greater or smaller openings depending on the stirrup 125 being associated respectively in correspondence with the lower or upper hole 129 of the upper element 5.

[0059] According to a preferred embodiment of the invention, the vertical pitch P between the two lower and upper holes 129 in the upper element 5 (or between consecutive holes 129 in case a greater number of holes is provided) is substantially equal to the usable length L of the screw 16 in co-operation with the nut screw 128. In this way, the above first intermediate opening B and second intermediate opening C are substantially identical (as it can be seen in figures 5 and 6) thus advantageously attaining, in solution of continuity, the widest possibility of regulation of the distance between the lower element 2 and the upper element 5.

[0060] By way of example, with a traditional fastening system for shelves with fix nut screw having predetermined dimensions of the upper element and of the lower element, a usable length L of the regulation screw equal to 20mm and a total bulk in height equal to 44 mm under minimum open condition equal to 4mm, the maximum opening is not greater than 24 mm. This traditional fastening system therefore allows to fasten only shelves having a thickness comprised between about 4 and 24 mm.

[0061] Differently, with the fastening system 1 or 110 according to the invention, at the same dimensions of the upper and lower element identical, of the usable

length L of the regulation screw and of total space in height under minimum opening condition, it is possible to obtain a maximum opening A equal to about 41 mm and intermediate openings B=C equal to about 23 mm by using two seats (or holes) for the stirrup spaced from each other by a pitch P equal to 19 mm.

[0062] It is therefore evident that the system according to the invention advantageously shows a greater versatility, having in fact the possibility to be used, in this example, for fastening shelves having a thickness comprised between about 4 and 40 mm, with an increase of the maximum thickness of the fastened shelf equal to about 50% with respect to the traditional system.

[0063] Besides the above highlighted characteristics and advantages, a further advantage of the fastening system for shelves according to the invention is the easiness and immediacy with which the supporting and fastening elements 2, 5 can be tied to each other in a removable way. This implies a substantial reduction of the installation times and the use of modestly skilled labour.

[0064] Another advantage is the high strength and safety of use. In fact, the cohesion between the parts composing the system according to the invention and the supporting wall is ensured by interconnection elements of strong structure and of simple implementation.

[0065] Another advantage of the above fastening system in that it is aesthetically pleasant so as to enhance the environment it is intended for.

[0066] A further non negligible advantage is that the parts composing the fastening system are structurally simple and are therefore suitable for a manufacturing on a large scale.

Claims

1. Fastening modular system (1, 110) for a shelf (7) comprising a lower element (2) intended for being secured to a wall (3) and an upper element (5) associated in a sliding way with said lower element (2) and defining with it a supporting and fastening seat (6) for the shelf (7), a screw - nut screw mechanism (16; 25b, 128) for the adjustable sliding of the upper element with respect to the lower element **characterised in that** it comprises a structurally independent stirrup (25, 125) wherein said nut screw (25b, 128) is formed, said stirrup being removably associated with said upper element (5) in at least two predetermined positions in a vertically spaced relation from each other.

2. Modular system (1) according to claim 1, **characterised in that** said stirrup (25) comprises a central portion (25a) positioned onto said upper element (5) and connected to a first terminal portion (25b) constituting said nut screw and to a second terminal portion (25c) that can be removably associated with said upper element (5) in said at least two predetermined positions in vertically spaced relation from each other.

3. Modular system (1) according to claim 2, **characterised in that** said upper element comprises at least two seats (28) made therein in correspondence with said at least two positions in vertically spaced relation from each other, said second terminal portion (25c) of the stirrup (25) being able to be hooked in a removable way in said at least two seats (28).

4. Modular system (1) according to claim 3, **characterised in that** said upper element (5) shows a niche (27) for housing, in a substantially hidden way, said central portion (25a) of the stirrup (25) when said stirrup (25) is positioned onto said upper element (5).

5. Modular system (1) according to claim 4, **characterised in that** said second terminal portion (25c) of the stirrup (25) shows a substantially hook-like profile comprising a first wing (29) connected to said central portion (25a) and a second terminal wing (30) and **in that** each seat (28) shows a recess (31) arranged on the opposite side of said niche (27) and vertically delimited by a tooth (32) formed in said upper element (5), said terminal wing (30) being housed in the recess (31) of a respective seat (28) when said stirrup (25) is lain onto said upper element (5).

6. Modular system (1) according to claim 5, **characterised in that** in the upper element (5) two seats (28) are made, respectively upper and lower, and **in that** the vertical pitch (P) between said seats is substantially equal to the usable length (L) of said screw (16) for the regulation of the sliding of said upper element (5) with respect to said lower element (2).

7. Modular system (110) according to claim 1, **characterised in that** said stirrup (125) shows a through hole (126) next to an end thereof and, next to an opposite end, a first appendix (127) and a second appendix (128) opposite to each other, said second appendix (128) constituting said nut screw.

8. Modular system (110) according to claim 7, **characterised in that** said upper element (5) comprises at least two passing holes (129) made therein in correspondence with said at least two positions in vertically spaced relation from each other, said stirrup (125) being fastened in a removable way to said upper element (5) by means of a screw (130) passing in said hole (126) of the stirrup (125) and in a hole (129) of said at least two holes (129) made in said upper element (5).

9. Modular system (110) according to claim 8, **characterised in that** said upper element (5) shows a niche (132) for housing, in a substantially hidden way, said

stirrup (125) when said stirrup (25) is positioned onto said upper element (5).

10. Modular system (110) according to claim 9, **characterised in that** in the upper element (5) two holes (129) are made, respectively upper and lower, and **in that** the vertical pitch (P) between said holes is substantially equal to the usable length (L) of said screw (16) for the regulation of the sliding of said upper element (5) with respect to said lower element (2).

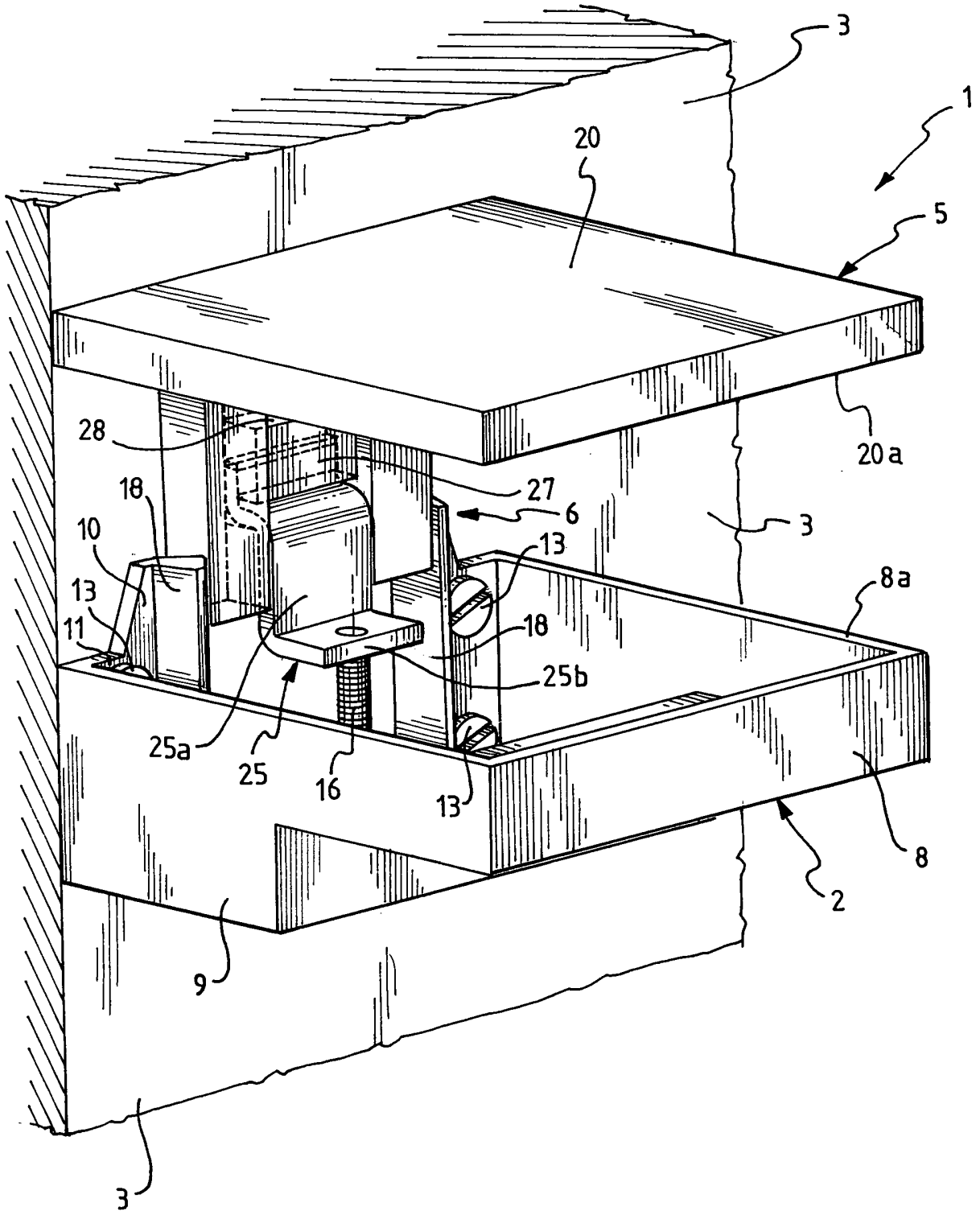
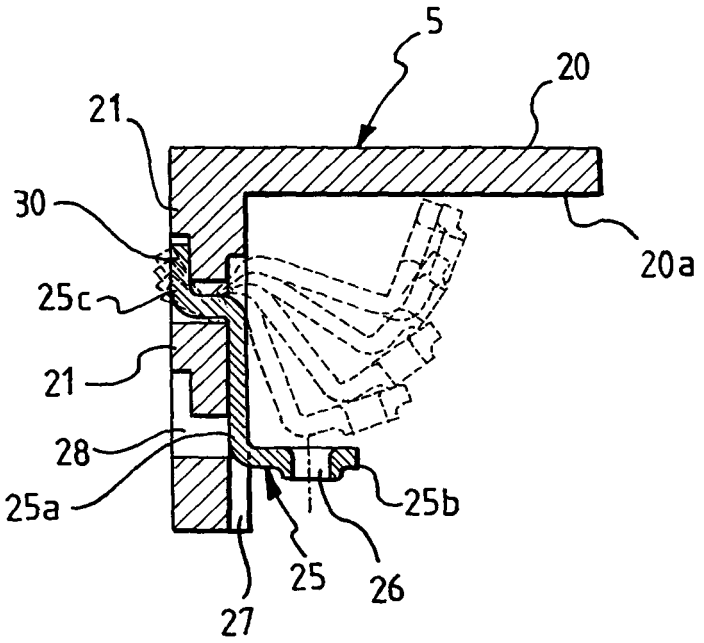


Fig. 1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20a
25c
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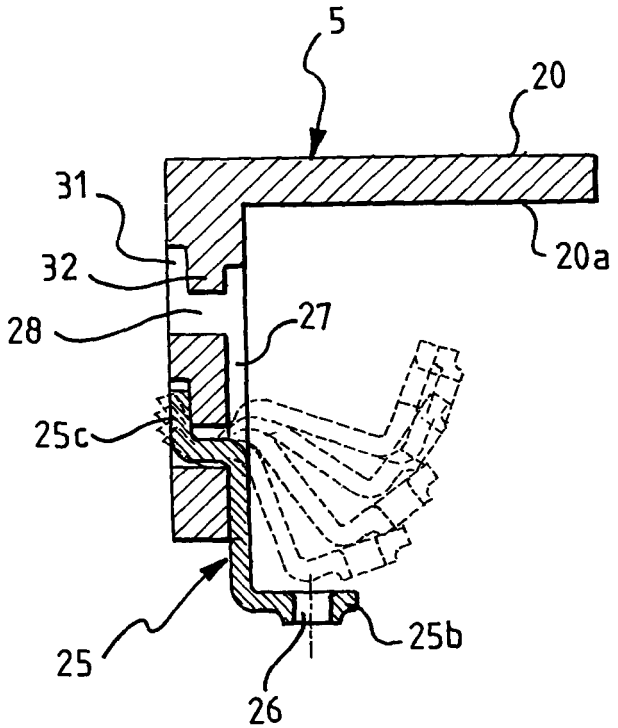
25a
25b
25
26
27

Fig. 2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25b
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Fig. 3

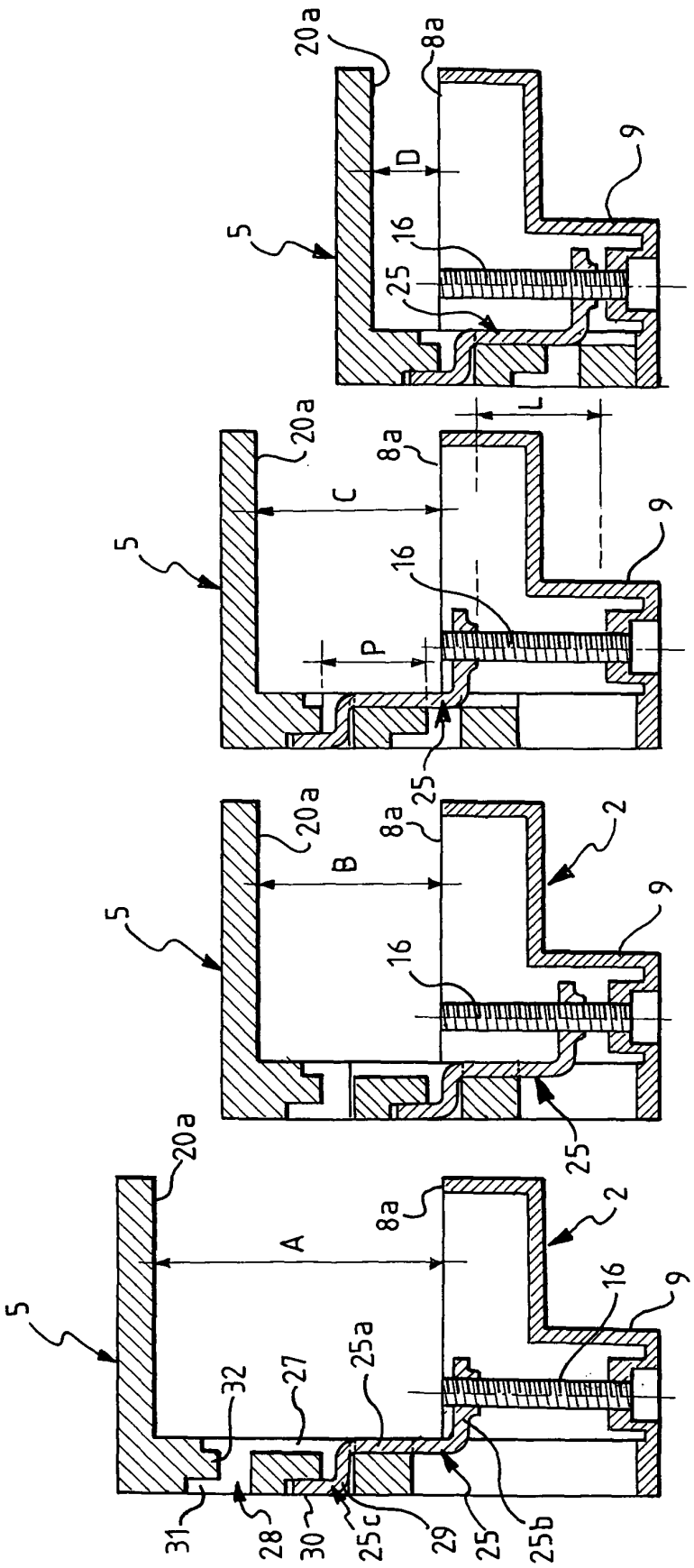

Fig. 7

Fig. 6

Fig. 5

Fig. 4

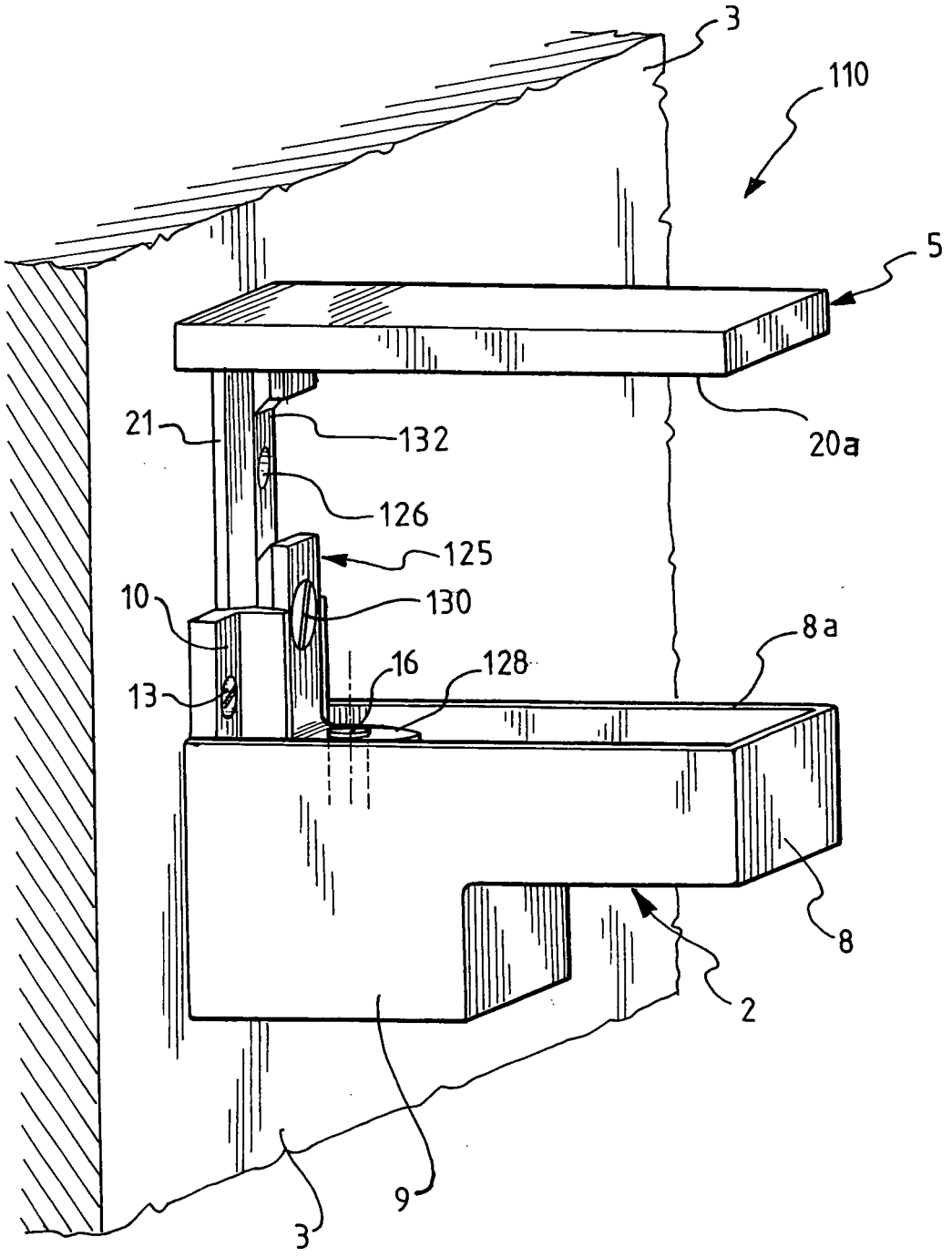

Fig. 8

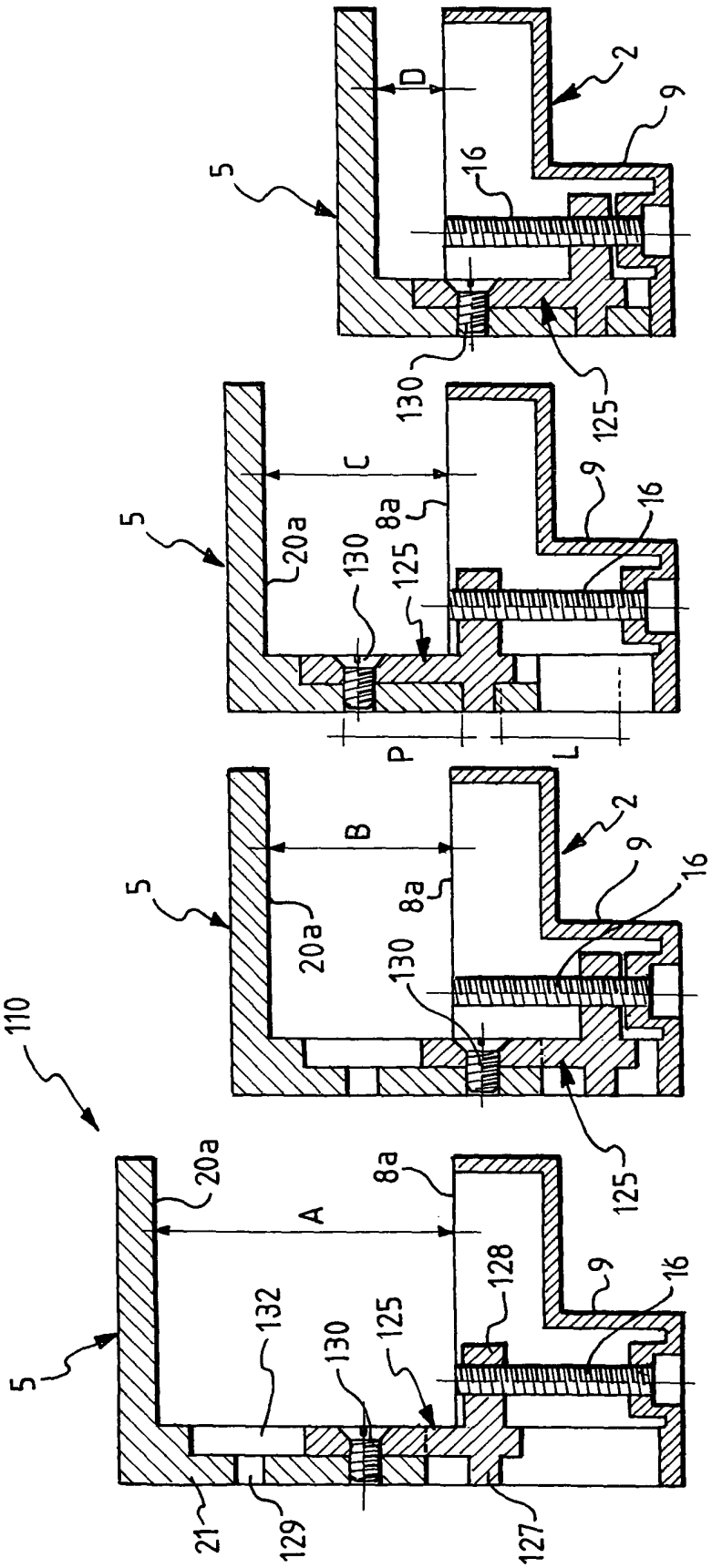

Fig. 9

Fig. 10

Fig. 11

Fig. 12

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EUROPEAN SEARCH REPORT

Application Number
EP 06 42 5834

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Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (IPC)
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TECHNICAL FIELDS SEARCHED (IPC)

A47B

The present search report has been drawn up for all claims

Place of search	Date of completion of the search	Examiner
Munich	14 May 2007	Klintebäck, Daniel

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