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(72) Inventor: **Bonin, Franco**
36072, Chiampo (VI) (IT)

(74) Representative: **Feltrinelli, Secondo Andrea**
APTA Srl
Via dei Mille 9
37126 Verona (IT)

(71) Applicant: **VIBO S.p.A.**
36071 Arzignano (IT)

(54) **Supporting means**

(57) Supporting means comprises a holding structure (2) for receiving and/or supporting objects, and connecting means (3; 3') for fixing said holding structure (2) to a support element (30), in particular a retractable column

umn of a piece of furniture (40), characterized in that said connecting means (3) comprises hinge means arranged in such a way that said holding structure (2) is selectively rotatable clockwise or anticlockwise in a respective rotated position (A, B).

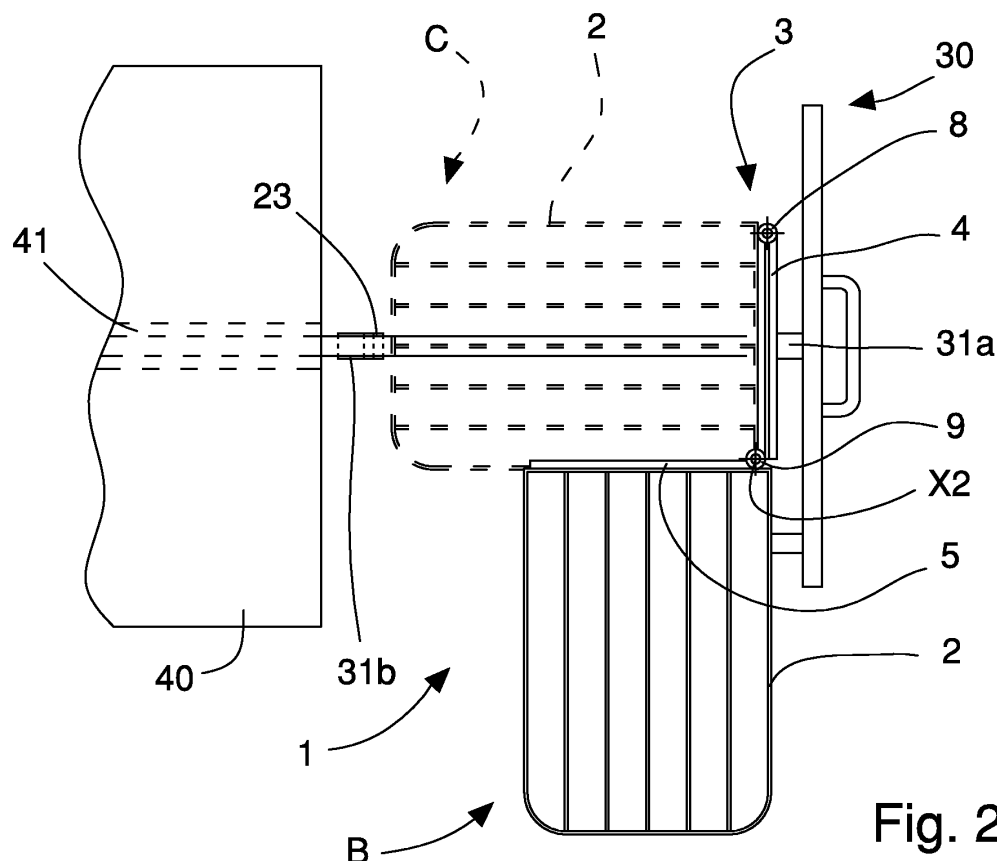


Fig. 2

Description

[0001] The invention relates to supporting means for containing and/or holding objects and material, in particular supporting means arranged to be associated with pieces of furniture.

[0002] Supporting means, such as containers, metal wire baskets, holding racks for ties or trousers and the like, are known in the prior art, which are used for containing or supporting objects and are typically associated with pieces of furniture, such as cupboard, kitchen cabinet and the like, in such a way as to be selectively extracted from, or retracted inside, said piece of furniture.

[0003] Devices for extracting and/or retracting the containers are well known in the prior art and usually comprise a retractable column, or vertical drawer, provided with a frame which slides horizontally along linear guides mounted on internal walls of the furniture.

[0004] The retractable column comprises a frame that supports by means of opposite upright elements a plurality of baskets vertically arranged above each other so as to form a vertical row. The column is provided with a front panel that closes the opening in the piece of furniture when the column is in a retracted position, inside said piece of furniture.

[0005] A drawback of said arrangement consists in that in the extracted position of the column, the front panel facing a user, forces the latter to move laterally for reaching the baskets. A sideways access to said baskets or other containing elements fixed to the retractable column can be sometimes difficult and problematic for the user, for example when the piece of furniture is positioned in a small room or close to another piece of furniture.

[0006] Likewise, when a basket is fixed to a supporting element of a furniture, such as a door, a vertical post, an inner wall and the like, the access to said basket is limited by the type of connection. For example, if the basket is mounted on an inner side wall of a cupboard, only a sideways access to the basket is possible. Sometimes the access is more difficult because of other objects or supporting elements positioned inside the cupboard.

[0007] The known baskets and similar containing elements are open on the upper part for inserting and removing objects. When they are fixed to retractable columns or to furniture supporting elements so as to form vertical rows they have to be suitably spaced apart, in order to allow a user to reach the objects contained therein. Consequently, a drawback of this arrangement consists in that only a part of the available space for fixing the baskets on the column or on the supporting element can be used, the number of baskets being considerably reduced.

[0008] An object of the present invention is to improve the supporting means associable with pieces of furniture and usable for containing and/or supporting objects.

[0009] Another object of the invention is to provide supporting means which can be connected to a piece of furniture, in particular a retractable sliding column or a ver-

tical drawer, in a movable way so that an user can access easy and quickly said supporting means for inserting and/or removing objects.

[0010] Further object is to provide supporting means which can be mounted on a piece of furniture in such a way to make maximum use of a space inside said piece of furniture, for example so as to minimize a distance between adjacent supporting means arranged in a vertical row.

[0011] According to the invention, supporting means is provided that comprises a holding structure for receiving and/or supporting objects, and connecting means for fixing said holding structure to a support element, in particular a retractable column of a piece of furniture, characterized in that said connecting means comprises hinge means arranged in such a way that said holding structure is selectively rotatable clockwise or anticlockwise in a respective rotated position.

[0012] Owing to the invention it is thus possible to move the holding structure, i.e. a container body of a wire basket, in different rotated positions so that a user can reach easily and quickly said holding structure. If the supporting means is mounted on a retractable column having a front panel, by rotating said supporting means a front access is available, which makes easier inserting and/or removing objects.

[0013] Furthermore supporting means that are open on the upper part, i.e. baskets or similar containing means, can be mounted on the supporting element of the furniture, above each other to form a vertical row, with a minimum mutual distance, since the access is guaranteed in the rotated positions. Accordingly, it is possible to make maximum use of a space inside the piece of furniture and increase the number of supporting means which can be mounted.

[0014] The invention can be better understood and implemented with reference to the attached drawings that illustrate some embodiments thereof by way of non-limiting example, in which:

Figure 1 is a front schematic view of supporting means of the invention associated with a retractable column of a piece of furniture in a rest position;

Figure 2 is a schematic plan view of supporting means of Figure 1 in a rotated position and, illustrated in hatched lines, in the rest position;

Figure 2A is a schematic partial plan view of supporting means of Figure 1 in a further rotated position;

Figure 3 is a schematic plan view of another embodiment of supporting means associated with a retractable column in a rotated position;

Figure 4 is a perspective view of connecting means of supporting means Figure 3 taken alone;

Figure 5 is an exploded view of connecting means of Figure 4;

Figure 6 is an enlarged and partial plan view of a further embodiment of supporting means in a rotated

position;

Figure 7 is front view of supporting means of Figure 6.

[0015] With reference to Figures 1 to 2A, supporting means is shown that comprises a holding structure 2 arranged for receiving and/or supporting objects, such as a wire basket, and connecting means 3 suitable for fixing said holding structure 2 to a support element 30, in particular a retractable column of a piece of furniture 40.

[0016] The retractable column 30 comprises a frame 31 having two opposed upright elements, a first upright element 31a and a second upright element 31b, interconnected by an upper crossbar 31c and a lower crossbar 31d. The frame 31 is slidably supported by an upper guide 41 and a lower guide 42 of the piece of furniture 40, so that the retractable column 30 can be move between a retracted position, wherein the frame 31 and the supporting means 1 are completely inside the piece of furniture 40, and an extracted position, wherein the frame 31 and the supporting means 1 are outside the piece of furniture 40.

[0017] The retractable column 30 further comprises a front panel 32, fixed to the first upright element 31a so as to close the opening of the piece of furniture 40 when the retractable column 30 is in the retracted position.

[0018] The connecting means 3 couples in a cantilever manner the holding structure 2 to the first upright element 31a, on a side thereof that is opposed to the front panel 32.

[0019] Connecting means comprises hinge means 3, which is designed for allowing the holding structure 2 to be rotated selectively clockwise or anticlockwise.

[0020] Hinge means 3 comprises a first hinge 8 and a second hinge 9, which are spaced apart, associated respectively to a plate 4 and a further plate 5 and interconnected by at least a lever 6. The plate 4 is fixed to the support element 30, while the second plate 5 supports the holding structure 2.

[0021] As shown in Figures 2, 2A, hinge means 3 allows rotating the holding structure 2 indifferently clockwise (with respect to a plan view defined by figure 2), around a first axis X1 of first hinge 8, in a first rotated position A, or anticlockwise, around a second axis X2 of second hinge 9 in a second rotated position B.

[0022] The axes X1, X2 are parallel and substantially vertical.

[0023] In the first rotated position A, the lever 6 is parallel and adjacent to the further plate 5, said lever 6 and the further plate 5 being rotated with respect to the plate 4 around the first axis X1 of a desired angle, for example 90° (Figure 2A).

[0024] In the second rotated position B, the lever 6 is parallel and adjacent to the plate 4, while the further plate 5 and the holding structure 2 attached thereto are rotated around the first axis X2 of a desired angle, for example 90° (Figure 2).

[0025] In a rest position C of supporting means 1 (Figure 1), wherein the holding structure 2 is not rotated, lever

6 is parallel and adjacent to the plate 4 and the further plate 5.

[0026] Figure 3 to 5 show an embodiment of the hinge means 3 which comprises a plate 14 and a further plate 15 interconnected by a lever 16 and a further lever 17, which are hinged to opposed ends of said plates 14, 15, in a "X" configuration. The levers 16, 17 are positioned so as to move upon respective parallel and superimposed planes. In particular, the lever 16 is rotatably connected to the plate 14 by a first hinge 18 and to the further plate 15 by a second hinge 19. The further lever 17 is rotatably connected to the plate 14 by a third hinge 20 and to the further plate 15 by a fourth hinge 21.

[0027] In the second rotated position B (Figure 4), the lever 16 is parallel and adjacent to the plate 14, while the further lever 17 is parallel and adjacent to the further plate 15. The further lever 17 and the further plate 15 are rotated around a second axis X2 of a desired angle, for example 90°. In this configuration the first axis X2 is substantially aligned to axes of second hinge 19 and third hinge 20.

[0028] In the first rotated position A, not shown, the lever 16 is parallel and adjacent to the further plate 15, while the further lever 17 is parallel and adjacent to the plate 14. The lever 16 and the further plate 15 are rotated around a first axis X1 of a desired angle, for example 90°. In this configuration the first axis X2 is substantially aligned to axes of first hinge 18 and fourth hinge 21.

[0029] In the rest position C, the levers 16, 17 are both parallel and adjacent to the plates 14, 15, the first hinge 18 is above and substantially aligned with the fourth hinge 21, and the second hinge 19 is above and substantially aligned with the third hinge 20.

[0030] The connection between plates 14, 15 and levers 16, 17 at the corresponding hinges is carried out by means of respective pins 35, 36, 37, 38 engaging corresponding seats provided in the plates 14, 15 and levers 16, 17.

[0031] The operation of this embodiment of hinge means 3 is equivalent to the operation of hinge means of Figure 1 and 2. The couple of levers 16, 17, which work together, makes stronger and stiffer the hinge means 3 that supports in cantilever manner the holding structure 2.

[0032] Locking means 11, 12 can be provided for maintaining the supporting means 1 in the rest position C, or in the first rotated position A, or in the second rotated position B.

[0033] Locking means comprises a first tongue 11 fixed to the first plate 14 and arranged for elastically engaging the further lever 17 and maintaining the latter parallel and adjacent to said plate 14 in the rest position C or in the first rotated position A.

[0034] Locking means further comprises a second tongue 12 fixed to the plate 14 and arranged for elastically engaging the lever 16 and maintaining the latter parallel and adjacent to said first plate 14, in the rest position C or in the second rotated position B.

[0035] Further locking means 45 are provided that are fixed to the second upright element 31b for magnetically retaining the holding structure 2 in the rest position C.

[0036] In order to cooperate in supporting the holding structure 2 in the rest position C and thus reduce the bending of the free end of said holding structure 2, bracket means 23 are provided which are mounted on the second upright element 31b.

[0037] With reference to Figures 6 and 7, a further embodiment of supporting means 1 is shown that comprises hinge means 3' having a plate 24 provided with a first hinge 26 and a second hinge 27 to which can be selectively connected one of the two cylindrical seats 33, 34 of a further plate 25 fixed to the holding structure 2. In particular, a removable connecting pin 28 is provided for connecting the first cylindrical seat 33 of further plate 25 to the first hinge 26 in order to rotate only clockwise the holding structure 2, around a first axis X1, in the first rotated position A.

[0038] Alternatively, the removable pin 28 can be inserted in the second hinge 27 for connecting the second cylindrical seat 34 of further plate 25 thereto, so as to allow rotating only anticlockwise the holding structure 2, around a second axis X2, in the second rotated position A.

[0039] Locking means 29 can be provided for maintaining the supporting means 1 in the rest position C. Said locking means 29 comprises, for example, a snap device, such as a snap hook suitable for receiving and elastically clasp a wire element of the holding structure 2.

[0040] In a further version of the supporting means 1 not shown, the cylindrical seat 33, 34 are directly fixed to the wire elements of said holding structure 2.

Claims

1. Supporting means, comprising a holding structure (2) for receiving and/or supporting objects, and connecting means (3; 3') for fixing said holding structure (2) to a support element (30), in particular a retractable column of a piece of furniture (40), **characterized in that** said connecting means (3) comprises hinge means arranged in such a way that said holding structure (2) is selectively rotatable clockwise or anticlockwise in a respective rotated position (A, B).
2. Supporting means according to claim 1, wherein said hinge means (3; 3') comprises plate means (4; 14) connected to said support element (30) and further plate means (5; 15) connected to said holding structure (2), said first plate means (4; 14) and said second plate means (5; 15) being rotatably interconnected by lever means (6; 16, 17).
3. Supporting means according to claim 2, wherein said lever means comprise a lever (6; 16) rotatably connected to said plate means (4; 14) by a first hinge (8; 18) and to said further plate means (4; 14) by a second hinge (9; 19).
4. Supporting means according to claim 2 or 3, wherein said lever means comprise a further lever (17) rotatably connected to said plate means (4; 14) by a third hinge (20) and to said further plate means (4; 14) by a fourth hinge (21).
5. Supporting means according to claim 3 and 4, wherein said levers (16, 17) are arranged so as to move upon respective parallel and superimposed planes.
6. Supporting means according to claim 1, wherein said hinge means (3') comprises plate means (24) provided with a first hinge (26) and a second hinge (27), and a removable pin (28) for connecting said holding structure (2) selectively to said first hinge (26) or said second hinge (27) so that said holding structure (2) is rotatable respectively anticlockwise or clockwise in said rotated positions (A, B).
7. Supporting means according to claim 6, wherein said hinge means (3') comprises a first seat (33) and a second seat (34) connected to said holding structure (2) and arranged for selectively receiving said removable pin (28).
8. Supporting means according to any preceding claim, comprising locking means (11, 12; 28) for elastically and reversibly maintaining said holding structure (2) at least in a rest position (C) wherein said holding structure (2) is not rotated.
9. Supporting means according to any one of claims 2 to 5 and claim 8, wherein said locking means (11, 12) is mounted on said plate means (14) and comprises tongue means arranged for elastically engaging said lever means (16, 17).
10. Supporting means according to claim 6 or 7 and claim 8, wherein said locking means (11, 12) is mounted on said plate means (24) and comprises snap means (29) for receiving and elastically clasp a portion of said holding structure (2).
11. Supporting means according to any one of claims 8 to 10, comprising further locking means (45) fixed to said support element (30) for magnetically and reversibly retaining said holding structure (2) at least in said rest position (C).
12. Supporting means according to any one of claims 8 to 11, comprising bracket means (23) that is connected to said support element (30), substantially opposed to said connecting means (3), and is ar-

ranged for supporting said holding structure (2) in said rest position (C).

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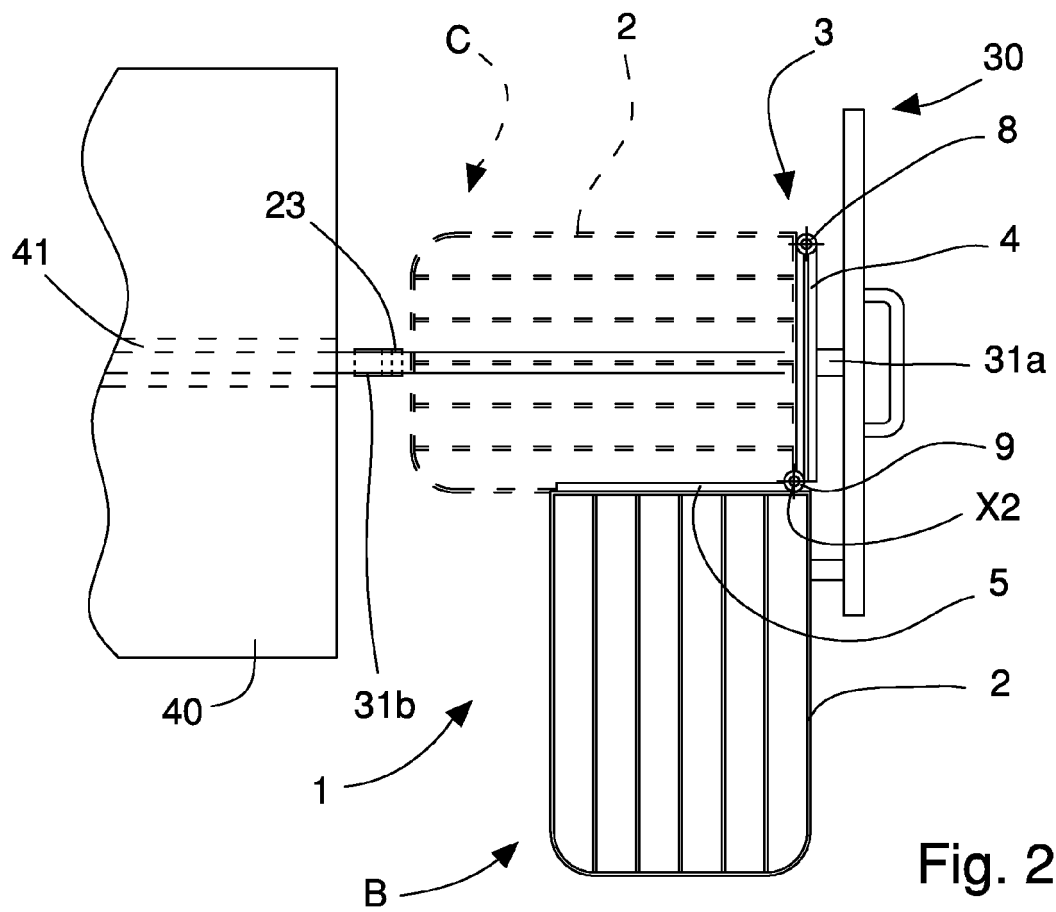
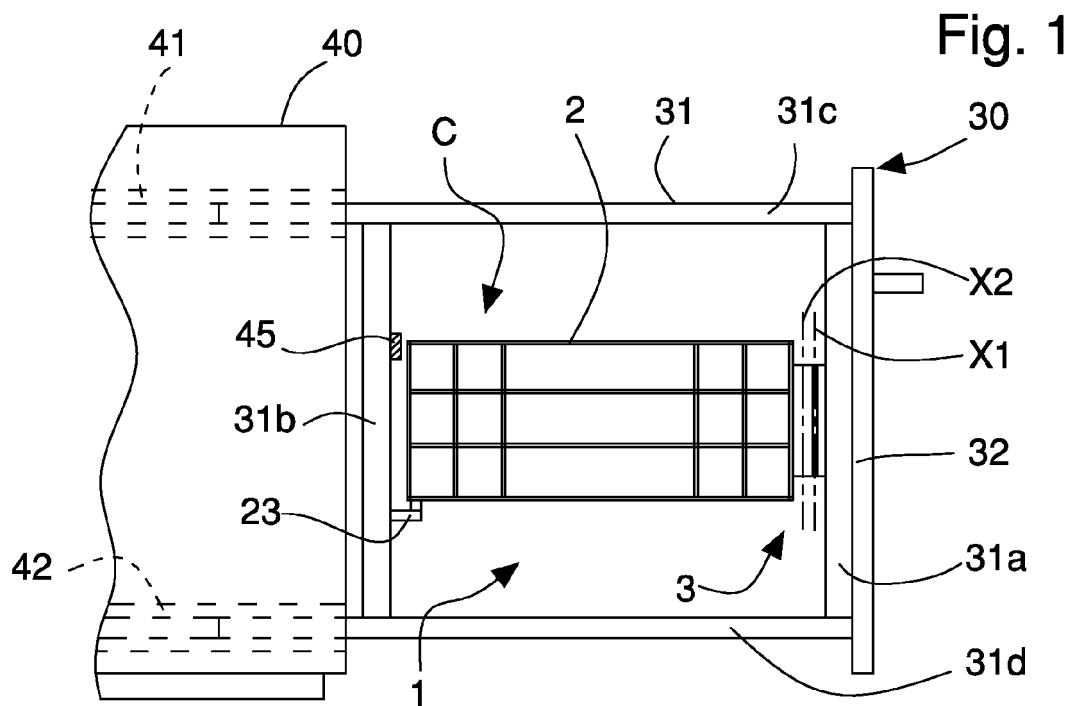
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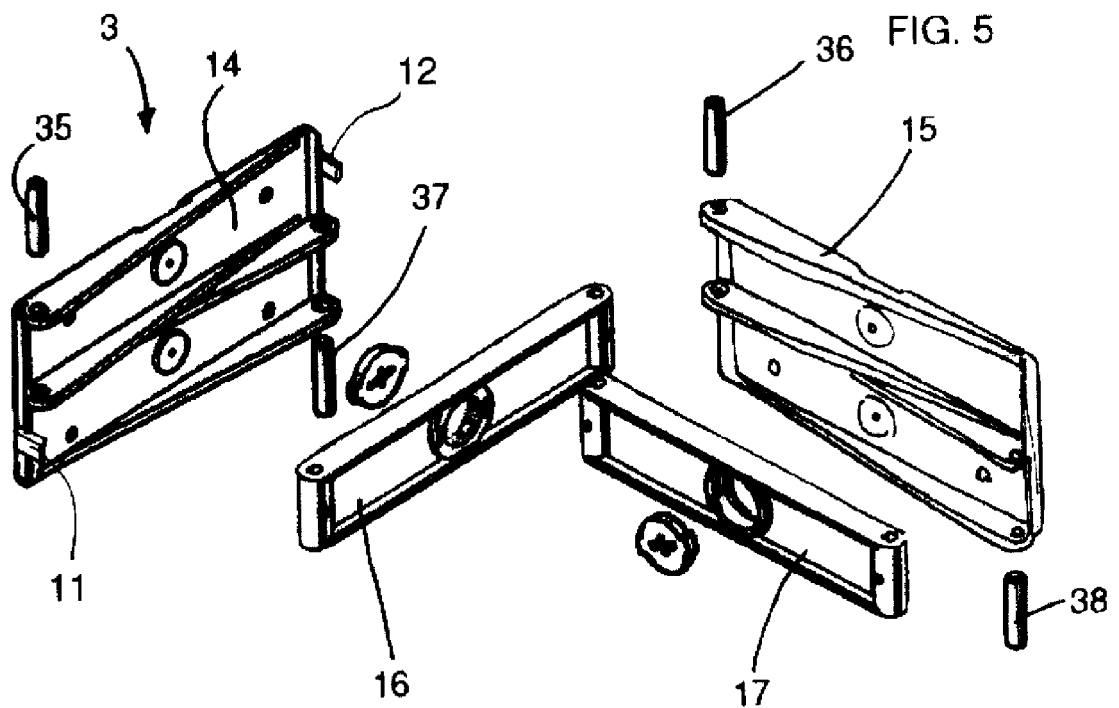
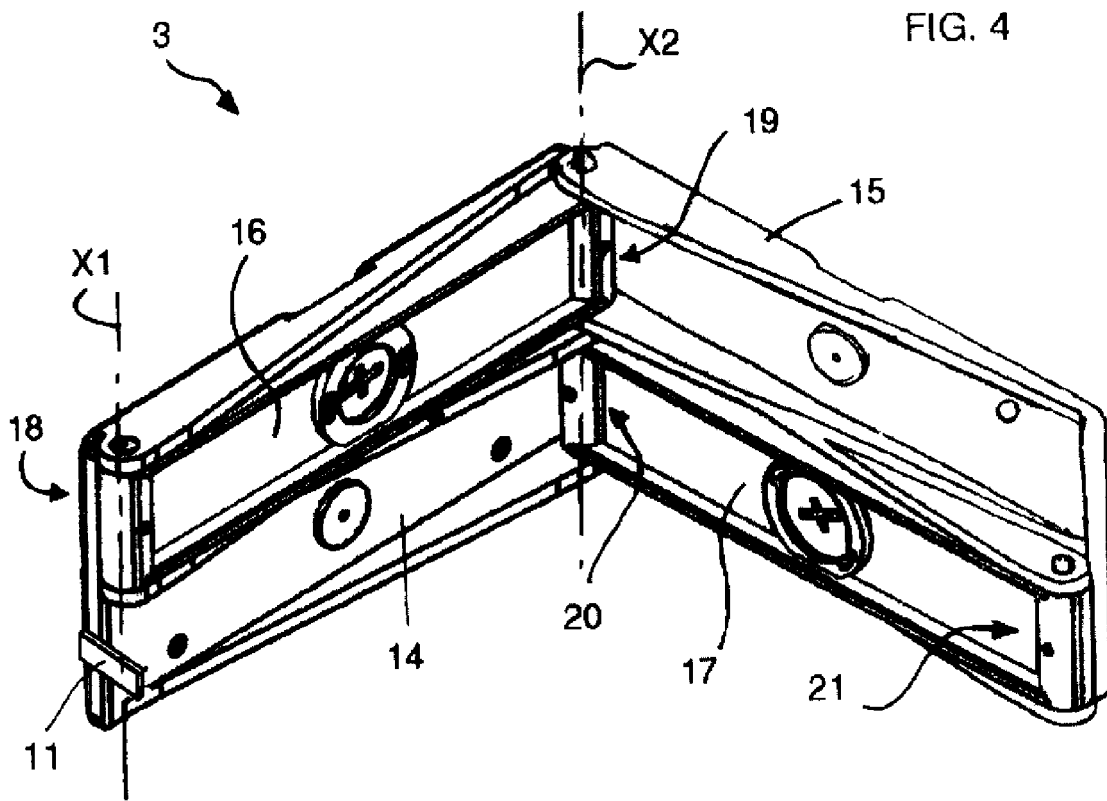


Fig. 7

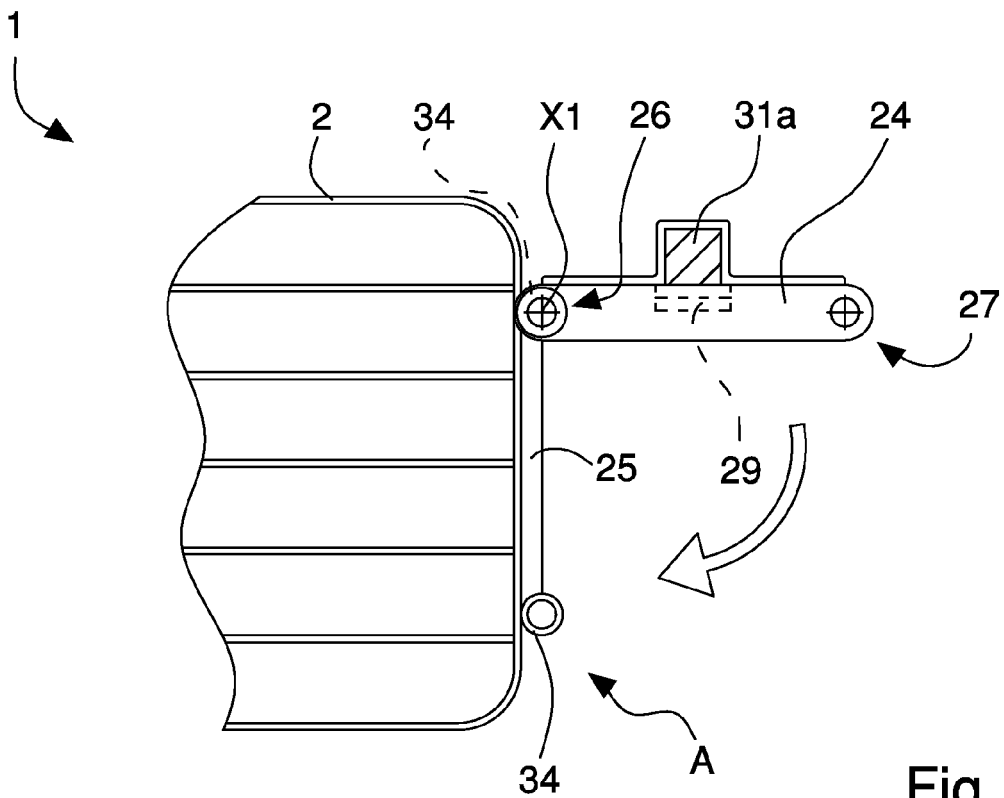
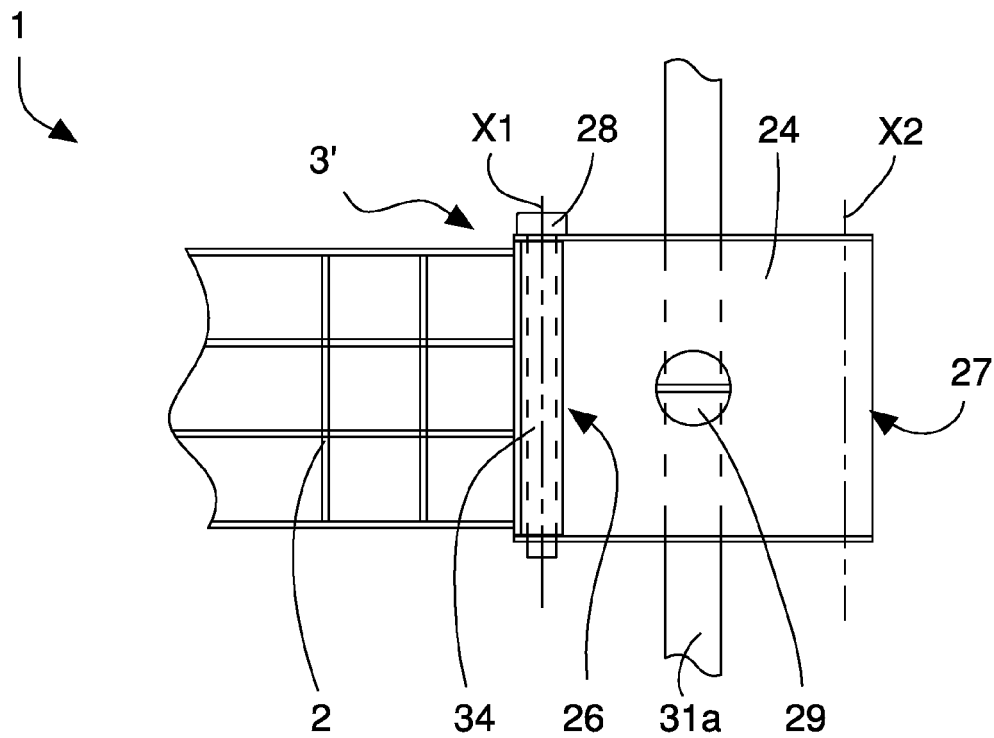


Fig. 6



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The present search report has been drawn up for all claims			
Place of search Munich		Date of completion of the search 10 July 2007	Examiner Klintebäck, Daniel
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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EPO FORM 1503 03.82 (P04C01)

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

EP 07 10 3004

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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