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(54) ADJUSTABLE CARRIAGE UNIT FOR SUPSENDING DIVIDING ELEMENTS

(57) In an adjustable carriage unit (1), a base part (2), fixable to the top of a dividing element, and a carriage part (4), capable of connection to and movement along a guide rail by which the dividing element is suspended, are connected to each other by a connecting part (3) whose upper portion (31), associated with the carriage part (4), is adjustable in position relative to the base part (2) along an axis transversal to the line of movement of the carriage part (4). An adjustment screw (6) acts, either directly or through an actuating device (7), on a first lever arm (51) of an adjustment lever (5) which is hinged on the base part (2) about a first axis of rotation (50) perpendicular to the line of movement of the carriage part (4), causing the adjustment lever (5) to rotate either clockwise or anticlockwise about the first axis of rotation (50) and thereby moving the connecting part (3), which is engaged by its lower portion (30) to a second lever arm (52) of the adjustment lever (5).

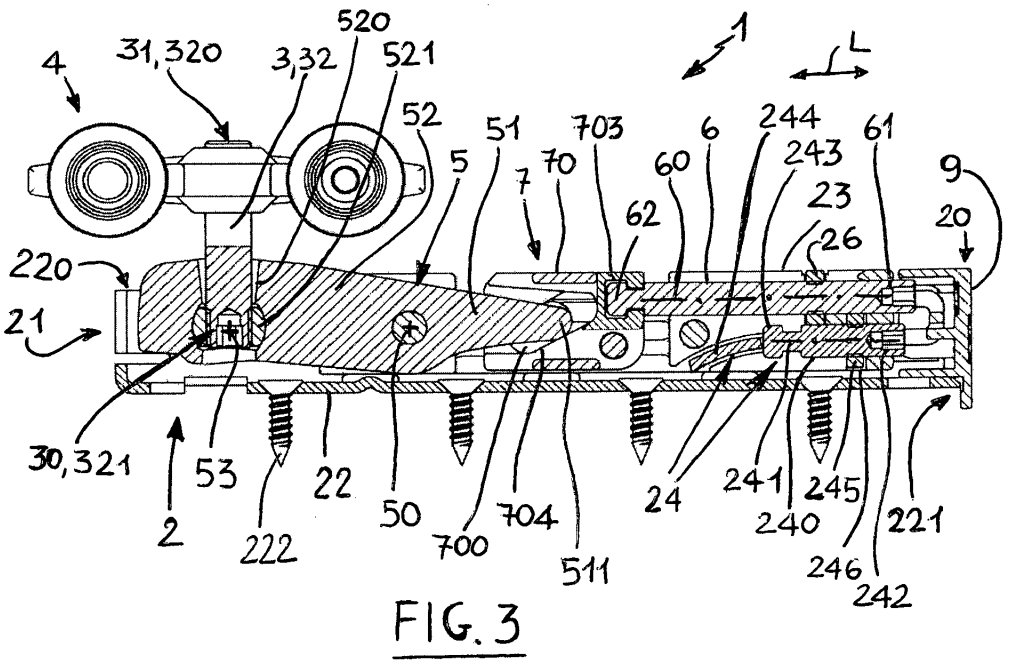

FIG. 3

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Description

[0001] This invention relates to an adjustable carriage unit for suspending dividing elements. Hereinafter (including the appended claims), the term "dividing elements" is used to denote, as a whole, the doors of buildings or furniture of the sliding, folding or slide and turn type or the like, which, for their movement between a closed condition and an open condition, require at least one carriage (preferably equipped with wheels) engaged in a sliding guide (for example, a rail). More specifically, this invention refers to door panels which are suspended from a slide rail by means of a carriage unit.

[0002] Usually, carriage units of this type comprise a bracket, or base part, designed to be fixed to an upper side of the dividing element (and, if necessary, recessed), a carriage part, including the wheels which engage the guide rail, and a connecting part by which the base part is connected to the carriage part. Usually, the distance between the base part and the carriage part is adjustable to allow adjusting the inclination of the dividing element (door panel) in the vertical plane and/or adjusting its height from the floor/its distance from the slide rail.

[0003] In a first prior art solution, the connecting part is a threaded pin screwed into the carriage part and having a shaped head inserted in the base part. By acting on the shaped head, it is possible to turn the threaded pin in the carriage part, thereby screwing or unscrewing it, in such a way as to adjust the distance between the carriage part and the base part. In the simple version, the shaped head is a nut which must be acted on with a key or spanner. In this case, adjustment is relatively complex, laborious and totally manual. In other, more complex versions, the shaped head is a rotary gear meshed with the thread of an adjustment screw which is oriented perpendicularly to the plane of the dividing element (as for example in EP 2,243,913), or is part of a bevel gear pair (as for example in KR101210321) whose activating element is accessible also from the front. In these cases, although adjustment is easier than in the simple version, the system is complex and, to be able to work correctly, needs components obtained by precision processes.

[0004] In a second prior art solution, the connecting part is a bracket or pin which can be slidably guided along the vertical. An upper end of the connecting part is fixed to the carriage part, whilst a lower end is coupled directly to a wedge or inclined plane actuator driven by an adjustment screw (in particular with a wedge or inclined plane coupling). Acting on the adjustment screw causes the inclined plane or wedge connected thereto to move and to act directly on the bottom end of the connecting bracket or pin, making it move along the vertical guide. In this case, the distance between the upper end of the bracket and the body of the base part is adjusted. Two examples of this type of solution are described in EP 2,248,976 and in JP H 08184250.

[0005] The second solution, however, is also not free of disadvantages. In this case, too, for the adjustment device to work properly, precision machined parts are necessary (in particular, the inclined plane or wedge couplings). Moreover, the base part tends to be vertically cumbersome, resulting in the need for deep recesses in the upper edge of the dividing element (door panel) to allow it to be housed therein (and for conspicuous covers if the carriage unit is to be hidden from view as much as possible).

[0006] The aim of this invention is to overcome the above mentioned disadvantages by providing an adjustable carriage unit which can be easily and accurately adjusted without the need for high precision machined parts. A further aim of the invention is to provide an adjustable carriage unit whose vertical dimensions are relatively limited and which is preferably easy to install.

[0007] These aims and others, which shall become more readily apparent in the description that follows, are achieved, in accordance with this invention with an adjustable carriage unit having the structural and functional features described in the independent claims herein, further embodiments of it being described in the dependent claims.

[0008] The invention is described in more detail below with reference to the accompanying drawings, which illustrate a preferred, non-limiting embodiment.

- Figure 1 is an exploded view of the carriage of the invention, where, for greater clarity, the carriage part is not illustrated.
- Figure 2 is a perspective view of a carriage unit according to the invention, equipped with carriage part, showing a tool just before it is used.
- Figure 3 is a longitudinal cross section with a vertical plane of the carriage unit of Figure 2, where the carriage unit is in an intermediate adjustment position and which shows in a non-active position the means for locking a housing portion relative to a fastening portion.
- Figures 4 to 6 are cross sections similar to that of Figure 4 where the carriage unit is, respectively, in the same adjustment position as in Figure 3 (Figure 4), in a fully raised position (Figure 5) and in a fully lowered position (Figure 6), and in all three cases showing in an active position the means for locking the housing portion relative to a fastening portion.
- Figure 7 illustrates a detail from Figure 3, as modified in an embodiment of the invention where the adjustment screw acts directly on the first lever arm. With reference to the drawings, an adjustable carriage unit 1 for suspending dividing elements comprises a base part 2 and a connecting part 3. The base part 2 is designed to be fastened to the top of a dividing element (not illustrated). The base part 2 may be adapted for fastening to a dividing element made of wood. Alternatively (or in addition), the base part 2 may be adapted for application to a dividing element made of glass or other material (for example, if the bottom of it is clamp shaped for fastening to door

slabs or panels made of glass or if it is applied to the fastening clamp before being applied to the top of the glass dividing element).

[0009] The connecting part 3 has a lower portion 30 associated with the base part 2 and an upper portion 31 designed to be connected to a carriage part 4. The carriage part 4 is in turn designed to be coupled to a guide rail (not illustrated) to move along the same and for suspending a dividing element from the guide rail itself. The position of the upper portion 31 of the connecting part 3 relative to the base part 2 is adjustable at least along a direction transversal to the line of movement of the carriage part 4 (for greater clarity, in the drawings, the line of movement of the carriage part 4 is schematically represented by a double arrow, labelled "L" in the drawings). Preferably, the axis of adjustment is perpendicular to the line of movement of the carriage part 4. In particular, the axis of adjustment is vertical.

[0010] More specifically, the carriage unit 1 comprises an adjustment lever 5 hinged either in the base part 2 or on the base part 2 (preferably in the base part 2) about a first axis of rotation 50. The first axis of rotation 50 is perpendicular to the line of movement of the carriage part 4. When the carriage unit 1 is active between a guide rail and a dividing element, the first axis of rotation (50) is generally also perpendicular to the plane the dividing element lies in. The adjustment lever 5 is equipped with a first lever arm 51 and a second lever arm 52 located on opposite sides of the first axis of rotation 50 along the line of movement. The base part 2 has a front end 20 and a rear end 21 located on opposite sides along a line of movement of the carriage part 4 along the guide rail. The carriage unit 1 also comprises an adjustment screw 6 located in the base part 2 with its axis 60 oriented along a line joining the front end 20 to the rear end 21 of the base part 2. The axis 60 of the adjustment screw 6 is preferably parallel to the line of movement of the carriage part 4. The adjustment screw 6 has a head 61 accessible to a user from the front end 20 of the base part 2. The adjustment screw 6 acts, either directly or through an actuating device 7, on the first lever arm 51 to make the adjustment lever 5 rotate either clockwise or anticlockwise about the first axis of rotation 50. The connecting part 3 is engaged by its bottom portion 30 to the second lever arm 52. When the adjustment screw 6 acts on the first lever arm 51 and makes the adjustment lever 5 rotate either clockwise or anticlockwise about the first axis of rotation 50, the connecting part 3 is consequently moved in a plane perpendicular to the first axis of rotation 50. This causes the upper portion 31 of the connecting part 3 to be raised or lowered relative to the base part 2, thereby adjusting its position.

[0011] In an embodiment of the invention illustrated in particular in the detail shown in Figure 7, a tip 62 of the adjustment screw 6 impinges on an inclined surface 510 formed on the first lever arm 51. In this case, the action of the adjustment screw 6 on the first lever arm 51 is direct. More specifically, when the carriage part 4 is coupled to the guide rail, the inclined surface 510, under the weight of the dividing element, rests on the tip 62. In an embodiment of the invention illustrated in the remaining figures, the adjustment screw 6 acts on the first lever arm 51 preferably through an actuating device 7. The actuating device 7 comprises a slider 70 located in the base part 2 between the first lever arm 51 and the adjustment screw 6. Turning the adjustment screw 6 clockwise or anticlockwise about its axis 60 cause the slider 70 to move in one direction or in the opposite direction. The slider 70, coupled to the first lever arm 51 (in particular, preferably, to end portions thereof) transmits its motion to the adjustment lever 5, causing it to rotate about the first axis of rotation 50. In one embodiment of the invention, the slider 70 has an inclined surface 704 which supports the first lever arm 51 at least under the weight of the dividing element when the carriage part 4 is coupled to a guide rail. The inclined surface 704 makes the adjustment lever 5 rotate about the first axis of rotation 50 when a clockwise or anticlockwise rotation of the adjustment screw 6 about its axis 60 causes a corresponding movement of the slider 70. Conveniently, the inclined surface 704 belongs to a plane which is parallel to the first axis of rotation 50 and transversal to the line of movement of the carriage part 4. In a first embodiment, illustrated in the drawings, the inclination of the inclined surface 704 relative to the line of movement of the carriage part 4 may be increasing from the rear end 21 towards the front end 20 of the base part 2. In a second embodiment (not illustrated), the inclination may be decreasing. The movement induced by the inclined surface 704 on the adjustment lever 5 when turning the adjustment screw 6 in the same direction about its axis 60 in the first case is opposite to that induced in the second case. Advantageously, the slider 70 has at least one slot or elongate hole 700, which is oriented transversely to the line of movement of the carriage part 4 in a plane perpendicular to the first axis of rotation 50. The inclined surface 704 is formed on one side of the at least one slot or elongate hole 700. The first lever arm 51 comprises a prong or pin 511 inserted in the slot or elongate hole 700. Acting on the adjustment screw 6 makes the slider 70 move backwards or forwards along the base part 2 along a line from the front end 20 to the rear end 21 of the base part 2, thereby causing a corresponding movement of the prong or pin 511 along the slot or elongate hole 700 and a corresponding rotation of the adjustment lever 5. Figures 4 to 6 show three different corresponding adjustment configurations (an intermediate one, Figure 4, and two end ones, Figures 5 and 6). If the slot or elongate hole 700 is oriented with increasing inclination from the rear end 21 to the front end 20 of the base part 2 (as shown in the drawings), a movement of the slider 70 towards the rear end 21 causes the prong or pin 511 to be lifted and the connecting part 3 to be lowered (Figures 4 and 6), whilst a movement of the slider 70 towards the front end 20 causes the prong or pin 511 to be lowered and the connecting part

3 to be raised (Figures 4 and 5). If the slot or elongate hole 700 is oriented with decreasing inclination from the rear end 21 to the front end 20 of the base part 2 (not illustrated), a movement of the slider 70 towards the rear end 21 causes the prong or pin 511 to be lowered and the connecting part 3 to be raised, whilst a movement of the slider 70 towards the front end 20 causes the prong or pin 511 to be raised and the connecting part 3 to be lowered (Figures 4 and 5). A different inclination of the slot or elongate hole 511 corresponds to a related different inclination of the inclined surface 704.

[0012] The coupling between the prong or pin 511 and the sides of the slot or elongate hole 700 advantageously renders permanently stable the coupling between the first lever arm 51 and the slider 70. This coupling is therefore independent of the weight, if any, of a dividing element and/or of the coupling of the carriage part 4 with a guide rail.

[0013] The tip 62 of the adjustment screw 6 is connected to the slider 70 in such a way as to be free to rotate about the axis 60 of the adjustment screw 6 relative to the slider 70 but, at the same time, in such a way as not to be free to translate along the axis 60 of the adjustment screw 6 relative to the slider 70 itself. This type of constraint can be obtained in several ways, known to an expert in the trade. Advantageously and preferably, in one embodiment of the invention illustrated in Figures 1 to 6 (with reference in particular to Figures 1 and 3), the tip 62 of the screw has in succession, along the direction from the front end 20 to the rear end 22, a first stretch which is smaller in diameter than the body of the adjustment screw 6 and a second stretch which is larger in diameter than the first stretch. The tip 62 thus shaped is inserted in a matchingly shaped housing in the slider 70. This solution is particularly advantageous when the slider 70 is made by coupling together two shells, as described in more detail below: in effect, in this case, making the matchingly shaped housing for the tip 62 and inserting the tip 62 into it is particularly easy.

[0014] Screwing the adjustment screw 6 into the base part 2 produces a movement, in particular a translational movement, of the slider 70, directed from the front end 20 of the base part 2 towards the rear end 21 of the base part 2. Screwing the adjustment screw 6 out of the base part 2, on the other hand, produces a movement of the slider 70 in the opposite direction. This movement of the slider 70 may be obtained directly thanks to the constraint between the tip 62 of the adjustment screw 6 and the slider 70 itself. Alternatively, or in addition, this movement may be obtained through a guide device, formed or housed in the base part 2, for guiding the slider 70. For example, the slider 70 may be provided with guide ribs or splines 705 which can be inserted into matching guide splines or ribs 25 on the base part 2.

[0015] The slider 70 comprises a first shell 701 and a second shell 702 connected to each other and enclosing the tip 62 of the adjustment screw 6 to form a respective housing 703. Advantageously, the first and second shells 701, 702 also enclose between them an end portion of the first lever arm 51. Conveniently, the slot or elongate hole 700 is made both in the first shell 701 and in the second shell 702. The first lever arm 51 comprises two prongs or pins 511 projecting from opposite sides of the first lever arm 51 itself and each being inserted into a respective slot or elongate hole 700 formed in the first shell 701 and in the second shell 702 of the slider 70, respectively.

[0016] The first lever arm 51 is positioned between the first axis of rotation 50 and the front end 20 of the base part 2. This arrangement allows further reducing the vertical dimensions of the carriage unit 1.

[0017] Advantageously, the bottom portion 30 of the connecting part 3 is hinged to the second lever arm 52 about a second axis of rotation 53 parallel to the first axis of rotation 50. The connecting part 3 is free to rotate about the second axis of rotation 53 so as to keep the line joining the upper portion 30 to the lower portion 31 of the connecting part 3 parallel to itself at all times under the weight of a suspended dividing element, when the adjustment lever 5 is rotated by the action of the adjustment screw. Conveniently, the connecting part 3 is free to rotate about the second axis of rotation 53 at least between two predetermined angular limits. Limiting the rotation between two predetermined angular limits may be useful to avoid problems and/or difficulties also during assembly of the carriage unit 4.

[0018] More specifically, the connecting part 3 comprises a connecting pin 32. The connecting pin 32 has a first end 320 corresponding to the upper portion 31, engageable in the carriage part 4. The connecting pin 32 also has a second end 321 corresponding to the lower portion 30. The connecting pin 22 passes through a flared hole 520 made in the second lever arm 52 and, by its second end 321, is connected to a rotation pin 521 located in a respective housing 522 in the second lever arm 52. With its inclined walls, the flared hole 520 defines the angular limits for the rotation of the connecting part 3 (and more specifically, of the connecting pin 32) about the second axis of rotation 53. The pin 52 may be in the form of a shaped nut 523 having a hole 524 to receive the second end 321 of the connecting pin 32. The shaped nut 523 comprises cylindrical lateral surface portions to allow it to rotate about the second axis of rotation 53 inside the housing 521. The coupling between the rotation pin 32 and the shaped nut 523 may be a plain threaded coupling. As illustrated in Figures 3 to 6, a fastening screw 525 may be provided to lock the connecting pin 32 and the shaped nut 523 to each other and which can be inserted through a further hole 526 made in the second lever arm 52 on the opposite side with respect to the flared hole 520. The base part 2 comprises a box-shaped fastening portion 22, open at the top 220 and at the front end 221, corresponding to the front end 20 of the base part 2. The fastening portion 22 is designed to be received in a housing at the top of the dividing element, leaving its top 220 and front end 221 exposed. In the case of a

dividing element made of wood, the housing may correspond to a suitable recess in which to insert the fastening portion 22. In the case of a dividing element made of glass, the housing may be obtained on a glass fastening clamp applied to the upper edge of the dividing element itself. In this case, the fastening portion 22 might itself be provided with a glass clamp integrated thereon or connectable thereto. Fastening screws 222 may be provided to fix the fastening portion 22 to the housing.

[0019] The base part 2 comprises a housing portion 23 which houses the adjustment screw 6 and rotatably supports the adjustment lever 5. The housing portion 23 is inserted in the box-shaped fastening portion 22 from the open front end 221 with the connecting part 3 protruding from the top 220 of the box-shaped fastening portion 22 (Figure 2 and Figures 3-6). The box-shaped fastening portion 22 and the housing portion 23 may comprise mutually interlocking means 223, 233 for guiding the housing portion 23 in the fastening portion 22 to prevent it from breaking or being pulled out of the top 220 of the fastening portion 22. For example, as illustrated in the drawings, the mutually interlocking means 223, 233 may comprise tabs and/or protuberances and/or grooves which can be mutually engaged.

[0020] The housing portion 23 is locked inside the box-shaped fastening portion 22 by releasable locking means 24. The releasable locking means 24 comprises a locking screw 240 housed in the respective housing in the housing portion 23 with its axis 241 oriented along a line joining the front end 20 to the rear end 21 of the base part 2 and having a head 242 accessible to a user from the front end 20 of the base part 2. A tip 243 of the locking screw 243 is coupled to an interference element 244. Turning the locking screw 243 clockwise or anticlockwise about its axis 241 when the housing portion 23 is inserted in the box-shaped fastening portion 22 causes the interference element 244 to move between a position of non-interference with parts of the box-shaped fastening portion 22 and a position of interference with parts of the box-shaped fastening portion 22, thereby locking and unlocking the housing portion 23 relative to the fastening portion 22. Figure 3 illustrates the non-interference condition, whilst Figures 4 to 6 illustrate the interference condition.

[0021] The coupling between the base part 2 and the adjustment screw 6 may be a plain threaded coupling. Alternatively, the housing for the adjustment screw 6 might not be threaded but might have, inserted in it, a threaded nut 26 for coupling to a suitable housing 27 of the base part 2.

[0022] The coupling between the housing portion 23 and the locking screw 240 may be a plain threaded coupling. Alternatively, the housing for the locking screw 240 might not be threaded but might have, inserted in it, a threaded nut 245 for coupling to a suitable housing 246 of the housing portion 23.

[0023] The housing portion 23 also houses the actuating device 7, in particular the slider 70. In this case, the guides, if any, for moving the slider 70 under the action of the adjustment screw 6 are preferably and conveniently formed on inside lateral walls of the housing portion 23.

[0024] The housing portion 23 comprises a first shell 230 and a second shell 231 which are connected to each other and which combine to form at least one housing 232 for the adjustment screw 6. Conveniently, the combination of the first and the second shell 230 and 231 also forms the housing for the locking screw 240.

[0025] On the housing portion 23, there may be formed, at the front end 20, a hooking element 234 - for example a rigid collar or similar slot - for the head of a tool 235 (for example, a screwdriver). The hooking element 234 may be used to take the housing portion 23 out of the box-shaped fastening portion 22 when the locking means 24 are released.

[0026] The carriage unit 1 may also comprise a plug 9 for closing the open front end 221. Obviously, access to the head 61 of the adjustment screw 6 is possible only after removing the plug 9. Obviously, access to the head 242 of the locking screw 24 is possible only after removing the plug 9. Obviously, access to the hooking element 234 by means of the tool 235 is possible only after removing the plug 9.

[0027] The adjustable carriage unit 1 also comprises a carriage part 4 connected to the upper portion 31 of the connecting part (for example by a threaded coupling). The invention brings important advantages. The carriage unit is easy to install and adjust, and yet precise, and can be made using parts which are easy to produce. The vertical dimensions of the carriage unit can be very limited.

[0028] The invention described can be modified and adapted in several ways without thereby departing from the scope of the inventive concept.

[0029] Moreover, all details of the invention may be substituted by other technically equivalent elements.

[0030] In practice, the embodiments of the invention may be made of any material, and in any size, depending on requirements.

Claims

1. An adjustable carriage unit (1) for suspending dividing elements, comprising a base part (2), to be fixed to the top of a dividing element, and a connecting part (3) having a lower portion (30) associated with the base part (2) and an upper portion (31) designed to be connected to a carriage part (4), the carriage part (4), being in turn designed to be coupled to a guide rail to move along the guide rail and to suspend a dividing element therefrom, the base part (2) having a front end (20) and a rear end (21) located on opposite sides along a line of movement of the carriage part (4) along the guide rail, the position of the upper portion (31) of the connecting part (3) relative to the base part (2) being adjustable at least along

an axis transversal to the line of movement of the carriage part (4), **characterized in that** it further comprises:

- an adjustment lever (5) hinged in/on the base part (2) about a first axis of rotation (50) perpendicular to the line of movement of the carriage part (4) and having a first lever arm (51) and a second lever arm (52) located on opposite sides of the first axis of rotation (50) along said line of movement;
- an adjustment screw (6) which is located in the base part (2) with its axis (60) oriented along a line joining the front end (20) to the rear end (21) of the base part (2), has a head (61) accessible to a user from the front end (20) of the base part (2) and acts, either directly or through an actuating device (7), on the first lever arm (51) to make the adjustment lever (5) rotate either clockwise or anticlockwise about the first axis of rotation (50), the connecting part (3) being engaged by its bottom portion (30) to the second lever arm (52) and, consequently, being moved in a plane perpendicular to the first axis of rotation (50).

2. The adjustable carriage unit (1) according to claim 1, **characterized in that** a tip (62) of the adjustment screw (6) impinges on an inclined surface (510) formed on the first lever arm (51).

3. The adjustable carriage unit (1) according to claim 1, **characterized in that** the adjustment screw (6) acts on the first lever arm (51) through an actuating device (7) comprising a slider (70) located in the base part (2) between the first lever arm (51) and the adjustment screw (6) and having an inclined surface (704) which supports the first lever arm (51) at least under the weight of a dividing element when the carriage part (4) is coupled to a guide rail and which makes the adjustment lever (5) rotate about the first axis of rotation (50) when a clockwise or anticlockwise rotation of the adjustment screw (6) about its axis (60) causes a corresponding movement of the slider (70).

4. The adjustable carriage unit (1) according to claim 3, **characterized in that** a tip (62) of the adjustment screw (6) is connected to the slider (70) in such a way as to be free to rotate about, but not free to translate along, the axis (60) of the adjustment screw (6) relative to the slider (70), the slider (70) having at least one slot or elongate hole (700), which is oriented transversely to the line of movement of the carriage part (4) in a plane perpendicular to the first axis of rotation (50), the inclined surface (704) being formed on one side of the at least one slot or elongate hole (700), the first lever arm (51) comprising a prong or pin (511) inserted in the slot or elongate hole (700), action on the adjustment screw (6) making the slider (70) move backwards or forwards along the base part (2) along a line from the front end (20) to the rear end (21) of the base part (2), thereby causing a corresponding movement of the prong or pin (511) along the slot or elongate hole (700) and a corresponding rotation of the adjustment lever (5).

5. The adjustable carriage unit (1) according to claim 3 or 4, **characterized in that** the slider (70) comprises a first shell (701) and a second shell (702) connected to each other and enclosing the tip (62) of the adjustment screw (6) to form a respective housing (703).

6. The adjustable carriage unit (1) according to any one of the preceding claims, **characterized in that** the first lever arm (51) is positioned between the first axis of rotation (50) and the front end (20) of the base part (2).

7. The adjustable carriage unit (1) according to any one of the preceding claims, **characterized in that** the lower portion (30) of the connecting part (3) is hinged to the second lever arm (52) about a second axis of rotation (53) parallel to the first axis of rotation (50), the connecting part (3) being free to rotate about the second axis of rotation (53) at least between two predetermined angular limits so as to keep the line joining the upper portion (30) to the lower portion (31) of the connecting part (3) parallel to itself at all times under the weight of a suspended dividing element, when the adjustment lever (5) is rotated by the action of the adjustment screw (6).

8. The adjustable carriage unit (1) according to claim 7, **characterized in that** the connecting part (3) comprises a connecting pin (32) having:

- a first end (320) corresponding to the upper portion (31), engageable in the carriage part (4);
- a second end (321) corresponding to the lower portion (31) the connecting pin (32) passing through a flared hole (520) made in the second lever arm (52) and, by its second end (321), being connected to a rotation pin (521) located in a respective housing (522) in the second lever arm (52).

9. The adjustable carriage unit (1) according to any one of the preceding claims, **characterized in that** the base part (2) comprises:

- a box-shaped fastening portion (22), open at the top (220) and at the front end (221), corresponding to the front end (20) of the base part (2), the fastening portion (22) being designed to

be received in a housing at the top of the dividing element, leaving its top (220) and front end (221) exposed;

- a housing portion (23) which houses the adjustment screw (6) and rotatably supports the adjustment lever (5), is inserted in the box-shaped fastening portion (22) from the open front end (221) with the connecting part (3) protruding from the top (220) of the box-shaped fastening portion (22) and is locked therein by releasable locking means (24).

10. The adjustable carriage unit (1) according to any one of the preceding claims, **characterized in that** it comprises a carriage part (4) connected to the upper portion (31) of the connecting part.

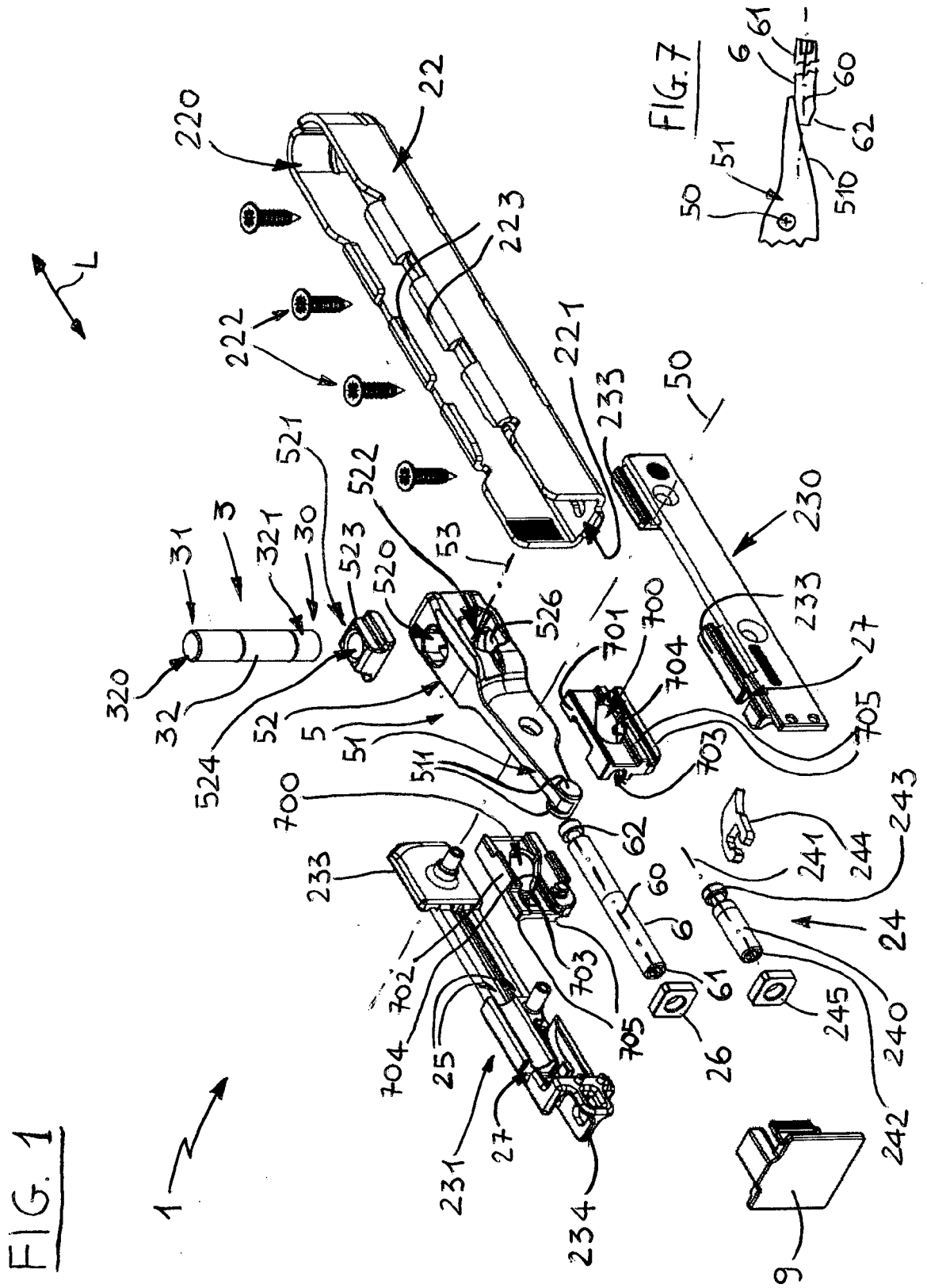
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FIG. 1

50
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510
6
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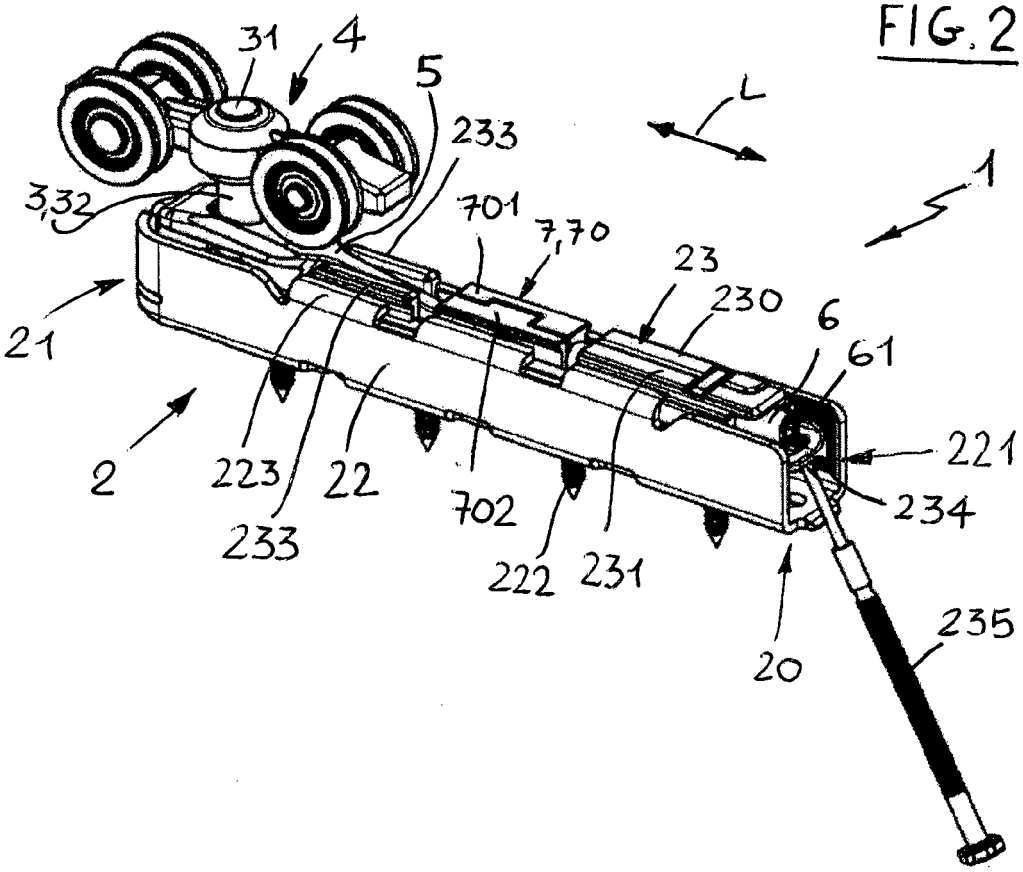
FIG. 7

FIG. 2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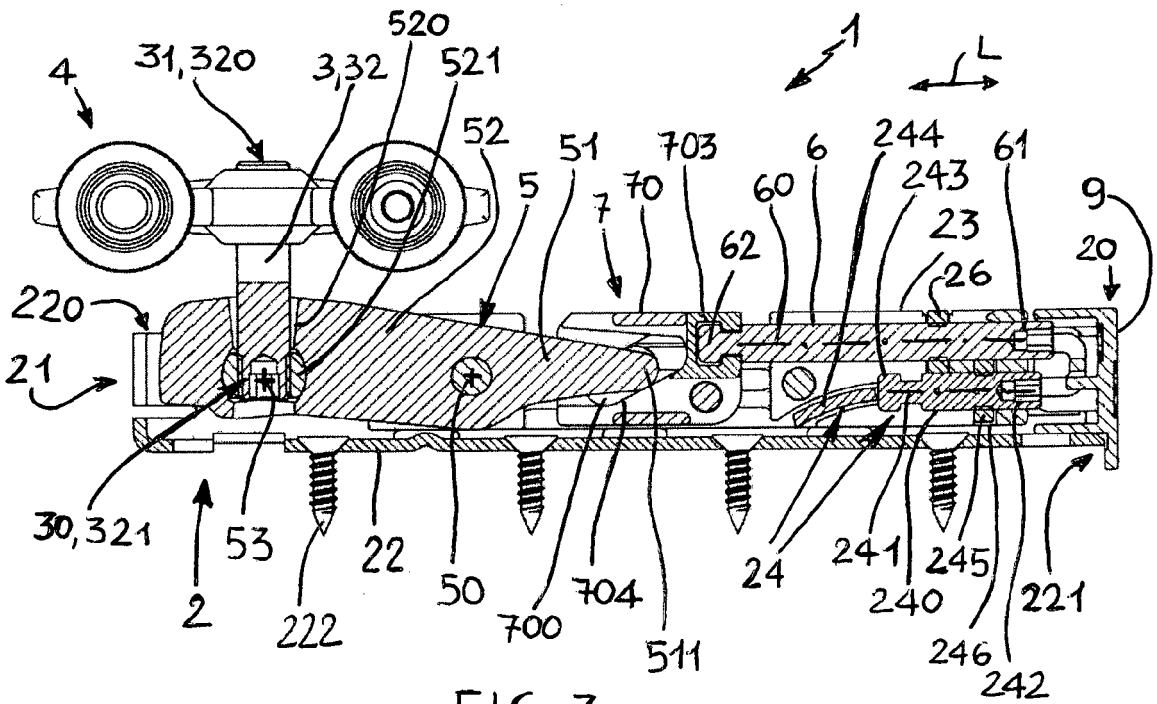
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30,321
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700
704
511
24
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242
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222

FIG. 3

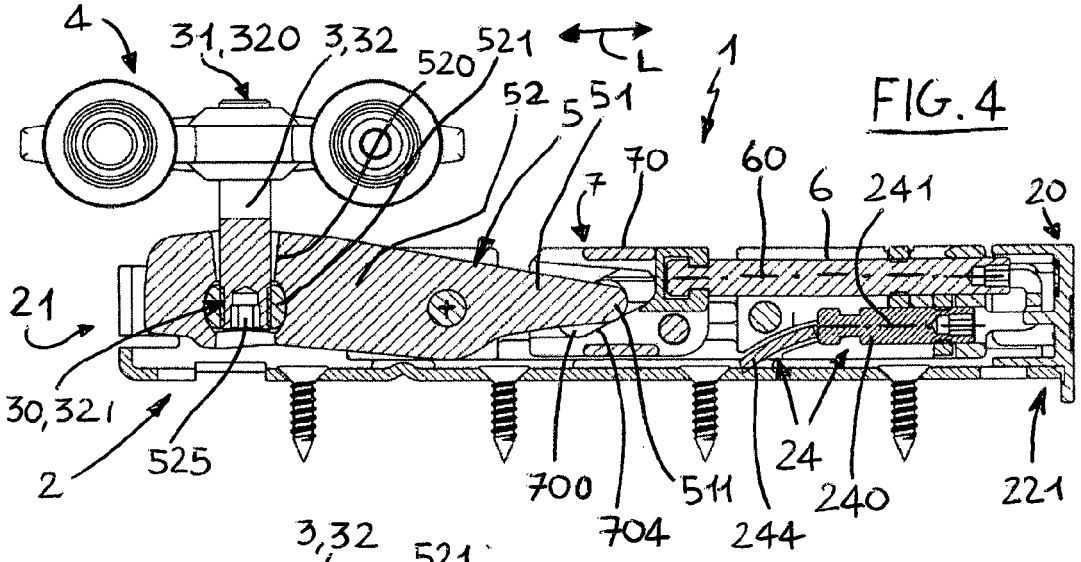

FIG.4

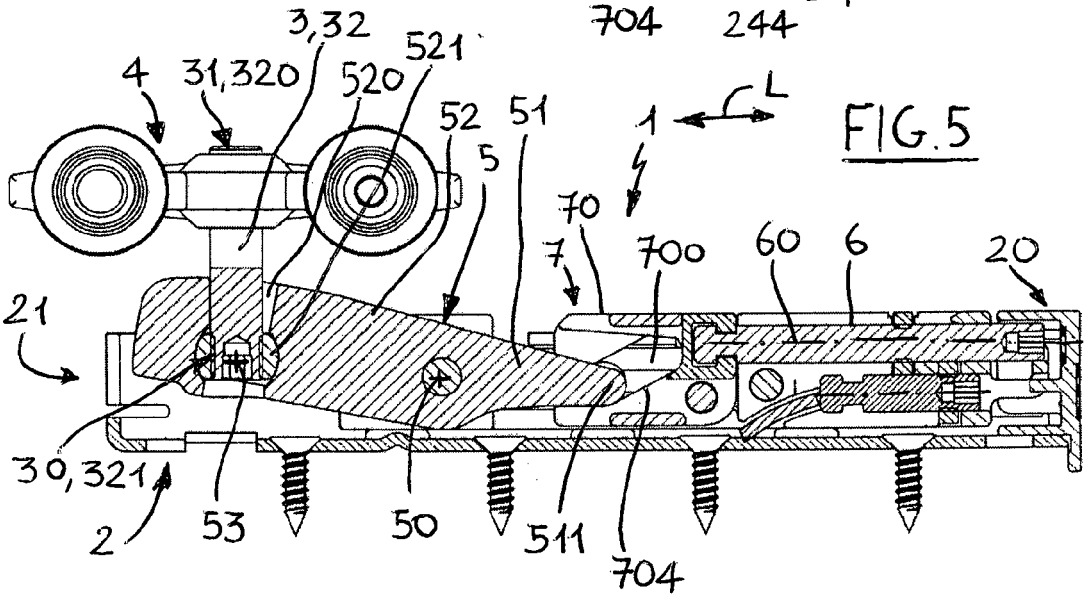

FIG.5

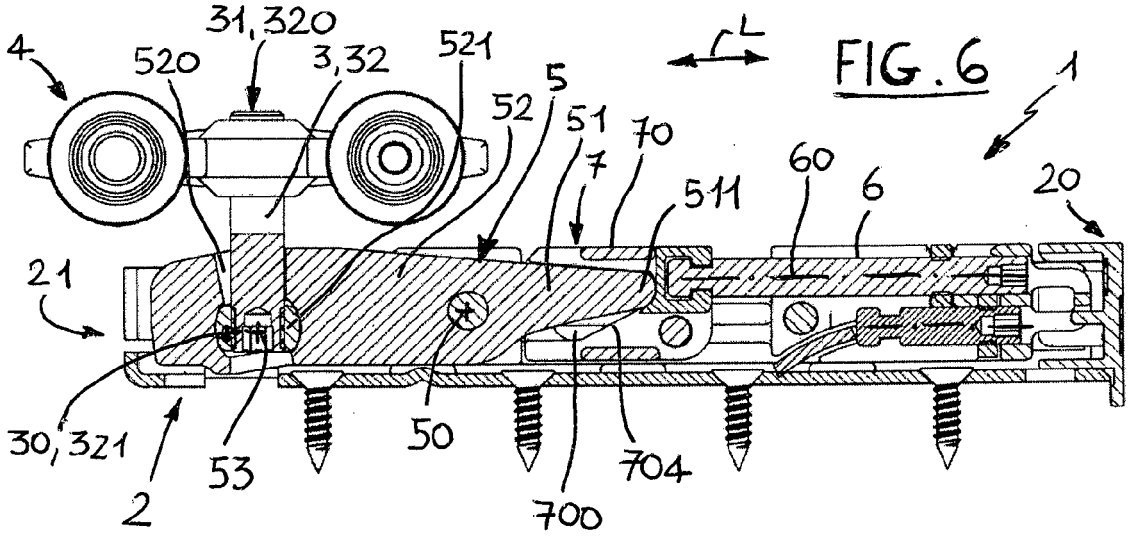

FIG.6

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EUROPEAN SEARCH REPORT

Application Number
EP 15 00 0170

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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	26 March 2015	Mund, André

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26-03-2015

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