(19) Europäisches Patentamt
European Patent Office
Office européen des brevets

(11) EP 2 311 349 A1

(12) EUROPEAN PATENT APPLICATION

(43) Date of publication:
20.04.2011 Bulletin 2011/16

(51) Int Cl.:
A47C 20/04 *(2006.01)* ***A61G 7/015*** *(2006.01)*
A61G 7/018 *(2006.01)*

(21) Application number: **09173432.7**

(22) Date of filing: **19.10.2009**

(84) Designated Contracting States:
AT BE BG CH CY CZ DE DK EE ES FI FR GB GR HR HU IE IS IT LI LT LU LV MC MK MT NL NO PL PT RO SE SI SK SM TR

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(54) A furniture device

(57) A furniture device (1) comprising a fundament (3), a first section (5) comprising a first surface (7) parallel with a first plane (P1), a second section (9) comprising a second surface (11) and a pivoting member (20) comprising a pivot arm (22) with a first end (24) and a second end (26), a pivoting mechanism (28) and a connection rod (30) connected to the fundament and to the second section. The pivoting mechanism induces a displacement of the pivot arm (22) away from or towards the first section so that the second end (26) acts on the second section with a supplied force directed away from or towards the first plane. The pivoting member comprises a first support member (32) guiding the displacement of the pivot arm during pivoting the second section between a first and a second orientation by means of supporting a first arm part (23) at a position between the first end and the second end.

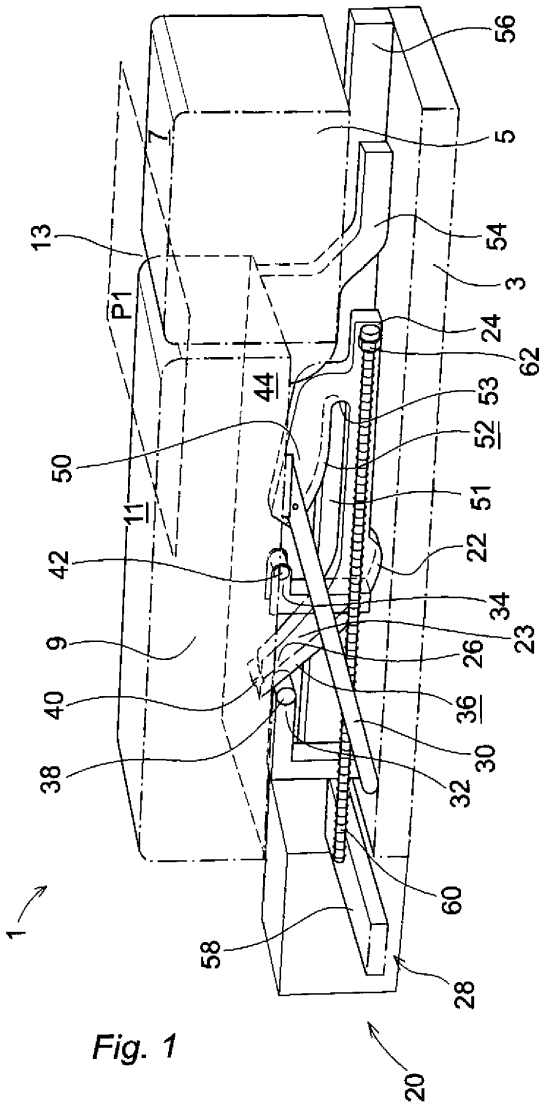

Fig. 1

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Description

FIELD OF THE INVENTION

[0001] The present invention relates to a furniture device comprising a fundament in connection to the ground, a first section on the fundament, the first section comprising a first surface parallel with a first plane, a second section on the fundament, the second section comprising a second surface, wherein the second section is adapted to be pivoted between a first orientation and a second orientation, the second surface being parallel with the first plane in the first orientation and non-parallel with the first plane in the second orientation, a pivoting member adapted to pivot the second section between the first and the second orientation, the pivoting member comprising a pivot arm with a first end and a second end, a pivoting mechanism adapted to act on the pivot arm by means of an applied force, and a connection rod connected to the fundament and to the second section, the connection rod being adapted to prevent the second section from interaction with the first section.

PRIOR ART

[0002] A furniture device, such as a bed mattress, a seat cushion, or other similar devices, is adapted to receive the weight or part of the weight of a being and distribute the weight from the body of the being over a part of the surface of the device. The furniture device comprises at least the first and the second section that are positioned close to each other. The second section of the device is adapted to be pivoted by means of the pivoting member to different orientation in relation to the first section. In the first orientation, the furniture device is adapted to have the surface of the first section parallel with the second section, wherein the first and the second section together provide a large flat area that can be used for lying down. The second section is adapted to be pivoted to an inclination in respect to the first section, wherein the second section is non-parallel with the first section. In such non-parallel orientation, the second section is used for supporting the back of the being, for example when the being is in a sitting position.

[0003] Prior art furniture device normally comprises one continuous section, wherein a second part of the section is pivoted while a first part of the section is static. Such arrangement has the disadvantage that an upper side of the section is compressed while a lower side of the section is being stretched out. Hence, the usable upper length of the device is restricted when inclined in comparison to the non-inclined orientation. The use of two separate sections, wherein the second section is pivotable without interaction with the first section, provides the benefit that no compression occurs between the first and the second section and thus the usable length of the device is unaffected when pivoting the second section between the first and the second orientation.

[0004] Prior art pivoting member for pivoting furniture devices comprising a first and a second section has the disadvantage that the possible angle of inclination between the second section and the first section is limited. Moreover, prior art pivoting members are extensive and thereby consume valuable space underneath the first and the second sections. This space is often desired to be used as a storage compartment. Furthermore, prior art pivoting members require a sensor arrangement to avoid a person or other objects from being pinched between the second section and the fundament during reorienting the second section towards the fundament.

[0005] EP0845231 A2 discloses a furniture device that comprises a first and a second section, wherein the second section is adapted to be pivoted by means of a pivoting member. The pivoting member comprises a pivot arm and a connection rod. The pivot arm is adapted to pivot the second section by means of the length of the pivot arm being telescopically adjustable. A problem with the device is that the pivoting member can only pivot the second section to a limited inclination in respect to the first section. Another problem with the device is that the telescopic arrangement of the pivot arm requires a hydraulic or pneumatic arrangement, which is expensive and can result in leakage of hydraulic oil. Moreover, such arrangement requires a sufficient large force to press back the second section from the second orientation to the first orientation. Alternatively, the telescopic pivot arm is provided with a hydraulic or pneumatic arrangement in each direction of the movement between the first and the second orientation. Such arrangement, however, increase the cost of the furniture device. Another disadvantage is that the pivoting member requires valuable space underneath the second section. Furthermore, a person or other objects may be pinched between the second section and the fundament during reorienting the second section towards the fundament.

OBJECTS AND SUMMARY OF THE INVENTION

[0006] The object of the present invention is an improved furniture device that is adapted to pivot the second section in relation to the first section without the disadvantages of prior art. This objective is achieved by a furniture device as defined by claim 1. The furniture device is **characterized in that** the pivoting mechanism is adapted to induce a displacement of the pivot arm away from or towards the first section so that the second end of the pivot arm acts on the second section with a supplied force directed away from or towards the first plane, wherein the pivoting member further comprises a first support member fixed in relation to the fundament, the first support member being adapted to guide an initial sequence of the displacement of the pivot arm during pivoting the second section between the first and the second orientation by means of supporting a first arm part of the pivot arm at a position between the first end and the second end.

[0007] The pivot arm is adapted to be displaced so that the first arm part is physically guided on the first support member, wherein the second end of the pivot arm is exerting the supplied force on the second section. Thereby, the second section is pivotable between the first orientation and the second orientation without the use of a telescopic arm. Furthermore, the second section is pivoted by means of pivot arm that is rigid or essentially rigid. The pivoting member may be arranged without extending underneath the fundament.

[0008] According to one embodiment of the invention, the pivoting mechanism is adapted to apply the applied force at the first end of the pivot arm, thereby inducing the supplied force to act on the second section in a direction essentially perpendicular to the second surface.

[0009] According to one embodiment of the invention, in the initial sequence of the displacement of the pivot arm, the first arm part of the pivot arm is adapted to be displaced on the first support member so that a point of action between the first arm part and the first support member is shifted between a first support position and a second support position on the first arm part during pivoting the second section between the first and the second orientation, wherein the first support position is closer to the second end of the pivot arm than the second support position.

[0010] The shifting of the first arm part on the first support member is achieved by means of continuous interaction between the first support member and the first arm part, such as a gliding movement, a rolling displacement, etcetera. Thereby, the second section is pivoted continuously.

[0011] According to one embodiment of the invention, the first arm part of the pivot arm comprises a first convex surface adapted to be in contact with the first support member during the initial sequence of the displacement of the pivot arm.

[0012] The first convex surface is the area of interaction between the first support member and the first arm part. By means of the design of the first convex surface, the response of a certain displacement of the pivot arm on the pivoting movement of the second section is controlled during the initial sequence of the displacement of the pivot arm.

[0013] According to one embodiment of the invention, the first support member comprises a first rolling member adapted to roll on the first arm part of the pivot arm during the initial sequence of the displacement of the pivot arm.

[0014] The first rolling member provides a rolling displacement of the first arm part on the first support member, wherein the first arm part is displaced with low friction on the first support member.

[0015] According to one embodiment of the invention, the second end of the pivot arm is adapted to be displaced on a receiving surface of the second section during pivoting the second section. The pivot arm acts on the second section by means of that the second end of the pivot arm is displaced on the receiving surface of the second section.

[0016] According to one embodiment of the invention, the second end of the pivot arm comprises a second rolling member adapted to roll on the receiving surface of the second section.

[0017] The second rolling member provides a rolling displacement of the second end of the pivot arm on the receiving surface, wherein the second end is displaced with low friction on the receiving surface.

[0018] According to one embodiment of the invention, the pivot arm comprises a second arm part separated by an interspace from the first arm part of the pivot arm, the second arm part being located closer to the first end of the pivot arm than the first arm part, wherein the pivoting member comprises a second support member fixed in relation to the fundament, the second support member is adapted to guide a subsequent sequence of the displacement of the pivot arm during pivoting the second section between the second orientation and a third orientation by means of supporting the second arm part, wherein in the second orientation the second section is inclined at a first angle with the first plane and in the third orientation the second section is inclined at a second angle with the first plane, the second angle being higher than the first angle.

[0019] The displacement of the second arm part on the second support member enables the second section to be pivoted to higher angle in respect to the first plane than is possible by using only the displacement of the first arm part on the first support member.

[0020] According to one embodiment of the invention, in the subsequent sequence of the displacement of the pivot arm, the second arm part of the pivot arm is adapted to be displaced on the second support member so that a point of action between the second arm part of the pivot arm and the second support member is shifted between a third support position and a fourth support position on the second arm part of the pivot arm during pivoting the second section between the second and the third orientation, wherein the fourth support position is closer to the first end of the pivot arm than the third support position.

[0021] The shifting of the second arm part on the second support member is achieved by means of continuous interaction between the second support member and the second arm part, such as a gliding movement, a rolling displacement, etcetera. Thereby, the second section is pivoted continuously.

[0022] According to one embodiment of the invention, the second support member is located closer to the first section than the first support member, wherein the second arm part is located closer to the first end of the pivot arm than the first arm part.

[0023] According to one embodiment of the invention, the second arm part of the pivot arm comprises a second convex surface adapted to be in contact with the second support member during the subsequent sequence of the displacement of the pivot arm.

[0024] The second convex surface is the area of inter-

action between the second support member and the second arm part. By means of the design of the second convex surface, the response of a certain displacement of the pivot arm on the pivoting movement of the second section is controlled during the subsequent sequence of the displacement of the pivot arm.

[0025] According to one embodiment of the invention, the second support member comprises a third rolling member adapted to roll on the second arm part of the pivot arm during the subsequent sequence of the displacement of the pivot arm.

[0026] The third rolling member provides a rolling displacement of the second arm part on the second support member, wherein the second arm part is displaced with low friction on the second support member.

[0027] According to one embodiment of the invention, the pivot arm is during a final sequence of the displacement of the pivot arm adapted to be rotated around the second support member so that the second section is pivoted between the third orientation and a fourth orientation, wherein the fourth orientation is inclined at a third angle with the first plane, the third angle being higher than the second angle.

[0028] The response of a certain displacement of the pivot arm to the pivoting movement of the second section is higher during the final sequence of the displacement compared to at the initial sequence and the subsequent sequence of displacement of the pivot arm.

[0029] The weight on the pivot arm from the second section is lower during the final sequence of the displacement of the pivot arm compared to at the initial sequence and the subsequent sequence of displacement of the pivot arm. Accordingly, the required applied force and supplied force is lower for pivoting the second section a certain length at the final sequence of the displacement compared to at the initial sequence and the subsequent sequence of displacement of the pivot arm.

[0030] According to one embodiment of the invention, in the final sequence of the displacement of the pivot arm, the pivot arm is adapted to be rotated around the second support member with a centre of rotation at the intersection between the first arm part and the second arm part.

[0031] According to one embodiment of the invention, the second section is connected to a guide arm, the guide arm is adapted to guide a part of the second section located close to the first section, wherein the guide arm is located closer to the first section than the pivot arm.

[0032] According to one embodiment of the invention, the guide arm is adapted to engage in and be guided by a guide member. The guide member has the function of guiding the pivot arm and the guide arm during pivoting the second section.

[0033] According to one embodiment of the invention, the guide member is adapted to guide the displacement of the first end of the pivot arm away from or towards the first section during pivoting the second section.

[0034] According to one embodiment of the invention, at least a part of the weight of the second section is resting freely on the second end of the pivot arm.

[0035] The second end of the pivot arm is displaced on the second section without attachment between the second section and the second end of the pivot arm. In case a person or an object is located between the second section and the fundament during reorienting the second section towards the fundament, the person or the object may only be subjected to the weight or a part of the weight from the second section. Thus, the person or the object will not be subjected to the applied force from the pivot arm. Accordingly, there is no risk that a person or an object is pinched between the second section and the fundament during reorienting the second section towards the fundament.

[0036] According to one embodiment of the invention, the pivoting member is adapted to be assembled at the location for the use of the furniture device. Thereby, the components of the furniture device can be transported in separate package.

[0037] According to one embodiment of the invention, the components of the pivoting member is adapted to be packed into one or more packages separated from the first and the second section. Thereby, the furniture device may be transported in two or more separate packages.

[0038] According to one embodiment of the invention, the furniture device comprises two separated parallel pivoting members, wherein the stability of pivoting the second section is improved. Preferably, each of pivoting members acts on two opposing side parts of the second section. The pivot arms of the two pivoting member is adapted to be displaced simultaneous at the same rate.

[0039] According to one embodiment of the invention, the pivoting mechanism comprises a drive motor and at least one driving element connected to the drive motor, the driving element engages the first end of the pivot arm. The drive motor acts on the driving element so that the applied force is transmitted to the first end of the pivot arm, wherein the first end of the pivot arm is displaced away from or towards the first section.

[0040] According to one embodiment of the invention, the device comprises a control member adapted to control the motor unit so that the displacement of the pivot arm away from or towards the first section is adjustable, wherein the orientation of the second section is adjustable to desired orientations.

BRIEF DESCRIPTION OF THE DRAWINGS

[0041] The invention will now be explained more closely by the description of different embodiments of the invention and with reference to the appended figures.

Fig. 1 shows an embodiment of a furniture device according to the invention in the first orientation.

Fig. 2 shows the furniture device of Fig. 1 in the second orientation.

Fig. 3 shows the furniture device of Fig. 1 in the third orientation.

Fig. 4 shows the furniture device of Fig. 1 in the forth orientation.

DETAILED DESCRIPTION OF PREFERRED EMBODIMENTS OF THE INVENTION

[0042] A furniture device 1 is now to be described with reference to Figures 1-4. The furniture device 1 comprises a fundament 3, a first section 5 and a second section 9. The first section 5 and the second section 9 are positioned on the fundament 3.

[0043] The first section 5 is in the embodiments enclosed stationary in relation to the fundament 3. The first section 5 and the second section 9 are separated by a gap 13, wherein the sections 5, 9 lack interaction. The sections 5, 9 are or comprises for example bed mattresses, cushions or similar.

[0044] The first section 5 comprises a first surface 7. The second section 9 comprises a second surface 11. The first surface 7 and the second surface 11 are adapted to receive the weight of a being.

[0045] A first plane P1 is parallel with the first surface 7. The second section 9 is adapted to be pivoted between a first, a second, a third and a forth orientation. In the first orientation the second surface 11 is parallel with the first plane P1. As the second section 9 is pivoted from the first orientation the second surface 11 becomes non-parallel with the first plane P1.

[0046] The furniture device 1 further comprises a pivoting member 20 positioned between the second section 9 and the fundament 3. The pivoting member 20 comprises a pivot arm 22, a guide arm 54, a first support member 32, a second support member 34, a pivoting mechanism 28 and a connection rod 30. In the presented embodiment the furniture device 1 has two separate pivoting members 20, seen in Fig. 2-4 and are arranged in parallel to each other to act on a respective side of the second section 9.

[0047] The pivot arm 22 has a first end 24 and a second end 26. The first end 24 of the pivot arm 22 is adapted to be guided by a guide member 56, such as guide rail, a guide channel, etcetera, on the fundament 3. The second end 26 of the pivot arm 22 is directed towards the second section 9 and is adapted to be displaced on a receiving surface 44 of the second section 9.

[0048] The second section 9 is resting freely on the second end 26 of the pivot arm 22. Accordingly, there is no attachment between the second section 9 and the second end 26 of the pivot arm 22. The second section 9 may be lifted from the second end 26. In case a person or an object is stuck between the second section 9 and the fundament 3, only the weight from the second section 9 will affect the person or the object.

[0049] The pivot arm 22 is a rigid arm or essentially rigid arm. The length and the shape of the pivot arm 22 are essentially unchanged during pivoting the second section 9.

[0050] The pivoting mechanism 28 is adapted to displace the pivot arm 22 away from or towards the first section 5 so that the second section 9 is pivoted. The pivoting mechanism 28 acts on the pivot arm 22 with an applied force resulting in that pivot arm 22 acts on the second section 9 with a supplied force. Hence, in the act of pivoting the second section 9, the entire pivot arm 22 is displaced away from or towards the first section 5.

[0051] The pivoting mechanism 28 comprises a drive motor 58, such as an electric motor, a pneumatic motor, a hydraulic motor, etcetera, and a driving element 60, such as a threaded rod 60, a roller chain, etcetera. Preferably, the driving element 60 is a threaded rod connected to a threaded nut 62 attached to the first end 24 of the pivot arm 22.

[0052] The driving element 60 thus engages the first end 24 of the pivot arm 22 and transmits the applied force to the first end 24 of the pivot arm 22 so that the pivot arm 22 is displaced away from or towards the first section 5.

[0053] The connection rod 30 is provided between and connected to the fundament 3 and the second section 9. During pivoting the second section 9, the connection rod 30 is adapted to hold the second section 9 so that the gap 13 between the first section 5 and the second section 9 is maintained. The connection rod 30 is adapted to push or pull the second section during reorienting the second section.

[0054] The guide arm 54 is located closer to the first section 5 than the pivot arm 22. The guide arm 54 is guided by the guide member 56. The guide arm 54 follows the displacement of the pivot arm 22. The guide arm 54 is adapted to guide and hold a part of the second section 9 that is located close to the gap 13.

[0055] The length between an end of the guide arm 54 and the attachment of the guide arm 54 to the second section 9 determines the distance between second section 9 and the fundament 3 in the forth orientation.

[0056] The pivot arm 22 comprises a first arm part 23. The first arm part 23 comprises a first convex surface 36 directed towards and supported on the first support member 32 during an initial sequence of displacement of the pivot arm 22. In an embodiment the first convex surface 36 comprises a first groove adapted guide the first support member 32 along the length of first arm part 23.

[0057] The first arm part 23 is adapted to be displaced continuously on the first support member 32 during the initial sequence of displacement of the pivot arm 22, see Fig. 1 and 2.

[0058] The terms "initial sequence of displacement" refers to a first part of the reorientation of the second section 9 between the first orientation and the second orientation.

[0059] During reorienting the second section 9 from the first orientation to the second orientation, the pivot arm 22 is displaced away from the first section 5 so that the second section 9 is at least partly pushed away from first section 5. The connection rod 30 maintains the gap 13 by means of pushing the second section 9 towards the first section 5. Vice versa, during reorienting the sec-

ond section 9 from the second orientation to the first orientation, the connection rod 30 is pulling the second section 9 away from the first section.

[0060] The pivot arm 22 comprises a second arm part 50. The second arm part 50 comprises a second convex surface 52 directed towards and supported on the second support member 34 during a subsequent sequence of displacement of the pivot arm 22. In an embodiment the second convex surface 52 comprises a second groove adapted guide the second support member 34 along the length of second arm part 50.

[0061] The second arm part 50 is adapted to be displaced continuously on the second support member 34 during the subsequent sequence of displacement of the pivot arm 22, see Fig. 2.

[0062] The terms "subsequent sequence of displacement" refers to a second part of the reorientation of the second section 9 between the second orientation and the third orientation.

[0063] During reorienting the second section 9 from the second orientation to the third orientation, the pivot arm 22 is displaced away from the first section 5 so that the second section 9 is at least partly pushed away from first section 5. The connection rod 30 maintains the gap 13 by means of pushing the second section 9 towards the first section 5. Vice versa, during reorienting the second section 9 from the third orientation to the second orientation, the connection rod 30 is pulling the second section 9 away from the first section.

[0064] The first arm part 23 and the second arm part 50 are separated by an interspace 51. The interspace 51 ends at an intersection 53 between the first arm part 23 and the second arm part 50. The pivot arm 22 is adapted to be rotated around the second support member 34 during a final sequence of displacement of the pivot arm 22, wherein the second support member 34 supports the pivot arm 22 at the intersection 53, see Fig. 3 and 4.

[0065] The terms "final sequence of displacement" refers to a third part of the reorientation of the second section 9 between the third orientation and the forth orientation.

[0066] During reorienting the second section 9 from the third orientation to the forth orientation, the pivot arm 22 is rotated so that the second section 9 is at least partly pushed towards the first section 5. The connection rod 30 maintains the gap 13 by means of pulling the second section 9 away from the first section 5. Vice versa, during reorienting the second section 9 from the forth orientation to the third orientation, the connection rod 30 is pushing the second section 9 towards the first section.

[0067] The first support member 32 is attached to the fundament 3 at a fixed distance in relation to the fundament 3. The first support member 32 comprises a first rolling member 38, such as a cylindrical roll, a spherical roll or similar. The first rolling member 38 facilitates the displacement of the first arm part 23 on the first support member 32.

[0068] The second end 26 of the pivot arm 22 comprises a second rolling member 40, such as a cylindrical roll, a spherical roll or similar. The second rolling member 40 facilitates the displacement of the second end 26 of the pivot arm 22 on the receiving surface 44 of the second section 9.

[0069] The second support member 34 is attached to the fundament 3 at a fixed distance in relation to the fundament 3. The second support member 34 comprises a third rolling member 42, such as a cylindrical roll, a spherical roll or similar. The third rolling member 42 facilitates the displacement of the second arm part 50 on the second support member 34.

[0070] Fig. 1 shows a longitudinal cross section of the furniture device 1. The furniture device 1 is positioned in the first orientation, wherein the first surface 7 is parallel with the second surface 11. The first arm part 23 is in a first support position on the first support member 32. The second arm part 50 lacks contact with the second support member 34.

[0071] Fig. 2 shows the furniture device 1 positioned in the second orientation. The second surface 11 is inclined with a first angle $\varphi 1$ with the first plane P1. The first arm part 23 is in a second support position on the first support member 32. The second arm part 50 is in a third support position on the second support member 34.

[0072] During pivoting the second section 9 between the first and the second orientation the first convex surface 36 of the first arm part 23 rolls on the first rolling member 38 of first support member 32. Thereby, the position of the first arm part 23 is continuously shifted between the first support position and the second support position.

[0073] Starting from the first orientation in Fig. 1, as the pivot arm 22 is displaced away from the first section 5 the first support member 32 are continuously shifted from the first support position along the length of the first arm part 23 to the second support position, wherein the second end 26 of the pivot arm 22 is guided towards the receiving surface 44 of the second section 9. Upon reaching the second orientation shown in Fig. 2, the second arm part 50 gets in contact with the second support member 34 in the third support position.

[0074] During the initial sequence of displacement of the pivot arm 22 the second end 26 of the pivot arm 22 is guided towards the receiving surface 44, wherein the second end 26 is displaced by means of the second rolling member 40 on the receiving surface 44 of the second section 9 in a direction away from the first section 5.

[0075] Fig. 3 shows the furniture device 1 positioned in the third orientation. The second surface 11 is inclined at a second angle $\varphi 2$ with the first plane P1, wherein the second angle $\varphi 2$ is higher than the first angle $\varphi 1$. The first arm part 23 lacks contact with the first support member 32. The second support member 34 is at the intersection 53 between the first arm part 23 and the second arm part 50.

[0076] During pivoting the second section 9 between the second and the third orientation the second convex

surface 52 of the second arm part 50 rolls on the third rolling member 42 of second support member 34. Thereby, the position of the second arm part 50 is continuously shifted between the third support position and the forth support position.

[0077] Starting from the second orientation in Fig. 2, as the pivot arm 22 is displaced away from the first section 5 the first arm part 23 is guided away from the first support member 32, wherein the contact between the first arm part 23 and the first support member 32 ceases. The second convex surface 52 of the second arm part 50 is continuously shifted on the second support member 34, wherein the second end 26 of the pivot arm 22 is guided towards the receiving surface 44 of the second section 9. Thus, the second support member 34 is shifted into the interspace 51 towards the intersection 53. Upon reaching the third orientation shown in Fig. 3, the second support member 34 gets in contact with the intersection 53.

[0078] During the subsequent sequence of displacement of the pivot arm 22 the second end 26 of the pivot arm 22 is guided towards the receiving surface 44, wherein the second end 26 is displaced by means of the second rolling member 40 on the receiving surface 44 of the second section 9 in a direction away from the first section 5.

[0079] Fig. 4 shows the furniture device 1 positioned in the forth orientation. The second surface 11 is inclined at a third angle φ3 with the first plane P1, wherein the third angle φ3 is higher than the second angle φ2. In the shown embodiment the third angle φ3 is perpendicular with the first plane P1.

[0080] During pivoting the second section 9 between the third and the forth orientation the second support member 34 is maintained at the intersection 53, wherein the pivot arm 22 is rotated around the second support member 34. The second support member 34 acts as a centre of rotation during rotating the pivot arm 22.

[0081] Starting from the third orientation in Fig. 3, as the pivot arm 22 is displaced away from the first section 5 the pivot arm 22 is rotated around the second support member 34, wherein the second end 26 of the pivot arm 22 is guided towards the receiving surface 44 of the second section 9. The rotation of the pivot arm 22 continues until reaching the forth orientation shown in Fig. 4,

[0082] During the final sequence of displacement of the pivot arm 22 the second end 26 of the pivot arm 22 is guided towards the receiving surface 44, wherein the second end 26 is displaced by means of the second rolling member 40 on the receiving surface 44 of the second section 9 in a direction towards from the first section 5.

[0083] The pivot arm 22, the guide arm 54, the first support member 32 and the second support member 34, which may comprise steel, aluminum, etcetera, are rigid, wherein they have sufficient strength to withstand the load of the second section 9 and the being at a stationary position and during pivoting the second section 9.

[0084] The present invention is not limited to the embodiments disclosed but may be varied and modified within the scope of the following claims. For example the pivot arm 22 may be displaced by means of manual power from the being. The furniture device 1 may comprise one, two or more pivoting members 20. The furniture device 1 may be pivoted so that the third angle φ3 is higher than 90 degrees with the first plane P1.

Claims

1. A furniture device (1) comprising:

- a fundament (3) in connection to the ground,
- a first section (5) on the fundament (3), the first section (5) comprising a first surface (7) parallel with a first plane (P1),
- a second section (9) on the fundament (3), the second section (9) comprising a second surface (11), wherein the second section (9) is adapted to be pivoted between a first orientation and a second orientation, the second surface (11) being parallel with the first plane (P1) in the first orientation and non-parallel with the first plane (P1) in the second orientation,
- a pivoting member (20) adapted to pivot the second section (9) between the first and the second orientation, the pivoting member (20) comprising a pivot arm (22) with a first end (24) and a second end (26), a pivoting mechanism (28) adapted to act on the pivot arm (22) by means of an applied force, and a connection rod (30) connected to the fundament (3) and to the second section (9), the connection rod (30) being adapted to prevent the second section (9) from interaction with the first section (5), **characterized in that** the pivoting mechanism (28) is adapted to induce a displacement of the pivot arm (22) away from or towards the first section (5) so that the second end (26) of the pivot arm (22) acts on the second section (9) with a supplied force directed away from or towards the first plane (P1), wherein the pivoting member (20) further comprises:
- a first support member (32) fixed in relation to the fundament (3), the first support member (32) being adapted to guide an initial sequence of the displacement of the pivot arm (22) during pivoting the second section (9) between the first and the second orientation by means of supporting a first arm part (23) of the pivot arm (22) at a position between the first end (24) and the second end (26).

2. A furniture device (1) according to claim 1, **characterized in that** the pivoting mechanism (28) is adapted to apply the applied force at the first end (24) of the pivot arm (22), thereby inducing the supplied force to act on the second section (9) in a direction

essentially perpendicular to the second surface (11).

3. A furniture device (1) according to any one of claim 1 and 2, **characterized in that** in the initial sequence of the displacement of the pivot arm (22), the first arm part (23) of the pivot arm (22) is adapted to be displaced on the first support member (32) so that a point of action between the first arm part (23) and the first support member (32) is shifted between a first support position and a second support position on the first arm part (23) during pivoting the second section (9) between the first and the second orientation, wherein the first support position is closer to the second end (26) of the pivot arm (22) than the second support position.

4. A furniture device (1) according to any one of the preceding claims, **characterized in that** the first arm part (23) of the pivot arm (22) comprises a first convex surface (36) adapted to be in contact with the first support member (32) during the initial sequence of the displacement of the pivot arm (22).

5. A furniture device (1) according to any one of the preceding claims, **characterized in that** the first support member (32) comprises a first rolling member (38) adapted to roll on the first arm part (23) of the pivot arm (22) during the initial sequence of the displacement of the pivot arm (22).

6. A furniture device (1) according to any one of the preceding claims, **characterized in that** the second end (26) of the pivot arm (22) is adapted to be displaced on a receiving surface (44) of the second section (9) during pivoting the second section (9).

7. A furniture device (1) according to claim 6, **characterized in that** the second end (26) of the pivot arm (22) comprises a second rolling member (40) adapted to roll on the receiving surface (44) of the second section (9).

8. A furniture device (1) according to any one of the preceding claims, **characterized in that** the pivot arm (22) comprises a second arm part (50) separated by an interspace (51) from the first arm part (23) of the pivot arm (22), the second arm part (50) being located closer to the first end (24) of the pivot arm (22) than the first arm part (23), wherein the pivoting member (20) comprises a second support member (34) fixed in relation to the fundament (3), the second support member (34) is adapted to guide a subsequent sequence of the displacement of the pivot arm (22) during pivoting the second section (9) between the second orientation and a third orientation by means of supporting the second arm part (50), wherein in the second orientation the second section (9) is inclined at a first angle $\varphi 1$ with the first plane (P1) and in the third orientation the second section (9) is inclined at a second angle $\varphi 2$ with the first plane (P1), the second angle $\varphi 2$ being higher than the first angle $\varphi 1$.

9. A furniture device (1) according to claim 8, **characterized in that** in the subsequent sequence of the displacement of the pivot arm (22), the second arm part (50) of the pivot arm (22) is adapted to be displaced on the second support member (34) so that a point of action between the second arm part (50) of the pivot arm (22) and the second support member (34) is shifted between a third support position and a fourth support position on the second arm part (50) of the pivot arm (22) during pivoting the second section (9) between the second and the third orientation, wherein the fourth support position is closer to the first end (24) of the pivot arm (22) than the third support position.

10. A furniture device (1) according to claim 8-9, **characterized in that** the second support member (34) is located closer to the first section (5) than the first support member (32), wherein the second arm part (50) is located closer to the first end (24) of the pivot arm (22) than the first arm part (23).

11. A furniture device (1) according to claim 8-10, **characterized in that** the second arm part (50) of the pivot arm (22) comprises a second convex surface (52) adapted to be in contact with the second support member (34) during the subsequent sequence of the displacement of the pivot arm (22).

12. A furniture device (1) according to claim 8-11, **characterized in that** the second support member (34) comprises a third rolling member (42) adapted to roll on the second arm part (50) of the pivot arm (22) during the subsequent sequence of the displacement of the pivot arm (22).

13. A furniture device (1) according to claim 8-12, **characterized in that** the pivot arm (22) is during a final sequence of the displacement of the pivot arm (22) adapted to be rotated around the second support member (34) so that the second section (9) is pivoted between the third orientation and a fourth orientation, wherein the fourth orientation is inclined at a third angle $\varphi 3$ with the first plane (P1), the third angle $\varphi 3$ being higher than the second angle $\varphi 2$.

14. A furniture device (1) according to claim 13, **characterized in that** in the final sequence of the displacement of the pivot arm (22), the pivot arm (22) is adapted to be rotated around the second support member (34) with a centre of rotation at the intersection (53) between the first arm part (23) and the second arm part (50).

15. A furniture device (1) according to any one of the preceding claims, **characterized in that** the second section (9) is connected to a guide arm (54), the guide arm (54) is adapted to guide a part of the second section (9) located close to the first section (5), wherein the guide arm (54) is located closer to the first section (5) than the pivot arm (22).

16. A furniture device (1) according to claim 16, **characterized in that** the guide arm (54) is adapted to engage in and be guided by a guide member (56).

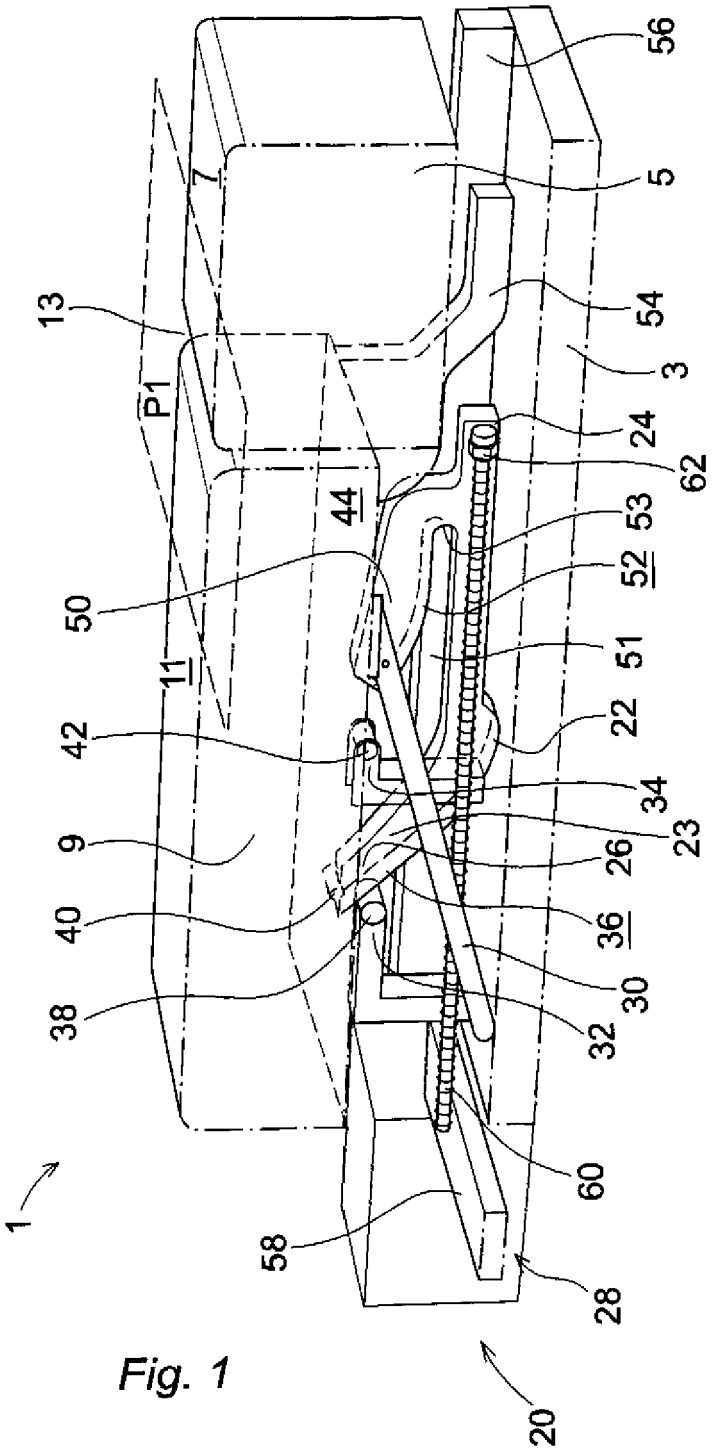
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Fig. 1

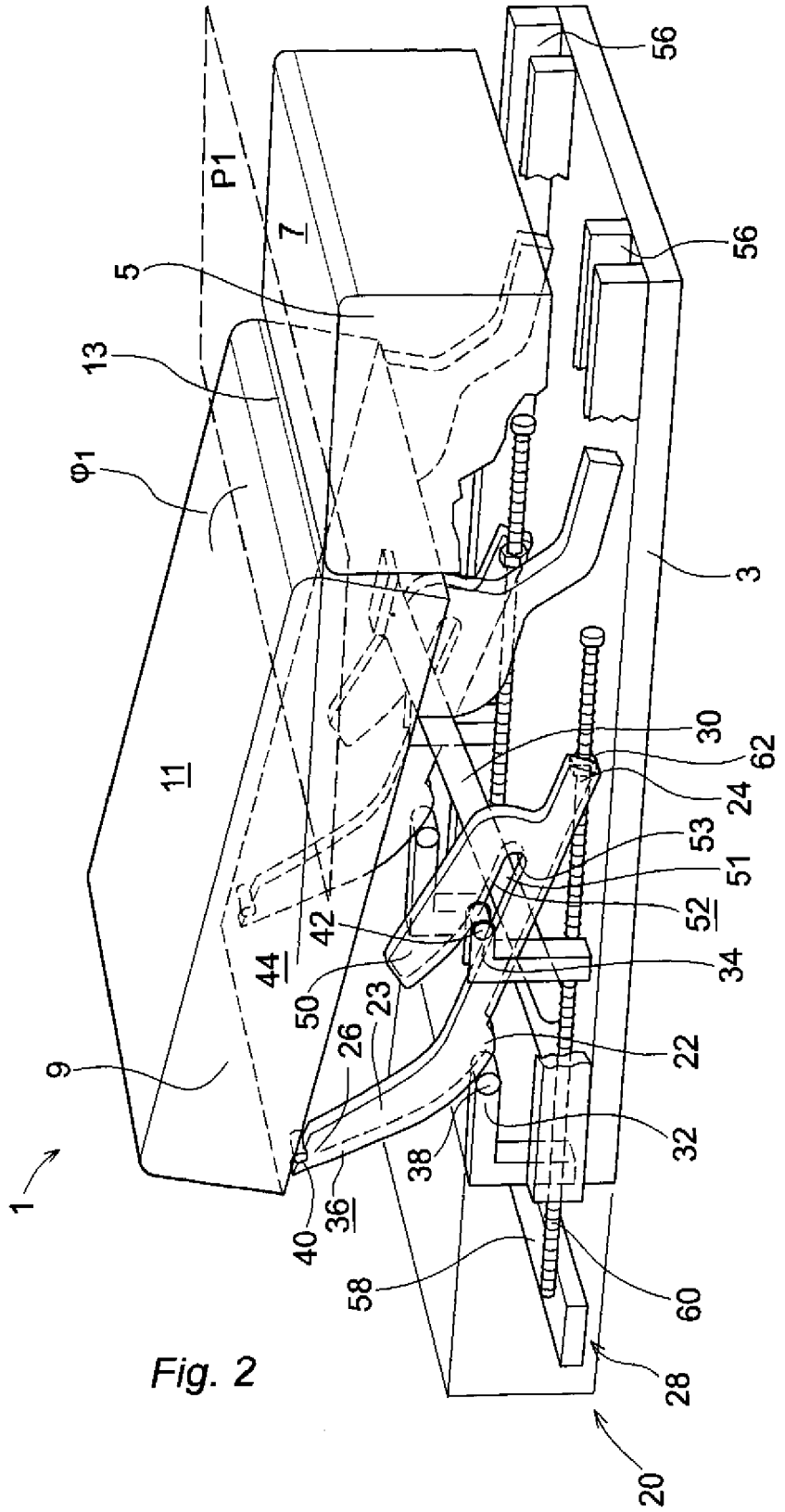
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Fig. 2

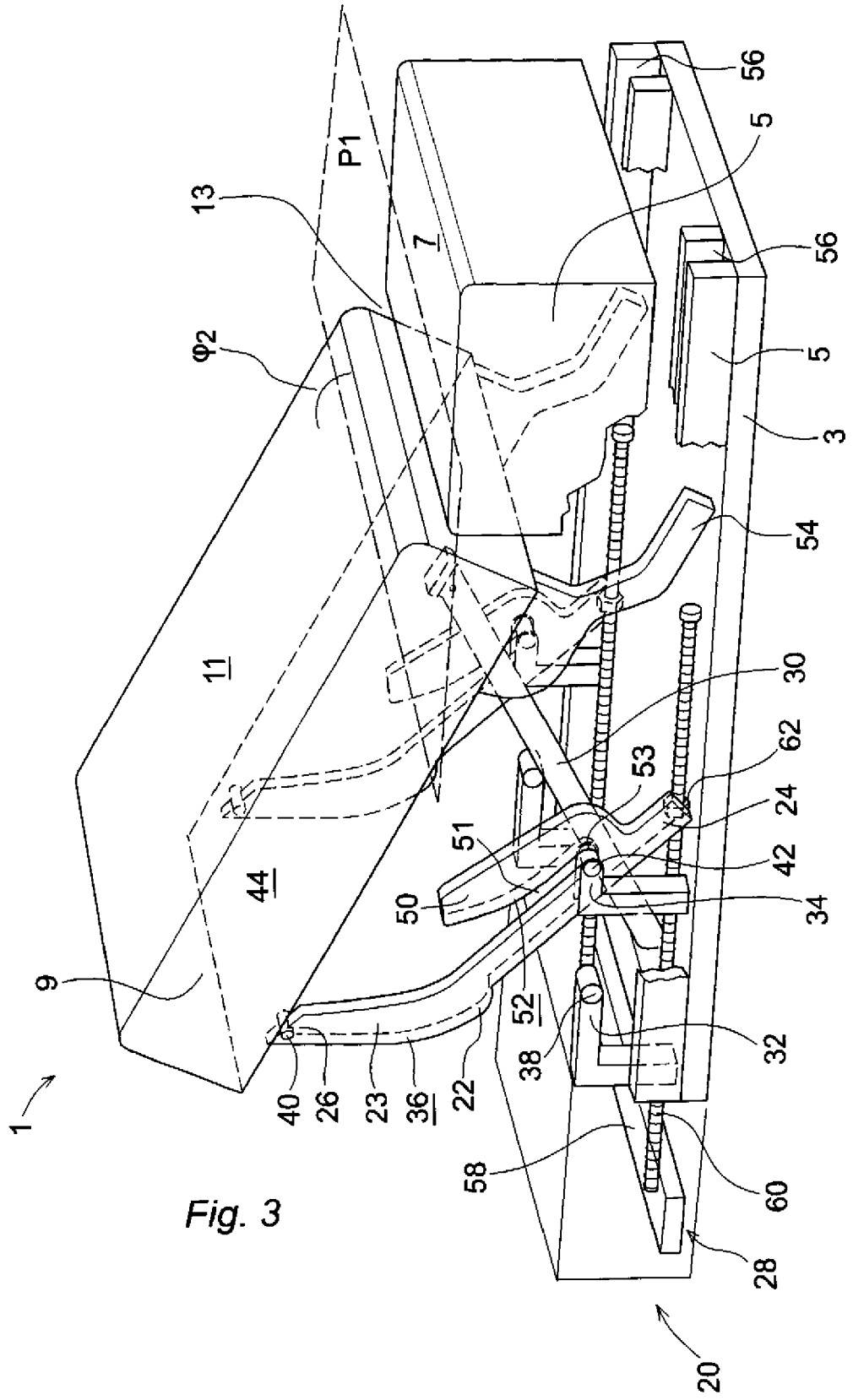
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Fig. 3

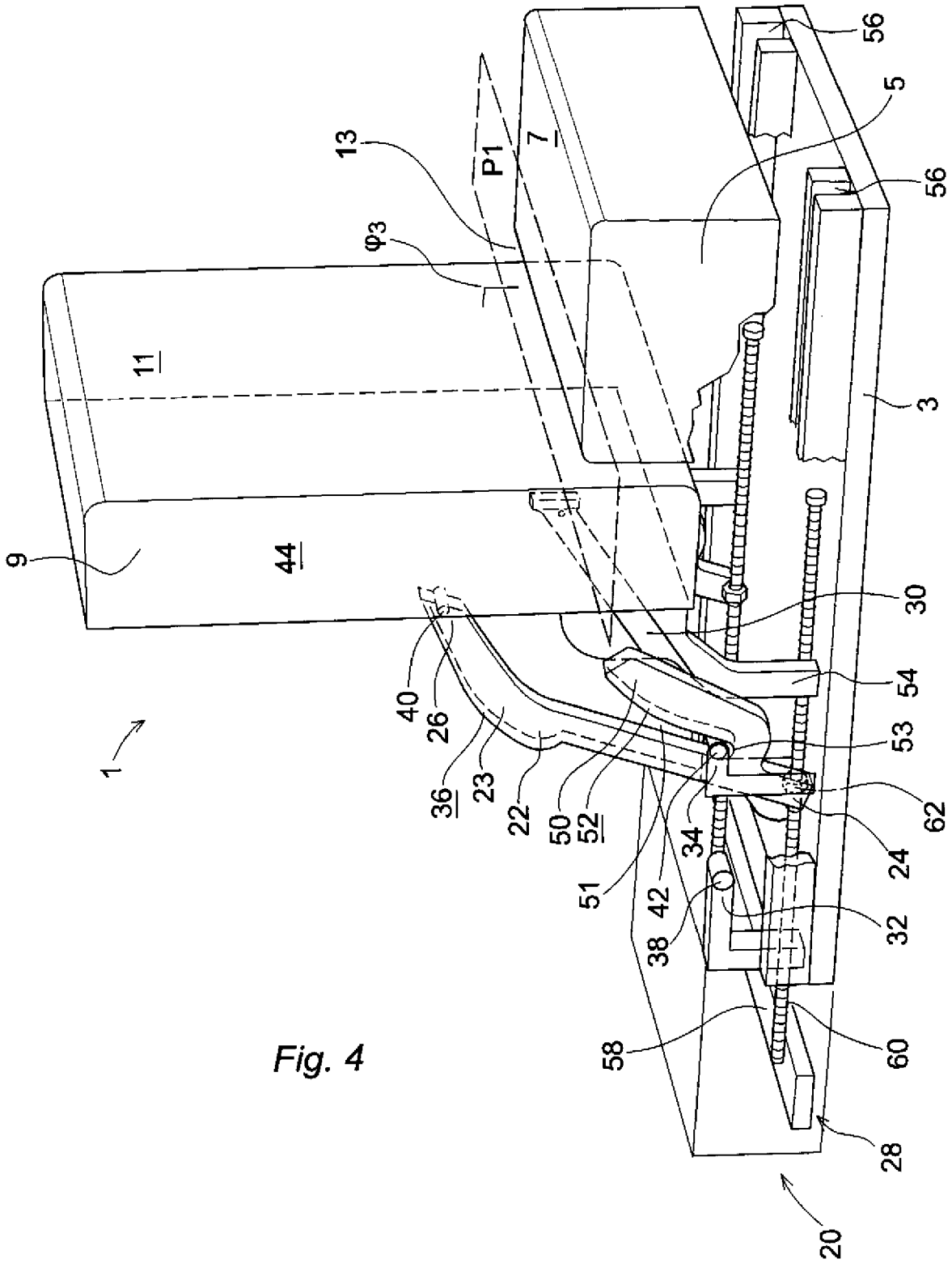
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Fig. 4

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EUROPEAN SEARCH REPORT

Application Number
EP 09 17 3432

DOCUMENTS CONSIDERED TO BE RELEVANT

Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (IPC)
A	DE 296 07 735 U1 (MANTEL EMBRU WERKE [CH]) 1 August 1996 (1996-08-01) * the whole document *	1	INV. A47C20/04 A61G7/015 A61G7/018
A	DE 200 10 400 U1 (HARTMANN SIEGBERT [DE]) 28 September 2000 (2000-09-28) * the whole document *	1	
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TECHNICAL FIELDS SEARCHED (IPC)

A47C
A61G

The present search report has been drawn up for all claims

Place of search	Date of completion of the search	Examiner
Munich	17 December 2009	Lassen, Steen D.

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17-12-2009

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