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(54) **Device for adjusting a mattress support**

(57) The present invention relates to a device for moving a support in relation to a furniture frame associable to a storage furniture item, wherein the latter comprises a furniture frame, and a mattress support joined to the furniture frame and having a support surface, for example for a mattress or a user, positioned on a support

plane. Such device for moving comprises a frame element and a support element, respectively associable to the furniture frame and to the support and connected so as to move from a rest configuration to a working configuration and vice versa, wherein the support is distanced from the furniture frame.

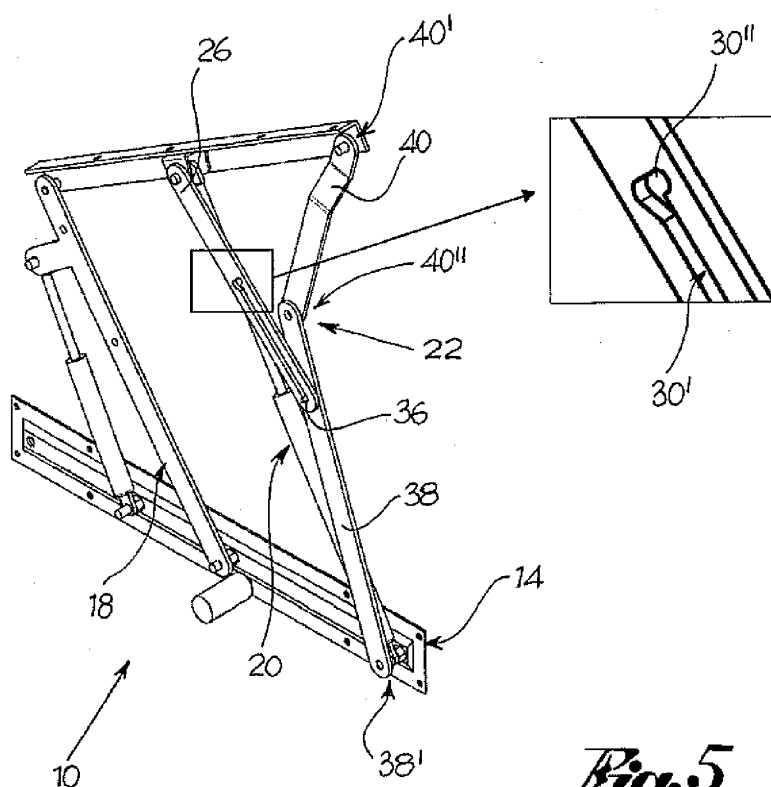


Fig. 5

Description

[0001] . The present invention relates to a device for moving a support in relation to a furniture frame, a storage furniture item, preferably a container bed, a container sofa or a container sofa-bed and an attachment pin is suitable for being used in such device or furniture item.

[0002] . In the trade, storage furniture of various types is known of, comprising a frame and a support, joined to the frame in a movable manner and suitable for acting as a support for a mattress or for a user.

[0003] . The known furniture items also comprise at least one device for moving the support in relation to the frame of the furniture item, in such a way as to move the former from a rest configuration to a working configuration, wherein the support is raised, if necessary partially shifted, in relation to the frame of the furniture item.

[0004] . In the working configuration, the support is usually found in a position more suitable for accessing the compartment defined by the frame, or for making up the bed.

[0005] . However the devices for moving used in the prior art have a plurality of drawbacks.

[0006] . In particular, such devices often prove unreliable in maintaining the working configuration.

[0007] . In fact, it happens that with the support raised to a certain height from the frame, when weighed down by the presence of mattresses, sheets, blankets and/or cushions a sudden and unexpected return of the support to a rest configuration may cause damage to the furniture item itself and to any users in the proximity, such as children.

[0008] . The present invention therefore sets out to resolve the drawbacks of the prior art and, in particular, the aforementioned.

[0009] . Such objective is achieved by a device for moving according to claim 1 and by a storage furniture item according to claim 17. The dependent claims show preferred embodiments.

[0010] . The present invention will now be described in detail, with the help of the attached drawings wherein:

[0011] . - figures 1, 2 and 3 show three lateral views in cross section of a storage furniture item according to a first embodiment of the present invention, in three different functioning configurations;

[0012] . - figures 4, 5 and 6 show perspective views of the device for moving the support respectively in the configurations of figures 1, 2 and 3, where the support and frame of the furniture item have been omitted for clarity, and where figure 5 further shows an enlarged detail of such device;

[0013] . - figures 7, 8, 9 show three lateral views in cross section of a storage furniture item according to a second embodiment of the present invention, in different functioning configurations;

[0014] . - figures 10, 11 and 12 show perspective views of the device for moving the support respectively in the configurations of figures 7, 8 and 9, where the support

and frame of the furniture item have been omitted for clarity;

[0015] . - figures 13, 14 and 15 show perspective views of the device for moving the support according to a third embodiment, and figure 15 further shows an enlarged detail of such device; and

[0016] . - figure 16 shows a perspective view with separated parts of the device embodiment of figures 4 to 6 where the second movement arm has been omitted.

[0017] . With reference to the aforesaid drawings, reference numeral 1 globally denotes a storage furniture item in its entirety.

[0018] . Such furniture item 1 is preferably a bed or sofa providing storage space, or a furniture accessory shaped so as to define inside it a container compartment 46, such as for example to hold linens or objects of various kinds.

[0019] . The storage furniture item 1 comprises a furniture frame 2 and a mattress support 4, joined to the furniture frame 2 and having a support surface 6, for example for a mattress 8 or for a user, positioned on a support plane X.

[0020] . Consequently, the furniture frame 2 and the mattress support 4 are operatively connected as illustrated below, and the support forms a support surface 6 for a mattress 8 (shown by the dotted lines in figures 1 to 3 and 7 to 9), or for a user, for example a seat.

[0021] . In the variation shown, the furniture frame 2 is of the type resting on a surface, for example on the ground.

[0022] . Preferably, the furniture frame 2 defines a container compartment 46, i.e. such frame 2 comprises a frame wall 48, preferably of an annular shape, which defines the aforesaid compartment 46.

[0023] . Moreover, advantageously, the container compartment 46 is accessible by means of an access aperture 50 defined by the furniture frame 2.

[0024] . In other words, the inside of the compartment 46 can be reached by a user from the outside through the aperture 50, for example to put things in or take them out or even to clean under the support.

[0025] . According to a preferred variation, the container compartment 46 is further defined by the mattress support 4, in a specific position of the latter, which is consequently suitable for at least partially overlaying the access aperture 50.

[0026] . Therefore, according to the variations described, the container compartment 46 is defined, preferably at least partially closed, laterally by the frame wall 48, downwards from the surface which the furniture frame 2 is resting on and upwards from the mattress support 4.

[0027] . The storage furniture item 1 further comprises a device for moving 10, 12, 58 the mattress support 4 in relation to the furniture frame 2, preferably positioned at an end portion 4' of the mattress support 4.

[0028] . Even more preferably, the device for moving 10, 12, 58 is at least partially contained in said compartment 46 and, advantageously, is completely contained

inside it so as to remain concealed from view in at least one functioning configuration.

[0029] . So, the mattress support 4 is movable in relation to the frame 2 between a rest configuration and a working configuration, such movement being performed by the device for moving 10, 12, 58 which is operatively connected to the mattress support 4 and to the frame 2.

[0030] . According to one of the variations illustrated above, when the mattress support 4 is positioned in the rest configuration (shown for example in figures 1 and 7), it overlays at least partially the access aperture 50.

[0031] . The device for moving 10, 12, 58 comprises a frame element 14 and a support element 16, joined respectively to the furniture frame 2 and to the mattress support 4, and connected in such a way as to move between the rest configuration and the working configuration (for example shown in figures 3 and 9), wherein the mattress support 4 is distanced from the furniture frame 2.

[0032] . As a result, the frame element 14 and support element 16 constitute the portions of the device 10, 12, 58 associable to the frame 2 and to the mattress support 4, and are reciprocally movable, for example by acting manually directly on the mattress support 4, between the aforesaid configurations.

[0033] . So, when the mattress support 4 is positioned in the working configuration, it is distanced from the furniture frame 2 or, more precisely, it is further distanced from such frame 2 than in the rest configuration.

[0034] . In fact, in the variations shown in the drawings, in the rest configuration the mattress support 4 abuts against the frame 2 and, specifically, is at least partially contained in the container compartment 46.

[0035] . Moreover, according to a further variation, when the mattress support 4 is positioned in the rest configuration, it rests on at least one support bracket 52, 54, preferably a plurality of opposite brackets, connected to and extending from the frame wall 48 towards the container compartment 46.

[0036] . As a result, according to such variation, the frame 2 comprises at least one bracket 52, 54 which acts as an end-stroke element for the mattress support 4 in the rest configuration.

[0037] . According to the variations shown, the movement of the mattress support 4 from the rest configuration to the working configuration produces a distancing, preferably raising, of at least one portion of the mattress support 4 in relation to the frame 2 so as to allow access to the container compartment 46 and/or further facilitate the positioning of the sheets of a bed or of a sofa cover.

[0038] . Preferably, the support plane X is maintained in a substantially parallel position in the rest configuration and in the working configuration, preferably in a substantially horizontal position.

[0039] . According to a particularly advantageous variation, the device for moving 10, 12, 58 is furthermore suitable for positioning the mattress support 4 in an intermediate configuration between the rest and working configurations, as shown in figures 2 and 8.

[0040] . According to such variation, when the mattress support 4 is moved from the rest configuration to the intermediate configuration, the support plane X is inclined in relation to the rest configuration, that is one end portion 4" of the mattress support 4 is raised more than the opposite end 4'.

[0041] . The device for moving 10, 12, 58 further comprises a first 18 and a second 20 movement arm, which extend from the frame element 14 to the support element 16 to convert the item between said configurations.

[0042] . Consequently, the first 18 and the second 20 movement arm connect the frame element 14 and the support element 16 so as to allow conversion between the two, preferably three, configurations shown.

[0043] . Preferably, the first 18 and the second 20 movement arm are distanced along the frame element 14 and/or along the support element 16 and, advantageously, find themselves distanced in a transversal direction in relation to a primary rotation axis Y of the second movement arm 20.

[0044] . In fact, according to one variation, a first end portion 20' of the second movement arm 20 is hinged to the support element 16 around the primary rotation axis Y.

[0045] . Similarly, according to a further variation, a first end portion 18' of the first movement arm 18 is hinged to the support element 16, preferably around an axis parallel to the primary rotation axis Y.

[0046] . Advantageously, the primary rotation axis Y extends substantially parallel to the support plane X.

[0047] . Moreover, according to one embodiment, a second end portion 20" of the second movement arm 20 is hinged to the frame element 14, preferably around an axis parallel to the primary rotation axis Y.

[0048] . Similarly, according to a further variation, a second end portion 18" of the first movement arm 18 is hinged to the frame element 14, preferably around an axis parallel to the primary rotation axis Y.

[0049] . In other words, according to the previous variations, the first 18 and the second 20 movement arms form, together with the two elements 14, 16, an articulated parallelogram.

[0050] . According to one variation of implementation, the second movement arm 20 is of variable longitudinal length, in other words can be lengthened/shortened depending on the configuration of the mattress support 4.

[0051] . Preferably, the second movement arm 20 is a gas spring.

[0052] . This way, conversion between the configurations of the mattress support 4 takes place in a facilitated as well as cushioned manner.

[0053] . According to a particularly preferred variation, the first 18 and the second 20 movement arms are substantially parallel in at least one configuration of the mattress support 4, preferably in all such configurations.

[0054] . According to a further variation, the first movement arm 18 comprises an arm appendix 42 which extends transversally to the longitudinal extension of the

arm 18, and the function of which will be described below.

[0055] . Moreover, the device for moving 10, 12, 58 comprises a mechanical blocking group 22, 24, 60 of the mattress support 4, operatively connected to the mattress support 4 so as to keep it in the working configuration.

[0056] . In other words, the mechanical blocking group 22, 24, 60 makes it possible to keep the mattress support 4 in the working configuration, preventing it from inadvertently returning to the rest or intermediate configurations.

[0057] . In fact, if such conversion were to happen suddenly and unexpectedly, this could cause potential risk, for example of crushing the fingers between the support and the frame, or damage of the furniture item.

[0058] . Preferably, the mechanical blocking group 22, 24, 60 is only active upon reaching the working configuration so that, until such time, the mechanical group 22, 24, 60 does not perform its function of blocking the mattress support 4.

[0059] . In other words, as long as the mechanical blocking group 22, 24, 60 is inactive, the conversion of the mattress support 4 from the rest to the intermediate configuration and vice versa is allowed.

[0060] . Even more preferably, the mechanical blocking group 22, 24, 60 is a component, or assembly of components, which acts as an accessory to the first 18 and/or second 20 movement arms.

[0061] . According to a particularly advantageous variation, the blocking group 22, 24 comprises a first stop body 26, 28, 62 which is rotatable parallel to the primary rotation axis Y, preferably around an axis coinciding with such Y axis.

[0062] . In fact, as shown for example in the drawings, the first stop body 26, 28, 62 and the second movement arm 20 are rotatable around a common attachment pin 68, of which more will be said below.

[0063] . According to a particularly preferred embodiment, in the first stop body 26, 28, 62 is performed a hole 32 or engagement portion 30" of a slot which, when the mattress support 4 is in the working configuration, is engageable by a notch 34, 36, 64.

[0064] . In other words, the hole 32 and the engagement portion 30" of the slot 30 have a through section such as to allow the entry of the notch 34, 36, 64 inside them, enabling blocking of the mattress support 4 in the working configuration.

[0065] . According to a preferred embodiment, the notch 36, 64 is positioned in correspondence with a second stop body 20, 38, that cooperates in a slidable manner with the first stop body 26.

[0066] . In the embodiment shown in figures 13 to 15, the second movement arm 20 has a dual function as arm of the device and as second stop body 38, i.e. the second movement arm 20 and the second stop body 38 are substantially the same component.

[0067] . Preferably, the slot 30 of the first stop body 26, 62 comprises a sliding portion 30' for the notch 36,

64 and a portion shaped in such a manner as to block the notch 36, 64 preferably automatically during the movement of the mattress support 4, and prevent its longitudinal sliding.

5 **[0068]** . Even more preferably, the slot 30 of the first stop body 26, 62 comprises a sliding portion 30' for the notch 36, 64 which extends in a longitudinal direction Z, and an engagement portion 30", communicating with the sliding portion 30' and which extends transversally to the longitudinal direction Z so as to prevent the longitudinal sliding of the notch 36, 64.

10 **[0069]** . Therefore, as long as the notch 36, 64 is positioned in the sliding portion 30' of the slot 30, it is lodged inside it in a sliding manner; consequently, in such configuration the support can still be converted from the intermediate configuration to the rest configuration and vice versa, or from the intermediate to the working configuration.

15 **[0070]** . Conversely, when the notch 36, 64 is positioned in the engagement portion 30" of the slot 30, it remains blocked inside it keeping the mattress support 4 blocked in the working configuration.

20 **[0071]** . According to one advantageous embodiment, a first end portion 38' of the second stop body 38 is hinged to the frame element 14, and its second end portion 38" is connected in a jointed manner to the support element 16 by means of a third stop body 40.

25 **[0072]** . In other words, according to this variation, the second stop body 38 is jointed to the support element 16 by the interposition of the third stop body 40.

30 **[0073]** . Consequently, the third stop body 40 has a first end portion 40' hinged to the support element 16 and a second end portion 40" joined in a jointed manner to the second stop body 38.

35 **[0074]** . Preferably, the notch 34, 64 is joined to the second movement arm 20.

40 **[0075]** . In the variations shown providing a second movement arm 20 in the form of a gas spring, the notch 34, 64 extends from the surface of the cylinder of such spring or from a spacer 56, for example in a cylindrical shape, joined to the stem.

45 **[0076]** . For example, according to such variation, the notch 34, 64 is joined, preferably by welding or screwing, to the second movement arm 20 and, in particular, to the cylinder of the gas spring or spacer 56 of the relative stem.

[0077] . Advantageously, the first stop body 28, 62 is shaped so as to house at least partially the second movement arm 20, e.g. as shown in figures 11 and 14.

50 **[0078]** . This way, the second movement arm 20 remains at least partially concealed from view and protected from dirt.

[0079] . According to a particularly advantageous variation, the first stop body 26, 28, 62 has a profile such that when the mattress support 4 is moved from the working configuration to the rest configuration, the notch 34, 36, 64 is disengaged from said hole 32 or from said engagement portion 30" of the slot 30.

[0080] . In other words, when the mattress support 4

needs to be brought back from the working configuration to the rest configuration, the first stop body 26, 28, 62 is shaped, for example cam-shaped, so as to abut against a portion of the furniture frame 2 or of the frame element 14, and thereby cause the notch 34, 36, 64 to come out of the hole 32 or engagement portion 30" of the slot 30.

[0081] . Preferably, either the furniture frame 2 and/or the frame element 14 comprise abutment means 66 for the first stop body 26.

[0082] . As a result, when the mattress support 4 is moved from the working configuration to the rest configuration, the first stop body 26 abuts against the abutment means 66 making the notch 34, 36, 64 come out of the hole 32 or the engagement portion 30" of the slot 30 allowing to reach the rest configuration, as will be shown further below.

[0083] . Preferably, the device 10, 12, 58 comprises conversion assisting means comprising at least one gas spring 44.

[0084] . This way, the conversion of the support between the configurations described occurs in a facilitated and cushioned manner.

[0085] . Preferably, one end 44' of the gas spring 44 is attached to the arm appendix 42 so as to rotate.

[0086] . During normal functioning of the device, the mattress support 4 is initially in the rest configuration, wherein such mattress support 4 is substantially in abutment with the furniture frame 2 (figures 1 and 4).

[0087] . In such configuration, the device for moving 10 presents the first 18 and second 20 movement arms substantially parallel, and the second arm 20, composed of a gas spring, is in a compressed or compact configuration of such spring.

[0088] . The notch 36, joined to the second stop body 38, is positioned in the sliding portion 30' of the slot 30, and is prevented from positioning itself in the engagement portion 30" of the latter by the abutment means 66, preferably in the form of a small cylinder connected to the frame element 14 (figure 4).

[0089] . In fact such abutment means 66 act on the portion of the first stop body 26 opposite the hinged portion so as to maintain such position of the notch 36.

[0090] . With reference to figures 2 and 5, the mattress support 4 is progressively moved from the rest configuration to the intermediate configuration.

[0091] . During such conversion, the first 18 and the second 20 movement arms rotate on parallel axes, even coinciding with the primary rotation axis Y, producing a distancing of the frame element 14 and of the support element 16.

[0092] . Moreover, during such conversion, the second movement arm 20 modifies its longitudinal length, lengthening, while the notch 36 slides along the sliding portion 30' of the slot 30 causing reciprocal rotation of the second 38 and third 40 stop bodies.

[0093] . During this movement the gas spring 44, which has a cylinder joined to the frame element 14 and piston acting on the arm appendix 42, facilitates and cushions

the conversion.

[0094] . When the mattress support 4 is then finally converted from the intermediate configuration to the working configuration (figures 3 and 6), the notch 36 shifts into the engagement portion 30" of the slot 30, preventing regression to the intermediate configuration.

[0095] . In the working configuration, the frame element 14 and the support element 16 extend substantially parallel to each other in that the second movement arm 20 is the same length as the first 18.

[0096] . As a result, in the working configuration, the mattress support 4 and the mattress 8 are positioned in a suitable position for making up the bed.

[0097] . When the mattress support 4 needs to be brought back again to the rest configuration, it is moved from the configuration shown in figure 3 to the configuration in figure 1 until the first stop body 26 reaches the abutment means 66 so that the notch 36 comes out of the engagement portion 30".

[0098] . With reference to the variation of the device for moving 58 shown in the figures from 13 to 15, the functioning is substantially the same as described above.

[0099] . One difference characterising this variation, is the conformation of the first stop body 62, which is such as to at least partially accommodate the second movement arm 20.

[0100] . In the variation illustrated in figure 15, as also in figure 11, the first stop body 28, 62 comprises an element having an open box-shaped section which protects the second movement arm 20.

[0101] . A further difference which characterises the embodiment shown in figures 13 - 15 is the absence of a third stop body and the fact that the second movement arm 20 performs a dual function as support arm for the mattress support 4 and as second stop body in that, in this variation, the notch 64 is joined to such arm 20.

[0102] . Lastly, with reference to the embodiment shown in figures 7 to 9 and 10 to 12, such variation has a first stop body 28 in the shape of an element having an open box-shaped section, where such body 28 defines a hole 32 for engagement by a notch 34 joined to the second movement arm 20.

[0103] . Consequently, the notch 34 does not slide along slots as in the previous variations, but engages the hole 32 through the thickness of the stop body 28, i.e. enters and comes out of such hole 32.

[0104] . The present invention furthermore relates to a storage furniture item 1, preferably a bed or sofa providing storage space, mounting at least one device according to any of the variations described above.

[0105] . The present invention lastly relates to an attachment pin 68 which extends along a pin axis P and which comprises a first 70 and a second 72 threaded portion axially separated by an intermediate portion 74 substantially smooth, or without helical threading.

[0106] . Such pin 68 can preferably be used in a device for moving 10, 12, 58 of the type described above and, in particular, is suitable for attaching the first movement

arm 18, the second 20 movement arm, and/or the first stop body 26, 28, 62 to the support element 16 and/or to the frame element 14.

[0107] . The attachment pin 68 is shaped so as to retain the first movement arm 18, the second 20 movement arm and/or the first stop body 26, 28, 62 in its intermediate portion.

[0108] . In fact, each of the first 70 and second 72 threaded portions are suitable for joining to blocking means, for example a nut, so that such means act as an axial limit for the components described above.

[0109] . This way, during conversion of the mattress support 4, the arms 18, 20 and the body 26, 28, 62 are rotatable in an area of the pin 68 which facilitates rotation and reduces friction between the portions in mutual contact.

[0110] . This way the useful life of the device is drastically increased.

[0111] . Preferably, the pin 68 comprises a pin head 76 suitable for interacting with a tool (not shown).

[0112] . According to embodiment variations, the head 76 has a split, for example a slit or cross-shaped or for a polygonal Allen wrench, or is shaped so as to be held by a pliers or spanner.

[0113] . Innovatively, the storage furniture item of the present invention allows to keep the support in the working configuration, preventing it from inadvertently returning to the rest or intermediate configuration.

[0114] . As a result, the furniture item of the present invention is suitable for drastically reducing the risk of home accidents, for example caused by distraction.

[0115] . Advantageously, the furniture item of the present invention has a compartment to contain both the device for moving and further items, so as to maximise the space occupied by it.

[0116] . Advantageously, the compartment defined by the furniture item of the present invention is suitable for being completely closed, so that the items placed inside it are protected from dust and dirt.

[0117] . Advantageously, the device for moving remains concealed from view at least in the rest configuration of the support, so that in such configuration it has an extremely reduced aesthetic impact.

[0118] . Advantageously, the device for moving of the present invention can be fitted to existing storage furniture, for example by fitting it with a first stop body, abutment means and a notch.

[0119] . Advantageously, the device of the present invention, by virtue of its simple and solid construction, does not require servicing and ensures functioning for a significant number of conversions.

[0120] . Advantageously, the device for moving of the present invention occupies little space in the rest configuration, but allows to make access openings to the container compartment of a considerable extension so that even considerably large items can be stored therein.

[0121] . Advantageously, the second movement arm both supports the support and cushions it during the con-

versions described, as well as optionally acting as the first stop body.

[0122] . Advantageously, the mechanical blocking group is suitable for acting only during specific moments of functioning of the furniture item, so as not to negatively influence the other functioning configurations.

[0123] . Advantageously, the first stop body is shaped so as to protect the second movement arm from dirt and dust, which could prejudice its functioning.

[0124] . Advantageously, the conversion between the configurations illustrated takes place silently, in a cushioned and facilitated manner for the user.

[0125] . Advantageously, the pin of the present invention is suitable for prolonging the useful life of the components in reciprocal friction, in particular in the device of the present invention.

[0126] . Advantageously, furthermore, the pin of the present invention allows reversible assembly of the components described, that is enables both assembly and simple dismantling unlike the rivets or "spread" pins used in the sector.

[0127] . A person skilled in the art may make variations or replacements of elements with others functionally equivalent to the embodiments of the aforesaid device, furniture item and pin, so as to satisfy specific requirements.

[0128] . For example, the device for moving illustrated above could be positioned on the first movement arm 18, rather than the second 20 as described.

[0129] . Such variations are also included within the scope of protection as defined by the following claims.

[0130] . In addition, each variation described as belonging to a possible embodiment can be performed independently of the variations described.

Claims

1. Device for moving (10, 12, 58) a mattress support (4) in relation to a furniture frame (2) associable to a storage furniture item (1), the latter comprising:

- a furniture frame (2);
- a mattress support (4), joined to the furniture frame (2) and having a support surface (6), for example for a mattress (8) or a user, positioned on a support plane (X);

said device for moving (10, 12, 58) comprising:

- a) a frame element (14) and a support element (16), respectively associable to the furniture frame (2) and to the mattress support (4), and connected in a movable manner between a rest configuration and a working configuration, wherein the mattress support (4) is distanced from the furniture frame (2); and
- b) a first (18) and second (20) movement arm,

which extend from the frame element (14) to the support element (16) to perform the conversion between said configurations;

characterised in that it further comprises a mechanical blocking group (22, 24, 60) of the mattress support (4), operatively connected to the mattress support (4) so as to keep it in the working configuration.

2. Device according to claim 1, wherein the support plane (X) is kept in a substantially parallel position in the rest configuration and in the working configuration.
3. Device according to claim 1 or 2, wherein the mechanical blocking group (22, 24, 60) is active solely at reaching the working configuration.
4. Device according to any of the previous claims, wherein an end portion (20') of the second movement arm (20) is hinged to the support element (16) around a primary rotation axis (Y), and wherein the blocking group (22, 24, 60) comprises a first stop body (26, 28, 62) rotatable parallel to said axis (Y).
5. Device according to claim 4, wherein in the first stop body (26, 28, 62) is performed a hole (32) or an engagement portion (30") of a slot (30) which, when the mattress support (4) is in the working configuration, is engageable by a notch (34, 36, 64).
6. Device according to claim 5, wherein the notch (36, 64) is positioned on a second stop body (20, 38), which co-operates in a slidable manner with the first stop body (26).
7. Device according to claim 6, wherein the slot (30) of the first stop body (26, 62) comprises a sliding portion (30') for the notch (36, 64) which extends in a longitudinal direction (Z), and an engagement portion (30"), communicating with the sliding portion (30') and that extends transversally to the longitudinal direction (Z) so as to prevent longitudinal sliding of the notch (36, 64).
8. Device according to claim 6 or 7, wherein a first end portion (38') of the second stop body (38) is hinged to the frame element (14), and its second end portion (38") is connected in a jointed manner to the support element (16) by means of a third stop body (40).
9. Device according to claim 5, wherein the notch (34, 64) is joined to the second movement arm (20).
10. Device according to claim 4 or 5, wherein the first stop body (28, 62) is shaped so as to accommodate at least partially the second movement arm (20).

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11. Device according to any of the claims from 5 to 10, optionally when dependent on claim 7, wherein the first stop body (26, 28, 62) has a profile such that, when the mattress support (4) is moved from the working configuration to the rest configuration, the notch (34, 36, 64) is disengaged from said hole (32) or from said engagement portion (30") of the slot (30).
12. Device according to any of the previous claims, wherein the second movement arm (20) is of variable longitudinal length.
13. Device according to any of the previous claims, wherein the second movement arm (20) is a gas spring.
14. Device according to any of the previous claims, wherein the first (18) and the second (20) movement arms are substantially parallel to each other in at least one configuration of the mattress support (4).
15. Device according to any of the previous claims, wherein the first movement arm (18) comprises an arm appendix (42) which extends transversally to the longitudinal extension of the arm, and wherein the device (10, 12, 58) comprises conversion assisting means comprising at least one gas spring (44), one end (44') of which is attached to said appendix (42) in a rotatable manner.
16. Device according to any of the previous claims, furthermore suitable for positioning the mattress support (4) in an intermediate configuration between the rest and working configurations.
17. Storage furniture item (1), for example a bed or a sofa providing storage space, comprising:
 - a furniture frame (2);
 - a mattress support (4), joined to the furniture frame (2) and having a support surface (6), for example for a mattress (8) or a user, positioned in a support plane (X);
 - at least one device for moving (10, 12, 58) the mattress support (4) in relation to the furniture frame (2) according to any of the previous claims.
18. Storage furniture item (1) according to claim 16, wherein the furniture frame (2) defines a container compartment (46), and wherein the device for moving (10, 12, 58) is at least partially housed in said compartment (46).
19. Fixing pin (68), preferably suitable for use in a device according to any of the claims from 1 to 16 or in a furniture item according to claims 17 or 18, which

extends along a pin axis (P) and comprising a first (70) and a second (72) threaded portion axially separated from an intermediate portion (74) free of threading.

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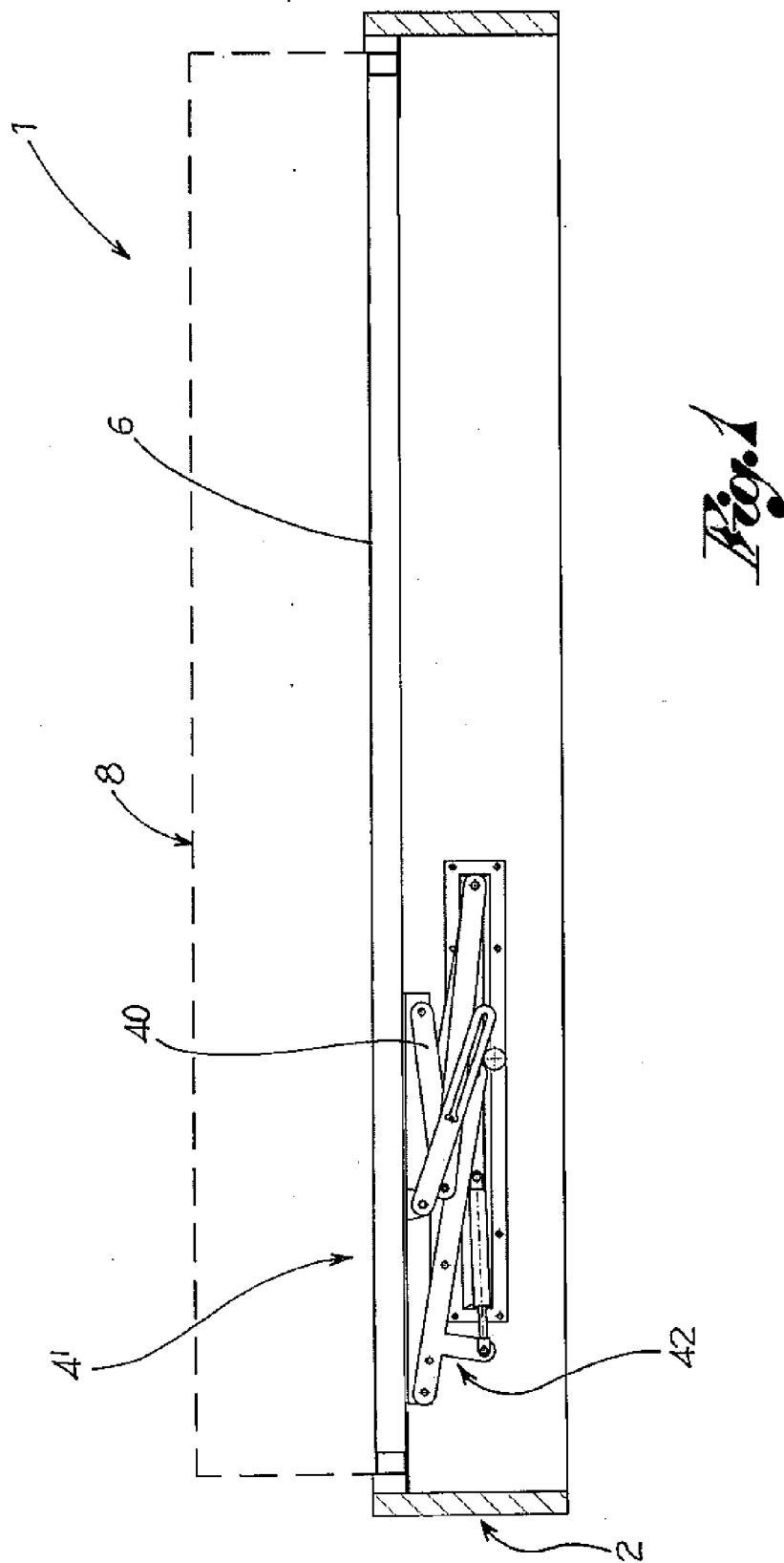
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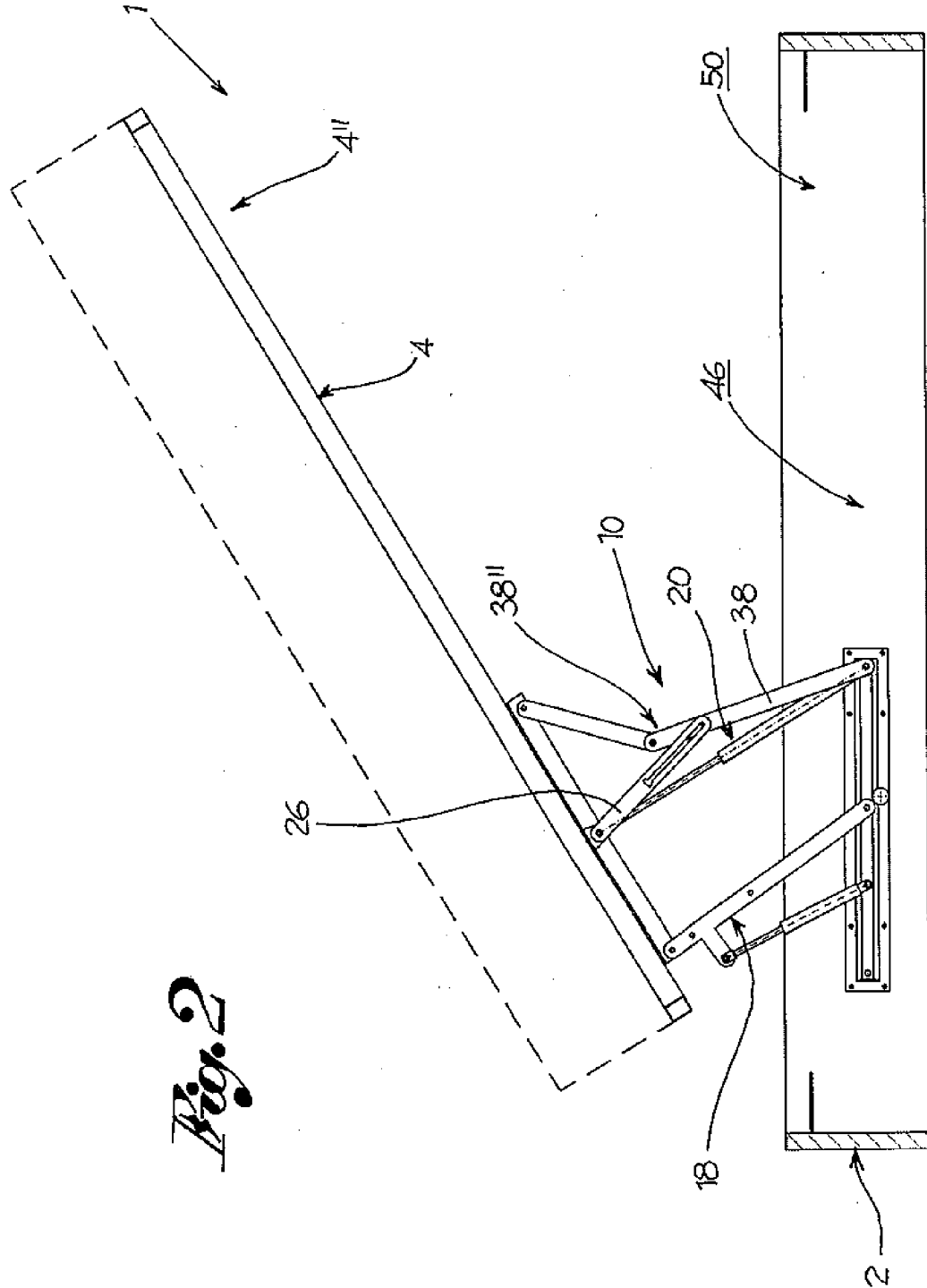
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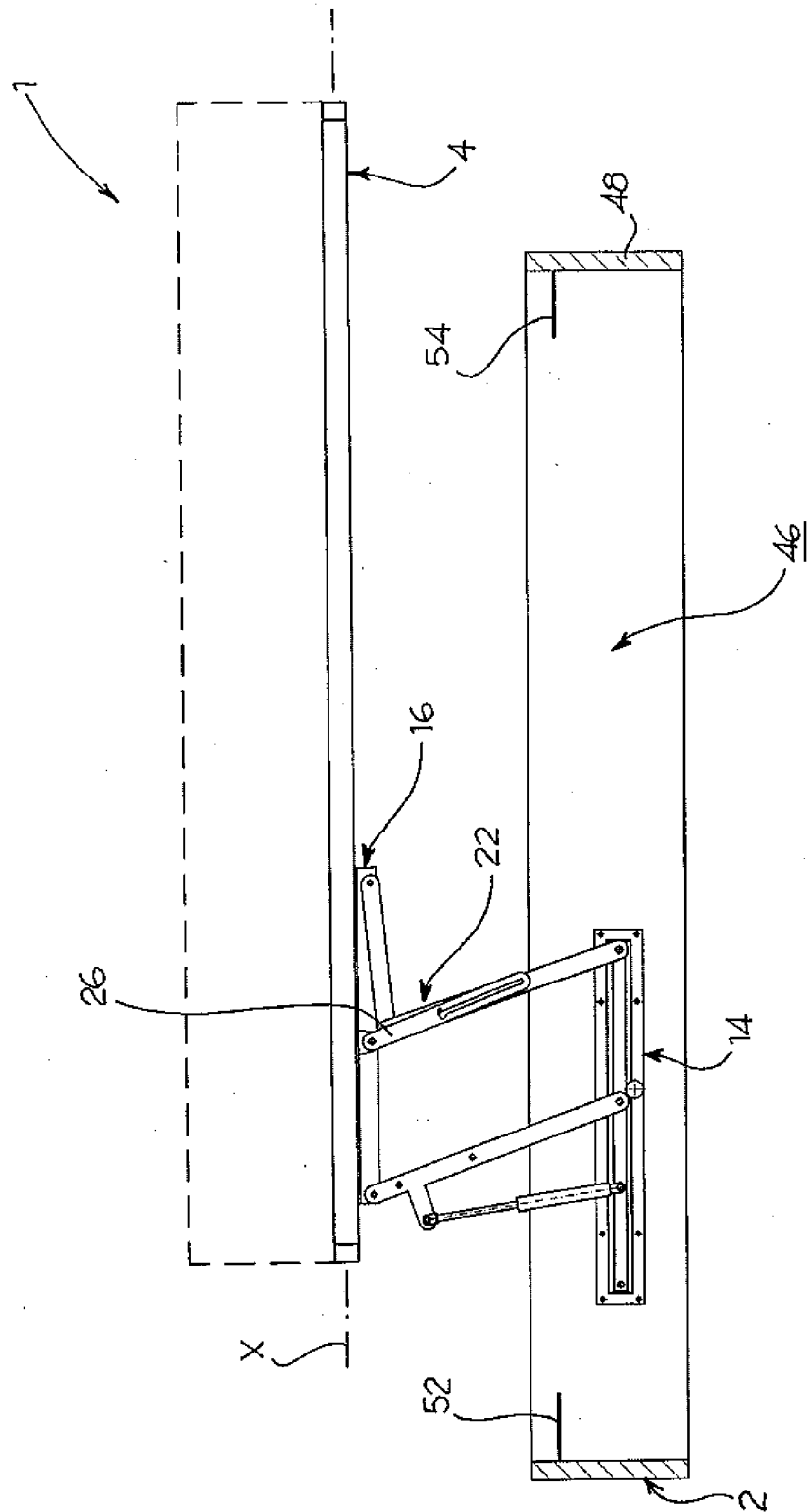
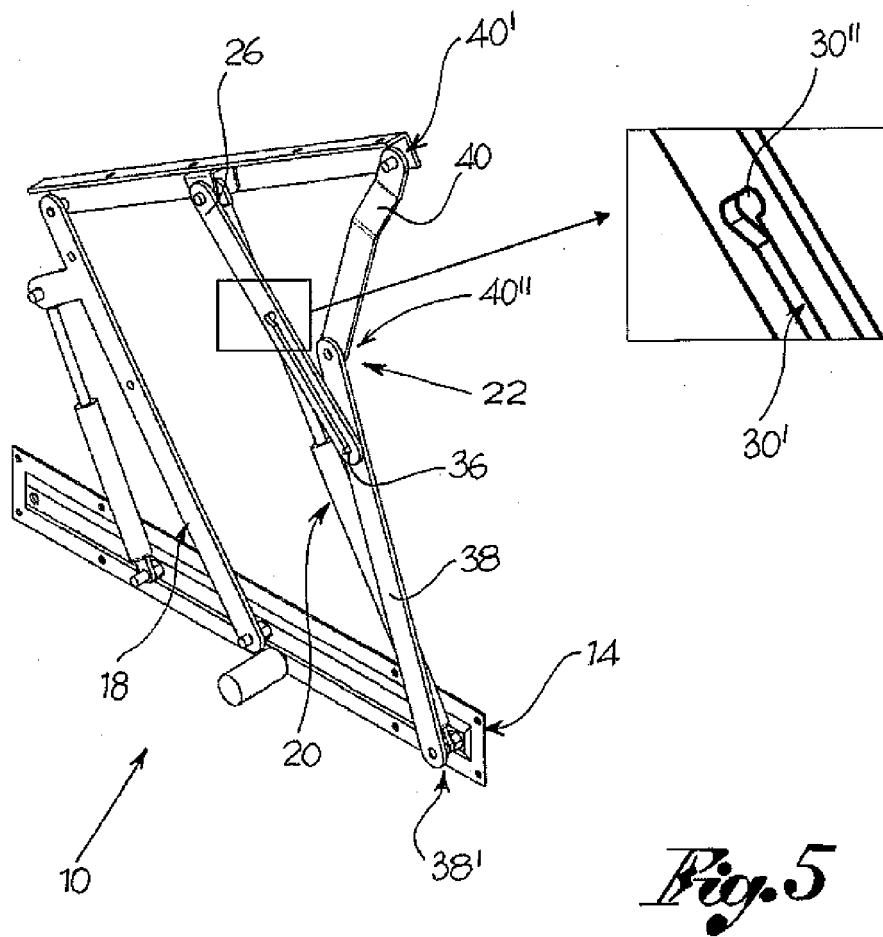
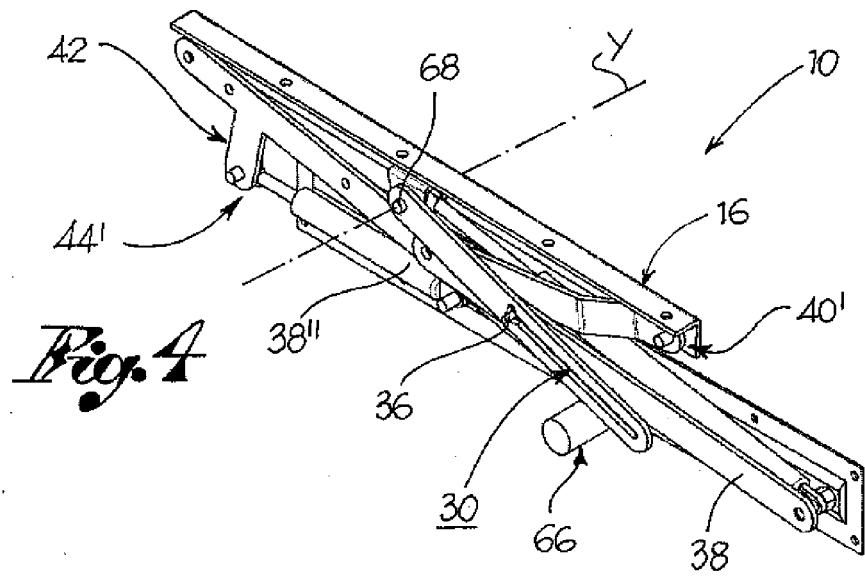
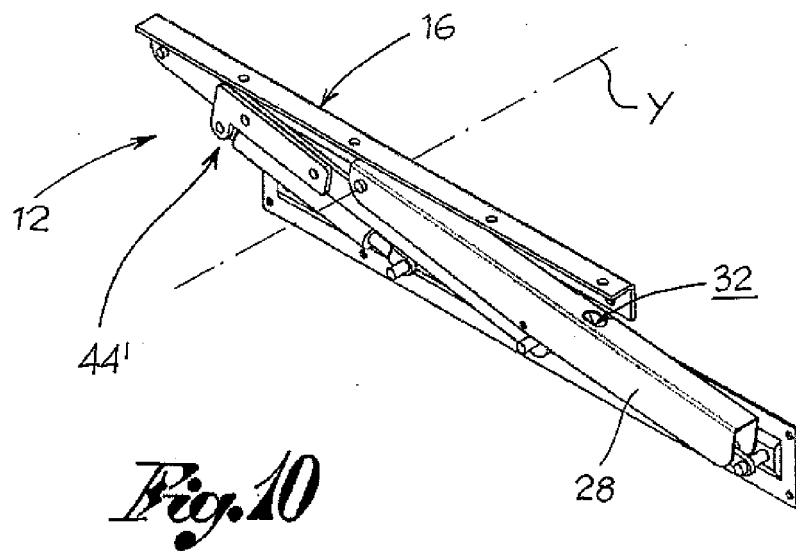
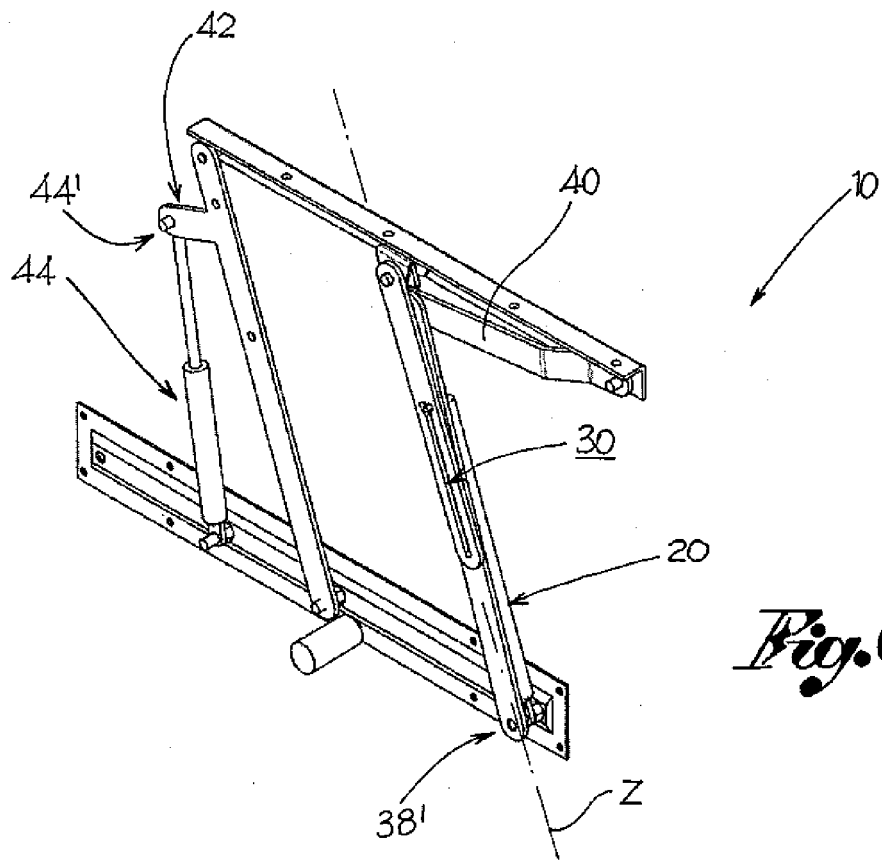


Fig. 3





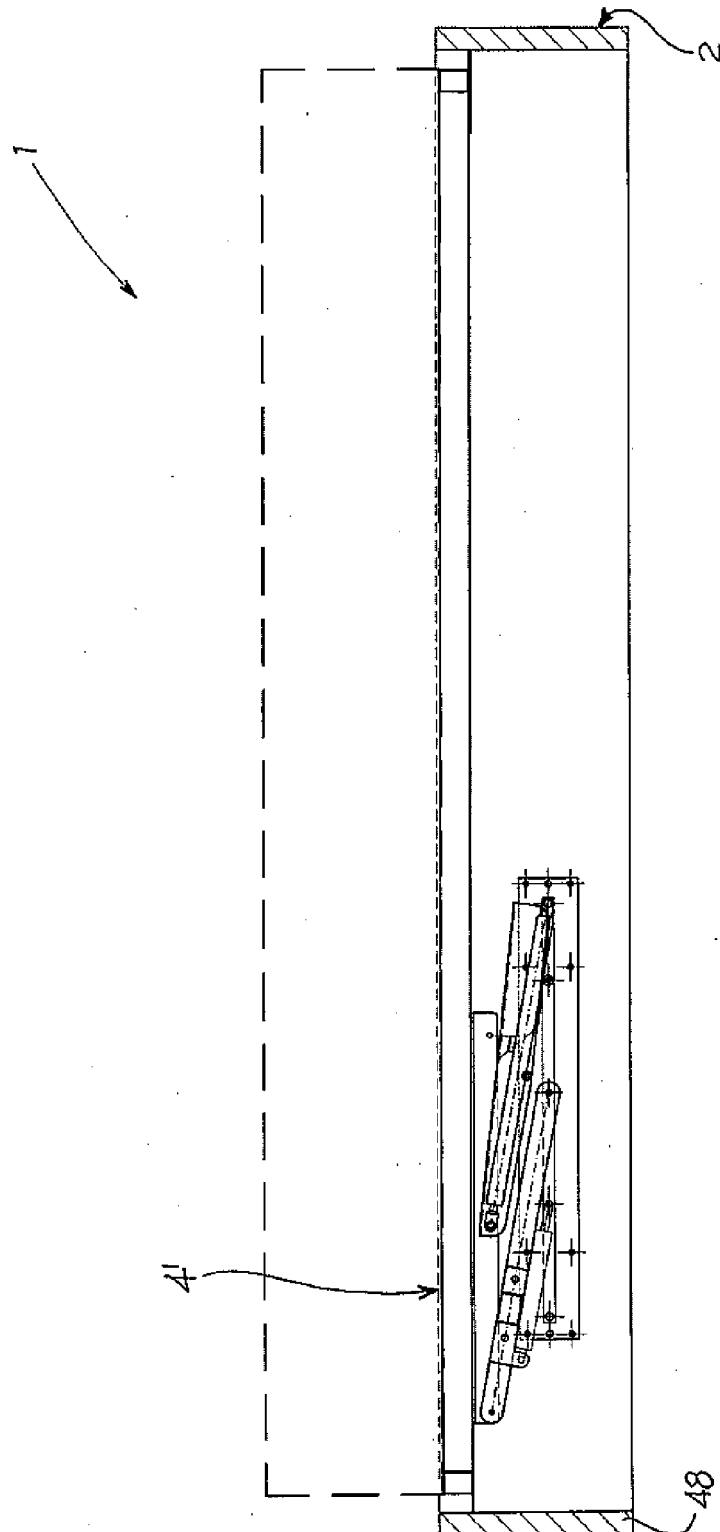
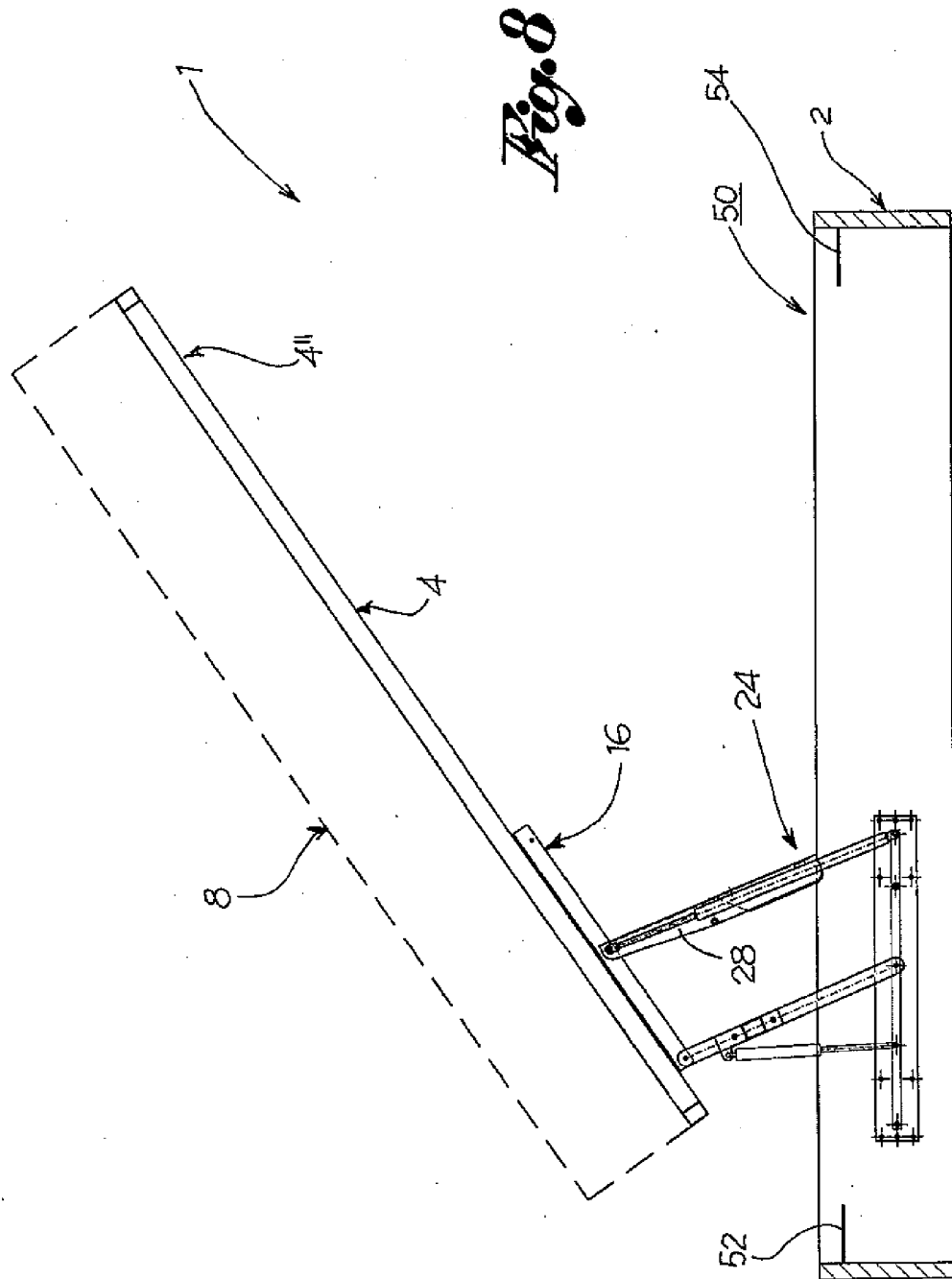


Fig. 7



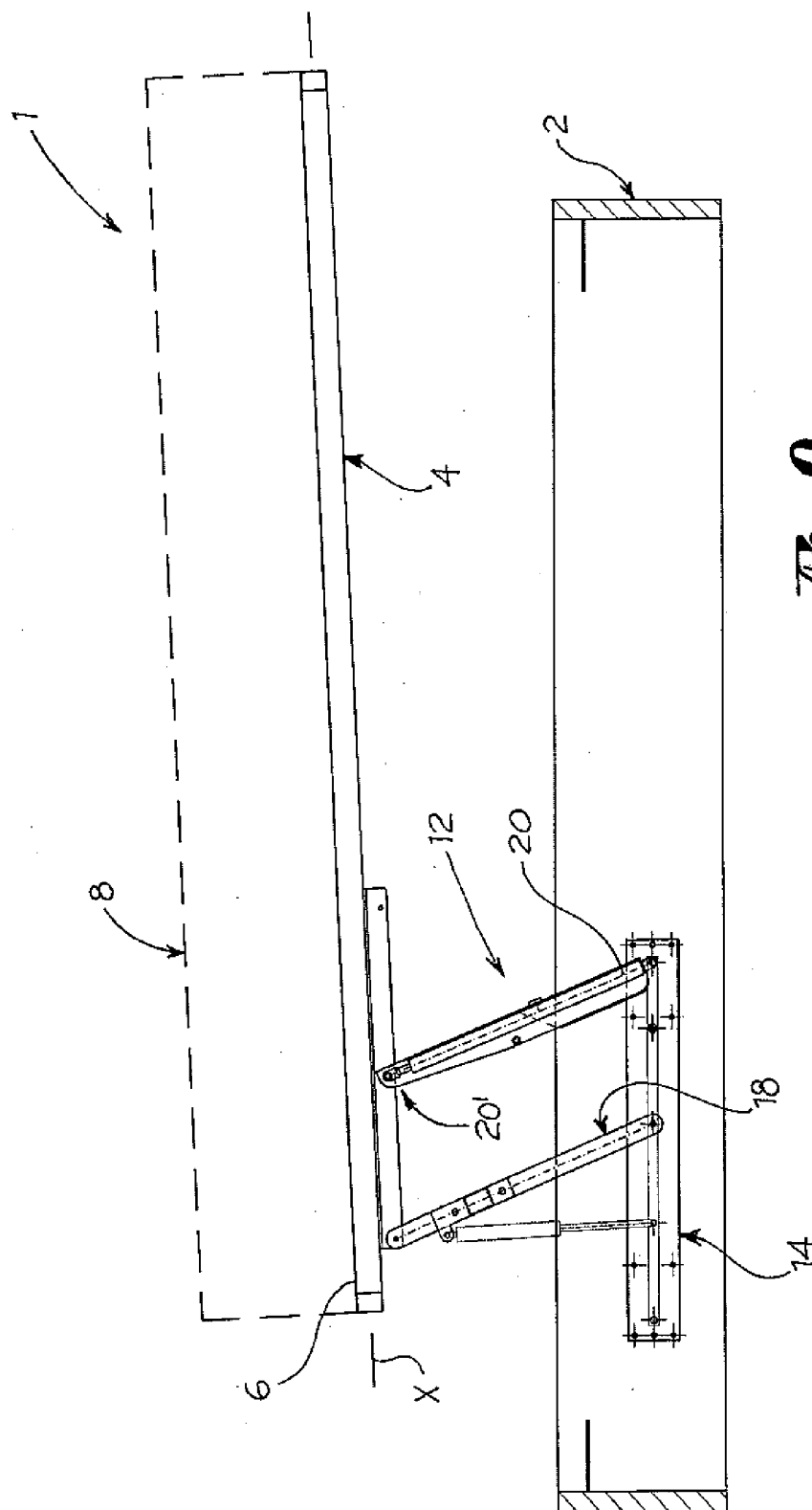
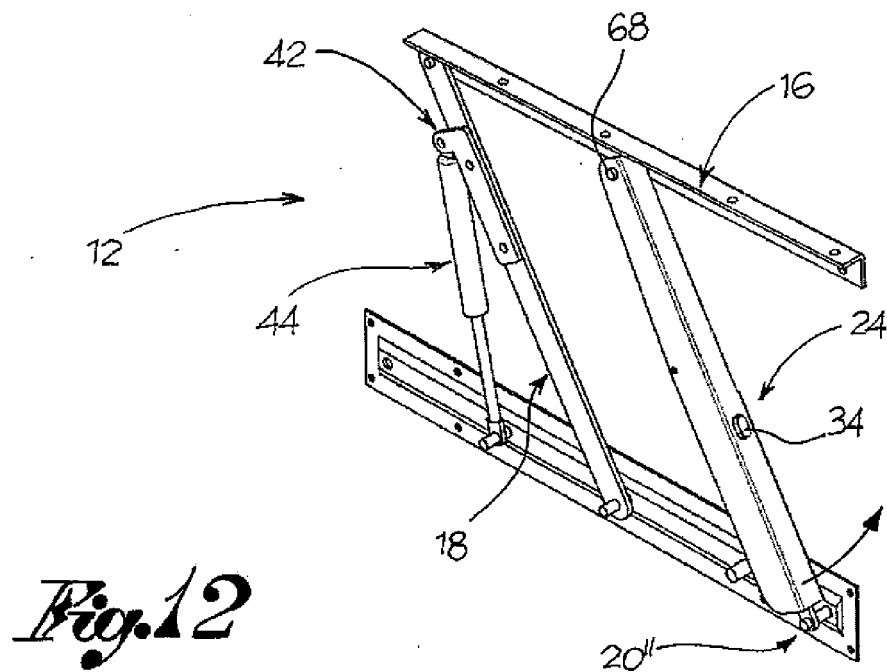
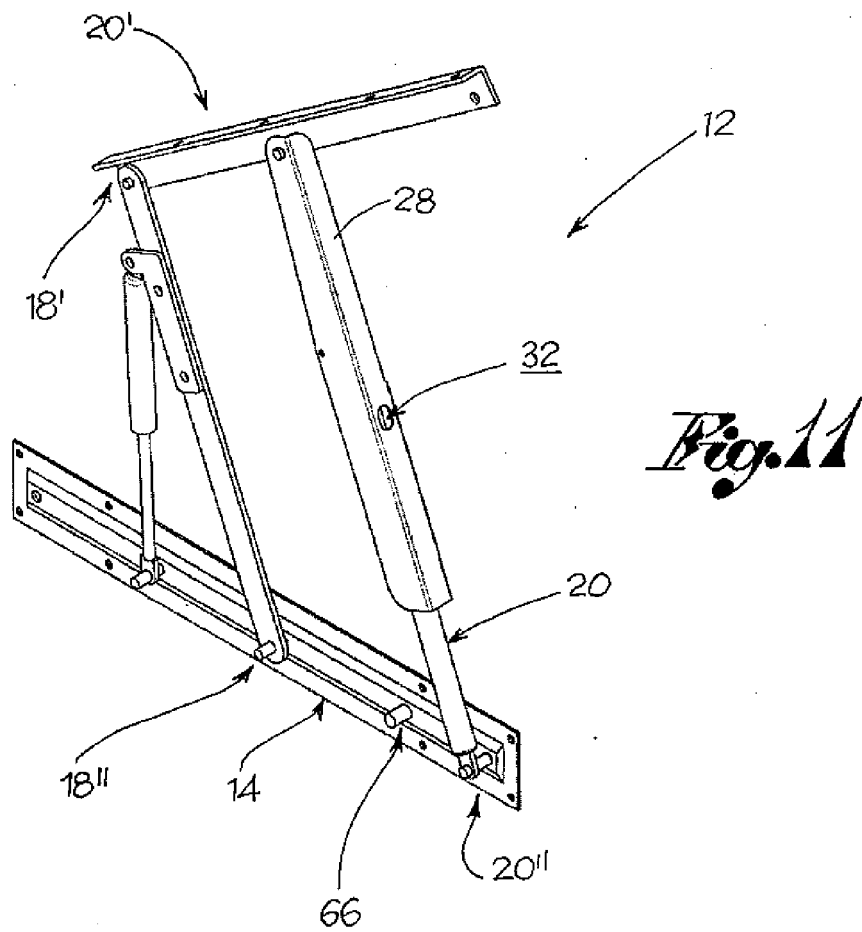
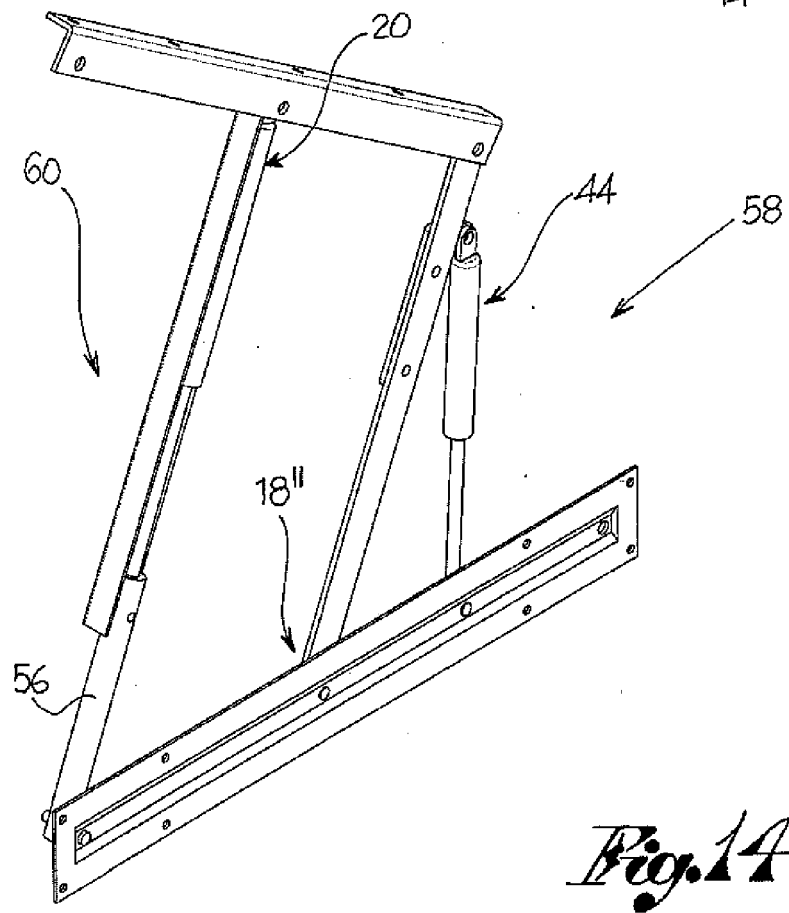
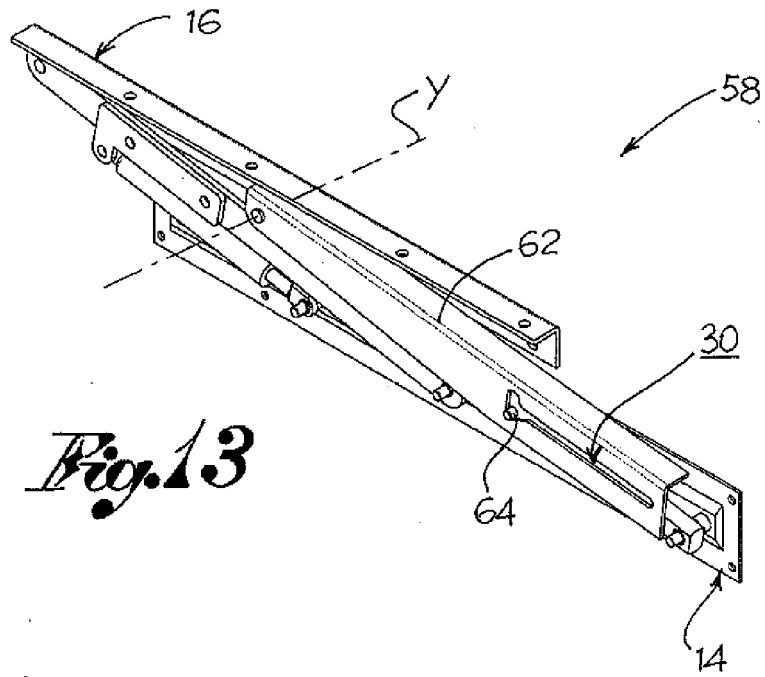


Fig. 9





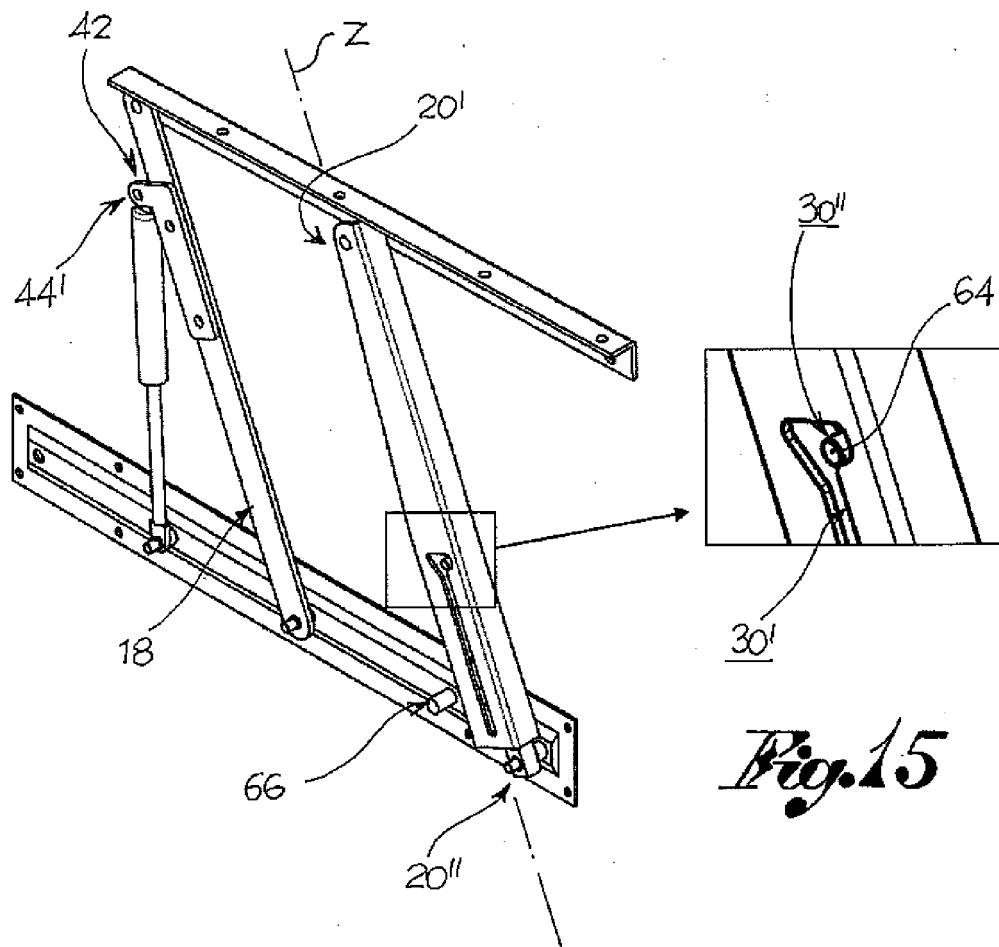


Fig. 15

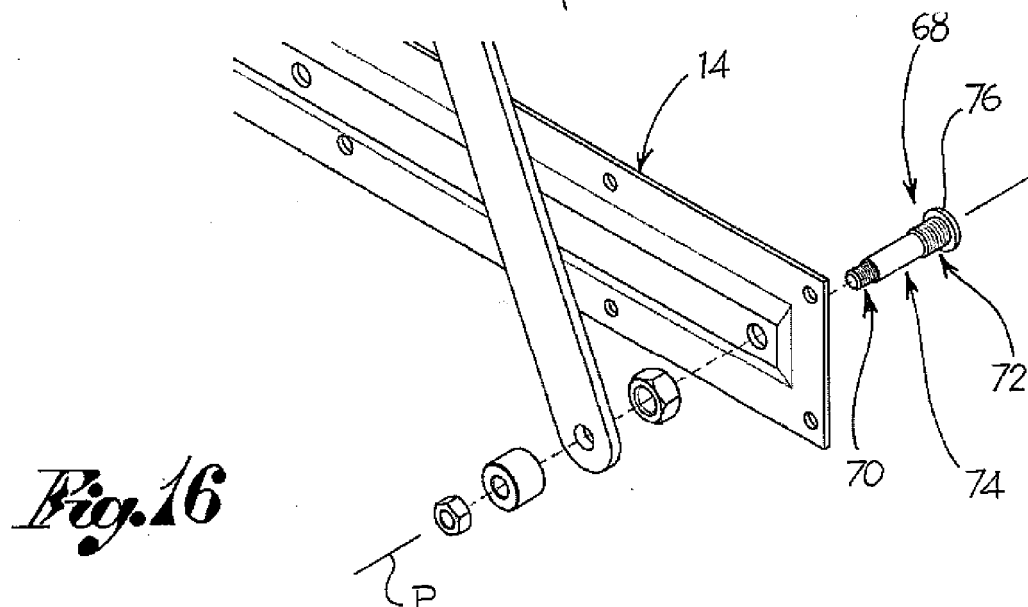


Fig. 16



EUROPEAN SEARCH REPORT

Application Number
EP 10 42 5164

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Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (IPC)
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Place of search Munich		Date of completion of the search 19 October 2010	Examiner MacCormick, Duncan
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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