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(54) Container bed with means for moving the mattress frame

(57) A container bed with means for moving the mattress frame, comprising a container body (2) to which at least one mattress frame (3) is connected, the container bed further comprising, on each side wall of the container body (2), means for tilting (10,11) the mattress frame (3) which act between the mattress frame and a side bar (20) that is pivoted to the side wall, the rotation fulcrum

(30) of the side bar being arranged in a point (30) that substantially provides balancing, with respect to the fulcrum (30), of the weights that bear on the fulcrum for rotation of the side bar (20) with respect to the fulcrum, by means of a force that can be applied by mere manual action, in order to arrange the mattress frame (3) in a substantially horizontal position that is raised with respect to the container body (2).

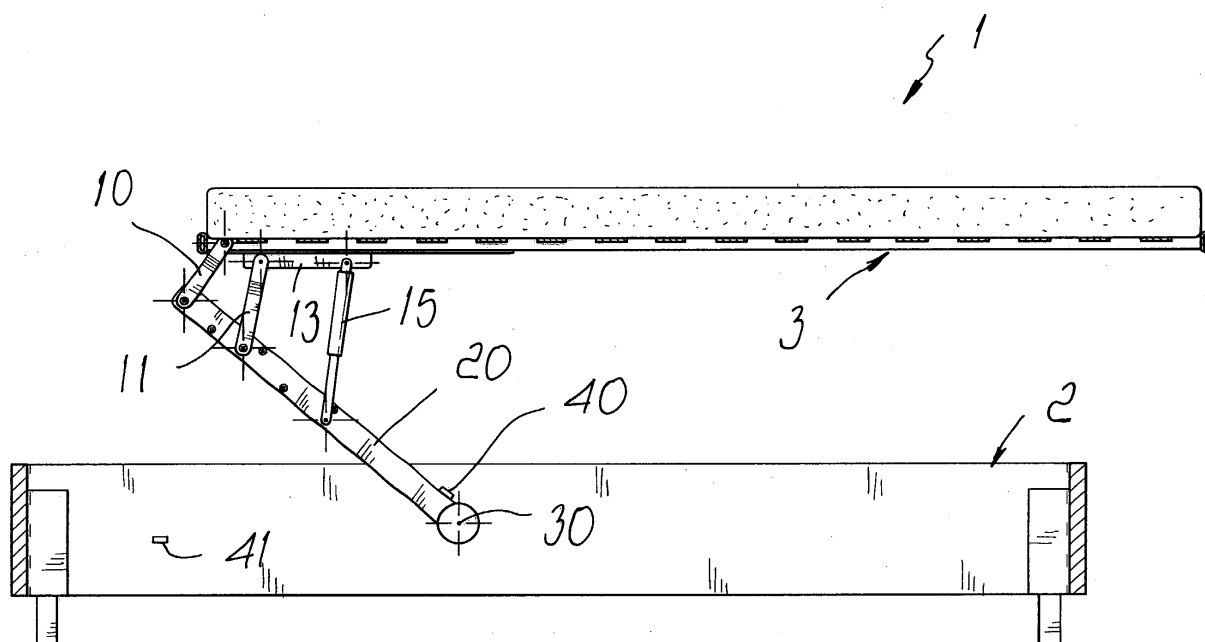


Fig. 5

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Description

[0001] The present invention relates to a container bed with means for moving the mattress frame.

[0002] It is known that so-called container beds are provided by means of a container body, which is closed in an upward region by a mattress frame or bed base that is connected by way of kinematic means that allow its tilting, so that it is possible to access the inside of the container body.

[0003] Other known solutions arrange the mattress frame or bed base in a raised position with respect to the container body, a position commonly known as service position, so as to be able to make the bed and perform the required operations more easily.

[0004] In order to perform this kind of movement, the solutions currently adopted are particularly complicated from a manufacturing standpoint, since they require the adoption of a large number of levers and articulations and most of all they must have a large number of return springs and locking hooks which, in addition to increasing constructive complexity, are always a source of potential danger for the user if they are not actuated correctly.

[0005] The aim of the invention is to eliminate the drawbacks noted above by providing a container bed with means for moving the mattress frame that allows to arrange the mattress frame both in a storage position, for access to the inside of the container body, and in a service position, but has an extremely limited number of components, without the presence of locking hooks.

[0006] Within this aim, a particular object of the invention is to provide a container bed in which the mechanisms required for movement do not restrict the possibilities to access the container body, making the assembly particularly simple and functional.

[0007] A further object of the present invention is to provide a container bed that can be actuated with very little effort thanks to the particular type of weight balancing that is used.

[0008] Another object of the present invention is to provide a container bed that thanks to its particular constructive characteristics is capable of giving the greatest assurances of reliability and safety in use.

[0009] Still another object of the present invention is to provide a container bed that can be obtained easily starting from commonly commercially available elements and materials and is further competitive from a merely economical standpoint.

[0010] This aim and these and other objects that will become better apparent hereinafter are achieved by a container bed with means for moving the mattress frame, according to the invention, comprising a container body to which at least one mattress frame is connected, characterized in that it comprises, on each side wall of said container body, means for tilting the mattress frame which act between said mattress frame and a side bar that is pivoted to the side wall, the rotation fulcrum

of said lateral bar being arranged in a point that substantially provides balancing, with respect to said fulcrum, of the weights that bear on said fulcrum for rotation of said side bar with respect to said fulcrum, by means of a force that can be applied by mere manual action, in order to arrange said mattress frame in a substantially horizontal position that is raised with respect to said container body.

[0011] Further characteristics and advantages will become better apparent from the description of a preferred but not exclusive embodiment of a container bed with means for moving the mattress frame, illustrated only by way of non-limitative example in the accompanying drawings, wherein:

Figure 1 is a schematic perspective view of the detail of the means for moving the mattress frame, which are shown in the inactive or bed position;

Figure 2 is a view of the movement means in the bed position;

Figure 3 is a view of the container bed with the mattress frame tilted for access to the container body;

Figure 4 is a view of the detail of the mattress frame tilting means;

Figure 5 is a view of the container bed with the mattress frame in the service position;

Figure 6 is a view of the detail of the movement means with the mattress frame in the service position.

[0012] With reference to the figures, the container bed with means for moving the mattress frame, generally designated by the reference numeral 1, comprises a container body 2, to which a mattress frame or bed base 3 is connected; the mattress frame, in the bed position, arranges itself substantially at the open upper part of the container body.

[0013] The mattress frame is of a movable type so as to allow access to the inside of the container body, and for this purpose means for moving the mattress frame are provided which comprise mattress frame tilting means, provided by a first linkage 10 and by a second linkage 11, which form an articulated connection shaped like a quadrilateral other than a parallelogram between the mattress frame 3 and a side bar 20 that is arranged at each side wall.

[0014] The linkages 10 and 11 are articulated so as to tilt the mattress frame and simultaneously move it away from the headboard, so that interference does not occur between the headboard and the mattress arranged on the mattress frame.

[0015] The first linkage 10 is articulated between the mattress frame 3 and the free end of the side bar 20, which is pivoted, at the opposite end, to the side wall of the bed or optionally to a reinforcement plate that is connected to the side wall.

[0016] The second linkage 11 is articulated 17 to the side bar 20 at a distance from the point of articulation

16 to the side bar 20 of the first linkage 10 that is greater than the distance between the articulation 18, 19 of the opposite ends with respect to the mattress frame 3; furthermore, the second linkage 11 is preferably articulated 19 to a bracket 13 and lies below the mattress frame 3.

[0017] In order to compensate the forces and facilitate the lifting action, pusher means are provided being constituted by a gas-assisted strut 15, which is articulated between a central portion of the side bar 20 and a point of the bracket 13 that is spaced from the articulation point of the second linkage 11 on the opposite side with respect to the articulation point of the first linkage 10.

[0018] In this manner, the gas-assisted strut is able to apply a favorable thrust during the lifting of the mattress frame, which as shown more clearly in Figure 3 causes the tilting of the mattress frame and a corresponding movement away from the headboard, so as to have no interference during tilting.

[0019] In these conditions, the inside of the container body is easily accessible and the mattress frame, in the open position, remains in stable conditions due to the presence of the gas-assisted strut, which acts by pushing, compensating for the weights generated by the mattress frame and the mattress.

[0020] An important feature of the invention consists in that the mattress frame can be arranged in a service position, which in practice is constituted by a position that is substantially parallel to the bed position but is raised with respect to the container body.

[0021] The important characteristic of the invention consists in that said position can be achieved without having to provide engagement or spring-type elements, but simply by using a correct balancing of the weights.

[0022] For this purpose, the rotation fulcrum of the side bar 20, which is designated by the reference numeral 30, is arranged at a point where the weight that bears with respect to the fulcrum is substantially balanced, so that in order to pass from the storage position to the service position it is sufficient to apply, merely by way of a manual action, a force or traction toward the footboard, achieving a consequent tilting of the side bar 20, which after passing beyond an initial portion in which it is necessary to apply traction arranges itself in a stable equilibrium position because during rotation, in order to pass from the storage position to the service position, the weight shifts beyond the fulcrum 30 and therefore applies a clockwise rotational thrust with reference to the drawings, and such rotation entails arranging the mattress frame in the horizontal position.

[0023] In order to ensure a correct horizontal position, on the sides of the container body 2 there is a first stop element 40, which engages the side bar 20, limiting its rotation.

[0024] In these conditions, therefore, the transition from the storage position to the service position is provided exclusively due to the particular weight balancing provided by arranging the mattress frame so that it substantially cantilevers out with respect to the fulcrum point

of the lever 20.

[0025] Accordingly, it is necessary to apply a very small force in order to pass from the storage position to the service position.

[0026] To close the container bed, it is sufficient to reverse perform the same operations, applying to the mattress frame in the service position a pushing action that in practice returns the bed to the storage position and then closing the mattress frame, compressing the gas-assisted strut 15.

[0027] To complete the above description, it should also be noted that there is a second stop element 41 for the side bar in the bed position, which is located at the free end of the bar 20, on the opposite side with respect to the first stop element 40 that acts as a stop element for the service position.

[0028] From the above description it is therefore evident that the invention achieves the intended aim and objects, and in particular the fact is stressed that a container bed with means for moving the mattress frame is provided which, in addition to the bed position, allows to make the mattress frame assume two separate positions, i.e., a storage position and a service position, with an extremely small number of components and without adopting engagement elements or otherwise elements that might constitute a potential danger during the movement of the mattress frame.

[0029] Another important aspect of the invention is further constituted by the fact that the reduced number of components does not limit in any way access to the inside of the container body, and furthermore, thanks to the weight balancing that is provided, situations of potential danger during the movement of the mattress frame do not occur.

[0030] The invention thus conceived is susceptible of numerous modifications and variations, all of which are within the scope of the appended claims.

[0031] All the details may further be replaced with other technically equivalent elements.

[0032] In practice, the materials used, as well as the contingent shapes and dimensions, may be any according to requirements.

[0033] The disclosures in Italian Patent Application No. MI2002A001395 from which this application claims priority are incorporated herein by reference.

[0034] Where technical features mentioned in any claim are followed by reference signs, those reference signs have been included for the sole purpose of increasing the intelligibility of the claims and accordingly, such reference signs do not have any limiting effect on the interpretation of each element identified by way of example by such reference signs.

Claims

1. A container bed with means for moving the mattress frame, according to the invention, comprising a con-

tainer body (2) to which at least one mattress frame (3) is connected, **characterized in that** it comprises, on each side wall of said container body (2), means for tilting (10, 11) the mattress frame (3) which act between said mattress frame (3) and a side bar (20) that is pivoted to the side wall, the rotation fulcrum (30) of said side bar (20) being arranged in a point that substantially provides balancing, with respect to said fulcrum (30), of the weights that bear on said fulcrum (30) for rotation of said side bar (20) with respect to said fulcrum, by means of a force that can be applied by mere manual action, in order to arrange said mattress frame (3) in a substantially horizontal position that is raised with respect to said container body (2).

2. The container bed according to claim 1, **characterized in that** said tilting means (10, 11) are adapted to tilt said mattress frame (3) and simultaneously move it away from the headboard region.

3. The container bed according to the preceding claims, **characterized in that** said tilting means comprise a first linkage (10) and a second linkage (11), which form a connection that is shaped like an articulated quadrilateral other than a parallelogram.

4. The container bed according to any of the claims 1, 2, **characterized in that** said tilting means comprise a first linkage (10), which is articulated between the free end of said side bar (20) and said mattress frame (3), and a second linkage (11), which is articulated (17) between said side bar (20) and said mattress frame (3) at a distance from the point of articulation (16) to the side bar (20) of said first linkage (10) that is greater than the distance between the articulation (18, 19) of the opposite ends of said linkages (10, 11) to said mattress frame (20).

5. The container bed according to one or more of the preceding claims, **characterized in that** it comprises a bracket (13) that lies below said mattress frame (3), said second linkage (11) being articulated (19) to said bracket (13).

6. The container bed according to one or more of the preceding claims, **characterized in that** it comprises pusher means (15) that act between a central portion of said side bar (20) and said mattress frame (3).

7. The container bed according to one or more of the preceding claims, **characterized in that** said pusher means are constituted by a gas-assisted strut (15), which is articulated between a central portion of said side bar (20) at a point (21) of said bracket (13) that is spaced from the point of articulation (19)

of said second linkage.

8. The container bed according to one or more of the preceding claims, **characterized in that** said fulcrum (30) of the rotation of said side bar (20) is arranged in a point that is adapted to substantially balance the weight that bears on said fulcrum for transition from the tilted position to a position in which said mattress frame (3) is substantially horizontal and spaced from said container body (2), by way of a traction applied manually toward the footboard of the bed on said mattress frame (3).

9. The container bed according to one or more of the preceding claims, **characterized in that** the tilting means (10, 11) and the balancing of the weights of said mattress frame (3) are provided so that after an initial portion of rotation from the tilted position toward the substantially horizontal position, the weight of the mattress frame (3) is adapted to apply a positive thrust for rotation.

10. The container bed according to one or more of the preceding claims, **characterized in that** it comprises, on the side walls of said container body (2), a first stop element (40) that can engage said side bar (20) in order to limit its rotation in the direction for extraction from the container bed.

11. The container bed according to one or more of the preceding claims, **characterized in that** it comprises a second stop element (41) that can engage said side bar (20) on the opposite side with respect to said first stop element (40).

12. The container bed according to one or more of the preceding claims, **characterized in that** said first stop element (40) is arranged proximate to the fulcrum point (30) of said side bar (20).

13. The container bed according to one or more of the preceding claims, **characterized in that** said second stop element (41) is arranged proximate to the free end of said side bar (20).

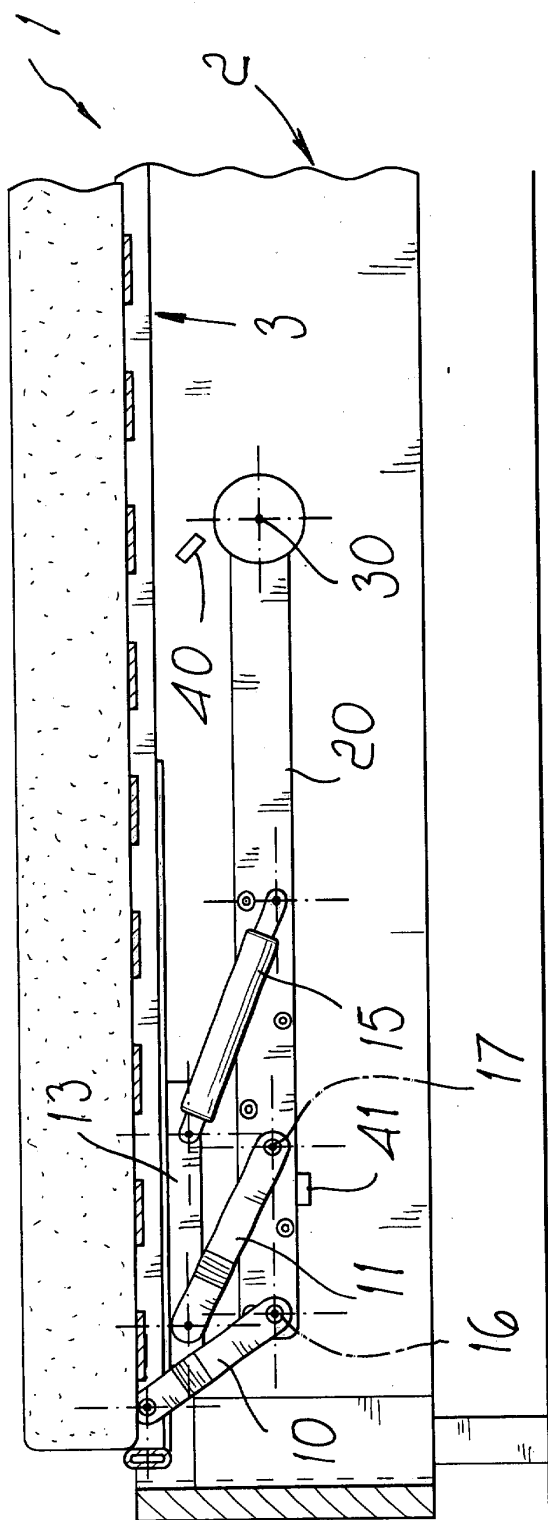


Fig. 2

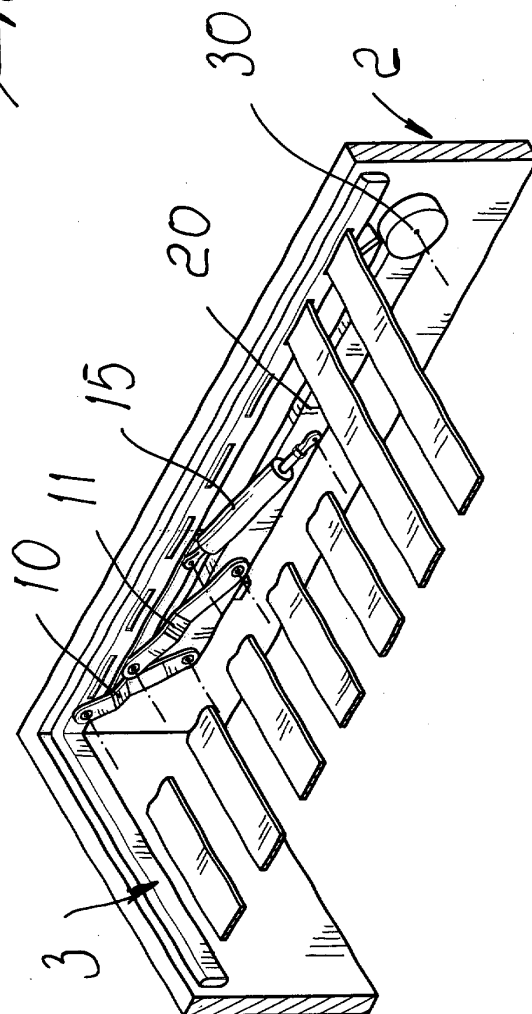
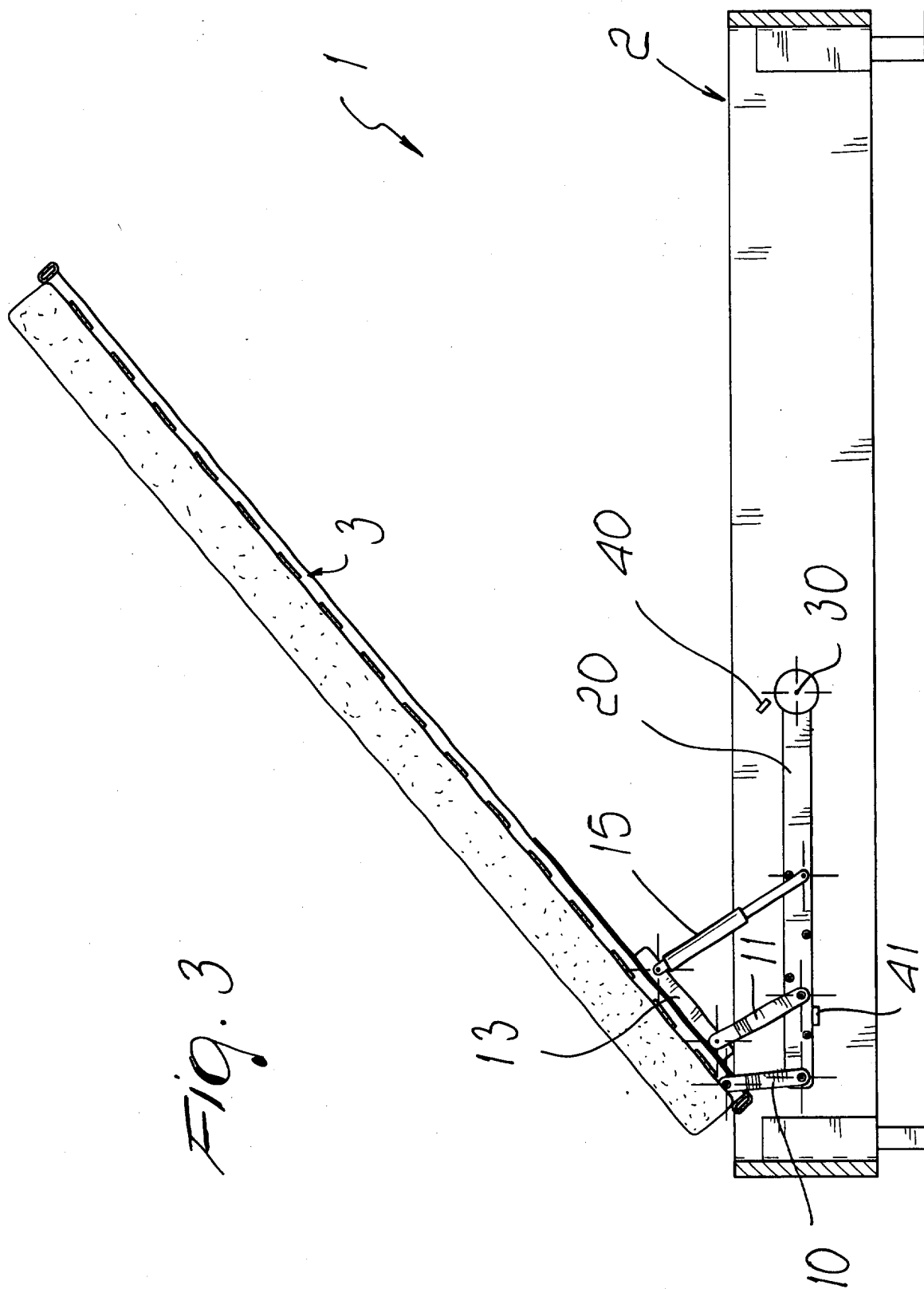
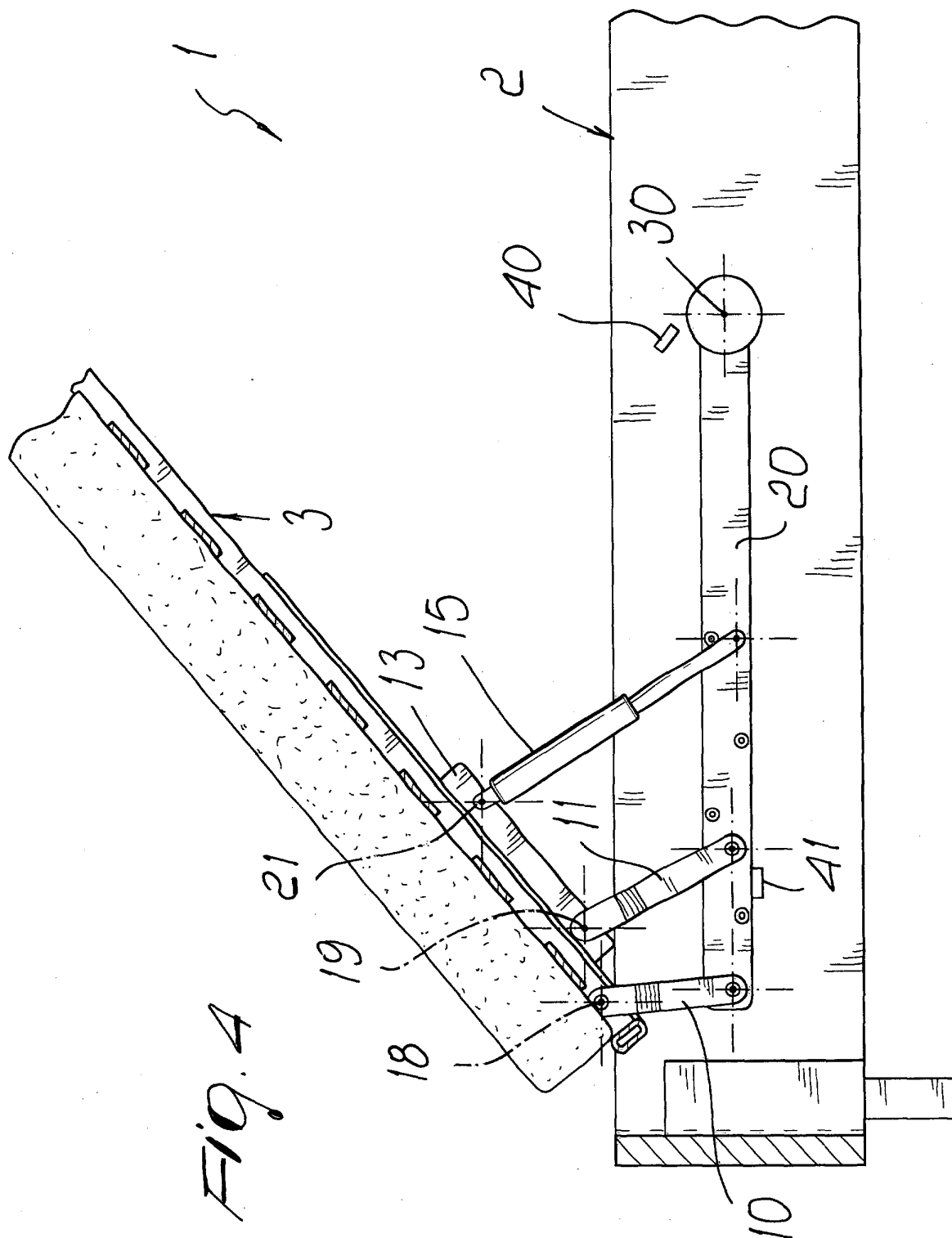


Fig. 1





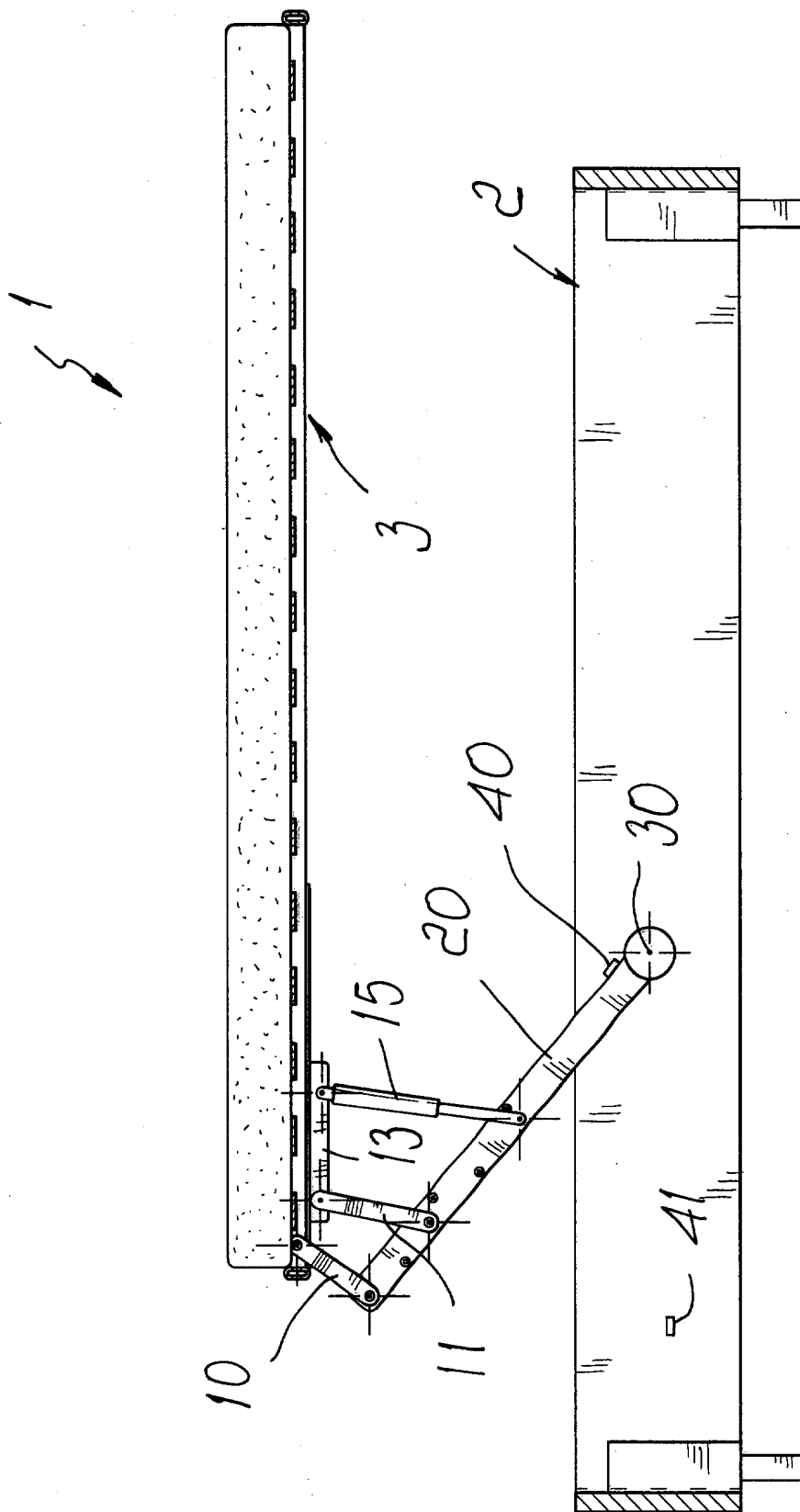
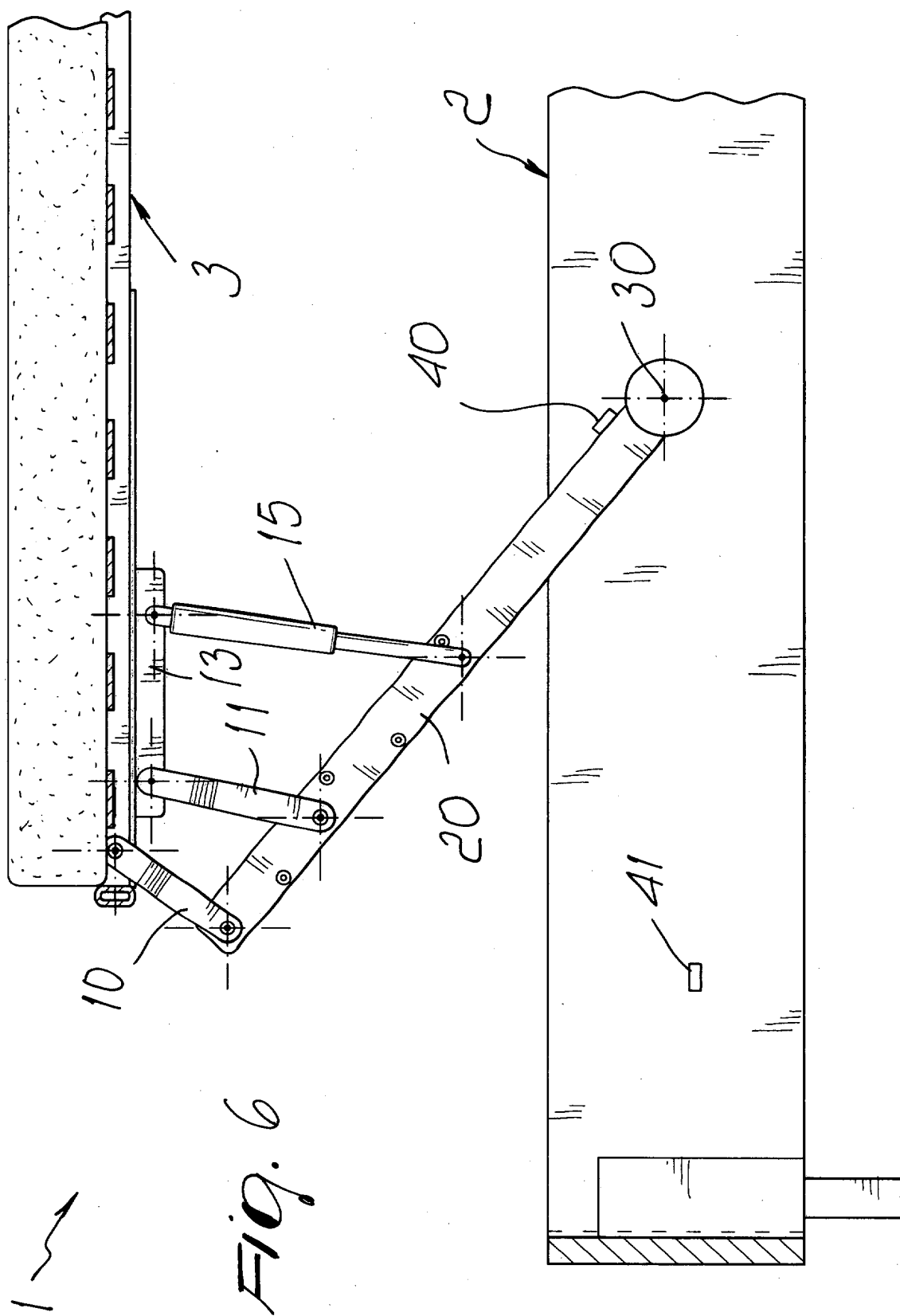


Fig. 5





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EUROPEAN SEARCH REPORT

Application Number
EP 03 01 3351

DOCUMENTS CONSIDERED TO BE RELEVANT			
Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (Int.Cl.7)
A	FR 2 602 655 A (CORFMAT JEAN CLAUDE) 19 February 1988 (1988-02-19) * claims 1-4; figures 1-3 *	1,3	A47C19/00
A	US 676 215 A (GEORGE E. BEDELL) 11 June 1901 (1901-06-11) * claims 1-5; figures 1-3 *	1	
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The present search report has been drawn up for all claims			TECHNICAL FIELDS SEARCHED (Int.Cl.7) A47C A61G
Place of search THE HAGUE		Date of completion of the search 6 October 2003	Examiner Kus, S
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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**ANNEX TO THE EUROPEAN SEARCH REPORT
ON EUROPEAN PATENT APPLICATION NO.**

EP 03 01 3351

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06-10-2003

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US 676215	A		NONE	
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For more details about this annex : see Official Journal of the European Patent Office, No. 12/82