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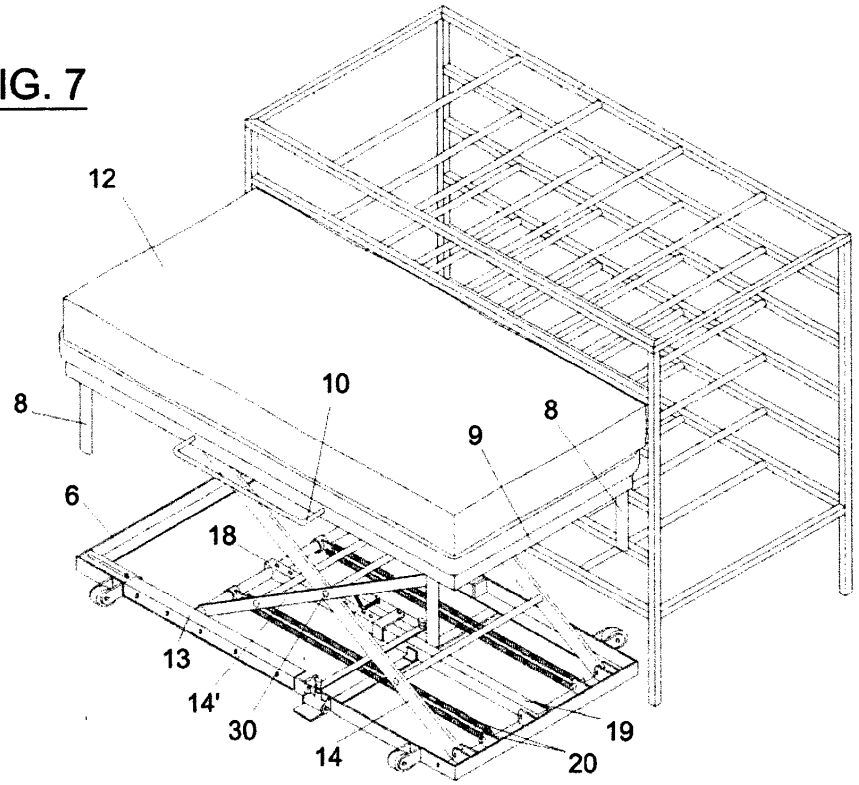
(54) Mattress display rack with lift table

(57) The invention describes a mattress display rack with lift table, designed in such a way that it allows several mattresses to be housed in respective compartments superimposed in height, wherein the lift table can be positioned at variable heights, opposite the position of a selected mattress (12) in order to extract it from its compartment and place it on a supporting platform (9) incorporated in the lift table with a view to positioning said mattress at the required height for checking and testing thereof. The lift table includes a scissor-type lifting mechanism, which can be secured at the selected height with the help of retaining mechanism actuated by means of an external pedal (11). There are springs (20) running longitudinally that collaborate with the scissor lifting mechanism during the operations of positioning the height of the supporting platform for the mattress.

FIG. 7



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Description

Object of the Invention

[0001] The present invention relates to a mattress display rack with lift table, which provides essential novel characteristics and considerable benefits in relation to the means known and used for the same purposes in the current state of the art.

[0002] More specifically, the invention proposes the design and development of a mattress display rack that can be positioned in any place, premises or establishment that needs to display mattresses to the public in order to familiarise them with the product's characteristics and to allow a user to touch the mattresses and even test them for the purposes of determining whether they meet the user's preferences in terms of use and comfort. The mattress display rack is sized in such a way that while occupying minimum space it presents a predetermined number of compartments or housings to contain respectively another so many mattresses that can be extracted one by one and after study and testing by the user, be returned to the same compartment that they occupied, to which effect the display rack incorporates a lift table that when not in use can be housed underneath the rack, without occupying any additional space, but that when the table is in use, after pulling it out of its resting place, has lifting means in order to position a supporting platform at the height of the rack compartment housing the mattress to be displayed, extract the selected mattress, lower the platform to a normal height for use, and after presenting the mattress to the user and making the relevant tests, lifting the table platform again to the height of the compartment from which the mattress was extracted, and to put the mattress back into its housing by means of pushing it manually.

[0003] The invention's field of application is comprised within the industrial sector of manufacturing sales displays of goods for household or industrial consumption.

Background and Summary of the Invention

[0004] In general, it is a known fact that establishments designed to present and sell household goods do not tend to display mattresses or, that if they do so, their number is very limited essentially due to the fact that mattresses occupy a considerable surface area. This makes traders in general be more inclined towards other types of goods that occupy less space and that therefore allow for a greater return per occupied square meter to be obtained. Consequently, only establishments with a larger amount of space available, as in the case of large retail stores or shops specialised in this specific good, tend to allocate a higher amount of space to displaying mattresses and similar goods.

[0005] Even in the case of the large retailers where a larger amount of space is available, it is desirable to optimise use of the space in such a way that without losing the capacity to show potential buyers their different choices, a larger number of goods can be shown.

[0006] In consideration of the above, it is obvious that in the current state of the art there is a need for a display rack that achieves the objective of presenting the user with goods which due to their size occupy a significant amount of space, in such a way that the presence of the display in question helps to save space and improve the use of the available surface area. This objective has been fully achieved by means of the mattress display rack with lift table described as follows, wherein its main characteristics are set out in the characterising section of claim 1, attached.

[0007] Essentially, the display rack with lift table proposed by the invention consists of providing a tubular structure with an overall prismatic configuration, obtained by means of four vertical posts which occupy the corners of the structure, between which there are upper and lower longitudinal and transverse bars which determine the formation of an upper frame and a lower frame that make the structure rigid, the distance in height between the upper and lower frames being divided by longitudinal bars running respectively between the front and back posts equidistant from each other in order to form the superimposed housings or compartments of equal dimensions, each one designed to contain one mattress, and wherein their respective supporting planes are made up of a number of tubular transverse bars, with a general cylindrical shape, in other words having a circular section, running between the front and back longitudinal bars respectively opposite each other in height. The lower frame is situated at a predetermined height above the floor, leaving enough space to house underneath the display the lift table consisting of a lower frame provided with fixed wheels for extracting said table, associated to both the front and back side of the frame, said frame supporting a scissor mechanism that supports above it a platform that can be positioned at different heights opposite the different compartments containing the respective mattresses, wherein the scissor mechanism can be released by means of an external pedal accessible from outside. The scissor mechanism is subjected to the action of springs working under traction and that help to lift the platform to the required height when the aforesaid external pedal is actuated.

[0008] In this way, a display rack is provided which presents a series of advantageous characteristics against the current method of displaying goods that, like mattresses, occupy a considerable surface area:

- the mattress is presented to the user in a comfortable, simple and ergonomic manner, as a result of the ease of lifting and lowering the lift table provided with the platform for supporting the mattress;
- in the space occupied by the display rack (slightly larger than the space occupied by just one mattress), a variable predetermined number of mattresses can be available, ready for visual display to a potential

buyer at any time, thereby saving an enormous display surface;

- the display rack conceived as briefly described above, has a simple design and is therefore inexpensive to build;
- it can be decorated in a inexpensive and versatile manner.

Brief Description of the Drawings

[0009] These and other characteristics and benefits of the invention will become more clearly evident from the detailed description that follows of a preferred mode of embodiment of the invention, provided solely by way of illustration and not limitation in any way whatsoever, with reference to the attached drawings, wherein:

Figure 1 is a schematic view, from a top perspective, of a metal tubular construction, having a prismatic configuration, constituting the general structure of the display rack;

Figure 2 shows a schematic view, from a top perspective, of the same metal tubular construction as Figure 1 with the lift table located underneath the structure of the display rack;

Figure 3 is a schematic view, from a front perspective, of a display rack according to Figures 1 and 2 wherein the lift table appears extracted from its housing, ready for use, and the display rack contains a mattress housed in one of its compartments;

Figure 4 is a view of the scissor mechanism used as means for lifting the table, together with a close-up D1 of a lateral guide of the lower frame and one of the end-of-run stopper elements located inside said guide;

Figure 5 shows a schematic view, in perspective and at a larger scale, of a mechanism for releasing the lift table actuated by means of the external pedal, and

Figures 6, 7 and 8 are schematic views of the operating sequence of the lift table for presenting a mattress to a user during an operation of checking and testing its use.

Description of a Preferred Mode of Embodiment

[0010] As mentioned above, the detailed description of the preferred mode of embodiment of the mattress display rack with lift table proposed by the invention, will be embodied as follows with the help of the attached drawings, which use the same reference numbers to refer to the same or similar parts. Thus, in the first place referring to the drawing of Figure 1, one can appreciate from it, in a schematic representation from a top perspective, a structure used in the construction of the mattress display rack proposed by the invention. According to said representation, it is possible to appreciate that the structure as a whole, consists of a metal tubular construction indicated in general by means of reference number 1, obtained on the basis of four vertical posts 2 which occupy the corners of the structure, between which run a first pair of upper front and back longitudinal bars 3, and a first pair of lower transverse side bars 4 which together with said lower longitudinal bars configure a first frame that make the structure rigid, and a second pair of front and back longitudinal bars 3' and a second pair of upper transverse side bars 4' which together with said second upper longitudinal bars configure a second frame that make the structure rigid. Between the front vertical posts 2 and between the back vertical posts 2, run various longitudinal tubular bars which occupy positions successively equidistant in height between the aforesaid pairs of respective front and back longitudinal bars 3, 3' of both the upper and lower frames, thereby achieving a series of divisions having a predetermined height, while between each pair of front and back longitudinal tubular bars which occupy positions opposite each other in height run a predetermined number of horizontal transverse bars indicated in general by reference number 5, which provide supporting planes for the mattresses they will contain.

[0011] In this way, the inner space of the structure is divided into an amount of compartments whose number depends on the overall size of the structure and the order of separation in height between successive longitudinal and transverse bars. The tubular elements constituting the transverse bars 5 have been chosen to have cylindrical shape, with a circular section, with a view to contact with the body (normally the mattress) supported on them being minimal and therefore the resistance of the mattress to sliding over the tubular elements being minimal also.

[0012] As appreciated from Figure 1, the distance between the lower frame for making the structure rigid formed by the combination of longitudinal bars 3 and transverse bars 4 and the surface supporting the display rack (for example, the floor), has been chosen in such a way that it leaves a considerable gap or space underneath. This lower gap is designed to house the lift table assembly, as shown by way of an example in Figure 2 of the drawings. The lift table assembly consists of a supporting frame 6, generally made of metal, provided with fixed wheels 7 projecting forwards and backwards, respectively, from both the front and back edges of the frame 6 occupying positions close to both ends of the latter's respective longitudinal bars, and additionally being provided with supporting legs 8 for contact with the ground or with a different supporting surface when in use. The frame includes a front handle 10 that projects from the front part of the table to allow the user to hold it easily, and in a position close to said front handle 10 a pedal device 11 is located that is easily accessible for the user,

which releases the mechanism that retains the position of the platform 9 incorporated in the upper part of the lift table assembly.

[0013] The lift table assembly can be better appreciated in Figure 3 of the drawings where it is shown extracted from its location in the gap formed underneath the structure of the display rack. In Figure 3 of the drawings, the lift table assembly is in a position prior to use in an operation of checking and testing a mattress located in any one of the display rack compartments, as shown, for example, by means of the mattress indicated with reference number 12 in this mentioned Figure 3.

[0014] Once the lift table has been extracted from its location underneath the structure of the display rack, said lift table can be lifted up to a height at which mattress 12 is located so that, by exerting slight traction on the aforesaid mattress favoured by the cylindrical configuration of the transverse bars 5 constituting the supporting plane of the mattress, it can be moved until situated on top of the platform 9 of the lift table.

[0015] Figure 4 illustrates the mechanisms that the aforesaid lift table has been provided with in order to allow the platform lifting operation to be carried out. As mentioned throughout the present description, these mechanisms consist essentially of a scissor-type articulation, consisting of two pairs of arms 14, 14' joined in an intermediate position 30. The arms 14 of one of the pairs are connected in an articulated manner by one of their ends (the bottom ends) to a first end of the frame 6 by means of the provision of joints 15 in respect of which they can pivot, whereas the other pair of arms 14' of the scissor mechanism are joined by their respective bottom ends with the possibility of pivoting in respect of a horizontal transverse bar 16 with its respective ends housed inside guides 13 that are solid with both longitudinal bars of the frame 6, with the ends of the aforesaid horizontal transverse bar 16 being able to move inside said guides thanks to the incorporation of rollers 23, one of which can be appreciated in the close-up D1 shown on a larger scale. There are stopper means located inside each guide, to limit the run of each roller, 23, of which at least one is adjustable, and has been indicated by means of reference number 22 (the latter being visible in the close-up D1), in this way limiting the movement of the horizontal transverse bar 16 in the direction of the longitudinal axis of the frame 6.

[0016] In addition, it is possible to appreciate in Figure 4 the incorporation of a release mechanism of the device used for retaining the lift table in the selected position. This retaining mechanism is guided through a first tubular element 19 which runs coinciding with the central longitudinal axis of the frame 6 and which is joined in an articulated manner by one of its ends to the transverse bar of the same first end of the frame 6 already mentioned, while through the other end of said tubular element 9 it receives telescopically a second tubular element which is solid at its opposite end with the aforesaid horizontal transverse bar 16. The retaining means are actuated from the outside by acting on the aforesaid pedal 11 from which the action is transmitted to said retaining means through a rod 21. There are elastic recovery elements, such as longitudinal springs 20 running between the transverse bar of the aforesaid first end of the frame 6 and ferrules 17 coupled to the horizontal transverse bar 16, which work through traction and which therefore tend to recover in the sense that favours the lifting of the platform 9 of the lift table.

[0017] The retaining means mentioned above are represented in a more detailed manner, to a larger scale, in Figure 5 of the drawings. These essentially consist of a lever 24 articulated to an arm 26 that is solid with the first tubular element 19 and actuated by means of the aforesaid rod 21 against the action of a recovery spring 27. Said lever 24 includes an end portion of bar as a continuation of, and aligned with, the latter, indicated with reference number 28, and which acts against the action of a spring 29 that tends to keep said bar applied against the mentioned second telescopic tubular element 18 in an interlocking condition. In this manner, the retaining means can be released while acting on the pedal 11, allowing the platform to be lifted or lowered manually, as appropriate, with a slight effort which in the direction of lifting is favoured by the recovery of the aforesaid longitudinal springs 20 and which in the direction of lowering is favoured by the weight of the platform itself and all other mechanisms of the lift table, and in such a way that when the pedal 11 is no longer actuated, said retaining means act in order to maintain the supporting platform 9 at the selected height.

[0018] These lifting/lowering operations carried out during normal use of the lift table to show any of the mattresses contained in any one of the respective compartments of the display rack, respond to a sequence that has been shown by way of an example in Figures 6 to 8 of the drawings, and which is explained as follows.

[0019] In the first place, after extracting the lift table assembly from its resting position (table folded) by applying manual traction on the handle 10 of the frame, the platform 9 is lifted to the required position as explained in relation to the mechanisms of Figures 4 and 5, afterwards releasing the retaining mechanism by acting on the external pedal 11. Once the platform 9 has been positioned at the required height, the external pedal 11 is released whereupon the retaining mechanism acts again securing said platform 9 at the selected height. Figure 6 shows the platform 9 situated at the height of a display rack compartment where a mattress 12 is located which has been selected for checking and testing by a potential buyer. With the platform 9 positioned at said height, slight manual traction is exerted on the mattress, sufficient to extract it from its corresponding compartment and to position it on top of said platform, as shown in Figure 7. Next, it is sufficient to actuate the pedal 11 again and to exert a slight force on the mattress in order to lower the lift table platform 9 to a height corresponding to the normal height of use of a mattress, thereby leaving the mat-

tress 12 within the user's reach. In said position, the legs 8 supported against the surface of the ground support without any problem the weight of the user who is carrying out the test.

[0020] Once the required checks and tests have been made, it is sufficient to carry out the same operating sequence in reverse order, in other words, to actuate the pedal 11, lift the lift table platform 9 until the mattress is facing its housing, release the pedal 11 and push said mattress 12 inside its respective compartment, to act again on the pedal 11 and perform an action of pushing downwards, and finally to release the pedal 11 again and push the lift table assembly into the space designed to receive and store said lift table until it needs to be used once more. In this way, through use of the described lift table it is possible to show a user all of the mattresses contained in a display rack in succession, without occupying barely any additional space than that allocated for the display rack.

[0021] It is not considered necessary to expand on the content of this description for a person skilled in the art to be able to understand the scope and associated benefits of the invention, and to carry out a practical embodiment thereof.

[0022] Notwithstanding the foregoing, and given that the description made corresponds solely to a preferred example of embodiment of the invention, it will be understood that while retaining its essence, many variations in detail may be introduced, likewise protected, that may affect the shape, size or materials for manufacturing the assembly or its parts, without this in any way representing a modification of the invention as a whole, which is delimited solely by the claims provided hereafter.

Claims

1. Mattress display rack with lift table, in particular a display rack (1) designed and conceived to contain inside a predetermined number of mattresses each one located in a respective compartment, said display rack including a lift table that can be positioned at different heights in relation to each one of the display rack's compartments for extraction of each respective mattress (12) for checking and testing on the part of a potential user, **characterised in that** the aforesaid display rack consists of a metal tubular construction obtained on the basis of four vertical posts (2) which occupy positions corresponding to the corners of the display rack and in relation to which two frames to make the structure rigid have been contemplated, one lower and one upper, obtained on the basis of respective pairs of front and back longitudinal bars (3; 3') and respective pairs of transverse bars (4; 4') which respectively close the lower and upper frames on both sides, the structure also having several front and back longitudinal bars positioned at successive heights with equidistant positions between both pairs of front and back longitudinal bars (3; 3'), and having several transverse bars (5) running between each one of the front and back longitudinal bars located at the same height, the lower frame being situated at a height above the surface of the ground or other supporting surface in such a way that it allows housing, in the resting position (folded condition) of a lift table structured on the basis of a lower metal frame (6), which can be extracted through the front part of the display rack, and provided with an upper platform (9) which can be positioned at predefined heights facing each one of the compartments of the display rack occupied by the different mattresses (12) by means of a lifting mechanism which can be released in respect of a retaining mechanism through actuation on an external front pedal (11) capable of being maintained in a position previously selected by means of the aforesaid retaining mechanism.

2. Mattress display rack according to claim 1, **characterised in that** the lifting mechanism of the upper platform (9) consists of a scissor mechanism obtained on the basis of respective pairs of arms (14; 14') articulated in an intermediate position (30), wherein a first pair of arms (14) of the scissor mechanism are articulated by their lower end to a transverse bar of a first end of the lower frame (6), and wherein the second pair of arms (14') of the scissor mechanism are articulated by their lower end to a horizontal transverse bar (16) which has its ends inserted in a moveable manner inside guides (13) solid with the longitudinal bars of the aforesaid lower frame (6) with the inclusion of a roller (23) at each of its ends.

3. Mattress display rack according to claim 2, **characterised in that** each of the aforesaid guides (13) includes inside stopper elements that limit the movement of each roller (23) in the respective guide, among which at least one stopper element (22) is adjustable.

4. Mattress display rack according to claims 1 and 2, **characterised in that** the lift table includes elastic recovery elements, such as springs (20) which work through traction, running longitudinally between the aforesaid transverse bar of the first end of the lower metal frame (6) and respective ferrules (17) coupled to the aforesaid horizontal transverse bar(16).

5. Mattress display rack according to one or more of claims 1 to 4, **characterised in that** the retaining mechanism of the selected position of the lift table comprises a first tubular element (19) running in coincidence with the central longitudinal axis of the lower frame (6), which at one end is connected in an articulated manner to the transverse bar of the first

end of the aforesaid lower frame (6) and at the other end telescopically receives a second tubular element (18) which is in turn connected by the opposite end to the aforesaid horizontal transverse bar (16), and **in that** the aforesaid retaining mechanism includes a lever (24) articulated in an intermediate position to an arm (26) that is solid with the first tubular element (19), solicited by the action of a spring (27) and extended by means of a portion of bar (28) likewise solicited by the action of a spring (29) for application against the aforesaid second tubular element (18), the lever (24) being capable of pivoting against the action of said spring (27) by virtue of the action exerted on the aforesaid external pedal (11) and transmitted by means of a rod (21).

6. Mattress display rack according to one or more of claims 1 to 5, **characterised in that** the lower frame (6) of the lift table includes fixed wheels (7) for movement projecting outwards from both the front and back longitudinal edges of the lower metal frame (6), and a handle (10) associated to the front longitudinal bar of said lower metal frame (6).

7. Mattress display rack according to one or more of claims 1 to 6, **characterised in that** the transverse bars (5) running between the pairs of longitudinal bars of the metal structure of the display rack (1) opposite each other in height have a cylindrical configuration, with a circular section.

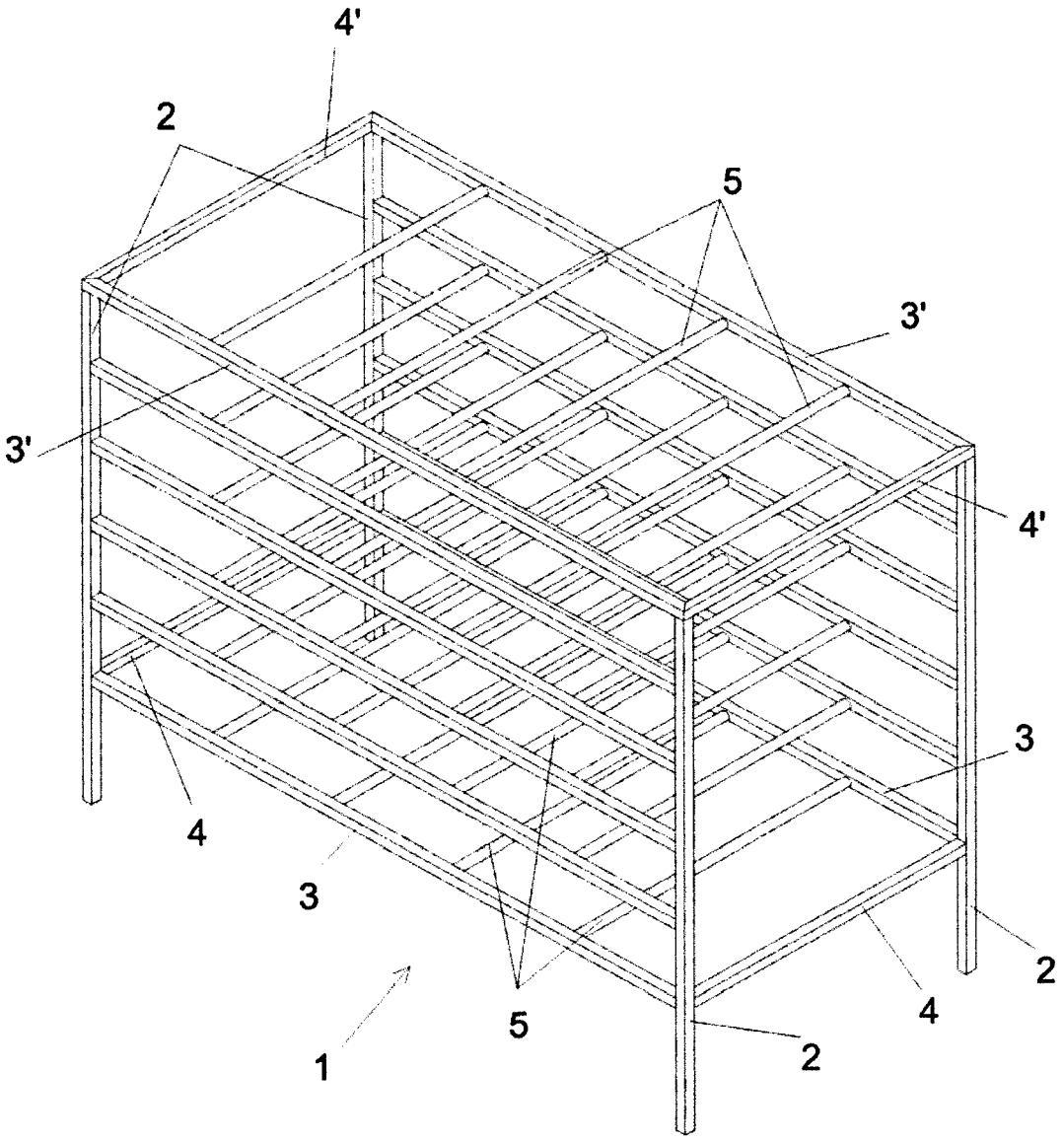


FIG. 1

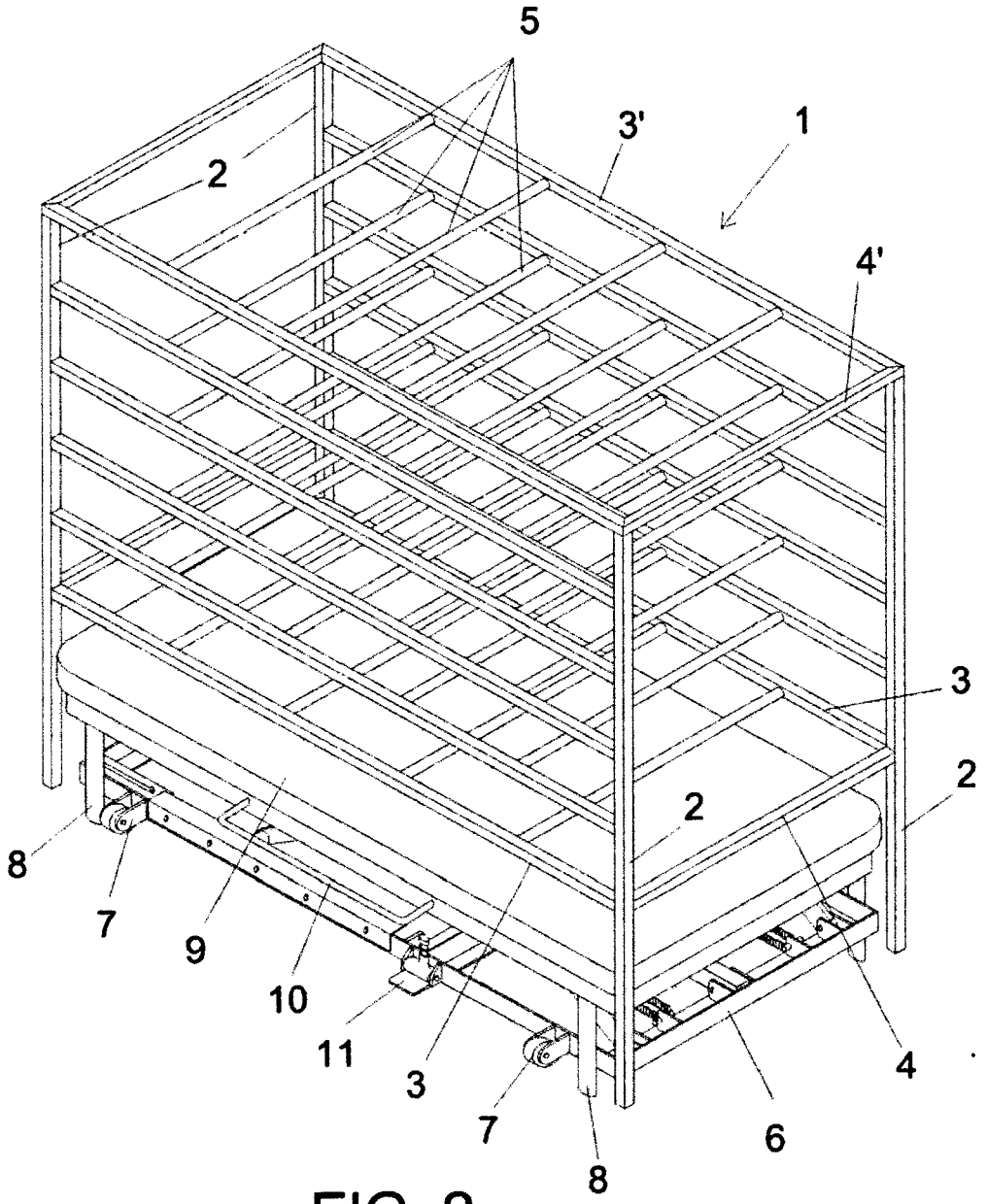


FIG. 2

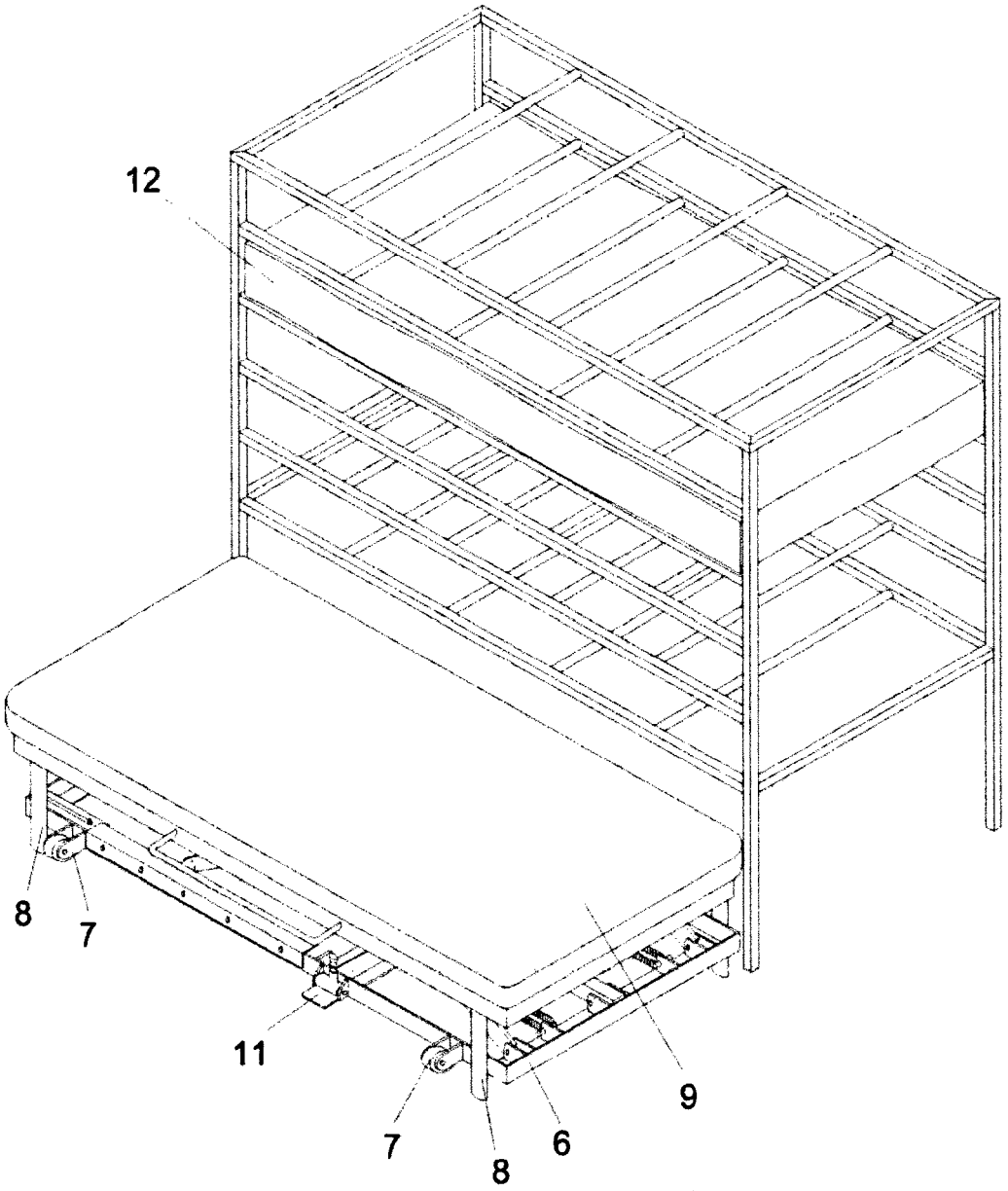


FIG. 3

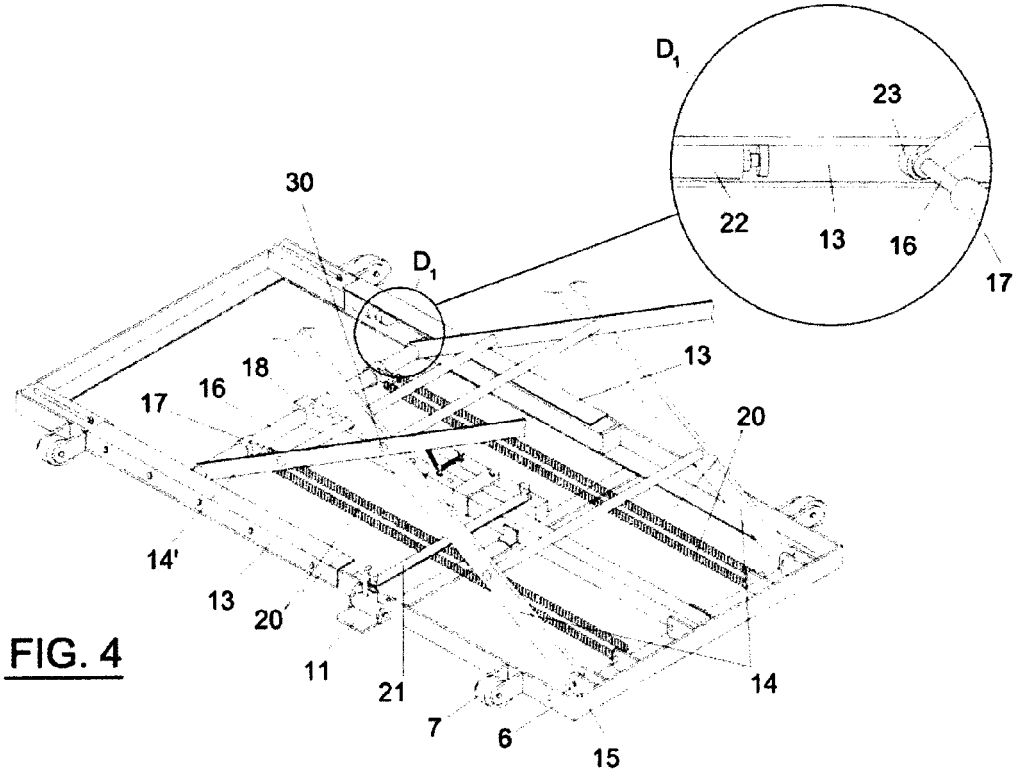


FIG. 4

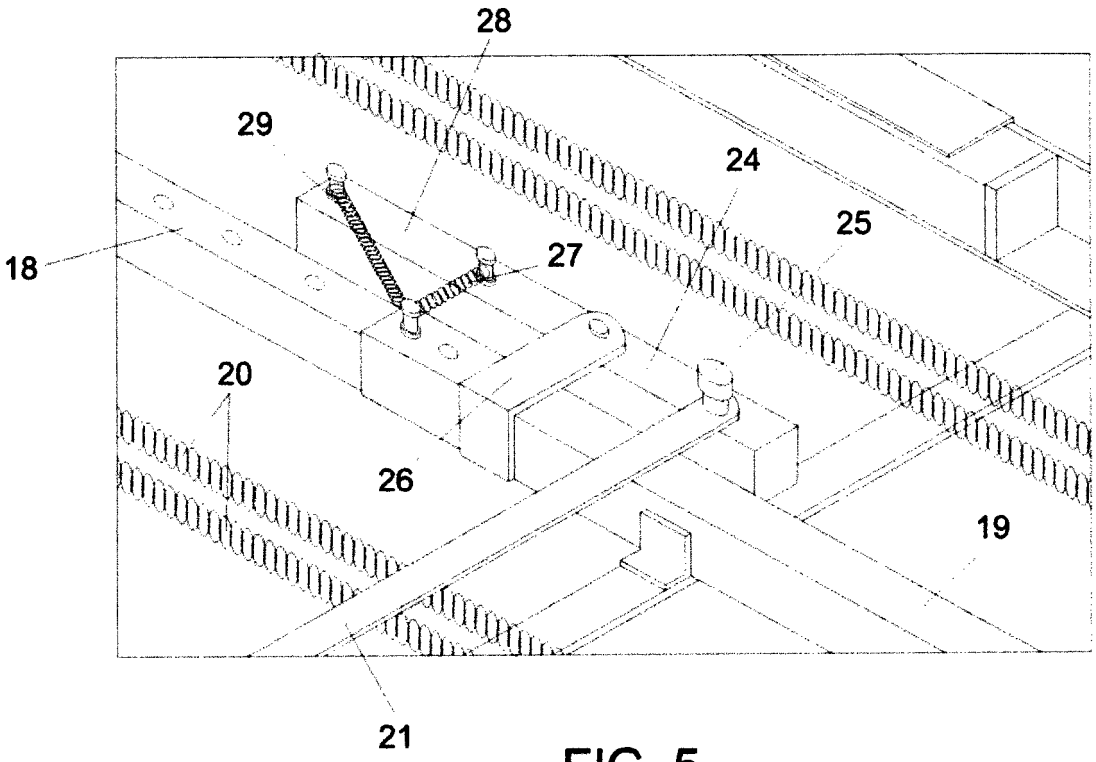


FIG. 5

FIG. 6

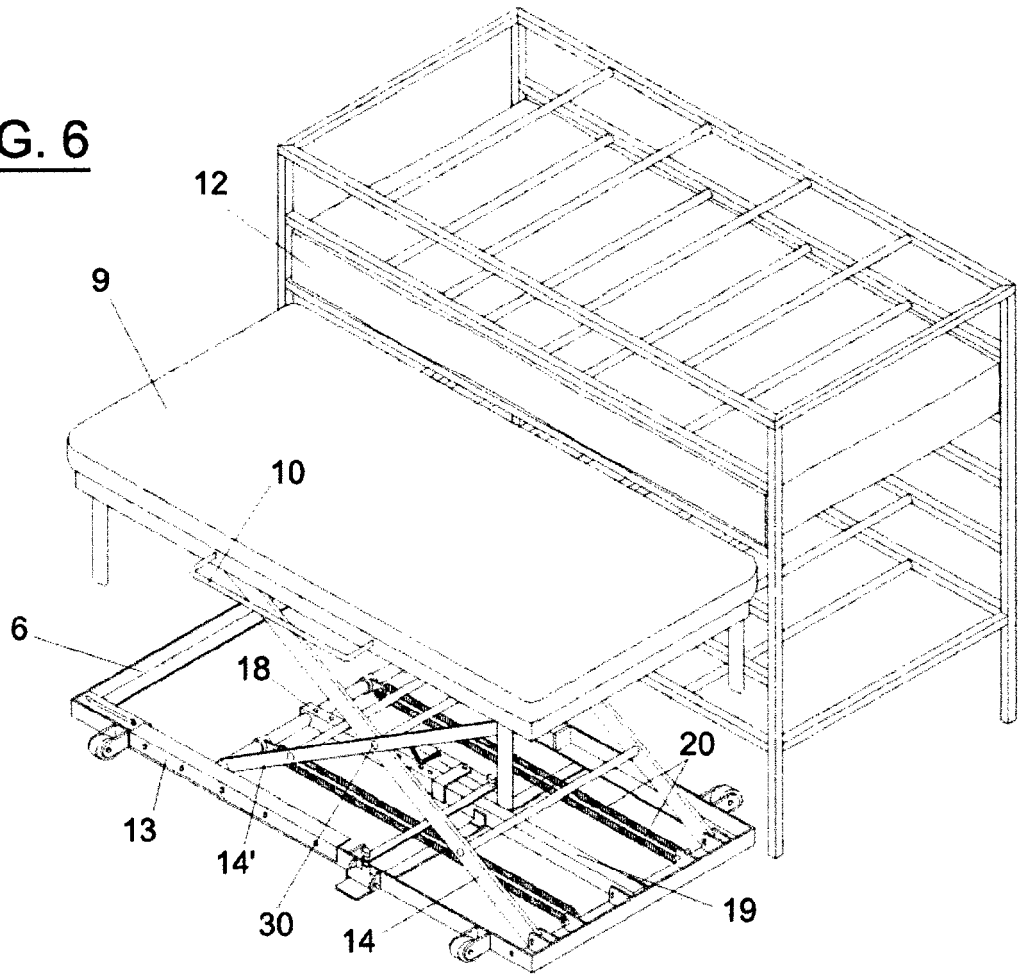


FIG. 7

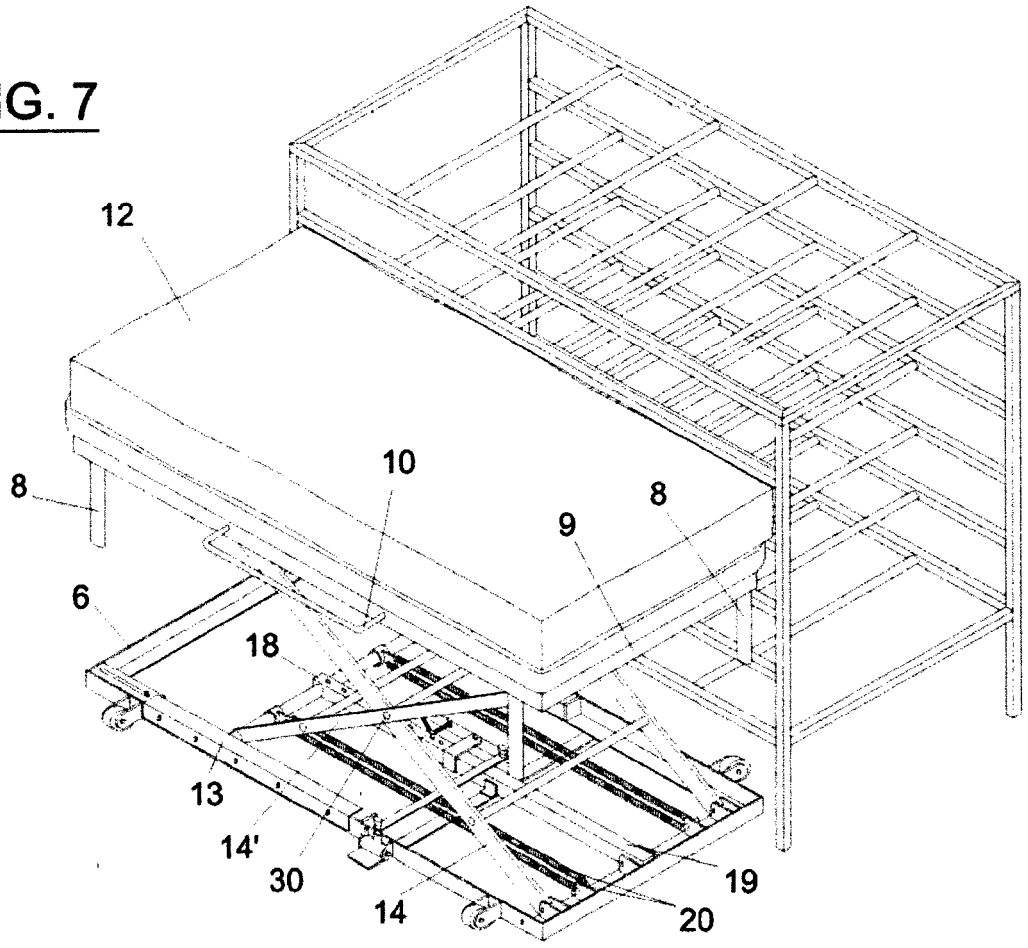
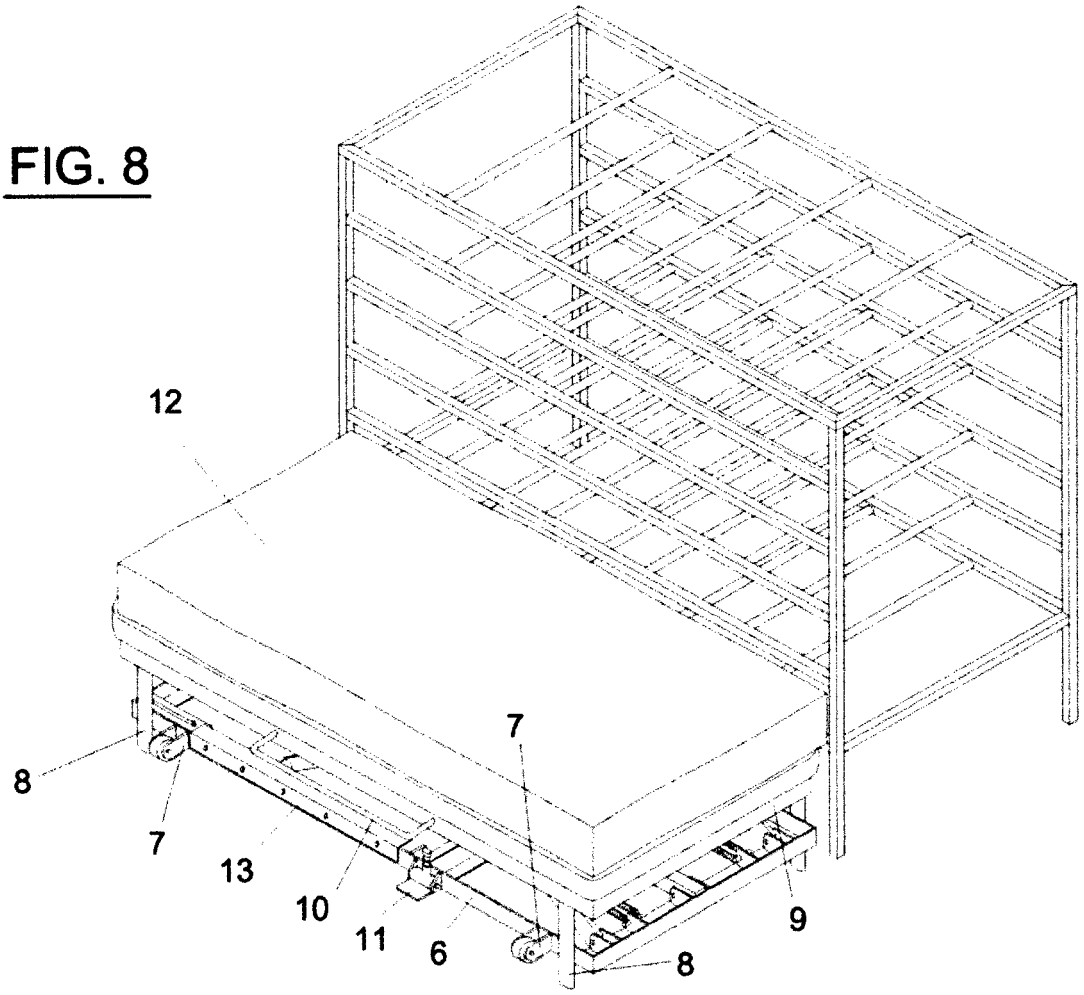


FIG. 8



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EUROPEAN SEARCH REPORT

Application Number
EP 13 00 1170

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	JP 2006 068203 A (NISHIKAWA BED SEIZO KK) 16 March 2006 (2006-03-16) * figures * -----	1-7	INV. A47F7/30 ADD. A47B9/16
A	US 909 336 A (RIEDY JOSEPH F [US]) 12 January 1909 (1909-01-12) * the whole document * -----	1-7	
A	FR 2 637 165 A1 (SAMKO SARL [FR]) 6 April 1990 (1990-04-06) * page 3, line 76 - line 98; figures 9-17 * -----	1-7	

TECHNICAL FIELDS SEARCHED (IPC)

A47F
A47C
A47B

The present search report has been drawn up for all claims

Place of search	Date of completion of the search	Examiner
The Hague	18 June 2013	van Hoogstraten, S

CATEGORY OF CITED DOCUMENTS

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1

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18-06-2013

Patent document cited in search report	Publication date	Patent family member(s)	Publication date
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US 909336 A	12-01-1909	NONE	
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