



Europäisches Patentamt
European Patent Office
Office européen des brevets



(11) Publication number:

0 431 851 A1

(12)

EUROPEAN PATENT APPLICATION

(21) Application number: **90313040.9**

(51) Int. Cl.⁵: **A47C 17/50**

(22) Date of filing: **30.11.90**

(30) Priority: **07.12.89 FI 895850**

SF-56100 Ruokolahti(FI)

(43) Date of publication of application:
12.06.91 Bulletin 91/24

(72) Inventor: **Nevalainen, Jorma**
c/o Puukaleva Oy
SF-56100 Ruokolahti(FI)

(84) Designated Contracting States:
DE FR GB SE

(71) Applicant: **PUUKALEVA OY**

(74) Representative: **Newstead, Michael John et al**
Page & Co. Temple Gate House Temple Gate
Bristol BS1 6PL(GB)

(54) **Bunk bed.**

(57) The invention relates to a bunk bed comprising at least two bunks (1,2) placed on top of each other and a suitable supporting structure (3) to keep the bunks steady relative to each other and to the floor. According to the invention, the bunks are connected at one end via turnable joints to a vertical wall structure (4) and at the other end by means of

supporting legs (5) hinged on the bunks in such manner that the bunk bed can be raised and lowered on its joints (6,7, 8,9) between a flat vertical position against the wall structure and a lower horizontal position allowing the use of the bunk bed as such.

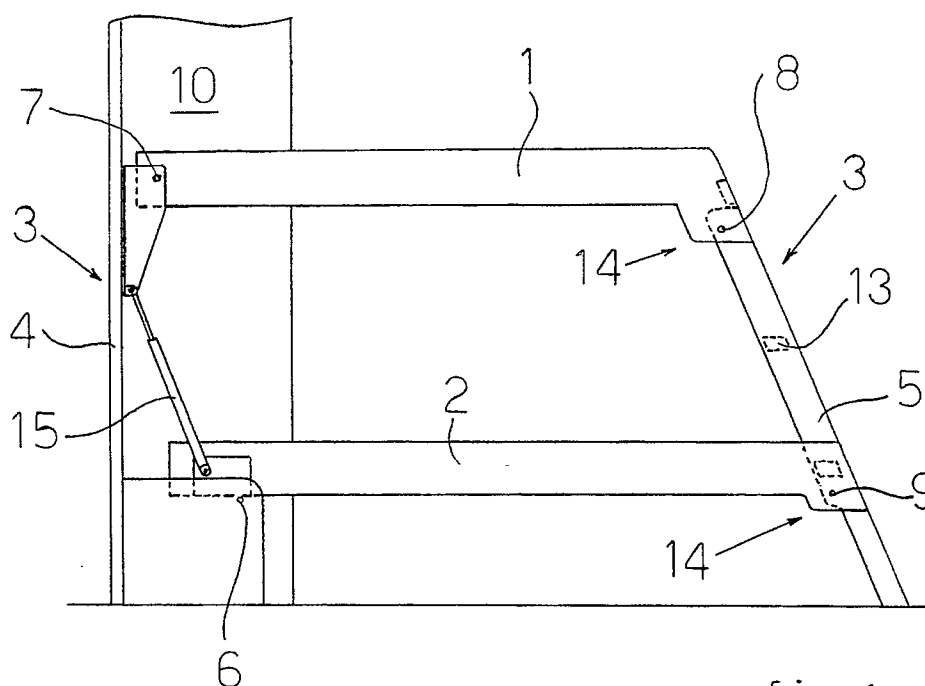


fig. 1

EP 0 431 851 A1

BUNK BED

The present invention relates to a bunk bed as defined in the introductory part of claim 1.

Especially in children's daycare homes and equivalent, there is a great need for simple, safe and easy-to-use beds that occupy as little space as possible and can be quickly taken into use and put out of use as necessary.

The object of the present invention is to satisfy the needs referred to, which is achieved by the features characteristic of the invention as presented in the claims.

The bunk bed of the invention comprises at least two bunks placed on top of each other and a suitable supporting structure to keep the bunks steady relative to each other and to the floor. According to the invention, the bunks are connected at one end via turnable joints placed at a vertical distance from each other to a vertical wall structure. At the other end the bunks are connected to each other by means of supporting legs hinged on the bunks in such manner that the bunk bed can be raised and lowered on these four joints between a flat vertical position against the wall structure and a lower horizontal position allowing the use of the bunk bed as such.

The wall structure preferably consists of the rear wall of a closet, in which the bunk bed in its raised position can be placed and closed up and, by opening the door, it can be lowered into the horizontal bed position.

The bunks of the bunk bed preferably consist of a rigid bottom plate, e.g. veneer, and sides at least partially surrounding the bottom plate and essentially having some height, extending at least through the length of the longer edges of the bunks.

The supporting legs provided at one end of the bunk bed preferably constitute a ladder having an upward slope and provided with steps allowing a person to climb up onto the upper bunk.

The bunks and the joints supporting them in the wall structure are preferably placed at a distance from each other both in the vertical and horizontal directions in such manner that the joint supporting the upper bunk lies closer to the wall structure than the joint supporting the lower bunk, the horizontal distance between these joints depending on the height of the sides of the bunks.

The joints at the other end of the bunk bed, i.e. the joints connecting the supporting legs and the bunks are preferably placed on extensions of the sides, said extensions extending obliquely downwards in the direction of the supporting legs, so that these joints are located below the horizontal planes determined by the bottom surfaces of the

corresponding bunks.

The joint connecting the lower bunk to the wall structure is preferably located at the level of the bottom surface of the lower bunk, so that when the bunk bed is being turned to the upright position, the whole bunk structure will turn over and past this joint, which thus constitutes the extreme limit of the closing motion of the door of the closet.

The joint connecting the lower bunk to the wall structure is preferably located at a distance from the bunk end facing the wall structure, so that this end of the bunk constitutes a lever, to which a suitable weight reducing means is attached, the other end of said means being connected to the wall structure. In this way, the raising and lowering of the bunk bed are rendered light and easy.

As compared to previously known techniques, the bunk bed of the invention has the advantages that it is simple in construction and reliable in operation, easy to raise and lower and that it is accommodated in a compact closet, permitting versatile use of many narrow spaces as well as quick changes of use.

In the following, the invention is described in detail by referring to the attached drawing, in which fig. 1 presents a side view of a bunk bed constructed as provided by the invention, partly sectioned, and fig. 2 presents a perspective view of the bunk bed of fig. 1.

The illustrated embodiment of the bunk bed of the invention comprises an upper bunk 1, a lower bunk 2 and a supporting structure 3 connecting the two bunks. At one end of the bed, the supporting structure consists of a wall structure 4 which also constitutes the rear wall of a closet 10, supporting both bunks with turnable joints 6, 7.

At the other end of the bed, the supporting structure 3 consists of supporting legs 5 sloping upwards towards the closet 10 and connected by steps 13 so that the supporting legs and the steps form a ladder allowing a person to climb up onto the upper bunk 1.

Both bunks 1, 2 are provided with sides 12 extending through their whole length, of a height preferably exceeding 10 cm. At the end connected to the supporting legs 5, the sides have a bend and a downward sloping extension 14 parallel to the supporting legs 5, so that the joints 8 and 9 connecting the bunks 1, 2 with the supporting legs 5 can be placed in the area of these extensions below the horizontal bottom surfaces of the corresponding bunks. Similarly, the joints 6 and 7 at the other ends of the bunks are placed at a horizontal distance from each other, said distance in the present embodiment equalling about 1.5 times

the height of the sides 12. Moreover, the joint 6 of the lower bunk 2 is located at a distance from the bunk end facing the closet 10 and at the level of the bottom surface of the bunk 2. The result of this arrangement of the joints is an advantageous linkage of the parts, allowing the bunk bed to be easily folded up in a compact space in the closet 10 and also to be held in its upright position in the closet by the weight reducing means, a compression spring 15, without separate locking devices, so that the bunk bed cannot be turned down e.g. by small children pulling at it from its lower part. This is because, in order to pull out the bed, it must be gripped at as high a position as possible to overcome the counter force of the compression spring, which is impossible if the bed is gripped at a low position, especially because there are e.g. no steps 13 or similar parts providing an easy handgrip at the lower part of the bunk bed when it is in the closet. Moreover, as substantially the whole bed is made of sturdy veneer, it is firm and rigid in construction and pleasant and light to use.

Although the invention has been described above by referring to one of its preferred structural solutions, various embodiments are possible within the scope of the idea of the invention as defined in the following claims.

Claims

1. Bunk bed comprising at least two bunks (1,2) placed on top of each other and a suitable supporting structure (3) to keep the bunks steady relative to each other and to the floor, **characterized** in that the bunks (1,2) are connected at one end via turnable joints to a vertical wall structure (4) and at the other end by means of supporting legs (5) hinged on the bunks in such manner that the bunk bed can be raised and lowered on its joints (6,7,8,9) between a flat vertical position against the wall structure and a lower horizontal position allowing the use of the bunk bed as such.
2. Bunk bed according to claim 1, **characterized** in that the wall structure (4) consists of the rear wall of a closet (10) in which the bunk bed can be folded up in its raised position.
3. Bunk bed according to claim 1 or 2, **characterized** in that the bunks (1,2) consist of a rigid bottom plate (11) and sides (12) at least partially surrounding the bottom plate and extending upwards from it.
4. Bunk bed according to any one of claims 1-3, **characterized** in that the supporting legs (5)

constitute a ladder sloping upwards towards the supporting structure (3) and provided with steps (13).

5. Bunk bed according to any one of claims 1-4, **characterized** in that the joints (6) and (7) supporting the bunks (1,2) in the wall structure (4) are placed at a distance from each other both in the vertical and horizontal directions, the horizontal distance essentially depending on the height of the sides (12) of the bunks (1,2).
6. Bunk bed according to any one of claims 1-5, **characterized** in that the joints (8,9) connecting the supporting legs (5) and the bunks (1,2) are placed on downward extensions (14) of the sides (12) below the horizontal planes determined by the bottom surfaces of the corresponding bunks.
7. Bunk bed according to any one of claims 1-6, **characterized** in that the joint (6) connecting the lower bunk (2) to the wall structure (4) is located at essentially the level of the bottom surface of the lower bunk.
8. Bunk bed according to any one of claims 1-7, **characterized** in that it is provided with a weight reducing means (15), e.g. a compression spring, connected via a turnable joint to the lower bunk at a position towards the wall structure from joint (6), the other end of said means being connected at a distance to the wall structure.

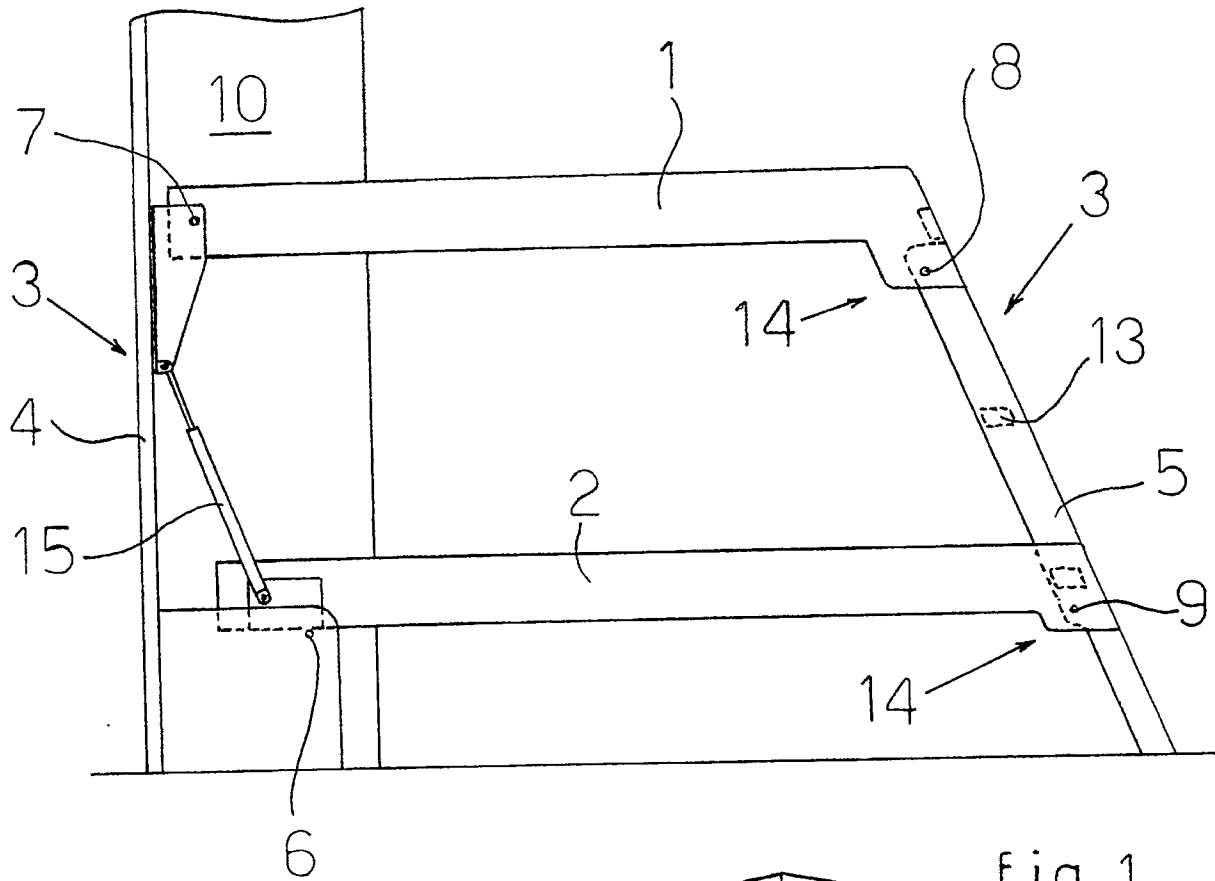


fig. 1

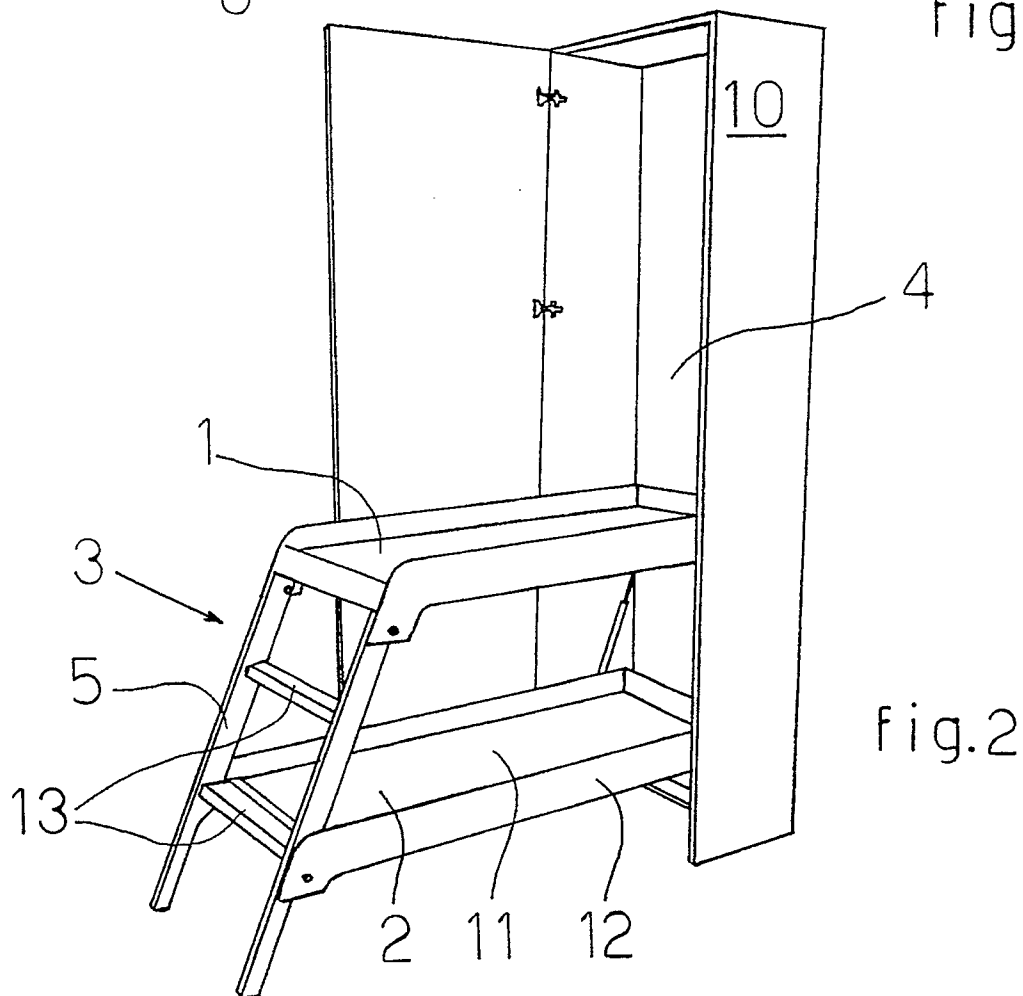


fig. 2



European
Patent Office

EUROPEAN SEARCH REPORT

Application Number

EP 90 31 3040

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.5)
Y	DE-C-7 222 68 (METALLFABRIK NORIS) * Whole document * - - -	1-8	A 47 C 17/50
Y	DE-C-3 301 220 (SALSAMENDI) * Figures 8,9; page 11, line 7 - page 13, line 19 * - - -	1-8	
A	FR-A-2 647 323 (PINAUD) * Figure 1 * - - - - -	1-3,5-8	
			TECHNICAL FIELDS SEARCHED (Int. Cl.5)
			A 47 C
The present search report has been drawn up for all claims			
Place of search The Hague		Date of completion of search 26 February 91	Examiner MYSLIWETZ W.P.
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			