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(54) **Extendable bed structure**

(57) The present invention relates to an extendable bed structure, which is applicable to beds formed by a fixed lower frame and another fixed or moving and hinged upper frame on which mattress support slats are arranged, and comprising in at least one of the ends of the bed (1), cross-members (5, 6) with telescopic arms (5',

6') running on tubular longitudinal beams (2, 2'), respectively, of the upper and lower frames, such that the extension of such cross-members increases the effective length of the bed (1). The structure also has release and fixing means for the cross-members (5, 6), and arms (14) for supporting at least one auxiliary slat (8).

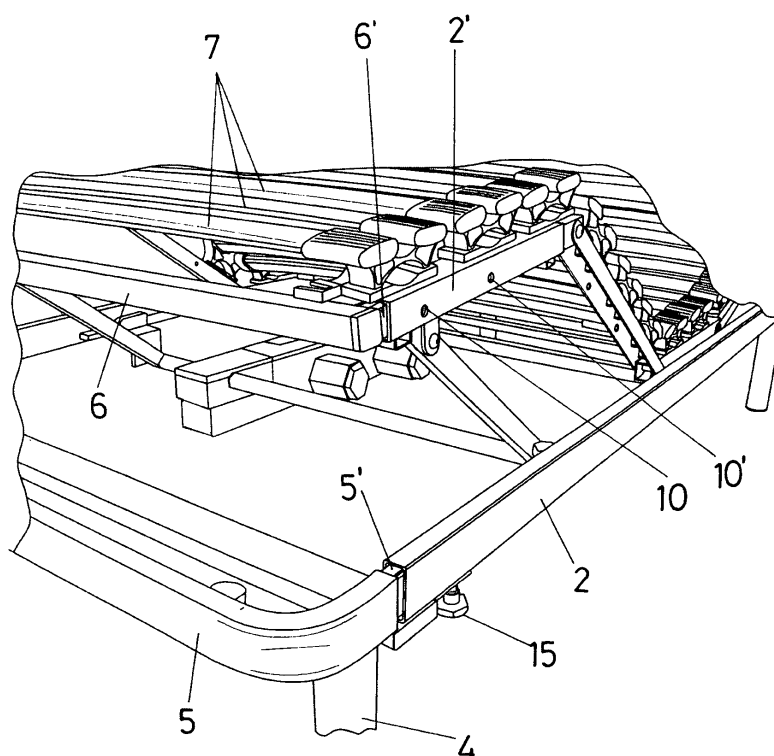


FIG. 3

Description

FIELD OF THE INVENTION

[0001] The present invention relates to a longitudinally extendable bed structure which allows easily adapting the length of a bed to the standard sizes of mattresses existing on the market.

[0002] The invention is comprised within the technical industrial field of furniture used for resting, and especially in the field of beds with a fixed or moving and hinged bed base.

BACKGROUND OF THE INVENTION

[0003] For stores which sell bed structures, both fixed beds and moving and hinged beds, valid for each of the standard market lengths such as measurements of 180, 190 and 200 centimeters, to the public or even to warehouses, having to store said structures in their facilities often times represents a very important logistic problem.

[0004] Finding solutions that allow extending some of the dimensions of the structure of the bed, particularly its length, therefore preventing the mentioned storage and logistic problem as much as possible, as well as the intrinsic problem of transport taking into account this type of product, is highly relevant.

[0005] Generally the solution to this type of problem has always been through excessively complex mechanisms, mainly hinged or folding mechanisms which, beyond any doubt, make the final product more expensive and even make it uncomfortable to use.

DESCRIPTION OF THE INVENTION

[0006] The structure of the invention perfectly solves the problem laid out by means of a solution that is as simple as it is effective and functional.

[0007] The solution is based on the classic arrangement of a lower fixed frame and other upper moving or hinged frame as the basis of support for the corresponding mattress, both being formed by a pair of longitudinal beams and end cross-members, which are usually tubular, and the fixed lower frame having the corresponding support legs and the upper moving and hinged frame having the corresponding slats arranged parallel and transversely. This solution is also applicable in beds with two fixed frames, i.e. the upper frame not being provided with the ability to move or the ability to be hinged.

[0008] Therefore, the solution is based on incorporating at least one of the ends of the longitudinal beams of each frame, of a U-shaped cross-member having telescopic free ends that are introduced inside the mentioned tubular longitudinal beams, for which purpose the corresponding release and fixing means of said telescopic sections have been provided in the structure of the fixed frame or in the cross-member itself.

[0009] The upper frame in turn has respective flat bars

arranged in the corners of the telescopic cross-members intended to support the supports for an additional slat the purpose of which is to fill in the space formed after extending the upper frame.

BRIEF DESCRIPTION OF THE DRAWINGS

[0010] To complement the description being made and for the purpose of better understanding the features of the invention according to a preferred practical embodiment thereof, a set of drawings is attached as an integral part of said description in which the following has been shown with an illustrative and non-limiting character:

Figure 1 shows a perspective view of a bed with a fixed lower frame and an upper moving and hinged frame carried out according to the object of the present invention.

Figure 2 shows a perspective view of the bed of the previous figure with the upper frame in a hinged assembly.

Figure 3 shows a detail view of the end area of the bed structure where the two telescopic elements can be seen in the retracted position.

Figure 4 shows a detail view similar to that of Figure 3 with the cross-member of the upper frame moved to the first extension position.

Figure 5 shows the same detail view as Figure 4 with the auxiliary slat in its final location.

Figure 6 shows a detail view of the cross-members of the upper and lower frame, moved to the second extension position.

Figure 7 shows a detail view of the guide provided in each of the telescopic arms of the cross-member of the upper frame.

Figure 8 shows a general view of the telescopic cross-member of the upper frame out of its usual working position as well as a general view of the auxiliary slat.

DESCRIPTION OF A PREFERRED EMBODIMENT OF THE INVENTION

[0011] In view of the indicated figures, especially Figures 1 and 2, it can be observed how the proposed structure is based on the classic bed structure (1) formed by a lower fixed frame in turn formed by longitudinal beams (2) and cross-members (3) from which the corresponding support legs (4) originate, and a moving and hinged upper frame in this preferred embodiment on which the also classic mattress support slats (7) are supported.

[0012] Based on said classic structure, both frames comprise on at least one of their ends respective U-shaped cross-members (5) and (6) with telescopic arms (5') and (6') which, running on the corresponding tubular longitudinal beams (2) and (2') of the upper and lower frames respectively, enable such cross-members (5) and (6) to slide and thus increase one of the dimensions of

the bed structure (1), in this case, the length thereof. The telescopic extension of the cross-member (5) of the lower frame allows extending its length so as to suitably locate the upper frame inside the inner perimeter of the lower frame, when the upper frame adopts its lowest position, i.e. both frames being coplanar (Figure 1).

[0013] To that end, the lower frame has the corresponding release and fixing means, carried out in this embodiment in a pair of studs (15) located close to the union between the longitudinal beam (2) and telescopic cross-member (5), the use of which fixes the arms (5') of the cross-member (5) in the desired position.

[0014] For their part, the longitudinal beams (2') of the upper frame and the telescopic arms (6') of the cross-member (6) have a series of openings (10, 10') for fixing both elements in one of the three working positions provided for by means of corresponding pins (11).

[0015] The cross-member (6) of the upper frame also has at its end area, and inwardly from and parallel to the telescopic arms (6'), respective arms (14) having a small length on which the supports (9) for at least one auxiliary slat (8) intended for covering the space formed in the upper frame after extending the cross-member (6) rest. Therefore, in the non-extended position of the telescopic cross-member (6), the supports (9) for the auxiliary slat (8) remain hidden under the slats (7) of the upper frame without disturbing in the normal operation and use of the bed (1).

[0016] On the other hand, each telescopic arm (6') of the cross-member (6) has a U-shaped section half-closed at their ends providing a guide (12) on which the lugs (13) for fixing the supports of the slats (7) of the upper frame of the bed (1) run when carrying out the extension of the mentioned telescopic cross-member (6).

[0017] Therefore, to extend the length of the base of a bed (1) carried out according to the object of the invention, for example to go from a default length of 180 cm to another length of 190 cm, it is sufficient to extend the cross-member (6) of the upper frame until the first opening (10) of the longitudinal beam (2') is opposite to opening (10') of the telescopic arm, lock the structure by means of a pin (11), and place the auxiliary slat (8) on the supports (9) provided in the arms (14).

[0018] Then the cross-member (5) of the lower frame will be extended until it is adjusted to the outer perimeter of the upper frame and fixed by means of the studs (15).

[0019] The operation to extend the bed to any length is exactly the same as that described to extend it from 180 to 190 cm, both for beds with a moving upper and hinged or a fixed and non-hinged frame.

prises on at least one of the ends of the bed (1) cross-members (5, 6) with telescopic arms (5', 6') running on tubular longitudinal beams (2, 2'), respectively, of the upper and lower frames, such that the extension of such cross-members increases the effective length of the bed (1), as well as release and fixing means for the cross-members (5, 6), and arms (14) for supporting at least one auxiliary slat (8).

2. Extendable bed structure according to claim 1, **characterized in that** the arms (14) are arranged in the end areas of the upper frame, and inwardly from, coplanar and parallel to the telescopic arms (6') of the cross-member (6) such that they are hidden under the slats (7) of the upper frame in the non-extended position.
3. Extendable bed structure according to the previous claims, **characterized in that** the arms (14) comprise supports (9) for fixing at least one auxiliary slat (8).
4. Extendable bed structure according to claim 1, **characterized in that** the release and fixing means for the cross-member (6) are carried out in pins (11) traversing a series of openings (10, 10') provided in the longitudinal beams (2') of the upper frame and the telescopic arms (6') once they are matched up in the desired position.
5. Extendable bed structure according to claim 1, **characterized in that** the release and fixing means for the cross-member (5) are carried out in a pair of studs (15) located close to the union between the longitudinal beam (2) and the mentioned telescopic cross-member (5).
6. Extendable bed structure according to claim 1, **characterized in that** the telescopic arms (6') of the cross-member (6) form a groove (12) on which the lugs (13) for fixing the supports of the slats (7) of the upper frame run.

Claims

1. Extendable bed structure applicable to beds formed by a fixed lower frame and another fixed or moving and hinged upper frame on which the classic mattress support slats run, **characterized in that** it com-

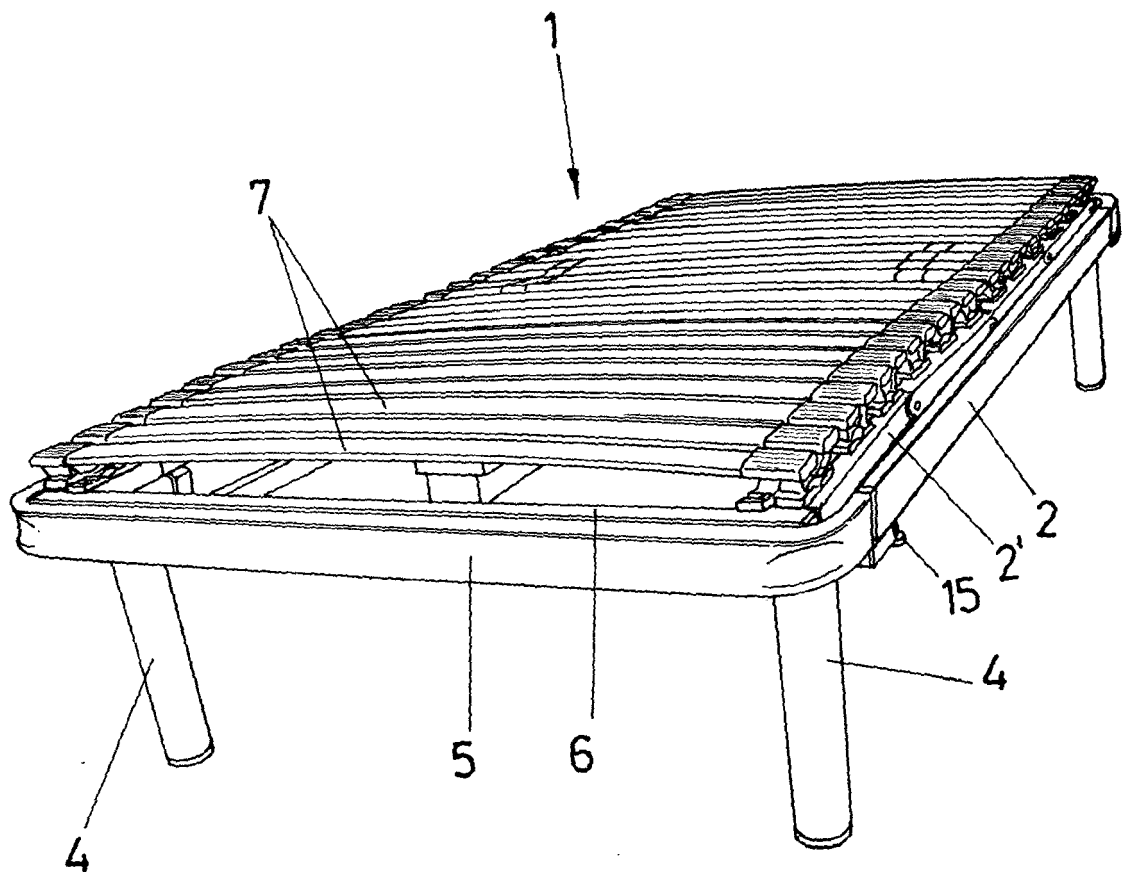


FIG.1

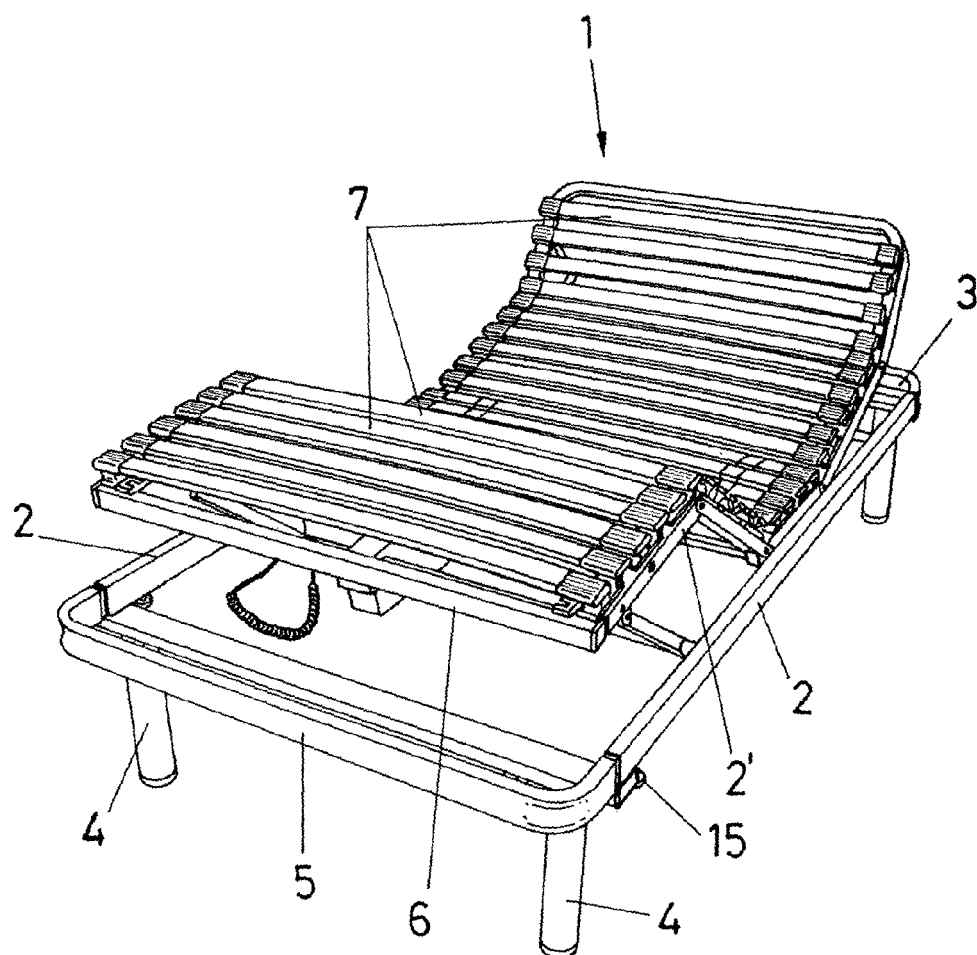


FIG.2

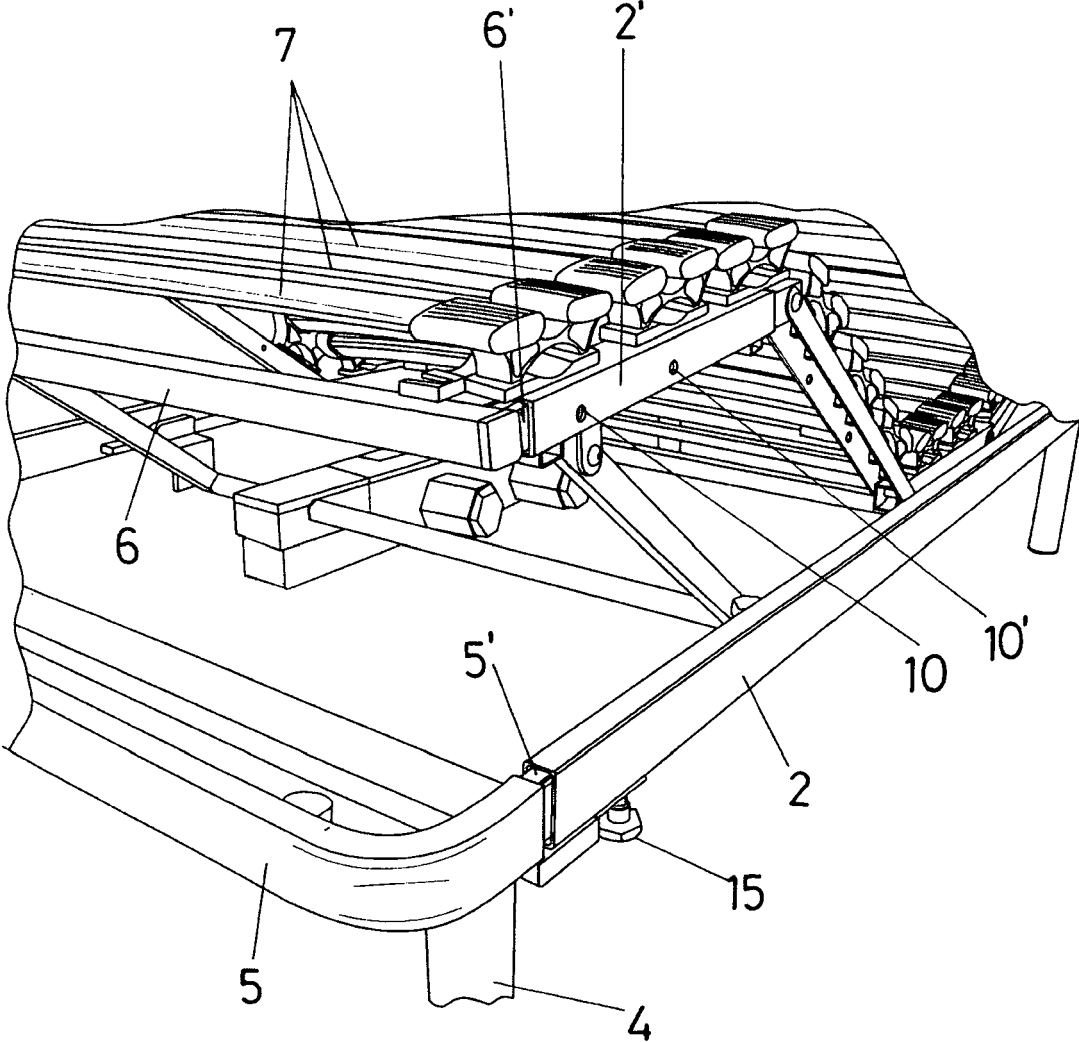


FIG.3

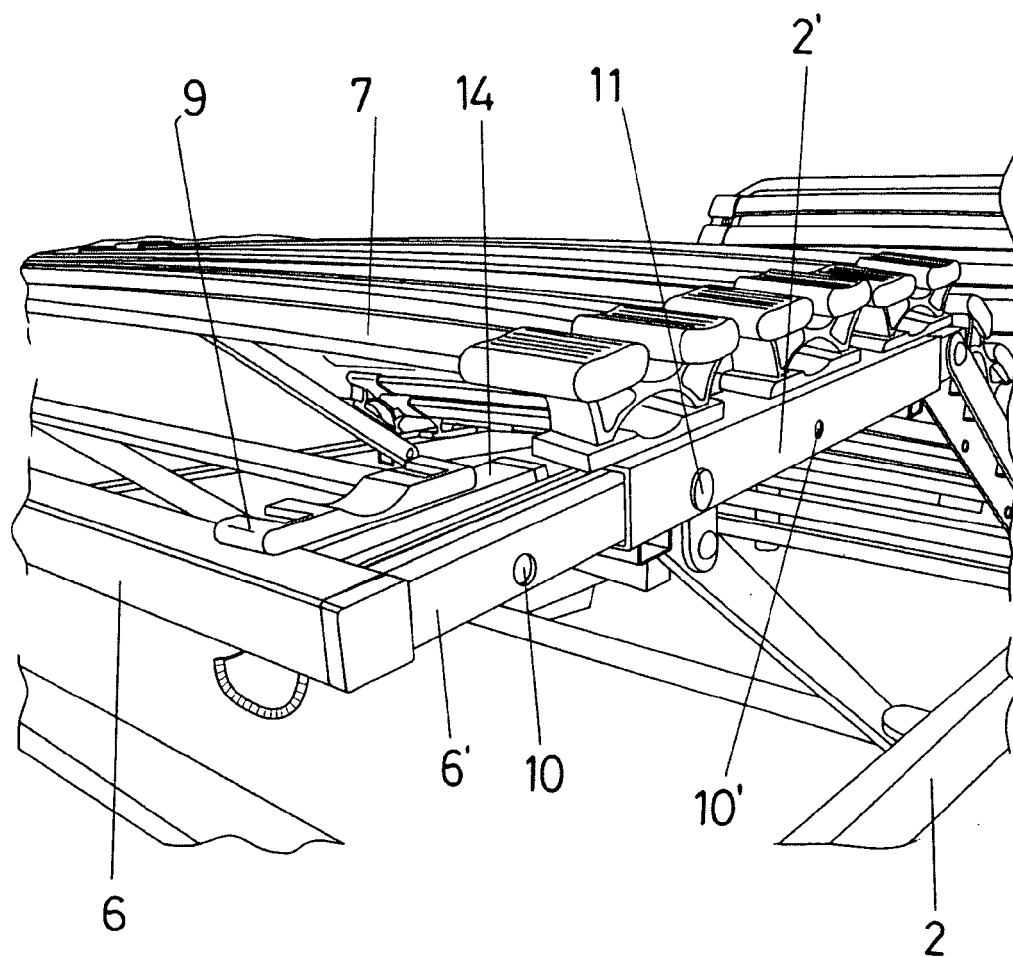


FIG.4

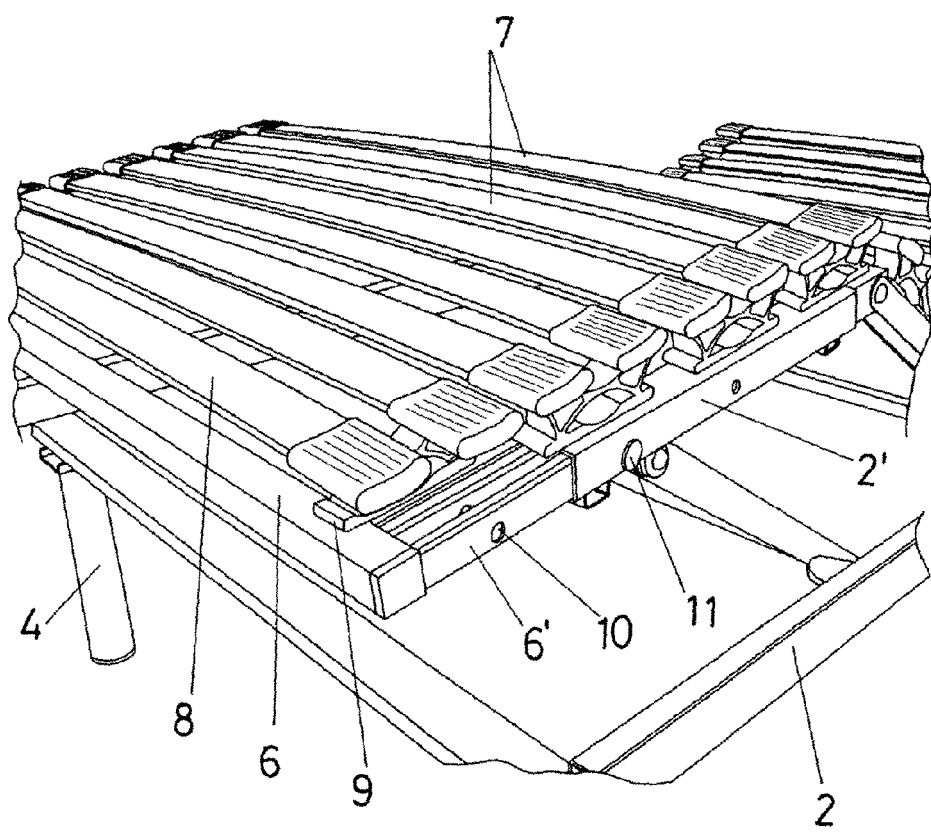


FIG.5

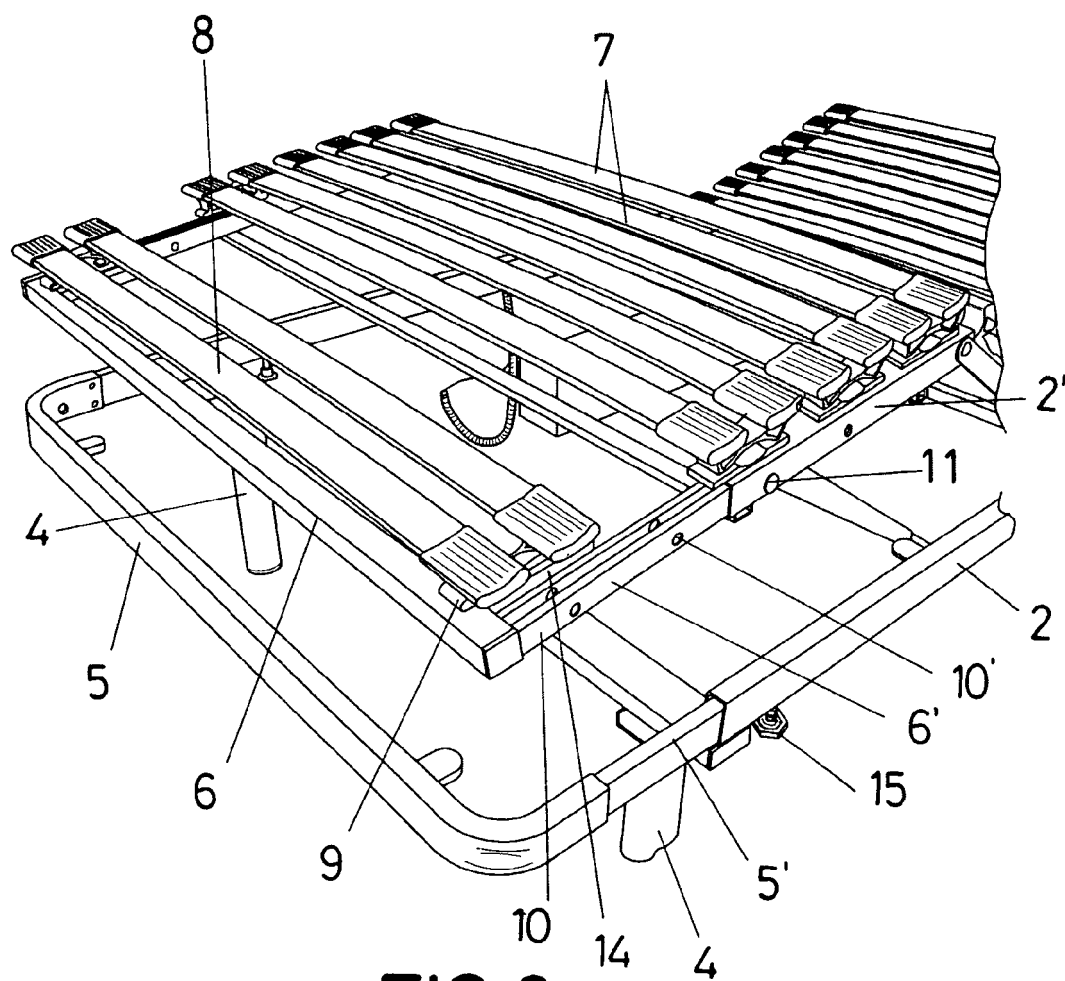


FIG. 6

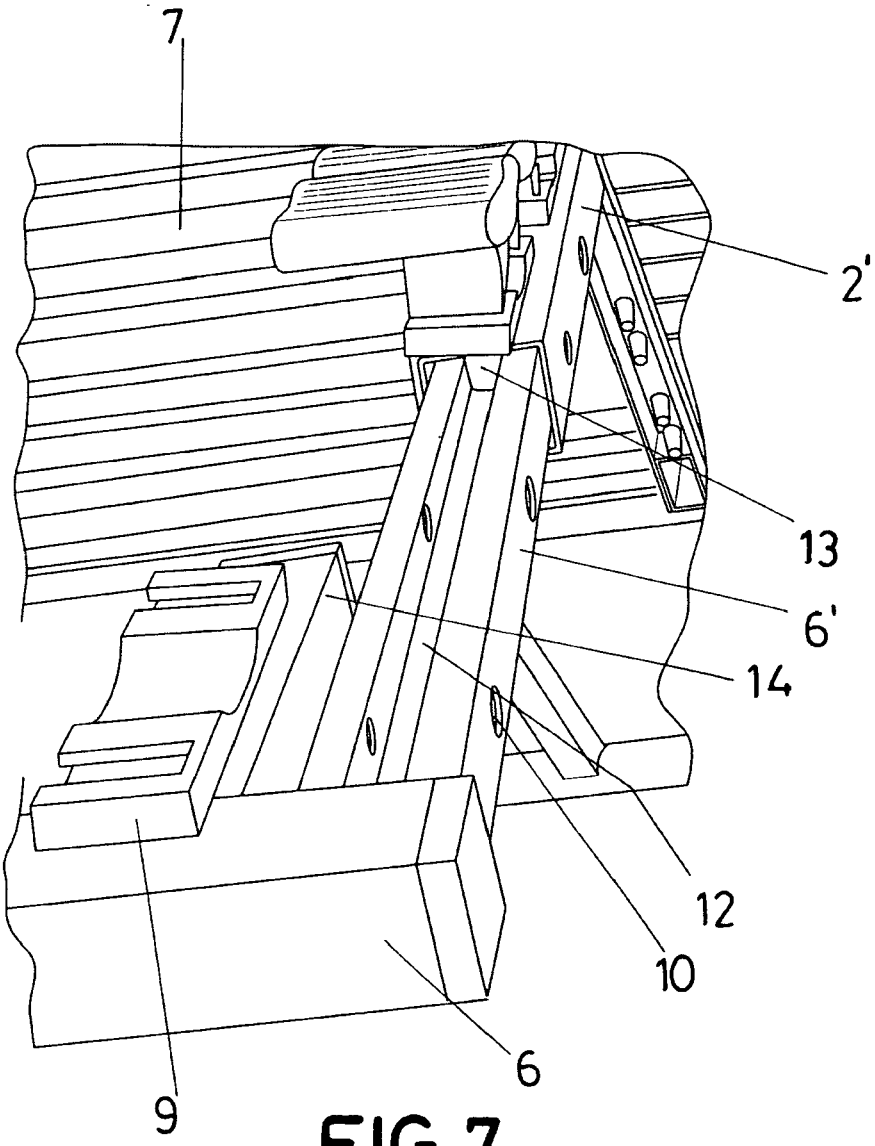


FIG.7

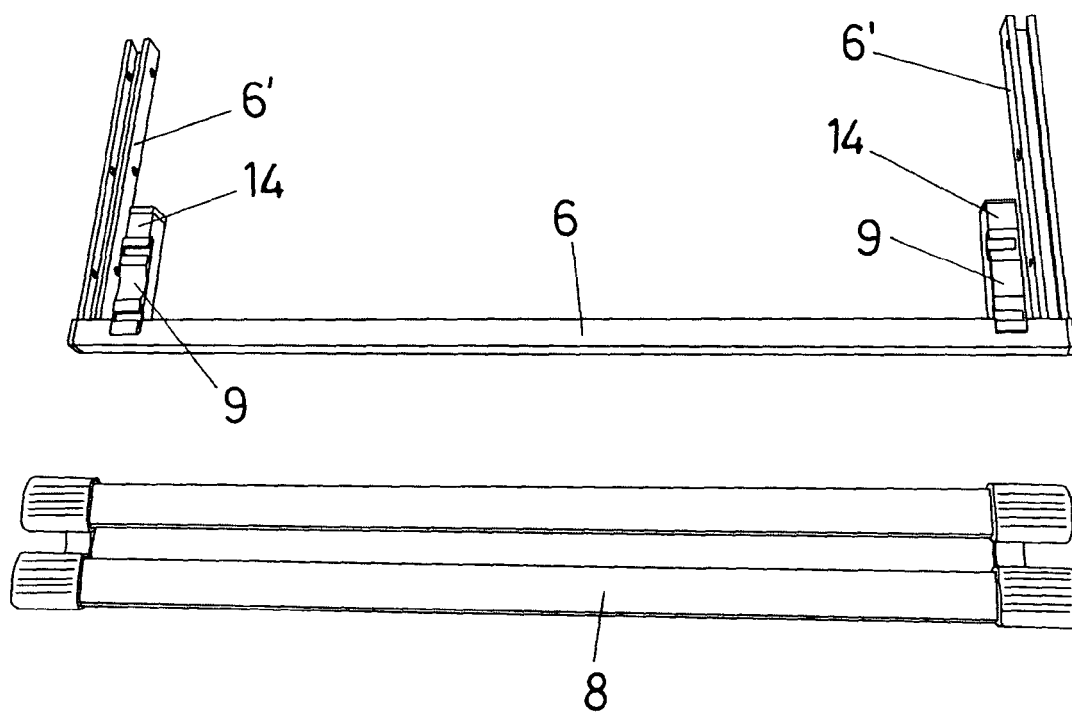


FIG.8



European Patent
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EUROPEAN SEARCH REPORT

Application Number
EP 06 12 2250

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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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Y	* figures *	3	
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X	----- DE 11 45 322 B (BRAUN) 14 March 1963 (1963-03-14) * claim 1; figures *	1,2	
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A	----- DE 815 392 C (GRUHN) 1 October 1951 (1951-10-01) * column 1, lines 17-23; figures 1,2 *	1,4	TECHNICAL FIELDS SEARCHED (IPC) A47C A61G
A	----- FR 2 525 450 A (IDA FRANCE) 28 October 1983 (1983-10-28) * figures 1-9 *	1,6	
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The present search report has been drawn up for all claims			
Place of search The Hague		Date of completion of the search 10 January 2007	Examiner Kis, Pál
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	

6

EPO FORM 1503 03 82 (P04C01)

**ANNEX TO THE EUROPEAN SEARCH REPORT
ON EUROPEAN PATENT APPLICATION NO.**

EP 06 12 2250

This annex lists the patent family members relating to the patent documents cited in the above-mentioned European search report.
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10-01-2007

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