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(54) **Folding bed**

(57) A folding bed (10), comprising a perimetric frame (11) that is substantially flat in the unfolded configuration and can be folded along transverse axes, a supporting element (19) for a user, which is stretched between the perimetric elements of the frame, and mattresses (22, 23) that optimize user comfort. The folding bed comprises two C-shaped end portions (18) that are connected symmetrically to the frame (11) by way of reversible locking and articulation means (17b) in the po-

sitions designed for resting one's head and feet. These portions (18) are able to tilt adjustably upward with respect to the frame (11) and can be mutually connected by way of at least one rod-like element (20) so as to produce a couch-like structural configuration. The supporting element (19) is of the sheet-like type, wraps perimetrically about the frame (11), and closes by way of removable connecting means (21) of the Velcro type that are arranged on opposite flaps of the sheet-like element.

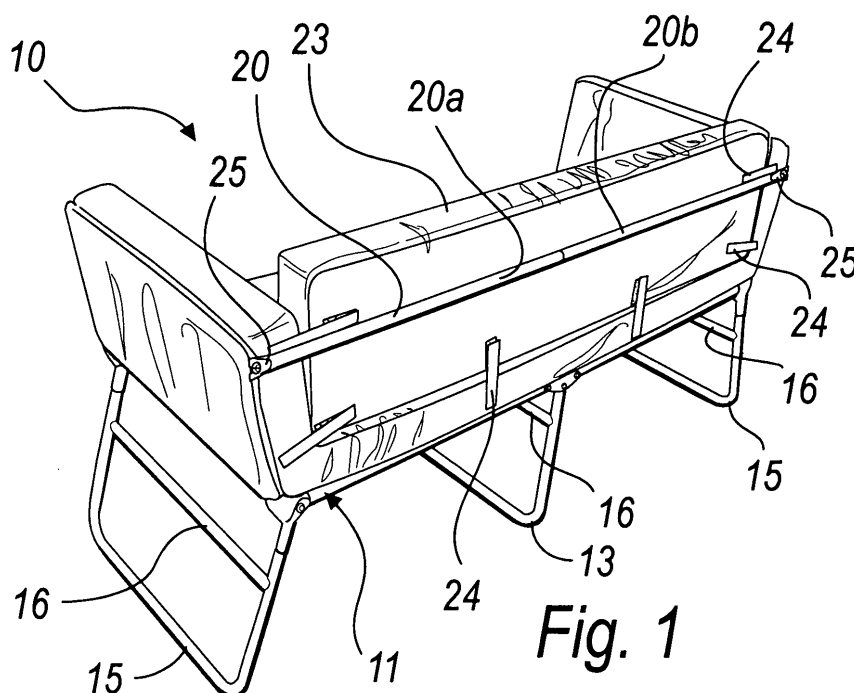


Fig. 1

Description

[0001] The present invention relates to a folding bed.

[0002] Folding beds are currently known which are composed of an articulated frame that is supported by legs that are connected to it by articulation means.

[0003] A supporting element for a user, such as a sheet or net, is arranged on the frame and is connected to the frame by way of elastic means, and a mattress rests thereon.

[0004] Folding beds of the type described above are also known which have an auxiliary portion that is also connected to the frame by way of articulation means and can be tilted at will and is designed to act substantially as a backrest/headrest.

[0005] These beds have a vast market thanks to their high versatility, low weight, easy handling and therefore easy transport, as well as low cost.

[0006] They are particularly suitable for all periods of rest and relaxation, especially in places such as camping sites, beaches and gardens, where one stays temporarily and it is essential to enjoy maximum comfort with minimum expenditure of energy and time (for transport and setup).

[0007] These beds as described above, however, entail drawbacks that substantially limit their convenience and their possibilities of use.

[0008] One limiting characteristic is that the auxiliary portion of currently known folding beds that acts as a backrest and can be tilted at will substantially allows only one user at a time to enjoy the sitting position with his back resting against said backrest.

[0009] Another drawback is the presence of elastic connecting means, often of the helical spring type, between the user supporting element, for example the sheet-like element, and the frame. These elastic connecting means are arranged in wide bands that are internally adjacent to the perimeter of the frame, making said regions considerably different from the sheet-like supporting element and therefore detectable by the user as a source of permanent discomfort even through the mattress.

[0010] Moreover, said elastic means, such as for example the helical springs, have a significant cost both in terms of purchase and in terms of assembly.

[0011] The aim of the present invention is to provide a folding bed that is functionally more versatile than current ones, since it can be used both as a bed and as a couch.

[0012] Within this aim, an object of the present invention is to provide a folding bed that does not use elastic means to connect the user supporting element to the frame.

[0013] Another object of the present invention is to provide a folding bed that is lightweight, compact in its folded configuration, and easy to assemble.

[0014] Another object of the present invention is to provide a folding bed that has limited constructive com-

plexity with a consequent reduction of manufacturing costs.

[0015] Another object of the present invention is to provide a folding bed that is easy to maintain.

[0016] Another object of the present invention is to provide a folding bed that can be manufactured with known technologies.

[0017] This aim and these and other objects that will become better apparent hereinafter are achieved by a folding bed, comprising a perimetric frame that is substantially flat in the unfolded configuration, is provided with means for resting on the ground and can be folded along transverse axes, and a supporting element for a user, which is stretched between the perimetric elements of said frame, said folding bed being characterized in that it comprises two end portions that are connected symmetrically to said frame in the positions designed for resting the head and feet with reversible locking and articulation means, said portions being able to tilt adjustably with respect to said frame and being connectable to each other by means of at least one rod-like element so as to produce a couch-like structural configuration.

[0018] Advantageously, said user supporting element is of the sheet-like type, wraps perimetrically around the frame and closes substantially by way of removable connecting means arranged on mutually opposite flaps of said sheet-like element.

[0019] Even more advantageously, said folding bed is characterized in that it comprises padded elements that are associable with said couch-like structure.

[0020] Further characteristics and advantages of the present invention will become better apparent from the description of an embodiment thereof, illustrated by way of nonlimiting example in the accompanying drawings, wherein:

Figure 1 is a perspective view of the folding bed in the couch configuration;

Figure 2 is a perspective view of the folding bed in the standard configuration;

Figure 3 is a bottom perspective view of the folding bed in the standard configuration;

Figure 4 is a bottom perspective view of the assembly of the frame and of the user supporting element;

Figure 5 is a perspective view of the assembly of the frame and of the user supporting element in the folded configuration.

[0021] With reference to the figures, a folding bed according to the invention is generally designated by the reference numeral 10.

[0022] The folding bed 10 comprises a folding frame 11 that is substantially flat when it is arranged in its unfolded configuration and is composed of four first longitudinal members 12 that are connected in pairs by means of articulations 14.

[0023] Said frame further comprises a first tubular el-

element 13, which has a C-shaped profile and is arranged centrally to the frame, and second elements 15, which have a C-shaped profile and are arranged at the ends of said frame.

[0024] The elements 13 and 15 are conveniently reinforced by means of transverse rods 16.

[0025] The element 13 is connected to the frame by way of the articulations 14, while the elements 15 are pivoted to the longitudinal members 12 by articulation means 17a.

[0026] The C-shaped elements 13 and 15, in addition to constituting crossmembers for connection to the longitudinal members 12, are also ground resting means.

[0027] Two end portions, which in the example considered are constituted by third tubular elements 18 having a C-shaped profile, are connected to the frame by way of reversible locking and articulation means 17b.

[0028] The reversible locking and articulation means 17b are of the ratchet type.

[0029] The end portions 18 are mutually identical and are arranged symmetrically with respect to the reference surface formed by the supporting element 13.

[0030] A user supporting element 19 is associated with the frame, which as a whole is structured as described above; said element is constituted by a sheet-like element, preferably made of a material such as raffia.

[0031] The sheet-like element wraps around the end portions 18 with substantially envelope-shaped parts 19a and then wraps around the longitudinal members 12 and closes in a lower region with removable connecting means 21.

[0032] In this embodiment, the removable connecting means 21 are of the Velcro type, are arranged on the opposite flaps of the supporting element 19, and are closed longitudinally in a substantially central position.

[0033] With reference to Figure 1 in particular, a rod-like element is associated with the end portions 18, which are conveniently inclined upward, and is constituted by a longitudinal member 20 that is composed of two interlocking parts 20a and 20b.

[0034] The longitudinal member 20 is connected to the end portions 18 by means of removable coupling elements, constituted by threaded connections 25 of the wing nut type.

[0035] Padded elements are associated with the resulting couch-like structural configuration and are constituted, in this embodiment, by a first mattress 22 and by a second mattress 23.

[0036] The mattresses 22 and 23 can be connected to each other by connecting means 24, which in this example are of the Velcro type.

[0037] As regards operation, with particular reference to Figure 1, the folding bed, when the frame is unfolded and in the couch configuration, is composed so that in the first mattress 22 there are substantially three regions, a central one that acts as a seat and two end ones that act as armrests, while the mattress 23 is used sub-

stantially as a backrest.

[0038] Said folding bed, in the couch configuration, is capable of accommodating a plurality of users in a sitting position with their back rested against said backrest.

[0039] In Figure 2, the same folding bed, with the frame unfolded, is in the deckchair configuration, in which an end portion acts as a headrest and the other portion acts as a footrest.

[0040] With particular reference to Figure 5, the frame 11, which is substantially flat in its unfolded configuration, can fold about transverse axes by way of the articulations 14 once the supporting elements 15 have been folded inward until they assume a position that is parallel to the longitudinal members 12 and the end portions 18 have been folded likewise on the opposite side with respect to the longitudinal members 12.

[0041] In practice it has been found that the intended aim and objects of the present invention have been achieved.

[0042] The limitations and drawbacks cited in the introduction and found in known folding beds have in fact been eliminated.

[0043] In practice, the materials employed, so long as they are compatible with the contingent use, may be any according to requirements.

[0044] The disclosures in Italian Utility Model Application No. PD2002U000080, from which this application claims priority, are incorporated herein by reference.

[0045] 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.

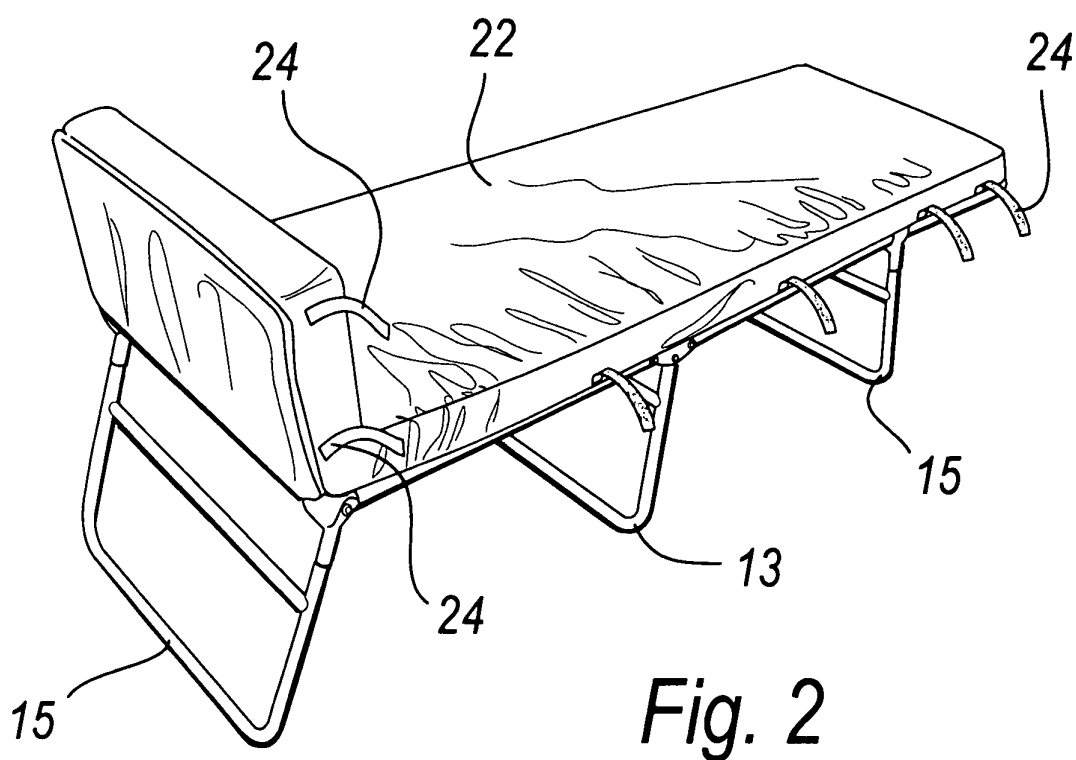
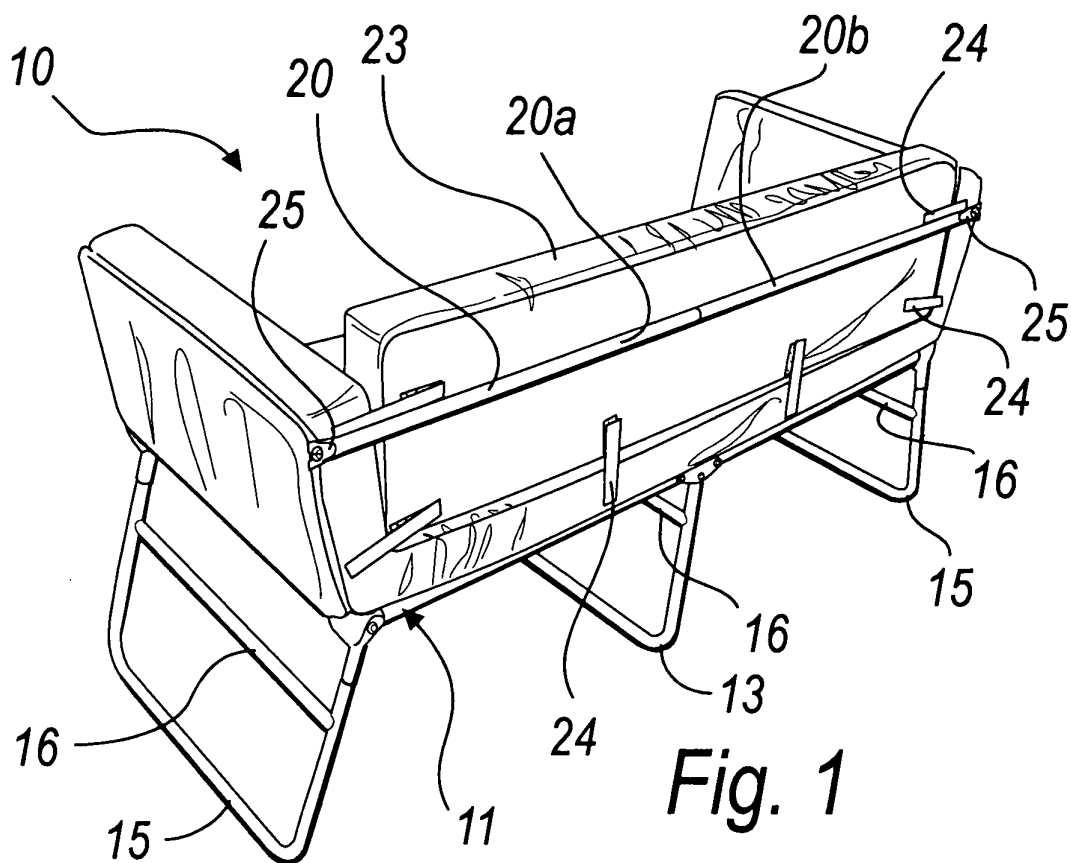
Claims

1. A folding bed (10), comprising a perimetric frame (11) that is substantially flat in the unfolded configuration, is provided with means (13, 15) for resting on the ground and can be folded along transverse axes, and a supporting element (19) for a user, which is stretched between the perimetric elements of the frame, **characterized in that** it comprises two end portions (18) that are connected symmetrically to said frame in the positions designed for resting the head and feet with reversible locking and articulation means (17b), said portions being able to tilt adjustably with respect to said frame and being mutually connectable by way of at least one rod-like element so as to produce a couch-like structural configuration.
2. The folding bed according to claim 1, **characterized in that** said supporting element (19) is of the sheet-like type, wraps perimetrically around said

frame (11), and is closed substantially by way of removable connecting means (21) arranged on opposite flaps of said sheet element.

3. The folding bed according to claim 2, **characterized in that** said removable connecting means (21) are of the Velcro type. 5
4. The folding bed according to claim 1, **characterized in that** it comprises padded elements (22, 23) that are associable with said couch-like structural configuration. 10
5. The folding bed according to one or more of the preceding claims, **characterized in that** it comprises a first padded element (22), which is associable with said frame and with said end portions (18) so as to form the seat and the armrests, and a second padded element (23), which is associable with the rod-like element so as to form the backrest of said couch-like structural configuration. 15 20
6. The folding bed according to claim 5, **characterized in that** said backrest comprises removable connecting means (24) for fixing to the remaining padded elements. 25
7. The folding bed according to claim 6, **characterized in that** said removable connecting means (24) for fixing to the remaining padded elements are of the Velcro type. 30
8. The folding bed according to one or more of the preceding claims, **characterized in that** said end portions (18) are constituted by elements having a substantially C-shaped profile. 35
9. The folding bed according to one or more of the preceding claims, **characterized in that** said reversible articulation and locking means (17b) are constituted by ratchet elements. 40
10. The folding bed according to claim 1, **characterized in that** said at least one rod-like element is constituted by at least one longitudinal member (20) that can be locked to said end portions by way of removable coupling elements (25). 45
11. The folding bed according to claim 6, **characterized in that** said removable coupling elements (25) are constituted by threaded couplings of the wing nut type. 50

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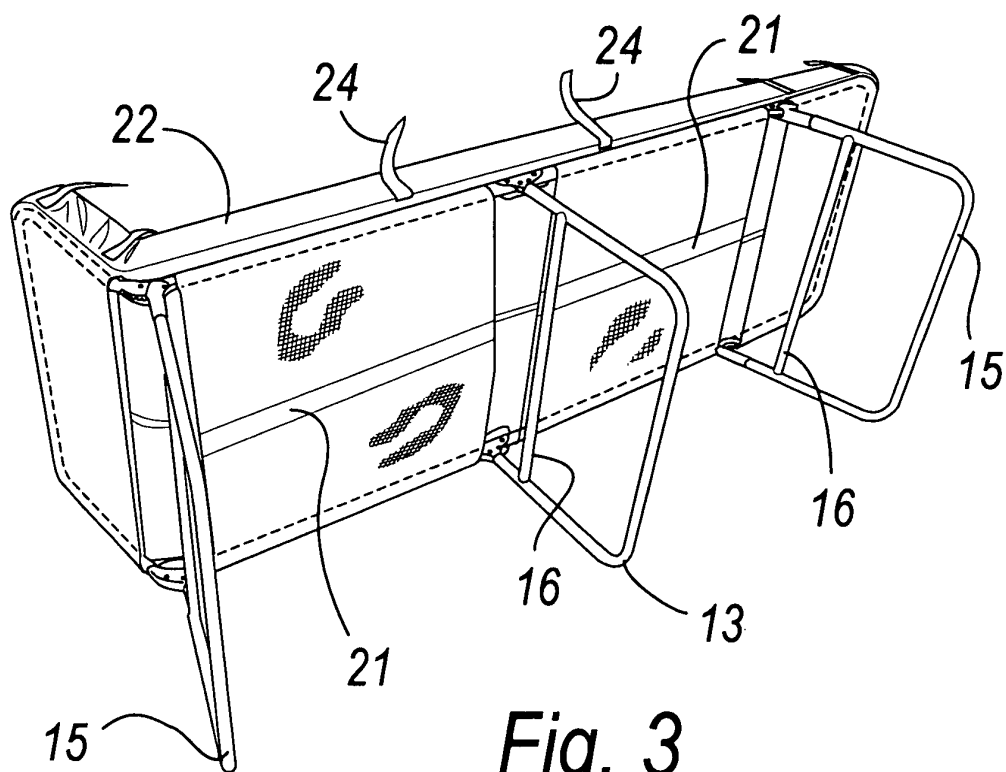


Fig. 3

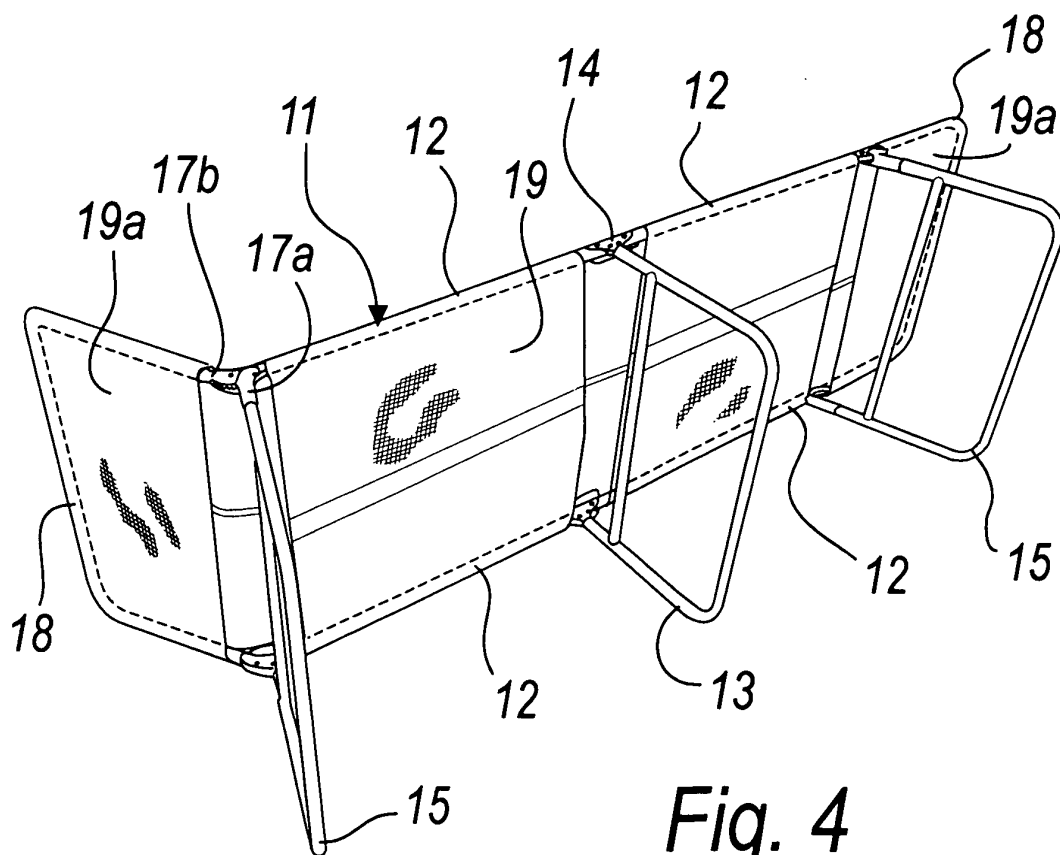


Fig. 4

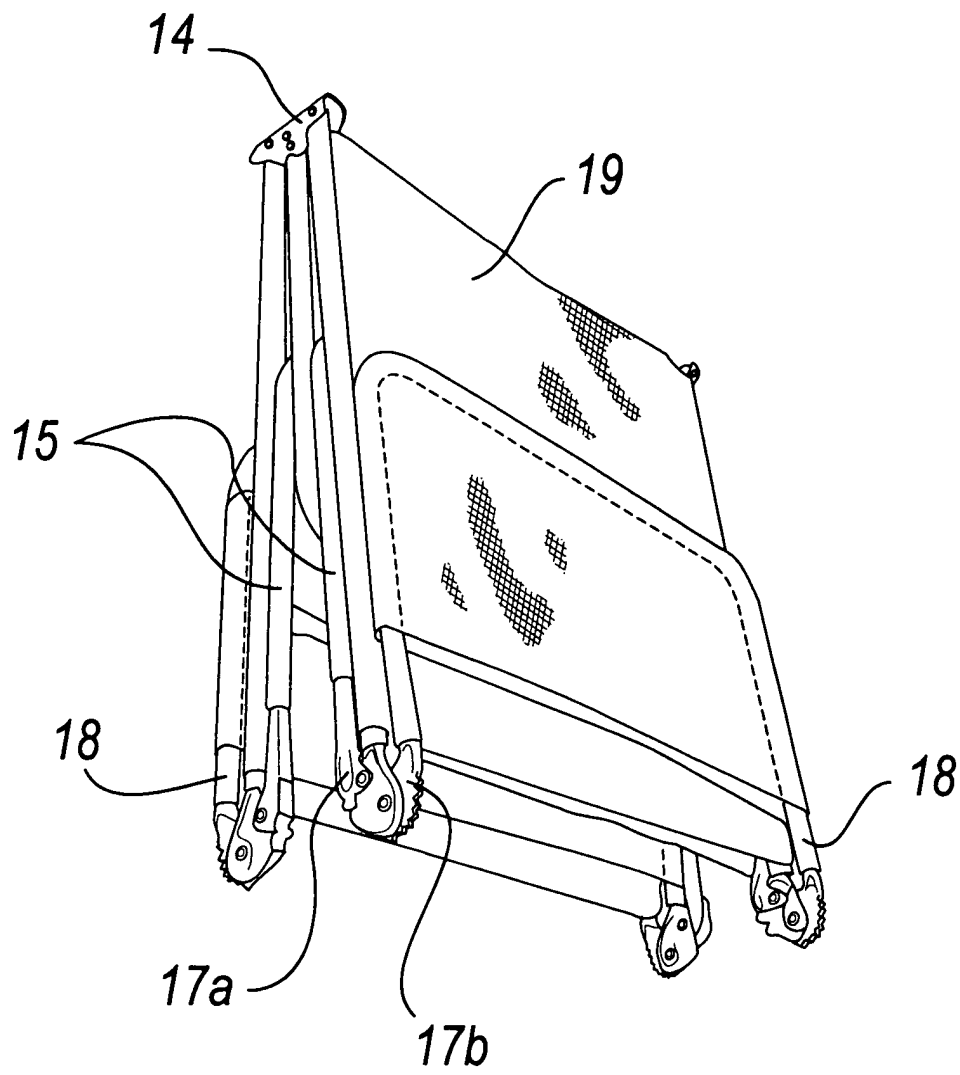


Fig. 5



European Patent
Office

EUROPEAN SEARCH REPORT

Application Number
EP 03 02 7434

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The present search report has been drawn up for all claims			
Place of search		Date of completion of the search	Examiner
THE HAGUE		25 March 2004	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
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EP 03 02 7434

This annex lists the patent family members relating to the patent documents cited in the above-mentioned European search report. The members are as contained in the European Patent Office EDP file on
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