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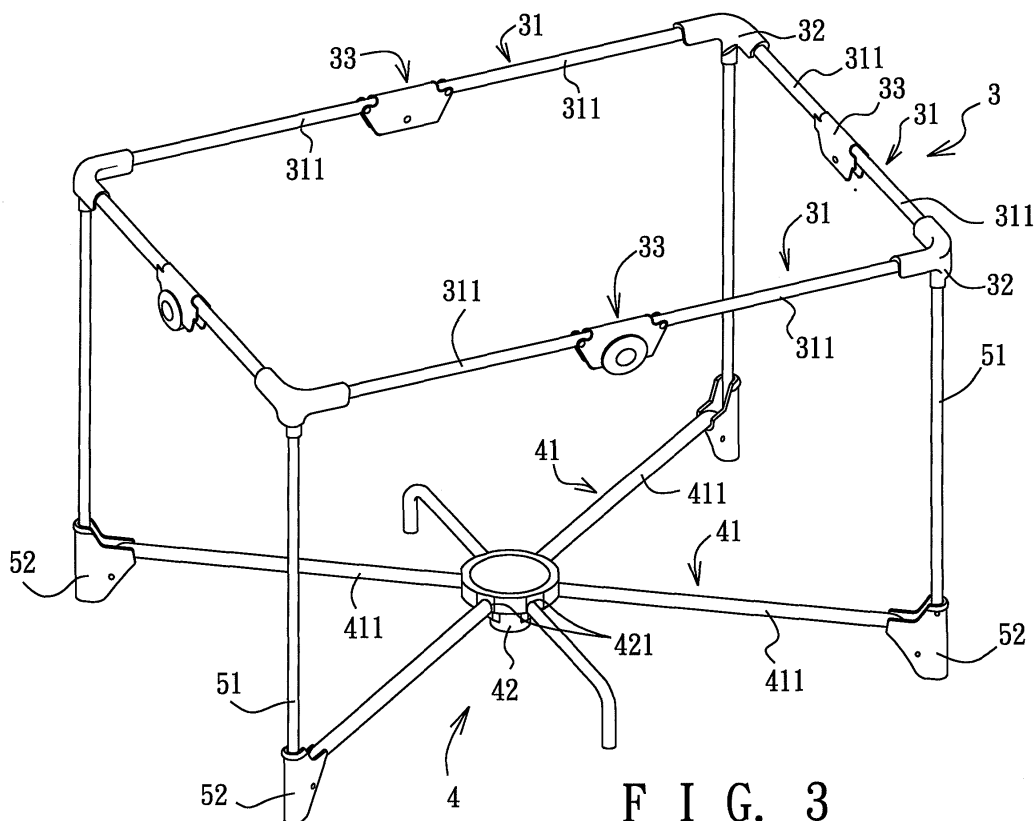
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(54) **Foldable Baby Crib**

(57) A foldable baby crib includes a top frame unit (3), a bottom frame unit (4), a plurality of support rods (51), each of which has a top end segment connected to the top frame unit (3), and a bottom end segment opposite

to the top end segment, and a plurality of foot members (52), each of which is connected fixedly to the bottom frame unit (4) and is connected pivotally to the bottom end segment of a respective one of the support rods (51).



F I G. 3

Description

[0001] The invention relates to a crib, more particularly to a foldable baby crib.

[0002] Referring to Figure 1, a conventional foldable baby crib 1 is shown to include a plurality of top rods 25, a plurality of bottom rods 21, a plurality of support rods 22, a plurality of foot members 23, and a rod hub 24. Each support rod 22 has a top end connected to a respective one of the top rods 25, and a bottom end connected to a respective one of the bottom rods 21 through a corresponding one of the foot members 23. Each bottom rod 21 has one end connected pivotally to the rod hub 24. When folding the baby crib 1, the rod hub 24 is lifted upwardly to bring the bottom rods 21 and the support rods 22 close together. As shown in Figure 2, for each foot member 23, the bottom end of the corresponding support rod 22 is fixed therein, whereas the corresponding bottom rod 21 is connected pivotally thereto. Since the foot members 23 are not foldable relative to the support rods 22, a combined length of the support rod 22 and the corresponding foot member 23 is not reduced when the baby crib 1 is folded.

[0003] Therefore, the object of the present invention is to provide a foldable baby crib that has a more compact size when in a folded state as compared to the prior art.

[0004] Accordingly, a foldable baby crib of the present invention comprises a top frame unit, a bottom frame unit, a plurality of support rods, each of which has a top end segment connected to the top frame unit, and a bottom end segment opposite to the top end segment, and a plurality of foot members, each of which is connected fixedly to the bottom frame unit and is connected pivotally to the bottom end segment of a respective one of the support rods.

[0005] Other features and advantages of the present invention will become apparent in the following detailed description of the preferred embodiments with reference to the accompanying drawings, of which:

Figure 1 is a schematic view of a conventional foldable baby crib;

Figure 2 is a fragmentary schematic sectional view for illustrating connection among a support rod, a bottom rod, and a foot member of the conventional foldable baby crib of Figure 1;

Figure 3 is an assembled perspective view of the first preferred embodiment of a foldable baby crib according to the present invention;

Figure 4 is a fragmentary schematic sectional view for illustrating connection among a support rod, a bottom rod, and a foot member according to the first preferred embodiment;

Figure 5 is a view similar to Figure 4, but illustrating the positions of the bottom rod and the foot member relative to the support rod when the first preferred embodiment is in a folded state;

Figure 6 is a schematic view to illustrate a folded

state of the first preferred embodiment;

Figure 7 is an assembled perspective view of the second preferred embodiment of a foldable baby crib according to the present invention;

Figure 8 is a fragmentary schematic sectional view for illustrating connection among a support rod, a bottom rod, and a modified foot member according to the second preferred embodiment;

Figure 9 is a schematic view to illustrate a folded state of the second preferred embodiment;

Figure 10 is a fragmentary assembled perspective view to illustrate a support rod, a bottom rod, and a foot member of the third preferred embodiment of a foldable baby crib according to the present invention; and

Figure 11 is a fragmentary assembled perspective view to illustrate a support rod, a bottom rod, and a foot member of the fourth preferred embodiment of a foldable baby crib according to the present invention.

[0006] Before the present invention is described in greater detail with reference to the following preferred embodiments, it should be noted herein that like elements are denoted by the same reference numerals throughout the disclosure.

[0007] Referring to Figures 3 and 4, the first preferred embodiment of a foldable baby crib according to the present invention is shown to include a top frame unit 3, a bottom frame unit 4, four support rods 51, and four foot members 52. The foldable baby crib can be converted from an expanded state shown in Figure 3 to a folded state shown in Figure 6.

[0008] The top frame unit 3 includes four top frame rods 31 and four three-way couplers 32. Each of the top frame rods 31 includes two rod segments 311 connected foldably to each other through a coupling component 33. Each of the couplers 32 connects an adjacent pair of the top frame rods 31 to a top end segment of a respective one of the support rods 51. The top frame unit 3 has a rectangular configuration when the foldable baby crib is at the expanded state.

[0009] In this embodiment, the bottom frame unit 4 includes a rod hub 42 and two bottom rod sets 41. The rod hub 42 is circular in shape, and is formed with a plurality of angularly spaced apart rod-engaging grooves 421. Each of the bottom rod sets 41 includes two bottom rods 411 having inner ends connected pivotally to the rod hub 42 at respective ones of the rod-engaging grooves 421, and outer ends connected fixedly and respectively to two of the foot members 52. The bottom rods 411 radiate from the rod hub 42 when the foldable baby crib is at the expanded state.

[0010] In this embodiment, each of the foot members 52 includes a base part 521 and a surrounding wall 522 that extends from a periphery of the base part 521 and that cooperates with the base part 521 to confine a receiving space 523. The surrounding wall 522 has an ac-

cess opening 525 in spatial communication with the receiving space 523. The access opening 525 of each foot member 52 opens upwardly when the foldable baby crib is at the expanded state.

[0011] Each of the support rods 51 has a bottom end segment that is remote from the top frame unit 3 and that extends into the receiving space 523 via the access opening 525 in a respective one of the foot members 52. The bottom end segment of each support rod 51 is mounted pivotally to the surrounding wall 522 of the respective one of the foot members 52.

[0012] In this embodiment, the base part 521 of each of the foot members 52 is formed with a rod-retaining hole 524 in spatial communication with the receiving space 523. Each of the bottom rods 411 has a bent end 4110 that extends into the receiving space 523 via the access opening 525 in a respective one of the foot members 52, and further into the rod-retaining hole 524. The bent end 4110 of each bottom rod 411 is fixed to the respective foot member 52.

[0013] When converting the foldable baby crib from the expanded state of Figure 3 to the folded state of Figure 6, the coupling components 33 of the top frame rods 31 are unlocked so as to permit folding of the rod segments 311 of the top frame rods 31 toward each other, and the rod hub 42 is lifted upwardly so as to bring the bottom rods 411 and the support rods 51 close together. Since the bottom rods 411 are connected fixedly to the foot members 52, when the bottom rods 411 pivot relative to the rod hub 42, the bottom rods 411 will cause the foot members 52 to pivot relative to the support rods 51, as shown in Figure 5, such that a combined length of each support rod 51 and the corresponding foot member 52 is reduced by a distance substantially equal to the height of the foot member 52 when the foldable baby crib is in the folded state.

[0014] Figure 7 illustrates the second preferred embodiment of a foldable baby crib according to the present invention. In this embodiment, while the top frame unit 3 is identical to that of the first preferred embodiment, the bottom frame unit 4' includes two parallel first bottom rod sets 41, and two parallel second bottom rod sets 43 transverse to the first bottom rod sets 41. Each of the first bottom rod sets 41 includes two first bottom rods 411 having inner ends connected foldably to each other, and outer ends connected fixedly and respectively to two of the foot members 52. Each of the second bottom rod sets 43 includes two second bottom rods 431 having inner ends connected foldably to each other, and outer ends connected foldably and respectively to the bottom end segments of two of the support rods 51. Unlike the bottom frame unit 4 of the first preferred embodiment, the bottom frame unit 4' has a rectangular configuration when the foldable baby crib is at the expanded state. Because the bottom rods 411 are connected fixedly to the foot members 52, when the bottom rods 411 of the first bottom rod sets 41 are pivoted when folding the baby crib, the bottom rods 411 will likewise cause the foot members 52 to pivot

relative to the support rods 51 such that a combined length of each support rod 51 and the corresponding foot member 52 is reduced when the foldable baby crib is in the folded state, as best shown in Figure 9.

[0015] The connection between each foot member 52 and the corresponding bottom rod 411 is not limited to that of the first preferred embodiment, and can be modified as shown in Figure 8. Referring to Figure 8, the end 4110' of the bottom rod 411 is straight, is extended into the receiving space 523 of the foot member 52', and is riveted to the surrounding wall 522 using a pair of rivets. Since the rod-retaining hole 524 in the previous embodiment has been omitted, the thickness of the base part 521 can be reduced to reduce the height of the foot member 52'.

[0016] Figure 10 illustrates a support rod 51, a bottom rod 411, and a foot member (52a) of the third preferred embodiment of a foldable baby crib according to the present invention. In this embodiment, at least one of the foot members (52a) of the foldable baby crib is provided with a wheel 520. Each footmember (52a) includes a surrounding wall 522 that confines a receiving space 523, and has a top side formed with an access opening 525 for access into the receiving space 523. The wheel 520 is mounted on an outer lateral side of the foot member (52a). One end of the bottom rod 411 extends into the receiving space 523 and is fixed to the foot member (52a) using a pair of rivets. The support rod 51 is mounted pivotally on the surrounding wall 522.

[0017] Figure 11 illustrates a support rod 51, a bottom rod 411, and a foot member (52b) of the fourth preferred embodiment of a foldable baby crib according to the present invention. In this embodiment, one end of the bottom rod 411 extends into the receiving space 523 and is fixed to the foot member (52b) using only one rivet. The surrounding wall 522 of the foot member (52b) is formed with at least one support rib 526 that projects into the receiving space 523 and that abuts against a lower side of the riveted end of the bottom rod 411 so as to arrest pivoting movement between the bottom rod 411 and the foot member (52b). The assembly of the bottom rod 411 and the foot member (52b) is likewise foldable relative to the support rod 51.

[0018] In sum, by connecting fixedly the foot members 52 to the bottom rods 411 of the bottom frame unit 4, and by connecting pivotally the foot members 52 to the support rods 51, a combined length of each support rod 51 and the corresponding foot member 52 is reduced when the foldable baby crib is in the folded state, which results in a smaller storage space requirement and in lower packaging costs.

Claims

1. A foldable baby crib including a top frame unit (3), a bottom frame unit (4), and a plurality of support rods (51), each of which has a top end segment connected

- to the top frame unit (3), and a bottom end segment opposite to the top end segment,
characterized by a plurality of foot members (52), each of which is connected fixedly to the bottom frame unit (4) and is connected pivotally to the bottom end segment of a respective one of the support rods (51).
2. The foldable baby crib as claimed in Claim 1, **characterized in that** each of the foot members (52) includes a base part (521) and a surrounding wall (522) that extends from a periphery of the base part (521) and that cooperates with the base part (521) to confine a receiving space (523), the surrounding wall (522) having an access opening (525) in spatial communication with the receiving space (523), the bottom end segment of each of the support rods (51) extending into the receiving space (523) via the access opening (525) in the respective one of the foot members (52).
 3. The foldable baby crib as claimed in Claim 2, further **characterized in that** the bottom end segment of each of the support rods (51) is mounted pivotally to the surrounding wall (522) of the respective one of the foot members (52).
 4. The foldable baby crib as claimed in Claim 2, further **characterized in that** the bottom frame unit (4) includes a plurality of bottom rods (411), each of which has one end that extends into the receiving space (523) in a respective one of the foot members (52) and that is fixed to the surrounding wall (522) of the respective one of the foot members (52).
 5. The foldable baby crib as claimed in Claim 2, further **characterized in that:**

the base part (521) of each of the foot members (52) is formed with a rod-retaining hole (524) in spatial communication with the receiving space (523);

the bottom frame unit (4) including a plurality of bottom rods (411), each of which has a bent end (4110) that extends into the receiving space (523) and into the rod-retaining hole (524) in a respective one of the foot members (52) and that is fixed to the respective one of the foot members (52).
 6. The foldable baby crib as claimed in Claim 4, further **characterized in that** the surrounding wall (522) of each of the foot members (52b) is formed with at least one support rib (526) that projects into the receiving space (523) and that abuts against a lower side of the one end of the respective one of the bottom rods (411).
 7. The foldable baby crib as claimed in Claim 1, **characterized in that** each of the foot members (52a) includes a surrounding wall (522) that confines a receiving space (523) and has a top side formed with an access opening (525) for access into the receiving space (523).
 8. The foldable baby crib as claimed in Claim 1, **characterized in that** the bottom frame unit (4') includes a plurality of bottom rod sets (41), each of the bottom rod sets (41) including two bottom rods (411) having inner ends connected foldably to each other and outer ends connected fixedly and respectively to two of the foot members (52).
 9. The foldable baby crib as claimed in Claim 1, **characterized in that** the bottom frame unit (4) includes a rod hub (42) and a plurality of bottom rod sets (41), each of the bottom rod sets (41) including two bottom rods (411) having inner ends connected pivotally to the rod hub (42) and outer ends connected fixedly and respectively to two of the foot members (52).
 10. The foldable baby crib as claimed in Claim 1, **characterized in that** the bottom frame unit (4') includes two parallel first bottom rod sets (41), and two parallel second bottom rod sets (43) transverse to the first bottom rod sets (41), each of the first bottom rod sets (41) including two first bottom rods (411) having inner ends connected foldably to each other and outer ends connected fixedly and respectively to two of the foot members (52), each of the second bottom rod sets (43) including two second bottom rods (431) having inner ends connected foldably to each other and outer ends connected foldably and respectively to the bottom end segments of two of the support rods (51).
 11. The foldable baby crib as claimed in any one of Claims 1 to 10, **characterized in that** the top frame unit (3) includes a plurality of top frame rods (31), and a plurality of three-way couplers (32), each of which connects an adjacent pair of the top frame rods (31) to a respective one of the support rods (51).
 12. The foldable baby crib as claimed in Claim 11, further **characterized in that** each of the top frame rods (31) includes two rod segments (311) connected foldably to each other.
 13. The foldable baby crib as claimed in any one of Claims 1 and 7, **characterized in that** at least one of the foot members (52a) is provided with a wheel (520).

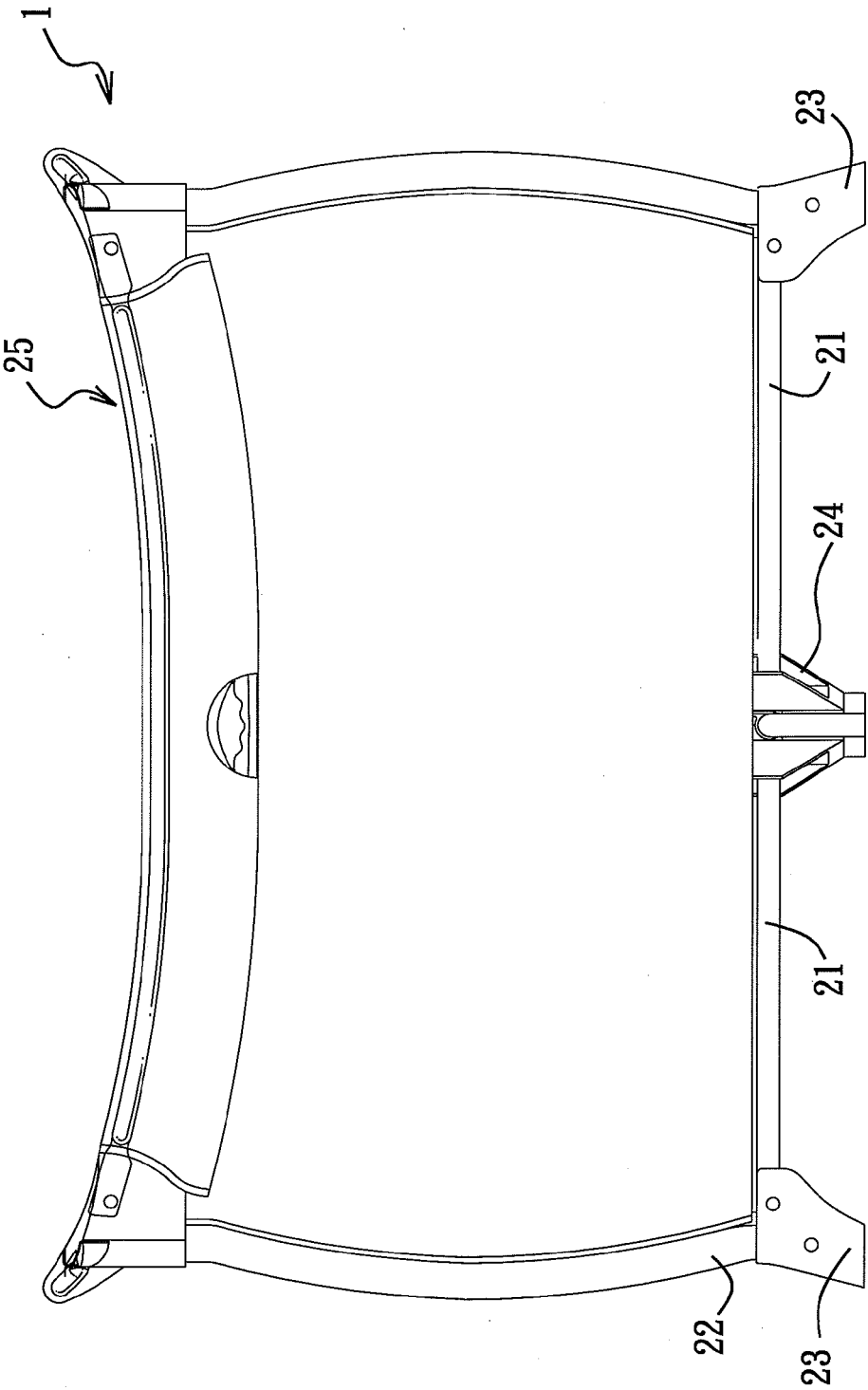


FIG. 1
PRIOR ART

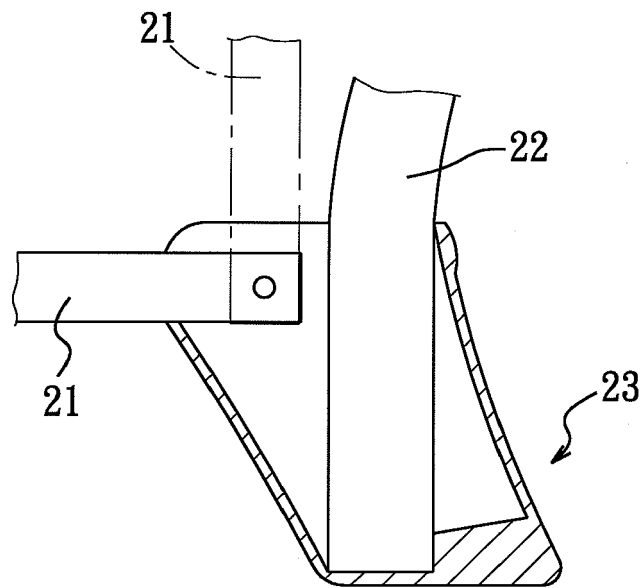
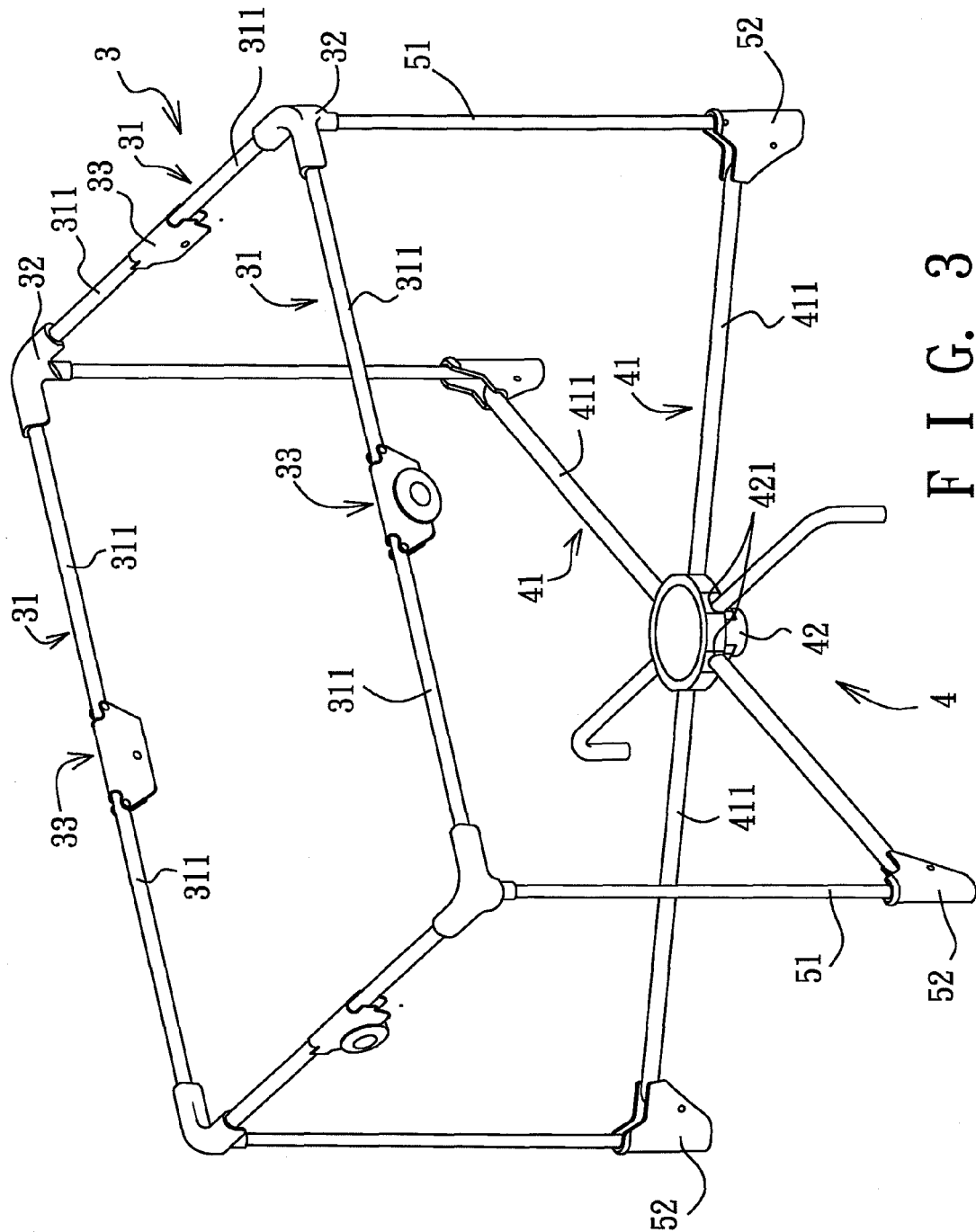
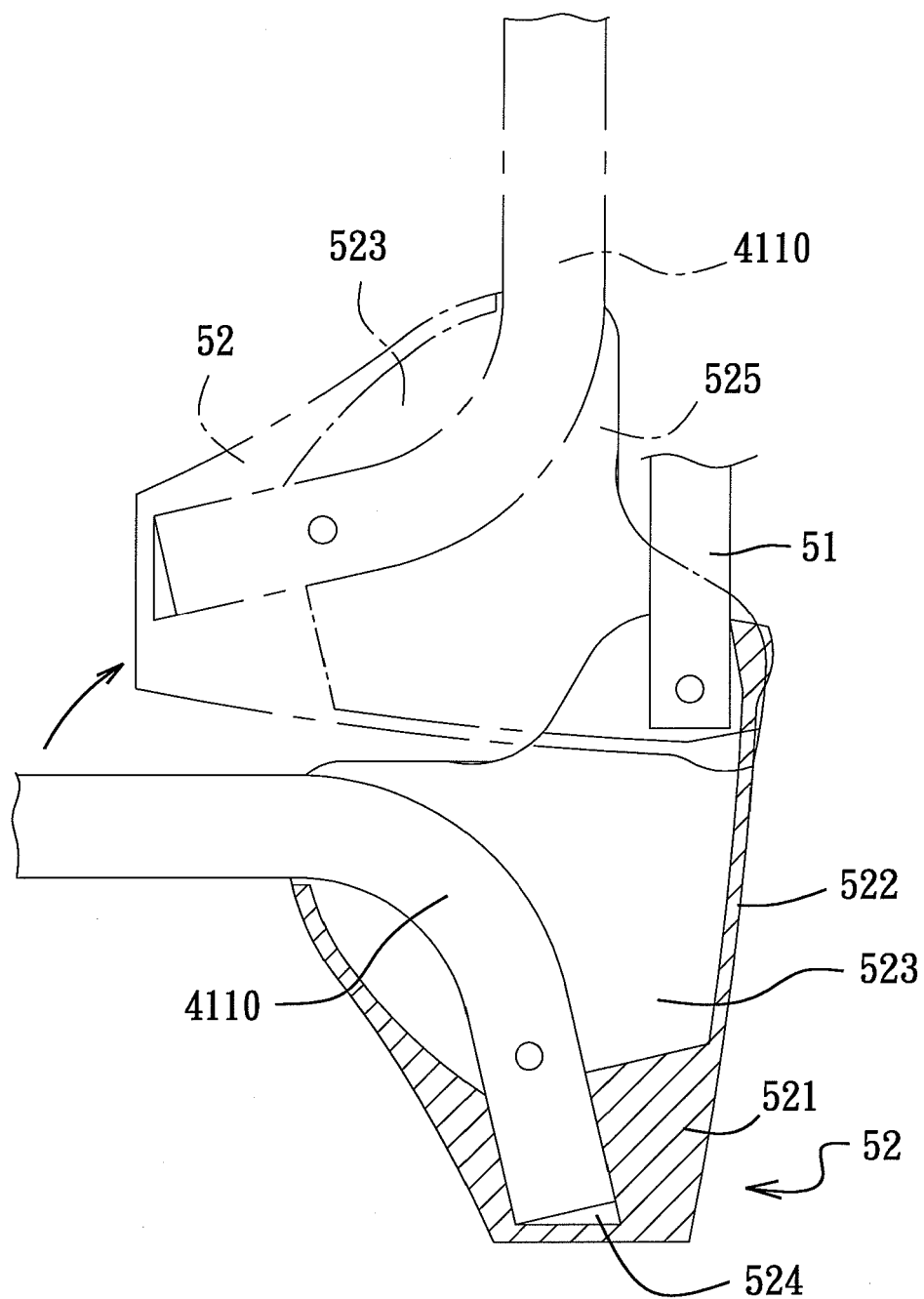
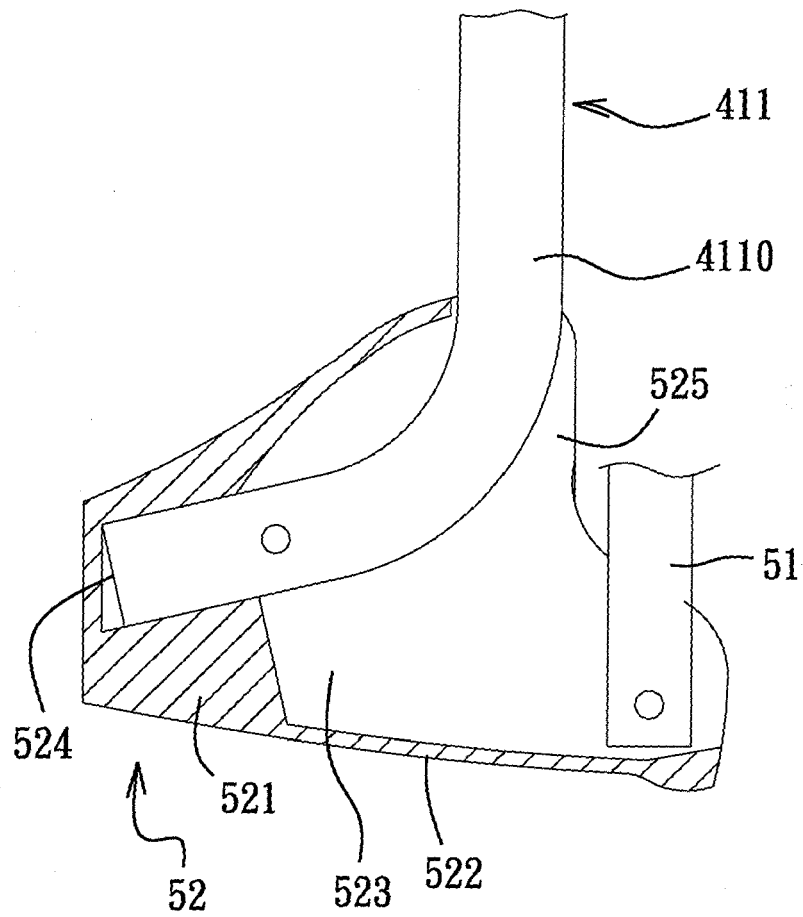


FIG. 2
PRIOR ART

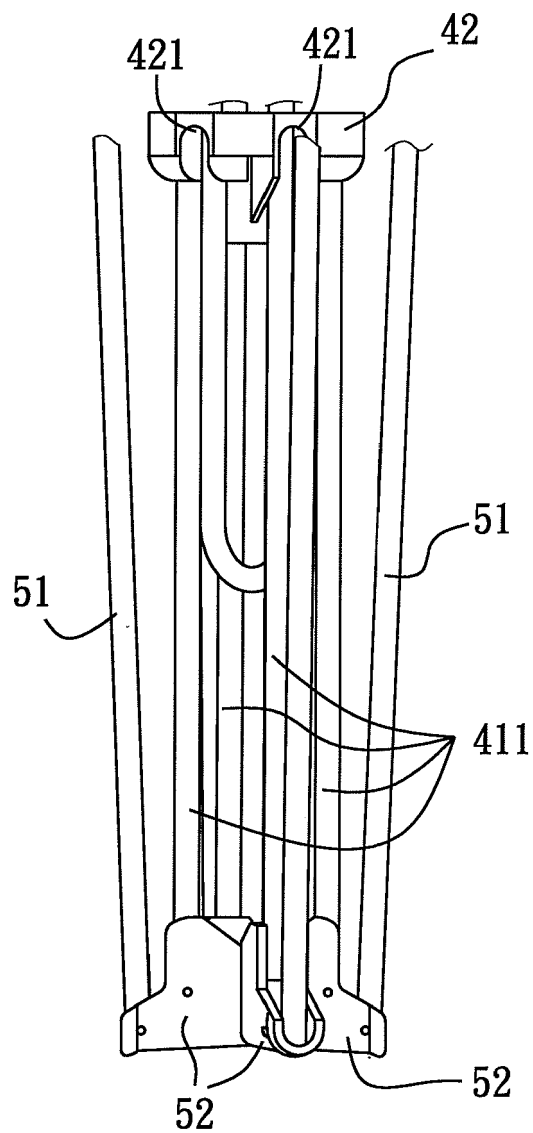




F I G. 4



F I G. 5



F I G. 6

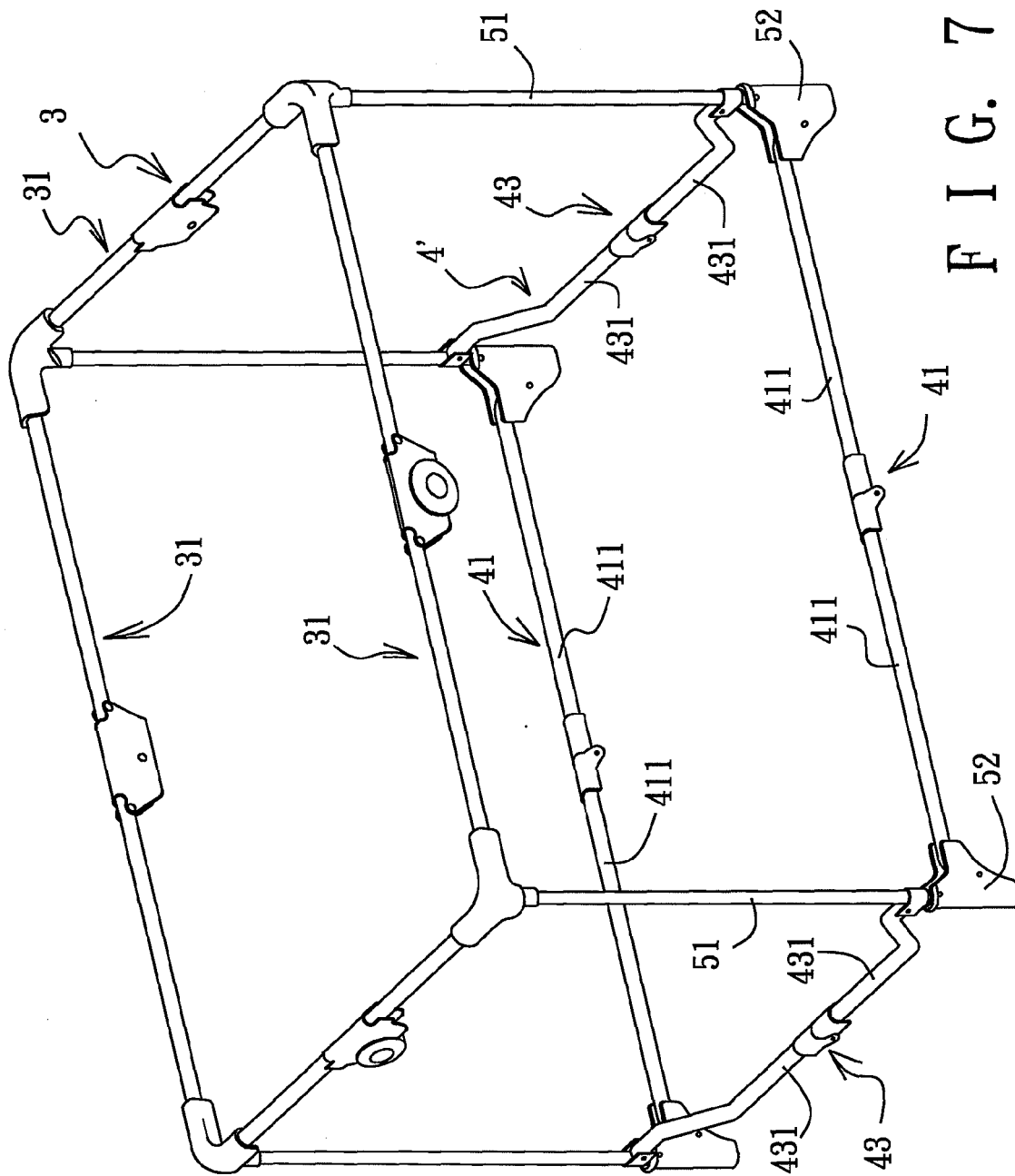
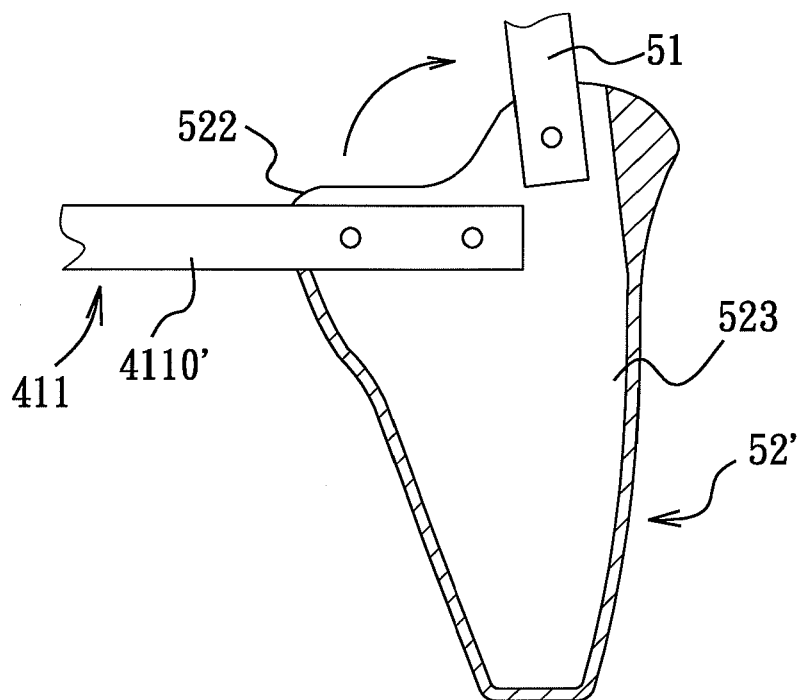
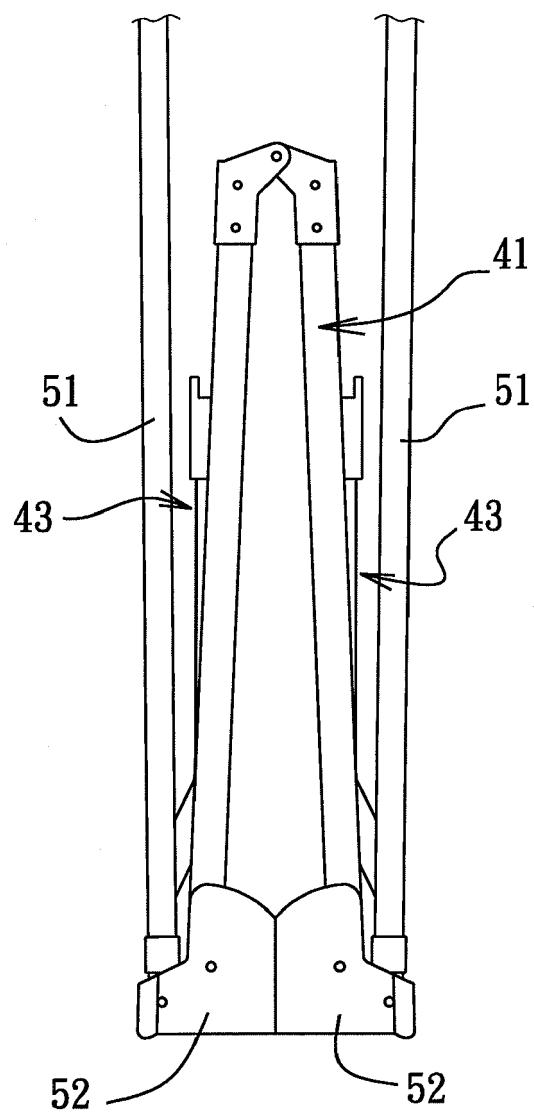


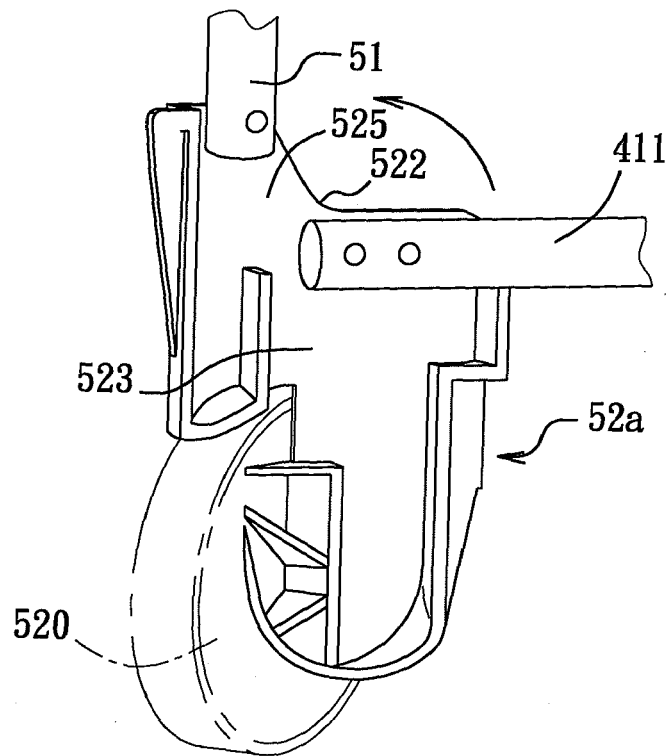
FIG. 7



F I G. 8



F I G. 9



F I G. 10

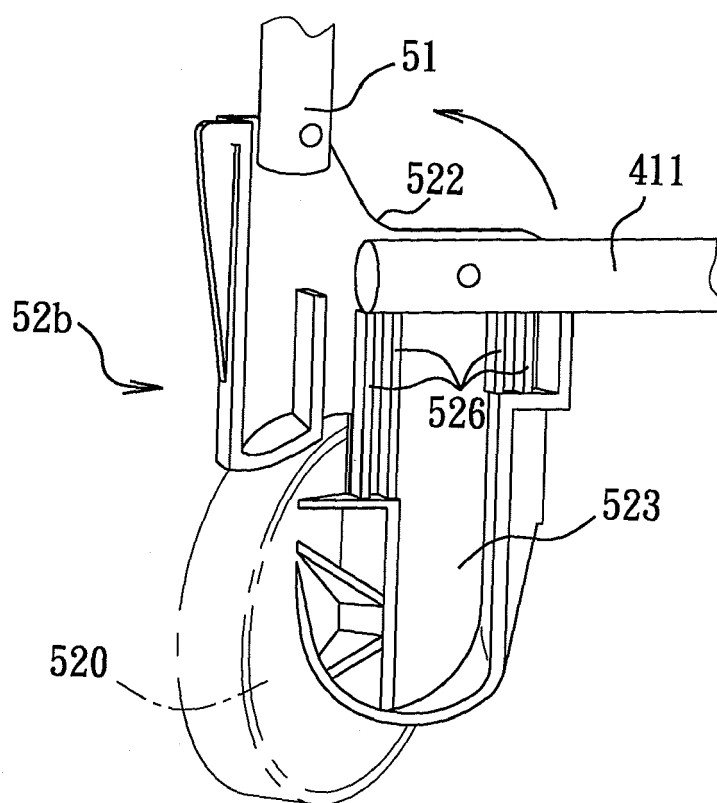


FIG. 11



European Patent
Office

EUROPEAN SEARCH REPORT

Application Number
EP 06 11 9123

DOCUMENTS CONSIDERED TO BE RELEVANT			
Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (IPC)
Y	US 4 688 280 A (KOHUS ET AL) 25 August 1987 (1987-08-25) * figures *	1-5,7-9, 11,12	INV. A47D7/00 A47D13/06
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A	US 6 079 063 A (CHENG YING-HSIUNG) 27 June 2000 (2000-06-27) * figure 1 *	13	
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			TECHNICAL FIELDS SEARCHED (IPC)
			A47D
The present search report has been drawn up for all claims			
Place of search		Date of completion of the search	Examiner
The Hague		19 December 2006	Kis, Pál
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EPO FORM 1503 03.82 (P04C01)

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

EP 06 11 9123

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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19-12-2006

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