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(54) A chair with a backrest adjustment mechanism

(57) A chair with a backrest adjustment mechanism includes a chair (2), a back support board (3), and a driving mechanism (4). The chair (2) has a back portion (23) and a seat portion (24) and formed a space (22) for accommodating an occupant. The back support board (3) is movably mounted in front of the back portion (23). The driving mechanism (4) is operatively mounted between the back support board (3) and the back portion (23), and capable of moving the back support board (3) forward to reduce a seat depth (29) of the chair (2) for accommodating shorter occupant, and moving the back support board (3) backward to enlarge the seat depth (29) of the chair (2) for accommodating taller occupant. By manipulating the driving mechanism (4) of the present invention, both taller and shorter occupants should be able to find a seat depth (29) to accommodate their upper leg length, so as to help occupants maintain proper back support, distributing their weight evenly across the seat portion.

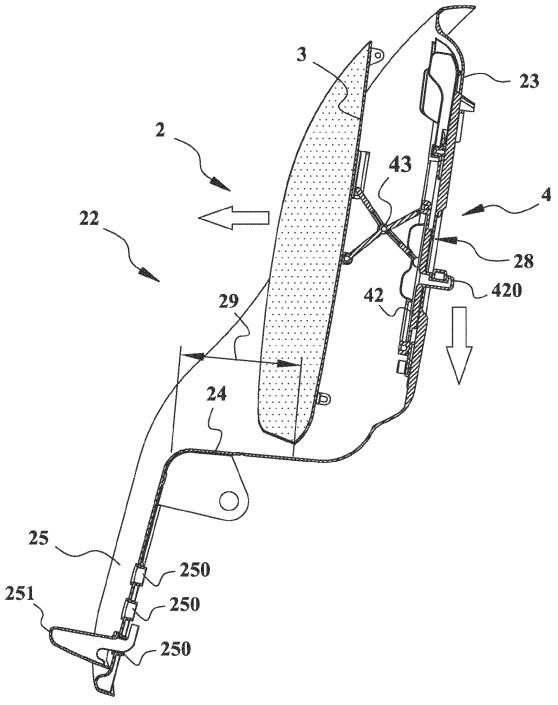

FIG. 6

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Description

BACKGROUND OF THE INVENTION

FIELD OF THE INVENTION

[0001] The present invention relates to a chair with a backrest adjustment mechanism, especially to a mechanism capable of changing the seat depth by changing the position of the backrest for accommodating the children of different body size.

DESCRIPTION OF THE RELATED ART

[0002] Children's body is growing day by day. If a child's body size is too small to sit in a relative larger chair, the child's back shall not have a full support from the backrest; oppositely, if a child's body size is too big to sit in a smaller chair, the thigh of the child can not get full support by the seat, unless the seatback is capable of moving backward.

[0003] It is a long desire to improve the function as well as provide a new structure of a chair for children thereby accommodating the growing children occupant in a comfortable way.

SUMMARY OF THE INVENTION

[0004] For fulfilling the above-mentioned long need and eliminating the drawbacks of fixed-size children chair, the present invention provides a chair with a backrest adjustment mechanism includes a chair, a back support board, and a driving mechanism.

[0005] The chair has a back portion and a seat portion and formed a space for accommodating an occupant. Preferably, the chair may have at least a back portion and a seat portion and formed a space for accommodating an occupant. The back portion and the seat portion may be of separated parts connected to each other (not shown); however, the back portion and the seat portion may also be formed integrally by a molding process. Preferably, the chair may further be equipped with a pair of armrests extending forward for detachably connected a food tray in front of the space, by this assembly, to provide a sound guard to protect the occupant.

[0006] The back support board is movably mounted in front of the back portion. The driving mechanism is operatively mounted between the back support board and the back portion, and capable of moving the back support board forward to reduce a seat depth of the chair for accommodating shorter occupant, and moving the back support board backward to enlarge the seat depth of the chair for accommodating taller occupant.

[0007] By manipulating the driving mechanism of the present invention, both taller and shorter occupants should be able to find a seat depth to accommodate their upper leg length, that helps occupants maintain proper back support, distributing their weight evenly across the seat portion.

BRIEF DESCRIPTION OF THE DRAWINGS

[0008] The accompanying drawings, which are included to provide a further understanding of the invention are incorporated in and constitute a part of this specification, illustrate embodiments of the invention and together with the description serve to explain the principles of the invention. In the drawings:

[0009] FIG. 1 is a front-left perspective view showing an embodiment of the chair being supported by a rack and being equipped with the backrest adjustment mechanism according to the present invention.

[0010] FIG. 2 is a rear-right perspective view showing an embodiment of the chair being supported by a rack and being equipped with the backrest adjustment mechanism according to the present invention.

[0011] FIG. 3 is a perspective view showing a chair equipped with the backrest adjustment mechanism according to the present invention, which is capable of changing the seat depth thereof.

[0012] FIG. 4 is an exploded view of the chair and the backrest adjustment mechanism as shown in FIG. 3.

[0013] FIG. 5 is a cross-sectioned view showing an operation of the backrest adjustment mechanism as being retracting the back support board backward to enlarge the seat depth of chair so as to accommodate a taller baby occupant.

[0014] FIG. 6 is a cross-sectioned view showing an operation of the backrest adjustment mechanism as being pushing the back support board forward to reduce the seat depth of chair so as to accommodate a shorter baby occupant.

[0015] FIG. 7 is a cross-sectioned view showing a simplified embodiment of the backrest adjustment mechanism which is capable of adjusting the seat depth of a chair for accommodating either taller or shorter child occupant.

DETAILED DESCRIPTION OF THE PREFERRED EMBODIMENTS

[0016] Referring to FIGS. 1 to 4, the chair with a backrest adjustment mechanism according to the present invention includes a chair 2, a back support board 3, and a driving mechanism 4.

[0017] As shown in FIG. 4, the chair 2 has at least a back portion 23 and a seat portion 24 and formed a space 22 for accommodating an occupant. The back portion 23 and the seat portion 24 may be of separated parts connected to each other (not shown); however, the back portion 23 and the seat portion 24 may also be formed integrally by a molding process. Preferably, as best shown in FIGS. 1 and 2, the chair 2 may further be equipped with a pair of armrests 26 extending forward for detachably connected a food tray 27 in front of the space 22, by this assembly, providing a sound guard to protect the

occupant.

[0018] Referring to FIG. 3, the chair 2 may further be equipped with a foot-side portion 25 extending downward from the under side of the seat portion 24. The foot-side portion 25 may be embodied as an independent part firmly connected to the seat portion 24; however the foot-side portion 25 may also can be formed integrally with the seat portion 24.

[0019] The chair 2 may include a foot step 251 detachably mounted in front of the foot-side portion 25 and capable of positioning in a variety of heights according to the size of occupant. Preferably, for connecting the foot step 251, the foot-side portion 25 may be formed with a plurality of slots 250 for selectively engaging the foot step 251 in a variety of heights according to the size of occupant.

[0020] Referring to FIGS. 1 and 2, an embodiment of the chair 2 according to the present invention may have a pair of sliding bushings 21 for sliding along a support rack 1 and lockable at a variety of heights above ground so as to be use as a high chair 10.

[0021] The support rack 1 may be embodied a sturdy metal frame; however, the support rack 1 may also be embodied as a foldable frame that includes a front rack 11, a rear rack 12 and a pair of joints 13. The joints 13 are lockably and pivotally connected the front rack 11 and the rear rack 12 so as capable of folding the support rack 1 into folded position for transportation and storage (not shown), and erecting the support rack 1 into a use position (as shown in FIGS. 1 and 2.)

[0022] Referring to FIGS. 4 to 6, the back support board 3 is a plate movably mounted in front of the back portion 23 by the driving mechanism 4.

[0023] As best shown in FIG. 6, the driving mechanism 4 includes a linkage 43 which has at least one end pivoted on the back support board 3 and at least another end pivoted on a sliding mount 42. The sliding mount 42 is capable of sliding and positioning along the surface of the back portion 23 of the chair 2. Referring to FIG. 7, illustrating a simplified driving mechanism 4 that the linkage 43 is embodied as a linking rod 44 which has one end pivoted to the lower end of the back support board 3 and another end pivoted to the sliding mount 42.

[0024] The sliding mount 42 may be formed with a rear extending end 420 for protruding through the back portion 23 so as to be accessible from the rear surface of the back portion 23. Preferably, the back portion 23 is formed with a guiding slot 28 for guiding the sliding mount 42 to move along the back portion 23 of the chair 2.

[0025] Referring to FIG. 5, the driving mechanism 4 is operatively mounted between the back support board 3 and the back portion 23, and capable of driving the back support board 3 to move forward by shifting the rear extending end 420 upward, so as to reduce the seat depth 29 of the chair 2 for accommodating shorter occupant.

[0026] Referring to FIG. 6, when the rear extending end 420 is shifting downward, the back support board 3 is driven to move backward so as to enlarge the seat depth 29 of the chair 2 for accommodating taller occupant.

[0027] By manipulating the driving mechanism 4 of the present invention, both taller and shorter occupants should be able to find a seat depth 29 to accommodate their upper leg length, and that would help the occupants maintain proper back support, distributing their weight evenly across the seat portion 24.

[0028] While particular embodiments of the invention have been described, those skilled in the art will recognize that many modifications are possible that will achieve the same goals by substantially the same system, device or method, and where those systems, devices or methods still fall within the true spirit and scope of the invention disclosed.

Claims

1. A chair with a backrest adjustment mechanism, including:

   a chair having a back portion and a seat portion and formed a space for accommodating an occupant sitting therein;
   a back support board movably mounted in front of the back portion; and
   a driving mechanism operatively mounted between the back support board and the back portion, capable of moving the back support board forward to reduce a seat depth of the chair for accommodating shorter occupant, and moving the back support board backward to enlarge the seat depth of the chair for accommodating taller occupant.

2. The chair with a backrest adjustment mechanism according to Claim 1, wherein the back portion and the seat portion are formed integrally.

3. The chair with a backrest adjustment mechanism according to Claim 1, wherein the driving mechanism includes a linkage having at least one end pivoted on the back support board and at least another end pivoted on a sliding mount, wherein the sliding mount is capable of sliding and positioning along a surface of the back portion of the chair.

4. The chair with a backrest adjustment mechanism according to Claim 3, wherein the linkage includes a linking rod which has one end pivoted to a lower end of the back support board and another end pivoted to the sliding mount.

5. The chair with a backrest adjustment mechanism according to Claim 3, wherein the sliding mount has a rear extending end protruded through the back portion and accessible at a rear surface of the back por-

tion.

6. The chair with a backrest adjustment mechanism according to Claim 3, wherein the back portion is formed with a guiding slot for guiding the sliding mount to move along the back portion of the chair.

7. The chair with a backrest adjustment mechanism according to Claim 1, wherein the chair further includes a foot-side portion extending from the seat portion.

8. The chair with a backrest adjustment mechanism according to Claim 7, wherein the foot-side portion is formed integrally with the seat portion.

9. The chair with a backrest adjustment mechanism according to Claim 7, wherein the foot-side portion is formed with a plurality of slots for selectively engaging a foot step in a variety of heights according to the size of occupant.

10. The chair with a backrest adjustment mechanism according to Claim 7, wherein the chair has a foot step detachably mounted in front of the foot-side portion and capable of positioning in a variety of heights according to the size of occupant.

11. The chair with a backrest adjustment mechanism according to Claim 1, wherein the chair has a pair of armrests extending forward.

12. The chair with a backrest adjustment mechanism according to Claim 11, wherein the armrests is detachably connected with a food tray.

13. The chair with a backrest adjustment mechanism according to Claim 1, wherein the chair has a pair of sliding bushings for sliding along a support rack and lockable at a variety of heights above ground so as to be use as a high chair.

14. The chair with a backrest adjustment mechanism according to Claim 1, wherein the support rack includes a front rack, a rear rack, and a pair of joints lockably and pivotally connected the front rack and the rear rack.

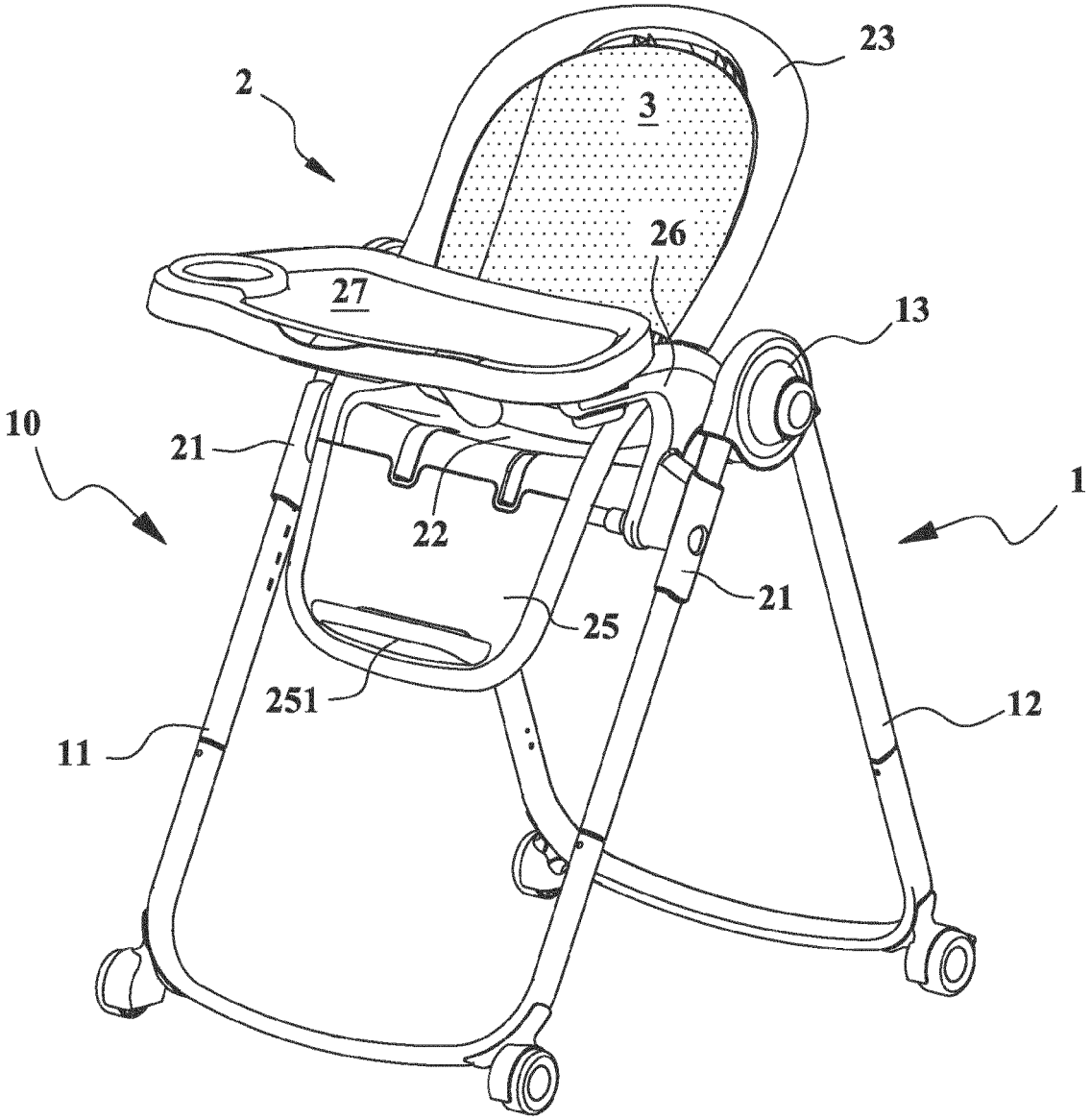

FIG. 1

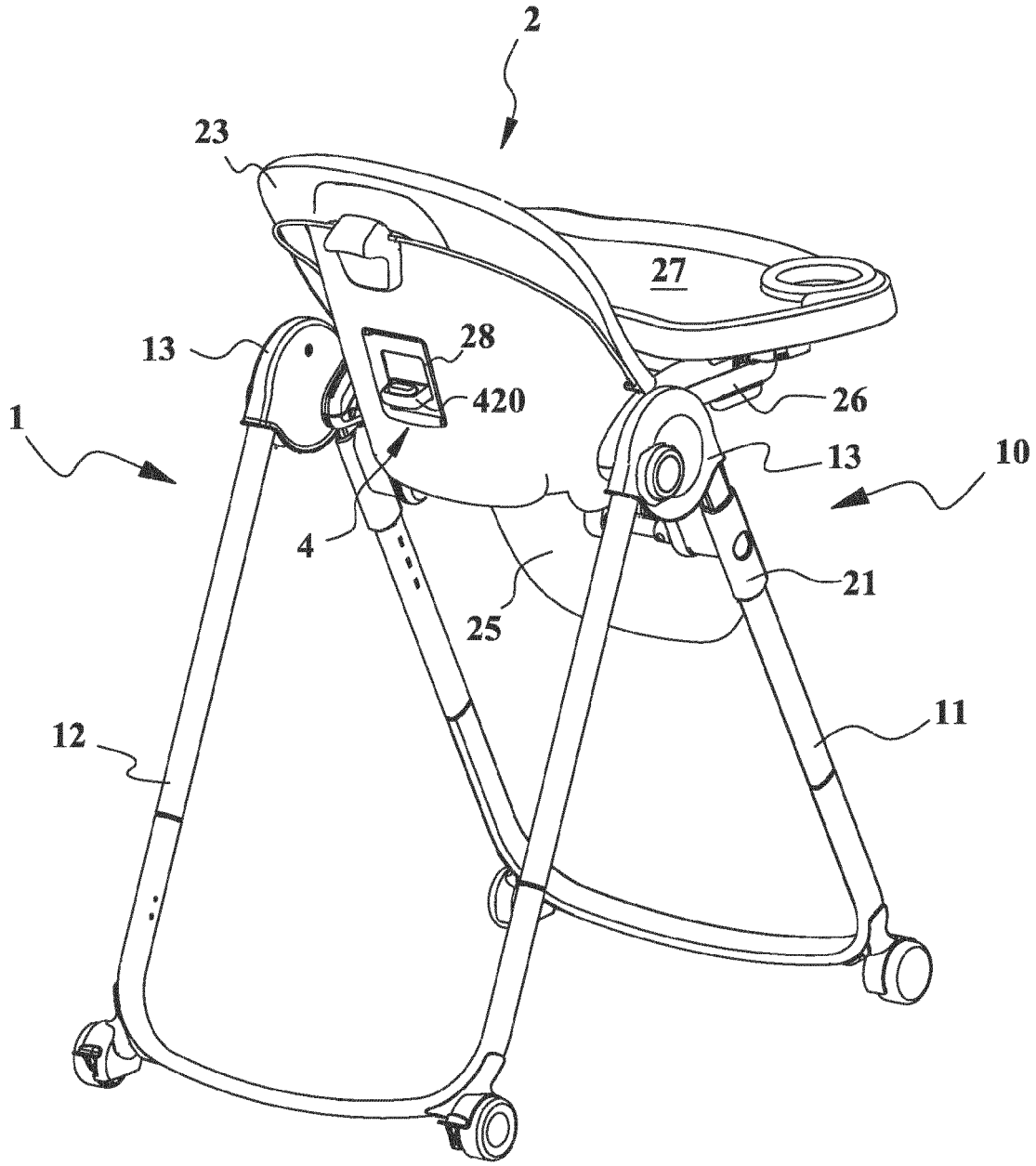

FIG. 2

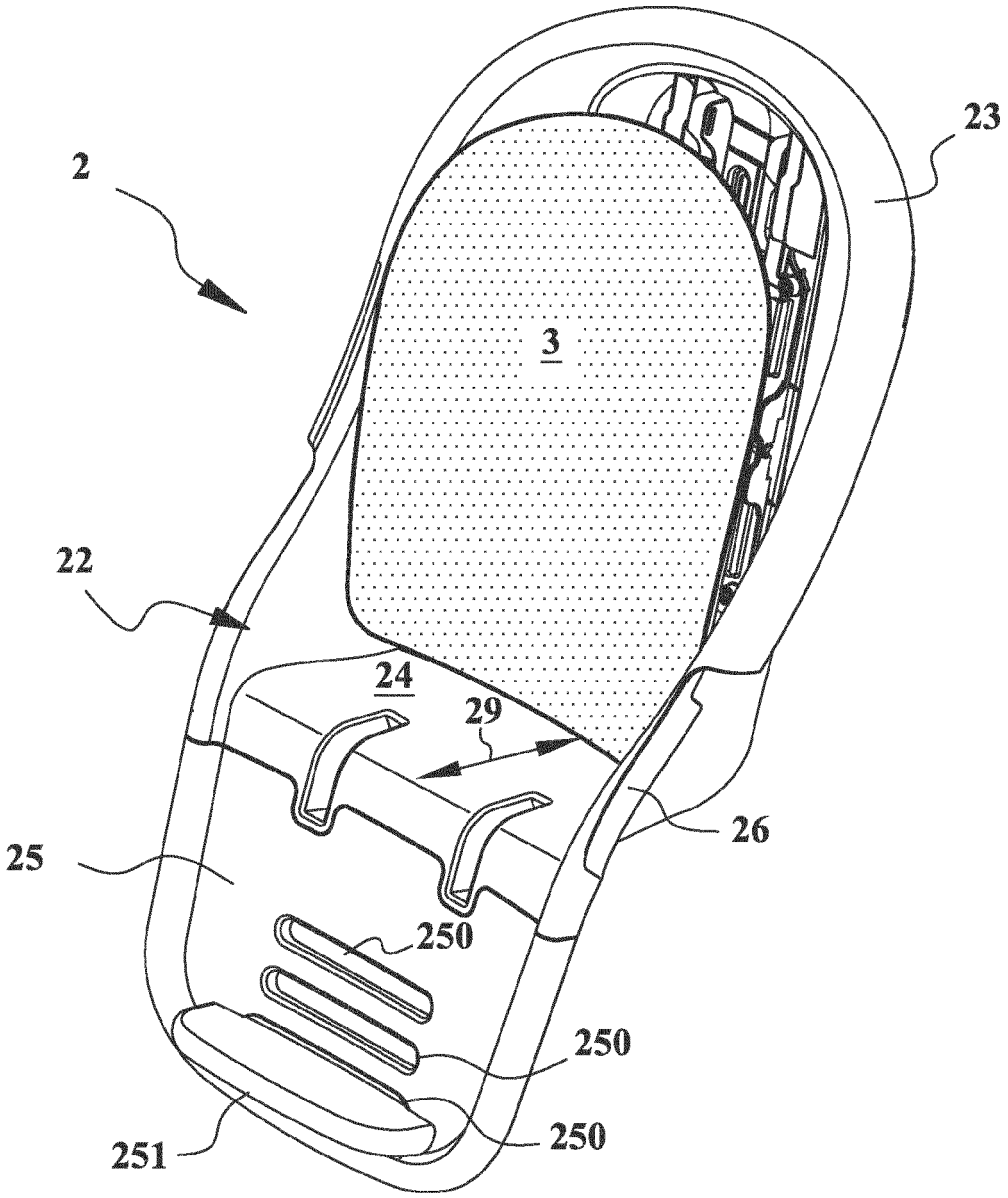

FIG. 3

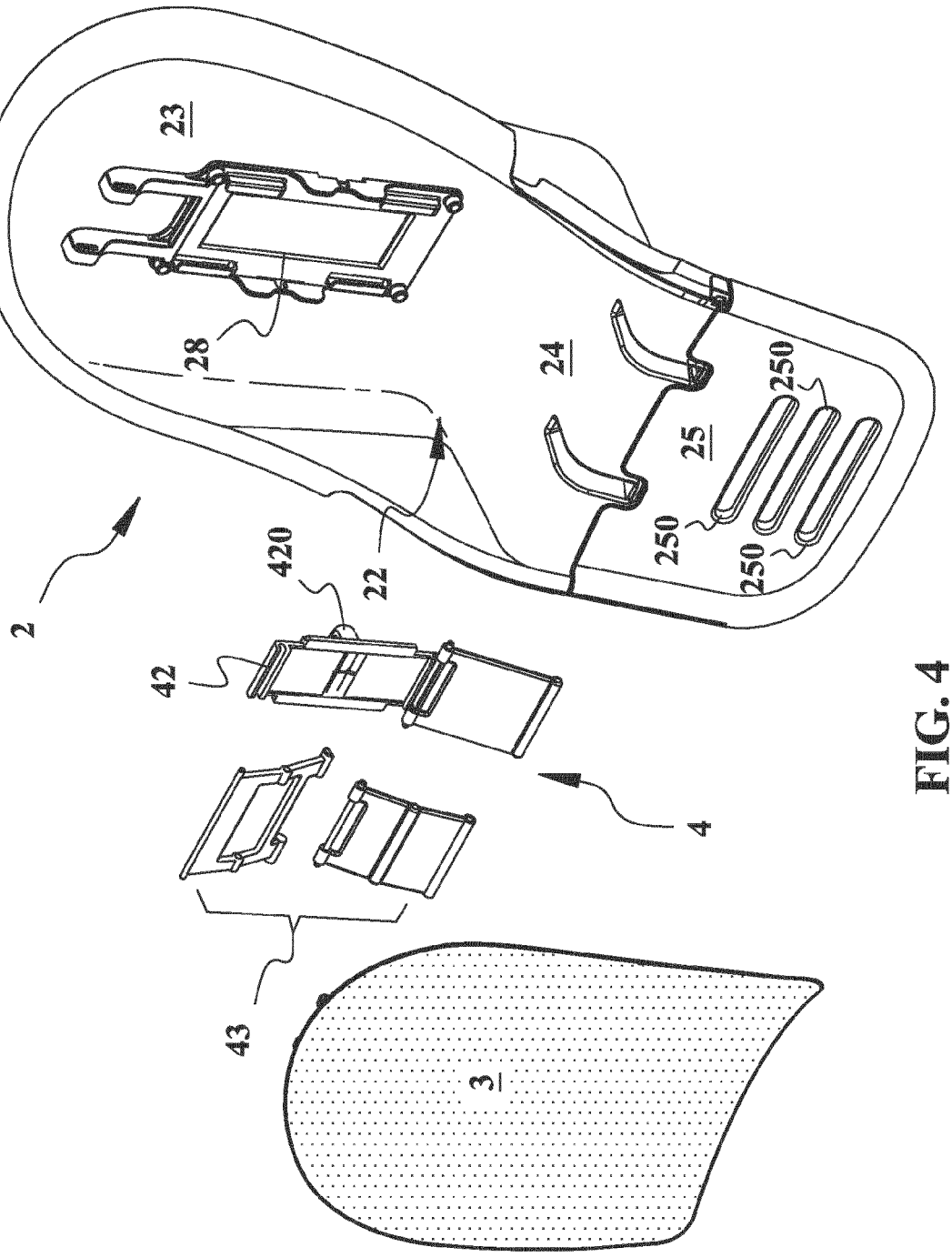

FIG. 4

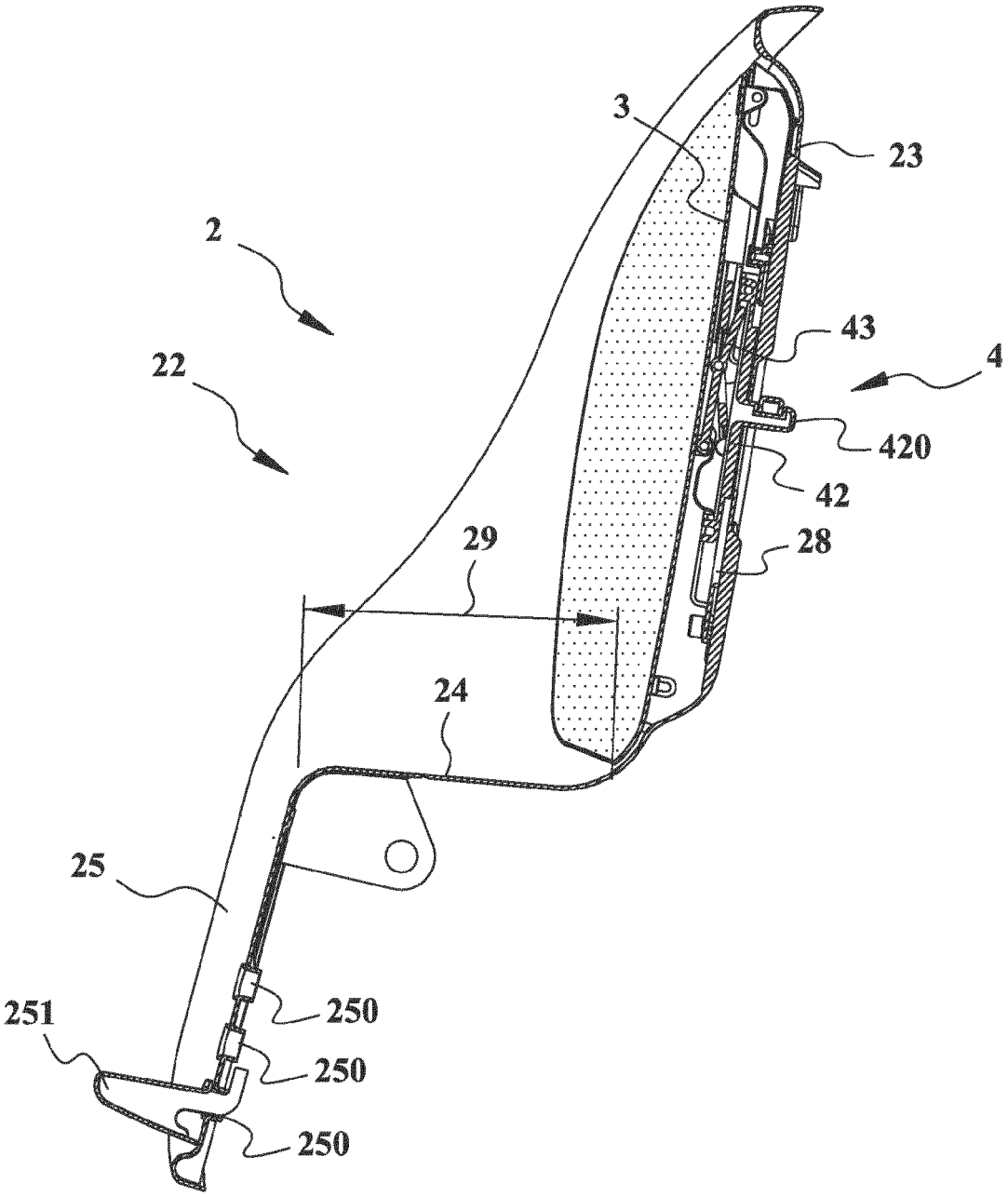

FIG. 5

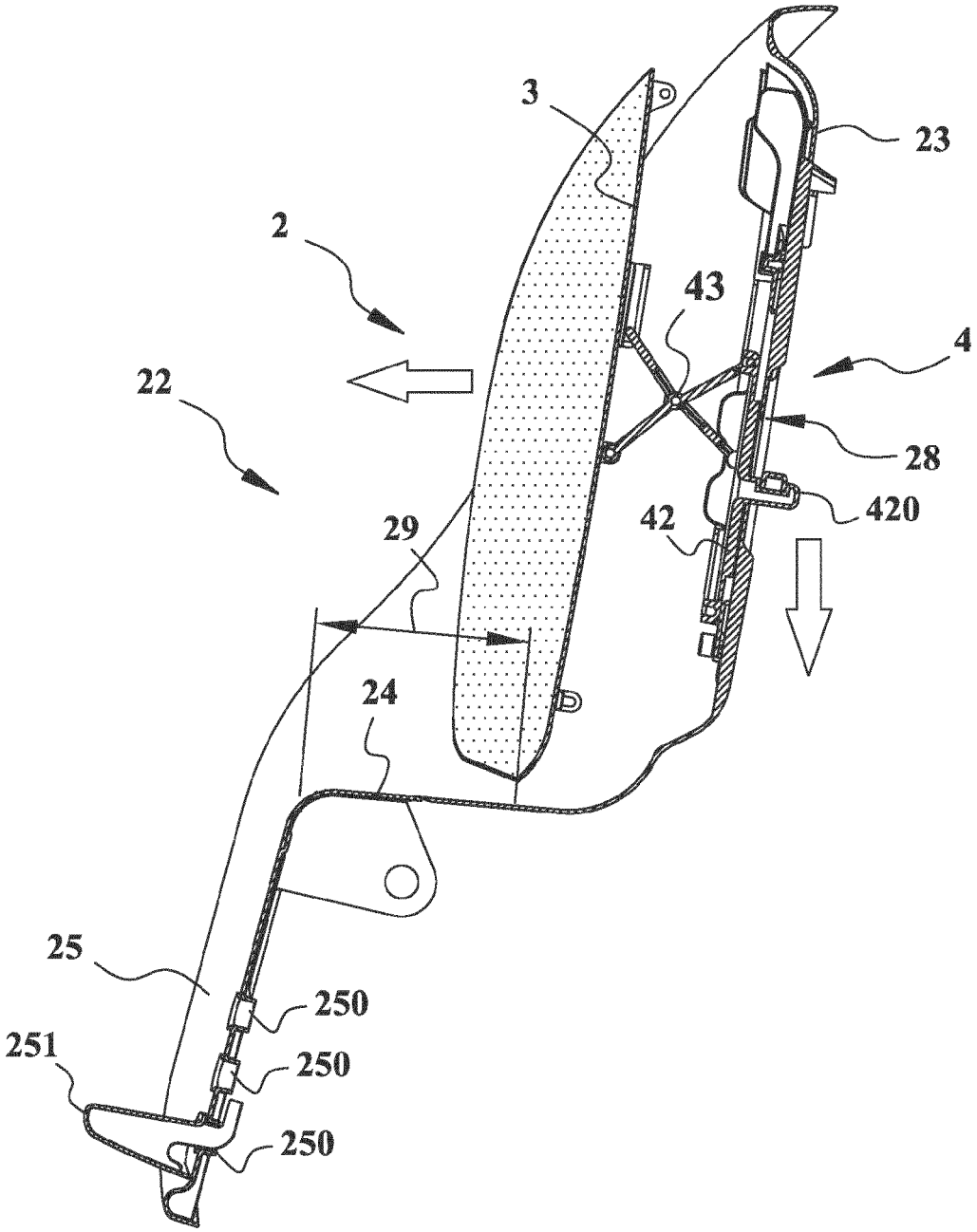

FIG. 6

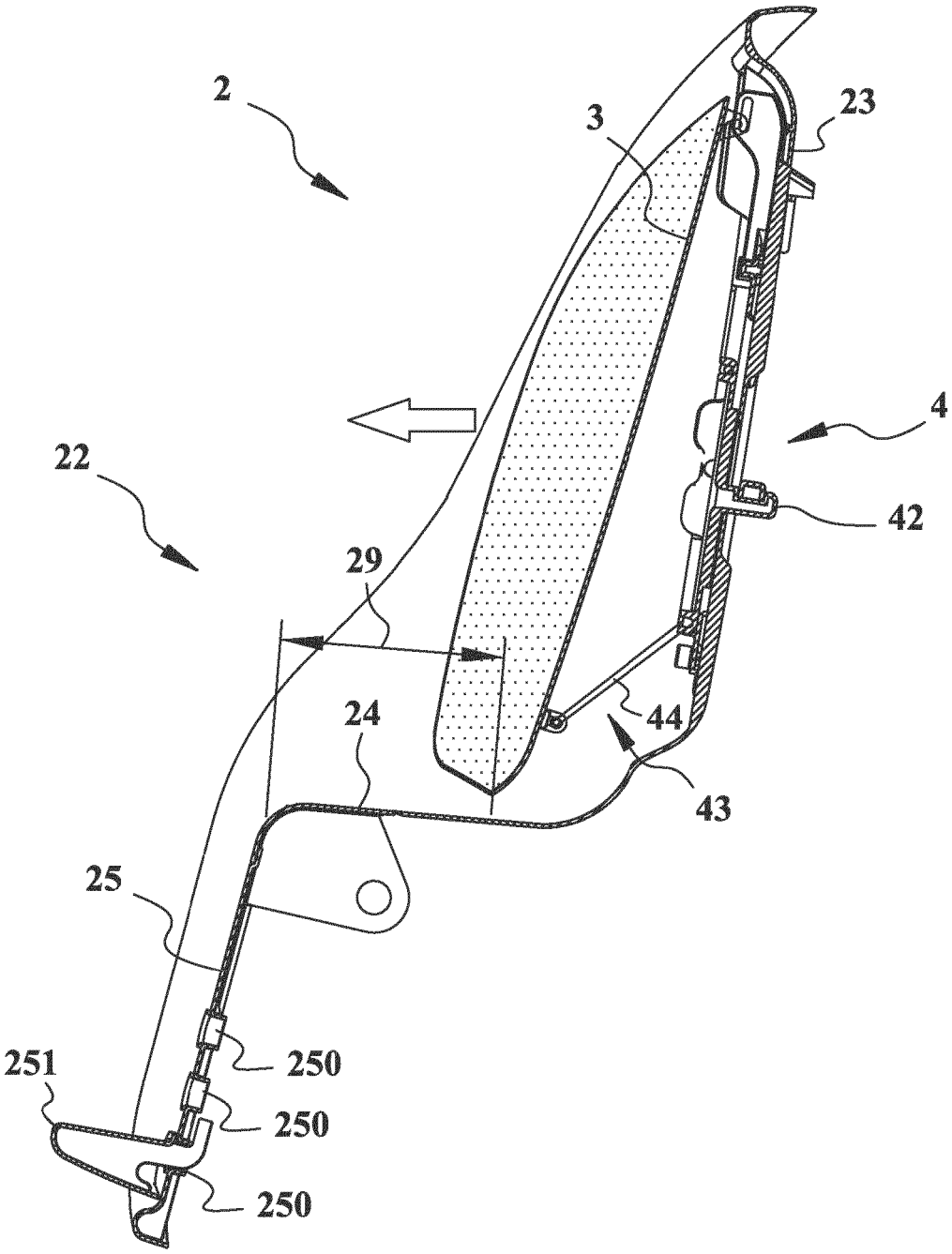

FIG. 7

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EUROPEAN SEARCH REPORT

Application Number
EP 13 16 5981

DOCUMENTS CONSIDERED TO BE RELEVANT

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X Y	US 2 767 777 A (JOSEPHINE KRIGER ET AL) 23 October 1956 (1956-10-23) * column 2, line 19 - line 41; figures 1,2,3,4 *	1,3-5,11 2,6-10, 12-14	INV. A47D1/00 A47C1/023 A47C7/46
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TECHNICAL FIELDS SEARCHED (IPC)

A47D
A47C

The present search report has been drawn up for all claims

Place of search	Date of completion of the search	Examiner
The Hague	5 August 2013	Amghar, Norddin

CATEGORY OF CITED DOCUMENTS

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ANNEX TO THE EUROPEAN SEARCH REPORT ON EUROPEAN PATENT APPLICATION NO. EP 13 16 5981

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