



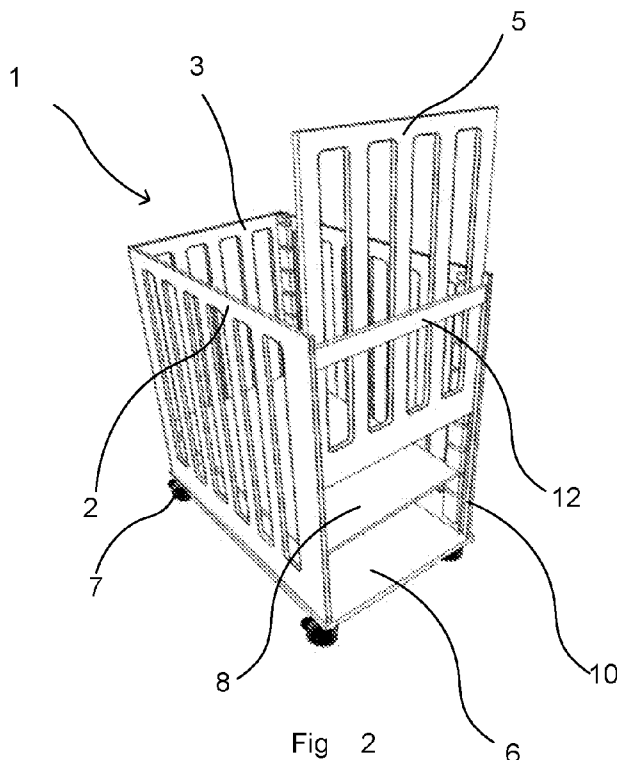
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(54) Title: MULTI-PURPOSE FURNITURE FOR CHILDREN



(57) Abstract: Multi-purpose furniture for children comprising a main part (1) and several accompanying parts. The main part comprises sidewalls (2, 3, 4, 5) and a plate (8), where the sidewalls (2, 3, 4, 5) are arranged at the outer edges of the plate (8). The main part (1) further comprises means for height adjustment of the plate (8) as the means comprises a) actuators, such as gas actuators, or b) tracks (9) or knobs at the sidewalls. Accompanying parts are preferably fastened to the sidewalls, and may among others comprise sleeping place and eating area.

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MULTI-PURPOSE FURNITURE FOR CHILDREN

The present invention is related to multi-purpose furniture for children, wherein the furniture may be used by children of different age and in different relations, according to the preamble of
5 patent claim 1.

Background

A child needs special furniture and may not necessarily use the same furniture as grown-ups. There is a number of such furniture, for instance changing table, cot, playpen etc., which a child
10 needs from birth until it may use grown-up furniture. The child is growing and thus it is an advantage if the child-furniture is adjustable, at the least in relation to the length of the child, for instance as the tripp-trapp chair from Stokke AS. Further, it is an advantage with multi-purpose furniture, as one piece may cover several needs.

There are many different types of furniture for children, and some of them are multi-purpose.
15 Most of the known multi-purpose furniture are however, defined for specific uses and may not be adjusted to the individual need. The furniture are usually collapsible and designed to occupy little place during storage, and they should not be too heavy.

When the children are small the furniture should comprise a safe and comfortable sleeping place, and it is an advantage that the child is in the same room as the adults. There is thus a need
20 for furniture being easily moved from one room to another without causing too many problems. Furniture combining playpen and sleeping place exists, as the sleeping place is fastened to the upper side of the playpen. Examples of this are given for instance in GB 2365334, US 2001001161 and US 5,778,465. However, all devices being shown and mentioned there are arranged in such a way that the sleeping place can not be used without the playpen and the playpen is not designed
25 to be moved without being collapsed. Geuther has a playpen with wheels where the floor is adjustable in three heights, but the system does not comprise a separate, removable sleeping place. The Geuther playpen is, however, too large to be moved from one room to another, even though it is designed with wheels.

Once the child becomes older it wants to participate in the activities of the house, and then the
30 child may be too short, for instance to reach the kitchen unit or a sink. A solution often being used is that the child stands on a chair, or sits on the kitchen unit/sink, but then there is a danger that the child may fall. There are no known solutions to this problem, which also simultaneously solves the other challenges as mentioned above.

Object

The object of the present invention is to provide multi-purpose furniture to be used of children at different age. There is another object that the furniture should be light, and easy to adjust to different purposes and children of different size and age. Another object is that it should be possible to use the parts of the furniture both alone and in combination. Finally, there is an object that the furniture should be safe for the child and convenient for the parents.

The invention

The objects are reached with furniture according to the characterizing part of patent claim 1. Further advantageous features are given in the corresponding independent claims.

The furniture according to the present invention comprises one main part and several accompanying parts, as the main part may be used alone or in combination with one or more of the accompanying parts. Some of the accompanying parts may also be used without the main part.

The main part comprises sidewalls and a height adjustable plate and possible a floor in addition to the height adjustable plate. The sidewalls may be fastened to the floor, to a frame and/or to each other. To stiffen the main part, the sidewalls should preferably be fastened both at the upper and lower end, possible ways to do this is obvious to a person skilled of the art. The sidewalls may for instance be fastened to a fixed floor at the lower end and to each other at the upper end. The upper parts of the sidewalls should preferably be performed in such a way that they constitute an upper edge which may support an accompanying part being fastened to the main part. In an alternative embodiment, the upper parts of the sidewalls are fastened to a frame or the similar to stiffen and to create such an edge.

The height adjustable plate in the main part may be adjusted in different heights from lower to upper end of the sidewalls, in such a way that the inner height of the main part is adjusted. By "the inner height of the main part" it is in this context meant the interior distance from the top of the sidewall to the plate.

The underside of the main part is provided with means for transport/movement, for instance wheels, balls, cylinders or other suitable means, in such a way that the main part may simply be moved, with or without accompanying parts.

In an alternative embodiment is the main part not provided with fixed sidewalls around the entire floor, as the main part may have an opening or door. If the floor for instance is four-sided, the main part may have three fixed sidewalls being fastened as described above, and along the fourth side of the floor, the main part may be open or provided with a door to be lifted or swung. The upper edge which the sidewalls constitutes for supporting accompanying parts will in such a case either run along three sides, or comprise a part being fastened between two sidewalls for

stiffening. A part of the sidewall may in a corresponding way, be lifted or swung in relation to the rest of the walls of a main part which has a circular or oval floor.

The main part may also be used as a changing table, bed, playpen/playhouse or place to stand by adjusting the inner height. By placing a mattress on the plate or floor one will achieve a bed
5 with the desired heights of the sidewalls by adjusting the inner height. By placing the plate at the upper position, one will achieve a changing table by placing a changing mat on the plate. One may adjust the inner height if sidewalls are desirable at the changing table.

By adjusting the plate down or removing it if the main part has fixed floor, the main part may be used as a traditional playpen, and in embodiments where the sidewalls has an opening or door,
10 the main part may be used as a playhouse by placing the plate at the top.

Further, the main part may be used when children should reach a given height, for instance a table, kitchen unit or sink. By adjusting the plate one adjusts how high the child reaches, and whether it should be reached up and above the sidewalls. In this way, the child may stand close to for instance the kitchen unit or sink without any danger of falling, and with the hands above the
15 sidewall, the child may "help".

The plate may be height adjustable in many ways, for instance step less with actuators, such as spring actuators, or stepwise by pushing a plate in different tracks or on top of knobs which will be obvious to a person skilled of the art.

The invention also comprises a number of accompanying parts, such as sleeping place and
20 eating area, to be fastened to the main part and form a unit together with it. The sleeping place is preferably designed as a bed having curved lower part, in such a way that a cradle is achieved. This may easily be placed inside the main part, and the lower part of the sleeping place may rest against the floor or plate. It is preferred that the lower part is curved in the longitudinal direction in such a way that the infant will be rocked in the longitudinal direction rather than from side to
25 side. Infants having sleeping problems, or restless infants, for instance infants with colic pains, are often calmed easier with such rocking.

In an especially preferred embodiment, the sleeping place is designed with devices to be hung over the sidewalls of the main part, in such a way that the lower part of the sleeping place may, or may not touch the plate of the main part. The sleeping place should also be self-supporting in such
30 a way that it may be used without the main part. When the infant should sleep it may be laid into the sleeping place, and moved both with and without the main part without being waken.

When the infant is a few months old, it will sit rather than lying flat. Thus it is designed an accompanying part being a cushion or lying chair to be put into the sleeping place or directly on the plate or floor of the main part. Once this part is placed correctly, one achieves a sitting function

which replaces the traditional bouncer chair, and has the advantage that the chair is lifted from the floor without danger of the child falling.

Another accompanying part is an eating area, for instance an eating chair, as the eating chair is integrated in a plate to be fastened at the sidewalls of the main part, in such a way that the upper
5 part of a child sitting in the chair is reaching above the sidewalls of the main part, while the lower part of the body is underneath the plate, and the feet may rest on the floor of the main part.

In embodiments where the height of the plate in the main part is adjusted by recesses, knobs and the similar, the device may comprise another accompanying part being a part of a plate having the same wide as the adjustable plate of the main part, but having shorter length. Such a plate
10 part may be fastened to the main part in the same way as the adjustable plate, and may be used both as a part of an eating area, or alone together with the main part. By inserting such a plate part having shorter length one achieves a step which the child may for instance use as a seat, and resting the feet against the adjustable plate. Thus one achieves a sitting place with adjustable height. The step may also be used to form stairs in such a way that the child may use the main part
15 with step, to reach something.

Further accompanying parts may also be possible, preferably to be fastened at or on top of the sidewalls of the main part, for instance a bathtub to be partly lowered in the main part.

Examples

20 In the following a preferred embodiment of the invention will be described with an example shown in the enclosed figures, where

Figure 1 shows the main part in perspective from above,

Figure 2 shows the main part having a sidewall in lifted position,

Figure 3 shows the sleeping area in perspective from above, and

25 Figure 4 shows the main part with the sleeping area fastened.

Figure 1 shows a preferred embodiment of the main part 1, as the main part comprises three fixed sidewalls 2, 3, 4, a floor 6, wheels 7 under the floor 6, a height adjustable plate 8 and an elevatable sidewall 5 which may be removed. The sidewalls 2, 3, 4, 5 are preferably arranged
30 perpendicular to each other, and performed in such a way that they together constitutes an upper edge 11 which may support an accompanying part to be fastened on the main part. Two sidewalls 2, 4 being opposite each other are performed with horizontal recesses 9 on the inside, in such a way that the recesses 9 faces each other, and constitute tracks for supporting the height adjustable plate 8. The plate 8 is inserted into the recesses 9 and rests on these, the recesses 9

must thus be performed to offer sufficient support to the plate, in such a way that one may stand on the plate.

The recesses 9 constituting tracks for receiving the plate 8 may also be performed in another way than shown in the Figures, for instances as a number of knobs, which will be obvious to a person skilled of the art. The recesses 9 may also be performed on the sidewall 3 opposite the elevatable sidewall 5.

Figure 2 shows the elevatable sidewall in partly elevated position. When the plate 8 should be height adjusted, the elevatable sidewall 5 is elevated, and the plate is withdrawn from a recess, and inserted into the desired recess to give correct height of the plate. Then the sidewall 5 is lowered again. In an alternative embodiment, the sidewall 5 is swingable rather than elevatable, as it is hinged on one side. The sidewall is then swung to a side before the plate is withdrawn, and back on place once the repositioning of the plate 8 is performed. With such an embodiment the swingable door may also be provided with recesses, as the plate will rest upon these when the door is closed. To give sufficient support, at the least two of the sidewalls should be performed with recesses, and this should preferably be opposite sidewalls. In the preferred embodiment shown in the Figures, the elevatable sidewall 5 runs in a vertical track 10 of the adjacent sidewalls 2, 4. The sidewall 5 may also be removed by pulling it up completely, and out of the vertical tracks 10. This may be advantageous when the main part should be used alone, for instance to stand on, or as a playhouse.

In Figure 1 and 2 it is also shown a bar 12 between the sidewalls 2, 4 adjacent to the elevatable wall 5, to further stiffen the main part 1.

Figure 3 shows a preferred embodiment of a sleeping place 13 comprising a curved lower part 14, as the lower part 14 will function as rockers towards the floor. Inside the sleeping place there is a separate bottom (not shown) which the child rests upon, and this will preferably be plane. The lower part 14 is curved in the longitudinal direction of the sleeping place 13 in such a way that the infant is rocked in the longitudinal direction rather than from side to side. At the upper part the sleeping place 13 is performed with fastening devices, shown as hooks 15, in such a way that the sleeping place may be fastened at the upper part of the sidewalls, preferably at the upper edge 11 being constituted of the sidewalls 2, 3, 4, 5 of the main part. The sleeping place 13 is further performed with carriers 16 on the sides, in order to carry the sleeping place easily. In the preferred embodiment shown in Figure 3, the sleeping place is also provided with a collapsible hood 17. This is removable and optional.

In the shown embodiment of Figure 3, the sleeping place comprises a structure of supporting material, and a textile being fastened to the structure. The supporting structure comprises two similar parts being fastened to each other by stiffeners 18. Each part of the structure comprises a

curved lower part 14 and a carrier 16, as vertical bars 19 are arranged between the lower part 14 and the carrier 16. The carrier is performed with a through opening 20, where the textile may be fastened. The length of the carrier 16 and the lower part 14 are in the shown embodiment, adjusted to each other, and constitutes the length of the sleeping place. The bars 19 arranged
5 between the carriers 16 and the lower part 14 constitute the depth of the sleeping place, and the stiffeners 18 connecting the two parts of the structure constitute the width of the sleeping place. The shown embodiment is provided with hooks 15 for fastening to the main part, in each end of the carrier.

The textile being fastened to the supporting structure of the sleeping place is sewn into shape,
10 and thread through the opening 20 of the carrier 16, and fastened around to the stiffeners 18 between the structure parts. This may be performed in many ways which will be obvious to a person skilled of the art. The textile part is preferably provided with fastening devices in such a way that it may be threaded through the opening 20, placed around the stiffener 18 and fastened in itself with the fastening devices. In this way the textile part is easy to release from the structure
15 and may be changed or washed without dismounting the supporting structure of the sleeping place.

A bottom of the sleeping place may either be mounted between the lower parts 14 and thus contribute to extra stiffening, or a bottom may be fastened to the textile, for instance in that the textile is performed with a pocket for receiving a bottom. Figure 4 shows the main part 1 having a
20 sleeping place 13 installed. The sleeping place 13 is installed in such a way that it hangs in the hooks 15 resting on the upper edge 11, while the lower part 14 does not touch the plate 8. By adjusting the plate 8 upwards one may achieve that the lower part 14 rests against the plate 8 and that the rocking function is preserved even when the sleeping place 13 is installed in the main part
1.

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Above is shown and described a preferred embodiment of the present invention. The Figures and examples are only given to illustrate an embodiment of the invention, and should not, under any circumstances, be interpreted limiting to the invention as defined in the enclosed patent
claims.

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Claims

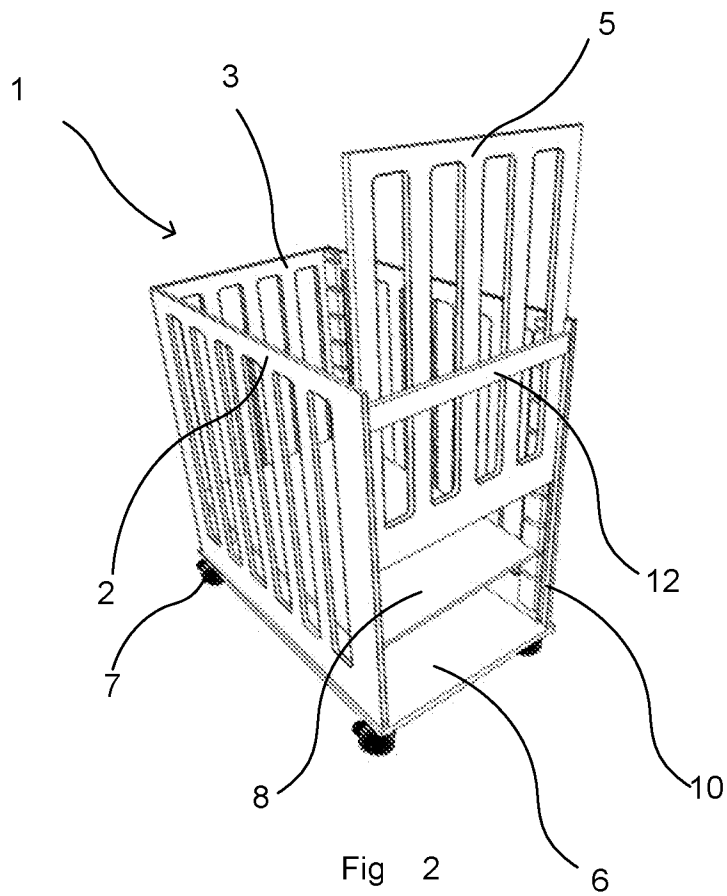
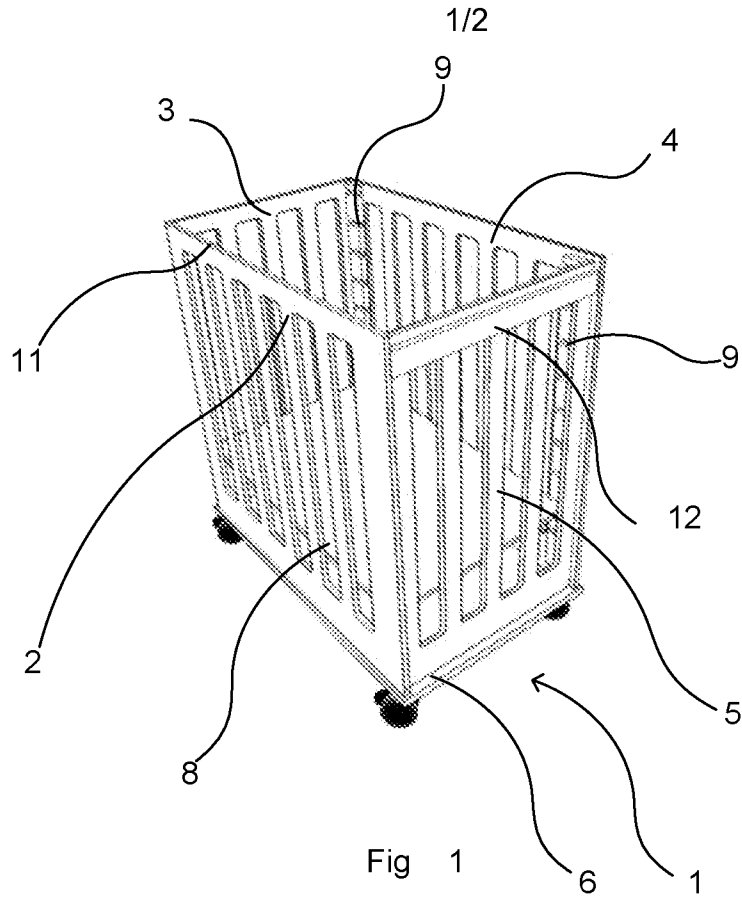
1. Multi-purpose furniture for children comprising a main part (1) and several accompanying parts, as the main part comprises sidewalls (2, 3, 4, 5) and a plate (8), where the sidewalls (2, 3, 4, 5) are arranged at the outer edges of the plate (8), **characterized** in that the main part (1) comprises
- 5 means for height adjusting the plate (8) as the means comprises
- a) actuators such as gas actuators, or
 - b) recesses (9) or knobs at the sidewalls.
2. Multi-purpose furniture according to claim 1, **characterized** in that the plate (8) constitutes floor
- 10 of the furniture.
3. Multi-purpose furniture according to claims 1 or 2, **characterized** in that at the least one (5) of the sidewalls is removable, in such a way that it may be relocated and/or removed from the main part (1).
- 15
4. Multi-purpose furniture according to claim 3, **characterized** in that the removable sidewall (5) runs in tracks (10) on adjacent sidewalls, and may be elevated.
5. Multi-purpose furniture according to claim 3, **characterized** in that the removable sidewall (5) is
- 20 hinged on one side, and may be swung outwards.
6. Multi-purpose furniture according to anyone of the claims 3-5, wherein the means for height adjustment comprises tracks (9) in sidewalls, **characterized** in that the tracks (9) are at the sidewalls (2, 4) being adjacent to the releasable sidewall (5).
- 25
7. Multi-purpose furniture according to claim 6, **characterized** in that the tracks (9) in addition should be at the sidewall (3) opposite to the releasable sidewall (5).
8. Multi-purpose furniture according to claim 1, **characterized** by comprising a sleeping place (13)
- 30 as an accompanying part, wherein the sleeping place (13) is both self-supporting and may be fastened to the main part (1).
9. Multi-purpose furniture according to claim 8, **characterized** in that the sleeping place comprises a main structure and a textile, as the textile is fastened to the main structure.

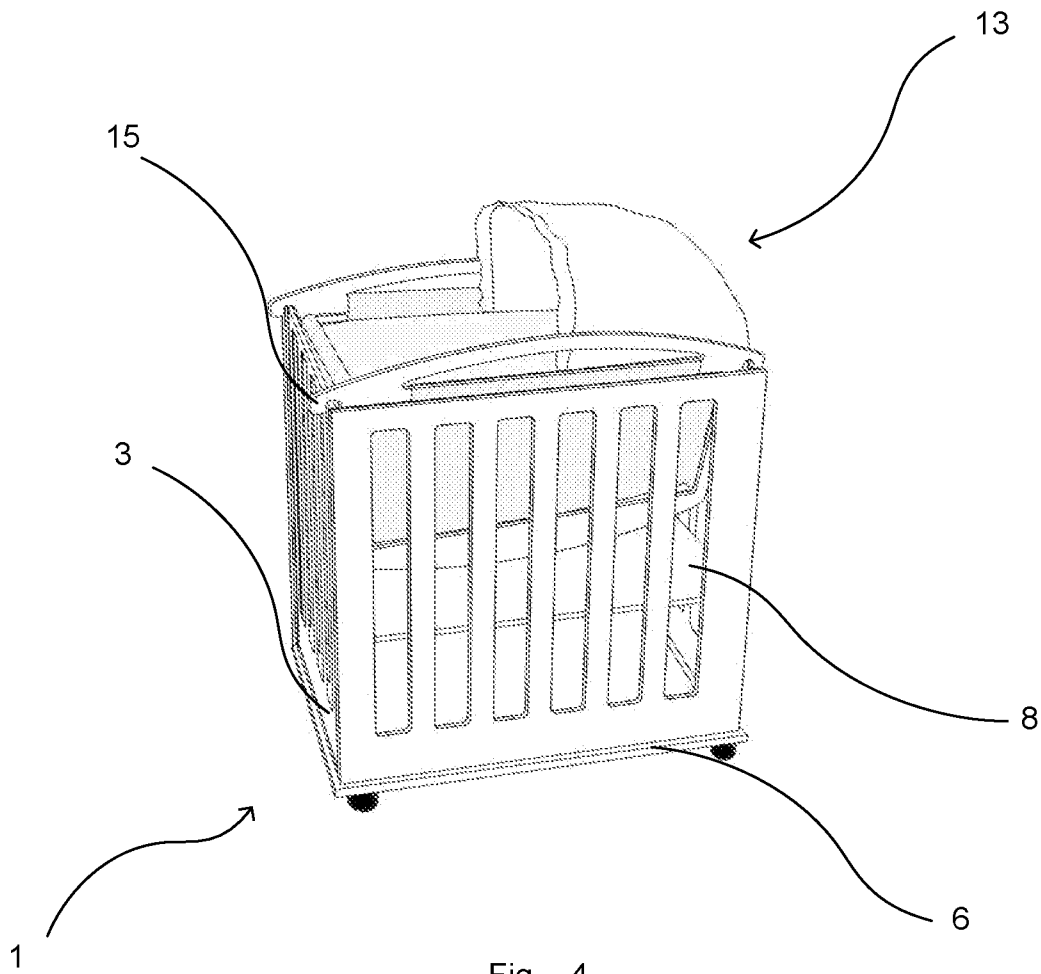
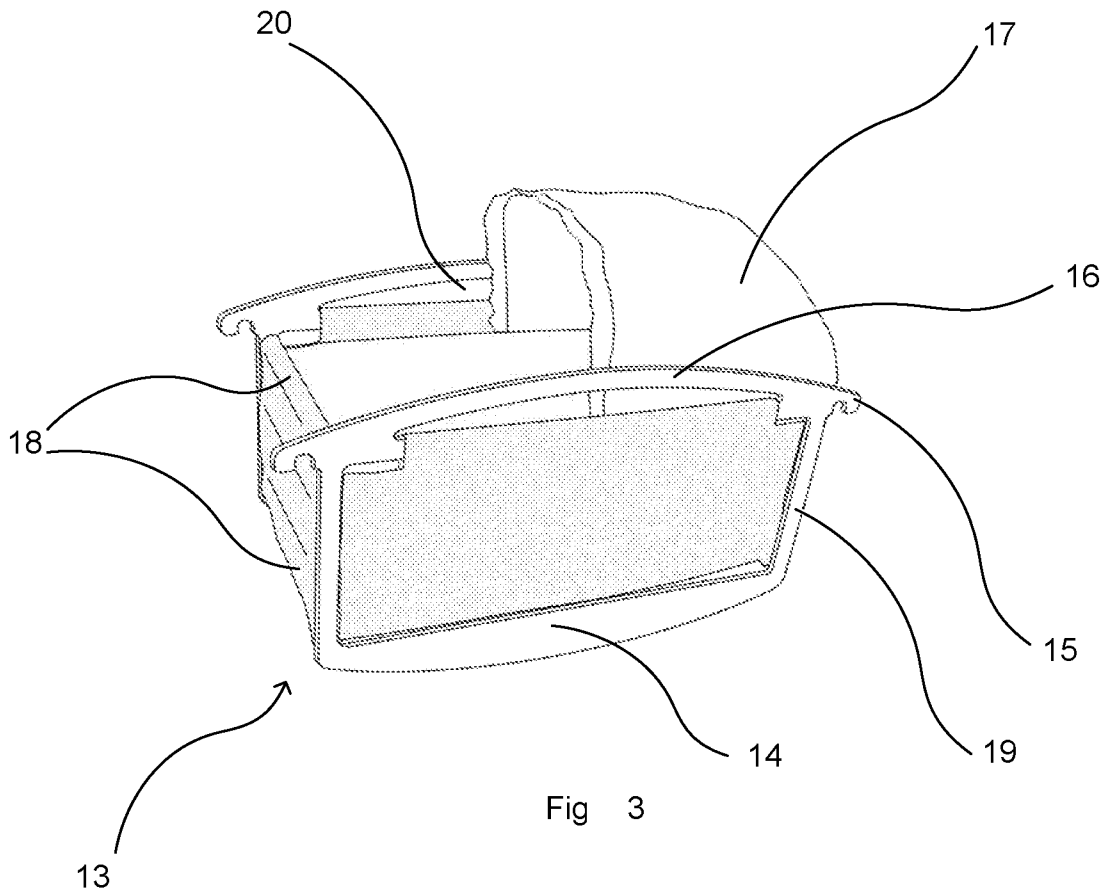
10. Multi-purpose furniture according to claim 1, **characterized** by comprising an eating area as an accompanying part, wherein the eating area may be fastened to the main part, and comprises both table and sitting-part.

- 5 11. Multi-purpose furniture according to claim 1, wherein the means for adjusting the height comprises tracks (9) in sidewalls, **characterized** by comprising a plate part for insertion into the tracks as accompanying part, wherein the plate has the same width but shorter length than the height adjustable the plate (8).

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INTERNATIONAL SEARCH REPORT

International application No.
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A. CLASSIFICATION OF SUBJECT MATTER

IPC: see extra sheet

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

IPC: A47D

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

SE, DK, FI, NO classes as above

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)

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C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	WO 2009024972 A2 (SROUR MARK ET AL), 26 February 2009 (2009-02-26); figures 3, 13 --	1-11
X	DE 202004014453 U1 (ROBA BAUMANN GMBH), 31 March 2005 (2005-03-31); figures 1-3 --	1-11
X	US 6848129 B1 (AMATO MARY ANNE G ET AL), 1 February 2005 (2005-02-01); figures 1-4 --	1-11
X	US 20060236454 A1 (CHEN SHUN-MIN), 26 October 2006 (2006-10-26); figures 2-3 --	1-11

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C (Continuation). DOCUMENTS CONSIDERED TO BE RELEVANT

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X	EP 0826330 A2 (BJOERN AKE SKOELD DESIGN AB), 4 March 1998 (1998-03-04); figures 1-5 --	1-11
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A	US 4109961 A (OPSVIK PETER), 29 August 1978 (1978-08-29); figure 1 -- -----	6, 7, 11

Continuation of: second sheet

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Cited literature, if any, will be enclosed in paper form.

INTERNATIONAL SEARCH REPORT

Information on patent family members

International application No.

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