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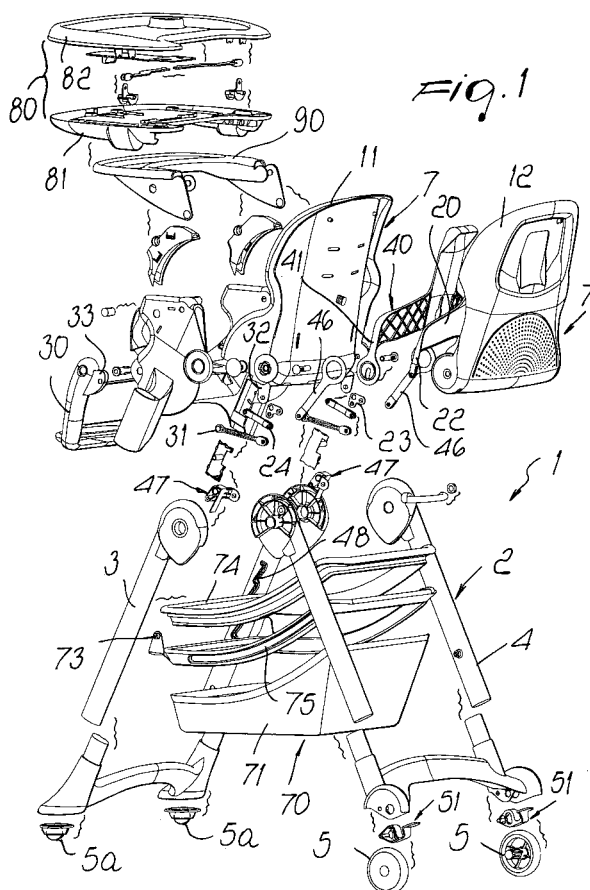
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(54) **High-chair for children with easy actuation**

(57) A high-chair for children with easy actuation, comprising a stand (2) for supporting a chair (7) that can be arranged at a preset height, a tilting device (20,22,23,24) for varying the inclination of the backrest

(10), which can be accessed on the rear part of the backrest (10), connectors (31) for connecting to each other the backrest (10) and the footrest (30) in order to vary the position of the footrest (30) simultaneously with the variation in the inclination of the backrest (10).



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## Description

**[0001]** The present invention relates to a high-chair for children with means for easier actuation.

**[0002]** As is known, high-chairs for children are already commercially available which, generally speaking, are made with a stand or supporting element where-to a chair is connected; such chair can be arranged at the preferred height and has a backrest that can be reclined in various manners.

**[0003]** In the solutions of the known art, currently there are considerable problems in providing an ergonomic distribution of the various controls, which must be available immediately to bystanders, who are caring for the child, but on the other hand must not be easily reachable by the child, in order to prevent inappropriate actuations.

**[0004]** Currently commercially available solutions have not proved suitable of solving the problem fully, and indeed have led to the provision of structures that are particularly complicated and awkward, and therefore they are subject to frequent jamming and are not always able to comply with the required safety criteria.

**[0005]** The aim of the invention is to solve the problems described above, by providing a high-chair for children with easier actuation means that allows to have the various controls arranged in an ergonomic position, making them easily accessible to bystanders but difficult to access for the child sat in the high-chair.

**[0006]** Within the scope of this aim, an object of the invention is to provide a high-chair for children in which the various controls are particularly simplified and easy to assemble within the high-chair, which and therefore does not have the various actuation mechanisms in sight.

**[0007]** Another object of the present invention is to provide a high-chair for children which, thanks to its particular constructive characteristics, is capable of giving the greatest assurances of reliability and safety in use.

**[0008]** Another object of the present invention is to provide a high-chair for children with easier actuation means that can be obtained easily starting from commonly commercially available elements and materials and is also competitive from a merely economical standpoint.

**[0009]** This aim and these and other objects that will become better apparent hereinafter are achieved by a high-chair for children with easier actuation means, according to the invention, which comprises a stand for supporting a chair that can be arranged at a preset height, characterized in that it comprises, on said chair, means for varying the inclination of the backrest, which can be accessed on the rear part of said backrest, and means for connecting to each other said backrest and the footrest in order to vary the position of said footrest simultaneously with the variation in the inclination of said backrest.

**[0010]** Further characteristics and advantages will be-

come better apparent from the description of a preferred but not exclusive embodiment of a high-chair for children with easier actuation means, illustrated only by way of non-limitative example in the accompanying drawings, wherein:

Figure 1 is an exploded perspective view of the high-chair for children;

Figure 2 is a side elevation view of the high-chair in the position for use;

Figure 3 is a schematic view of the means for varying the inclination of the backrest;

Figure 4 is a partially sectional view of the means for adjusting the vertical position;

Figure 5 is a schematic exploded perspective view of the elements that compose the means for adjusting the vertical position;

Figure 6 is an exploded perspective view of the brake means;

Figure 7 is a view of the brake lever in the inactive position;

Figure 8 is a view of the brake lever in the active position for locking the wheel;

Figure 9 is an exploded perspective view of the tray connected at the lower end of the arms of the supporting stand;

Figure 10 is a side elevation view of the tray, shown in dashed lines during the closure of the stand;

Figure 11 is an exploded perspective view of the sliding dinner tray;

Figure 12 is a perspective view of the lower shell of the sliding dinner tray.

**[0011]** With reference to the figures, the high-chair for children with easier actuation means, generally designated by the reference numeral 1, comprises a supporting stand 2, which is advantageously constituted by a first arm and a second arm, or front arm 3 and rear arm 4, which are hinged in an upward region and are advantageously provided with wheels 5 for movement, which are arranged at the lower ends of the rear arm, and with balls 5a, which are arranged on the front arm.

**[0012]** A chair 7 is connected to the stand 2 and can be arranged at various heights on the stand 2.

**[0013]** A first particularity of the invention consists in that at the chair 7, and more specifically at the rear face of the backrest 10, which is constituted by a front half-shell 11 and by a rear half-shell 12, there are backrest tilting means for inclining the backrest, which have a first actuation fork 20, protruding from the rear half-shell 12 and whose lower arms 22 engage L-shaped levers 23 that are articulated to the structure of the high-chair.

**[0014]** In each lever 23, the other arm is connected to a linkage 24, which is articulated with a detent 25 that can slide so as to engage and disengage a set of locking teeth 26 arranged along a circular arc.

**[0015]** The actuation of the first fork 20 causes the rotation of the lever 23 and therefore the disengagement

of the detent 25 from the set of teeth 26, with the possibility to vary the inclination of the backrest 10.

**[0016]** A fundamental characteristic is constituted by the fact that there are connection means for interconnecting the backrest 10 and the footrest 30, which is articulated to the structure of the chair; said means are constituted by a rod 31, which is articulated between a first protrusion 32, which is connected to the backrest 10, and a second protrusion 33, which is connected to the footrest 30.

**[0017]** With this arrangement, by varying the inclination of the backrest the position of the footrest is changed at the same time.

**[0018]** The means for adjusting the vertical position of the chair 7 are described with reference to Figures 4 and 5 and have a second fork 40, which can be accessed at the rear face of the backrest and has lower lateral arms 41, which are connected around the articulation point of the backrest and form a circular protrusion 42 that surrounds an elongated slot 43 for movement with respect to the articulation point 49 of the backrest.

**[0019]** The eye 45 of a linkage 46 engages the circular protrusion 42 and is articulated, at the other end, to a pin oscillating element 47 or block with two pins, which allows engagement with the shaped guiding slot 48 that adjusts the sliding with respect to the front arm of the stand 2.

**[0020]** The actuation of the second fork 40 causes the oscillation of the block with the two pins 47, consequently allowing its movement within the slotted guide 48.

**[0021]** At the wheels 5 of the stand there are braking means 50, which are constituted by a lever 51 that is articulated to the end of one of the arms of the stand and has a contoured cutout 52, which is substantially shaped like the numeral 8 and has a lower seat 53 and an upper seat 54 which are delimited by a central narrower portion 55, which is meant to form, by engaging the shaft 56 associated with the wheels 5, an inactive position and an active position for the brake lever.

**[0022]** When the lever is in the inactive position, as shown in Figure 7, the lever is in the raised position and no interference occurs.

**[0023]** To engage the brake, one acts on the pedal 58, which is arranged at the ends of the lever 51, so as to engage the shaft 56 in the upper seat 54, with consequent coupling of the retention tooth 59 in the seats 60 formed by a pinion 61 keyed to the shaft 56.

**[0024]** When the lever is in the active position, therefore, the rotation of the wheel is absolutely prevented due to the locking applied by the retention tooth 59.

**[0025]** A tray 70 is described with reference to Figures 9 and 10 and is pivoted at one of its sides, for example to the front arm 3 of the stand 2.

**[0026]** As shown in the drawings, the tray 70 has a container portion 71, which is surmounted by a border 72 provided with the pivots 73 and an upper covering border 74.

**[0027]** At the border 72, on its lateral portions, there

are guiding slots 75, which end with a locking portion 76, in which a pin 77 engages which is connected to the other arm 4 of the stand.

**[0028]** The pin 77 is connected to an automatic locking button 78, so that when one wishes to close the stand it is sufficient to release the pin 77 by acting on the button and slide the pin within the slot 75, simultaneously closing the stand and tipping the tray.

**[0029]** A sliding dinner tray, generally designated by the reference numeral 80, is described with reference to Figures 11 and 12 and has a lower half-shell 81 and an upper half-shell 82, which enclose retention means comprising an actuation plate 84 that is provided with a grip element 85, which can be accessed at the lower face of the dinner tray in a region located in front of the chair. The plate 84 is provided with inclined slots 86, which engage the buttons 87 formed by movable rods 88, which are pivoted to locking jaws 89 that are articulated to the dinner tray and can engage in interlocking recesses 91 provided below a horizontal surface 90 of the chair 7, so as to be able to vary, by sliding, the position of the dinner tray, moving it with respect to the horizontal surface 90 that forms the interlocking recesses 91 for the jaws 89, which are actuated by making the plate 84 slide.

**[0030]** From the above description it is thus evident that the invention achieves the intended aim and objects, and in particular the fact is stressed that a high-chair for children is provided which is particularly practical and versatile, since it allows to have actuation elements that can be accessed immediately and are handy for bystanders but are arranged where they cannot be accessed easily by the child placed in the high-chair.

**[0031]** The invention thus conceived is susceptible of numerous modifications and variations such as, for example, providing chairs with different shapes and sizes, while using the same mechanisms of the present invention. All such variations are to be considered as falling within the scope of the appended claims.

**[0032]** All the details may further be replaced with other technically equivalent elements.

**[0033]** In practice, the materials employed, as well as the contingent shapes and dimensions, may be any according to requirements.

**[0034]** The disclosures in Italian Patent Application No. MI2002A001135 from which this application claims priority are incorporated herein by reference.

**[0035]** 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 high-chair for children with means for easier actuation, comprising a stand (2) for supporting a chair (7) that can be arranged at a preset height, **characterized in that** it comprises, on said chair (7), tilting means (20,22,23,24) for varying the inclination of the backrest (10), which can be accessed on the rear part (12) of said backrest (10), and connection means (31) for connecting to each other said backrest (10) and the footrest (30) in order to vary the position of said footrest (30) simultaneously with the variation in the inclination of said backrest (10). 5
2. The high-chair according to claim 1, **characterized in that** said backrest tilting means comprise a first actuation fork (20), which is accommodated within a front half-shell (11) and a rear half-shell (12), which constitute said backrest (10), the lower arms (22) of said first fork (20) engaging L-shaped levers (23) that are articulated to the chair (1), linkages (24) being articulated to said levers (23) and being connected to a detent (25) that can slide for engaging and disengaging a locking set of teeth (26) arranged on a circular arc. 10 15
3. The high-chair according to one or more of the preceding claims, **characterized in that** said connection means for interconnecting said backrest (10) and said footrest (30) comprises a rod (31) that is articulated between a first protrusion (32) of said backrest (10) and a second protrusion (33) that is connected to said footrest (30). 20 25 30
4. A high-chair for children with means for easier actuation, comprising a supporting stand (2) for a chair (7) that can be arranged at a preset height, **characterized in that** it comprises adjusting means (40,41) for adjusting the vertical position of said chair (7) on said stand (2), said adjustment means (40,41) being accessible at the backrest (10) of said chair (7). 35 40
5. The high-chair according to claim 4, **characterized in that** said means for adjusting the vertical position comprise a second fork (40), which can be accessed at the rear face of the backrest (10) and has lower lateral arms (41) which are connected to the articulation point (49) of the backrest (10) and form a circular protrusion (42) that surrounds an elongated slot (43) for movement with respect to the articulation point (49) of the backrest, the eye (45) of a linkage (46) engaging said protrusion (42) and being articulated, at the other end, to a pin oscillating element (47) with two pins that can engage a contoured slot (48) for guiding the sliding with respect to the front arm (3) of said stand (2). 45 50 55
6. A high-chair for children with means for easier actuation, comprising a stand (2) for supporting a chair (7) that can be arranged at a preset height, **characterized in that** it comprises braking means (50) with a brake lever (51) that is articulated at the lower end of said stand (2), said brake lever (51) having a contoured cutout (52), which forms an inactive position and an active position for said lever (51) with respect to the supporting shaft (56) of the wheels (57) of said stand (2), a retention tooth (59) being furthermore provided on said lever (51) and being able to engage, when said lever (51) is in the active position, in seats (60) formed by a pinion (61) keyed on said supporting shaft (56). 5
7. The high-chair according to claim 6, **characterized in that** said contoured cutout (52) is substantially shaped like the numeral 8, with a lower seat (53) and an upper seat (54) that are delimited by a central narrower portion (55), said cutout (52) determining, by engaging the shaft (56) associated with the wheels (57), said inactive and active positions. 10 15
8. A high-chair for children with means for easier actuation, comprising a stand (2) for supporting a chair (7) that can be arranged at a preset height, **characterized in that** it comprises a tray (70) that can be supported proximate to the lower ends of the arms (3,4) of said stand (2), one (3) of said arms being pivoted (73) to an end of said tray (70), the other one (4) of said arms engaging slidably lateral guiding slots (75) of said tray (70) for closing said stand (2) when said tray (70) is turned over. 20 25 30
9. The high-chair according to claim 8, **characterized in that** said tray (70) comprises a container portion (71) that is surmounted by a border (72) provided with pivots (73) for pivoting to said stand (2) and an upper covering border (74), said guiding slots (75) being provided in said border (72) and ending with a locking portion (76) that can be engaged by a pin (77) that is connected to the other arm (4) of said stand (2). 35 40 45
10. The high-chair according to one or more of the preceding claims, **characterized in that** said pin (77) is connected to an automatic locking button (78) for release with respect to said guiding slots (75). 50
11. A high-chair for children with means for easier actuation, comprising a supporting stand (2) for a chair (7) that can be arranged at a preset height, **characterized in that** it comprises a sliding dinner tray (80) that is associated with the horizontal surface (90) of the chair (7), retention means being furthermore provided for retaining said dinner tray, said means being accessible at the lower face of said dinner tray. 55

12. The high-chair according to claim 11, **characterized in that** said sliding dinner tray (80) has a lower half-shell (81) and an upper half-shell (82), which enclose said retention means, which are constituted by an actuation plate (84) that is provided with a grip element (85) that can be accessed at the lower face of the dinner tray in a front region with respect to the chair (7), said plate (84) being provided with inclined slots (86) that can engage the buttons (87) formed by rods (88) that can perform a translational motion and are pivoted to locking jaws (89), which are articulated to the dinner tray (80) and can engage in interlocking recesses (91) formed under said horizontal surface (90).

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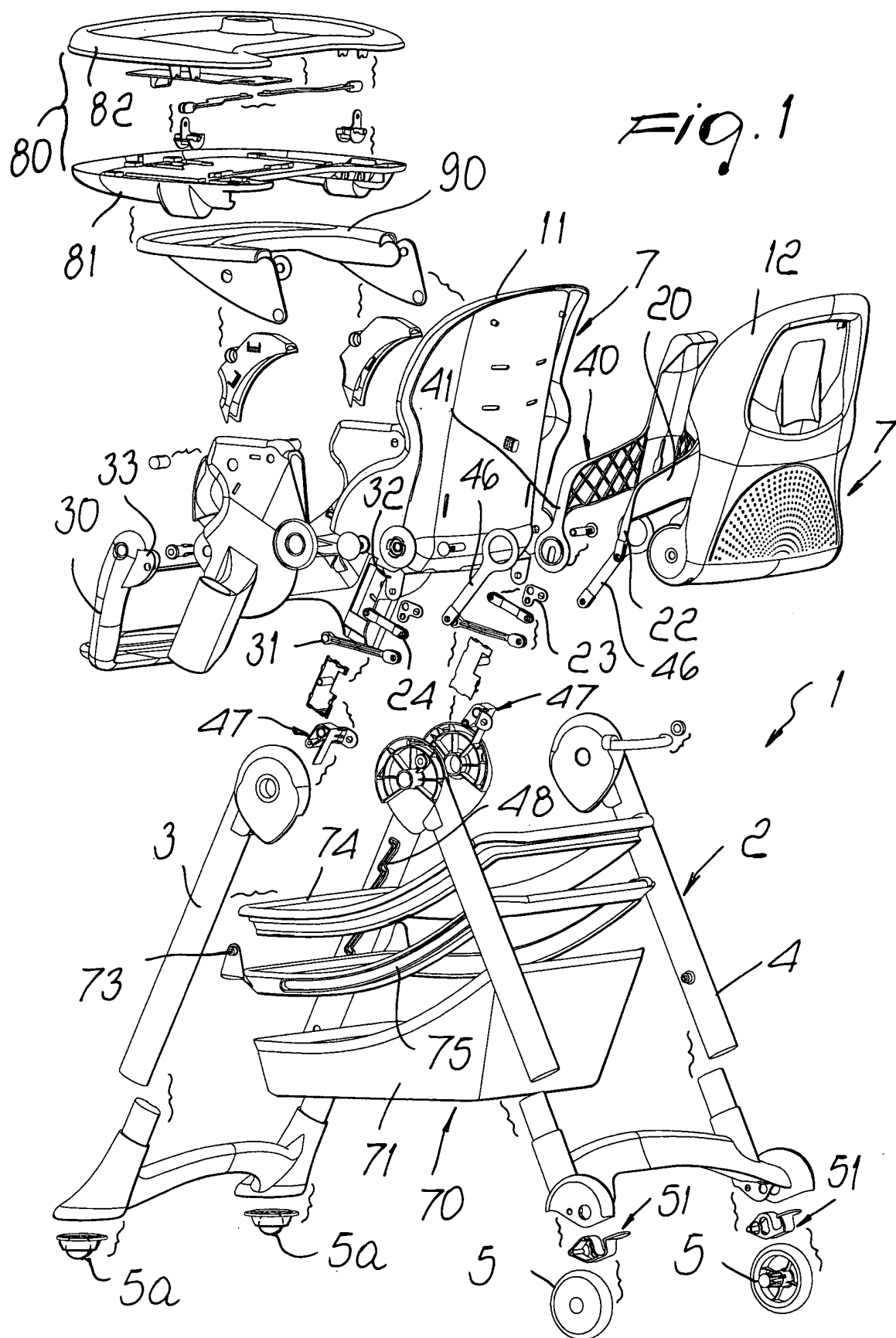
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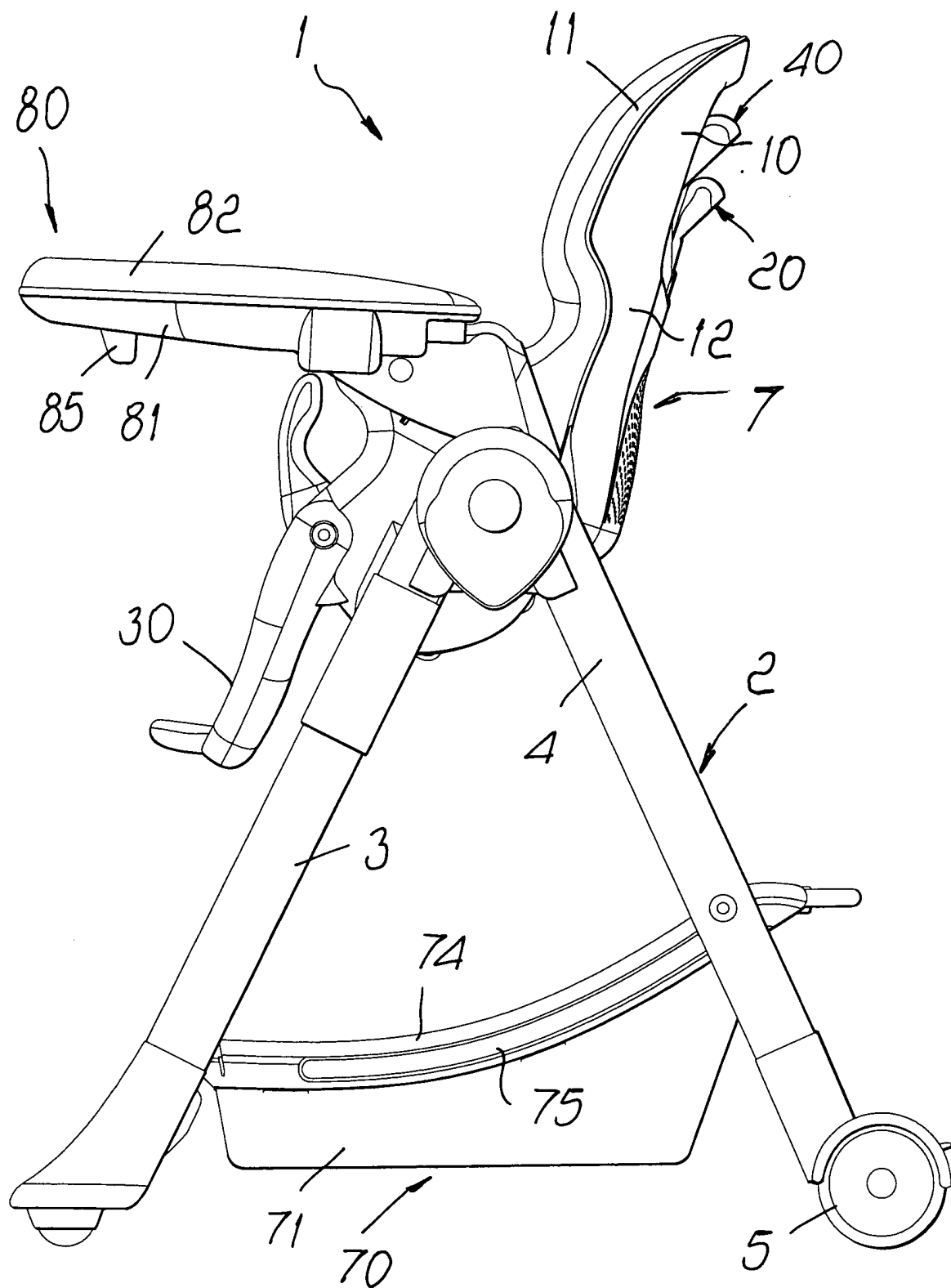


Fig. 2

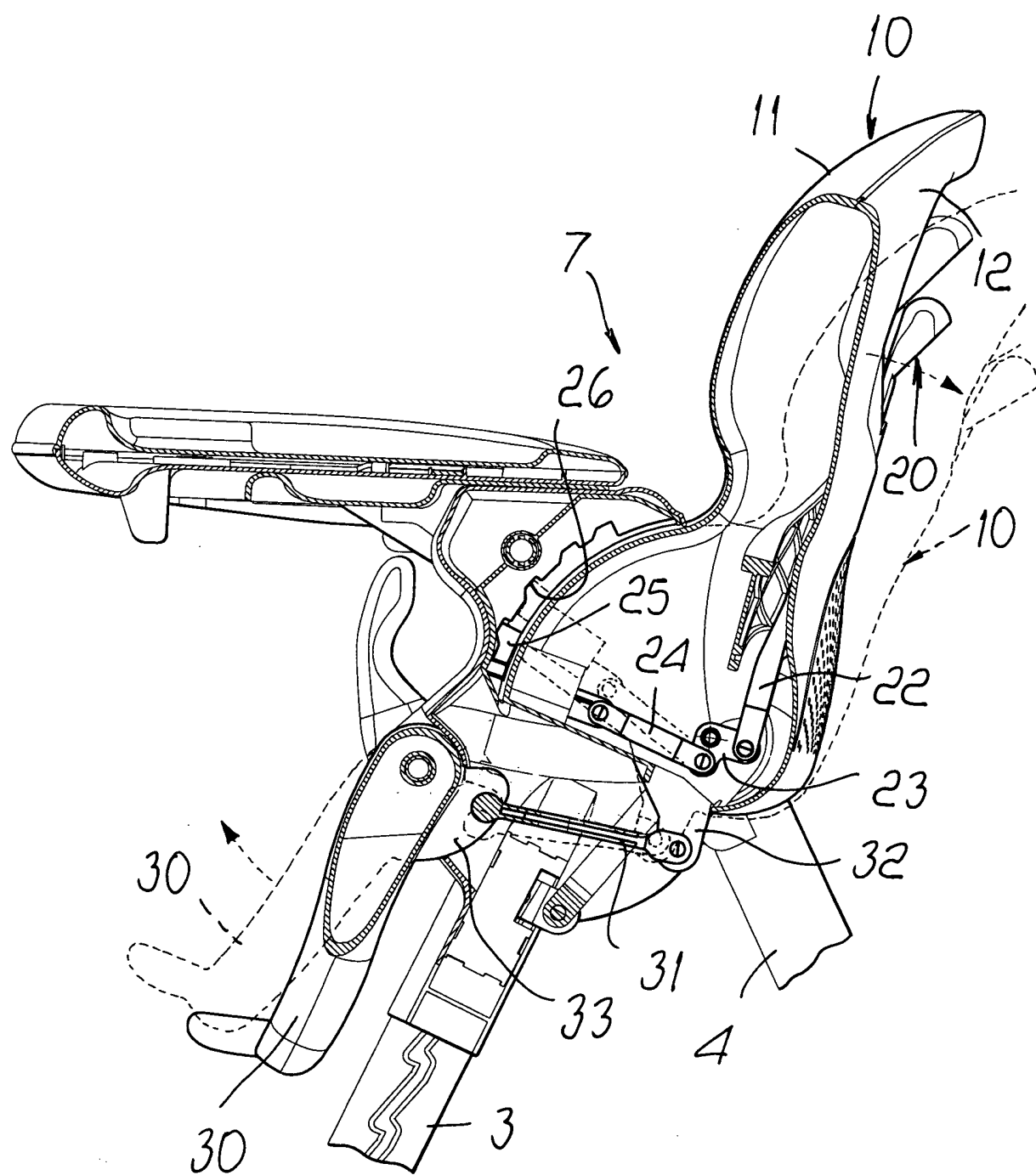


Fig. 3



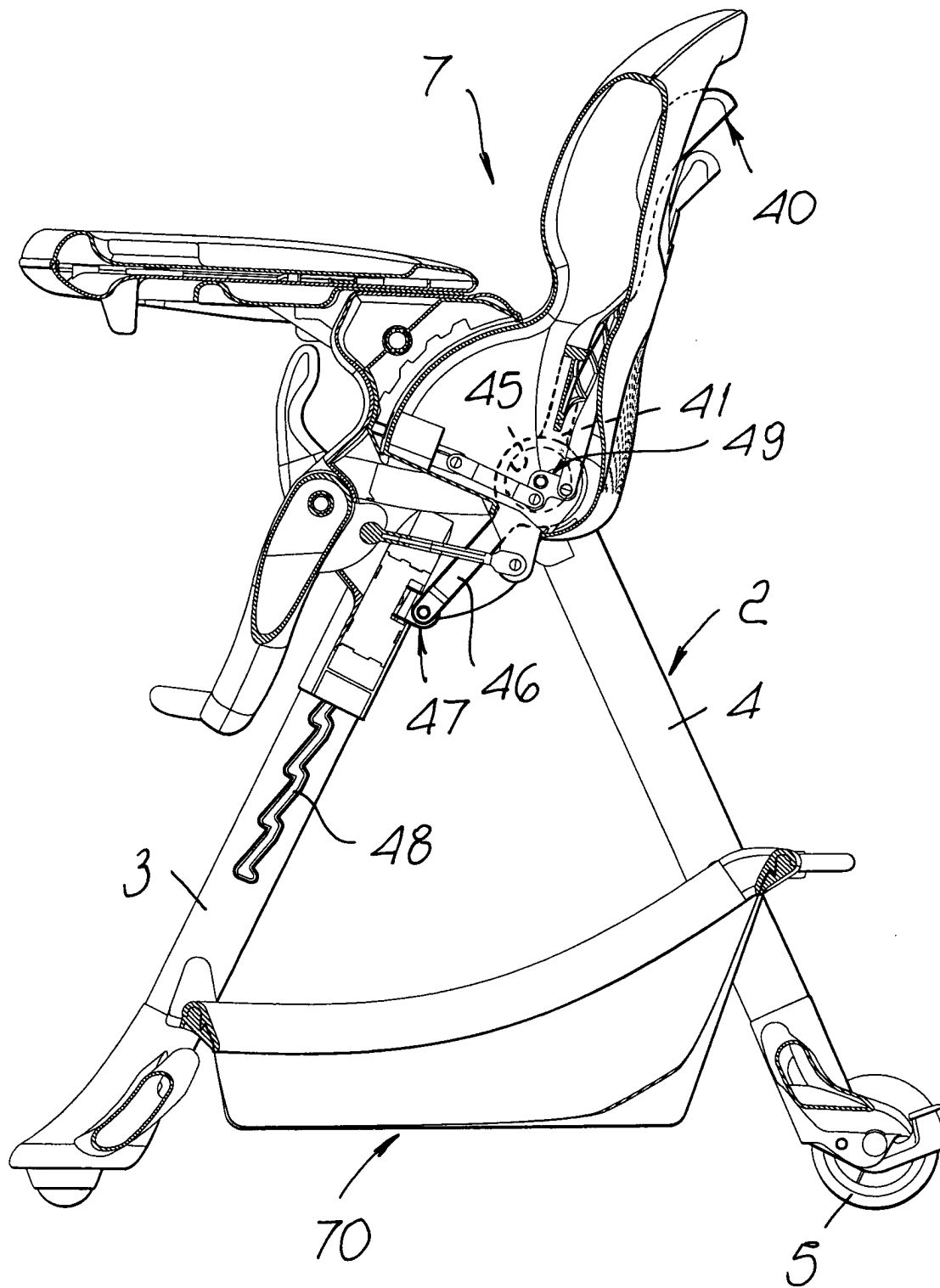


Fig. 4

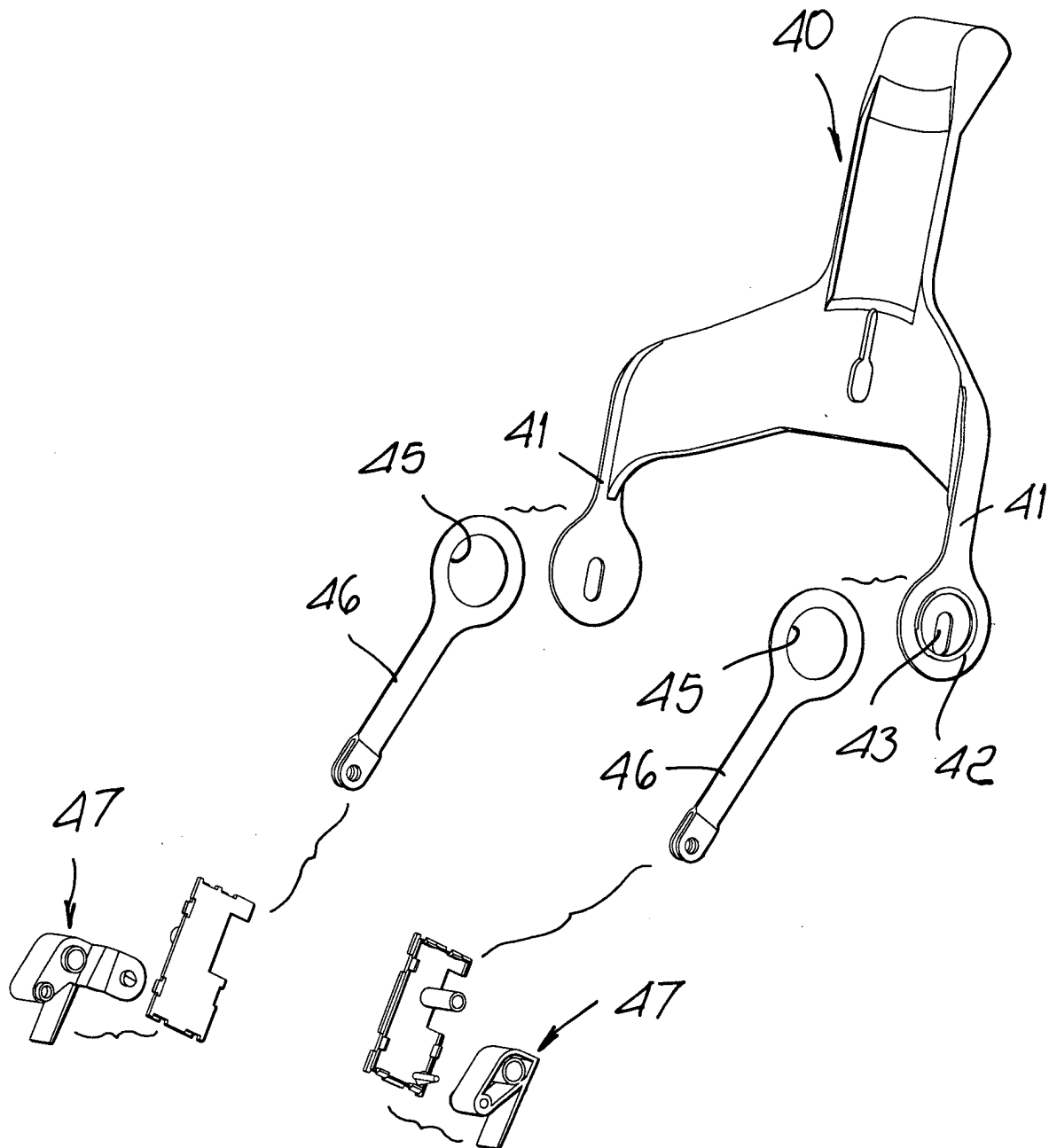
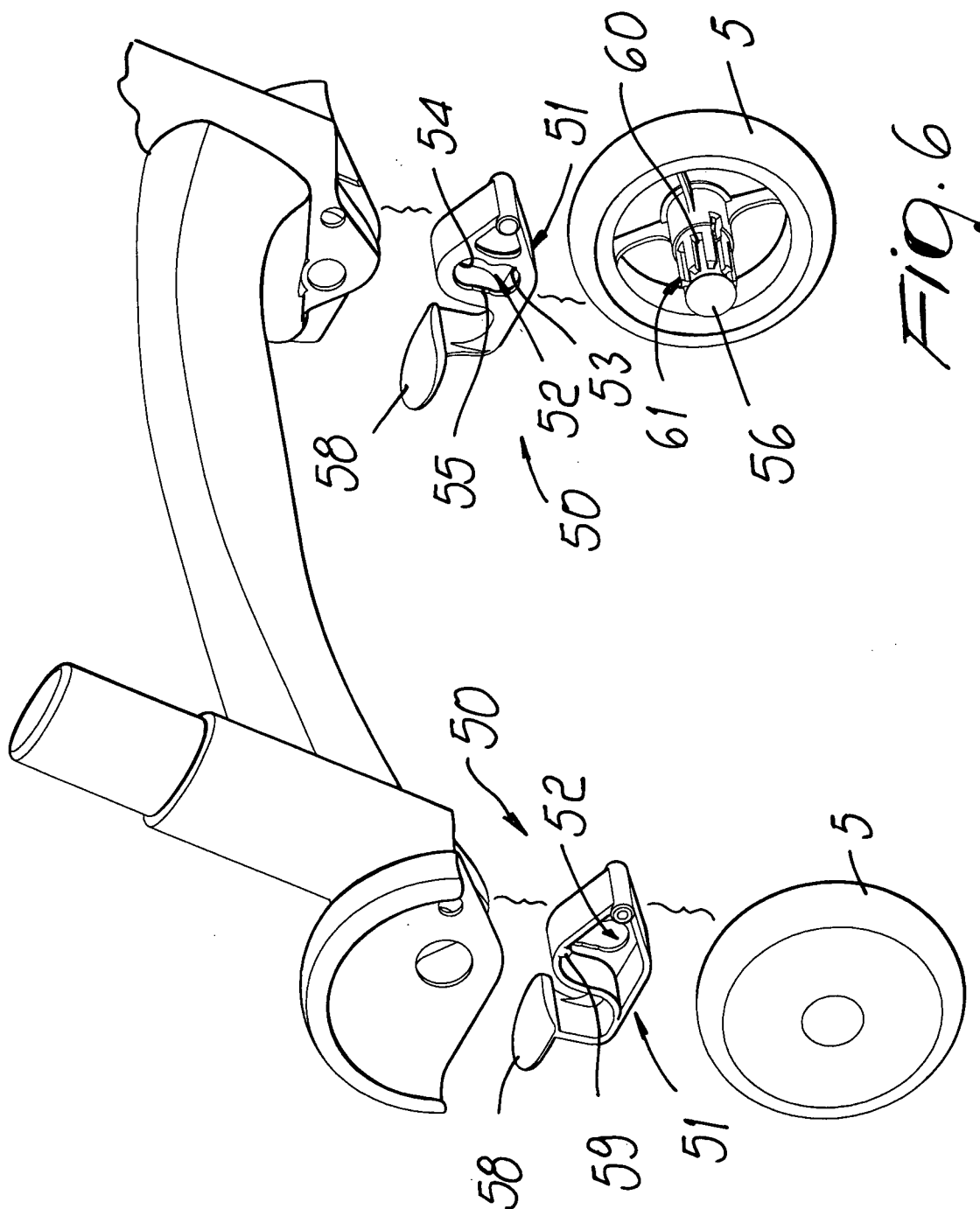
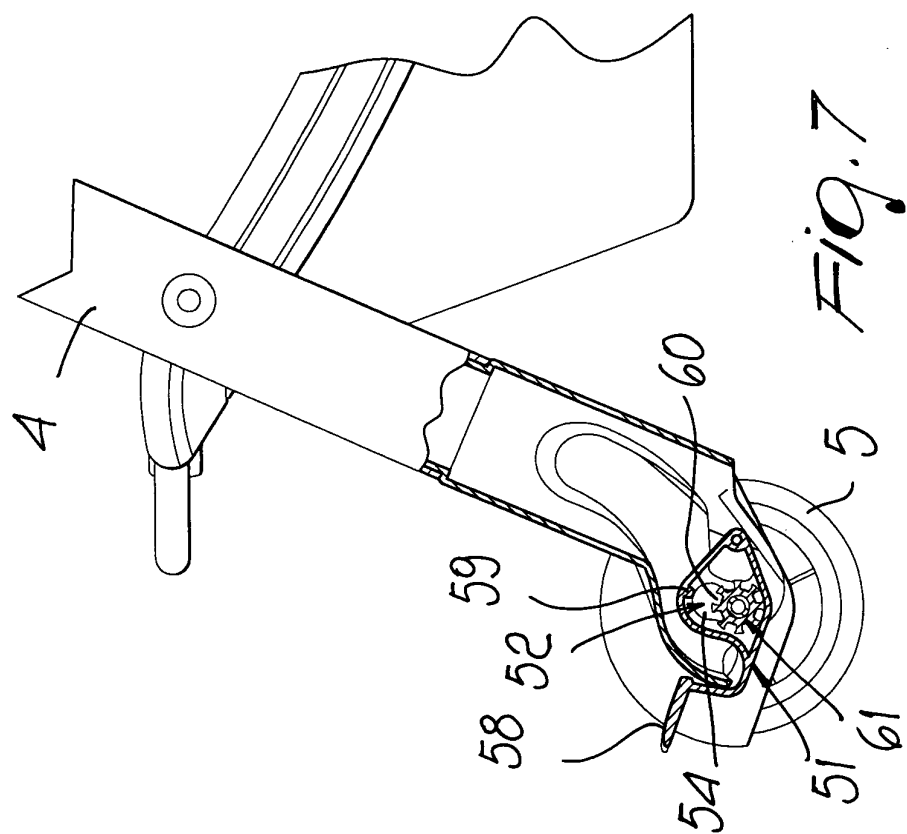
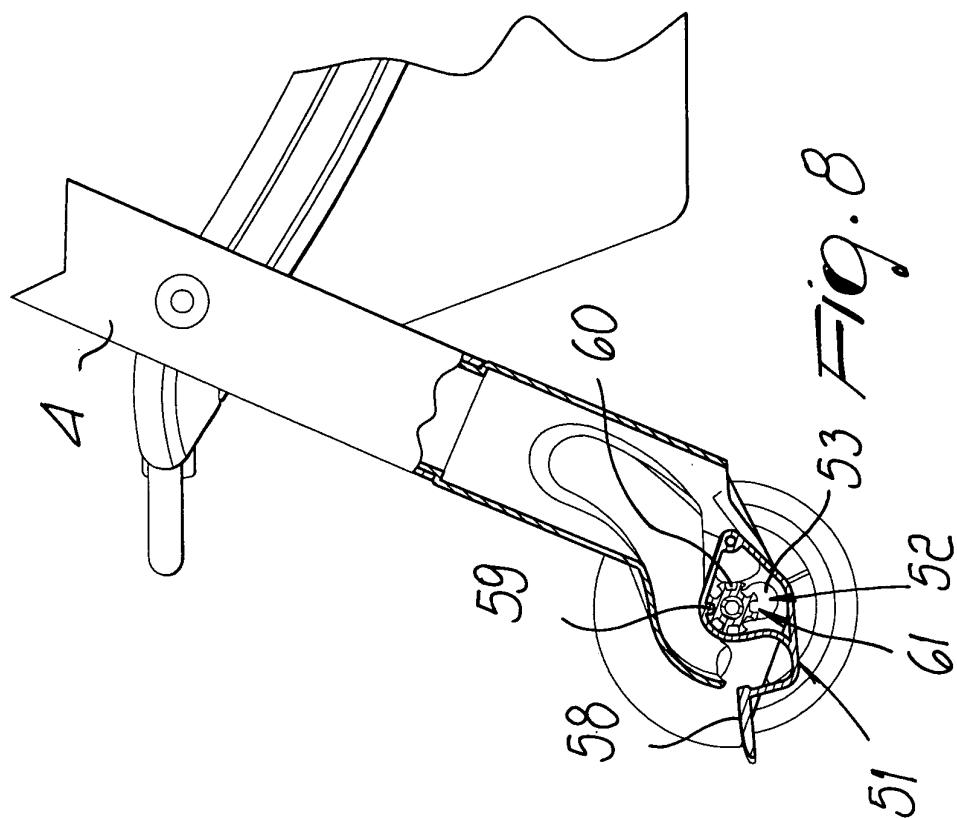
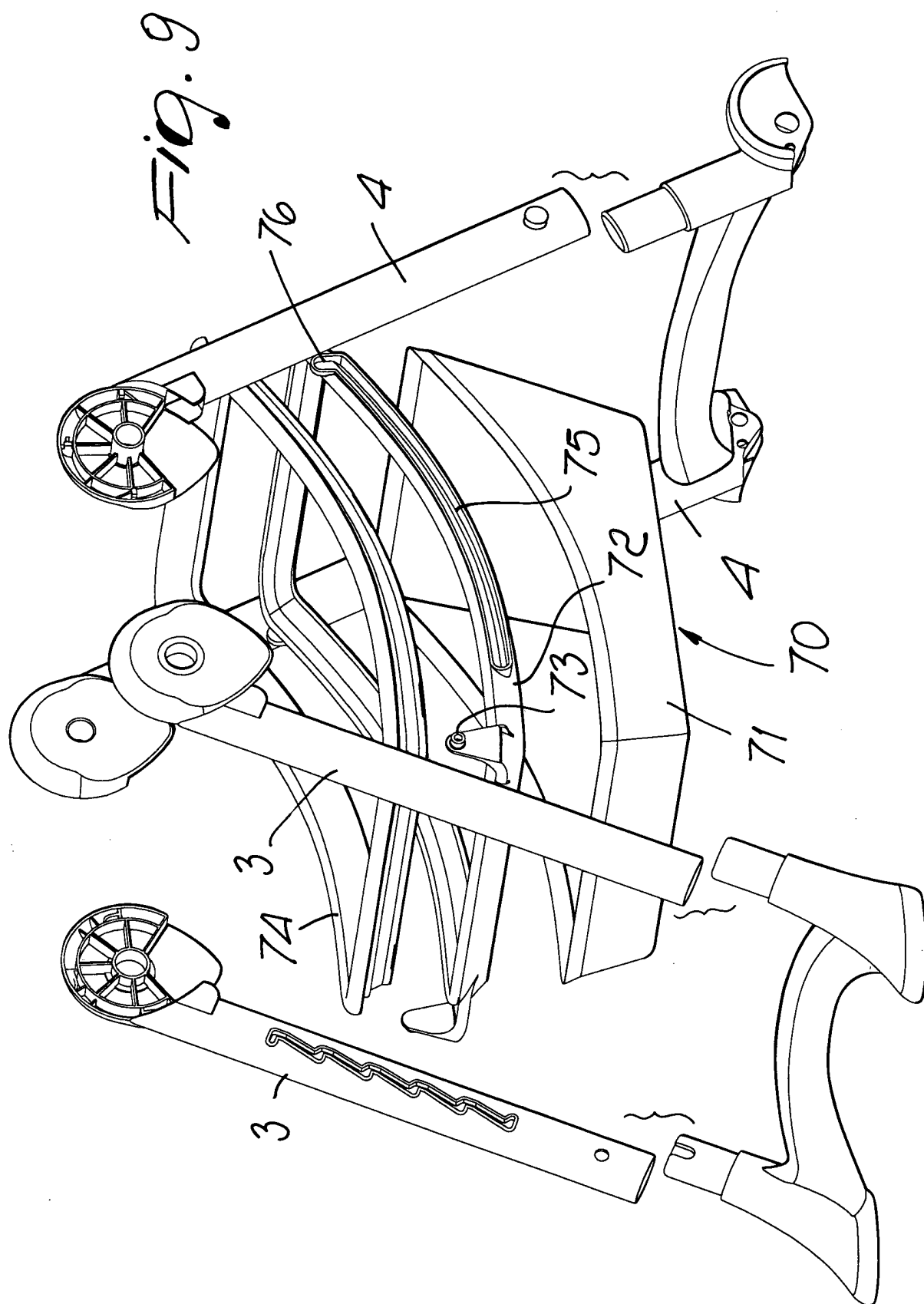
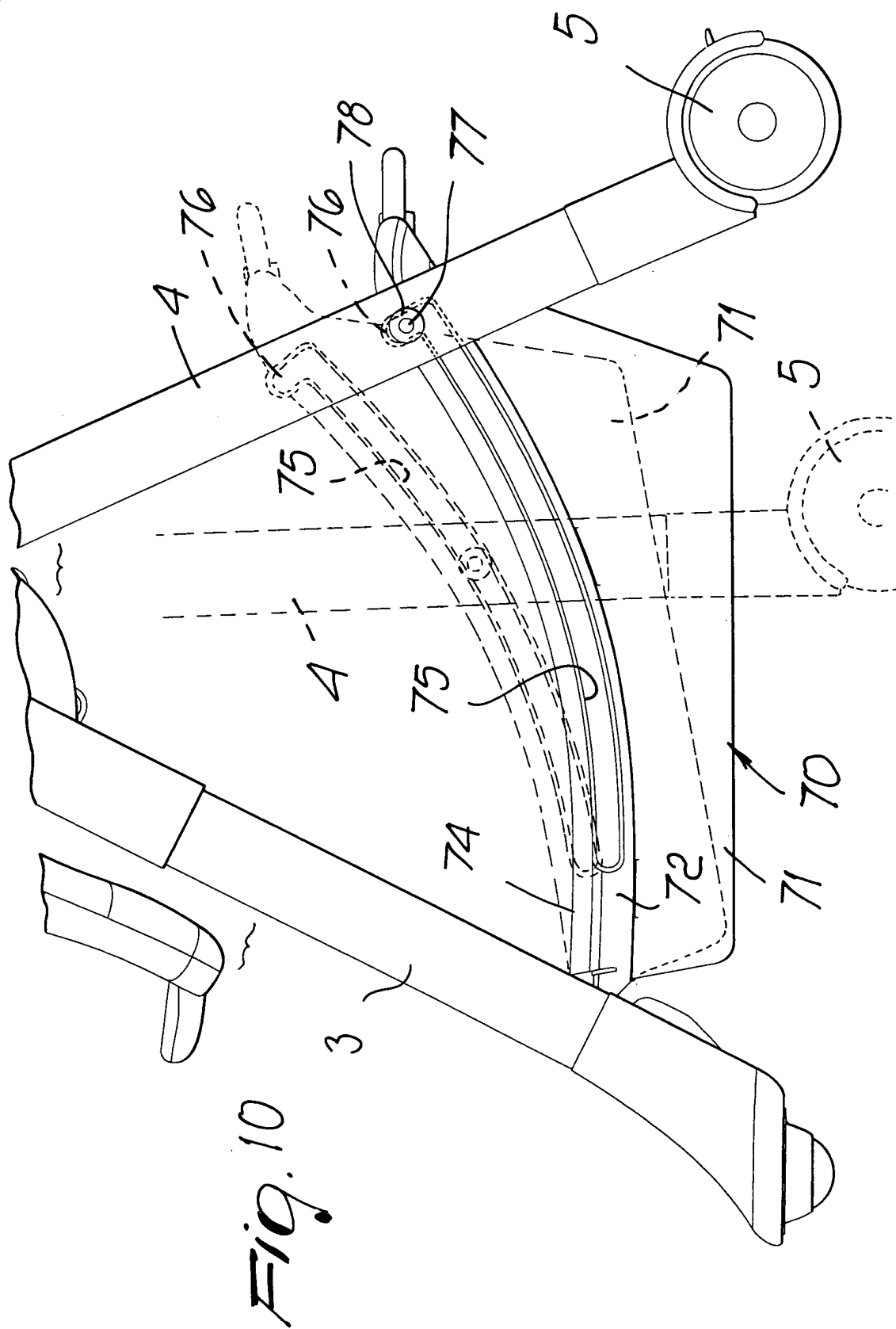


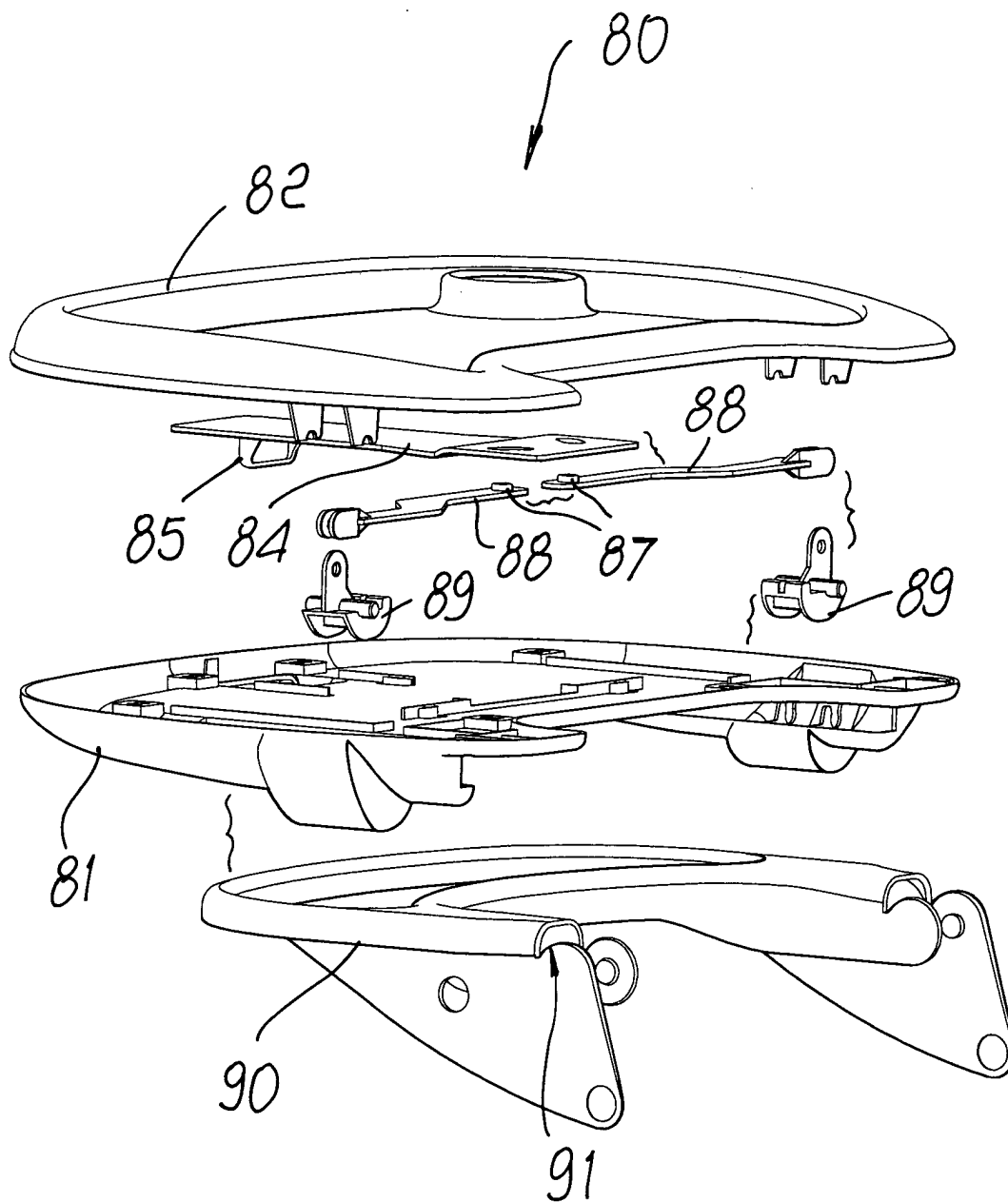
Fig. 5



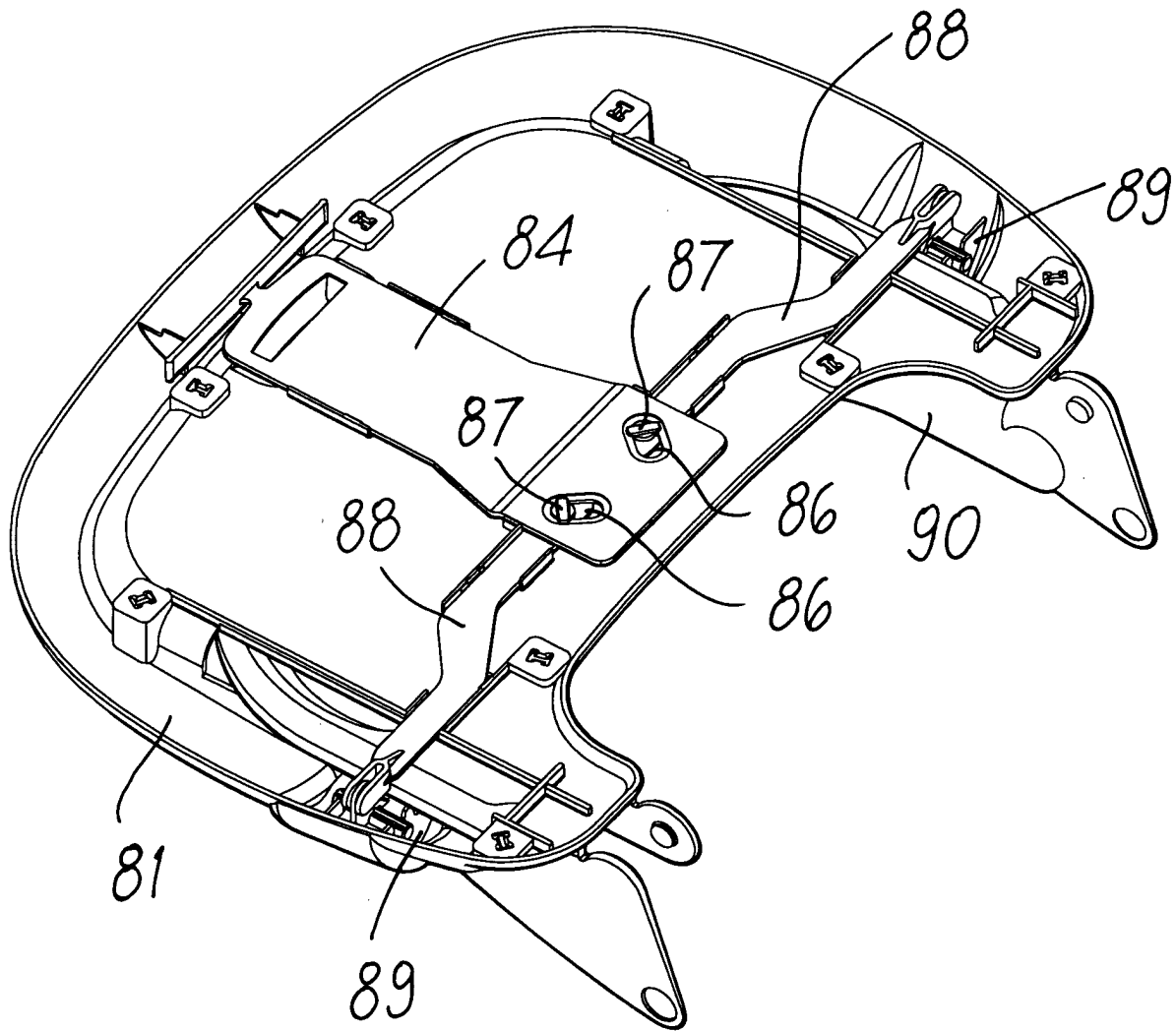








*Fig. 11*



*Fig. 12*