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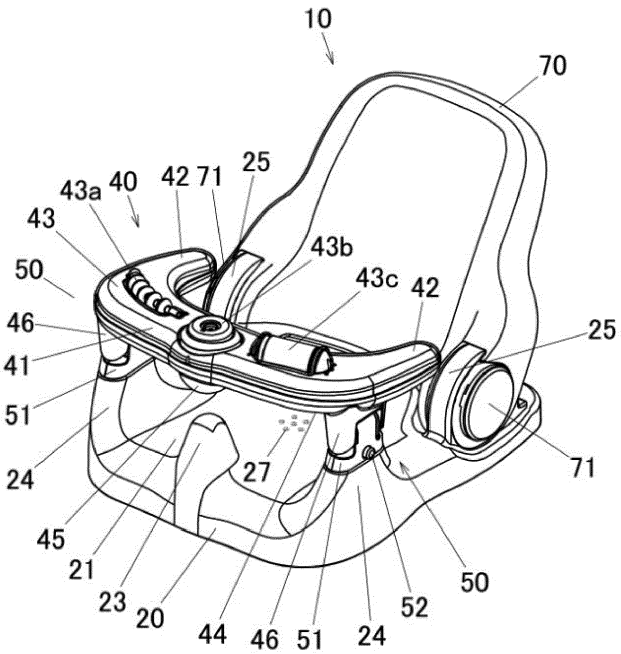
(54) **Bath chair**

(57) A bath chair having excellent usability of a handle opening and closing is provided. An insertion hole is formed on a support part of each front left and right of a base. A latching hole is provided to the insertion hole. A connection member is provided to a bottom face of a handle so as to be connected rotatably to the handle. A latching projection is provided to a lower part of the inserting projection, which is formed to be insertable into the insertion hole. A release push button and latching projection are provided to the connection member facing outer side. The latching projection is biased toward outer side direction. Pressing the release push button releases a latching between the latching projection and the latching hole, thus the handle can be opened.

FIG.1



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Description

[0001] The present invention relates to a bath chair for infants. More specifically, the present invention relates to a handle of a bath chair for infants that can be opened and closed.

[0002] Currently, bath chairs are provided that is used for taking care of an infant in a bathroom. These bath chairs comprise a seat having a protrusion at a front center part, a seat back having a reclining mechanism, and a handle provided at a seat front position and extended from side to side. Various toys are often provided on a top surface of the handle of the bath chair for attracting attention of the infant. The handle and protrusion on the seat prevent the infant from sliding off the seat. The handle can be opened in order to define a wide open space above the bath chair so as to facilitate seating and removing the infant on/from the bath chair.

[0003] For example, Japanese Patent No. 4659198 discloses a bath chair whose seat has support parts protruding on each of left and right sides of the seat for supporting a handle. A top portion of each support parts is formed in an U-shape so that a upper portion thereof is recessed when viewed from a side of the bath chair and each center portions of the U-shaped recesses can respectively supports each of both sides of the handle. Shaft holes are provided to front and rear surfaces, facing each other, of an inside of the each recesses. pairs of stopper shafts are individually provided on each front and rear surfaces of lower surfaces in the vicinity of both end portions of the handle. The shaft holes and the pairs of stopper shafts are formed so as to be engageable with each other. The pairs of stopper shafts which are individually provided to the lower surfaces of the both end portions of the handle are designed to project and recede when operating simultaneously two push buttons individually provided to each front and rear surfaces of the lower surfaces above the stopper shafts. Front and rear stopper shafts forming the pair recede into the handle by pushing the front and rear push buttons simultaneously, thereby an engagement between the handle and the support part can be released. The handle is supported rotatably around the stopper shafts as rotating shafts. Consequently, if the engagement at one end of the handle is released, the handle can be swung to define open space above the seat with the stopper shafts at the other end being used as a rotational axis.

[0004] In general, a bathroom where the bath chair is used is small. When seating the infant on the seat of the bath chair, it is often that the handle of the bath chair is opened using one hand with holding the infant using the other hand. In addition, the hand for opening the handle often becomes slippery due to getting wet or soap. In the bath chair disclosed in Japanese Patent No. 4659198, the two push buttons, individually provided to front and rear surfaces of the handle lower portion, must simultaneously be pushed hard to open the handle. However, this simultaneous operation of the two push buttons sometimes becomes difficult to perform.

[0005] According to an aspect of the invention, there is provided a bath chair including a base having a seat; two support parts individually protruding at each of front left and front right sides of the base with each top of the support parts being formed into a flat top surface; an insertion opening formed downwardly into hole-like shape on the flat top surface of the each support part, having a latching hole on an inside wall of the insertion opening; a handle extending between the support parts; a connection member provided on a bottom surface of the handle which faces each support part, so as to be connected rotatably to the handle; an inserting projection provided on a lower portion of the each connection member, with being formed insertable into the each insertion opening; a latching projection provided to the each inserting projection, which is formed latchable to the each latching hole by being biased toward the latching hole; and a release push button provided on an outer side surface of the each connection member for releasing a latch of the each latching projection and latching hole by pushing operation of the release push button against bias force of the each latching projection.

[0006] Preferably, the each latching hole is provided on an outer sidewall of the each insertion opening. A top end of the each connecting member is supported rotatably and a release member having the release push button and the latching projection integrally is provided to the connecting member.

[0007] As for the latching projection, preferably a top surface is formed flat and a lower surface from an edge of the top surface to a bottom is formed slanted.

[0008] Preferably the each connecting member includes a flat surface that can be superposed on the flat top surface of the each support part and outside surfaces of the each connecting member and the each support part are smoothly and continuously aligned with each other without any gaps or deviations.

[0009] The bath chair of the present invention, as described above, is provided with the handle having the connecting members and each of which are connected to the base detachably. The connecting member can be released from the base by operating the release push button provided on the outer side surface of the connection member. The handle is allowed to be opened quickly and surely with easy operation, by the release push button being provided on the outer side surface of the connection member as mentioned above. In addition, the release push buttons are individually provided to each of both left and right ends of the handle. This allows the handle to be opened from either sides, and consequently, the bath chair is suitable for use in a bathroom where a setting space is restricted. Further, the top of the support part is formed into the flat top surface, where the insertion opening, into which the inserting projection is inserted when the handle is installed, is provided. Accordingly, installation of the handle is facilitated since the insertion opening can be identified visually with ease.

[0010] In preferred embodiments, the release member which includes the latching projection and release push button integrally is provided to the connection member so that a top end of the release member is supported rotatably. By doing this, simple construction of the connection member leads to a lowered manufacturing cost and enhanced durability.

[0011] Preferably, the top surface of the latching projection is formed flat and the lower surface from an edge of the top surface to a bottom of the latching projection is formed slanted. With this figure, the handle can be installed to the base by a simple operation such as just pushing the inserting projection of the connection member into the insertion opening.

[0012] Preferably, the outside surfaces of the connection member and the support part are smoothly and continuously aligned with each other without any gaps or deviations by making a surface of the connection member flat, which is superposed on the flat top surface of the support part. By such design, a smooth outer surface without any irregularities can be formed, and the bath chair having a high design quality can be supplied.

[0013] Examples of bath chairs will now be described with reference to the accompanying drawings in which:-

Fig. 1 is a front perspective view of an embodiment of the bath chair of the present invention.

Fig. 2 is a rear perspective view of the bath chair of Figure 1.

Fig. 3 is a front perspective view of the bath chair of Figure 1 showing a state in which the handle is opened.

Fig. 4 is a side view of the bath chair of Figure 1 showing how a reclining system works, Fig. 4A shows a high position, Fig. 4B shows a middle position, and Fig. 4C shows a low position.

Fig. 5 is a side view of the bath chair of Figure 1 in a stored position.

Fig. 6 is a side view of the bath chair of Figure 1 showing a state in which the bath chair is stored with the bath chair being vertically placed.

Fig. 7 is an exploded perspective view of the bath chair of Figure 1 showing main components of the handle releasing/supporting mechanism.

[0014] Preferred embodiments of the present invention will be described with reference to Figs. 1 to 7.

Fig. 1 is a front left perspective view of a bath chair 10 according to an embodiment of the present invention having a handle for a bath chair. In descriptions hereinafter, a handle 40 side of the bath chair 10 is referred to as front, and a backrest 70 side is referred to as rear. Similarly, viewed from a user's perspective when the user sitting on the bath chair 10, a left hand side is referred to as left, a right hand side is referred to as right, a seat 21 side on a base 20 of the bath chair 10 is referred to as top, and a reverse side of the top is referred to as bottom.

[0015] The bath chair 10 includes the base 20 on a top surface of which the seat 21 is formed, a backrest 70 which is connected rotatably to the base 20, and a handle 40 provided laterally in a front upper space of the base 20. A plurality of holes 27 is provided substantially in a center of the seat 21. The plurality of holes 27 prevents water from pooling on the seat 21 when bathing. A protrusion 23 is formed into a mountain shape at a front center of the seat 21. Support parts 24 are individually formed at each front left and right sides of the seat 21 in such a manner that the support part 24 rises in front-to-rear direction when being viewed down from the upper part above the seat 21.

[0016] A handle 40 is provided above a front part of the seat 21 in such a way as to extend between the support parts 24. A handle body 41 of the handle 40 extends from left to right and a front side of the handle body 41 is gradually bent into a convex shape projecting toward front. Each side end of the handle body 41 is extended to project rearward so as to continuously form a rearward projection 42. Consequently, an infant sitting on the seat 21 is surrounded by the handle body 41 and the each rearward projection 42 so as to restrict his/her front side, left side and right side.

[0017] Toys 43a, 43b, 43c are disposed on a top surface 43 of the handle body 41 so that the infant can play with while sitting. The toy 43a is a marbles-like toy which is made up of multiple rings supported by a supporting bar. The toy 43b includes a rotating base having a perpendicular rotational axis. When a doll or the like is fixedly installed on the rotating base, the doll or the like can be rotated about the perpendicular rotational axis. The toy 43c includes a cylindrical drum having substantially a lateral rotational axis. Popular characters from animation or TV programs are printed on the cylindrical drum and the infant can play by rotating the cylindrical drum by his/her hand.

[0018] A protrusion 45 is formed into a mountain shape at a center of a bottom surface 44 of the handle 40 so as to rise downwardly. The protrusion 45 is formed so as to face the protrusion 23 formed on the seat 21. The protrusions 23 and 45 prevent the infant from slipping forwardly off of the bath chair 10 since the infant sits straddling the protrusions 23 and 45.

[0019] The handle 40 is detachably attached to the base 20 and supported upwardly swingable in a clockwise direction or in counterclockwise direction by handle release/support mechanisms 50, 50 provided to each both sides of the bottom surface of the handle 40. Bearing members 46, 46 are individually formed on each both sides of a bottom surface of the handle body 41 at each positions where face the each support parts 24, 24, so as to project downward from the bottom surface of the handle body 41. The bearing member 46 is formed into an inverted U-shape, whose front and rear portions extend downward. A connection member 51 is rotatably connected to the bearing member 46 in such a way that a center upper portion of the connection member 51 is inserted into a center recessed portion of the inverted U-

shape of the bearing member 46. A lower portion of the connection member 51 is detachably attached to the support part 24. A release push button 52 is formed on an outer side surface of the connection member 51. Pressing the release push button 52 detaches the connection member 51 from the support part 24.

[0020] A backrest 70 is provided to a rear of the base 20. The backrest 70 is formed so as to have a gradual concave curve extending from a center to left and right so that the infant can lean back on the backrest 70 stably. At each of lower ends of both sides in a left-right direction of the backrest 70, axle portions 71, 71 are individually provided and the axle portions 71, 71 are made two-pronged like an inverted U-shape when viewed from the front of the backrest 70 and individually have openings which cut through between two-prongs and in a front-back direction of the axle portions 71, 71. bearing members 25, 25 are individually formed at each both side of a rear of the base 20, and the bearing member 25, 25 are made to be a substantially circular shape when viewed from a side and project from each rear side ends of the base 20. The each bearing members 25, 25 projecting from the base 20 are individually inserted into the openings between two prongs of the axle portions 71, 71. An inside and outside surfaces of the bearing member 25 projecting from the base 20 slidingly contact inside surfaces of the two-prongs of the axle portion 71, and the axle portion 71 is rotatably supported by the bearing member 25 at an inside and outside surfaces of the bearing member 25.

[0021] Fig. 2 is a rear right perspective view of the bath chair. A reclining mechanism 80 is provided to a backside of the backrest 70. The backrest 70 can be reclined at three predetermined angles by the reclining mechanism 80.

[0022] A step member 81, which includes three stair-like steps, is formed on a backside of the bearing member 25 of the base 20. The step member 81 corresponds to the three predetermined angles of the backrest 70 adjusted by the reclining mechanism 80. A top step 81a is a highest step and corresponds to a state in which the backrest 70 is at the highest position. A middle step 81b and a bottom step 81c are formed in sequence along from top to bottom.

[0023] An operating shaft 82 is rotatably laid across the backrest 70 at slightly lower position from a center in a vertical direction of a back face of the backrest 70. abutment members 83, 83 are respectively provided in a fixed manner to each both ends of the operating shaft 82. Therefore the operating shaft 82 and the abutment member 83 rotate integrally. An abutment part 83a is formed on the abutment member 83 so as to extend to a direction intersecting a shaft center of the operating shaft 82 at a right angle. A flat portion 83b is formed on a distal end of the abutment part 83a. The backrest 70 is supported by the flat portion 83b and the step member 81, which abut against each other.

[0024] A lever 84 is provided to a center of the operating shaft 82. A cover 85 covers the remaining portions of the operating shaft 82 other than portions to which the lever 84 and the each abutment member 83 are provided. An elastic member provided to an interior of the cover 86 biases the operating shaft 82 toward a direction in which the lever 84 is pressed down (in other words, counter-clockwise when viewed from right side). The operating shaft 82 is rotatably supported by a bearing member (not shown) formed by the cover 85 and the back face of the backrest 70. Consequently, pulling up the lever 84 against the bias force to the operating shaft 82 rotates the abutment members 83, 83 backward, whereby abutments between the abutment members 83, 83 and the step members 81, 81 are released, and then, the backrest 70 can be adjusted its reclining angle.

[0025] A top end cover 72 is provided to a top end part of the back face of the backrest 70. On a surface of the top end cover 72, two hooks 76 are provided. The each hook 76 is formed by bending a plate-like member. Free ends of the plate-like member are formed to be biased so as to close a gap therebetween. The each hook 76 is disposed so that its free end side is oriented upwardly. Usage of the hooks 76 is that one end of a towel (not shown) is inserted into gaps of the free ends of the two hooks 76, and the other end of the towel is extended over the top end of the backrest 70 to a vicinity of a front end of the seat 21. By doing this, the infant does not feel coldness of the backrest 70 and the seat 21, and is prevented from slipping forwardly when he/she is naked and sits on the bath chair 10 for bathing since the backrest 70 and the seat 21 are covered by the towel. The free end on the rear side of the each hook 76 is bent toward gap-opening direction for facilitating insertion of the towel. In addition, a grip 26 is formed at a rear center of the base 20 by making a laterally elongated through hole.

[0026] Next, opening and closing operations of the handle 40 of the bath chair 10 will be described with reference to Fig. 3. Fig. 3 is a front left perspective view of the bath chair showing a state in which the handle 40 is opened. In order to open the handle 40 as shown, press either one of the two release push buttons 52 (left side button in this embodiment). By doing this, the connection member 51 is in a state in which the connection member 51 can be detached from the support part 24. Now, the handle 40 can be opened by lifting it up with being swung about the bearing member 46 for supporting the handle 40 on a different side, whereby an open space can be secured above the seat 21. The opening and closing operations can be conducted at either one of both left and right connection members 51. Therefore the handle 40 can be opened to both left and right sides of the base 20. In addition, the handle 40 can be removed from the base 20 by pressing the both left and right release push buttons 52 simultaneously.

[0027] Further, reclining operation of the backrest 70 of the bath chair 10 will be described with reference to Fig. 4. In order to adjust the reclining angle, pull up the lever 84 provided to the back face of the backrest 70 so

as to rotate the abutment member 83, and then choose a preferred step of the step member 81 to which the abutment member 83 abuts. Fig. 4A shows a condition in which the abutment member 83 abuts against the top step 81a. The backrest 70 is at the highest position. An inclination angle of the backrest 70 from a floor is between 65 degrees and 75 degrees. Fig. 4B shows a condition in which the abutment member 83 abuts against the middle step 81b. The inclination angle of the backrest 70 from the floor is between 40 degrees and 50 degrees. Fig. 4C shows a condition in which the abutment member 83 abuts against the bottom step 81c. The inclination angle of the backrest 70 from the floor is between 10 degrees and 15 degrees. By doing as such, the inclination angle of the backrest 70 of the bath chair 10 can be adjusted to three positions.

[0028] A storage condition of the bath chair 10 will be described with reference to Fig. 5. The backrest 70 can be folded forward by pulling up the lever 84 provided to the back face of the backrest 70 when the bath chair 10 is stored. The bath chair 10 can be made compact for easier storage by folding the backrest 70 until it contacts the handle 40 lightly, as shown in Fig. 5.

[0029] Alternatively, the bath chair 10 can also be stored with the bath chair being placed vertically, as shown in Fig. 6. Namely, the backrest 70 of the bath chair 10 can be folded until its front top end lightly contacts the protrusion 23 if the handle 40 is removed from the base 20 by pressing the both left and right release push buttons 52 simultaneously. In addition, by re-installing the handle 40 to the base 20 with the backrest 70 and the protrusion 23 contacting each other, the backrest 70 can be stored with its backward rotation being restricted by the handle 40. Consequently, the backrest is prevented from rotating to open unintentionally. The bath chair 10 can be placed with the handle 40, backrest 70, a front end of the base 20 being oriented downward, and with the grip 26 being oriented upward. By doing this, the bath chair 10 can be stored compactly even in a small bathroom. Further, the vertical position of the bath chair 10 facilitates an easy gripping of the grip 26, and thereby facilitates an easy carry of the bath chair 10.

[0030] Next, the handle release/support mechanism 50 will be described in detail with reference to Fig. 7. Fig. 7 shows the handle 40 being removed from the base 20, and the connection member 51 of a right side in the handle release/support mechanism 50, being exploded.

[0031] First, the connection member 51 of a left side in an assembled state is described with reference to Fig. 7. The connection member 51 is formed into a substantially cross shape when viewed from a side. swells 51a, 51a are formed on each left and right surfaces of the connection member 51 and at substantially a center position in a vertical direction of the connection member 51 with each bottom surfaces thereof being formed flat. each inserting projections 51b, 51b are respectively formed downwardly from each bottom surfaces of the swells 51a, 51a. The release push buttons 52, 52 respectively project toward outside direction from each outer side surfaces of the connection members 51, 51. each latching projections 53, 53 respectively project toward outside direction from each outside surfaces of the inserting projections 51b, 51b formed under the release push buttons 52, 52.

[0032] Next, the connection member 51 of the right side, which is illustrated as an exploded perspective view, is described with reference to Fig. 7. A main body of the connection member 51 is made up of separated two parts, the part which faces an inner side space of the bath chair 10 is formed as an inner body 51c, and the part which faces an outer side space of the bath chair 10 is formed as an outer body 51d. A handle supporting shaft member 54 is provided to an upper portion of the connection member 51. The handle supporting shaft member 54 is fixed by being nipped by a port defined by a semi-circular cutout 51c1 of an upper portion of the inner body 51c and a semi-circular cutout 51d1 of an upper portion of the outer body 51d. A flange 54a is provided at the handle supporting shaft member 54 so as not to come off from the connection member 51.

[0033] Meanwhile, the release push button 52 and the latching projection 53 as have described above are connected together at their back side (inside, in other word) by a release member 55. Namely, the release push button 52 and the latching projection 53 are integrally formed as the release member 55. The release member 55 is formed into a substantially rectangular shape when viewed from the side. A shaft portion 55a is formed on a top end of the release member 55. The shaft portion 55a is rotatably held by a bearing 51d2 of the outer main body 51d. A recessed portion 55b is formed on a back side (inside, in other word) of the release push button 52. A pin 51c2 is provided to a position facing the recessed portion 55b in a standing fashion so as to be oriented toward outside direction from a surface of the inner main body 51c facing the outer body 51d. A coil spring 56 is provided to the pin 51c2 in such a manner that the coil spring 56 is wound in a compressed state around an outer periphery of the pin 51c2. One end of the coil spring 56 abuts against an outside face of the inner main body 51c at a base end of the pin 51c2, and the other end of the coil spring 56 abuts against the recessed portion on the back side of the release push button 52. Therefore, the release member 55 is biased toward outside direction.

[0034] A flat surface is formed as a flat top surface 24a on a top section of the support part 24 of the base 20, which is matched to the bottom surface of the swell 51a of the connection member 51. An insertion opening 24b is downwardly provided to the flat top surface 24a. The insertion opening 24b is rectangular, which is long in a front-rear direction when viewed from above, and a bottom 24b1 is provided thereto. A latching hole 24b2 is provided to a wall surface positioning on an outer side among interior wall surfaces of the insertion opening 24b, which is latched with the latching projection 53. The inserting projection 51b of the connection member 51 is inserted into the insertion opening 24b, and then the bot-

tom surface of the swell 51a is superposed on the flat top surface 24a. Simultaneously, the latching projection 53 is latched with the latching hole 24b2, whereby an upward movement of the connection member 51 is restricted.

[0035] When the inserting projection 51b is inserted into the insertion opening 24b, the latching projection 53 is pressed against bias force toward outer direction by the outer wall surface positioning on the outer side among interior wall surfaces of the insertion opening 24b since a lower surface of the latching projection 53 from the edge of the top to the bottom is formed slanted. In the event that the latching projection 53 reaches the latching hole 24b2, the latching projection 53 enters into the latching hole 24b2 since the latching projection 53 is biased toward the outer direction. Since a top surface of the latching projection 53 is formed flat, the entering of the latching projection 53 into the latching hole 24b2 causes a condition in which the top surface of the latching projection 53 and an edge part of the latching opening 24b2 are allowed to abut against each other, and then latching is triggered.

[0036] In the bearing member 46 of the handle 40, a hole portions are individually provided to each surfaces of the downwardly extended front and rear portions of the inverted U-shape in a manner that faces each other. The handle 40 is rotatably supported about the handle supporting shaft member 54 by each both ends of the handle supporting shaft member 54 being fitted into the each hole portions.

[0037] In a condition in which the connection member 51 is installed to the base 20, outside surfaces of the connection member 51 and the support part 24 of the base 20 are smoothly and continuously aligned with each other without any gaps or any deviations.

[0038] As described above, in the handle release/support mechanism 50 according to the present embodiment, the latching between the latching projection 53 of the connection member 51 and the latching hole 24b2 of the insertion opening 24b is made to be released by the single release push button 52 provided to the outer side surface of the each connection member 51. Therefore, a release operation of the connection member 51 for opening/closing the handle is made easier than a release operation of two push buttons disposed front and rear sides as disclosed in the prior art. In addition, the handle 40 can be opened from either left or right side since the handle 40 is supported rotatably by each left and right connection members 51, 51, hence usability of the handle 40 is good even in a bathroom where a setting space is restricted.

[0039] Further, the insertion opening 24b, into which the inserting projection 51b is inserted, is easily visible when closing the handle 40 since the top section of the support part 24 is formed as the flat top surface 24a. A split line between the connection member 51 and the support part 24 is formed linear when viewed from the side, and the outside surfaces of the connection member 51 and the support part 24 are formed smooth and continuous without any gaps or any deviations, whereby the bath chair having a high design quality can be supplied. Furthermore, the connection member 51 includes the release member 55 which is integrally formed by the release push button 52 and the latching projection 53, and the top end of the release member 55 is supported rotatably. As described, the connection member 51 has a simple structure and this leads to a reduced manufacturing cost and excellent durability.

[0040] The invention is not limited to the embodiment that has been described heretofore but can be modified or improved variously without departing from the spirit and scope of the invention. For example, although the insertion opening 24b is formed into a rectangle when viewed from above, a square or oval shape can also be adopted. In addition, a connecting structure of the connection member 51 and the bearing member 46 can be reversed, such that the upper portion of the connection member 51 is formed into a U-shape for supporting the handle 40 rotatably.

Claims

1. A bath chair comprising:

a base having a seat;
two support parts protruding at front left and front right both sides of the base with each top of the support parts being formed into a flat top surface; and
a handle extending between the support parts;
characterized in that
the bath chair further comprises:

an insertion opening formed downwardly into hole-like shape on the each flat top surface of the each support part, having a latching hole on an inside wall of the insertion opening;
a connection member provided on each bottom surface of the handle which faces each support part, so as to be connected rotatably to the handle;
an inserting projection provided on each lower portion of the each connection member, with being formed insertable into the each insertion opening;
a latching projection provided to the each inserting projection, which is formed latchable to the each latching hole by being biased toward a direction in which the latching hole is provided; and
a release push button provided on each outer side surface of the each connection member for releasing a latching of the each latching projection and latching hole by pushing

operation of the release push button against bias force of the each latching projection.

2. The bath chair of claim 1, **characterized in that** the each latching hole is provided to a wall surface positioning on an outer side among interior wall surfaces of the each insertion opening, and the each connection member is rotatably supported a top end thereof and has a release member to which the each release push button and the each latching projection are provided integrally.

3. The bath chair of claims 1 or 2, **characterized in that** the latching projection is formed such that a top surface is formed flat and a lower surface from an edge of the top surface to a bottom is formed slanted.

4. The bath chair of any one of claims 1 to 3, **characterized in that** the each connection member includes a flat surface that can be superposed on a flat top surface of the each support part, and outside surfaces of the each connection member and the each support part are aligned with each other continuously.

FIG.1

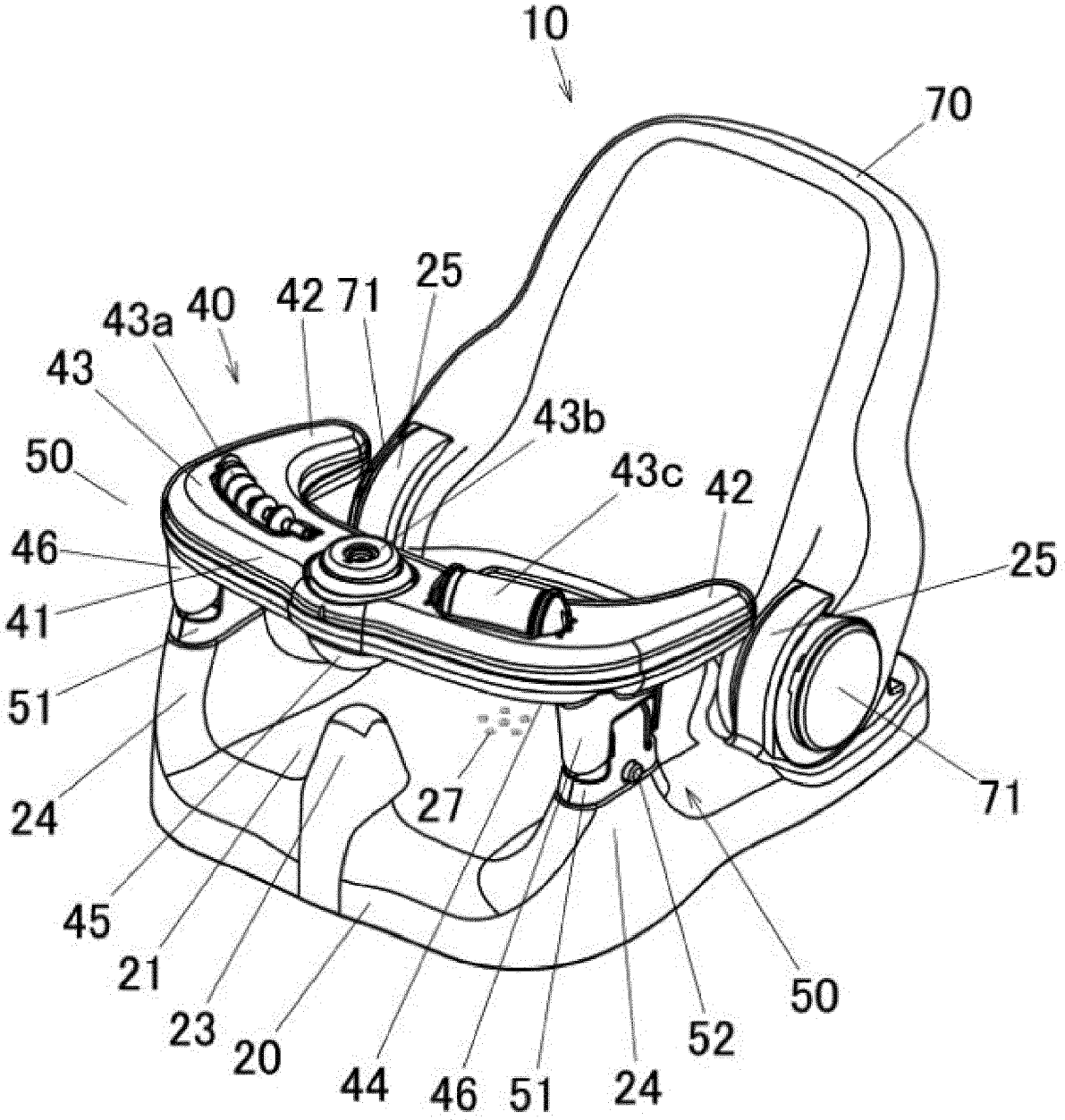
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FIG.2

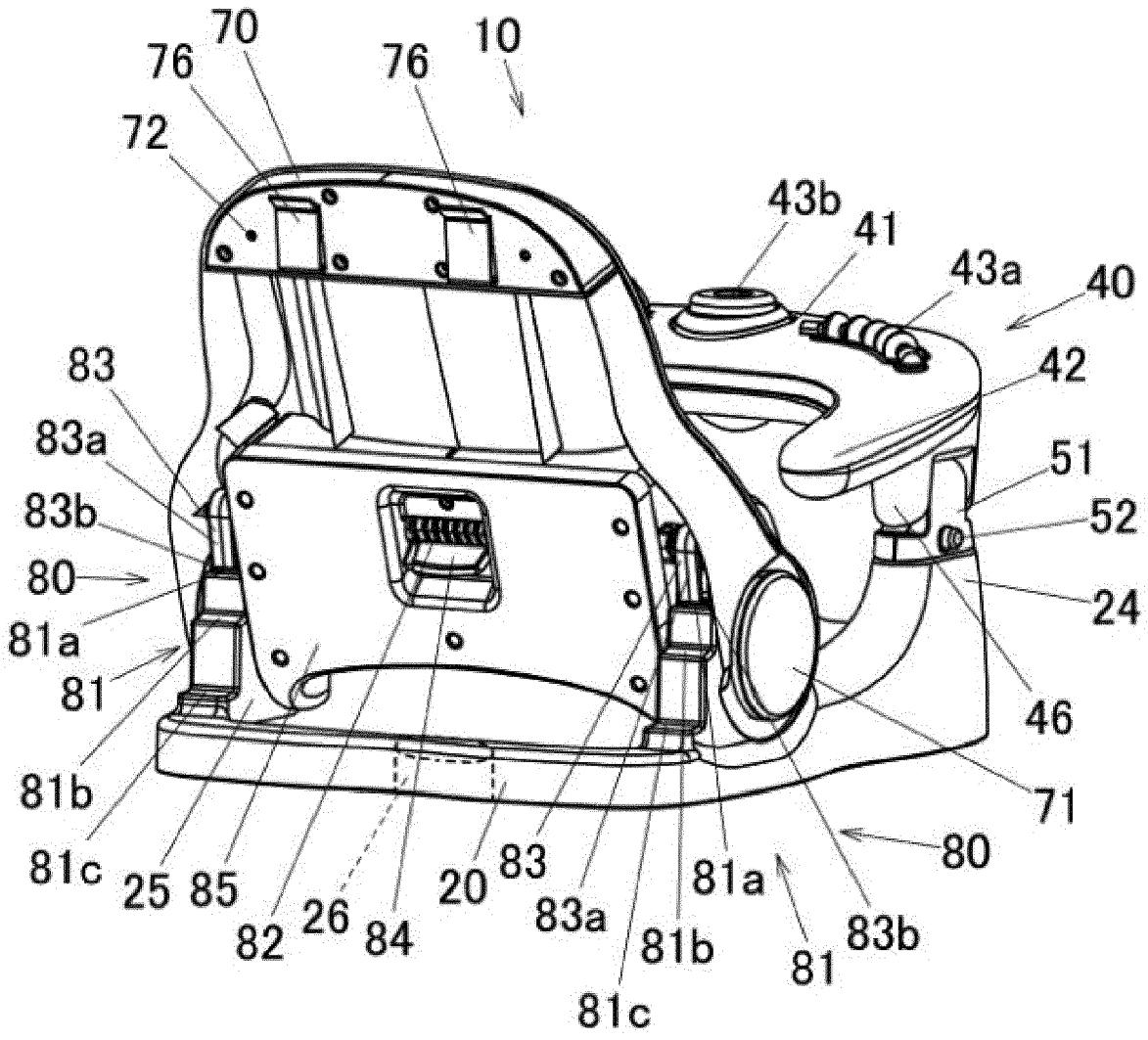
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FIG.3

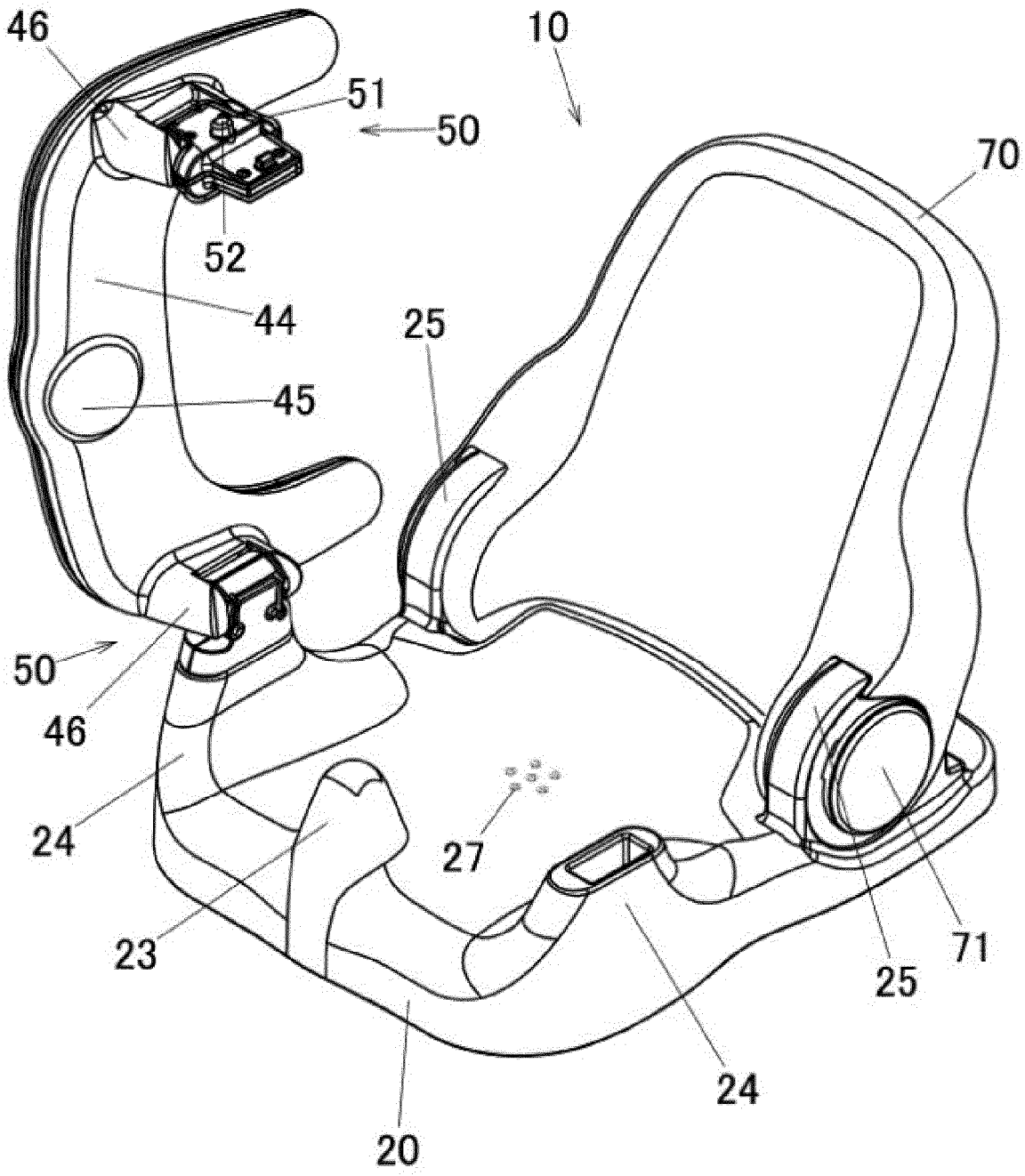


FIG.4A

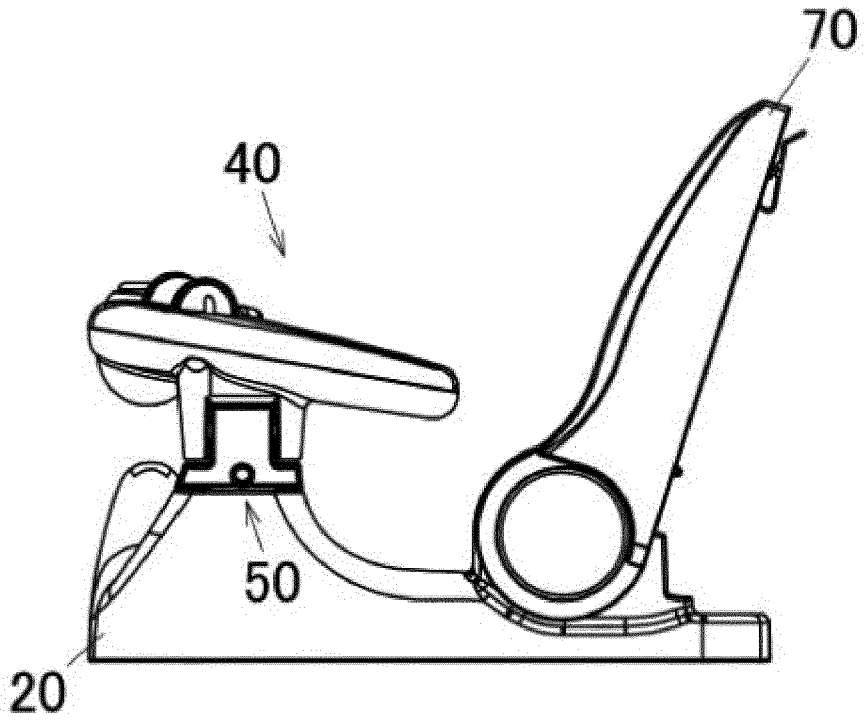


FIG.4B

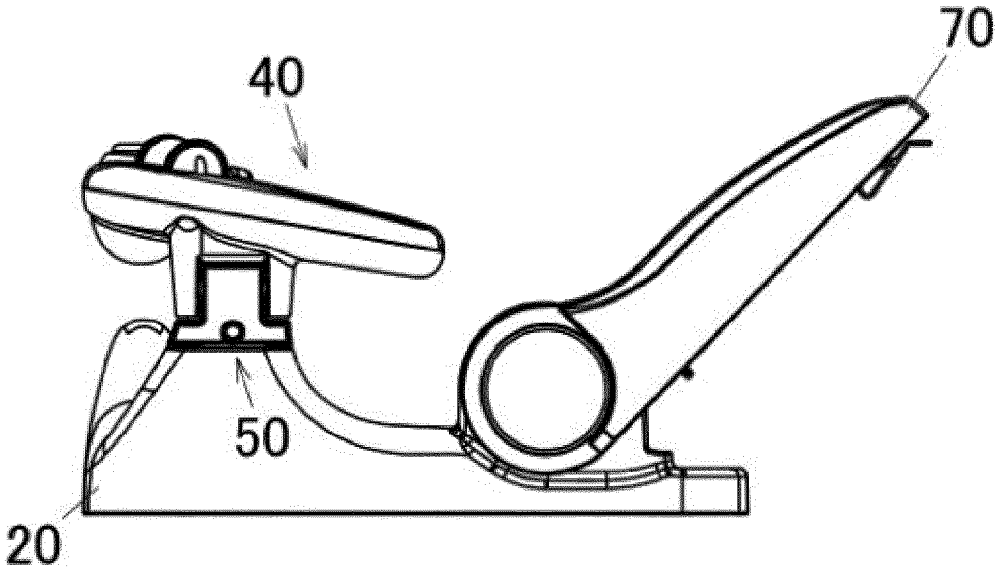


FIG.4C

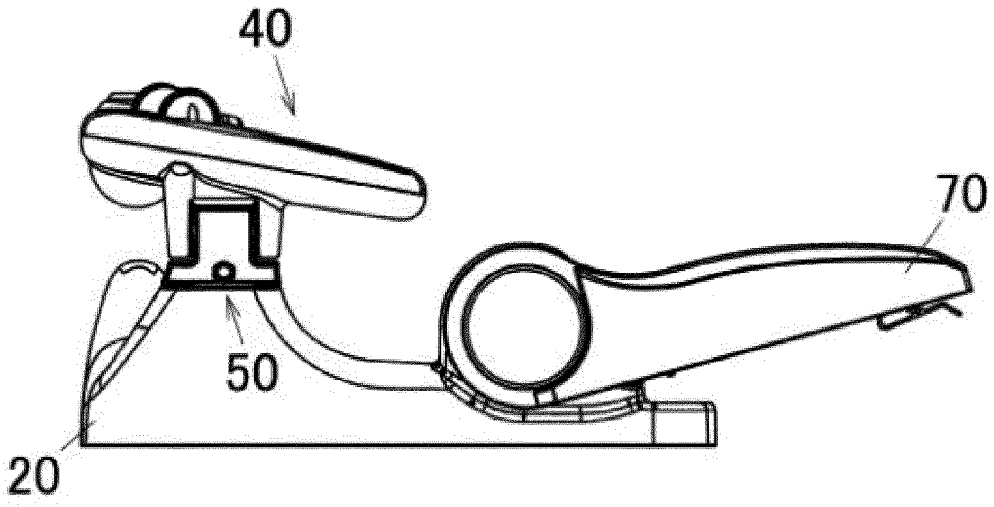


FIG.5

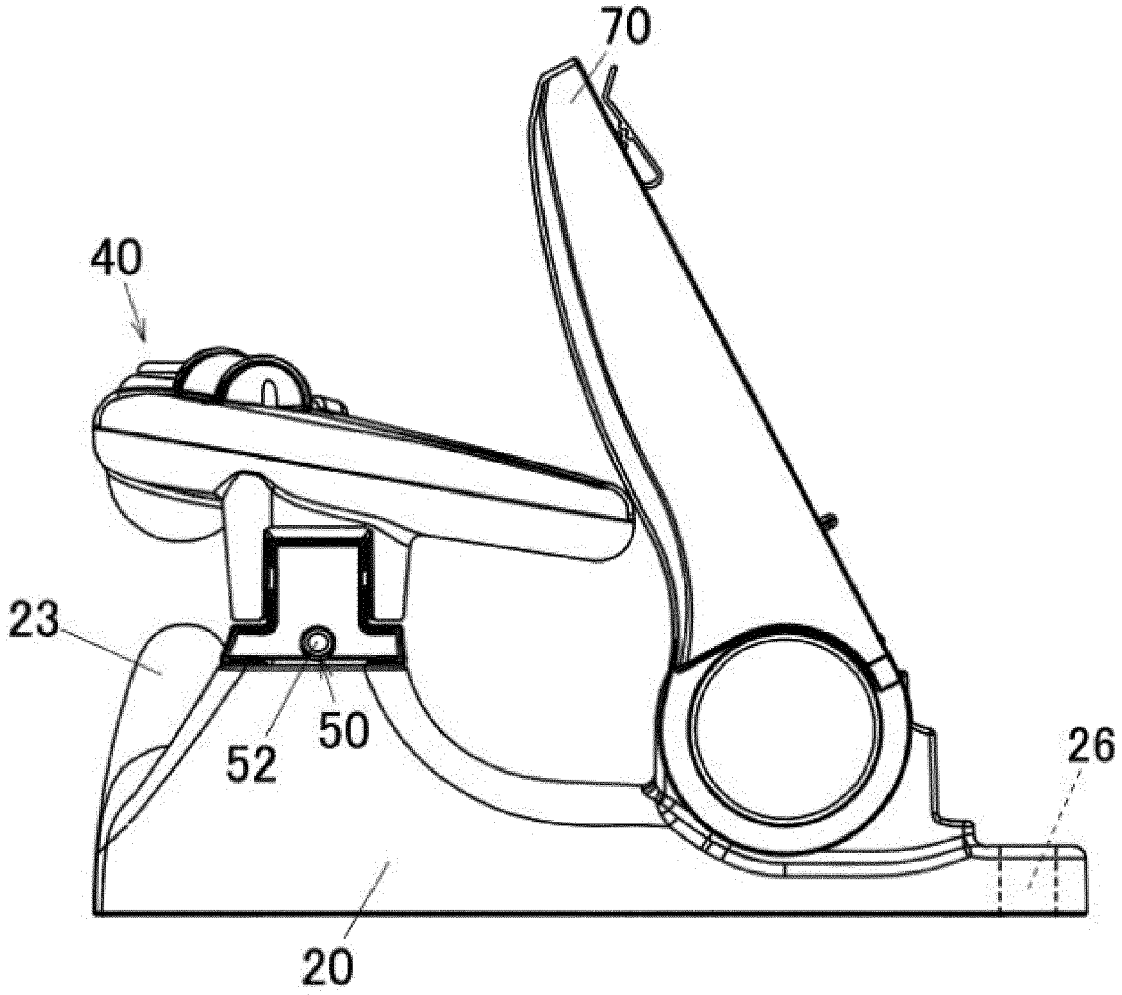


FIG.6

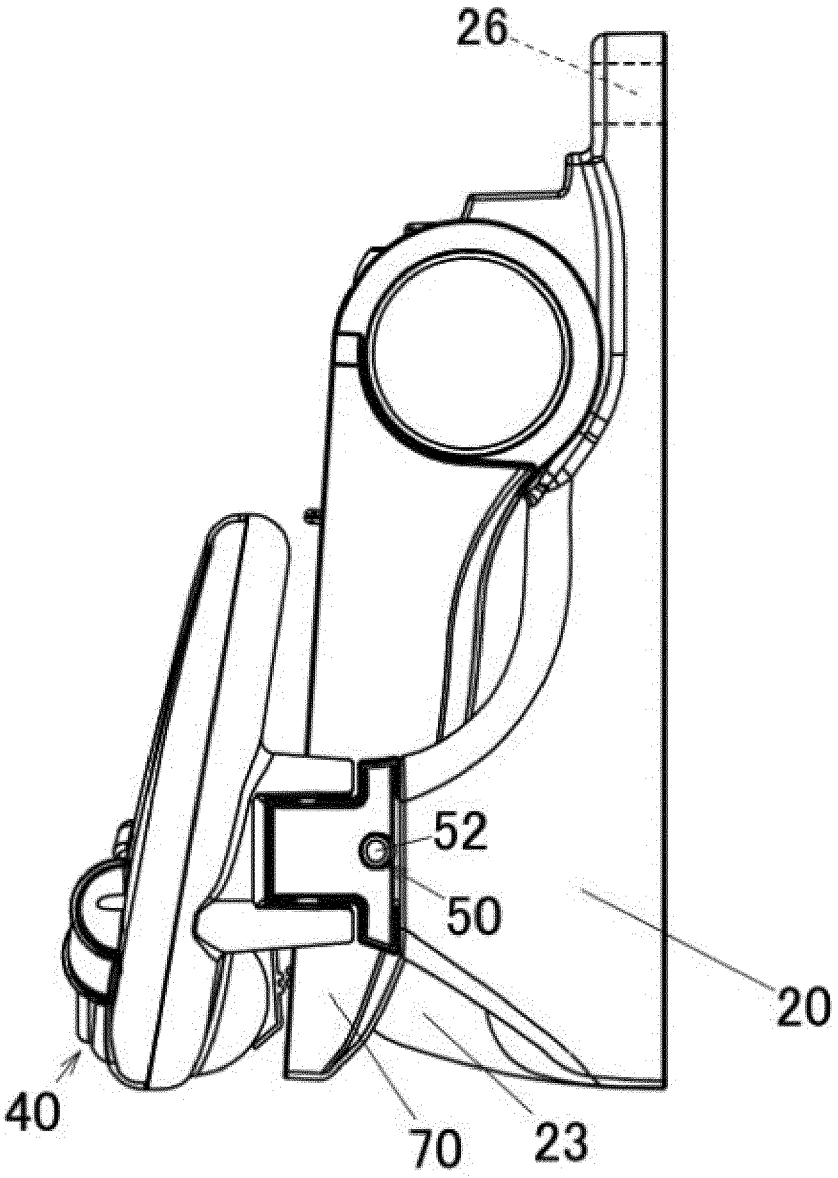
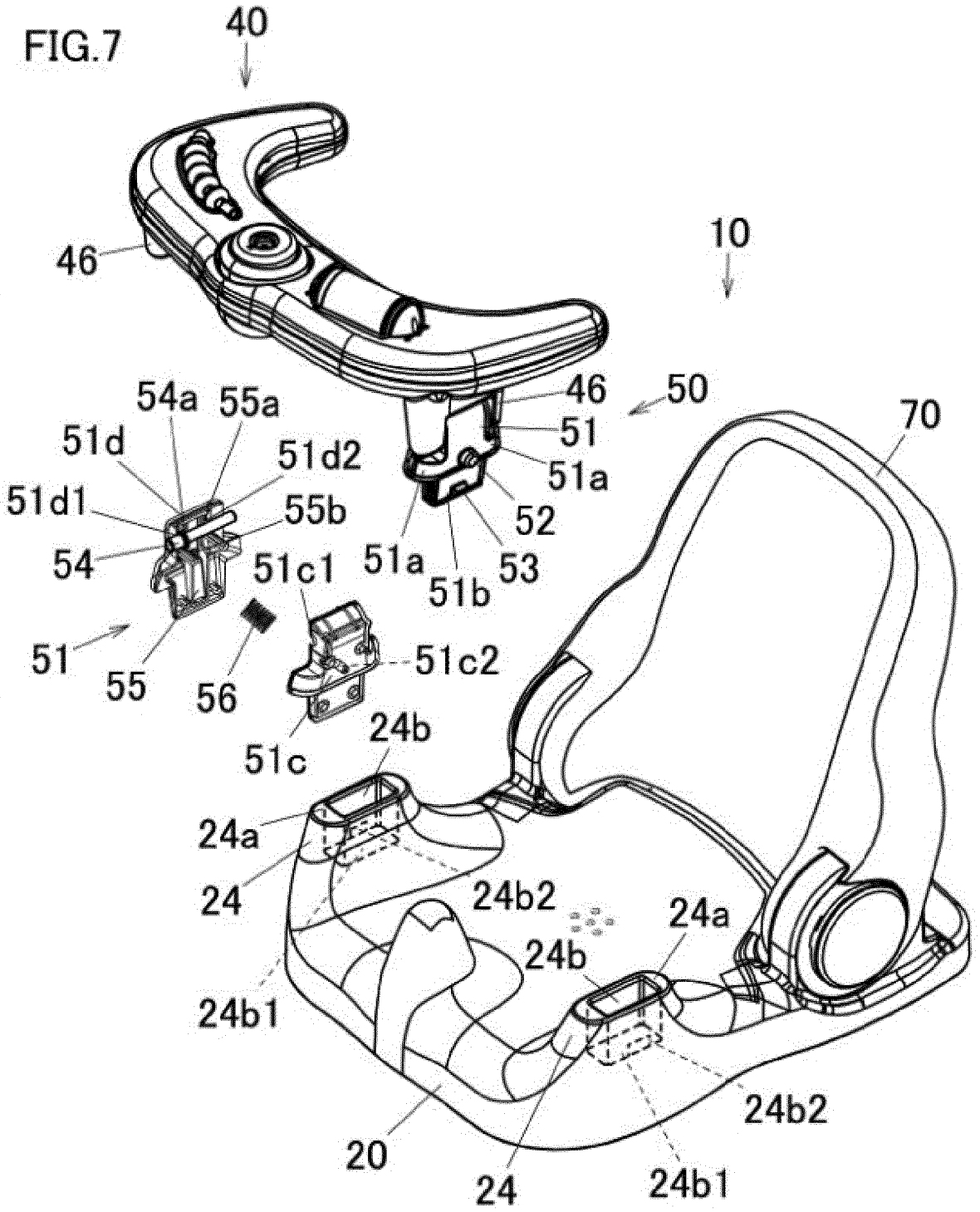


FIG.7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EUROPEAN SEARCH REPORT

Application Number
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TECHNICAL FIELDS SEARCHED (IPC)

A47K
A47D

The present search report has been drawn up for all claims

Place of search	Date of completion of the search	Examiner
The Hague	26 June 2015	van de Beek-Duijker

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