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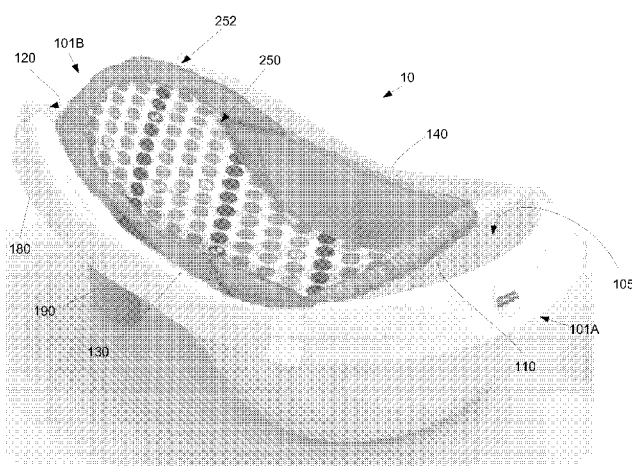


FIG. 1C

(57) Abstract: The present invention relates to a tub for bathing infants or children. The tub includes a receptacle for containing water and for receiving an infant. The tub also includes a selectively removable insert, seat, or positioning member that can be used to change the bathing area inside of the tub. When the removable insert, seat, or positioning member is locked into the tub, the positioning member defines a smaller receptacle and an upright infant seating position within the tub. The positioning member is removable from the tub to allow the entire receptacle to be used. When the positioning member is removed from the tub a sling may be coupled to the tub to provide for a supine position suspended within the tub.



WO 2014/159541 A1

TUB ASSEMBLY

CROSS-REFERENCE TO RELATED APPLICATION

[0001] This application claims priority to and is based on U.S. Patent Application No. 61/783,463, filed March 14, 2013, Attorney Docket No. 0621.2167P, entitled “Tub Assembly,” and U.S. Patent Application No. 14/204,218, filed March 11, 2014, Attorney Docket No. 0621.2167C, entitled “Tub Assembly,” the entire disclosures of which are incorporated herein by reference in their entirety.

FIELD OF THE INVENTION

[0002] The present invention relates to an infant tub or tub assembly that is reconfigurable. In particular, the present invention relates to an infant tub and an insert that can be coupled to and removed from the infant tub as desired. The infant tub can be reconfigured between multiple configurations, including one configuration in which the tub has one large receptacle in which an infant can be placed and another configuration in which the tub has a child positioner and a small receptacle. The tub may also be configured with a sling draped across the tub.

BACKGROUND OF THE INVENTION

[0003] Parents and caregivers often use a tub to bathe infants and/or toddlers. Conventional tubs typically include an area defined by a wall that extends around a bottom or bottom portion. Uncoordinated and/or young infants seated in a tub can easily slide along a tub bottom and slide out of the position in which they are placed in the tub.

[0004] The ends (such as a front end and a back end) of some tubs can be used as backrests for an infant or toddler disposed in the tub. The front end of the tub can be inclined from the bottom of the tub at a different angle with respect to the bottom than the back end of the tub. The

different backrest angles of inclination allow a child to be positioned in two different sitting positions in the tub. In one position, the child's back rests on the inclined front end. In another position, the child's back rests on the inclined back end.

[0005] As an infant grows, the area needed for bathing the infant changes as well. A shorter infant needs less of the receptacle than a taller infant. Accordingly, as an infant grows, the portion of the receptacle of the tub that is used increases. Therefore, there is a need for a tub that can be easily reconfigured to accommodate different sizes of infants. In addition, when bathing a young infant it may sometimes be beneficial to bathe the infant in a seated position. One possible solution that includes a central partition that an infant may lean upon is disclosed in U.S. Patent No. 8,302,218, filed October 28, 2008 and entitled "Reconfigurable Tub Assembly," the entire disclosure of which is incorporated by reference herein in its entirety. However, infants are typically unable to sit on their own until they are four to seven months old. In light of this, there is a need for a tub that can be easily reconfigured to support infants in different positions, including at least an upright seated position.

SUMMARY OF THE INVENTION

[0006] According to at least one embodiment of the present invention, a bath tub assembly includes a tub, a positioner, and a sling. The tub includes a tub body defining a receptacle and the tub body includes a bottom surface, a first end portion, a second end portion, a first side portion, and a second side portion. The positioner includes a body with an inner wall, an outer wall, and a bottom, the bottom and inner wall defining an infant receiving cavity for receiving an infant in an upright seated position and the outer wall and bottom defining a surface configured to selectively engage the first end portion, the first side portion, and the second side portion. The sling is configured to receive an infant in a supine position, the sling and the positioner being

configured to be interchangeably, releasably engaged to the tub body such that the infant may be positioned in either a supine or upright position within the receptacle.

[0007] In some embodiments of the above bath tub assembly, the tub body includes at least one mounting portion and the positioner includes an engaging portion including at least one coupling portion. The at least one coupling portion is configured to engage the at least one mounting portion, the positioner being coupled to the tub body when the at least one coupling portion engages the at least one mounting portion. In some of these embodiments, coupling the engaging portion to the mounting portion substantially partitions the receptacle by the positioner extending between the first and second sides.

[0008] In yet other embodiments of the above bath tub assembly, the body includes a rim around at least a portion of the first end portion, the second end portion, the first side portion, and the second side portion and the sling further includes couplers configured to engage the rim. The sling is coupled to the body of the tub when the couplers engage the rim. In some of these embodiments, the sling includes a body and the couplers include clips and straps. The clips are configured to frictionally engage the rim, and the straps include a first end and a second end, the first end being coupled to the body of the sling and the second end being coupled to the clips.

[0009] In still further embodiments of the above bath tub assembly, the bath tub assembly is reconfigurable between at least a first bathing configuration, a second bathing configuration, a third bathing configuration, and a fourth bathing configuration. In some of these embodiments, the first bathing configuration may be provided when the sling, but not the positioner, is coupled to the tub body. In other embodiments, the second and third bathing configurations are provided when only the positioner is coupled to the tub body. In still other embodiments, the first and

second bathing configurations orient the infant in a supine position within the receptacle and the third and fourth configurations orient the child in an upright position within the receptacle.

[0010] According to at least one other embodiment of the present invention, a bath tub assembly includes a tub, a positioner, and a sling. The tub includes a tub body defining a receptacle and the tub body includes a bottom surface, a first end portion, a second end portion, a first side portion, and a second side portion, the tub providing a first bathing area. The positioner is engageable with the first end portion, and when engaged with the first end portion, the positioner defines an upright seat for an infant within the tub body portion adjacent the first end portion and partitions the tub body such that first bathing area is divided into a second bathing area within the positioner and a third bathing area adjacent the second end portion. The sling is configured to receive an infant in a supine position within the tub body, the sling being engagable with the tub body to provide a fourth bathing area.

[0011] In some embodiments of the above bath tub assembly, the fourth bathing area is disposed a distance above the bottom surface. In others, the fourth bathing area may only be provided when the positioner is removed from the tub.

[0012] In other embodiments of the above bath tub assembly, the positioner includes a body including an inner wall, an outer wall and a bottom, the bottom and inner wall defining an infant receiving cavity for receiving an infant in an upright seated position and the outer wall and bottom defining a surface configured to selectively engage the first end portion, the first side portion and the second side portion. In still other embodiments, the tub body includes at least one mounting portion and the positioner includes an engaging portion including at least one coupling portion being configured to engage the at least one mounting portion, the positioner being coupled to the body of the tub when the at least one coupling portion engages the at least

one mounting portion, such that coupling the engaging portion to the mounting portion substantially partitions the receptacle by the positioner extending between the first and second sides.

[0013] In yet another embodiment of the above bath tub assembly, the first end portion has a first backrest and the second end portion has a second backrest, the first backrest defining an upright support and the second backrest defining a reclined support, the first backrest being provided in the first bathing area and the second backrest being provided in the third bathing area, such that the third bathing area provides a bathing area which positions an infant in a supine position and the first bathing area provides a bathing area which positions an infant in an upright position.

[0014] According to at least one other embodiment of the present invention, a bath tub assembly includes a tub and an insert member. The tub includes a tub body defining a receptacle and the tub body includes a bottom surface, a first end portion, a second end portion, a first side portion, and a second side portion. Additionally, the first end portion includes a first backrest and the second end portion includes a second backrest. The insert member is selectively engageable with the tub body and extends between the first side portion and the second side portion when engaged with the tub body. Together, the tub and the insert member are reconfigurable between a first configuration for a first size of infants, a second configuration for a second size of infants, and a third configuration for a third size of infants, wherein the second size is larger than the first size and the third size is larger than the second size.

[0015] In some embodiments of the above bath tub assembly, the bath tub assembly also includes a sling that is coupleable to the tub body in the first configuration and configured to support an infant in a supine position within the receptacle when coupled thereto. In some of

these embodiments the sling is suspended within the receptacle at a position disposed a distance away from the bottom surface of the tub.

[0016] In other embodiments of the above bath assembly, the insert member is positioned within the receptacle in the second configuration and configured to provide two bathing configurations: an upright bathing configuration within the insert member; and a supine bathing configuration adjacent the second end portion. In still other embodiments, the insert member is removed from the receptacle in the third configuration.

BRIEF DESCRIPTION OF THE DRAWINGS

[0017] FIGS. 1A-C illustrate top perspective views of an exemplary embodiment of a tub assembly according to the present invention in various configurations, with FIG. 1A illustrating a configuration including a tub and child positioner, FIG. 1B illustrating a configuration with the child positioner removed, and FIG. 1C illustrating a configuration with the child positioner removed and a sling coupled to the tub.

[0018] FIGS. 1D-G illustrate perspective views of an exemplary embodiment of a sling and an exemplary manner of coupling of the sling to the tub assembly of FIGS. 1A-C, in accordance with the present invention.

[0019] FIG. 2 illustrates a top perspective view of another exemplary embodiment of a tub for a tub assembly according to the present invention.

[0020] FIG. 3 illustrates a close-up perspective view of a portion of the tub of FIG. 2.

[0021] FIG. 4 illustrates a front perspective view of the child positioner from the tub assembly illustrated in FIG. 1.

[0022] FIG. 5 illustrates a side perspective view of the child positioner of FIG. 4.

[0023] FIG. 6 and 6A illustrate bottom perspective views of two additional exemplary embodiments of a child positioner for a tub assembly according to the present invention.

[0024] FIG. 7 illustrates a top view of a simplified embodiment of the tub illustrated in Fig. 1.

[0025] FIGS. 8 and 9 illustrate partial cross-sectional views of a portion of a tub and a portion of an insert in a coupled configuration and in a decoupled configuration, respectively.

[0026] FIG. 10 illustrates a partial cross-sectional view of an alternative embodiment of a tub assembly according to the present invention.

[0027] FIG. 11 illustrates a partial cross-sectional view of an alternative embodiment of a portion of a tub and a portion of an insert in a decoupled configuration according to the present invention.

[0028] FIG. 12 illustrates a partial cross-sectional view of the tub and the insert illustrated in FIG. 11 in a coupled configuration.

[0029] FIG. 13 illustrates a partial cross-sectional view of the tub and the insert illustrated in FIG. 11 in a spaced apart configuration.

[0030] Like reference numerals have been used to identify like elements throughout this disclosure.

DETAILED DESCRIPTION OF THE INVENTION

[0031] The terms “child,” “toddler,” and “infant” may be used interchangeably herein. In addition, the terms “receptacle,” “recess,” “cavity,” “receiving area,” and “receiving portion” may be used interchangeably to refer to the area defined by the tub body in which an infant can be placed. The terms “insert,” “insert member,” “child positioner,” and “seat” may be used

interchangeably herein to refer to the insertable child seat that is selectively coupleable to a tub body to reconfigure the receiving area of the tub and provide support for an infant disposed therein. In addition, the terms “mounting structure” and “mounting portion” may be used interchangeably herein. As described below, the tub body and insert can be referred to collectively as a tub assembly.

[0032] While the discussion of the present invention is primarily with respect to a tub that can be used by an infant or child, the concept of a removable insert for a tub in accordance with the present invention is applicable to tubs or bathing structures that can be used by toddlers, older children, and/or adults.

[0033] In one embodiment, the present invention relates to a tub for bathing a child. The tub includes a tub body with a recess within which the child can be placed. The tub body can be reconfigured between at least three configurations: a first configuration for a first size of infants; a second configuration for a second size of infants, and a third configuration for a third size of infants, where the second size is larger than the first and the third size are larger than the second. The different configurations can also be used to support or prop-up an infant in the tub in different positions. Reconfiguring the tub between configurations allows the tub to be used as the size of the infant changes and the infant is disposed in different positions.

[0034] Referring to FIGS. 1A-C, an exemplary embodiment of a tub assembly according to the present invention is illustrated. In this embodiment, the tub 10 is a molded plastic object that is configured to be used to bathe an infant or child. Tub 10 includes a tub body 100 that is configured to define recess or receptacle 105. The body 100 includes a backrest 110 at one end or end portion 101A, a backrest 120 at an opposite end or end portion 101B, and two side portions 130 and 140 between the backrests 110 and 120. The side portions 130 and 140 can be

referred to alternatively as side wall portions. The backrests 110 and 120 and the side portions 130 and 140 collectively form a wall that extends around the body 100. The tub body 100 also includes a bottom or bottom surface 150. In this embodiment, along the upper edges of the surrounding walls is a tub rim 180. The embodiments shown in FIGS. 1A-C also include a backrest 120 with a pad 172 (not shown in FIG. 1C) removably or fixedly coupled thereto increase the comfort of a child placed in contact with second backrest 120. Additionally, the body 100 may include several legs (only one leg 190 shown in FIGS. 1A-C) configured to support the body 100 on a support surface.

[0035] As shown in Fig. 1A-C, the tub 10 includes at least one insert that can be engaged with the tub body 100. In FIG. 1A, the tub 10 includes an insert or positioning member 300 that can be referred to alternatively as an insertable child positioner, a child positioner, or a “Sit-me-up Support.” As will be described in more detail below, the insert 300 can be coupled to and removed from the tub body 100, as desired, to provide a seat within the tub and a bathing area 106. When the insert 300 is removed, as is shown in FIGS. 1B and 1C, the full receptacle 105 is available for use. Thus, if an infant outgrows the bathing area 106 or is too big to be placed in the seat 300, the seat 300 may be removed. Alternatively, if the infant is not quite large enough or developed enough for using the seat 300, the bathing area 106, or the receptacle 105, a sling 250 may be coupled to tub 10, as shown in FIG. 1C. Thus the three tub configurations provide four bathing configurations.

[0036] More specifically, the tub 10 of the present invention may provide a first, second, third, and fourth bathing configuration. First, the bathing configuration which places a child in the sling 250 may be referred to as the first configuration and may be ideal for children who are approximately ages of up to 3 months and/or weigh less than approximately fifteen pounds.

Second, the bathing configuration which places a child in the bathing area 106 may be referred to as the second configuration and may be ideal for children who are approximately 3 to 6 months old and/or weigh approximately fifteen to twenty pounds. Third, the bathing configuration which places a child in the seat 300 may be referred to as the third configuration and may be ideal for children who are ages 6 to 9 months and/or weigh approximately twenty to twenty-five pounds. Fourth, and finally, the bathing configuration which places a child in the receptacle 105 (without the seat 300) may be referred to as the fourth configuration and may be ideal for children who are approximately 9 months or older and/or weigh approximately twenty-five pounds or more. Preferably, the fourth bathing configuration may be used until a child is ready to bathe or be bathed in a standard bath tub.

[0037] When the child positioner 300 is coupled to the tub body 100 in the position shown in Fig. 1A, an infant disposed in the tub 10 can be placed within the child positioner 300 in order to prop up or otherwise maintain the infant in a seated orientation. Alternatively, when the child positioner 300 is coupled to the tub body in the position shown in FIG. 1A, it also serves to partition the receptacle 105 so that a small infant can be placed against or proximate to backrest 120 with a reduced bathing space 106. Removal of insert 300, as seen in FIG. 1B, results in the full receptacle 105 being available for an infant in the tub 10. Additionally, when the insert 300 is removed from the tub 10, a sling 250 may be coupled to tub 10 and hang therein to support a child in a supine position above or in any water being held in the tub 10, as seen in FIG. 1C.

[0038] FIG. 1B illustrates a tub body 100 without an insert installed in the receptacle 105. The tub body 100 includes mounting structures or portions 210 (see FIG. 2) and 215 opposite to each other. In this embodiment, the mounting structures or portions 210 and 215 are formed in side walls 130 and 140, respectively. As shown, mounting structure or portion 215 is formed on the

inner side of side portion 140 proximate to the bottom or bottom surface 150. Similarly, although not shown in FIG. 1B, mounting structure or portion 210 is formed on the inner side of side portion 130 proximate to the bottom or bottom surface 150, as shown in another exemplary embodiment illustrated in FIG. 2. Mounting portion 215 includes a recess or receptacle 225 formed therein, the function of which is described in detail below. Mounting portion 210 includes a corresponding recess 220.

[0039] Now turning to FIG. 1C, the tub 10 is shown with a sling 250 mounted therein. The sling 250 is made of any desirable resilient fabric and mesh material to allow the sling 250 to safely and comfortably receive an infant in a supine position. In some embodiments, the sling 250 may contour to or around an infant's back, but in other embodiments, the sling 250 may be substantially firm. In FIG. 1C, the sling 250 is removably mounted or coupled to the tub body 100 by four couplers 252, but in other embodiments, any number of couplers 252 may be utilized to removably couple sling 250 to tub body 100, as desired. Any desirable type of mounting or coupling method or mechanism may be used to secure the sling 250 to the tub body 100.

[0040] As an example, sling 250 and the coupling to the tub body 100 are shown in more detail in FIGS. 1D-1G. In FIG. 1D a sling 250 is shown removed from a tub body 100. As shown, the sling 250 includes a body 251 which is substantially ovular and four couplers 252 extending therefrom. The body 251 includes a first section 266 and a second section 264 which are sewn together along the lateral edges of the first section 266 and a support section 262 which borders one end of the first and second sections 266, 264. In some embodiments, the support section 262, the first section 266, and the second section 264 may be formed integrally and simply patterned differently, but in other embodiments, each may be formed separately and subsequently connected or sewn together. Moreover, in some embodiments, each of these

portions may be made of a different material. For example, in the present embodiment, the first section 266 may be a water-permeable mesh, the second section 264 may be a semi water-resistant fabric, and the support section 262 may be a foam insert secured within a semi water-resistant fabric casing. Consequently, the second section 264 may provide semi-water resistant walls (see FIG. 1C as an example) which direct water towards the first section 266 which may allow water to drain therethrough.

[0041] Still referring to FIG. 1D, but now with reference to FIGS. 1E-1G, the coupling between the sling 250 and the tub body 100 is shown in detail. As seen in FIG. 1D, each coupler 252 included on the sling 250 includes a strap 254 and a clip 256. The clip 256 is best seen in FIG. 1E and, as shown, each clip 256 includes a U-shaped wall 260 with an inner surface 258 and an outer surface 257. Preferably, the wall 260 converges from the bottom of the U to the top of the U such that the inner surface 258 tapers towards its top edge in order to allow the inner surface 258 of the clip 256 to frictionally engage a surface it is placed around, such as the rim 180 of the tub body 100. However, to ensure that the clip 256 does not move laterally when placed around the rim 180, the rim 180 includes detents 195, as seen in FIGS. 1F-1G, which may facilitate securing the clips 256 in desirable positions. Preferably, four detents 195 may be spaced around the rim 180 in positions which allow the sling to hang above the bottom surface 150 of the tub (as seen in FIG. 1C). However, in other embodiments, the rim 180 may include any number of detents 195 to provide any number of sling positions within the tub 100.

[0042] In different embodiments, the tub 10 can have any shape or configuration. For example, in some embodiments, such as the embodiment shown in FIG. 2, the tub 10 is configured to resemble the shape of a penguin. In other embodiments the tub is configured to resemble the shape of a whale. As shown in FIG. 2, the tub body 100 includes portions 160 and

164 that resemble fins of a penguin. Each of the portions 160 and 164 is integrally formed with the rim 180 on portions 130 and 140, respectively. The embodiment shown in FIG. 2 also includes a backrest 120 with a pad 172 removably or fixedly coupled thereto increase the comfort of a child placed in contact with second backrest 120. Furthermore, the body 100 shown in FIG. 2 also includes a drain 168 with a closure mechanism 169 that can be removably inserted into the drain 168.

[0043] Referring to Fig. 3, a close-up view of a portion of the tub body 100 is illustrated. While both mounting portions 210 and 215 can be seen in this view, mounting portions 210 and 215 are substantially the same and thus, for clarity, only mounting portion 210 will be described herein with the understanding that both mounting portions 210 and 215 include the same features. In this embodiment, the side portion 130 includes mounting portion 210 which has a mounting structure or surface 211 and an inclined contact surface 212. The mounting portion 210 also includes a recess 220 formed in the inclined contact surface 212 that is configured to be engaged by part of the insert 300 to couple the insert 300 to the tub body 100.

[0044] Referring to Fig. 4, an embodiment of an insert or positioning member 300 according to the present invention is illustrated. In this embodiment, the insert 300 is molded plastic and includes a positioning body 400 and an engaging portion 500. Both the engaging portion 500 and the body 400 are configured to be engaged by an infant in the receptacle 105. In other words, an infant could sit or lean against either engaging portion 500 or body 400, as desired.

[0045] Still referring to FIG. 4, the positioning body 400 has a bottom 408 and an outer wall 402 with an inner surface 404, an outer surface 406, and a top surface 407. The inner surface 404 and the outer surface 406 may be spaced apart by some thickness such that the wall 402 has some definition, and may each be substantially semi-circular, such that wall 402 wraps around at

least a portion of bottom 408, perhaps forming a backrest. The engaging portion 500 has an interior wall 520 and an exterior wall 530 that each extends between ends 502 and 510. Together, the inner surface 404 of the body 400, the bottom 408 of the body 400, and the interior wall 520 of the positioning member 500 collectively define an infant receiving cavity 410. In a preferred embodiment, and as shown in FIG. 4, bottom 408 has a front edge 409 that substantially abuts the interior wall 520 of the engaging portion 500 while the remaining edges of bottom 408 are arcuate and abut the semi-circular interior surface 404 of body 400. In some embodiments, bottom 409 may be integrally formed with the engaging portion 500 and the wall 402 in order to ensure that insert 300 provides a contiguous child receiving cavity 410.

[0046] Now turning to FIG. 5, seat/insert 300 is shown from a side perspective. While FIG. 5 shows an embodiment of seat 300 in which body 400 is generally C-shaped and the engaging portion 500 has a generally inverted U-shape along its length, in different embodiments, the cross-sectional configuration of each of the body 400 and engaging portion 500 may vary. In a preferred embodiment, wall 402 is substantially C-shaped and rises from its front edge 420 (adjacent to engaging portion 500) to its back edge 425 to provide a raised, arcuate backrest for an infant seated therein. Additionally, in a preferred embodiment, the engaging portion 500 has an undulating top surface 540 with a central apex and two depressions configured to receive an infant's legs therein adjacent to ends 502 and 510 (best seen in FIG. 4). In some embodiments, the raised central apex may continue into at least a portion of the bottom 408 to provide a comfortable seat 300. Furthermore, as can be seen in FIG. 5, in some embodiments, the body 400 may be integrally formed with the engaging portion 500 to form a seat 300 which substantially resembles a booster seat. However, in order to ensure that the seat 300 is not used

as a booster seat, the seat 300 may also include a post 450 which may render the seat unstable when placed on a support surface (rather than being inserted into the tub body 100).

[0047] Turning now to FIG. 6, and with continued reference to FIG. 5, proximate to ends 502 and 510 are coupling portions or coupling mechanisms 504 and 512, respectively. Coupling portion 504 includes a projection 506 that is coupled to a projection support 508. Similarly, coupling portion 512 includes a projection 514 that is coupled to a projection support 516. Projection supports 508 and 516 are connected to an inner or lower side 550 of engaging portion 500. The projection supports 508 and 516 are configured so that projections 506 and 514 are supported from and extend away toward the opposite sides of insert 300. In one embodiment, projection 506 is integrally formed with projection support 508 and projection 514 is integrally formed with projection support 516. Referring to FIG. 6, the distance between the distal ends or tips of projections 506 and 514 is shown by the dimension “P.”

[0048] Now turning to Fig. 6A, another exemplary embodiment of a positioner 300 is shown from a bottom perspective view. As shown, similar to the embodiments shown in FIGS. 4-6, the engaging portion 500 includes lower side edges 560 and 562 and opposite end edges 561 and 563 and, the body 400 has an edge 460 that wraps around the outer edge of top surface 407. Each of the edges 460, 560, 561, 562, and 563 is configured to engage a surface of the tub body 100. However, as shown in FIG. 6A only, some embodiments of the insert 300 may also include a notch or recess 380 formed along edge 460, 510, 560, or 563 configured to be engaged by a user to grasp the insert 300. The notch 380 may also allow water to flow therethrough, but in order to further increase the water flow, the insert 300 may also include apertures 390 in bottom 408, as shown in FIG. 6A. The notch 380 may provide an easy location to grip the positioner 300 and the apertures 390 may increase drainage flow through the insert 300 such that, together, these

two improvements may render insert 300 easier to remove from the tub body 100. However, in other embodiments, the insert 300 may include any other desirable features to provide increased leverage, drainage or other desirable advantages which make it easier to remove the insert 300 from the tub body 100. For example, in some embodiments, the insert 300 may include a push-button which releases the coupling between the insert 300 and the tub body 300.

[0049] Referring to Figs. 7-9, an exemplary method of removing the insert 300 from the tub body 100 is illustrated. Fig. 7 illustrates a top view of the tub body 100 and, as shown, the tub body 100 includes backrests 110 and 120, side portions 130 and 140, and bottom portion 150. Typically, the entire insert 300 would be inserted into tub 10, but for simplicity, only the engaging portion 500 of the insert 300 is shown as being placed in the receptacle 105 in FIG. 7. Engaging portion 500 splits the receptacle 105 into two areas 106 and 107 (with area 107 representing the location where body 400 would typically be disposed), with ends 101A and 101B, respectively. The engaging portion 500 is coupled to the body 100 by coupling portions 504 and 512 on the engaging portion 500 and mounting portions or mounting mechanisms 215 and 210 on the body 100, respectively. In this embodiment, the tub body 100 and the engaging portion 500 of the insert 300 are each formed from a resilient and deformable material, such as molded plastic.

[0050] As shown in FIG. 7, in this embodiment, the tub body 100 has an initial rest shape or configuration 600. Configuration 600 can be referred to as a mountable configuration. The side portions 130 and 140 of body 100 are sufficiently flexible such that they can be moved outwardly, thereby changing the shape or configuration of the tub body 100. As shown in FIG, 7, side portion 140 can be moved along the direction of arrow "A" from a rest position 602 to an extended position 702 (shown in dashed lines). Similarly, side portion 130 can be moved along

the direction of arrow “B” from a rest position 604 to an extended position 704 (shown in dashed lines). A user can move side portion 140 along the direction of arrow “A” and side portion 130 along the direction of arrow “B” by grasping each of the side portions 130 and 140 and applying a force to each in the opposite outward directions (such as by pushing or pulling).

[0051] The side portions 130 and 140 in their rest or initial positions 602 and 604, respectively, correspond to the rest or locking configuration 600 of the tub body 100. The side portions 130 and 140 in their extended or expanded positions 702 and 704, respectively, correspond to the extended or unlocking configuration 700 of the tub body 100. Configuration 700 can be referred to as a releasable configuration as well. Referring to FIG. 7, in configuration 600, the distance between the mounting portions 210 and 215 of tub body 100 is shown as the dimension “R.” When the side portions 130 and 140 are moved outwardly, the distance between the mounting portions 210 and 215 of tub body 100 is shown as the dimension “E.” In alternative embodiments, a user can move other parts of the tub body 100 in addition to or in lieu of the side wall portions 130 and 140 to change the configuration of the tub body 100.

[0052] Referring to FIG. 8, a cross-sectional view of a portion of the engaging portion 500 and the tub body 100 is illustrated. In FIG. 8, the engaging portion 500 is illustrated as being coupled to the tub body 100, and in particular, to the side portion 130. The engaging portion 500 includes a coupling portion 512 that is engaged with the mounting portion 210 of the side portion 130. The coupling portion 512 includes the projection support 516 from which projection 514 extends. The projection 514 is configured to engage the recess 220 that is formed in the mounting portion 210. When the projection 514 is engaged with the recess 220, movement of the engaging portion 500 along direction “C” is limited and prevented. Accordingly, the engaging portion 500 remains coupled to the body 100 proximate to the bottom 150 and can be

engaged by the body of an infant or child in the tub 10. However, in some embodiments, the recess 220 may extend downwards through the inclined surface 212 so that projection 514 may only be prevented from moving upwards along direction “C” by a wall 218.

[0053] When the side portion 130 is in its rest position 604, the wall 218 at the upper end of recess 220 limits upward movement of the projection 514 and as a result, the engaging portion 500. When a user, such as a parent or caregiver, wants to remove the engaging portion 500 from the tub 10, the user applies a force to the side portion 130 outwardly along the direction of arrow “B,” thereby moving the side portion 130 from its rest position 604 to its extended or unlocking position 704 (shown in dashed lines in FIGS. 7-8). As shown in FIG. 9, as the side portion 130 moves, the wall 218 also moves. When the wall 218 moves a sufficient distance, the wall 218 no longer contacts the projection 514, thereby allowing the projection 514 to move upwards along direction “C” away from the bottom 150 and the mounting portion 210. At this point, the engaging portion 500 can be removed from the tub body 100. In one embodiment, the engaging portion 500 pops out of engagement from the tub body 100 when it is released.

[0054] Thus, in the embodiment illustrated in Figs. 7-9, to decouple the insert or positioning engaging portion 500 from the tub body 100, the distance between the mounting portions 210 and 215 on the tub body 100 has to be greater than the distance between the tips of the projections 506 and 514 of the engaging portion 500 (see dimension “P” in FIG. 6). The side portions 130 and 140 can be moved substantially simultaneously or at different times. In other words, a force can be applied to side portion 130 and not to side portion 140. Alternatively, a force can be applied to side portion 140 and not to side portion 130. Moreover, outwardly directed forces can be applied to side portions 130 and 140 at the same time.

[0055] Referring to FIG. 10, an alternative embodiment of a tub assembly according to the present invention is illustrated. In this embodiment, the tub assembly 302 includes a tub body 310 with portions 312 and 314 and a bottom portion 316 with a bottom surface 317. The tub body 310 defines a receptacle or receiving area 318 in which an infant can be placed. Extending from portion 312 is a projection 320 which forms a mounting portion or mechanism 325 on the tub body 310. Similarly, extending from portion 314 is a projection 322 which forms a mounting portion or mechanism 330 on the tub body 310. In one embodiment, the projections 320 and 322 are integrally formed with the tub body 310. In addition, portions 312 and 314 may be side portions or side wall portions.

[0056] Still referring to FIG. 10, an engaging portion 350 of an insert can be used with the tub body 310 to define multiple receptacles or receiving areas in which an infant may be disposed. In this embodiment, the engaging portion 350 includes a body 352 that has opposite ends 354 and 356. Proximate to ends 354 and 356 are coupling portions 360 and 370, respectively. Coupling portion 360 includes a support portion 362 that is coupled to body 352 and that includes a recess 364 that is configured to receive projection 320. Similarly, coupling portion 370 includes a support portion 372 that is coupled to body 352 and that includes a recess 374 that is configured to receive projection 322. In some embodiments, the recess 374 may be a through hole, if desired.

[0057] When the projections 320 and 322 are engaged with the recesses 364 and 374, respectively, the engaging portion 350 is coupled to the tub body 310. When portions 312 and 314 are moved outwardly along the direction of arrows “L” and “M,” the projections 320 and 322 disengage from the recesses 364 and 374, thereby unlocking and releasing the insert 350 from the tub body 310. In other words, the tub body 310 may be coupled to the engaging portion

350 of an insert 300 in substantially the same manner as described above, however, in this embodiment the tub body 310 includes the male portion of the coupling and the engaging portion 350 includes the female portion of the coupling.

[0058] Referring to FIGS. 11-13, a portion of an alternative embodiment of a tub according to the present invention is illustrated. In this embodiment, the tub includes the same components as tub 10 described above (such as with side portion 130 and bottom 150) and similar elements have similar reference numerals. However, in this embodiment, the engaging portion 500' is formed of a flexible material that allows for the coupling portions 512' of the engaging portion 500' to move relative to the remainder of the engaging portion 500'. In this variation, the engaging portion 500' is adjustable as opposed to the tub 10. In other words, while the engaging portion 500' is coupled to the tub body 100 using coupling portions and mounting portions similar to those described above, the engaging portion 500' can be decoupled by deforming the coupling portions 512', 514' of engaging portion 500' and not by deforming the tub body 100.

[0059] As shown in FIG. 11, the coupling portion 512' of engaging portion 500' has an initial or non-deformed shape 607 and can move to a deformed shape 609 relative to the remainder of the engaging portion 500'. The flexibility of engaging portion 500' allows portions of the engaging portion 500' to be deformed by external forces into deformed shape 609. The application of force, such as by squeezing, to the middle portion of the engaging portion 500' causes the opposite coupling portions (only coupling portion 512' being shown in FIG. 11) to retract inwardly. In some embodiments, the coupling portions 512', 504' may also include a flexible member which extends upwardly from or through the seat 300 and the flexible member may be configured to move the coupling portions 504', 512' inwards, in the manner shown in FIGS. 11-13, when pulled upwards. In other words, when pulled upwards, the flexible member

could move the coupling portions 504', 512' to the deformed shape 609, thereby releasing the coupling portions 504', 512' from the tub body 100.

[0060] Referring to Fig. 11, as the engaging portion 500' is moved along the direction of arrow "G" relative to tub body 100, the shape of the engaging portion 500' changes as the projection 514 engages the mounting portion 210 and in particular, the inclined surface 212. Once the projection 514 clears the upper portion of mounting portion 210, the projection 514 engages recess 220 as shown in Fig. 12. The other end of the engaging portion 500' can be manipulated in a similar manner to couple the engaging portion 500' to the mounting portion 215 of the tub body 100.

[0061] In the various embodiments disclosed herein, the engaging portions 500 and 500' can be coupled to a tub 10 via different methods. In one method, the engaging portion 500' is forced onto the mounting portion 210 as shown in FIG. 11 and the coupling portions 504' and 512' deform until the projections 506 and 514 engage recesses 225 and 220, respectively. In another method (shown in FIG. 13), the engaging portion 500' is deformed by a parent squeezing the engaging portion 500' to move the coupling portions 504' and 512' inwardly before placing the engaging portion 500' in its coupled position on the tub body 100. In both methods, the engaging portion 500' flexes back to its rest position and the projections 506 and 514 extend outwardly and engage mounting portions 215 and 210, respectively. As shown in FIG. 13, the coupling portion 512' can be moved along the direction of arrow "H" to engage and disengage projection 514 from the recess 220. To decouple the engaging portion 500', coupling portions 504' and 512' are moved relative to the mounting portions 210 and 215 and the engaging portion 500' can then be removed from the tub body.

[0062] In alternative embodiments, the engagement between the insert and the tub body may be between the insert and only the bottom of the tub. In addition, the engagement structures (e.g., projections, tabs, slots or recesses) may be reversed so that slots are formed on the insert and tabs or projections are positioned on the tub body. Moreover, the quantity of projections and/or coupling portions provided on the support member can vary in different embodiments.

[0063] While the invention has been illustrated and described in detail and with reference to specific embodiments thereof, it is nevertheless not intended to be limited to the details shown, since it will be apparent that various modifications and structural changes may be made therein without departing from the scope of the inventions and within the scope and range of equivalents of the claims. In addition, various features from one of the embodiments may be incorporated into another of the embodiments. Accordingly, it is appropriate that the appended claims be construed broadly and in a manner consistent with the scope of the disclosure as set forth in the following claims.

[0064] It is also to be understood that the tub assembly of the present invention, or portions thereof may be fabricated from any suitable material or combination of materials, such as plastic, foamed plastic, wood, cardboard, pressed paper, metal, supple natural or synthetic materials including, but not limited to, cotton, elastomers, polyester, plastic, rubber, derivatives thereof, and combinations thereof. Suitable plastics may include high-density polyethylene (HDPE), low-density polyethylene (LDPE), polystyrene, acrylonitrile butadiene styrene (ABS), polycarbonate, polyethylene terephthalate (PET), polypropylene, ethylene-vinyl acetate (EVA), or the like. Suitable foamed plastics may include expanded or extruded polystyrene, expanded or extruded polypropylene, EVA foam, derivatives thereof, and combinations thereof.

[0065] Finally, it is intended that the present invention cover the modifications and variations of this invention that come within the scope of the appended claims and their equivalents. For example, it is to be understood that terms such as “left,” “right,” “top,” “bottom,” “front,” “rear,” “side,” “height,” “length,” “width,” “upper,” “lower,” “interior,” “exterior,” “inner,” “outer” and the like as may be used herein, merely describe points of reference and do not limit the present invention to any particular orientation or configuration. Further, the term “exemplary” is used herein to describe an example or illustration. Any embodiment described herein as exemplary is not to be construed as a preferred or advantageous embodiment, but rather as one example or illustration of a possible embodiment of the invention.

What is claimed is:

1. A bath tub assembly comprising:

a tub body defining a receptacle, the tub body including a bottom surface, a first end portion, a second end portion, a first side portion, and a second side portion;

a positioner comprising a body including an inner wall, an outer wall, and a bottom, the bottom and inner wall defining an infant receiving cavity for receiving an infant in an upright seated position and the outer wall and bottom defining a surface configured to selectively engage the first end portion, the first side portion, and the second side portion of the tub body; and

a sling for receiving an infant in a supine position, the sling and the positioner being configured to be interchangeably, releasably engaged to the tub body such that the infant may be positioned in either a supine or upright position within the receptacle.

2. The bath tub assembly of claim 1, wherein the tub body includes at least one mounting portion and the positioner further comprises:

an engaging portion including at least one coupling portion being configured to engage the at least one mounting portion, the positioner being coupled to the tub body when the at least one coupling portion engages the at least one mounting portion.

3. The bath tub assembly of claim 2, wherein coupling the engaging portion to the mounting portion substantially partitions the receptacle by the positioner extending between the first and second side portions of the tub body.

4. The bath tub assembly of claim 1, wherein the tub body includes a rim around at least a portion of the first end portion, the second end portion, the first side portion, and the second side portion and the sling further comprises:

couplers configured to engage the rim, the sling being coupled to the tub body when the couplers engage the rim.

5. The bath tub assembly of claim 4, wherein the sling includes a body and the couplers further comprise:

clips configured to frictionally engage the rim of the tub body;

straps including a first end and a second end, the first end being coupled to the body of the sling and the second end being coupled to the clips.

6. The bath tub assembly of claim 1, wherein the bath tub assembly is reconfigurable between at least a first bathing configuration, a second bathing configuration, a third bathing configuration, and a fourth bathing configuration.

7. The bath tub assembly of claim 6, wherein the first bathing configuration is provided when the sling, but not the positioner, is coupled to the tub body.

8. The bath tub assembly of claim 6, wherein the second and third bathing configurations are provided when only the positioner is coupled to the tub body.

9. The bath tub assembly of claim 6, wherein the first and second bathing configurations orient the infant in a supine position within the receptacle and the third and fourth configurations orient the child in an upright position within the receptacle.

10. A bath tub assembly comprising:

a tub body defining a receptacle, the tub body including a bottom surface, a first end portion, a second end portion, a first side portion, and a second side portion, the tub providing a first bathing area;

a positioner engageable with the first end portion, and when engaged with the first end portion, the positioner defines an upright seat for an infant within the tub body portion adjacent the first end portion and partitions the tub body such that first bathing area is divided into a second bathing area within the positioner and a third bathing area adjacent the second end portion of the tub body;

a sling configured to receive an infant in a supine position within the tub body, the sling being engageable with the tub body to provide a fourth bathing area.

11. The bath tub assembly of claim 10, wherein the fourth bathing area is disposed a distance above the bottom surface of the tub body.

12. The bath tub assembly of claim 10, wherein the fourth bathing area may only be provided when the positioner is removed from the tub.

13. The bath tub assembly of claim 10, wherein the positioner further comprises:

a body including an inner wall, an outer wall and a bottom, the bottom and inner wall defining an infant receiving cavity for receiving an infant in an upright seated position and the outer wall and bottom defining a surface configured to selectively engage the first end portion, the first side portion, and the second side portion of the tub body.

14. The bath tub assembly of claim 10, wherein the tub body includes at least one mounting portion and the positioner further comprises:

an engaging portion including at least one coupling portion being configured to engage the at least one mounting portion, the positioner being coupled to the tub body when the at least one coupling portion engages the at least one mounting portion, wherein coupling the engaging portion to the mounting portion substantially partitions the receptacle by the positioner extending between the first and second side portions of the tub body.

15. The bath tub assembly of claim 10, wherein the first end portion has a first backrest and the second end portion has a second backrest, the first backrest defining an upright support and the second backrest defining a reclined support, such that the third bathing area positions an infant in a supine position and the first bathing area positions an infant in an upright position.

16. A bath tub assembly, comprising:

a tub body defining a receptacle, the tub body including a bottom surface, a first end portion, a second end portion, a first side portion, and a second side portion, wherein the first end portion includes a first backrest and the second end portion includes a second backrest; and

an insert member selectively engageable with the tub body and extending between the first side portion and the second side portion when engaged with the tub body, wherein the tub assembly is reconfigurable between:

a first configuration for a first size of infants;

a second configuration for a second size of infants; and

a third configuration for a third size of infants, wherein the second size is larger than the first size and the third size is larger than the second size.

17. The bath tub assembly of claim 16, further comprising:

a sling that is coupleable to the tub body in the first configuration and configured to support an infant in a supine position within the receptacle when coupled thereto.

18. The bath tub assembly of claim 17, wherein the sling is suspended within the receptacle at a position disposed a distance away from the bottom surface of the tub body.

19. The bath tub assembly of claim 16, wherein the insert member is positioned within the receptacle in the second configuration and configured to provide two bathing configurations, an upright bathing configuration within the insert member and a supine bathing configuration adjacent the second end portion.

20. The bath tub assembly of claim 16, wherein the insert member is removed from the receptacle in the third configuration.

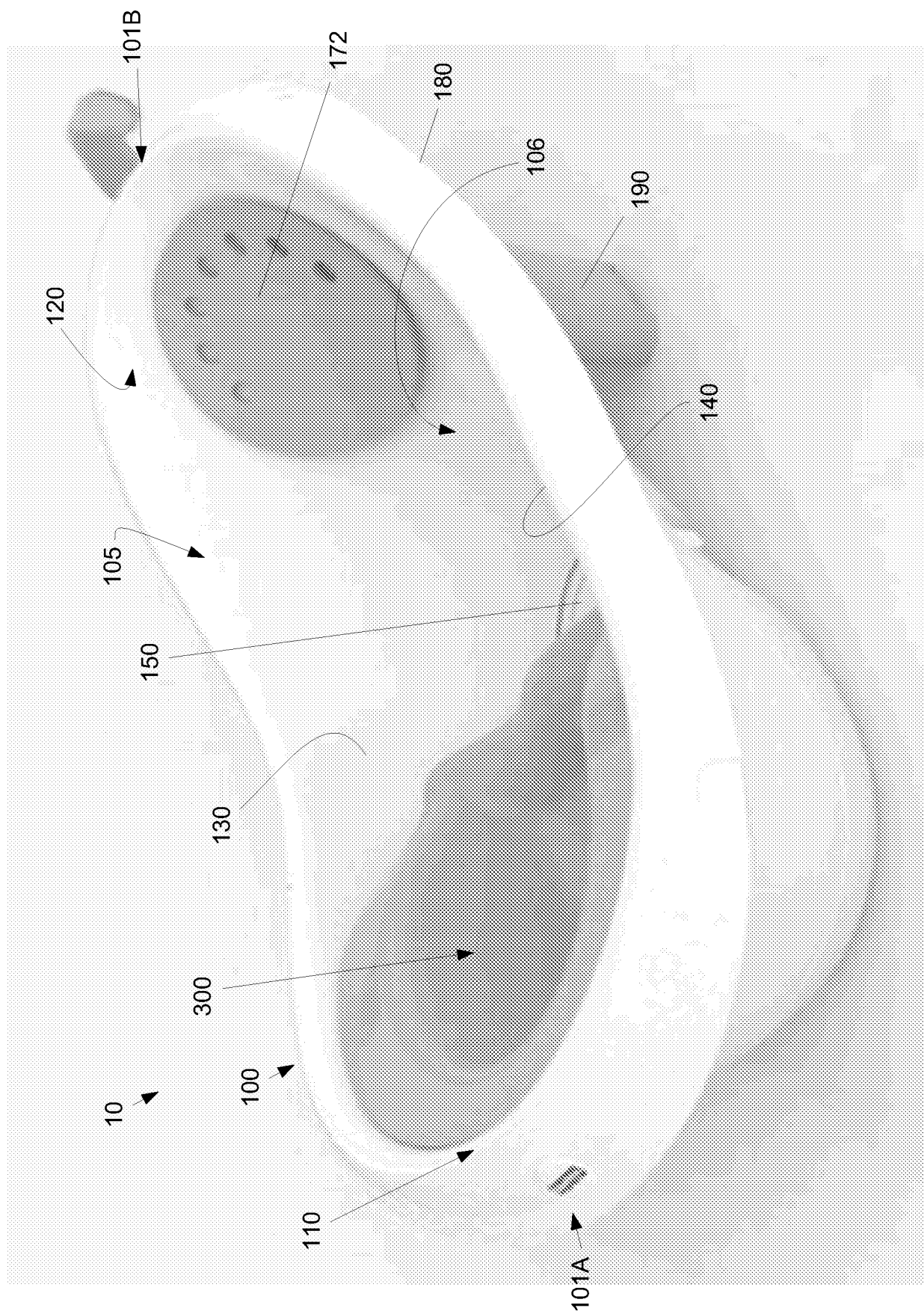


FIG. 1A

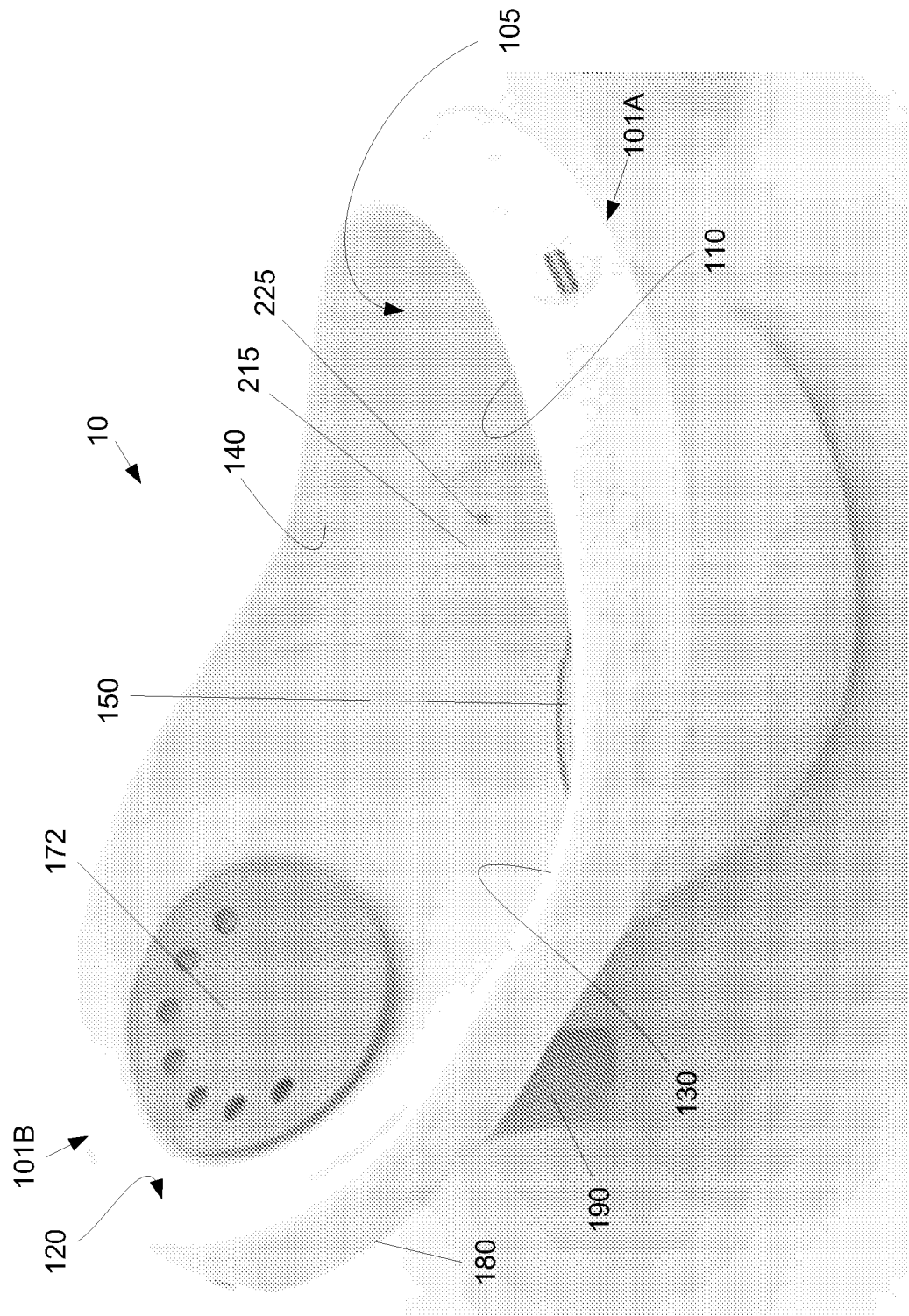


FIG. 1B

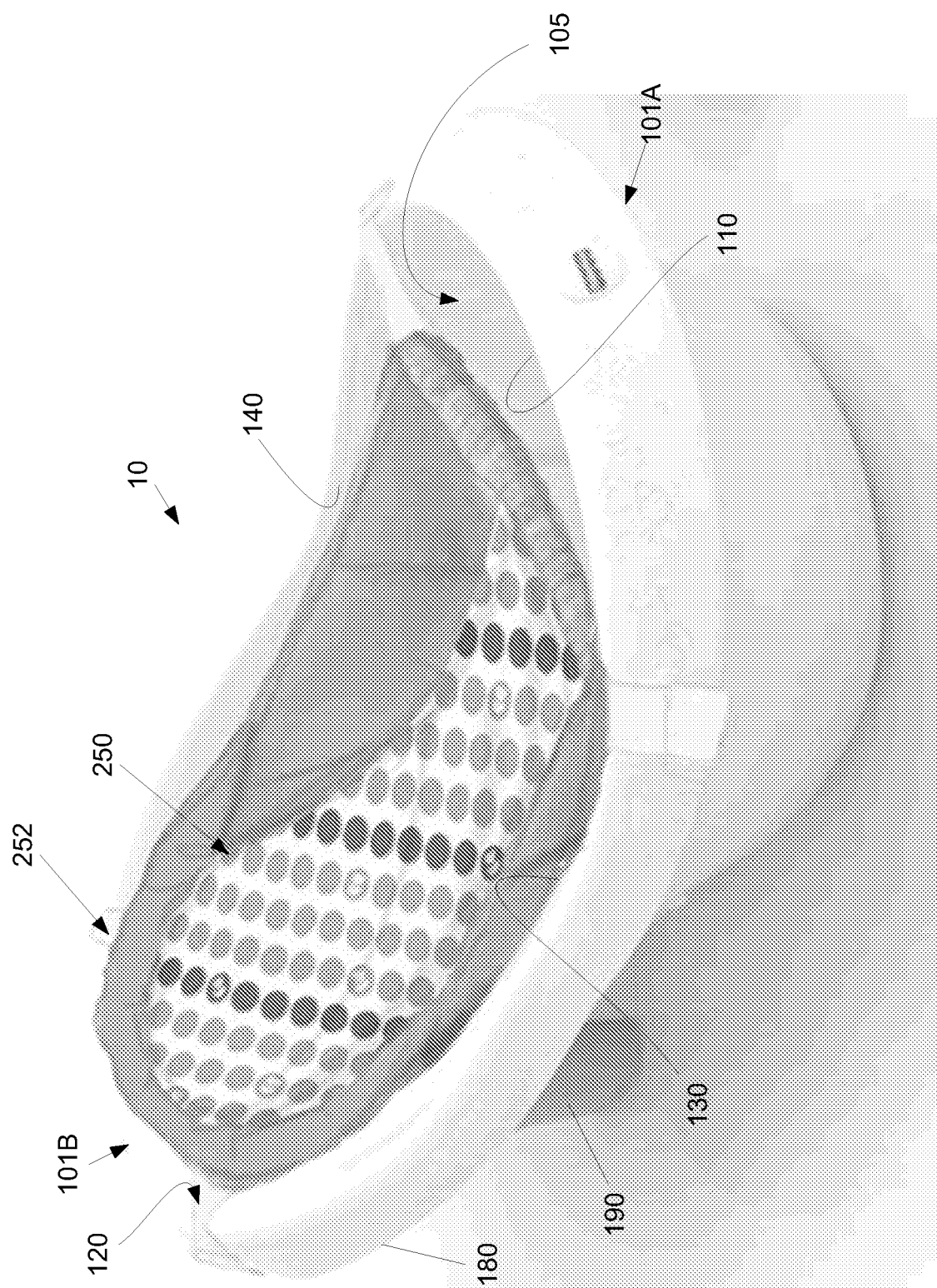


FIG. 1C

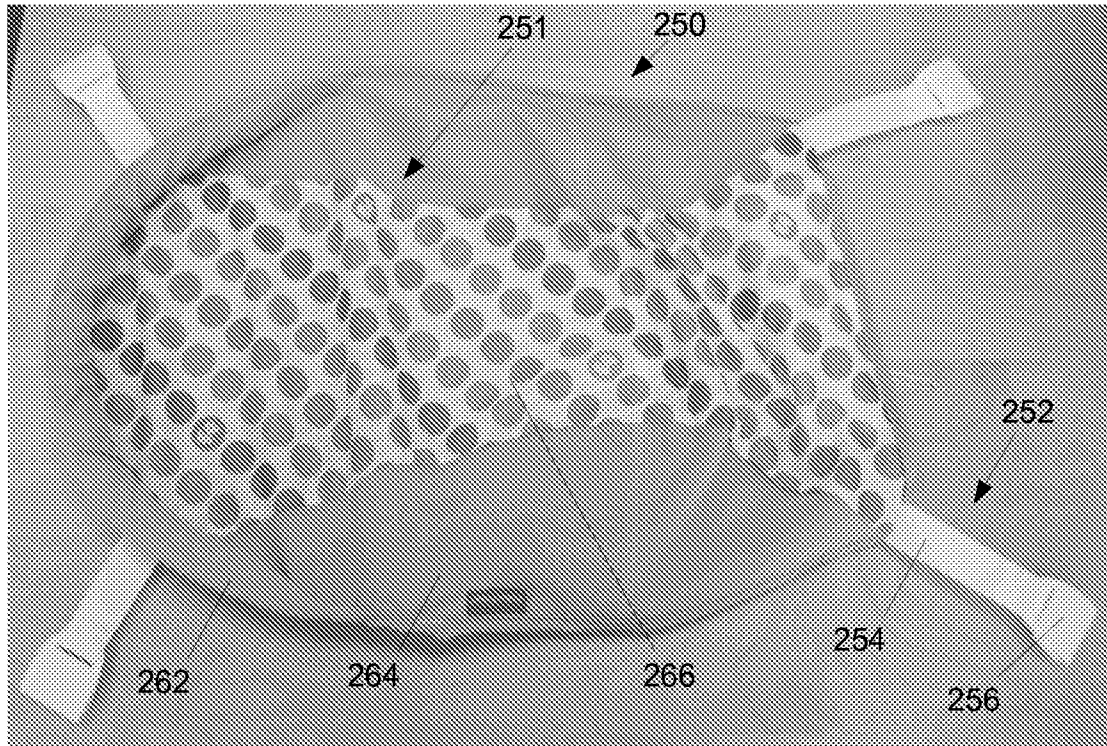


FIG. 1D

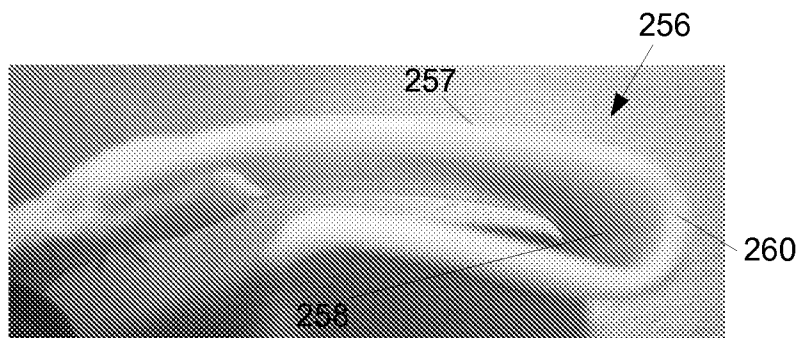


FIG. 1E

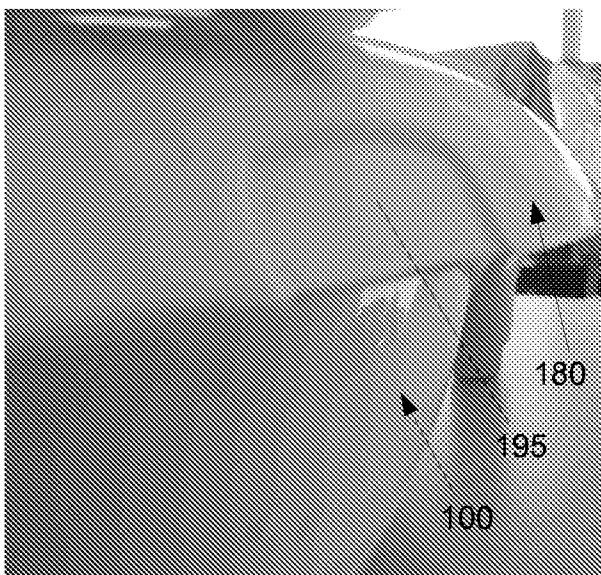


FIG. 1F

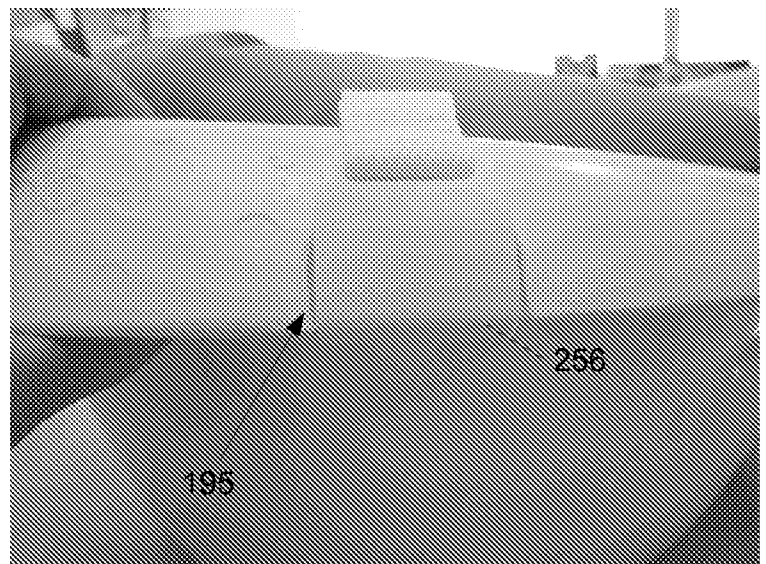


FIG. 1G

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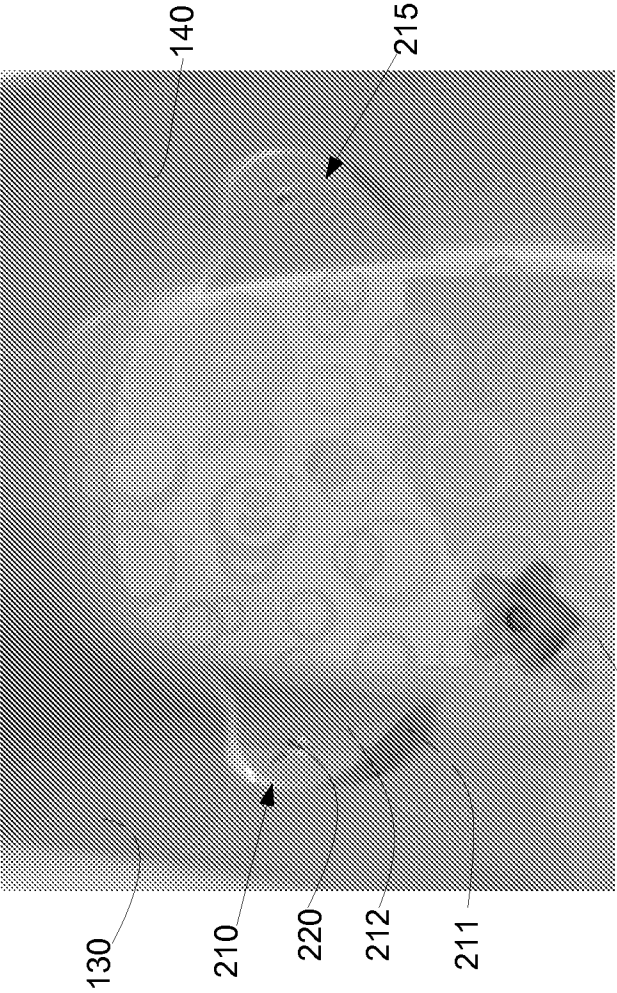


FIG. 3

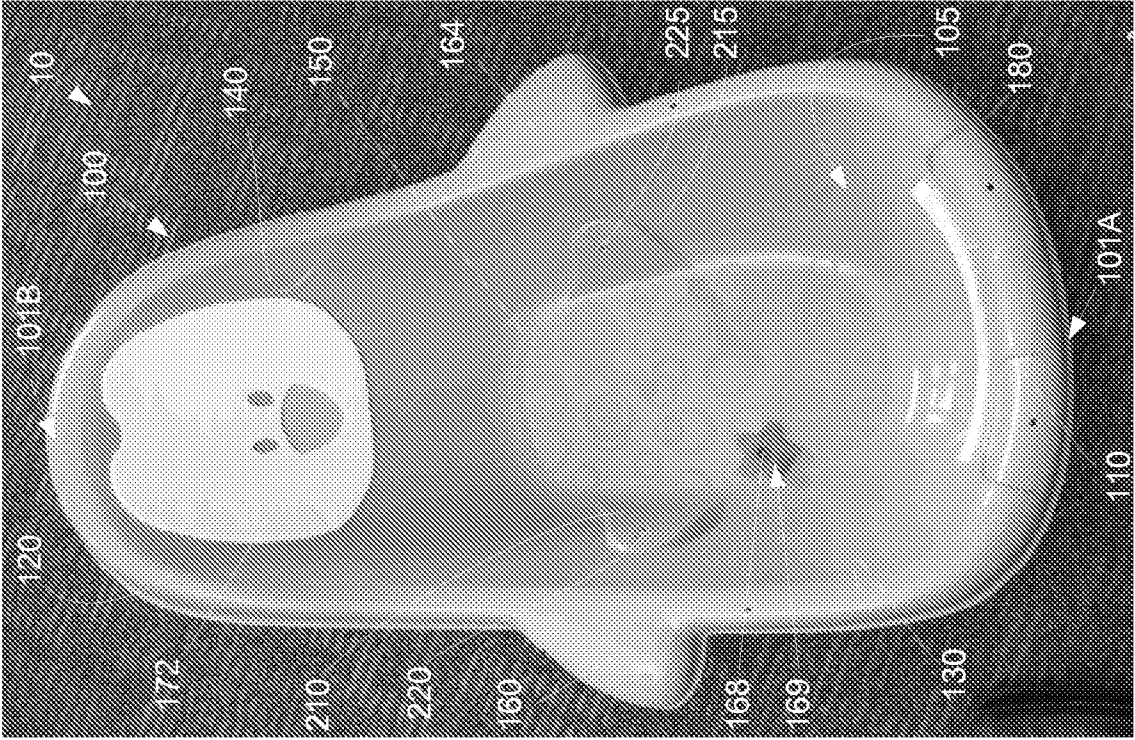


FIG. 2

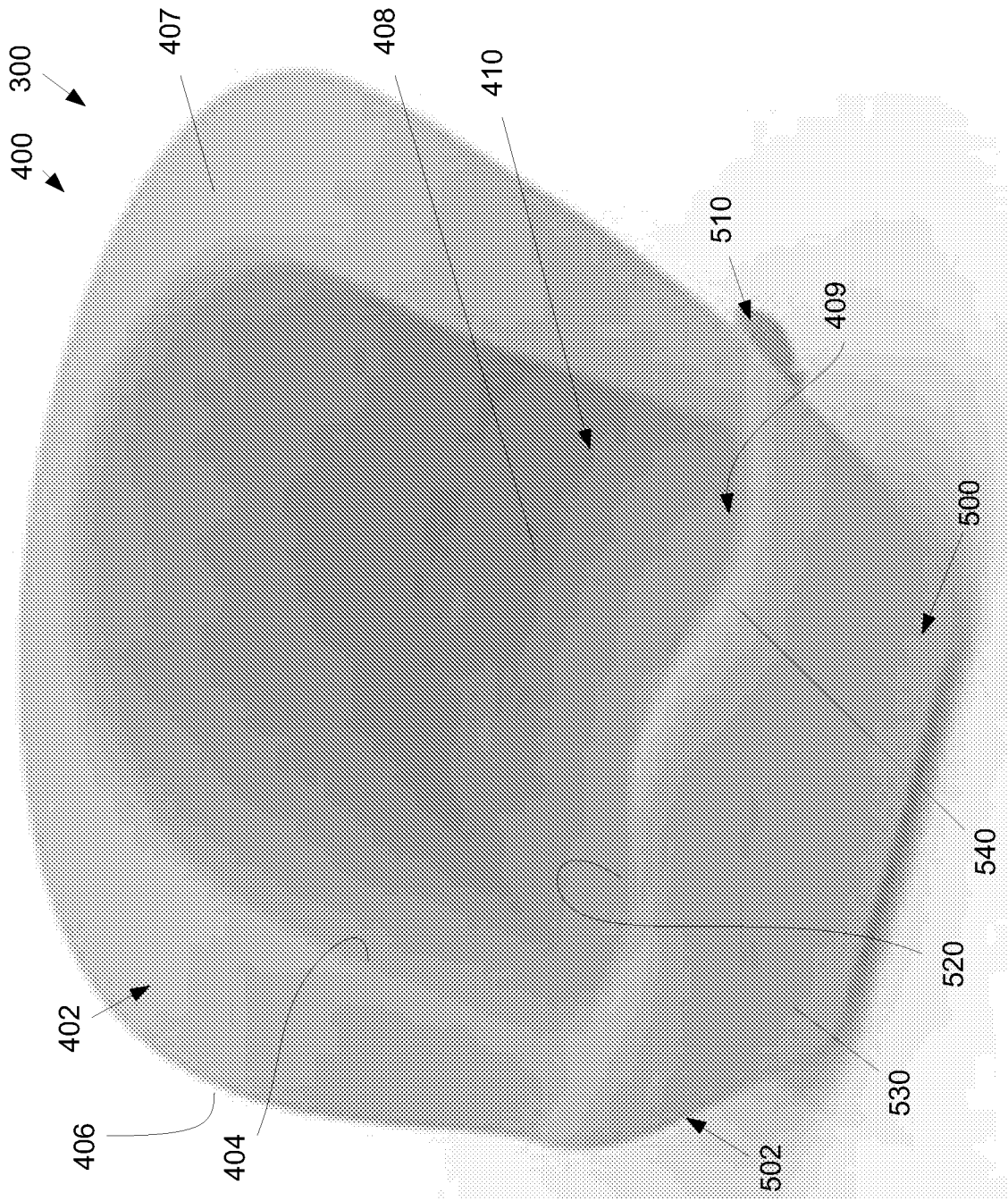


FIG. 4

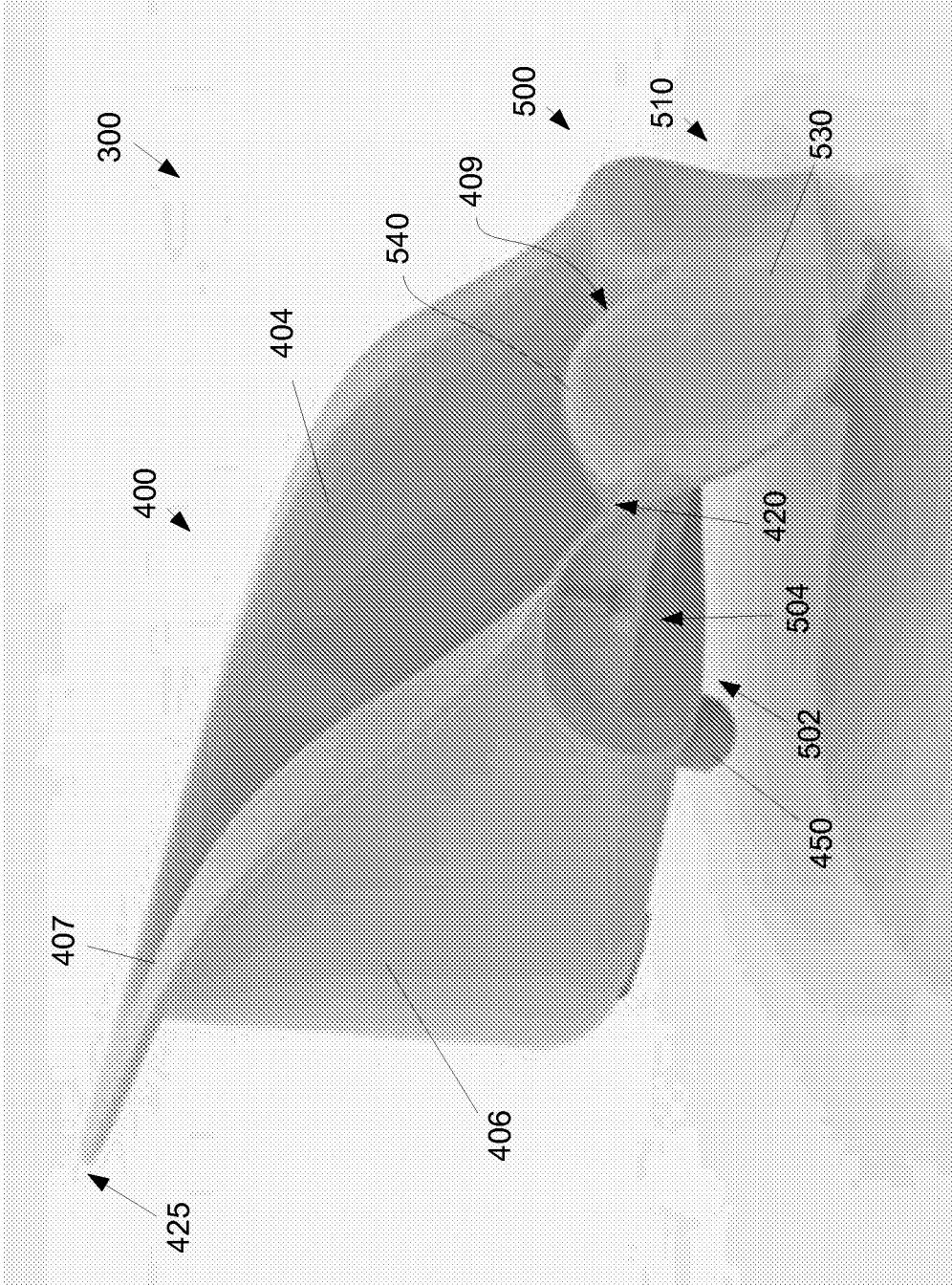


FIG. 5



FIG. 6

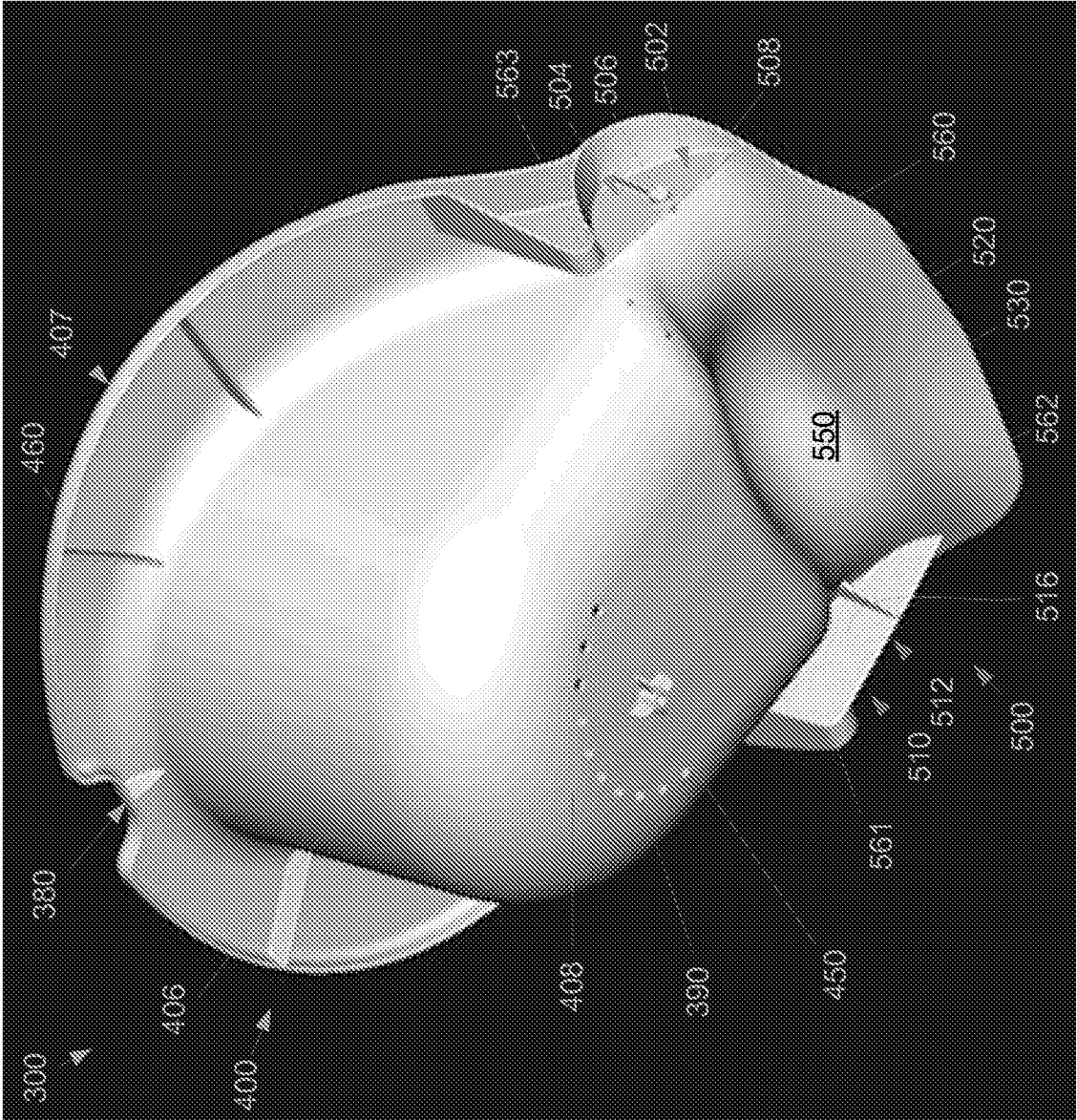


FIG. 6A

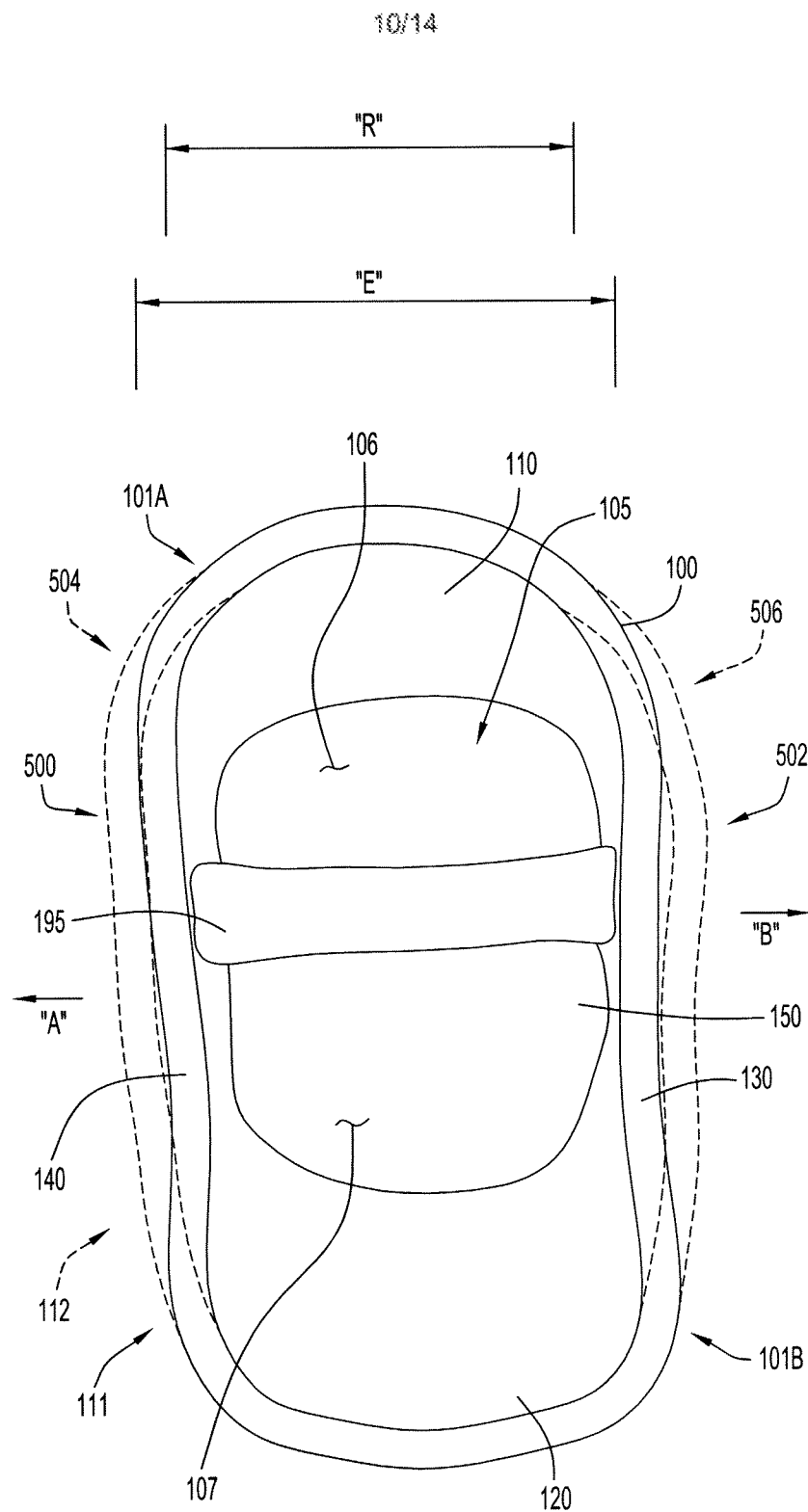


FIG. 7

1114

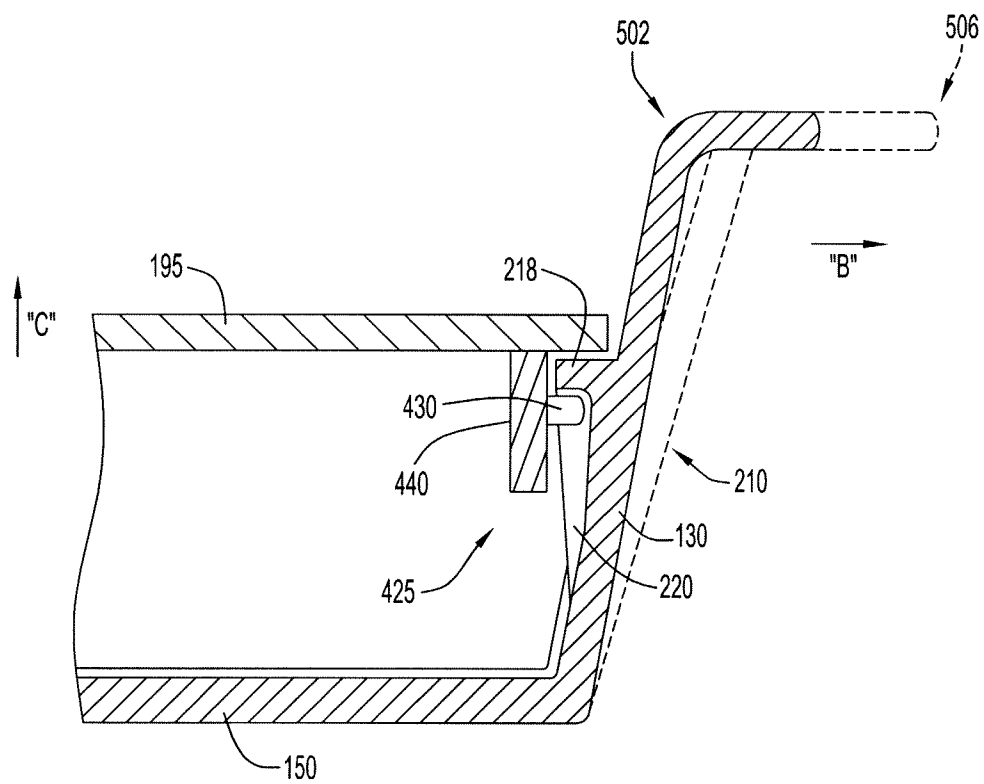


FIG. 8

1214

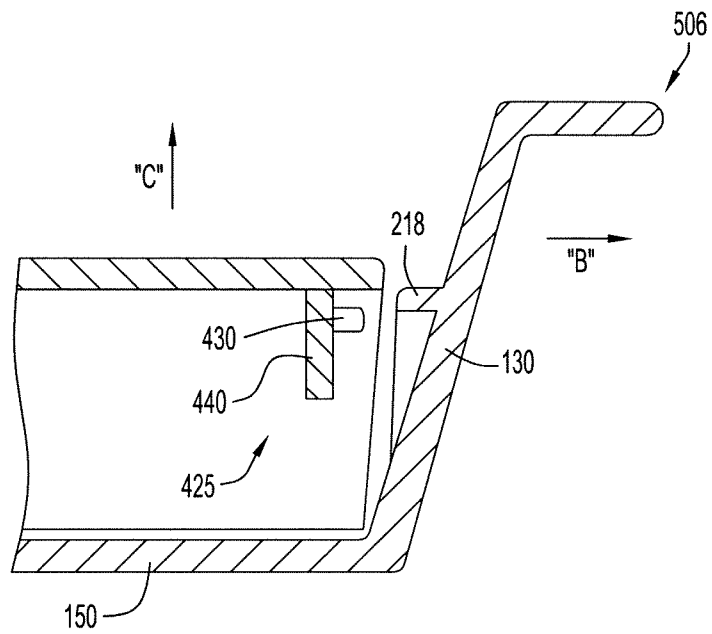


FIG. 9

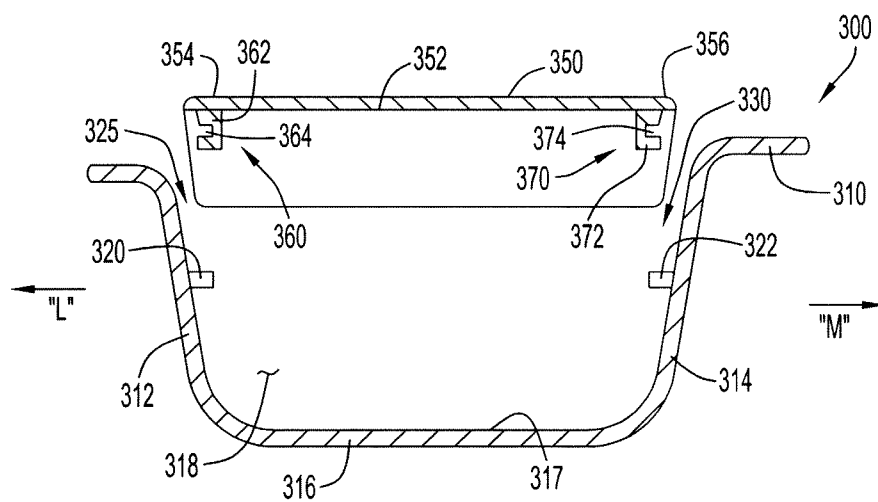


FIG. 10

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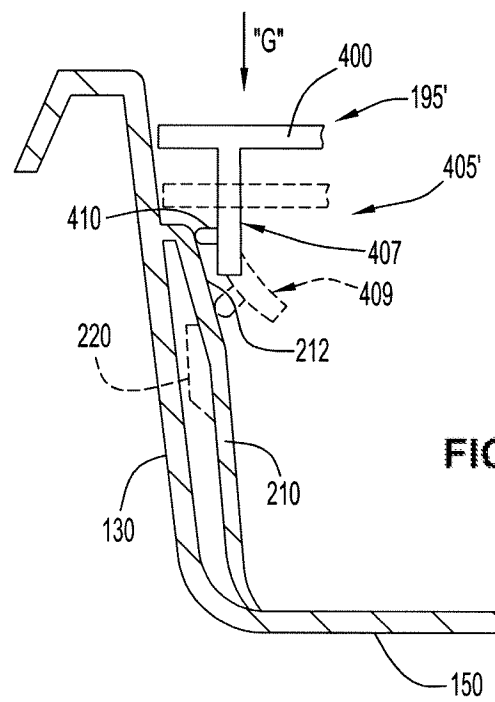


FIG. 11

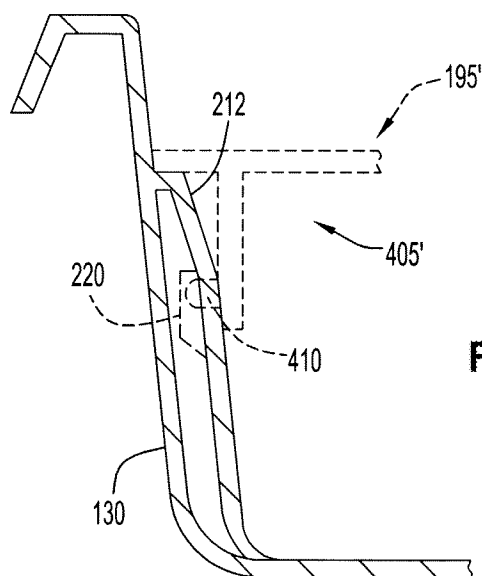


FIG. 12

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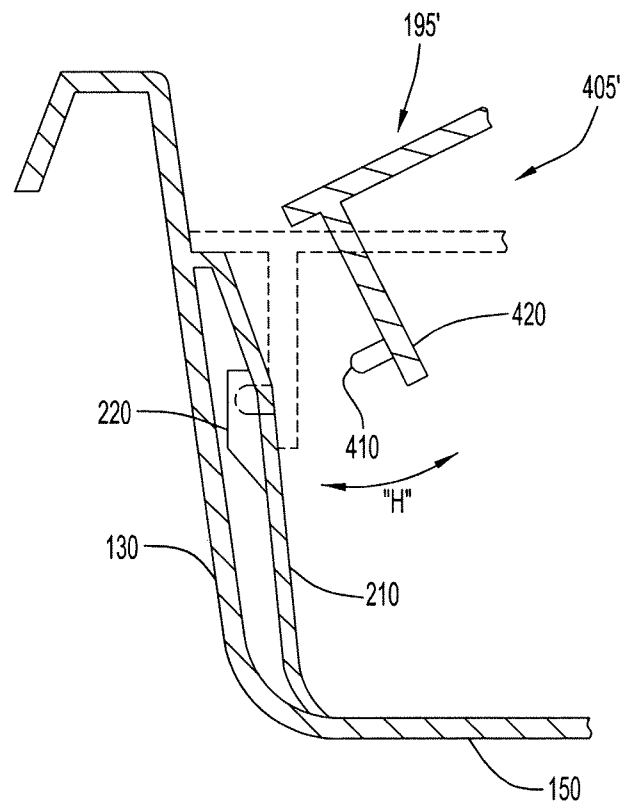


FIG. 13

INTERNATIONAL SEARCH REPORT

International application No.
PCT/US2014/024064**A. CLASSIFICATION OF SUBJECT MATTER****A47K 3/024(2006.01)i, A47K 3/06(2006.01)i**

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)

A47K 3/024; A47K 3/00; A47K 3/02; A47K 3/06

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

Korean utility models and applications for utility models

Japanese utility models and applications for utility models

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

eKOMPASS(KIPO internal) & Keywords:bath tub, positioner, sling, upright seated position, supine position, engaging portion, and coupler

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	US 6507959 B1 (SUNDBERG, et al.) 21 January 2003 See column 1, line 12 - column 2, line 56, column 6, line 44 - column 9, line 28, and figures 1, 13-15.	1-3, 6-14
Y		4-5
A		15-20
Y	US 6112343 A (DIXON, FREDRICK P.) 05 September 2000 See column 4, lines 11-26, column 5, lines 29-48, and figures 1-2.	4-5
A	KR 20-0441061 Y1 (HUR, SOOK GYUNG) 18 July 2008 See paragraphs [0010]-[0015] and figures 1-2.	1-20
A	KR 10-2011-0042731 A (BAE, SOON JA) 27 April 2011 See paragraphs [0016]-[0028] and figures 1-3.	1-20
A	US 8302218 B2 (DIGNITTI et al.) 06 November 2012 See column 4, line 11 - column 5, line 52 and figures 1-4.	1-20



Further documents are listed in the continuation of Box C.



See patent family annex.

* Special categories of cited documents:

"A" document defining the general state of the art which is not considered to be of particular relevance

"E" earlier application or patent but published on or after the international filing date

"L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)

"O" document referring to an oral disclosure, use, exhibition or other means

"P" document published prior to the international filing date but later than the priority date claimed

"T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention

"X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone

"Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art

"&" document member of the same patent family

Date of the actual completion of the international search

29 August 2014 (29.08.2014)

Date of mailing of the international search report

30 August 2014 (30.08.2014)

Name and mailing address of the ISA/KR

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Republic of Korea

Facsimile No. +82-42-472-7140

Authorized officer

LEE, Byung Kyul

Telephone No. +82-42-481-8436



INTERNATIONAL SEARCH REPORT

Information on patent family members

International application No.

PCT/US2014/024064

Patent document cited in search report	Publication date	Patent family member(s)	Publication date
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KR 20-0441061 Y1	18/07/2008	None	
KR 10-2011-0042731 A	27/04/2011	None	
US 8302218 B2	06/11/2012	CA 2680581 A1 MX 2009010882 A US 2010-0101011 A1	28/04/2010 14/05/2010 29/04/2010