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(71) Applicant: **Kids II, Inc**
Atlanta, GA 30305-1712 (US)

(72) Inventors:
 • **SCLARE, Jacob**
Dacula, GA 30019 (US)

- **THOMSON, John Matthew**
Johns Creek, GA 30005 (US)
- **COSTELLO, Cary**
Atlanta, GA 30339 (US)
- **Nolan, Patrick B.**
Royersford, PA 19468 (US)
- **DOTSEY, Michael A.**
Chester Springs, PA 19425 (US)
- **DINGLER, Noah E.**
Phoenixville, PA 19460 (US)
- **BURNS, Stephen R.**
Cumming, GA 30041 (US)

(74) Representative: **McCartney, Jonathan William**
Haseltine Lake LLP
Redcliff Quay
120 Redcliff Street
Bristol BS1 6HU (GB)

(54) **BOOSTER SEAT WITH STOWABLE TRAY COMPARTMENT AND BASE PANEL**

(57) A booster seat (110) includes a storage compartment (150) for a tray (132) and/or a storage compartment (170) for securing straps (82). The tray-storage compartment (150) can be formed in a base (140) of the seat and include an access opening through a sidewall of the base. The tray-storage compartment can include two opposite and inwardly-extending lips that support the tray in the stowed position, and a support foot that moves between a use position in the compartment where it helps support the seat and a stored position displaced from the compartment. Also, the tray-storage compartment (150) can include ribs (66) that engage the tray (132) in the stowed position to retain it there. The strap-storage compartment (170) can be formed in the base (140) and include an access opening with a closure for retaining the straps (82) in the compartment (170). A base panel (140) can be provided for stability and support.

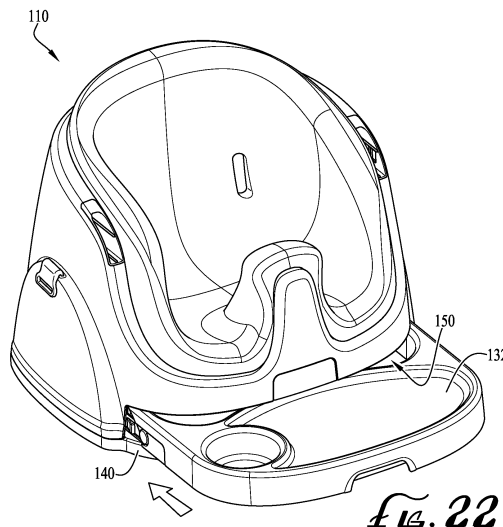
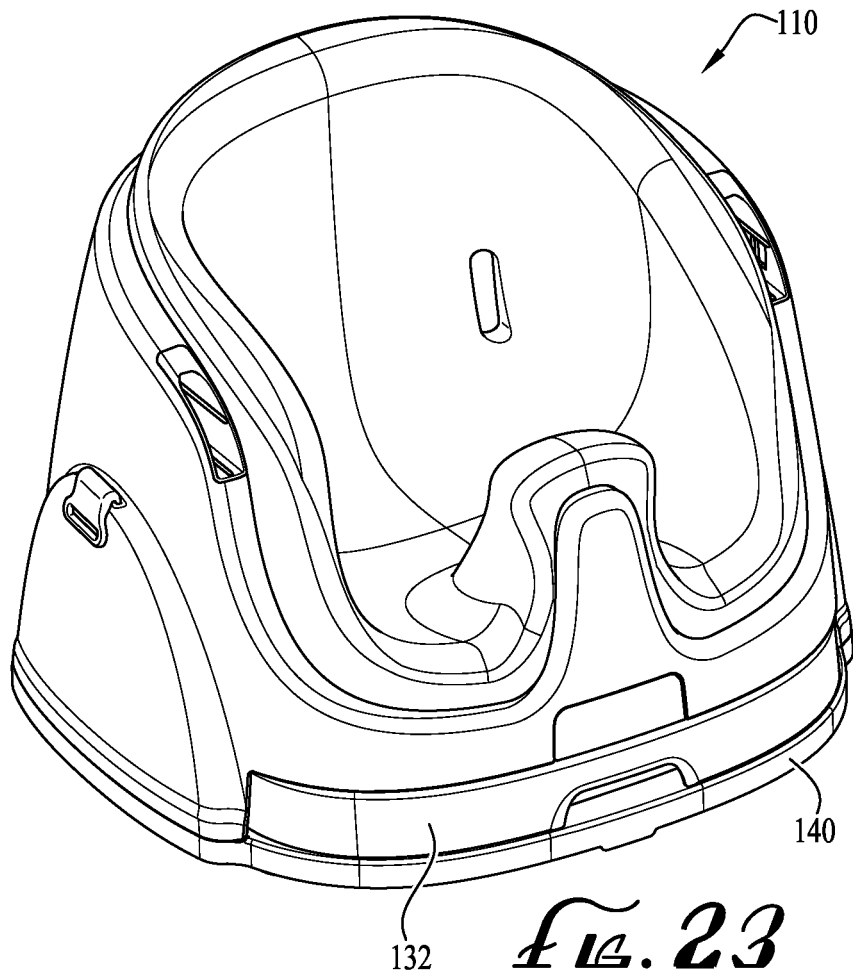


Fig. 22

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Description

Cross-Reference to Related Applications

[0001] This application is a continuation-in-part of U.S. Non-Provisional Patent Application Serial No. 14/301,891 filed June 11, 2014, which claims the priority benefit of U.S. Provisional Patent Application Serial No. 61/845,426 filed July 12, 2013, and U.S. Provisional Patent Application Serial No. 61/834,487 filed June 13, 2013; this application also claims priority to U.S. Provisional Patent Application Serial No. 62/394,483 filed September 14, 2016, the entireties of which are hereby incorporated herein by reference for all purposes.

Technical Field

[0002] The present invention relates generally to children's accessories, and more particularly to booster seats for infants and other children.

Background

[0003] Booster seats are commonly mounted onto the seats of highchairs, adult dining chairs, or other support surfaces to elevate infants and small children so they are able to sit at table height for mealtime. Typically, boosters seats can be used once a baby can sit upright unassisted, thereby enabling the infant to join the rest of the family at the table. This can be desirable because mealtime becomes more interactive and fun when parents can teach their small child to eat like the big kids side-by-side, and the little ones are proud to graduate to the big chair. In addition, such booster seats can also be used as TV chairs or for general seating purposes. And some booster seats are designed for use with child car safety seats and/or directly on the car seat itself.

[0004] Conventional booster seats sometimes include trays that mount in the front to provide a place for the child's food, drink, and/or toys. But when not in use these trays can be bulky and cumbersome, and for removable types they can become lost or damaged.

[0005] In addition, conventional booster seats sometimes include securing straps that mount the seat to a highchair and that secure the child in the seat. But when not in use these straps can be cumbersome and hazardous, and for removable straps they can become lost or damaged.

[0006] Accordingly, it can be seen that needs exist for improvements to booster seats to avoid the problems associated with loose trays and straps. It is to the provision of solutions to these and other problems that the present invention is primarily directed.

Summary

[0007] Generally described, the present invention relates to a booster seat with innovative storage features.

The booster seat can be of a conventional design for mounting onto an elevated surface such as a highchair, adult chair, bench, tabletop, or car seat, or for merely resting (unsecured) upon a non-elevated surface such as the floor. As such, the seat includes a base or bottom-support portion that supports the child in a sitting position. Example embodiments of the booster seat include a base panel providing improved structural rigidity and improved stability to resist tipping over, and forming a compartment for storing a removable tray when the tray is not in use.

[0008] In one aspect, the present invention relates to a storage compartment for a tray for holding the child's food, drink, and/or toys. The tray-storage compartment can be formed in the base of the seat and include an access opening through a sidewall of the base. The tray-storage compartment can include two opposite and inwardly-extending lips that support the tray in the stowed position, and a support foot that moves between a use position in the compartment where it helps support the seat and a stored position displaced from the compartment. Also, the tray-storage compartment can include ribs that engage the tray in the stowed position to retain it there.

[0009] In another aspect, the invention relates to a storage compartment for securing straps. The straps are provided for securing the seat to the support surface (e.g., a highchair) and are removable from the seat. The strap-storage compartment can be formed in the base and include an access opening with a closure for retaining the straps in the compartment.

[0010] In another aspect, the invention relates to a booster seat including a seat shell having a seating surface for supporting the child seated thereon, and a tray configured for removable attachment to the seat shell. The tray is preferably repositionable between a use position accessible by the child seated on the seating surface, and a stowed position at least partially within a tray storage compartment in the booster seat.

[0011] In still another aspect, the invention relates to a booster seat including a base panel, first and second sidewalls extending upwardly from the base panel, a seating surface between the first and second sidewalls, and a tray. The tray is preferably selectively repositionable between a use position in front of a child seated on the seating surface, and a stowed position at least partially within a tray storage compartment formed within the booster seat above the base panel and between the first and second sidewalls.

[0012] In another aspect, the invention relates to a booster seat including a base panel, a seating surface elevated above the base panel, first and second sidewalls on opposite sides of the seating surface, a seatback behind the seating surface extending upward and away from the base panel, and a tray. The tray is preferably selectively repositionable between a use position opposite the seating surface from the seatback, releasably attached to the first and second sidewalls where it is accessible by a child seated on the seating surface, and a

stowed position at least partially within a tray storage compartment formed between the base panel and the seating surface and between the first and second side-walls.

[0013] These and other aspects, features, and advantages of the invention will be understood with reference to the drawing figures and detailed description herein, and will be realized by means of the various elements and combinations particularly pointed out in the appended claims. It is to be understood that both the foregoing summary and the following brief description of the drawings and detailed description of example embodiments are explanatory of particular example embodiments of the invention and are not restrictive of the invention, as claimed.

Brief Description of the Drawings

[0014]

FIGURE 1 is a perspective view of a booster seat according to an example embodiment of the present invention, showing its tray mounted in a use position.

FIGURE 2 is a top view of the booster seat of **FIGURE 1**.

FIGURE 3 shows the booster seat of **FIGURE 1** with the tray in a stowed position.

FIGURE 4 is a bottom perspective view of the booster seat of **FIGURE 2**.

FIGURE 5 is a perspective detail view of a portion of the booster seat of **FIGURE 1**, showing a releasable attachment securing the tray to the seat in the use position.

FIGURE 6 is a perspective detail view of a portion of the releasable attachment of **FIGURE 5** with the tray removed from the seat for stowing.

FIGURE 7 is a cross-sectional detail view of the releasable attachment taken at line 7-7 of **FIGURE 5** with the tray secured to the seat in the use position.

FIGURE 8 shows the releasable attachment of **FIGURE 7** actuated to release the tray so it can be removed from the seat and stowed.

FIGURE 9 is a front perspective detail view of a portion of the booster seat of **FIGURE 1**, showing a retractable support foot in the use position.

FIGURE 10 is a rear perspective detail view of the booster-seat portion of **FIGURE 9**.

FIGURE 11 is a front-side detail view of the booster-

seat portion of **FIGURE 9**.

FIGURE 12 is a right-side detail view of the booster-seat portion of **FIGURE 11**, showing the removed tray being inserted into a storage compartment and pushing/retracting the support foot from the use position.

FIGURE 13 is a right-side cross-sectional detail view of the booster-seat portion of **FIGURE 12** with the tray fully inserted into the storage compartment in a stowed position and the support foot fully retracted into the stowed position.

FIGURE 14 is a bottom perspective detail view of a portion of the booster-seat of **FIGURE 1**, showing a storage compartment with its cover in an open position revealing securing straps held therein in a stowed position.

FIGURE 15 shows the storage compartment of the booster-seat of **FIGURE 14** with the cover in a closed position.

FIGURE 16 is a top view of the booster-seat of **FIGURE 1**, showing the securing straps removed from the storage compartment.

FIGURE 17 is a side view of the booster-seat of **FIGURE 16**, showing the securing straps in a use position securing the seat to a chair.

FIGURE 18 is a side detail view of a portion of the booster-seat of **FIGURE 17**, showing one of the securing straps mounted to the seat in the use position.

FIGURE 19 is a rear bottom perspective view of the booster-seat of **FIGURE 17**, showing two of the female attachments for receiving the securing straps.

FIGURE 20 is a bottom perspective view of a booster seat according to another example embodiment of the present invention, showing the tray being inserted into a storage compartment on the seat backrest.

FIGURE 21 is a perspective view of a booster seat according to another example embodiment of the present invention.

FIGURES 22 and 23 are perspective views of the booster seat of **FIGURE 21**, showing a tray portion of the seat being stowed in a storage compartment formed in a base portion thereof.

FIGURE 24 is a bottom perspective assembly view of the booster seat of **FIGURE 21**, showing the tray portion removed from the seat.

FIGURE 24 is a bottom plan view of the tray portion of the booster seat of **FIGURE 21**.

FIGURE 25 is a perspective view of a booster seat having stability extension portions on its base, according to another example embodiment of the present invention.

Detailed Description of Example Embodiments

[0015] The present invention may be understood more readily by reference to the following detailed description of example embodiments taken in connection with the accompanying drawing figures, which form a part of this disclosure. It is to be understood that this invention is not limited to the specific devices, methods, conditions, or parameters described and/or shown herein, and that the terminology used herein is for the purpose of describing particular embodiments by way of example only and is not intended to be limiting of the claimed invention. Any and all patents and other publications identified in this specification are incorporated by reference as though fully set forth herein.

[0016] Also, as used in the specification including the appended claims, the singular forms "a," "an," and "the" include the plural, and reference to a particular numerical value includes at least that particular value, unless the context clearly dictates otherwise. Ranges may be expressed herein as from "about" one particular value and/or to "about" another particular value. When such a range is expressed, another embodiment includes from the one particular value and/or to the other particular value. Similarly, when values are expressed as approximations, by use of the antecedent "about," it will be understood that the particular value forms another embodiment.

[0017] With reference now to the drawing figures, wherein like reference numbers represent corresponding parts throughout the several views, **FIGURES 1-9** show a booster seat 10 according to an example embodiment of the present invention. The basic design of the booster seat 10 can be of a conventional type well known in the art. As such, the booster seat 10 can be of a type for mounting onto an elevated surface such as a highchair, adult chair, bench, tabletop, or car seat, or for merely resting (unsecured) upon a non-elevated surface such as the floor.

[0018] For example, in the depicted embodiment the booster seat 10 includes a seat shell 12 and a seat insert 14 removably positioned within the seat shell. Typically, the seat shell 12 is made of a hard plastic material and the seat insert 14 is made of a cushioning soft plastic, though other embodiments are one-piece units (including for example two pieces that are not detachable), are made of other materials such as foam, graphite, fiberglass, metal, fabrics, and/or composites, and/or are not cushioned.

[0019] The seat shell 12 can include a backrest portion

16, a bottom-support portion 18, and two opposing sidewall portions 20, with the backrest and the sidewalls extending upward from the bottom support. Typically but not necessarily, the seat shell 12 can also include a horn 22 extending generally upward from a front portion of the bottom-support (i.e., base) portion 18 so that it is positioned between the legs of a child seated in the booster seat 10 to prevent the child from sliding downward and forward. The seat insert 14 can generally conform to the internal surfaces of the seat shell 12 so that it reduces the volume of the booster seat's seating area to accommodate smaller children and can be removed to accommodate larger children. As such, the seat insert 14 can include a backrest portion 24, a bottom-support portion 26, and two opposing sidewall portions 28. Typically but not necessarily, the seat insert can also include a horn 30. When referring to commonly-named components of the shell 12 and the insert 14, it will be understood that this is a reference to the shell, unless the context clearly dictates otherwise. And when referring to the seat 10 generally, it will be understood that this is not limited to a design with a discrete shell and insert, unless the context clearly dictates otherwise.

[0020] In addition, the booster seat 10 includes a tray 32 that removably attaches to the seat. The tray 32 can be of a conventional type well known in the art. The tray 32 is shown mounted in a conventional use position in **FIGURES 1-2** and repositioned to an innovative stowed position in **FIGURES 3-4**. In the use position, the tray 32 can hold the child's food, drink bottles, toys, and/or other accessories in proximity to the seated child, and also aids in restraining the child in the seat 10. And in the stowed position, the tray 32 is removed from the use position and stored in the seat shell 12 so that it is out of the way and easily transported with the seat 10 without getting lost or damaged.

[0021] Referring additionally to **FIGURES 5-8**, the tray 32 removably mounts to the seat 10 (for example to the seat shell 12) by at least one and typically two releasable attachments 34 (one on each side of the seat). The releasable attachments 34 can be of a conventional type well known in the art. As such, the releasable attachments 34 can include mating male and female elements, push-pin mechanisms, bayonet fittings, clamps or clips, hooks and pins, or other mechanisms that permit ease, strength, and reliability in mounting and removing the tray 32 to the seat 10.

[0022] As just one example, each releasable attachment 34 can include a retractable male element 36 on one of the tray arms 38 and a female element 40 in one of the sidewall portions 20 of the seat shell 12 that releasably engages the male element. In the depicted embodiment, each male element 34 extends from a cantilevered arm 42 formed by one of the tray arms 38, with the arm including an actuator (e.g., a push button) 44, and with the arm in the form of a living hinge that is resiliently deflectable between a normal engaged position (see **FIGURE 7**) and a retracted disengaged position

(see **FIGURE 8**). And each female element 40 is formed in a wall 46 defining a receptacle 48 that receives the respective tray arm 38 (see **FIGURES 5 and 7**).

[0023] So when the tray 32 is in the use position secured to the seat 10 and a caretaker decides to remove and stow the tray, the caretaker simply pushes in the actuators 44, thereby retracting the male elements 36 (from their normal engaged to their retracted disengaged positions) from engagement with the female elements 40 to release the tray from the seat, then pulls the tray linearly away from the seat until they are separated. And to mount the tray 32 onto the seat 10 in the use position, the caretaker merely inserts the tray arms 38 into the seat receptacles 48 until the male elements 36 deflect back to their normal engaged positions received in the female elements 40.

[0024] With the tray 32 removed from the seat 10, it can be stowed in an innovative way using the present invention. Referring particularly to **FIGURES 1, 3-4, 9-14, and 20** the seat 10 includes a storage compartment 50 for the tray 32. The tray-storage compartment 50 can be formed anywhere in the seat 10, though typically it is formed in the seat shell 12, for example in the bottom-support 18 or in or on the backrest 16, as shown in Figure 20. The tray-storage compartment 50 is sized and shaped to receive substantially all of the tray 32 in the stowed position so that there are no (or substantially no) protruding portions of the tray extending laterally outward of the seat 10.

[0025] As just one example, the tray-storage compartment 50 can be formed in the bottom-support (i.e., base) portion 18 of the seat shell 12. In the depicted embodiment, the tray-storage compartment 50 has a top wall 52, two side walls 54, and two opposing lips 56 extending laterally inward toward each other and positioned below the top wall. As such, the base portion 18 between the inner edges of the two lips 56 defines a bottom opening 58 through which the tray-storage compartment 50 is in communication with the exterior of (the ambient space around) the seat 10. Typically, the lips 56 are at the bottom of the base 18 and the entire tray 32 slides into the compartment above and is supported atop the lips, though alternatively the lips can be elevated from the base bottom and the tray can include lateral grooves that slidably receive the lips to support the tray in the compartment. The lips 56 each can be a contiguous shelf or ledge, or each can be formed by a series of tabs, fingers, or other inwardly extending structures. In any event, the lips 56 support the tray 32 when it is held in the tray-storage compartment 50 and the seat 10 is lifted off a supporting surface (e.g., a highchair), and they provide a low-profile and material-saving design. As such, the lips 56 typically have a thickness (height) that is less than the thickness of the tray.

[0026] In addition, the tray-storage compartment 50 includes an access opening 60 formed through the seat 10, for example in the front sidewall 19 (or another portion of a peripheral sidewall) of the base portion 18, through

which the tray 32 can be inserted and withdraw. When viewed from the front, this front access opening 60 (and the compartment 50 recessed in the base 18) typically has a generally rectangular shape, or another shape conforming to the front-view shape of the tray 32. The seat 10 can include one or more mechanical stops 62 extending into the compartment 50 to act as mechanical stops for the tray 32 when it is inserted into the compartment, or a back wall 64 of the compartment can act as the mechanical stop, with the mechanical stop cooperating in defining the compartment.

[0027] With the compartment 50 sized and shaped to receive substantially all of the tray 32 in the stowed position, in typical embodiments the front edge 33 of the tray is generally flush with the front surface 19 of the base portion 18 of the seat 10 (see **FIGURES 3 and 13**). The width 51 of the compartment 50 (between the side walls 54) is greater than the width 31 of the tray 32, which is typically (for trays that extend across and attach to the seat on both sides) greater than the width 21 of the sitting well between the sidewall portions 20 (see **FIGURES 3 and 13**), where the sitting well is formed by the base 18 and the upwardly extending backrest 16 and sidewalls. And the height of the compartment 50 (between the lips 56 and the top wall 52) is greater than the height of the base portion 18. (In embodiments without the ribs described below, the height of the compartment can be substantially equal to, including slightly less than, the height of the base portion to cause a slight deflection of the lips thereby producing a nominal frictional holding force on the tray (as described below when describing the ribs).

[0028] To help hold the tray 32 in the compartment 50, one or more ribs 66 extend downward into the compartment from the top wall 52 to contact the tray and apply a nominal frictional force to retain the tray in the compartment. In typical embodiments, the lips 56 are capable of slight deflection downward (i.e., outward from the compartment) to contact the tray and apply a nominal frictional force to retain the tray in the compartment. The ribs 66 can have a front end 68 positioned not at the front of the compartment 50 at the access opening 60 (and thus not at the front surface 19 of the base portion 18 of the seat 10), but instead inward from there and still within the compartment (i.e., there is a rib-less gap between the access opening and the rib front end) so that the tray 32 is partially inserted into the compartment before it engages the ribs. In this way, the tray 32 can be easily slid partially into the compartment 50 until it engages the ribs 66, and then as it is slid farther into the compartment the lips 56 deflect slightly downward/outward and/or the ribs deflect slightly upward/outward to permit smooth sliding but at the same time provide a nominal frictional force that is sufficient to keep the tray 32 from sliding out of the compartment 50 by gravity if the seat 10 is held with the access opening facing downward and jostled. As such, the distance between the ribs 66 and the lips 56 is about the same or less than the height 35 of the tray 32. In other embodiments, the ribs extend upward from the

lips or from a bottom wall of the compartment, or other tray-retention elements are provided such as magnets or clips.

[0029] Furthermore, a retractable support foot 70 can be provided to assist in proper support of the seat 10. The retractable support foot 70 extends down into the compartment 50 with its bottom 71 in the horizontal plane of the bottom surface 17 of the base 18 (e.g., the bottom surface of the lips 56) when in the deployed position for assisting in supporting the seat 10 and in a retracted position is moved out of the compartment 50 to provide clearance for the tray 32 to be inserted into the compartment in the stowed position. This feature is particularly, but not only, advantageous in embodiments such as that depicted with the bottom opening 58 formed between the lips 56.

[0030] In the depicted embodiment, for example, the support foot 70 is in the form of a panel that is positioned at the front 19 of the seat 10 at the front access opening 60 for peripheral support when in the deployed position (see **FIGURE 11**), that is biased by a spring 72 toward the deployed position, and that pivots inward and upward to a retracted position (see **FIGURE 12**). An actuating head 74 can extend forward from the support foot 70 and be contacted by the tray 32 upon insertion into the compartment 50 to displace (e.g., push) the foot to the retracted position out of the compartment. In other embodiments, the support foot extends upward from the lips, or is provided by one or more pins, tabs, or other support-column structures.

[0031] In some embodiments, the tray-storage compartment is formed as a five-sided enclosure in the seat with an access opening, with no bottom lips or opening (with instead a bottom wall provided), thus effectively defining a slot or channel. In embodiments with an access opening through which the tray is inserted and withdrawn, the seat can include a closable door (e.g., a panel, grate, arm, finger, bar, or frame) that moves (e.g., pivots or slides) between open and closed positions to access the compartment.

[0032] In other embodiments, the access opening in the seat through which the tray is inserted into and removed from the tray-storage compartment is formed in the backrest or one of the sidewalls of the seat shell. In still other embodiments, the seat does not include an access opening and instead the tray is inserted into and removed from the tray-storage compartment vertically (e.g., by stacking the seat upon the tray) by the lips being repositionable (e.g., horizontally pivotal or slidable) between access and retaining positions or by the lips providing a snap-fit connection with the base.

[0033] Referring now particularly to **FIGURES 14-19**, the booster seat 10 can include an innovative way to store its securing straps when not in use. The securing straps can be of a conventional type for mounting onto an elevated surface such as a highchair, adult chair, bench, tabletop, or car seat. As such, the securing straps are typically provided by flexible webbing (or belts or

cords), and they typically include buckles for length-adjustment, though they can be provided in other forms such as clips (to clamp the booster seat to the support surface) or other conventional retaining devices.

[0034] In the depicted embodiment, for example, there are provided three sets of securing straps, including child-securing straps 80 to secure a child in the seat 10, as well as seat-securing straps 82a to mount the seat to a horizontal seat surface (e.g., the seat of a highchair) and seat-securing straps 82b to mount the seat to an upright surface (e.g., the backrest of a highchair). In other embodiments, more or fewer sets of securing straps are provided for these or other securing functionalities.

[0035] The seat-securing straps 82a-b detachably couple to the seat 10 so that they can be mounted to the seat for use and detached when not in use. For example, the straps 82a-b (collectively, "the straps 82") can include male attachments (e.g., the depicted hooks 84, or clips, snaps, or ties) at their opposing ends that are removably received in female attachments (e.g., the depicted slots 86, or recesses, openings, or notches) in the seat 10. In other embodiments, other types of conventional detachable couplings, such as latches, buckles, clamps, snaps, ties, or the like, are provided for the straps and the seat. In some embodiments, the child-securing straps 80 are fixedly mounted to the seat 10, and in other embodiments they are also detachable and can be stowed with the seat-securing straps 82.

[0036] The seat includes an innovative strap-storage compartment 88 that receives and stores the straps 82 in a stowed position after they are detached from the booster seat 10. In this way, the straps 82 (including their hooks 84) can be secured and stored out of the way so they are not loose and dangling when transporting or storing the seat 10. The compartment 88 can be located in the base 18, or alternatively in the backrest 16 or another portion of the seat 10.

[0037] In the depicted embodiment, for example, the strap-storage compartment 88 includes a peripheral sidewall 90 surrounding an access opening 94, an end wall (not shown) opposite the access opening, and a closure 96 for the access opening. The peripheral sidewall 90 can be provided by four walls forming a rectangular area, as depicted. The sidewall 90 can be generally vertical, with two opposing portions formed by the back wall 15 of the base 18 and by the back wall 13 of the sitting well (formed between the sidewall portions 20). And the access opening 94 can face downward (in use) so that the compartment 88 can be accessed to stow and retrieve the straps 82 by lifting the seat 10 and turning it over. Alternatively, the access opening can extend through a sidewall of the base (or other portion of the seat) and face laterally outward so the straps can be stowed without inverting the seat. Typically, the compartment 88 is recessed into the seat 10 so that it does not protrude from the seat, with the closure 96 recessed so that it does not rest on the support surface in use.

[0038] The closure 96 can be provided by a flat panel,

as depicted. Alternatively, it can be provided by a grate, a screen, a plurality of bars, or another structure that moves between an open position providing access to the compartment 88 and a closed position retaining the straps 82 in the compartment. The closure 96 can move between the open and closed positions by pivoting about a hinge, or it can slide, be completely removable, or otherwise move between the open and closed positions. A releasable coupling 98 is provided for retaining the closure 96 in the closed position. The releasable coupling 98 can be provided by a conventional assembly such as a living-hinge snap-fit coupling (as depicted), a strap with a snap, or the like.

[0039] In other embodiments, the straps are permanently affixed to the seat at fixed ends of the straps. In some such embodiments, the strap fixed ends are permanently attached to the seat at or within the compartment, and substantially all of the lengths of the straps are stored within the compartment. The straps in such embodiments can be routed from the compartment and removably received through other portions of the seat (e.g., through open-ended slots, hooks, or clips at the sidewalls of the seat for securing to a horizontal surface i.e., a chair seat). And in some other such embodiments, the strap fixed ends are permanently attached to the seat at locations away from the compartment, and only portions of the lengths of the straps (e.g., the free ends opposite the fixed ends) are stored within the compartment.

[0040] FIGURES 21-25 show another example embodiment of a booster seat 110 having features substantially similar to those described above, with exceptions as noted. The seat 110 comprises a seat shell 112 and optionally further comprises a seat insert 114 removably positioned or attached within the seat shell. The seat shell 112 includes a backrest portion 116, a bottom-support portion 118, and two opposing sidewall portions 120, with the backrest and the sidewalls extending upward from the bottom support. The booster seat 110 further comprises a detachable and stowable tray 132, shown mounted in a use position in FIGURE 21, and shown being repositioned to an example stowed position in FIGURES 22-24, and shown in greater detail in a bottom plan view in FIGURE 25 removed from the seat.

[0041] The seat 110 further comprises a bottom base panel 140 attached to or integrally formed with the seat shell 112, defining a storage compartment 150 for stowing the tray 132. In example embodiments, the base panel 140 is permanently or semi-permanently attached to the seat shell 112, for example with screws or other fasteners, snap-fittings, adhesive or other attachment means; or alternatively can be removably attached. The tray-storage compartment 150 is sized and shaped to receive substantially all or at least a significant portion of the tray 132 in the stowed position, having width W, height H and depth D dimensions generally configured slightly larger than corresponding width, height and depth dimensions of the tray 132, so that the tray slides smoothly and freely into the tray-storage compartment, and the tray fits

closely within the storage compartment (i.e., without significant gaps or spaces, for example wherein the width of the tray is no more than about 1"-2" less than the width of the storage compartment, such that gaps of no more than about 0.5"-1", and more preferably no more than about 0.25"-0.5", remain when the tray is stowed in the storage compartment). In example embodiments, the tray-storage compartment 150 defines a substantially enclosed chamber or enclosure bounded on the top by the seat shell 112, on the bottom by the base panel 140, and on the back and both sides by the intersection or confronting portions of the seat shell and the base panel. For example, the tray-storage compartment 150 thereby forms a five-sided enclosure with an opening at the front of the seat 110. In example embodiments, when the tray 132 is in the stowed position within the tray storage compartment as shown in Figure 23, the front face of the tray generally matches the surrounding contours of the front and side surfaces of the seat shell to substantially cover the open front of the storage compartment 150. The tray-storage compartment 150 optionally comprises one or more guide tracks to guide the insertion and removal of the tray 132 in and out of the compartment, and/or one or more retention members for removably retaining the tray in the stowed position in the compartment. In example embodiments, the side walls 120 of the seat shell 112 taper inwardly from bottom to top, such that the base 140 of the seat is wider than the upper portion of the seat 110 at which the tray 132 attaches in the use position, for stability and to allow sufficient width at the base to receive the tray within the storage compartment 150.

[0042] In example embodiments, and as shown in FIGURE 24, the base panel 140 defines a footprint having an outer periphery or profile generally matching and flush with or extending slightly beyond at least a portion of the outer periphery or profile of the seat shell 112, along the front, back and both sides of the seat 110, to provide improved stability and resist tipping over when a child is seated therein. In example embodiments, when in use with an infant seated therein (or a simulated infant used for testing purposes), the seat 110 maintains stability with the base panel 140 supported on a test surface, retains the infant in the seat, and resists tipping for at least a one minute test duration, when the test surface is inclined at 20° from horizontal in any angular position, including the most onerous (most subject to tipping) forward, sideward or rearward position(s), with the seat being prevented from sliding on the test surface if necessary but not prevented from tipping. In example embodiments, the seat 110 maintains stability with the base panel 140 supported on a test surface, retains the infant in the seat, and resists tipping for at least a one minute test duration, when the test surface is inclined at 30° from horizontal in any angular position, including the most onerous (most subject to tipping) forward, sideward or rearward position(s), with the seat being prevented from sliding on the test surface if necessary but not prevented from tipping.

[0043] As further shown in FIGURE 24, in example em-

bodiments the base panel 140 comprises a substantially solid or continuous panel along the entire bottom of the seat shell 112, optionally defining a wave-shaped or undulating wall configuration, and/or one or more structural reinforcement members, to increase the base panel's rigidity and brace the seat shell to prevent the sidewalls 120 from splaying outwardly, thereby providing improved structural support and rigidity when the seat is loaded with an infant seated on the bottom-support portion 118. One or more elastomeric support feet 160 (four are shown, each at a respective corner) are optionally provided on the bottom surface of the base panel 140, for example formed of a soft polymeric or rubber material for improved gripping to prevent the seat from sliding on a support surface. In example embodiments, the support feet 160 may be attached to the base by fasteners, adhesive, snap-fitting, press-fit, over-molding or co-molding, or other attachment means. A harness-storage compartment 170 is optionally provided in the base panel 140 to receive harness straps or other securing members for attaching the seat 110 to an adult chair or other support surface and/or for securing a child on the booster seat.

[0044] FIGURE 26 shows another example embodiment of a booster seat 210 having features substantially similar to those described above, with exceptions as noted. The seat 210 comprises a seat shell 212 and a bottom base panel 240 attached to or integrally formed with the seat shell. In this embodiment, the base panel 240 further comprises one or more stabilizer extensions 245 projecting laterally outwardly beyond the periphery of the seat shell. In example embodiments, the stabilizer extensions 245 are provided at both front corners of the seat 110 as depicted, extending laterally forward beyond the periphery of the seat shell to resist tipping in the forward direction, for example if a child seated on the booster seat leans forward. In further embodiments, stabilizer extensions can additionally or alternatively be provided extending rearwardly from the back corners of the seat, and/or outwardly to one or both sides of the seat, and/or outwardly from the center portion of the front and/or back of the seat.

[0045] While the invention has been described with reference to preferred and example embodiments, it will be understood by those skilled in the art that a variety of modifications, additions and deletions are within the scope of the invention, as defined by the following claims.

[0046] For the avoidance of doubt, the present application extends to the subject-matter described in the following numbered paragraphs (referred to as "Para" or "Paras"):

1. A booster seat comprising:

a seat shell comprising a seating surface for supporting a child seated thereon;

a tray configured for removable attachment to the seat shell, the tray being repositionable be-

tween a use position accessible by the child seated on the seating surface, and a stowed position at least partially within a tray storage compartment in the booster seat.

2. The booster seat of Para 1, further comprising a base panel mounted to a bottom portion of the seat shell, wherein the tray storage compartment is positioned between the seat shell and the base panel.

3. The booster seat of Para 2, further comprising a harness storage compartment formed in the base panel.

4. The booster seat of Para 2 or 3, wherein the base panel defines an outer periphery at least partially matching and extending at least flush with an outer periphery of the seat shell.

5. The booster seat of Para 4, wherein the base panel comprises at least one stabilizer extension projecting laterally outwardly beyond the outer periphery of the seat shell.

6. The booster seat of any of Paras 2-5, wherein the base panel provides sufficient stability to resist tipping at a test angle of at least 20° from horizontal.

7. The booster seat of any of Paras 2-6, wherein the base panel provides sufficient stability to resist tipping at a test angle of at least 30° from horizontal.

8. The booster seat of any of Paras 2-7, wherein the seat shell comprises first and second sidewalls, and wherein the base panel extends across a bottom portion of the seat shell from the first sidewall to the second sidewall.

9. The booster seat of Para 8, wherein the base panel defines an undulating surface contour providing structural stiffness.

10. The booster seat of any preceding Para, wherein the tray storage compartment bounds the tray in the stowed position along five sides of the tray, and wherein a sixth side of the tray at least partially covers the tray storage compartment when the tray is in the stowed position.

11. The booster seat of Para 10, wherein the tray storage compartment is formed between the seat shell and a base panel mounted to a bottom portion of the seat shell.

12. The booster seat of Para 10 or 11, wherein the tray storage compartment is formed in a seatback portion of the seat shell.

13. A booster seat comprising a base panel, first and second sidewalls extending upwardly from the base panel, a seating surface between the first and second sidewalls, and a tray, wherein the tray is selectively repositionable between a use position in front of a child seated on the seating surface, and a stowed position at least partially within a tray storage compartment formed within the booster seat above the base panel and between the first and second sidewalls.

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14. The booster seat of Para 13, wherein the base panel extends across the width of the booster seat from the first sidewall to the second sidewall.

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15. The booster seat of Para 13 or 14, wherein the tray storage compartment is between the seating surface and the base panel.

16. The booster seat of any of Paras 13-15, wherein the tray storage compartment has a compartment width defined between the first and second sidewalls, and wherein the tray has a tray width slightly less than the compartment width, whereby the tray is configured to fit closely within the tray storage compartment.

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17. The booster seat of any of Paras 13-16, further comprising a strap storage compartment formed within the base panel.

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18. The booster seat of any of Paras 13-17, wherein the first and second sidewalls taper inwardly from lower portions adjacent the base panel to upper portions to which the tray is attached in the use position.

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19. The booster seat of any of Paras 13-18, wherein the base panel defines an outer periphery at least partially matching and extending at least flush with an outer periphery of the first and second sidewalls and the seating surface.

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20. The booster seat of Para 19, wherein the base panel comprises at least one stabilizer extension projecting laterally outwardly beyond the outer periphery of the first and second sidewalls and the seating surface.

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21. The booster seat of any of Paras 13-20, wherein the base panel provides sufficient stability to resist tipping at a test angle of at least 20° from horizontal.

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22. The booster seat of any of Paras 13-21, wherein the base panel provides sufficient stability to resist tipping at a test angle of at least 30° from horizontal.

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23. A booster seat comprising:

a base panel;

a seating surface elevated above the base panel;

first and second sidewalls on opposite sides of the seating surface;

a seatback behind the seating surface extending upward and away from the base panel; and

a tray;

wherein the tray is selectively repositionable between a use position opposite the seating surface from the seatback, releasably attached to the first and second sidewalls where it is accessible by a child seated on the seating surface, and a stowed position at least partially within a tray storage compartment formed between the base panel and the seating surface and between the first and second sidewalls.

24. The booster seat of Para 23, wherein the tray fits substantially entirely within the tray storage compartment in the stowed position, with a front panel of the tray substantially covering the tray storage compartment.

25. The booster seat of Para 23 or 24, wherein the base panel comprises stabilizer extensions projecting outwardly beyond an outer periphery of the remainder of the booster seat.

26. The booster seat of any of Paras 23-25, wherein the base panel provides sufficient stability to resist tipping at a test angle of at least 20° from horizontal.

27. The booster seat of any of Paras 23-26, wherein the base panel provides sufficient stability to resist tipping at a test angle of at least 30° from horizontal.

Claims

1. A booster seat comprising:

a seat shell comprising a seating surface for supporting a child seated thereon;

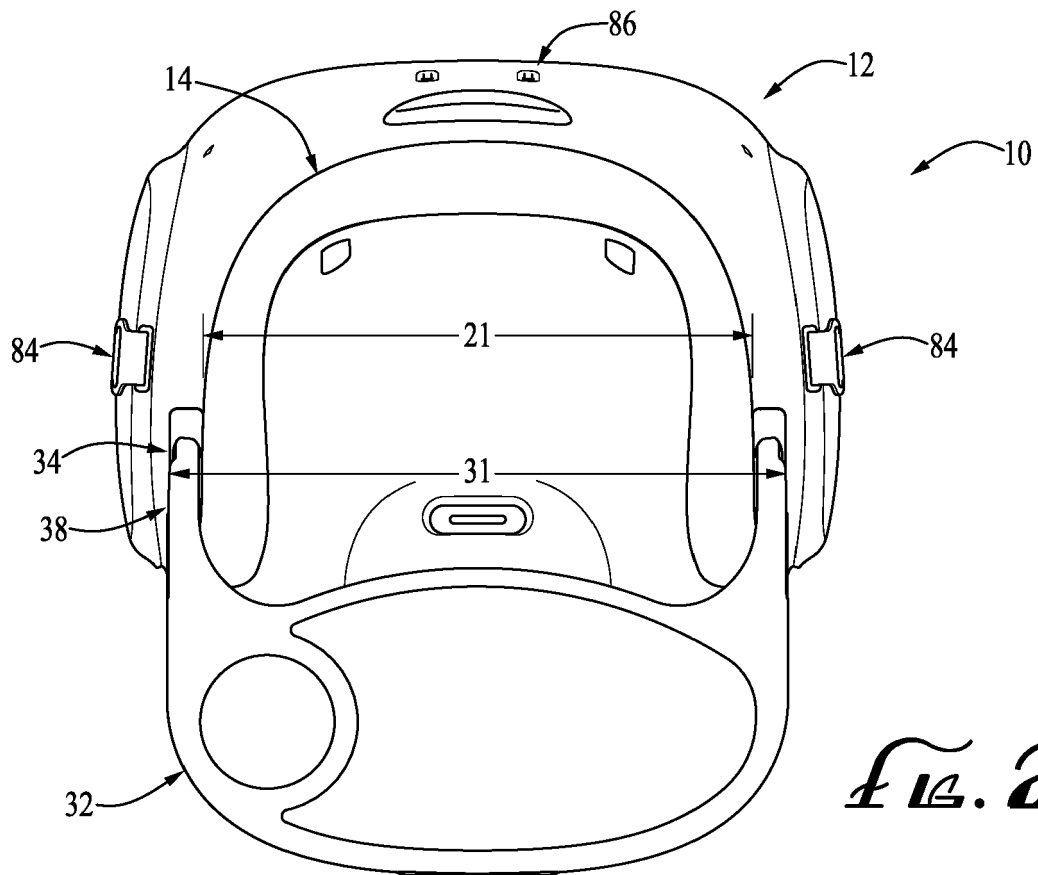
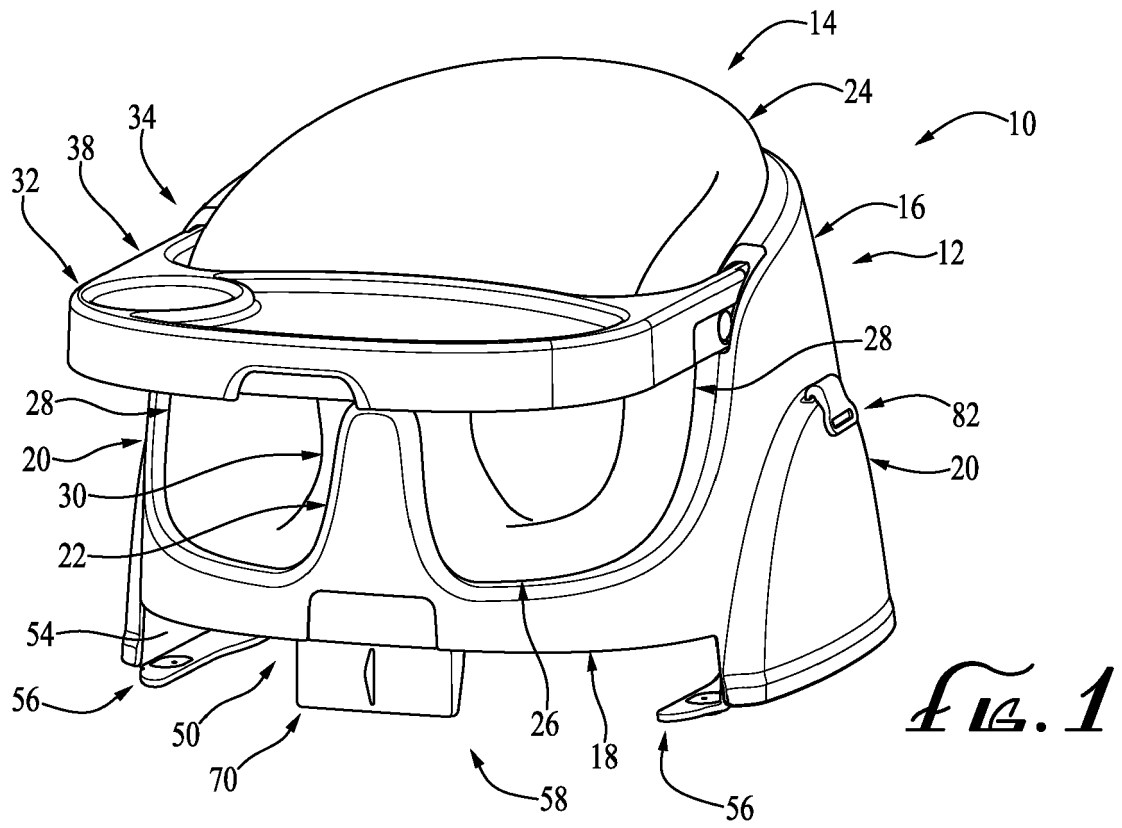
a tray configured for removable attachment to the seat shell, the tray being repositionable between a use position accessible by the child seated on the seating surface, and a stowed position at least partially within a tray storage compartment in the booster seat.

2. The booster seat of claim 1, further comprising a base panel mounted to a bottom portion of the seat

shell, wherein the tray storage compartment is positioned between the seat shell and the base panel.

3. The booster seat of claim 2, further comprising a harness storage compartment formed in the base panel. 5
4. The booster seat of claim 2 or 3, wherein the base panel defines an outer periphery at least partially matching and extending at least flush with an outer periphery of the seat shell. 10
5. The booster seat of claim 4, wherein the base panel comprises at least one stabilizer extension projecting laterally outwardly beyond the outer periphery of the seat shell. 15
6. The booster seat of any of claims 2-5, wherein the base panel provides sufficient stability to resist tipping at a test angle of at least 20° from horizontal. 20
7. The booster seat of any of claims 2-6, wherein the base panel provides sufficient stability to resist tipping at a test angle of at least 30° from horizontal. 25
8. The booster seat of any of claims 2-7, wherein the seat shell comprises first and second sidewalls, and wherein the base panel extends across a bottom portion of the seat shell from the first sidewall to the second sidewall. 30
9. The booster seat of claim 8, wherein the base panel defines an undulating surface contour providing structural stiffness. 35
10. The booster seat of any preceding claim, wherein the tray storage compartment bounds the tray in the stowed position along five sides of the tray, and wherein a sixth side of the tray at least partially covers the tray storage compartment when the tray is in the stowed position. 40
11. The booster seat of claim 10, wherein the tray storage compartment is formed between the seat shell and a base panel mounted to a bottom portion of the seat shell. 45
12. The booster seat of claim 10 or 11, wherein the tray storage compartment is formed in a seatback portion of the seat shell. 50

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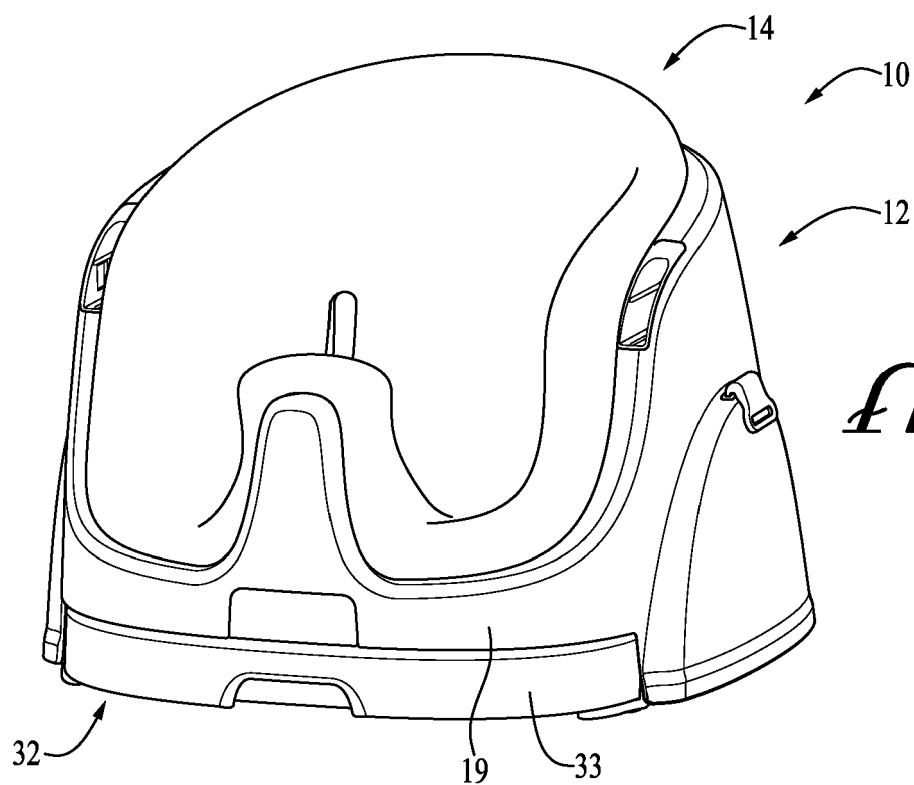


Fig. 3

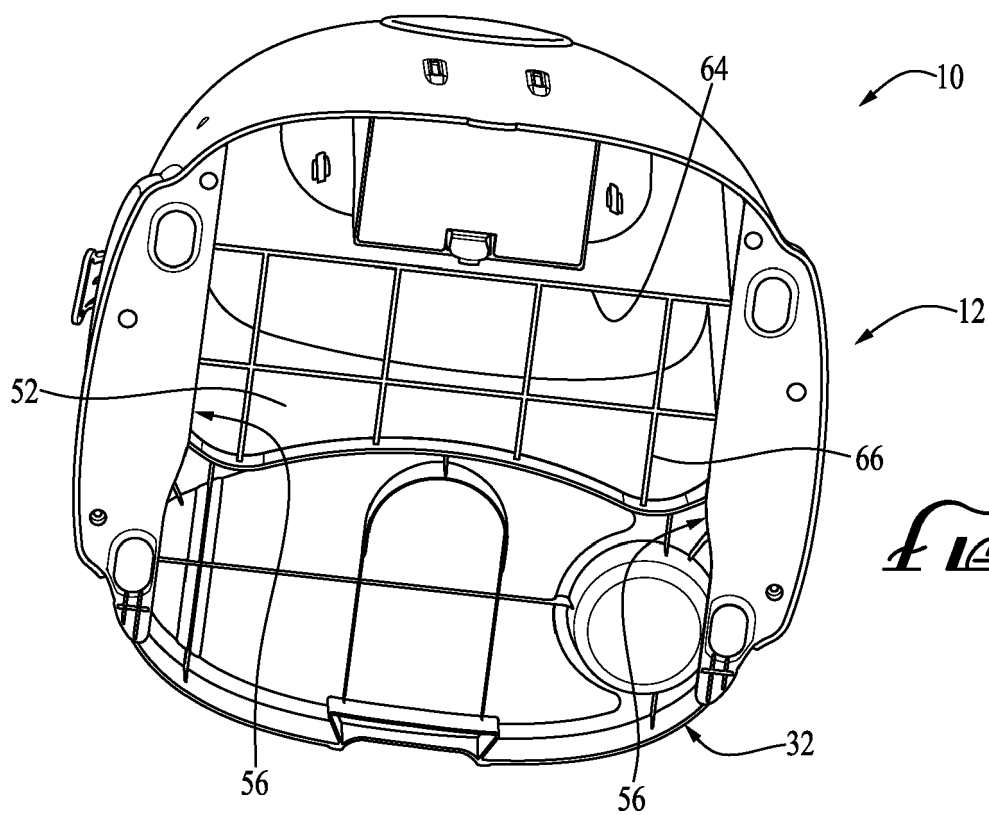


Fig. 4

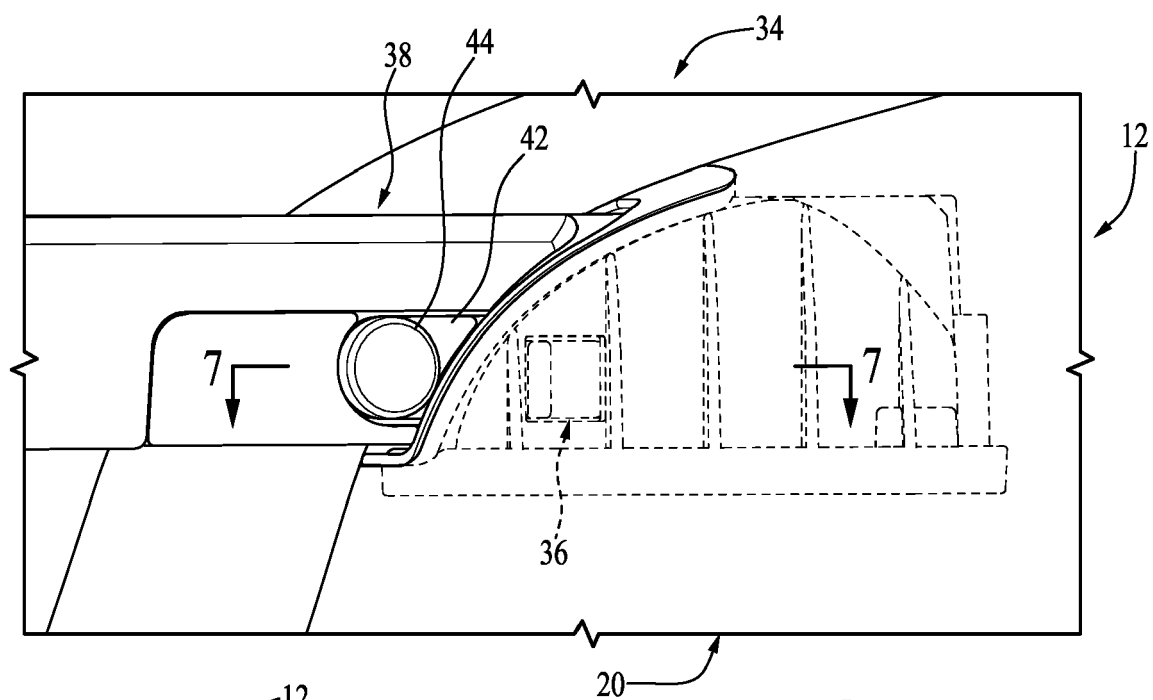


Fig. 5

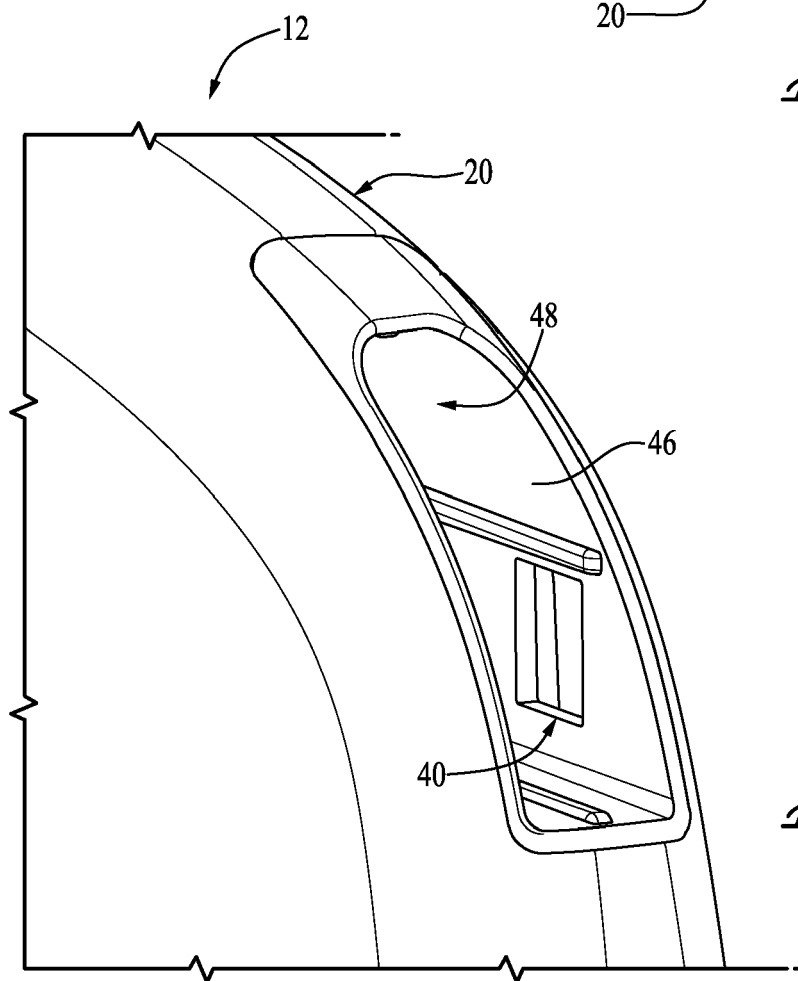


Fig. 6

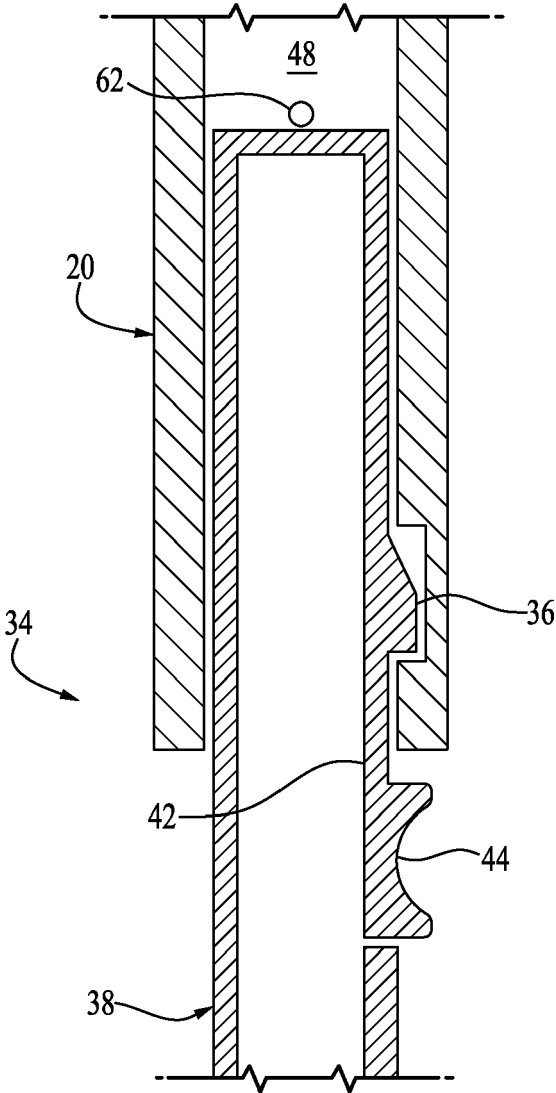


Fig. 7

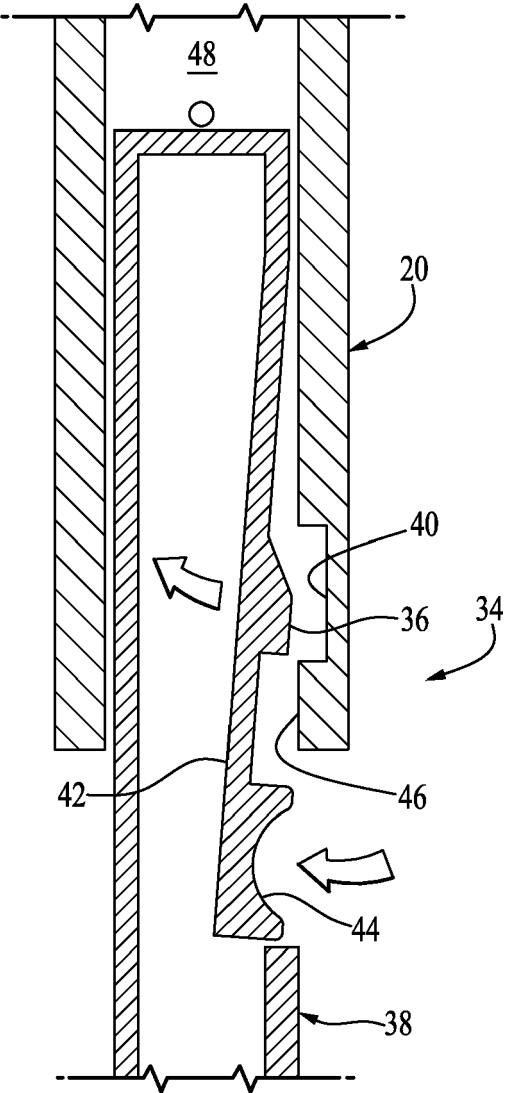


Fig. 8

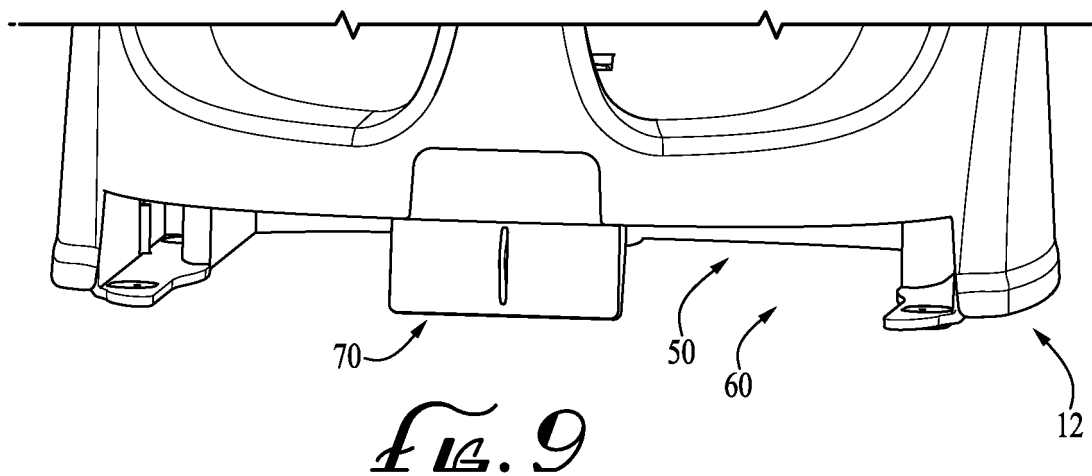


Fig. 9

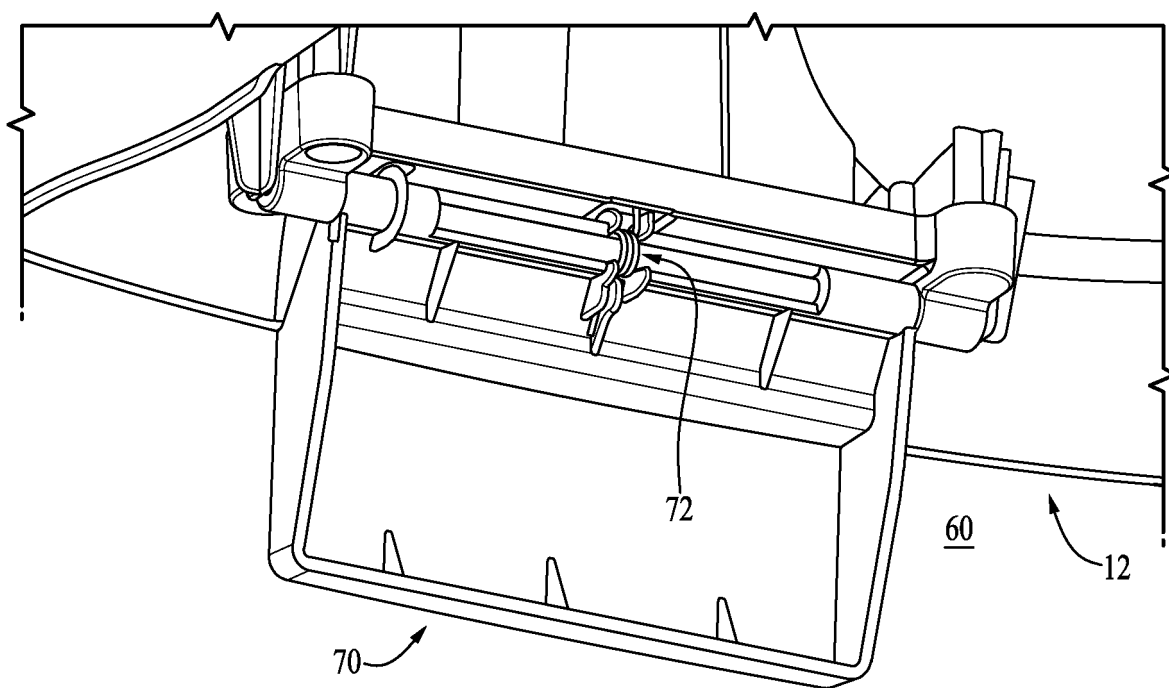


Fig. 10

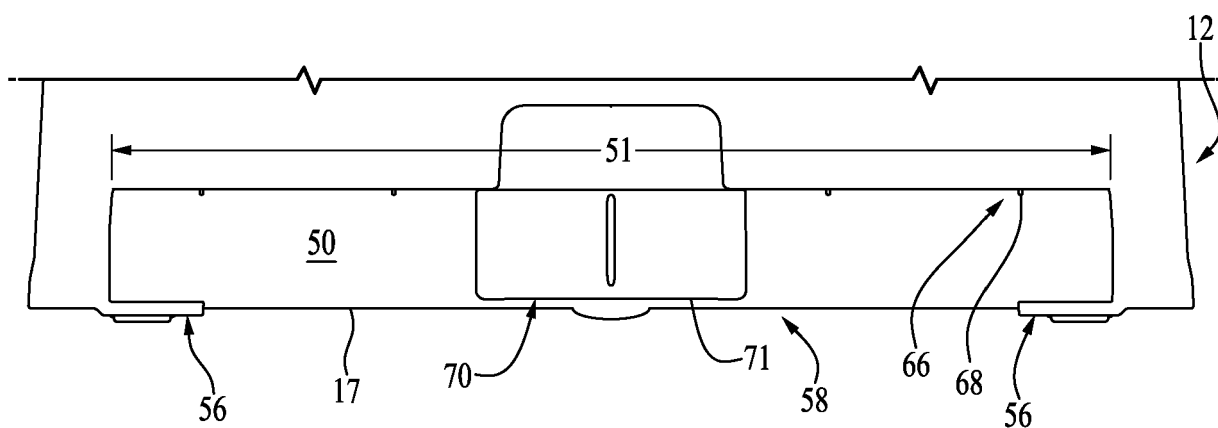


Fig. 11

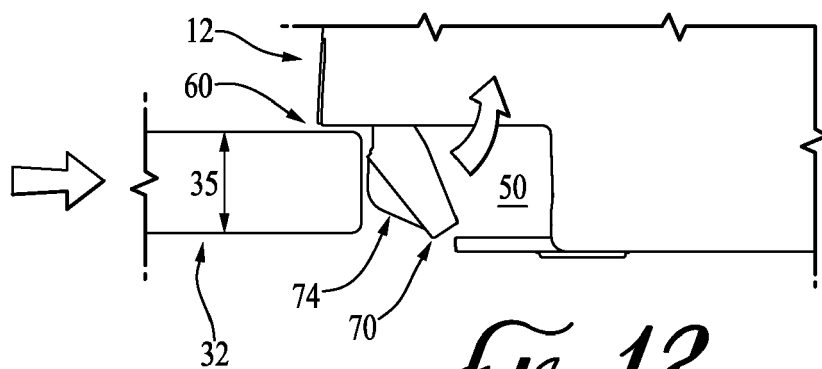


Fig. 12

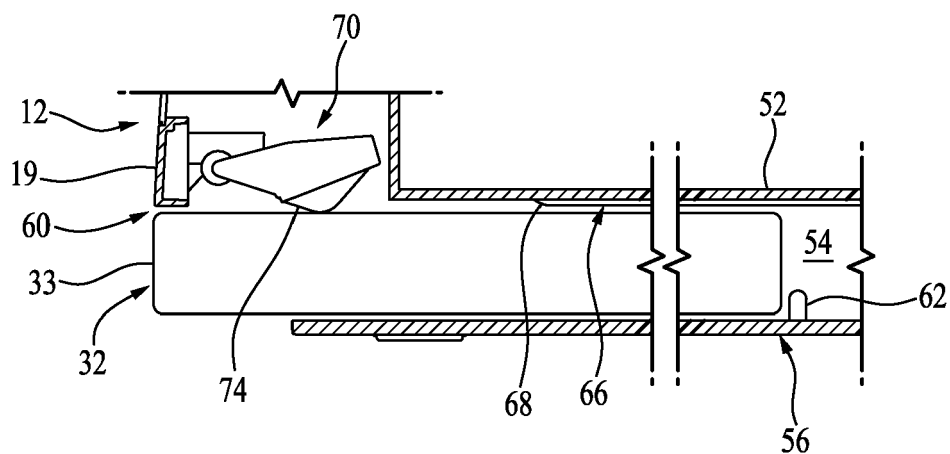


Fig. 13

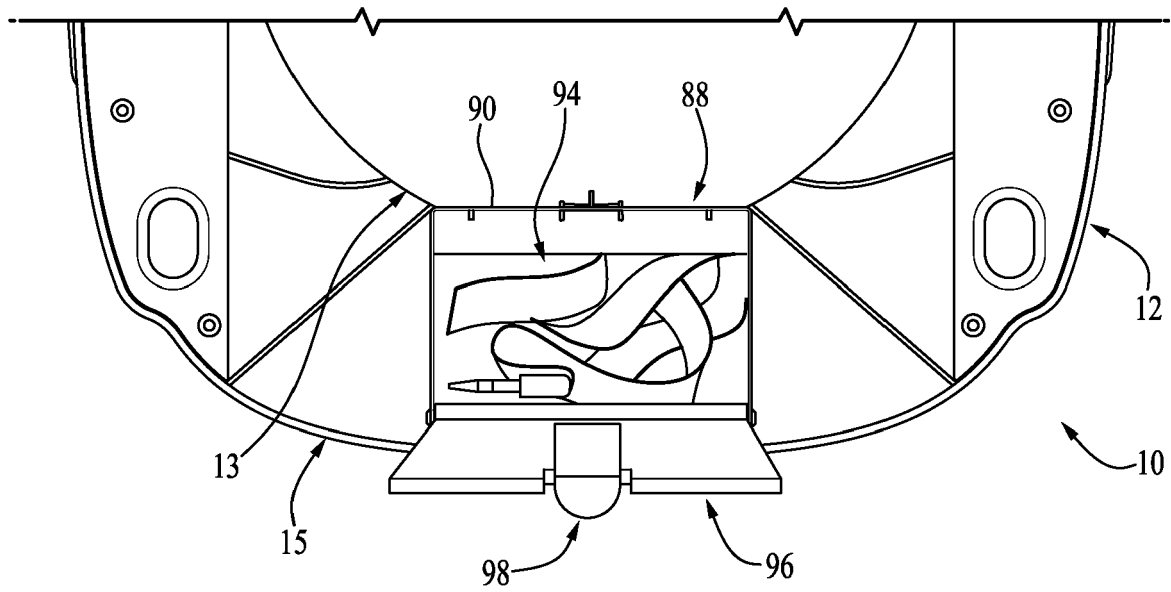


Fig. 14

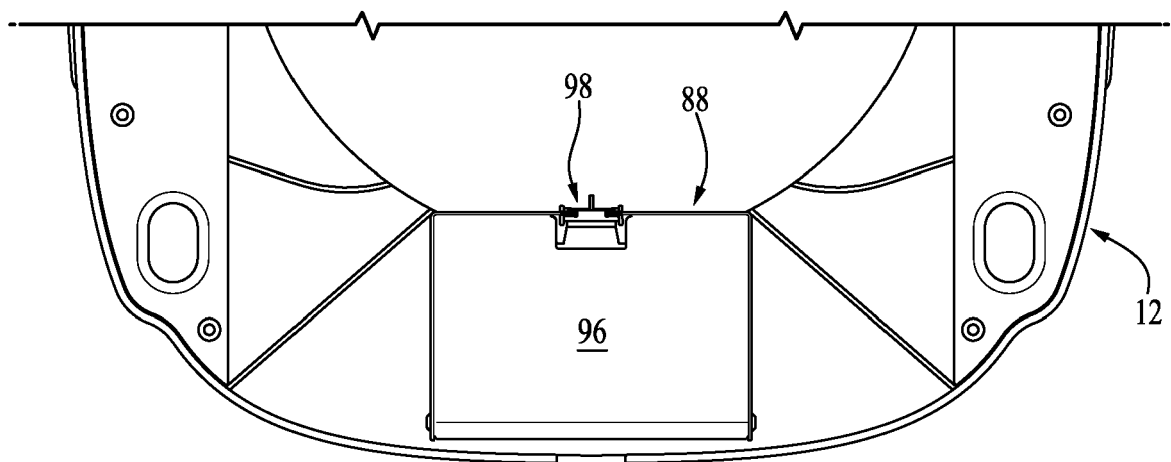


Fig. 15

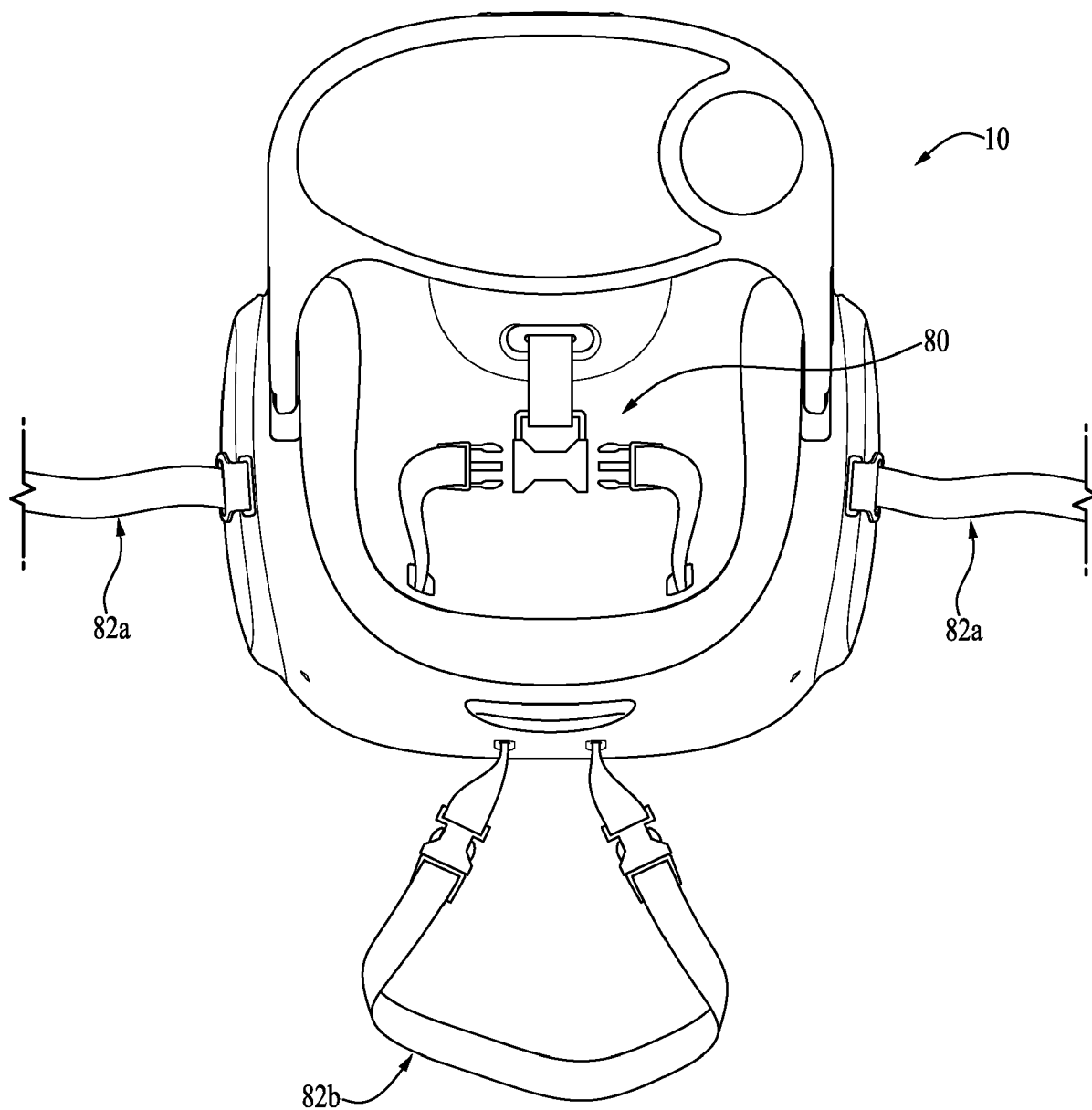


Fig. 10

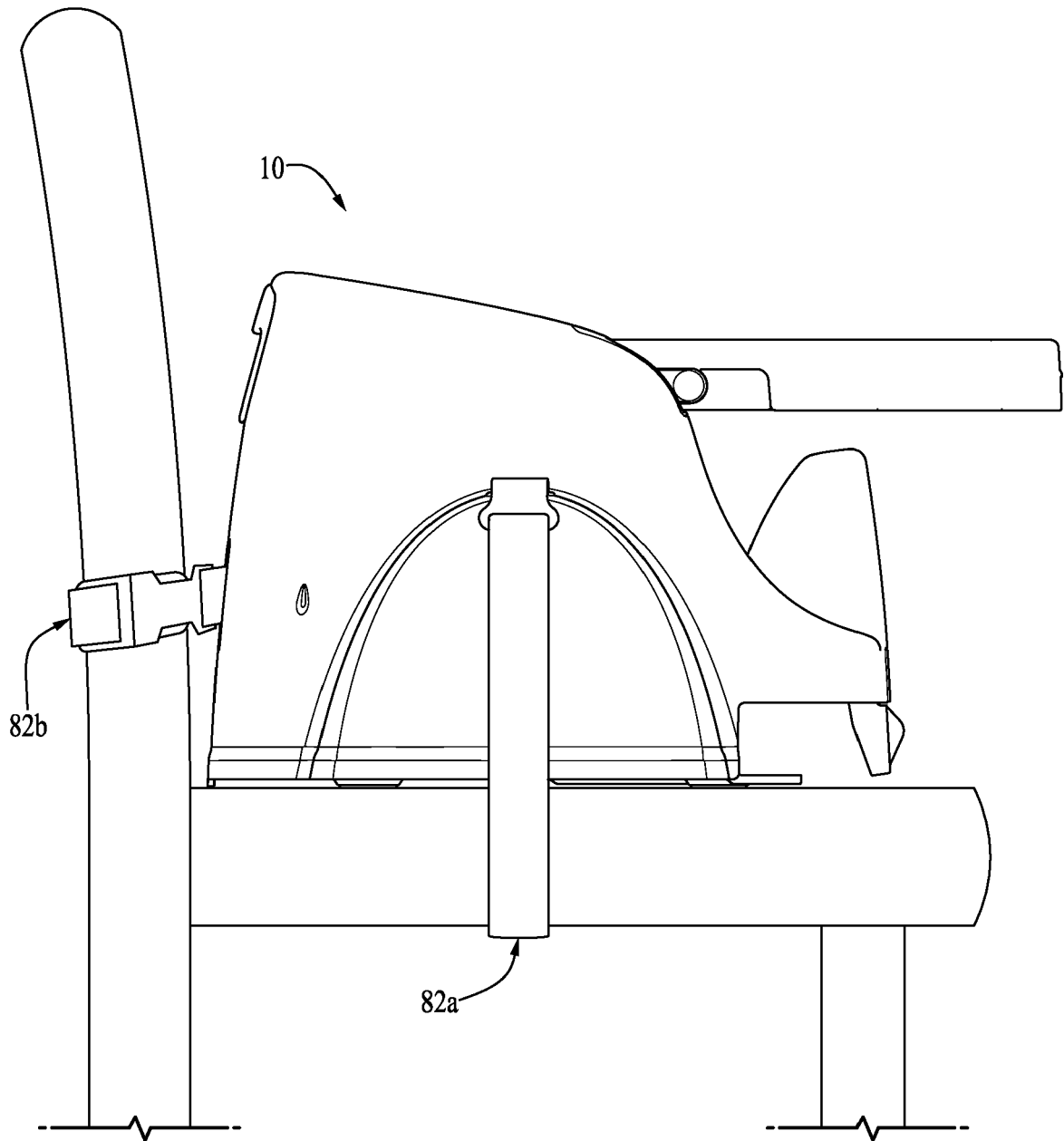


Fig. 17

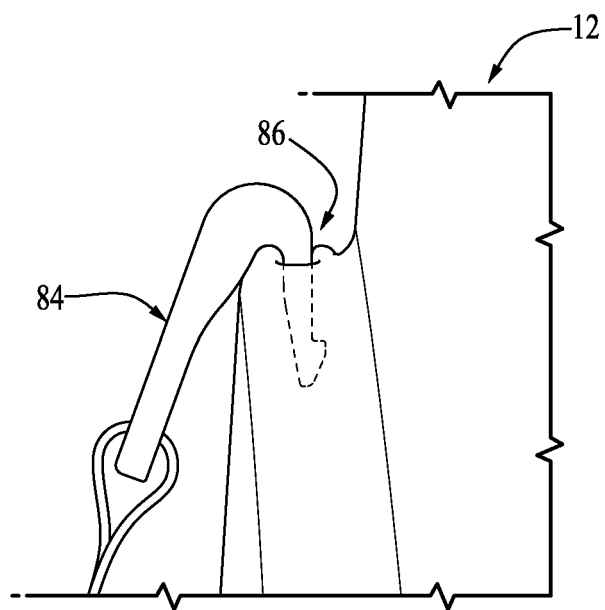


Fig. 18

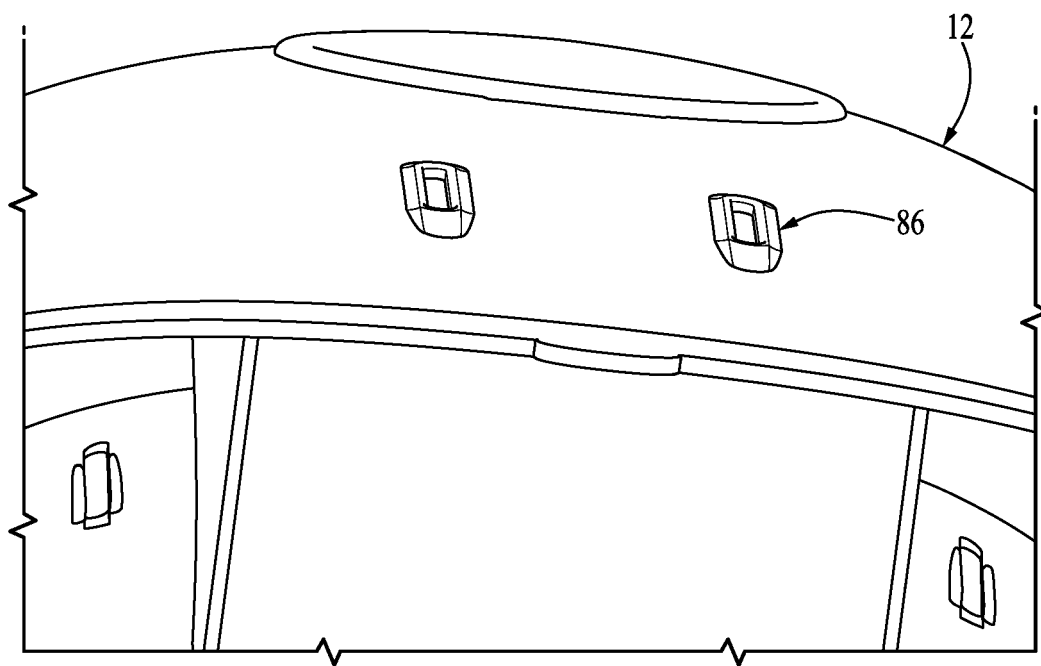


Fig. 19

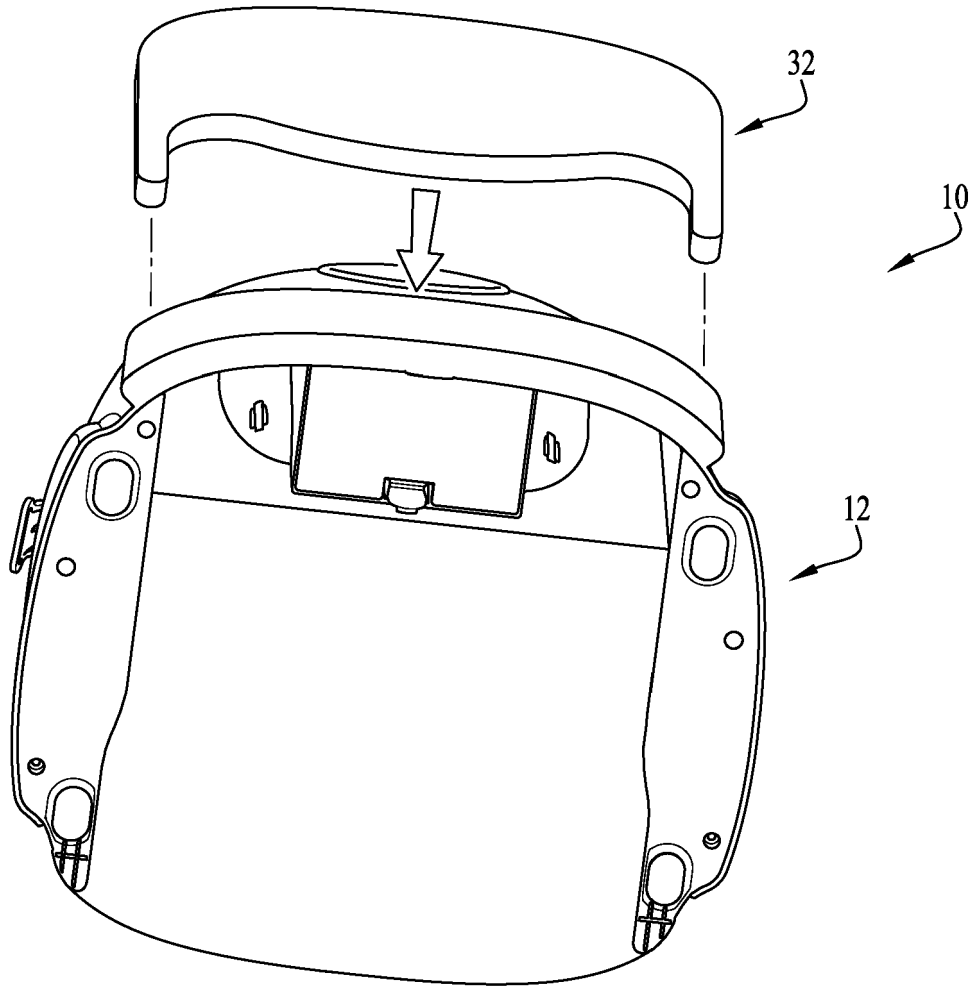


Fig. 20

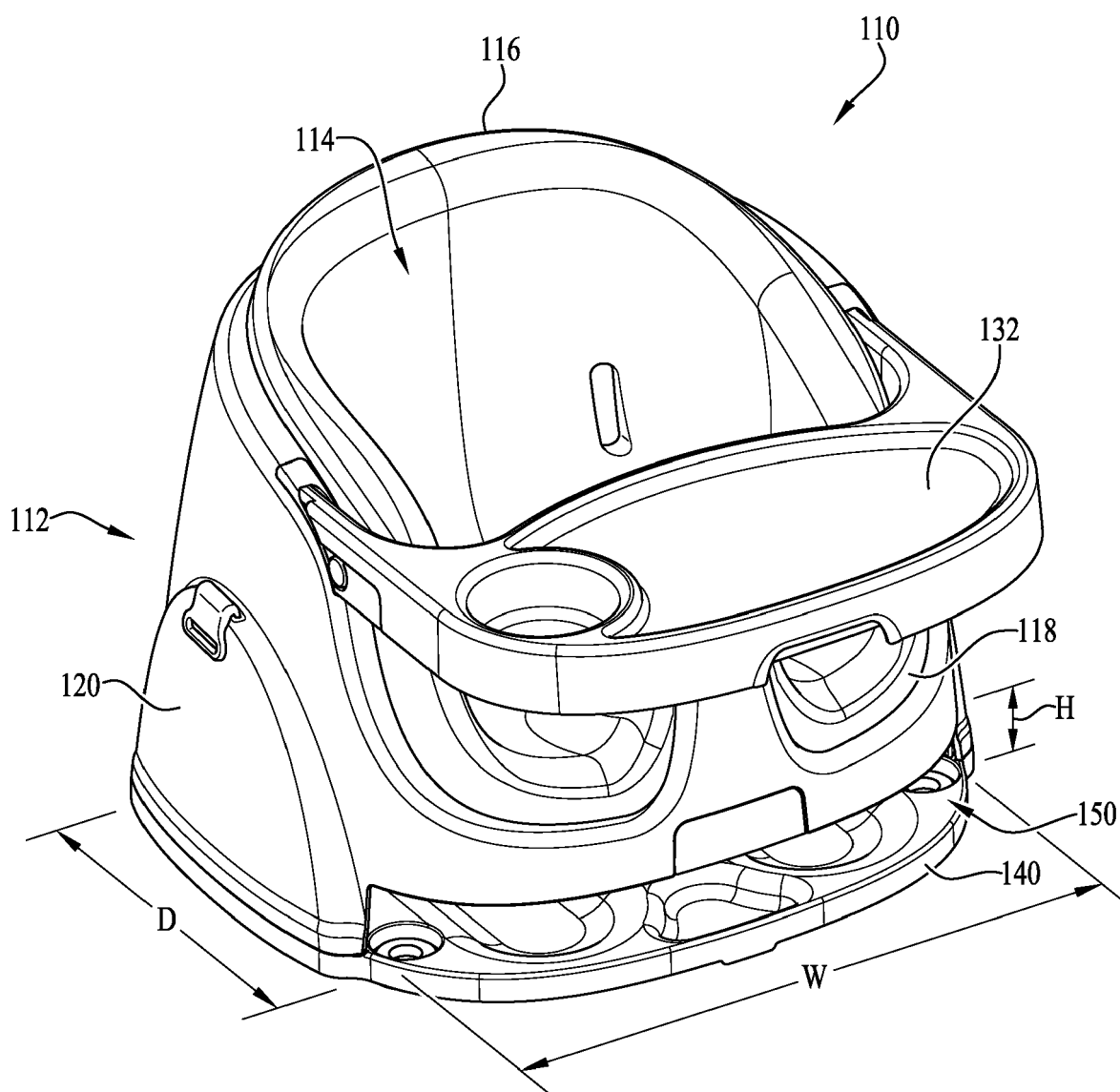
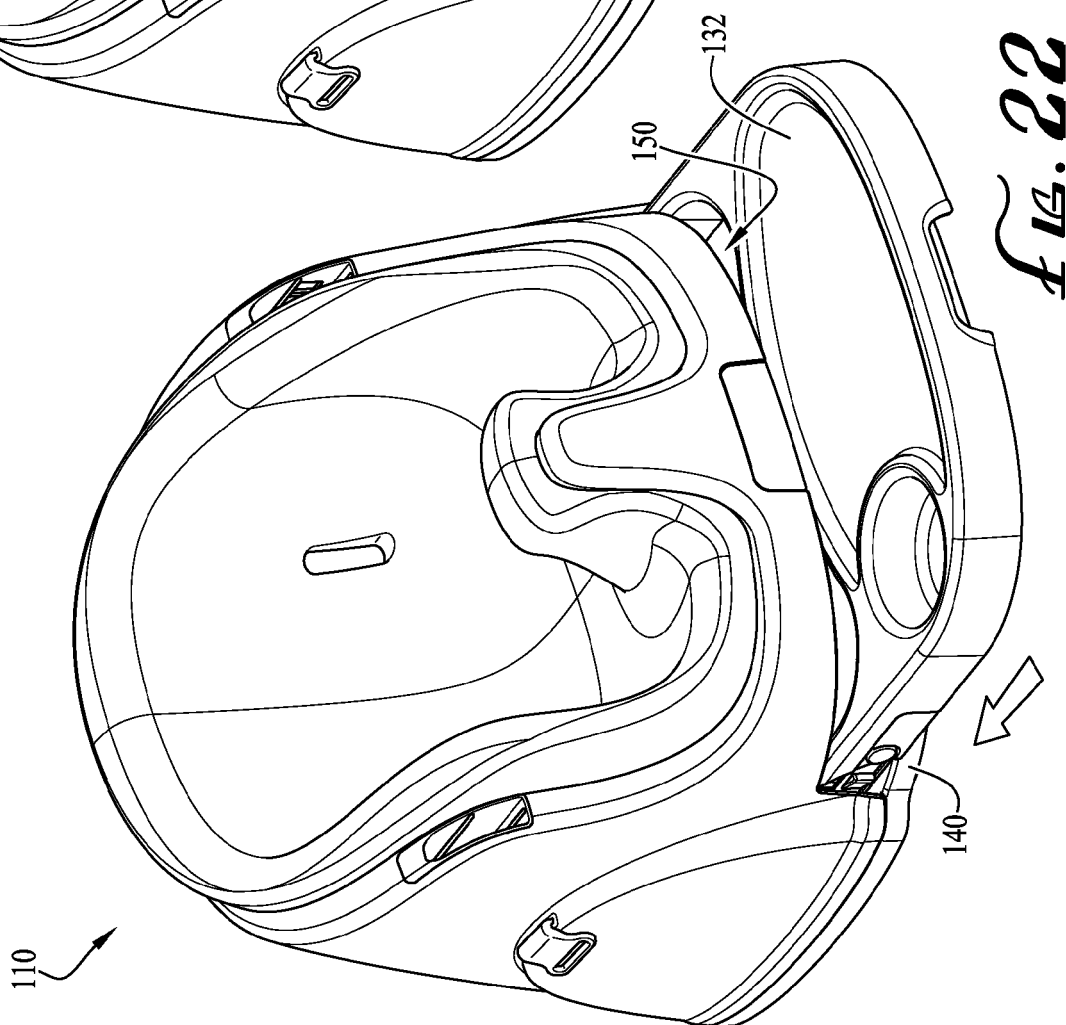
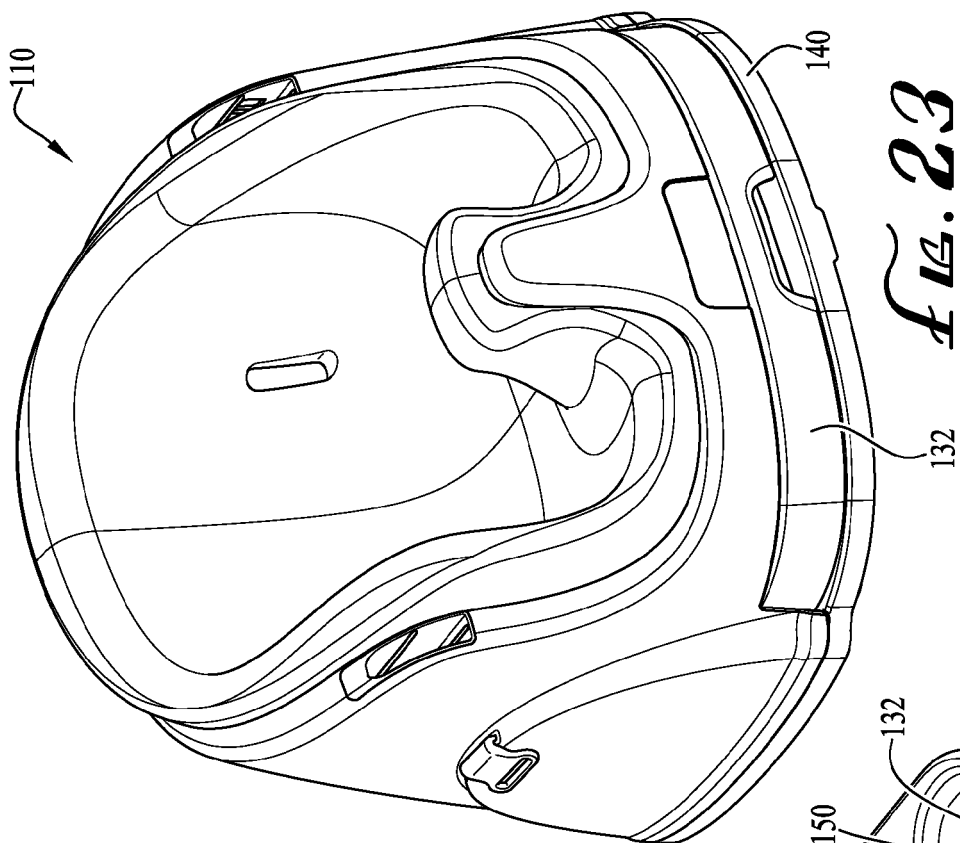


Fig. 21



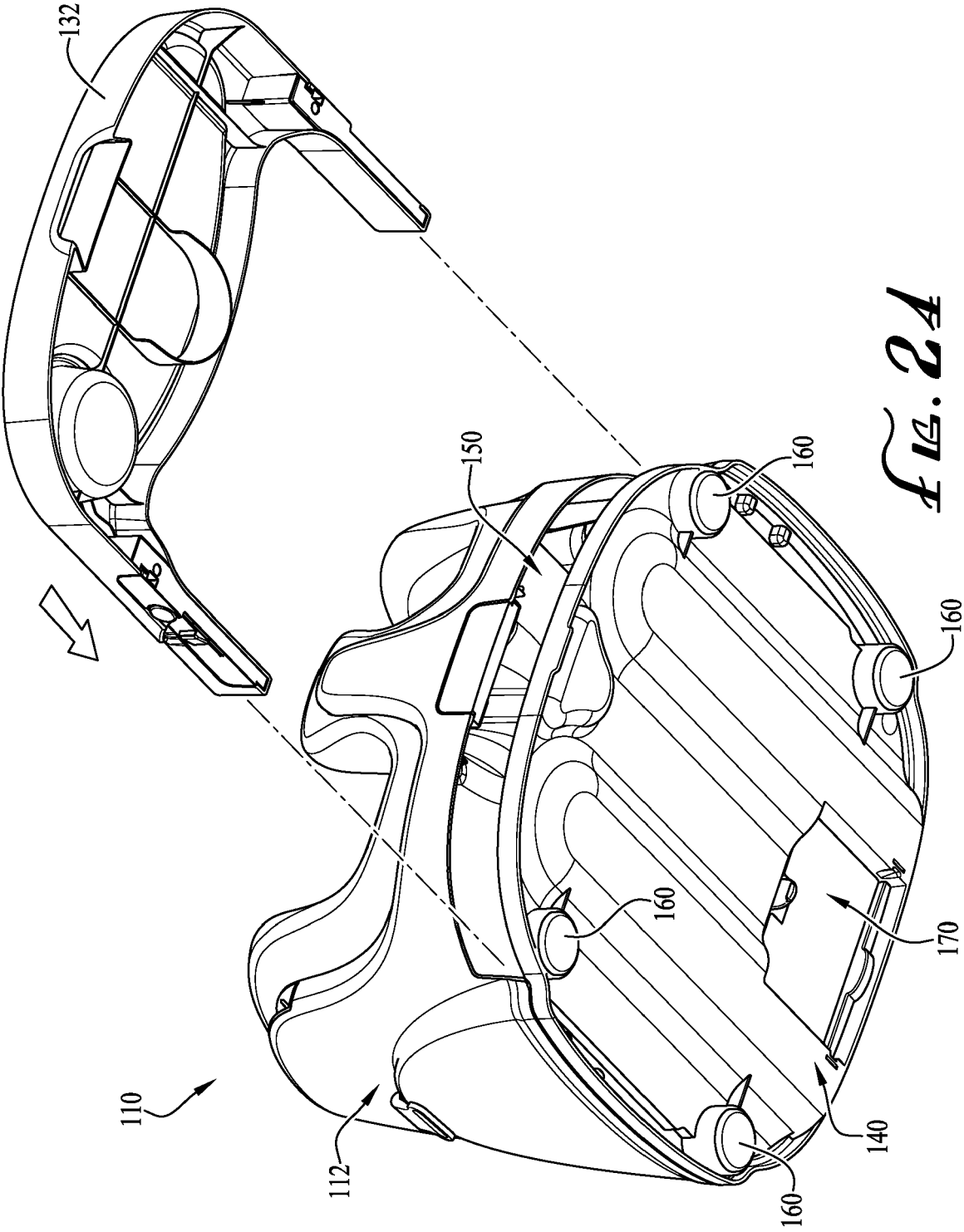


Fig. 24

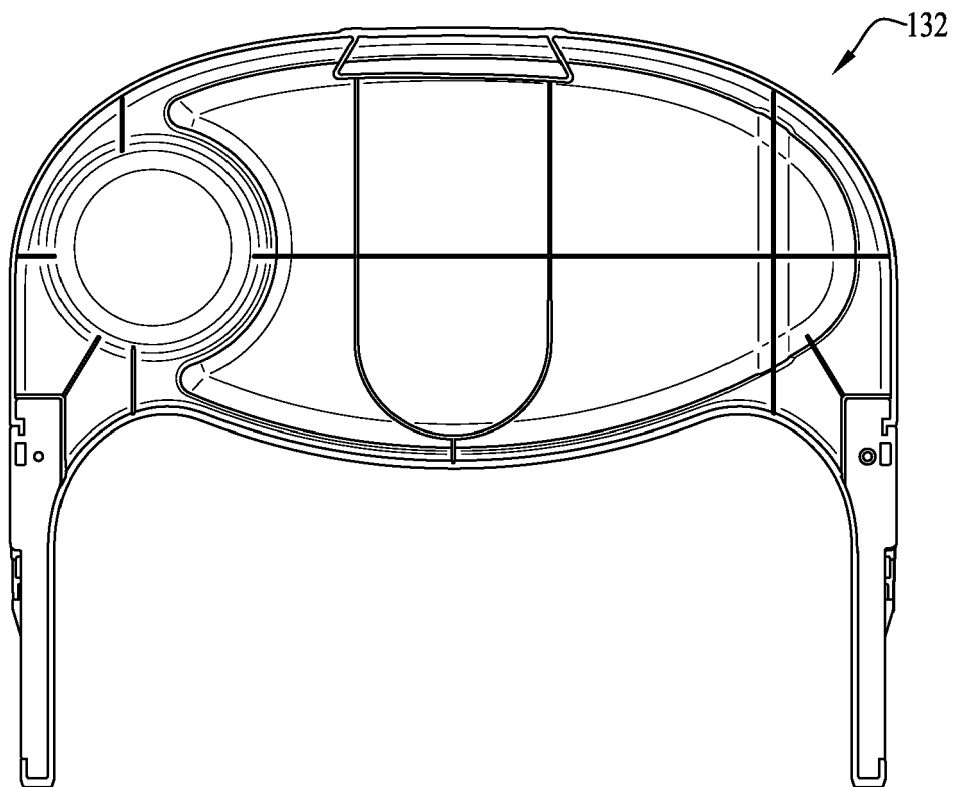


Fig. 25

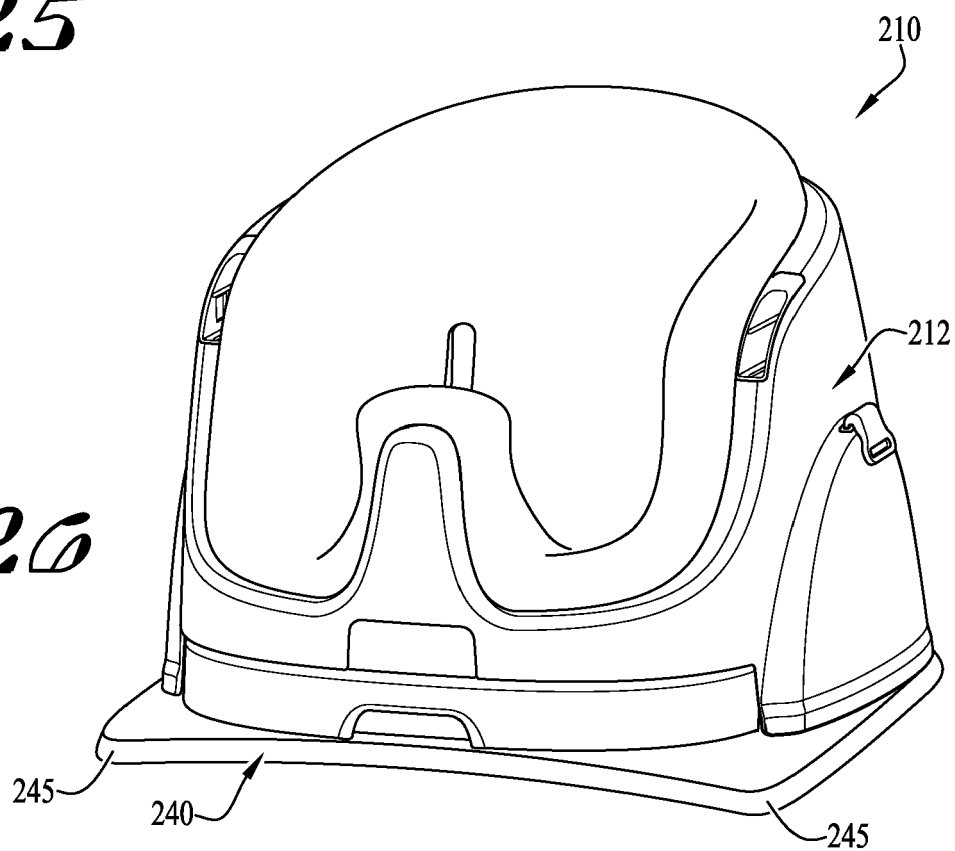


Fig. 26



EUROPEAN SEARCH REPORT

Application Number
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The present search report has been drawn up for all claims			
Place of search The Hague		Date of completion of the search 11 July 2017	Examiner Pössinger, Tobias
CATEGORY OF CITED DOCUMENTS X : particularly relevant if taken alone Y : particularly relevant if combined with another document of the same category A : technological background O : non-written disclosure P : intermediate document		T : theory or principle underlying the invention E : earlier patent document, but published on, or after the filing date D : document cited in the application L : document cited for other reasons & : member of the same patent family, corresponding document	

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