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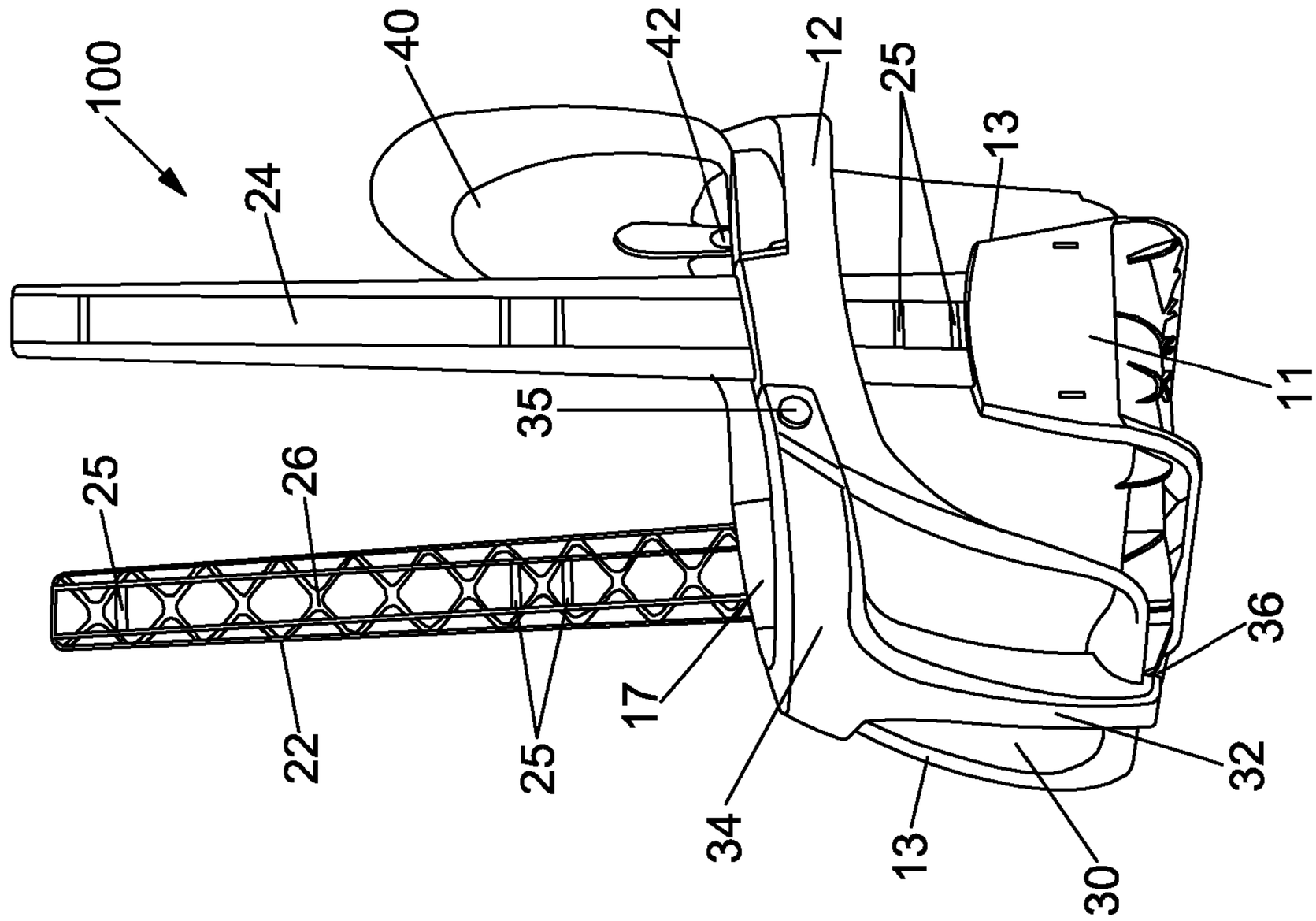

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Fig. 1b

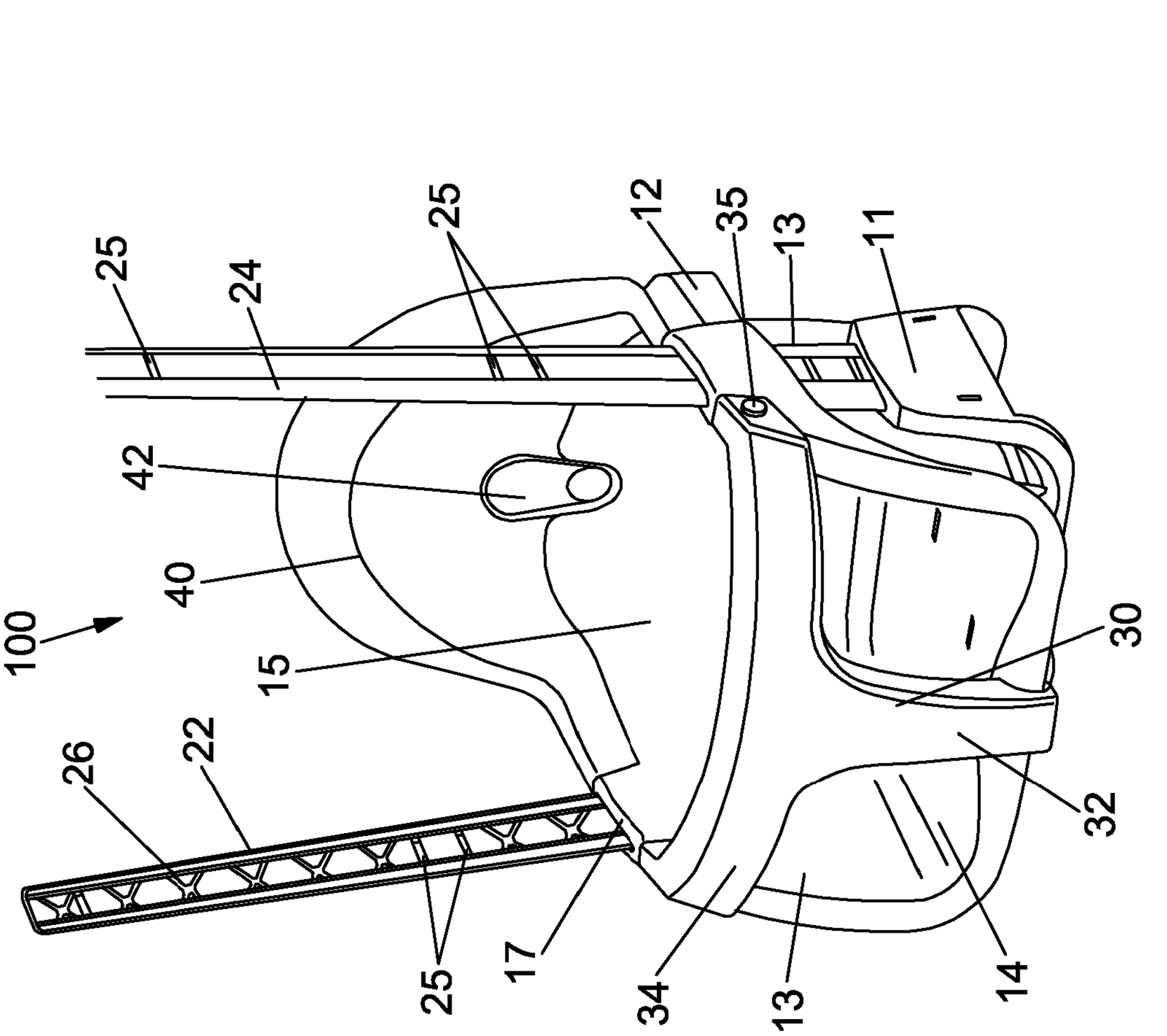

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Fig. 1a

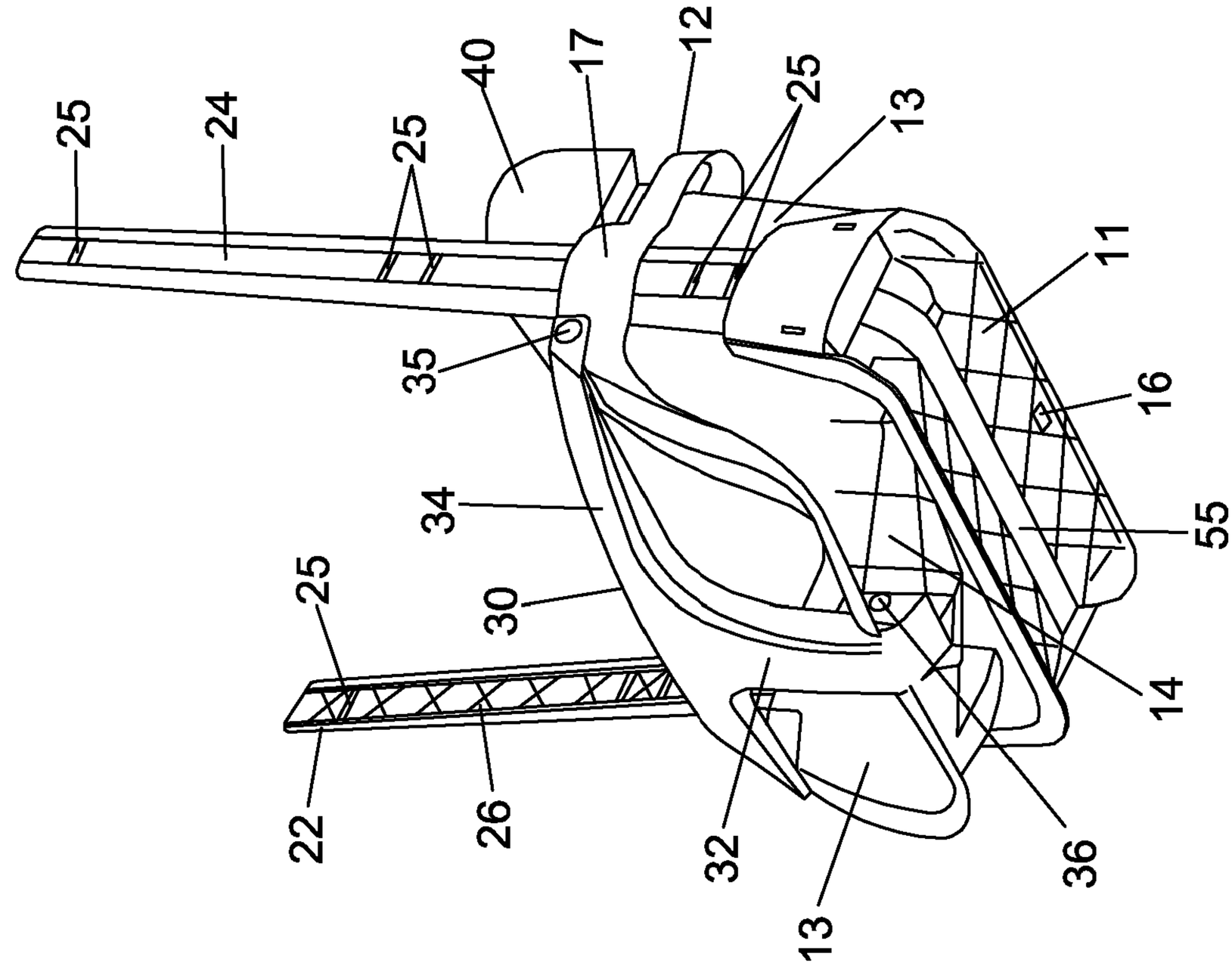

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Fig. 2b

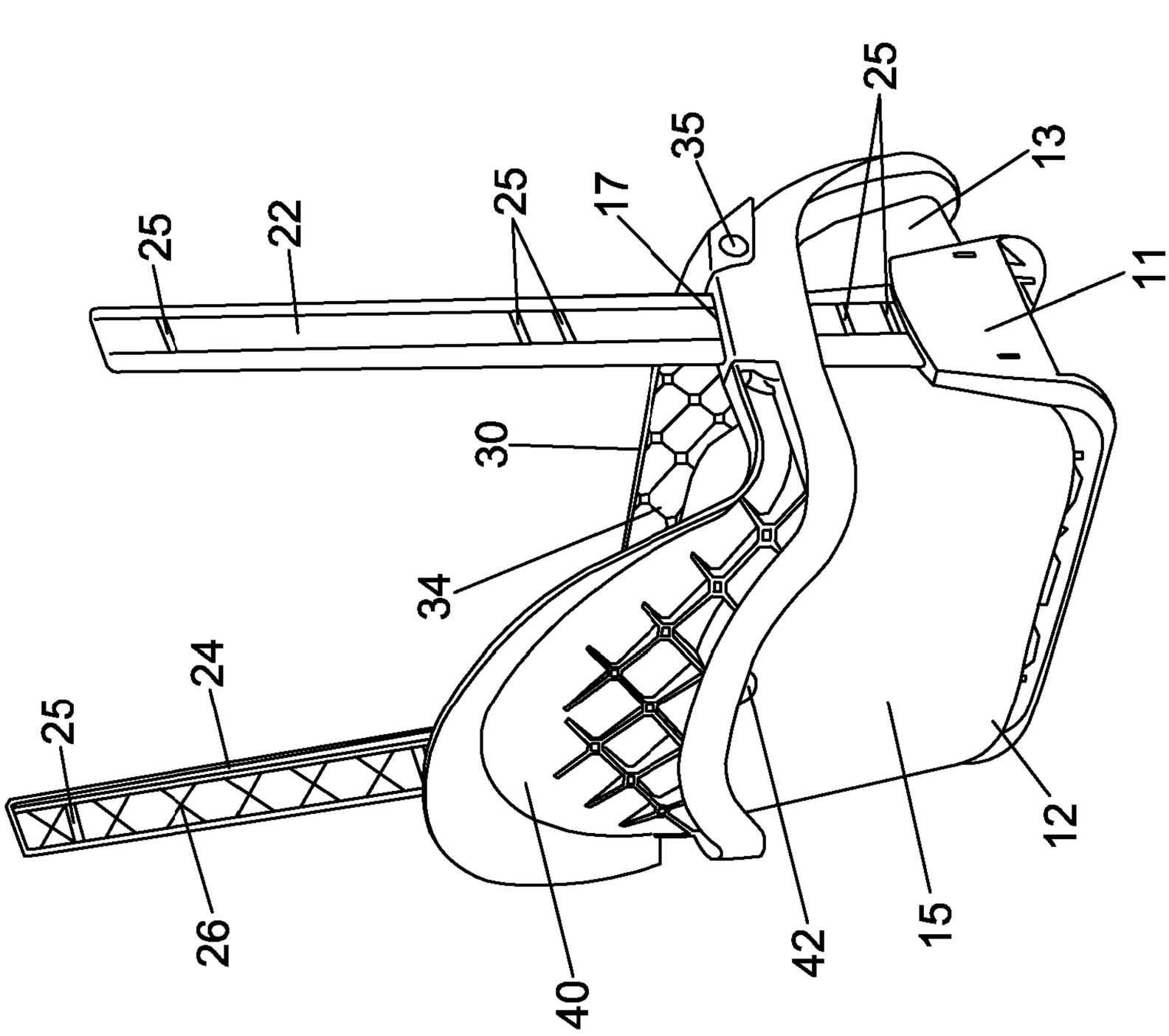

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Fig. 2a

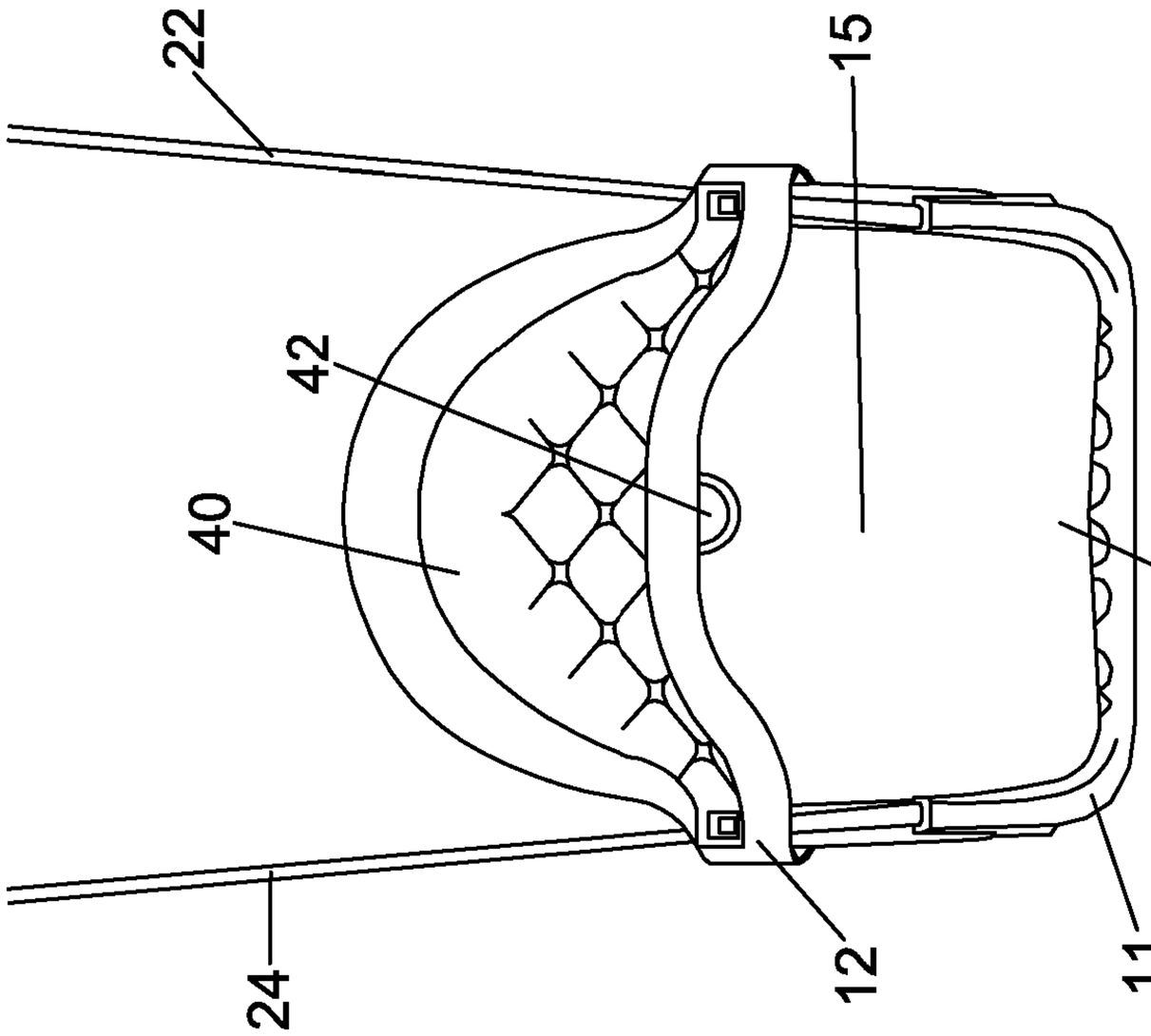


Fig. 3c

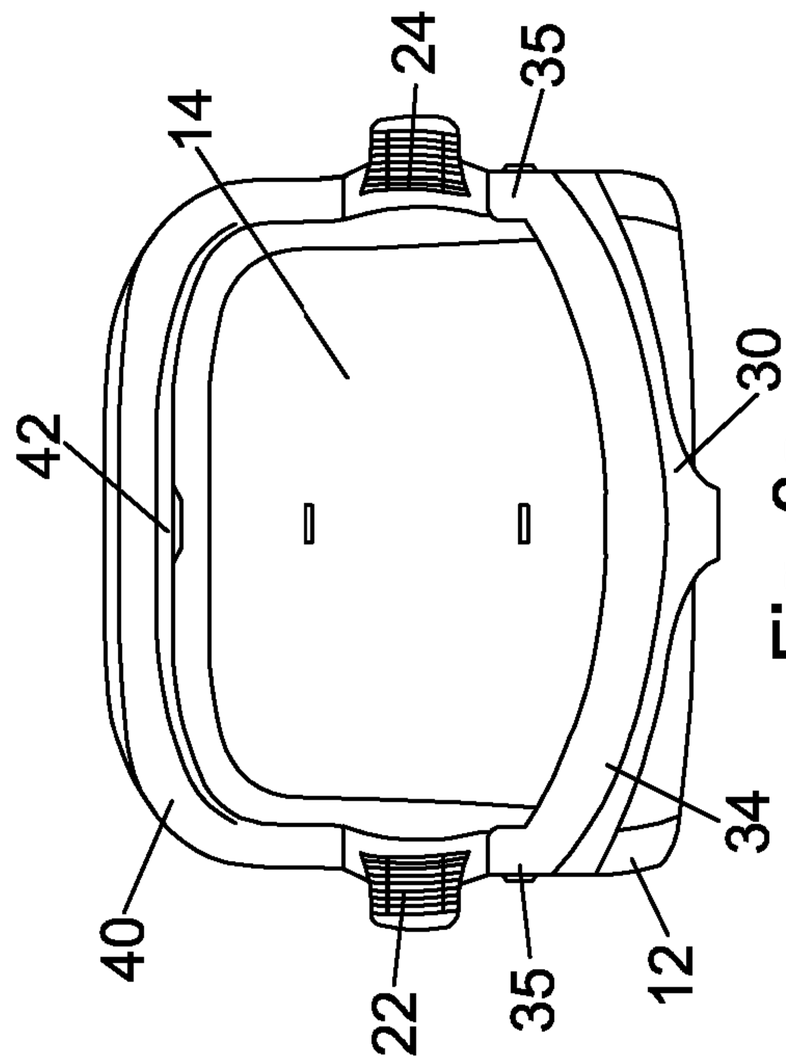


Fig. 3a

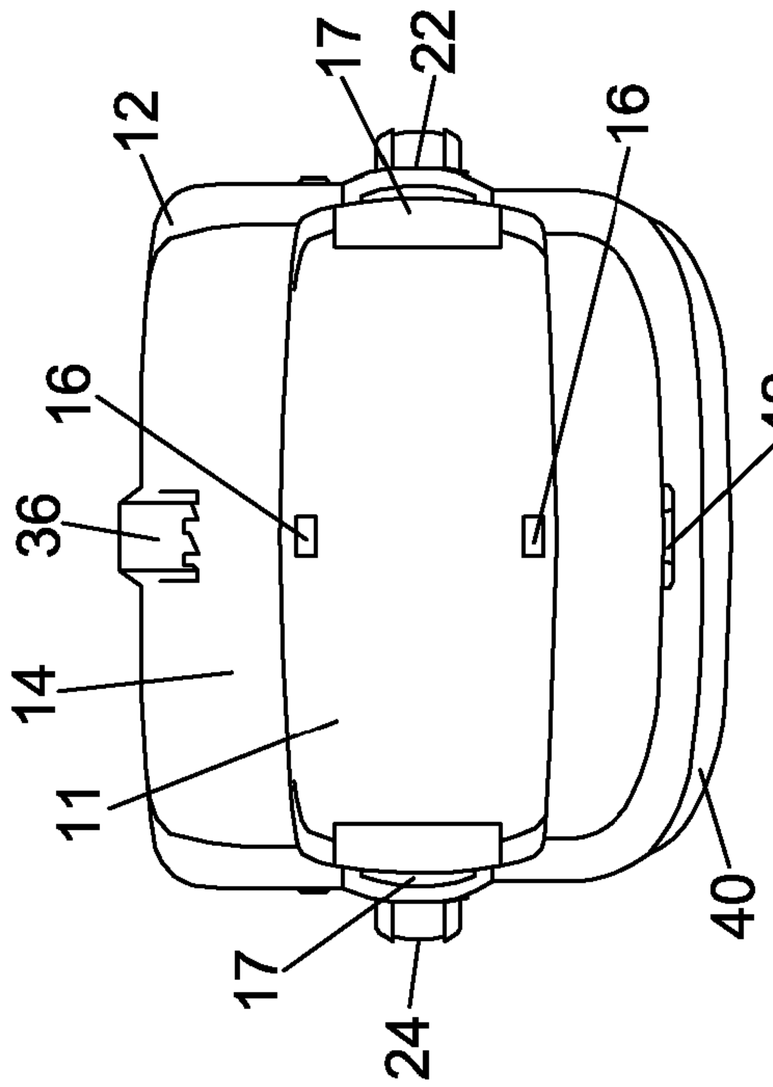


Fig. 3b

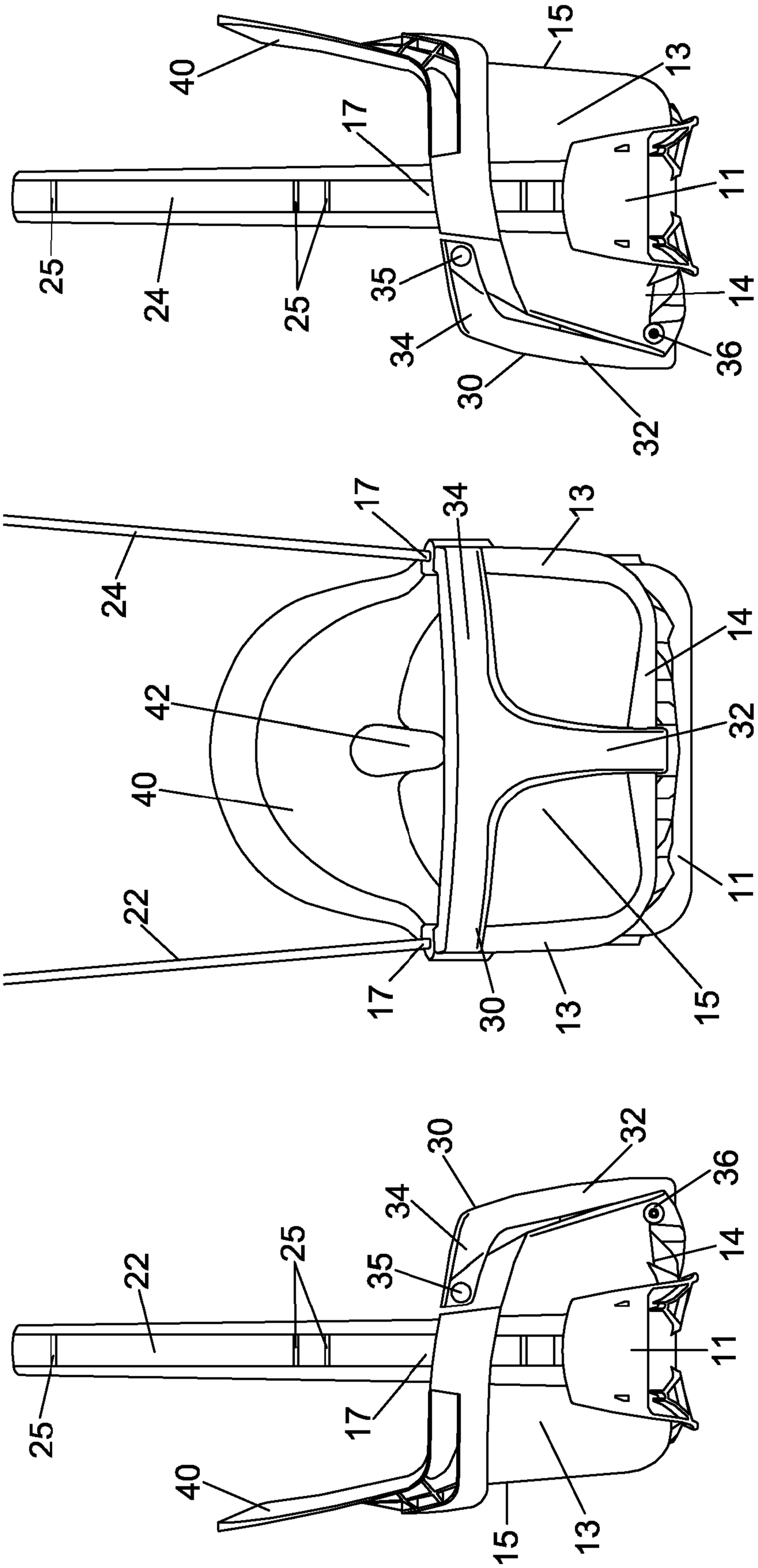


Fig. 4c

Fig. 4b

Fig. 4a

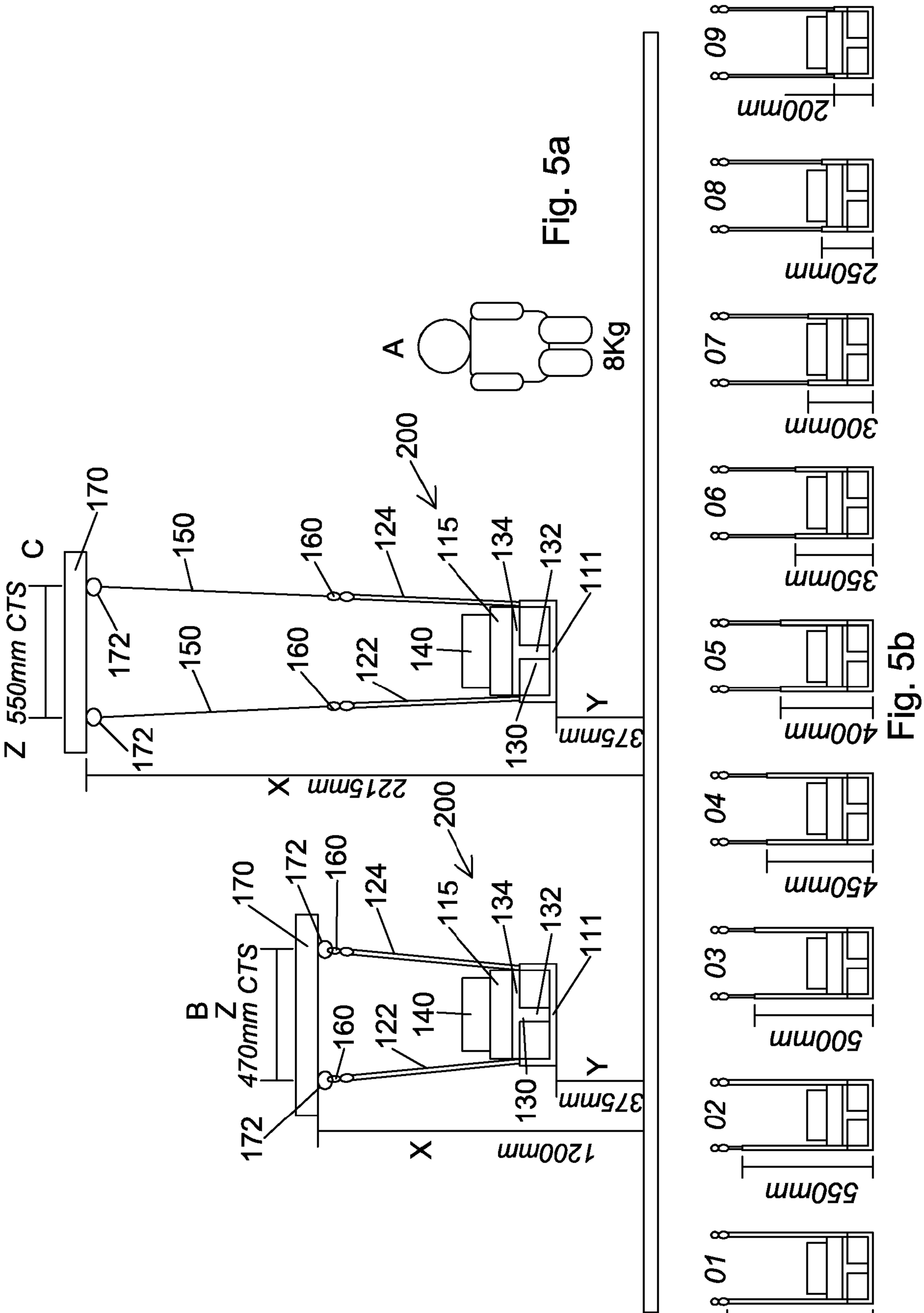

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Fig. 5a

Fig. 5b

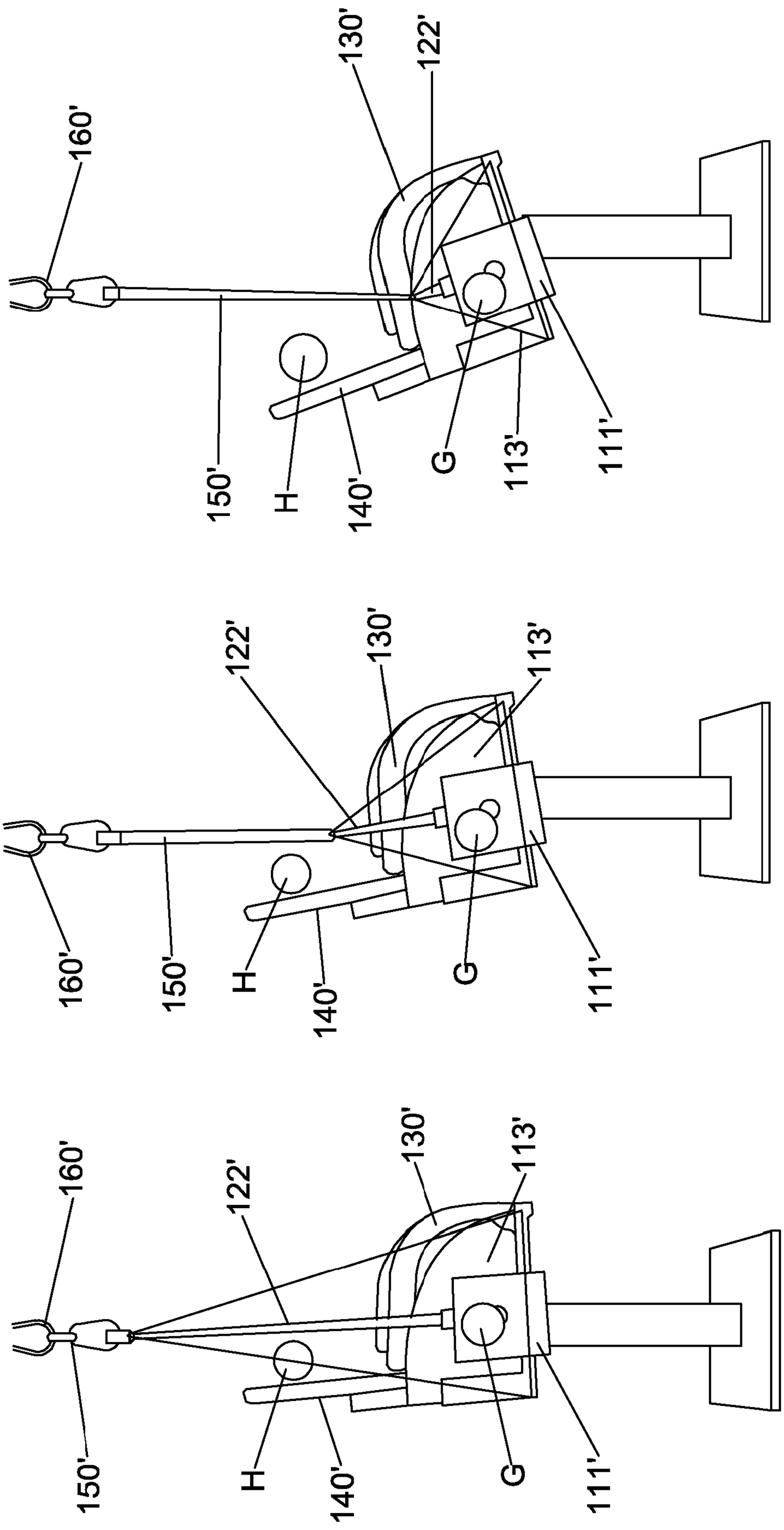


Fig. 6c

Fig. 6b

Fig. 6a

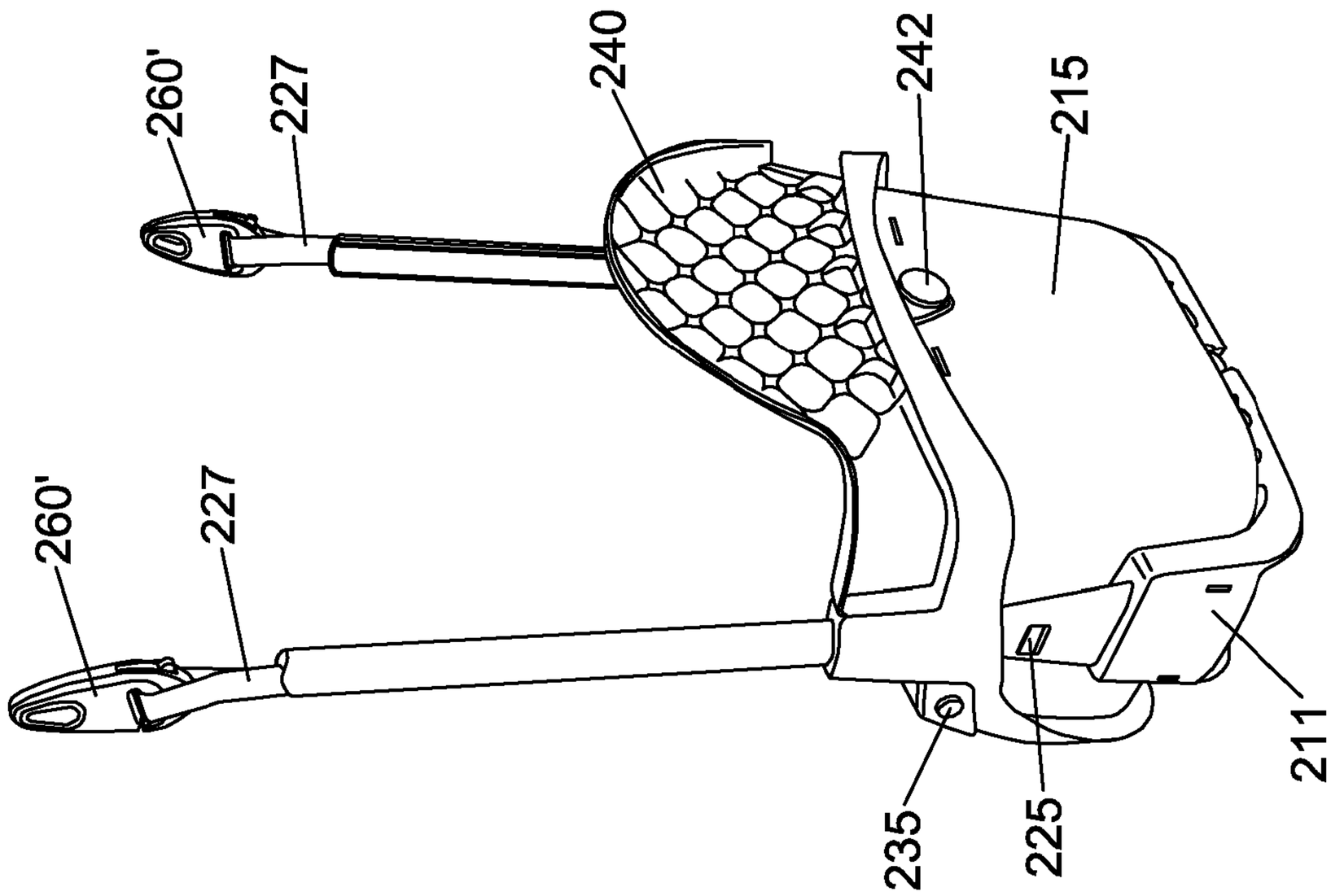

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Fig. 7b

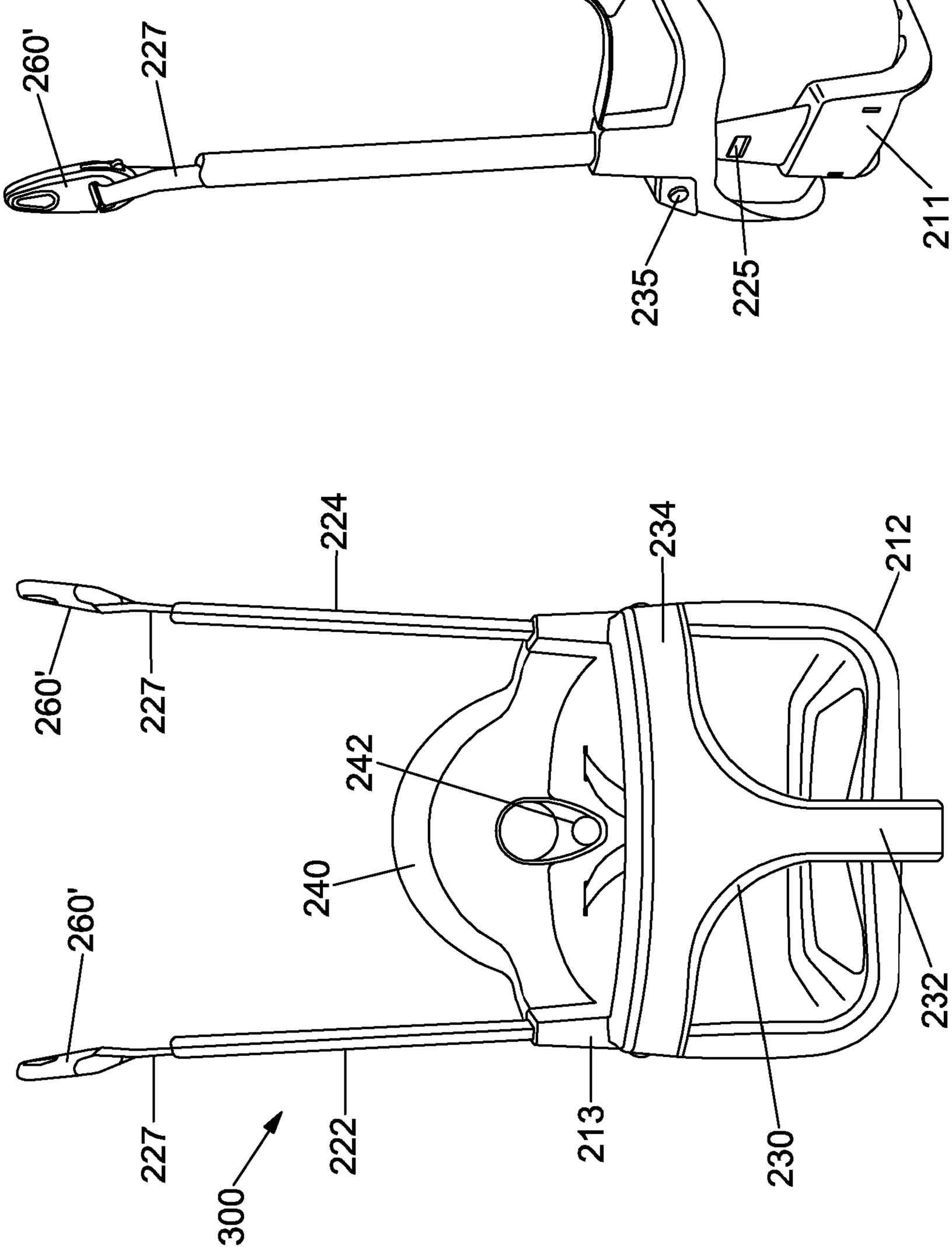

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Fig. 7a

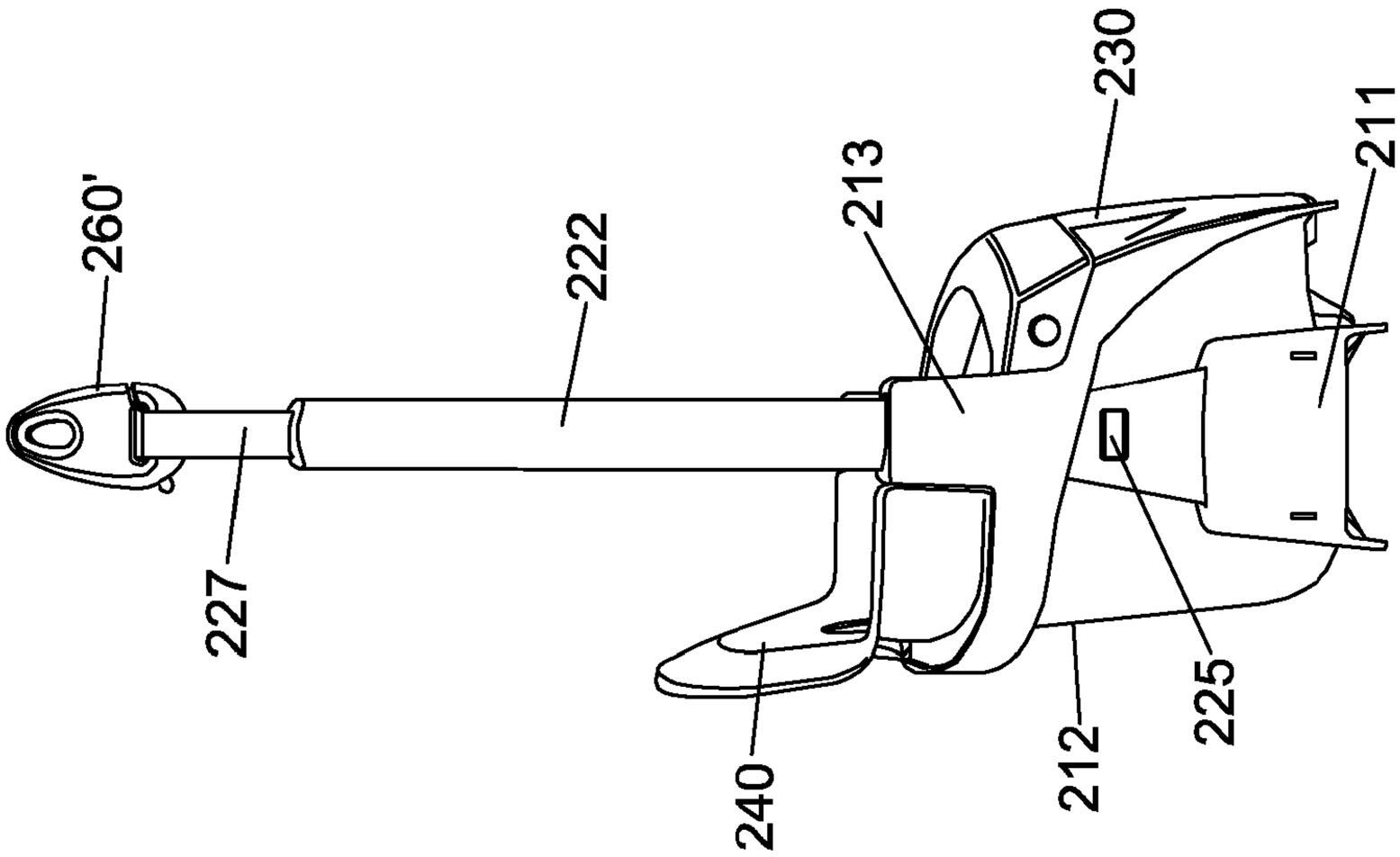

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Fig. 7d

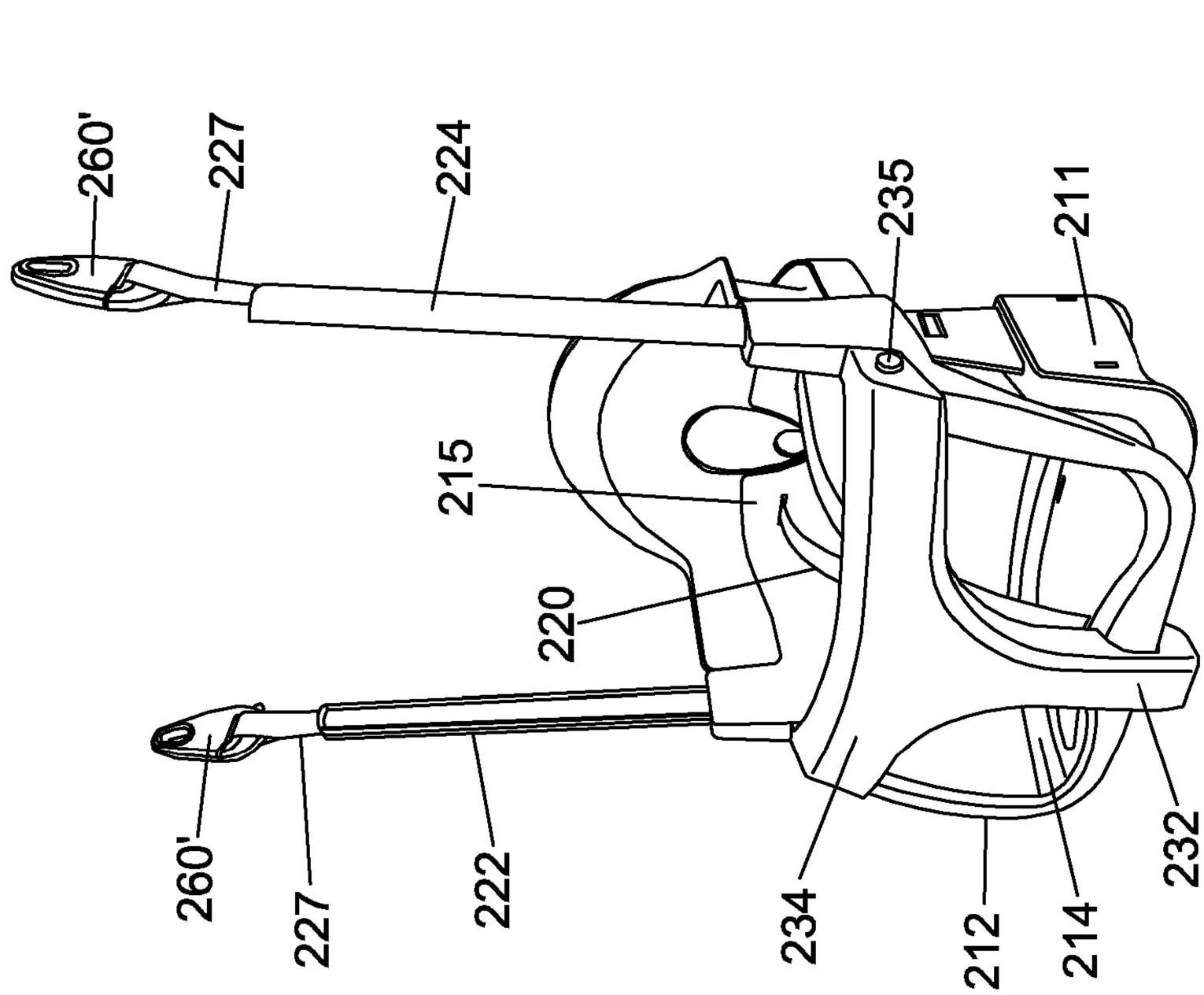

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Fig. 7c

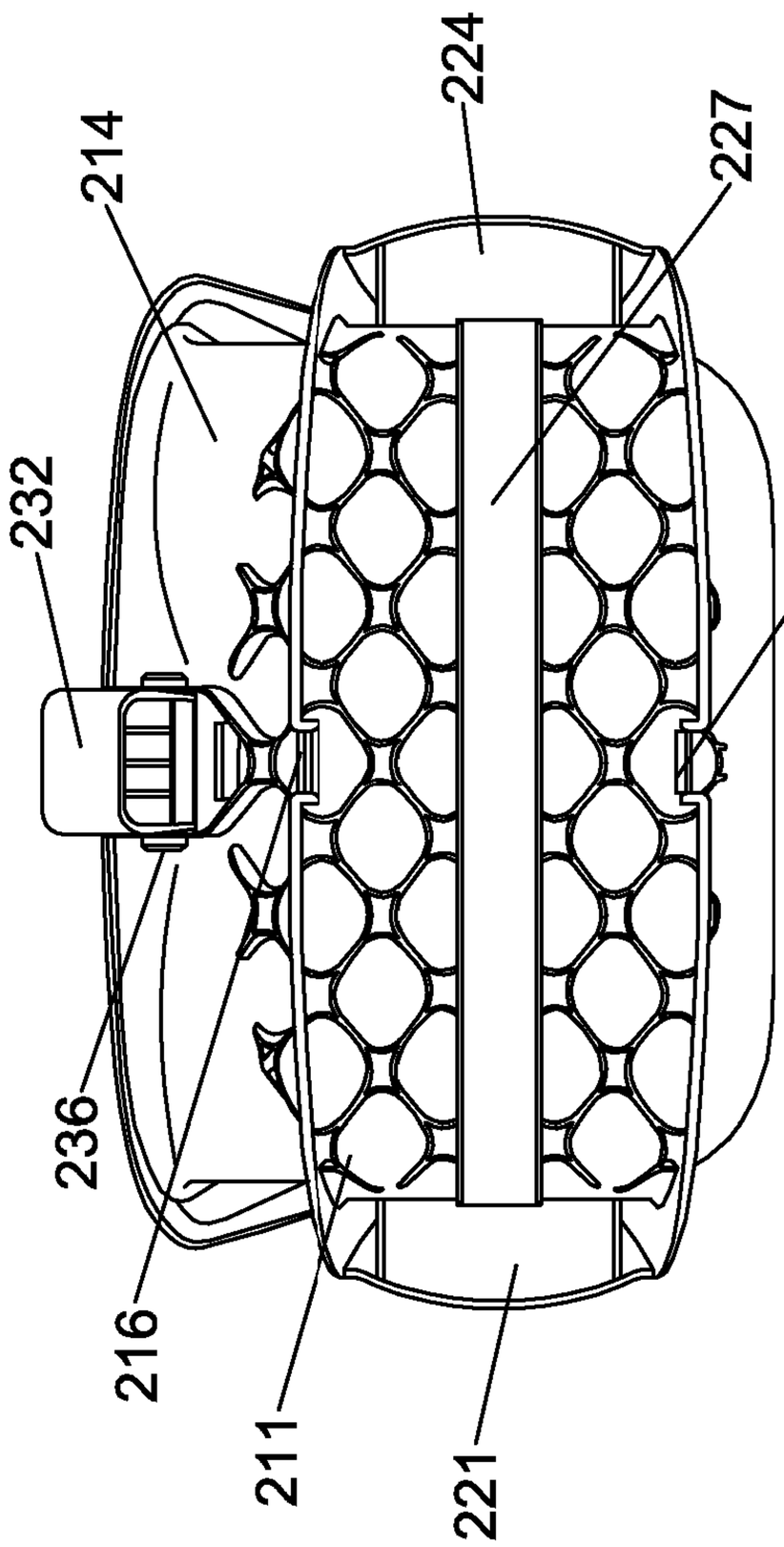

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Fig. 7e

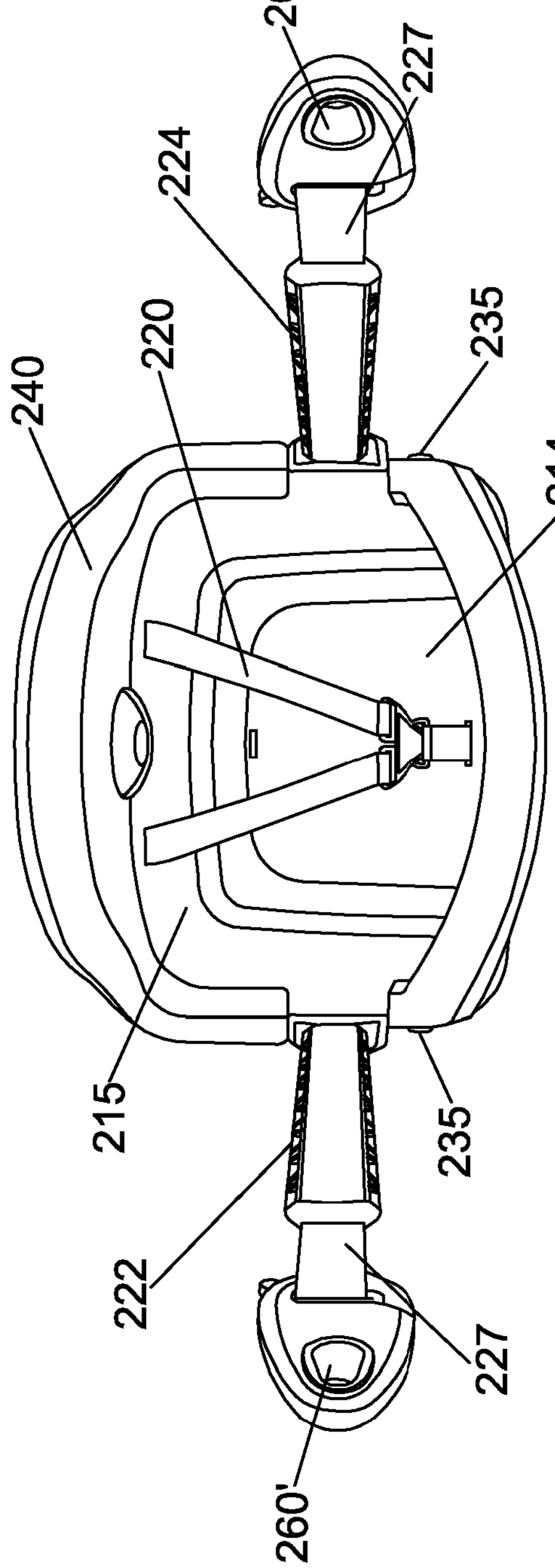

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Fig. 7f

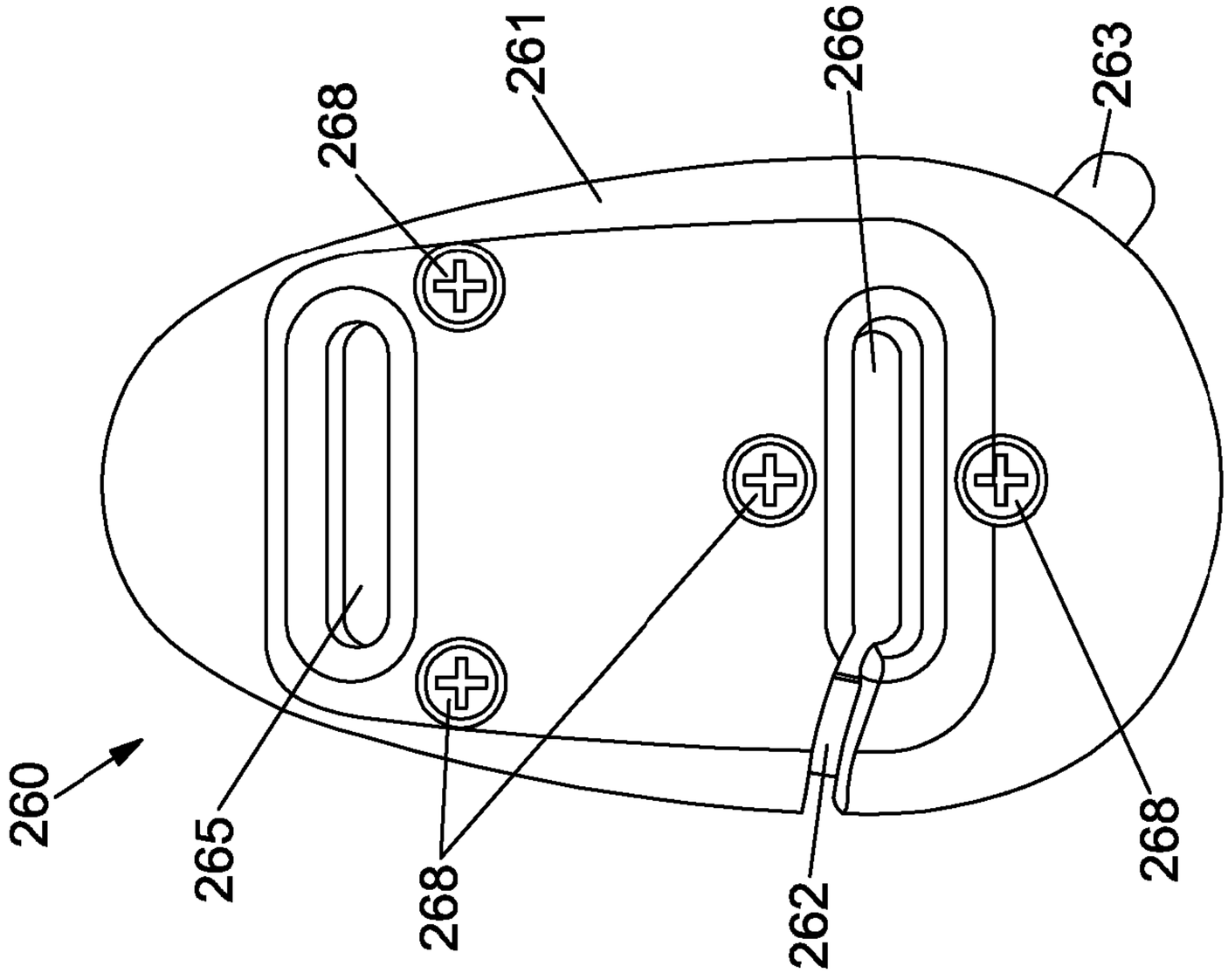


Fig. 8b

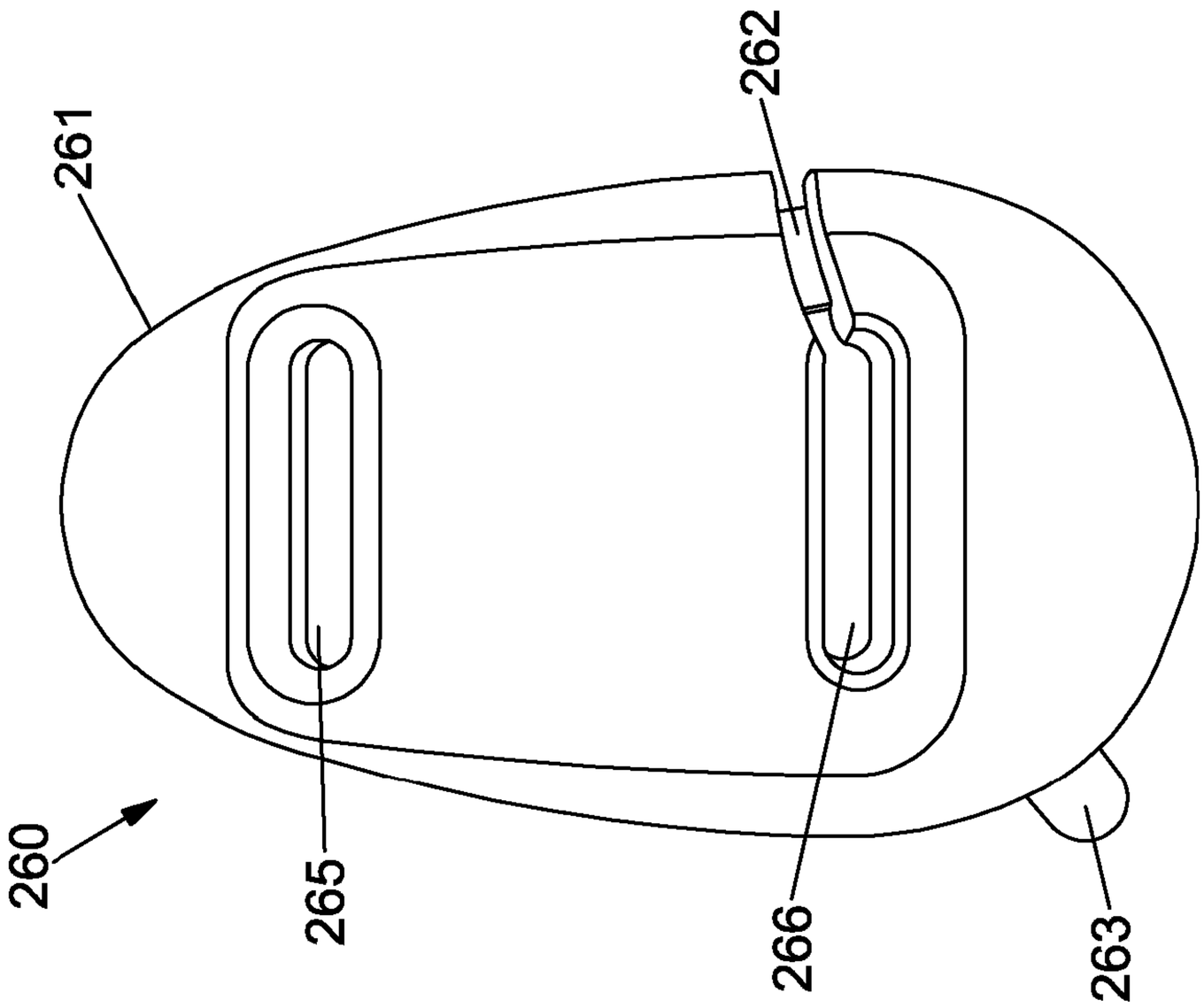


Fig. 8a

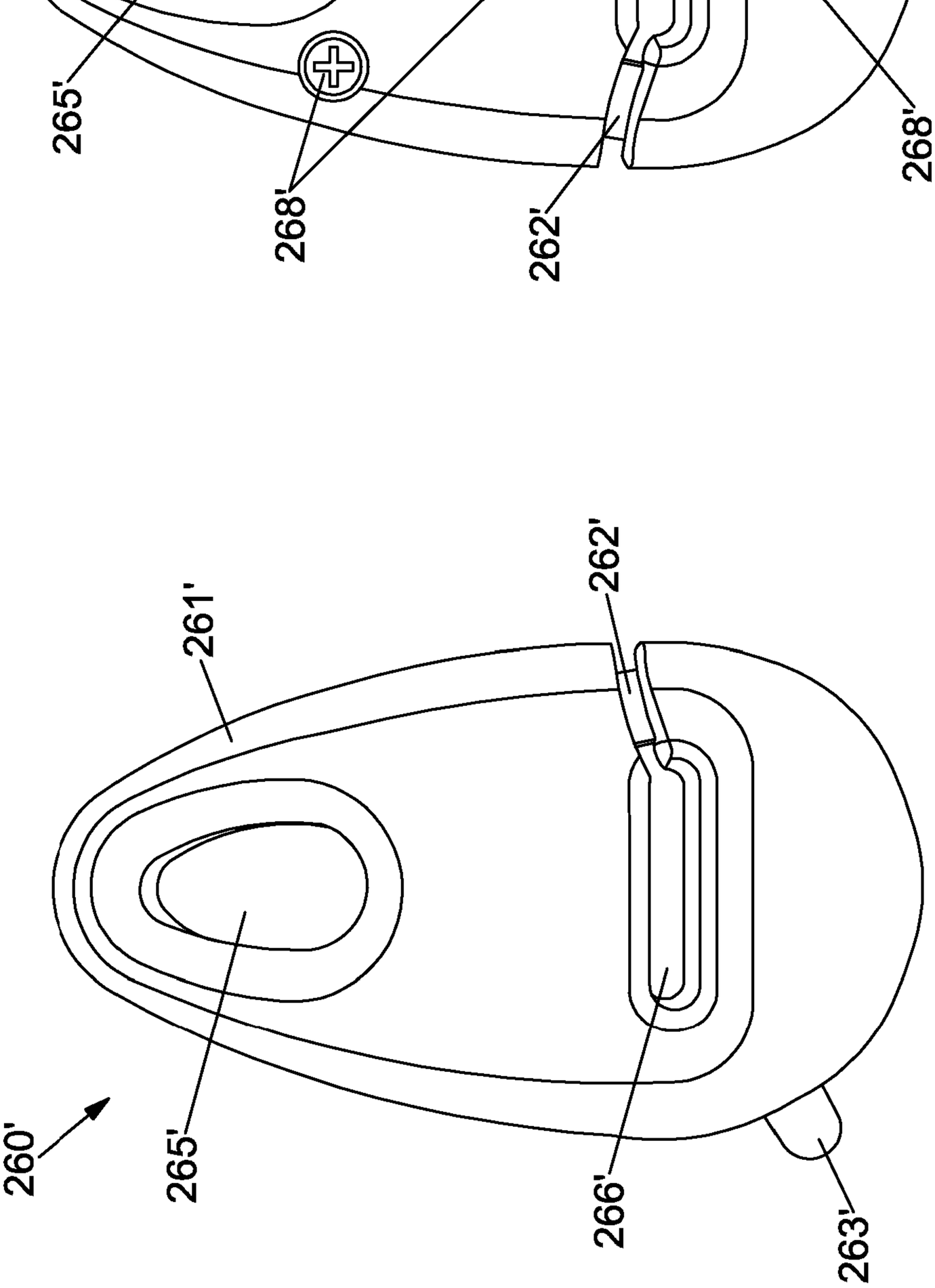


Fig. 9b

Fig. 9a

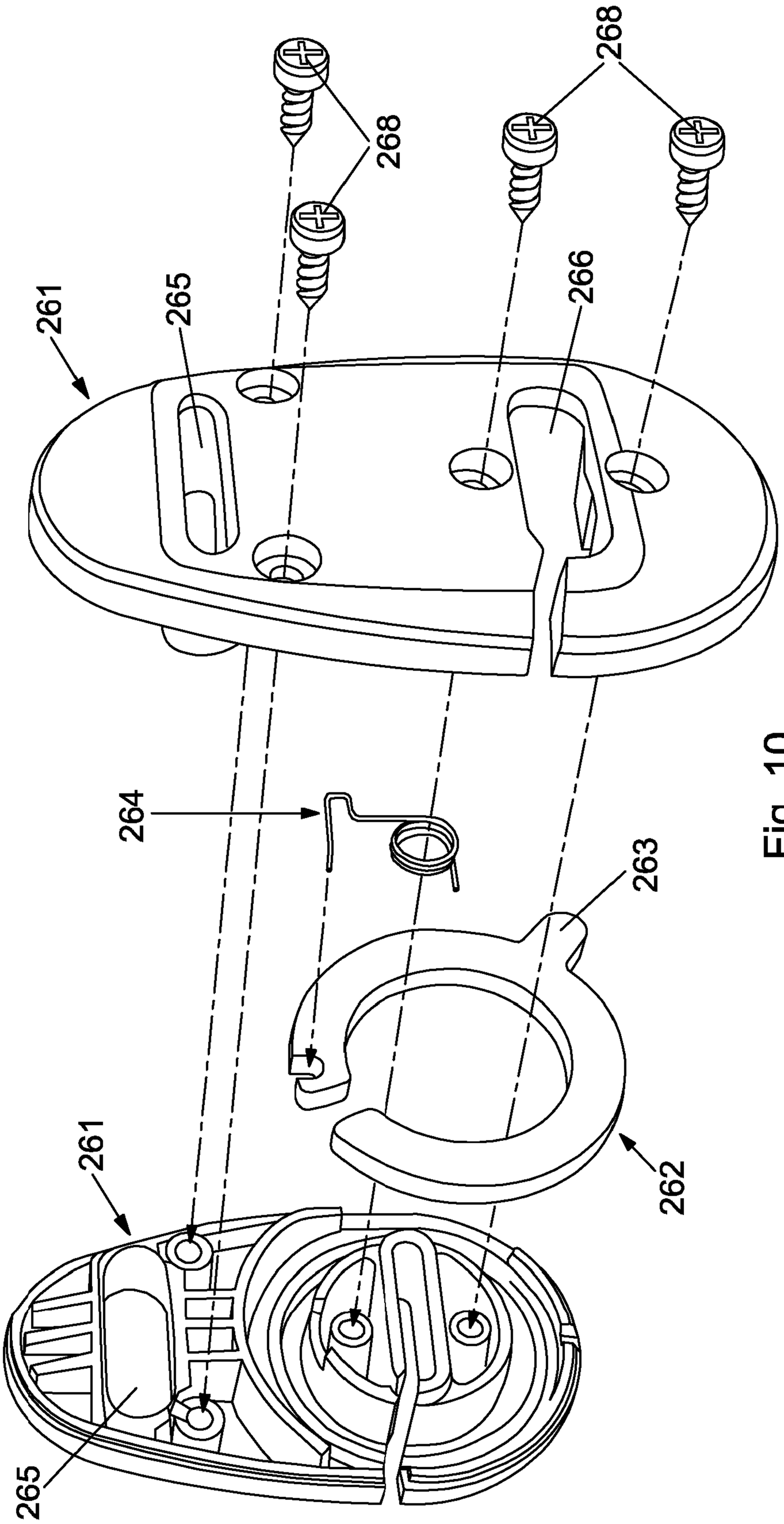


Fig. 10

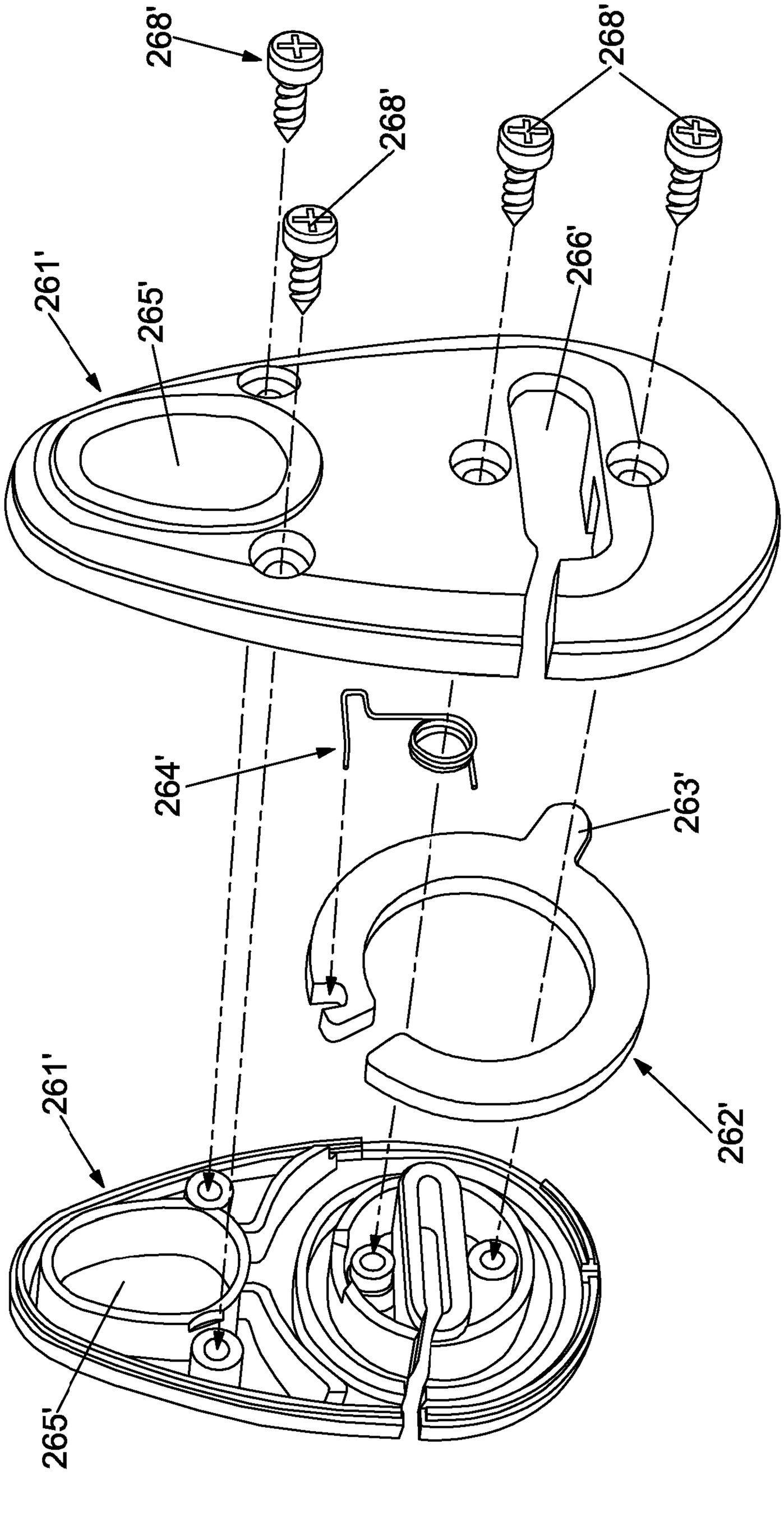


Fig. 11

A SWING

The present invention relates to a children's swing, a seat for a swing, and a method of manufacture and/or assembly thereof. In particular, the present invention provides a swing, or a seat for a swing, with improved safety features. More particularly, the present invention provides a multifunctional swing, or a multifunctional seat for a swing, with improved safety features, which may be suitable for children aged above 6 months and/or less than 10 years.

Many known children's swings are prone, during use, to partially or fully inverting (i.e. the seat tipping partially or fully upside down) if pushed too vigorously or to too high an angle. This can cause the child to fall out of the swing seat during use, or be tipped or jolted upside down, which can often occur when a surprisingly small amount of force is applied to the swing seat. This poses a health hazard and safety risk, particularly in swings designed for younger children, for example those sold as suitable for infants aged above around 6 months and/or less then around 5 years of age, as the potential injuries caused by such an accident may be even greater.

To attempt to improve swing stability, again especially in swings for younger children or babies, it is common for the swing seat to be suspended by linkages (e.g. ropes or chains etc.) at two points on each side of the seat instead of just one. However, not only is this not very effective in preventing inversion it also introduces another potential health and safety risk. The ropes typically form two sides of a triangular enclosed space on each side of the swing seat, through which the child may be able to inadvertently or deliberately insert their head, neck or other body part. This arrangement therefore presents a real risk of entrapping the child's head, neck or other body part during use of the swing.

The European Committee for Standardisation (CEN) has provided strict safety standards and testing regulations EN 71-8 (2011) for activity toys such as swings, wherein part 4.3 is directed to preventing the problem of entrapment of the head and/or neck. However, it has been shown that while an enclosed, or partially enclosed, space may be large enough to meet these regulations, there may still be a potential risk of entrapment. For example, many swing seats are prone to fully or partially spinning or rotating during swinging which can twist the swing around the child,

leading to restricted breathing and/or blood circulation issues. This can also be caused by deliberate or unintentional rotation of the swing seat, either by the user, another child or a parent.

It is therefore an object of the present invention to provide a swing, or a seat for a swing, which presents a lower risk of inversion and entrapment to the user and is therefore safer to be used by children, particularly younger children.

It is also generally difficult for a single person to easily and safely secure a child into a swing, particularly a younger child or a child with special needs who may be incapable or unwilling to move co-operatively. In swings having seats with side walls and a back portion, so as to provide more support to the child, there is typically also a front guard, such as a T-bar, to prevent the child from falling out of the swing during use. However, unfortunately, this guard may also make it more difficult to lift the child into or out of the swing, as it requires correct positioning of the child's legs around the guard.

In some known swings the front guard may be fully removable or else positionable such that the front of the swing can be completely opened, thereby allowing full access to place the child into the swing seat before replacing the front guard. The locks to connect and remove the front guard from the swing typically require the use of two hands as they are intended to be 'child-proof' connections. For a parent or guardian this again may pose health and safety issues, as the child may slide out of the front of the swing while the parent or guardian is attempting to replace/reconnect the front guard into its locked position.

It is therefore an object of the present invention to provide a swing, or a seat for a swing, which allows a single operator to easily but securely position a user (e.g. child) into the swing, without the risk of the user slipping/falling out of the swing.

As children develop very quickly it can be potentially quite expensive to continually buy a new swing or swing seat that is suitable for their ever-increasing age and size, while maintaining the correct amount of support and safety. Moreover, many family homes and nurseries/kindergartens, for example, have limited outdoor space available

and so it can be burdensome, or otherwise impossible, to provide multiple swings for use by children of varying ages.

Although single multifunctional swings (i.e. designed for a range of ages) are known in the art, they often have a number of defects or drawbacks. They can be impractical and too complicated or awkward to adjust, especially when time is limited. It is also often the case, that the swing seats are often less comfortable or stable than single function swings, due in part to their adjustment mechanisms and methods of assembly. Also, in practice such swing seats are generally more tailored towards younger children (e.g. babies or toddlers) and so are not at all well suited for older children, and as such they are likely to be outgrown very quickly, thereby limiting their useful operating lifetime - potentially leading to further costs for the parent or guardian.

It is therefore also an object of the present invention to provide a multifunctional swing seat which can be quickly and simply adjusted from one mode to another and which can be comfortably used in various modes by children over a wide range of ages.

A first aspect of the present invention provides a seat for a swing comprising: a seat member providing a seat surface; two stabilising arm members, the stabilising arm members extending upwardly from either side of the seat surface; wherein each stabilising arm member is configured to receive at least partially, in use, a received portion of an elongate swing suspension element, the received portion of the elongate swing suspension element running adjacent the stabilising arm member along at least a part of the length of the stabilising arm member such that the stabilising arm member acts to increase the effective rigidity of the received portion of the elongate swing suspension element.

By increasing the effective rigidity of a received portion of an elongate swing suspension element, the stabilising arm members have been found to improve the stability of the swing seat, thereby reducing the risk of inversion (e.g. tipping partially or fully upside down) and/or providing a straighter, smoother swinging motion, see the later section titled Experimental Testing of Prototypes.

The received portion of the elongate swing suspension element may comprise the entire length of the elongate swing suspension element, or alternatively just a portion of its length.

The seat member may be any type of seat suitable for a swing and which provides a seat surface (i.e. a surface on which a user may sit or otherwise reside). For example, the seat member may comprise just a base portion, or it may have one or more side walls, and/or a back support. The elongate swing suspension element(s) is/are configured to preferably suspend the swing seat from a swing support frame or other rigid/secure support structure.

The stabilising arm members extend upwardly from either side of the seat surface, (e.g. either side of the user when the user is seated on the swing). Consequently, there is only one suspension point at either side of the swing seat, as opposed to two, and so neither the stabilising arm members nor the elongate swing suspension element(s) form a partially or fully enclosed space. Therefore, the swing seat of the present invention advantageously poses little or no risk of entrapment of a child's head, neck or other body part due to insertion between the swing suspension elements.

Moreover, even if the swing seat is deliberately rotated the increased rigidity due to the stabilising arm members serves to prevent or restrict the swing suspension elements from twisting around the user, thereby avoiding the potential risk of strangulation etc.

The stabilising arm members may or may not be straight.

In some embodiments, the stabilising arm members may extend upwardly at an angle from the vertical. Optionally, the distance between the stabilising arm members may be greater at the top of the stabilising arm members than at the bottom of the stabilising arm members. , Advantageously, this may serve to improve the safety of the swing, in use, by reducing or minimising the likelihood of any contact occurring between a user and the stabilising arm members and/or the elongate swing suspension element(s).

Preferably, the received portion of the elongate swing suspension element, and the stabilising arm elements, may have a length of at least 300mm. In exemplary embodiments, the received portion and stabilising arm elements may have a length of up to 600mm or at least 600mm.

The length of the stabilising arm elements may be adjustable to allow different lengths of the elongate swing suspension element(s) to be received. For example, it may be desirable to adjust the stabilising arms to extend above the head-height of the user in order to further increase stability and better prevent any twisting of the swing suspension elements.

In some preferred embodiments, each of the stabilising arm members may comprise a tubular member configured to surround the received portion of an elongate swing suspension element.

In other preferred embodiments, each of the stabilising arm members may comprise an elongate member comprising at least one slot, e.g. at least two slots, configured to receive the received portion of an elongate swing suspension element therethrough. For example, each stabilising arm member may comprise one, two, or three, or more slots through which the received portion of an elongate swing suspension element may be threaded or slotted, thereby increasing the effective rigidity of the suspension element.

The elongate swing suspension element may be slotted or threaded through the slots in the stabilising arm members such that a child (i.e. user) cannot pull the elongate swing suspension element(s) through the slots. By keeping the elongate swing suspension element(s) adjacent to the stabilising arm members, no loops or enclosed spaces may be generated between the stabilising arm members and the elongate swing suspension element(s) which could present an additional risk of head, neck, or other body part entrapment.

The stabilising arm members may be fabricated from one or more rigid materials, for example a rigid polymeric material, wood, or metal, or any combination thereof. Optionally, the stabilising arm members may further comprise additional structures to increase their rigidity.

In some embodiments, the stabilising arm members may comprise a padded outer layer (e.g. a foam, or cushioned or partially inflatable layer) adjacent the user to absorb any contact between the user and the stabilising arm members.

Preferably, the seat member may comprise a base portion and a bucket seat. The bucket seat may be removably connectable to the base portion. The base portion may comprise side portions, while the bucket seat may comprise a back portion, with two opposing side walls, and a seat base. When in use, the bucket seat may be disposed on top of the base portion, such that the base portion supports the bucket seat and the seat base provides the seat surface for the user. However, the seat member may be alternatively configured to accommodate other arrangements.

For example, in one mode suitable for older children only the base portion is used. In another mode suitable for younger children, the bucket seat may be disposed on top of the base portion. The bucket seat has enclosed side walls and a back portion to provide more support and less opportunity for the child to fall out of the swing. In some embodiments, the back portion and the side walls may be integral (i.e. a single continuous seat), or alternatively in other embodiments they may be removably attached.

The seat base and/or side walls of the bucket seat may be removably connected to the base portion using any suitable removable locking means. For example, one or more latches, catches, snap-fit fasteners, or clips may be connected to or inserted through corresponding portions of the base portion. Preferably, the removable locking means are child-proof (i.e. designed such that they cannot be operated or released by a child).

In one embodiment, the seat base of the bucket seat may comprise one or more clips which, when inserted through corresponding slots on the base portion snap into a locking position, securing the bucket seat in place. To quickly detach the bucket seat, pressure may be applied to the clips from the underside of the base portion and the bucket seat may then be disengaged / lifted off the base portion.

By connecting the bucket seat on top of, as opposed to in-front of or behind the base portion, the seat base may be a full-size swing seat which may be suitable for children aged up to 10 years old or more. In many multifunctional swings, the only seat surface

available is generally the seat surface of the bucket seat as used by the younger children, and as such the seat surface may not be large enough to accommodate older or bigger children.

Moreover, another advantage is that the base portion supports the child's weight when seated in the bucket seat, as opposed to solely the bucket seat itself. This therefore allows the bucket seat to be potentially made of a less durable or sturdy material compared to the base portion, which can reduce manufacturing costs.

Preferably, the seat base provides a single continuous seat surface. In many multifunctional swing seats the seat for older children (i.e. base portion) is attached in front of or behind the bucket seat, such that there is at least one join in the seat surface of the bucket seat. The seat of the present invention is therefore found to be more comfortable for the child as there are no joins in the seat surface that can dig into or pinch a child's legs.

Preferably, the seat surface (i.e. the surface of the base portion and/or of the seat base of the bucket seat) may be ergonomically shaped to provide contouring for a user's legs. For example, the seat surface(s) may be moulded to fit a typical child at the recommended age. Moulding the seat in this way is found to be more comfortable to the user than a generally flat seat surface, and may also contribute to preventing the child from slipping on the seat surface.

In some embodiments, the seat base may be inclined at an angle to the horizontal such that the front of the seat surface is higher than the back of the seat surface. Preferably, the angle of inclination may be in the range of between at least 1 degree and less than 15 degrees to the horizontal.

Young children (e.g. infants or toddlers around 6-months old to 1-year old) are naturally inclined to lean forward in a seat, and so the inclination of the seat base (i.e. the seat surface in modes suited for younger children) is important as it encourages the child to lean back on the seat back when seated, which is a generally safer position as it provides support for their neck and/or head during swinging. However, for practical and safety reasons, the angle of inclination cannot be too large or the change in position of the centre of mass will cause the child to tip backwards when swinging.

In some embodiments, the swing seat may further comprise a harness, or seatbelt etc., to further secure the child in the seat member. The harness, or seatbelt etc., may be connected to the bucket seat.

Preferably, the stabilising arm members may be connectable to the base seat. In some embodiments each of the stabilising arm members may be inserted into an opening at each side of the base seat. The stabilising arm members may be removably locked into place using any of the above mentioned removable locking means.

In some embodiments, each of the side walls of the bucket seat may comprise an aperture for receiving therethrough, in use, at least a portion of one of the stabilising arm members.

The swing seat may also comprise an upper back rest. The upper back rest may be removably connected to the bucket seat back. In some embodiments, the upper back rest comprises a click-lock which is inserted through a corresponding opening in the bucket seat back and clicks into a locking position. To remove the upper back rest pressure may be applied to be click-lock and the upper back rest pulled upwards away from the bucket seat.

The upper back rest may be particularly advantageous in swing seats for younger children, as the upper back rest may provide further support to the back, neck and head of a user.

The swing seat may further comprise a guard removably connected to the front of the seat member. The guard may be configured to prevent the child from slipping/falling from the front of the seat member. The guard may comprise a front wall, or a grid member, comprising at least one opening through which a child's legs may be disposed.

In some embodiments, the guard may be pivotably connected to the front of the seat member. This may allow the guard to be pivotally moved away from the seat member to allow a child to be placed more easily onto the seat surface.

In some embodiments the guard may be a T-bar. The T-bar may have a vertical portion and a horizontal portion, such that in use a child's legs may be disposed either side of the vertical portion of the T-bar.

The base of the vertical portion of the T-bar may be pivotably connected to the seat base of the bucket seat. The T-bar may comprise at least one removable locking means operable to couple at least one end of the horizontal portion of the T-bar to one of the bucket seat side walls, such that when the horizontal portion of the T-bar is uncoupled from the side wall(s) the T-bar may pivot away from the seat member. The pivoting motion may be an arcuate motion away from the normal to the seat surface (i.e. away from the vertical).

Preferably, the maximum pivot angle of the T-bar, or other type of guard, is less than 90 degrees from the vertical. In some embodiments, the maximum pivot angle may be at least 20 degrees from the vertical and/or no more than 60 degrees from the vertical. For practical reasons, it is important to prevent the guard or T-bar from pivoting to greater than 90 degrees from a vertical position as this minimises the risk of the child sliding/falling out of the front of the swing seat when being lifted in (particularly by a single person), as this avoids the front of the swing seat from being completely open.

The at least one removable locking means may be adapted to require only one hand to undo / release, for example a press-release locking means. In this way, it is found that it is easier for a single person to safely lift and secure a child into the swing. In preferred embodiments, the at least one removable locking means comprises a child-proof locking mechanism.

A second aspect of the present invention provides a kit of parts arranged to be assembled into the seat for a swing according to any embodiment of the first aspect of the invention. The swing seat may be provided in a flat packed kit of parts which is easy to transport and store, and can then be assembled by the user. Advantageously, the kit may comprise a manual of instructions informing the user how to correctly assemble the swing seat for safe use and operation.

The kit of parts may comprise at least one elongate swing suspension element configured to pivotably suspend the seat member of the swing seat from a swing

support frame. The at least one elongate swing suspension element may comprise webbing.

Advantageously, the swing seat may be suitable for use with any standard swing support frame (e.g. A-frame), thereby avoiding the need to buy a new or a specialist frame.

The kit may also comprise at least two connecting means operable to connect the at least one elongate swing suspension element to a swing support frame. The connecting means may be a type of lock, hook or clip. Alternatively, the connecting means may comprise carabineer clips, or other spring-loaded clips.

In some embodiments, the at least one elongate swing suspension element may not be directly connected to a swing support frame. Instead, the elongate swing suspension element(s) may be connected to two additional elongate suspension elements that are coupled to a swing support frame. This may allow the swing seat to be safely and securely suspended from a higher swing frame.

The kit of parts may comprise a pair of bottom connecting means operable to connect each end of the elongate swing suspension element coupled to the swing seat to the additional elongate swing suspension elements. A pair of top connecting means may connect each end of the additional elongate swing suspension elements to the swing support frame.

The stabilising arm members may be provided in the kit of parts with the received portion of the elongate swing suspension element(s) already received. For example, the elongate swing suspension element(s) may already be threaded through the slots in the stabilising arm members. This is found to typically reduce the amount of assembly required to set-up the swing seat, making it more convenient and/or user-friendly to put together.

In some embodiments, only one elongate swing suspension element may be provided in the kit of parts. The elongate swing suspension element may be arranged to pass underneath the base portion of the seat member. For example, a single elongate swing suspension element may be received by one stabilising arm, pass underneath the base

portion, and then be received on the other side of the base portion by the second stabilising arm. Both ends of the elongate swing suspension element may then be connected to a swing support frame. Advantageously, this is found to improve the stability of the swing seat and/or the straightness and/or smoothness of the swing motion.

The length of the elongate swing suspension element(s) may be adjustable. Conveniently, this can allow the user to alter the height of the swing seat from the ground dependent upon the age and/or size of the child or else may be dependent upon the height of the swing frame being used.

The elongate swing suspension element(s) may comprise one or more of: webbing; rope; chain or chain-mail material; and/or strong flexible polymeric or fibrous material. It may be advantageous to use webbing instead of rope as webbing is generally less expensive, which may lower the manufacturing costs associated with the swing. Moreover, as webbing is a substantially flat material this may be more easily threaded through the slots in the stabilising arm members and/or disposed flat against the underneath of the base portion, unlike rope which has a typically cylindrical cross-section.

A third aspect of the present invention provides a swing comprising: a swing seat according to any embodiment of the first aspect of the present invention; a swing support frame comprising at least two swing suspension points; at least one elongate swing suspension element configured to pivotably suspend the swing seat according to any embodiment of the first aspect of the present invention from two swing suspension points on the support frame; and at least two connecting means operable to connect the at least one swing suspension element to the two swing suspension points.

It will be appreciated that any of the features discussed in relation to the embodiments of the first aspect of the invention, and those related to the elongate swing suspension element(s) and connecting means of the second aspect of the invention, may be used in addition and/or interchangeably with each other and also in relation to the third aspect of the invention, without limitation. Therefore, none of the preceding embodiments are to be taken to be mutually exclusive to each other.

The swing support frame may comprise four, or six or more swing suspension points to accommodate two, or three or more swing seats of the present invention, as well as providing space for other types of swing seat to be used in conjunction with the swing seats of the present invention – all conveniently connected to the same swing support frame.

The swing support frame may be any type of standard swing support frame, for example an A-frame. Alternatively, or additionally, the swing support frame may be a specialist support frame comprising additional activity features, e.g. a slide, a climbing wall, or rope ladder etc.

In some embodiments, the height of the swing support frame may be adjustable to allow the user to alter the height at which the swing seat is suspended above the ground. For example, the swing support frame may comprise two or more legs, wherein the two or more legs may be telescopically extendible or retractable.

A fourth aspect of the present invention provides a kit of parts arranged to be assembled into the swing according to any embodiment of the third aspect of the invention. The swing may be provided in a flat packed kit of parts which is easy to transport and store, and can then be assembled by the user. Advantageously, the kit may comprise a manual of instructions informing the user how to correctly assemble the swing.

A fifth aspect of the present invention provides a method of manufacturing or assembling a seat for a swing, the seat having features according to any preceding embodiment.

In some embodiments, only one elongate swing suspension element may be provided, wherein a portion of the elongate swing suspension element is received by both stabilising arm members. Alternatively, two elongate swing suspension elements may be provided, wherein a portion of each of the suspension elements is received by one of the stabilising arm members.

A sixth aspect of the present invention provides a method of manufacturing or assembling a swing for use, comprising: the method for assembling a seat for a swing

according to the fifth aspect of the present invention or providing a seat for a swing according to any embodiment of the first aspect of the invention; and connecting the at least one elongate swing suspension element to two swing suspension points on a swing support frame.

It will be appreciated that all of the features of the fifth aspect of the invention, apply correspondingly to the sixth aspect of the invention.

The method may also comprise the step of adjusting the height of the seat member from the ground. This may include adjusting the length of the at least one elongate swing suspension element, and/or adjusting the height of the swing support frame.

In some embodiments, adjusting the height of the swing support frame may comprise telescopically extending or retracting two or more legs of the swing support frame.

Embodiments of the invention will now be described, by way of example only, with reference to the accompanying drawings, in which:

Figure 1a shows an approximate front perspective view of a seat for a swing according to an embodiment of the present invention;

Figure 1b shows a side perspective view of the swing seat of Figure 1a;

Figure 2a shows an approximate rear perspective view of the swing seat of the preceding figures;

Figure 2b shows an underside perspective view of the same swing seat;

Figure 3a shows a top view of the same swing seat;

Figure 3b shows a bottom view of the same swing seat;

Figure 3c shows a rear view of the same swing seat;

Figure 4a shows a side view of the swing seat of the preceding figures;

Figure 4b shows the same swing seat from the front;

Figure 4c shows an opposite side view of the same swing seat;

Figure 5a is a schematic illustration of two experimental test rigs of example embodiments of a swing seat according to the invention;

Figure 5b is a schematic illustration of different configurations of example prototype swing seats according to embodiments of the invention which were included in the experimental testing procedure;

Figures 6a, 6b and 6c are side views of three of the example prototype swing seats according to example embodiments of the invention;

Figure 7a shows a front view of a swing seat, or a kit of parts assembled into a swing seat, according to an embodiment of the present invention;

Figure 7b is a back perspective view of the swing seat of Figure 7a;

Figure 7c shows a front perspective view of the swing seat of Figure 7a;

Figure 7d shows a side view of the same swing seat;

Figure 7e is a bottom view of the same swing seat;

Figure 7f shows a top view of the same swing seat;

Figure 8a is a front view of a bottom connecting means of the present invention;

Figure 8b is a back view of the bottom connecting means of Figure 8a;

Figure 9a shows a front view of a top connecting means of the present invention;

Figure 9b is a back view of the top connecting means of Figure 9a;

Figure 10 is an exploded view of the bottom connecting means of Figure 8a; and

Figure 11 is an exploded view of the top connecting means of Figure 9a.

An exemplary embodiment of a seat 100 for a swing according to the present invention is shown in Figures 1a to 4c. The swing seat 100 comprises a seat member comprising a base portion 11 and a bucket seat 12 removably connected on top of the base portion 11.

The bucket seat 12 comprises two opposing side walls 13, a seat base 14, and a back portion 15. In this embodiment, the side walls 13, seat base 14 and back portion 15 form a continuous integral bucket seat 12. In some embodiments, the bucket seat 12 may not be an integral structure (i.e. one or more of the side walls 13, seat base 14 or back portion 15 may be formed separately and subsequently connected together).

The seat base 14 is removably connected to the base portion 11 via two releasable clips 16 (see Figure 2b). To removably connect the bucket seat 12 to the base portion 11 the clips 16 are inserted through corresponding or reciprocal slots in the base portion 11. The clips 16 are able to 'snap' into a locked position on the underside of the base portion 11. To remove the bucket seat 12 pressure may be applied to the clips 16 from the underside of the base portion 11, and the bucket seat 12 may then be lifted away from the base portion 11.

In some embodiments more than two releasable clips 16 may be provided, or alternatively one or more other releasable locking means may be provided (e.g. latches etc.).

The seat base 14 of the bucket seat 12 is inclined at an angle to the horizontal (i.e. the seat surface is not level), such that the back of the seat base 14 is lower than the front of the seat base 14. It is found that such an arrangement encourages the child to sit back in the bucket seat and lean against the back portion 15. As a result, the child adopts a much safer seated position for swinging, as the back portion 15 provides support for the child's neck and/or head. This arrangement also minimises the risk of the child being jolted backwards when being swung, which in severe cases may lead to neck and/or head injuries. This feature is especially advantageous in swings for

younger children (e.g. aged between 6 months and 3 years) as they have a tendency to naturally lean forwards when seated, while generally having less overall ability to balance themselves and support the weight of their head.

In this embodiment, the angle of inclination is about 10 degrees to the horizontal. In some embodiments the angle of inclination may be at least 1 degree and/or less than 15 degrees to the horizontal.

The seat base 14 of the bucket seat 12 provides a continuous seat surface (i.e. there are no joints or connections) which is found to be much more comfortable, while also eliminating the risk of any pinching of the child's skin in any joints or interfaces, which can occur in swings with a discontinuous seat surface.

As shown in Figures 1a and 4b, the seat base 14 is also contoured (i.e. shaped or moulded) to provide ergonomic indentations for the child's leg. This not only reduces the risk of the child slipping in the swing seat, but also increases the comfort of the seat over that of a flat surfaced seat.

In other examples, a safety harness can also be provided in the swing seat (not shown) to further secure the child into the swing seat. The harness may be connected to the back portion 15 and/or seat base 14.

A removable upper back rest 40 is removably connected to the back portion 15 using a click-lock 42. The upper back rest is configured to provide additional back, neck or head support for younger children. To attach the upper back rest 40 the click-lock 42 is inserted through a corresponding opening in the back portion 15, whereupon it clicks into a locked position. To remove the upper back rest 40 pressure can be applied to the portion of the click-lock 42 visible from the rear of the seat (see Figure 3c) and the upper back rest 40 can then be pulled away from the back portion 15.

In the embodiment shown in Figures 1a to 4c the swing seat 100 further comprises a T-bar 30 connected to the front of the bucket seat 12. This further reduces the risk of the child falling out of the front of the swing seat during use. In other examples, other types of guard may be used (e.g. a front wall or door or grid).

The T-bar 30 comprises a vertical portion 32 and a horizontal portion 34. In use, the child's legs are located either side of the vertical portion 32 of the T-bar. The vertical portion 32 of the T-bar 30 is removably pivotably connected to the middle portion of the front of the seat base 14 via a hinge joint 36 (see Figures 2b or 4c). The ends of the horizontal portion 34 are connected using child-proof removable locks to the corresponding side wall 13 of the bucket seat 12.

In other examples, other types of pivot or hinge joints may be used. Also, only one of the ends of the horizontal portion 34 of the T-bar may be removably locked to one of the side walls 13.

To place the child into the swing seat 100, the child-proof removable locks 35 may be released by applying a pressure to the outer portion of the lock 35 and pulling the T-bar 30 away from the bucket seat 12. The T-bar 30 will then be pivoted away from the bucket seat 12, providing a larger opening to position the child.

In the embodiments shown in Figures 1a to 4c, the maximum angle to which the T-bar 30 can be pivoted is less than 90 degrees from the vertical. Optionally, the maximum pivot angle may be at least 20 degrees from the vertical and/or less than 60 degrees from the vertical. This is a particularly advantageous safety feature as by inhibiting the T-bar (30) from pivoting so as to be perpendicular to the back portion 15, the front of the swing seat 100 is then prevented from being completely open. This feature further reduces the potential risk of the child slipping or falling out of the front of the swing while the T-bar is being reattached.

The swing seat 100 also comprises a pair of stabilising arm members 22, 24 configured to improve the stability of the swing seat by increasing the effective rigidity of a received portion of an elongate swing suspension element (not shown). The stabilising arm members are formed from a rigid polymeric material (i.e. a plastic), with reinforcing structures 26 on the inside of the arms 22, 24 to increase their structural integrity and rigidity.

Each of the stabilising arm members 22, 24 are inserted through an aperture 17 in both of the side walls 13. The stabilising arm members 22, 24 are then connected to the base portion 11. This further improves the stability of the swing seat 100.

To attach the swing seat 100 to a swing support frame (not shown) a single elongate swing suspension element is used. In this embodiment, the elongate swing suspension element is a length of webbing. In other examples, one or more ropes, or chains or other suspending elements may alternatively and/or additionally be used.

The webbing may be threaded through each of the slots 25 in one of the stabilising arms 22, 24. The webbing then passes underneath the base portion 11 and is retained in position by channel 55 on the underside of the base portion 11 (see Figure 2b). The webbing may then be threaded through each of the slots 25 on the other stabilising arm member 22, 24. Each of the ends of the webbing can then be connected to a swing support frame via any suitable connecting means, e.g. a spring-loaded clip.

The use of webbing is particularly advantageous as, not only is it often much cheaper than conventional rope, but it also has a generally flat profile (e.g. not cylindrical like rope), which makes it ideal for threading through the stabilising arm members and underneath the base portion 11. By passing a single piece of webbing underneath the base portion 11 the stability of the swing seat is found to be further improved.

Referring again to Figures 1a to 4c, the swing seat 100 is shown in a first mode corresponding to a fully assembled form (i.e. with all removable features attached) which is suitable for the youngest children (e.g. aged at least 6 months and/or less than 18 months depending on the size and development of the child).

In a second mode, the upper back rest 40 may be removed as previously described. When in this mode, the swing seat is then more suited for slightly older children of around at least 18 months old and/or less than 3 years old depending on the size and development of the child, who require less head/neck support.

In a third mode, the T-bar 30 may be removed in addition to the upper back-rest 40. To remove the T-bar 30 the horizontal portion 34 is uncoupled as described and the vertical portion 32 is slidably disengaged from the seat base 14. The swing seat is then suitable for older children of around at least 3 years old and/or less than 5 years old, depending on the size and development of the child.

In the final fourth mode, the bucket seat 12 may also be removed from the base portion 11 as described, leaving the base portion 11 as the seat surface for the swing. This configuration is suitable for the oldest children who are unlikely to fall off the swing or require any additional support. This may be suitable for children aged at least 5 years old and/or less than 10 years old.

The upper age limit for the swing in the fourth mode is larger than for many known multi-functional swings as the base portion 11 is a full-size swing seat. In many known multi-functional swings the base portion 11 forms part of the seat surface of the bucket seat 12 and so must be inherently smaller as otherwise the bucket seat 12 would be too large for younger children.

Experimental Testing of Prototypes

To develop a swing seat having only one suspension point at either side of the swing seat, thereby eliminating any risk of entrapment of the child's head, while also avoiding the risk of seat inversion, the present swing seat was exposed to a rigorous experimental testing procedure. The aim was to optimise the swing seat design in order to improve the stability, straightness and smoothness of the swinging motion, as typically swing seats with only one suspension point on each side of the seat are much less stable than those with two suspension points on each side.

During the experimental testing procedure a large number of prototype swing seats were constructed and analysed.

Figure 5a is an illustration of two of the test swings (or test rigs), set-up B and set-up C, constructed for the experimental testing of the prototype swing seats 200 according to another embodiment of the present invention.

The swing seat 200 comprises a base portion 111 and a bucket seat 112 connected on top of the base portion 111. The bucket seat 112 comprises side walls 113, a seat base 114, and a back portion 115. In this prototype swing seat each of the base portion 111 and the bucket seat 112 are made of wood, however in the final product or in other embodiments different materials e.g. plastic or polymeric materials may alternatively be used, as in Figures 1a to 4c.

The swing seat 200 further comprises a T-bar 130 having a vertical portion 132 and a horizontal portion 134, equivalent to the T-bar 30 of Figures 1a to 4c. In this embodiment, an upper back rest 140 is also connected to the back portion 115 of the bucket seat.

As shown in Figure 5a, the stabilising arm members 122, 124 are tubular members configured to surround and increase the effective rigidity of at least a portion of an elongate swing suspension element 150. In this embodiment, two separate elongate swing suspension elements 150 are provided, one end of each element being attached, e.g. tethered to the base portion 111. The elongate swing suspension elements are, in this embodiment, a length of rope as opposed to webbing.

To test the function of the swing seat 100 when suspended from low and high heights, two test swings B and C were constructed, each having a swing support frame 170 disposed at a height X above the ground. Set-up B comprises a swing support frame 170 disposed at 1.2m above the ground. Set up C comprises a swing support frame 170 disposed at 2.215m above the ground. The height of the swing seat 200 from the ground, Y, was kept the same at 375mm for each arrangement.

To attach the swing seat 200 to one of the test swings B or C connecting members 160 can be connected to each of the free ends of the elongate swing suspension elements 150. The connecting members 160 can then be coupled to the swing support frame 170 at the swing suspension points 172. In this embodiment, the connecting members 160 are spring-loaded clips or hooks.

During the testing procedure, to simulate a typical child a test dummy A, weighing 8kg in accordance with European testing requirements EN 71-8: 2011, was placed into the swing seat 200 when attached to each of the set ups B and C in turn.

The testing procedure was then carried out and, in addition to analysing the swing under conditions of normal use, a deliberate attempt to invert the seat was also attempted (i.e. a particularly vigorous swing action from a large height and at high speed was adopted). This test was repeated for a number of different prototype swings, to systematically eliminate any risk of inversion even during abnormal (i.e. vigorous) use for different arrangements of seats.

Figure 5b illustrates a front view of a number of different prototype swing seats tested during the experimental development of the present invention.

It was found that by increasing the length of the stabilising arm members 122, 124, and thus increasing the length of the received portion of the elongate swing suspension elements for which the effective rigidity is increased, the swing seat became much more stable and less prone to inversion.

A distance h was defined as the distance between the top of the stabilising arm member and the bottom of the swing seat (i.e. to the base of the base portion 111), wherein the stabilising arm member is always disposed the same distance from the base portion. It was found that from a distance h of around 300 mm to upwards towards 600mm the stability of the swing seat continually improved, with the optimum distance being towards the upper end of this range

However, there is a potential drawback in increasing the length of the stabilising arm members above a distance h of 600mm, in that the cost of manufacturing the swing seat generally increases, and consequently the product becomes physically larger and typically more costly to transport and package. Moreover, it is found that little further improvement in the stability of the seat is gained from setting the distance h much beyond 600 mm. However, in some examples the distance h can be more than 600mm, depending on the particular arrangement and implementation.

Hence, it is to be appreciated that the swing seat of the present invention is inherently scalable and can be adapted for use by children over a range of ages and sizes.

Figures 6a to 6c illustrate how increasing the length of the stabilising arm members 122, 124 results in an improvement of the stability of the swing seat, thereby reducing the risk of the swing seat inverting.

In each example, the swing seat is suspended at 350mm above the ground. The ring H represents the position of the child's head (i.e. the test dummy A's head) when sat on the swing with no forces applied (i.e. the swing seat is at rest). The solid circle G indicates the centre of gravity of the swing seat when the test dummy A is placed on the swing seat. The overlaid triangle is an effective triangle with a height equal to the

distance h of the top of the stabilising arm member to the base of the swing, and a base equal to the width of the side wall 113'. In Figures 6a to 6c, the width of the side wall 113' is about 320mm.

Features which are common to earlier embodiments are labelled accordingly in these figures where it has been possible to do so.

Figure 6a shows a side view of prototype swing seat 200' having tubular stabilising arm members 122', 124' extending 600mm above the base seat 111' (i.e. this corresponds to prototype 1 in Figure 5b). In this example, the effective triangle is large and the centre of gravity G is located well within the lower quarter of the triangle. This means that the effective mass of the swing seat and child is located towards the bottom centre of the swing seat. The head position H is intersected by the upper edge of the triangle and is at least partially contained within the triangle. In this arrangement, it has been possible to achieve an increased stability of the swing seat, as the centre of gravity G is always below the apex of the effective triangle during a swinging motion, no matter how high or fast the seat is pushed, and so the swing seat will not invert either when moving forwards or backwards.

Figure 6b shows a side view of prototype swing seat 200' where the distance h between the top of the stabilising arm members 122', 124' and the bottom of the base seat 111' is 300mm (i.e. which corresponds to prototype 07 in Figure 5b). In this configuration the effective triangle is truncated in height compared to the triangle in Figure 6a. Consequently, the centre of gravity G is located slightly off-centre and is displaced towards the back of the swing seat, being nearly halfway up the triangle instead of being in the lower quarter. The head position H is also now located completely outside of the effective triangle and above the apex.

As a result, the swing seat shown in Figure 6b is less stable than the arrangement in Figure 6a, such that when the seat is titled backwards when being swung, the head position H will naturally move backwards and, due to the position of the centre of gravity, the swing will have a greater tendency to temporarily tip upside down. However, the seat should then at least automatically right itself, as the swing seat would not be in a stable state when upside down.

Figure 6c shows a side view of prototype swing seat 200' where the distance h between the top of the stabilising arm members 122', 124' and the bottom of the base seat 111' is 200mm (i.e. this corresponds to prototype 09 in Figure 5b). This shows that, with the swing seat still at rest, the swing seat is already tilted much further backwards than the seat in Figure 6a, which is not a desired arrangement as tipping of the seat may occur quite easily.

In this configuration the head position H is a large distance outside and away from the apex of the effective triangle. The centre of gravity G is again off-centred, displaced towards the back of the swing seat, and is also now located within the upper half of the triangle. Therefore, even when a small force is applied to swing the seat it will be prone to tipping upside down, i.e. inverting. Moreover, with the swing seat upside down the centre of gravity is in a much more stable position and so, unlike the seat in Figure 6b, this swing seat would not be expected to automatically return to the original position (i.e. will not right itself).

It is to be appreciated therefore that there is an optimised range over which the stability of the present swing seat may be maximised to enable a safe and secure seat to be provided for children of varying ages and sizes. What the inventors of the present invention have been the first to recognise is that by suspending the swing seat by elongated stabilising arm members it is possible to maintain a low centre of gravity during use of the swing, which mitigates the risk of tipping of the seat, and provides a straighter smoother swinging motion for the user. Moreover, by using only a single stabilising arm member at each side of the seat, the potential hazard of entrapment of the child's head, neck or other body part is consequently eliminated.

Figures 7a to 7f show a swing seat according to another embodiment of the present invention, or a kit of parts assembled into a swing seat ready to be connected to a swing support frame. Features which are common to earlier embodiments are labelled accordingly where possible.

As in Figures 1a to 4c the swing seat in Figures 7a to 7f is shown in a first mode corresponding to a fully assembled form (i.e. with all removable features attached) which is suitable for the youngest children (e.g. aged at least 6 months and/or less than 18 months depending on the size and development of the child).

The method of assembling the swing seat of Figures 7a to 7f, and changing the swing between the four modes, is the same as described above in connection with Figures 1a to 4c.

The swing seat 300 comprises a seat member comprising a base portion 211 and a bucket seat 212 removably connected on top of the base portion 211.

The bucket seat 212 comprises two opposing side walls 213, a seat base 214, and a back portion 215. The seat base 214 is removably connected to the base portion 211 via two releasable clips 216 (see Figure 7e).

The seat base 214 is also contoured (i.e. shaped or moulded) to provide ergonomic indentations for the child's leg and also comprises a textured or gripping upper surface. This reduces the risk of the child slipping in the swing seat due to friction and increases the comfort of the seat over that of a flat and/or smooth surfaced seat.

As in Figures 1a to 4c, the swing seat 300 comprises a removable upper back rest 240 removably connected to the back portion 215 of the bucket seat 212 using a click-lock 242.

A T-bar 230 is also connected to the front of the seat. The T-bar 230 comprises a vertical portion 232 and a horizontal portion 234 and may be the same as T-bar 30 in Figures 1 to 4c. In use, the child's legs are located either side of the vertical portion 232 of the T-bar. The vertical portion 232 of the T-bar 230 is removably pivotably connected to the middle portion of the front of the seat base 214 via a hinge joint 236 (see Figures 7e). The ends of the horizontal portion 234 are connected using child-proof removable locks 235 to the corresponding side wall 213 of the bucket seat 212.

A safety harness 220 is attached to the back portion 215 and the base 214 of the bucket seat 212 (see Figures 7c and 7f). The safety harness 220 can be used to secure a child into the swing seat.

A pair of the stabilising arm members 222, 224 are inserted through an aperture in both of the side walls 213. The stabilising arm members 222, 224 are then connected

to the base portion 211. This improves the stability of the swing seat 300, as explained above.

In comparison to the swing seat 100, seat 300 has higher side walls 213 bounding the stabilising arm members 222, 224 and higher side portions on the removable upper back rest 240. Consequently, user support and comfort may be improved. In addition, user safety and security may be improved. For instance, the risk of a user getting a body part caught, in use, between one of the stabilising arm members 222, 224 and the removable upper back rest 240 may be reduced, or even eliminated.

In swing seat 300, each of the stabilising arm members 222, 224 comprises only a single slot 225. To suspend the swing seat 300 from a support frame, a length of webbing 227 is threaded through the slot 225 in one of the stabilising arm members 222, 224. The webbing 227 passes underneath the base portion 211 and is retained in position by a channel on the underside of the base portion 211 (see Figure 7e). The webbing may then be threaded through the slot 225 on the other stabilising arm member 222, 224. Generally, this is done by the user following instructions in an instruction manual provided in the kit of parts of the present invention.

Each of the ends of the webbing 227 is attached to a connecting means. In the example shown in Figures 7a to 7f the connecting means 260' is a spring-loaded top connector according to an embodiment of the present invention (see Figures 9a, 9b and 11). The top connector 260' is configured to attach the swing seat 300 directly to a suitable bracket on a low swing support frame (i.e. a frame designed for younger children or babies, due to its smaller height).

In other examples, the top connectors 260' may be replaced by a pair of bottom connectors 260 (e.g. as shown in Figures 8a, 8b and 10). The bottom connectors may be configured to attach the ends of the webbing 227 to two additional elongate suspension elements (such as lengths of webbing, rope or chains) which are attached (either by a top connector 260' or otherwise) to a swing support frame. This may allow the swing seat 300 to be suspended from a higher swing frame, designed for older children (as in Figure 5a).

The bottom and top connectors of the present invention are shown in more detail in Figures 8 to 11.

Figures 8a and 8b show front and back views respectively of a bottom connector 260. The bottom connector 260 comprises a housing 261, preferably made of plastic. In this example, the housing 261 comprises a front portion and a back portion which clip together and are connected using screws 268.

In use, a length of an additional elongate suspension element which is connected to a swing support frame is threaded through aperture 265. Aperture 266 is arranged to receive a loop in the end of the suspension element coupled to the swing seat, e.g. webbing 227. To access the aperture 266 the user must push projection 263 upwards to align a hole in a ring 262 with aperture 266. The internal mechanism of the connector 260 is shown in Figure 10.

Figures 9a and 9b show front and back views respectively of a top connector 260'. The top connector 260' also comprises a housing 261', preferably made of plastic. In this example, the housing 261' comprises a front portion and a back portion which clip together and are connected using screws 268'.

Aperture 265' is arranged to receive a bracket (or other suitable mounting apparatus) of a swing support frame (e.g. swing suspension points 172 in Figure 5a). Aperture 266' is arranged to receive the upper end of the additional elongate suspension element (e.g. the upper length of webbing which is not directly coupled to the swing seat).

To access the aperture 266' the user must push projection 263' upwards to align a hole in a ring 262' with aperture 266'. The internal mechanism of the connector 260' is shown in Figure 11.

The connectors 260, 260' each comprise a ring 262, 262' (see Figures 10 and 11 respectively), preferably made of metal, disposed in a recess within the housing 261, 261'. The ring 262, 262' is both the locking mechanism for the connector and the load bearing component.

The ring 262, 262' is biased towards the closed position (i.e. wherein the ring 262, 262' blocks aperture 266, 266') by a spring 264, 264' (i.e. the rings are spring-loaded). The projection 263, 263' extends from the ring 262, 262' and protrudes from the housing 261, 261'.

When the protrusion 263, 263' is forced upwards, the ring 262, 262' is rotated against the biasing force of the spring 264, 264' to align the opening in the ring 262, 262' with aperture 266, 266'. When the force is released, the spring 264, 264' will rotate the ring 262, 262' back to its starting position such that it blocks or seals the entrance to the aperture 266, 266'.

Thus, the connectors 260, 260' lock automatically such that the webbing (or other suspension element) cannot be released from aperture 266, 266' during use, misuse or by force, thereby satisfying the European safety standard EN71 test criteria.

The construction of the connectors 260, 260' also advantageously avoids metal-to-metal contact with a swing support frame without the need for a separate bushing or insert. Such metal-to-metal contact may be avoided, in use, since one or more portions of the housing 261, 261' may provide a bearing surface made of plastic. The provision of a plastic bearing surface may result in reduced friction and enable smoother operation of the swing.

The connectors may therefore be safer and/or more user friendly and/or convenient than traditional spring-loaded carabiner clips or other known connectors.

While the present invention has been disclosed with reference to certain exemplary embodiments, many modifications may be apparent to the person skilled in the art without departing from the scope of the invention.

CLAIMS

1. A seat for a swing comprising:

a seat member providing a seat surface;

two stabilising arm members, the stabilising arm members extending upwardly from either side of the seat surface such that there is only one suspension point at either side of the seat surface;

wherein each stabilising arm member is configured to receive at least partially, in use, a received portion of an elongate swing suspension element, the received portion of the elongate swing suspension element running adjacent the stabilising arm member along at least a part of the length of the stabilising arm member such that the stabilising arm member acts to increase the effective rigidity of the received portion of the elongate swing suspension element.

2. The seat of claim 1, wherein the received portion has a length of at least 200 mm.

3. The seat of claim 1 or claim 2, wherein the received portion has a length of up to 600mm.

4. The seat of any preceding claim, wherein the elongate swing suspension element comprises webbing.

5. The seat of any preceding claim, wherein the length of the stabilising arm elements is adjustable.

6. The seat of any preceding claim, wherein each of the stabilising arm members comprises a tubular member configured to surround the received portion of an elongate swing suspension element.

7. The seat of any of claims 1 to 5, wherein each of the stabilising arm members comprises an elongate member comprising at least one slot configured to receive the received portion of an elongate swing suspension element therethrough.

8. The seat of any preceding claim, wherein the seat member further comprises:

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a base portion; and

a bucket seat removably connectable to the base portion, the bucket seat comprising:

a back portion;

two opposing side walls; and

a seat base;

wherein the bucket seat is disposed on top of the base portion, such that the base portion supports the bucket seat and the seat base provides the seat surface.

9. The seat of claim 8, wherein the seat base provides a single continuous seat surface.

10. The seat of claim 9, wherein the seat surface is shaped to provide contouring for a user's legs.

11. The seat of claim 8 or claim 9, wherein the seat base is inclined at an angle to the horizontal such that the front of the seat surface is higher than the back of the seat surface.

12. The seat of claim 9, wherein the angle of inclination is between about 1 degree and about 15 degrees to the horizontal.

13. The seat of any preceding claim, further comprising a harness to secure a user in the seat member.

14. The seat of any of claims 8 to 13, wherein the stabilising arm members are connectable to the base portion.

15. The seat of any of claims 8 to 14, wherein both of the side walls comprise an aperture for receiving therethrough at least a portion of one of the stabilising arm members.

16. The seat of any of claims 8 to 15, further comprising an upper back rest removably connected to the back portion, wherein the upper back rest is configured to further support one or more of the back, neck and head of a user.

17. The seat of any preceding claim, further comprising a guard removably connected to the front of the seat member, wherein the guard comprises at least one opening through which, in use, the user's legs are disposed.

18. The seat of claim 17, wherein the guard is a T-bar comprising a horizontal portion and a vertical portion and wherein, in use, the user's legs are disposed either side of the vertical portion of the T-bar.

19. The seat of claim 18 as it depends on claim 8, wherein:

the base of the vertical portion of the T-bar is pivotably connected to the seat base; and

the T-bar comprises at least one removable locking means operable to couple at least one end of the horizontal portion of the T-bar to one of the bucket seat side walls, such that when the horizontal portion of the T-bar is uncoupled from the side wall(s) the T-bar pivots away from the seat member.

20. The seat of claim 19, wherein the maximum pivot angle of the T-bar is less than 90 degrees from the vertical.

21. The seat of claim 20, wherein the maximum pivot angle is between 20 degrees and 60 degrees from the vertical.

22. The seat of any of claims 19 to 21, wherein the at least one locking means comprises at least one child-proof locking mechanism.

23. A kit of parts arranged to be assembled into a seat for a swing according to any one of claims 1 to 22, including:

a seat member providing a seat surface;

two stabilising arm members, each stabilising arm member being configured to extend upwardly, in use, from a side of the seat surface such that there is only one suspension point at either side of the swing seat;

wherein each stabilising arm member is configured to receive at least partially, in use, a received portion of an elongate swing suspension element, the received portion of the elongate swing suspension element running adjacent the stabilising arm

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member along at least a part of the length of the stabilising arm member such that the stabilising arm member acts to increase the effective rigidity of the received portion of the elongate swing suspension element; and, optionally, instructions for assembly.

24. The kit of parts according to claim 23, further comprising: at least one elongate swing suspension element configured to pivotably suspend the seat member from a swing support frame.

25. A kit of parts according to claim 24 further including: at least two connecting means operable to connect the at least one elongate swing suspension element to a swing support frame.

26. A kit of parts according to claim 23, claim 24 or claim 25 further including instructions for assembly.

27. A swing comprising:

a seat for a swing according to any one of claims 1 to 22;

a swing support frame comprising at least two swing suspension points;

at least one elongate swing suspension element configured to pivotably suspend the seat for a swing of any one of claims 1 to 22 from the two swing suspension points on the support frame; and

at least two connecting means operable to connect the at least one swing suspension element to the two swing suspension points.

28. The swing of claim 27, wherein:

only one elongate swing suspension element is provided and the elongate swing suspension element is arranged to pass underneath the base of the seat member; and/or

the length of the elongate swing suspension element(s) is/are adjustable.

29. A method of manufacturing or assembling a swing for use, comprising:

providing a seat for a swing according to any one of claims 1 to 22; and connecting the at least one elongate swing suspension element to two swing suspension points on a swing support frame .

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30. The method of claim 29, further comprising adjusting the height of the seat member from the ground, including one or more of:

adjusting the length of the at least one elongate swing suspension element; and/or

adjusting the height of the swing support frame.

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