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United States Patent Application Publication

20250260887

Kind Code

A1

Publication Date

August 14, 2025

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PLAYGROUND APPARATUS COMPRISING A CAMERA SUPPORT

Abstract

Embodiments of the present disclosure are directed to a playground apparatus that is configured to support a camera, typically a smartphone or similar photo/video device. The apparatus is configured to both (a) position the camera to take a photograph or video of the user during the play activity and (b) to maintain the camera in place during the play activity. Embodiments of the play apparatus include swings, whirls, and spinners.

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Family ID: 1000008561373

Appl. No.: 19/193882

Filed: April 29, 2025

Related U.S. Application Data

parent US continuation 18418997 20240122 parent-grant-document US 12316938 child US 19193882

parent US continuation 17382096 20210721 parent-grant-document US 11917275 child US 18418997

parent US continuation 16529526 20190801 parent-grant-document US 11102385 child US 17382096

us-provisional-application US 62713197 20180801

Publication Classification

Int. Cl.: H04N23/54 (20230101); **A63G1/12** (20060101); **A63G9/00** (20060101); **H04B1/3888** (20150101)

U.S. Cl.:

CPC H04N23/54 (20230101); **A63G9/00** (20130101); **H04B1/3888** (20130101); A63G1/12 (20130101)

Background/Summary

[0001] The present application is continuation of U.S. patent application Ser. No. 18/418,997, filed on Jan. 22, 2024, which is a continuation of U.S. patent application Ser. No. 17/382,096, filed on Jul. 21, 2021 and granted as U.S. Pat. No. 11,917,275 on Feb. 27, 2024, which is a continuation of U.S. patent application Ser. No. 16/529,526, filed on Aug. 1, 2019 and granted as U.S. Pat. No. 11,102,385 on Aug. 24, 2021, which claims priority to U.S. Provisional Patent Application No. 62/713,197, filed on Aug. 1, 2018, the entireties of which are incorporated by reference herein.

FIELD

[0002] The present invention relates generally to playground apparatuses that are configured to support a camera, typically a smartphone that is capable of taking photographs and/or videos. The playground apparatus provides a holder in which the camera is positioned and angled so that one can take a photograph (i.e. selfie) and/or a video of the user enjoying the play activity. By positioning a camera in or on various playground apparatuses, one may capture the reactions of the users participating in a variety of play activities. In some embodiments, the playground apparatus is a swing comprising a camera support at the front of the swing seat, a whirl comprising one or more camera supports at or near a central axis of the whirl, or a spinner comprising a camera support at the front of the spinner seat.

BACKGROUND

[0003] With the popularity of “selfies” and people posting videos of themselves or their friends and family to social media, the use of digital cameras is ubiquitous. Parents often want to capture photos/video of their children at play for posterity or to be able to share with friends and relatives. When using playground equipment, however, it is not always easy or practical to take photo/video due to poor angles, safety concerns, etc. The inventors have recognized that it would be desirable to have an integrated way to support a digital camera (e.g. a smartphone) in or on a playground apparatus.

SUMMARY OF THE DISCLOSURE

[0004] Embodiments of the present disclosure are directed to various playground devices that have been configured to include a mount for a smartphone, wherein the smartphone mount is positioned and configured to point the camera of a smartphone toward a user while the user is participating in the play activity. Using the devices, one may take photographs or videos of a user enjoying a play activity in a hands-free manner. The devices include swings, whirls (e.g. merry-go-rounds), bouncers, spinners, rocking apparatus, playground music equipment, monkey bars, see saws, track rides, zip tracks or lines, and slides.

[0005] Embodiments of the present disclosure are specifically directed to swings that include a mount for a smartphone that is positioned and configured to provide for photographing the swing seat occupant during use. In some embodiments, a digital camera (e.g. smartphone) may be placed in a compartment integrated into a seat, such as a child's swing seat. The compartment may comprise an aperture that is sized and shaped for holding a typical smartphone. The aperture may be configured to hold the camera in the correct position and angle to photograph (or take video of)

the swinging child in a hands-free manner. An icon on or near the compartment may indicate the function of the compartment (i.e. for insertion of a phone).

[0006] In some embodiments, the child swing seat with the integrated smartphone holder may be attached to an adult seat such that the two share a swinging motion.

[0007] In other embodiments, a swing seat may include a connector that attaches the seat to a camera support element, which is located at a desired distance and height for photographing the occupant of the seat.

[0008] Embodiments of the present disclosure are also specifically directed to whirls that include a mount for a smartphone that is positioned and configured to provide for photographing an occupant of at least one of the seats of the whirl during use. In some embodiments, a digital camera (e.g. smartphone) may be placed in a compartment integrated into either the base of the whirl or a smartphone support element that is connected to the base. The compartment may comprise an aperture that is sized and shaped for holding a typical smartphone. The aperture may be configured to hold the camera in the correct position and angle to photograph (or take video of) the occupant in a hands-free manner. An icon on or near the compartment may indicate the function of the compartment (i.e. for insertion of a phone).

[0009] In some embodiments, the whirl may comprise a plurality of apertures, each of the plurality of apertures being sized and configured to hold a smartphone at a location and angle to photograph the face of an occupant of at least one of the whirl seats.

[0010] In some embodiments, the whirl may not include seats but rather one or more handles which are configured for a child or children to hold during operation of the whirl. In those embodiments, the mount for a smartphone may be positioned and configured to provide for photographing a user while the user holds at least one of the handles during operation of the whirl.

[0011] Embodiments of the present disclosure are also specifically directed to spinners that include a mount for a smartphone that is positioned and configured to provide for photographing an occupant of the spinner seat during use. In some embodiments, a digital camera (e.g. smartphone) may be placed in a compartment integrated into the spinner seat, such as in the front wall of the spinner seat. The compartment may comprise an aperture that is sized and shaped for holding a typical smartphone. The aperture may be configured to hold the camera in the correct position and angle to photograph (or take video of) the spinning child in a hands-free manner.

[0012] In other embodiments, the spinner seat may comprise a projection that contains the smartphone mount.

[0013] In some embodiments, the spinner seat may be sized and configured to hold, at the same time, both an adult and a child. In these embodiments, the aperture may be configured to hold the camera in the correct position and angle to photograph (or take video of) both the adult and child occupant of the spinner seat during use.

[0014] In some embodiments, the spinner may be configured to provide an occupant or occupants of the spinner seat with a multi-axis movement, such as both a spinning and a rotating movement.

Description

BRIEF DESCRIPTION OF THE DRAWINGS

[0015] The drawings are provided to help illustrate and describe certain features of the aspects and embodiments of the disclosure. However, the claims and disclosure are not limited to the precise arrangements and instrumentalities of the features depicted in the drawings.

[0016] FIG. 1 is a top perspective view of an embodiment of a child swing seat having a compartment configured to position a phone to take a photograph of the seat occupant during the swinging motion.

[0017] FIG. 2 is a top perspective view of a portion of the swing seat shown in FIG. 1, showing

details of the compartment and an example of a visual indicator that the compartment is for holding a smartphone to take a photograph.

[0018] FIG. 3 is a cross-section of a portion of the swing seat shown in FIG. 1, showing an example configuration for the compartment.

[0019] FIG. 4 is a front, right side perspective view of an embodiment of a swing having first and second seats, in which the first seat comprises a compartment configured to position a phone so as to take a photograph of the seat occupant during the swinging motion.

[0020] FIG. 5 is a front, left side perspective view of the swing shown in FIG. 4.

[0021] FIG. 6 is a right side elevation view of the swing shown in FIG. 4.

[0022] FIG. 7 is a front elevation view of the swing shown in FIG. 4.

[0023] FIG. 8 is a perspective view of a first embodiment of a whirl having a plurality of phone holders, each of which is configured to position a phone so as to take a photograph of a seat occupant during operation of the whirl.

[0024] FIG. 9 is a perspective view of a second embodiment of a whirl having a plurality of phone holders, each of which is configured to position a phone so as to take a photograph of a seat occupant during operation of the whirl.

[0025] FIG. 10 is an exploded perspective view of the whirl shown in FIG. 9.

[0026] FIG. 11 is a perspective view of a first embodiment of a phone support element attached to the base of a whirl.

[0027] FIG. 12 is a top plan view of the phone support element shown in FIG. 11.

[0028] FIG. 13 is a cross-sectional view of a portion of the phone support element shown in FIG. 12, taken along line AA.

[0029] FIG. 14 is a perspective view of a second embodiment of a phone support element configured to be attached to the base of a whirl.

[0030] FIG. 15 is a front elevation view of the phone support element shown in FIG. 14.

[0031] FIG. 16 is a cross-sectional view of the phone support element shown in FIG. 15, taken along line CC.

[0032] FIG. 17 is a cross-sectional view of a portion of the whirl shown in FIG. 9, showing a configuration of the phone holder such that an average smartphone camera will capture the face of a 50th percentile twelve-year-old child occupant.

[0033] FIG. 18 is a front perspective view of a first embodiment of a spinner having a phone holder configured to position a phone so as to take a photograph of a seat occupant during operation of the spinner.

[0034] FIG. 19 is a top plan view of the spinner shown in FIG. 18.

[0035] FIG. 20 is a top plan view of the spinner shown in FIG. 18, showing an adult and a child simultaneously sitting in the spinner seat.

[0036] FIG. 21 is a side elevation view of the spinner shown in FIG. 18, showing an adult and a child simultaneously sitting in the spinner seat.

[0037] FIG. 22 is a cross-sectional view of the spinner seat shown in FIG. 18.

[0038] FIG. 23 is a front elevation view of an embodiment of a phone holder such as that present on the spinner shown in FIG. 18.

[0039] FIG. 24 is a cross-sectional view of the spinner seat shown in FIG. 18, showing a configuration of the phone holder such that an average smartphone camera will capture the face of a 50th percentile twelve-year-old child occupant.

[0040] FIG. 25 is a cross-sectional view of a mounting assembly for a spinner, the mounting assembly being configured to provide a spinner seat with both a spinning movement and a rotating movement.

[0041] FIG. 26 is a bottom plan view of a spinner seat, such as that shown in FIG. 18, having a mounting plate that provides additional strength to better withstand the rotating movement.

[0042] FIG. 27 is a lower perspective view of the spinner seat shown in FIG. 26.

[0043] FIG. **28** is a perspective view of a second embodiment of a spinner having a phone holder configured to position a phone so as to take a photograph of a seat occupant during operation of the spinner.

[0044] FIG. **29** is a perspective view of a third embodiment of a spinner having a phone holder configured to position a phone so as to take a photograph of a seat occupant during operation of the spinner.

[0045] FIG. **30** is a perspective view of a fourth embodiment of a spinner having a phone holder configured to position a phone so as to take a photograph of a seat occupant during operation of the spinner

DETAILED DESCRIPTION

[0046] Before continuing to describe various aspects and embodiments in further detail, it is to be understood that this disclosure is not limited to specific compositions or process steps and may vary. As used in this specification and the appended claims, the singular form “a”, “an” and “the” include plural referents unless the context clearly dictates otherwise.

[0047] Unless defined otherwise, all technical and scientific terms used herein have the same meaning as commonly understood by one of ordinary skill in the art to which this invention is related.

[0048] The inventors have advantageously discovered it is desirable to have an integrated way to support a digital camera (e.g. a smartphone) in or on a variety of playground apparatuses. This allows for capturing images of a user at preferable angles and in a hands-free manner during play.

[0049] The inventors have further discovered that it is desirable to have the camera support on the playground apparatus integrated in a manner so as not to need a separate photographer (or videographer). In this manner, the image capture can be focused on the user of the apparatus while they are playing and operated in a hands-free manner.

[0050] Various types of playground equipment can be configured to support a camera in order to capture images of the user during use. Types of playground equipment include, but are not limited to, swings (including ADA swings), whirls (e.g. merry-go-rounds), bouncers, spinners, rocking apparatus (including inclusive types), playground music equipment, monkey bars, sec saws, track rides, zip tracks or lines, and slides.

Swings

[0051] In one set of embodiments, the playground apparatus is a swing.

[0052] Embodiments of the present disclosure, including the embodiments shown in FIGS. **1** through **3**, are directed to a swing seat **100** comprising a compartment **10**, or aperture, that is sized and configured to hold a smartphone in place during the swinging motion. The compartment **10** is configured so that a user may place his/her phone into the aperture **10** and leave it there during the duration of a swinging activity. The aperture **10** is also positioned and configured to hold the smartphone at a location and angle to photograph at least the face of an occupant of the swing seat **100**. Using a timer and/or a remote activator, a user may take a picture of the seat occupant enjoying the swinging activity. Alternatively, a user may take video of the seat occupant enjoying the swinging activity.

[0053] In some embodiments, the phone holding aperture **10** may be built directly into a swing seat **100**. For instance, the embodiment illustrated in FIGS. **1** through **3** shows a child safety seat—e.g., a bucket seat—that is configured to include a phone-holding compartment **10**, or aperture, at a substantially flat upper, front surface **101**. In other, non-illustrated embodiments, the phone holding compartment **10** may be part of a separate support element connected to the swing seat **100**.

[0054] In some embodiments, such as that illustrated in FIGS. **1** through **3**, the swing seat **100** may be a child safety seat, e.g. a bucket seat, configured to safely seat an infant and/or toddler for swinging. The swing seat **100** may comprise at least a bottom surface **102**, a back support **103**, and a front support **104** defining a pair of leg holes **105**. An example of such a swing seat **100** is shown in FIG. **1**. The front support **104** may comprise a substantially flat upper surface **101** above the leg

holes **105**. The phone-holding compartment **10** may be located on this surface **101**. As shown in the illustrated embodiment, the phone-holding compartment **10** may be an aperture, or hollowed-out portion of the front support **104**. The phone-holding compartment **10** may be defined by a front (distal) wall **11**, a rear (proximal) wall **12**, a first side wall **13**, a second side wall **14**, and a bottom surface **15** (though in some embodiments, the walls may converge to a point at the bottom). It is accessible through the open top, into which a user may place a phone so that the phone sits at least partially inside the compartment **10**.

[0055] Desirably, the compartment/aperture **10** is at least 2 inches deep in order to ensure that the phone is not caused to fall out of the swing by the swinging motion, alternatively at least 2.5 inches deep, alternatively at least 3 inches deep, alternatively at least 3.25 inches deep, alternatively at least 3.5 inches deep. In some embodiments, for instance, the compartment/aperture **10** may be between 2.5 inches and 4.5 inches deep, alternatively between 3 and 4 inches deep. In other embodiments, such as where the swing is expected to have a longer swing path (as is common for older children), the phone-holding compartment/aperture **10** may need to be deeper and/or include one or more additional phone securing elements. In some embodiments, the compartment/aperture **10** may be sized and configured so that the phone can be inserted and secured either vertically (for portrait-style photographs) or horizontally (for landscape-style photographs).

[0056] The compartment/aperture **10** is also desirably configured to position the phone at a slight upward angle, so that the camera will be directed at the seat occupant's face. For instance, the front, or distal, wall **11** of the compartment **10** may be angled so that the rear surface of the phone rests on the wall and the screen is angled slightly upward toward the seat occupant's face. This allows one to use the conventional "selfie" camera mode to take a picture of the seat occupant during the swinging activity. In some embodiment, the front wall **11** of the compartment **10** may be angled at least 5 degrees from vertical, alternatively at least 10 degrees from vertical, alternatively at least 15 degrees from vertical. For instance, in some embodiments, the front wall **11** of the compartment **10** may be angled between about 5 degrees and about 60 degrees relative to vertical, alternatively between about 10 degrees and about 45 degrees, alternatively between about 10 degrees and about 30 degrees, alternatively between about 15 degrees and about 25 degrees. The angling of the phone within the compartment **10** may be achieved in other manners as well, such as by the compartment having an angled bottom surface **15** and/or an angled rear wall **12**.

[0057] Angling of the front wall **11**, rear wall **12** and/or the bottom surface **15** may also provide additional benefits. Angling of the front wall **11** provides a surface on which the back of a smartphone may rest, helping to stabilize the phone within the compartment. Angling of the rear wall **12** away from the phone (toward the top of the compartment **10**) may help prevent interference of the rear wall in any resulting photograph or video. Angling of the bottom surface **15** may help with drainage of the compartment **10**, which prevents water from pooling in the compartment and potentially damaging an inserted smartphone. Each of these effects can be seen, for instance, in the embodiment illustrated in FIG. 3.

[0058] In some embodiments, the compartment **10** may include one or more drainage holes **16**. The drainage hole(s) **16** allows for water, e.g. from rain and the like, to exit the compartment **10**. The drainage hole(s) **16** may be located in the bottom surface **15** of the compartment **10**. In some embodiments, such as that shown in FIG. 3, the drainage hole(s) **16** may be located at one end of the bottom surface **15** and the bottom surface may be angled downward toward the end containing the drainage hole(s) **16**. For example, the bottom surface **15** may be angled downward toward the front wall **11** and the drainage hole(s) may be located where the front wall **11** and the bottom surface **15** meet. In other embodiments, a plurality of drainage holes **16** may be located at various locations across the bottom surface **15**.

[0059] The drainage hole(s) **16** preferably direct water that enters the compartment **10** away from an occupant of the swing seat **100**. For instance, in the embodiment shown in FIG. 3, the drainage hole **16** drains through the front support surface **104** (as visible for example in FIG. 7). In other,

non-illustrated, embodiments, the drainage hole(s) **16** may direct the water from the compartment **10** onto the bottom surface **102** of the seat **100** itself, after which the water may flow out of one or more seat drainage openings.

[0060] In some embodiments, the compartment **10** may include one or more phone securing elements. For instance, the compartment **10** may comprise one or more flexible tabs that are deformed or deflected when a phone is placed into the aperture. The tabs may press against the phone to provide additional securement of the phone in the aperture. As another example, the aperture may have a dimension, e.g. width between the front **11** and rear **12** walls, that narrows toward the bottom. In this way, a user may press a phone into the aperture to obtain a secure friction fit. Or, for example, one or more of the walls of the compartment **10** (e.g. the front wall **11**) may be made out of a material that prevents slippage of the phone or may contain a friction-enhancing coating.

[0061] In some embodiments, the swing seat **100** may comprise one or more visual indicators **17** that indicate to a user that the compartment **10** is meant to hold a smartphone at a position for the taking of photographs and/or video of the seat occupant. An example of such an indicator **17** is shown in FIGS. **1** and **2**. In some embodiments, including the illustrated embodiment, the visual indicator **17** may be positioned on the surface adjacent to the compartment **10**, such as on substantially flat upper surface **101**. In other embodiments, the visual indicator **17** may be placed on a wall of the compartment, such as on front wall **11**. The visual indicator **17** may desirably be integral with, e.g. molded or stamped into, the material that makes up the compartment walls or the surrounding structure, such as is shown in the illustrated embodiment. However, the application of a visual indicator **17** using a sticker, adhesive, or the like is also contemplated. The visual indicator **17** may also have any design, so long as the design provides a user with some indication of the intended use of the compartment **10**.

[0062] In some embodiments, the swing seat **100** may be configured to seat an older child and/or an adult. For instance, the seating surface of the swing seat **100** may be a board seat, belt seat, chair seat, bench seat, or the like. The swing seat **100** may include a phone support element that is connected to the seating surface so as to have a common swinging motion. Desirably, the phone support element is positioned to provide a good angle for a photograph of the seat occupant without interfering with either the accessibility of the seating surface or the swinging activity itself. For instance, the phone support element may desirably be located in front of the seating surface, either centrally or offset to one side, in order to easily and comfortably obtain quality photographs of the seat occupant. In other embodiments, however, the phone support element may be located to the side of the seating surface instead of in front of the seating surface (requiring a user to look sideways for a face-on photo).

[0063] The phone support element may be connected to the seating surface in a variety of different manners, keeping in mind the need to maintain easy access into and out of the seat. In some embodiments, the swing seat **100** may comprise a connector that extends underneath the seating surface, such that a user can step over the connector when entering the seat. For instance, the connector may extend forward from the bottom of the seating surface to a desired distance in front of the seat and then upward to position the phone support element at a desirable photograph-taking height. In other embodiments, the swing seat **100** may comprise a connector that extends forward along one side of the swing seat, such that a user can enter the seat through the opposite side. For example, the connector may extend from an armrest or a backrest of the seat. In yet other embodiments, the swing seat may comprise a connector that extends over the top of a seat occupant.

[0064] As one example, instead of seat **200** being connected to seat **100** by connector **201**, such as is shown in FIGS. **4** through **7**, a similar connector element may link seat **200** to a phone support element which may be positioned and configured to take photographs and/or video of the occupant of seat **200**.

[0065] In some embodiments, the swing seat **100** may have a plurality of phone-holding compartments **10** and/or phone support elements. For instance, a swing seat **100** may have phone-holding compartments **10** and/or phone support elements at varying heights and/or distances to provide photographs from different perspectives.

[0066] The swing seat **100** shown in FIGS. **1** through **3** may be suspended from a support structure to provide an independent child swing. Swing seat **100** may be suspended in any conventional manner as would be understood by persons of skill in the art. For instance, the swing seat **100** may comprise suspension points, such as at each side of the seat, to which one or more chains may be attached and used to suspend the seat from a support structure. In some embodiments, those suspension points may be provided by a U-shaped framework **106** that extends below the lower support surface **102** and up around the sides of the child safety seat **100**. An example of such a U-shaped framework **106** is shown in FIGS. **4** through **7** (although the U-shaped framework shown in those figures is attached to a connector element **201** that links seat **100** with a second swing seat **200**). The U-shaped framework **106** may be affixed to the child safety seat **100** in any conventional manner, as would be understood by those of skill in the art. The U-shaped framework **106** may comprise suspension points **107**, such as at each end of the framework, to which one or more chains may be attached and used to suspend the swing seat **100** from a support structure.

[0067] In some embodiments, instead of operating as an independent child swing, the swing seat **100** may be connected to a second swing seat **200** such that the two swing seats share a common swinging motion. In the embodiment illustrated in FIGS. **1** through **4**, for instance, the swing may comprise a first seat **100** and a second seat **200** that are connected together to share a swinging motion. In the illustrated embodiment, seat **100** is a child safety seat comprising a phone holder **10** that is integrated into the seat itself, as described above and seat **200** is an adult seat.

[0068] The type, shape, and style of the seats **100**, **200** may also vary from that shown in the illustrated embodiment. For instance, in some embodiments, both seats **100**, **200** may be configured for older children and adults and may include board seats, belt seats, chair seats, bench seats, or the like. Or both seats may be configured for infants and/or toddlers and may include child safety seats such as bucket seats. In some embodiments, for instance, both the first seat **100** and the second seat **200** may be child safety seats such as that shown in FIGS. **1-3**. Further, although the first seat **100** and the second seat **200** are shown as being vertically displaced from one another in FIGS. **4-7**, the first seat **100** and the second seat **200** may be positioned at the same or substantially the same vertical height, particularly where the first seat **100** and the second seat **200** are each a child safety seat such as that shown in FIGS. **1-3**.

[0069] First seat **100** and second seat **200** may be connected to one another by a connector **201**. The connector may take on any of a variety of configurations, so long as it connects the first and second seats in a horizontally spaced apart manner. In the illustrated embodiment, for example, the connector **201** comprises a piped framework that extends between the seats along a first side of the first and second swing seats. In other embodiments, however, the connector **201** may comprise a piped framework that extends between the seats below the first and second seats **100**, **200**. In yet other embodiments, the connector **201** need not be a piped framework at all. Instead, the connector **201** may be a molded plastic structure. For instance, the first and second seats **100**, **200** may be made of plastic and be integrally formed with a plastic connector **201**. As with the piped framework connector **201**, the plastic connector may be positioned to one side of the first and second seats **100**, **200**, below the first and second seats, or a combination thereof. The plastic connector **201** also may or may not be reinforced, such as with a piped framework portion.

[0070] The connector **201** may also be attached to the first and second seats **100**, **200** in any known manner. In the illustrated embodiment, for example, the connector **201** may be affixed to, or integral with, U-shaped framework **106** which supports first seat **100**. Further, the connector **201** may be affixed to, or integral with, a U-shaped framework **203** which supports second seat **200**. As illustrated, the U-shaped framework **106** supporting the first seat **100** and the U-shaped framework

203 supporting second seat **200** each includes one or more suspension points **107**, **204**. The connector **201** may also include one or more suspension points **205**. In other embodiments, such as where the connector **201** is a plastic connector and/or where the connector extends below the first and second seats **100**, **200**, the suspension points may be located on each of the first and second seats.

[0071] In some embodiments, the first seat **100** and the second seat **200** may be vertically displaced, such that the first seat is positioned higher than the second seat. For instance, the first seat **100** and second seat **200** may be arranged such that an adult and a child face one another and share a common eye level. Taking into account the height differential of the adult and the child, the second seat **200** may be vertically disposed a distance below the first seat **100**. Preferably, the vertical distance between the first seat **100** and the second seat **200** is between about six inches and sixteen inches, alternatively between about eight and about fourteen inches, alternatively between about nine and about thirteen inches, alternatively between about ten and about twelve inches. Given the average height of an adult and child, the ranges of vertical displacement will provide a common eye level for most caretakers and children. In other embodiments, the first and second seats **100**, **200** may be positioned at the same height or substantially the same height.

[0072] In some embodiments, the swing comprising a first seat **100** and a second seat **200** may comprise multiple phone holders **10**, such that a first can be used to photograph the occupant of the first seat and a second can be used to photograph the occupant of the second seat. Alternatively, the swing may include a single phone holder **10** than can be used in different ways in order to photograph either the occupant of the first seat **100** or the occupant of the second seat **200**. For instance, one wall or surface of the compartment **10** (e.g. front wall **11**) may be angled to support the phone in an orientation to photograph the occupant of the first seat **100** and another wall or surface of the compartment (e.g. rear wall **12**) may be angled to support the phone in an orientation to photograph the occupant of the second seat **200**. In other embodiments, a phone holder may only operate to photograph the occupant of one of the first and second seats **100**, **200**.

Whirls

[0073] In another set of embodiments, the playground apparatus is a whirl, also sometimes referred to as a Merry Go Round.

[0074] Embodiments of the present disclosure, including the embodiments shown in FIGS. **8** through **17**, are directed to a whirl **300** comprising one or more compartments **10**, each of which is sized and configured to hold a smartphone in place during spinning motion of the whirl. Each compartment **10** is configured so that a user may place his/her phone into the compartment **10** and leave it there during the duration of a spinning activity. The compartment **10** is also positioned and configured to hold the smartphone at a location and angle to photograph at least the face of an occupant of the whirl **300**. Using a timer and/or a remote activator, a user may take a picture of the occupant enjoying the spinning activity. Alternatively, a user may take video of the occupant enjoying the spinning activity.

[0075] The whirl **300** may take on any of a variety of configurations. In general, a whirl **300** is a playground component having a base **301** that is configured to spin about a central mount. The base **301** is typically large enough to hold multiple children, each of whom sits or stands on the base, depending on whether or not the base comprises one or more seats, one or more handles, or a combination thereof. In the illustrated embodiments, for example, the base **301** comprises a plurality of seats **302**. In other (non-illustrated) embodiments, however, the whirl **300** may not contain seats. For example, in some embodiments, the whirl **300** may instead include one or more handles that may be grasped by a user and held onto during the spinning motion. In yet other embodiments, a whirl **300** may comprise a combination of one or more seats and one or more handles. The seats **302** and/or handles may be integral with the base **302**, such as shown in the illustrated embodiment, or may be separate components that are affixed to the base.

[0076] Some whirls **300** may also have one or more flat or substantially flat surfaces on which a

child in a wheelchair may enjoy the whirl. In some embodiments, the mount for these “inclusive play” whirls may also be sunk into the ground so that the upper surface of the base **301** is substantially level with a play surface instead of elevated above the play surface as is the case with a typical whirl. In these embodiments, one or more phone-holder compartment **10** may be oriented so that a user of a wheelchair positioned on that surface may be the subject of a photograph and/or video.

[0077] A first embodiment of a whirl **300** is shown in FIG. **8**. For the embodiment shown in FIG. **8**, one or more children may spin the whirl **300** by holding onto any portion of the base **301** and running in a circular motion. Once the whirl is spinning, the one or more children may jump onto the base **301** and maneuver into the plurality of seats **302**. Alternatively, by pushing any portion of the base **301**, a caretaker (or a child that does not him/herself get onto the base **301**) may initiate spinning of the whirl **300** and/or maintain a spinning motion for other children, each of whom may remain in one of the seats **302**.

[0078] A second embodiment of a whirl **300** is shown in FIGS. **9** and **10**. The embodiment shown in FIGS. **9** and **10** differs from the embodiment shown in FIG. **8** in that it further comprises a central handle **303** by which one or more children may initiate spinning of the whirl **300** and/or maintain a spinning motion without having to step off of the base **301**. To do so, one or more children occupants of the plurality of seats **302** may simply push off from the central handle **303**. The central handle **303** extends from a central shaft **304** that is fixedly attached to a support post **305**. Whirls **300** of this sort are sometimes referred to as tea cup whirls or as spinning tea cups (based off of their being operated similarly to the popular amusement park ride).

[0079] The whirl **300** may be rotatably mounted to a support structure by any conventional manner, as would be understood by persons of skill in the art. The support structure is generally concealed below the base **301**, which extends outward beyond the support structure.

[0080] In some embodiments, the one or more phone holding compartments **10** may be built directly into the base **301** of the whirl **300**. For example, a compartment **10** may be integral with the base **301**. In such an embodiment, the base **301** would typically include an upward protruding feature that would contain the compartment **10**, although the compartment could also be incorporated into the floor of the base. In other embodiments, including the illustrated embodiments, the one or more phone holding compartments **10** may be part of a separate support element **320** that is connected to the base **301** of the whirl **300**. Support element **320** may be configured so that it can be installed onto existing whirl **300** as well as included as part of a new whirl. Support element **320** desirably extends above the base **301**, thereby elevating the one or more compartments **10** above the floor of the base **301**. Support element **320** may be a one-piece unit or may be made up of multiple pieces.

[0081] In yet other embodiments, the handle **303** or the central shaft **304** may comprise one or more phone-holding compartments **10**, such that a user could take a video of a plurality of children spinning around a fixed camera.

[0082] The one or more phone-holding compartments **10** are desirably located at or near the center of the base **301**.

[0083] For instance, support element **320** may be positioned so as to surround a central axis of the whirl **300**. In some embodiments, such as that shown in FIGS. **9-10**, the support element **320** may be configured to surround at least a portion of central shaft **304**. This may provide the additional benefit of concealing and restricting access to the one or more fasteners **306**, e.g. bolts, that secure central shaft **304** to support post **305**. This protects fasteners **306** from environmental degradation and prevents tampering with those fasteners, loosening of those fasteners, and the like. Support element **320** may therefore comprise a central aperture **310** through which a portion of the central shaft **304** may extend. When affixed to a whirl **300** that does not utilize a central handle **303**, such as the whirl shown in FIG. **8**, central shaft **304** may be closed off by a cap.

[0084] In other embodiments, support element **320** need not surround the central axis of the whirl

300 but may instead be located on one side of the central axis. For instance, support element **320** may only contain a single phone-holder compartment **10** and may thus only comprise one third of the structure shown in the illustrated embodiments. Or support element **320** may contain only two phone-holder compartments **10**. In some embodiments, whirl **300** may comprise multiple support elements **320**, each of which may contain one or more phone-holder compartments **10**. The multiple support elements **320** may be located at positions around the central axis so as to orient each of the phone-holder compartments **10** toward one or more seats **302** or handles.

[0085] Support element **320** may be secured to the base **301** using one or more fasteners **307**, e.g. bolts. In some embodiments, the support element **302** and/or the one or more phone-holding compartments **10** present on the support element may be configured to restrict access to fasteners **307**. For example, support element **320** may comprise one or more through-holes **308** configured to receive the one or more fasteners **307** and at least one of the through-holes, and desirably each of a plurality of through-holes, may be positioned such that access to the fastener is restricted. For example, the through-hole **308** may be positioned within a recess **309** that is difficult to access by hand. In some embodiments, including for example the illustrated embodiments, the recess **309** may extend inward from the phone support wall **11**.

[0086] The recess **309** may comprise a flat or substantially flat bottom surface or, as in the illustrated embodiments, the recess **309** may comprise an angled surface that provides for drainage of water (e.g. rain) away from the fastener **307**. When the recess **309** extends inward from the phone support wall **11**, the angled surface of the recess may operate in association with the one or more drainage holes **16** of the phone-holding compartment **10** (e.g. water may flow down the angled surface and then out of the one or more drainage holes).

[0087] The phone-holding compartment **10** may comprise at least a phone support surface, or wall, **11** and a bottom surface, or ledge **15**. At least the phone support surface **11** is desirably angled so that a smartphone placed in the compartment **10** is angled toward the face of an occupant of the whirl **300**. In the illustrated embodiments, for example, phone support surface **11** is angled upward.

[0088] The particular angle of the phone support surface **11** will depend on the elevation of the compartment **10** above the base **301**. Where the compartment **10** is positioned a small distance above the base **301**, for example, the phone support wall **11** may be angled between about 5 degrees and about 60 degrees from vertical, alternatively between about 10 degrees and about 60 degrees from vertical, alternatively between about 15 degrees and about 50 degrees from vertical, alternatively between about 15 degrees and about 45 degrees from vertical, alternatively between about 20 degrees and about 45 degrees from vertical, alternatively between about 25 and about 40 degrees from vertical, alternatively between about 30 and about 40 degrees from vertical.

[0089] The bottom ledge **15** may also be angled upward away from the phone support surface **11** so as to prevent a phone from sliding out of the phone-holding compartment **10**. In some embodiments, for example, the bottom ledge **15** may be angled between about 5 degrees and about 60 degrees from horizontal, alternatively between about 5 degrees and about 50 degrees from horizontal, alternatively between about 10 degrees and about 50 degrees from horizontal, alternatively between about 15 degrees and about 45 degrees from horizontal, alternatively between about 20 degrees and about 45 degrees from horizontal, alternatively between about 25 and about 40 degrees from horizontal, alternatively between about 30 and about 40 degrees from horizontal. As illustrated, the bottom ledge **15** may form a right angle with the phone support surface **11**.

[0090] The bottom ledge **15** may also have a depth that is configured to prevent a phone from falling out of the phone-holding compartment **10** during use of the whirl **300**. For instance, the bottom ledge may be at least ½ inch deep, more desirably at least 1 inch deep.

[0091] The phone-holding compartment **10** may also comprise one or more drainage tracks **16**. The drainage track(s) **16** allows for water, e.g. from rain and the like, to exit the compartment **10**. The drainage track(s) **16** may be located in the bottom surface **15** of the compartment **10**. In some embodiments, such as that shown in the illustrated embodiments, a drainage track **16** may be

located at or near the center of the bottom surface **15** and each side of the bottom surface may be angled downward toward the central point containing the drainage track. In other embodiments, a plurality of drainage tracks **16** may be located at various locations across the bottom surface **15**, such as at each corner of the compartment **10** for example.

[0092] As shown in the illustrated embodiments, each of the one or more drainage track(s) **16** may be angled downward to allow for water to run out of the phone-holding compartment and onto the base **301** of the whirl. For instance, the embodiment of a phone-holding compartment **10** shown in FIG. **13** is illustrated as having a drainage track that is angled downward at an angle of 5 degrees.

[0093] The bottom surface **15** may be divided into a plurality of sections by the one or more drainage tracks **16**. As shown in FIG. **14**, for instance, the bottom ledge **15** may be split to left and right sections by a central drainage divot **16**. Regardless of the drainage divot **16**, however, the bottom ledge **15** is configured so that the bottom edge of a phone rests on and is supported by the ledge.

[0094] In other embodiments, the phone-holding compartment **10** may comprise one or more drainage through-holes (as opposed to tracks), such that water flows down through the support element **320** and/or base **301** and ends up underneath the whirl **300**.

[0095] In some embodiments, the compartment **10** may include one or more phone securing elements. For instance, the compartment **10** may comprise one or more flexible tabs that are deformed or deflected when a phone is placed into the compartment. The tabs may press against the phone to provide additional securement of the phone in the compartment. As another example, the compartment may have a dimension that provides for a friction fit with an inserted phone. Or, for example, the phone support wall **11** may be made out of a material that prevents slippage of the phone or may contain a friction-enhancing coating.

[0096] The whirl **300** may also comprise a visual indicator **17** that indicate to a user that the one or more compartments **10** are for holding a smartphone to take a photograph and/or video of an occupant of the whirl. An example of such an indicator **17** is shown in FIG. **11**. The visual indicator **17** may be located anywhere on the whirl, including for example on the base **301** or on support element **320**. In the illustrated embodiments, visual indicator **17** is located on the phone support wall **11** of each compartment **10**. However, the visual indicator **17** could just as easily be located elsewhere on the support element **320**, such as adjacent to each compartment **10**. The visual indicator **17** may desirably be integral with, e.g. molded or stamped into, the material that makes up the support element **320**, such as is shown in the illustrated embodiment. However, the application of a visual indicator **17** using a sticker, adhesive, or the like is also contemplated. The visual indicator **17** may also have any design, so long as the design provides a user with some indication of the intended use of the compartment **10**.

[0097] In some embodiments, the phone-holder compartment **10** may be positioned at a height and angle such that an average smartphone camera, which has a 65 degree field of view, is able to capture the face of children of a certain age group. As shown in FIG. **17**, the compartment may be configured so that an average smartphone camera having a 65 degree field of view is positioned to capture the face of a 50th percentile in height twelve-year-old child user.

Spinners

[0098] In another set of embodiments, the playground apparatus is a spinner.

[0099] Embodiments of the present disclosure, including the embodiments shown in FIGS. **18** through **30**, are directed to a spinner **400** comprising a compartment **10** that is sized and configured to hold a smartphone in place during the motion of the spinner. Each compartment **10** is configured so that a user may place his/her phone into the compartment **10** and leave it there during the duration of a spinning activity. The compartment **10** is also positioned and configured to hold the smartphone at a location and angle to photograph at least the face of an occupant of the spinner **400**. Using a timer and/or a remote activator, a user may take a picture of the occupant enjoying the spinning activity. Alternatively, a user may take video of the occupant enjoying the spinning

activity.

[0100] The spinner **400** may take on any of a variety of configurations. In general, a spinner **400** is a playground component having a seat **401** that is configured to spin 360 degrees about a central mount. In contrast to a whirl, which has a relatively large base that supports a plurality of occupants, a spinner **400** typically comprises only a single seat **401**. In conventional spinners **400**, the seat **401** is sized and configured to hold only one child occupant at any given time. In embodiments of the present disclosure, however, the seat **401** may be sized and configured to hold multiple occupants, for instance one adult caretaker and one child, at a given time.

[0101] A spinner seat **401** may take on any of a variety of configurations. For example, some spinner seats **401** may be bowl or cup seats, in which an occupant sits in the interior of a bowl/cup, typically with his/her legs extending out of the bowl/cup. Other spinner seats **401** may be shaped more in the shape of a chair, with a lower seating surface and an upward-extending back support (and sometimes with handles on each side). Yet other spinner seats **401** may be saddle seats, in one or more of the front, rear, left side, and right side of the seating surface (which may be substantially flat or sunken) extend upward to provide a user with a surface to grab and hold.

[0102] In yet other embodiments, in place of a seat **401**, the spinner **400** may comprise one or more handles extending upward from a small base on which one or more children may stand.

[0103] A first embodiment of a spinner **400** is shown in FIGS. **18** through **24**. As illustrated, the spinner **400** comprises a seat **401** that forms a large bowl. More generally, the seat **401** comprises a lower support surface **402** that is configured to support an occupant in a sitting position, an upper frame **403** through which the occupant enters and exits the seat, and one or more walls extending between the lower support surface and the upper frame. Where the seat **401** forms a large bowl, as illustrated, a single wall **404** extends between the lower support surface and the upper frame **403** around the entirety of the seat.

[0104] The seat **401** may be a single integral structure. In the embodiment illustrated in FIGS. **18** through **24**, for instance, the lower support surface **402** is integrally molded with wall **404** and upper frame **403**. In other embodiments, however, the seat **401** may be made up of multiple components, which may be affixed together by conventional means.

[0105] The phone-holding compartment **10** may be located in any one of the one or more walls **404** and/or in the upper frame **403**. As in the illustrated embodiment, for instance, where the seat **401** comprises a single wall **404** extending around the entirety of the seat, the phone-holding compartment **10** may be located in that wall **404**.

[0106] In some embodiments, the upper frame **403** may be curved or angled, such that the seat **401** has a defined front and rear, in which the upper frame at the rear **405** is vertically higher than the upper frame at the front **406** (i.e. wall **404** extends higher upward at the rear of the seat than at the front of the seat). This may provide an occupant with a greater degree of back support than a conventional cup/bowl seat. This may be of particular importance in those embodiments in which the seat **401** is configured to hold multiple occupants, e.g. a caretaker and a child, at the same time. It may also help ensure that the occupant is sitting in a position that will locate his or her face at a desirable location for a phone in the phone-holding compartment **10** to photograph or video the occupant's face.

[0107] In embodiments where the bowl seat **401** is provided with a front and a rear, the phone-holding compartment **10** is desirably located at the front of the seat, e.g. in the wall **404** at the front of the seat. By providing the seat **401** with a defined front and rear and positioning the phone-holding compartment **10** at the front of the seat, e.g. in the upper frame **403** and/or the wall **404** at the front of the seat, it is more likely that a user will see the phone-holder compartment during use and be able to identify it as such.

[0108] As noted above, in some embodiments, the seat **401** may be sized and configured to simultaneously hold an adult and a child. An example of such a seat **401** is shown in FIGS. **20** and **21**. As evident from the illustrated seat, the distance between the front and the rear of the seat is

increased relative to a conventional cup/bowl seat. In embodiments of the seat **401**, for instance, the distance between the front (as measured from the upper frame at the front **406** of the seat) and the rear (as measured from the upper frame at the rear **405** of the seat) is at least 25 inches, alternatively at least 30 inches. Similarly, the distance between the right side of the seat and the left side of the seat (as measured between the upper frame **403** at the right and the upper frame at the left is at least 22 inches, alternatively at least 25 inches.

[0109] The seat **401** may be rotatably mounted to a support structure so as to provide the seat with the ability to spin 360 degrees by any conventional manner, as would be understood by persons of skill in the art. In other embodiments, however, the support structure may be configured to provide the seat **401** with multi-axis movement, such as through the rotation of a portion of the mounting assembly in addition to the spinning of the seat, as is described herein.

[0110] The phone-holding compartment **10** may comprise at least a phone support surface, or wall, **11** and a bottom surface, or ledge **15**. At least the phone support surface **11** is desirably angled so that a smartphone placed in the compartment **10** is angled toward the face of an occupant of the seat **401**. In the illustrated embodiments, for example, phone support surface **11** is angled upward.

[0111] The particular angle of the phone support surface **11** will depend on the elevation of the compartment **10** above the lower support surface **402** of the seat. Where the compartment **10** is positioned toward the top of wall **404**, for example, the phone support wall **11** may be angled between about 10 degrees and about 70 degrees from vertical, alternatively between about 15 degrees and about 65 degrees from vertical, alternatively between about 20 degrees and about 60 degrees from vertical, alternatively between about 25 degrees and about 55 degrees from vertical, alternatively between about 30 degrees and about 50 degrees from vertical, alternatively between about 35 and about 45 degrees from vertical, alternatively about 40 degrees from vertical.

[0112] The bottom ledge **15** may also be angled upward away from the phone support surface **11** so as to prevent a phone from sliding out of the phone-holding compartment **10**. In some embodiments, for example, the bottom ledge **15** may be angled between about 10 degrees and about 70 degrees from horizontal, alternatively between about 15 degrees and about 65 degrees from horizontal, alternatively between about 20 degrees and about 60 degrees from horizontal, alternatively between about 25 degrees and about 55 degrees from horizontal, alternatively between about 30 degrees and about 50 degrees from horizontal, alternatively between about 35 and about 45 degrees from horizontal, alternatively about 40 degrees from horizontal. As illustrated, the bottom ledge **15** may form a right angle with the phone support surface **11**.

[0113] The bottom ledge **15** may also have a depth that is configured to prevent a phone from falling out of the phone-holding compartment **10** during use of the spinner **400**. For instance, the bottom ledge may be at least $\frac{1}{2}$ inch deep, more desirably at least 1 inch deep.

[0114] The phone-holding compartment **10** may also comprise one or more drainage tracks **16**. The drainage track(s) **16** allows for water, e.g. from rain and the like, to exit the compartment **10**. The drainage track(s) **16** may be located in the bottom surface **15** of the compartment **10**. In some embodiments, such as that shown in the illustrated embodiments, a drainage track **16** may be located at or near the center of the bottom surface **15** and each side of the bottom surface may be angled downward toward the central point containing the drainage track. In other embodiments, a plurality of drainage tracks **16** may be located at various locations across the bottom surface **15**, such as at each corner of the compartment **10** for example.

[0115] The bottom surface **15** may be divided into a plurality of sections by the one or more drainage tracks **16**. As shown in FIG. 23, for instance, the bottom ledge **15** may be split to left and right sections by a central drainage track **16**. Regardless of the drainage track **16**, however, the bottom ledge **15** is configured so that the bottom edge of a phone rests on and is supported by the ledge.

[0116] As shown in the illustrated embodiments, each of the one or more drainage track(s) **16** may be angled downward to allow for water to run out of the phone-holding compartment and into the

seat **401**. The seat **401** may, itself, contain one or more drainage holes **407** out of which water may flow. For instance, the lower support surface **402** of the seat may have one or more drainage holes **407** through which water may flow out of the seat **401**. Accordingly, water that flows out of the phone-holding compartment **10** through the one or more drainage track(s) **16** will flow into the bottom of seat **401** and subsequently through the one or more drainage holes **407** to the exterior of the seat. In other embodiments, the phone-holding compartment **10** may comprise one or more drainage through-holes (as opposed to tracks), such that water flows directly from the compartment to the exterior of the seat **401**.

[0117] In some embodiments, the compartment **10** may include one or more phone securing elements. For instance, the compartment **10** may comprise one or more flexible tabs that are deformed or deflected when a phone is placed into the compartment. The tabs may press against the phone to provide additional securement of the phone in the compartment. As another example, the compartment may have a dimension that provides for a friction fit with an inserted phone. Or, for example, the phone support wall **11** may be made out of a material that prevents slippage of the phone or may contain a friction-enhancing coating.

[0118] The seat **401** may also comprise a visual indicator **17** that indicate to a user that the one or more compartments **10** are for holding a smartphone to take a photograph and/or video of an occupant of the whirl. An example of such an indicator **17** is shown in FIG. 23. The visual indicator **17** may be located anywhere on the seat **401**, including for example on wall **404** in the vicinity of the phone-holding compartment **10**. In the illustrated embodiments, visual indicator **17** is located on the phone support wall **11** of the compartment **10**. The visual indicator **17** may desirably be integral with, e.g. molded or stamped into, the material that makes up the phone-holding compartment **10** and/or wall **404**, such as is shown in the illustrated embodiment. However, the application of a visual indicator **17** using a sticker, adhesive, or the like is also contemplated. The visual indicator **17** may also have any design, so long as the design provides a user with some indication of the intended use of the compartment **10**.

[0119] In some embodiments, the phone-holder compartment **10** may be positioned at a height and angle such that an average smartphone camera, which as a 65 degree field of view, is able to capture the face of children of a certain age group. As shown in FIG. 24, the compartment may be configured so that an average smartphone camera having a 65 degree field of view is positioned to capture the face of a 50th percentile in height twelve-year-old child user.

[0120] Other embodiments of spinner seats **401** comprising a phone-holding compartment **10** are shown at FIGS. 28 to 30.

[0121] The spinner **400** shown in FIG. 28, for example, has seat **401** in the shape of a conventional bowl seat comprising a lower support surface **402**, an upper frame **403**, and an integral wall **404** that surrounds the entire circumferential periphery of the seat. A phone is shown extending upward from a phone-holding compartment **10** that is positioned at the top of wall **404**.

[0122] The spinner **400** shown in FIG. 29 comprises a new type of seat **501**, in which a lower support surface **502** is sunken only slightly relative to a peripheral edge **503**. The peripheral edge **503** includes a steep incline at the front of the seat **501**, thereby creating a front projection **504**. A phone-holding compartment **10**, such as that described herein, is provided on the front projection **504**.

[0123] The spinner **400** shown in FIG. 30 comprises a new type of saddle seat **601**, comprising a lower support surface **602**, a back support **603**, and a front projection **604**. A phone-holding compartment **10**, such as that described herein, is provided on the front projection **604**.

[0124] As noted above, in some embodiments, the spinner **400** may comprise a support structure **450** that is configured to provide the seat with multi-axis movement, such as through the rotation of a portion of the mounting assembly in addition to the spinning of the seat. Notably, the new support structure **450** described herein may be used in conjunction with any of a variety of spinner seats, regardless of whether or not the seat includes a phone-holding compartment. However, the

embodiment of seat **401** shown in FIGS. **18-24** may be configured to operate with a multi-axis movement support structure **450**, as seen for example in FIGS. **22, 26, and 27**.

[0125] In some embodiments, a playground spinner **400** may comprise a support structure **450** that is configured to provide a user with both a spinning movement and a rotating movement. The spinner may comprise a seat **401** and a support assembly **450** comprising a drive shaft **451**, a swivel bearing **452**, and a drive wheel **453**. An example of such a support assembly **450** is shown in FIG. **25**.

[0126] The seat **401** may be secured to the drive shaft **451** through the use of conventional fasteners. In some embodiments, the seat **401** may comprise a conventional mounting feature on the underside of the seat. Because of the multi-axis movement, however, it may be desirable to provide the seat **401** with an extended mounting feature **408** that comprises one or more protrusions. As shown in FIGS. **26 and 27**, for instance, the extended mounting feature **408** may comprise a protrusion **409** that extends up the rear wall of the seat, a protrusion **410** that extends up the front wall of the seat, side protrusions **411** that each extend up one of the side walls of the seat, or a combination thereof. By using an extended mounting feature **408** such as that described herein, one may provide the seat **401** with additional structural support to account for the added stresses placed on the seat by the multi-axis movement (and the associated shifting of weight of the occupant(s) of the seat).

[0127] The drive shaft **451** comprises a longitudinal axis that spans between a first end of the drive shaft and a second end of the drive shaft. A first end of the drive shaft **451** is secured to the seat **401** as described above. The second end of the drive shaft **451** may comprise a tensioning mechanism, such as an idler wheel **454** which is configured to roll upon a fixed surface **455**. In other (non-illustrated) embodiments, the second end of the drive shaft **451** may be a free end or may be attached to another component, such as a counterweight.

[0128] The drive shaft **451** is connected to the rest of the support assembly **450** in a manner that allows the drive shaft to spin 360 degrees about its longitudinal axis. For instance, the drive shaft **451** may be attached to a support structure housing **456** by way of swivel bearing **452**. Swivel bearing **452** allows the drive shaft **451** to spin about its longitudinal axis while also allowing for a limited amount of angular movement of the drive shaft within the housing **456**.

[0129] As illustrated, for example, swivel bearing **452** may be positioned in a top surface, or cap, of the housing **456** through which the drive shaft **451** extends. In some embodiments, the support structure **450** may be installed such that the top surface of the housing **456** is flush or substantially flush with the play surface. In that way, the housing **456** is concealed below the play surface, e.g. below ground, and is not accessible to users of the playground.

[0130] By providing a seat **401** that extends outward a sufficient distance from the drive shaft **451**, one may also prevent a person from having a foot or a hand pinched between the underside of the seat **401** and the top of the housing **456**. The seat **401** of the illustrated embodiment, for instance, has a wall **404** that curves outward as it increases in height from a lower portion to an upper portion, creating a seat having a rounded lower surface. Due to the angular rotation of the seat **401**, therefore, the upper portion of the seat wall **404** will contact a person located in the immediate vicinity of the spinner **400** and operate to move that person away from the seat before any part of that person could become pinched between the lower portion of the seat wall (or the mounting element **408** attached thereto) and the housing **456**.

[0131] The support structure also comprises a drive wheel **453**, which is fixed to the drive shaft **451** and which rolls along a race **457**. The rolling of the drive wheel **453** about the race **457** provides for rotation of the drive shaft about a vertical axis. The race **457**, which may be fixed within the housing **456**, has an angled surface **458** upon which the drive wheel **453** rolls. Contact between the drive wheel **453** and the angled surface **458** places the longitudinal axis of the drive shaft **451** at a tilt, or angle, with respect to a vertical axis. As a result, the spinning of the drive shaft **451** (about its longitudinal axis) occurs along a first, tilted (i.e. non-vertical) axis, and the rotation of the drive

wheel **453** (and thus the drive shaft **451**), about the race **457** occurs along a second, vertical axis. This provides the seat **401** with the multi-axis movement described herein.

[0132] The particular angle of the angled surface **458** of the race **457** defines the angle of the longitudinal axis of the drive shaft **451**, and hence the angle about which the seat spins. The particular angle of surface **458** may therefore be selected to provide a spinner **400** with a desired movement. It has generally been found that for a desirable spinner **400** experience, the race surface **458** may have an angle of 15 degrees or less (relative to vertical), alternatively 12 degrees or less, alternatively 10 degrees or less. For instance, the surface **458** of the race **457** may be angled between about 3 degrees and about 15 degrees from vertical, alternatively between about 3 degrees and about 12 degrees from vertical, alternatively between about 3 degrees and about 10 degrees from vertical, alternatively between about 5 degrees and about 15 degrees from vertical, alternatively between about 5 degrees and about 12 degrees from vertical, alternatively between about 5 degrees and about 10 degrees from vertical, alternatively between about 6 degrees and about 10 degrees from vertical, alternatively between about 7 degrees and about 9 degrees from vertical, alternatively about 8 degrees from vertical. As the angle is increased, the rotation of the seat **401** about the vertical axis becomes more extreme for the occupant(s) and the stresses placed on the seat during use become higher.

[0133] The support structure **450** may also comprise a tensioning mechanism that keeps the drive wheel **453** in contact with the angled surface **458** of the race **457** and ensures that the drive shaft **451** is maintained along the defined tilt angle during use. Without any such tensioning mechanism, the drive shaft **451** would be capable of lateral motion, which results in a jerky and less-controllable spinning experience. In the illustrated embodiment, for example, the tensioning mechanism comprises an idler wheel **454** and a fixed surface **455**.

[0134] The idler wheel **454** may be affixed to the lower end of the drive shaft **451** and is configured to spin in the opposite direction from the drive shaft **451**. The idler wheel **454** contacts and rolls along affixed fixed surface **455**, thereby maintaining contact between the drive wheel **453** and the race **457**. Fixed surface **455** is desirably also angled relative to vertical. For example, fixed surface **455** may be angled at the same or substantially the same angle as surface **458** of race **457** or it may have a greater angle relative to vertical. Fixed surface **455** may be an integral part of housing **456** or may be provided by a separate component such as a tensioning pin.

[0135] The multi-axis movement that results from the support structure **450** described herein delivers a spinner **400** that provides an entirely new play experience. Namely, an occupant of the seat **401** is able to spin about the tilted longitudinal axis of the drive shaft **451** while the seat simultaneously rotates about a vertical axis. The result is a motion that by a seat occupant can easily maintain simply by using his or her core muscles. In contrast to conventional spinners, the occupant need not push off the ground to cause the movement, nor is any interaction (e.g. a push) from a non-occupant individual needed. Further, an occupant may easily cause the direction of the spinning and rotation to change from a first direction to a second direction, providing a user with a new degree of control over the spinning motion that is not achieved by conventional playground spinners.

[0136] In other embodiments, support structure **450** may be associated with a standing spinner unit **400** (instead of one having a seat) to provide a standing spinner unit with the multi-axis movement described herein. For example, in some (non-illustrated) embodiments seat **401** may be replaced with a platform, or base, on which one or more children stand. The platform is also preferably comprises one or more handles that a user may hold onto during the spinning and rotating movement of the spinner **400**. In some embodiments, the platform may be configured for a single user to stand in the center and hold onto one or more handles located at or near the periphery, e.g. circumference, of the platform. This will provide a user with maximum control over the multi-axis movement, as described above with respect to the seated embodiment. In other embodiments, however, the platform may be configured for multiple children to work together to control the

multi-axis movement of the spinner **400**.

[0137] It can be seen that the described embodiments provide unique and novel playground structures having a number of advantages over those in the art. While there is described herein certain specific elements embodying the invention, it will be manifest to those skilled in the art that various modifications and rearrangements of the elements may be made without departing from the spirit and scope of the underlying inventive concept and that the same is not limited to the particular forms herein shown and described except insofar as indicated by the scope of the appended claims.

Claims

1.-60. (canceled)

61. A playground spinner configured to provide a spinning and rotating movement, comprising: a seat; and a mounting assembly comprising: a drive shaft having a longitudinal axis; a swivel bearing that allows the drive shaft to spin about its longitudinal axis; and a drive wheel that provides for rotation of the drive shaft about a vertical axis, wherein the drive wheel contacts an angled surface of a race, placing the longitudinal axis of the drive shaft at an angle with respect to vertical.

62. The playground spinner of claim 61, the mounting assembly further comprising: a tensioning mechanism configured to ensure that the longitudinal axis of the drive shaft is maintained at a substantially constant angle.

63. The playground spinner of claim 62, wherein the tensioning mechanism comprises an idler wheel attached to an end of the drive shaft, and a fixed surface upon which the idler wheel rolls.

64. The playground spinner of claim 63, wherein the fixed surface upon which the idler wheel rolls is provided by a tensioning pin.

65. The playground spinner of claim 61, wherein the longitudinal axis of the drive shaft is at an angle between about 5 degrees and about 10 degrees with respect to vertical.

66. The playground spinner of claim 65, wherein the longitudinal axis of the drive shaft is at an angle of about 8 degrees with respect to vertical.

67. The playground spinner of claim 61, the mounting assembly further comprising a housing, wherein the top surface of the housing is substantially flush with a play surface.

68. The playground spinner of claim 61, wherein the seat is a bowl seat having a wall that curves outward as it increases in height.

69. The playground spinner of claim 68, wherein the seat comprises an extended mounting feature having at least one protrusion that extends up the wall.

70. The playground spinner of claim 68, wherein a height of the wall is greater at a rear of the seat than a height of the wall at a front of the seat.

71. The playground spinner of claim 70, wherein the seat comprises an extended mounting feature having a protrusion that extends up the wall at the rear of the seat.

72. The playground spinner of claim 61, wherein the seat is sized and configured to simultaneously hold an adult and a child.

73. A playground spinner configured to provide a spinning and rotating movement, comprising: a base having one or more handles, the base being configured for one or more children to stand during a spinning and rotating movement; and a mounting assembly comprising: a drive shaft having a longitudinal axis; a swivel bearing that allows the drive shaft to spin about its longitudinal axis; and a drive wheel that provides for rotation of the drive shaft about a vertical axis, wherein the drive wheel contacts an angled surface of a race, placing the longitudinal axis of the drive shaft at an angle with respect to vertical.
