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Systems and methods for disposable urinals

Abstract

A urinal can include a body defining a front end, a rear end opposite the front end, and an internal volume. The body can include an opening fluidly coupled to the internal volume of the body and positioned at the front end of the body. The urinal can include a handle integrally formed with the body. The handle can have a free end that can extend away from the front end of the body towards the rear end of the body. The urinal can include a recess directed into a bottom end of the body. The recess can be configured to receive a second handle of a second urinal.

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Background/Summary

CROSS-REFERENCE TO RELATED APPLICATIONS

(1) Not applicable.

STATEMENT REGARDING FEDERALLY SPONSORED RESEARCH

(2) Not applicable.

BACKGROUND

(3) Disposable urinals are typically used in healthcare facilities to allow patients to void urine without having to physically travel to a restroom. For example, after surgery, other procedures, etc., patients may be unable to physically move to a restroom, or partitioners (e.g., doctors) may impose strict movement restrictions on patients for a period of time after a procedure, each of which limits the ability of a patient to physically go to a restroom. Thus, disposable urinals can not only allow patients to remotely void urine but can also allow patients to void urine in a much more hygienic manner than other solutions.

(4) In some cases, disposable urinals are preformed and are packed in a container to be shipped to a healthcare facility, stored at the healthcare facility, etc. However, there can be considerable inefficiencies with packing (and thus shipping) cases of disposable urinals. Thus, it would be desirable to have improved systems and methods for disposable urinals.

SUMMARY OF THE DISCLOSURE

(5) Some non-limiting examples of the disclosure provide a urinal. The urinal can include a body defining a front end, a rear end opposite the front end, and an internal volume. The body can include an opening fluidly coupled to the internal volume of the body and positioned at the front end of the body. The urinal can include a handle integrally formed with the body. The handle can have a free end that can extend away from the front end of the body towards the rear end of the body. The urinal can include a recess directed into a bottom end of the body. The recess can be configured to receive a second handle of a second urinal.

(6) In some non-limiting examples, a recess can include a first portion and a second portion. The first portion can be positioned closer to a rear end of a body than the second portion. A second handle of a second urinal can include a base and an arm extending away from the base. The first portion of the recess can be configured to receive the arm of the second handle and the second portion of the recess can be configured to receive the base of the second handle.

(7) In some non-limiting examples, an internal volume of a handle can be fluidly coupled to an internal volume of a body.

(8) In some non-limiting examples, a recess of a urinal can correspond in shape to a second handle of a second urinal. When the second handle of the second urinal is inserted into the recess of the urinal, at least a portion of the urinal outside of a recess can be configured to contact the second urinal.

(9) In some non-limiting examples, a body can include an extension. A free end of the extension can extend away from a rear end of the body and towards a front end of the body. The extension can at least partially define a recess of the urinal.

(10) In some non-limiting examples, an internal volume of a body can extend into an extension to define an extension internal volume. The extension internal volume can be configured to contain a liquid.

(11) In some non-limiting examples, a longitudinal axis can bisect at least a portion of a body to define a first side of the body and a second side of the body. The longitudinal axis can extend through a front end and a rear end of the body. At least a portion of a recess, a portion of an extension, a portion of a handle, or a center of an opening can be only positioned on the first side of the body.

(12) In some non-limiting examples, a portion of a recess, a portion of an extension, a portion of a handle, and a center of an opening can be only positioned on a first side of a body.

(13) In some non-limiting examples, an entire handle, and an entire recess can be positioned on only a first side of a body.

(14) In some non-limiting examples, a body can include a seam that can define a ridge that can extend across at least a portion of the body, a portion of a handle, a portion of the body at an opening, a portion of an extension, a portion of the body at a recess, and a portion of the body outside of the opening and the recess.

(15) In some non-limiting examples, a body can include a neck that can join an opening. The neck can be curved or can be angled upwardly relative to a longitudinal axis.

(16) In some non-limiting examples, a recess can be a first recess and an opening can be a first opening. A neck can include a second recess that can be directed into the neck. A second urinal at a second opening of the second urinal can be configured to be inserted within the second recess when a second handle of the second urinal is received within a first recess.

(17) In some non-limiting examples, a urinal can include a third recess directed into a neck. A second recess can be positioned above the third recess. A second urinal can include a loop proximal

to a second opening that can be configured to receive a tether. The loop of the urinal can be configured to be inserted into the third recess of the urinal when a second handle of the second urinal is received within a first recess.

(18) In some non-limiting examples, a rear end of a body can be angled upwardly relative to a longitudinal axis of the body.

(19) In some non-limiting examples, a body can include a first side wall and a second side wall opposite the first side wall. The first side wall can include a raised portion and a substantially flat portion. The raised portion can be configured to be compressed to align with the substantially flat portion and decrease an internal volume of a body. The raised portion can be configured to expand from being compressed and extend away from the substantially flat portion to increase the internal volume of the body.

(20) In some non-limiting examples, a substantially flat portion can surround a raised portion.

(21) In some non-limiting examples, a raised portion can span at least 50% of an entire area of a first side wall.

(22) In some non-limiting examples, a raised portion can contour a shape of a body along the body.

(23) In some non-limiting examples, a urinal can include indicia that can indicate an amount of liquid positioned within an internal volume of a body of the urinal. The indicia can be positioned on a raised portion.

(24) In some non-limiting examples, a front end and a rear end can be curved upwardly.

(25) In some non-limiting examples, a body can include an extension. A free end of the extension can extend past a center of mass of a urinal when the urinal does not include liquid positioned therein, a center of mass of the urinal when the urinal includes liquid positioned therein, or a centroid of the body of the urinal in a direction from a rear end to a front end of the body.

(26) In some non-limiting examples, a body can include an extension and a ridge at a free end of the extension. The ridge can be configured to engage a supporting surface to mitigate tilting of a urinal.

(27) In some non-limiting examples, a urinal can be formed of a polymer or a plastic.

(28) In some non-limiting examples, a polymer or a plastic can be transparent or translucent.

(29) In some non-limiting examples, a body of a urinal can define multiple walls. Each of the multiple walls of the urinal can have a thickness that can be less than 5.1 millimeters, or less than 1.3 millimeters.

(30) In some non-limiting examples, a urinal that includes an internal volume can be configured to contain at least 1000 mL.

(31) Some non-limiting examples of the disclosure provide a urinal system. The urinal system can include a first urinal including a first body, a first handle integrally formed with the first body, and a first recess directed into a bottom end of the first body. The urinal system can include a second urinal including a second body and a second handle integrally formed with the first body. The second handle of the second urinal can be inserted into the first recess of the first body of the first urinal. The first urinal can be positioned above the second urinal when the second handle of the second urinal is inserted into the first recess of the first urinal.

(32) In some non-limiting examples, a second urinal can include a second recess directed into a bottom end of a second body. The urinal system can include a third urinal including a third body, and a third handle integrally formed with the third body. The third handle of the third urinal can be inserted into the second recess of the second urinal.

(33) In some non-limiting examples, a first body of a first urinal can include a first extension. The first extension can be inserted into a first gap that can be between a first handle and a first body of the first urinal when a second handle is inserted into a first recess of the first urinal.

(34) In some non-limiting examples, a first urinal can be in the same orientation as a second urinal when a second handle of the second urinal is inserted into a first recess of the first urinal.

(35) Some non-limiting examples of the disclosure provide a method of packing multiple urinals in

a container. The multiple urinals can include a first urinal and a second urinal. The method can include inserting a second handle of the second urinal into a first recess of the first urinal, the first recess being directed into a bottom end of a first body of the first urinal and inserting a first extension of the first urinal into a second gap of the second urinal. The second gap can be positioned between the second handle and a second body of the second urinal.

(36) In some non-limiting examples, multiple urinals can include a third urinal. The method can include inserting a third handle of a third urinal into a second recess of a second urinal. The second recess can be directed into a bottom end of a second body of the second urinal.

(37) In some non-limiting examples, a method can include placing multiple urinals into a container for shipping or storage of the multiple urinals.

(38) In some non-limiting examples, each of the multiple urinals can be formed out of a plastic.

(39) The foregoing and other aspects and advantages of the present disclosure will appear from the following description. In the description, reference is made to the accompanying drawings that form a part hereof, and in which there is shown by way of illustration one or more exemplary versions. These versions do not necessarily represent the full scope of the disclosure.

Description

BRIEF DESCRIPTION OF THE DRAWINGS

- (1) The following drawings are provided to help illustrate various features of non-limiting examples of the disclosure and are not intended to limit the scope of the disclosure or exclude alternative implementations.
- (2) FIG. 1 shows a front isometric view of a urinal.
- (3) FIG. 2 shows a bottom isometric view of the urinal of FIG. 1.
- (4) FIG. 3 shows a rear isometric view of the urinal of FIG. 1.
- (5) FIG. 4 shows a side view of the urinal of FIG. 1.
- (6) FIG. 5 shows another side view of the urinal of FIG. 1.
- (7) FIG. 6 shows a bottom view of the urinal of FIG. 1.
- (8) FIG. 7 shows a top view of the urinal of FIG. 1.
- (9) FIG. 8 shows a cross-sectional view of the urinal of FIG. 1, taken along line 8-8 of FIG. 7.
- (10) FIG. 9 shows another side view of the urinal of FIG. 1.
- (11) FIG. 10 shows a side view of the urinal of FIG. 1.
- (12) FIG. 11 shows a side view of a urinal system, with multiple urinals stacked together that illustrate the nesting engagement between adjacent urinals.
- (13) FIG. 12 shows a front isometric view of another urinal.
- (14) FIG. 13 shows a front side view of the urinal of FIG. 12.
- (15) FIG. 14 shows a top view of the urinal of FIG. 12.
- (16) FIG. 15 shows a flowchart of a process of packing urinals.

DETAILED DESCRIPTION OF THE PRESENT DISCLOSURE

(17) As described above, disposable urinals and particularly disposable urinals that are preformed (e.g., that have a single unitary body) can be difficult to pack, transport, and store. For example, typical disposable urinals can have a body and a handle that extends away from the body. While the handle can allow for more easier maneuverability of the disposable urinal, the handle can make packing the disposable urinals difficult and awkward within a container of multiple disposable urinals. For example, the handle of a disposable urinal can impede the smooth stacking of adjacent disposable urinals, which can result in significant packing inefficiencies. In other words, a first disposable urinal stacked on top of a second disposable urinal is blocked by the handle of the second disposable urinal from making flush contact with the second disposable urinal. In this way, there is significant dead space (e.g., open volume) within the container between rows of disposable

urinals, leading to packing inefficiencies. These packing inefficiencies can make transporting disposable urinals more expensive (e.g., fuel, volume restrains within a vehicle, etc.), and can also undesirably require larger storage requirements at a health care facility.

(18) Some non-limiting examples of the disclosure provide advantages to these issues (and others) by providing improved systems and methods for disposable urinals. For example, some non-limiting examples of the disclosure provide a urinal system including multiple urinals that are stackable and nestable (e.g., while stacked), which can considerably increase the packing efficiency of the multiple urinals. In other words, the spatial footprint of the multiple urinals when packed, stored, etc., can be considerably smaller than the spatial footprint of other typical urinals when packed, stored, etc. In this way, because the multiple urinals of the disclosure herein can be packed more efficiently, more urinals can be transported, stored, etc., in the same packing volume thereby significantly saving on transportation costs (e.g., fuel, labor, etc.).

(19) FIG. 1 shows a front isometric view of a urinal **100**. The urinal **100** can include a body **102** that can define a front end **104**, a rear end **106** opposite the front end **104**, a first side **108** (e.g., a first lateral side), and a second side **110** (e.g., a second lateral side) opposite the first side **108**, a top end **112**, and a bottom end **114** opposite the top end **112**. The body **102** of the urinal **100** can be hollow, and thus the body **102** can define an internal volume **117** that can receive (and contain) a liquid (e.g., urine) prior to disposal of the urinal **100** and the liquid therein. In some cases, the body **102** can include walls, each of which can define each end **104**, **106**, **112**, **114**, and each side **108**, **110**. For example, the body **102** can include a front wall that can define the front end **104**, a rear wall that can define the rear end **106**, a first side wall that can define the first side **108**, a second side wall that can define the second side **110**, a top wall that can define the top end **112**, and a bottom wall that can define the bottom end **114**. In some cases, each wall of the body **102** can have the same thickness or a different thickness. For example, each wall of the body **102** can have a thickness that is less than 5.1 millimeters, less than 1.3 millimeters, etc., with the thickness being greater than 0 millimeters.

(20) In some cases, the urinal **100** can include a handle **118**, a recess **116**, and an opening **122**. The handle **118** can be coupled to the body **102** of the urinal **100** and can extend away from the front end **104** and towards the rear end **106**. For example, a free end **124** of the handle **118** can extend away from the front end **104** and towards the rear end **106**. In some cases, the free end **124** of the handle **118** can be positioned closer to the rear end **106** than the front end **104**. In some configurations, and similarly to the body **102**, the handle **118** can be hollow, and thus the handle **118** can define an internal volume **126**, which can be fluidly coupled to the internal volume **117** of the body **102**. In other non-limiting examples, the internal volume **126** is not fluidly coupled to the internal volume **117** of the body **102**. For example, the handle **118** can include a section that closes off the fluid connection between the internal volume **117** of body **102** and the internal volume **126** of the handle **118**. As another example, the handle **118** can include an obstruction (e.g., a piece of material, such as the same material used to form the handle **118** or the body **102**) that also blocks fluid communication. In some configurations, the handle **118** can be partially or entirely solid, which can provide more rigidity and support to the handle **118**. In some non-limiting examples, while the handle **118** can be coupled to the body **102**, the handle **118** can also be integrally formed with the body **102** (e.g., at the neck **128** of the body **102**), or other portion of the urinal **100**. In this way, a practitioner (e.g., a nurse, a nursing assistant, etc.) does not have to couple the handle **118** to the body **102** of the urinal **100**, which can decrease the time, complexity, etc., needed to deliver the urinal **100** to a patient.

(21) As shown in FIG. 1, the recess **116** can be directed into the body **102** and can extend from the front end **104** and towards the rear end **106**. For example, the recess **116** can be directed into the bottom end **114** of the body **102** and can extend towards the rear end **106** of the body **102** (e.g., stopping before extending entirely through the rear end **106** of the body **102**). The recess **116** can have a shape that corresponds to a shape of a handle of a urinal. For example, the recess **116** can

have a shape that corresponds to the shape of the handle **118**. In this way, the recess **116** can accommodate a handle of a second urinal to facilitate more efficient stacking of urinals. In other words, the recess **116** can receive a handle of a second urinal, so that the handle of the second urinal can nest within the recess **116**. In some non-limiting examples, the opening **122** can be fluidly coupled to the internal volume **117** of the body **102** and can be positioned at the front end **104** of the body **102**. For example, the body **102** of the urinal **100** can include a neck **128**, which can define the front end of the body **102**, and the opening **122** can be positioned at a first portion of the neck **128** that has a greater cross-section than a second portion of the neck **128**. For example, the neck **128** can decrease in cross section in a direction from the rear end **106** and towards the front end **104** along a longitudinal axis of the body **102** until the neck **128** reaches a local minima in cross-section. At this point, the neck **128** can increase in cross-section until the neck **128** ends at the opening **122**. The opening **122** can provide access to the internal volume **117** of the body **102** to, for example, receive and contain a liquid (e.g., urine) for collection and subsequent disposal. (22) In some non-limiting examples, the urinal **100** can be formed out of different materials. For example, the urinal **100** can be formed out of a polymer (e.g., a plastic), a metal, etc. As a more specific example, the urinal **100** can be formed out of polyurethane, polypropylene, polyethylene, polyethylene, PET polyester, polyvinyl chloride, etc. In some cases, the urinal **100** can be formed out of a thermopolymer (e.g., a thermoplastic), which can include a polymer that can be melted, ground, and re-melted. For example, the urinal **100** can be formed by blow molding (e.g., of a polymer, plastic, etc.). In this case, the urinal **100** can include a seam **130** (e.g., which can include a ridge, such as a small ridge) that can extend along a portion or the entire body **102**. In addition, the seam **130** can extend along a portion of the handle **118**, a portion of the body **102** at the opening **122**, a portion of the body **102** at the recess **116**, a portion of the extension **132**, a portion of the body **102** outside of the recess **116**, a portion of the body **102** not at the opening **122**, etc. In some cases, the seam **130** (and ridge) can be indicative of the interface between respective ends of the two halves of the mold used to form the urinal **100** (e.g., by blow molding).

(23) FIG. 2 shows a bottom isometric view of the urinal **100**. As shown in FIG. 2, the urinal **100** can include an extension **132**, recesses **134**, **136**, **138**, and a ridge **140**. For example, the body **102** can include the extension **132**, which can extend away from the rear end **106** and towards the front end **104**. In some cases, the extension **132** can extend away from the second side **110** and towards the first side **108**. Regardless, the extension **132** can at least partially define the recess **116**. For example, the extension **132** can define a wall that can block movement of the handle of the second urinal when the handle of the second urinal is positioned within the recess **116**. In some cases, the extension **132** can have curved regions **142**, **144**, each of which can facilitate easier removal or insertion of the handle of the second urinal into the recess **116**. For example, the curved region **142** can be concave, while the curved region **144** can be convex, and the curved region **142** can be positioned further towards the rear end **106** than the curved region **144**. The decrease in material at the curved regions **142**, **144** can provide smoother removal or insertion of the handle of the second urinal into the recess **116** at least because the extra material, which would have otherwise blocked insertion (or removal) of the handle, has been removed. In addition, without the extra material, the handle of the second urinal can be rotated to a first orientation, can be inserted into the recess **116** while rotated in the first orientation, and can be rotated away from the first orientation while positioned within the recess **116** until the handle of the second urinal is locked in place.

(24) As shown in FIG. 2, the urinal **100** can include the recesses **134**, **136**, **138**, each of which can be directed into the body **102** of the urinal **100** (e.g., directed into the front end **104** of the body **102** of the urinal **100**, directed into the bottom end **114** of the body **102** of the urinal **100**, etc.). In particular, each recess **134**, **136**, **138** can be directed into the neck **128** of the body **102** of the urinal **100**. In some non-limiting examples, the recess **136** can be positioned between the recesses **134**, **138**. For example, the recess **138** can be positioned above the recesses **134**, **136**, the recess **136** can be positioned above the recess **134** and below the recess **138**, and the recess **134** can be positioned

below the recesses **136**, **138**. In some non-limiting examples, while the recesses **134**, **136**, **138** are illustrated as extending across the entire bottom end **114** of the body **102** (e.g., extending past the handle **118**, extending past the opening **122**, etc.), the recesses **134**, **136**, **138** can extend partially across the bottom end **114** of the body **102**. In some non-limiting examples, each recess **134**, **136**, **138** can be curved, which can facilitate better nesting of particular components of the second urinal (and a third urinal) within the urinal **100**. For example, as described in more detail below, the recess **134** can receive a loop of the second urinal that is configured to receive a tether, the recess **136** can receive a portion of the body of the second urinal at the opening of the second urinal (e.g., a mouth of the second urinal, and in particular an upper end of the body of the second urinal can contact the body **102** at the recess **136**), and the recess **138** can receive a portion of a body of a third urinal at the opening of the third urinal (e.g., a mouth of the third urinal, and in particular a lower end of the body of the third urinal can contact the body **102** at the recess **138**). Thus, each recess **134**, **136**, **138** can accommodate different portions of different urinals to more efficiently stack, pack, etc., multiple urinals (e.g., within a container).

(25) In some non-limiting examples, the urinal **100** can include the ridge **140**, which can be configured to stabilize the urinal **100** (e.g., when the urinal **100** is supported by a supporting surface). For example, the body **102** of the urinal **100** can include the ridge **140**, and the ridge **140** can be positioned at and can extend away from the bottom end **114** of the body **102** of the urinal **100**. In some cases, and as illustrated, the ridge **140** can extend across the entire bottom end **114** of the body **102** of the urinal **100**. However, in other configurations, the ridge **140** can extend partially across bottom end **114** of the body **102** of the urinal **100**. In some non-limiting examples, the ridge **140** can be positioned at the recess **116** (e.g., so that the ridge **140** extends partially across the recess **116**). For example, the ridge **140** can extend across a portion (or the entire) extension **132**. In some configurations, the ridge **140** can extend across a portion of (or the entire) handle **118**.

(26) FIG. 3 shows a rear isometric view of the urinal **100**. As shown in FIG. 3, the urinal **100** can include a recess **146**, and a loop **148**. For example, the recess **146** can be directed into the rear end **106** of the body **102** of the urinal **100**, which can provide stability for the urinal **100**, when, for example, the urinal **100** is being supported on the rear end **106** of the body **102** (e.g., when the rear end **106** of the urinal **100** is contacting a supporting surface, which can include a longitudinal axis of the body **102** being substantially parallel with a gravity vector). As shown in FIG. 3, the urinal **100** can include a loop **148** that can be configured to receive a tether (not shown) that is coupled to a cap (not shown). The loop **148** can be integrally formed with the body **102** of the urinal **100** and can be positioned at the top end **112** of the body **102** and closer to the front end **104** than the rear end **106** of the body **102**. For example, the loop **148** can be positioned proximal to the opening **122** of the urinal **100**. In some embodiments, the loop **148** can be positioned at the neck **128** of the body **102**. In some cases, the loop **148** can define a hole **150**, which can receive the tether. In this way, the cap that is coupled to the tether is secured to the urinal **100** to avoid losing the cap (e.g., after using the urinal **100**).

(27) In some non-limiting examples, the handle **118** can include a base **152**, and an arm **154** extending away from the base **152** that can define the free end **124** of the handle **118**. As shown in FIG. 3, the base **152** is integrally formed with the body **102** of the urinal **100** (e.g., at the neck **128**) and extends away from the front end **104** of the body **102** towards the rear end **106** of the body **102**. For example, the base **152** can be angled away from the front end **104** of the body **102** such that an upper end of the base **152** is positioned further away from the front end **104** than a lower end of the base **152**. In some non-limiting examples, and as illustrated, the base **152** can decrease in cross-section along the length of the base **152** (e.g., along a portion or the entire base **152**). As shown in FIG. 3, the arm **154** can be integrally formed with the base **152** and can extend away from the front end **104** and towards the rear end **106** of the body **102**. In some cases, the arm **154** can extend past a centroid of the body **102**, a center of mass of the body **102** (e.g., when the body **102** contains a liquid), etc. In some cases, the arm **154** can extend in a substantially straight direction (e.g., the arm

154 can be substantially linear), which can include the arm **154** being substantially parallel to a longitudinal axis of the body **102** of the urinal **100**. In some non-limiting examples, the free end **124** of the handle **118** (e.g., the arm **154** of the handle **118**) can be curved. For example, the free end **124** of the handle **118** can define a curved region **155**, which can be convex. In this way, the curved region **155** can avoid edges, pointed regions, etc., that could be uncomfortable for a user when grasping the handle **118**.

(28) In some non-limiting examples, and as described above, the body **102** can include one or more walls. For example, the body **102** can include a side wall **156** that can define the first side **108** of the body **102**. In some cases, a portion (or the entire) side wall **156** can be substantially flat, which can, as described in more detail below, provide a flat surface for compression of a raised portion of a urinal (e.g., the second urinal). For example, the side wall **156** can define a substantially flat portion **158**, which can extend across at least 50 percent of the area of the side wall **156**.

(29) FIG. 4 shows a side view of the urinal **100**. As shown in FIG. 14, opposing ends of the body **102** can be angled, curved, or both, upwardly. For example, the rear end **106** can extend upwardly (e.g., relative to a longitudinal axis of the body **102**), and the front end **104** can extend upwardly. For example, a portion **160** of the body **102** at the rear end **106** can be angled upwardly at an angle relative to the longitudinal axis of the body **102**. Correspondingly, the neck **128** of the body **102** can be curved upwardly (or angled upwardly), which can be relative to the longitudinal axis of the body **102**. This curved shape of the body **102** can increase the stability of the urinal **100** (e.g., to prevent the urinal **100** from tilting and thus spilling when the urinal **100** is in the horizontal orientation such as the view in FIG. 4). In some non-limiting examples, the recess **116** can accommodate different portions of a handle of the second urinal, which can be similar to the structure of the handle **118**). For example, the recess **116** can include portions **162**, **164**. The portion **162** can be positioned closer to the rear end **106** of the body **102** than the portion **164**.

Correspondingly, the portion **164** can be positioned closer to the front end **104** of the body **102** than the portion **162**. In some cases, the portion **164** can be directed into the bottom end **114** of the body **102** and can extend at an angle towards the rear end **106** of the body **102**. In some cases, the angle of the portion **164** can be substantially the same as the angle of the base **152** of the handle **118**, and the length of the portion **164** can be substantially the same as the length of the base **152**. In this way, the portion **164** can receive a corresponding base of the handle of a second urinal.

Correspondingly, the portion **162** can extend towards the rear end **106** of the body **102** away from the portion **164** (e.g., an end of the portion **164** that is positioned away from the bottom end **114** of the body **102**). In some cases, the portion **162** of the recess **116** can be substantially straight, and the length of the portion **162** can be substantially the same the length of the handle **118**. In this way, the portion **162** of the recess **116** can receive a corresponding arm of the handle of the second urinal. In some non-limiting examples, an end of the portion **162** can be concave, which can allow for a better engagement with a curved region **155** of the handle of the second urinal (e.g., similarly to the curved region **155** of the free end **124** of the handle **118**).

(30) In some non-limiting examples, the urinal **100** can include a gap **166** positioned between the handle **118** and the body **102**. In some cases, the gap **166** can include a concave region **168**, which can be positioned at an end of the gap **166** that is closer to the body **102**. In some cases, the concave region **168** (e.g., which can be directed into the body **102**) can receive a ridge of the third urinal (e.g., similar to the ridge **140** of the urinal **100**). In this way, the gap **166** can accommodate a ridge of the third urinal to more efficiently stack the urinals. In some non-limiting examples, the concave region **168** can correspond in shape to the ridge **140**.

(31) In some non-limiting examples, the extension **132** can be configured to mitigate tilting of the urinal **100**, which could cause the urinal **100** to spill liquid (e.g., out of the opening **122**). For example, the extension **132** can extend past a center of mass of the urinal **100** when the urinal does not include liquid (e.g., urine) positioned within the internal volume **117** of the body **102**, a center of mass of the urinal **100** when the urinal **100** includes liquid positioned therein (e.g., at least 100

mL, at least 200 mL, at least 300 mL, at least 400 mL, at least 500 mL, at least 600 mL, at least 700 mL, at least 800 mL, at least 900 mL, at least 1000 mL, etc.), a centroid of the body **102** of the urinal **100** in a direction from the rear end to the front end of the body. In other words, a free end of the extension **132** (e.g., including the ridge **140**) can be positioned closer to the front end **104** of the body **102** than the center of mass of the urinal **100** when the urinal **100** does not include liquid, the center of mass of the urinal **100** when the urinal **100** includes liquid, and the centroid of the body **102** of the urinal **100**. In some non-limiting examples, the ridge **140** can be configured to mitigate tilting of the urinal **100**. For example, the ridge **140** can engage a supporting surface (e.g., a table, the floor, etc.), which can prevent rocking, tilting, etc., of the urinal **100**, especially when the supporting surface is angled (e.g., angled downwardly).

(32) As shown in FIG. 3, the arm **154** can be integrally formed with the base **152** and can extend away from the front end **104** and towards the rear end **106** of the body **102**. In some cases, the arm **154** can extend past a centroid of the body **102**, a center of mass of the body **102** (e.g., when the body **102** contains a liquid), etc. In some cases, the arm **154** can extend in a substantially straight direction (e.g., the arm **154** can be substantially linear), which can include the arm **154** being substantially parallel to a longitudinal axis of the body **102** of the urinal **100**. In some non-limiting examples, the free end **124** of the handle **118** (e.g., the arm **154** of the handle **118**) can be curved. For example, the free end **124** of the handle **118** can define a curved region **155**, which can be convex. In this way, the curved region **155** can avoid edges, pointed regions, etc., that could be uncomfortable for a user when grasping the handle **118**.

(33) FIG. 5 shows a side view of the urinal **100**, which is the opposing side view as the side view in FIG. 4. As shown in FIG. 5, the body **102** of the urinal **100** can include a side wall **170** that can define the second side **110** of the body **102**. In some cases, the side wall **170** can include a substantially flat portion **172**, and a raised portion **174** (e.g., that extends past the substantially flat portion **172**). As shown in FIG. 5, the raised portion **174** can be larger than the substantially flat portion **172** (e.g., the raised portion **174** can span an area that is larger than the substantially flat portion **172**), and a portion of or the entire substantially flat portion **172** can surround the raised portion **172**. In some cases, the raised portion **172** can span substantially the entire side wall **170** (e.g., with the remaining portion being the substantially flat portion **172**). In some configurations, the raised portion **172** can span at least 50% of the entire area of the side wall **170**. As shown in FIG. 5, the raised portion **172** can contour the shape of the body **102** (e.g., along a longitudinal axis of the body **102**). For example, ends **176**, **178** of the raised portion **172** can be curved or angled upwardly (e.g., along a longitudinal axis of the body **102**). For example, the end **176** of the raised portion **172** can be curved upwardly along the neck **128** of the body **102** (e.g., relative to the longitudinal axis of the body **102**), which is also angled upwardly. Correspondingly, the end **178** of the raised portion **172** can be angled upwardly (e.g., relative to the longitudinal axis of the body **102**) along the portion **160** of the body **102** at the rear end **106** that is angled upwardly. In some cases, the cross-section of the raised portion **174** can decrease along the length of the body **102** in a direction towards the front end **104** of the body **102**. For example, the end **176** of the raised portion **174** can have a cross-section that is smaller than a cross-section of the raised portion **174** at a central portion of the raised portion **174**.

(34) In some non-limiting examples, the raised portion **174** is configured to be compressed into a compressed state (e.g., during shipment, transportation, etc.) and is configured to expand from the compressed state to an expanded state to define the raised portion **174**. In this way, when expanded (e.g., not compressed) the raised portion **174** can advantageously provide an increased internal volume **117** of the body **102** of the urinal **100** (e.g., so that the urinal can hold more liquid). Corresponding, the raised portion **174** can be compressed (e.g., against a substantially flat portion of the second urinal similar to the substantially flat portion **158** of the urinal **100**), which can compress the raised portion **174** thereby decreasing the internal volume **117** of the body **102** of the urinal **100** (e.g., during transport). In this way, the spring-like ability of the raised portion **174** to be

compressed and subsequently expanded can not only allow for more efficient packing of the urinals (e.g., because the width of the urinal can decrease by compressing the raised portion **174**) but can also increase the internal volume **117** (e.g., to hold more liquid, such as urine) when the urinals are unpacked and expanded. In some configurations, the raised portion **174** (and other raised portions of other urinals) when compressed into a container during shipment, transport, etc., can improve the stability of the urinals. In other words, the urinals, via the spring-like raised portions, are forced against walls of the container, which can minimize shifting of the urinals during transport. In some non-limiting examples, when the raised portion **174** is compressed, the raised portion **174** can be substantially flat and can align with the substantially flat portion **172** of the side wall **170**.

(35) FIG. **6** shows a bottom view of the urinal **100**. As shown in FIG. **6**, the extension **132** can have a non-uniform cross section (e.g., along the longitudinal axis of the body **102**). For example, the extension **132** can decrease in a direction from the rear end **106** to the front end **104** of the body **102**. As a more specific example, the extension **132** can include ledges **180**, **182**, that are situated between substantially linear portions **184**, **186** of the extension **132**. For example, the substantially linear portion **184** can be positioned between the ledges **180**, **182**, while the substantially linear portion **186** can be positioned closer to the front end **104** of the body **102** than the ledges **180**, **182**, and the substantially linear portion **184**. In some cases, the substantially linear portion **184** can be longer than the substantially linear portion **186**. As shown in FIG. **6**, the cross-section of the extension **132** can decrease along the ledge **180** (e.g., which can be concave), can be substantially uniform along the substantially linear portion **184**, decreases along the ledge **182** (e.g., which can be convex), and can be substantially uniform along the substantially linear portion **186**.

(36) FIG. **7** shows a top view of the urinal **100**. As shown in FIG. **7**, the body **102** can include a portion **188** (e.g., a rear portion) that can be bisected by a longitudinal axis **190** of the body **102** (e.g., into two equal halves of the portion **188** of the body **102**). In some cases, this longitudinal axis **190** (e.g., which can extend past the front end **104** and rear end **106** of the body **102**) can define the first side **108** of the body **102** and the second side **110** of the body **102**. In some non-limiting examples, some components including portions thereof of the urinal **100** can be positioned on only the first side **108**. For example, a portion of (or the entire) handle **118**, a portion of (or the entire) recess **116**, a portion of (or the entire) extension **132**, a center **192** of the opening **122** (e.g., the center **192** being the centroid of the opening **122**) can be positioned on only the first side **108** of the body **102** (e.g., not positioned on the second side **110** of the body **102**). In some cases, the positioning of these components can be desirable over alternative configurations. For example, the recess **116** being positioned on only one side of the body **102** not only accommodates the handle of a second urinal (similar to the urinal **100**) for easy insertion and removal, but also minimizes the extent of the recess **116** into the body **102** (e.g., the size of the recess **116**), which decreases the internal volume **117** of the body **102**. In other words, larger recesses can undesirably decrease the size of the internal volume **117**. For example, if the handle **118** were centrally located on the body **102**, the recess would have to extend through the entire body **102** from one side to the other (e.g., because having only a centrally located recess in the body **102** would not allow a handle of a second urinal to fit into the centrally located recess). Thus, the recess **116**, while accommodating the centrally located handle, would significantly decrease the internal volume **117** of the urinal **100**.

(37) In some non-limiting examples, the positioning of these components on only one side of the body **102** can be desirable over alternative configurations. For example, during blow molding processes, having features that are aligned (e.g., that are symmetrical about an axis) can be desirable at least because molding can be less complicated, the resulting part can be more stable (e.g., because the ridge that is indicative of the interface between the two halves of the mold extends uniformly along the part), etc. Thus, in some cases, a longitudinal axis **194** that is offset from the longitudinal axis **190** (e.g., and can be parallel to the longitudinal axis **190**) can extend through the handle **118**, extend through the recess **116**, extend through the extension **132**, extend through the ridge **140**, and extend through the opening **122**.

(38) FIG. 8 shows a cross-sectional view of the urinal **100** taken along line 8-8 of FIG. 7. In particular, FIG. 8 shows a plane that defines the cross-sectional view of the urinal **100**, which can be aligned with the longitudinal axis **194**. As shown in FIG. 8, the handle **118**, the recess **116**, the extension **132**, and the ridge **140** can be coplanar. For example, at least a portion of the handle **118**, at least a portion of the recess **116**, at least a portion of the extension **132**, and at least a portion of the ridge **140** can be coplanar (e.g., residing within the same plane that can intersect with the longitudinal axis **194**).

(39) FIG. 9 shows a side view of the urinal **100** (e.g., which can be similar to the view of FIG. 4), while FIG. 10 shows a different side view of the urinal **100** (e.g., which can be similar to the side view of FIG. 5). As shown in FIGS. 9 and 10, the urinal **100** can include one or more indicia that can indicate the amount of liquid positioned within the internal volume **117** of the body **102** of the urinal **100**. For example, each side of the urinal **100** can include respective indicia. In particular, the urinal **100** can include an indicia **196** positioned on the first side **108** of the body **102** of the urinal **100**, and an indicia **198** positioned on the second side **110** of the body **102** of the urinal **100**. Each indicia **196**, **198** can include one or more markings (e.g., a line) and a corresponding numeral that identifies the particular volume value when liquid is filled at the particular marking. For example, the indicia **196** can include a plurality of markings **200** each having a line and a numeral that indicates the particular volume level of liquid contained by the urinal **100**. Correspondingly, the indicia **198** can also include a plurality of markings **202** each having a line and a numeral that indicates the particular volume level of liquid contained by the urinal **100**. As shown in FIG. 10, the indicia **198** including the plurality of markings **202** can be positioned on the raised portion **174** of the urinal **100**.

(40) In some non-limiting examples, each of the plurality of markings **200**, **202** can contour the shape of the body **102** of the urinal **100** along the particular side of the urinal **100**. For example, as shown in FIG. 10, some of the markings **202** are positioned higher than some of the other markings **202**. In particular, a first set of the markings **202** can be centrally located on the body **102**, a second set of markings **202** can be positioned on the neck **128** of the body **102** above the first set of markings **202**, and a third set of markings **202** can be positioned proximal the rear end **106** of the body **102** and above the first set of markings **202** (e.g., with each set of markings being at least one marking). In other configurations, the plurality of markings **200**, **202** can extend in different ways along the body **102**. For example, as shown in FIG. 9, the plurality of markings **200** can extend in a line along the body **102** (e.g., with an axis, line, etc., intersecting each marking **200**). In some non-limiting examples, each indicia **196**, **198** can be coupled to the body **102** at the respective side of the body **102**. For example, in this case, each indicia **196**, **198** can be an adhesive label that can be coupled to the body **102** (e.g., after the body **102** is formed). In other cases, each indicia **196**, **198** can be integrally formed with the body **102**. In this case, each indicia **196**, **198** can be raised or recessed regions of the body **102**.

(41) In some non-limiting examples, the body **102** can be formed out of a transparent or a translucent material (e.g., plastic). In this way, the liquid including the liquid level within the body **102** can be visible outside of the body **102**. Thus, a user can, using the viewable liquid level and an indicia, determine when the liquid has reached a particular volume including when the urinal **100** is full of liquid.

(42) In some non-limiting examples, some or all of the components, features, etc., of the urinal **100** can be hollow (as appropriate) to advantageously increase the size of the internal volume **117** of the body **102** of the urinal **100**. For example, the extension **132** can be hollow (e.g., the internal volume **117** of the body **102** can extend into the extension **132**) to define an extension internal volume that can contain, hold, etc., liquid. As another example, the ridge **140**, the raised portion **174**, the handle **118**, etc., can each be hollow and thus each of these can contain a liquid.

(43) In some non-limiting examples, some or all the components of the urinal **100** can be integrally formed with each other, as appropriate. In other words, the some or all the components of the urinal

100 can form a single unitary component (e.g., the body **102**), as appropriate. In this way, the body **102** of the urinal **100** can include some or all of the components of the urinal **100**, such as, for example, the handle **118**, the extension **132**, the ridge **140**, etc. In some non-limiting examples, having a single unitary body of the urinal **100** (e.g., the body **102**) can be desirable for practitioners over other configurations. For example, a single unitary body requires little to no assembly of the urinal **100**, and thus the practitioner can simply grasp the body **102** of the urinal **100** (e.g., after disengaging the urinal **100** from another urinal nested thereto) to deliver the urinal **100** to the patient, rather than assembling, fastening, etc., multiple pieces of a urinal together prior to delivery to the patient. Thus, disposable urinals with a single unitary body can be considerably more user friendly (e.g., for nurses, nursing assistants, etc.).

(44) In some non-limiting examples, while the urinal **100** is illustrated as being a male urinal, in other configurations, the urinal **100** can be implemented as a female urinal. In this case, for example, a cup can be coupled to the body **102** of the urinal **100** (e.g., at the opening **122**). In particular, the cup can be threadingly engaged with the body **102** of the urinal at the opening **122** to fasten the cup to the body **102** of the urinal. In other cases, the cup can be integrally formed with the body **102**.

(45) In some non-limiting examples, the urinal **100** is configured to contain at least 1000 mL. For example, the internal volume **117** of the body **102** of the urinal **100** can be at least 1000 mL. In some non-limiting examples, while not shown, the urinal **100** can include a cap that can be coupled to the loop **148** and can be coupled to the body **102** at the opening **122** (e.g., by threadingly engaging the cap with the body **102** at the opening **122**) to seal the internal volume **117** and the liquid positioned therein from the ambient environment.

(46) FIG. **11** shows a side view of a urinal system **300** with multiple urinals stacked together that illustrate the nesting engagement between adjacent urinals. For example, the urinal system **300** can include urinals **302**, **304**, **306**, **308**, **310**, **312**, that can be positioned within a container **314**. Each urinal **302**, **304**, **306**, **308**, **310**, **312** can be implemented in a similar manner as the other urinals described herein (e.g., the urinal **100**). In addition, while six urinals **302**, **304**, **306**, **308**, **310**, **312** are illustrated being positioned within a container **314**, the urinal system **300** can include other numbers of urinals (e.g., two, three, four, greater than six, etc.). As shown in FIG. **11**, two or more of the urinals **302**, **304**, **306** can define a first column of urinals **316**, and two or more of the urinals **308**, **310**, **312** can define a second column of urinals **318**. Each urinal of the first column of urinals **316** can be oriented the same in a first orientation, while each urinal of the second column of urinals **318** can be orientated the same in a second orientation. However, the first orientation can be different than the second orientation. For example, the first orientation can be inverted relative to the second orientation. In this way, the first column of urinals **316** can be inverted relative to the second column of urinals **318** (e.g., with the first column of urinals **316** and the second column of urinals **318** being positioned within the container **314**). In some non-limiting examples, including when stacked, openings of some urinals can be aligned with openings of other urinals. For example, the opening of the urinal **304** can be aligned with the opening of the urinal **308**, the opening of the urinal **306** can be aligned with the opening of the urinal **310**, and so on.

(47) As shown in FIG. **11**, the first column of urinals **316** are stacked with adjacent urinals being nested within each other. For example, the handle of the urinal **304** can be inserted into the recess of the urinal **302**, and the handle of the urinal **306** can be inserted into the recess of the urinal **304**. This nesting arrangement can be followed for each urinal in the first column of urinals **316**. As shown in FIG. **11**, when the handle of the urinal **304** is inserted into the recess of the urinal **302**, at least a portion of the urinal **302** outside of the recess of the urinal **302** contacts the urinal **304** (e.g., a bottom of the urinal **302**, the extension of the urinal **302**, the neck of the urinal **302**, etc., contacts a top of the urinal **304**). In some cases, including when the handle of the urinal **304** is inserted into the recess of the urinal **302**, the loop of the urinal can be inserted within a first recess of the urinal **302** (e.g., at a neck of the urinal **302**), and a portion of the urinal **304** that defines the opening of the

urinal **304** can be inserted into a second recess of the urinal **302** (e.g., at the neck of the urinal **302**). In some non-limiting examples, the extension (and the ridge of the extension) of the urinal **302** can be inserted into the gap between the handle of the urinal **304** and the body of the urinal **304**. In some cases, the ridge of the urinal **302** can interface with a concave region of the urinal **304** (e.g., at the gap of the urinal **304**).

(48) In some non-limiting examples, a portion of a urinal from the second column of urinals **318** can interface with a portion of a urinal from the first column of urinals **316** (and vice versa). For example, as shown in FIG. **11**, a portion of the urinal **308** at the opening of the urinal **308** (e.g., the mouth of the urinal **308**) can be inserted into a third recess of the urinal **302** (e.g., at the neck of the urinal **302**), in which the third recess is positioned above the first and second recesses.

Correspondingly, a portion of the urinal **304** at the opening of the urinal **304** can be inserted into a recess of the urinal **310** (e.g., that is directed into the neck of the urinal **310**, which can be similar to the third recess of the urinal **302**). In this way, not only can urinals within a column be nested together to form a compact stack of urinals, but columns of urinals (e.g., stacks of urinals) can also be nested together with other stacks of urinals. Thus, the nestable, stackable, etc., urinals described herein can considerably improve the packing efficiency within a container (e.g., the container **314**). For example, in some cases, 33% more urinals can be packed within the same volume of a container as compared to typical urinals (e.g., urinals with a centrally located handle).

(49) FIG. **12** shows a front isometric view of a urinal **350**. The urinal **350** can be implemented in a similar manner as the other urinals described herein including the urinal **100**. Thus, the description of the urinal **100** pertains to the description of the urinal **350** (and vice versa). For example, the urinal **350** can include a body **352** that defines an interior volume **354**, a handle **356** coupled to (or integrally formed with) the body **352**, and an opening **358** that can be fluidly coupled to the interior volume **354**. The body **352** can include a neck **360** and the opening **358** can be positioned at the neck **360**.

(50) FIG. **13** shows a front side view of the urinal **350**. As shown in FIG. **13**, the urinal **350** can include a loop **362** that can be coupled to (or integrally formed with) the body **352** and can be positioned at the neck **360** on a top side of the body **352** (e.g., opposite to one or more recesses directed into the neck **360**). However, the loop **362** of the urinal **350** (as opposed to the loop **148** of the urinal **100**) can include a portion **364** that can be straight (e.g., the portion **364** extending in a straight line). In some cases, the portion **364** can be substantially perpendicular to a plane that defines the opening **358**, such that an axis that is parallel to the portion **364** intersects the plane defined by the opening **358** (e.g., with the opening **358** being circular). In some configurations, and similarly to the urinal **100**, the loop **362** can define a slot **366**, which can be configured to receive a tether (e.g., coupled to a cap that engages with the body **352** of the urinal **350** at the opening **358**). The slot **366** can also be straight (e.g., extend in a straight line) and can be angled relative to the portion **364**. In some cases, the portion **364** being straight rather than convex can allow for easier engagement between a tether and the loop **362** at the slot **366** (e.g., with the loop **362** less likely blocking a tether as a convex loop such as the loop **148**). In addition, the portion **364** having a straight line of sight to the top of the rim aides in automatically assembling, as the end of arm tooling will not have to manipulate the tether in the process of inserting the spade into the loop **362**.

(51) As shown in FIG. **13**, the urinal **350** can also include a gap **368** between the handle **356** and the body **352** (e.g., at a top surface of the body **352**). In some cases, the gap **368** can be defined between a surface of the handle **356** that is straight and a surface of the body **352** that is straight. In some cases, these surfaces can be parallel to each other and each surface that is straight can be parallel to a longitudinal axis of the urinal **350**. In some configurations, the gap **368** can also include a concave region **370**, which can be defined by the body **352**, and the handle **356**. In some embodiments, the gap **368** (e.g., between the surface of the handle **356** and the surface of the body **352**) can be relatively large to accommodate the hands of various practitioners (and users of the urinal **350**). Thus, the gap **368** can be substantially (i.e., deviating by less than 10 percent from) 22

millimeters. In some cases, the gap **368** can be greater than 21 millimeters, greater than 25 millimeters, etc. In some configurations, the gap **368** can be used to secure the urinal **350** relative to a bed rail, in which the larger gap **368** can accommodate larger variabilities in bed rails. For example, the bed rail can be inserted into the gap **368** and into the concave region **370** until the bed rail contacts the body **352** of the urinal **350**. At this point, the urinal **350** can be supported by the bed rail.

(52) FIG. **14** shows a top view of the urinal **350**. As shown in FIG. **14**, the handle **356** can decrease in width along the longitudinal axis **372** of the urinal **350** away from the opening **358** (e.g., and towards the rear end of the body **352**) to define a decreasing portion and can increase along the longitudinal axis **372** of the urinal **350** away from the opening **358** to define an increasing portion (that is separated from the decreasing portion). For example, the handle **356** can include a base **374**, a straight portion **376**, and a free end portion **378**. The straight portion **376** can be positioned between the base **374** and the free end portion **378**. In addition, the base **374** can decrease in width along the longitudinal axis **372** of the urinal **350** away from the opening **358** and the straight portion **376** can be parallel to the longitudinal axis **372**. The free end portion **378** can include a portion that increases in width along the longitudinal axis **372** of the urinal **350** away from the opening **358** and a portion that is straight (e.g., and is parallel to the longitudinal axis **372**). In some configurations, the portion that is straight of the free end portion **378** can be positioned farther away from the opening **358** than the portion of the free end portion **378** that is straight. In cases, the handle **356** can define a recess **380** that is directed into the handle **356** towards a raised portion **382** of the urinal **350** that is configured to expand (e.g., when compressed). The recess **380** can be concave (e.g., from a top view of the urinal **350** such as the view in FIG. **14**) and can define the various portions or segments of the handle **356**. In some cases, the width of the free end portion **378** of the handle **356** (e.g., the substantially straight portion thereof) can be larger than the width of the straight portion **376**. In this way, a user can more easily insert their hand into around the handle **356** while the larger width of the free end portion **378** can provide a bigger gripping area for better securement (e.g., when holding the urinal **350** by the handle **356**). In some configurations, the width of handle **356** and more specifically the width of the free end portion **378** of the handle **356** can be substantially 19 millimeters.

(53) FIG. **15** shows a flowchart of a process **400** of packing urinals. At **402**, the process **350** can include inserting a handle of a first urinal into a recess of a second urinal. In some cases, the recess of the second urinal can be directed into a body of the second urinal (e.g., directed into the bottom end of the body of the second urinal). In some cases, this can include inserting an extension of the second urinal into a gap in the first urinal that is between the handle of the first urinal and the body of the first urinal. In some non-limiting examples, the block **402** can include inserting a base of the handle of the first urinal into a first portion of the recess of the second urinal and inserting an arm of the handle of the first urinal into a second portion of the recess of the second urinal. In some configurations, including after the handle is inserted into the recess, the second urinal can be positioned above the first urinal.

(54) At **404**, the process **400** can include inserting a loop of the first urinal into a second recess of the first urinal. In some cases, the loop can be configured to receive a tether (e.g., that is coupled to a cap).

(55) At **406**, the process **400** can include inserting a portion of the first urinal that defines an opening of the first urinal into a third recess of the second urinal. In some cases, the third recess can be positioned above the second recess. In some non-limiting examples, the blocks **402**, **404**, **406** of the process **400** can occur simultaneously. For example, when the handle of the first recess is inserted into the recess of the second urinal, the respective portions of the first urinal can be received within the second urinal.

(56) At **408**, the process **400** can include inserting a handle of a third urinal into a recess of the first urinal. In some non-limiting examples, the block **408** can include similar features at the blocks **404**,

406, except for the interaction between the first urinal and the third urinal as compared to the second urinal and the first urinal. For example, the block **408** can include inserting a loop of the third urinal into a second recess of the first urinal, inserting a portion of the third urinal that defines an opening of the third urinal into a third recess of the first urinal.

(57) In some non-limiting examples, the process **400** can include forming one or more stacks of urinals (e.g., using some or all of the blocks **402-408**), in which each urinal of the stack or urinals has the same orientation (e.g., a first orientation). In some cases, the process **400** can include extending the stack of urinal (e.g., lengthening the stack of urinals) by, for example, using the blocks of the process **350** for additional urinals (e.g., a fourth urinal, a fifth urinal, etc.).

(58) In some non-limiting examples, the block **410** of the process **400** can include forming a first stack of urinals, and a second stack of urinals. In some cases, each urinal of the first stack of urinals can have the same orientation (e.g., a first orientation), and each urinal of the second stack of urinals can have the same orientation (e.g., a second orientation) that is different than the orientation of the urinals of the first stack of urinals (e.g., inverted). In some cases, this can include inverting the second stack of urinals to an inverted orientation relative to the first stack or urinals. In some cases, this can include aligning an opening of one or more urinals of the first stack of urinals with a respective opening of one or more urinals of the second stack of urinals. In some non-limiting examples, the process **350** can include inserting a portion of a fourth urinal that defines an opening of the fourth urinal into a fourth recess of the second urinal (e.g., in which the fourth recess is positioned above the second recess and the third recess).

(59) At **412**, the process **400** can include placing the multiple urinals (e.g., including the first stack or urinals, the second stack of urinals, etc.), into a container. In some cases, this can include decreasing an internal volume of each urinal of the multiple urinals (e.g., which can include decreasing the internal volume of one urinal). For example, this can include compressing a raised portion of a urinal to decrease the internal volume of the urinal (e.g., for each urinal of the plurality of urinals). In some cases, this can include contacting the raised portion of the urinal with an adjacent urinal (e.g., a substantially flat portion of the adjacent urinal opposite a raised portion of the adjacent urinal) to compress the raised portion of the urinal.

(60) The present disclosure has described one or more preferred non-limiting examples, and it should be appreciated that many equivalents, alternatives, variations, and modifications, aside from those expressly stated, are possible and within the scope of the invention.

(61) It is to be understood that the disclosure is not limited in its application to the details of construction and the arrangement of components set forth in the accompanying description or illustrated in the accompanying drawings. The disclosure is capable of other non-limiting examples and of being practiced or of being carried out in various ways. Also, it is to be understood that the phraseology and terminology used herein is for the purpose of description and should not be regarded as limiting. The use of “including,” “comprising,” or “having” and variations thereof herein is meant to encompass the items listed thereafter and equivalents thereof as well as additional items. Unless specified or limited otherwise, the terms “mounted,” “connected,” “supported,” and “coupled” and variations thereof are used broadly and encompass both direct and indirect mountings, connections, supports, and couplings. Further, “connected” and “coupled” are not restricted to physical or mechanical connections or couplings.

(62) As used herein, unless otherwise limited or defined, discussion of particular directions is provided by example only, with regard to particular non-limiting examples or relevant illustrations. For example, discussion of “top,” “front,” or “back” features is generally intended as a description only of the orientation of such features relative to a reference frame of a particular example or illustration. Correspondingly, for example, a “top” feature may sometimes be disposed below a “bottom” feature (and so on), in some arrangements or non-limiting examples. Further, references to particular rotational or other movements (e.g., counterclockwise rotation) is generally intended as a description only of movement relative a reference frame of a particular example of illustration.

(63) Certain operations of methods according to the disclosure, or of systems executing those methods, may be represented schematically in the FIGS. or otherwise discussed herein. Unless otherwise specified or limited, representation in the FIGS. of particular operations in particular spatial order may not necessarily require those operations to be executed in a particular sequence corresponding to the particular spatial order. Correspondingly, certain operations represented in the FIGS., or otherwise disclosed herein, can be executed in different orders than are expressly illustrated or described, as appropriate for particular non-limiting examples of the disclosure. Further, in some non-limiting examples, certain operations can be executed in parallel, including by dedicated parallel processing devices, or separate computing devices configured to interoperate as part of a large system.

(64) In some implementations, devices or systems disclosed herein can be utilized or installed using methods embodying aspects of the disclosure. Correspondingly, description herein of particular features, capabilities, or intended purposes of a device or system is generally intended to inherently include disclosure of a method of using such features for the intended purposes, a method of implementing such capabilities, and a method of installing disclosed (or otherwise known) components to support these purposes or capabilities. Similarly, unless otherwise indicated or limited, discussion herein of any method of manufacturing or using a particular device or system, including installing the device or system, is intended to inherently include disclosure, as non-limiting examples of the disclosure, of the utilized features and implemented capabilities of such device or system.

(65) As used herein, unless otherwise defined or limited, ordinal numbers are used herein for convenience of reference based generally on the order in which particular components are presented for the relevant part of the disclosure. In this regard, for example, designations such as “first,” “second,” etc., generally indicate only the order in which the relevant component is introduced for discussion and generally do not indicate or require a particular spatial arrangement, functional or structural primacy or order.

(66) As used herein, unless otherwise defined or limited, directional terms are used for convenience of reference for discussion of particular figures or examples. For example, references to downward (or other) directions or top (or other) positions may be used to discuss aspects of a particular example or figure, but do not necessarily require similar orientation or geometry in all installations or configurations.

(67) This discussion is presented to enable a person skilled in the art to make and use non-limiting examples of the disclosure. Various modifications to the illustrated examples will be readily apparent to those skilled in the art, and the generic principles herein can be applied to other examples and applications without departing from the principles disclosed herein. Thus, non-limiting examples of the disclosure are not intended to be limited to non-limiting examples shown but are to be accorded the widest scope consistent with the principles and features disclosed herein and the claims below. The accompanying detailed description is to be read with reference to the figures, in which like elements in different figures have like reference numerals. The figures, which are not necessarily to scale, depict selected examples and are not intended to limit the scope of the disclosure. Skilled artisans will recognize the examples provided herein have many useful alternatives and fall within the scope of the disclosure.

(68) Also as used herein, unless otherwise limited or defined, “or” indicates a non-exclusive list of components or operations that can be present in any variety of combinations, rather than an exclusive list of components that can be present only as alternatives to each other. For example, a list of “A, B, or C” indicates options of: A; B; C; A and B; A and C; B and C; and A, B, and C. Correspondingly, the term “or” as used herein is intended to indicate exclusive alternatives only when preceded by terms of exclusivity, such as “either,” “one of,” “only one of,” or “exactly one of.” Further, a list preceded by “one or more” (and variations thereon) and including “or” to separate listed elements indicates options of one or more of any or all of the listed elements. For

example, the phrases “one or more of A, B, or C” and “at least one of A, B, or C” indicate options of: one or more A; one or more B; one or more C; one or more A and one or more B; one or more B and one or more C; one or more A and one or more C; and one or more of each of A, B, and C. Similarly, a list preceded by “a plurality of” (and variations thereon) and including “or” to separate listed elements indicates options of multiple instances of any or all of the listed elements. For example, the phrases “a plurality of A, B, or C” and “two or more of A, B, or C” indicate options of: A and B; B and C; A and C; and A, B, and C. In general, the term “or” as used herein only indicates exclusive alternatives (e.g. “one or the other but not both”) when preceded by terms of exclusivity, such as “either,” “one of,” “only one of,” or “exactly one of.”

(69) Also as used herein, unless otherwise specified or limited, the terms “about” and “approximately,” as used herein with respect to a reference value, refer to variations from the reference value of $\pm 15\%$ or less (e.g., $\pm 10\%$, $\pm 5\%$, etc.), inclusive of the endpoints of the range. Similarly, the term “substantially equal” (and the like) as used herein with respect to a reference value refers to variations from the reference value of less than $\pm 30\%$ (e.g., $\pm 20\%$, $\pm 10\%$, $\pm 5\%$) inclusive. Where specified, “substantially” can indicate in particular a variation in one numerical direction relative to a reference value. For example, “substantially less” than a reference value (and the like) indicates a value that is reduced from the reference value by 30% or more, and “substantially more” than a reference value (and the like) indicates a value that is increased from the reference value by 30% or more.

(70) Also as used herein, unless otherwise limited or defined, “integral” and derivatives thereof (e.g., “integrally”) describe elements that are manufactured as a single piece without fasteners, adhesive, or the like to secure separate components together. For example, an element stamped, cast, or otherwise molded as a single-piece component from a single piece of sheet metal or using a single mold, without rivets, screws, or adhesive to hold separately formed pieces together is an integral (and integrally formed) element. In contrast, an element formed from multiple pieces that are separately formed initially then later connected together, is not an integral (or integrally formed) element.

(71) Various features and advantages of the disclosure are set forth in the following claims.

Claims

1. A urinal comprising: a body defining a front end, a rear end opposite the front end, and an internal volume, the body including an opening fluidly coupled to the internal volume of the body and positioned at the front end of the body; a handle integrally formed with the body, the handle having a free end that extends away from the front end of the body towards the rear end of the body; and a recess directed into a bottom end of the body, the recess being configured to receive a second handle of a second urinal.
2. The urinal of claim 1, wherein the recess includes a first portion and a second portion, the first portion being positioned closer to the rear end of the body than the second portion; and wherein the second handle of the second urinal includes a base and an arm extending away from the base; and wherein the first portion of the recess is configured to receive the arm of the second handle and the second portion of the recess is configured to receive the base of the second handle.
3. The urinal of claim 1, wherein an internal volume of the handle is fluidly coupled to the internal volume of the body.
4. The urinal of claim 1, wherein the recess of the urinal corresponds in shape to the second handle of the second urinal; and wherein when the second handle of the second urinal is inserted into the recess of the urinal, at least a portion of the urinal outside of the recess is configured to contact the second urinal.
5. The urinal of claim 4, wherein the body includes an extension; wherein a free end of the extension extends away from the rear end of the body and towards the front end of the body; and

wherein the extension at least partially defining the recess of the urinal.

6. The urinal of claim 5, wherein the internal volume of the body extends into the extension to define an extension internal volume; and wherein the extension internal volume is configured to contain a liquid.

7. The urinal of claim 4, wherein a longitudinal axis bisects at least a portion of the body to define a first side of the body and a second side of the body, and the longitudinal axis extends through the front end and the rear end of the body; and wherein at least a portion of the recess, a portion of the extension, a portion of the handle, or a center of the opening is only positioned on the first side of the body.

8. The urinal of claim 7, wherein the portion of the recess, the portion of the extension, the portion of the handle, and the center of the opening is only positioned on the first side of the body.

9. The urinal of claim 8, wherein the entire handle, and the entire recess are positioned on only the first side of the body.

10. The urinal of claim 7, wherein the body includes a seam defines a ridge that extends across at least a portion of the body, a portion of the handle, a portion of the body at the opening, a portion of the extension, a portion of the body at the recess, and a portion of the body outside of the opening and the recess.

11. The urinal of claim 7, wherein the body includes a neck that joins the opening; and wherein the neck is curved or is angled upwardly relative to the longitudinal axis.

12. The urinal of claim 11, wherein the recess is a first recess and the opening is a first opening; wherein the neck includes a second recess that is directed into the neck; and wherein the second urinal at a second opening of the second urinal is configured to be inserted within the second recess when the second handle of the second urinal is received within the first recess.

13. The urinal of claim 12, further comprising a third recess directed into the neck, the second recess being positioned above the third recess; wherein the second urinal includes a loop proximal to the second opening that is configured to receive a tether; and wherein the loop of the urinal is configured to be inserted into the third recess of the urinal when the second handle of the second urinal is received within the first recess.

14. The urinal of claim 11, wherein the rear end of the body is angled upwardly relative to the longitudinal axis of the body.

15. The urinal of claim 1, wherein the body includes a first side wall and a second side wall opposite the first side wall; wherein the first side wall includes a raised portion and a substantially flat portion; wherein the raised portion is configured to be compressed to align with the substantially flat portion and decrease the internal volume of the body; and wherein the raised portion is configured to expand from being compressed and extend away from the substantially flat portion to increase the internal volume of the body.

16. The urinal of claim 15, wherein the substantially flat portion surrounds the raised portion.

17. The urinal of claim 15, wherein the raised portion spans at least 50% of the entire area of the first side wall.

18. The urinal of claim 15, wherein the raised portion contours the shape of the body along the body.

19. The urinal of claim 18, further comprising indicia that indicates the amount of liquid positioned within the internal volume of the body of the urinal; and wherein the indicia are positioned on the raised portion.

20. The urinal of claim 1, wherein the front end and the rear end are curved upwardly.

21. The urinal of claim 1, wherein the body includes an extension; wherein a free end of the extension extends past a center of mass of the urinal when the urinal does not include liquid positioned therein, a center of mass of the urinal when the urinal includes liquid positioned therein, or a centroid of the body of the urinal in a direction from the rear end to the front end of the body.

22. The urinal of claim 1, wherein the body includes an extension and a ridge at a free end of the

extension; wherein the ridge is configured to engage a supporting surface to mitigate tilting of the urinal.

23. The urinal of claim 1, wherein the urinal is formed of a polymer or a plastic.

24. The urinal of claim 23, wherein the polymer or the plastic is transparent or translucent.

25. The urinal of claim 1, wherein the body of the urinal defines multiple walls, and wherein each of the multiple walls of the urinal has a thickness that is less than 5.1 millimeters, or less than 1.3 millimeters.

26. The urinal of claim 1, wherein the urinal that includes the internal volume is configured to contain at least 1000 mL.

27. A urinal system comprising: a first urinal including a first body, a first handle integrally formed with the first body, and a first recess directed into a bottom end of the first body; and a second urinal including a second body and a second handle integrally formed with the first body, wherein the second handle of the second urinal is inserted into the first recess of the first body of the first urinal; and wherein the first urinal is positioned above the second urinal when the second handle of the second urinal is inserted into the first recess of the first urinal.

28. The urinal system of claim 27, wherein the second urinal includes a second recess directed into a bottom end of the second body, and further comprising: a third urinal including a third body, and a third handle integrally formed with the third body; and wherein the third handle of the third urinal is inserted into the second recess of the second urinal.

29. The urinal system of claim 27, wherein the first body of the first urinal includes a first extension; and wherein the first extension is inserted into a first gap that is between the first handle and the first body of the first urinal when the second handle is inserted into the first recess of the first urinal.

30. The urinal system of claim 27, wherein the first urinal is in the same orientation as the second urinal when the second handle of the second urinal is inserted into the first recess of the first urinal.

31. A method of packing multiple urinals in a container, the multiple urinals including a first urinal and a second urinal, the method comprising: inserting a second handle of the second urinal into a first recess of the first urinal, the first recess being directed into a bottom end of a first body of the first urinal; and inserting a first extension of the first urinal into a second gap of the second urinal, the second gap being positioned between the second handle and a second body of the second urinal.

32. The method of claim 31, wherein the multiple urinals include a third urinal, and further comprising inserting a third handle of a third urinal into a second recess of the second urinal, the second recess being directed into a bottom end of a second body of the second urinal.

33. The method of claim 31, further comprising placing the multiple urinals into a container for shipping or storage of the multiple urinals.

34. The method of claim 31, wherein each of the multiple urinals are formed out of a plastic.
