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(54) **ICE CONTAINER SYSTEMS**

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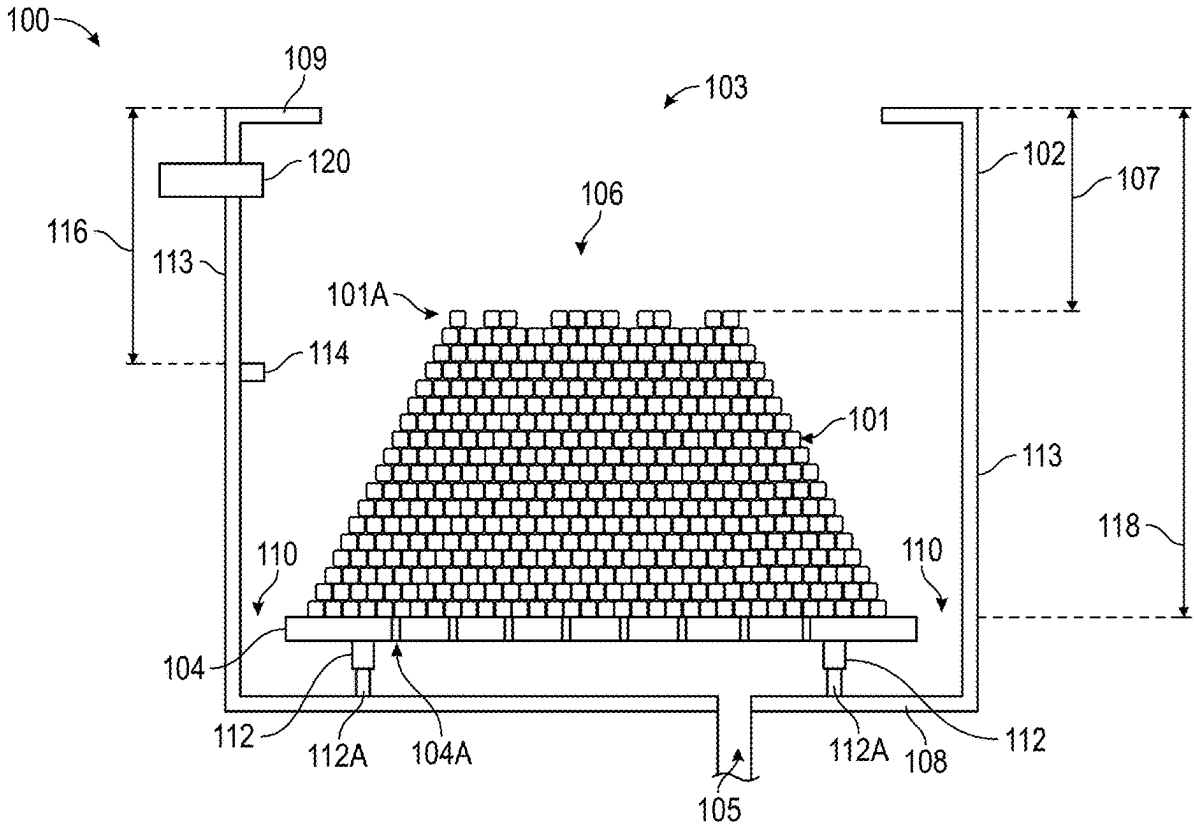
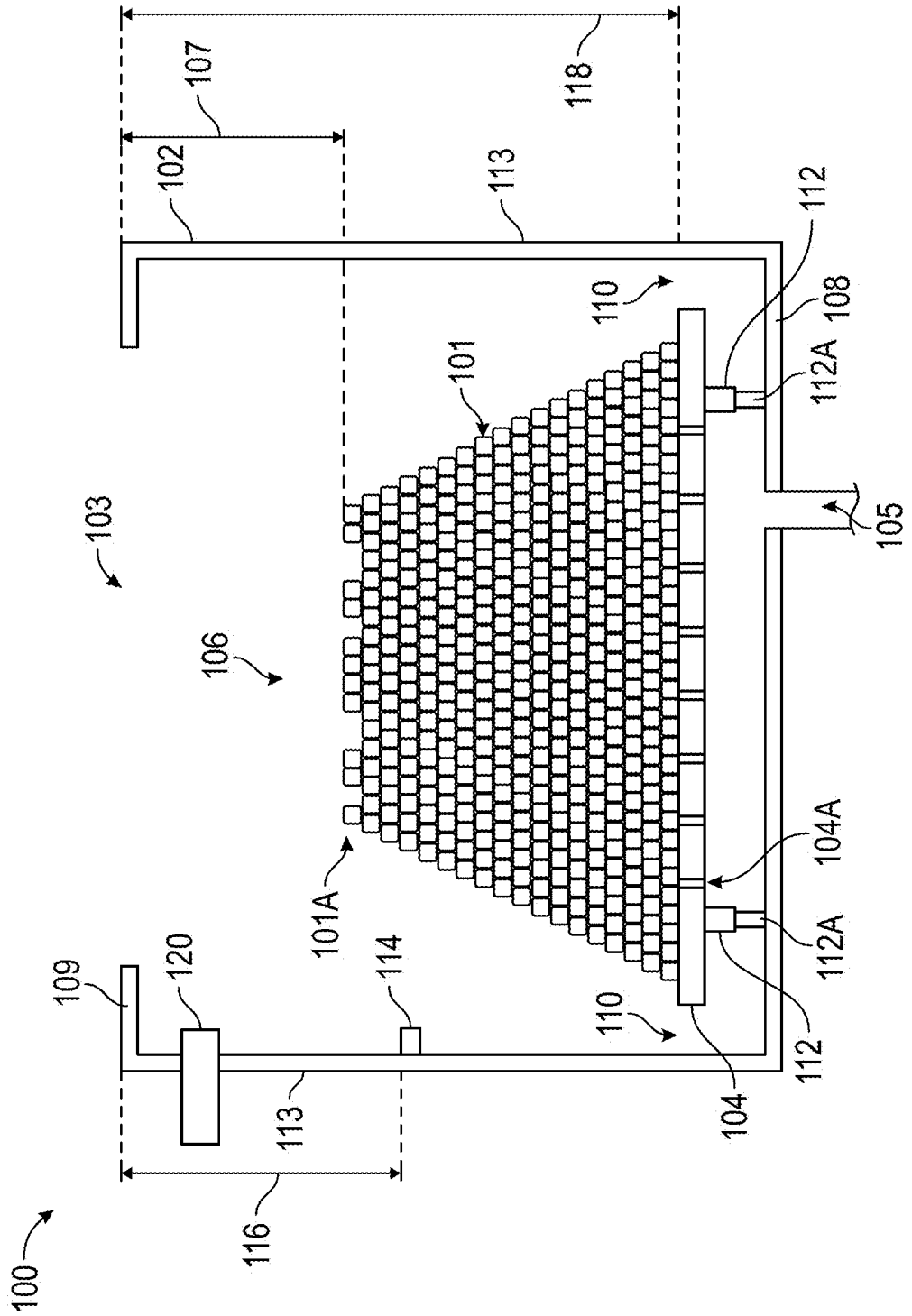
(57) **ABSTRACT**

An ice container may include a housing with an inner volume. The housing may hold ice in the inner volume. An ice container may include a base in the inner volume. The base may support ice in the inner volume. A lift coupled to the base, may move the base between a top of the housing and a bottom of the housing in order to maintain a top level of ice in the inner volume within a predetermined distance from the top of the housing.




100
103
106
101
101A
102
107
113
116
118
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110
112
112A
114
120
104
104A

FIG. 1

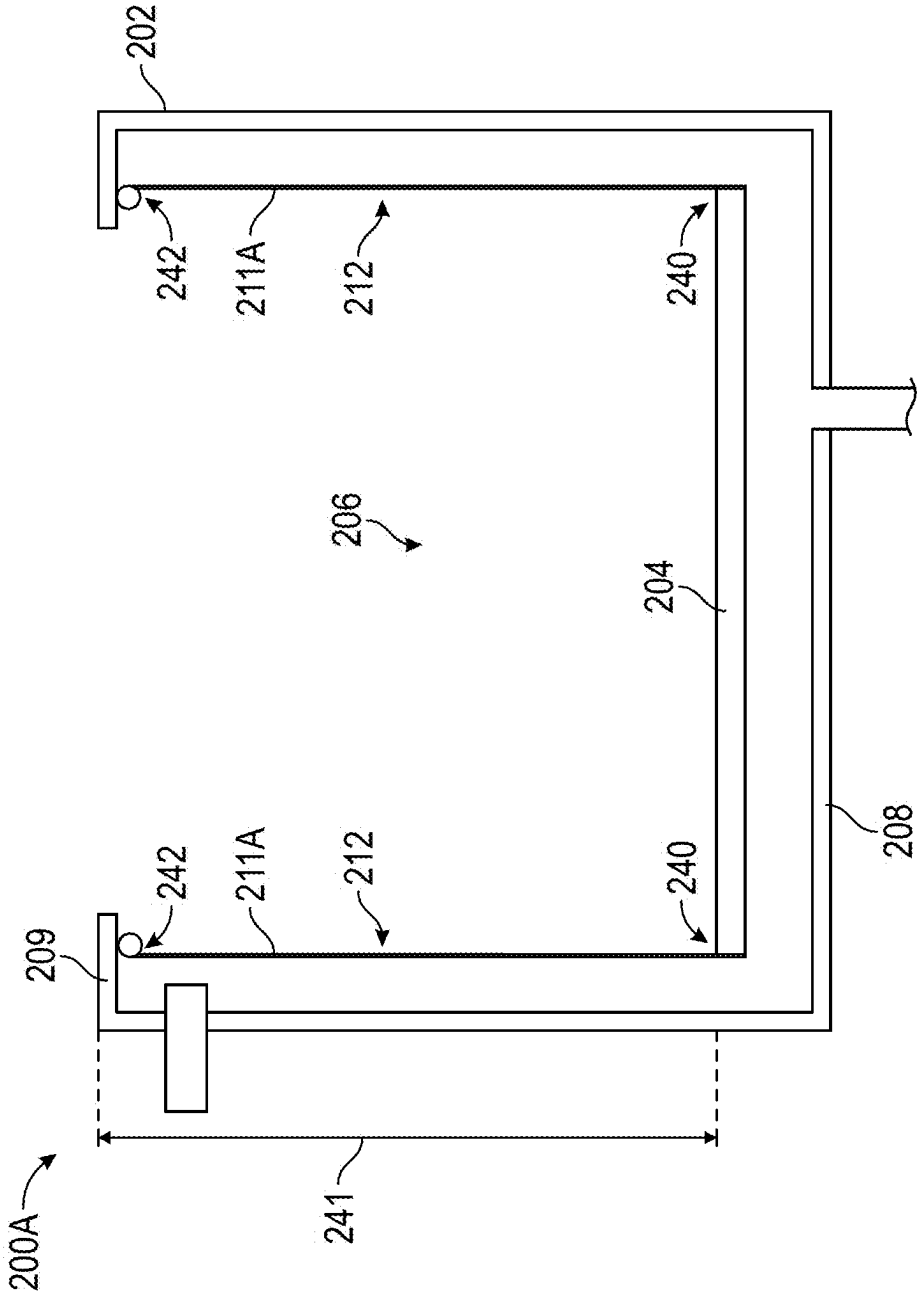


FIG. 2A

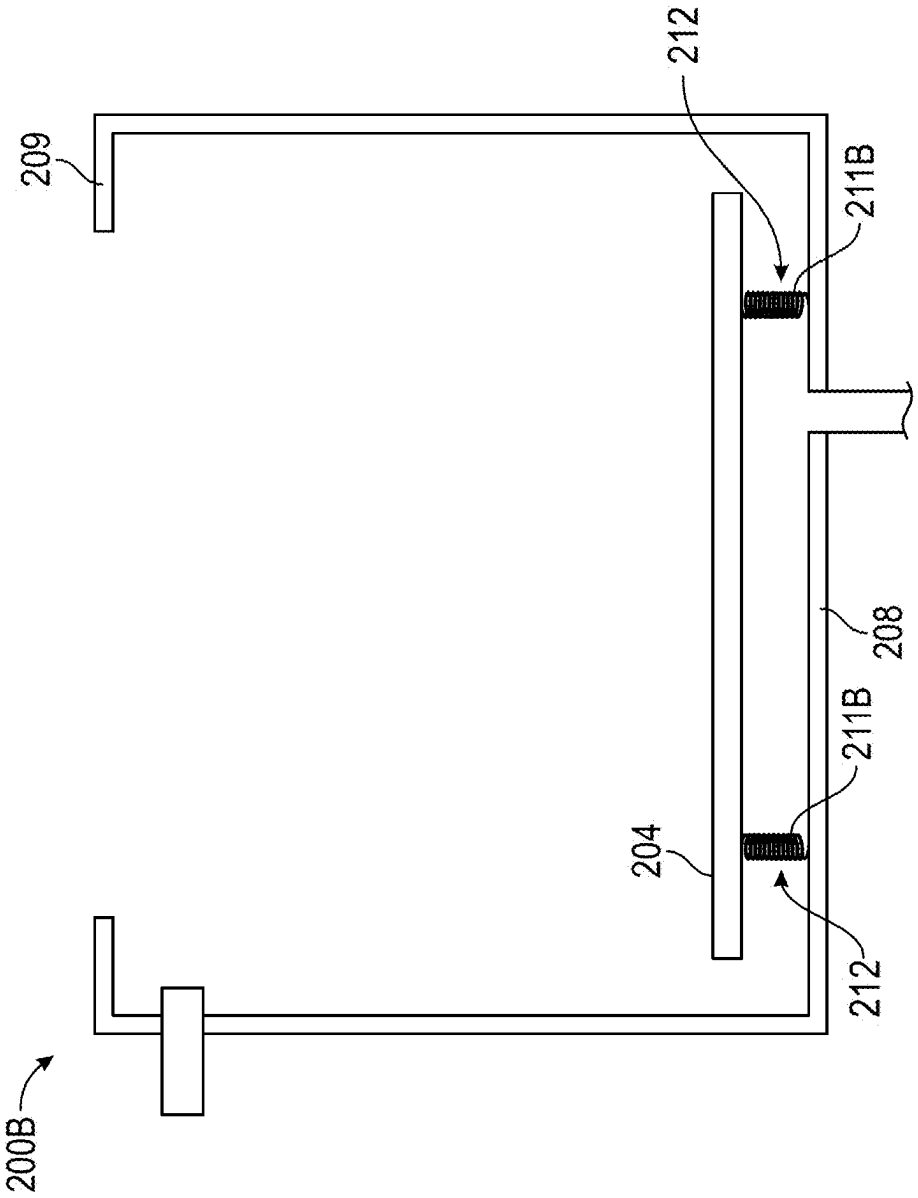


FIG. 2B

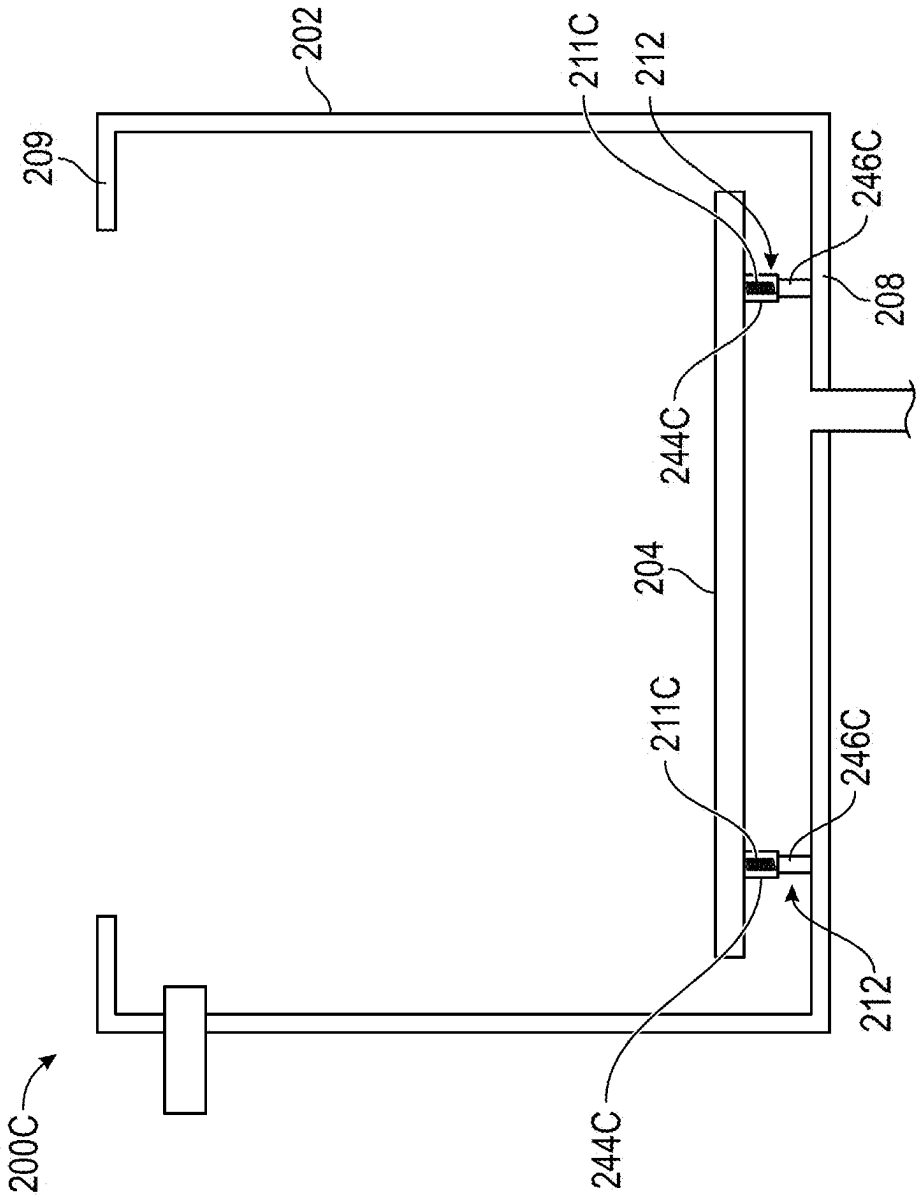


FIG. 2C

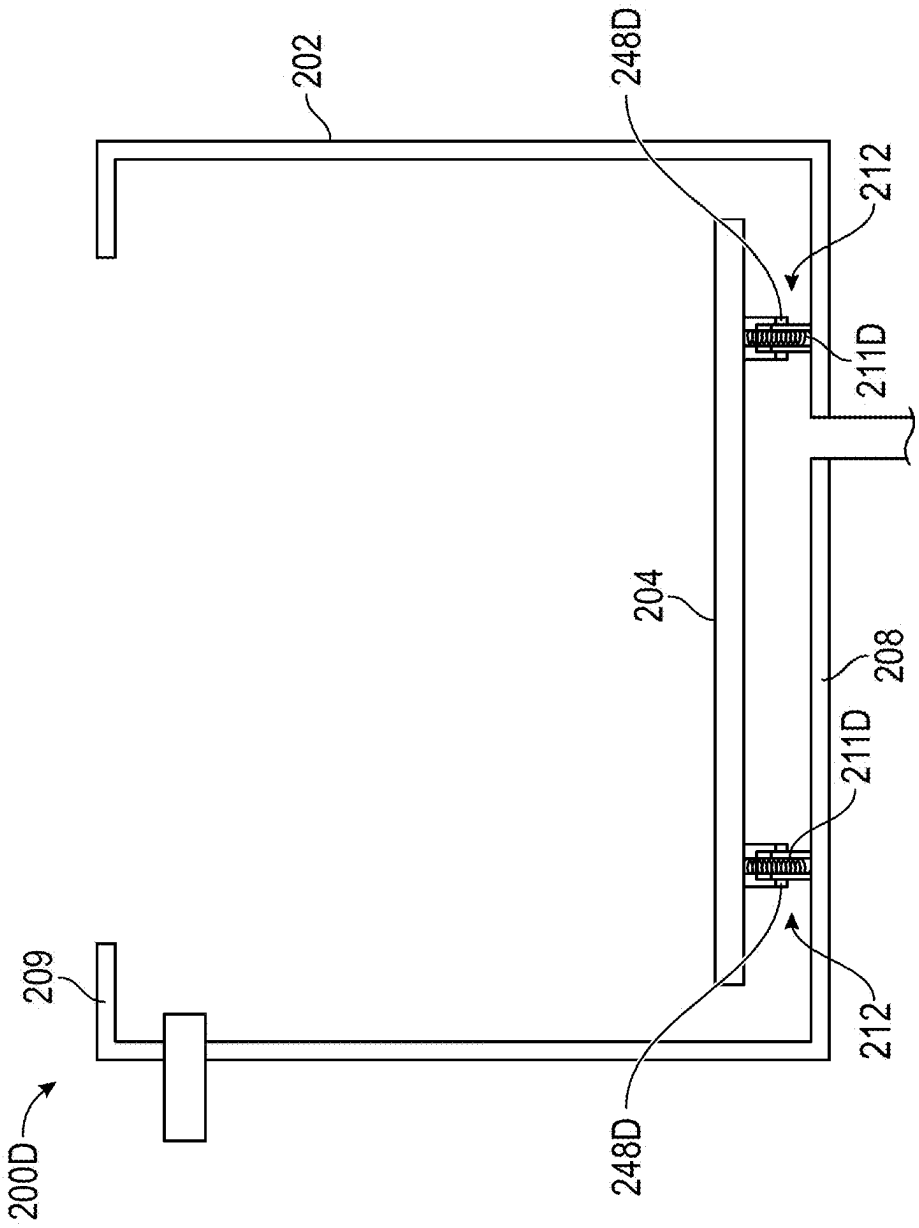
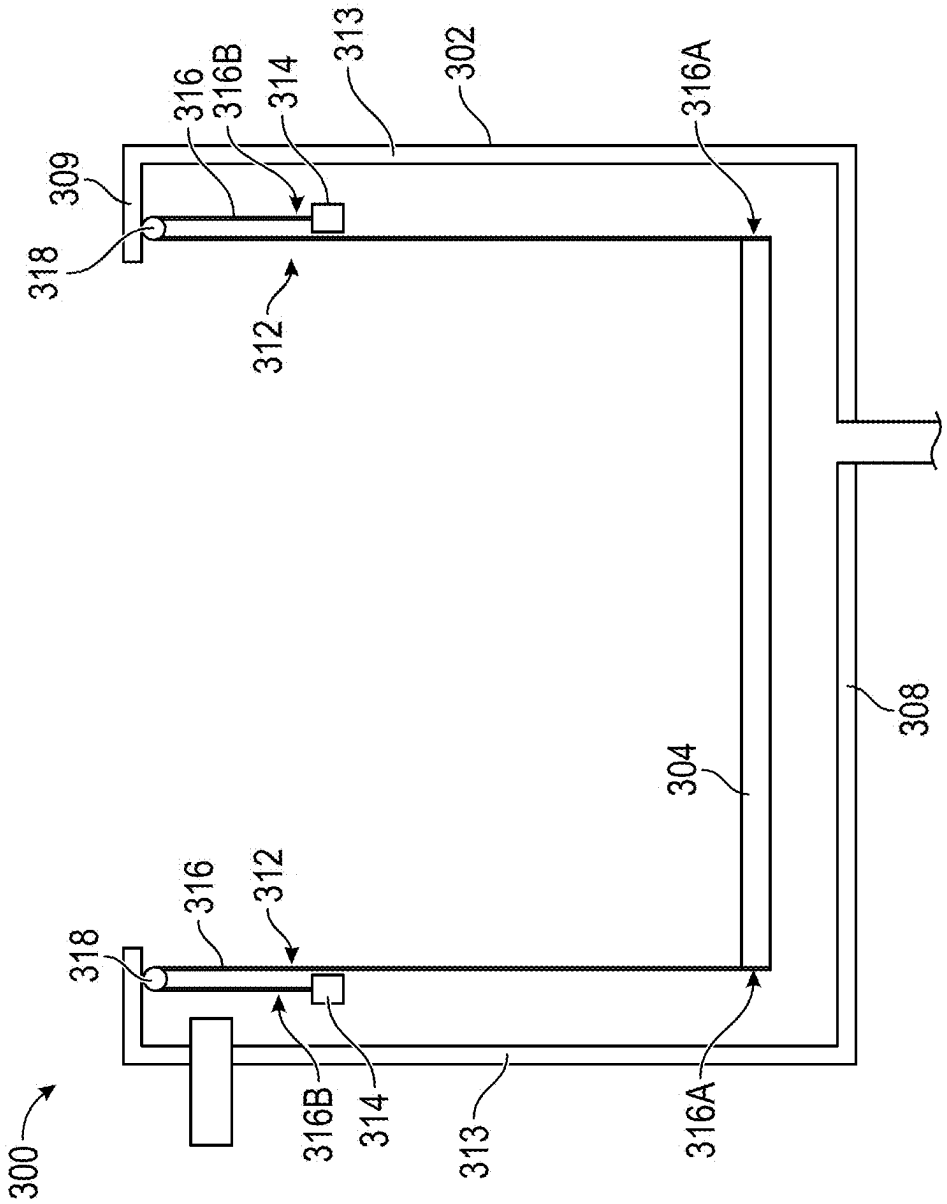


FIG. 2D


313
302
316
316B
314
316A
309
318
312
308
304
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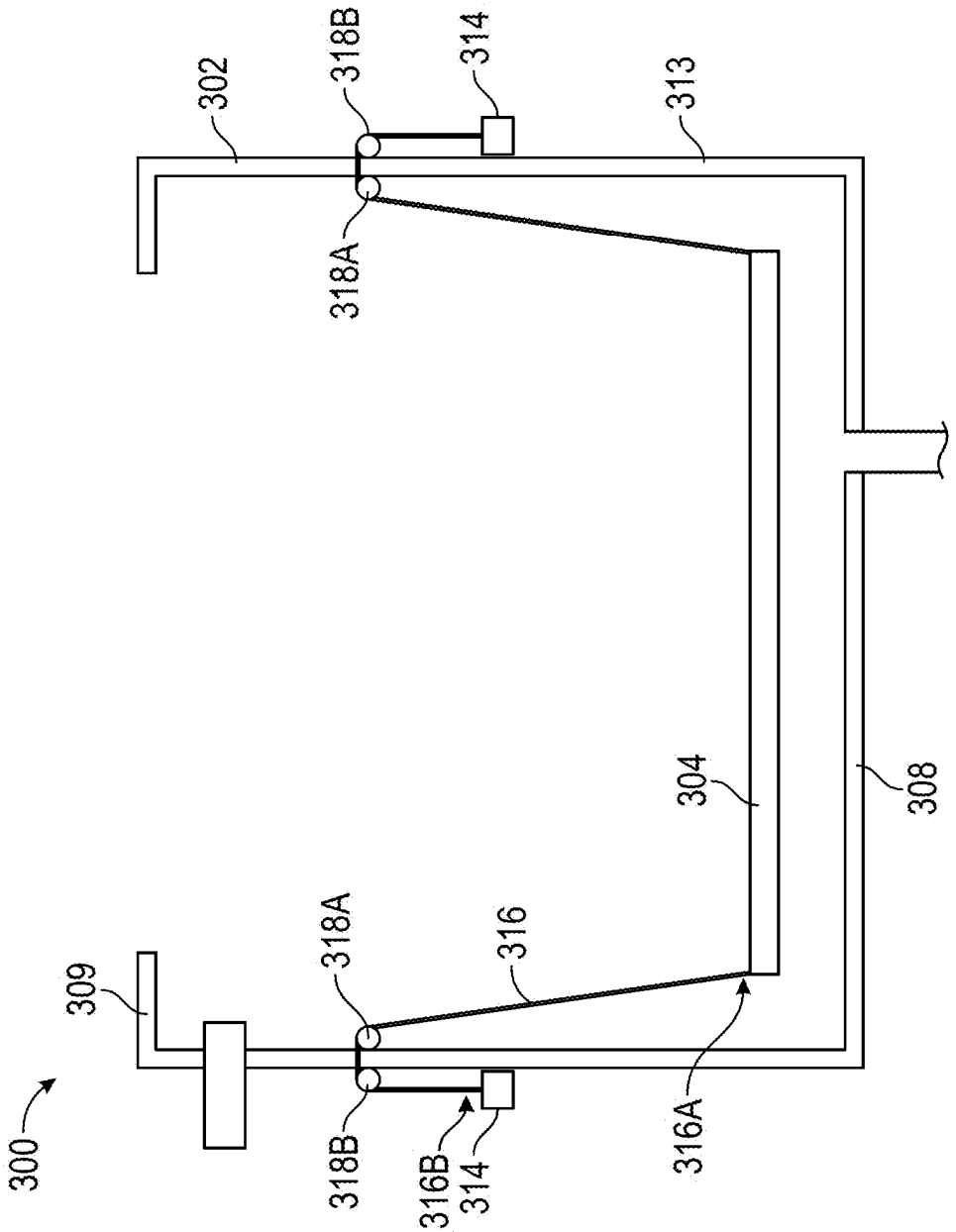
312
318
316B
314
313
316A
300

FIG. 3A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318B
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304
308
316A
318B
316B
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318A

FIG. 3B

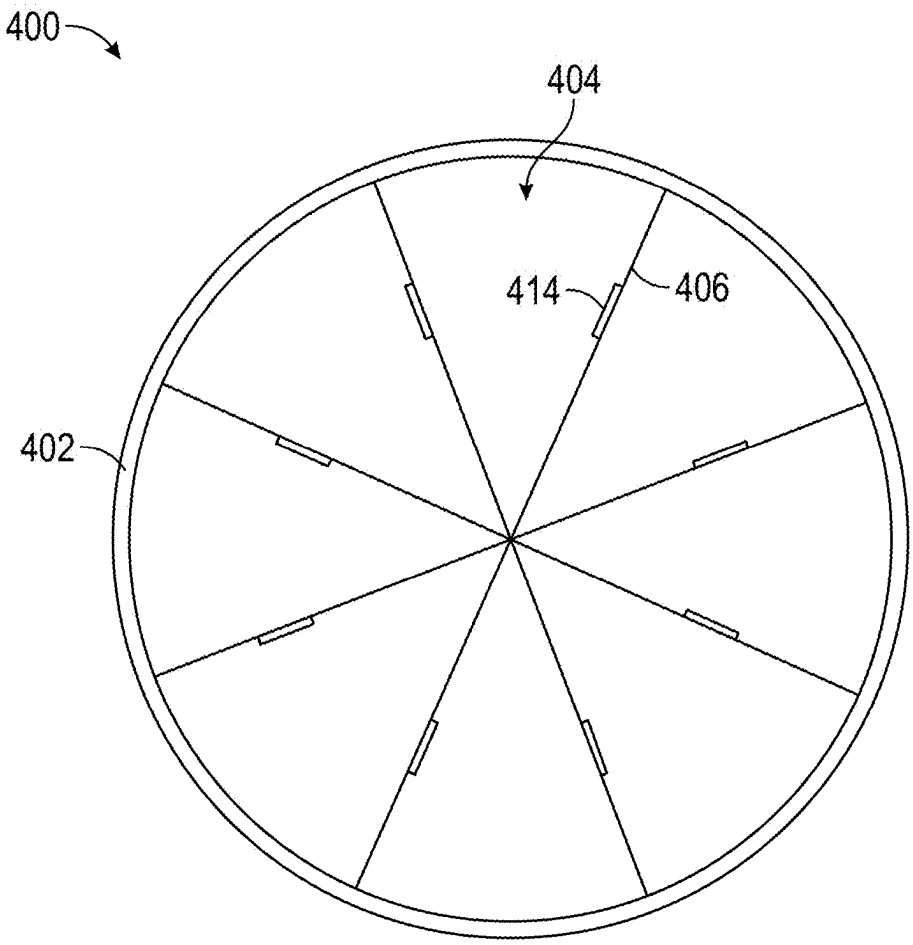

FIG. 4A

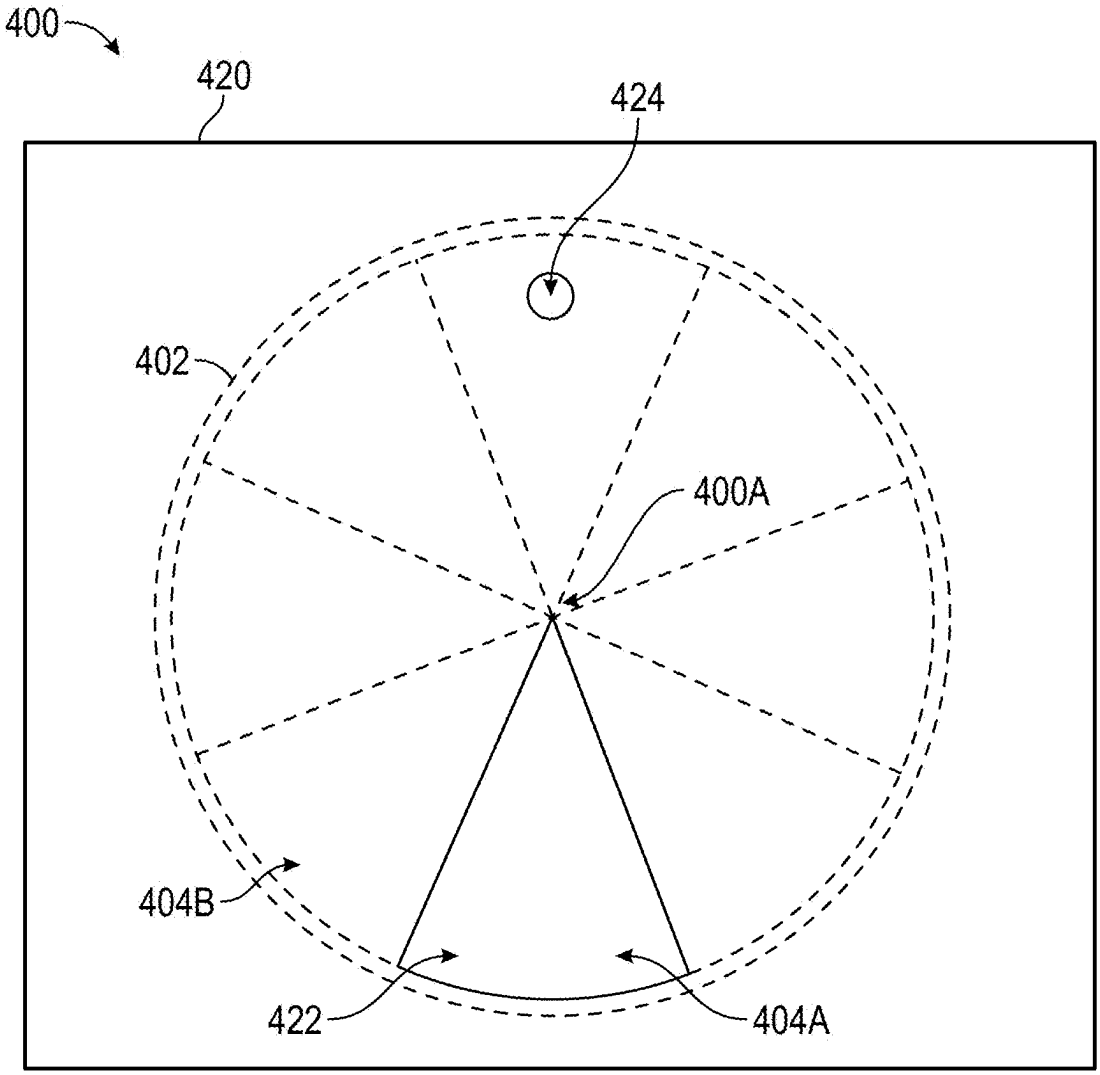

FIG. 4B

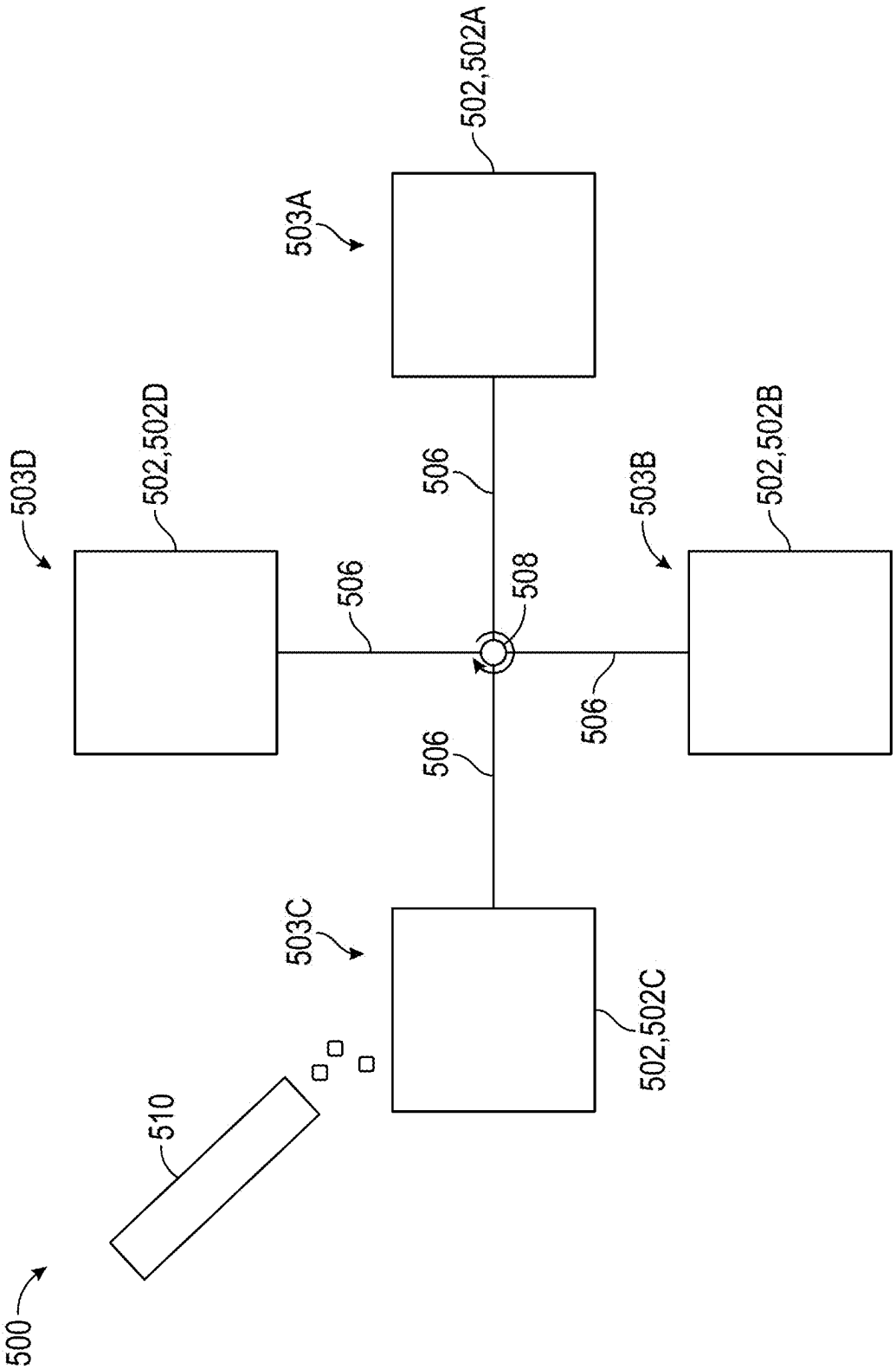
502,502A
503A
502,502D
503D
506
503B
502,502B
506
508
506
506
503C
502,502C
510
500

FIG. 5

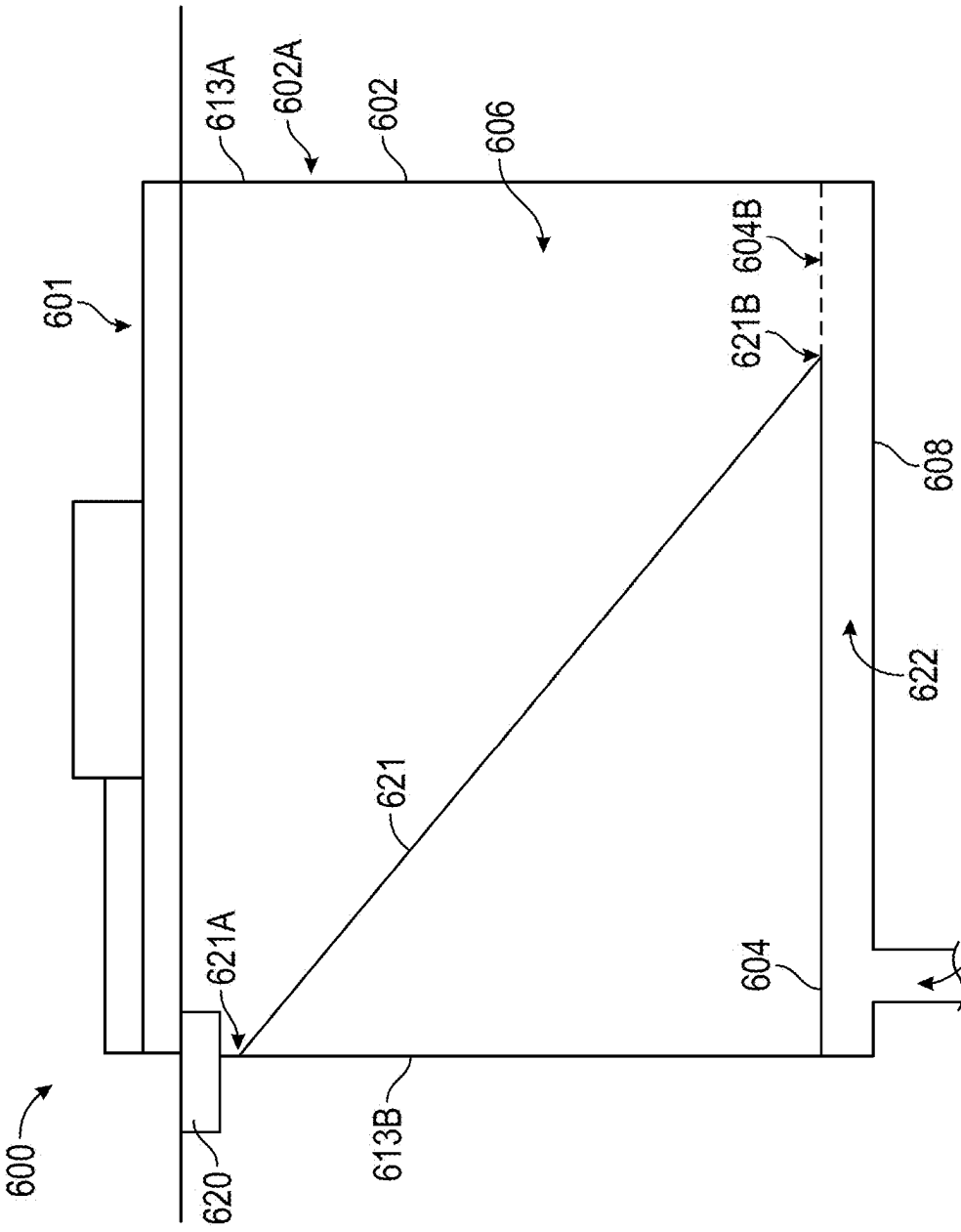
600
601
602
602A
604
604B
605
606
608
613A
613B
620
621
621A
621B
622

FIG. 6

ICE CONTAINER SYSTEMS

INCORPORATION BY REFERENCE TO ANY PRIORITY APPLICATIONS

[0001] The present application claims priority benefit to U.S. Provisional Patent Application Ser. No. 63/554,766, filed Feb. 16, 2024, titled "ICE CONTAINER SYSTEMS," the entirety of which is hereby incorporated by reference.

FIELD

[0002] The present disclosure relates to ice containers, such as, in certain embodiments, ice containers configured to hold ice for beverages.

SUMMARY

[0003] For purposes of this summary, certain aspects, advantages, and novel features of the invention are described herein. It is to be understood that not all such advantages necessarily may be achieved in accordance with any particular embodiment of the invention. Thus, for example, those skilled in the art will recognize that the invention may be embodied or carried out in a manner that achieves one advantage or group of advantages as taught herein without necessarily achieving other advantages as may be taught or suggested herein.

[0004] In some embodiments, an ice container may include a housing including an inner volume, the housing may be configured to hold ice in the inner volume; a base in the inner volume, the base may be configured to support ice in the inner volume; and a lift coupled to the base, the lift may be configured to move the base between a top of the housing and a bottom of the housing in order to maintain a top level of ice in the inner volume within a predetermined distance from the top of the housing.

[0005] In some embodiments, the lift may be configured to move the base towards the top of the housing when a weight of the ice in the inner volume decreases and towards the bottom of the housing when the weight of the ice in the inner volume increases.

[0006] In some embodiments, the ice container may include a sensor configured to detect an object in front of the sensor.

[0007] In some embodiments, when the sensor does not detect an object in front of the sensor, the sensor may determine that the base is positioned above the sensor.

[0008] In some embodiments, the sensor may instruct an ice filler to add ice to the inner volume when the sensor determines that the base is positioned above the sensor.

[0009] In some embodiments, the lift may include springs.

[0010] In some embodiments, the lift may include spring housings configured to prevent or inhibit melted ice from contacting the springs.

[0011] In some embodiments, the lift may include constant force springs.

[0012] In some embodiments, the lift may include a counterweight.

[0013] In some embodiments, the lift may include internal springs.

[0014] In some embodiments, an ice container may include: a housing separated into a plurality of sub housing, the plurality of sub housing may be configured to hold ice; a top surface including an opening, the housing may be positioned so a first sub housing is positioned under the opening; wherein the housing may be configured to rotate so a second sub housing is positioned under the opening.

[0015] In some embodiments, the housing may be configured to automatically rotate when an amount of ice in the first sub housing is below a predetermined threshold.

[0016] In some embodiments, the top surface may include an ice filler configured to fill the plurality of sub housings with ice.

[0017] In some embodiments, the housing may include a circular profile.

[0018] In some embodiments, an ice container may include: a housing including an inner volume; a ramp positioned in the inner volume, the ramp may be declined towards a front of the housing to direct ice in the inner volume towards the front of the housing.

[0019] In some embodiments, a first end of the ramp may be coupled to a back wall of the housing and a second end of the ramp may be coupled to a base of the housing.

[0020] In some embodiments, the base and a bottom of the housing may form a drain channel.

[0021] In some embodiments, the base may include one or more openings to allow melted ice to flow through the openings and into the drain channel.

[0022] In some embodiments, the ice container may include an ice filler in a back wall of the housing, the ice filler may be configured to automatically add ice to the ice container.

[0023] In some embodiments, the ice filler may be positioned between the ramp and a top of the housing.

BRIEF DESCRIPTION OF THE DRAWINGS

[0024] Various embodiments are depicted in the accompanying drawings for illustrative purposes, and should in no way be interpreted as limiting the scope of the embodiments. Various features of different disclosed embodiments can be combined to form additional embodiments, which are part of this disclosure.

[0025] FIG. **1** illustrates a cross-sectional view of an ice container with a movable base.

[0026] FIGS. **2**A-**2**D illustrate cross-sectional views of ice containers with passive lifts.

[0027] FIGS. **3**A and **3**B illustrate cross-sectional views of an ice container with counterweight lifts.

[0028] FIG. **4**A illustrates a top view of a rotating ice container with sub housings.

[0029] FIG. **4**B illustrates a top view of the rotating ice container of FIG. **4**A positioned under a surface.

[0030] FIG. **5** illustrates a side view of another rotating ice container.

[0031] FIG. **6** illustrates a cross-sectional view of an ice container with a ramp.

DETAILED DESCRIPTION

[0032] Although several embodiments, examples, and illustrations are disclosed below, it will be understood by those of ordinary skill in the art that the system, methods, and devices described herein extend beyond the specifically disclosed embodiments, examples, and illustrations and includes other uses of the system, methods, and devices and obvious modifications and equivalents thereof. Embodiments of the disclosure are described with reference to the accompanying figures, wherein like numerals refer to like elements throughout. The terminology used in the descrip-

tion presented herein is not intended to be interpreted in any limited or restrictive manner simply because it is being used in conjunction with a detailed description of certain specific embodiments of the disclosure. In addition, embodiments of the disclosure can include several novel features and no single feature is solely responsible for its desirable attributes or is essential to practicing the system, methods, and devices herein described.

[0033] At high throughput beverage shops, such as cafés or coffee retailers, ice is typically store in ice containers (i.e., bins). The ice container is typically configured to store enough ice for hundreds of drinks without running out. A server (e.g., barista) typically scoops ice from the ice container into a beverage cup for each drink. When serving hundreds of drinks a day, the server may repeatedly reach into the ice container to scoop ice. As the amount of ice in the ice container lowers, the server may be required to repetitively bend over to reach further into the ice container to scoop ice. Furthermore, once the ice container is empty, servers typically must refill the ice container manually. Accordingly, servers must carry large, heavy bags of ice to the ice container.

[0034] In accordance with several embodiments, the ice containers described herein advantageously maintain a top level of the ice in an ice container at or above a predetermined height in order to reduce or minimize a distance from the top of the ice container to the top level of the ice. The ice containers may include a base and a lift configured to move the base up and/or down in the ice container based on an amount of ice in the ice container. In some embodiments, the ice containers may include an ice filler (i.e., ice maker) configured to periodically refill the ice containers and/or automatically refill the ice containers based on a level of the ice in the ice container.

[0035] FIG. **1** illustrates an ice container **100**. The container **100** may include a housing **102**. The housing **102** may be configured to hold ice **101**. The housing **102** may be insulated or cooled in order to prevent or inhibit ice **101** in the housing **102** from melting. The housing **102** may include an inner volume **106** and an opening **103** to the inner volume **106**. A user may access the inner volume **106** and/or ice **101** positioned in the inner volume **106** via the opening **103**. Accordingly, a user may remove ice **101** from the inner volume **106** through the opening **103** and/or a user may fill the inner volume **106** of the housing **102** with ice **101** by adding ice **101** through the opening **103**.

[0036] The housing **102** may include a drain **105**. The drain **105** may include an opening in a bottom **108** of the housing **102**. The drain **105** may allow melted ice (i.e., water) to exit (i.e., flow out of) the inner volume **106**. The drain **105** may be coupled to a water line or water management system.

[0037] The ice **101** container **100** may include a base **104** positioned the inner volume **106** of the housing **102**. The base **104** may be configured to support ice **101** in the inner volume **106**. The base **104** may be configured to move in between the bottom **108** of the housing **102** and a top **109** of the housing **102** in order to maintain a top **101**A of the ice **101** at or within a predetermined distance from the top **109** of the housing **102**. Accordingly, the base **104** may reduce or minimize a distance a user is required to reach into the inner volume **106** in order to access the ice **101** and/or remove the ice **101** from the inner volume **106**. The housing **102** may include one or more lifts **112**. The lifts **112** may be configured to move (e.g., raise and/or lower) the base **104** between the bottom **108** and the top **109** of the housing **102**.

[0038] The base **104** may be a grate. The base **104** may include a plurality of openings (i.e., channels) **104**A extending through the base **104**. The openings **104**A may allow melted ice (i.e., water) to flow through the base **104** to a portion of the inner volume **106** below the base **104** so the melted ice can exit the inner volume **106** via the drain **105**. The openings **104**A may prevent or inhibit melted ice from remaining on the base **104** and/or in the inner volume **106** of the housing **102**. Melted ice may flow through a channel **110** between the base **104** and sidewalls **113** of the housing **102** to allow melted ice to flow to the portion of the inner volume **106** below the base **104**.

[0039] The container **100** may be configured to determine a distance **107** between the top **101**A and the top **109** of the housing **102**. In some embodiments, the container **100** may include a sensor **114** positioned in the sidewall **113** of the housing **102**. The sensor **114** may be configured to determine (i.e., detect) whether an object is positioned in front of the sensor **114**. The sensor **114** may include an optical sensor, an electrical sensor, a magnetic sensor, mechanical switch (e.g., a limit switch), a pneumatic sensor, a capacitive sensor, a diffuse photoelectric sensor, a reflective photoelectric sensor, a through-beam photoelectric sensor, an ultrasonic sensor, and/or any other type of sensor configured to detect the presence of an object. The sensor **114** may be positioned a distance **116** from the top **109** of the housing **102**. The distance **116** may be the predetermined distance (e.g., the distance the base **104** is configured to maintain the top **101**A of the ice **101** at or within). When the sensor **114** determines an object (e.g., the ice **101**) is positioned in front of the sensor **114** (e.g., the distance **107** is within the predetermined distance) the lifts **112** may not move the base **104**. When the sensor **114** determines an object (e.g., the ice **101**) is not positioned in front of the sensor **114** (i.e., the distance **107** is greater than the predetermined distance) the lifts **112** may move the base **104** until the sensor **114** determines an object (e.g., the ice **101**) is positioned in front of the sensor **114**.

[0040] In some embodiments, the container **100** may be configured to determine the distance **107** between the top **101**A of the ice **101** and the top **109** of the housing **102** based on a weight of the ice **101** on the base **104**. The lifts **112** may include a sensor **112**A configured to determine (i.e., measure) the weight of the ice **101** on the base **104**. The lifts **112** may be configured to move the base **104** to a predetermined distance from the top **109** of the housing **102** based on the weight of the ice **101**. When ice **101** is removed from the housing **102**, the weight of the ice **101** on the base **104** may decrease and the lifts **112** may move the base **104** towards the top **109** of the housing **102**. When ice **101** is added to the housing **102**, the weight of the ice **101** on the base **104** may increase and the lifts **112** may move the base **104** towards the bottom **108** of the housing **102**.

[0041] The lifts **112** may be active lifts. Accordingly, the lifts **112** may be configured to actuate in order to move the base **104** between the bottom **108** and the top **109** in order to maintain the distance **107** within the predetermine distance. In some embodiments, the lifts **112** may be passive lifts (e.g., springs, constant springs, weights, counterweights, etc.). Accordingly, the weight of the ice **101** on the base **104** may cause the base **104** to move between the bottom **108** and the top **109** as the weight of the ice **101** on

the base **104** increases or decreases in order to maintain the distance **107** within the predetermined distance.

[0042] The container **100** may determine when the amount of ice **101** in the housing **102** is low. In some embodiments, the container **100** may determine the amount of ice **101** based on the weight of the ice **101** on the base **104**. The container **100** may determine the amount of ice **101** is low when the weight of the ice **101** on the base **104** detected by the sensor **112**A is less than a predetermined weight. In some embodiments, the container **100** may determine the amount of ice **101** in the housing **102** based on a distance **118** between the base **104** and the top **109** of the housing **102**. The container **100** may determine the amount of ice **101** in the housing **102** is low when the distance **118** between the base **104** and the top **109** of the housing **102** is less than a predetermined distance. The sensor **114** may determine when the distance **118** between the base **104** and the top **109** of the housing **102** is less than the predetermined distance. As described above, the distance **116** between the sensor **114** and the top **109** of the housing **102** may be the predetermined distance. Accordingly, when the sensor **114** determines an object (i.e., the ice **101** and/or the base **104**) is not positioned in front of the sensor **114**, the container **100** may determine that base **104** is positioned above the sensor **114**, and the distance **118** between the base **104** and the top **109** of the housing **102** is less than the predetermined distance. The container **100** may be configured to alert or indicate to a user that the amount of ice **101** in the housing **102** is low.

[0043] The container **100** may include an ice filler **120**. The ice filler **120** may be configured to automatically insert or add ice into the housing **102** when the amount of ice **101** in the housing **102** is low. The ice filler **120** may be configured to determine when the amount of ice **101** in the housing **102** is low. The ice filler **120** may include a sensor configured to determine a force the ice filler **120** applies to ice in order to insert or add ice into the housing **102**. When the force the ice filler **120** applies to the ice is above a predetermined threshold, the ice filler **120** may determine that ice **101** in the inner volume **106** of the housing **102** is positioned in front of the ice filler **120** and the amount of ice **101** in the housing **102** is not low. In some embodiments, the sensor **114** may instruct the ice filler **120** to add ice **101** to the housing **102** when the sensor **114** determines the amount of ice **101** in the housing **102** is low. In some embodiments, the ice filler **120** may be configured to periodically add ice to the housing **102**.

[0044] FIGS. **2**A-**2**D illustrate ice containers **200**A, **200**B, **200**C, **200**D with passive lifts **212**. The ice containers **200**A, **200**B, **200**C, **200**D may include any of the features of the ice container **100**, and the ice container **100** may include any of the features of ice containers **200**A, **200**B, **200**C, **200**D, except for the differences described with reference to FIGS. **2**A-**2**D.

[0045] As shown in FIG. **2**A, the passive lifts **212** of the ice container **200**A may include a constant force spring **211**A. A first end **240** of the constant force spring **211**A may be coupled to the base **204**. A second end **242** of the constant force spring **211**A may be coupled to the top **209** of the housing **202** of the container **200**A. A weight of ice on the base **204** may apply a force to the constant force spring **211**A. When the weight of the ice on the base **204** increases, a distance **241** between the first end **240** and the second end **242** may increase. Accordingly, when ice is inserted into the inner volume **206** of the housing **202**, the weight of the ice on the base **204** may increase and the base **204** may move towards the bottom **208** of the housing **202**. When the weight of the ice on the base **204** decreases, the distance **241** between the first end **240** and the second end **242** of the constant force spring **211**A may decrease. Accordingly, when ice is removed from the inner volume **206** of the housing **202**, the weight of the ice on the base **204** may decrease and the base **204** may move towards the top **209** of the housing **202**.

[0046] As shown in FIG. **2**B, the passive lifts **212** of the container **200**B may include a spring **211**B. The spring **211**B may be coupled to the bottom **208** of the housing **202** and the base **204**. The weight of the ice on the base **204** may apply a force to the spring **211**B. When the weight of the ice on the base **204** increases, the spring **211**B may be compressed and the base **204** may move towards the bottom **208** of the housing **202**. When the weight of the ice on the base **204** decreases, the spring **211**B may extend, and the base **204** may move towards the top **209** of the housing **202**. In some embodiments, the spring **211**B may include stainless steel, and/or any other suitable material.

[0047] As shown in FIG. **2**C, passive lifts **212** of the container **200**C may include a spring **211**C, a lift housing **244**C, and a lift base **246**C. The lift base **246**C may be coupled to the bottom **208** of the housing **202** and the lift housing **244**C may be coupled to the base **204**. The spring **211**C may be positioned in the lift housing **244**C between the base **204** and the lift base **246**C. When the weight of the ice on the base **204** increases, the spring **211**C may be compressed and the base **204** may move towards the bottom **208** of the housing **202**. When the weight of the ice on the base **204** decreases, the spring **211**C may extend, and the base **204** may move towards the top **209** of the housing **202**. In some embodiments, the spring **211**C may include stainless steel, and/or any other suitable material.

[0048] The lift housing **244**C may be positioned over the lift base **246**C so lift housing **244**C can slide (i.e., move) over the lift base **246**C when the spring **211**C compresses and/or extends. The lift housing **244**C may prevent or inhibit melted ice from contacting the spring **211**C so the melted ice does not cause the spring **211**C to rust.

[0049] As shown in FIG. **2**D, the passive lifts **212** of the container **200**D may include an internal spring **211**D. The internal spring **211**D may be positioned in a lift housing **244**D. When the weight of the ice on the base **204** increases, the internal spring **211**D may be compressed and the base **204** may move towards the bottom **208** of the housing **202**. When the weight of the ice on the base **204** decreases, the internal spring **211**D may extend, and the base **204** may move towards the top **209** of the housing **202**. The lift housing **244**D may include sealing **248**D. The sealing **248**D may prevent or inhibit melted ice from entering the lift housing **244**D so the melted ice does not contact the spring **211**D sand cause the internal spring **211**D to rust.

[0050] FIGS. **3**A and **3**B illustrate an ice container **300** with a passive lifts **312**. The ice container **300** may include any of the features of the ice containers **100**, **200**A, **200**B, **200**C, **200**D and the ice containers **100**, **200**A, **200**B, **200**C, **200**D may include any of the features of ice container **300**, except for the differences described with reference to FIGS. **3**A and **3**B.

[0051] The ice container **300** The passive lifts **312** may include a weight **314**, a cable **316** and/or a pulley **318**. The cable **316** may extend between a first end **316**A and a second

end **316**B opposite the first end **316**A. The first end **316**A of the cable **316** may be coupled to the base **304** in the housing **302**. The weight **314** may be coupled to the second end **316**B of the cable **316**. The cable **316** may extend over the pulley **318** so the first end **316**A and the second end **316**B of the cable **316** extend in a direction towards the bottom **308** of the housing **302**.

[0052] As shown in FIG. **3**A, in some embodiments, the weight **314** may be positioned in the inner volume **306** of the housing **302** and the pulley **318** may be coupled to the top **309** of the housing **302**. As shown in FIG. **3**B, in some embodiments, the weight **314** may be positioned outside of the housing **302** and the passive lifts **312** may include a first pulley **318**A and a second pulley **318**B. The first pulley **318**A may be positioned in the inner volume **306** of the housing **302** and the second pulley **318**B may be positioned outside of the housing **302**. The cable **316** may extend over the first pulley **318**A and the second pulley **318**B. The cable **316** may extend through the sidewall **313** of the housing **302**.

[0053] The weight **314** may apply a force (e.g., a counterforce) to the cable **316** in the direction towards the bottom **308** of the housing **302** and the base **304** may apply a force to the cable **316** in the direction towards the bottom **308** of the housing **302**. When the weight of the ice on the base **304** increases, a force applied to the cable **316** by the base **304** may increase. Accordingly, the increase of the force applied to the cable **316** by the base **304** may cause the base **304** to move towards the bottom **308** of the housing **302** and the weight **314** to move towards the top **309** of the housing **302**. When the weight of the ice on the base **304** decreases, a force applied to the cable **316** by the base **304** may decrease. Accordingly, the decrease of the force applied to the cable **316** by the base **304** may cause the base **304** to move towards the top **309** of the housing **302** and the weight **314** to move towards the bottom **308** of the housing **302**.

[0054] The pulleys **318**, **318**A, **318**B may include cams. The cams may modify or adjust the force (e.g., the counterforce) applied to the cable **316** by the weight **314** as the weight of the ice on the base **304** increases or decreases. Accordingly, the when the weight of the ice on the base **304** increases or decreases, the counterforce may be modified or adjusted so the base **304** moves a predetermined distance towards the top **309** of the housing **302** and/or towards the bottom **308** of the housing.

[0055] FIGS. **4**A and **4**B illustrate an ice container **400**. The ice container **400** may include any of the features of the ice containers **100**, **200**A, **200**B, **200**C, **200**D, **300** and the ice containers **100**, **200**A, **200**B, **200**C, **200**D, **300** may include any of the features of ice container **400**, except for the differences described with reference to FIGS. **4**A and **4**B.

[0056] The ice container **400** may be configured to rotate. As shown in FIG. **4**A, the ice container **400** may include a main housing **402**. The main housing **402** may include a profile shape when viewed from a top view. The profile shape may include a circle (i.e., a circular profile), a square, a triangle, a star, a diamond, a pentagon, an octagon, and/or any other shape.

[0057] The main housing **402** may be separated into a plurality of sub housings **404** by dividers **406**. Each sub housing **404** may be configured to hold ice and each sub housing **404** may be insulted or cooled in order to prevent or inhibit ice in the sub housings **404** from melting. In some embodiments, each sub housing **404** may include a same size and/or shape. In some embodiments, one or more sub housings **404** may include a different shape (i.e., the size and/or shape of the sub housings **404** may vary).

[0058] As shown in FIG. **4**B, the ice container **400** may be positioned under a surface (e.g., a counter) **420**. The surface **420** may include a first opening **422** and/or a second opening **424**. In some embodiments, the first opening **422** may include a same size and/or shape as the sub housing **404**. Accordingly, when a sub housing **404** is positioned under the first opening **422**, a user may access an inner volume of the sub housing **404** to remove ice from the sub housing **404**.

[0059] The ice container **400** may be configured to rotate around a center point **400**A of the ice container **400**. Accordingly, when an amount of ice in a first sub housing **404**A is below a predetermined ice threshold and/or when the first sub housing **404**A is empty, the ice container **400** may rotate around the center point **400**A to position a second sub housing **404**B under the first opening **422**. The second sub housing **404**B may include an amount of ice greater than the predetermined threshold.

[0060] In some embodiments, a user may rotate the ice container **400** around the center point **400**A when the user determines the amount of ice in a sub housing **404** is below the predetermined ice threshold and/or when the sub housing **404** is empty. In some embodiments, the ice container **400** may be configured to automatically determine when the amount of ice in the sub housing **404** is below the predetermined ice threshold and/or when the sub housing **404** is empty. As shown in FIG. **4**A, the plurality of sub housings **404** may include one or more sensors **414** configured to determine when the amount of ice in each sub housing **404** is below the predetermined ice threshold and/or when each sub housing **404** is empty. In some embodiments, the sensor **414** may include a weight sensor. The sensor **414** may determine the amount of ice in the sub housing **404** is below the predetermined ice threshold and/or the sub housing **404** is empty when the weight of the ice in the sub housing **404** is below the predetermined ice threshold and/or the weight of the ice in the sub housing **404** is zero pounds. The sensor **414** may include any of the features of the sensor **114**. The sensor **414** may be configured to determine when a height of the ice in the sub housing **404** is below a predetermined height. In some embodiments, the sensor **414** may be positioned in the divider **406** and/or a sidewall of the main housing **402**. In some embodiments, when the sensor **414** determines ice is positioned in front of the sensor **410**, the sensor **414** may determine the amount of ice in the sub housing **404** is above the predetermined ice threshold. In some embodiments, when the sensor **414** determines no ice is positioned in front of the sensor **414**, the sensor **414** may determine the amount of ice in the sub housing **404** is below the predetermined ice threshold and/or the sub housing **404** is empty.

[0061] When a sub housing **404** is positioned under the second opening **424**, the sub housing **404** may be filled with ice via the second opening **424**. In some embodiments, a user may fill (i.e., add ice to) the sub housing **404** positioned under the second opening **424**. In some embodiments, an ice filler (e.g., ice filler **120**) may be coupled to the second opening **424**. Accordingly, the ice filler may automatically fill (i.e., add ice to) the sub housing **404** positioned under the second opening **424**.

[0062] FIG. **5** illustrates an ice container **500**. The ice container **500** may include any of the features of the ice

containers **100**, **200**A, **200**B, **200**C, **200**D, **300**, **400** and the ice containers **100**, **200**A, **200**B, **200**C, **200**D, **300**, **400** may include any of the features of ice container **500**, except for the differences described with reference to FIG. **5**.

[0063] The ice container **500** may include a plurality of housings **502**. In some embodiments, the plurality of housings **502** may be coupled to elongated members **506**. The plurality of housings **502** may be coupled to a first end **506**A of the elongated members **506**. In some embodiments, a second end **506**B of the elongated members **506** may be coupled together. In some embodiments, the second end **506**B of the elongated members **506** may be coupled to an actuator **508**. The actuator **508** may be configured to rotate the elongated members **506** around the actuator **508**. Accordingly, the plurality of housings **502** may rotate around the actuator **508**.

[0064] The actuator **508** may be configured to rotate the plurality of housings **502** to a first position **503**A, a second position **503**B, a third position **503**C, and/or a fourth position **503**D. In some embodiments, the ice container **500** may include four housings **502** so the ice container **500** includes a housing **502** at each position **503**A, **503**B, **503**C, **503**D.

[0065] The housing **502**A in the first position **503**A may be positioned so a user may remove ice from the housing **502**A. In some embodiments, the housing **502**B in the second position **503**B may be drained to remove any ice and/or melted ice in the housing **502**B in the second position **503**B. In some embodiments, the housing **502**C in the third position **503**C may be positioned under an ice filler **510**. The ice filler **510** may be configured to fill the housing **502**C in the third position **503**C with ice. In some embodiments, the housing **502**D in the fourth position **503**D may include ice in the housing **502**D.

[0066] When an amount of ice in the housing **502**A in the first position **503**A is below a predetermined threshold and/or the housing **502**A is empty, the actuator **508** may rotate the plurality of housings **502** so the housing **502**A rotates to the second position **503**B. Accordingly, the housing **502**B in the second position **503**B may rotate to the third position **503**C, the housing **502**C in the third position **503**C may rotate to the fourth position **503**D, and/or the housing **502**D in the fourth position **503**D may rotate to the first position **503**A.

[0067] FIG. **6** illustrates an ice container **600** with a ramp **621**. The ice container **600** may include any of the features of the ice containers **100**, **200**A, **200**B, **200**C, **200**D, **300**, **400**, **500** and the ice containers **100**, **200**A, **200**B, **200**C, **200**D, **300**, **400**, **500** may include any of the features of ice container **600**, except for the differences described with reference to FIG. **6**.

[0068] The ramp **621** may be positioned in an inner volume **606** of a housing **602** of the ice container **600**. The ramp **621** may be configured to direct ice in the inner volume **606** towards a front **602**A of the housing **602**. The ice container **600** may include an opening **601** positioned on a top **609** of the housing **602** at the front **602**A of the housing **602**.

[0069] The ramp **621** may extend from a back wall **613**A of the housing **602** to a base **604** of the housing **602**. The ramp **621** may be declined in a direction towards the front **602**A of the housing **602** in order to direct ice towards the front **602**A of the housing **602** in order to reduce or minimize a distance a user must reach to access ice in the inner volume **606**. A first end **621**A of the ramp **621** may be coupled to the back wall **613**A a distance from the base **604** of the housing **602**. A second end **621**B of the ramp **621** may be coupled to the base **604** a distance from a front wall **613**B of the housing **602**.

[0070] The base **604** and a bottom **608** of the housing **602** may form a drain channel **622**. In some embodiments, a portion of the base **604** between the front wall **613**B and the second end **621**B of the ramp **621** may include one or more openings **604**B. The one or more openings **604**B may allow melted ice (i.e., water) to flow into the drain channel **622**. The drain channel **622** may direct the melted ice in the drain channel **622** towards a drain **605**. Accordingly, the melted ice may exit the housing **602** through the drain **605**.

[0071] The ice container **600** may include an ice filler **620** positioned in the back wall **613**A between the first end **621**A and the top **609** of the housing **602**.

Certain Terminology

[0072] Conditional language, such as "can," "could," "might," or "may," unless specifically stated otherwise, or otherwise understood within the context as used, is generally intended to convey that certain embodiments include, while other embodiments do not include, certain features, elements, and/or steps. Thus, such conditional language is not generally intended to imply that features, elements, and/or steps are in any way required for one or more embodiments or that one or more embodiments necessarily include logic for deciding, with or without user input or prompting, whether these features, elements, and/or steps are included or are to be performed in any particular embodiment.

[0073] Conjunctive language such as the phrase "at least one of X, Y, and Z," unless specifically stated otherwise, is otherwise understood with the context as used in general to convey that an item, term, etc. may be either X, Y, or Z. Thus, such conjunctive language is not generally intended to imply that certain embodiments require the presence of at least one of X, at least one of Y, and at least one of Z.

[0074] Unless otherwise explicitly stated, articles such as "a" or "an" should generally be interpreted to include one or more described items. Accordingly, phrases such as "a device configured to" are intended to include one or more recited devices. Such one or more recited devices can also be collectively configured to carry out the stated recitations. For example, "a processor configured to carry out recitations A, B, and C" can include a first processor configured to carry out recitation A working in conjunction with a second processor configured to carry out recitations B and C.

[0075] The terms "comprising," "including," "having," and the like are synonymous and are used inclusively, in an open-ended fashion, and do not exclude additional elements, features, acts, operations, and so forth. Likewise, the terms "some," "certain," and the like are synonymous and are used in an open-ended fashion. Also, the term "or" is used in its inclusive sense (and not in its exclusive sense) so that when used, for example, to connect a list of elements, the term "or" means one, some, or all of the elements in the list.

[0076] The terms "approximately," "about," and "substantially" as used herein represent an amount close to the stated amount that still performs a desired function or achieves a desired result. For example, in some embodiments, as the context may dictate, the terms "approximately", "about", and "substantially" may refer to an amount that is within less than or equal to 10% of the stated amount. Numbers preceded by a term such as "about" or "approximately"

include the recited numbers and should be interpreted based on the circumstances (e.g., as accurate as reasonably possible under the circumstances, for example. For example, "about 1 gram" includes "1 gram." In the embodiments described in this application, terms such as "about" or "approximately" within the specification or claims that precede values or ranges can be omitted such that this application specifically includes embodiments of the recited values or ranges with the terms "about" or "approximately" omitted from such values and ranges such that they can also be claimed without the terms "about" or "approximately" before the disclosed range. The term "generally" as used herein represents a value, amount, or characteristic that predominantly includes, or tends toward, a particular value, amount, or characteristic. As an example, in certain embodiments, as the context may dictate, the term "generally parallel" can refer to something that departs from exactly parallel by less than or equal to 20 degrees and/or the term "generally perpendicular" can refer to something that departs from exactly perpendicular by less than or equal to 20 degrees.

[0077] Overall, the language of the claims is to be interpreted broadly based on the language employed in the claims. The language of the claims is not to be limited to the non-exclusive embodiments and examples that are illustrated and described in this disclosure, or that are discussed during the prosecution of the application.

SUMMARY

[0078] Although certain aspects, advantages, and features are described herein, it is not necessary that any particular embodiment include or achieve any or all of those aspects, advantages, and features. For example, some embodiments may not achieve the advantages described herein, but may achieve other advantages instead. Any structure, feature, or step in any embodiment can be used in place of, or in addition to, any structure, feature, or step in any other embodiment, or omitted. This disclosure contemplates all combinations of features from the various disclosed embodiments. No feature, structure, or step is essential or indispensable. In addition, although this disclosure describes certain embodiments and examples, many aspects of the above-described systems and methods may be combined differently and/or modified to form still further embodiments or acceptable examples. All such modifications and variations are intended to be included herein within the scope of this disclosure.

[0079] Also, although there may be some embodiments within the scope of this disclosure that are not expressly recited above or elsewhere herein, this disclosure contemplates and includes all embodiments within the scope of what this disclosure shows and describes. Further, this disclosure contemplates and includes embodiments comprising any combination of any structure, material, step, or other feature disclosed anywhere herein with any other structure, material, step, or other feature disclosed anywhere herein.

[0080] Furthermore, certain features that are described in this disclosure in the context of separate implementations can also be implemented in combination in a single implementation. Conversely, various features that are described in the context of a single implementation can also be implemented in multiple implementations separately or in any suitable subcombination. Moreover, although features may be described above as acting in certain combinations, one or more features from a claimed combination can, in some cases, be excised from the combination, and the combination may be claimed as a subcombination or variation of a subcombination.

[0081] For purposes of this disclosure, certain aspects, advantages, and novel features are described herein. Not necessarily all such advantages may be achieved in accordance with any particular embodiment. Thus, for example, those skilled in the art will recognize that the disclosure may be embodied or carried out in a manner that achieves one advantage or a group of advantages as taught herein without necessarily achieving other advantages as may be taught or suggested herein.

[0082] Some embodiments have been described in connection with the accompanying drawings. The figures are drawn to scale, but such scale should not be interpreted to be limiting. Distances, angles, etc. are merely illustrative and do not necessarily bear an exact relationship to actual dimensions and layout of the devices illustrated. Components can be added, removed, and/or rearranged. Further, the disclosure herein of any particular feature, aspect, method, property, characteristic, quality, attribute, element, or the like in connection with various embodiments can be used in all other embodiments set forth herein. Also, any methods described herein may be practiced using any device suitable for performing the recited steps.

[0083] Moreover, while components and operations may be depicted in the drawings or described in the specification in a particular arrangement or order, such components and operations need not be arranged and performed in the particular arrangement and order shown, nor in sequential order, nor include all of the components and operations, to achieve desirable results. Other components and operations that are not depicted or described can be incorporated in the embodiments and examples. For example, one or more additional operations can be performed before, after, simultaneously, or between any of the described operations. Further, the operations may be rearranged or reordered in other implementations. Also, the separation of various system components in the implementations described above should not be understood as requiring such separation in all implementations, and it should be understood that the described components and systems can generally be integrated together in a single product or packaged into multiple products.

[0084] In summary, various illustrative embodiments and examples of systems and methods have been disclosed. Although the systems and methods have been disclosed in the context of those embodiments and examples, this disclosure extends beyond the specifically disclosed embodiments to other alternative embodiments and/or other uses of the embodiments, as well as to certain modifications and equivalents thereof. This disclosure expressly contemplates that various features and aspects of the disclosed embodiments can be combined with, or substituted for, one another. Accordingly, the scope of this disclosure should not be limited by the particular disclosed embodiments described above, but should be determined only by a fair reading of the claims that follow as well as their full scope of equivalents.

What is claimed is:

1. An ice container comprising:

a housing comprising an inner volume, wherein the housing is configured to hold ice in the inner volume;

a base in the inner volume, the base configured to support ice in the inner volume; and

a lift coupled to the base, wherein the lift is configured to move the base between a top of the housing and a bottom of the housing in order to maintain a top level of ice in the inner volume within a predetermined distance from the top of the housing.

2. The ice container of claim **1**, wherein the lift is configured to move the base towards the top of the housing when a weight of the ice in the inner volume decreases and towards the bottom of the housing when the weight of the ice in the inner volume increases.

3. The ice container of claim **1**, further comprising a sensor configured to detect an object in front of the sensor.

4. The ice container of claim **3**, wherein the sensor comprises a mechanical switch or an optical sensor.

5. The ice container of claim **3**, wherein when the sensor does not detect an object in front of the sensor, the sensor determines that the base is positioned above the sensor.

6. The ice container of claim **5**, wherein the sensor instructs an ice filler to add ice to the inner volume when the sensor determines that the base is positioned above the sensor.

7. The ice container of claim **1**, wherein the lift comprises springs.

8. The ice container of claim **7**, wherein the lift comprises spring housings configured to prevent or inhibit melted ice from contacting the springs.

9. The ice container of claim **7**, wherein the springs comprise constant force springs or internal springs.

10. The ice container of claim **1**, wherein the lift comprises a counterweight.

11. An ice container comprising:

a housing separated into a plurality of sub housings, wherein the plurality of sub housings are configured to hold ice; and

a top surface comprising an opening,

wherein the housing is positioned so a first sub housing is positioned under the opening,

wherein the housing is configured to rotate so a second sub housing is positioned under the opening.

12. The ice container of claim **11**, wherein the housing is configured to automatically rotate when an amount of ice in the first sub housing is below a predetermined threshold.

13. The ice container of claim **11**, wherein the top surface comprises an ice filler configured to fill the plurality of sub housings with ice.

14. The ice container of claim **11**, wherein the housing comprises a circular profile.

15. An ice container comprising:

a housing comprising an inner volume; and

a ramp positioned in the inner volume, wherein the ramp is declined towards a front of the housing to direct ice in the inner volume towards the front of the housing.

16. The ice container of claim **15**, wherein a first end of the ramp is coupled to a back wall of the housing and a second end of the ramp is coupled to a base of the housing.

17. The ice container of claim **16**, wherein the base and a bottom of the housing form a drain channel.

18. The ice container of claim **17**, wherein the base comprises one or more openings to allow melted ice to flow through the one or more openings and into the drain channel.

19. The ice container of claim **15** further comprising an ice filler in a back wall of the housing, the ice filler configured to automatically add ice to the ice container.

20. The ice container of claim **19**, wherein the ice filler is positioned between the ramp and a top of the housing.

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