US 20250264258A1

(19) United States

(12) Patent Application Publication

(10) Pub. No.: US 2025/0264258 A1

(43) Pub. Date: Aug. 21, 2025

Knatt et al.

(54) **ICE BIN WITH MAGNETIZED SCOOP AND METHOD OF MANUFACTURE AND USE**

(71) Applicant: **True Manufacturing Company, Inc.**, O'Fallon, MO (US)

(72) Inventors: **Kevin Knatt**, O'Fallon, MO (US); **Curt Cayemberg**, O'Fallon, MO (US)

(73) Assignee: **True Manufacturing Company, Inc.**, O'Fallon, MO (US)

(21) Appl. No.: **19/199,608**

(22) Filed: **May 6, 2025**

Related U.S. Application Data

(63) Continuation of application No. 17/318,486, filed on May 12, 2021, now Pat. No. 12,320,570.

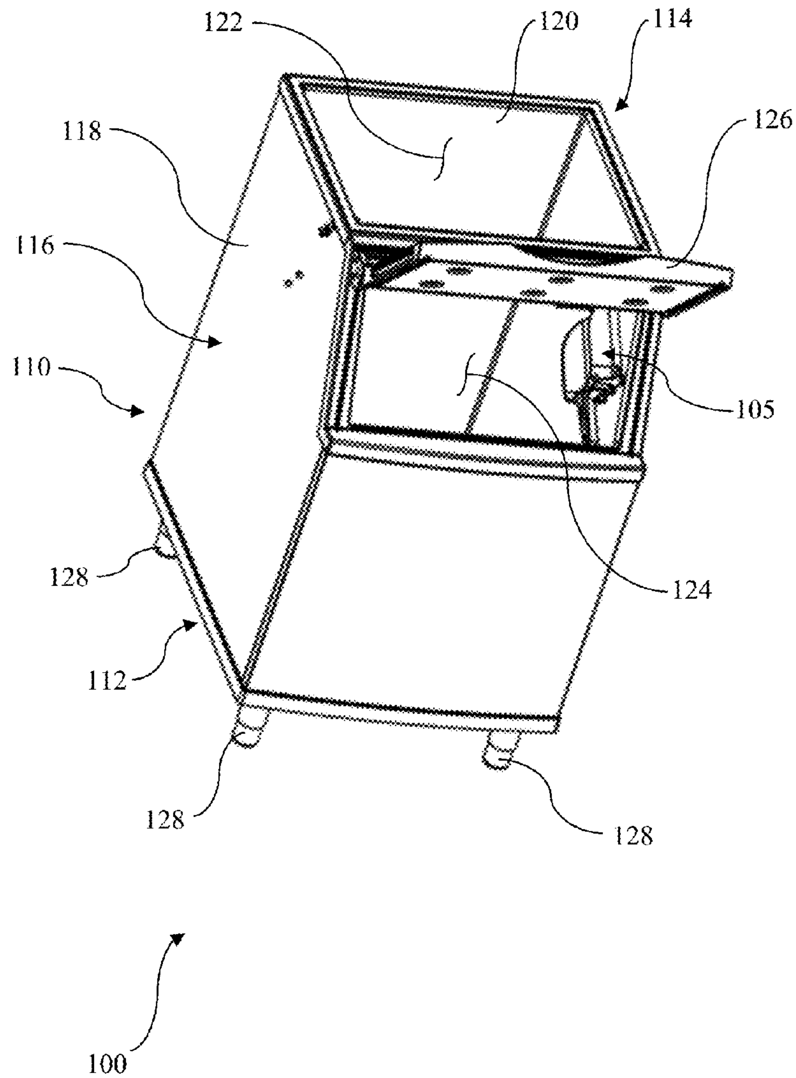
Publication Classification

(51) **Int. Cl.**
F25C 5/04 (2006.01)
F25C 5/182 (2018.01)

(52) **U.S. Cl.**
CPC ***F25C 5/043*** (2013.01); ***F25C 5/182*** (2013.01); *F25C 2500/02* (2013.01)

(57) **ABSTRACT**

An ice bin and scoop and related methods are disclosed. The ice bin includes a liner in an outer shell. A support plate is fitted in a space between the liner and the outer shell. The support plate has either ferromagnetic or magnetic material. The scoop has either magnetic or ferromagnetic material. The support plate is positioned so that the scoop can be supported inside the ice bin on the perimeter wall of the ice bin by a force of magnetic attraction between the support plate and the scoop. The support plate is positioned so that the scoop may be held out of contact with ice deposited in the bin and out of the path of falling ice. Molded-in-place insulation may support the support plate in the space between the liner and outer shell.



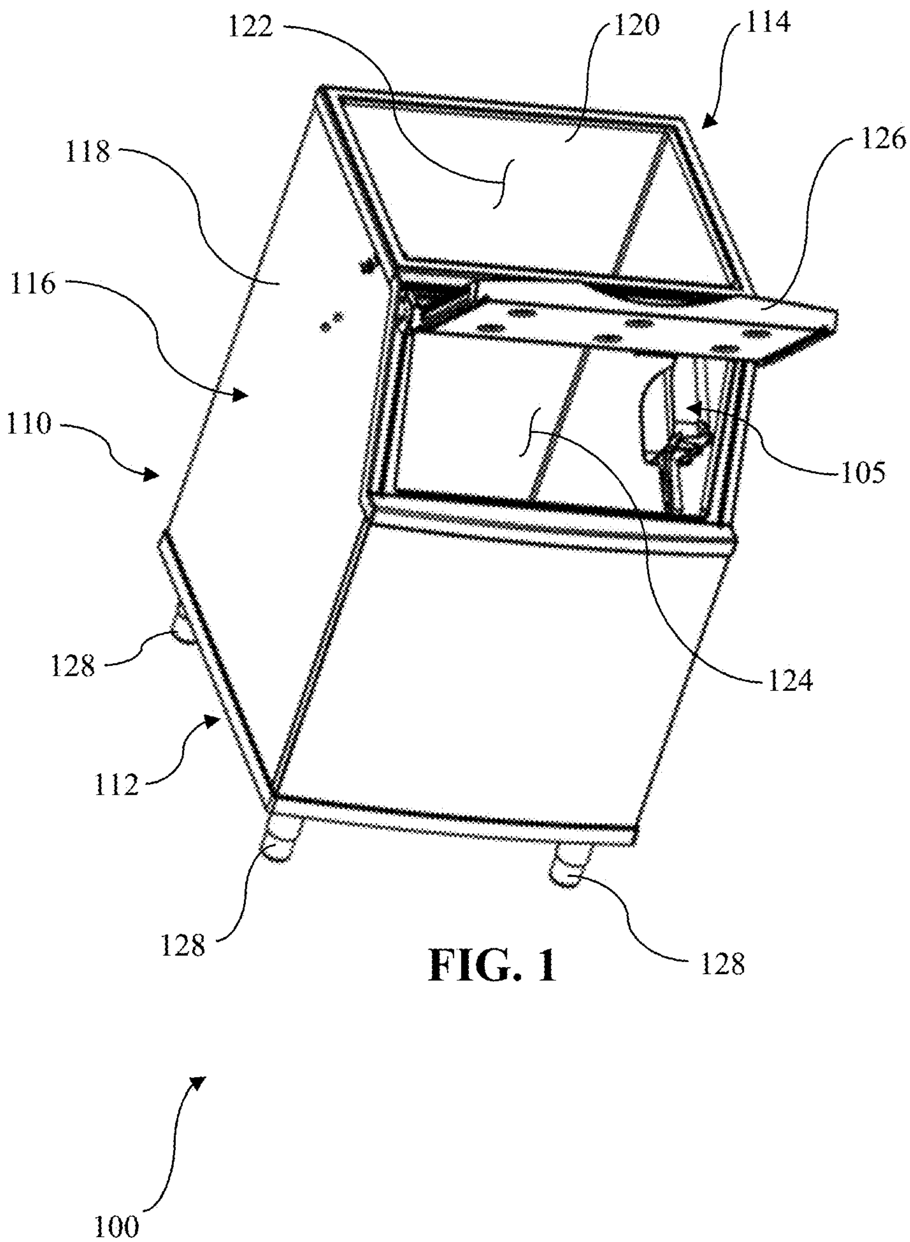


FIG. 1

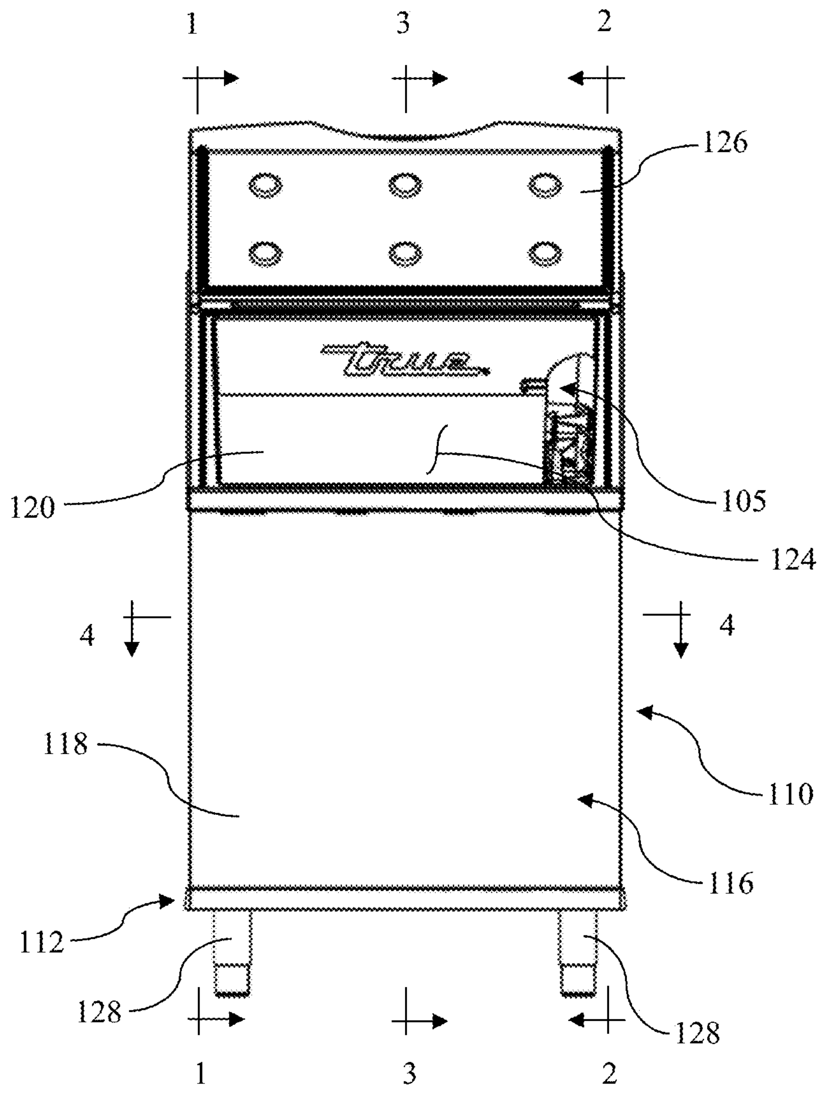


FIG. 2

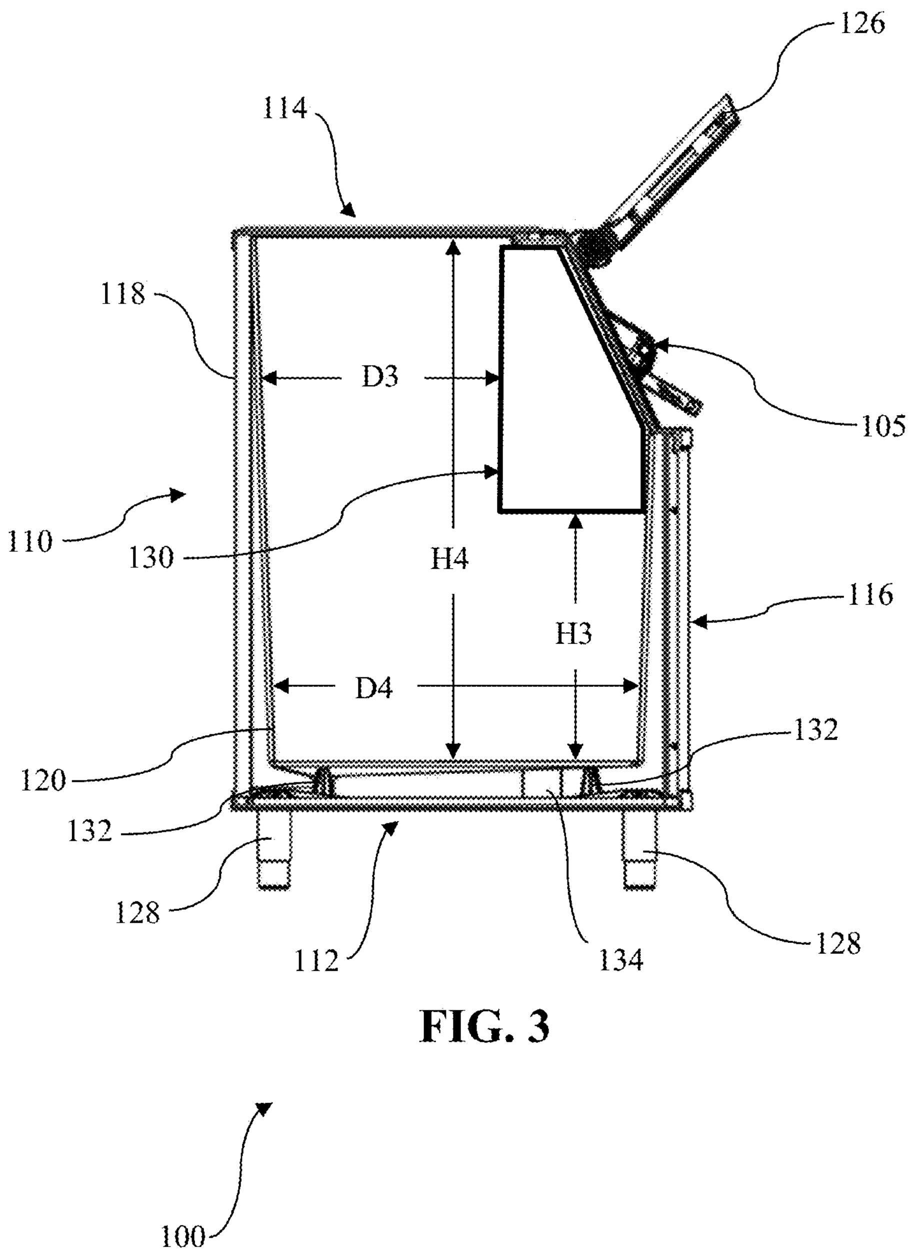

126
114
118
105
D3
110
130
H4
H3
116
D4
132
120
132
128
112
134
128
100

FIG. 3

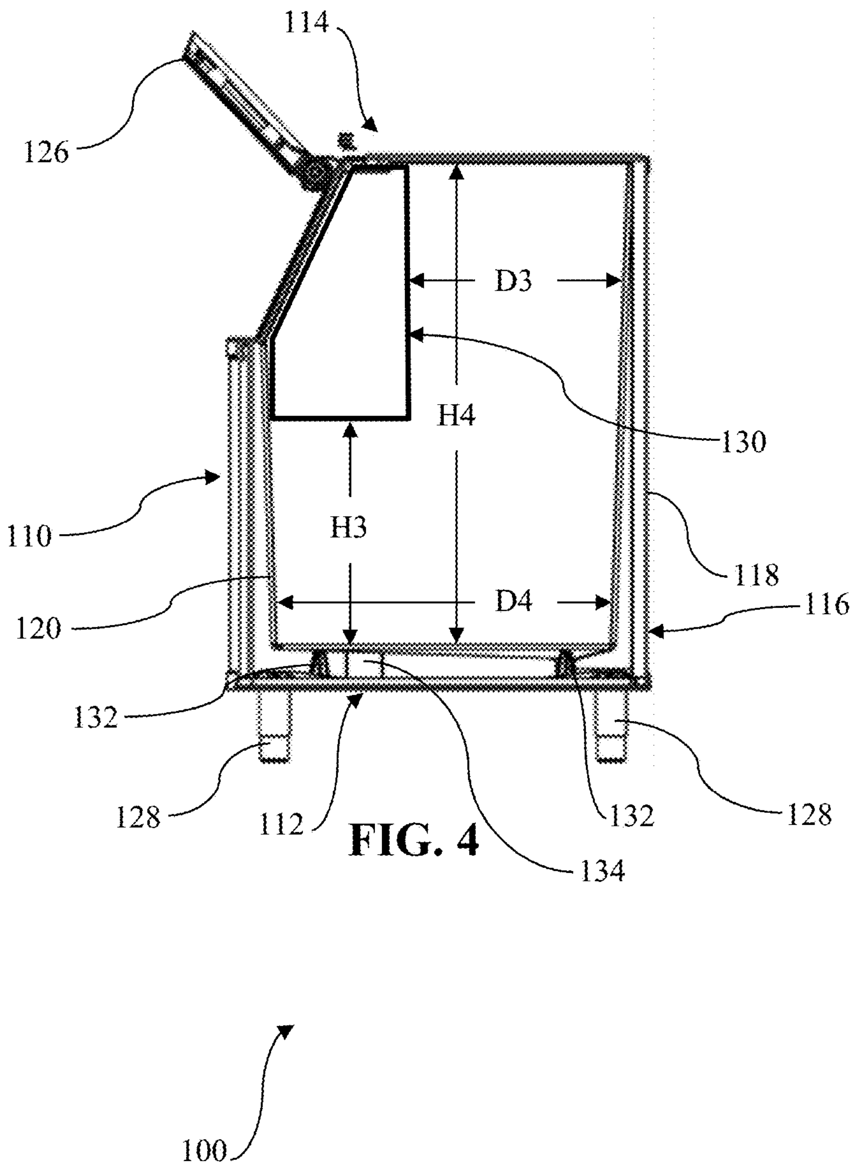

114
126
D3
130
H4
H3
110
118
120
D4
116
132
128
112
132
128
134
100

FIG. 4

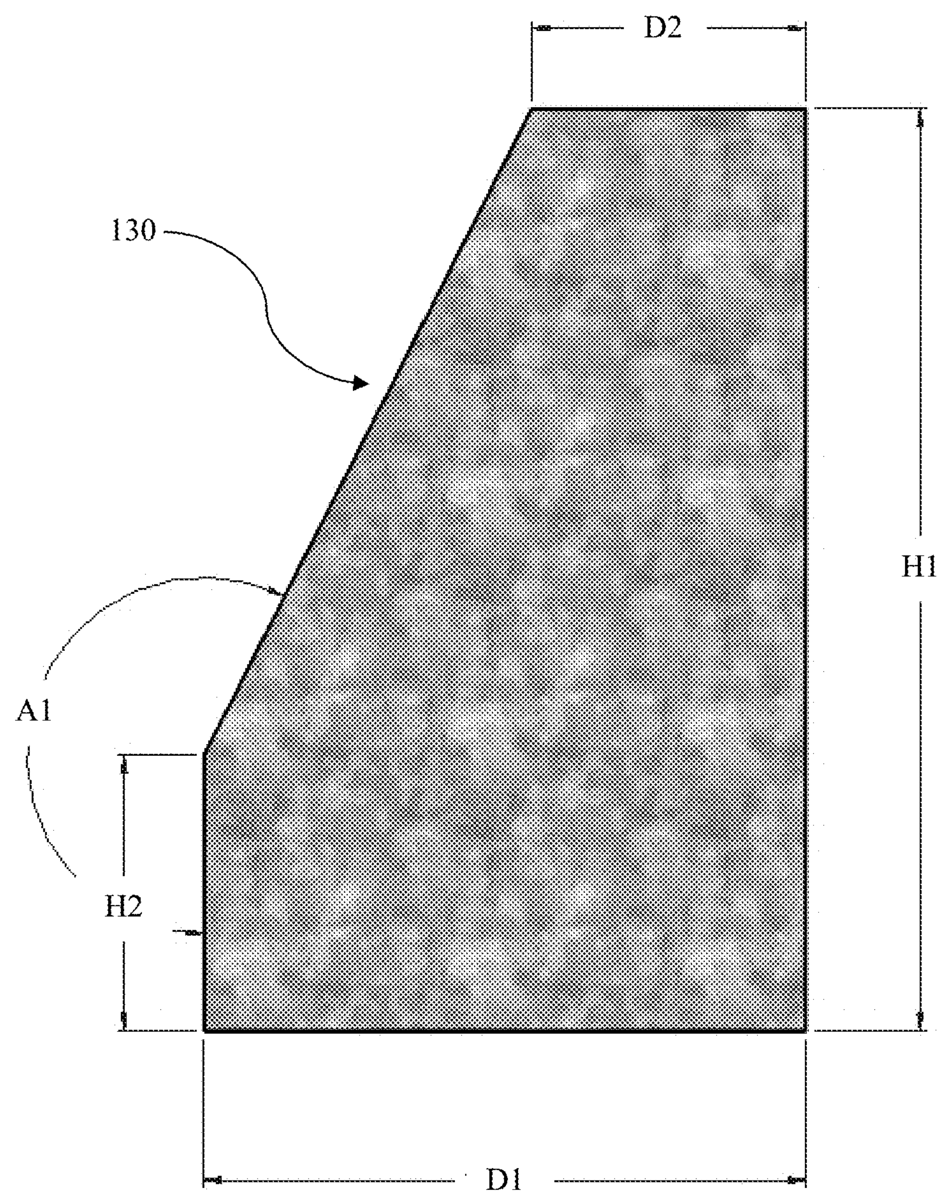


FIG. 5

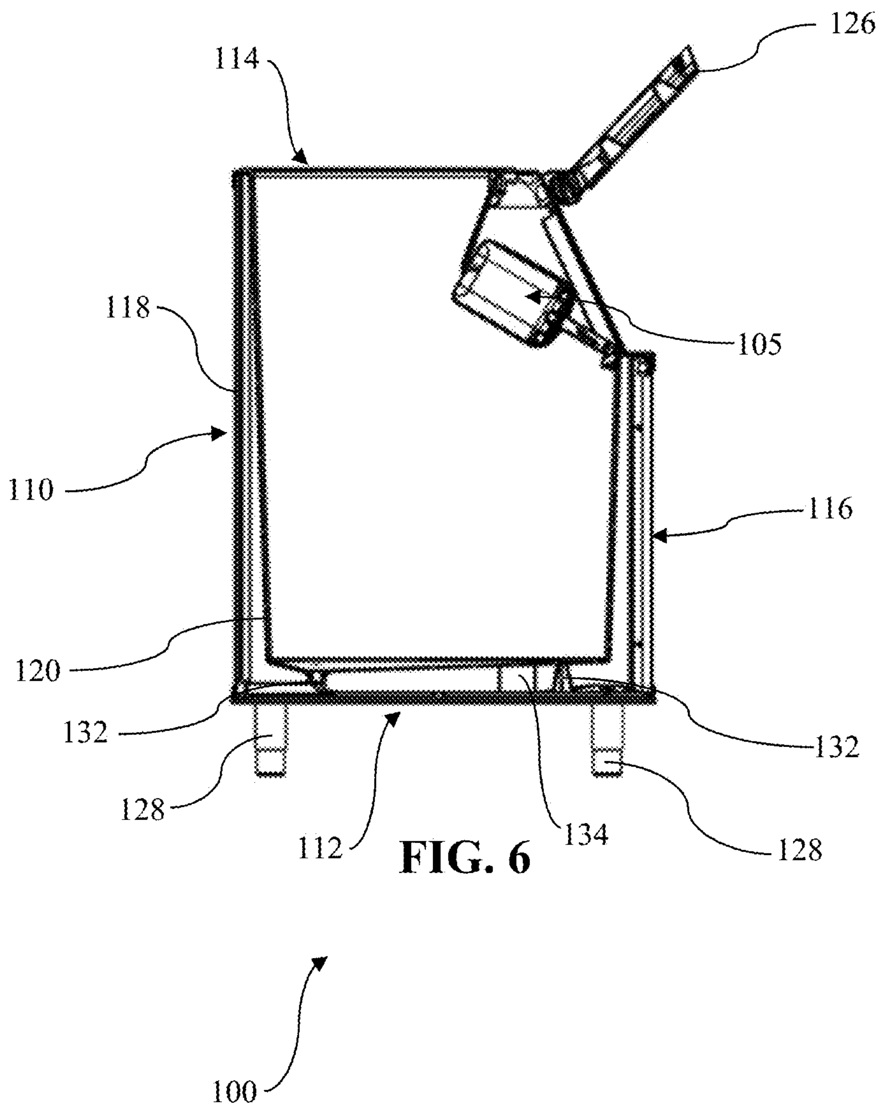


FIG. 6

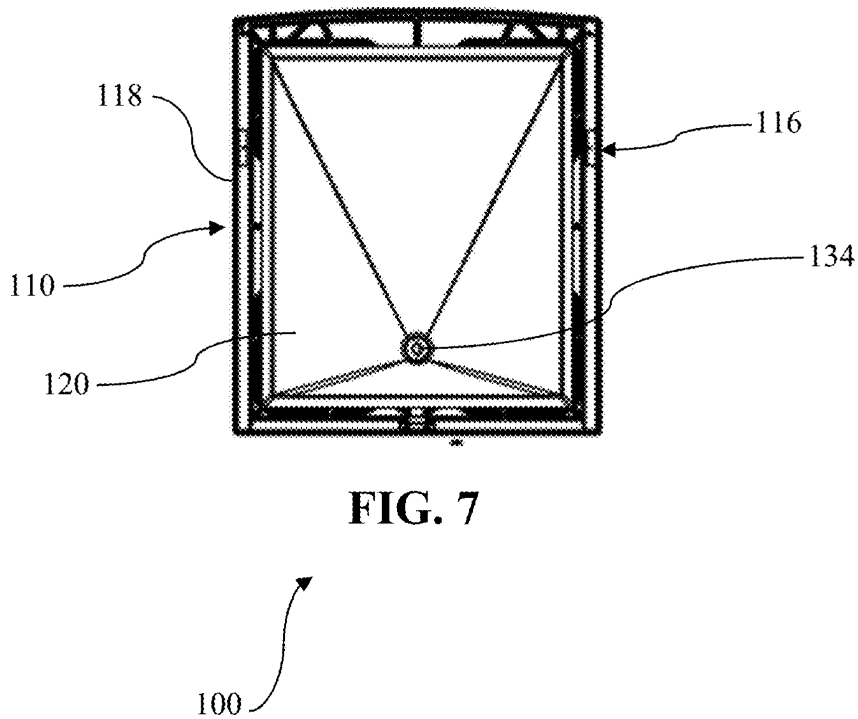


FIG. 7

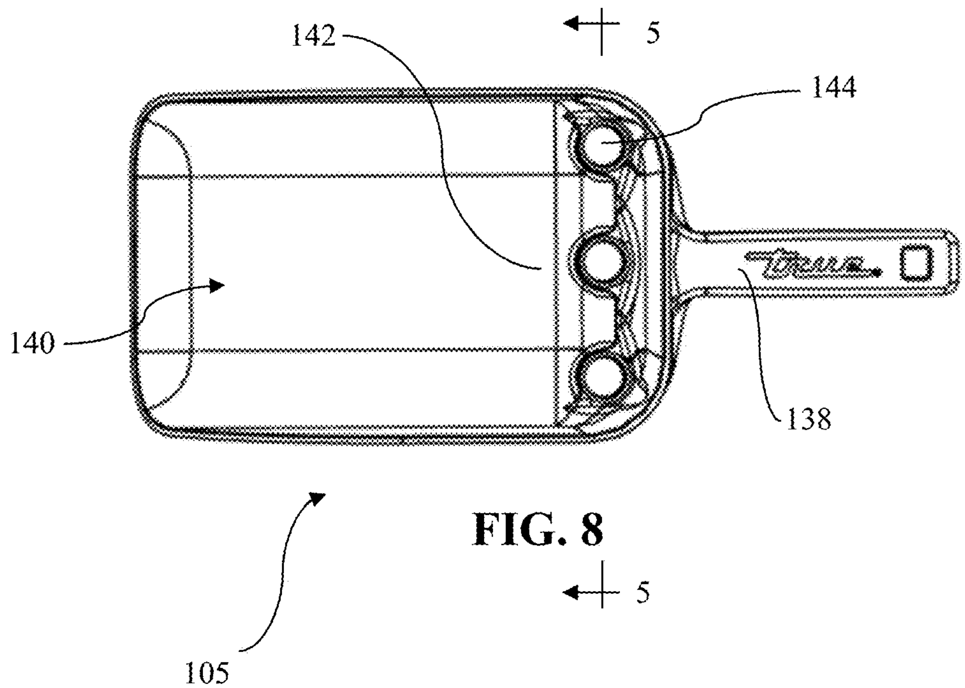


FIG. 8

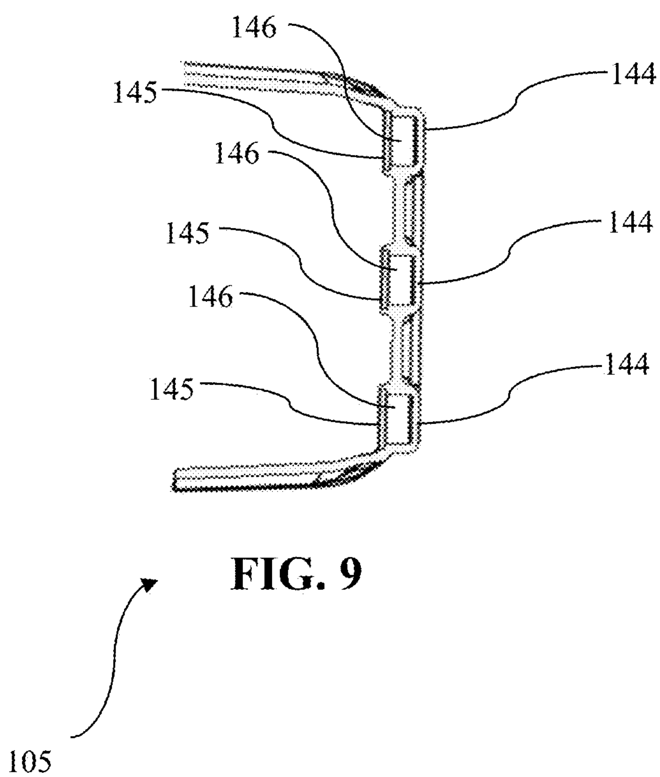


FIG. 9

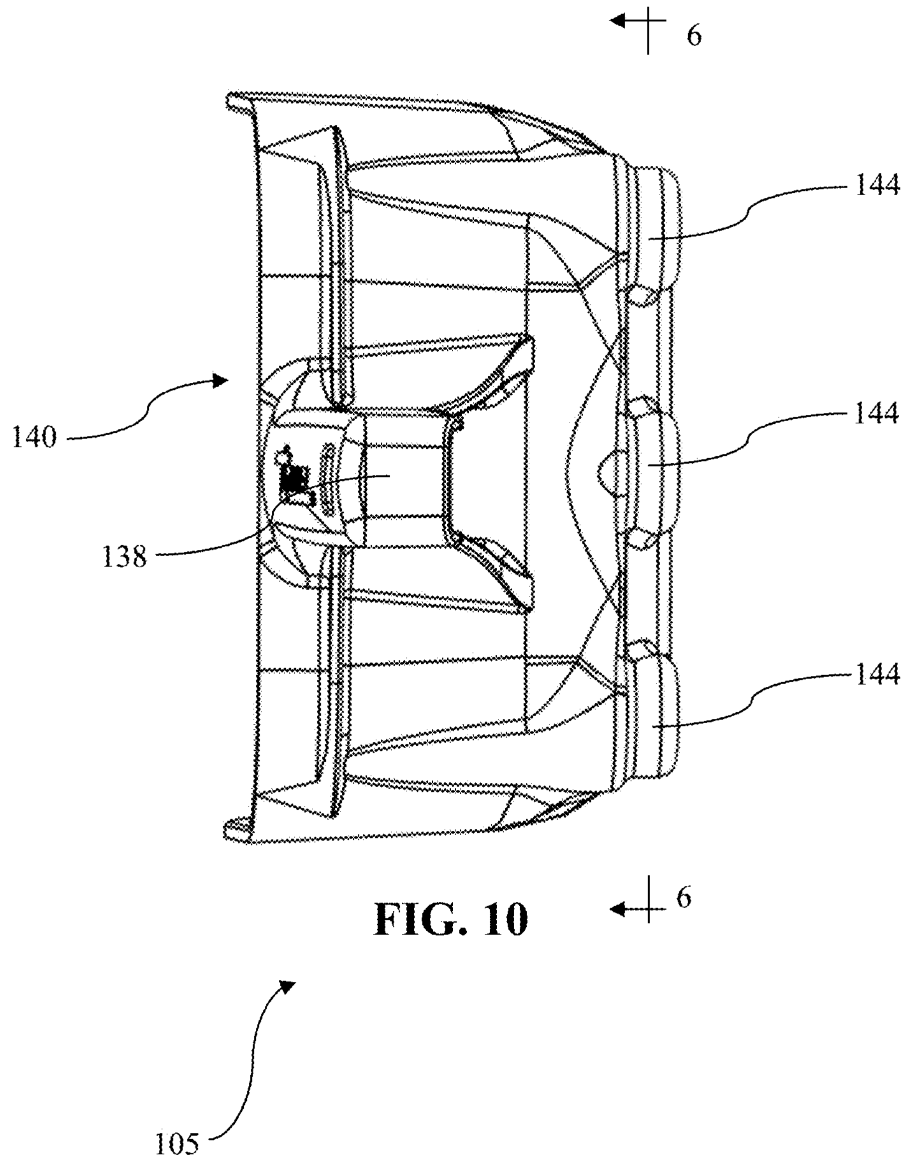


FIG. 10

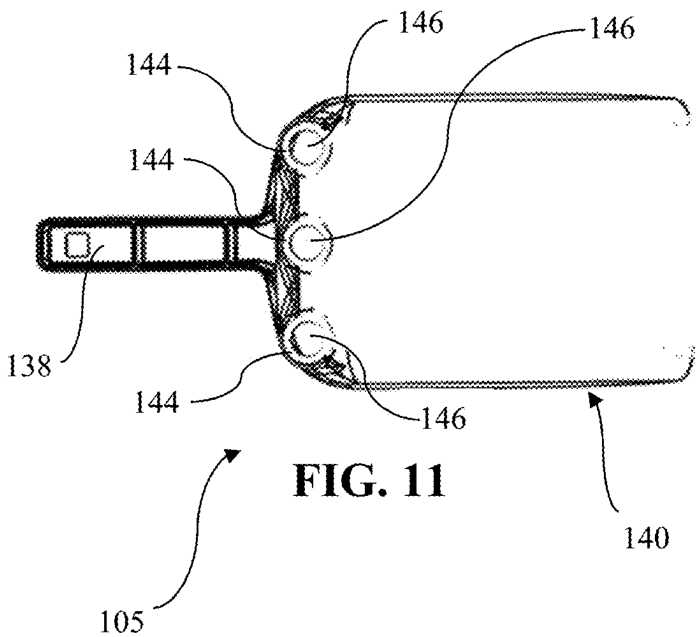


FIG. 11

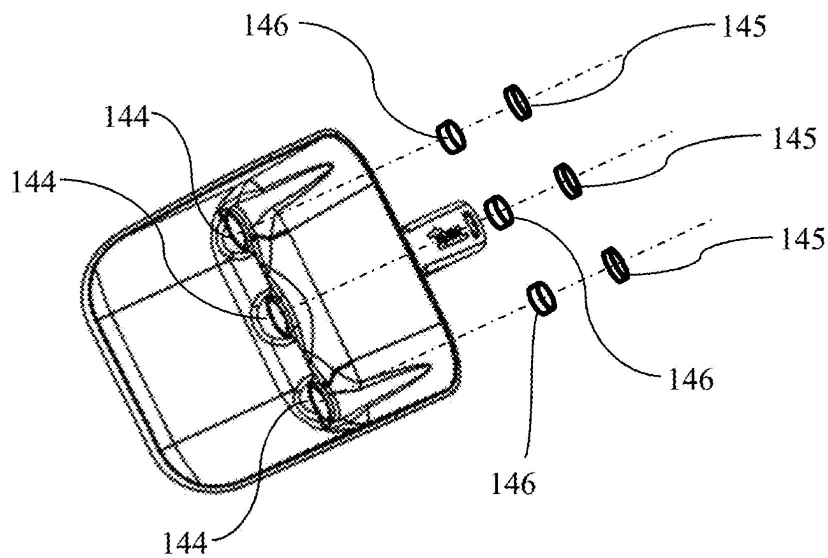


FIG. 12

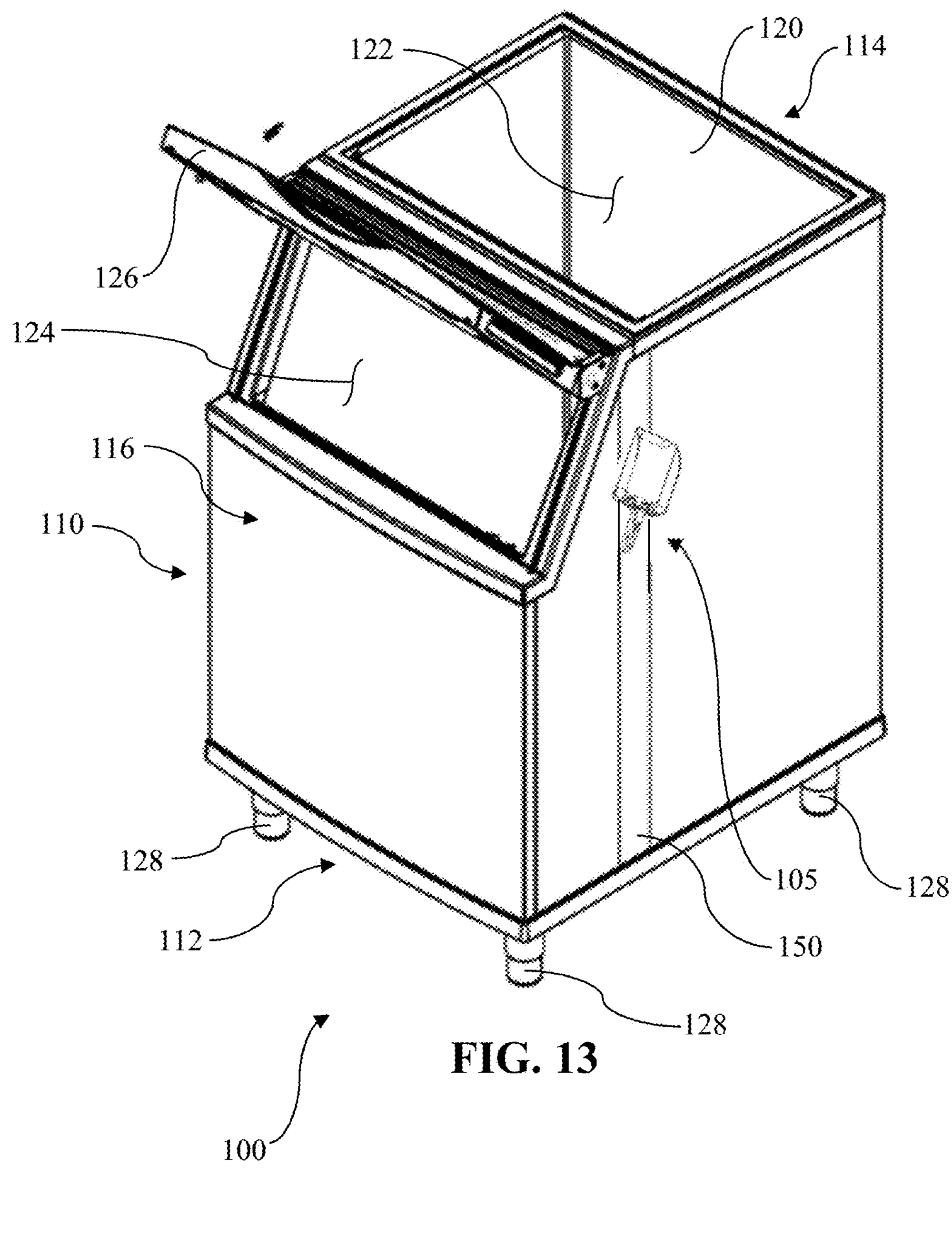


FIG. 13

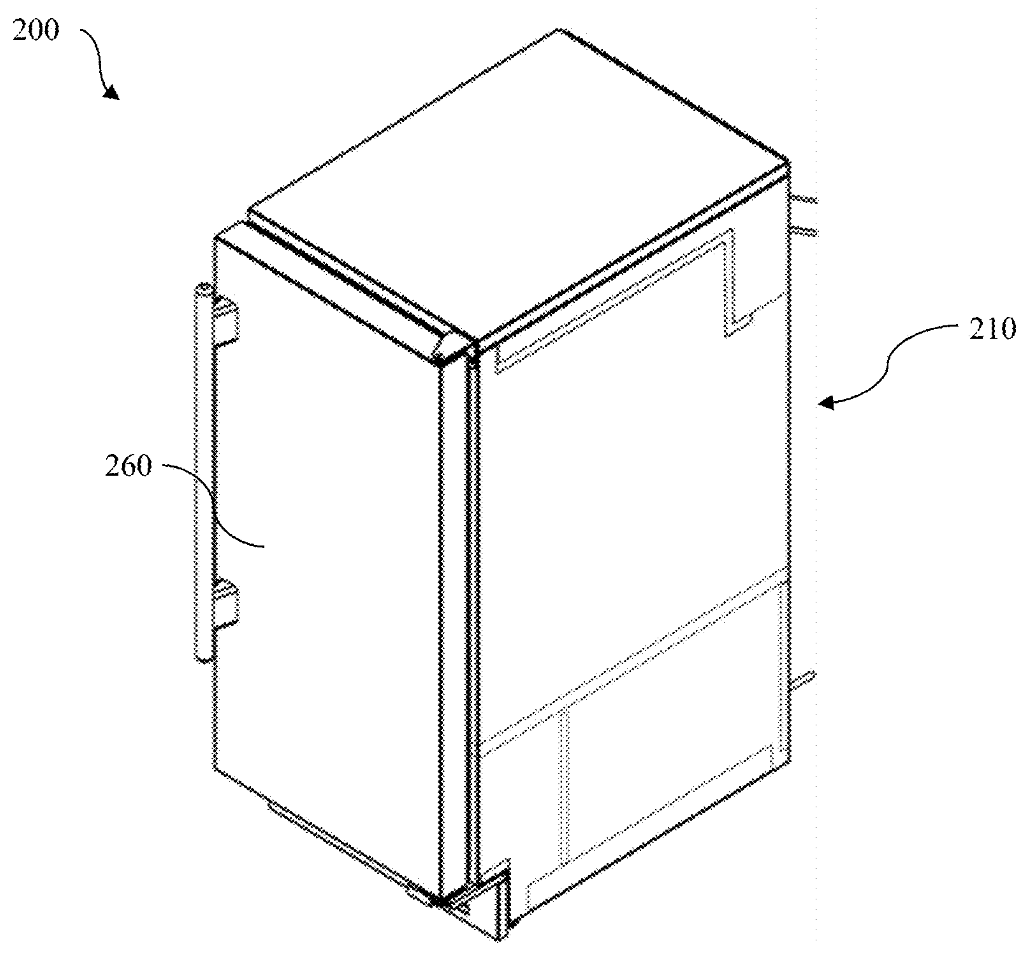


FIG. 14

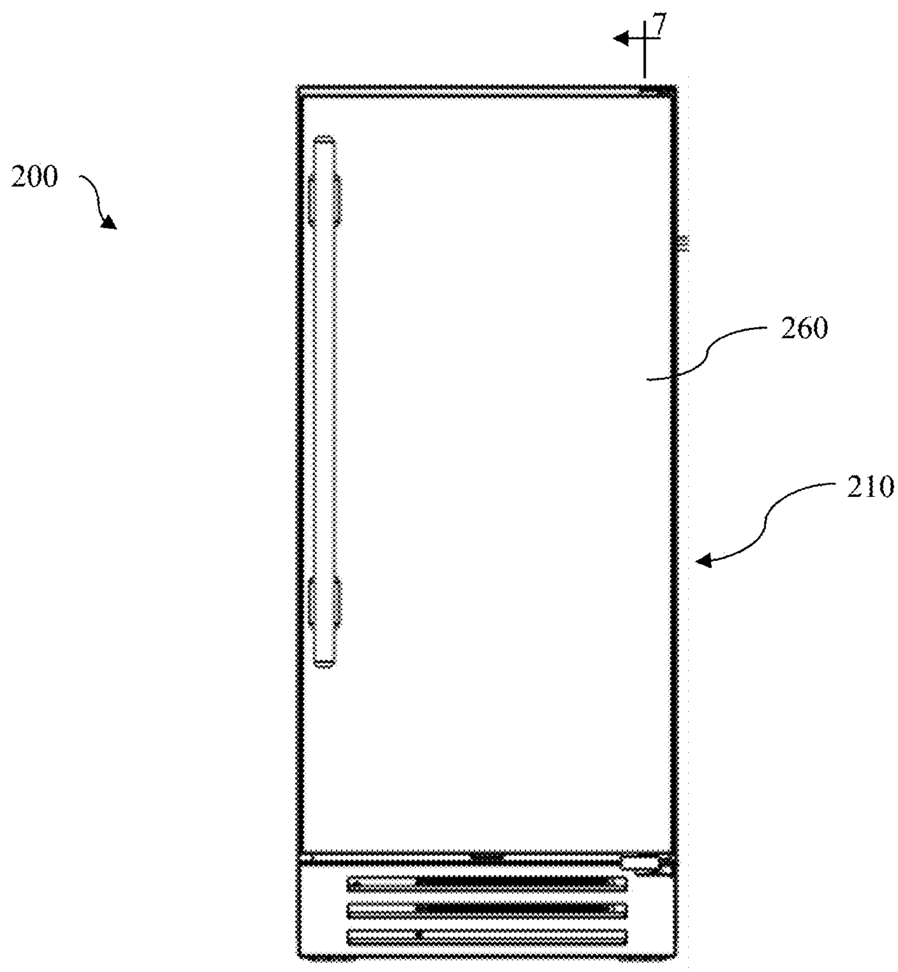


FIG. 15

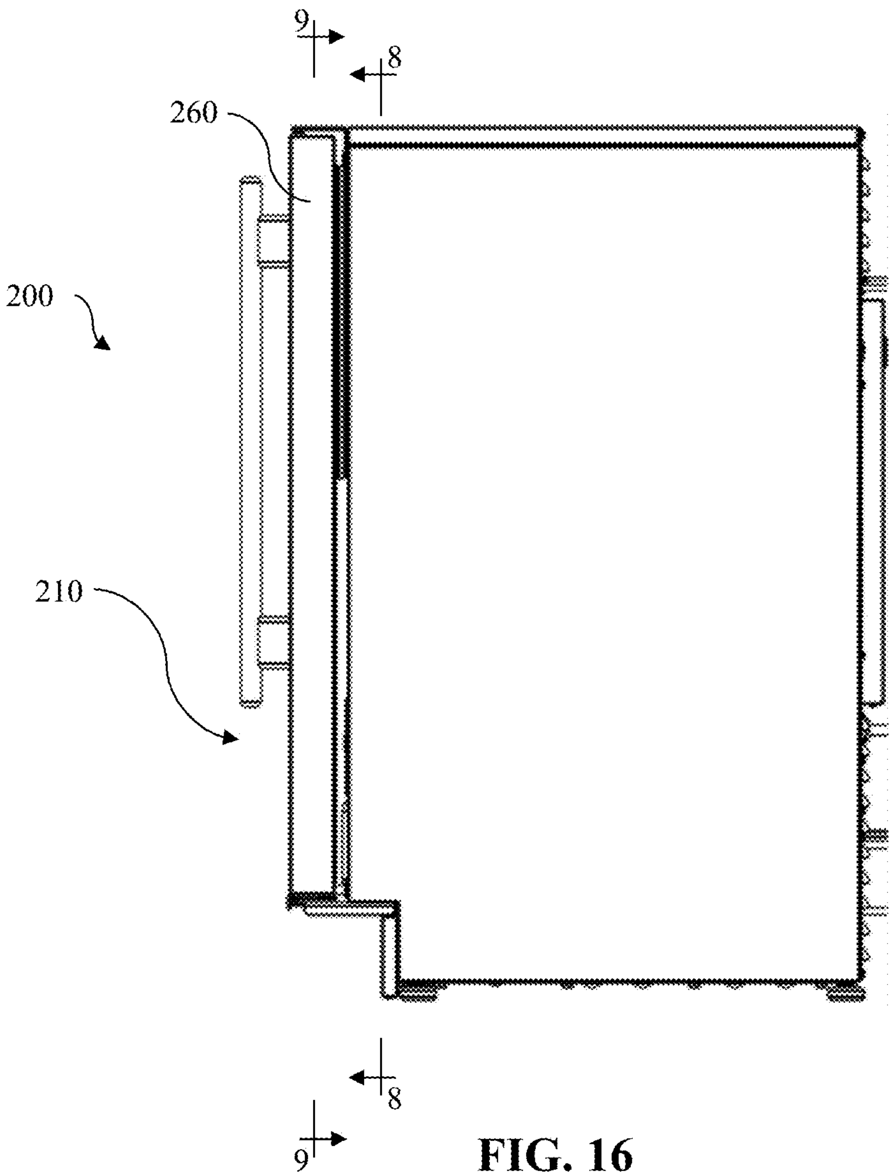


FIG. 16

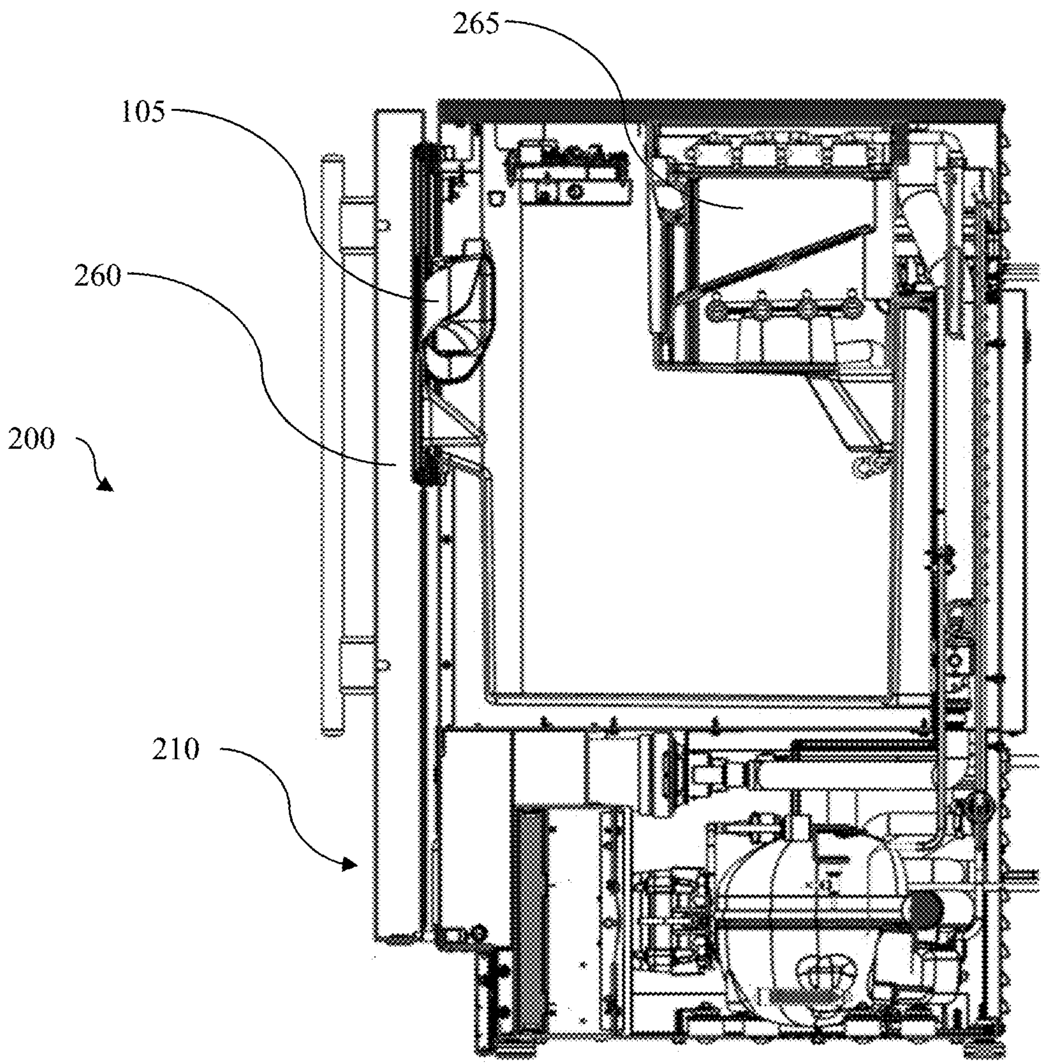


FIG. 17

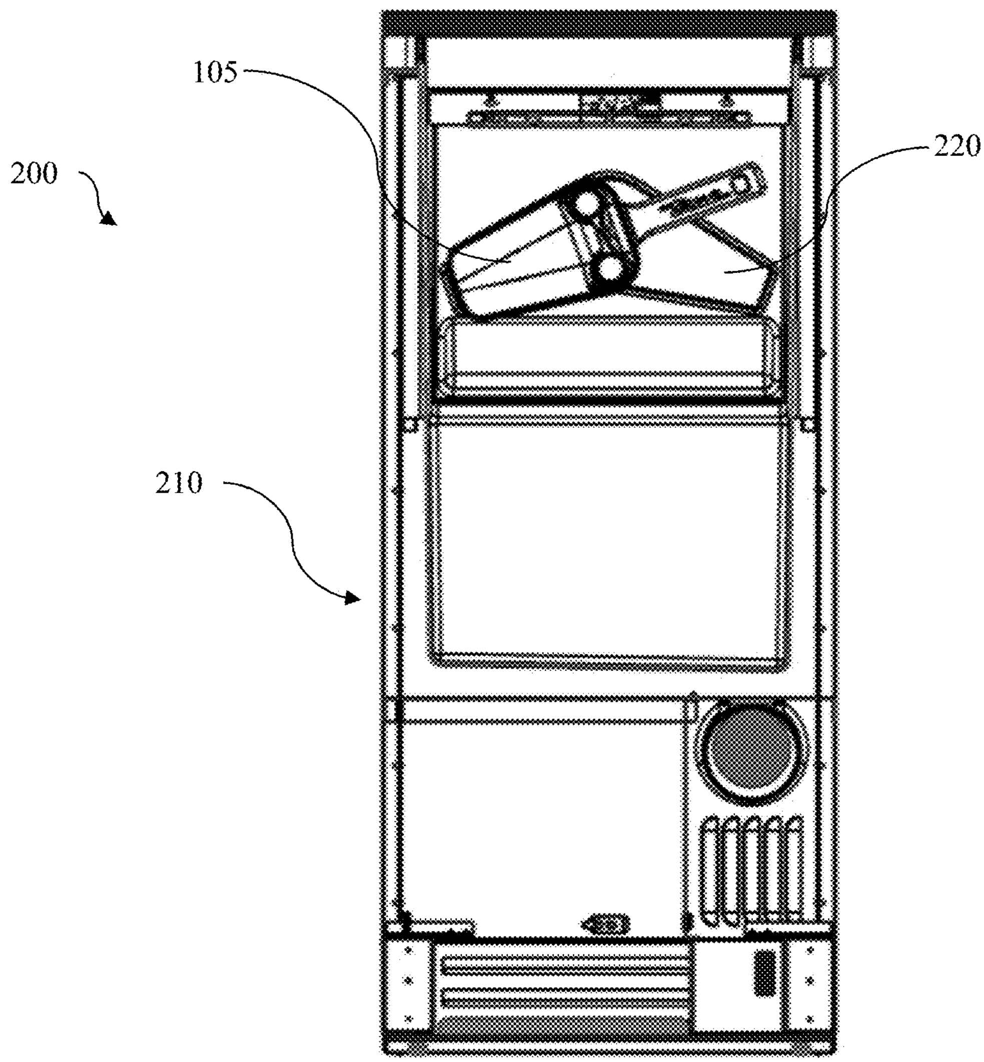


FIG. 18

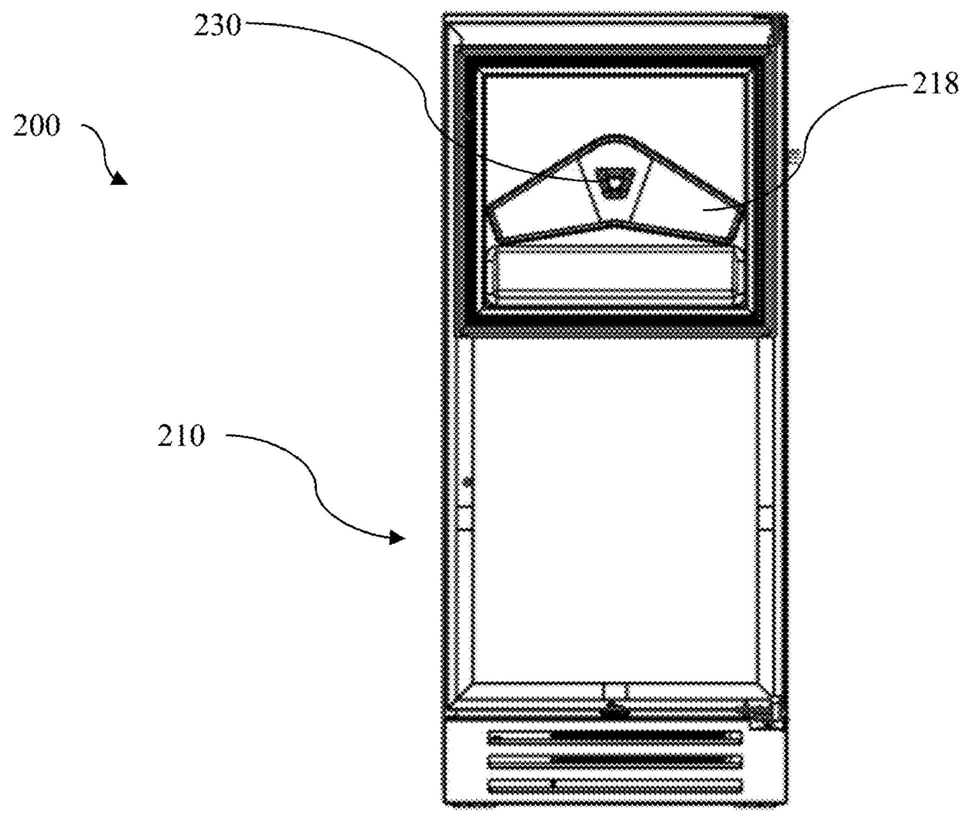


FIG. 19

ICE BIN WITH MAGNETIZED SCOOP AND METHOD OF MANUFACTURE AND USE

CROSS-REFERENCE TO RELATED APPLICATIONS

[0001] This application is a continuation of U.S. Nonprovisional patent application Ser. No. 17/318,486, filed May 12, 2021, the entire contents of which are incorporated herein by reference.

FIELD

[0002] The present disclosure generally relates to ice bins and ice scoops.

BACKGROUND

[0003] Ice bins are used to receive ice from an ice maker and store the ice until the ice is used. Ice bins often include a scoop for retrieving ice stored out of the bin without direct contact between ice and the user's hands. Scoops are typically placed on top of the ice when not in use. By putting an ice scoop on top of the ice, the scoop has a tendency to become cold to the user's touch, especially if the scoop has been in the bin for a significant amount of time. Further, when the scoop is placed on top of the ice during non-use, the creation of new ice has a tendency to bury the ice scoop, making it difficult for the user to find and requiring the user to dig through the ice, causing the user to become cold and potentially contaminating the ice.

SUMMARY

[0004] In one aspect, an ice bin comprising a bin body is disclosed. The bin body comprises a lower portion, an upper portion, and a perimeter wall extending height-wise from the lower portion to the upper portion. The upper portion of the bin body defines an ice drop opening configured so that ice dropped from an ice maker supported above the ice bin is passable through the ice drop opening into the interior of the ice bin. The bin body further comprises an ice retrieval opening spaced apart from the ice drop opening for providing access to the interior of the ice bin. The perimeter wall also comprises a support plate configured to support an ice scoop on the interior of the perimeter wall by a magnetic force between the ice scoop and the support plate.

[0005] In another aspect, an ice storage and retrieval assembly comprising an ice bin is disclosed. The ice bin comprises a bin body, the bin body comprising a lower portion, an upper portion, and a perimeter wall extending height-wise from the lower portion to the upper portion. The upper portion of the bin body defines an ice drop opening configured so that ice dropped from an ice maker supported above the ice bin is passable through the ice drop opening into the interior. The bin body further comprises an ice retrieval opening spaced apart from the ice drop opening for providing access to the interior of the ice bin. The perimeter wall comprises a support plate for supporting an ice scoop comprising at least one magnetic element. The scoop is configured to support itself on the perimeter wall at a location in the interior of the ice bin overlying the support plate by a magnetic force between the ice scoop and the support plate.

[0006] In yet another aspect, a method of manufacturing an ice bin is disclosed. The method includes forming a liner and an outer shell of the ice bin, fitting the liner into the outer shell, fitting the support plate between the liner and the outer shell temporarily using an adhesive, and foaming the area between the liner and the outer shell with an insulation layer to permanently secure the support plate in position.

[0007] In another aspect, a method of using an ice bin and scoop is disclosed. The method includes first detaching the scoop from an inner surface of the ice bin by overcoming a magnetic force between the scoop and the ice bin by which the scoop is supported on the inner surface of the ice bin. Second, scooping ice that has been deposited by an ice maker into the bin out of the ice bin with the scoop. Third, reattaching the scoop to the inner surface of the ice bin such that the scoop is supported on the inner wall by a magnetic force between the scoop and the inner surface of the ice bin.

[0008] In another aspect, a method of making a scoop is disclosed. The method comprises forming a scoop comprising a magnet receiving enclosure having an open end, placing a magnet clement into the magnet receiving enclosure through the open end, and joining a cap to the scoop over the open end of the magnet receiving enclosure such that the cap retains the magnetic element in the enclosure.

[0009] In another aspect, an ice maker appliance is disclosed. The ice maker appliance comprises an ice bin comprising a bin body and a front door assembly. The front door assembly comprises a shell, a liner, and a support plate. The ice maker further comprises an ice scoop comprising at least one magnetic or ferromagnetic element. The scoop is configured to be releasably supported on the front door assembly by a force of magnetic attraction between the ice scoop and the support plate.

[0010] Other objects and features of the present disclosure will be in part apparent and in part pointed out herein.

BRIEF DESCRIPTION OF THE DRAWINGS

[0011] FIG. **1** is a perspective of an ice bin and scoop;

[0012] FIG. **2** is a front view of an ice bin and scoop;

[0013] FIG. **3** is a cross section taken through the plane of line **1-1** of FIG. **2**;

[0014] FIG. **4** is a cross section taken through the plane of line **2-2** of FIG. **2**;

[0015] FIG. **5** is a side view of a support plate;

[0016] FIG. **6** is a cross section taken through the plane of line **3-3** of FIG. **2**;

[0017] FIG. **7** is a cross section taken through the plane of line **4-4** of FIG. **2**;

[0018] FIG. **8** is a front view of a scoop;

[0019] FIG. **9** is a cross section taken through the plane of line **5-5** of FIG. **8**;

[0020] FIG. **10** is a side view of a scoop;

[0021] FIG. **11** is a cross section taken through the plane of line **6-6** of FIG. **10**;

[0022] FIG. **12** is an exploded perspective of a scoop;

[0023] FIG. **13** is a perspective of an ice bin with the scoop at an alternate position, wherein a perimeter wall panel of an outer shell of the ice bin is shown transparent to reveal an upright support member;

[0024] FIG. **14** is a perspective of an ice maker appliance;

[0025] FIG. **15** is a front view of the ice maker appliance;

[0026] FIG. **16** is a side view of the ice maker appliance;

[0027] FIG. **17** is a cross section taken through the plane of line **7-7** of FIG. **15**;

[0028] FIG. **18** is a cross section taken through the plane of line **8-8** of FIG. **16**; and

[0029] FIG. **19** is a cross section taken through the plane of line **9-9** of FIG. **16**.

[0030] Corresponding reference numbers indicate corresponding parts throughout the drawings.

DETAILED DESCRIPTION

[0031] Referring to FIGS. **1** and **2**, an ice bin **100** with a scoop **105** is shown. The ice bin comprises a bin body **110**. The bin body is comprised of a lower portion **112**, an upper portion **114**, and a perimeter wall **116**. The perimeter wall **116** extends heightwise from the lower portion **112** to the upper portion **114**. The perimeter wall **116** further comprises an outer shell **118** and a liner **120**. The liner **120** defines an inner perimeter of the perimeter wall **116** and the outer shell **118** defines an outer perimeter of the perimeter wall. The liner **120** is disposed within the outer shell **118** and further defines an interior of the ice bin **100** for ice to be held for future use.

[0032] The ice bin **100** further defines two openings, an ice drop opening **122** (broadly, ice drop area) and an ice retrieval opening **124** (broadly, ice retrieval area). The upper portion **114** surrounds the ice drop opening **122** and is configured to form a seat. The ice drop opening **122** is configured so that ice formed in an ice maker (not shown), supported above the ice bin **100** on the seat of the upper portion **114**, is passable through the ice drop opening into the ice bin. Once the ice from the ice maker has passed through the ice drop opening **122**, it rests in the interior of the liner **120** for future use. The ice is then retrieved from the interior of the liner **120** by a user through the ice retrieval opening **124**. The ice retrieval opening is located generally at the front end of the ice bin **100**, as illustrated in FIG. **1**. A door **126** is configured to operatively open and close the ice retrieval opening **124**. The ice bin **100** is supported off of the ground using legs **128**.

[0033] Referring to FIG. **3**, the left side of the outer shell **118** of the perimeter wall **116** is removed to show the area between the outer shell and the liner **120**. FIG. **4** similarly shows the right side of the outer shell **118** of the perimeter wall **116** removed to show the area between the outer shell and the liner **120**. The exterior surface of the liner **120** on either or both of the left or right side of the liner is configured to support a support plate **130**.

[0034] In general, each support plate **130** is configured to support the scoop **105** on the inner wall of the bin **100** via a force of magnetic attraction between the support plate and the scoop. In one or more embodiments, the support plate **130** can comprise a ferromagnetic material such as galvanized steel and the scoop **105** comprises a magnetic material configured to impart a force of magnetic attraction between the ferromagnetic scoop and the support plate. In another embodiment, the support plate **130** comprises a magnet and the scoop **105** comprises ferromagnetic material such that the support plate **130** is configured to impart a force of magnetic attraction to the scoop for holding the scoop on the wall of the bin. Hereafter, an exemplary embodiment will be described wherein each support plate **130** comprises a single monolithic piece of ferromagnetic material (e.g., galvanized steel) and the scoop **105** comprises one or more magnets. However, it is now understood that the use of magnetic and ferromagnetic material as between the bin and the scoop be reversed without departing from the scope of the disclosure.

[0035] The support plate **130** is generally configured to be supported on the liner in the upper front corner of the liner **120**, such that the support plate is adjacent to the ice retrieval opening **124**. The illustrated support plate **130** is supported in the upper front corner of the liner **120** such that there is basically no spacing between the support plate and the front of the liner or the support plate and the top of the liner. This positioning allows for the scoop **105**, further described below, to be situated away from the ice drop path and out of the ice reservoir.

[0036] Referring to FIG. **5**, the support plate **130** has a front-to-back depth D**1** defined by a distance between a back edge margin and a front edge margin (e.g., the front-most edge margin of the support plate). In one embodiment, the front-to-back depth of the support plate **130** is in an inclusive range of from about 4 inches to about 24 inches (e.g., from about 6 inches to about 18 inches). In the illustrated embodiment, the back edge margin of the support plate **130** is spaced apart from the back of the liner **120**. For example, in one or more embodiments (shown in FIGS. **3** and **4**), the back edge margin of the support plate **130** is spaced apart from the back of the liner **120** by a front-to-back spacing distance D**3** in an inclusive range of from about 8 inches to about 24 inches (e.g., from about 12 inches to about 18 inches). In certain embodiments, the front-to-back spacing distance is greater than the front-to-back depth D**1** of the support plate. Along the front-to-back spacing distance, it is not possible for a user to support the scoop **105** magnetically on the inner wall of the bin. This is desirable because it prevents the user from positioning the scoop **105** toward the rear of the bin **100**, where it might interfere with falling ice. The liner **120** itself has a front-to-back depth D**4**. In one or more embodiments, the front-to-back depth of the support plate D**1** is in an inclusive range of from about 10% to about 75% of the front-to-back depth D**4** of the liner (e.g., an inclusive range of from about 20% to about 50%). In certain embodiments, the front-to-back spacing distance D**3** is in an inclusive range of from about 25% to about 90% of the depth D**4** of the liner (e.g., an inclusive range of 50% to about 80%). In the illustrated embodiment, the upper front corner region of each support plate **130** is beveled to match the angle of the doorframe around the ice retrieval opening **124**. Because of this bevel, the top edge margin of the plate **130** has a front-to-back depth D**2** that is less than the overall front-to-back depth D**1** of the plate **130**. In certain embodiments, the bevel front-to-back depth D**2** is an inclusive range of 10% to 90% of the front-to-back depth D**1** of the support plate **130**.

[0037] The support plate **130** has a top-to-bottom height H**1** between a top edge margin and a bottom edge margin. In one embodiment, the top-to-bottom height H**1** is in an inclusive range from about 6 inches to about 36 inches (e.g., from about 8 inches to about 30 inches). In the illustrated embodiment, the bottom edge margin of the support plate **130** is spaced apart from the bottom of the liner **120** by a top-to-bottom spacing distance H**3** in an inclusive range of from about 12 inches to about 36 inches (e.g., from about 16 inches to about 30 inches). In certain embodiments, the top-to-bottom spacing distance H**3** is greater than the top-to-bottom height distance H**1**. The liner **120** itself has a top-to-bottom height H**4**. In one or more embodiments, the top-to-bottom height of the support plate H**1** is in an inclusive range from about 10% to about 75% of the top-to-bottom height of the liner H**4** (e.g., an inclusive range of from about 20% to about 50%). In certain embodiments, the top-to-bottom spacing distance H**3** is in an inclusive range of from about 25% to about 90% of the top-to-bottom height of the liner H4 (e.g., an inclusive range of 50% to about 80%). In the illustrated embodiment, the upper front corner region of each support plate **130** is beveled to match the angle of the frame around the ice retrieval opening **124**. Because of this bevel, the top edge margin of the plate **130** has a height H2 below the bevel that is less than the overall height H**1**. In certain embodiments, the height H**2** is an inclusive range of 10% to 90% of the height H**1**. The beveled edge defines an angle Al with the front edge of the plate **130**, measured as the outside angle between the front vertical edge and the bevel edge. In one or more embodiments, the angle A**1** is in an inclusive range of from about 190° to about 260°.

[0038] Referring to FIG. **7**, disposed in the area between the outer shell **118** and the liner **120** is an insulation layer (not shown). The insulation layer is molded-in-place between the liner **120** and the outer shell **118** and around the support plate **130**. In one or more embodiments, the insulation layer is formed from spray foam insulation. Once molded in place, the insulation firmly holds the support plates **130** in position. But as explained more fully below, the illustrated bin **105** further comprises double sided tape (broadly, an adhesive) between the plate **130** and the liner **120** that further supports the plate on the liner, and in particular, is configured to hold the plate in place the liner prior while the foamed insulation is being molded-in-place. The insulation layer keeps the temperature inside the liner **120** close to or below freezing and slows the drift toward warmer ambient temperature.

[0039] Referring to FIGS. **8-12**, the scoop **105** comprises a handle portion **138** and a scoop portion **140**. The handle portion **138** has a distal end and a proximate end. The scoop portion **140** is attached to the distal end of the handle portion **138**. The scoop portion **140** defines one or more magnetic receiving enclosures **144**, and a magnetic element **146** (broadly, a magnetic attraction element, which in the illustrated embodiment comprises an element formed from a magnetic material; but as explained above, could, in other embodiments, comprise an element formed from ferromagnetic material) is received in each enclosure. The enclosures **144** further comprise a cap **145**, such that when the magnetic element **146** is placed into the magnet receiving enclosure, the cap is joined to the scoop **105** over the open end of the magnet receiving enclosure such that the cap retains the magnetic in the enclosure. In one embodiment, the scoop **105** is made of plastic. It is contemplated that, in an alternative embodiment, if the bin support plates **130** were to comprise magnets instead of ferromagnetic material, the entire scoop **105** could be formed from ferromagnetic material such as galvanized steel instead of forming pockets for ferromagnetic elements. The illustrated magnetic elements **146** are configured to interact with the support plate **130** in order to support the scoop **105** against the interior wall of the liner **118** of the ice bin **100** in a position overlying the support plate, as seen in FIGS. **1**, **2**, **6**.

[0040] Referring to FIG. **13**, in the illustrated embodiment the shell **118** comprises a sub-frame that supports perimeter wall panels of the shell. Each of the left and right sides of the shell **118** includes an upright frame member **150** of the sub-frame. In FIG. **13**, a portion of the right panel wall is shown transparent to reveal the upright frame member **150**, which would otherwise be hidden behind the panel wall. In the illustrated embodiment, the upright frame member **150** is located closer to the front of the bin **100** than the back of the bin. In one or more embodiments, the upright frame member **150** is formed from ferromagnetic material such as galvanized steel so that the scoop **105** can be supported on an exterior of the bin **100** by a force of magnetic attraction between the upright frame member and the magnetic elements **146** of the scoop. In one or more embodiments, the ferromagnetic upright frame member **150** is immediately adjacent the panel wall of the shell and is separated from the liner **120** by insulation material. By contrast, each of the support plates **130** is located immediately adjacent to the liner **120** and is spaced apart from the panel wall by insulation material. Hence, the support plates **130** enable the scoop **105** to be magnetically supported inside the bin **100**, whereas the upright frame member **150** enables the scoop to be magnetically supported outside the bin.

[0041] An exemplary method of using the ice bin **100** and scoop **105** will now be briefly described below. An ice machine (not shown) is supported above the upper portion of the ice bin **100** for forming ice and depositing ice into the bin. When the ice is formed, the ice machine drops the ice through the ice drop opening **122** defined by the upper portion **114** and into the interior ice bin **100** defined by a liner **120**. The liner **120** houses the ice within the interior until a future user desires its use. While in the liner **120**, the ice is hindered from melting due to an insulation layer (not shown) disposed between the outer shell **118** and the liner. When the user decides to use the ice in the bin **100**, the user opens the door **126**. In the initial position, the scoop **105** is supported in a position on the liner **120** overlying the support plate **130**. In this initial position overlying the support plate **130**, the scoop **105** is also out of the path of ice being dropped through the ice drop opening **122**. The scoop **105** is supported onto the liner **120** through the force of magnetic attraction between magnetic elements **146** in the scoop and the ferromagnetic material of the support plate. The user grabs the handle **138** of the scoop **105**, and by applying force, overcomes the magnetic force between the magnetic elements **146** of the scoop **105** and the support plate **130** and frees the scoop from its supported position on the liner **120**. The user then scoops ice out of the liner **120** using the scoop **105**. The ice collects in the bowl **140** of the scoop **105** to facilitate transfer of the ice to a desired location. Once the user has dispensed the ice outside of the ice bin **100**, the user places the scoop **105** in the area overlying the support plate **130** on the interior of the liner **120**. In one or more embodiments, the liner **120** has a marking indicating the location of the support plate **130** so that the user can visualize where to place the scoop. The magnetic force between the magnetic elements **146** and the support plate **130** once again supports the scoop **105** on the interior of the liner **120**. Alternatively, the user may utilize the scoop **105** in substantially the same way, only with the scoop being supported on the exterior surface of the outer shell **118** in the area overlying the upright support member **150**.

[0042] An exemplary method of manufacturing an ice bin **100** as described above will now be briefly described below. The method includes steps of forming a liner **120**, forming the outer shell **118**, temporarily supporting the support plates **130** on the liner via double-sided tape, and fitting the liner in the shell and support plates in the space between the liner and the shell. The particular order of these steps is not critical. So in one or more embodiments, the liner **120** can be formed, then the support plates **130** can be temporarily secured to the liner, and then the shell can be assembled around the liner. In another embodiment, the liner **120** and outer shell **118** are each formed in suitable manufacturing processes, the support plates **130** are then temporarily secured to the liner, and then the assembly of the liner and the support plates is inserted into the shell. In yet another embodiment, the liner **120** and outer shell **118** are each formed in suitable manufacturing processes, the liner is then slipped into the outer shell, and then the plates are temporarily secured to the liner in the space between the liner and shell. Any suitable manufacturing processes can be used to form the liner **120** and the shell **118**. In an exemplary embodiment, the liner **120** is formed in a blow molding process, from blow-molded plastic. The shell **118** may suitably be formed by assembling a sub-frame and then securing outer shell wall panels to the sub-frame vial suitable fasteners or mechanical tabs or hooks. As mentioned above, in an exemplary embodiment, the support plate **130** is temporarily fitted onto the liner **120** using an adhesive (e.g., a double-sided tape). After the support plate **130** is temporarily secured and the liner **120** is in the outer shell **118**, an insulation layer is foamed in the space between the outer shell and the liner in order to insulate the bin **100** and permanently secure the support plate in position. For example, curable and flowable insulation material is imparted into the space so that it substantially fills the space and conforms to the support plates **130**. The insulation material is then cured to provide a firm hold of the support plate **130** in the desired position.

[0043] An exemplary method of manufacturing a scoop **105** as described above will now be briefly described below. The method includes forming a scoop **105** comprising a magnetic clement receiving enclosure **144** having an open end, placing a magnetic element **146** into the magnetic clement receiving enclosure through the open end, and joining a cap **145** to the scoop **105** over the open end of the magnetic element receiving enclosure such that the cap retains the magnetic element in the enclosure. In one embodiment, the joining of the cap **145** comprises ultrasonic welding the cap to the scoop **105**. The scoop **105** may be formed by molding the scoop, and the scoop is preferably comprised of plastic.

[0044] The inventors believe that the above-described ice bin **100** and scoop **105** provide several advantages. As compared with prior art bins in which an ice scoop was placed directly atop the ice, the bin **100** and scoop **105** of the present disclosure are believed to provide a much more sanitary way of holding the scoop at a convenient, ready-to-use position. Whereas placing a scoop directly atop ice runs a risk of transferring germs and other pathogens from a user's hands, to the scoop, and further to the ice in the bin, the illustrated ice bin **100** and scoop **105** enable the user to quickly and easily position the scoop at a ready-to-use position without direct contact with the ice. Moreover, as compared with prior art ice bins that include integrated brackets for supporting a scoop out of the way of the ice, the illustrated bin **100** and scoop **105** are believed to provide a much more convenient, user-friendly mechanism for supporting the scoop. The inventors have recognized that scoop-holding brackets inside an ice bin are often difficult to use (particularly for uses with physical limitations due to injury or disability) because they only allow the user to support the scoop at a particular location and orientation. By contrast, the illustrated support plates **130** provide a wide range of possibilities for where and how a user can support the scoop **105** on the side wall of the bin, out of contact with the ice and out of the way of ice maker operation.

[0045] Referring to FIGS. **14-19**, in another embodiment contemplated to be within the scope of the present disclosure, the ice bin is integrated with the ice maker **265**, as is the case with the residential-style ice maker, generally indicated at **200**. The residential ice maker includes a bin body **210** comprising a front door assembly **260** configured to releasably support the magnetic scoop **105** discussed above. The illustrated door assembly **260** is configured to mount on the bin body **210** with hinges to swing open and closed. The door assembly **260** comprises a shell **218** and a liner **220** defining a space therebetween configured to receive insulation. Similar to the bin body **110** discussed above, the illustrated door assembly comprises a support plate **230** secured to the liner **220**. In the illustrated embodiment the support plate **230** is configured to align with an opening through which the user withdraws ice from the ice maker appliances when the door is open. In an exemplary embodiment, the support plate **230** is temporarily secured to the liner **220** with tape and then foamed into place for a permanent installation (similar to the support plate **130** described above). As can be seen, the support plate **230** allows the magnetic scoop **105** to support itself on the door assembly **260** at a position that still allows the door to open and close. During use, the user can open the door **260**, separate the scoop **105** from the door, withdraw ice from the residential ice bin **200**, return the scoop to the door such that scoop is supported on the door by a force of magnetic attraction between the scoop and the door, and finally shut the door.

[0046] It will be apparent that modifications and variations are possible without departing from the scope of the invention defined in the appended claims. As various changes could be made in the above constructions and methods without departing from the scope of the invention, it is intended that all matter contained in the above description and shown in the accompanying drawings shall be interpreted as illustrative and not in a limiting sense.

1-18. (canceled)

19. A method of manufacturing an ice bin, the method comprising:

- temporarily supporting a support plate on a liner of the ice bin in a space between the liner and an outer shell of the ice bin;
- filling the space between the liner and the outer shell with curable insulation such that the curable insulation conforms to the support plate; and
- curing the curable insulation so that the insulation supports the support plate in the space between the liner and the outer shell.

20. A method of using an ice bin and scoop, the method comprising:

- detaching the scoop from an inner surface of the ice bin by overcoming a force of magnetic attraction between the scoop and the ice bin by which the scoop is supported on the inner surface of the ice bin;
- scooping ice that has been deposited into the ice bin out of the ice bin with the scoop; and
- reattaching the scoop to the inner surface of the ice bin such that the scoop is supported on the inner wall by a force of magnetic attraction between the scoop and the ice bin.

21. A method of making a scoop comprising:

forming a scoop comprising a magnet receiving enclosure having an open end;

placing a magnet element into the magnet receiving enclosure through the open end; and

joining a cap to the scoop over the open end of the magnet receiving enclosure such that the cap retains the magnetic element in the enclosure.

22. A method as set forth in claim **21**, wherein said joining the cap comprises ultrasonic welding the cap to the scoop.

23. An ice maker appliance comprising:

an ice bin comprising a bin body and a front door assembly, the front door assembly comprising a shell, a liner, and a support plate; and

an ice scoop comprising at least one magnetic or ferromagnetic element, the scoop being configured to be releasably supported on the front door assembly by a force of magnetic attraction between the ice scoop and the support plate.

24. An ice bin as set forth in claim **23**, wherein the support plate is aligned with an opening through which the user withdraws ice from the ice bin.

* * * * *