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(54) **FUEL STORAGE CONTAINER**

(71) Applicants: **Adam Iveson**, Reno, NV (US); **Devan LeBlanc**, Reno, NV (US)

(72) Inventors: **Adam Iveson**, Reno, NV (US); **Devan LeBlanc**, Reno, NV (US)

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(52) **U.S. Cl.**

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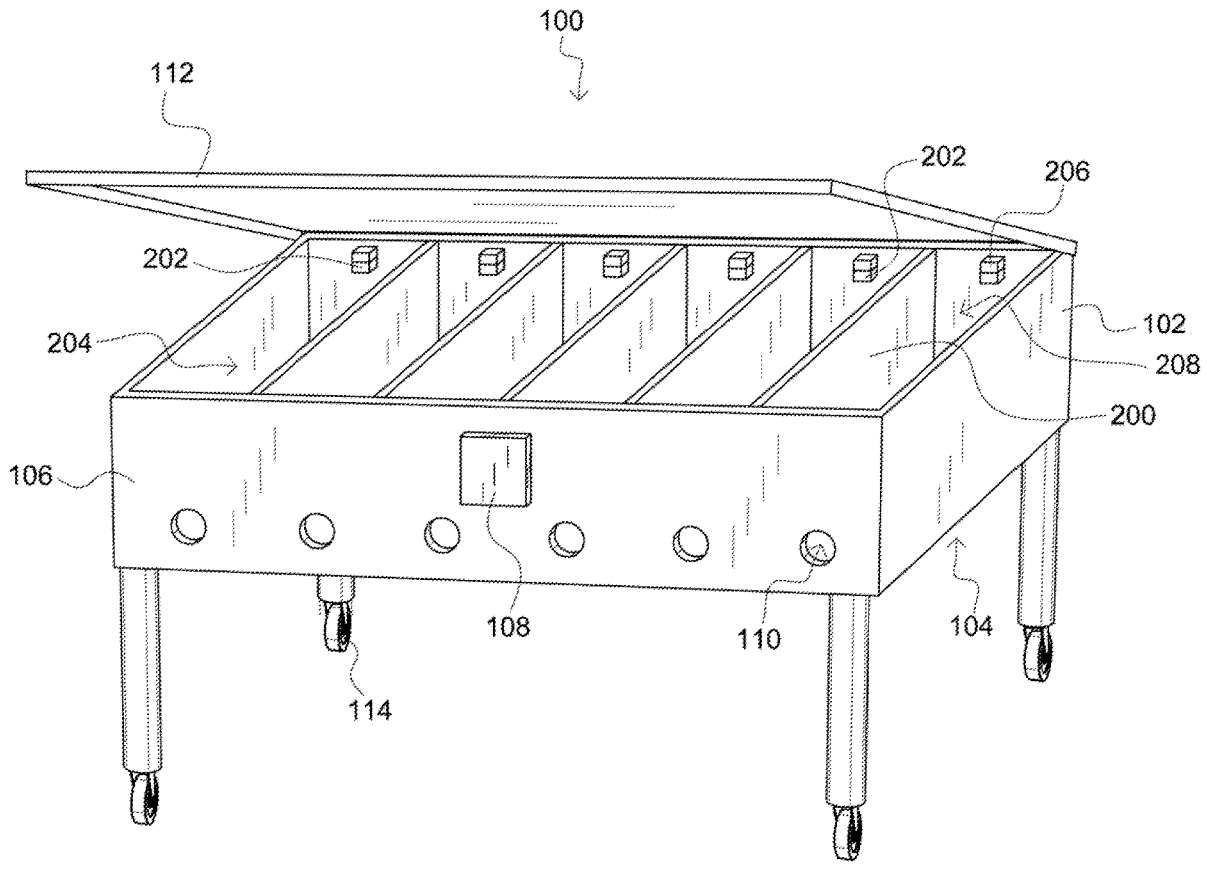
(57) **ABSTRACT**

A fuel storage container. There is a container body having a sloped first container floor and container wall coupled; a divider removably disposed within the body, configured to divide the container body into a plurality of compartments; a level sensor coupled to an interior of the container wall and configured to sense cooking fuel; a display device in functional communication with the level sensor such that information from the level sensor is displayed on the display device; an aperture disposed through the container wall; and a perforated screen disposed between an interior region of the container body and the aperture such that cooking fuel disposed within the interior region passes through the screen before exiting the aperture.



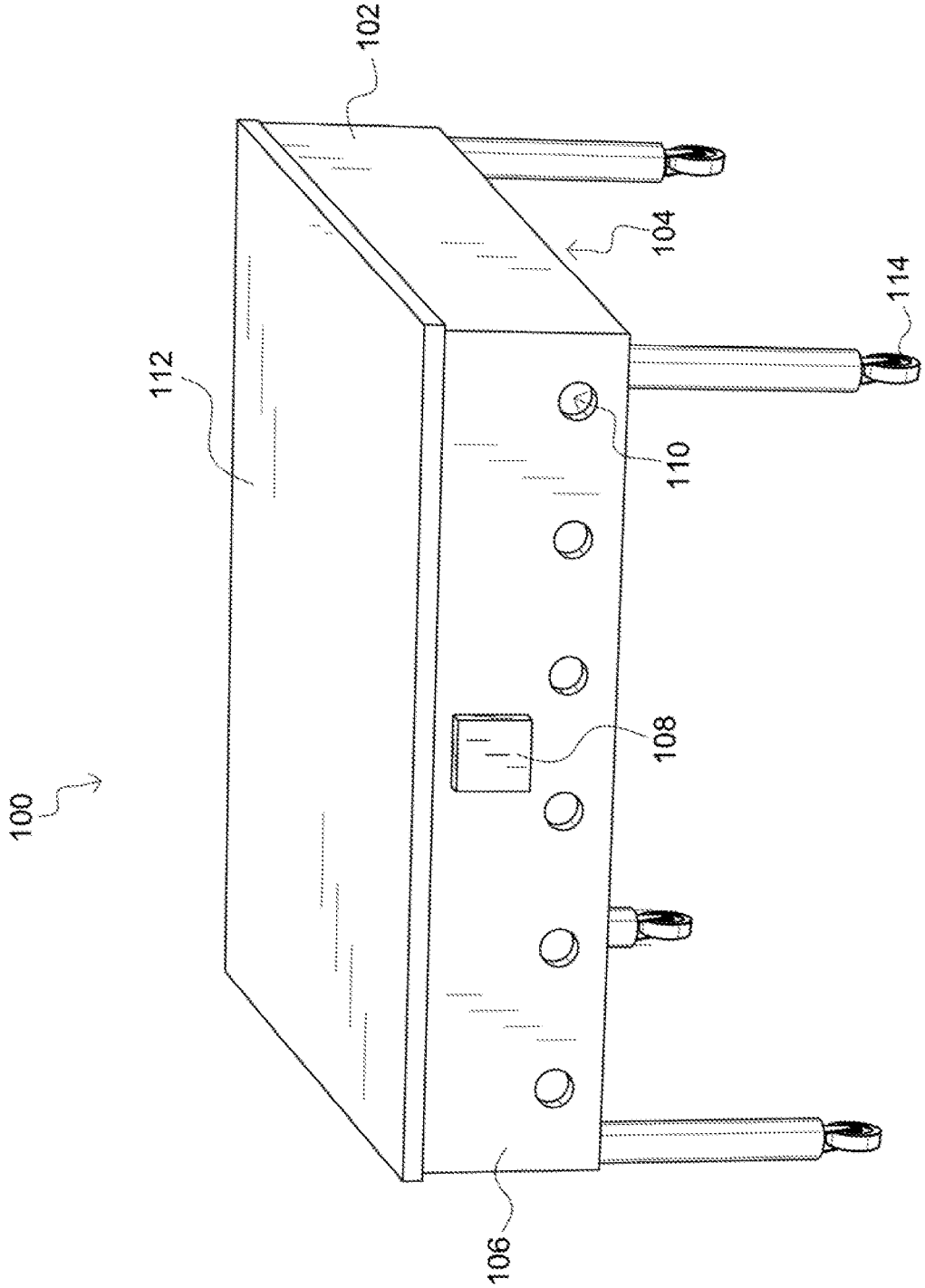


FIG. 1

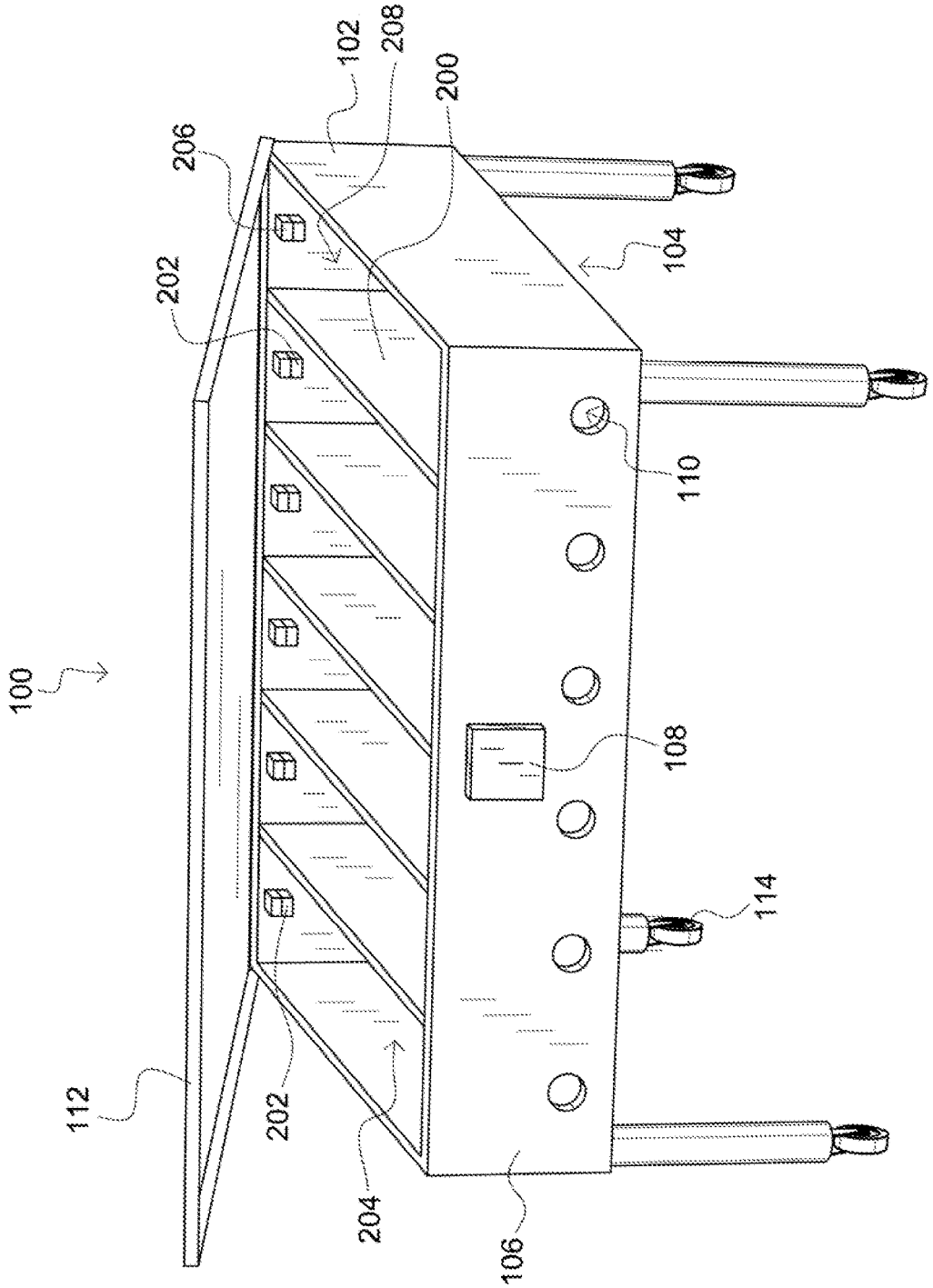


FIG. 2

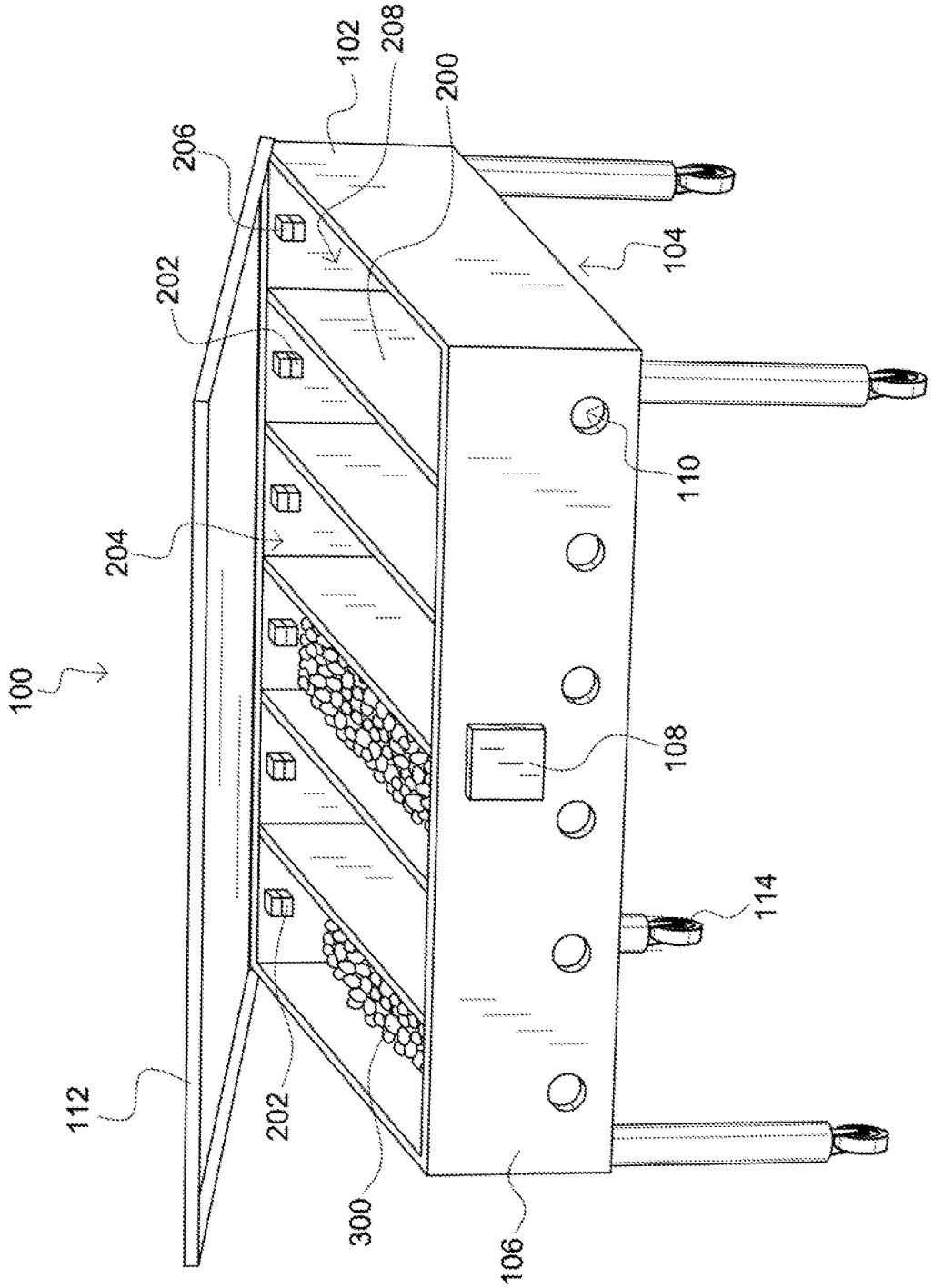


FIG. 3

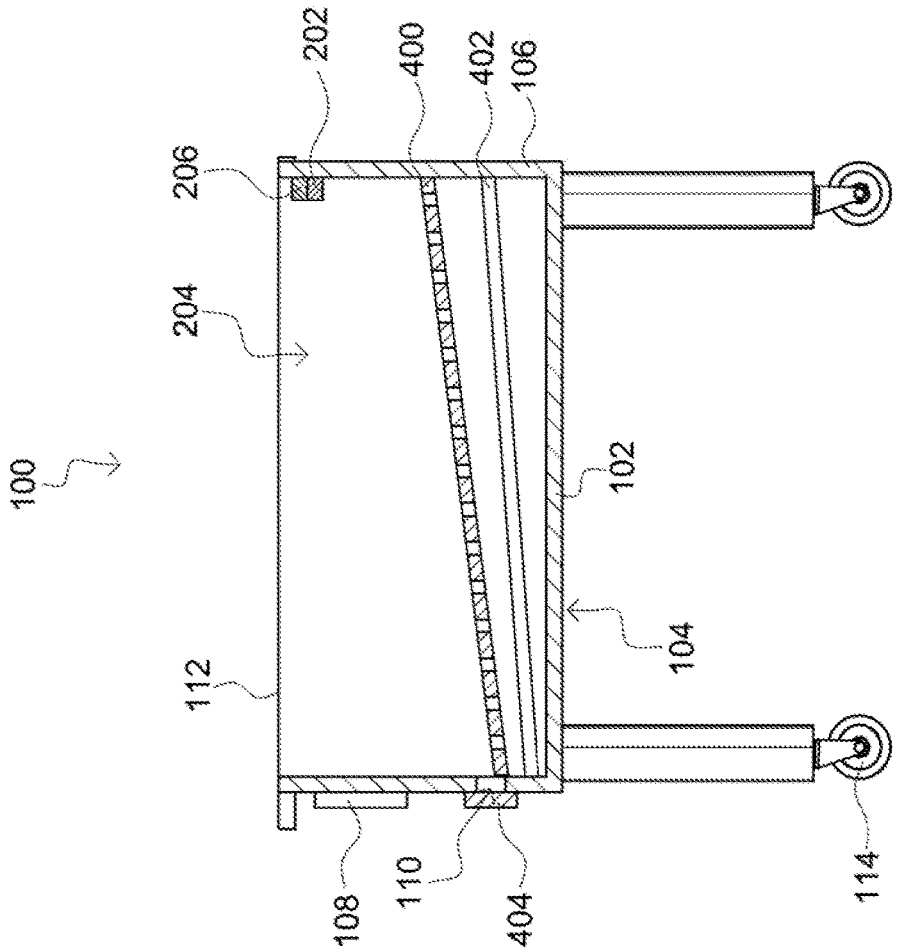


FIG. 4

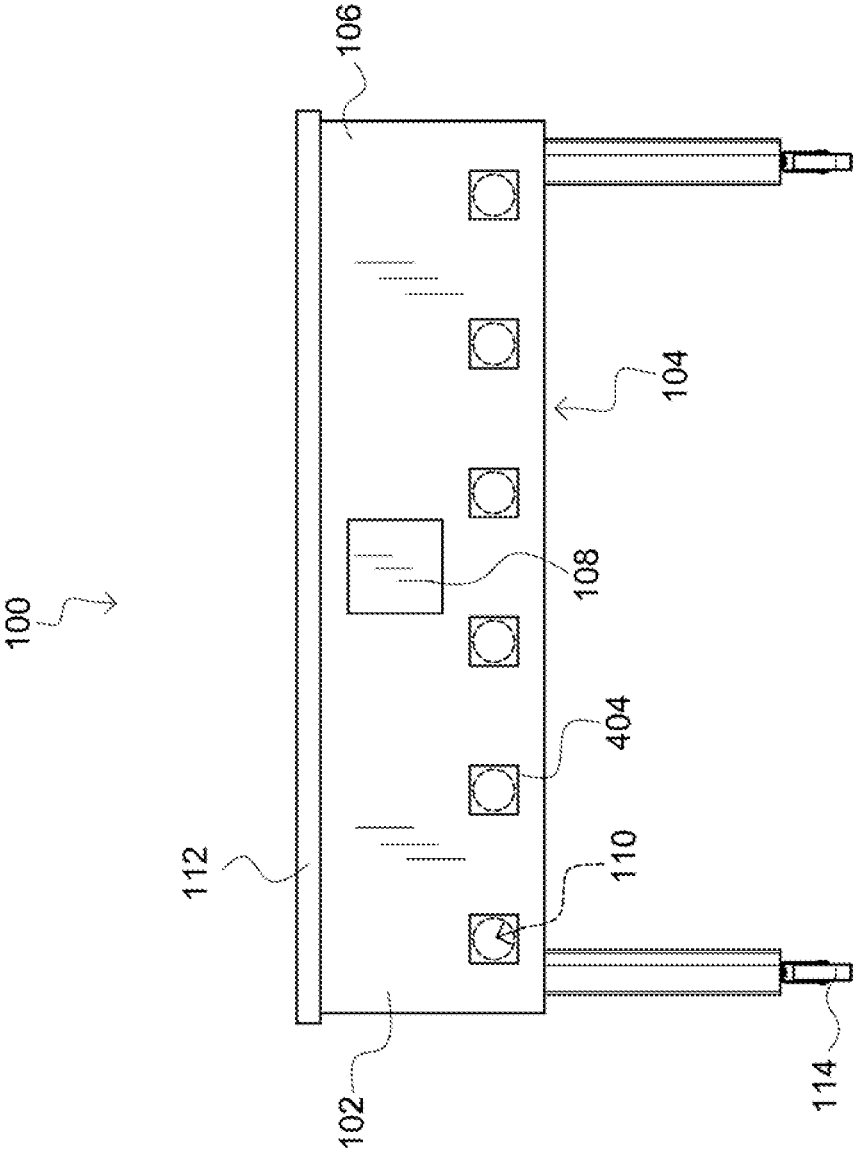


FIG. 5

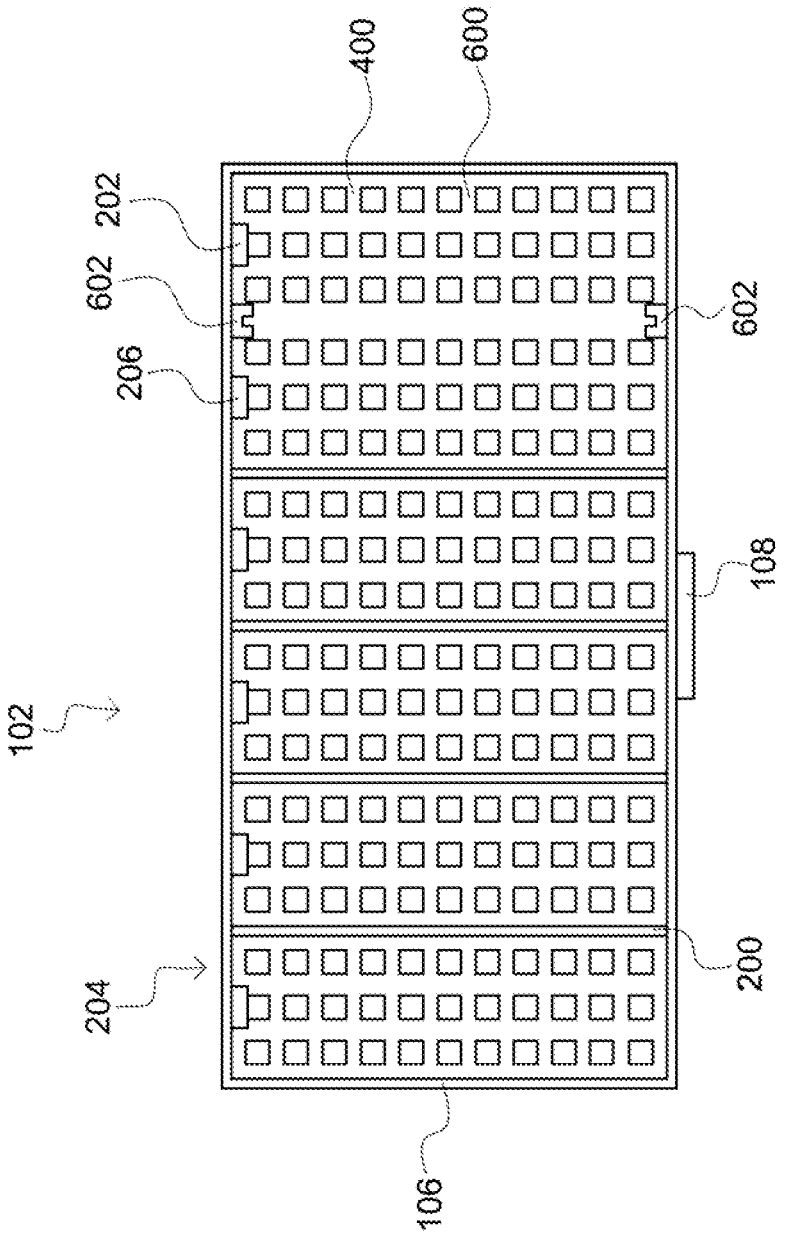


FIG. 6

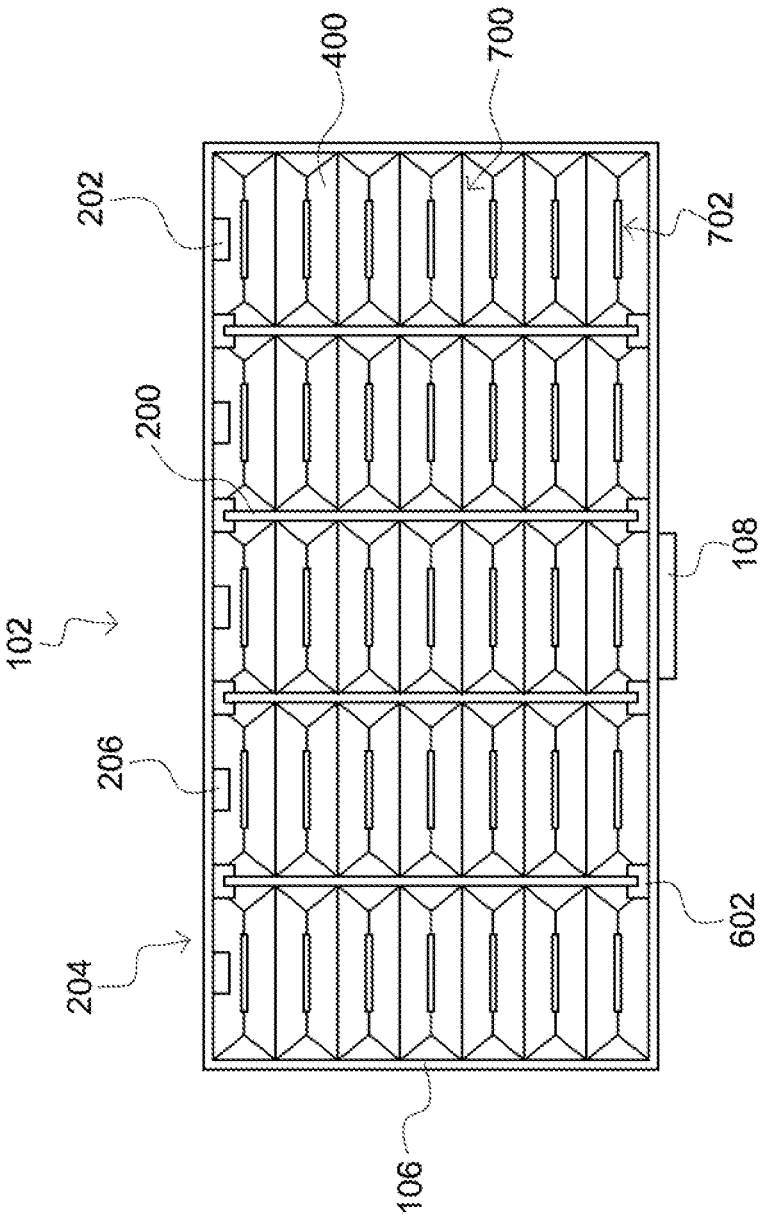


FIG. 7

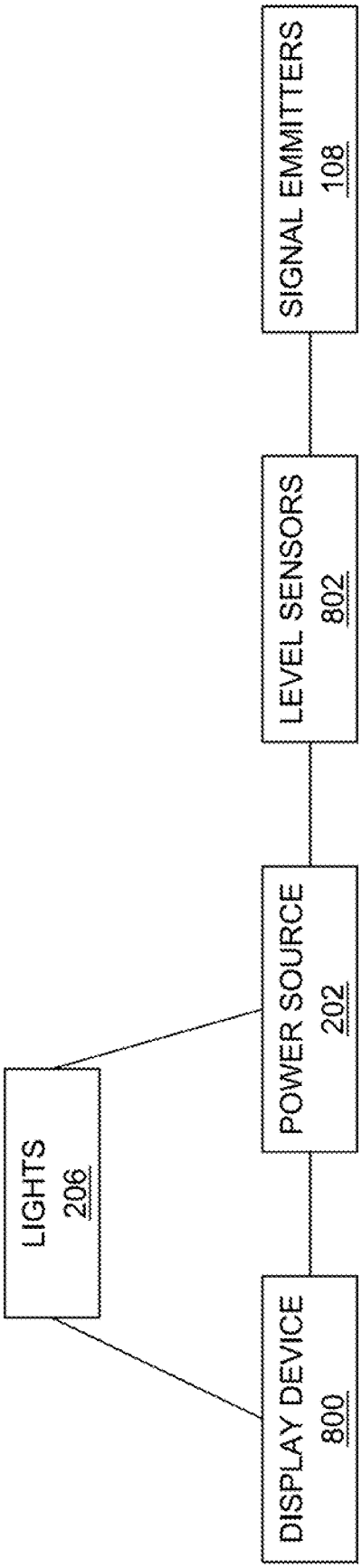

SIGNAL EMITTERS
108
LEVEL SENSORS
802
POWER SOURCE
202
LIGHTS
206
DISPLAY DEVICE
800

FIG. 8

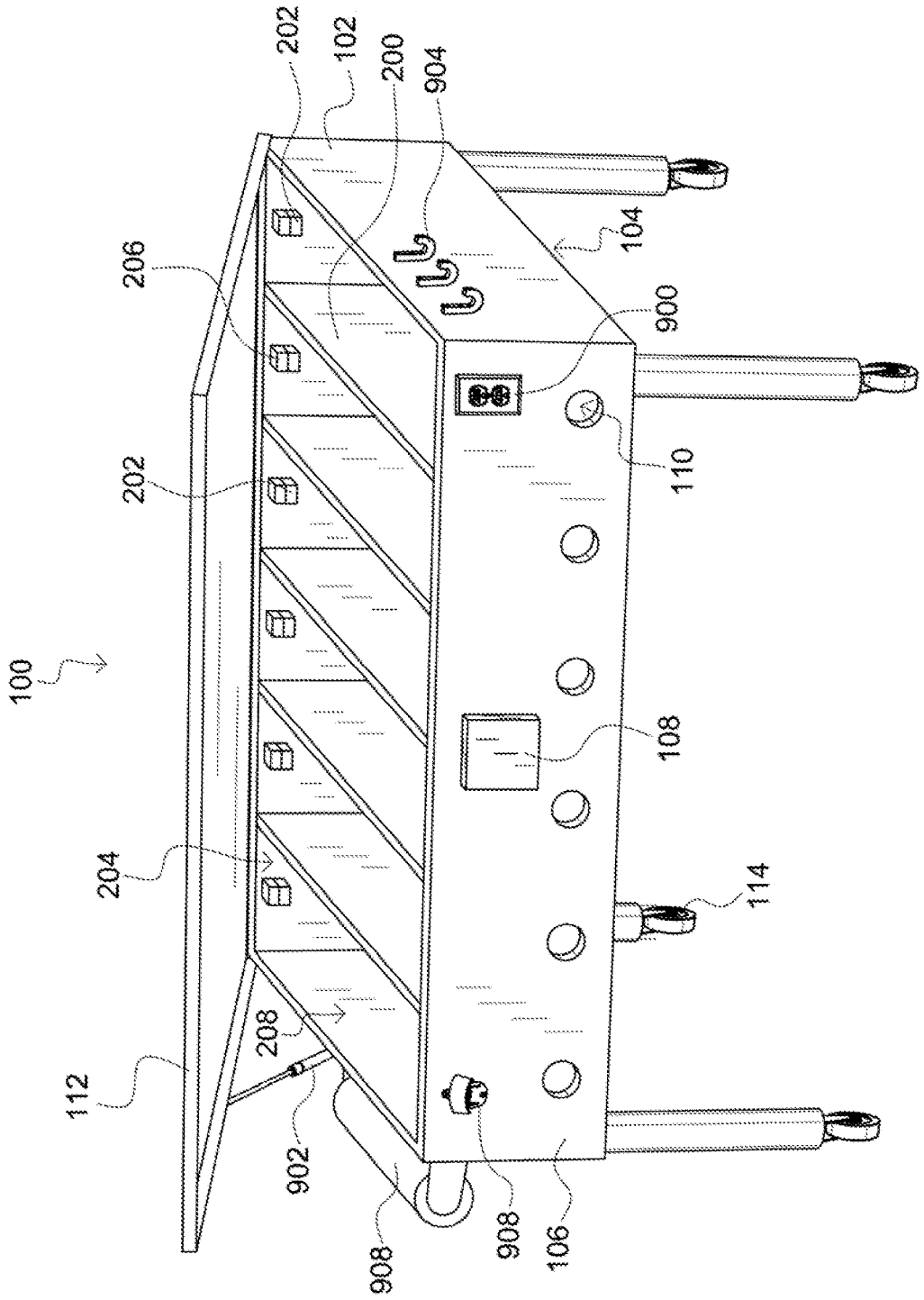

202
102
200
904
206
104
900
202
110
100
108
204
114
208
112
902
908
908
106

FIG. 9

FUEL STORAGE CONTAINER

CROSS-REFERENCE TO RELATED APPLICATIONS

[0001] This invention claims priority under 35 U.S.C. § 120, to the U.S. Provisional Patent Application No. 63/033,065, by Adam Iveson and Devan LeBlanc, filed on Jun. 1, 2020, which is incorporated by reference herein in its entirety.

BACKGROUND OF THE INVENTION

Field of the Invention

[0002] The present invention relates to storage containers, specifically to containers for storing fuel, such as cooking fuel.

Description of the Related Art

[0003] In the related art, it has been known to use containers to dispense of bulk materials. Several containers are used for dispensing bulk products. Storage containers having a multiplicity of compartments, drawers, or trays therein have been utilized for storing and dispensing products.

[0004] Containers are often used to store and dispense cooking fuel, such as wood pellets, wood, lump coal, charcoal, etc. Flavoring briquettes or pellets are commonly used as cooking fuel due to their ability to impart flavor to food during the cooking process. A pellet imparts flavor when smoke released from the pellet during combustion carries flavor to the food. Pellets comprising mixtures of wood have been manufactured to provide wood flavor during cooking. Generally, wood that imparts flavor, known as flavor wood, and a wood that does not impart flavor, known as base wood, have been combined to produce pellets that impart a wood flavor into the food. These pellets may be stored in containers prior to their use in cooking or smoking.

[0005] A conventional bulk container has a lid removable from a wide neck through which a scoop is inserted by hand to remove an amount of the product. When scooping product from containers, a scoop is often overfilled and excess product falls from it as it is removed from the container for depositing the product. Furthermore, the very act of inserting an outside object, such as the scoop, and a person's hand within the container, exposes the container to contamination. There is also the potential exposure to external elements, such as moisture and other weather. Additionally, in use of conventional containers, there may still be some of the product left in the bottom when the supply is replenished. Such product remains there on the bottom and after several times of replenishment, this bottom material is no longer fresh.

[0006] Some improvements have been made in the field. Examples of references related to the present invention are described below in their own words, and the supporting teachings of each reference are incorporated by reference herein:

[0007] U.S. Pat. No. 4,349,128, issued to Sanfilippo, discloses a movably mounted supply dispenser for bulk material is provided that has apparatus for mounting a container having inlet and outlet ends on a rack having spaced vertical supports. The mounting apparatus provides translation of a given generally horizontally directed thrust applied against the outlet end of the container into an angular motion of said container having upward components and horizontal components at both the inlet and outlet ends. The upward motion of the inlet end is greater than the upward motion of the outlet end for the given applied horizontal thrust. A system of such containers may also be provided in a freestanding rack allowing for the dispensing of many different bulk products.

[0008] U.S. Pat. No. 4,577,773, issued to Bitel, discloses a utility box for storing small parts and the like has a container molded from a transparent plastic material exhibiting natural flexural characteristics with a generally rectangular configuration defined by a bottom wall and upwardly extending and outwardly tapering side and end walls. The bottom wall has a multiplicity of transversely extending ribs thereon each formed with concave side surfaces and a planar upper surface with a groove therein. The side walls of the container have pairs of aligned slots therein above the ribs of the bot torn wall and recesses in the outer surface of the side wall above the slots. The side walls are also provided with pairs of aligned ribs extending upwardly from adjacent the bottom wall to the slots to form channels therebetween. A multiplicity of removable compartment dividers Mattingly received are seated within the grooves and channels therein, and arm portions at the upper edges thereof lock into the slots of the side walls.

[0009] U.S. Pat. No. 5,139,173, issued to Evinger, discloses a bulk foodstuff dispenser with a pivotally mounted chute that dispenses product when manually depressed. A combined product ramp and chute spring takes the form of a flexible plastic plate in a product container area that engages and biases the chute upwardly to its product blocking position. When manually depressed the chute flexes the ramp upwardly above a product stop, permitting product to flow over the stop into the chute. A chute safety lever prevents inadvertent product dispensing and is designed to be operated by the same user's hand that pushes the chute downwardly.

[0010] U.S. Pat. No. 8,915,214, issued to Pickens, discloses a feed level sensor for a poultry feeding system is positioned within the drop tube of a control feeder of the feeding system. The sensor comprise a first light emitter/light detector pair to detect when the level of feed in the drop tube falls below a predetermined "empty' level and a second light emitter/light detector pair to detect when feed in the drop tube is at a predetermined "full level in the drop tube. The sensor emits a "start" signal to activate a drive to deliver feed to the feeders along a feed line when it is detected that feed in the control feeder drop tube falls below the "empty' level and emits a "stop' signal to deactivate the drive when it detects that feed within the drop tube is at the "full level.

[0011] U.S. Patent Application Publication No. 2001/0030202, by Hammer et al., discloses a dry mix particulate dispenser includes a container con figured to hold a dry mix particulate. The container has a top portion, a bottom portion, and at least one side wall. The container includes a dispenser opening formed in the bottom portion and a sloped interior wall within the container is angled in a direction generally toward the opening. A slide track is positioned adjacent the bottom portion of the container receives an elongate Slider. The Slider including an opening formed therein which can be Selectively aligned with the dispenser opening.

[0012] The inventions heretofore known suffer from a number of disadvantages which include: being harder to take

care of related tools; being harder to keep the space clean; not providing advance warning of low pellets; being less portable; not protecting the pellets; not having better organization; not being easier to use; not being easier to prep food next to a barbecue or smoker; and not being more convenient.

[0013] What is needed is a fuel storage container that solves one or more of the problems described herein and/or one or more problems that may come to the attention of one skilled in the art upon becoming familiar with this specification.

SUMMARY OF THE INVENTION

[0014] The present invention has been developed in response to the present state of the art, and in particular, in response to the problems and needs in the art that have not yet been fully solved by currently available storage containers. Accordingly, the present invention has been developed to provide an fuel storage container for storing cooking fuel.

[0015] In one embodiment of the invention, there may be a container body that may have a first container floor that may be disposed along a bottom of the container body and/or a container wall that may be coupled to the bottom of the container body and/or extending upwardly therefrom. The first container floor may be sloped. A divider may be removably disposed within the body, may be interior to the container wall and/or may be configured to divide the container body into a plurality of compartments. A level sensor may be coupled to an interior of the container wall and/or may be configured to sense a characteristic related to an amount of cooking fuel disposed within a compartment. A display device may be in functional communication with the level sensor such that information from the level sensor may be displayed on the display device. An aperture may be disposed through the container wall. A perforated screen may be disposed between an interior region of the container body and/or the aperture such that cooking fuel may be disposed within the interior region and may pass through the screen before exiting the aperture.

[0016] In another embodiment of the invention, the perforated screen may provide a first container floor and/or may form a bottom boundary of the interior region. A second container floor may be positioned below and/or spaced from the first container floor. The first container floor may be rippled and/or may thereby includes peaks and/or valleys.

[0017] Additionally, in one embodiment of the invention the fuel storage container may further comprise a door that may be disposed over the aperture of the container body. The door may provide access to the cooking fuel. The fuel storage container may also comprise an electrical outlet that may be disposed through the container body. A light may also be coupled to an interior of the container wall and/or may be configured to light an interior of the container body. The interior of the wall of the container body may include a track and/or the divider may be slidably coupled to the track. A lid may be disposed over the container body and/or hingedly coupled to the container body. The lid may include gas shocks that may be configured to hold the lid up from the container body. A plurality of casters coupled to a base of the container body.

[0018] In yet another embodiment of the invention, the level sensor may measure a distance to a top surface of fuel disposed within the container body. In an additional embodiment of the invention, the fuel storage container may further comprise a plurality of level sensors. Each sensor may be associated with a different compartment. Each of the plurality of level sensors may feed into a single display device.

[0019] Reference throughout this specification to features, advantages, or similar language does not imply that all of the features and advantages that may be realized with the present invention should be or are in any single embodiment of the invention. Rather, language referring to the features and advantages is understood to mean that a specific feature, advantage, or characteristic described in connection with an embodiment is included in at least one embodiment of the present invention. Thus, discussion of the features and advantages, and similar language, throughout this specification may, but do not necessarily, refer to the same embodiment.

[0020] Furthermore, the described features, advantages, and characteristics of the invention may be combined in any suitable manner in one or more embodiments. One skilled in the relevant art will recognize that the invention can be practiced without one or more of the specific features or advantages of a particular embodiment. In other instances, additional features and advantages may be recognized in certain embodiments that may not be present in all embodiments of the invention.

[0021] These features and advantages of the present invention will become more fully apparent from the following description and appended claims, or may be learned by the practice of the invention as set forth hereinafter.

BRIEF DESCRIPTION OF THE DRAWINGS

[0022] In order for the advantages of the invention to be readily understood, a more particular description of the invention briefly described above will be rendered by reference to specific embodiments that are illustrated in the appended drawing(s). It is noted that the drawings of the invention are not to scale. The drawings are mere schematics representations, not intended to portray specific parameters of the invention. Understanding that these drawing(s) depict only typical embodiments of the invention and are not, therefore, to be considered to be limiting its scope, the invention will be described and explained with additional specificity and detail through the use of the accompanying drawing(s), in which:

[0023] FIG. **1** is a front perspective view of a fuel storage container with a lid in a closed mode, according to one embodiment of the invention;

[0024] FIG. **2** is a front perspective view of a fuel storage container with a lid in an open mode, according to one embodiment of the invention;

[0025] FIG. **3** is a front perspective view of a fuel storage container with a lid in an open mode showing cooking fuel, according to one embodiment of the invention;

[0026] FIG. **4** is a side sectional view of a fuel storage container with a lid in a closed mode, according to one embodiment of the invention;

[0027] FIG. **5** is a front elevational view of a pellet storage container with a lid in a closed mode, according to one embodiment of the invention;

[0028] FIG. **6** is a top plan view of a pellet storage container with a lid removed, according to one embodiment of the invention;

[0029] FIG. **7** is a top play view of a pellet storage container with a lid removed, according to one embodiment of the invention;

[0030] FIG. **8** illustrates a schematic drawing of power couplings between different power components of a pellet storage container, according to one embodiment of the invention, according to one embodiment of the invention; and

[0031] FIG. **9** is a front perspective view of a fuel storage container with a lid in an open mode, according to one embodiment of the invention.

DETAILED DESCRIPTION OF THE INVENTION

[0032] For the purposes of promoting an understanding of the principles of the invention, reference will now be made to the exemplary embodiments illustrated in the drawing(s), and specific language will be used to describe the same. It will nevertheless be understood that no limitation of the scope of the invention is thereby intended. Any alterations and further modifications of the inventive features illustrated herein, and any additional applications of the principles of the invention as illustrated herein, which would occur to one skilled in the relevant art and having possession of this disclosure, are to be considered within the scope of the invention.

[0033] Reference throughout this specification to an "embodiment," an "example" or similar language means that a particular feature, structure, characteristic, or combinations thereof described in connection with the embodiment is included in at least one embodiment of the present invention. Thus, appearances of the phrases an "embodiment," an "example," and similar language throughout this specification may, but do not necessarily, all refer to the same embodiment, to different embodiments, or to one or more of the figures. Additionally, reference to the wording "embodiment," "example" or the like, for two or more features, elements, etc. does not mean that the features are necessarily related, dissimilar, the same, etc.

[0034] Each statement of an embodiment, or example, is to be considered independent of any other statement of an embodiment despite any use of similar or identical language characterizing each embodiment. Therefore, where one embodiment is identified as "another embodiment," the identified embodiment is independent of any other embodiments characterized by the language "another embodiment." The features, functions, and the like described herein are considered to be able to be combined in whole or in part one with another as the claims and/or art may direct, either directly or indirectly, implicitly or explicitly.

[0035] As used herein, "comprising," "including," "containing," "is," "are," "characterized by," and grammatical equivalents thereof are inclusive or open-ended terms that do not exclude additional unrecited elements or method steps. "Comprising" is to be interpreted as including the more restrictive terms "consisting of" and "consisting essentially of."

[0036] FIG. **1** is a front perspective view of a fuel storage container with a lid in a closed mode, according to one embodiment of the invention. There is shown a fuel storage container **100** with a container body **102**. The container body **102** has a container bottom **104** and a container wall **106**. A display device **108** is coupled to the wall **106** of the container body **102**. There is also an aperture **110** disposed through the wall **106**. A lid **112** is disposed over the container body **102** and wheels, or casters, **114** are coupled to the container bottom **104**.

[0037] The illustrated storage container **100** includes a container wall **106** coupled to the bottom **104** of the container body **102** and extending upwardly therefrom. The illustrated container body **102** may be configured to contain wood pellets, charcoal, wood chips, lump fuel, flavor/scent pellets, and the like and combinations thereof (hereinafter pellets are referred to but it is understood that the variety of contained materials is plethoric). As illustrated, the container body **102** is substantially rectangular; however, the container body may have any size and/or shape for containing pellets, such as, but not limited to: square or circular. The container body **102** may be substantially air- and/or water-tight to seal in flavor and/or to prevent excess moisture. As a result, the container body **102** may be comprised of a variety of materials, such as, but not limited to: metals, plastics, rubber and glass.

[0038] An aperture **110** is shown disposed through the container wall **106**. As illustrated, there are a plurality of apertures **110** disposed through the container body **102**. The apertures **110** function to allow pellets to be drained or emptied from the container body **102**. There are six apertures **110** shown; however, there may be any number of apertures **110**, such as but not limited to: three, five, and eight. Also, the illustrated apertures **110** are circular, but the apertures **110** may have any shape and/or size for allowing pellets to drain.

[0039] Further shown, disposed over the container body **102** is a lid **112**. The lid **112** may be hingedly coupled to the container body **102**. The lid **112** may rest along the top of container body **102** and/or the lid may snap- or tension-fit to the container body **102**. In one non-limiting embodiment, the lid **112** may be a fixed top with access ports, or apertures **110**, disposed therethrough. The lid **112** may provide a work surface and/or a food prep surface for the container body **102**. Accordingly, the lid **112** may function as a cutting board or butcher block. In one embodiment, the lid **112** may be magnetic and a magnetic butcher block may be coupled to the lid **112**. Accordingly, the lid **112** may be comprised of materials such as, but not limited to: plastic, metal, and wood.

[0040] As shown, a plurality of casters **114** are coupled to the container bottom **104**, or base of container body **102**. The casters **114** may be wheels and allow one to move the fuel storage container **110** from one location to another by rolling. The casters **114** allow the container body **102** to be moved or transported from one location to another. The casters **114** may be full motion casters **114** and may be coupled to a leg of the container **102** body or directly coupled to the container body **102**. Moreover, the casters **114** may be full motion casters **114**, partial motion casters **114**, direct motion casters **114**, pads, rolling balls mounted within mounts, low friction pads and so on. As illustrated, there are four casters **114**, but the container body **102** may include any number of casters **114**, such as but not limited to: five, six, or ten.

[0041] FIG. **2** is a front perspective view of a fuel storage container with a lid in an open mode, according to one embodiment of the invention. There is illustrated fuel storage container **110** has a container body **102**. The container body **102** includes a container bottom **104** and a container wall **106**. The container wall **106** is coupled to the container bottom **104** and extends upwardly therefrom. There is also a display device **108** coupled to the container wall **106**, and an aperture **110** disposed through the wall **106**. Casters **114**

are coupled to the bottom **104** of the container body **102**, and a lid **112** is disposed over the container body **102**. Within the container body **102**, a divider **200** is disposed in an interior **204** the container body **102** and thereby divides the interior **204** into compartments **208**. A level sensor **202** and a light **206** are also disposed in an interior **204** of the container body.

[0042] As shown, the divider **200** is removably disposed within the body **102** and interior **204** to the container wall **106**. The divider **200** is configured to divide the container body **102** into a plurality of compartments **208**. A volume of the compartment **208** is defined by the removable divider **200** slidably coupled to the container body **102**.

[0043] Further, the illustrated container body **102** includes a plurality of compartments **208** for storing pellets. The illustrated container body **102** may include any number of compartments **208**. In addition, the compartments **208** may have any size and/or shape for storing pellets. As illustrated, a size of a compartment **208** is defined by dividers **200** and the container wall **106**. The dividers **200** may be removably coupled to an interior **204** of the container body **102**. Accordingly, a compartment **208** size may be increased by removing a divider **200** and a compartment **208** size may be decreased by installing a divider **200**. In comparison, the number of compartments **208** of the container body **102** may be decreased by removing a divider **200** and the number of compartments **208** of the container body **102** may be increased by installing a divider **200**. The dividers **200** may be removably coupled to the container body **102** by sliding. The container body **102** may include coupling structures for removably coupling the dividers **200** to an interior **204** of the container body **102**. For example, in one non-limiting embodiment, the coupling structures may be channels, or milled out slots, that function as guides for the dividers **200**. Similarly, the coupling structures may be tabs that extend into an interior **204** of the container body **102** to pinch, grasp, or provide support to the dividers **200**. The dividers **200** may also couple to an interior **204** of the container body **102** by tension-fitting. In one non-limiting embodiment, the compartments **208** may be pull-out drawers. In another non-limiting embodiment, the compartments **208** may be separate compartments **208** without dividers **200** and/or the compartments **208** may couple to each other.

[0044] Also shown, a level sensor **202** is coupled to the interior **204** of the container wall **106**. The level sensor **202** is configured to sense a characteristic related to an amount of cooking fuel disposed within the compartment **208**. For instance, the level sensor **202** may be configured to sense a height or a volume of the cooking fuel. In one embodiment, the level sensor **202** measures a distance to a top surface of fuel disposed within the container body **102**. In another embodiment, there may be a plurality of level sensors **202** each associated with a different compartment **208** defined by a divider **200**, or dividers **200**, and the container wall **106**. In yet another embodiment, each of the level sensors **202** may feed into the display device **108**. Also, it is envisioned that the plurality of level sensors **202** may be coupled to an interior **204** of the container body **102** by sensor mounts. In one embodiment, the sensor mounts may be comprised of a structure inherent to the container body **102**, so that the sensors mount to the container body **102** such as how a spark plug plugs in.

[0045] The plurality of level sensors **202** are configured to sense a distance/height/level of fullness of pellets stored within the container body **102**. For instance, the sensors **202** may be such as the feed level sensors with light emitters of U.S. Pat. No. 8,915,214, by Pickents, which is incorporated by reference herein. Similarly, the sensors **202** may be such as the WXS High-Precision Weigh Module of Mettler Toledo, LLC, 1900 Polaris Parkway, Columbus, Ohio 43240, or the Dry Material Rotary Paddle Level Switch or Capacitance Measurement Probes of Omega Engineering, Inc., 800 Connecticut Ave., Suite 5N01, Norwalk, Conn. 08654. The sensors **202** may be such as the Low Material Hopper Alarm Kit of IMS Company, 10373 Stafford Rd., Chagrin Falls, Ohio 44023. Accordingly, the plurality of sensors **202** may be weight sensors, level sensors, light curtain sensors, etc. The plurality of sensors **202** may include lasers such as the Multi-Point Lasers of Keyence Corporation of America, 500 Park Boulevard, Suite 200, Itasca, Ill. 60143.

[0046] The display device **108** is in communication with the level sensor **202** and is coupled to the container body **102**. The illustrated display device **108** is in functional communication with the level sensor **202** such that information from the level sensor **202** is displayed on the display device **108**. The display device **108** may be in electrical or wireless communication with the sensors **202**. The display device **108** displays a pellet level in each compartment **208**. The display device **108** may be coupled to the container body **102** for readily displaying levels for viewing. The display device **108** may be such as the CMC Grain Gauge Bin Level Monitor 7600 by Barndoor Ag. of AG Solutions Group LLC, 405 Pikes Peak Rd., Chickasha, Okla. 73018. Moreover, the display device **108** may be an interactive user interface, such as interfaces of smartphones, tablets, or any other interface for human-computer interaction. The display device **108** may employ wireless communication or Bluetooth to communicate with the plurality of sensors **202**. Accordingly, the display device **108** may be such as the Hioki CM 7291 Wireless Display Unit with Bluetooth for AC/DC Current Sensors of Hioki.

[0047] Further, a light **206** is shown coupled to the container wall **106** and is configured to light an interior **204** of the container body **102**. The container body **102** may include a plurality of lights **206** coupled to an interior **204** of the container body **102**. The plurality of lights **206** may include a switch, such as a General Electric Refrigerator Door Switch, General Electric Company, 5 Necco Street, Boston, Mass. 02210. In one non-limiting embodiment, the plurality of lights **206** may be LED lights or strings of lights. For example, the plurality of lights **206** may be such as the SloanLED Vista of SloanLED, 5725 Olivas Park Drive, Ventura, Calif. 93003. As shown, the container body **102** includes one level sensor **202** and light **206** per compartment **208**; however, the container body **102** may include any number of level sensors **202** and/or lights **206**.

[0048] In operation of one embodiment, one lifts the lid **112** of the fuel storage container **100**. Then, one determines a desired size for a compartment **208** disposed within the container body **102**. One removes a divider **200** to increase a compartment **208** size, and one inserts a divider **200** to decrease a compartment **208** size and/or to create more compartments **208**. A plurality of lights **206** illuminate the compartments **208** when one lifts the lid **112**. A level sensor **202** determines a fullness level of each compartment **208** of the container body **102** and sends the fullness level to a display device **108**. The display device **108** displays the

fullness level so that one may view it. When a level is low in a particular compartment **208**, one fills the compartment **208** with additional pellets. One pours a desired amount of pellets into a compartment **208**. When one requires pellets for cooking, one drains pellets from an aperture **110** of a selected compartment **208**. As the pellets pour from the aperture **110**, pellet particles, dust and debris fall through perforations of a first floor and are collected by a second floor. One cleans the container body **102** by accessing the second floor and removing the collected pellet particles dust and debris. One closes the lid **112** of the container body **102** to utilize the lid **112** as a work surface, such as for food prep. One moves the container body **102** by utilizing casters **114** coupled to the container body **102** to roll the container body **102** to a new location. One stores a plurality of utensils on the container body **102** by placing them on mounting hooks. One stores paper towel on the paper towel holder of the container body **102**. One uses a bottle opener coupled to the container body **102** to open a bottle. One uses an electrical outlet of the container body **102** to provide power to an electronic device.

[0049] FIG. **3** is a front perspective view of a fuel storage container with a lid in an open mode showing cooking fuel, according to one embodiment of the invention. There is shown a fuel storage container **100** for storing cooking fuel **300**. The container **100** has a body **102** with a bottom **104** and a wall **106**. A display device **108** is coupled to the wall **106**, and an aperture **110** is disposed through the wall **106**. A lid **112** is disposed over the container **100**, and casters **114** are coupled to the container **110** opposite the lid **112**. Within the container **100**, a divider **200** is coupled to an interior **204** of the container **100** and forms a compartment **208** thereby. A level sensor **202** and a light **206** are also coupled to the container wall **106** at an interior **204** of the container **100**. Cooking fuel **300** is also disposed in the interior **204** of the container.

[0050] The illustrated fuel storage container **100** is for storing cooking fuel **300**. As shown, the compartments **208** of the container body **102** contain cooking fuel **300**, or pellets. The compartments **208** may have any size and/or shape for storing cooking fuel **300**. The compartments **208** contain a different volume, or level, or fuel **300**. The level sensors **202** sense a level of the fuel **300** and communicate the level of fuel **300** sensed to the display device **108**. The display device **108** displays the fuel **300** level sensed by the level sensors **202**. Accordingly, it may be determined that a fuel **300** level requires adjusting based on a level reading.

[0051] The compartments **208** may contain a same kind of pellet, or fuel **300**, or a different kind of pellet, or fuel **300**. A size, or volume, of each compartment may be adjusted by adding or removing a divider **200**. A compartment **208** size may be decreased by adding a divider **200** and a compartment **208** size may be increased by removing a divider **200**. The compartments **208** may be comprised of a variety of materials, such as but not limited to, metal and plastic.

[0052] The illustrated dividers **200** function to divide and separate the pellets, or fuel **300**. The dividers **200** may be removably coupled to the container body **102** for adding to or removing from an interior **204** of the container body **102**. The dividers **200** may be slideably coupled to the container body **102**. The container body **102** may contain a track, channel, tabs, protrusions, or other coupling structures for removably coupling to the dividers **200**. The dividers **200** may be removably coupled to the container body **102** by tension- or snap-fit. The container body **102** may have female coupling mechanisms that couple to the dividers **200**.

[0053] The illustrated container body **102** also includes a plurality of apertures **110** disposed thorough the container body **102**. The apertures **110** allow fuel **300** stored within the container body **102** to flow from an interior **204** of the container body **102** to an exterior of the container body **102**. The container body **102** may have any number of apertures **110**, such as one aperture **110** per compartment **208**, as one non-limiting example. The apertures **110** may have any size/and or shape for allowing fuel to flow out from the container body **102**.

[0054] FIG. **4** is a side sectional view of a fuel storage container with a lid in a closed mode, according to one embodiment of the invention. There is illustrated a fuel storage container **100**. The illustrated container **100** has a container body **102** with a bottom **104** and a wall **106**. A display device **108** is coupled to the container wall **106**. An aperture **110** is disposed through the container wall **106** and a door **404** is disposed over the aperture **110**. Casters **114** are coupled to the container bottom **104** opposite a lid **112**. The lid **112** is disposed over an interior **204** of the container body **102**. A level sensor **202** and a light **206** are coupled to the container wall **106** in the interior **204** of the container **100**. The illustrated container **100** also includes a first container floor **400** and a second container floor **402** disposed below the first container floor **400**.

[0055] As shown, the container body **102** has a first container floor **400** disposed along a bottom **104** of the container body **102**. The first container floor **400** is sloped. The first container floor **400** may be a perforated screen. The perforated screen may provide a first container floor **400**, and may form a bottom boundary of the interior **204**. Accordingly, cooking fuel (See e.g., FIG. **3**, Item **300**) disposed within the interior **204** may pass through the screen before exiting the aperture **110**.

[0056] As illustrated, the first floor **400** is sloped. Accordingly, the first floor **400** allows pellets to drain toward the apertures **110** via gravity. The first floor **400** may also be perforated. For instance, the first floor **400** may be such as a grate, strainer, grill, screen, and so on for allowing pellet particulates or dust to fall through the perforations and onto the second floor **402**. For example, in one non-limiting embodiment, the first floor **400** may be a screen such as the Perforated Sheet, 3003 Aluminum, Mill Finish, H14 Temper of MSC Industrial Direct Co., Inc., 75 Maxess Road, Melville, N.Y. 11747. The first floor **400** may have peaks and valleys for allowing the particulates to fall to the second floor **402**. In another non-limiting embodiment, the first floor **400** may be such as the Compact Sluice Boxes of Stansport, 2801 East 12^{th} Street, Los Angeles, Calif. 90023. Hence, the perforated screen may be such as gold trap channels to trap fine particles in a chute or before a chute. As a result, the first floor **400** functions as a separator to separate pellets from small pellet pieces and pellet dust.

[0057] The second floor **402** functions as a trap to collect the small pellet pieces and pellet dust. Accordingly, the second floor **402** is generally one solid continuous floor. Access to the floors **400** and **402** may be provided by uncoupling a side of the container body **102** from the container body **102**. It is also envisioned that a side of the container body **102** may also include a door for accessing the floors **400** and **402**. Likewise, the container body **102** may be configured to access the floors from underneath the

container body **102**. The second container floor **402** is positioned below and spaced from the first container floor **400**.

[0058] FIG. **5** is a front elevational view of a pellet storage container with a lid in a closed mode, according to one embodiment of the invention. There is shown a fuel storage container **100** with a container body **102**. The container body **102** includes a container bottom **104** and a container wall **106**. Coupled to the container wall **106** is a display device **108**, and disposed through the container wall **106** is an aperture **110**. A door **404** is disposed over the aperture **110**. A lid **112** is disposed over the container body **102**, and casters are coupled to the container body **102** opposite the lid **112**.

[0059] The illustrated door **404** is disposed over the aperture **110** of the container body **102**. As shown, the door **404** provides access to cooking fuel (See e.g., FIG. **3**, Item **300**). Accordingly, the doors **404** cover and prevent access to the apertures **110**. The doors **404** may be removably coupled, hingedly coupled, slideably coupled, and so on, to the container body **102**. The doors **404** may be a flip down door like a mailbox door. The doors **404** may be an auger, a dry pump structure, or may have a chute. In one non-limiting embodiment, there may be a swinging closeable door **404** for each compartment (See e.g., FIG. **2**, Item **208**) that allows one to extract fuel (See e.g., FIG. **3**, Item **300**) from an associated compartment (See e.g., FIG. **2**, Item **208**). The doors **404** may have any size and/or shape for covering the apertures **110** and may be comprised of any material, such as but not limited to: metal, plastic, wood and rubber.

[0060] FIG. **6** is a top plan view of a pellet storage container with a lid removed, according to one embodiment of the invention. There is illustrated a container body **102** with a container wall **102** and a first floor **400** disposed between the wall **102**. The illustrated first floor is a perforated screen **600**. A display device **108** is coupled to the container body **102**. A divider **200**, a level sensor **202**, and a light **206** are each coupled to an interior **204** of the container body **102**. There is illustrated a track **602** for coupling the divider **200** to the container body **102**.

[0061] As shown, the first floor **400** is perforated. The perforated first floor **400** filters smaller particles from pellets. The perforations in the first floor **400** are shown as square; however, the perforations may have any shape, such as but not limited to: circles, ovals, rectangles, and regular polygons. Likewise, the perforations may have any size or area for filtering particles form the pellets or fuel (See e.g., FIG. **3**, Item **300**).

[0062] The first floor **400** may be a perforated screen **600**. The perforated screen **600** provides a first container floor **400** and forms a bottom boundary of the interior **204**. The first floor **400** may be such as a grate, strainer, grill, screen, and so on for allowing pellet particulates or dust to fall through the perforations. For example, in one non-limiting embodiment, the first floor **400** may be a screen such as the Perforated Sheet, **3003**

[0063] Aluminum, Mill Finish, H14 Temper of MSC Industrial Direct Co., Inc., 75 Maxess Road, Melville, N.Y. 11747. The first floor may be comprised of materials, such as but not limited to, metal and plastic. Accordingly, cooking fuel (See e.g., FIG. **3**, Item **300**) disposed within the interior **204** may pass through the screen **600** before exiting the aperture (See e.g., FIG. **1**, Item **110**).

[0064] The illustrated interior **204** of the container body **102** also includes a track **602** coupled to the container wall **106**. A divider **200** may be slidably coupled to the track **602**. The track **602** may be milled into an interior **204** of the container wall **106** or the track **602** may be a coupling device for coupling the track to the container body **102**.

[0065] FIG. **7** is a top play view of a pellet storage container with a lid removed, according to one embodiment of the invention. There is shown a container body **102** with a container wall **102** and a first floor **400** disposed between the wall **102**. The illustrated first floor includes peaks **700** and valleys **702**. A display device **108** is coupled to the container body **102**. A divider **200**, a level sensor **202**, and a light **206** are each coupled to an interior **204** of the container body **102**. There is illustrated a track **602** for coupling the divider **200** to the container body **102**.

[0066] The illustrated first floor **400** is rippled and thereby contains peaks **700** and valleys **702**. The first floor **400** may have peaks and valleys for allowing the particulates to fall. In another non-limiting embodiment, the first floor **400** may be such as the Compact Sluice Boxes of Stansport, 2801 East 12^{th} Street, Los Angeles, Calif. 90023. The illustrated first floor includes peaks and channeled valleys for filtering smaller particles from pellets (See e.g., FIG. **3**, Item **300**). The peaks and valleys in the first floor **400** are shown as elongated; however, the peaks and channeled valleys may have any size, shape, and/or elevation for filtering particles form the pellets or fuel (See e.g., FIG. **3**, Item **300**). The first floor **400** may be such as a gold trap. The first floor **400** may be comprised of materials, such as but not limited to, metal, plastic and rubber.

[0067] FIG. **8** illustrates a schematic drawing of power couplings between different power components of a pellet storage container, according to one embodiment of the invention, according to one embodiment of the invention. There is illustrated a power source **800**. In communication with the power source **800** are level sensors **202**. Lights **206** are in communication with the power source **800** and with the level sensors **202**. Signal emitters **802** are in communication with the level sensors **202**, and a display device **108** is in communication with the signal emitters **802**.

[0068] The power source **800** may be a battery or other device that provides electric power to the lights **206** and the level sensors **202**. The power source **800** may be an electric generator. The power source **800** may be solar panels. The power source **800** may be a battery, such as a lithium battery. The power source **800** may be a plurality of lithium batteries. The power source **800** may be a rechargeable battery.

[0069] The lights **206** are in communication with the power source **800** and may be in communication with, or integral to, the sensors **202**. The lights **206** may have an on/off switch. The lights **206** may be disposed along an interior or an exterior of the container body (See e.g., FIG. **1**, Item **102**). The lights **206** may be LED lights or strings of lights. For example, the plurality of lights **206** may be such as the SloanLED Vista of SloanLED, 5725 Olivas Park Drive, Ventura, Calif. 93003.

[0070] The sensors **202** are in communication with the power source **800** and the display device **108**. The sensors **202** sense a level of fuel (See e.g., FIG. **3**, Item **300**). For instance, the sensors **202** may be such as the feed level sensors with light emitters of U.S. Pat. No. 8,915,214, by Pickents, which is incorporated by reference herein. Similarly, the sensors **202** may be such as the WXS High-

Precision Weigh Module of Mettler Toledo, LLC, 1900 Polaris Parkway, Columbus, Ohio 43240, or the Dry Material Rotary Paddle Level Switch or Capacitance Measurement Probes of Omega Engineering, Inc., 800 Connecticut Ave., Suite 5N01, Norwalk, Conn. 08654. The sensors **202** may be such as the Low Material Hopper Alarm Kit of IMS Company, 10373 Stafford Rd., Chagrin Falls, Ohio 44023.

[0071] The signal emitters **802** send a signal from the sensors **202** to the display device **108**. The signal emitters **802** may communicate with the display device **108** electronically and/or wirelessly, such as vie Bluetooth technology. The signal emitters **802** may be such as the Low Material Hopper Alarm Kit of IMS Company, 10373 Stafford Rd., Chagrin Falls, Ohio 44023.

[0072] The display device **108** displays a sensed level of the container **100**. The display device **108** may be such as the CMC Grain Gauge Bin Level Monitor 7600 by Barndoor Ag. of AG Solutions Group LLC, 405 Pikes Peak Rd., Chickasha, Okla. 73018. Moreover, the display device **108** may be an interactive user interface, such as interfaces of smartphones, tablets, or any other interface for human-computer interaction. The display device **108** may employ wireless communication or Bluetooth to communicate with the plurality of sensors. Accordingly, the display device **108** may be such as the Hioki CM 7291 Wireless Display Unit with Bluetooth for AC/DC Current Sensors of Hioki.

[0073] FIG. **9** is a front perspective view of a fuel storage container with a lid in an open mode, according to one embodiment of the invention. There is shown a fuel storage container **100** with a plurality of accessories **900**, **902**, **904**, **906**, and **908**, coupled to the container **100**. The container **100** has a container body **102** with a container bottom **104** and a container wall **106**. A display device **108** is coupled to the wall **106**, and an aperture **110** is disposed through the wall **106**. A lid **112** is disposed over the body **102**, and casters **114** are coupled to the bottom **104** opposite the lid **112**. Couple to an interior **204** of the container body **102** there is a divider **200**. A level sensor **202** and a light **206** are also coupled to the interior **204** of the container body **102**. Also coupled to the container body **102** are a plurality of accessories **900**, **902**, **904**, **906**, and **908**. These accessories include an electrical outlet **900**, a gas shock **902**, hooks **904**, a bottle opener **906**, and a paper towel dispenser **908**.

[0074] As shown, the illustrated container body **102** includes a plurality of accessories **900**, **902**, **904**, **906**, and **908** disposed along the container body **102**. The illustrated electrical outlet **900** is disposed through the container body **102**. The electrical outlet **900** may be a **110** volt outlet. The electrical outlet **900** may be disposed through the container body **102** to provide access to power. For instance, the electrical outlet **900** may be such as the Dual-USB Outlet of Legrand North America, LLC, 60 Woodlawn Street, West Hartford, Conn. 06110. The electrical outlet **900** may provide power and access to the display device **108**.

[0075] As shown, the lid **112** may be hingedly coupled to the container body **102** by gas shocks **902**. The gas shocks **902** may help prop the lid **112** up in an open mode. The gas shocks **902** may also help prevent the lid **112** from slamming shut. In one embodiment, the gas shocks **902** may be such as the 5100 Bilstein Shock Absorber of Tyhssenkrupp Bilstein of America, 8685 Bilstein Blvd., Hamilton, Ohio 45015.

[0076] The container body **102** includes a plurality of mounting hooks **904** for coupling tools to the container body **102**. The mounting hooks **904** may be hooks, sockets, eyes, magnetic pads, slots, grooves, hook and loop connectors, mounting bars, and so on. The mounting hooks **904** may couple tools such as spatulas, tongs, grill brushes, basting brushes, tongs, and so on to the container body **102**. Accordingly, the mounting hooks **904** may be any protrusion or extension of the container body **102** for coupling the tools to the container body **102**. More, the container body **102** may have any number of mounting hooks **904**.

[0077] The illustrated container body **102** also includes the accessories of a bottle opener **906** a paper towel holder **908** each coupled to the container body **102**. The container body **102** may have a plurality of bottle openers **906** coupled to the container body **102** and configured to couple to a variety of bottles. The paper towel holder **908** may be a rod fixedly coupled to the container body **102** and extending therefrom.

[0078] In one non-limiting embodiment, there is a fuel storage container **100** for fuel (See e.g., FIG. **3**, Item **300**) storage. One may store pellets in this container **100**. One may store different flavors/brands in different compartments **208**. There may be an aperture **110** on the bottom **104** and a lid **112**. The container **100** may have a sensor **202** in each compartment **208** that provides the level of pellets (e.g. 0%-10%, . . . , 100%). There may be casters **114** on the bottom **104** so one can move the container **100** around. There may be removable dividers **200** so one may adjust how many compartments **208** there are and how big they are. The container **110** may include a screen (See e.g., FIG. **6**, Item **600**) in the bottom **104** of the compartments **208** that allows dust/etc. to fall through so that one doesn't dispense the dust.

[0079] In another non-limiting embodiment, there may be a container **100** that may be a sheet metal box with a lid **112** on a hinge that extends the whole top. Within the container may be five dividers **200** that compartmentalize each one of the compartments **208**. The dividers **200** may slide in and out so one you may reconfigure the compartments **208**. At the bottom **104**, may be perforated screen (See e.g., FIG. **6**, Item **600**) that may filter out fine particles. The first floor (See e.g., FIG. **4**, Item **400**) may also be sloped so that the floor (See e.g, FIG. **4**, Item **400**) feeds forward towards the apertures **110**. There may be legs at the bottom **104** of the container **100** with casters **114** on the bottom of each leg. The sheet metal may be powder coated. There may be mounts for a plurality of sensors **202**. The sensors **202** may be laser distance measuring devices that can be programmed/configured to recognize the fullness of each compartment **208**. The sensors **208** may be in communication with a display device **108** that displays the levels of fullness of the sensor **202** in each compartment **208**. There may be a paper towel holder (e.g. foil roll holder, butcher paper holder) **908**, a bottle opener **906**, a spatula and tongs hook(s) **904**, a light **206** for the work surface, and there may be lights **206** disposed within the compartments **208** to allow one to see what is inside when one lifts the lid **112**.

[0080] In a further non-limiting embodiment, there may be a container body **102** with compartments **208** inside and a sloped floor (See e.g., FIG. **4**., Item **400**). The sloped floor (See e.g., FIG. **4**, Item **400**) may have a perforated screen (See e.g., FIG. **6**, Item **600**) over it to filter out fine particles. The container body **102** may have level sensors **202** in each compartment **208** in communication with a display device **108** to display the level of the pellets (See e.g., FIG. **3**, Item **300**) inside each compartment **208**.

[0081] It is understood that the above-described embodiments are only illustrative of the application of the principles of the present invention. The present invention may be embodied in other specific forms without departing from its spirit or essential characteristics. The described embodiment is to be considered in all respects only as illustrative and not restrictive. The scope of the invention is, therefore, indicated by the appended claims rather than by the foregoing description. All changes which come within the meaning and range of equivalency of the claims are to be embraced within their scope.

[0082] For example, although the figures show a fuel storage container with legs, the fuel storage container may or may not have legs. Additionally, although the figures illustrate a rectangular fuel storage container, the container may have any shape, such as but not limited to round or oblong. It is also envisioned that the fuel storage container may have any size to accommodate any number of compartments, dividers, sensors, apertures, etc.

[0083] It is expected that there could be numerous variations of the design of this invention. An example is that the container may have any number of compartments and/or dividers. Another example is that the lights, sensors, display device, accessories, etc. may be placed and coupled to the container at any location along the container.

[0084] Finally, it is envisioned that the components of the device may be constructed of a variety of materials, such as but not limited to: metal, plastic, rubber, and glass.

[0085] Thus, while the present invention has been fully described above with particularity and detail in connection with what is presently deemed to be the most practical and preferred embodiment of the invention, it will be apparent to those of ordinary skill in the art that numerous modifications, including, but not limited to, variations in size, materials, shape, form, function and manner of operation, assembly and use may be made, without departing from the principles and concepts of the invention as set forth in the claims. Further, it is contemplated that an embodiment may be limited to consist of or to consist essentially of one or more of the features, functions, structures, methods described herein.

What is claimed is:

1. A fuel storage container for storing cooking fuel comprising:

a. a container body having a first container floor disposed along a bottom of the container body and a container wall coupled to the bottom of the container body and extending upwardly therefrom, wherein the first container floor is sloped;

b. a divider removably disposed within the body, interior to the container wall and configured to divide the container body into a plurality of compartments;

c. a level sensor coupled to an interior of the container wall and configured to sense a characteristic related to an amount of cooking fuel disposed within a compartment;

d. a display device in functional communication with the level sensor such that information from the level sensor is displayed on the display device;

e. an aperture disposed through the container wall; and

f. a perforated screen disposed between an interior region of the container body and the aperture such that cooking fuel disposed within the interior region passes through the screen before exiting the aperture.

2. The fuel storage container of claim **1**, wherein the perforated screen provides a first container floor and form a bottom boundary of the interior region and a second container floor is positioned below and spaced from the first container floor.

3. The fuel storage container of claim **2**, wherein the first container floor is rippled and thereby includes peaks and valleys.

4. The fuel storage container of claim **3**, further comprising a door disposed over the aperture of the container body, wherein the door provides access to the cooking fuel.

5. The fuel storage container of claim **1**, further comprising an electrical outlet disposed through the container body.

6. The fuel storage container of claim **1**, further comprising a light coupled to an interior of the container wall and configured to light an interior of the container body.

7. The fuel storage container of claim **1**, wherein the interior of the wall of the container body includes a track and the divider is slidably coupled to the track.

8. The fuel storage container of claim **1**, further comprising a lid disposed over the container body and hingedly coupled to the container body, wherein the lid includes gas shocks configured to hold the lid up from the container body.

9. The fuel storage container of claim **1**, further comprising a plurality of casters coupled to a base of the container body.

10. The fuel storage container of claim **1**, wherein the level sensor measures a distance to a top surface of fuel disposed within the container body.

11. The fuel storage container of claim **1**, further comprising a plurality of level sensors, each associated with a different compartment, wherein each of the plurality of level sensors feeds into a single display device.

12. A fuel storage container for storing cooking fuel comprising:

a. a container body having a first container floor disposed along a bottom of the container body and a container wall coupled to the bottom of the container body and extending upwardly therefrom, wherein the first container floor is sloped;

b. a divider removably disposed within the body, interior to the container wall and configured to divide the container body into a plurality of compartments;

c. a level sensor coupled to an interior of the container wall and configured to sense a characteristic related to an amount of cooking fuel disposed within a compartment, wherein the level sensor measures a distance to a top surface of fuel disposed within the container body;

d. a display device in functional communication with the level sensor such that information from the level sensor is displayed on the display device;

e. an aperture disposed through the container wall;

f. a perforated screen disposed between an interior region of the container body and the aperture such that cooking fuel disposed within the interior region passes through the screen before exiting the aperture; and

g. further comprising a plurality of level sensors, each associated with a different compartment, wherein each of the plurality of level sensors feeds into a single display device.

13. The fuel storage container of claim **12**, wherein the perforated screen provides a first container floor and form a

bottom boundary of the interior region and a second container floor is positioned below and spaced from the first container floor.

14. The fuel storage container of claim **13**, wherein the first container floor is rippled and thereby includes peaks and valleys.

15. The fuel storage container of claim **14**, further comprising a door disposed over the aperture of the container body, wherein the door provides access to the cooking fuel.

16. The fuel storage container of claim **15**, further comprising an electrical outlet disposed through the container body.

16. The fuel storage container of claim **16**, further comprising a light coupled to an interior of the container wall and configured to light an interior of the container body.

18. The fuel storage container of claim **17**, wherein the interior of the wall of the container body includes a track and the divider is slidably coupled to the track.

19. The fuel storage container of claim **18**, further comprising a lid disposed over the container body and hingedly coupled to the container body, wherein the lid includes gas shocks configured to hold the lid up from the container body.

20. A fuel storage container for storing cooking fuel comprising:

a. a container body having a sloped first container floor disposed along a bottom of the container body and a container wall coupled to the bottom of the container body and extending upwardly therefrom, having an electrical outlet disposed through the container wall, having an aperture disposed through the container wall, including a lid disposed over the container body and hingedly coupled to the container body, wherein the lid includes gas shocks configured to hold the lid up from the container body, including a light coupled to an interior of the container wall and configured to light an interior of the container body, including a door disposed over the aperture of the container body, wherein the door provides access to the cooking fuel, and including a second container floor positioned below and spaced from the first container floor;

b. a divider removably disposed within the body, interior to the container wall and configured to divide the container body into a plurality of compartments, wherein the interior of the wall of the container body includes a track and the divider is slidably coupled to the track;

c. a plurality of level sensors coupled to an interior of the container wall and configured to sense a characteristic related to an amount of cooking fuel disposed within a compartment, each sensor associated with a different compartment, wherein each level sensor measures a distance to a top surface of fuel disposed within the container body and each of the plurality of level sensors feed into a single display device;

d. a display device in functional communication with the level sensors such that information from the level sensors are displayed on the display device; and

e. a rippled perforated screen disposed between an interior region of the container body and the aperture such that cooking fuel disposed within the interior region passes through the screen before exiting the aperture, wherein the perforated screen provides a first container floor.

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