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FLAT TOP GAS GRILLS INCLUDING COOKING ENGINES CONFIGURED FOR OPTIMUM HEAT DISTRIBUTION

Abstract

Flat top gas grills including cooking engines configured for optimum heat distribution are disclosed. An example grill includes a cookbox, a heat shield, a griddle, and a plurality of burner tubes. The cookbox includes a bottom wall, as well as a front wall, a rear wall, a right sidewall, and a left sidewall extending upwardly therefrom. The cookbox further includes a plurality of air intake openings extending though the bottom wall. The heat shield includes a panel spaced apart from and located below the bottom wall of the cookbox. The panel extends across the plurality of air intake openings. The griddle is disposed on or above the cookbox. The griddle includes a flat top cooking surface and an underside located opposite the flat top cooking surface. The burner tubes are disposed in the cookbox and located between the bottom wall of the cookbox and the underside of the griddle.

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Background/Summary

FIELD OF THE DISCLOSURE

[0001] This disclosure relates generally to flat top gas grills and, more specifically, to flat top gas grills including cooking engines configured for optimum heat distribution.

BACKGROUND

[0002] Many conventional gas grills are equipped with grated cooking surfaces formed by a plurality of interconnected rungs and/or grate members that are spaced apart from one another to form a framework having many openings. Unlike gas grills that are equipped with such grated cooking surfaces, flat top gas grills instead include a griddle configured as a generally continuous and flat cooking surface that optionally includes a small number of openings (e.g., typically one or two openings) extending therethrough, with such openings being configured to receive grease, residue, particles, and/or other byproducts associated with a cooking operation performed on the griddle. While a griddle can be used to cook many different types and/or sizes of food items, implementing a griddle as the cooking surface of the gas grill can be particularly advantageous when it comes to cooking liquid or semi-liquid food items (e.g., eggs, batter, etc.) and/or small pieces of food items (e.g., ground meat, diced or chopped vegetables, etc.) that would otherwise be prone to falling through one or more of the many openings of a typical grated cooking surface.

[0003] The cooking engine of a flat top gas grill conventionally includes a cookbox, a griddle disposed on or above the cookbox, and one or more gas-fueled burner tube(s) disposed in the cookbox at a location between a bottom wall of the cookbox and an underside of the griddle. Cooking operations performed on flat top gas grills are typically carried out with a lid of the grill either removed from the cookbox or placed in an open position relative to the cookbox. The absence of a lid during cooking operations can lead to substantial heat loss from the cookbox and/or the griddle, and can also lead to the formation of significant heat distribution and/or temperature variations (e.g., the presence of cold spots and/or hot spots) across the cooking surface of the griddle. In many commercially available flat top gas grills, such variations can exceed two hundred degrees Fahrenheit (200° F.), even in instances when all of the burner tubes are adjusted to the same output setting. Consumers often find such extreme variations to be undesirable and/or unacceptable.

Description

BRIEF DESCRIPTION OF THE DRAWINGS

[0004] FIG. **1** is a perspective view of an example grill constructed in accordance with the teachings of this disclosure.

[0005] FIG. **2** is an exploded view of the grill of FIG. **1**.

[0006] FIG. **3** is a perspective view showing the cookbox of the grill of FIGS. **1** and **2** in isolation.

[0007] FIG. **4** is a top view of the cookbox of FIG. **3**.

[0008] FIG. **5** is a first perspective view showing the heat shield of the grill of FIGS. **1** and **2** in isolation.

[0009] FIG. **6** is a second perspective view of the heat shield of FIG. **5**.

[0010] FIG. **7** is a perspective view showing the temperature sensor assembly of the grill of FIGS. **1** and **2** in isolation.

[0011] FIG. **8** is an exploded view of the temperature sensor assembly of FIG. **7**.

[0012] FIG. **9** is a side view of the temperature sensor assembly of FIGS. **7** and **8**, with the

temperature probe of the temperature sensor assembly shown in an example raised position.
[0013] FIG. **10** is a side view of the temperature sensor assembly of FIGS. **7-9**, with the temperature probe of the temperature sensor assembly shown in an example lowered position.
[0014] FIG. **11** is a perspective view of the cookbox of FIGS. **3** and **4** with the heat shield of FIGS. **5** and **6** and the temperature sensor assembly of FIGS. **7-10** shown coupled to the cookbox.
[0015] FIG. **12** is a top view of the cookbox, the heat shield, and the temperature sensor assembly of FIG. **11**.
[0016] FIG. **13** is a first perspective view showing the griddle of the grill of FIGS. **1** and **2** in isolation.
[0017] FIG. **14** is a second perspective view of the griddle of FIG. **13**.
[0018] FIG. **15** is a perspective view showing the first burner tube of the grill of FIGS. **1** and **2** in isolation.
[0019] FIG. **16** is a top view of the first burner tube of FIG. **15**.
[0020] FIG. **17** is a bottom view of the first burner tube of FIGS. **15** and **16**.
[0021] FIG. **18** is a right side view of the first burner tube of FIGS. **15-17**.
[0022] FIG. **19** is a cross-sectional view of the first burner tube of FIGS. **15-18** taken along section A-A of FIG. **16**.
[0023] FIG. **20** is a front view showing the grill of FIGS. **1** and **2**, with the frame, the lid, and certain other structural features of the grill omitted for enhanced viewability.
[0024] FIG. **21** is a right side view of the grill of FIG. **20**.
[0025] FIG. **22** is a top view of the grill of FIGS. **20** and **21**.
[0026] FIG. **23** is a cross-sectional view of the grill of FIGS. **20-22** taken along section B-B of FIG. **22**.
[0027] FIG. **24** is a cross-sectional view of the grill of FIGS. **20-23** taken along section C-C of FIG. **22**.
[0028] FIG. **25** is a cross-sectional view of the grill of FIGS. **20-24** taken along section D-D of FIG. **20**.
[0029] Certain examples are shown in the above-identified figures and described in detail below. In describing these examples, like or identical reference numbers are used to identify the same or similar elements. The figures are not necessarily to scale and certain features and certain views of the figures may be shown exaggerated in scale or in schematic for clarity and/or conciseness.
[0030] Unless specifically stated otherwise, descriptors such as “first,” “second,” “third,” etc., are used herein without imputing or otherwise indicating any meaning of priority, physical order, arrangement in a list, and/or ordering in any way, but are merely used as labels and/or arbitrary names to distinguish elements for ease of understanding the disclosed examples. In some examples, the descriptor “first” may be used to refer to an element in the detailed description, while the same element may be referred to in a claim with a different descriptor such as “second” or “third.” In such instances, it should be understood that such descriptors are used merely for identifying those elements distinctly that might, for example, otherwise share a same name.

DETAILED DESCRIPTION

[0031] As discussed above, the cooking engine of a flat top gas grill conventionally includes a cookbox, a griddle disposed on or above the cookbox, and one or more gas-fueled burner tube(s) disposed in the cookbox at a location between a bottom wall of the cookbox and an underside of the griddle. Cooking operations performed on flat top gas grills are typically carried out with a lid of the grill either removed from the cookbox or placed in an open position relative to the cookbox. The absence of a lid during cooking operations can lead to substantial heat loss from the cookbox and/or the griddle, and can also lead to the formation of significant heat distribution and/or temperature variations (e.g., the presence of cold spots and/or hot spots) across the cooking surface of the griddle.
[0032] For example, cooking operations performed on many commercially-available flat top gas

grills can generate heat distribution and/or temperature variations in excess of two hundred degrees Fahrenheit (200° F.) across the cooking surface of the griddle, even in instances when all of the gas-fueled burner tubes of the flat top gas grill are adjusted to the same output setting (e.g., all burner tubes adjusted to a LOW output setting, all burner tubes adjusted to a MEDIUM output setting, or all burner tubes adjusted to a HI output setting). In addition to making the cooking process highly inefficient, heat distribution and/or temperature variations of such a stark magnitude can also effectively render portions of the cooking surface of the griddle unusable for their intended purpose, thereby resulting in a less than optimum user experience for the consumer.

[0033] Example flat top gas grills including cooking engines configured for optimum heat distribution are disclosed in U.S. patent application Ser. No. 18/380,722, filed on Oct. 17, 2023, the entirety of which is hereby incorporated by reference herein. Example flat top grills of the instant disclosure include several of the features disclosed in U.S. patent application Ser. No. 18/380,722, and further include additional features that provide further and/or alternate optimizations with regard to heat distribution and/or temperature detection.

[0034] In some disclosed examples, a grill comprises: (1) a cookbox including a bottom wall, a front wall, a rear wall, a right sidewall, and a left sidewall, the front wall, the rear wall, the right sidewall, and the left sidewall extending upwardly from the bottom wall, the cookbox further including a plurality of air intake openings extending though the bottom wall; (2) a heat shield including a panel spaced apart from and located below the bottom wall of the cookbox, the panel extending across the plurality of air intake openings; (3) a griddle disposed on or above the cookbox, the griddle including a flat top cooking surface and an underside located opposite the flat top cooking surface; and (4) a plurality of burner tubes disposed in the cookbox and located between the bottom wall of the cookbox and the underside of the griddle.

[0035] In some disclosed examples, the heat shield includes a plurality of openings extending through the panel. In some disclosed examples, the panel of the heat shield is positioned at an angle relative to the bottom wall of the cookbox such that a front edge of the panel is positioned below a rear edge of the panel. In some disclosed examples, the heat shield includes a first mounting flange and a second mounting flange respectively configured to couple the heat shield to the bottom wall of the cookbox.

[0036] In some disclosed examples, the plurality of burner tubes includes a first burner tube, a second burner tube laterally spaced apart from the first burner tube, and a third burner tube laterally spaced apart from both the first burner tube and the second burner tube. In some disclosed examples, the plurality of air intake openings includes a first air intake opening and a second air intake opening laterally spaced apart from the first air intake opening. In some disclosed examples, the first air intake opening is laterally positioned between the first burner tube and the second burner tube, and the second air intake opening is laterally positioned between the second burner tube and the third burner tube. In some disclosed examples, the heat shield includes a first plurality of openings and a second plurality of openings respectively extending through the panel. In some disclosed examples, the second plurality of openings is laterally spaced apart from the first plurality of openings. In some disclosed examples, the first plurality of openings includes one or more first openings laterally aligned with the first air intake opening, and the second plurality of openings includes one or more second openings laterally aligned with the second air intake opening.

[0037] In some disclosed examples, a grill comprises: (1) a cookbox including a bottom wall, a front wall, a rear wall, a right sidewall, and a left sidewall, the front wall, the rear wall, the right sidewall, and the left sidewall extending upwardly from the bottom wall and defining an upper rim of the cookbox, the upper rim including at least one recess configured to vent heat generated within the cookbox; (2) a griddle disposed on or above the cookbox, the griddle including a flat top cooking surface and an underside located opposite the flat top cooking surface; and (3) a plurality of burner tubes disposed in the cookbox and located between the bottom wall of the cookbox and the underside of the griddle.

[0038] In some disclosed examples, the at least one recess includes a first recess located along an inner edge of an upper surface of the front wall, a second recess located along an inner edge of an upper surface of the rear wall, a third recess located along an inner edge of an upper surface of the right sidewall, and a fourth recess located along an inner edge of an upper surface of the left sidewall. In some disclosed examples, the first recess extends between the upper surface of the front wall and an inner surface of the front wall, the second recess extends between the upper surface of the rear wall and an inner surface of the rear wall, the third recess extends between the upper surface of the right sidewall and an inner surface of the right sidewall, and the fourth recess extends between the upper surface of the left sidewall and an inner surface of the left sidewall.
[0039] In some disclosed examples, a grill comprises: (1) a cookbox including a bottom wall, a front wall, a rear wall, a right sidewall, and a left sidewall, the front wall, the rear wall, the right sidewall, and the left sidewall extending upwardly from the bottom wall; (2) a griddle disposed on or above the cookbox, the griddle including a flat top cooking surface and an underside located opposite the flat top cooking surface; (3) a plurality of burner tubes disposed in the cookbox and located between the bottom wall of the cookbox and the underside of the griddle; and (4) a temperature sensor assembly coupled to the cookbox, the temperature sensor assembly including a temperature probe configured to contact the underside of the griddle, the temperature probe movable relative to the cookbox between a raised position and a lowered position, the temperature probe biased into the raised position via a spring of the temperature sensor assembly.
[0040] In some disclosed examples, the temperature sensor assembly further includes a crossbar and a mounting bracket. The crossbar is coupled to and extends between the front wall and the rear wall of the cookbox. The mounting bracket is coupled to the crossbar. In some disclosed examples, the mounting bracket includes an upper flange and a lower flange spaced apart from the upper flange, wherein the temperature probe is slidingly received in the mounting bracket via an opening formed in the upper flange and an opening formed in the lower flange, the temperature probe including a retention flange located between the upper flange and the lower flange, wherein the spring is operatively positioned between the retention flange of the temperature probe and the lower flange of the mounting bracket such that the spring biases the retention flange of the temperature probe toward the upper flange of the mounting bracket.
[0041] In some disclosed examples, the cookbox of the grill is advantageously configured such that an unoccupied area collectively defined by the plurality of air intake openings is between 10.0 and 30.0 percent of the total area of the bottom wall of the cookbox. In some disclosed examples, the cookbox and the burner tubes of the grill are advantageously configured such that respective ones of the air intake openings are laterally positioned between neighboring ones of the burner tubes, and/or such that respective ones of the burner tubes are laterally aligned with a solid portion of the bottom wall of the cookbox that is laterally positioned between neighboring ones of the air intake openings. In some disclosed examples, the cookbox and the griddle of the grill are advantageously configured such that a vertical gap extending between the underside of the griddle and one or more underlying portion(s) of an upper rim of the cookbox is between 0.01 and 1.00 inches, wherein the vertical gap is configured to vent heat generated within the cookbox (e.g., heat generated by one or more of the burner tube(s)).
[0042] In some disclosed examples, the cookbox, the griddle, and one or more of the burner tube(s) of the grill are advantageously configured such that a central axis of the burner tube is located between 1.5 and 3.5 inches above the bottom wall of the cookbox, and/or located between 3.0 and 6.0 inches below the underside of the griddle. In some disclosed examples, one or more of the burner tube(s) of the grill include(s) first and second rows of ports extending through an outer wall of the burner tube and respectively arranged parallel to the central axis of the burner tube, wherein the first and second rows of ports are advantageously configured to be angularly displaced from one another by an angle between 90.0 and 150.0 degrees. In some disclosed examples, one or more of the burner tube(s) of the grill include(s) third and fourth rows of ports extending through the

outer wall of the burner tube and respectively arranged perpendicular to the central axis of the burner tube, wherein the third row of ports is advantageously configured to be located between 1.0 and 6.0 inches inwardly from a front wall of the cookbox, and wherein the fourth row of ports is advantageously configured to be located between 1.0 and 6.0 inches inwardly from a rear wall of the cookbox.

[0043] The above-described features implemented by the disclosed flat top gas grills advantageously improve the operating efficiency of the cooking engine of the flat top gas grill, and advantageously improve the heat distribution properties associated with the griddle of the flat top gas grill. In this regard, the above-described features individually and collectively assist in minimizing any temperature variation across the flat top cooking surface of the griddle during cooking operations performed thereon. Flat top gas grills disclosed herein maintain temperature variations of approximately 150 degrees Fahrenheit (150° F.) or less across the flat top cooking surface of the griddle when the burner tubes of the grill are adjusted to a common output setting. Such temperature variations are substantially less than those found in many commercially available flat top gas grills, some of which produce flat top cooking surface temperature variations exceeding two hundred degrees Fahrenheit (200° F.) when the burner tubes of the flat top gas grill are adjusted to a common output setting.

[0044] The above-identified features as well as other advantageous features of example flat top gas grills including cooking engines configured for optimum heat distribution as disclosed herein are further described below in connection with the figures of the application.

[0045] As used herein, the term “configured” means sized, shaped, arranged, structured, oriented, positioned, and/or located. For example, in the context of a first part configured to fit within a second part, the first part is sized, shaped, arranged, structured, oriented, positioned, and/or located to fit within the second part.

[0046] As used herein in the context of a first object circumscribing a second object, the term “circumscribe” means that the first object is constructed around and/or defines an area around the second object. In interpreting the term “circumscribe” as used herein, it is to be understood that the first object circumscribing the second object can include gaps and/or can consist of multiple spaced-apart objects, such that a boundary formed by the first object around the second object is not necessarily a continuous boundary.

[0047] As used herein, unless otherwise stated, the terms “above” and “below” describe the relationship of two parts relative to Earth. For example, as used herein, a first part is “above” a second part if the second part is closer to Earth than the first part is. As another example, as used herein, a first part is “below” a second part if the first part is closer to Earth than the second part is. It is to be understood that a first part can be above or below a second part with one or more of: another part or parts therebetween; without another part therebetween; with the first and second parts contacting one another; or without the first and second parts contacting one another.

[0048] As used herein, connection references (e.g., attached, coupled, connected, and joined) may include intermediate members between the elements referenced by the connection reference and/or relative movement between those elements unless otherwise indicated. As such, connection references do not necessarily infer that two elements are directly connected and/or in fixed relation to each other. As used herein, stating that any part is in “contact” with another part is defined to mean that there is no intermediate part between the two parts.

[0049] As used herein, the term “fastener” means any device(s), structure(s), and/or material(s) that is/are configured, individually or collectively, to couple, connect, attach, and/or fasten one or more component(s) to one or more other component(s). For example, a fastener can be implemented by any type(s) and/or any number(s) of bolts, nuts, screws, posts, anchors, rivets, pins, clips, ties, welds, adhesives, etc.

[0050] As used herein, the terms “substantially” and/or “approximately” modify their subjects and/or values to recognize the potential presence of variations that occur in real world applications.

For example, “substantially” and/or “approximately” may modify dimensions that may not be exact due to manufacturing tolerances and/or other real-world imperfections as will be understood by persons of ordinary skill in the art. For example, “substantially” and/or “approximately” may indicate such dimensions may be within a tolerance range of +/−10% unless otherwise specified in the description provided herein.

[0051] As used herein, the terms “including” and “comprising” (and all forms and tenses thereof) are open-ended terms. Thus, whenever the written description or a claim employs any form of “include” or “comprise” (e.g., comprises, includes, comprising, including, having, etc.) as a preamble or within a claim recitation of any kind, it is to be understood that additional elements, terms, etc., may be present without falling outside the scope of the corresponding claim or recitation.

[0052] As used herein, singular references (e.g., “a,” “an,” “first,” “second,” etc.) do not exclude a plurality. The term “a” or “an” object, as used herein, refers to one or more of that object. The terms “a” (or “an”), “one or more,” and “at least one” are used interchangeably herein. Furthermore, although individually listed, a plurality of means, elements, or method actions may be implemented by, for example, the same entity or object. Additionally, although individual features may be included in different examples or claims, these may possibly be combined, and the inclusion in different examples or claims does not imply that a combination of features is not feasible and/or advantageous.

[0053] The term “and/or” when used, for example, in a form such as A, B, and/or C refers to any combination or subset of A, B, C such as (1) A alone, (2) B alone, (3) C alone, (4) A with B, (5) A with C, (6) B with C, or (7) A with B and with C.

[0054] As used herein, when the phrase “at least” is used as the transition term in, for example, a preamble of a claim, it is open-ended in the same manner as the term “comprising” and “including” are open-ended. As used herein in the context of describing structures, components, items, objects, and/or things, the phrase “at least one of A and B” is intended to refer to implementations including any of (1) at least one A, (2) at least one B, or (3) at least one A and at least one B. Similarly, as used herein in the context of describing structures, components, items, objects, and/or things, the phrase “at least one of A or B” is intended to refer to implementations including any of (1) at least one A, (2) at least one B, or (3) at least one A and at least one B. As used herein in the context of describing the performance or execution of processes, instructions, actions, activities, and/or steps, the phrase “at least one of A and B” is intended to refer to implementations including any of (1) at least one A, (2) at least one B, or (3) at least one A and at least one B. Similarly, as used herein in the context of describing the performance or execution of processes, instructions, actions, activities, and/or steps, the phrase “at least one of A or B” is intended to refer to implementations including any of (1) at least one A, (2) at least one B, or (3) at least one A and at least one B.

[0055] FIG. **1** is a perspective view of an example grill **100** constructed in accordance with the teachings of this disclosure. FIG. **2** is an exploded view of the grill **100** of FIG. **1**. The grill **100** of FIGS. **1** and **2** is structured as a flat top gas grill. In this regard, the grill **100** of FIGS. **1** and **2** includes an example cookbox **102**, an example heat shield **202**, an example temperature sensor assembly **204**, and an example griddle **104**. The heat shield **202** of the grill **100** is configured to be disposed on and/or below a bottom wall of the cookbox **102** of the grill **100**. The temperature sensor assembly **204** of the grill **100** is configured to be disposed on and/or within the cookbox **102** of the grill **100** such that a sensing portion of a temperature probe of the temperature sensor assembly is oriented upward. The griddle **104** of the grill **100** is configured to be disposed on and/or above the cookbox **102** of the grill **100** such that an underside of the griddle contacts and/or is adjacent the sensing portion of the temperature probe of the temperature sensor assembly **204** of the grill **100**. The cookbox **102** of the grill **100** is further described below in connection with FIGS. **3**, **4**, **11**, and **12**. The heat shield **202** of the grill **100** is further described below in connection with FIGS. **5**, **6**, **11**, and **12**. The temperature sensor assembly **204** of the grill is further described below

in connection with FIGS. **7-12**. The griddle **104** of the grill **100** is further described below in connection with FIGS. **13** and **14**.

[0056] The grill **100** of FIGS. **1** and **2** further includes a plurality of burner tubes configured to be disposed within the cookbox **102** at a location between a bottom wall of the cookbox **102** and an upper rim defined by or associated with the cookbox **102**, and/or at a location between the bottom wall of the cookbox **102** and an underside of the griddle **104**. As shown in FIG. **2**, the plurality of burner tubes includes an example first burner tube **206**, an example second burner tube **208**, and an example third burner tube **210** (e.g., a total of three burner tubes) configured to be laterally spaced apart from one another and arranged in a front-to-rear orientation within the cookbox **102**, with the first burner tube **206**, the second burner tube **208**, and the third burner tube **210** being of a substantially identical construction relative to one another. In other examples, the plurality of burner tubes can instead include a different number (e.g., two, four, five, etc.) of burner tubes, and the construction of one or more of the burner tubes may differ from that of the first burner tube **206**, the second burner tube **208**, and/or the third burner tube **210** shown in FIG. **2**. The first burner tube **206** of the grill **100** is further described below in connection with FIGS. **15-19**.

[0057] In the illustrated example of FIGS. **1** and **2**, the burner tubes (e.g., the first burner tube **206**, the second burner tube **208**, and the third burner tube **210**) form part of a gas train that further includes an example fuel source **106**, an example regulator assembly **108**, an example manifold **212**, and a plurality of control valves corresponding in number to the plurality of burner tubes. In this regard, the plurality of control valves of the grill **100** as shown in FIG. **2** includes an example first control valve **214** associated with the first burner tube **206**, an example second control valve **216** associated with the second burner tube **208**, and an example third control valve **218** associated with the third burner tube **210**.

[0058] In the illustrated example of FIG. **1**, the fuel source **106** is implemented as a fuel tank (e.g., a propane tank) containing combustible gas. In other examples, the fuel source **106** can instead be implemented as a piped (e.g., household) natural gas line that provides an accessible flow of combustible gas. The regulator assembly **108** is operatively positioned between the fuel source **106** and the manifold **212** such that a supply of combustible gas provided via the fuel source **106** flows through the regulator assembly **108** and into the manifold **212**. The first control valve **214** is operatively positioned between the manifold **212** and the first burner tube **206** such that combustible gas received at the manifold **212** can be selectively supplied to the first burner tube **206** via the first control valve **214**. The second control valve **216** is operatively positioned between the manifold **212** and the second burner tube **208** such that combustible gas received at the manifold **212** can be selectively supplied to the second burner tube **208** via the second control valve **216**. The third control valve **218** is operatively positioned between the manifold **212** and the third burner tube **210** such that combustible gas received at the manifold **212** can be selectively supplied to the third burner tube **210** via the third control valve **218**.

[0059] In the illustrated example of FIGS. **1** and **2**, the manifold **212**, the first control valve **214**, the second control valve **216**, and the third control valve **218** are at least partially covered and/or concealed by an example control panel **110** that is coupled to and/or located along the front of the cookbox **102**. The grill **100** further includes a plurality of control knobs mounted and/or located along the front face of the control panel **110**, with the plurality of control knobs corresponding in number to the plurality of control valves and/or the number of burner tubes. In this regard, the plurality of control valves of the grill **100** as shown in FIGS. **1** and **2** includes an example first control knob **112** associated with the first control valve **214** and/or the first burner tube **206**, an example second control knob **114** associated with the second control valve **216** and/or the second burner tube **208**, and an example third control knob **116** associated with the third control valve **218** and/or the third burner tube **210**. Each control knob is mechanically coupled to its corresponding control valve such that movement (e.g., rotation) of the control knob changes the extent to which an adjustable flow control member of the corresponding control valve enables combustible gas to

flow through the corresponding control valve into the corresponding burner tube. For example, the first control knob **112** is mechanically coupled to the first control valve **214** such that movement (e.g., rotation) of the first control knob **112** changes the extent to which an adjustable flow control member of the first control valve **214** enables combustible gas to flow through the first control valve **214** into the first burner tube **206**.

[0060] The grill **100** of FIGS. **1** and **2** further includes an example waste collection assembly **118** configured to collect and facilitate the removal of cooking waste. In the illustrated example of FIGS. **1** and **2**, the waste collection assembly **118** includes an example waste bin **220** that is suspended from and slidably coupled to a pair of example support rails **222**, with the support rails **222** being coupled to an underside of the cookbox **102**. The waste bin **220** is moveable (e.g., slidable) along the support rails **222** between a closed position in which a substantial portion of the waste bin **220** is covered by the underside of the cookbox **102** (e.g., as shown in FIG. **1**), and an open position in which a substantial portion of the waste bin **220** is located forward of and not covered by the underside of the cookbox **102**. The waste bin **220** is configured to hold and/or contain an example disposable liner **224**.

[0061] When the waste bin **220** is in the closed position, the waste bin **220** and/or the disposable liner **224** is/are positioned below a lower waste disposal opening formed in and extending through a bottom wall of the cookbox **102**. The waste collection assembly **118** further includes an example waste disposal chute **226** disposed within the cookbox **102**, and an example upper waste disposal opening **120** formed in and extending through the griddle **104**. The waste disposal chute **226** is operatively positioned between the upper waste disposal opening **120** and the lower waste disposal opening such that liquid and/or solid cooking waste (e.g., grease, residue, particles, and/or other byproducts associated with a cooking operation) located on a flat top cooking surface of the griddle **104** can be fed into the upper waste disposal opening **120**, with the cooking waste thereafter passing from the upper waste disposal opening **120** through the waste disposal chute **226** and through the lower waste disposal opening. The waste bin **220** and/or the disposable liner **224** collect(s) cooking waste that passes though the waste disposal chute **226** and the lower waste disposal opening when the waste bin **220** is in the closed position. Moving the waste bin **220** from the closed position into the open position facilitates removal of the disposable liner **224** and/or the cooking waste contained therein.

[0062] The grill **100** of FIGS. **1** and **2** further includes an example frame **122**. The frame **122** can be configured from any number and any type of structural components arranged in any manner that facilitates supporting the cookbox **102** above an underlying ground surface when the grill **100** is in use. In the illustrated example of FIGS. **1** and **2**, the frame **122** includes an example right side support panel **124** and an example left side support panel **126**, each of which is configured to support the cookbox **102**. As shown in FIGS. **1** and **2**, the right side support panel **124** and the left side support panel **126** are spaced apart from one another, are oriented vertically, and are coupled (e.g., via one or more fastener(s)) to the cookbox **102** in a fixed manner. The frame **122** further includes an example upper shelf **128** and an example lower shelf **130**, each of which is configured to support one or more item(s) at a location below the cookbox **102** of the grill **100**. As shown in FIGS. **1** and **2**, the upper shelf **128** and the lower shelf **130** are spaced apart from one another, are oriented horizontally, and are coupled (e.g., via one or more fastener(s)) to the right side support panel **124** and/or the left side support panel **126** in a fixed manner. In other examples, the frame **122** can instead include one or more foldable, slidable, and/or telescoping support member(s) (e.g., leg(s), panel(s), etc.) that facilitate collapsing and/or otherwise modifying the frame **122** of the grill **100** when the grill **100** is not in use.

[0063] The grill **100** of FIGS. **1** and **2** further includes an example right side accessory support frame **132** and an example left side accessory support frame **134**. The right side accessory support frame **132** is coupled (e.g., via one or more fastener(s)) to the right side support panel **124** of the frame **122**, and/or to a right sidewall of the cookbox **102**. Conversely, the left side accessory

support frame **134** is coupled (e.g., via one or more fastener(s)) to the left side support panel **126** of the frame **122**, and/or to a left sidewall of the cookbox **102**. The right side accessory support frame **132** and the left side accessory support frame **134** of the grill **100** are respectively configured to support one or more insertable accessories and/or one or more snap fit accessories at a location to the side (e.g., the right side or the left side) of the cookbox **102** of the grill **100**.

[0064] The grill **100** of FIGS. **1** and **2** further includes an example lid **136** configured to cover and/or enclose the griddle **104** of the grill **100** when the lid **136** is in a closed position. The lid **136** is movable relative to the cookbox **102**, the griddle **104**, and/or the frame **122** of the grill **100** between a closed position in which the flat top cooking surface of the griddle **104** is covered, and an open position in which the flat top cooking surface of the griddle **104** is exposed (e.g., as shown in FIG. **1**). In the illustrated example of FIGS. **1** and **2**, the lid **136** is pivotally coupled to the cookbox **102** and/or the frame **122** of the grill **100** via one or more hinge(s). In other examples, the lid **136** can instead be removably positioned on the cookbox **102**, the griddle **104**, and/or the frame **122** of the grill **100** without there being any direct mechanical coupling between the lid **136** on the one hand and the cookbox **102**, the griddle **104**, and/or the frame **122** on the other hand. Movement of the lid **136** of the grill **100** between the closed position and the open position can be facilitated via user interaction with an example handle **138** that is coupled (e.g., via one or more fastener(s)) to the lid **136**.

[0065] FIG. **3** is a perspective view showing the cookbox **102** of the grill **100** of FIGS. **1** and **2** in isolation. FIG. **4** is a top view of the cookbox **102** of FIG. **3**. As shown in FIGS. **3** and **4**, the cookbox **102** includes an example bottom wall **302**, an example front wall **304**, an example rear wall **306**, an example right sidewall **308**, and an example left sidewall **310**. The rear wall **306** of the cookbox **102** is located opposite the front wall **304** of the cookbox **102**. The right sidewall **308** of the cookbox **102** extends between the front wall **304** and the rear wall **306** of the cookbox **102**. The left sidewall **310** of the cookbox **102** is located opposite the right sidewall **308** of the cookbox **102** and extends between the front wall **304** and the rear wall **306** of the cookbox **102**. As shown in FIGS. **3** and **4**, the front wall **304**, the rear wall **306**, the right sidewall **308**, and the left sidewall **310** of the cookbox **102** extend upwardly from the bottom wall **302** of the cookbox **102** to define a cavity in which one or more structural component(s) (e.g., the first burner tube **206**, the second burner tube **208**, and the third burner tube **210**) of the grill **100** can be disposed.

[0066] The cookbox **102** further includes a plurality of air intake openings formed in and extending through the bottom wall **302** of the cookbox **102**. The air intake openings are individually and collectively configured to draw air from the surrounding atmosphere into the cookbox **102**. As shown in FIGS. **3** and **4**, the plurality of air intake openings includes an example first air intake opening **312** and an example second air intake opening **314**, with the second air intake opening **314** being laterally spaced apart from the first air intake opening **312**. In this regard, the bottom wall **302** of the cookbox **102** further includes an example solid portion **316** that extends between the front wall **304** and the rear wall **306** of the cookbox **102**, and further extends between the first air intake opening **312** and the second air intake opening **314** formed in the bottom wall **302** of the cookbox **102**. In the illustrated example of FIGS. **3** and **4**, the solid portion **316** is free of any unplugged and/or uncovered opening(s) that extend through the bottom wall **302**.

[0067] The first air intake opening **312**, the second air intake opening **314**, and the solid portion **316** of the bottom wall **302** of the cookbox **102** are individually and collectively configured such that a burner tube (e.g., the second burner tube **208**) of the grill **100** is laterally aligned with the solid portion **316**, and such that said burner tube (e.g., the second burner tube **208**) is laterally positioned between the first air intake opening **312** and the second air intake opening **314**. The first air intake opening **312**, the second air intake opening **314**, and the solid portion **316** of the bottom wall **302** of the cookbox **102** are further individually and collectively configured such that the first air intake opening **312** is laterally positioned between one set of neighboring burner tubes (e.g., the first burner tube **206** and the second burner tube **208**) of the grill **100**, and such that the second air

intake opening **314** is laterally positioned between another set of neighboring burner tubes (e.g., the second burner tube **208** and the third burner tube **210**) of the grill **100**.

[0068] In the illustrated example of FIGS. **3** and **4**, the plurality of air intake openings includes a total of two air intake openings (e.g., the first air intake opening **312** and the second air intake opening **314**). In other examples, the plurality of air intake openings can instead include a different number (e.g., three, four, five, etc.) of air intake openings. In the illustrated example of FIGS. **3** and **4**, the first air intake opening **312** and the second air intake opening **314** each have a rectangular shape. In other examples, the first air intake opening **312** and/or the second air intake opening **314** can instead have a different shape (e.g., a circular shape, an oval shape, a triangular shape, a trapezoidal shape, etc.).

[0069] In addition to the air intake openings illustrated in FIGS. **3** and **4**, the cookbox **102** further includes an example lower waste disposal opening **402** formed in and extending through the bottom wall **302** of the cookbox **102**. The lower waste disposal opening **402** is configured to receive and/or to otherwise be in alignment with a lower portion of the waste disposal chute **226** of the waste collection assembly **118** of the grill **100**. Unlike the air intake openings described above, the lower waste disposal opening **402** is not configured to draw air from the surrounding atmosphere into the cookbox **102**, but is instead configured to transport cooking waste passing through the waste disposal chute **226** into the disposable liner **224** and/or the waste bin **220** of the waste collection assembly **118** of the grill **100**, as further described above.

[0070] In the illustrated example of FIGS. **3** and **4**, the bottom wall **302** of the cookbox **102** has a width (e.g., measured between the right sidewall **308** and the left sidewall **310**) of approximately 30.1 inches, a depth (e.g., measured between the front wall **304** and the rear wall **306**) of approximately 14.9 inches, and an associated total area (e.g., calculated as width multiplied by depth) of approximately 448.5 square inches. The first air intake opening **312** formed in the bottom wall **302** has an area of approximately 40.5 square inches, and the second air intake opening **314** formed in the bottom wall **302** has an area of approximately 40.5 square inches. Thus, the first air intake opening **312** and the second air intake opening **314** collectively define an unoccupied area of 81.0 square inches. In the illustrated example of FIGS. **3** and **4**, the unoccupied area defined by the air intake openings accounts for approximately 18.1 percent of the total area of the bottom wall **302**. In other examples, the unoccupied area defined by the air intake openings can account for between 10.0 and 30.0 percent of the total area of the bottom wall **302**. Satisfaction of the above-described range of the ratio of unoccupied area defined by the air intake openings to the total area of the bottom wall **302** advantageously improves the operating efficiency of the cooking engine of the grill **100**, and also improves the heat distribution properties associated with the griddle **104** of the grill **100**. In this regard, satisfaction of the above-described range of the ratio of unoccupied area defined by the air intake openings to the total area of the bottom wall **302** advantageously assists in minimizing any temperature variation across the flat top cooking surface of the griddle **104** during cooking operations performed thereon.

[0071] The grill **100** of FIGS. **1** and **2** further includes an example upper rim **140** defined by or associated with the cookbox **102**. In the illustrated example of FIGS. **1-4**, the upper rim **140** is formed by one or more portion(s) of the front wall **304**, the rear wall **306**, the right sidewall **308**, and/or the left sidewall **310** of the cookbox **102**. In other examples, one or more portion(s) of the upper rim **140** can additionally or alternatively be formed by one or more portion(s) of the control panel **110** and/or the frame **122** of the grill **100**. As shown in FIGS. **3** and **4**, the front wall **304**, the rear wall **306**, the right sidewall **308**, and the left sidewall **310** of the cookbox **102** each include an upper surface having an inner edge and an outer edge. More specifically, the front wall **304** includes an example upper surface **318** having an example inner edge **320** and an example outer edge **322**, the rear wall **306** includes an example upper surface **324** having an example inner edge **326** and an example outer edge **328**, the right sidewall **308** includes an example upper surface **330** having an example inner edge **332** and an example outer edge **334**, and the left sidewall **310**

includes an example upper surface **336** having an example inner edge **338** and an example outer edge **340**. The aforementioned upper surfaces (**318**, **324**, **330**, **336**), inner edges (**320**, **326**, **332**, **338**), and outer edges (**322**, **328**, **334**, **340**) of the front wall **304**, the rear wall **306**, the right sidewall **308**, and the left sidewall **310** form and/or define the upper rim **140** of the cookbox **102**.

[0072] In the illustrated example of FIGS. **1-4**, the upper surface **324** of the rear wall **306**, the upper surface **330** of the right sidewall **308**, and the upper surface **336** of the left sidewall **310** are respectively planar and/or flat. The upper surface **318** of the front wall **304** includes a stepped portion that divides the upper surface **318** of the front wall **304** into a raised portion and a lowered portion, each of which is planar and/or flat. In other examples, the upper surface **318** of the front wall **304** (e.g., including the raised portion and/or the lowered portion thereof), the upper surface **324** of the rear wall **306**, the upper surface **330** of the right sidewall **308**, and/or the upper surface **336** of the left sidewall **310** can instead be curved and/or contoured.

[0073] The cookbox **102** of the grill **100** further includes one or more recess(es) formed along the upper rim **140** of the cookbox **102**, with each recess being configured to vent heated air generated within the cookbox **102** (e.g., heated air generated via the first burner tube **206**, the second burner tube **208**, and/or the third burner tube **210**). In the illustrated example of FIGS. **1-4**, the upper rim **140** of the cookbox **102** includes an example first recess **342** formed in the front wall **304** of the cookbox **102**, an example second recess **344** formed in the rear wall **306** of the cookbox **102**, an example third recess **346** formed in the right sidewall **308** of the cookbox **102**, and an example fourth recess **348** formed in the left sidewall **310** of the cookbox **102**. In other examples, the upper rim **140** of the cookbox **102** can instead include a different number (e.g., 1, 2, 3, 5, 6, etc.) of recesses. While the illustrated example of FIGS. **1-4** depicts the upper rim **140** of the cookbox **102** as having a total of four recesses including a single recess formed in each one of the front wall **304**, the rear wall **306**, the right sidewall **308**, and the left sidewall **310** of the cookbox **102**, in other examples the upper rim **140** of the cookbox **102** can include multiple recesses formed in each one of the front wall **304**, the rear wall **306**, the right sidewall **308**, and the left sidewall **310** of the cookbox **102**. In still other examples, the upper rim **140** of the cookbox **102** can include one or more recesses formed in specific ones of the front wall **304**, the rear wall **306**, the right sidewall **308**, and/or the left sidewall **310** of the cookbox **102** while lacking any recesses formed in other ones of the front wall **304**, the rear wall **306**, the right sidewall **308**, and/or the left sidewall **310** of the cookbox **102**.

[0074] In the illustrated example of FIGS. **1-4**, the first recess **342** of the upper rim **140** of the cookbox **102** is formed along the inner edge **320** of the upper surface **318** of the front wall **304**. The first recess **342** extends and/or is located between the upper surface **318** of the front wall **304** and an example inner surface **350** of the front wall **304** such that the first recess **342** forms an angled wall segment that tapers outwardly (e.g., toward the outer edge **322** of the upper surface **318** of the front wall **304**) moving in an upward direction along the inner surface **350** of the front wall **304** toward and/or to the upper surface **318** of the front wall **304** and/or the inner edge **320** thereof. The inner edge **320** of the upper surface **318** of the front wall **304** accordingly steps and/or extends outwardly (e.g., toward the outer edge **322** of the upper surface **318** of the front wall **304**) at the location of the first recess **342**. The first recess **342** is configured to vent heated air generated within the cookbox **102** (e.g., heated air generated via the first burner tube **206**, the second burner tube **208**, and/or the third burner tube **210**), with such venting occurring along the front wall **304** of the cookbox **102** at the location of the first recess **342**.

[0075] The second recess **344** of the upper rim **140** of the cookbox **102** is formed along the inner edge **326** of the upper surface **324** of the rear wall **306** at a location opposite the first recess **342**. The second recess **344** extends and/or is located between the upper surface **324** of the rear wall **306** and an example inner surface **352** of the rear wall **306** such that the second recess **344** forms an angled wall segment that tapers outwardly (e.g., toward the outer edge **328** of the upper surface **324** of the rear wall **306**) moving in an upward direction along the inner surface **352** of the rear wall

306 toward and/or to the upper surface **324** of the rear wall **306** and/or the inner edge **326** thereof. The inner edge **326** of the upper surface **324** of the rear wall **306** accordingly steps and/or extends outwardly (e.g., toward the outer edge **328** of the upper surface **324** of the rear wall **306**) at the location of the second recess **344**. The second recess **344** is configured to vent heated air generated within the cookbox **102** (e.g., heated air generated via the first burner tube **206**, the second burner tube **208**, and/or the third burner tube **210**), with such venting occurring along the rear wall **306** of the cookbox **102** at the location of the second recess **344**.

[0076] The third recess **346** of the upper rim **140** of the cookbox **102** is formed along the inner edge **332** of the upper surface **330** of the right sidewall **308**. The third recess **346** extends and/or is located between the upper surface **330** of the right sidewall **308** and an example inner surface **354** of the right sidewall **308** such that the third recess **346** forms an angled wall segment that tapers outwardly (e.g., toward the outer edge **334** of the upper surface **330** of the right sidewall **308**) moving in an upward direction along the inner surface **354** of the right sidewall **308** toward and/or to the upper surface **330** of the right sidewall **308** and/or the inner edge **332** thereof. The inner edge **332** of the upper surface **330** of the right sidewall **308** accordingly steps and/or extends outwardly (e.g., toward the outer edge **334** of the upper surface **330** of the right sidewall **308**) at the location of the third recess **346**. The third recess **346** is configured to vent heated air generated within the cookbox **102** (e.g., heated air generated via the first burner tube **206**, the second burner tube **208**, and/or the third burner tube **210**), with such venting occurring along the right sidewall **308** of the cookbox **102** at the location of the third recess **346**. The third recess **346** is further configured to advantageously provide a clearance opening sized to receive at least a portion of a hand (e.g., one or more fingers of a right hand) of a user in connection with the user manually installing the griddle **104** on, and/or manually removing the griddle **104** from, the cookbox **102** of the grill **100**.

[0077] The fourth recess **348** of the upper rim **140** of the cookbox **102** is formed along the inner edge **338** of the upper surface **336** of the left sidewall **310** at a location opposite the third recess **346**. The fourth recess **348** extends and/or is located between the upper surface **336** of the left sidewall **310** and an example inner surface **356** of the left sidewall **310** such that the fourth recess **348** forms an angled wall segment that tapers outwardly (e.g., toward the outer edge **340** of the upper surface **336** of the left sidewall **310**) moving in an upward direction along the inner surface **356** of the left sidewall **310** toward and/or to the upper surface **336** of the left sidewall **310** and/or the inner edge **338** thereof. The inner edge **338** of the upper surface **336** of the left sidewall **310** accordingly steps and/or extends outwardly (e.g., toward the outer edge **340** of the upper surface **336** of the left sidewall **310**) at the location of the fourth recess **348**. The fourth recess **348** is configured to vent heated air generated within the cookbox **102** (e.g., heated air generated via the first burner tube **206**, the second burner tube **208**, and/or the third burner tube **210**), with such venting occurring along the left sidewall **310** of the cookbox **102** at the location of the fourth recess **348**. The fourth recess **348** is further configured to advantageously provide a clearance opening sized to receive at least a portion of a hand (e.g., one or more fingers of a left hand) of a user in connection with the user manually installing the griddle **104** on, and/or manually removing the griddle **104** from, the cookbox **102** of the grill **100**.

[0078] The cookbox **102** of the grill **100** further includes a plurality of example griddle docking openings **358** configured to receive and/or to otherwise engage corresponding ones of a plurality of griddle support members of the griddle **104**. In the illustrated example of FIGS. **1-4**, the griddle docking openings **358** are formed in the upper rim **140** of the cookbox **102**. For example, as shown in FIGS. **3** and **4**, the cookbox **102** includes two griddle docking openings **358** formed in and/or extending through the upper surface **318** of the front wall **304** of the cookbox **102**, and two griddle docking openings **358** formed in and/or extending through the upper surface **324** of the rear wall **306** of the cookbox **102**, wherein the upper surface **318** of the front wall **304** and the upper surface **324** of the rear wall **306** form portions of the upper rim **140** of the cookbox **102**. In other examples, one or more griddle docking opening(s) **358** can additionally or alternatively be formed in the

upper surface **330** of the right sidewall **308** and/or the upper surface **336** of the left sidewall **310** of the cookbox **102**. As further described below, the griddle docking openings **358** and the griddle support members are configured to support the griddle **104** of the grill **100** on or above the cookbox **102** of the grill **100**, and/or on, above, or at one or more portion(s) of the upper rim **140** of the cookbox **102** of the grill **100**.

[0079] FIG. **5** is a first perspective view showing the heat shield **202** of the grill **100** of FIGS. **1** and **2** in isolation. FIG. **6** is a second perspective view of the heat shield **202** of FIG. **5**. In the illustrated example of FIGS. **5** and **6**, the heat shield **202** includes an example panel **502**, an example front lip **504**, an example rear lip **506**, an example right side lip **508**, an example left side lip **510**, an example first mounting flange **512**, and an example second mounting flange **514**. The panel **502** of the heat shield **202** includes an example front edge **516**, an example rear edge **518**, an example right side edge **520**, and an example left side edge **522**. In the illustrated example of FIGS. **5** and **6**, the panel **502** of the heat shield **202** is planar and/or flat. In other examples, the panel **502** of the heat shield **202** can instead be contoured and/or curved. In the illustrated example of FIGS. **5** and **6**, the panel **502** of the heat shield **202** has a rectangular shape. In other examples, the panel **502** of the heat shield **202** can instead have a non-rectangular shape (e.g., a circular shape, an oval shape, a triangular shape, a trapezoidal shape, etc.).

[0080] The heat shield **202** is configured such that the panel **502** of the heat shield **202** is spaced apart from and located below the bottom wall **302** of the cookbox **102** when the heat shield **202** is coupled to the cookbox **102**, with the panel **502** of the heat shield **202** extending across the first air intake opening **312** and/or the second air intake opening **314** formed in the bottom wall **302** of the cookbox **102**. In the illustrated example of FIGS. **5** and **6**, the heat shield **202** further includes openings formed in and/or extending through the panel **502** of the heat shield **202**. More specifically, the heat shield includes an example first plurality of openings **524** and an example second plurality of openings **526** formed in and/or extending though the panel **502** of the heat shield **202**, with the first plurality of openings **524** and the second plurality of openings **526** being laterally spaced apart from one another along the panel **502** of the heat shield **202**. The heat shield **202** is further configured such that, when the heat shield **202** is coupled to the cookbox **102**, one or more first opening(s) from among the first plurality of openings **524** is/are laterally aligned with the first air intake opening **312**, and one or more second opening(s) from among the second plurality of openings **526** is/are laterally aligned with the second air intake opening **314**. In this regard, respective ones of the first plurality of openings **524** and/or the second plurality of openings **526** formed in the panel **502** of the heat shield **202** are configured to have a size (e.g., a length, a width, a diameter, etc.) that is significantly less than the size of the first air intake opening **312** and/or the size of the second air intake opening **314** formed in the bottom wall **302** of the cookbox **102**.

[0081] In the illustrated example of FIGS. **5** and **6**, the front lip **504**, the rear lip **506**, the right side lip **508**, and the left side lip **510** of the heat shield **202** are coupled to (e.g., integrally formed with) the panel **502** of the heat shield **202**, and extends upwardly therefrom. More specifically, the front lip **504** of the heat shield **202** is coupled to (e.g., integrally formed with) the panel **502** of the heat shield **202**, with the front lip **504** extending upwardly from the front edge **516** of the panel **502**. The rear lip **506** of the heat shield **202** is coupled to (e.g., integrally formed with) the panel **502** of the heat shield **202**, with the rear lip **506** extending upwardly from the rear edge **518** of the panel **502**. The right side lip **508** of the heat shield **202** is coupled to (e.g., integrally formed with) the panel **502** of the heat shield **202**, with the right side lip **508** extending upwardly from the right side edge **520** of the panel **502**. The left side lip **510** of the heat shield **202** is coupled to (e.g., integrally formed with) the panel **502** of the heat shield **202**, with the left side lip **510** extending upwardly from the left side edge **522** of the panel **502**.

[0082] In the illustrated example of FIGS. **5** and **6**, the first mounting flange **512** and the second mounting flange **514** of the heat shield **202** are respectively coupled to (e.g., integrally formed with) corresponding ones of the right side lip **508** and the left side lip **510** of the heat shield **202**.

More specifically, the first mounting flange **512** of the heat shield **202** is coupled to (e.g., integrally formed with) the right side lip **508** of the heat shield **202**, with the first mounting flange **512** being configured to couple (e.g., via one or more fastener(s)) the heat shield **202** to the bottom wall **302** of the cookbox **102**. The second mounting flange **514** of the heat shield **202** is coupled to (e.g., integrally formed with) the left side lip **510** of the heat shield **202**, with the second mounting flange **514** being configured to couple (e.g., via one or more fastener(s)) the heat shield **202** to the bottom wall **302** of the cookbox **102**.

[0083] As discussed above, the burners of the grill **100** (e.g., the first burner tube **206**, the second burner tube **208**, and/or the third burner tube **210**) generate heat within the cookbox **102** of the grill **100**. Some of the generated heat is transferred to the bottom wall **302** of the cookbox **102**. Some of the generated heat escapes the cookbox **102** via the first air intake opening **312** and/or the second air intake opening **314** formed in the bottom wall **302** of the cookbox **102**. The heat shield **202** and, more specifically, the panel **502** of the heat shield **202**, is configured to reflect heat. For example, when the heat shield **202** is coupled to the cookbox **102** (e.g., to the bottom wall **302** of the cookbox **102**), the panel **502** of the heat shield **202** is spaced apart from and located below the bottom wall **302** of the cookbox **102**, with the panel **502** extending across the first air intake opening **312** and/or the second air intake opening **314** formed in the bottom wall **302** of the cookbox **102**. When so positioned, the panel **502** of the heat shield **202** receives heat from the bottom wall **302** of the cookbox **102** and/or from the first air intake opening **312** and/or the second air intake opening **314** of the cookbox **102**, and reflects the received heat upwardly back toward the bottom wall **302** of the cookbox **102**, and/or back through the first air intake opening **312** and/or the second air intake opening **314** of the cookbox **102**. Such reflection of heat advantageously lowers the ambient temperature of the volumetric space located below the bottom wall **302** of the cookbox **102** and below the panel **502** of the heat shield **202**. The lowering of the ambient temperature in said volumetric space is beneficial, particularly in instances in which a storage shelf of the grill **100** (e.g., the upper shelf **128** of the grill **100** of FIGS. **1** and **2**) is located in and/or proximate said volumetric space.

[0084] FIG. **7** is a perspective view showing the temperature sensor assembly **204** of the grill **100** of FIGS. **1** and **2** in isolation. FIG. **8** is an exploded view of the temperature sensor assembly **204** of FIG. **7**. In the illustrated example of FIGS. **7** and **8**, the temperature sensor assembly **204** includes an example crossbar **702**, an example mounting bracket **704**, an example temperature probe **706**, and an example spring **708**. The crossbar **702** of the temperature sensor assembly **204** includes an example first end **802**, an example second end **804** located opposite the first end **802**, and an example opening **806** located between the first end **802** and the second end **804**. The first end **802** and the second end **804** of the crossbar **702** are configured to be coupled (e.g., via one or more fastener(s)) to opposing structures of the cookbox **102** such that the crossbar **702** extends between the opposing structures. For example, the crossbar **702** of FIGS. **7** and **8** is configured such that the first end **802** of the crossbar **702** is couplable to the front wall **304** of the cookbox **102** and the second end **804** of the crossbar **702** is couplable to the rear wall **306** of the cookbox **102** such that the crossbar **702** extends between the front wall **304** and the rear wall **306**. In other examples, the crossbar **702** can instead be configured such that the first end **802** of the crossbar **702** is couplable to the right sidewall **308** of the cookbox **102** and the second end **804** of the crossbar **702** is couplable to the left sidewall **310** of the cookbox **102** such that the crossbar **702** extends between the right sidewall **308** and the left sidewall **310**. The opening **806** of the crossbar **702** is configured to slidingly receive a portion of the temperature probe **706** of the temperature sensor assembly **204**, as further described herein.

[0085] The mounting bracket **704** of the temperature sensor assembly **204** is coupled (e.g., via one or more fastener(s)) to the crossbar **702** of the temperature sensor assembly **204**. In the illustrated example of FIGS. **7** and **8**, the mounting bracket **704** includes an example upper flange **808** and an example lower flange **810** spaced apart from the upper flange **808**. The mounting bracket **704**

further includes an example upper opening **812** formed in and/or extending through the upper flange **808**, and an example lower opening **814** (e.g., a slotted opening) formed in and/or extending through the lower flange **810**. The upper opening **812** of the upper flange **808** and the lower opening **814** of the lower flange **810** are respectively configured to slidingly receive one or more portion(s) of the temperature probe **706** of the temperature sensor assembly **204**, as further described herein. In the illustrated example of FIGS. **7** and **8**, the upper opening **812** of the upper flange **808**, the lower opening **814** of the lower flange **810**, and the opening **806** of the crossbar **702** are coaxially aligned with one another. Such an arrangement advantageously enables the temperature probe **706** of the temperature sensor assembly **204** to be movable (e.g., slidable) relative to the upper flange **808** of the mounting bracket **704** (e.g., via the upper opening **812**), relative to the lower flange **810** of the mounting bracket **704** (e.g., via the lower opening **814**), and relative to the crossbar **702** (e.g., via the opening **806**).

[0086] The temperature probe **706** of the temperature sensor assembly **204** is configured to sense and/or detect a temperature of an object with which the temperature sensor is in contact. For example, the temperature probe **706** can sense and/or detect the temperature of the griddle **104** of the grill **100** of FIGS. **1** and **2** when the temperature probe **706** contacts a portion (e.g., an underside) of the griddle **104**. In some examples, the temperature probe **706** can be implemented as a thermocouple. In the illustrated example of FIGS. **7** and **8**, the temperature probe **706** includes an example shaft **816**, an example sensing tip **818**, and an example retention flange **820**. The shaft **816** of the temperature probe **706** is configured to be slidingly received in the mounting bracket **704** of the temperature sensor assembly **204** (e.g., via the upper opening **812** of the upper flange **808** and via the lower opening **814** of the lower flange **810**) and in the crossbar **702** of the temperature sensor assembly **204** (e.g., via the opening **806** of the crossbar **702**). In the illustrated example of FIGS. **7** and **8**, the shaft **816** of the temperature probe **706** has a circular cross-sectional shape, as do the upper opening **812** and the lower opening of the mounting bracket **704**, as well as the opening **806** of the crossbar **702**. In other examples, the shaft **816** of the temperature probe **706** can instead have a non-circular (e.g., rectangular, triangular, hexagonal, etc.) cross-sectional shape, as can the upper opening **812** and the lower opening of the mounting bracket **704**, as well as the opening **806** of the crossbar **702**.

[0087] The sensing tip **818** of the temperature probe **706** is located at an end of the shaft **816** of the temperature probe **706**. The sensing tip **818** is configured to sense and/or detect a temperature of an object with which the sensing tip **818** is in contact. For example, the sensing tip **818** can sense and/or detect the temperature of the griddle **104** of the grill **100** of FIGS. **1** and **2** when the sensing tip **818** contacts a portion (e.g., an underside) of the griddle **104**. The retention flange **820** of the temperature probe **706** is located along, and extends and/or projects outwardly from (e.g., radially away from), the shaft **816** of the temperature probe **706**. When the temperature probe **706** is operatively positioned and/or coupled to the mounting bracket **704**, the retention flange **820** of the temperature probe **706** is located between the upper flange **808** and the lower flange **810** of the mounting bracket **704**. When so positioned, the retention flange **820** is configured to operate as a mechanical stop relative to the upper opening **812** formed in the upper flange **808** of the mounting bracket **704**. In this regard, the outer edge of the retention flange **820** has a perimeter (e.g., a circumference) that is greater than the perimeter (e.g., the circumference) of the inner edge of the upper opening **812** of the upper flange **808**. Upward movement of the shaft **816** and/or, more generally, of the temperature probe **706** relative to the mounting bracket **704** is accordingly limited and/or restricted by the retention flange **820** of the temperature probe **706**.

[0088] The spring **708** of the temperature sensor assembly **204** is configured to bias the temperature probe **706** of the temperature sensor assembly **204** in an upward direction such that the retention flange **820** of the temperature probe **706** is biased toward and/or into contact with the upper flange **808** of the mounting bracket **704** of the temperature sensor assembly **204**. In the illustrated example of FIGS. **7** and **8**, the spring **708** includes an example first end **822** and an

example second end **824** located opposite the first end **822**. The first end **822** of the spring **708** contacts the lower flange **810** of the mounting bracket **704**, and the second end **824** of the spring **708** contacts the retention flange **820** of the temperature probe **706**. The spring **708** is accordingly operatively positioned between the lower flange **810** of the mounting bracket **704** and the retention flange **820** of the temperature probe **706** such that the spring **708** biases the retention flange **820** of the temperature probe **706** toward the upper flange **808** of the mounting bracket **704**.

[0089] The temperature probe **706** of the temperature sensor assembly **204** is movable (e.g., slidable) relative to the crossbar **702** and/or the mounting bracket **704** of the temperature sensor assembly **204**. When the temperature sensor assembly **204** is coupled to the cookbox **102** of the grill **100**, the temperature probe **706** is also movable (e.g., slidable) relative to the cookbox **102**. Movement of the temperature probe **706** occurs between a raised position in which the retention flange **820** of the temperature probe **706** contacts or is adjacent to the upper flange **808** of the mounting bracket **704**, and a lowered position in which the retention flange **820** of the temperature probe **706** is spaced apart from the upper flange **808** of the mounting bracket **704**. For example, FIG. **9** is a side view of the temperature sensor assembly **204** of FIGS. **7** and **8**, with the temperature probe **706** of the temperature sensor assembly **204** shown in an example raised position **900**. As shown in FIG. **9**, the spring **708** of the temperature sensor assembly **204** biases the retention flange **820** of the temperature probe **706** of the temperature sensor assembly **204** toward and/or into contact with the upper flange **808** of the mounting bracket **704** of the temperature sensor assembly **204**. The spring **708** accordingly biases the temperature probe **706** into the raised position **900**.

[0090] FIG. **10** is a side view of the temperature sensor assembly **204** of FIGS. **7-9**, with the temperature probe **706** of the temperature sensor assembly **204** shown in an example lowered position **1000**. As shown in FIG. **10**, the sensing tip **818** of the temperature probe **706** contacts an example bottom surface **1002** of an object, which could be the underside of the griddle **104** as further described herein. In response to the bottom surface **1002** of the object contacting the sensing tip **818** of the temperature probe **706**, the force associated with the weight of object overcomes (e.g., is greater than) the biasing force generated by the spring **708**. The presence of the object accordingly causes the temperature probe **706** to move (e.g., slide) downwardly relative to the mounting bracket **704** such that the retention flange **820** of the temperature probe **706** becomes spaced apart from the upper flange **808** of the mounting bracket **704**. So long as the bottom surface **1002** of the object contacts the sensing tip **818** of the temperature probe **706**, the temperature probe **706** can accurately and reliably sense, measure, and/or detect the temperature of the bottom surface **1002** of the object. The resiliency and/or elasticity of the spring **708** advantageously ensures that the sensing tip **818** of the temperature probe **706** remains in contact with the bottom surface **1002** of the object, even in instances when the position of the bottom surface **1002** of the object has shifted and/or moved by a small amount.

[0091] FIG. **11** is a perspective view of the cookbox **102** of FIGS. **3** and **4** with the heat shield **202** of FIGS. **5** and **6** and the temperature sensor assembly **204** of FIGS. **7-10** shown coupled to the cookbox **102**. FIG. **12** is a top view of the cookbox **102**, the heat shield **202**, and the temperature sensor assembly **204** of FIG. **11**. In the illustrated example of FIGS. **11** and **12**, the heat shield **202** is coupled (e.g., via the first mounting flange **512** and the second mounting flange **514** of the heat shield **202**) to the bottom wall **302** of the cookbox **102**. The panel **502** of the heat shield **202** is spaced apart from and located below the bottom wall **302** of the cookbox **102**, with the panel **502** extending across the first air intake opening **312** and the second air intake opening **314** formed in the bottom wall **302** of the cookbox **102**. One or more first opening(s) from among the first plurality of openings **524** formed in the panel **502** of the heat shield **202** is/are located below and laterally aligned with the first air intake opening **312** formed in the bottom wall **302** of the cookbox **102**, and one or more second opening(s) from among the second plurality of openings **526** formed in the panel **502** of the heat shield **202** is/are located below and laterally aligned with the second air

intake opening **314** formed in the bottom wall **302** of the cookbox **102**.
[0092] In the illustrated example of FIGS. **11** and **12**, the first mounting flange **512** of the heat shield **202** is located to the right of the first air intake opening **312**, and the second mounting flange **512** of the heat shield **202** is located to the left of the second air intake opening **314**. The front lip **504** of the heat shield **202** is located forward of both the first air intake opening **312** and the second air intake opening **314**, and the rear lip **506** of the heat shield **202** is located rearward of both the first air intake opening **312** and the second air intake opening **314**. In other examples, the respective positions and/or locations of the first mounting flange **512**, the second mounting flange **514**, the front lip **504**, and/or the rear lip **506** of the heat shield **202** relative to the first air intake opening **312** and/or the second air intake opening **314** of the cookbox **102** may differ from the position(s) and/or the location(s) shown in the example of FIGS. **11** and **12**.
[0093] In the illustrated example of FIGS. **11** and **12**, the temperature sensor assembly **204** is coupled to the cookbox **102**. More specifically, the crossbar **702** of the temperature sensor assembly **204** is coupled to the cookbox **102**, with the first end **802** of the crossbar **702** being coupled (e.g., via a first fastener) to the front wall **304** of the cookbox **102**, and with the second end **804** of the crossbar **702** being coupled (e.g., via a second fastener) to the rear wall **306** of the cookbox **102**. The crossbar **702** of the temperature sensor assembly **204** accordingly extends between the front wall **304** and the rear wall **306** of the cookbox **102**. In the illustrated example of FIGS. **11**, and **12**, the first end **802** of the crossbar **702** is located along and/or within the first recess **342** formed in the front wall **304** of the cookbox **102**, and the second end **804** of the crossbar **702** is located along and/or within the second recess **344** formed in the rear wall **306** of the cookbox **102**. In other examples, the first end **802** and the second end **804** of the crossbar **702** can respectively be coupled to the front wall **304** and the rear wall **306** of the cookbox **102** without the first end **802** of the crossbar **702** being located along and/or within the first recess **342** formed in the front wall **304** of the cookbox **102**, and/or without the second end **804** of the crossbar **702** being located along and/or within the second recess **344** formed in the rear wall **306** of the cookbox **102**.
[0094] In the illustrated example of FIGS. **11** and **12**, the temperature probe **706** of the temperature sensor assembly **204** is located above and laterally aligned with the first air intake opening **312** formed in the bottom wall **302** of the cookbox **102**. In other examples, the temperature probe **706** of the temperature sensor assembly **204** can instead be located above and laterally aligned with the second air intake opening **314** formed in the bottom wall **302** of the cookbox **102**. In still other examples, the temperature probe **706** of the temperature sensor assembly **204** can instead be located above and laterally aligned with a solid portion of the bottom wall **302** of the cookbox **102**, including either the solid portion **316** that is located between the first air intake opening **312** and the second air intake opening **314**, a solid portion that is located to the right of the first air intake opening **312**, or a solid portion that is located to the left of the second air intake opening **314**.
[0095] FIG. **13** is a first perspective view showing the griddle **104** of the grill **100** of FIGS. **1** and **2** in isolation. FIG. **14** is a second perspective view of the griddle **104** of FIG. **13**. As shown in FIGS. **13** and **14**, the griddle **104** includes an example base **1302**. The base **1302** of the griddle **104** includes an example flat top cooking surface **1304** and an example underside **1402** located opposite the flat top cooking surface **1304**. In the illustrated example of FIGS. **13** and **14**, the flat top cooking surface **1304** is a continuous, substantially flat and/or substantially planar surface that is free of openings aside from the upper waste disposal opening **120** described herein. The flat top cooking surface **1304** is configured to support a variety of liquid, semi-liquid, and/or solid food items during a variety of cooking processes that may be performed on the griddle **104**. In the illustrated example of FIGS. **13** and **14**, the flat top cooking surface **1304** and/or, more generally, the base **1302** of the griddle **104** has a generally rectangular profile. In other examples, the flat top cooking surface **1304** and/or, more generally, the base **1302** of the griddle **104** can instead have a non-rectangular profile (e.g., a circular profile, an oval profile, a triangular profile, a trapezoidal profile, etc.).

[0096] The griddle **104** further includes an example front lip **1306**, and an example rear lip **1308**, an example right side lip **1310**, and an example left side lip **1312**. The rear lip **1308** of the griddle **104** is located opposite the front lip **1306** of the griddle **104**. The right side lip **1310** of the griddle **104** extends between the front lip **1306** and the rear lip **1308** of the griddle **104**. The left side lip **1312** of the griddle **104** is located opposite the right side lip **1310** of the griddle **104** and extends between the front lip **1306** and the rear lip **1308** of the griddle **104**. The front lip **1306**, the rear lip **1308**, the right side lip **1310**, and the left side lip **1312** of the griddle **104** extend upwardly from the base **1302** of the griddle **104** to provide vertical boundaries configured to prevent food items from sliding off the flat top cooking surface **1304** of the griddle **104** during one or more cooking operation(s) performed thereon.

[0097] As shown in FIGS. **13** and **14**, the upper waste disposal opening **120** formed in the base **1302** of the griddle **104** extends completely through the base **1302** (e.g., from the flat top cooking surface **1304** of the base **1302** through to the underside **1402** of the base **1302**). The upper waste disposal opening **120** facilitates the removal and/or disposal of liquid and/or solid cooking waste (e.g., grease, residue, particles, and/or other byproducts associated with a cooking operation) located on the flat top cooking surface **1304** of the griddle **104**, as further described above. In the illustrated example of FIGS. **13** and **14**, the upper waste disposal opening **120** is located proximate the front left corner of the base **1302** of the griddle **104** (e.g., near the junction of the front lip **1306** and the left side lip **1312** of the griddle **104**). In other examples, the upper waste disposal opening **120** can instead be located proximate some other portion (e.g., the rear left corner, the front right corner, the rear right corner, etc.) of the base **1302** of the griddle **104**.

[0098] The griddle **104** further includes a plurality of example griddle support members **1404** (e.g., vertically oriented posts) coupled to and extending downwardly from the underside **1402** of the base **1302** of the griddle **104**. The griddle support members **1404** are configured to support the underside **1402** and/or, more generally, the base **1302** of the griddle **104** on, above, or at the cookbox **102** of the grill **100**, and/or on, above, or at the upper rim **140** of the grill **100**. In this regard, respective ones of the griddle support members **1404** of the griddle **104** are configured to be received by and/or to otherwise engage corresponding ones of the griddle docking openings **358** of the cookbox **102** of the grill **100**. In the illustrated example of FIGS. **13** and **14**, the griddle **104** includes a total of four griddle support members **1404** configured to be received by and/or to otherwise engage a total of four griddle docking openings **358**. In other examples, the griddle **104** can instead include a different number (e.g., two, three, five, six, etc.) of griddle support members **1404**, and the cookbox **102** can similarly include a corresponding different number (e.g., two, three, five, six, etc.) of griddle docking openings **358**.

[0099] The griddle **104** further includes a plurality of example anti-warping braces **1406** coupled to and extending downwardly from the underside **1402** of the base **1302** of the griddle **104**. The anti-warping braces **1406** are configured to support, strengthen, and/or brace the underside **1402** and/or, more generally, the base **1302** of the griddle **104** to limit and/or prevent any buckling and/or warping thereof. As shown in FIGS. **13** and **14**, the anti-warping braces **1406** are arranged in a right-to-left orientation along the underside **1402** of the base **1302** of the griddle **104**. In other examples, the anti-warping braces **1406** can instead be arranged in a different orientation (e.g., a front-to-rear orientation, a diagonal orientation, etc.) along the underside **1402** of the base **1302** of the griddle **104**. In the illustrated example of FIGS. **13** and **14**, the griddle **104** includes a total of three anti-warping braces **1406**. In other examples, the griddle **104** can instead include a different number (e.g., one, two, four, etc.) of anti-warping braces **1406**. In the illustrated example of FIGS. **13** and **14**, the each one of the anti-warping braces **1406** has a C-shaped cross-sectional profile. In other examples, one or more of the anti-warping braces **1406** can instead have a cross-section profile of a different shape (e.g., a V-shaped cross-sectional profile).

[0100] In the illustrated example of FIGS. **13** and **14**, the flat top cooking surface **1304** and/or, more generally, the base **1302** of the griddle **104** has a width (e.g., measured between the right side

lip **1310** to the left side lip **1312**) of approximately 30.0 inches, a depth (e.g., measured between the front lip **1306** and the rear lip **1308**) of approximately 18.0 inches, and an associated total area (e.g., calculated as width multiplied by depth) of approximately 540.0 square inches. In other examples, the width, the depth, and/or the total area of the flat top cooking surface **1304** can differ from the above-described dimensions.

[0101] FIG. **15** is a perspective view showing the first burner tube **206** of the grill **100** of FIGS. **1** and **2** in isolation. FIG. **16** is a top view of the first burner tube **206** of FIG. **15**. FIG. **17** is a bottom view of the first burner tube **206** of FIGS. **15** and **16**. FIG. **18** is a right side view of the first burner tube **206** of FIGS. **15-17**. FIG. **19** is a cross-sectional view of the first burner tube **206** of FIGS. **15-18** taken along section A-A of FIG. **16**. The construction of the second burner tube **208** and the third burner tube **210** of the grill **100** of FIGS. **1** and **2** is substantially identical to that of the first burner tube **206** as described herein in connection with FIGS. **15-19**.

[0102] As shown in FIGS. **15-19**, the first burner tube **206** includes an example first end **1502** (e.g., a front end), an example second end **1504** (e.g., a rear end), an example outer wall **1506** extending between the first end **1502** and the second end **1504**, and an example central axis **1508** extending between the first end **1502** and the second end **1504**. The first end **1502** of the first burner tube **206** is partially open, with the first end **1502** being configured to receive an outlet of a control valve (e.g., the outlet of the first control valve **214**) located proximate the front wall **304** of the cookbox **102**. The second end **1504** of the first burner tube **206** is closed, with the second end **1504** being configured to be coupled to a mounting flange located proximate the rear wall **306** of the cookbox **102**. The first burner tube **206** is accordingly configured to be arranged in a front-to-rear orientation when disposed in the cookbox **102**. In the illustrated example of FIGS. **15-19**, the first burner tube **206** is structured as a linear burner tube having a circular cross-sectional profile. In other example, the first burner tube **206** can instead be structured as a linear burner tube having a different cross-sectional profile (e.g., a rectangular cross-sectional profile, an oval-shaped cross-sectional profile, a triangular cross-sectional profile, a trapezoidal cross-sectional profile, etc.). In still other examples, the first burner tube **206** can instead be structured as a non-linear burner tube having one or more bend(s) and/or curve(s) formed therein.

[0103] The first burner tube **206** of FIGS. **15-19** includes a plurality of ports formed in and extending through the outer wall **1506** of the first burner tube **206**. As shown in FIGS. **15-19**, the plurality of ports includes an example first row of ports **1510**, an example second row of ports **1512**, an example third row of ports **1514**, and an example fourth row of ports **1516**. The first row of ports **1510** is arranged parallel to the central axis **1508**. The second row of ports **1512** is also arranged parallel to the central axis **1508**, with the second row of ports **1512** being spaced apart from (e.g., angularly displaced from) the first row of ports **1510** about the perimeter (e.g., about the circumference) of the outer wall **1506** of the first burner tube **206**. The third row of ports **1514** is arranged perpendicular to the central axis **1508**. The fourth row of ports **1516** is also arranged perpendicular to the central axis **1508**, with the fourth row of ports **1516** being spaced apart from (e.g., longitudinally displaced from) the third row of ports **1514** along the central axis **1508** of the first burner tube **206**. In the illustrated example of FIGS. **15-19**, the third row of ports **1514** is located proximate the first end **1502** (e.g., the front end) of the first burner tube **206**, and the fourth row of ports **1516** is located proximate the second end **1504** (e.g., the rear end) of the first burner tube **206**. The first burner tube **206** can include additional ports and/or additional rows of ports relative to those described above. For example, as shown in FIGS. **15-19**, the first burner tube **206** further includes an example fifth row of ports **1518** arranged perpendicular to the central axis **1508**, with the fifth row of ports **1518** being spaced apart from and proximate to the third row of ports **1514**.

[0104] As shown in FIGS. **15-19**, the outer wall **1506** of the first burner tube **206** has a circular cross-sectional profile. The second row of ports **1512** is angularly displaced from the first row of ports **1510** about the circumference of the outer wall **1506** by an example angle **1902** measuring

approximately 120.0 degrees. In other examples, the angle **1902** at which the second row of ports **1512** is angularly displaced from the first row of ports **1510** about the circumference of the outer wall **1506** can be between 90.0 and 150.0 degrees. Satisfaction of the above-described range of the angle **1902** at which the second row of ports **1512** is angularly displaced from the first row of ports **1510** about the circumference of the outer wall **1506** advantageously improves the operating efficiency of the cooking engine of the grill **100**, and also improves the heat distribution properties associated with the griddle **104** of the grill **100**. In this regard, satisfaction of the above-described range of the angle **1902** at which the second row of ports **1512** is angularly displaced from the first row of ports **1510** about the circumference of the outer wall **1506** advantageously assists in minimizing any temperature variation across the flat top cooking surface **1304** of the griddle **104** during cooking operations performed thereon.

[0105] The first burner tube **206** of FIGS. **15-19** is further configured such that the third row of ports **1514** of the first burner tube **206** is spaced apart from the first end **1502** (e.g., the front end) of the first burner tube **206** by an example distance **1602** of approximately 4.4 inches. In other examples, the distance **1602** between the third row of ports **1514** and the first end **1502** of the first burner tube **206** can be between 1.0 and 6.0 inches. Satisfaction of the above-described range of the distance **1602** between the third row of ports **1514** and the first end **1502** of the first burner tube **206** advantageously improves the operating efficiency of the cooking engine of the grill **100**, and also improves the heat distribution properties associated with the griddle **104** of the grill **100**. In this regard, satisfaction of the above-described range of the distance **1602** between the third row of ports **1514** and the first end **1502** of the first burner tube **206** advantageously assists in minimizing any temperature variation across the flat top cooking surface **1304** of the griddle **104** during cooking operations performed thereon.

[0106] The first burner tube **206** of FIGS. **15-19** is further configured such that the fourth row of ports **1516** of the first burner tube **206** is spaced apart from the second end **1504** (e.g., the rear end) of the first burner tube **206** by an example distance **1604** of approximately 1.8 inches. In other examples, the distance **1604** between the fourth row of ports **1516** and the second end **1504** of the first burner tube **206** can be between 1.0 and 6.0 inches. Satisfaction of the above-described range of the distance **1604** between the fourth row of ports **1516** and the second end **1504** of the first burner tube **206** advantageously improves the operating efficiency of the cooking engine of the grill **100**, and also improves the heat distribution properties associated with the griddle **104** of the grill **100**. In this regard, satisfaction of the above-described range of the distance **1604** between the fourth row of ports **1516** and the second end **1504** of the first burner tube **206** advantageously assists in minimizing any temperature variation across the flat top cooking surface **1304** of the griddle **104** during cooking operations performed thereon.

[0107] In the illustrated example of FIGS. **15-19**, the first burner tube **206** has a length of approximately 18.6 inches measured along the central axis **1508** from the first end **1502** (e.g., the front end) to the second end **1504** (e.g., the rear end) of the first burner tube **206**. In other examples, the first burner tube **206** can instead have a length that is substantially greater than or substantially less than 18.6 inches. In the illustrated example of FIGS. **15-19**, the outer wall **1506** of the first burner tube **206** has a diameter of approximately 1.0 inches measured across the circular cross-sectional profile of the outer wall **1506**. In other examples, the first burner tube **206** can instead have a diameter that is substantially greater than or substantially less than 1.0 inches. In the illustrated example of FIGS. **15-19**, each one of the ports formed in and extending through the outer wall **1506** of the first burner tube **206** has a diameter ranging between approximately 0.07 inches and 0.08 inches measured across the circular outlet opening of the port. In other examples, one or more of the ports formed in and extending through the outer wall **1506** of the first burner tube **206** can instead have a diameter that is substantially less than 0.07 inches or substantially greater than 0.08 inches.

[0108] FIG. **20** is a front view showing the grill **100** of FIGS. **1** and **2**, with the frame **122**, the lid

136, and certain other structural features of the grill **100** omitted for enhanced viewability. FIG. **21** is a right side view of the grill **100** of FIG. **20**. FIG. **22** is a top view of the grill **100** of FIGS. **20** and **21**. FIG. **23** is a cross-sectional view of the grill **100** of FIGS. **20-22** taken along section B-B of FIG. **22**. FIG. **24** is a cross-sectional view of the grill **100** of FIGS. **20-23** taken along section C-C of FIG. **22**. FIG. **17** is a cross-sectional view of the grill **100** of FIGS. **20-24** taken along section D-D of FIG. **20**.

[0109] As shown in FIGS. **20-25**, the griddle **104** of the grill **100** is disposed on or above the cookbox **102** of the grill **100**. More specifically, the griddle **104** is removably positioned and/or docked on the upper rim **140** of the cookbox **102** via engagement of the griddle support members **1404** of the griddle **104** and the griddle docking openings **358** of the cookbox **102**. As further shown in FIGS. **20-25**, the underside **1402** of the griddle **104** is located between the right sidewall **308** and the left sidewall **310** of the cookbox **102**, and above the front wall **304** and the rear wall **306** of the cookbox **102**. The underside **1402** of the griddle **104** is spaced apart from the lowered portion of the upper surface **318** of the front wall **304** and the upper surface **324** of the rear wall **306** by an example vertical gap **2302** configured to vent heated air generated within the cookbox **102** (e.g., heated air generated via the first burner tube **206**, the second burner tube **208**, and/or the third burner tube **210**). The presence of the vertical gap **2302** in combination with the presence of the first recess **342**, the second recess **344**, the third recess **346**, and the fourth recess **348** advantageously facilitates even and/or uniform venting of heat from the cookbox **102** (e.g., along each of the front wall **304**, the rear wall **306**, the right sidewall **308**, and the left sidewall **310** of the cookbox **102**) relative to the griddle **104** (e.g., along the front lip **1306**, the rear lip **1308**, the right side lip **1310**, and the left side lip **1312** of the griddle **104**).

[0110] In the illustrated example of FIGS. **20-25**, the vertical gap **2302** has a height of approximately 0.02 inches. In other examples, the vertical gap **2302** can have a height between 0.01 and 1.00 inches. Satisfaction of the above-described range of the height of the vertical gap **2302** advantageously improves the operating efficiency of the cooking engine of the grill **100**, and also improves the heat distribution properties associated with the griddle **104** of the grill **100**. In this regard, satisfaction of the above-described range of the height of the vertical gap **2302** advantageously assists in minimizing any temperature variation across the flat top cooking surface **1304** of the griddle **104** during cooking operations performed thereon.

[0111] As shown in FIGS. **20-25**, the burner tubes (e.g., the first burner tube **206**, the second burner tube **208**, and the third burner tube **210**) of the grill **100** are disposed within the cookbox **102** of the grill **100** at a location between the bottom wall **302** of the cookbox **102** and the underside **1402** of the griddle **104**. More specifically, the burner tubes (e.g., the first burner tube **206**, the second burner tube **208**, and the third burner tube **210**) of the grill **100** are disposed within the cookbox **102** of the grill **100** at a location between the bottom wall **302** of the cookbox **102** and the upper rim **140** of the cookbox **102**, with respective ones of the burner tubes being laterally spaced apart from one another and arranged in a front-to-rear orientation. As shown in FIGS. **20-25**, the first burner tube **206** is laterally positioned to the right side of the first air intake opening **312** formed in the bottom wall **302** of the cookbox **102**. The second burner tube **208** is laterally positioned to the left side of the first air intake opening **312** formed in the bottom wall **302** of the cookbox **102** and to the right side of the second air intake opening **314** formed in the bottom wall **302** of the cookbox **102**. The second burner tube **208** is accordingly located between the first air intake opening **312** and the second air intake opening **314** formed in the bottom wall **302** of the cookbox **102**, such that the second burner tube **208** is laterally aligned with the solid portion **316** of the bottom wall **302** of the cookbox **102**. The third burner tube **210** is laterally positioned to the left side of the second air intake opening **314** formed in the bottom wall **302** of the cookbox **102**.

[0112] In the illustrated example of FIGS. **20-25**, each of the burner tubes (e.g., the first burner tube **206**, the second burner tube **208**, and the third burner tube **210**) is vertically positioned above the bottom wall **302** of the cookbox **102** by an example distance **2304** of approximately 2.5 inches

measured vertically from the bottom wall **302** of the cookbox **102** to the central axis **1508** of the respective burner tube. In other examples, the distance **2304** at which each of the burner tubes is vertically positioned above the bottom wall **302** of the cookbox **102** can be between 1.5 and 3.5 inches. Satisfaction of the above-described range of the distance **2304** at which each of the burner tubes is vertically positioned above the bottom wall **302** of the cookbox **102** advantageously improves the operating efficiency of the cooking engine of the grill **100**, and also improves the heat distribution properties associated with the griddle **104** of the grill **100**. In this regard, satisfaction of the above-described range of the distance **2304** at which each of the burner tubes is vertically positioned above the bottom wall **302** of the cookbox **102** advantageously assists in minimizing any temperature variation across the flat top cooking surface **1304** of the griddle **104** during cooking operations performed thereon.

[0113] In the illustrated example of FIGS. **20-25**, each of the burner tubes (e.g., the first burner tube **206**, the second burner tube **208**, and the third burner tube **210**) is vertically positioned below the lowered portion of the upper surface **318** of the front wall **304** and/or the upper surface **324** of the rear wall **306** of the cookbox **102** by an example distance **2306** of approximately 3.7 inches measured vertically from the lowered portion of the upper surface **318** of the front wall **304** and/or the upper surface **324** of the rear wall **306** of the cookbox **102** to the central axis **1508** of the respective burner tube. In other examples, the distance **2306** at which each of the burner tubes is vertically positioned below the lowered portion of the upper surface **318** of the front wall **304** and/or the upper surface **324** of the rear wall **306** of the cookbox **102** can be between 2.0 and 5.0 inches. Satisfaction of the above-described range of the distance **2306** at which each of the burner tubes is vertically positioned below the lowered portion of the upper surface **318** of the front wall **304** and/or the upper surface **324** of the rear wall **306** of the cookbox **102** advantageously improves the operating efficiency of the cooking engine of the grill **100**, and also improves the heat distribution properties associated with the griddle **104** of the grill **100**. In this regard, satisfaction of the above-described range of the distance **2306** at which each of the burner tubes is vertically positioned below the lowered portion of the upper surface **318** of the front wall **304** and/or the upper surface **324** of the rear wall **306** of the cookbox **102** advantageously assists in minimizing any temperature variation across the flat top cooking surface **1304** of the griddle **104** during cooking operations performed thereon.

[0114] In the illustrated example of FIGS. **20-25**, each of the burner tubes (e.g., the first burner tube **206**, the second burner tube **208**, and the third burner tube **210**) is vertically positioned below the underside **1402** of the griddle **104** by an example distance **2308** of approximately 3.8 inches measured vertically from the underside **1402** of the griddle **104** to the central axis **1508** of the respective burner tube. In other examples, the distance **2308** at which each of the burner tubes is vertically positioned below the underside **1402** of the griddle **104** can be between 3.0 and 6.0 inches. Satisfaction of the above-described range of the distance **2308** at which each of the burner tubes is vertically positioned below the underside **1402** of the griddle **104** advantageously improves the operating efficiency of the cooking engine of the grill **100**, and also improves the heat distribution properties associated with the griddle **104** of the grill **100**. In this regard, satisfaction of the above-described range of the distance **2308** at which each of the burner tubes is vertically positioned below the underside **1402** of the griddle **104** advantageously assists in minimizing any temperature variation across the flat top cooking surface **1304** of the griddle **104** during cooking operations performed thereon.

[0115] In the illustrated example of FIGS. **20-25**, the third row of ports **1514** formed on the outer wall **1506** of each of the burner tubes (e.g., the first burner tube **206**, the second burner tube **208**, and the third burner tube **210**) is positioned inwardly from the front wall **304** of the cookbox **102** by an example distance **2402** of approximately 1.5 inches measured depthwise (e.g., along the central axis **1508** of the respective burner tube) from the front wall **304** of the cookbox **102** to the third row of ports **1514** of the respective burner tube. In other examples, the distance **2402** at which

the third row of ports **1514** of the respective burner tube is positioned inwardly from the front wall **304** of the cookbox **102** can be between 1.0 and 6.0 inches. Satisfaction of the above-described range of the distance **2402** at which the third row of ports **1514** of the respective burner tube is positioned inwardly from the front wall **304** of the cookbox **102** advantageously improves the operating efficiency of the cooking engine of the grill **100**, and also improves the heat distribution properties associated with the griddle **104** of the grill **100**. In this regard, satisfaction of the above-described range of the distance **2402** at which the third row of ports **1514** of the respective burner tube is positioned inwardly from the front wall **304** of the cookbox **102** advantageously assists in minimizing any temperature variation across the flat top cooking surface **1304** of the griddle **104** during cooking operations performed thereon.

[0116] In the illustrated example of FIGS. **20-25**, the fourth row of ports **1516** formed on the outer wall **1506** of each of the burner tubes (e.g., the first burner tube **206**, the second burner tube **208**, and the third burner tube **210**) is positioned inwardly from the rear wall **306** of the cookbox **102** by an example distance **2404** of approximately 1.8 inches measured depthwise (e.g., along the central axis **1508** of the respective burner tube) from the rear wall **306** of the cookbox **102** to the fourth row of ports **1516** of the respective burner tube. In other examples, the distance **2404** at which the fourth row of ports **1516** of the respective burner tube is positioned inwardly from the rear wall **306** of the cookbox **102** can be between 1.0 and 6.0 inches. Satisfaction of the above-described range of the distance **2404** at which the fourth row of ports **1516** of the respective burner tube is positioned inwardly from the rear wall **306** of the cookbox **102** advantageously improves the operating efficiency of the cooking engine of the grill **100**, and also improves the heat distribution properties associated with the griddle **104** of the grill **100**. In this regard, satisfaction of the above-described range of the distance **2404** at which the fourth row of ports **1516** of the respective burner tube is positioned inwardly from the rear wall **306** of the cookbox **102** advantageously assists in minimizing any temperature variation across the flat top cooking surface **1304** of the griddle **104** during cooking operations performed thereon.

[0117] In the illustrated example of FIGS. **20-25**, the third row of ports **1514** formed on the outer wall **1506** of each of the burner tubes (e.g., the first burner tube **206**, the second burner tube **208**, and the third burner tube **210**) is positioned inwardly from the front lip **1306** of the griddle **104** by an example distance **2406** of approximately 3.3 inches measured depthwise (e.g., along the central axis **1508** of the respective burner tube) from the front lip **1306** of the griddle **104** to the third row of ports **1514** of the respective burner tube. In other examples, the distance **2406** at which the third row of ports **1514** of the respective burner tube is positioned inwardly from the front lip **1306** of the griddle **104** can be between 1.0 and 6.0 inches. Satisfaction of the above-described range of the distance **2406** at which the third row of ports **1514** of the respective burner tube is positioned inwardly from the front lip **1306** of the griddle **104** advantageously improves the operating efficiency of the cooking engine of the grill **100**, and also improves the heat distribution properties associated with the griddle **104** of the grill **100**. In this regard, satisfaction of the above-described range of the distance **2406** at which the third row of ports **1514** of the respective burner tube is positioned inwardly from the front lip **1306** of the griddle **104** advantageously assists in minimizing any temperature variation across the flat top cooking surface **1304** of the griddle **104** during cooking operations performed thereon.

[0118] In the illustrated example of FIGS. **20-25**, the fourth row of ports **1516** formed on the outer wall **1506** of each of the burner tubes (e.g., the first burner tube **206**, the second burner tube **208**, and the third burner tube **210**) is positioned inwardly from the rear lip **1308** of the griddle **104** by an example distance **2408** of approximately 2.7 inches measured depthwise (e.g., along the central axis **1508** of the respective burner tube) from the rear lip **1308** of the griddle **104** to the fourth row of ports **1516** of the respective burner tube. In other examples, the distance **2408** at which the fourth row of ports **1516** of the respective burner tube is positioned inwardly from the rear lip **1308** of the griddle **104** can be between 1.0 and 6.0 inches. Satisfaction of the above-described range of

the distance **2408** at which the fourth row of ports **1516** of the respective burner tube is positioned inwardly from the rear lip **1308** of the griddle **104** advantageously improves the operating efficiency of the cooking engine of the grill **100**, and also improves the heat distribution properties associated with the griddle **104** of the grill **100**. In this regard, satisfaction of the above-described range of the distance **2408** at which the fourth row of ports **1516** of the respective burner tube is positioned inwardly from the rear lip **1308** of the griddle **104** of the cookbox **102** advantageously assists in minimizing any temperature variation across the flat top cooking surface **1304** of the griddle **104** during cooking operations performed thereon.

[0119] In the illustrated example of FIGS. **20-25**, the first recess **342** is configured to vent heated air generated within the cookbox **102** (e.g., heated air generated via the first burner tube **206**, the second burner tube **208**, and/or the third burner tube **210**), with such venting occurring along the front wall **304** of the cookbox **102** at the location of the first recess **342**. The second recess **344** is located opposite the first recess **342**, and is configured to vent heated air generated within the cookbox **102** (e.g., heated air generated via the first burner tube **206**, the second burner tube **208**, and/or the third burner tube **210**), with such venting occurring along the rear wall **306** of the cookbox **102** at the location of the second recess **344**. The third recess **346** is configured to vent heated air generated within the cookbox **102** (e.g., heated air generated via the first burner tube **206**, the second burner tube **208**, and/or the third burner tube **210**), with such venting occurring along the right sidewall **308** of the cookbox **102** at the location of the third recess **346**. The fourth recess **348** is located opposite the third recess **346**, and is configured to vent heated air generated within the cookbox **102** (e.g., heated air generated via the first burner tube **206**, the second burner tube **208**, and/or the third burner tube **210**), with such venting occurring along the left sidewall **310** of the cookbox **102** at the location of the fourth recess **348**.

[0120] As further shown in FIGS. **20-25**, the underside **1402** of the griddle **104** extends across and/or covers the first recess **342** formed in the front wall **304** of the cookbox **102** and the second recess **344** formed in the rear wall **306** of the cookbox **102**. In other examples, the underside **1402** of the griddle **104** might not extend across and/or cover the first recess **342** or the second recess **344**. For example, the first recess **342** can be offset from and/or positioned forward of the front lip **1306** of the griddle **104**, and the second recess **344** can be offset from and/or positioned rearward of the rear lip **1308** of the griddle **104**. In the illustrated example of FIGS. **20-25**, the underside **1402** of the griddle **104** does not extend across and/or cover the third recess **346** formed in the right sidewall **308** of the cookbox **102** or the fourth recess **348** formed in the left sidewall **310** of the cookbox **102**. In this regard, the third recess **346** is offset from and/or positioned to the right of the right side lip **1310** of the griddle **104**, and the fourth recess **348** is offset from and/or positioned to the left of the left side lip **1312** of the griddle **104**. In other examples, underside **1402** of the griddle **104** can instead extend across and/or at least partially cover the third recess **346** formed in the right sidewall **308** of the cookbox **102** and/or the fourth recess **348** formed in the left sidewall **310** of the cookbox **102**.

[0121] In the illustrated example of FIGS. **20-25**, the heat shield **202** is coupled (e.g., via the first mounting flange **512** and the second mounting flange **514** of the heat shield **202**) to the bottom wall **302** of the cookbox **102**. The panel **502** of the heat shield **202** is spaced apart from and located below the bottom wall **302** of the cookbox **102**, with the panel **502** extending across the first air intake opening **312** and the second air intake opening **314** formed in the bottom wall **302** of the cookbox **102**. One or more first opening(s) from among the first plurality of openings **524** formed in the panel **502** of the heat shield **202** is/are located below and laterally aligned with the first air intake opening **312** formed in the bottom wall **302** of the cookbox **102**, and one or more second opening(s) from among the second plurality of openings **526** formed in the panel **502** of the heat shield **202** is/are located below and laterally aligned with the second air intake opening **314** formed in the bottom wall **302** of the cookbox **102**.

[0122] As shown in FIG. **24**, the panel **502** of the heat shield **202** is positioned at an angle relative

to the bottom wall **302** of the cookbox **102** such that the front edge **516** of the panel **502** is positioned below the rear edge **518** of the panel **502**, and/or such that the front edge **516** of the panel **502** is spaced away from the bottom wall **302** of the cookbox **102** by a distance that is greater than the distance at which the rear edge **518** of the panel **502** is spaced away from the bottom wall **302** of the cookbox **102**. In other examples, the panel **502** of the heat shield **202** can instead be positioned at an angle relative to the bottom wall **302** of the cookbox **102** such that the front edge **516** of the panel **502** is positioned above the rear edge **518** of the panel **502**, and/or such that the front edge **516** of the panel **502** is spaced away from the bottom wall **302** of the cookbox **102** by a distance that is less than the distance at which the rear edge **518** of the panel **502** is spaced away from the bottom wall **302** of the cookbox **102**. In still other examples, the panel **502** of the heat shield **202** can instead be parallel to the bottom wall **302** of the cookbox **102** such that the front edge **516** and the rear edge **518** of the panel **502** are both spaced away from the bottom wall **302** of the cookbox **102** by the same distance.

[0123] In the illustrated example of FIGS. **20-25**, the first mounting flange **512** of the heat shield **202** is located to the right of the first air intake opening **312**, and the second mounting flange **514** of the heat shield **202** is located to the left of the second air intake opening **314**. The front lip **504** of the heat shield **202** is located forward of both the first air intake opening **312** and the second air intake opening **314**, and the rear lip **506** of the heat shield **202** is located rearward of both the first air intake opening **312** and the second air intake opening **314**. In other examples, the respective positions and/or locations of the first mounting flange **512**, the second mounting flange **514**, the front lip **504**, and/or the rear lip **506** of the heat shield **202** relative to the first air intake opening **312** and/or the second air intake opening **314** of the cookbox **102** may differ from the position(s) and/or the location(s) shown in the example of FIGS. **20-25**.

[0124] In the illustrated example of FIGS. **20-25**, the temperature sensor assembly **204** is coupled to the cookbox **102**. More specifically, the crossbar **702** of the temperature sensor assembly **204** is coupled to the cookbox **102**, with the first end **802** of the crossbar **702** being coupled (e.g., via a first fastener) to the front wall **304** of the cookbox **102**, and with the second end **804** of the crossbar **702** being coupled (e.g., via a second fastener) to the rear wall **306** of the cookbox **102**. The crossbar **702** of the temperature sensor assembly **204** accordingly extends between the front wall **304** and the rear wall **306** of the cookbox **102**. In the illustrated example of FIGS. **20-25**, the first end **802** of the crossbar **702** is located along and/or within the first recess **342** formed in the front wall **304** of the cookbox **102**, and the second end **804** of the crossbar **702** is located along and/or within the second recess **344** formed in the rear wall **306** of the cookbox **102**. In other examples, the first end **802** and the second end **804** of the crossbar **702** can respectively be coupled to the front wall **304** and the rear wall **306** of the cookbox **102** without the first end **802** of the crossbar **702** being located along and/or within the first recess **342** formed in the front wall **304** of the cookbox **102**, and/or without the second end **804** of the crossbar **702** being located along and/or within the second recess **344** formed in the rear wall **306** of the cookbox **102**.

[0125] As shown in FIGS. **23** and **24**, the temperature probe **706** of the temperature sensor assembly **204** is in the lowered position **1000** as a result of the griddle **104** being disposed on the cookbox **102**. In this regard, the force associated with the weight of the griddle **104** contacting the temperature probe **706** causes the temperature probe **706** to be moved (e.g., to be slid) from the raised position **900** shown in FIG. **9** toward and/or into the lowered position **1000** shown in FIGS. **10**, and further visible in FIGS. **23** and **24**. As shown in FIGS. **23** and **24**, the sensing tip **818** of the temperature probe **706** directly contacts the underside **1402** of the griddle **104**, thereby enabling the sensing tip **818** to sense, measure, and/or detect the surface temperature of the underside **1402** of the griddle **104**. The biasing force provided by the resiliency and/or the elasticity of the spring **708** of the temperature sensor assembly **204** advantageously maintains the direct contact between the sensing tip **818** of the temperature probe **706** and the underside **1402** of the griddle **104**, thereby ensuring that the temperature probe **706** is accurately and reliably detecting the surface temperature

of the underside **1402** of the griddle **104**.
[0126] In the illustrated example of FIGS. **20-25**, the temperature probe **706** of the temperature sensor assembly **204** is located above and laterally aligned with the first air intake opening **312** formed in the bottom wall **302** of the cookbox **102**, with the temperature probe **706** being located between the first burner tube **206** and the second burner tube **208** of the grill **100**. In other examples, the temperature probe **706** of the temperature sensor assembly **204** can instead be located above and laterally aligned with the second air intake opening **314** formed in the bottom wall **302** of the cookbox **102**, with the temperature probe **706** being located between the second burner tube **208** and the third burner tube **210** of the grill **100**. In still other examples, the temperature probe **706** of the temperature sensor assembly **204** can instead be located above and laterally aligned with a solid portion of the bottom wall **302** of the cookbox **102**, including either the solid portion **316** that is located between the first air intake opening **312** and the second air intake opening **314**, a solid portion that is located to the right of the first air intake opening **312**, or a solid portion that is located to the left of the second air intake opening **314**.
[0127] The grill **100** of FIGS. **1-25** is configured for optimum efficiency and optimum heat distribution during cooking operations performed on the flat top cooking surface **1304** of the griddle **104**. More specifically, the grill **100** is configured to minimize any temperature variation across the flat top cooking surface **1304** of the griddle **104** during cooking operations performed thereon. As shown in FIG. **22**, the flat top cooking surface **1304** of the griddle **104** includes an example central portion **2202** that is bounded and/or circumscribed by an example peripheral portion **2204**. In the illustrated example, the peripheral portion **2204** of the flat top cooking surface **1304** extends approximately three inches inwardly from each of the four surrounding lips of the griddle **104** (e.g., the front lip **1306**, the rear lip **1308**, the right side lip **1310**, and the left side lip **1312**). The grill **100** of FIGS. **1-25** is configured such that the average temperature within the central portion **2202** of the flat top cooking surface **1304** of the griddle **104** is approximately 375 degrees Fahrenheit (375° F.) when the burner tubes (e.g., the first burner tube **206**, the second burner tube **208**, and the third burner tube **210**) of the grill **100** are adjusted to a LOW output setting, approximately 420 degrees Fahrenheit (420° F.) when the burner tubes of the grill **100** are adjusted to a MEDIUM output setting, and approximately 560 degrees Fahrenheit (560° F.) when the burner tubes of the grill **100** are adjusted to a HI output setting. As a result of implementing the innovative heat distribution features described above, the grill **100** of FIGS. **1-25** is advantageously configured such that the average temperature variation between the central portion **2202** and the peripheral portion **2204** of the flat top cooking surface **1304** of the griddle **104** is approximately 60 degrees Fahrenheit (60° F.) or less when the burner tubes of the grill **100** are adjusted to a LOW output setting, approximately 90 degrees Fahrenheit (90° F.) or less when the burner tubes of the grill **100** are adjusted to a MEDIUM output setting, and approximately 140 degrees Fahrenheit (140° F.) or less when the burner tubes of the grill **100** are adjusted to a HI output setting. The above-described temperature variations are substantially less than those found in many commercially available flat top gas grills, some of which produce flat top cooking surface temperature variations exceeding two hundred degrees Fahrenheit (200° F.) when the burner tubes of the flat top gas grill are adjusted to a common output setting.
[0128] The following paragraphs provide various examples in relation to the disclosed flat top gas grills including cooking engines configured for optimum heat distribution.
[0129] Example 1 includes a grill. In Example 1, the grill includes a cookbox, a heat shield, a griddle, and a plurality of burner tubes. The cookbox includes a bottom wall, a front wall, a rear wall, a right sidewall, and a left sidewall. The front wall, the rear wall, the right sidewall, and the left sidewall extend upwardly from the bottom wall. The cookbox further includes a plurality of air intake openings extending though the bottom wall. The heat shield includes a panel spaced apart from and located below the bottom wall of the cookbox. The panel extends across the plurality of air intake openings. The griddle is disposed on or above the cookbox. The griddle includes a flat

top cooking surface and an underside located opposite the flat top cooking surface.
[0130] The burner tubes are disposed in the cookbox and located between the bottom wall of the cookbox and the underside of the griddle.
[0131] Example 2 includes the grill of Example 1. In Example 2, the heat shield includes a plurality of openings extending through the panel.
[0132] Example 3 includes the grill of Example 1. In Example 3, the panel of the heat shield is positioned at an angle relative to the bottom wall of the cookbox. A front edge of the panel is positioned below a rear edge of the panel.
[0133] Example 4 includes the grill of Example 1. In Example 4, the heat shield includes a first mounting flange and a second mounting flange respectively configured to couple the heat shield to the bottom wall of the cookbox.
[0134] Example 5 includes the grill of Example 1. In Example 5, the plurality of burner tubes includes a first burner tube, a second burner tube laterally spaced apart from the first burner tube, and a third burner tube laterally spaced apart from both the first burner tube and the second burner tube. In Example 5, the plurality of air intake openings includes a first air intake opening and a second air intake opening laterally spaced apart from the first air intake opening. The first air intake opening is laterally positioned between the first burner tube and the second burner tube, and the second air intake opening is laterally positioned between the second burner tube and the third burner tube.
[0135] Example 6 includes the grill of Example 5. In Example 6, the heat shield includes a first plurality of openings and a second plurality of openings respectively extending through the panel. The second plurality of openings is laterally spaced apart from the first plurality of openings. The first plurality of openings includes one or more first openings laterally aligned with the first air intake opening. The second plurality of openings includes one or more second openings laterally aligned with the second air intake opening.
[0136] Example 7 includes the grill of Example 1. In Example 7, the front wall, the rear wall, the right sidewall, and the left sidewall define an upper rim of the cookbox. The upper rim includes at least one recess configured to vent heat generated within the cookbox.
[0137] Example 8 includes the grill of Example 7. In Example 8, the at least one recess includes a first recess located along an inner edge of an upper surface of the front wall, a second recess located along an inner edge of an upper surface of the rear wall, a third recess located along an inner edge of an upper surface of the right sidewall, and a fourth recess located along an inner edge of an upper surface of the left sidewall.
[0138] Example 9 includes the grill of Example 8. In Example 9, the first recess extends between the upper surface of the front wall and an inner surface of the front wall, the second recess extends between the upper surface of the rear wall and an inner surface of the rear wall, the third recess extends between the upper surface of the right sidewall and an inner surface of the right sidewall, and the fourth recess extends between the upper surface of the left sidewall and an inner surface of the left sidewall.
[0139] Example 10 includes the grill of Example 1. In Example 10, the grill further includes a temperature sensor assembly coupled to the cookbox. The temperature sensor assembly includes a temperature probe configured to contact the underside of the griddle. The temperature probe is movable relative to the cookbox between a raised position and a lowered position. The temperature probe is biased into the raised position via a spring of the temperature sensor assembly.
[0140] Example 11 includes the grill of Example 10. In Example 11, the temperature sensor assembly further includes a crossbar and a mounting bracket. The crossbar is coupled to and extends between the front wall and the rear wall of the cookbox. The mounting bracket is coupled to the crossbar. The mounting bracket includes an upper flange and a lower flange spaced apart from the upper flange. The temperature probe is slidingly received in the mounting bracket via an opening formed in the upper flange and an opening formed in the lower flange. The temperature

probe includes a retention flange located between the upper flange and the lower flange. The spring is operatively positioned between the retention flange of the temperature probe and the lower flange of the mounting bracket such that the spring biases the retention flange of the temperature probe toward the upper flange of the mounting bracket.

[0141] Example 12 includes the grill of Example 1. In Example 12, the bottom wall has a total area defined by a width extending between the right sidewall and the left sidewall and a depth extending between the front wall and the rear wall. Each one of the plurality of air intake openings has an associated area. The respective associated areas of the plurality of air intake openings collectively define an unoccupied area of the bottom wall. The unoccupied area is between 10.0 and 30.0 percent of the total area.

[0142] Example 13 includes the grill of Example 1. In Example 13, the plurality of burner tubes includes a linear burner tube having a central axis vertically positioned between 1.5 and 3.5 inches above the bottom wall of the cookbox, and vertically positioned between 3.0 and 6.0 inches below the underside of the griddle.

[0143] Example 14 includes the grill of Example 1. In Example 14, the plurality of burner tubes includes a linear burner tube having a central axis, an outer wall, a first row of ports extending through the outer wall and arranged parallel to the central axis, and a second row of ports extending through the outer wall and arranged parallel to the central axis. The second row of ports is spaced apart from the first row of ports. The outer wall of the linear burner tube has a circular cross-sectional profile. The second row of ports is angularly displaced from the first row of ports by an angle between 90.0 and 150.0 degrees.

[0144] Example 15 includes the grill of Example 14. In Example 15, the linear burner tube further includes a third row of ports extending through the outer wall and arranged perpendicular to the central axis, and a fourth row of ports extending through the outer wall and arranged perpendicular to the central axis. The fourth row of ports is spaced apart from the third row of ports. The third row of ports is located between 1.0 and 6.0 inches inwardly from the front wall of the cookbox, and the fourth row of ports is located between 1.0 and 6.0 inches inwardly from the rear wall of the cookbox.

[0145] Example 16 includes a grill. In Example 16, the grill includes a cookbox, a griddle, and a plurality of burner tubes. The cookbox includes a bottom wall, a front wall, a rear wall, a right sidewall, and a left sidewall. The front wall, the rear wall, the right sidewall, and the left sidewall extend upwardly from the bottom wall and define an upper rim of the cookbox. The upper rim includes at least one recess configured to vent heat generated within the cookbox. The griddle is disposed on or above the cookbox. The griddle includes a flat top cooking surface and an underside located opposite the flat top cooking surface. The burner tubes are disposed in the cookbox and located between the bottom wall of the cookbox and the underside of the griddle.

[0146] Example 17 includes the grill of Example 16. In Example 17, the at least one recess includes a first recess located along an inner edge of an upper surface of the front wall, a second recess located along an inner edge of an upper surface of the rear wall, a third recess located along an inner edge of an upper surface of the right sidewall, and a fourth recess located along an inner edge of an upper surface of the left sidewall.

[0147] Example 18 includes the grill of Example 17. In Example 18, the first recess extends between the upper surface of the front wall and an inner surface of the front wall, the second recess extends between the upper surface of the rear wall and an inner surface of the rear wall, the third recess extends between the upper surface of the right sidewall and an inner surface of the right sidewall, and the fourth recess extends between the upper surface of the left sidewall and an inner surface of the left sidewall.

[0148] Example 19 includes a grill. In Example 19, the grill includes a cookbox, a griddle, a plurality of burner tubes, and a temperature sensor assembly. The cookbox includes a bottom wall, a front wall, a rear wall, a right sidewall, and a left sidewall. The front wall, the rear wall, the right

sidewall, and the left sidewall extend upwardly from the bottom wall. The griddle is disposed on or above the cookbox. The griddle includes a flat top cooking surface and an underside located opposite the flat top cooking surface. The burner tubes are disposed in the cookbox and located between the bottom wall of the cookbox and the underside of the griddle. The temperature sensor assembly is coupled to the cookbox. The temperature sensor assembly includes a temperature probe configured to contact the underside of the griddle. The temperature probe is movable relative to the cookbox between a raised position and a lowered position. The temperature probe is biased into the raised position via a spring of the temperature sensor assembly.

[0149] Example 20 includes the grill of Example 19. In Example 20, the temperature sensor assembly further includes a crossbar and a mounting bracket. The crossbar is coupled to and extends between the front wall and the rear wall of the cookbox. The mounting bracket is coupled to the crossbar. The mounting bracket includes an upper flange and a lower flange spaced apart from the upper flange. The temperature probe is slidingly received in the mounting bracket via an opening formed in the upper flange and an opening formed in the lower flange. The temperature probe includes a retention flange located between the upper flange and the lower flange. The spring is operatively positioned between the retention flange of the temperature probe and the lower flange of the mounting bracket such that the spring biases the retention flange of the temperature probe toward the upper flange of the mounting bracket.

[0150] Although certain example apparatus, systems, methods, and articles of manufacture have been disclosed herein, the scope of coverage of this patent is not limited thereto. On the contrary, this patent covers all apparatus, systems, methods, and articles of manufacture fairly falling within the scope of the claims of this patent.

[0151] The following claims are hereby incorporated into this Detailed Description by this reference, with each claim standing on its own as a separate embodiment of the present disclosure.

Claims

1. A grill, comprising: a cookbox including a bottom wall, a front wall, a rear wall, a right sidewall, and a left sidewall, the front wall, the rear wall, the right sidewall, and the left sidewall extending upwardly from the bottom wall, the cookbox further including a plurality of air intake openings extending though the bottom wall; a heat shield including a panel spaced apart from and located below the bottom wall of the cookbox, the panel extending across the plurality of air intake openings; a griddle disposed on or above the cookbox, the griddle including a flat top cooking surface and an underside located opposite the flat top cooking surface; and a plurality of burner tubes disposed in the cookbox and located between the bottom wall of the cookbox and the underside of the griddle.

2. The grill of claim 1, wherein the heat shield includes a plurality of openings extending through the panel.

3. The grill of claim 1, wherein the panel of the heat shield is positioned at an angle relative to the bottom wall of the cookbox, wherein a front edge of the panel is positioned below a rear edge of the panel.

4. The grill of claim 1, wherein the heat shield includes a first mounting flange and a second mounting flange respectively configured to couple the heat shield to the bottom wall of the cookbox.

5. The grill of claim 1, wherein the plurality of burner tubes includes a first burner tube, a second burner tube laterally spaced apart from the first burner tube, and a third burner tube laterally spaced apart from both the first burner tube and the second burner tube, wherein the plurality of air intake openings includes a first air intake opening and a second air intake opening laterally spaced apart from the first air intake opening, wherein the first air intake opening is laterally positioned between the first burner tube and the second burner tube, and the second air intake opening is laterally

positioned between the second burner tube and the third burner tube.

6. The grill of claim 5, wherein the heat shield includes a first plurality of openings and a second plurality of openings respectively extending through the panel, wherein the second plurality of openings is laterally spaced apart from the first plurality of openings, wherein the first plurality of openings includes one or more first openings laterally aligned with the first air intake opening, wherein the second plurality of openings includes one or more second openings laterally aligned with the second air intake opening.

7. The grill of claim 1, wherein the front wall, the rear wall, the right sidewall, and the left sidewall define an upper rim of the cookbox, the upper rim including at least one recess configured to vent heat generated within the cookbox.

8. The grill of claim 7, wherein the at least one recess includes a first recess located along an inner edge of an upper surface of the front wall, a second recess located along an inner edge of an upper surface of the rear wall, a third recess located along an inner edge of an upper surface of the right sidewall, and a fourth recess located along an inner edge of an upper surface of the left sidewall.

9. The grill of claim 8, wherein the first recess extends between the upper surface of the front wall and an inner surface of the front wall, the second recess extends between the upper surface of the rear wall and an inner surface of the rear wall, the third recess extends between the upper surface of the right sidewall and an inner surface of the right sidewall, and the fourth recess extends between the upper surface of the left sidewall and an inner surface of the left sidewall.

10. The grill of claim 1, further comprising a temperature sensor assembly coupled to the cookbox, the temperature sensor assembly including a temperature probe configured to contact the underside of the griddle, the temperature probe movable relative to the cookbox between a raised position and a lowered position, the temperature probe biased into the raised position via a spring of the temperature sensor assembly.

11. The grill of claim 10, wherein the temperature sensor assembly further includes: a crossbar coupled to and extending between the front wall and the rear wall of the cookbox; and a mounting bracket coupled to the crossbar, the mounting bracket including an upper flange and a lower flange spaced apart from the upper flange, wherein the temperature probe is slidingly received in the mounting bracket via an opening formed in the upper flange and an opening formed in the lower flange, the temperature probe including a retention flange located between the upper flange and the lower flange, wherein the spring is operatively positioned between the retention flange of the temperature probe and the lower flange of the mounting bracket such that the spring biases the retention flange of the temperature probe toward the upper flange of the mounting bracket.

12. The grill of claim 1, wherein the bottom wall has a total area defined by a width extending between the right sidewall and the left sidewall and a depth extending between the front wall and the rear wall, wherein each one of the plurality of air intake openings has an associated area, wherein the respective associated areas of the plurality of air intake openings collectively define an unoccupied area of the bottom wall, and wherein the unoccupied area is between 10.0 and 30.0 percent of the total area.

13. The grill of claim 1, wherein the plurality of burner tubes includes a linear burner tube having a central axis vertically positioned between 1.5 and 3.5 inches above the bottom wall of the cookbox, and vertically positioned between 3.0 and 6.0 inches below the underside of the griddle.

14. The grill of claim 1, wherein the plurality of burner tubes includes a linear burner tube having a central axis, an outer wall, a first row of ports extending through the outer wall and arranged parallel to the central axis, and a second row of ports extending through the outer wall and arranged parallel to the central axis, the second row of ports spaced apart from the first row of ports, wherein the outer wall of the linear burner tube has a circular cross-sectional profile, and wherein the second row of ports is angularly displaced from the first row of ports by an angle between 90.0 and 150.0 degrees.

15. The grill of claim 14, wherein the linear burner tube further includes a third row of ports

extending through the outer wall and arranged perpendicular to the central axis, and a fourth row of ports extending through the outer wall and arranged perpendicular to the central axis, the fourth row of ports spaced apart from the third row of ports, wherein the third row of ports is located between 1.0 and 6.0 inches inwardly from the front wall of the cookbox, and the fourth row of ports is located between 1.0 and 6.0 inches inwardly from the rear wall of the cookbox.

16. A grill, comprising: a cookbox including a bottom wall, a front wall, a rear wall, a right sidewall, and a left sidewall, the front wall, the rear wall, the right sidewall, and the left sidewall extending upwardly from the bottom wall and defining an upper rim of the cookbox, the upper rim including at least one recess configured to vent heat generated within the cookbox; a griddle disposed on or above the cookbox, the griddle including a flat top cooking surface and an underside located opposite the flat top cooking surface; and a plurality of burner tubes disposed in the cookbox and located between the bottom wall of the cookbox and the underside of the griddle.

17. The grill of claim 16, wherein the at least one recess includes a first recess located along an inner edge of an upper surface of the front wall, a second recess located along an inner edge of an upper surface of the rear wall, a third recess located along an inner edge of an upper surface of the right sidewall, and a fourth recess located along an inner edge of an upper surface of the left sidewall.

18. The grill of claim 17, wherein the first recess extends between the upper surface of the front wall and an inner surface of the front wall, the second recess extends between the upper surface of the rear wall and an inner surface of the rear wall, the third recess extends between the upper surface of the right sidewall and an inner surface of the right sidewall, and the fourth recess extends between the upper surface of the left sidewall and an inner surface of the left sidewall.

19. A grill, comprising: a cookbox including a bottom wall, a front wall, a rear wall, a right sidewall, and a left sidewall, the front wall, the rear wall, the right sidewall, and the left sidewall extending upwardly from the bottom wall; a griddle disposed on or above the cookbox, the griddle including a flat top cooking surface and an underside located opposite the flat top cooking surface; a plurality of burner tubes disposed in the cookbox and located between the bottom wall of the cookbox and the underside of the griddle; and a temperature sensor assembly coupled to the cookbox, the temperature sensor assembly including a temperature probe configured to contact the underside of the griddle, the temperature probe movable relative to the cookbox between a raised position and a lowered position, the temperature probe biased into the raised position via a spring of the temperature sensor assembly.

20. The grill of claim 19, wherein the temperature sensor assembly further includes: a crossbar coupled to and extending between the front wall and the rear wall of the cookbox; and a mounting bracket coupled to the crossbar, the mounting bracket including an upper flange and a lower flange spaced apart from the upper flange, wherein the temperature probe is slidingly received in the mounting bracket via an opening formed in the upper flange and an opening formed in the lower flange, the temperature probe including a retention flange located between the upper flange and the lower flange, wherein the spring is operatively positioned between the retention flange of the temperature probe and the lower flange of the mounting bracket such that the spring biases the retention flange of the temperature probe toward the upper flange of the mounting bracket.