

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

LOCO CRAZY GOOD COOKERS, INC

Petitioner,

v.

NORTH ATLANTIC IMPORTS, LLC

Patent Owner.

IPR2024-00642

U.S. Patent No. 10,660,473

DECLARATION OF DR. GLENN E. VALLEE

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I, Glenn E. Vallee, declare as follows:

I. INTRODUCTION

1. I have been retained on behalf of Loco Crazy Good Cookers, Inc. (collectively “Loco Cookers”) in connection with the above captioned *Inter Partes* Review (IPR) of U.S. Patent No. 10,660,473 (‘473 Patent). I have been asked to study and provide my opinions as an independent expert witness regarding technology described in the ‘473 Patent. I am being compensated at my usual and customary rate for my time. Such compensation, however, does not influence my opinion nor does the outcome of this proceeding impact my compensation.

A. Qualifications

2. My qualifications and professional experience are described in my curriculum vitae. I have been informed that a copy of my curriculum vitae will be submitted with my declaration. The following is a summary of my relevant qualifications and professional experience.

3. I am employed by Western New England University as an Associate Professor and Chair of Mechanical Engineering. My background is in the areas of mechanical engineering, design, product development, and quality assurance. I have a Ph.D. in Mechanical Engineering from the University of Rhode Island. I teach courses in Mechanical Design, Kinematics, Vibrations, Mechanics of Materials, and a Product Development and Innovation (PDI) course where students design consumer products having commercial potential. Six utility patents have been filed

for student inventions developed in the course. I also teach undergraduate engineers how to design products having a number of electrical and mechanical features such as methods of connecting components connections and heating elements. Finally, I teach laboratory courses where students utilize a variety of electrical transducers and data acquisition systems. I also serve as a consultant in the areas of mechanical engineering design, product development, numerical stress analysis, and mechanical testing, as well as serving as a technical expert in product liability litigation. I am a member of the American Society of Mechanical Engineers (ASME member no. 1259837), and I am a licensed Professional Engineer (RI Lic. No. 6765).

4. As set forth in more detail in my curriculum vitae, I have substantial expertise in the areas of mechanical engineering, consumer product design and development, quality assurance, mechanical testing, and the design of a wide variety of products containing heating mechanisms and air flow. Prior to joining Western New England University, I served as the Director of Engineering and Quality Assurance, Worldwide for the Remington Products Company, L.L.C., in Bridgeport, CT, from 1997 until 2002. Remington Products Company is a major manufacturer of consumer products, including electric shavers, beard trimmers, curling irons, hair setters and hair dryers. My responsibilities included directing the activities of Design and Product Engineering, Quality Assurance, and Manufacturing departments in the U.S., U.K., and Asia, responsible for the design and development of international

consumer products, and for focusing new product engineering toward continuously improving customer satisfaction through improved product design, performance, and quality.

5. Prior to my employment at Remington Products, I served as the Manager of the Engineering Laboratories at the Stanley Bostitch Company, now a division of Stanley/Black & Decker. Stanley Bostitch is a leading manufacturer of pneumatic nailers and staplers, a variety of hand tools such as hammer tackers and staplers, and a number of other office products. I was employed by Stanley Bostitch from 1985 until 1997, serving first as a Technician, then Test Engineer, then Product Design/Development Engineer, and was promoted to Manager of the Engineering Laboratories in 1995. During my employment at Stanley Bostitch, I acquired extensive experience in the design and testing of a variety of mechanical, pneumatic and electromechanical products, including pneumatic fastening tools, electric trackers and staplers, electric pencil sharpeners and propane/MAPP gas actuated nailers. My work as a Technician and then Test Engineer allowed me to acquire experience in conducting and developing test methodologies for all products. My work as a Product Design/Development Engineer involved designing and developing products from conception through manufacture and quality control. As the Manager of the Engineering Laboratories, I managed the largest of the Engineering Laboratories in the Stanley Works and supervised 18 employees. This

position required that I coordinate testing and allocate resources to meet stringent scheduling requirements of the Product Development, Manufacturing, and Marketing departments.

6. I am an inventor on nine patents, some of which involve fluid flow and/or the use of heating elements, such as pneumatic nailers and a water purification device. Other patented devices are related to hand tools and surgical devices.

7. I have reviewed many patents as I worked with patent attorneys to file the patent applications discussed above. I have given deposition testimony eight times and I have testified in court four times, each such instance related to product liability litigation where I testified as a technical expert. I have also given deposition testimony a total of 15 times including cases involving a Petition for Inter Partes Review (“IPR”), and I was retained as a technical expert by Char-Broil, LLC in an IPR matter related to barbecue grills. Additionally, I have given testimony as a technical expert regarding: hole saws, accessories for mobile phones, hoverboards, and cases involving patent infringement and/or non-infringement related to e-cigarettes containing heating elements, gas spring-powered nailers, beveling miter saws, and a number of consumer products, including spring-loaded desktop staplers, air mattresses with embedded air pumps, and toy car and track systems.

II. MATERIALS REVIEWED

8. In forming my opinions provided in this declaration, I have read and considered the following. I have also relied on my education, knowledge, and experience in mechanical engineering and consumer products.

Materials Reviewed	
Ex. 1001	U.S. Patent No. 10,660,473
Ex. 1002	[intentionally left blank]
Ex. 1003	Curriculum Vitae of Dr. Glenn E. Vallee
Ex. 1004	Prosecution History of U.S. Patent 10,660,473
Ex. 1005	U.S. Patent 6,389,960 (hereinafter, “Williams”)
Ex. 1006	U.S. Publication No.: US 2013/0112088 (hereinafter, “May”)
Ex. 1007	U.S. Patent 5,676,043 (hereinafter, “Best”)
Ex. 1008	U.S. Patent 5,890,482 (hereinafter, “Farnsworth”)
Ex. 1009	U.S. Patent 4,715,356 (hereinafter, “Reynolds”)
Ex. 1010	U.S. Patent 2,351,130 (hereinafter, “Jones”)
Ex. 1011	U.S. Patent 2,325,828 (hereinafter, “Betts”)
Ex. 1012	U.S. Patent 7,647,866 (hereinafter, “Button”)
Ex. 1013	U.S. Patent 3,747,509 (hereinafter, “Hinkle”)
Ex. 1014	U.S. Patent 2,271,585 (hereinafter, “Fleming”)
Ex. 1015	U.S. Patent 3,006,270 (hereinafter, “Graham”)
Ex. 1016	U.S. Patent 3,225,682 (hereinafter, “Savio”)
Ex. 1017	U.S. Publication No. 2009/0250048 (hereinafter, “Educate”)

Materials Reviewed	
Ex. 1018	Budynas, R.G., Nisbett, K. J.; "Shigley's Mechanical Engineering Design, 10 th ed.", McGraw Hill, 2015 (hereinafter, "Shigley")
Ex. 1019	Star Manufacturing International, Installation and Operating Instructions M-Z16558 Rev. B (2013) (hereinafter, "Star")
Ex. 1020	Dacor, Outdoor Grill Use & Care Materials (2015) (hereinafter, "Dacor")
Ex. 1021	Pasqualone, Antonella, Traditional flat breads spread from the Fertile Crescent: Production process and history of baking systems, Journal of Ethnic Foods Vol 1:5 p. 10-19 (2018) (hereinafter, "Pasqualone").
Ex. 1022	Lyons and D'Andrea, Griddles, Ovens, and Agricultural Origins: An Ethnoarchaeological Study of Bread Baking in Highland Ethiopia, American Anthropologist 105(3):515-530 (2003)(hereinafter, "Lyons").
Ex. 1023	Callister, W.D., Rethwisch, D.G., "Fundamentals of Materials Science and Engineering, an Integrated Approach", Wiley, 2008 (hereinafter, Callister).
Ex. 1024	U.S. Fire Administration Topical Fire Research Series Vol 2:3 (2002).
Ex. 1025	Letter dated Nov. 4, 2022 sent by Brian C. Park to Michael P. Dulin, with subject line "RE: United States Patent No. 10,660,473" including enclosures

III. SUMMARY OF MY OPINIONS

9. I understand the following table summarizes the grounds of challenge ("Grounds") raised in the Petition:

Ground	Prior Art	Basis	Claims Challenged
1	Williams	§103	10-13, 15, 17, 18, and 20
2	Williams in view of Best	§103	10-13, 15, 17, 18 and 20
3	Williams in view of Farnsworth	§103	10-13, 15, 17, 18 and 20
4	Williams in view of May	§103	1-4, 7 and 16
5	Williams in view of May and further in view of Best	§103	1-4, 6-7 and 16
6	Williams in view of May and further in view of Farnsworth	§103	1-4, 7 and 16

10. After a review of the ‘473 Patent and the prior art, it is my opinion that the Challenged Claims are invalid under the proposed Grounds. My opinions, and the bases therefore, are detailed throughout this Declaration.

IV. LEGAL PRINCIPLES

A. Understanding of Patent Law

11. I am not an attorney and will not be offering legal conclusions. However, I have been informed of several principles concerning legal issues relevant to my analysis of the Challenges to the claims of the ‘473 Patent, and I relied on these principles to arrive at my conclusions.

12. I understand a claim is anticipated if all limitations are found in a single prior art reference, arranged as in the claim. The identical invention must be shown in complete detail as is contained in the patent claim.

13. I understand a prior art reference can disclose an element not expressly identified in a reference if the element is “inherently present” in the reference. To be “inherent,” I understand the missing element must necessarily be present in the reference. An element is not “inherent” if the missing element is only probably present or if there is merely a possibility it is present.

14. I understand a claim is invalid as obvious under 35 U.S.C. § 103 if the differences between the subject matter sought to be patented and the prior art are such that the subject matter of the claim as a whole would have been obvious at the

time of the patent's filing date to a Person of Ordinary Skill in The Art (POSITA). It is my understanding that the following factors are used to determine whether or not the claimed subject matter would have been obvious: (i) the scope and content of the prior art; (ii) the differences between the prior art and the claimed invention; (iii) the level of ordinary skill in the field of the invention; and (iv) any relevant objective considerations of non-obviousness.

15. I understand a party asserting obviousness based on a combination of prior art references must demonstrate that one of ordinary skill in the art would have been motivated to combine the teachings of those references to achieve the claimed invention with a reasonable expectation of success. It is my understanding that it is not sufficient to show that one of ordinary skill in the art *could* combine elements of multiple references. Instead, there must be a rational reason that would have prompted a POSITA to combine the elements in the way the claimed invention does; and the reason should be explained or articulated.

16. I understand a combination of references would not have been obvious if the alleged modification(s) to be made to the reference(s) are inconsistent with the stated goals of the reference(s). I understand a combination of references would not have been obvious if the modification of the reference(s) to derive what is claimed would render the reference(s) unsatisfactory or inoperable for their intended

purpose. I further understand the party asserting obviousness must explain why a POSITA would have selected components for combination in the manner claimed.

17. It is my further understanding that an invention would not have necessarily been obvious simply because all the elements of the invention may have been known separately in the prior art; there must be a reason to combine the separately known elements. Obviousness cannot be based on a hindsight combination of components selectively picked from the art using the claims as guide.

B. Claim Construction

18. I understand that claim construction in an IPR proceeding is a legal question for the Patent Trial and Appeal Board (PTAB or Board) to decide. In general, I understand that claim terms are to be given their ordinary and customary meaning to a POSITA in the context of the patent at the time the patent was filed.

19. I also understand that in construing claim terms, the Board asks what the claim terms would mean to a person of ordinary skill in the relevant art in view of the plain claim language and the disclosures of the patent and prosecution history. I understand that the Board may also consider other external evidence, such as dictionaries, however the disclosures in the patent and prosecution history carry more weight than external evidence.

20. As such, any claim term not construed should be given its ordinary and customary meaning as would be understood by one of ordinary skill in the art.

21. I understand that the best source for determining the meaning of a claim is intrinsic evidence—the claims themselves, the written description, and the prosecution history. I also understand that extrinsic evidence, which consists of all evidence external to the patent and prosecution history, may be considered to determine the meaning of a claim term.

22. I have also reviewed a letter and enclosed chart alleging infringement of certain claims of the ‘473 Patent by one of Loco Cookers’ griddles (Model #LCG3ST3C36). The letter was dated November 4, 2022 and sent by Brian Park to Michael Dulin. I have been requested by Loco Cookers’ counsel to assume for this declaration that the scope of the claims of the ‘473 Patent encompasses the features alleged to infringe in this letter. Thus, the analysis provided below reflects my opinions of the prior art in view of the letter’s allegations.

23. In view of the principles described above and the materials I have reviewed, I do not believe any limitations in the claims addressed herein require a specific construction to support the opinions I provide in this declaration.

C. Level of Ordinary Skill in the Art

24. I understand that certain issues in an IPR, such as claim construction and whether a claim is invalid as obvious, are assessed from the view of a hypothetical person of ordinary skill in the relevant art at the time of the invention. I understand there are multiple factors relevant to determining the level of ordinary

skill in the art, including: (1) the level of education and experience of persons working in the field at the time of the invention; (2) the sophistication of the technology; (3) the types of problems encountered in the field; and (4) the prior art solutions to those problems

25. In order to determine the characteristics of a hypothetical POSITA at the time of the claimed invention, I have considered a variety of factors. I have considered the prior art (referred to in the “Materials Considered” section of this declaration) and the various approaches to address the design of griddles disclosed in those prior art documents, the types of problems encountered in the art and the solutions to those problems, the alleged problems encountered by the inventor as described in the ‘473 patent, the sophistication of the technology involved, and the educational background and experience of those actively working in the relevant field at the time of the invention.

26. Additionally, I considered the technology available in 2016 and early 2017, immediately before the filing of the patent application in April 2017, and the professionals with whom I worked during that time, including their levels of education, sophistication, and activities in professional associations. I am informed that such considerations are in accordance with factors identified in case law and typically considered to determine the level of skill in the art.

27. The field of “art” for the ‘473 patent is a cooking device that uses gas burners and ribs to isolate heating zones for the cooking device.

28. In view of the above and based on my experience and knowledge, I believe a hypothetical Person of Ordinary Skill in The Art (POSITA) with regard to the ‘473 patent would have either: (1) a bachelor’s degree in mechanical engineering or a closely related field and at least 2 years of experience in product design and development in the field of griddle cooking stations and/or outdoor cooking grills; or (2) no college degree, but at least 5 years of experience in product design and development in the field of griddle cooking stations and/or outdoor cooking grills.

29. Although I describe the POSITA as of April 2017, it is my further opinion that the fundamental qualifications, attributes, and skills of the person of ordinary skill in the art would have been the same for many years prior to April of 2017 and presently remain the same.

V. THE ‘473 PATENT

A. Priority of ‘473 Patent

30. The ‘473 patent claims priority to U.S. provisional application no. 62/331,673 filed on May 4, 2016. *See* ‘473 Patent.

B. Summary of the ‘473 Patent

31. The ‘473 Patent relates to gas heated outdoor cooking stations and, more specifically, to a griddle cooking station with a controlled heating region and controlled convection heat flow. *See* ‘473 Patent at 1:15-18. The ‘473 Patent

recognizes the need to have certain portions of a cooking surface set at a higher temperature than other portions and further explains the “problem with using a griddle over flame burners, is the convective heat from the flames moves around the entire periphery of the griddle, often times making it difficult to cook effectively or even somewhat dangerous.” ‘473 Patent at 1:45-49 and 1:44-54.

32. The claimed invention is directed to “devices, systems, and methods for maintaining convection heat within a heating region of a griddle.” ‘473 Patent at 1:58-60. Three embodiments of the ‘473 Patent are directed to a cooking system, griddle configuration, and method for selectively heating regions of a griddle and are best represented by claims 1, 10 and 17, respectively. *See, e.g.*, ‘473 Patent.

33. In one claimed configuration, the cooking system includes, “a frame, multiple burners, and a griddle.” ‘473 Patent at 1:61-63. The frame extends with “a front side, a rear side, a left side, and a right side,” extending between a lower and upper portion and contains multiple burners “coupled to and extend[ing] between the front side and the rear side of the frame.” ‘473 Patent at 1:64-67. The griddle features a front rib and multiple lateral ribs extending along the underside of the surface, forming heating regions defined between adjacently extending ribs. *See* ‘473 Patent at 2:4-13. Each heating region is equipped with a burner positioned below it and lateral ribs extend downward to direct convection heat from the burners towards the rear end of the griddle. *See* ‘473 Patent at 2:13-19.

34. In another embodiment of the invention, a griddle is designed to manage convection heat from gas flame burners in a cooking station. *See* ‘473 Patent at 2:50-53 and claim 10. With this arrangement, the lateral ribs direct heat towards the rear end, and away from the rear side of the cooking station. ‘473 Patent at 3:4-9. The front rib and lateral ribs are integral with the underside surface and separate from each other. ‘473 Patent at claim 10.

35. Lastly, an embodiment of the invention is directed to “a method for selectively heating regions of a griddle with convection heat from one or more gas flame burners of an outdoor cooking station.” ‘473 Patent at claim 17. This method includes turning on the gas burners positioned below the griddle’s underside surface, which results in the selective heating of specific regions of the griddle. ‘473 Patent at 3:34.

VI. OVERVIEW OF THE PRIOR ART

36. Before providing a detailed analysis of how the prior art discloses or teaches the limitations of the challenged claims, I provide a brief summary of state of the art and the individual prior art references.

A. Summary of Technology State of the Art

37. The griddle has been used for cooking for centuries, with the first evidence of its use dating back to ancient times. *See e.g.*, Pasqualone. These early griddles, often made of stone, were heated over an open flame. Lyons at 517. A

baking plate consisting of a flat stone slab, or a clay griddle, was placed directly on the embers, which was often used to bake flat breads. Pasqualone at 15. These stones were chosen for their smooth, flat surfaces and ability to absorb and retain heat, ensuring the food was cooked evenly and thoroughly. *Id.* Eventually, these stone griddles were replaced with iron ones. *Id.* Similar to stones, cast iron griddles were heavy and took time to heat up but retained heat well and were ideal for cooking a variety of foods. *Id.* The cast iron griddle remains an essential tool for modern cooks in addition to the numerous other compositions used in griddle construction.

38. Today, griddles, or flattop grills, as the name implies, are typically manufactured as a flat piece of steel but some are slightly convex or sloped which allows excess juices or grease to be captured. Jones at 1:1-12. Flattop griddles can be contrasted with open-flame grills, which cook food over a grate with direct or indirect flame and avoid the problem of smaller or delicate food falling through the grate like open-flame grills. *See e.g.*, Betts. In addition, closed-flame flattop griddles are more energy efficient because they capture the heat under the steel cook surface rather than letting it escape through the grates into the atmosphere. Best at 1:10-25. This design also requires less time to heat up and uses less fuel to cook a meal. *Id.*

39. Several technical considerations must be observed in the design of a griddle. The material composition of the metal and shape features of the griddle are important aspects which not only determine the physical properties of the cooking

surface, but also can impact uniform heating. First, the surface must be smooth, promote uniform heating and maintain contact with food across its cooking surface. Second, it must resist corrosion and be non-reactive with the food which encounters the cooking surface. Additionally, it must be easy to manufacture to reduce fabrication costs; and lastly, it must resist warping which can deform the cooking surface resulting in the griddle being unusable.

40. Warping has long been a common consideration in grilling technology. *See e.g., Jones (1941)*. It is well recognized that griddles tend to “warp due to heating” and the “warpage problem is particularly troublesome with large griddles.” *Hinkle at 1:11-13*. Thermally induced warping in flat metal plates results from the development of temperature gradients across the material which results in the development of thermally induced stresses. *See Callister at p. 717 and p. 852*. These stresses result in uneven expansion or contraction of the material which causes the material to warp. *Id.* “Steel griddle plates have been unsatisfactory in view of the fact that none has been devised which will ***not curve or warp*** under the heat required for cooking.” *Jones at 2:2-5 (emphasis added)*. Additionally, if these stresses exceed the yield strength of the material, the warping will be permanent, even after the thermal gradients are removed.

41. Griddle designs patented as early as the 1940’s contemplate novel ways to solve this issue and introduce griddle materials “which will resist heat, warping,

and corrosion”. Fleming (1939) at 3:31-39 (describing “[i]t is within the province of the present invention to construct the grid of any material which is resistant to heat, corrosion, and will not warp.”). Inventors in the field of griddle technology explored concerns of components becoming “warped by the heat of the fire” and sought to address the problem by using materials selected specifically to oppose warping. Betts (1942) at 1:25-26.

42. One solution offered as early as 1959 was an “integrally formed ridge.” Graham (1959) at 2:38-42 (“[a]ny griddle warpage due to heat caused stresses apparently was confined to the griddle cooking area wherein it is believed the warpage was limited by the peripheral integrally formed ridge”). Warping can be prevented by reducing the stresses in the material, and resulting thermally induced deflections, through a reinforcement of the component to increase its stiffness such as an integrally formed ridge as described in Graham. Graham at 2:38-42; *see also* Shigley at 104.

43. Additionally, another patented technology of the 1960’s, *Savio* introduces flanges or ribs in an “inverted U-shape for strengthening the structure and preventing it from buckling or warping”. Savio (1960) at 3:12-15. Furthermore, “[t]he use of ribs is a substantial advance over the use of a griddle with a very thick bottom wall,” as “the ribs impart strength to the griddle to prevent warping.” Hinkle

at 1:43-48 and 3:8-18. “The ribs also serve to stiffen the bottom wall against warping or bending”. *Id.*

44. These innovative techniques of the 1940 - 1970’s added significant advantages to griddle technology and would have been well known to those of skill in the art at the time of the invention of the ‘473 Patent.

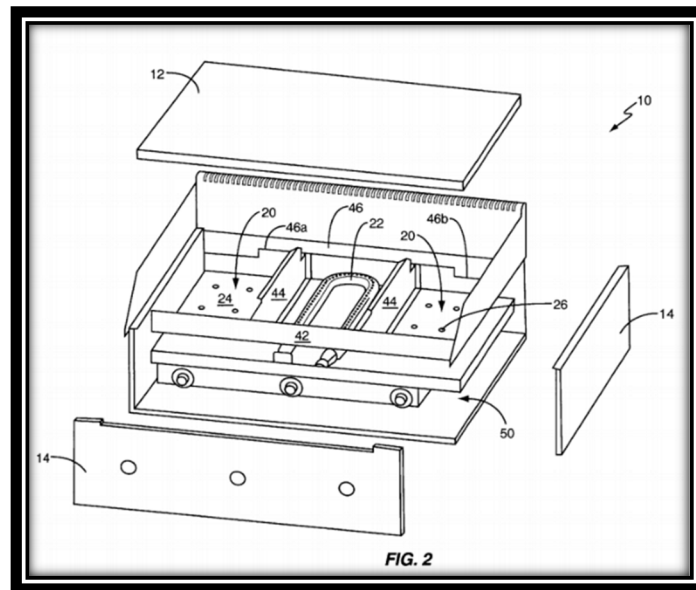
B. Summary of Williams

45. Williams (US 6,389,960) issued on May 21, 2002 and is prior art to the ‘473 patent under at least 35 U.S.C. §102(a). *See e.g.*, Williams. Williams provides for uniform heating of a griddle or surface of a gas cooking device. Williams at 1:26-27 and Abstract. Williams discloses a cooking system comprising a frame extending with a front side, a rear side located opposite the front side, and a left side and right side opposite each other. Williams at Figs. 1-3, 2:8-15, 2:39-44 and 3:20-24.

46. The invention in Williams includes a griddle or cooking surface with a plurality of heating chambers disposed below the griddle. Williams at 1:27-29. Additionally, each heating chamber is heated by at least one naturally fed gas burner. Williams at 1:29-31. “The gas burners generate hot combustion gases, a portion of which rise into the corresponding upper zone disposed between the lower zone and griddle surface associated with each heating chamber.” Williams at 1:32-35.

47. In order to assist with the objective of providing a more uniformly heated cooking surface, the “upper zones have sidewalls and downwardly extending

rear flow-restricting walls, or dams, that cooperate to create a zone of relatively stagnant flow beneath the griddle surface.” Williams at 1:35-38. Williams further describes that this aspect allows for a “relatively low average front-to-back flow rates within the upper zones,” therefore, allowing “a more uniform layer of hot combustion gases to be formed along the underside of the griddle surface.” Williams at 1:38-42. This inventive feature of Williams thereby evenly delivers heat to the griddle surface.

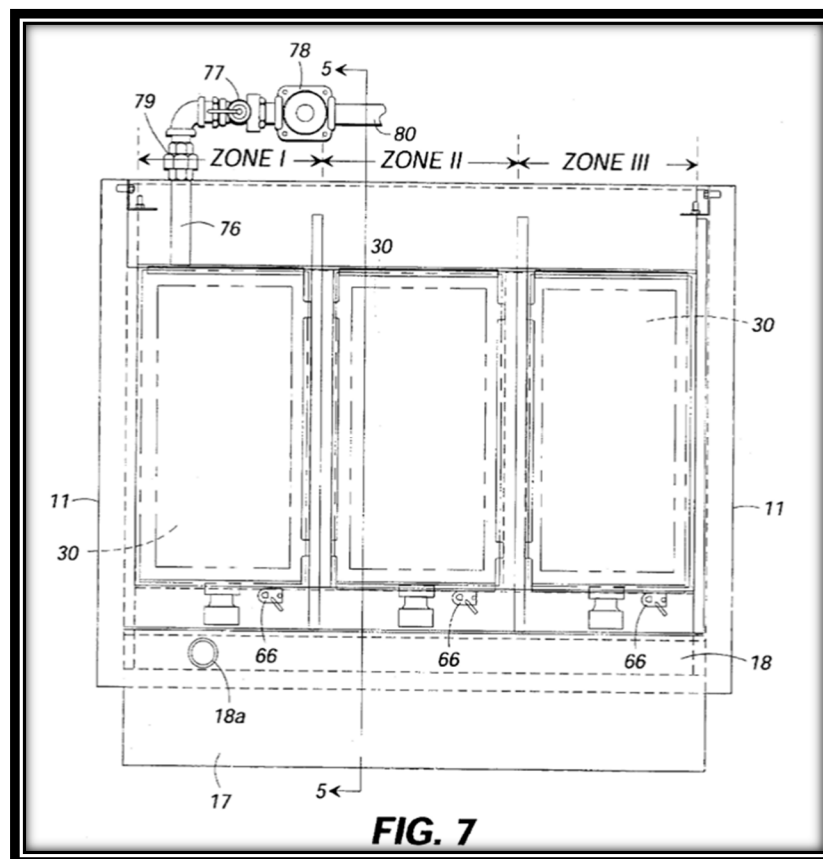


Williams Figure 2

48. Figure 2 provides an accurate representation of one embodiment of the invention disclosed in Williams. *See* Williams at Fig. 2.

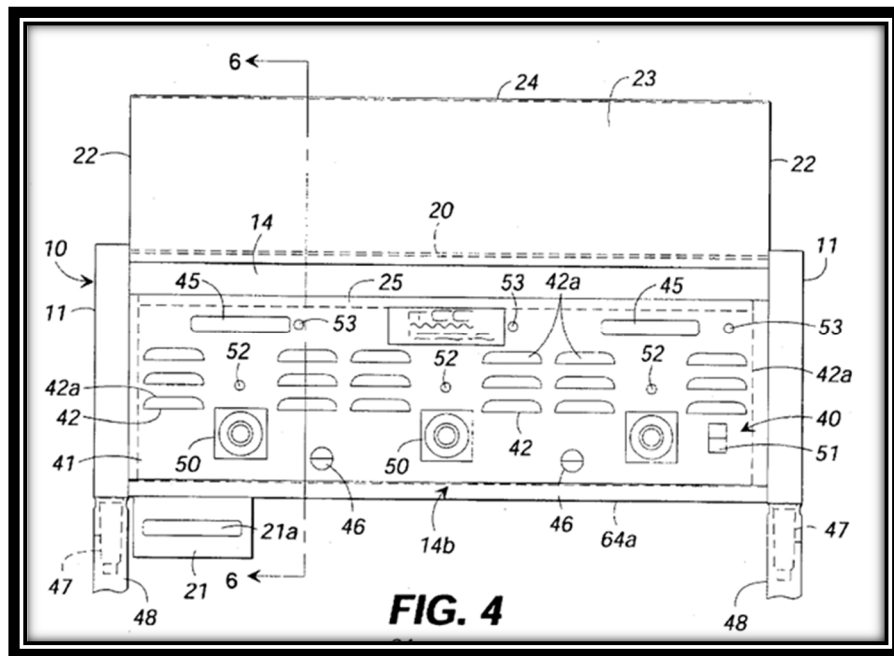
C. Summary of Best

49. Best (US 5,676,043) issued on October 14, 1997 and is prior art to the '473 patent under at least 35 U.S.C. §102(a). *See e.g.*, Best. The invention of Best is directed to a cooking surface having discrete, separately heated, cooking zones. Best at 1:6-8. The assembly in Best includes a griddle or cooking surface formed from one rectangular piece. Best at 2:45-47. Specifically, one embodiment of Best describes a multi-component griddle plate (20) and secured individual blocks or plates 30. Best at 5:26-29. Below the heat transfer plates (30) are three gas burners (60), one for each of the three zones. Best at 8:6-15 and Fig. 7.



Best Figure 7

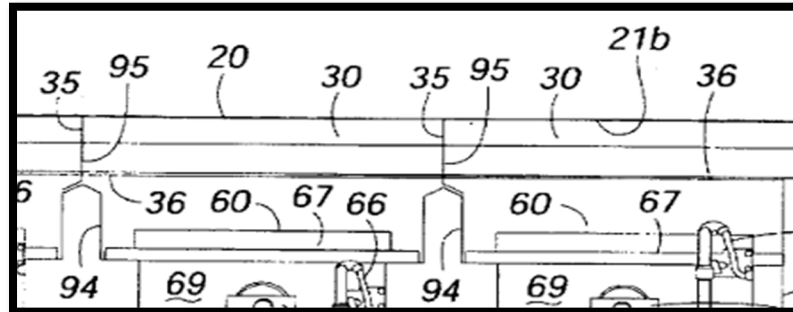
50. Best also discloses an air intake system including “a front upright panel 41 having spaced ventilation ports 42 to permit air to be drawn therethrough into the interior of the housing 10.” Best at 6:52-58; *see also* Fig. 4. These ventilation ports act as an air intake system to “permit air to be drawn therethrough into the interior of the housing” which in turn feeds air to the multiple burners. Best at 6:53-54.



Best Figure 4

51. Additionally, Best uses insulation strips (35) in airgaps between adjacent plates to isolate the heat between each of its three heating zones. Best at 6:47-49. These insulation strips (35) (and air gaps between the plates) are used to limit the convective heat transfer between heat transfer plates (30) of the griddle (20). Best at 6:47-49.

52. To further isolate convective heat between the zones, Best also describes the use of lateral ribs integrated with the griddle. Best at 9:18-22. In particular, Best explains “[f]or further isolating the heat from burners 60, a pair of inverted U-shaped, insulating baffles 94, as seen in Fig. 5, are interposed between each pair of burner groups, while other baffles 95 extend downwardly from plate 20 to terminate in overlapping relationship, as shown in FIG. 5.” Best at 9:18-22. In addition, by separating the downwardly extending baffle (95) from the upwardly extending baffle (94), Best permits the device to be assembled, disassembled, maintained, etc., more easily, without sacrificing the thermal isolation. *See* Best at 3:33-38 and Fig. 5.



Best Figure 5 Zoomed in View (94 and 95 baffles)

53. Furthermore, this configuration of baffles taught by Best, improves the isolation of the hot combustion gases that collect at the top of the heating zones. Best at 1:55-63. This configuration exemplifies the objectives described in Best including designing a high quality cooking device that can be manufactured with a durable structure and efficient operation. Best at 3:38-42.

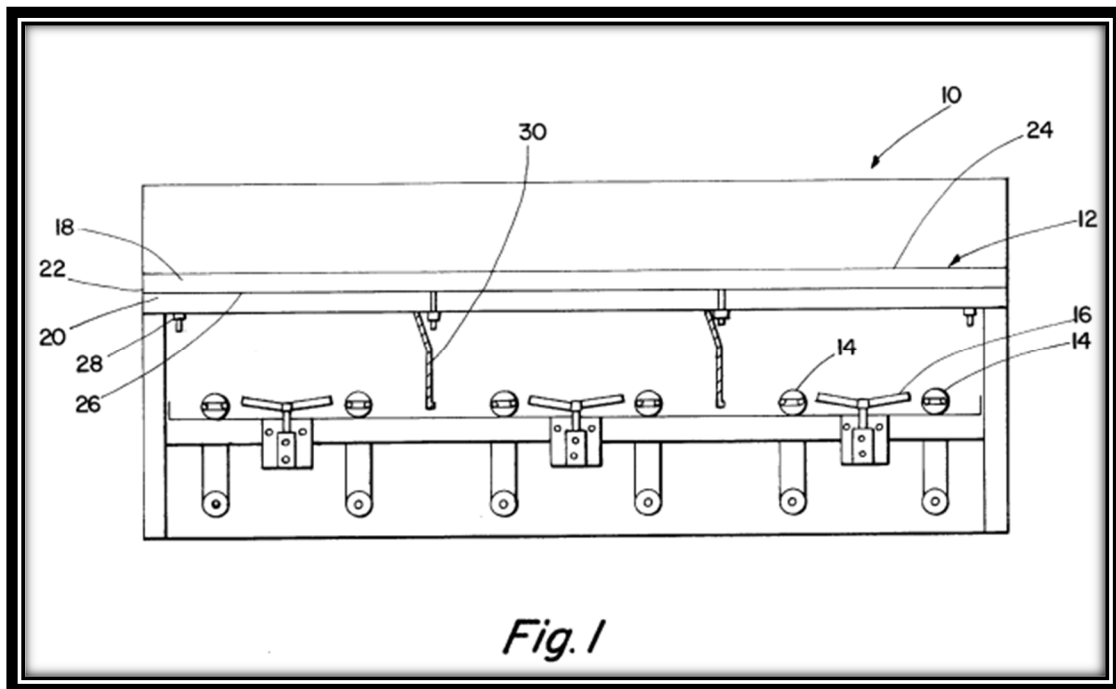
54. Figures 4, 5 and 7 (included above), provide an accurate representation of embodiments of the invention disclosed in Best. *See* Best at Figs. 4, 5 and 7.

D. Summary of Farnsworth

55. Farnsworth (US 5,890,482) issued on April 6, 1999 and is prior art to the '473 patent under at least 35 U.S.C. §102(a). *See e.g.*, Farnsworth. Farnsworth provides a cooking surface or griddle containing one or more pairs of gas-fired burners and a gas ignition device interposed between the adjacent burners. Farnsworth at 2:51-56. The cooking surface can be a rectangular or square configuration and/or various sizes. Farnsworth at 2:57-59. In at least one embodiment, the griddle top (12) is comprised of an upper plate (18) and a lower plate (20). Farnsworth at 2:66-67.

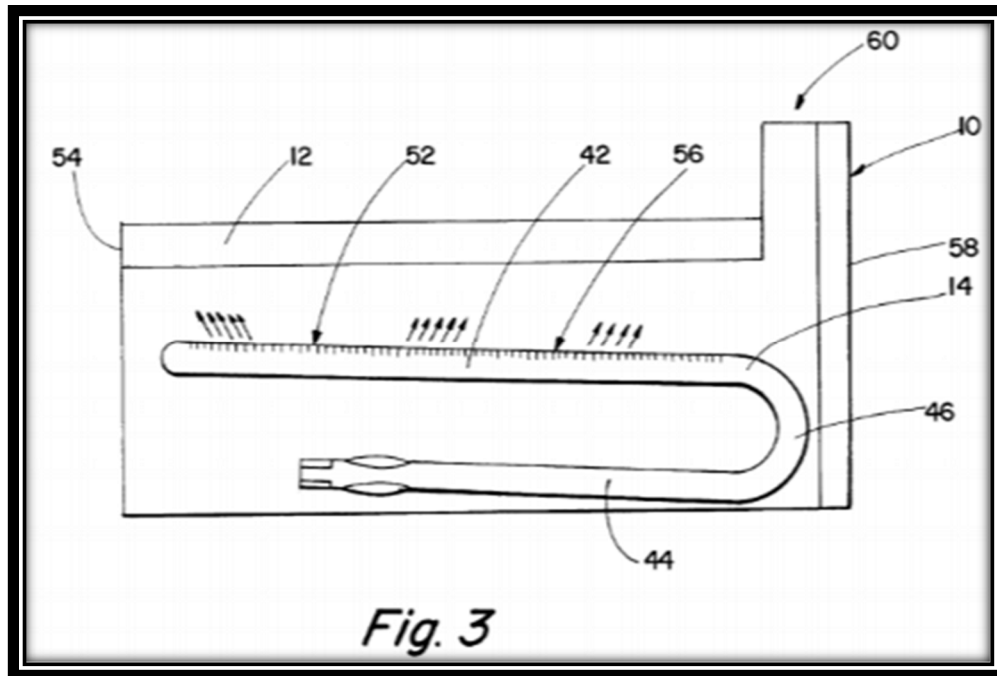
56. The burners described in Farnsworth are substantially parallel to one another and parallel to the laterally extending edges of the griddle. Farnsworth at 3:20-25. "The burners 14 are supported by a cross member 34 attached to a laterally extending member 36 which is attached to a laterally extending side member 38 which forms the laterally extending edge 32 of the griddle 10." Farnsworth at 3:25-28. Additionally, to further direct the flames toward the rear of the griddle top, the angle of the plurality of burner ports assist in "exhausting combustion gases toward the rear of the griddle" where gases exit through a flue. Farnsworth at 2:14-18.

57. Moreover, an objective of Farnsworth is to create a “substantially even distribution of heat over a cooking surface of a griddle top.” Farnsworth at 1:50-52. To achieve this objective, laterally extending baffles are attached to the griddle to further assist in reducing the temperature variations over the surface. Farnsworth at 2:27-29 and 3:15-19.



Farnsworth Figure 1

58. In Farnsworth, the laterally extending baffles (30) are “attached to the bottom surface (26) of the upper plate (18) and . . . positioned between each pair of burners (14).” Farnsworth at 3:15-19 and Fig. 1. Therefore, the laterally extending baffles of Farnsworth serve the purpose to isolate heat in different cooking zones and thus further the general objectives of Farnsworth.



Farnsworth Figure 3

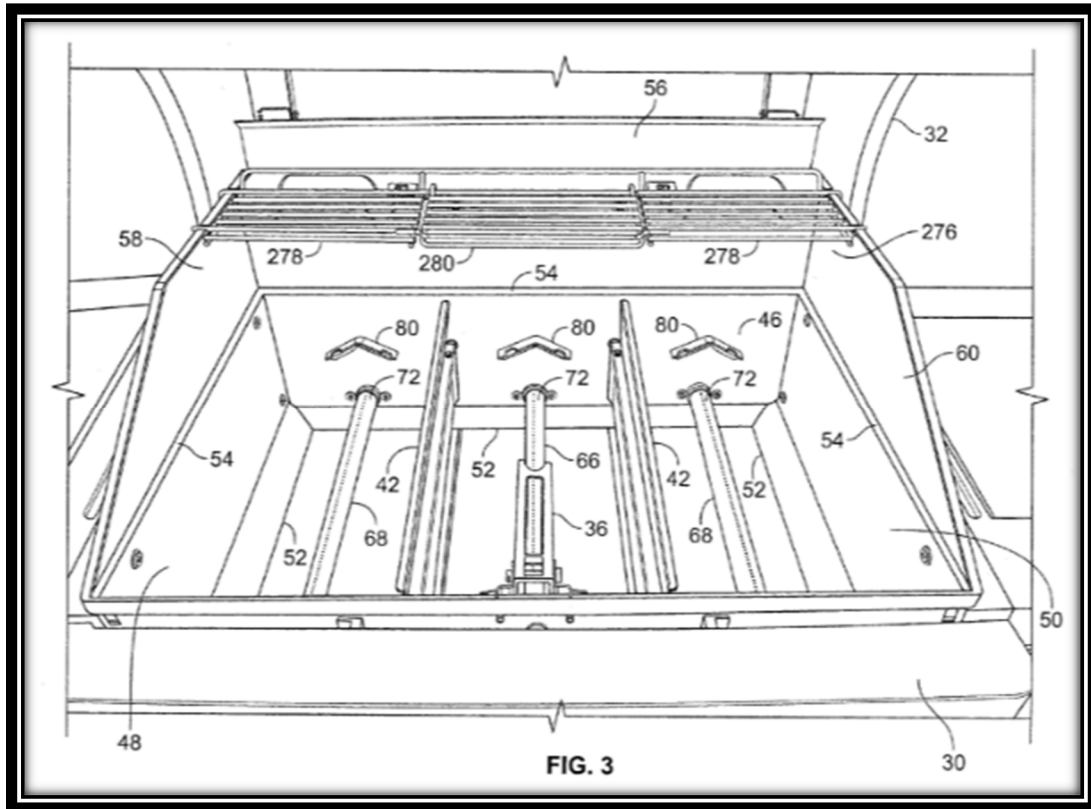
59. In addition to Fig. 1, Figure 3 provides an accurate representation of one embodiment of the invention disclosed in Farnsworth. *See* Farnsworth at Fig. 3.

E. Summary of May

60. May (US 2013/0112088) published on May 9, 2013, and is prior art to the '473 patent under at least 35 U.S.C. §102(a). *See* Ex. 1006. May is directed to an outdoor cooking device which uses natural gas or to a portable fuel tank to heat and prepare food. May at [0003]. May provides a grill having a plurality of burners and a cooking surface positioned above the burners for grilling food. May at [0011].

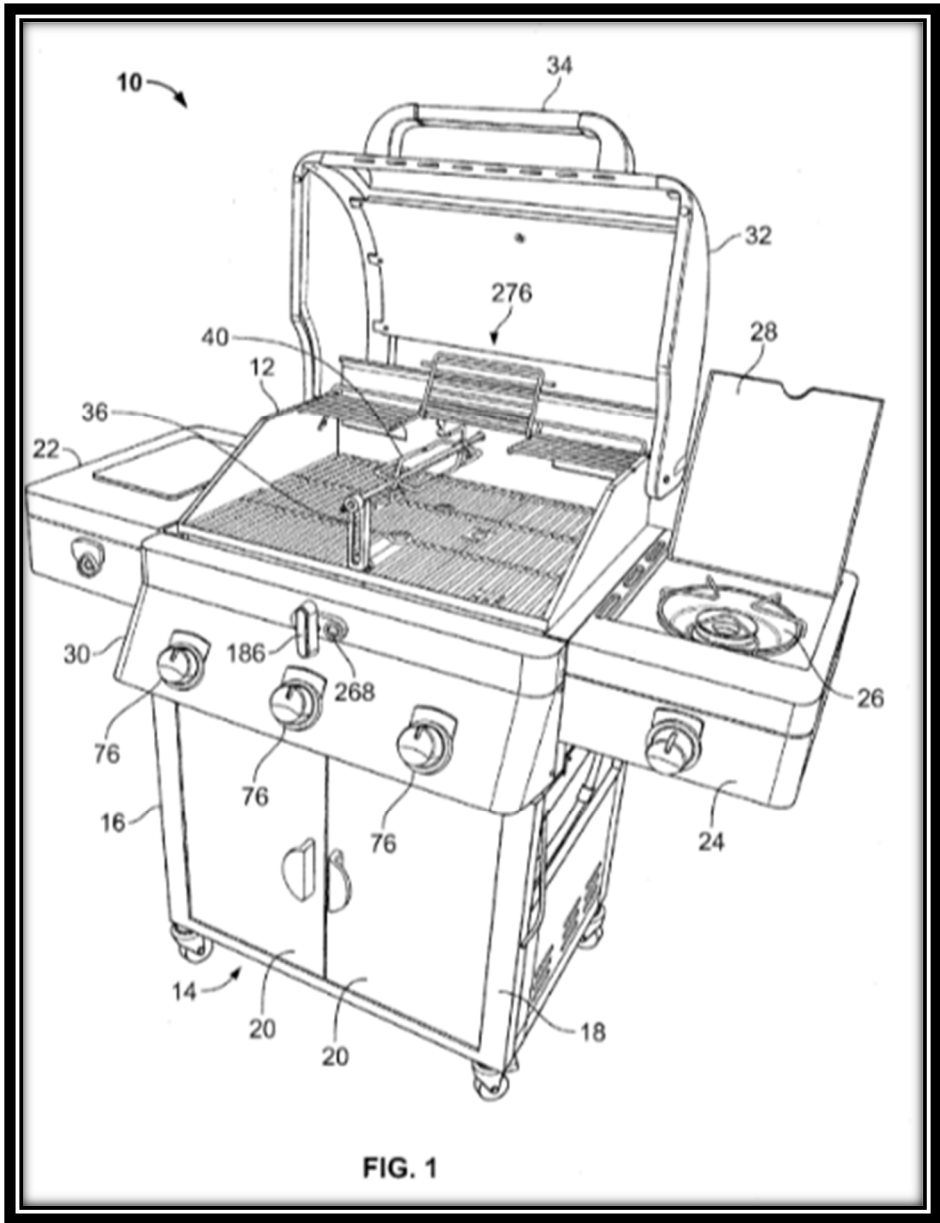
61. May discloses heat shields positioned within the interior of the grill and “extending front to rear, to divide the firebox into one or more compartments.” May at [0012]. May provides the “firebox also houses a middle burner tube 66 and two

side burner tubes 68,” and that the burner “rear end 72 is fixedly attached to the rear wall 46 of the firebox.” May at [0049]; *see also* Fig. 3.



May Figure 1

62. “The heat shields help contain and concentrate the heat from the burner(s) in each compartment to more efficiently cook food in that compartment.” May at [0012]. “Also, the heat shields serve to substantially shield the burner(s) in each compartment from the burner(s) in other compartments, to allow food to be cooked at different temperature settings.” May at [0012]. The invention provided in May also includes a pivotably attached lid. May at Fig. 1.



May Figure 1

63. Figures 1 and 3 provide an accurate representation of embodiments of the invention disclosed in May. *See* May at Figs. 1 and 3.

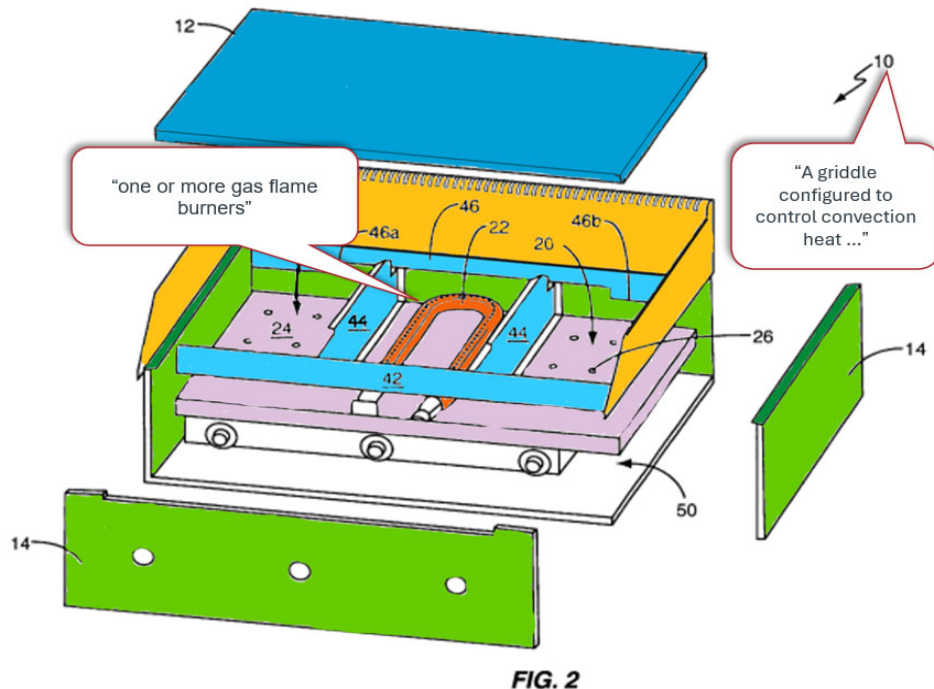
VII. REASONS THE CHALLENGED CLAIMS OF THE '473 PATENT ARE UNPATENTABLE

A. GROUND 1: Claims 10-13, 15, 17, 18, and 20 are rendered obvious under 35 U.S.C. § 103 by Williams.

1. Detailed Claim Analysis

- a) [10.0] A griddle configured to control convection heat from one or more gas flame burners of a cooking station, the griddle comprising:

64. Williams discloses limitation [10.0], “[a] griddle configured to control convection heat from one or more gas flame burners of a cooking station, the griddle comprising.” *See e.g.*, Williams at Fig. 2.



Williams Annotated Figure 2¹

¹ All annotations in this declaration reflect my opinions and were prepared with the assistance of Loco Cookers’s counsel to help visualize my opinions.

65. Williams's invention "relates generally to the field of gas-fired cooking devices, and specifically to a gas-fired cooking device that includes a heat bank to provide a more uniformly heated cooking surface." Williams at 1:6-9, 1:62-66 (describing the invention as "gas-fired griddles, braising pans, or ... skillets..."), and 3:9-19 (discussing that gas, such as propane, is supplied to burners which may be controlled by controls or user interfaces such as knobs).

- b) **[10.1] a cooking surface having a rectangular shape, the cooking surface configured to face upward;**
- c) **[10.2] an underside surface, the underside surface extending to generally correspond with the cooking surface, the underside surface facing in an opposite direction than the cooking surface, the underside surface extending to define a periphery with a front end, a rear end, a left end, and a right end;**

66. As illustrated in annotated figure 2, below, Williams discloses a griddle with a rectangular cooking surface (facing upward) and underside surface (facing downward) that is configured to face upward (14). Williams at Fig. 2, Fig. 3 and 2:8-12.

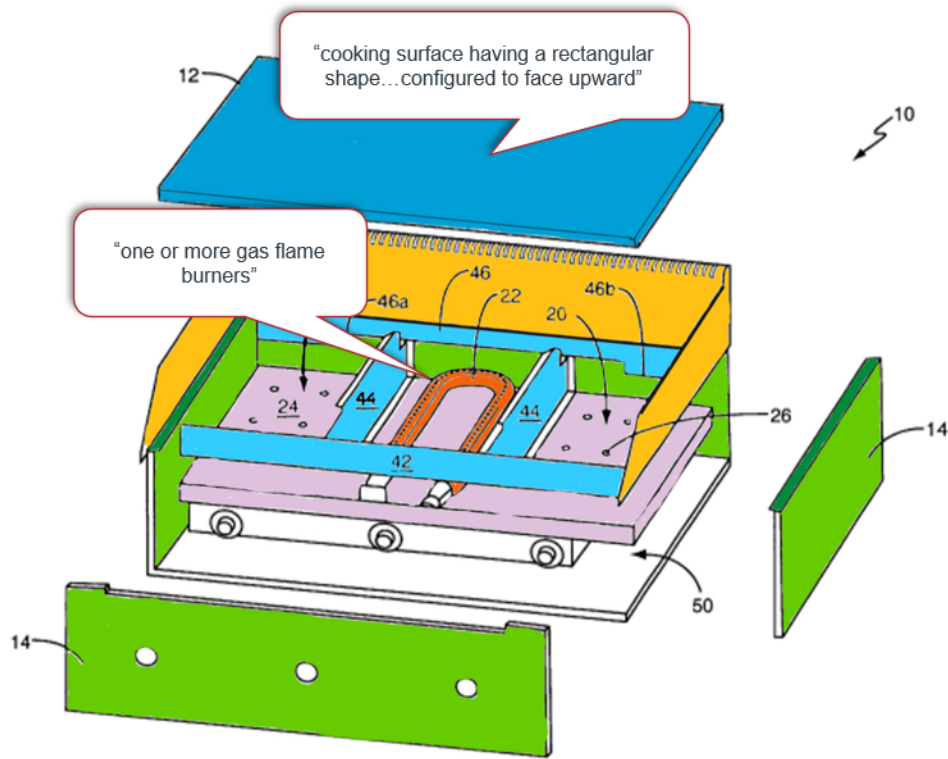


FIG. 2

Williams Annotated Figure 2

67. As illustrated in annotated figure 2, below, the griddle has a rectangular periphery with a front end, a rear end, a left end, and a right end. Williams at Figs. 1-3 and 2:8-12.

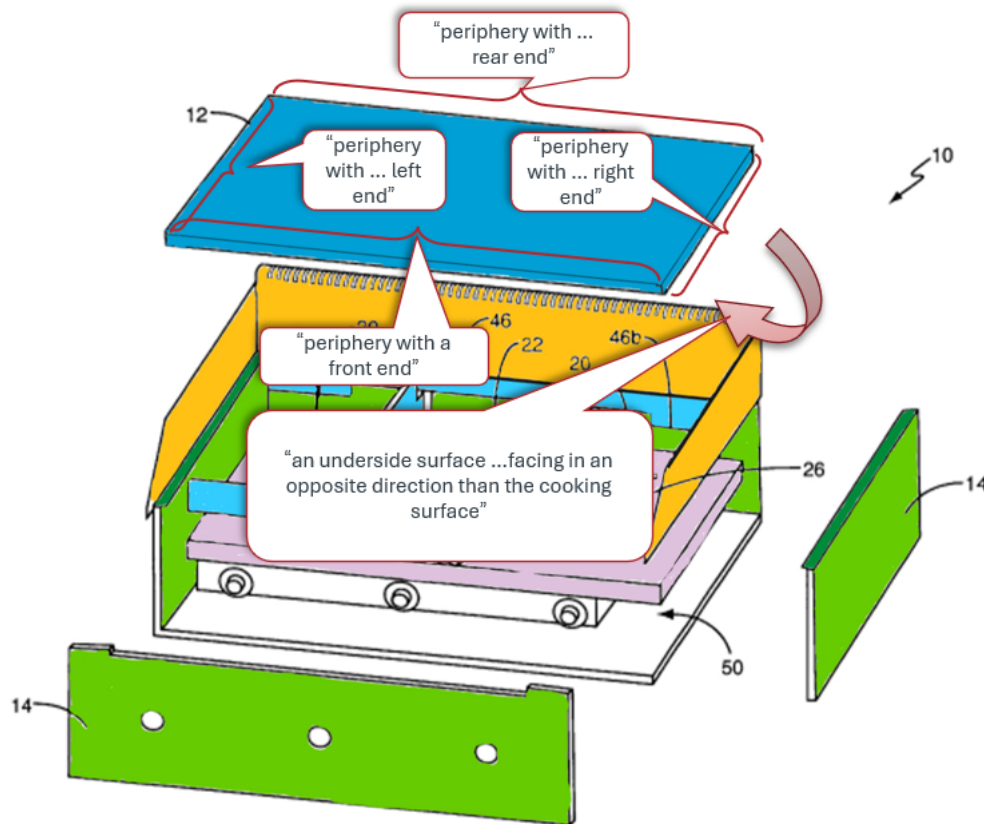


FIG. 2

Williams Annotated Figure 2

- d) **[10.3] a front rib having a front rib height and coupled to the front end of the underside surface, the front rib extending longitudinally along the front end of the underside surface; and**

68. As illustrated in annotated figure 2, below, Williams discloses a griddle (with an underside surface) and a front rib (e.g., “front dam” 42), extending longitudinally along the underside surface of the griddle, and multiple lateral ribs (e.g., “sidewalls” 44) extending along the underside surface of the griddle from the front rib to the rear end. Williams at Fig. 2; 1:35-38, *see also* 2:41-44 (providing “upper zone 40 is generally defined by the underside of the cooking surface 12 and

flow-restricting walls, specifically a front dam wall 42, a rear dam wall 46, and sidewalls 44 associated therewith.”).

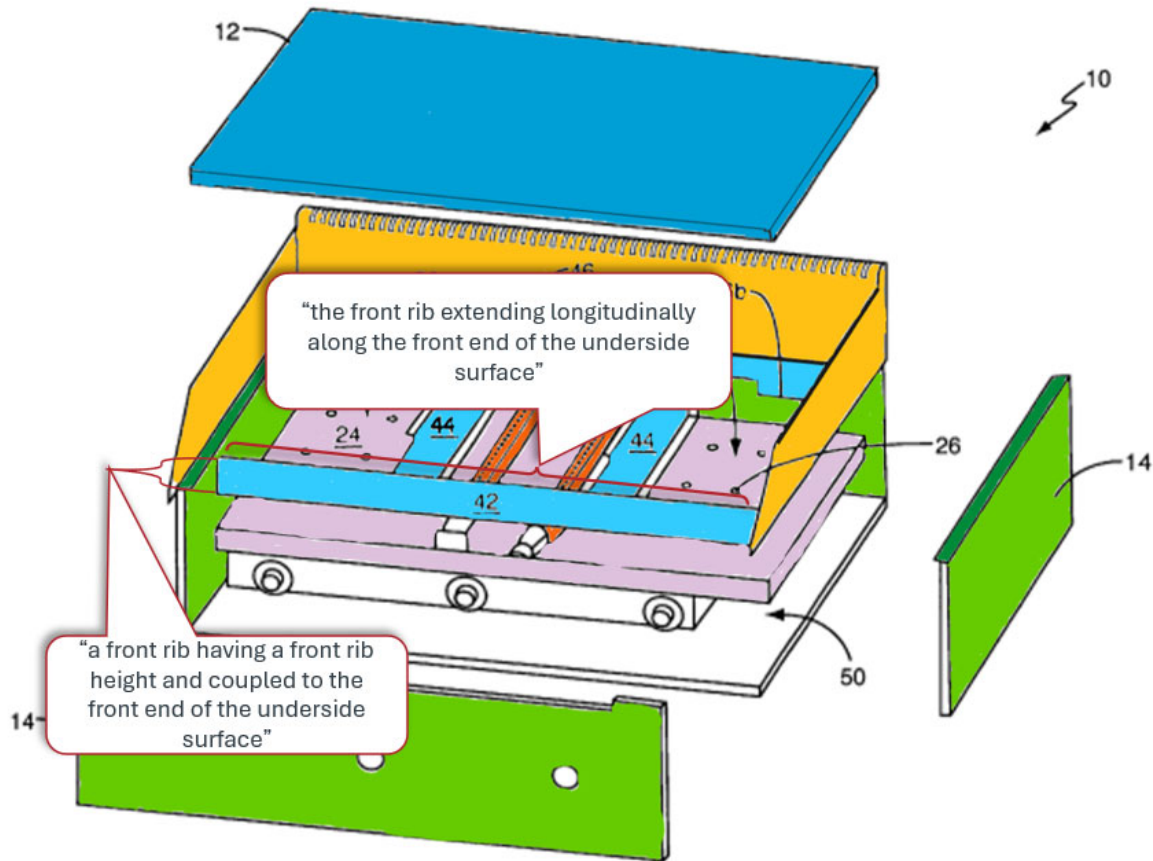


FIG. 2

Williams Annotated Figure 2

69. Williams further states, “[a]t least the front dam 42 and the rear dam 46 are downwardly extending, thereby extending generally away from the underside of the cooking surface 12.” Williams at 2:44-47. This disclosure indicates that the front dam is coupled to and extends longitudinally across the front end of the underside surface of the griddle with a downwardly extending height. Williams at 2:44-47.

- e) **[10.4] multiple lateral ribs each extending laterally relative to the front rib and extending along the underside surface from the front rib to the rear end of the underside surface;**

70. As illustrated in annotated figure 2, below, Williams discloses a griddle with multiple lateral ribs (*e.g.*, “sidewalls” 44) extending along the underside surface of the griddle from the front rib to the rear end. Williams at Fig. 2; 1:35-38 and 2:41-44. Specifically, Williams discloses “[t]he upper zone 40 is generally defined by the underside of cooking surface 12 and flow-restricting walls, specifically a front dam wall 42, a rear dam wall 46, and sidewalls 44 associated therewith.” Williams at 2:41-44. The sidewalls 44 are lateral ribs that run laterally from the front dam wall to the rear dam wall, which spans the length of the front to rear ends of the griddle. Williams at 2:39-44 and 3:65-4:2.

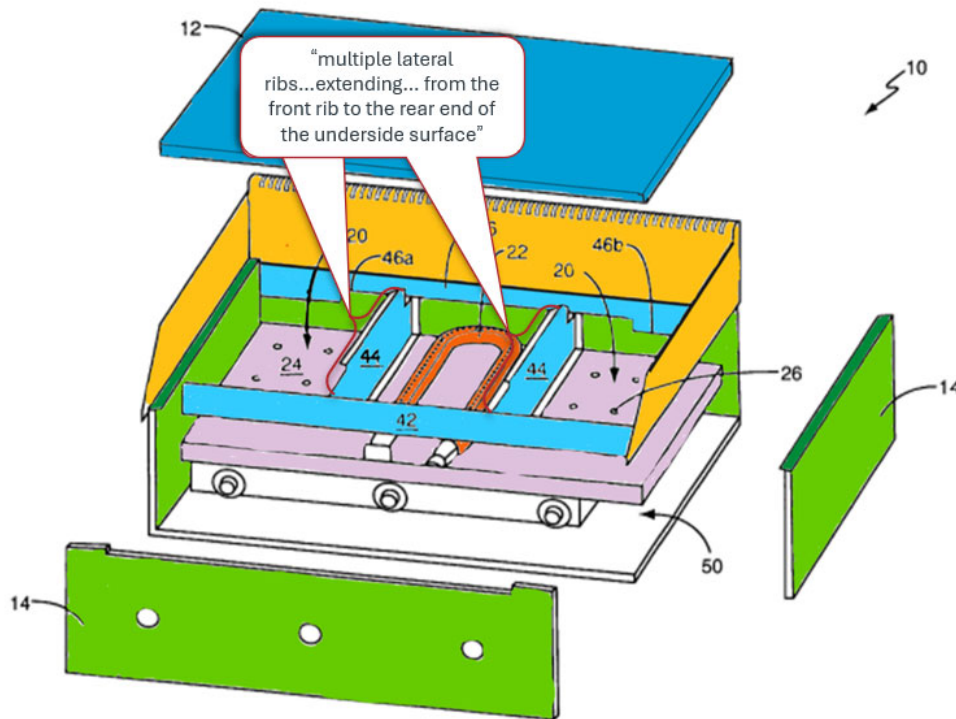


FIG. 2

Williams Annotated Figure 2

71. Williams further provides that “[a]t least the front dam 42 and the rear dam 46 are downwardly extending, thereby extending generally away from the underside of the cooking surface 12.” Williams at 2:44-47 (emphasis added) and 1:35-38 (describing that the upper zones have sidewalls and flow-restricting walls that cooperate to create zones of relatively stagnant flow under the griddle).

- f) [10.5] the multiple lateral ribs being spaced from each other so as to define multiple heating regions such that each heating region is defined between adjacently extending lateral ribs, the heating regions each configured to be positioned above a gas flame burner;

72. As shown in annotated figure 2 below, multiple heating chambers are separated by the spaced sidewalls (44). Specifically, “upper zones 40 of adjacent heating chambers 20 may utilize opposite sides of an otherwise common sidewall 44,” and “[f]urther, the front dam 42 and the rear dam 46 of the various heating chambers 20 may simply be laterally different portions of respective continuous wall elements if desired.” Williams at Fig. 2, 2:57-62 and 4:51-65.

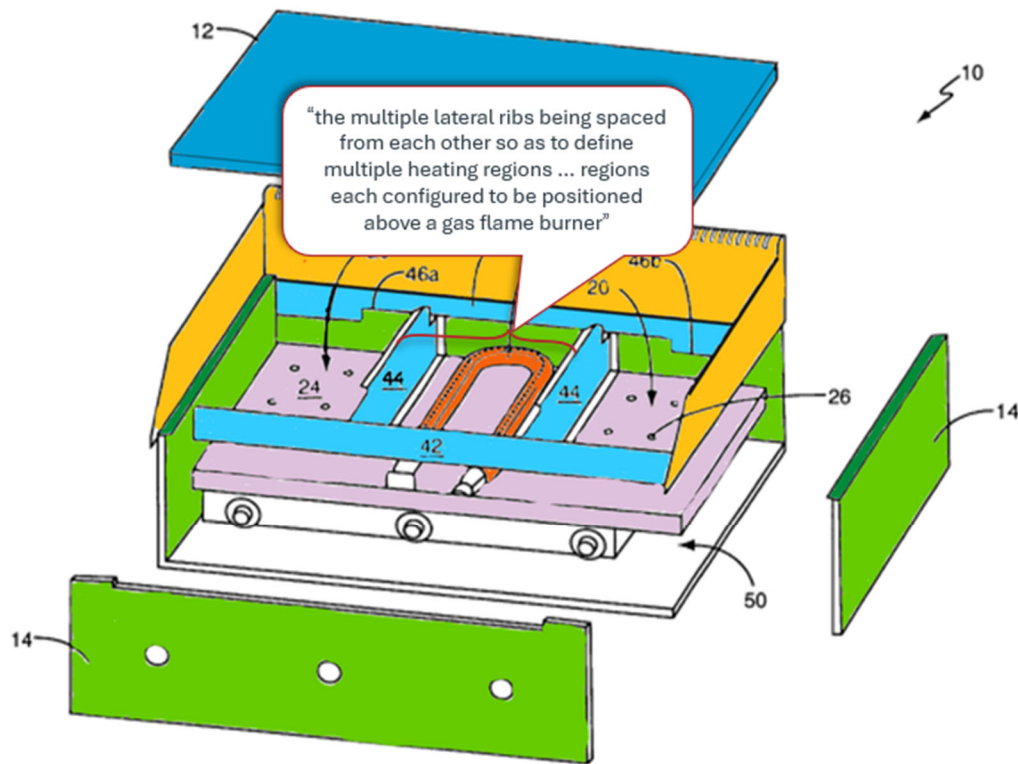


FIG. 2

Williams Annotated Figure 2

73. As can be seen in annotated figure 3, below, Williams discloses a burner 22 positioned below what Williams describes as the “upper zone” which is a heating region since hot combustion gasses are trapped in Williams’s upper zone to heat the underside of the griddle. Williams at Fig. 3, 2:39-44, 3:52-62.

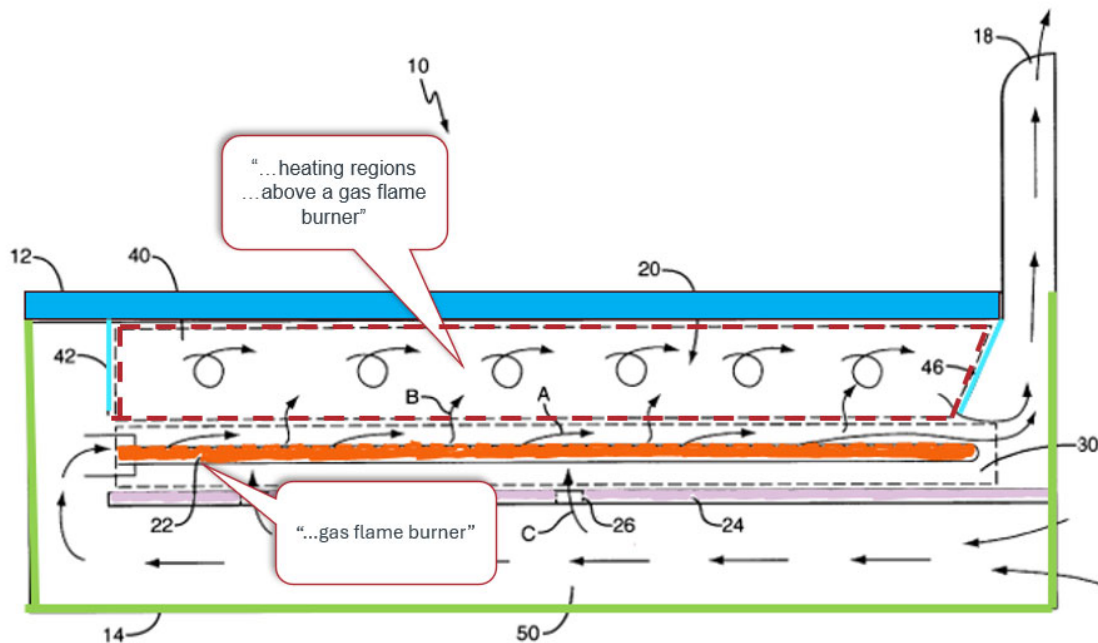


FIG. 3

Williams Annotated Figure 3

74. While Williams depicts three heating regions, only one burner is shown. A POSITA would appreciate a burner would be included in each of the heating regions shown in Williams figures 2 and 3. Williams at Fig. 2, Fig. 3, 1:10-14 (describing that “gas-fired griddles, commonly utilize multiple burners located in various locations beneath the heated surface”); 1:29-35 (describing that each heating

chamber is heated by at least on gas burner disposed in the lower zone); 2:23-30 (describing that the gas burners use natural, unforced, draft for supply air); *see also* 4:51-65 (describing that “cooking device...with more heating chambers 20 and corresponding burners 22.”).

- g) **[10.6] each of the lateral ribs extend downward from the underside surface a lateral rib height such that the adjacently extending lateral ribs are configured to funnel the convection heat from the gas flame burner toward the rear end of the underside surface and away from a rear side of the cooking station;**

75. Williams discloses that “[t]he upper zone 40 is generally defined by the underside of cooking surface 12 and flow-restricting walls, specifically a front dam wall 42, a rear dam wall 46, and sidewalls 44 associated therewith.” Williams at 2:41-44. The sidewalls 44 are lateral ribs that run from the front dam wall to the rear dam wall. Williams at 2:39-44 and 3:65-4:2. Williams goes further to provide that, “[a]t least the front dam 42 and the rear dam 46 are downwardly extending, thereby extending generally away from the underside of the cooking surface 12.” Williams at 2:44-47.

76. While Williams only explicitly provides that the front (42) and rear dams (46) are “downwardly extending,” a POSITA would also read the disclosure of “[a]t least the front dam 42 and the rear dam 46 are downwardly extending, thereby extending generally away from the underside of the cooking surface 12” to mean other components, such as sidewalls (44) may also be optionally downwardly

extending a certain height from the underside surface of the griddle and thus are “fixed” or “integral” to the underside surface of the griddle. Williams at 2:44-47 (emphasis added).

77. Williams further describes that the upper zones’ sidewalls (44) and downwardly extending dam walls (42 and 46) cooperate to create the low flow zones beneath the griddle surface (12). Williams at Abstract. Moreover, these features from Williams create “a more uniform layer of hot combustion gases to be formed along the underside of the griddle surface, thereby more evenly delivering heat to the griddle surface.” Williams at Abstract. Extending the sidewalls a height downward from the underside of the griddle would help achieve these intended functions in Williams cooking device. *See* Williams Fig. 2.

78. In reviewing annotated figure 3, a POSITA would appreciate that the cooking system disclosed in Williams uses multiple burners (22) to generate convective heat and uses the physical structure of the front rib (42) and lateral ribs (44) to help funnel the convective heat to the rear of the cooking device. Williams at Fig. 3.

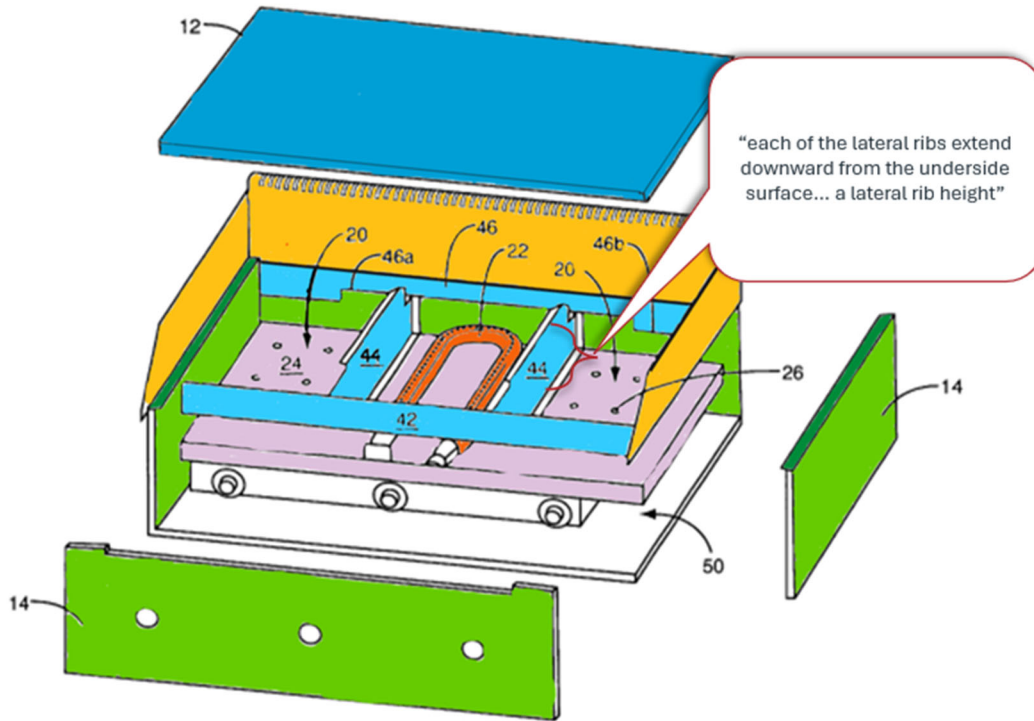


FIG. 2

Williams Annotated Figure 2

79. Moreover, a POSITA would understand the equivalent height of each rib serves as an air dam/seal, ensuring that heated air is retained in its respective heating chamber and cannot escape through gaps/seams in the joined structure to adjacent heating chambers. Williams at 2:39-44 and 3:62-4:2 (describing that once the “gas within the upper zone 50 has cooled, it descends below the lower edge 46 a,b of the rear dam 46, joins the flow from the burner zone 30, and is carried out the flue 18.”).

80. Accordingly, a POSITA would understand Williams discloses that the convection heat trapped in a heating chamber by the sidewalls moves from any one

of the multiple burners toward the rear end of the underside surface of the griddle and from the rear side of the frame (e.g., out the flue (18)). Williams at 3:62-4:2.

81. Williams describes that “[t]he hot combustion gases tend to rise within the heating chamber 20, but there is a significant front-to-back flow within the burner zone 30 caused by natural drafting, . . . [a] portion of the hot combustion gases flow relatively directly out the exhaust located at the rear of each heating chamber 20.” Williams at 3:20-51; *see also* Williams at 3:52-56 (describing that “[i]n order to combat this, another portion of the hot combustion gases generated by the burner 22 is at least transiently dammed within the upper zones 40 beneath the cooking surface 12.”)

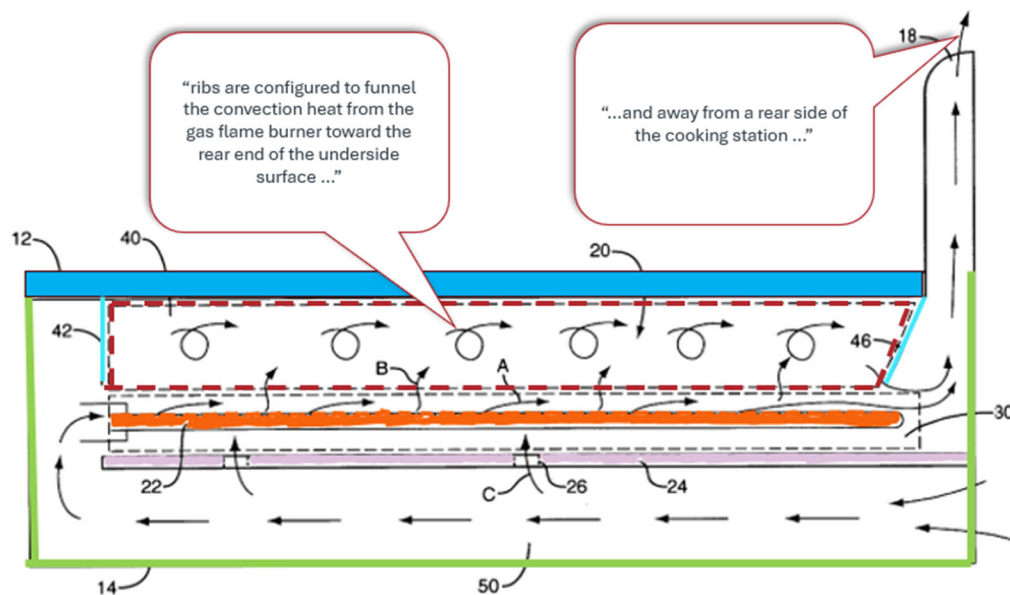


FIG. 3

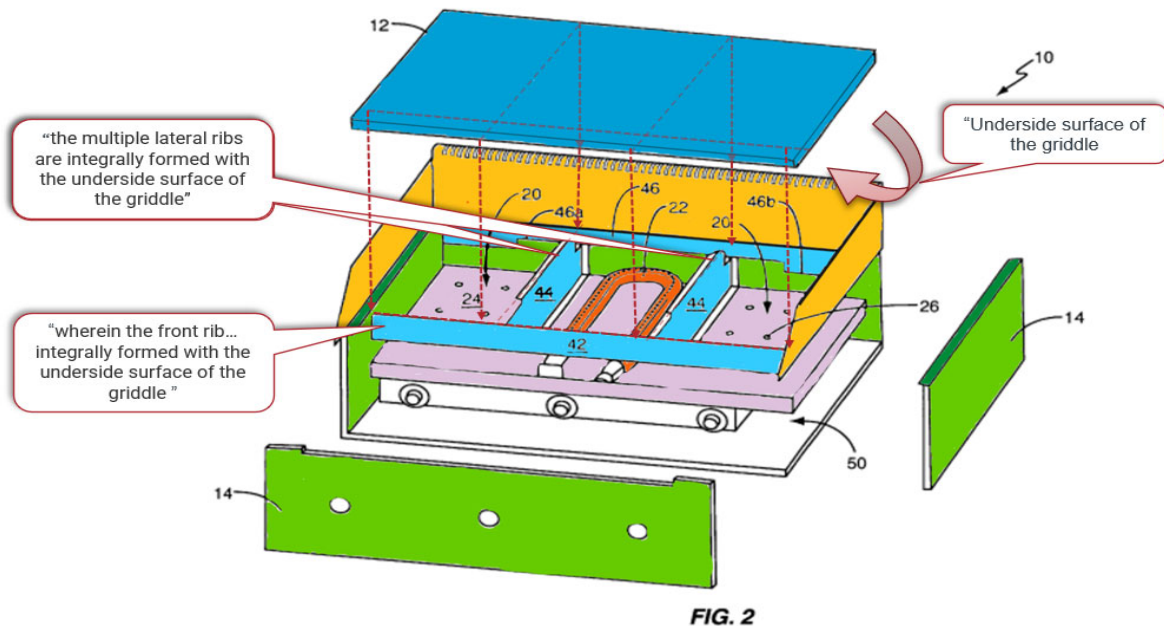
Williams Annotated Figure 3

82. Accordingly, a POSITA would understand Williams teaches that the presence of the perimeter wall, including the front dam (42), rear dam (46), and sidewalls (44), helps create the upper zone (40) where the portion of the hot combustion gases are at least temporarily trapped while being funneled toward the rear end of the griddle's underside surface before they exit from the rear of the cooking device. Williams at 3:57-4:2.

83. Extending the sidewalls downward from the underside of the griddle would help achieve Williams's description that the sidewalls (44) and dam walls (42 and 46) cooperate together to create the low flow zones beneath the griddle surface (12) as well as creating "a more uniform layer of hot combustion gases to be formed along the underside of the griddle surface, thereby more evenly delivering heat to the griddle surface." Williams at Abstract.

h) [10.7] wherein the front rib and the multiple lateral ribs are integrally formed with the underside surface; and

84. Williams discloses a front rib (42) and the multiple lateral ribs (44) on the underside surface of the griddle as shown in annotated figure 2 below. *See* Williams at 1:35-38.



Williams Annotated Figure 2

85. As previously discussed, Williams teaches or renders obvious lateral ribs that extend downwardly from the underside of the griddle. A POSITA would understand Williams's disclosure of a front dam (42), rear dam (46), or sidewalls (44), as "downwardly extending" indicates that at least these two features are "fixed" or "integral" to the underside surface of the griddle and descend downward from their fixed source. Williams at 2:41-47. Integrating these structures with the underside of the griddle creates "a more uniform layer of hot combustion gases to be formed along the underside of the griddle surface, thereby more evenly delivering heat to the griddle surface." Williams at 1:38-42, 1:67-2:4, and 3:57-4:2.

86. In addition to Williams itself suggesting that the front dam (42) and sidewalls (44) may be integrally formed with the underside of griddle, a POSITA

would also be motivated to integrally form the ribs with the underside of the griddle for several other reasons.

87. First, the weight of the griddle, as assembled in Fig. 1, would thermally couple it to the front (42) and sidewalls (44). *See Williams at Fig. 1-3.* Two or more bodies are thermally coupled when heat can be transferred between bodies, and heat is most effectively transferred between bodies when they are in contact such that heat may be conducted from one body to another. To ensure the maximum thermal coupling between the griddle and the sidewalls a POSITA would look to integrate the sidewalls to the underside of the griddle.

88. Second, integrating the sidewalls with the underside of the griddle would also greatly strengthen the horizontally planar griddle to be heated by providing built in vertical support structures. *Williams at Fig. 2.* Such a configuration aids in the prevention of warping of the planar cooking surface (12). Warping was a well-known problem for griddles by the time of the '473 Patent. *See Fleming (1939) at 3:31-39 and Betts (1942) 1:25-26.*

89. A structure is considered warped when it has "...become bent or twisted out of shape typically as a result of the effects of heat..." Oxford University Press. (2024). warped. In Oxford English dictionary. Retrieved March 5, 2024. Thermally induced warping in flat metal plates results from the development of temperature gradients across the material. *See Fleming at 3:31-3 and Betts 1:25-26 (both*

describing warping of griddles due to thermal stresses). These thermal gradients cause the development of thermally induced stresses which cause an uneven expansion or contraction of the material which causes the material to warp. Callister at p. 717. If these stresses exceed the yield strength of the material, the warping will be permanent, even after the thermal gradients are removed.

90. As described above, it was well-known by the time of the '473 Patent that warping of a plate can be prevented by reducing the thermal stresses in the material through a reinforcement of the plate to increase its stiffness via ribs or other structure. Graham (1959) at 2:38-42 (“warpage was limited by the peripheral integrally formed ridge 34”); Savio (1960) at 3:12-15 (“inverted U-shape for strengthening the structure and preventing it from buckling or warping”); and Hinkle at 1:43-48 (“the ribs impart strength to the griddle to prevent warping.”) As such, warping can be prevented or reduced by adding material in a location which increases its area moment of inertia and consequently its resistance to bending. Shigley at 104. The addition of ribs integrally formed on the underside of flat plates is a common and inexpensive means of increasing the area moment of inertia and reducing the likelihood of warping in service. *See* Hinkle at 3:10-28 (addition of ribs reduced costs compared to thicker griddle plate). Accordingly, a POSITA would be motivated to include structural support features on the underside surface of the griddle. By integrally forming the front dam (42), rear dam (46) and sidewalls (44)

with the underside surface of the griddle, the structural rigidity of griddle will be significantly improved to withstand such warping.

91. Third, forming the ribs with the underside surface of the griddle ensures there is not a gap between the proximal portion of the rib and the underside of the griddle. *See Williams at Fig. 2.* An advantage described in Williams is the uniform layer of hot combustion gases formed along the underside of the griddle surface, thereby “more evenly delivering heat to the griddle.” Williams at 1:40-43. Such a gap would undermine the advantages described in Williams by allowing combustion gases to pass over the lateral ribs and affect adjacent heat zones, reducing the effectiveness of the cooking device. Williams at Abstract and 1:40-42.

92. Fourth, the sidewall (44) is a relatively thin vertical structure that would be integrally formed with at least one of the four sides it is connected to in order to provide stability and rigidity to the sidewall. The only four possibilities are to integrate the sidewall with the underside of the griddle, top of the floor plate (24), front dam (42), or rear dam (46). *See Williams at Fig. 2.* Integrating the sidewalls with the underside of the griddle or top of the floor plate provides the most contact area and thus they provide the greatest stability and rigidity to the sidewall. Further, integrating the sidewall with the underside of the griddle would provide the greatest amount of stability and rigidity to the top of the sidewall that is exposed to the largest heat differentials as the heat from the griddle and the heated air would predominately

impact the temperatures at the top of the heating chamber. Large heat differentials, such as those occurring when griddles are heated, can cause warping, as discussed above, which would reduce the capability of the sidewalls to funnel heat to the rear of the griddle.

93. A POSITA, in reviewing figure 2 of Williams, would appreciate that sidewalls (44) are, at a minimum, in contact with the underside surface of the griddle. *See Williams at Fig. 2.* This is evident to a POSITA when understanding the objective of Williams (e.g., to isolate convective heat from migrating from one heating chamber to another) and based on figure 2 which depicts a flat surface on the top of sidewalls (44) that is configured to be in contact with the underside surface of the griddle.

94. A POSITA would understand that being in contact with, versus integral with, introduces additional problems in the design of Williams. In particular, if sidewalls (44) warp, they may interfere with the griddle which is resting on frame (14). To solve this problem, a POSITA would be motivated to integrate sidewalls (44) with the underside of the griddle versus letting the griddle rest on them. Leaving the bottom of the sidewalls (44) disconnected, or floating above floor plate (24), would allow for some movement without interfering with the structure of the cooking device or its purposes of directing convective heat.

95. Lastly, integrally forming the sidewalls (44) with the underside of the griddle would reduce assembly time and errors since fewer parts would be required to be assembled by the end user. *Compare* Williams at Fig. 1 and ‘473 at Fig. 6 (illustrating similar views of griddle configurations with fewer parts required for griddle assembly). These ribs do not add significant weight to the structure formed integrally with the underside of the griddle cooking surface. The fabrication of plate steel griddles with reinforcing ribs may be achieved by rolling and/or machining plate stock to an appropriate thickness and size, followed by welding or bolting of the reinforcing ribs to the plate steel. They may also be formed integrally with the underside of the plate through coldworking or machining. Williams at Fig. 3 and 1:26-46; 4:15-33.

- i) **[10.8] wherein the multiple lateral ribs directly extend from the underside surface such that each lateral rib is spaced and separate from an adjacent lateral rib.**

96. Claim [10.8] is described by Williams. Williams describes that the downward extending sidewalls are disposed in a “laterally adjacent configuration, meaning that they generally run front-to-back and are disposed in a left-to-right series” and thereby each sidewall is spaced and separate from the adjacent sidewall. Williams at Fig. 2, 2:15-22 and 2:41-47.

97. As discussed above with respect to limitation [10.6], Williams also teaches or renders obvious the multiple lateral ribs (sidewalls 44) are downwardly extending from the underside of the griddle. *See Williams at Fig. 2.*

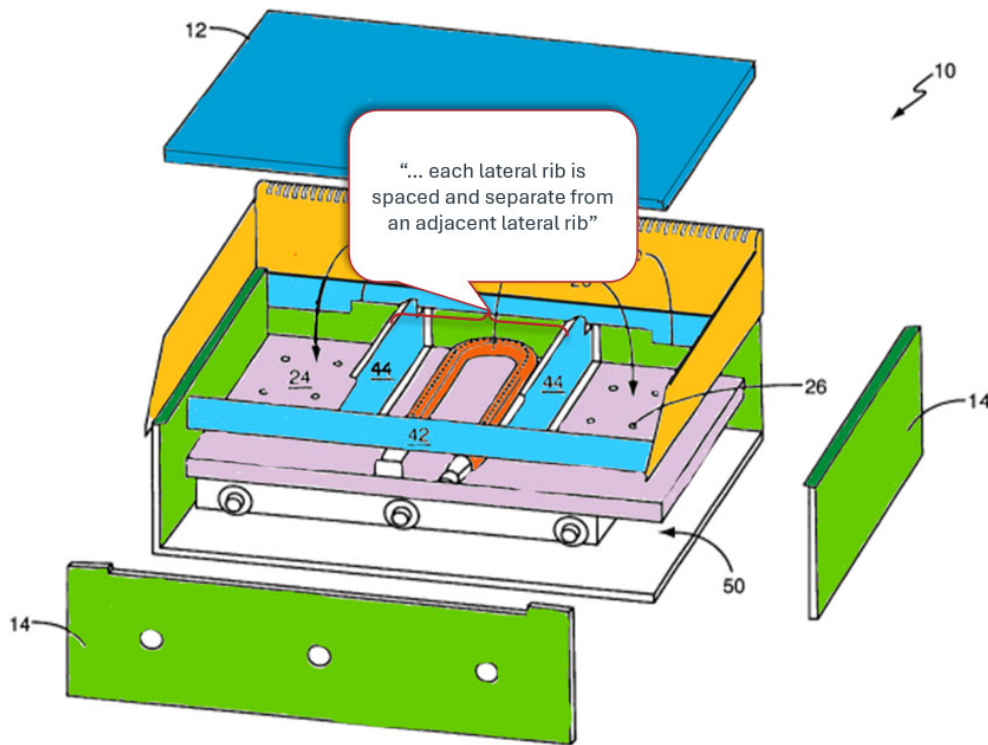


FIG. 2

Williams Annotated Figure 2

98. To the extent the specific limitation of the multiple lateral ribs (or sidewalls) directly extending from the “underside surface” is not found to be directly disclosed by Williams, this limitation would have been obvious. *See claim [1.7]* (discussing it would be obvious to affix all support structures including the front dam (42), rear dam (46) and sidewalls (44) to the “underside of the cooking surface.”).

- j) **Claim 11. The griddle of claim 10, wherein the front rib substantially blocks the convection heat from escaping a front side of the underside surface.**
- k) **Claim 12. The griddle of claim 10, wherein the adjacently extending lateral ribs are sized to substantially prevent convection heat from moving over the adjacently extending lateral ribs and directly, convectively heating adjacent heating regions.**
- l) **Claim 13. The griddle of claim 10, wherein the adjacently extending lateral ribs are sized to substantially maintain convection heat therebetween to only convectively heat the corresponding heating region between the adjacently extending lateral ribs.**

99. As discussed with respect to claim 10, Williams renders obvious claim 10 as discussed above. Claims 11, 12, and 13 all relate to usage of ribs to prevent the movement of convective heat between heating regions and thus are discussed together.

100. Williams describes an upper zone is defined by the underside of the griddle and “flow-restricting walls”, specifically a front dam wall (42), a rear dam wall (46), and sidewalls (44). Williams at Fig. 3 and 2:39-47. The “front dam 42, rear dam 46, and sidewalls 44,” provide heating chambers in the upper zone where a “portion of the hot combustion gases are at least temporarily trapped.” Williams at 3:57-4:2. These flow-restricting walls substantially reduce the front-to-back flow rate of heated gas in the upper zone of each heating chamber to evenly heat the respective area of the griddle. Williams at 4:2-13.

101. As shown in annotated Figure 3 below, the front dam wall (42) is a front rib that acts to substantially block convection heat or trap heat from escaping from the front side of the frame. Williams at Fig. 3.

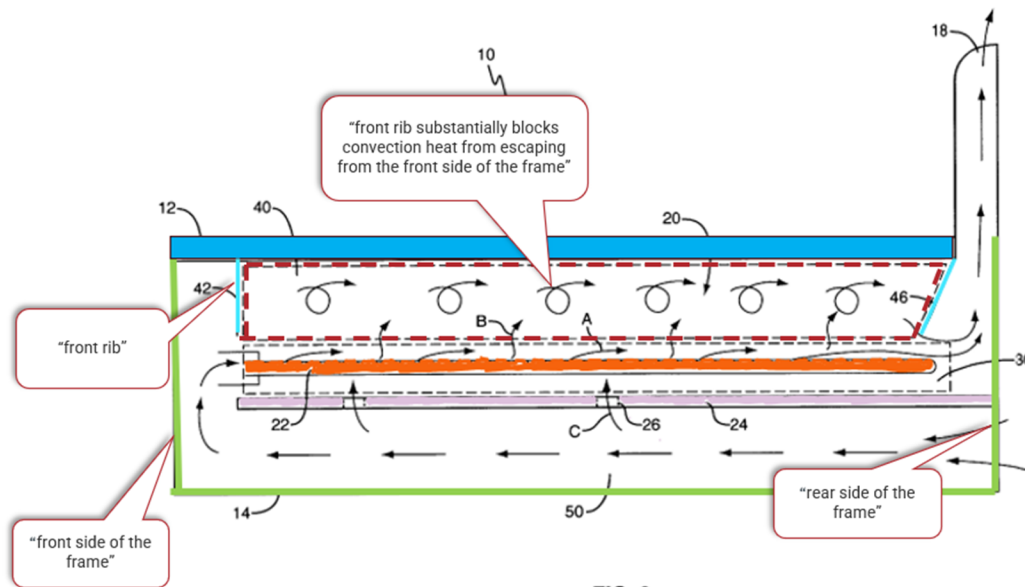


FIG. 3

Williams Annotated Figure 3

102. As seen in annotated Figure 3, no air flow is indicated to pass through front wall (42), but rather exits the heating chamber only by passing below rear wall (46) to the exit flue (18). Williams at 3:39-44 and 3:62-4:2. As discussed above, this results in a low front-to-back flow rate of the heated gas in the upper zone (40) where the heated gas becomes “dammed, stagnant, or trapped” in the upper zone to evenly heat the griddle area above the heating chamber. Williams at 3:57-4:13.

103. Williams also describes how the perimeter of the upper zone of the heating chamber comprises adjacent sidewalls (44) that cooperate with the front wall

(42) and rear wall (46) to trap hot combustion gases within upper zone (20) to substantially maintain the heat between the adjacent sidewalls. Williams at Abstract, 1:26-46 and 3:57-4:13. A POSITA understands that Williams's adjacent sidewalls (44) would be sized to substantially prevent the flow of hot combustion gases out of the sides of the upper zone since Williams discloses the hot combustion gases exit via going below rear dam (46) into flue (18). Williams at 3:39-44 and 3:62-4:2. As such, the adjacent sidewalls (44) prevent the convective heat in the form of hot combustion from moving into an adjacent heating chamber and directly convectively heating an adjacent heating chamber.

104. Further, as explained in Williams, there is "significant front-to-back flow" that causes the hot combustion gas to exit the rear of the griddle into flue (18). Williams at 2:16-23, 3:34-44. This significant directional flow from front-to-back would likewise prevent the flow of hot combustion gasses over the sidewalls.

105. In addition, as previously explained with respect to claim 10, it was obvious in view of Williams to integrate the sidewalls (44) with the underside of the griddle. When the sidewall is integral with the underside of the griddle, it would prevent the movement of hot gases over the sidewalls so that no convective heat from one chamber would move into another chamber directly heating it.

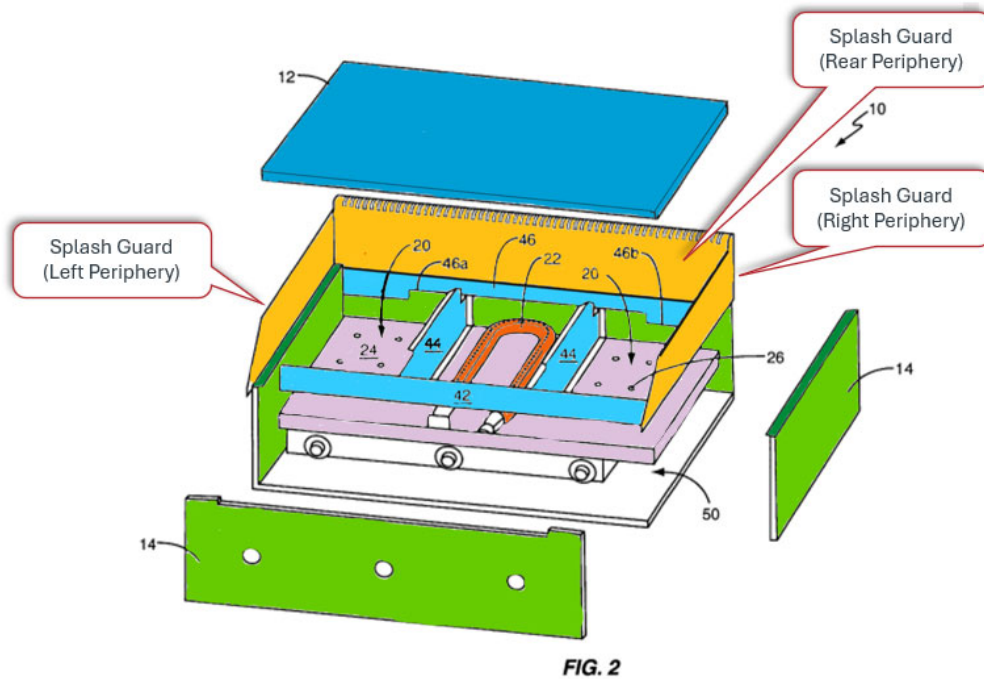
106. Because the sidewalls (44) in Williams prevent the flow of hot combustion gases outside of their respective heating chamber, the sidewalls only

convectively heat the upper zone within their respective heating chamber. This ensures an even heating surface on the griddle above the heating region. Williams at 4:2-13. Furthermore, Williams teaches heating regions can be further isolated to prevent movement of convective heat by not using a common sidewall for adjacent heating chambers. Williams at 2:17-23 and 2:57-59. When a common sidewall is not used, air or other insulative material can be interposed between the sidewalls of adjacent heating chambers to prevent the movement of convective heat from one heating chamber to another.

m) Claim 15. The griddle of claim 10, further comprising a splash guard extending upward above a periphery of the cooking surface.

107. Williams, similarly, discloses the limitations of claim 15 requiring a “splash guard extending upward above a periphery of the cooking surface.”

108. More specifically, and as can be seen in annotated Figure 2 of Williams below, the griddle includes a splash guard (colored yellow) that extends upward from the griddle surface on the left periphery, right periphery, and back periphery of the frame (14). Williams as Fig. 2.



Williams Annotated Figure 2

109. While the splash guard of Williams is not discussed in detail, a POSITA reviewing Williams would understand that the structure shown in yellow in annotated Figure 2 of Williams serves as a splash guard that would limit the splashing of grease on the surface of griddle.

- n) **[17.0] A method for selectively heating regions of a griddle with convection heat from one or more gas flame burners of an outdoor cooking station, the method comprising:**

110. Claim 17 is similar in scope to claim 10. As such, Williams discloses the limitations of claim 17 for at least the same reasons as Williams discloses the limitations of claim 10. See claim 10 from ground 1.

111. To the extent the preamble of claim 17 is limiting, it is rendered obvious for at least the reasons provided above for limitation [10.0] and [10.5] explaining how Williams cooking device selectively heats multiple separate heating regions using convective heat from turning on gas flame burners.

112. Williams discloses, “[a] method for selectively heating regions of a griddle with convection heat from one or more gas flame burners of an outdoor cooking station, the method comprising.” *See e.g.*, Williams at Fig. 2.

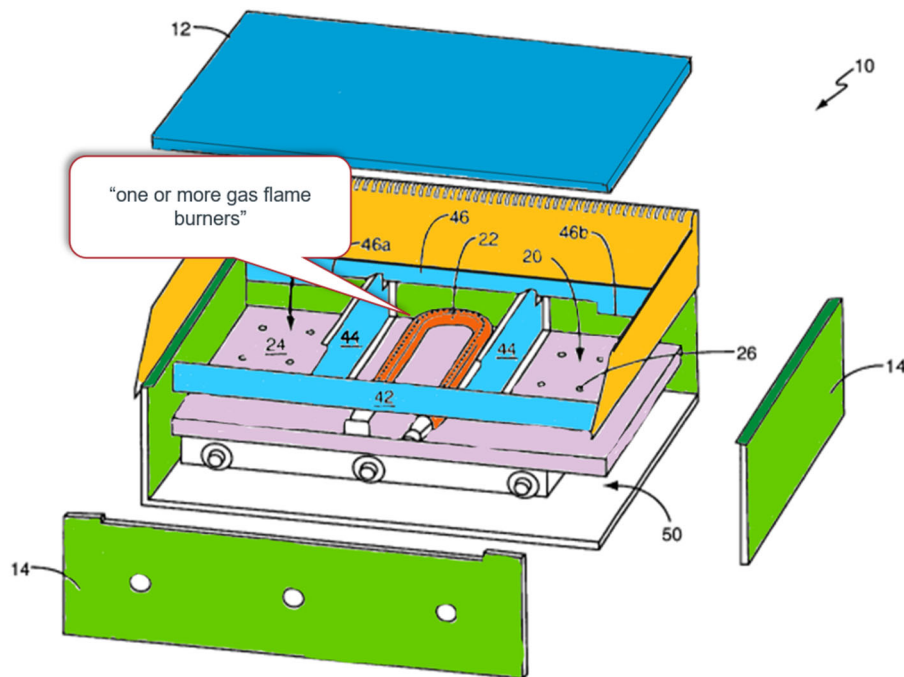


FIG. 2

Williams Annotated Figure 2

113. Williams’s invention “relates generally to the field of gas-fired cooking devices, and specifically to a gas-fired cooking device that includes a heat bank to provide a more uniformly heated cooking surface.” Williams at 1:6-9, 1:62-66

(describing the invention as “gas-fired griddles, braising pans, or ... skillets...”), and 3:9-19 (discussing that gas, such as propane, is supplied to burners which may be controlled by controls or user interfaces such as knobs).

114. As can be seen in annotated figure 3, below, Williams discloses a burner 22 positioned below what Williams describes as the “upper zone” which is a heating region since hot combustion gasses are trapped in Williams’s upper zone to heat the underside of the griddle. Williams at Fig. 3, 2:39-44, 3:52-62.

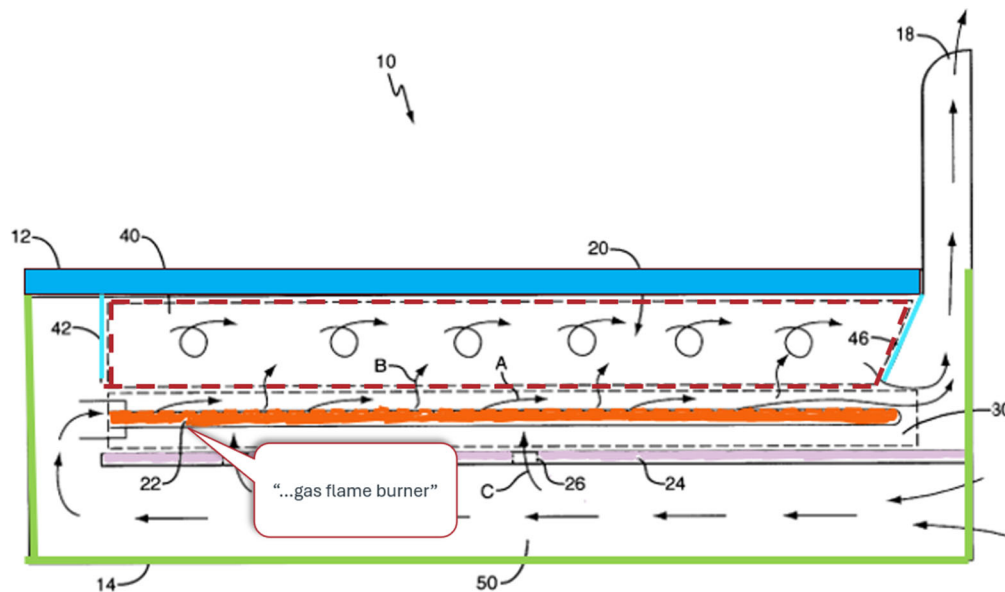


FIG. 3

Williams Annotated Figure 3

115. While Williams depicts three heating regions, only one burner is shown. A POSITA would appreciate a burner would be included in each of the heating regions shown in Williams figures 2 and 3. Williams at Fig. 2, Fig. 3, 1:10-

14 (describing that “gas-fired griddles, commonly utilize multiple burners located in various locations beneath the heated surface”); 1:29-35 (describing that each heating chamber is heated by at least one gas burner disposed in the lower zone); 2:23-30 (describing that the gas burners use natural, unforced, draft for supply air); *see also* 4:51-65 (describing that “cooking device...with more heating chambers 20 and corresponding burners 22.”).

116. In addition, a POSITA would understand one purpose of multiple separated heating regions in Williams is so the user can selectively heat the regions of the griddle above each heating region. If a user were to select to turn on the gas flame burners in one heating region but not the others, then the region of the griddle above the turned-on burners would be substantially hotter than other regions of the griddle.

117. Lastly, a POSITA understands that Williams griddle would be used outdoor cooking since the listed fuel sources include “propane” which is a ubiquitous fuel source for outdoor cooking with griddles and grills.

- o) **[17.1] turning on one or more gas burners of the outdoor cooking station such that the one or more gas burners are positioned below an underside surface of a griddle; and**

118. Limitation [17.1] is rendered obvious for at least the reasons provided for limitation [10.5]. In addition, Williams teaches an outdoor cooking station for the reasons stated above with regards to limitation [17.0].

119. As can be seen in annotated figure 3, below, Williams discloses a burner 22 positioned below what Williams describes as the “upper zone” which is a heating region since hot combustion gasses are trapped in Williams’s upper zone to heat the underside of the griddle. Williams at Fig. 3, 2:39-44, 3:52-62.

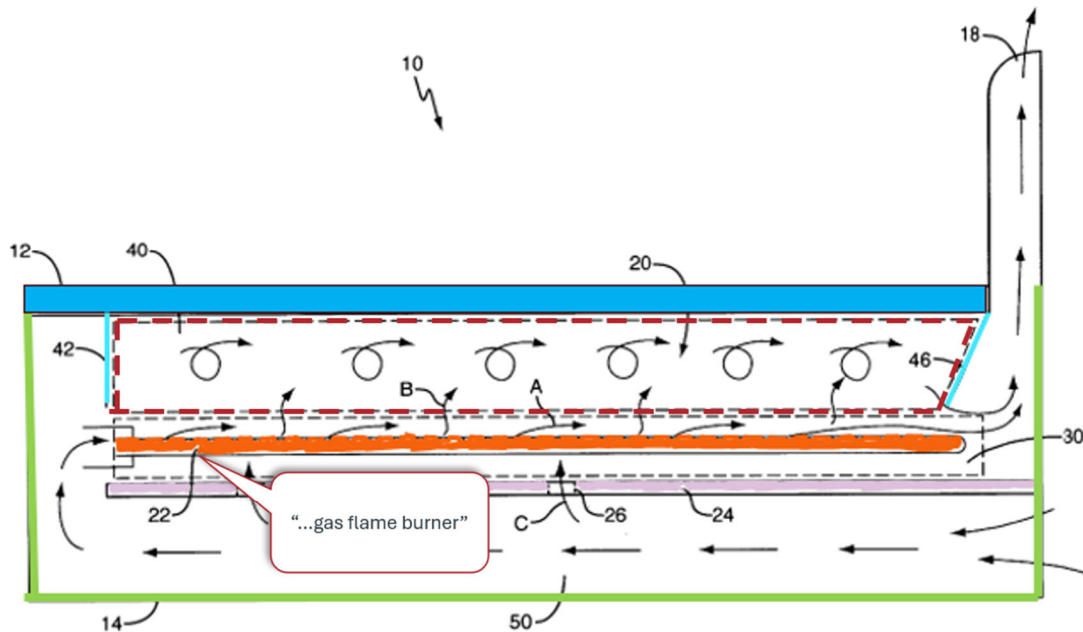


FIG. 3

Williams Annotated Figure 3

120. While Williams depicts three heating regions, only one burner is shown. A POSITA would appreciate a burner would be included in each of the heating regions shown in Williams figures 2 and 3. Williams at Fig. 2, Fig. 3, 1:10-14 (describing that “gas-fired griddles, commonly utilize multiple burners located in various locations beneath the heated surface”); 1:29-35 (describing that each heating chamber is heated by at least on gas burner disposed in the lower zone); 2:23-30

(describing that the gas burners use natural, unforced, draft for supply air); *see also* 4:51-65 (describing that “cooking device...with more heating chambers 20 and corresponding burners 22.”).

121. In addition, a POSITA would understand one purpose of multiple separated heating regions in Williams is so the user can selectively heat the regions of the griddle above each heating region. If a user were to select to turn on the gas flame burners in one heating region but not the others, then the region of the griddle above the turned-on burners would be substantially hotter than other regions of the griddle.

- p) **[17.2] selectively heating specific regions of the griddle that correspond with the one or more gas burners turned on, the specific regions each defined by adjacently extending parallel ribs, the ribs extending laterally from a front rib toward a rear end of the underside surface of the griddle such that the front rib and the parallel ribs channel convection heat to flow between the adjacently extending parallel ribs toward the rear end of the griddle and away from the outdoor cooking station;**

122. Limitation [17.2] is rendered obvious for at least the reasons provided for limitation [10.5] and [10.6]. While claim 10 does not expressly require the lateral ribs to be “parallel” this is taught by Williams’s primary embodiment as best seen in Figure 4, where the dashed lines representing sidewalls 44 would be understood by a POSITA to be in parallel. Williams at Fig. 4; *see also* Fig. 2.

123. As can be seen in annotated figure 3, below, Williams discloses a burner 22 positioned below what Williams describes as the “upper zone” which is a heating region since hot combustion gasses are trapped in Williams’s upper zone to heat the underside of the griddle. Williams at Fig. 3, 2:39-44, 3:52-62.

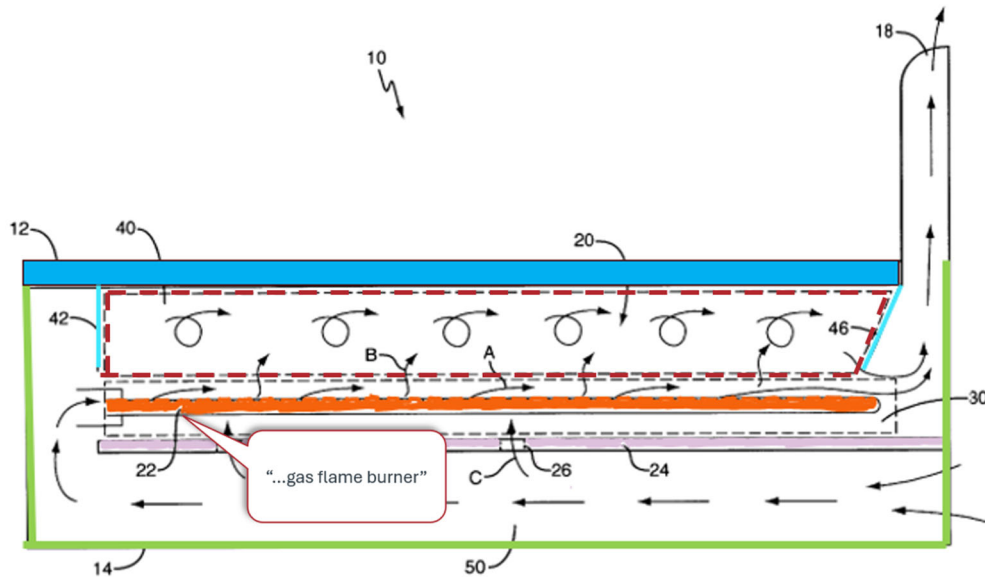


FIG. 3

Williams Annotated Figure 3

124. While Williams depicts three heating regions, only one burner is shown. A POSITA would appreciate a burner would be included in each of the heating regions shown in Williams figures 2 and 3. Williams at Fig. 2, Fig. 3, 1:10-14 (describing that “gas-fired griddles, commonly utilize multiple burners located in various locations beneath the heated surface”); 1:29-35 (describing that each heating chamber is heated by at least one gas burner disposed in the lower zone); 2:23-30 (describing that the gas burners use natural, unforced, draft for supply air); *see also*

4:51-65 (describing that “cooking device...with more heating chambers 20 and corresponding burners 22.”).

125. In addition, a POSITA would understand one purpose of multiple separated heating regions in Williams is so the user can selectively heat the regions of the griddle above each heating region. If a user were to select to turn on the gas flame burners in one heating region but not the others, then the region of the griddle above the turned-on burners would be substantially hotter than other regions of the griddle.

126. While Williams only explicitly provides that the front (42) and rear dams (46) are “downwardly extending,” a POSITA would also read the disclosure of “[a]t least the front dam 42 and the rear dam 46 are downwardly extending, thereby extending generally away from the underside of the cooking surface 12” to mean other components, such as sidewalls (44) may also be optionally downwardly extending from the underside surface of the griddle and thus “fixed” or “integral” to the underside surface of the griddle. Williams at 2:44-47 (emphasis added).

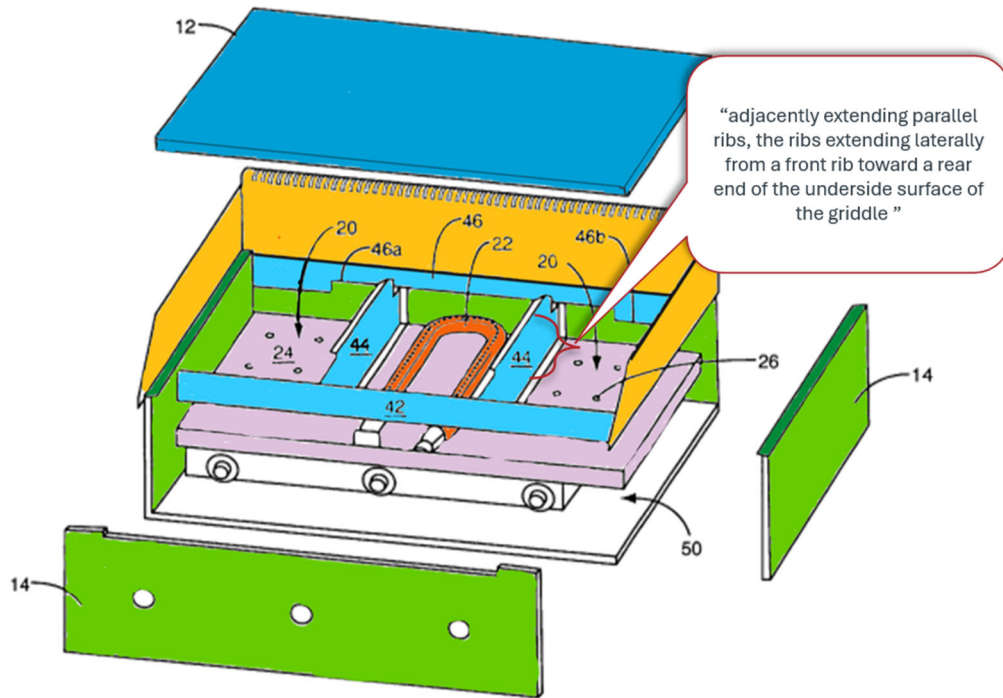


FIG. 2

Williams Annotated Figure 2

127. Williams further describes that the upper zones' sidewalls (44) and downwardly extending dam walls (42 and 46) cooperate to create the low flow zones beneath the griddle surface (12). Williams at Abstract. Moreover, these features from Williams create "a more uniform layer of hot combustion gases to be formed along the underside of the griddle surface, thereby more evenly delivering heat to the griddle surface." Williams at Abstract. Extending the sidewalls downward from the underside of the griddle would help achieve these intended functions in Williams cooking device. See Williams Fig. 2.

128. A POSITA would appreciate that the cooking system disclosed in Williams uses multiple burners (22) in combination with the physical structure of the front rib (42) and lateral ribs (44).

129. Moreover, a POSITA would understand the equivalent height of each rib serves as an air dam/seal, ensuring that heated air is retained in its respective heating chamber and cannot escape through gaps/seams in the joined structure to adjacent heating chambers. Williams at 2:39-44 and 3:62-4:2 (describing that once the “gas within the upper zone 50 has cooled, it descends below the lower edge 46 a,b of the rear dam 46, joins the flow from the burner zone 30, and is carried out the flue 18.”).

130. Accordingly, a POSITA would understand Williams discloses that the convection heat trapped in a heating chamber by the sidewalls moves from any one of the multiple burners toward the rear end of the underside surface of the griddle and from the rear side of the frame (e.g., out the flue (18)).

131. Williams describes that “[t]he hot combustion gases tend to rise within the heating chamber 20, but there is a significant front-to-back flow within the burner zone 30 caused by natural drafting, . . . [a] portion of the hot combustion gases flow relatively directly out the exhaust located at the rear of each heating chamber 20.” Williams at 3:20-51; *see also* Williams at 3:52-56 (describing that “[i]n order to combat this, another portion of the hot combustion gases generated by the burner 22

is at least transiently dammed within the upper zones 40 beneath the cooking surface 12.”)

132. Extending the sidewalls downward from the underside of the griddle would help achieve Williams’s description that the sidewalls (44) and dam walls (42 and 46) cooperate together to create the low flow zones beneath the griddle surface (12) as well as creating “a more uniform layer of hot combustion gases to be formed along the underside of the griddle surface, thereby more evenly delivering heat to the griddle surface.” Williams at Abstract.

133. In addition, parallel sidewalls in Williams would have been an obvious implementation since it results in a heating chamber having equal width across its length (e.g., rectangle or square). This helps achieve Williams stated purpose to heat the griddle area more uniformly above the heating zone since the hot gases will be equally distributed in the heating chamber having a constant width over its length. Williams at 1:20-23 and 1:67-2:4. Conversely, if the heating chamber had variable width across its length, such as a triangular shape, then hot combustion gases may be distributed unevenly, resulting in undesirable nonuniform thermal gradients.

- q) **[17.3] the front rib and the parallel ribs integrally formed with the underside surface of the griddle, and the parallel ribs directly extend from the underside surface of the griddle such that each parallel rib is spaced and separate from an adjacently extending parallel rib.**

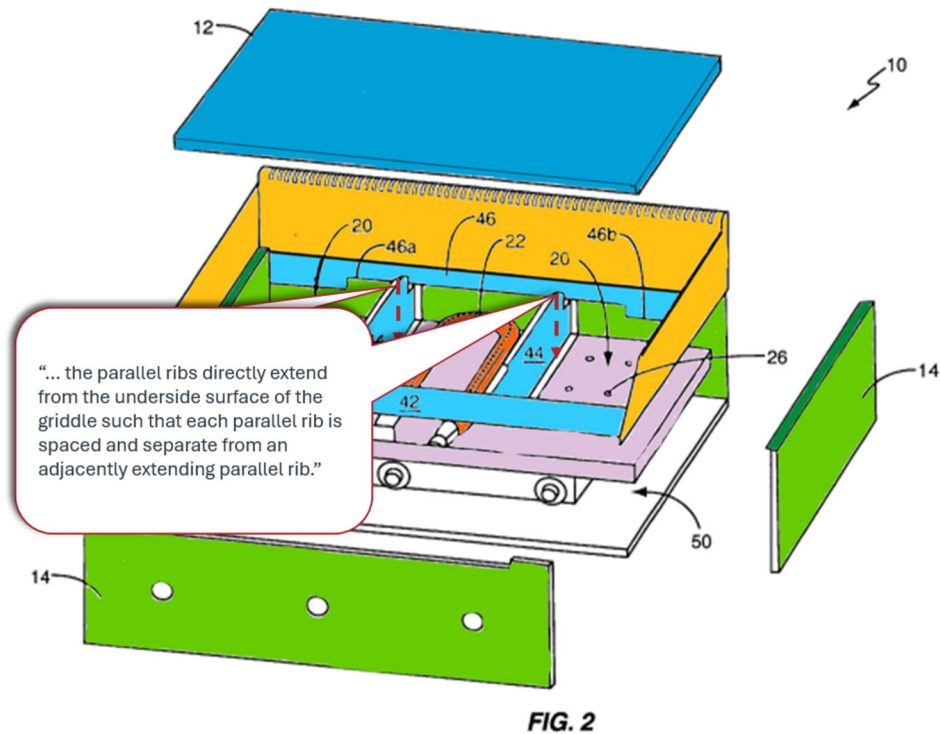
134. Limitation [17.3] is rendered obvious for at least the reasons provided for limitation [10.7] and [10.8]. While claim 10 does not require the integral lateral ribs to be “parallel” this is taught by Williams as explained above with respect to limitation [17.2].

135. As previously discussed, Williams teaches or renders obvious front rib and the parallel ribs integrally formed with the underside surface of the griddle, and the parallel ribs directly extend from the underside surface.

136. A POSITA would understand Williams’s disclosure of a front dam (42), rear dam (46), or sidewalls (44), as “downwardly extending” indicates that at least these two features are “fixed” or “integral” to the underside surface of the griddle and descend downward from their fixed source. Williams at 2:41-47. Integrating these structures with the underside of the griddle creates “a more uniform layer of hot combustion gases to be formed along the underside of the griddle surface, thereby more evenly delivering heat to the griddle surface.” Williams at 1:38-42, 1:67-2:4, and 3:57-4:2.

137. In addition to Williams itself suggesting that the front dam (42) and sidewalls (44) may be integrally formed with the underside of griddle, a POSITA

would also be motivated to integrally form the ribs with the underside of the griddle for several other reasons.



Williams Annotated Figure 2

138. First, the weight of the griddle, as assembled in Fig. 1, would thermally couple it to the front (42) and sidewalls (44). *See Williams at Fig. 1-3.* Two or more bodies are thermally coupled when heat can be transferred between bodies, and heat is most effectively transferred between bodies when they are in contact such that heat may be conducted from one body to another. To ensure the maximum thermal coupling between the griddle and the sidewalls a POSITA would look to integrate the sidewalls to the underside of the griddle.

139. Second, integrating the sidewalls with the underside of the griddle would also greatly strengthen the horizontally planar griddle to be heated (12) by providing built in vertical support structures. Williams at Fig. 2. Such a configuration aids in the prevention of warping of the planar cooking surface (12). Warping was a well-known problem for griddles by the time of the '473 Patent. *See* Fleming (1939) at 3:31-39 and Betts (1942) 1:25-26.

140. A structure is considered warped when it has "...become bent or twisted out of shape typically as a result of the effects of heat..." Oxford University Press. (2024). Warped. In Oxford English dictionary. Retrieved March 5, 2024. Thermally induced warping in flat metal plates results from the development of temperature gradients across the material. *See* Fleming at 3:31-3 and Betts 1:25-26 (both describing warping of griddles due to thermal stresses). These thermal gradients cause the development of thermally induced stresses which cause an uneven expansion or contraction of the material which causes the material to warp. Callister at p. 717. If these stresses exceed the yield strength of the material, the warping will be permanent, even after the thermal gradients are removed.

141. As described above, it was well-known by the time of the '473 Patent that warping of a plate can be prevented by reducing the thermal stresses in the material through a reinforcement of the plate to increase its stiffness via ribs or other structure. Graham (1959) at 2:38-42 ("warpage was limited by the peripheral

integrally formed ridge 34”); Savio (1960) at 3:12-15 (“inverted U-shape for strengthening the structure and preventing it from buckling or warping”); and Hinkle at 1:43-48 (“the ribs impart strength to the griddle to prevent warping.”) As such, warping can be prevented or reduced by adding material in a location which increases its area moment of inertia and consequently its resistance to bending. Shigley at 104. The addition of ribs integrally formed on the underside of flat plates is a common and inexpensive means of increasing the area moment of inertia and reducing the likelihood of warping in service. *See* Hinkle at 3:10-28 (addition of ribs reduced costs compared to thicker griddle plate). Accordingly, a POSITA would be motivated to include structural support features on the underside surface of the griddle. By integrally forming the front dam (42), rear dam (46) and sidewalls (44) with the underside surface of the griddle, the structural rigidity of griddle will be significantly improved to withstand such warping.

142. Third, forming the ribs with the underside surface of the griddle ensures there is not a gap between the proximal portion of the rib and the underside of the griddle. *See* Williams at Fig. 2. An advantage described in Williams is the uniform layer of hot combustion gases formed along the underside of the griddle surface, thereby “more evenly delivering heat to the griddle.” Williams at 1:40-43. Such a gap would undermine the advantages described in Williams by allowing combustion

gases to pass over the lateral ribs and affect adjacent heat zones, reducing the effectiveness of the cooking device. Williams at Abstract and 1:40-42.

143. Fourth, the sidewall (44) is a relatively thin vertical structure that would be integrally formed with at least one of the four sides it is connected to in order to provide stability and rigidity to the sidewall. The only four possibilities are to integrate the sidewall with the underside of the griddle, top of the floor plate (24), front dam (42), or rear dam (46). *See Williams at Fig. 2.*

144. Integrating the sidewalls with the underside of the griddle or top of the floor plate provides the most contact area and thus they provide the greatest stability and rigidity to the sidewall. Further, integrating the sidewall with the underside of the griddle would provide the greatest amount of stability and rigidity to the top of the sidewall that is exposed to the largest heat differentials as the heat from the griddle and the heated air would predominately impact the temperatures at the top of the heating chamber. Large heat differentials, such as those occurring when griddles are heated, can cause warping, as discussed above, which would reduce the capability of the sidewalls to funnel heat to the rear of the griddle.

145. A POSITA, in reviewing figure 2 of Williams, would appreciate that sidewalls (44) are, at a minimum, in contact with the underside surface of the griddle. *See Williams at Fig. 2.* This is evident to a POSITA when understanding the objective of Williams (e.g., to isolate convective heat from migrating from one

heating chamber to another) and based on figure 2 which depicts a flat surface on the top of sidewalls (44) that is configured to be in contact with the underside surface of the griddle.

146. A POSITA would understand that being in contact with, versus integral with, introduces additional problems in the design of Williams. In particular, if sidewalls (44) warp, they may interfere with the griddle which is resting on frame (14). To solve this problem, a POSITA would be motivated to integrate sidewalls (44) with the underside of the griddle versus letting the griddle rest on them. Leaving the bottom of the sidewalls (44) disconnected, or floating above floor plate (24), would allow for some movement without interfering with the structure of the cooking device or its purposes of directing convective heat.

147. Lastly, integrally forming the sidewalls (44) with the underside of the griddle would reduce assembly time and errors since fewer parts would be required to be assembled by the end user. *Compare* Williams at Fig. 1 and '473 at Fig. 6 (illustrating similar views of griddle configurations with fewer parts required for griddle assembly). These ribs do not add significant weight to the structure formed integrally with the underside of the griddle cooking surface. The fabrication of plate steel griddles with reinforcing ribs may be achieved by rolling and/or machining plate stock to an appropriate thickness and size, followed by welding or bolting of the reinforcing ribs to the plate steel. They may also be formed integrally with the

underside of the plate through coldworking or machining. Williams at Fig. 3 and 1:26-46; 4:15-33.

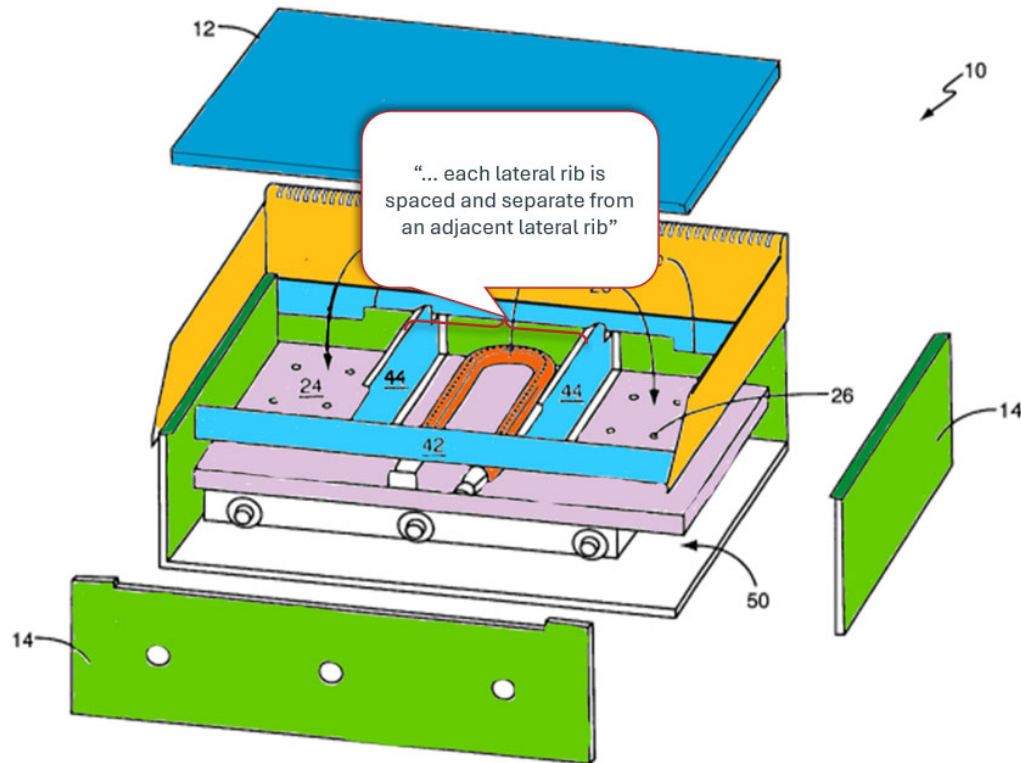


FIG. 2

Williams Annotated Figure 2

148. As illustrated in annotated figure 2, Williams describes that the downward extending walls create the heating chambers (20) which are disposed in a “laterally adjacent configuration, meaning that they generally run front-to-back and are disposed in a left-to-right series” and thereby each parallel rib is spaced and separate from an adjacently extending parallel rib. Williams at Fig. 2, 2:15-22 and 2:41-47.

- r) **Claim 18. The method according to claim 17, wherein the selectively heating comprises selectively heating the specific regions with the parallel ribs substantially preventing convection heat from moving over the parallel ribs by the convection heat being drawn toward the rear end of the griddle.**

149. Williams discloses each of the limitations for claim 17 as set forth above. As discussed above with respect to claims 11-13, Williams discloses wherein the selectively heating comprises selectively heating the specific regions with the parallel ribs substantially preventing convection heat from moving over the parallel ribs by the convection heat being drawn toward the rear end of the griddle. *See* claims 11-13. Further, as discussed above with respect to limitation [10.6], Williams teaches the convective heat contained between the sidewalls is drawn toward the rear end of the griddle. *See* limitation [10.6].

150. Williams describes an upper zone is defined by the underside of the griddle and “flow-restricting walls”, specifically a front dam wall (42), a rear dam wall (46), and sidewalls (44). Williams at Fig. 3 and 2:39-47. The “front dam 42, rear dam 46, and sidewalls 44,” provide heating chambers in the upper zone where a “portion of the hot combustion gases are at least temporarily trapped.” Williams at 3:57-4:2. These flow-restricting walls substantially reduce the front-to-back flow rate of heated gas in the upper zone of each heating chambers to evenly heat the respective area of the griddle. Williams at 4:2-13.

151. As seen in Figure 3, no air flow is indicated to pass through front wall (42), but rather exits the heating chamber only by passing below rear wall (46) to the exit flue (18). Williams at 3:39-44 and 3:62:4-2. As discussed above, this results in a low front-to-back flow rate of the heated gas in the upper zone (40) where the heated gas becomes “dammed, stagnant, or trapped” in the upper zone to evenly heat the griddle area above the heating chamber. Williams at 3:57-4:13.

152. Williams also describes how the perimeter of the upper zone of the heating chamber comprises adjacent sidewalls (44) that cooperate with the front wall (42) and rear wall (46) to trap hot combustion gases within upper zone (20) to substantially maintain the heat between the adjacent sidewalls. Williams at Abstract, 1:26-46 and 3:57-4:13. A POSITA understands that Williams’s adjacent sidewalls (44) would be sized to substantially prevent the flow of hot combustion gases out of the sides of the upper zone since Williams discloses the hot combustion gases exit via going below rear dam (46) into flue (18). Williams at 3:39-44 and 3:62:4-2. As such, the adjacent sidewalls (44) prevent the convective heat in the form of hot combustion from moving into an adjacent heating chamber and directly convectively heating an adjacent heating chamber.

153. Further, as explained in Williams, there is “significant front-to-back flow” that causes the hot combustion gas to exit the rear of the griddle into flue (18).

Williams at 2:16-23, 3:34-44. This significant directional flow from front-to-back would likewise prevent flow of hot combustion gasses over the sidewalls.

154. In addition, as previously explained with respect to claim 17, it was obvious in view of Williams to integrate the sidewalls (44) with the underside of the griddle. When the sidewall is integral with the underside of the griddle, it would prevent the movement of hot gases over the sidewalls so that no convective heat from one chamber would move into another chamber directly heating it.

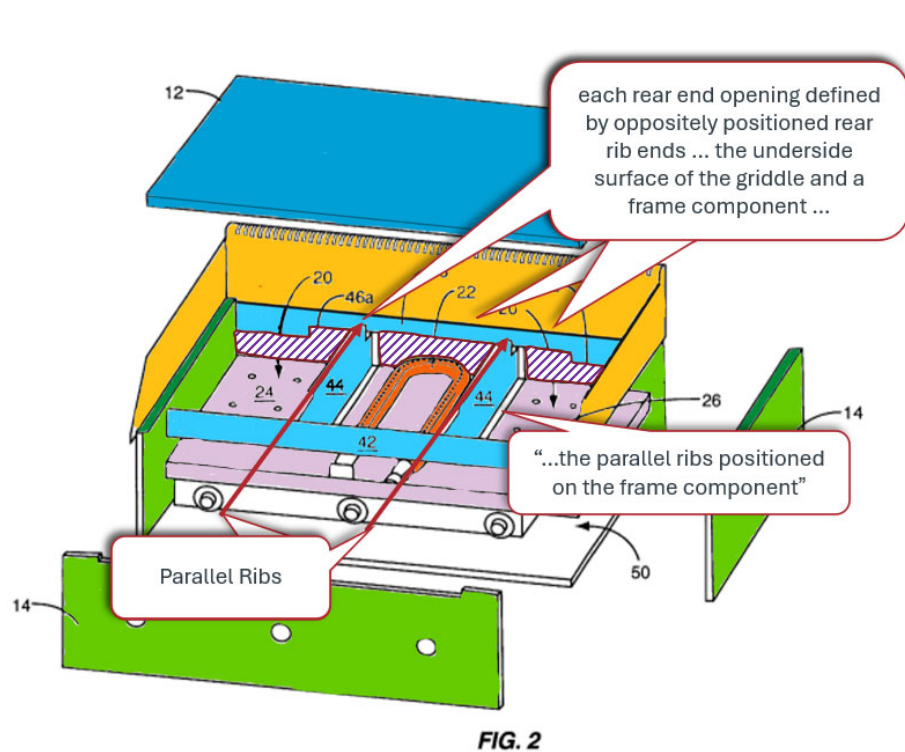
155. Because the sidewalls (44) in Williams prevent the flow of hot combustion gases outside of their respective heating chamber, the sidewalls only convectively heat the upper zone within their respective heating chamber. This ensures an even heating surface on the griddle above the heating region. Williams at 4:2-13. Furthermore, Williams teaches heating regions can be further isolated to prevent movement of convective heat by not using a common sidewall for adjacent heating chambers. Williams at 2:17-23 and 2:57-59. When a common sidewall is not used, air or other insulative material can be interposed between the sidewalls of adjacent heating chambers to prevent the movement of convective heat from one heating chamber to another.

- s) **Claim 20. The method according to claim 17, wherein the selectively heating comprises substantially preventing convection heat from moving over the parallel ribs by drawing the convection heat toward the rear end of the griddle with rear end openings, each rear end opening defined by oppositely positioned rear rib ends of the parallel ribs and the rear end of the underside surface of the griddle and a frame component of the outdoor cooking station, the parallel ribs positioned on the frame component.**

156. Williams discloses each of the limitations for claim 17 as set forth above. Similarly, Williams discloses the limitation from claim 20 requiring “wherein the selectively heating comprises substantially preventing convection heat from moving over the parallel ribs by drawing the convection heat toward the rear end of the griddle with rear end openings, each rear end opening defined by oppositely positioned rear rib ends of the parallel ribs and the rear end of the underside surface of the griddle and a frame component of the outdoor cooking station, the parallel ribs positioned on the frame component.”

157. More specifically, Williams discloses “wherein the selectively heating comprises substantially preventing convection heat from moving over the parallel ribs by drawing the convection heat toward the rear end of the griddle with rear end openings,” for similar reasons as discussed above.

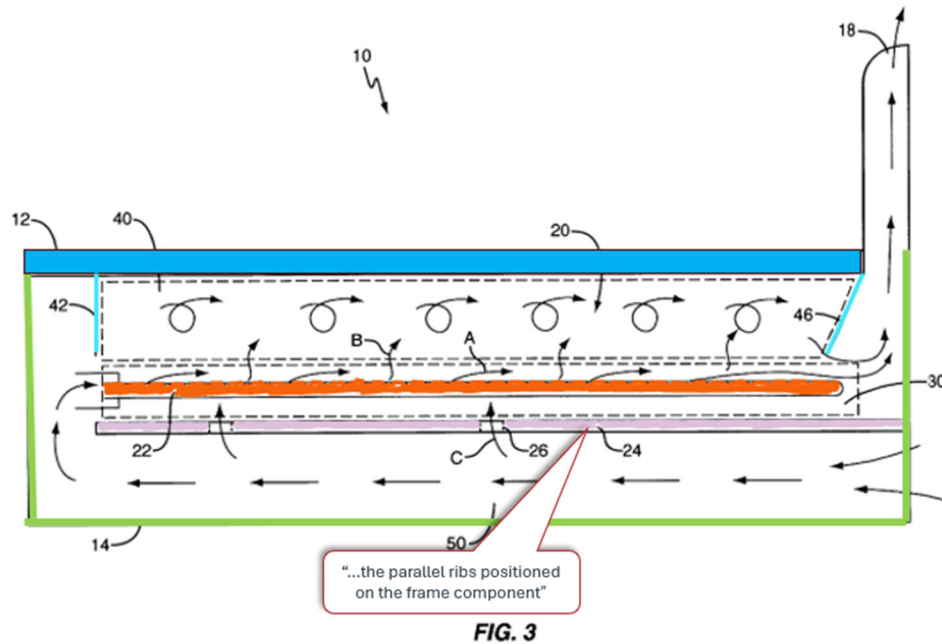
158. Williams also provides “each rear end opening defined by oppositely positioned rear rib ends of the parallel ribs and the rear end of the underside surface of the griddle and a frame component of the outdoor cooking station.”



Williams Annotated Figure 2

159. Specifically, a POSITA would recognize that each of the heating regions (20) is defined, in part, by sidewalls (44), frame (14) and the underside surface of the griddle. Moreover, and as can be seen in annotated Figure 2 of Williams, hot gases formed within heating region (20) would exhaust out the opening defined by the parallel ribs (44), rear end of the underside surface of the griddle, and out flue (18). *See Williams at 3:62-65 (describing that “gas within the upper zone 50 has cooled, it descends below the lower edge 46 a,b of the rear dam 46, joins the flow from the burner zone 30, and is carried out the flue 18.”).*

160. Williams also provides “the parallel ribs positioned on the frame component.” Specifically, a POSITA would appreciate the parallel ribs (44), of Williams, could rest on floor plate (24) as can be seen in annotated Figure 2 of Williams.



Williams Annotated Figure 3

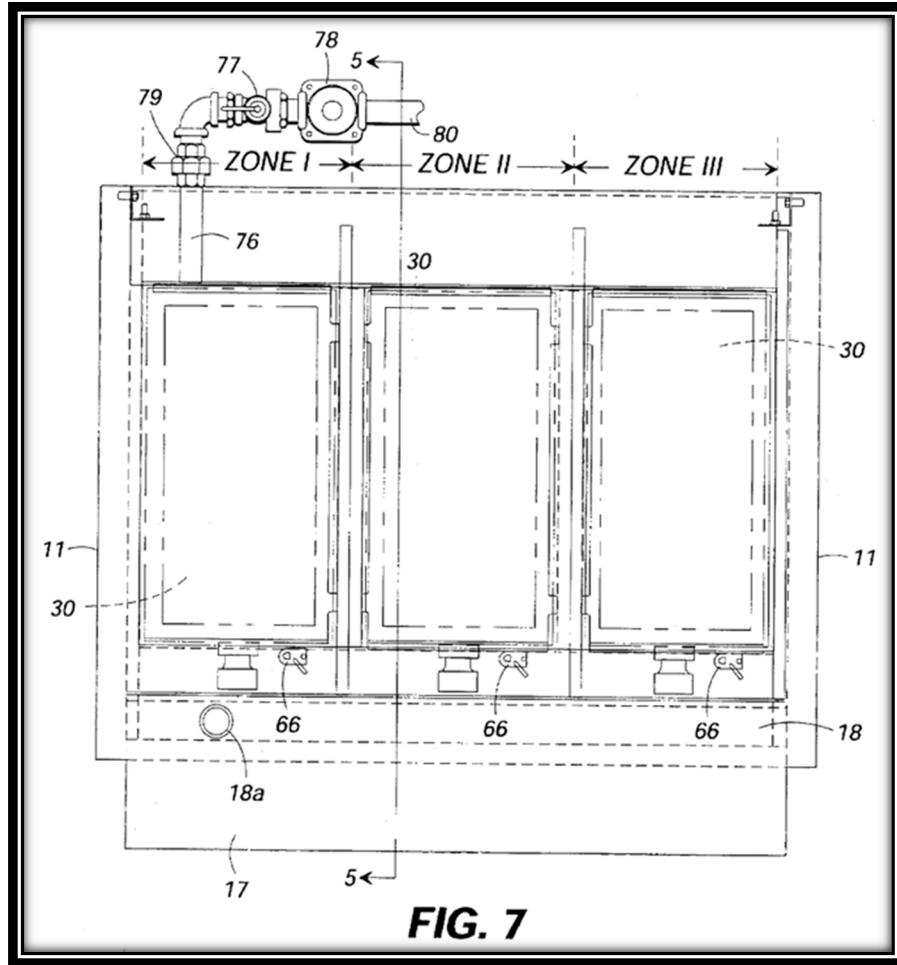
161. In particular, Figure 2 shows that parallel ribs (44) may rest on floor plate (24) and/or the rear side of frame (14). As can be further seen in annotated Figure 3 of Williams, below, floor plate (24) is connected to and forms a component of the frame (14).

B. GROUND 2: Claims 10-13, 15, 17, 18 and 20 are rendered obvious under 35 U.S.C. § 103 by Williams in view of Best.

1. Introduction

162. The teachings of the prior art references Williams and Best, combined with the knowledge of a person of ordinary skill in the art, would render claims 10-13, 15-18, and 20 of the '473 patent obvious. As set forth in Ground 1, Williams teaches every limitation of claims 10-13, 15, 17, 18 and 20.

163. To the extent that Williams does not teach “multiple lateral ribs are integrally formed with the underside surface of the griddle” and/or “multiple lateral ribs directly extend from the underside of the griddle,” as required by claim 1 and 10, and “the front rib and the parallel ribs integrally formed with the underside surface of the griddle, and the parallel ribs directly extend from the underside surface of the griddle such that each parallel rib is spaced and separate from and adjacently extending parallel rib,” as required by claim 17, a POSITA would combine the teachings of Best with the teachings of Williams since Best explicitly discloses these limitations.



Best Figure 7

164. Similarly, Best also teaches the limitations from dependent claims requiring “an air intake system configured to feed air to the multiple burners, the air intake system including at least one of a front vent along the front side of the frame” and “splash guard extending upward above a periphery of the cooking surface.”

165. A detailed description of this ground of rejection, including the motivation for combining the references is presented in detail below.

2. Detailed Claim Analysis

- a) [10.0] A griddle configured to control convection heat from one or more gas flame burners of a cooking station, the griddle comprising:

166. Williams discloses limitation [10.0], “[a] griddle configured to control convection heat from one or more gas flame burners of a cooking station, the griddle comprising.” *See e.g.*, Williams at Fig. 2.

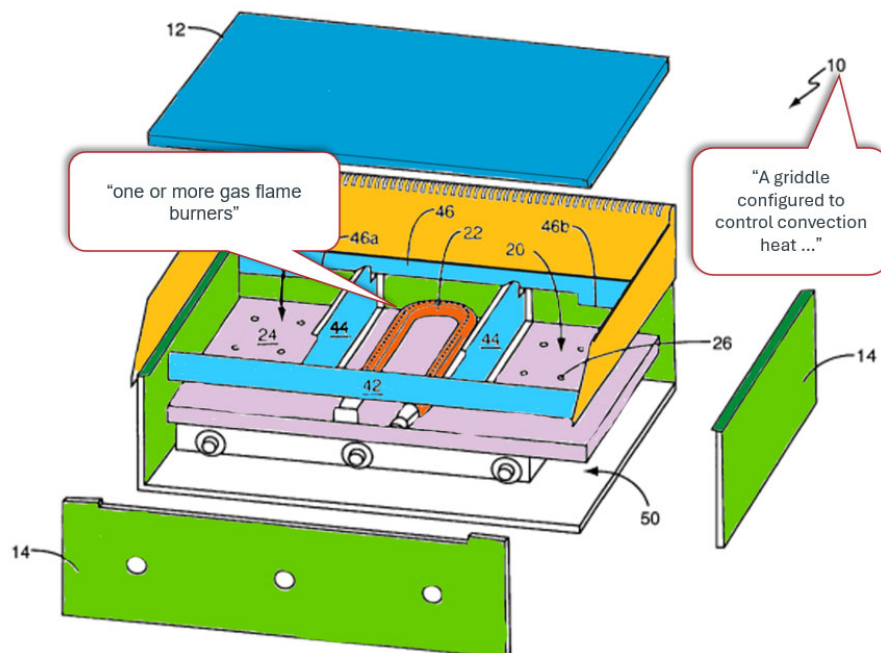


FIG. 2

Williams Annotated Figure 2

167. Williams’s invention “relates generally to the field of gas-fired cooking devices, and specifically to a gas-fired cooking device that includes a heat bank to provide a more uniformly heated cooking surface.” Williams at 1:6-9, 1:62-66 (describing the invention as “gas-fired griddles, braising pans, or ... skillets...”), and

3:9-19 (discussing that gas, such as propane, is supplied to burners which may be controlled by controls or user interfaces such as knobs).

- b) **[10.1] a cooking surface having a rectangular shape, the cooking surface configured to face upward;**
- c) **[10.2] an underside surface, the underside surface extending to generally correspond with the cooking surface, the underside surface facing in an opposite direction than the cooking surface, the underside surface extending to define a periphery with a front end, a rear end, a left end, and a right end;**

168. As illustrated in annotated figure 2, below, Williams discloses a griddle with a rectangular cooking surface (facing upward) and underside surface (facing downward) that is configured to face upward (14). Williams at Fig. 2, Fig. 3 and 2:8-12.

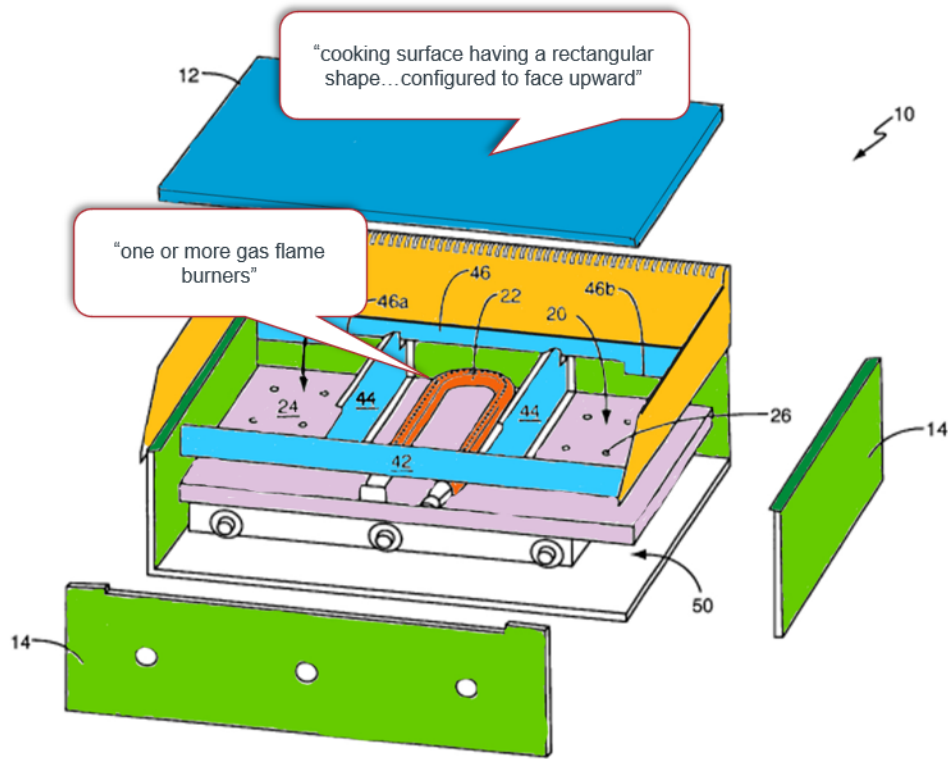


FIG. 2

Williams Annotated Figure 2

169. As illustrated in annotated figure 2, below, the griddle has a rectangular periphery with a front end, a rear end, a left end, and a right end. Williams at Figs. 1-3 and 2:8-12.

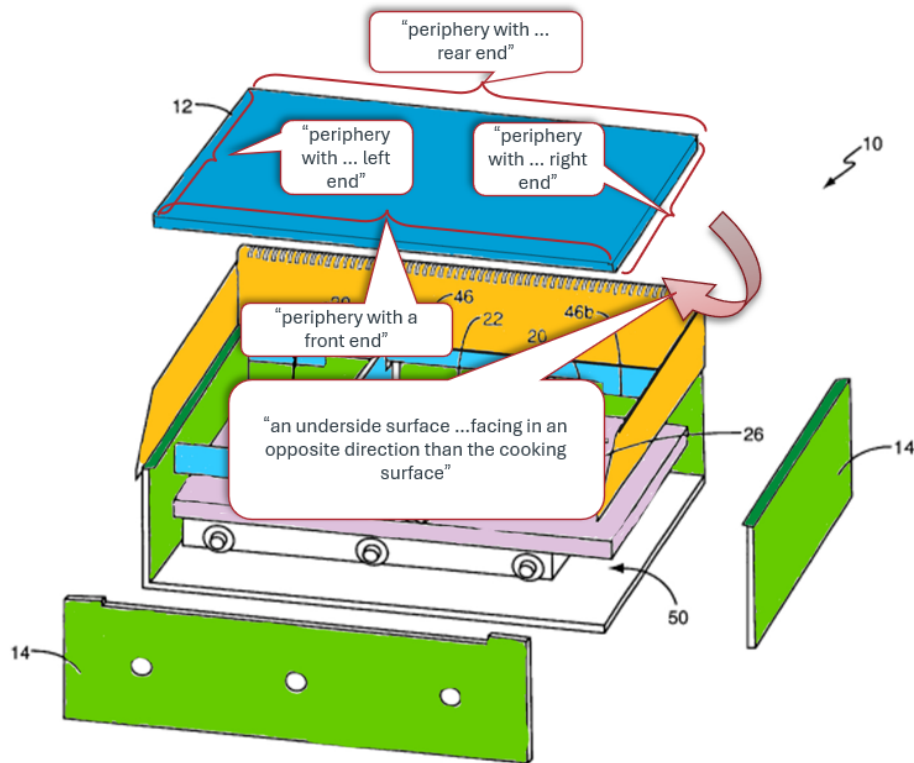


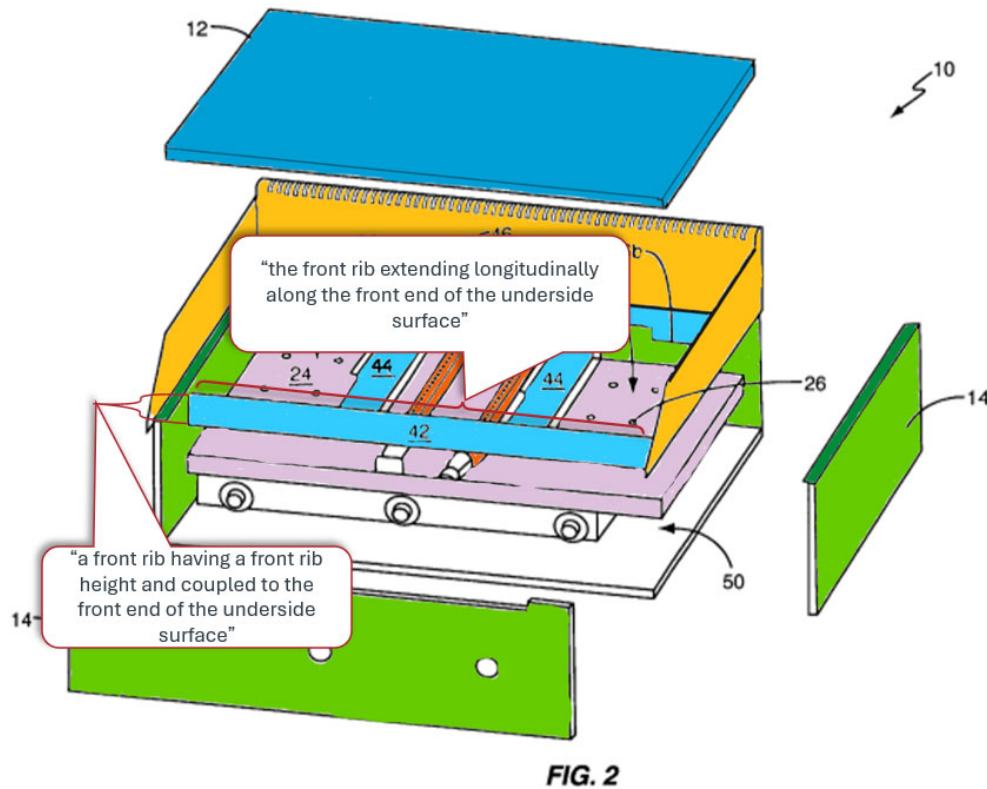
FIG. 2

Williams Annotated Figure 2

- d) [10.3] a front rib having a front rib height and coupled to the front end of the underside surface, the front rib extending longitudinally along the front end of the underside surface; and**

170. As illustrated in annotated figure 2, below, Williams discloses a griddle (with an underside surface) and a front rib (e.g., “front dam” 42), extending longitudinally along the underside surface of the griddle, and multiple lateral ribs (e.g., “sidewalls” 44) extending along the underside surface of the griddle from the front rib to the rear end. Williams at Fig. 2; 1:35-38, *see also* 2:41-44 (providing “upper zone 40 is generally defined by the underside of the cooking surface 12 and

flow-restricting walls, specifically a front dam wall 42, a rear dam wall 46, and sidewalls 44 associated therewith.”).

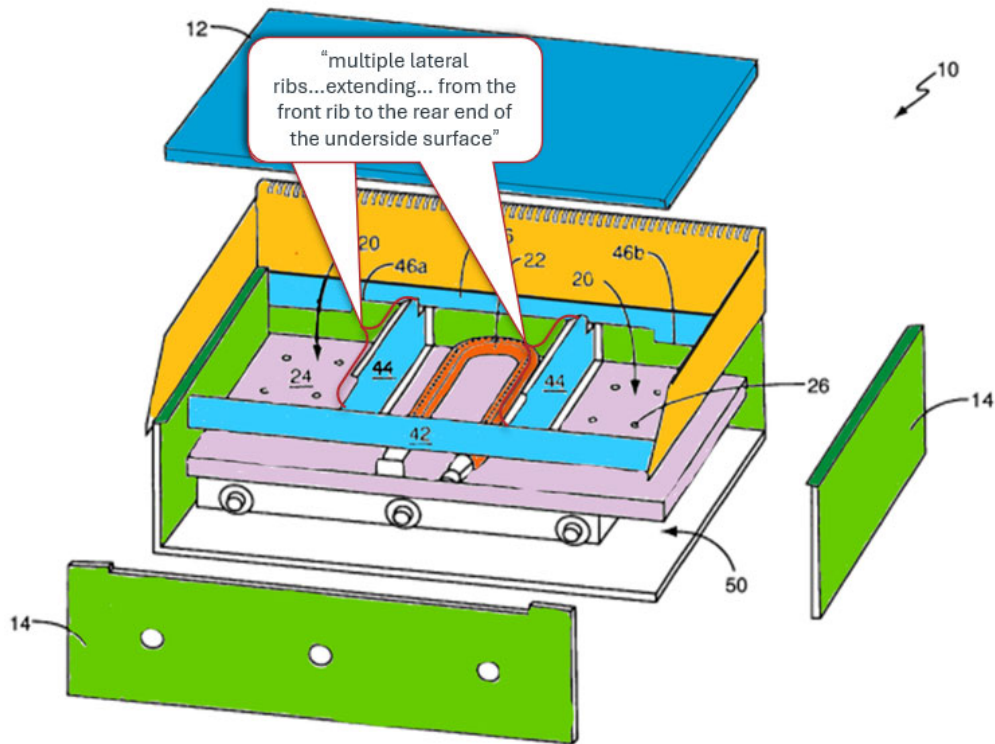


Williams Annotated Figure 2

171. Williams further states, “[a]t least the front dam 42 and the rear dam 46 are downwardly extending, thereby extending generally away from the underside of the cooking surface 12.” Williams at 2:44-47. A POSITA would understand this disclosure to mean that the front dam is coupled to and extends longitudinally across the front end of the underside surface of the griddle with a downwardly extending height. Williams at 2:44-47.

- e) **[10.4] multiple lateral ribs each extending laterally relative to the front rib and extending along the underside surface from the front rib to the rear end of the underside surface;**

172. As illustrated in annotated figure 2, below, Williams discloses a griddle with multiple lateral ribs (*e.g.*, “sidewalls” 44) extending along the underside surface of the griddle from the front rib to the rear end. Williams at Fig. 2; 1:35-38 and 2:41-44. Specifically, Williams discloses “[t]he upper zone 40 is generally defined by the underside of cooking surface 12 and flow-restricting walls, specifically a front dam wall 42, a rear dam wall 46, and sidewalls 44 associated therewith.” Williams at 2:41-44. The sidewalls 44 are lateral ribs that run laterally from the front dam wall to the rear dam wall, which spans the length of the front to rear ends of the griddle. Williams at 2:39-44 and 3:65-4:2.



Williams Annotated Figure 2

173. Williams further provides that “[a]t least the front dam 42 and the rear dam 46 are downwardly extending, thereby extending generally away from the underside of the cooking surface 12.” Williams at 2:44-47 (emphasis added) and 1:35-38 (describing that the upper zones have sidewalls and flow-restricting walls that cooperate to create zones of relatively stagnant flow under the griddle).

- f) [10.5] the multiple lateral ribs being spaced from each other so as to define multiple heating regions such that each heating region is defined between adjacently extending lateral ribs, the heating regions each configured to be positioned above a gas flame burner;

174. As shown in annotated figure 2 below, multiple heating chambers are separated by the spaced sidewalls (44). Specifically, “upper zones 40 of adjacent heating chambers 20 may utilize opposite sides of an otherwise common sidewall 44,” and “[f]urther, the front dam 42 and the rear dam 46 of the various heating chambers 20 may simply be laterally different portions of respective continuous wall elements if desired.” Williams at Fig. 2, 2:57-62 and 4:51-65.

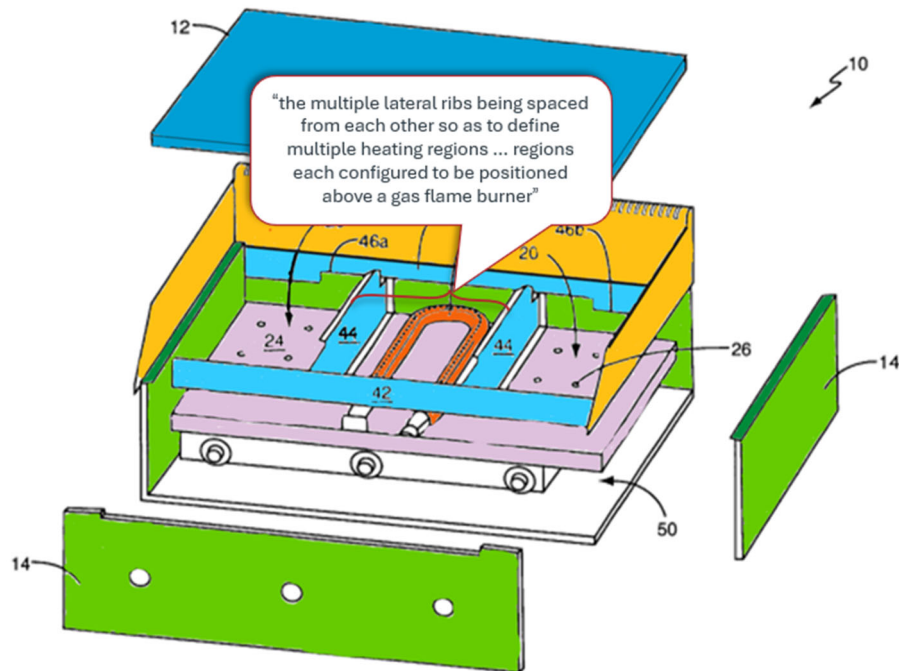


FIG. 2

Williams Annotated Figure 2

175. As can be seen in annotated figure 3, below, Williams discloses a burner 22 positioned below what Williams describes as the “upper zone” which is a heating region since hot combustion gasses are trapped in Williams’s upper zone to heat the underside of the griddle. Williams at Fig. 3, 2:39-44, 3:52-62.

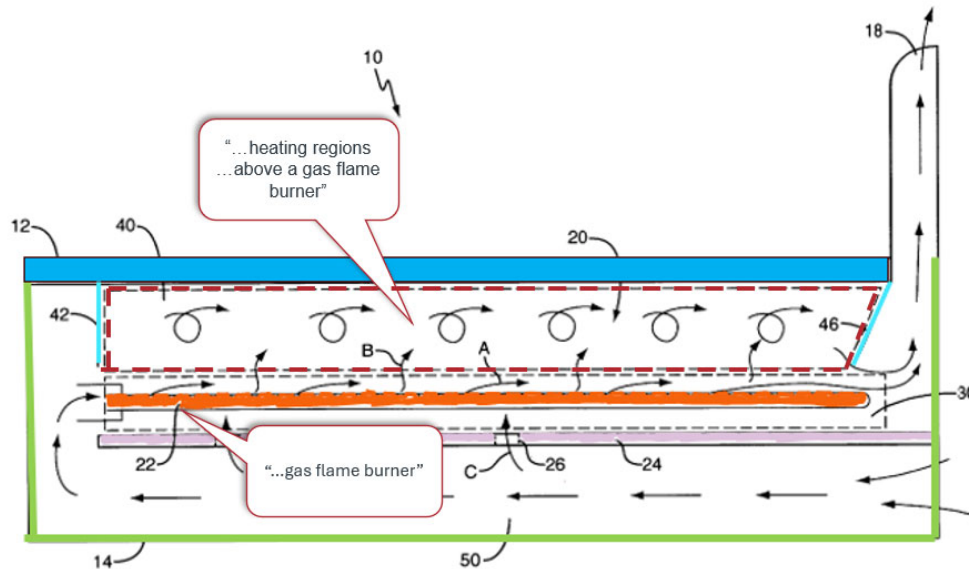


FIG. 3

Williams Annotated Figure 3

176. While Williams depicts three heating regions, only one burner is shown. A POSITA would appreciate a burner would be included in each of the heating regions shown in Williams figures 2 and 3. Williams at Fig. 2, Fig. 3, 1:10-14 (describing that “gas-fired griddles, commonly utilize multiple burners located in various locations beneath the heated surface”); 1:29-35 (describing that each heating chamber is heated by at least on gas burner disposed in the lower zone); 2:23-30

(describing that the gas burners use natural, unforced, draft for supply air); *see also* 4:51-65 (describing that “cooking device...with more heating chambers 20 and corresponding burners 22.”).

- g) **[10.6] each of the lateral ribs extend downward from the underside surface a lateral rib height such that the adjacently extending lateral ribs are configured to funnel the convection heat from the gas flame burner toward the rear end of the underside surface and away from a rear side of the cooking station;**

177. Williams discloses that “[t]he upper zone 40 is generally defined by the underside of cooking surface 12 and flow-restricting walls, specifically a front dam wall 42, a rear dam wall 46, and sidewalls 44 associated therewith.” Williams at 2:41-44. The sidewalls 44 are lateral ribs that run from the front dam wall to the rear dam wall. Williams at 2:39-44 and 3:65-4:2. Williams goes further to provide that, “[a]t least the front dam 42 and the rear dam 46 are downwardly extending, thereby extending generally away from the underside of the cooking surface 12.” Williams at 2:44-47.

178. While Williams only explicitly provides that the front (42) and rear dams (46) are “downwardly extending,” a POSITA would also read the disclosure of “[a]t least the front dam 42 and the rear dam 46 are downwardly extending, thereby extending generally away from the underside of the cooking surface 12” to mean other components, such as sidewalls (44) may also be optionally downwardly extending a certain height from the underside surface of the griddle and thus are

“fixed” or “integral” to the underside surface of the griddle. Williams at 2:44-47 (emphasis added).

179. Williams further describes that the upper zones’ sidewalls (44) and downwardly extending dam walls (42 and 46) cooperate to create the low flow zones beneath the griddle surface (12). Williams at Abstract. Moreover, these features from Williams create “a more uniform layer of hot combustion gases to be formed along the underside of the griddle surface, thereby more evenly delivering heat to the griddle surface.” Williams at Abstract. Extending the sidewalls a height downward from the underside of the griddle would help achieve these intended functions in Williams cooking device. *See* Williams Fig. 2.

180. In reviewing annotated figure 3, a POSITA would appreciate that the cooking system disclosed in Williams uses multiple burners (22) to generate convective heat and uses the physical structure of the front rib (42) and lateral ribs (44) to help funnel the convective heat to the rear of the cooking device. Williams at Fig. 3.

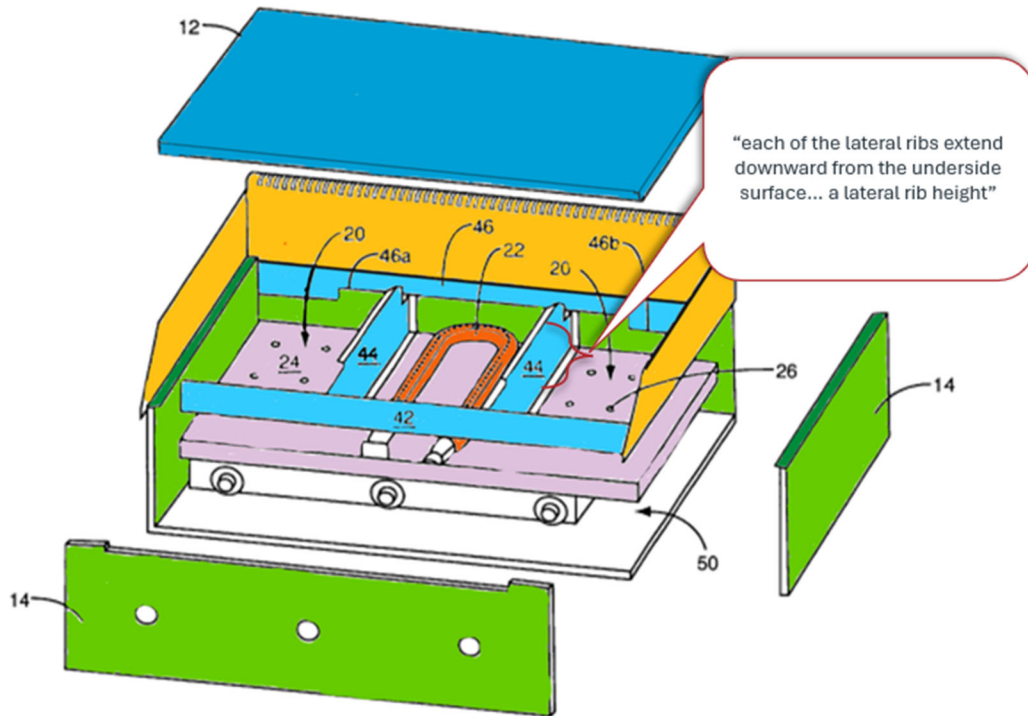


FIG. 2

Williams Annotated Figure 2

181. Moreover, a POSITA would understand the equivalent height of each rib serves as an air dam/seal, ensuring that heated air is retained in its respective heating chamber and cannot escape through gaps/seams in the joined structure to adjacent heating chambers. Williams at 2:39-44 and 3:62-4:2 (describing that once the “gas within the upper zone 50 has cooled, it descends below the lower edge 46 a,b of the rear dam 46, joins the flow from the burner zone 30, and is carried out the flue 18.”).

182. Accordingly, a POSITA would understand Williams discloses that the convection heat trapped in a heating chamber by the sidewalls moves from any one

of the multiple burners toward the rear end of the underside surface of the griddle and from the rear side of the frame (e.g., out the flue (18)) Williams at 3:62-4:2.

183. Williams describes that “[t]he hot combustion gases tend to rise within the heating chamber 20, but there is a significant front-to-back flow within the burner zone 30 caused by natural drafting, . . . [a] portion of the hot combustion gases flow relatively directly out the exhaust located at the rear of each heating chamber 20.” Williams at 3:20-51; *see also* Williams at 3:52-56 (describing that “[i]n order to combat this, another portion of the hot combustion gases generated by the burner 22 is at least transiently dammed within the upper zones 40 beneath the cooking surface 12.”)

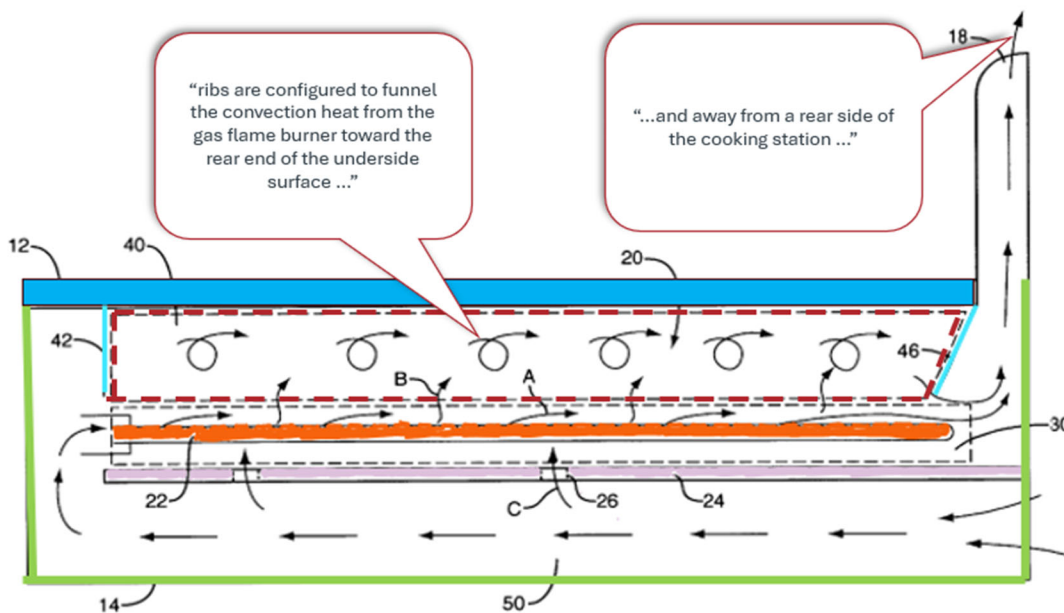


FIG. 3

Williams Annotated Figure 3

184. Accordingly, a POSITA would understand Williams teaches that the presence of the perimeter wall, including the front dam (42), rear dam (46), and sidewalls (44), helps create the upper zone (40) where the portion of the hot combustion gases are at least temporarily trapped while being funneled toward the rear end of the griddle's underside surface before they exit from the rear of the cooking device. Williams at 3:57-4:2.

185. Extending the sidewalls downward from the underside of the griddle would help achieve Williams's description that the sidewalls (44) and dam walls (42 and 46) cooperate together to create the low flow zones beneath the griddle surface (12) as well as creating "a more uniform layer of hot combustion gases to be formed along the underside of the griddle surface, thereby more evenly delivering heat to the griddle surface." Williams at Abstract.

h) [10.7] wherein the front rib and the multiple lateral ribs are integrally formed with the underside surface; and

186. As to claim limitation [10.7], Best explicitly teaches these limitations. Moreover, Williams and Best are analogous references both teaching cooking devices, specifically, griddles that use multiple heating zones or chambers to uniformly heat a cooking surface. *See* Williams at Abstract; Best at Abstract.

187. In order to provide a more uniform heating of a griddle surface, Williams and Best utilize a plurality of heating chambers below the griddle surface

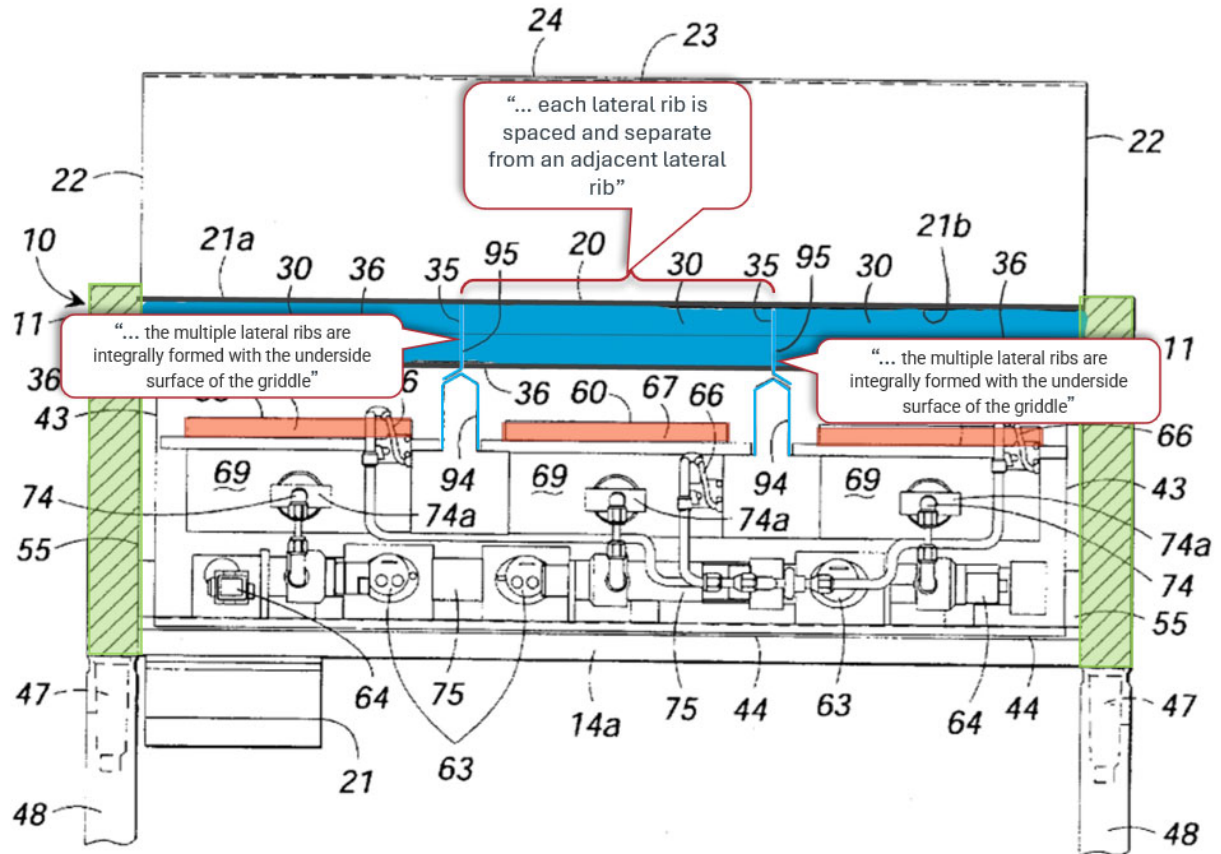
creating heat or temperature zones which can be controlled independently of each other. Williams at 1:27-31; Best at 3:48-52.

188. Best relates generally to a “griddle having discrete, separately heated, cooking zones.” Best at 1:5-9. In particular, Best describes a multi-component griddle plate (20) and “fixedly secured...juxtaposed, spaced, individual...blocks or plates 30.” Best at 5:26-29. Below the heat transfer plates (30) are three gas burners (60), one for each of the three zones. Best at 8:6-15; *see also* Best at Fig. 7 (showing a top view of the three heating zones).

189. A POSITA would understand Best uses a few methods to isolate the heat between each of its three heating zones. In particular, Best describes the use of insulation strips (35) in airgaps between adjacent plates. Best at 6:47-49. A POSITA would understand the insulation strips (35) and air gap between the plates would be used to limit the conductive heat that would transfer between heat transfer plates (30) of the griddle (20). Best at 6:47-48.

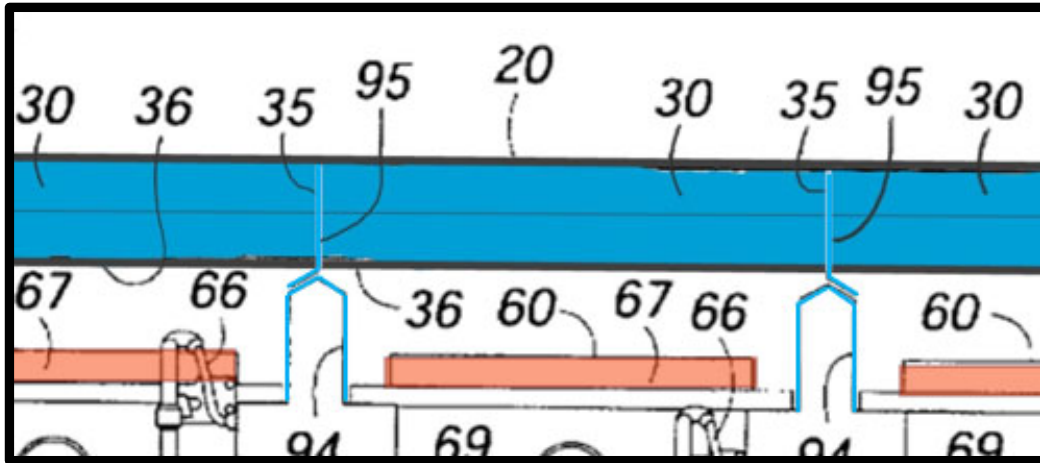
190. To further isolate convective heat between the zones, Best also describes the use of lateral ribs integrated with the griddle. Best at 9:18-22. In particular, Best teaches that “[f]or further isolating the heat from burners 60, a pair of inverted U-shaped, insulating baffles 94, as seen in Fig. 5, are interposed between each pair of burner groups, **while other baffles 95 extend downwardly from plate 20 to terminate in overlapping relationship, as shown in FIG. 5.**” Best at 9:18-

22 (emphasis added); *see also* Best at Fig. 5 (showing multiple lateral ribs extending from, and integrated with, the underside surface of the griddle).



Best Annotated Figure 5

191. Accordingly, a POSITA would understand Best teaches the insulating baffles extending downward from griddle (20) are lateral ribs integrated with the underside of the griddle that are spaced and separate from an adjacent lateral rib. More particularly, a POSITA would understand to extend downward from the griddle plate, the baffle (as drawn in Fig. 5) must be integral to the plate or griddle.



Best Annotated Figure 5 Zoomed in View (94 and 95 baffles)

192. A POSITA would be motivated to combine the teachings of Williams with Best for integrating lateral ribs with the underside surface of the griddle to improve the thermal isolation of the heating chambers as taught by Best.

193. In particular, a POSITA would appreciate some of the lateral ribs taught by Best (e.g., baffles 95) are integral with the underside surface of griddle and downwardly extend from it. These lateral ribs would be used in conjunction with overlapping lateral ribs taught by Best that are integral with the bottom of the heating chamber. The result is the cooking system taught by Williams utilizing the lateral ribs taught by Best, which are integral with the underside of the griddle (in conjunction with overlapping lateral ribs integral with the floor plate of the heating chamber).

194. A POSITA would recognize that Best's baffles/lateral ribs would be subject to heat induced stresses that may induce deformation as different portions

the baffles expand and contract at different rates depending on the heat they are subjected to. *See Best at Fig. 5.*

195. To account for this deformation a POSITA understands that Best leaves a small air gap where baffles (94) and (95) overlap. As also would be recognized by a POSITA, physically separating the downwardly extending baffle (95) from the upwardly extending baffle (94) where the baffles overlap in the region where the most heat induced deformation occurs, would prevent heat induced deformation from displacing the cooking surface which is connected to downwardly extending baffle (95). A POSITA understands that the overlapping area of the baffles, with a physical separation, would reduce the impact of any such deformation.

196. In addition, Best utilizes overlapping baffles instead of a single baffle integrated on both the top and bottom surfaces because a single baffle so integrated would prevent the griddle plate from being removed allowing access to the heating chambers for maintenance. By separating the downwardly extending baffle (95) from the upwardly extending baffle (94), Best permits the device to be assembled, disassembled, maintained, etc., more easily, without sacrificing the thermal isolation. *See Best at 3:33-38 (describing “[f]or ease of cleaning, repair and replacement, the heating elements are mounted within a slidable drawer so that, when the source of gas and/or electricity are disconnected, the drawer can be pulled out to an open cantilever supported position.”)*

197. This configuration of lateral ribs taught by Best, in conjunction with the front dam (42) and rear dam (46) of Williams, improves the isolation of the hot combustion gases that collect at the top of the heating zones. This configuration prevents any gaps between Williams's lateral rib and the underside of the Williams griddle due to assemble or manufacturing tolerances while also improving the heat isolation even if the ribs do undergo some deformation given the overlapping rib structure.

198. A POSITA would be able to implement the combination of Williams and Best without undue experimentation. First, Williams expressly contemplates lateral ribs extending downward as taught by Best's baffles 95. As discussed above, Williams provides that, “[a]t least the front dam 42 and the rear dam 46 are downwardly extending, thereby extending generally away from the underside of the cooking surface 12.” Williams at 2:44-47; *see also* Williams at Claim 1 (reciting “each of said heating chambers having sidewalls and downwardly extending flow-restricting walls...”).

199. While Williams only explicitly provides the front (42) and rear dams (46) are “downwardly extending,” a POSITA would also read the disclosure of “[a]t least the front dam 42 and the rear dam 46 are downwardly extending, thereby extending generally away from the underside of the cooking surface 12” to mean other components, such as sidewalls (44) may also be optionally downwardly

extending from the underside surface of the griddle and thus “fixed” or “integral” to the underside surface of the griddle. Williams at 2:44-47 (emphasis added).

200. Second, the lateral ribs of Best serve the same purpose as the lateral ribs of Williams to isolate heat in different cooking zones. The baffles (95) of Best would attach to the underside of Williams griddle while baffles (94) of Best would attach to the top surface of Williams floor plate. The physical space occupied by Best’s baffles would be substantially the same as the physical space already occupied by Williams’s sidewall (44). As such, the lateral ribs of Best would be a simple substitution for the lateral ribs of Williams.

201. In addition, the baffles of Best would still allow Williams’s griddle plate to be removed and the area of the heating zoon to be easily accessed for cleaning and maintenance as contemplated by Best. Best at 3:33-38.

- i) **[10.8] wherein the multiple lateral ribs directly extend from the underside surface such that each lateral rib is spaced and separate from an adjacent lateral rib.**

202. Claim [10.8] is described by Williams. Williams describes that the downward extending sidewalls are disposed in a “laterally adjacent configuration, meaning that they generally run front-to-back and are disposed in a left-to-right series” and thereby each sidewall is spaced and separate from the adjacent sidewall. Williams at Fig. 2, 2:15-22 and 2:41-47.

203. As discussed above with respect to limitation [10.6], Williams also teaches or renders obvious the multiple lateral ribs (sidewalls 44) are downwardly extending from the underside of the griddle. *See Williams at Fig. 2.*

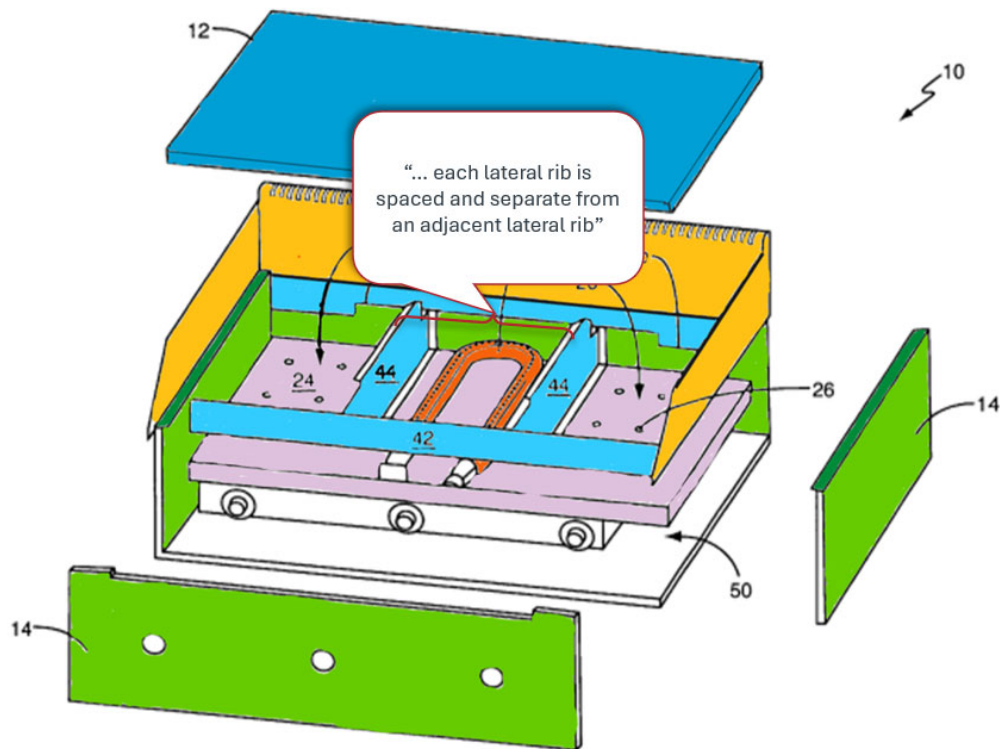


FIG. 2

Williams Annotated Figure 2

204. To the extent the specific limitation of the multiple lateral ribs (or sidewalls) directly extending from the “underside surface” is not found to be directly disclosed by Williams, this limitation would have been obvious. *See claim [1.7]* (discussing it would be obvious to affix all support structures including the front dam (42), rear dam (46) and sidewalls (44) to the “underside of the cooking surface.”).

- j) **Claim 11. The griddle of claim 10, wherein the front rib substantially blocks the convection heat from escaping a front side of the underside surface.**
- k) **Claim 12. The griddle of claim 10, wherein the adjacently extending lateral ribs are sized to substantially prevent convection heat from moving over the adjacently extending lateral ribs and directly, convectively heating adjacent heating regions.**
- l) **Claim 13. The griddle of claim 10, wherein the adjacently extending lateral ribs are sized to substantially maintain convection heat therebetween to only convectively heat the corresponding heating region between the adjacently extending lateral ribs.**

205. As discussed above Williams in view of Best disclose each of the limitations of claim 10. Williams in view Best also disclose each of the limitations from claims 11, 12 and 13.

206. The use of the Best's baffles in place of the sidewalls in Williams would not materially alter the airflow in Williams cooking device. The hot combustion gases would still be trapped within the upper zone of an individual heating chamber due in part to sizing of Best's baffles before the hot combustion moves below the rear dam and exits from flue 18 at the rear of Williams cooking device.

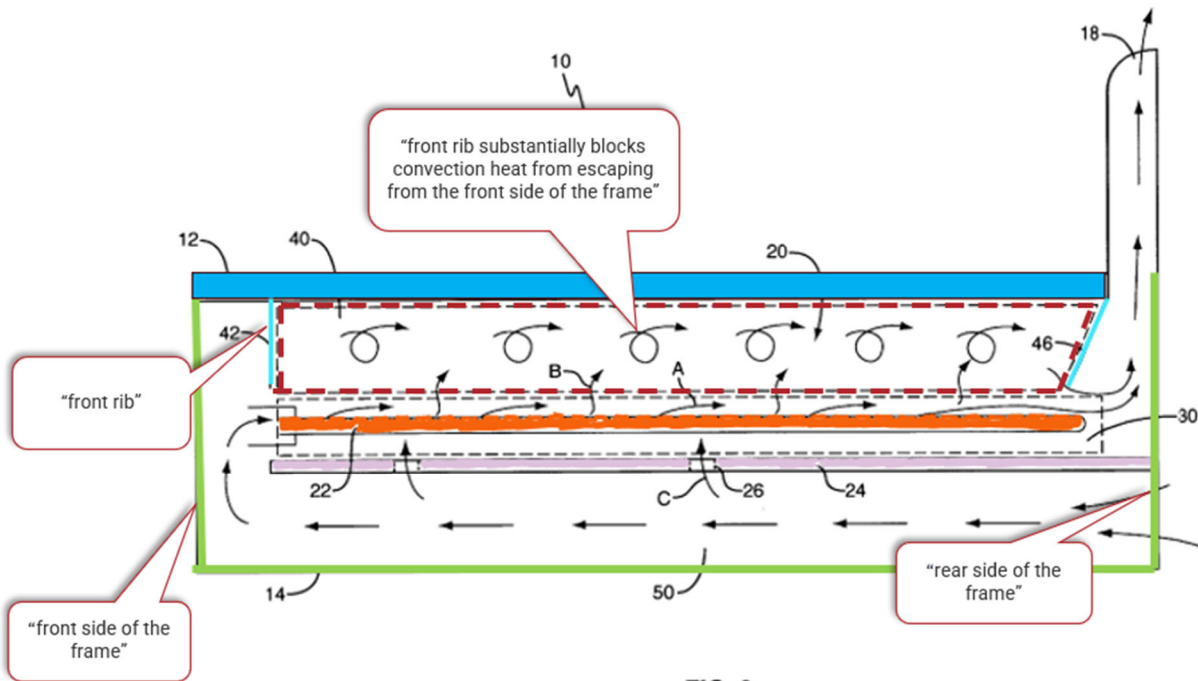
207. As such, the analysis previously provided accounting for why Williams would teach claims 11 – 13 in view of its sidewalls, is equally applicable to why Williams modified to use Best's baffles would teach claims 11 – 13.

208. More specifically, and as discussed above, Williams in view of Best discloses a cooking system with a front rib and adjacently extending lateral ribs that

are configured to block convective heat to more uniformly heat a heating zone within a griddle.

209. For claims 11, 12 and 13, Williams describes in detail the controlled movement of convective heat. Specifically, Williams describes that an upper zone is defined by the underside of the griddle and “flow-restricting walls”, specifically a front dam wall (42), a rear dam wall (46), and sidewalls (44). Williams at Fig. 3 and 2:39-47. The “front dam 42, rear dam 46, and sidewalls 44,” provide heating chambers in the upper zone where a “portion of the hot combustion gases are at least temporarily trapped.” Williams at 3:57-4:2. These flow-restricting walls substantially reduces the front-to-back flow rate of heated gas in the upper zone of each heating chamber to evenly heat the respective area of the griddle. Williams at 4:2-13.

210. As shown in annotated Figure 3 below, the front dam wall (42) is a front rib that acts to substantially block convection heat or trap heat from escaping from the front side of the frame. Williams at Fig. 3.



Williams Annotated Figure 3

211. As seen in annotated Figure 3, no air flow is indicated to pass through front wall (42), but rather exits the heating chamber only by passing below rear wall (46) to the exit flue (18). Williams at 3:39-44 and 3:62-4:2. As discussed above, this results in a low front-to-back flow rate of the heated gas in the upper zone (40) where the heated gas becomes “dammed, stagnant, or trapped” in the upper zone to evenly heat the griddle area above the heating chamber. Williams at 3:57-4:13.

212. Williams also describes how the perimeter of the upper zone of the heating chamber comprises adjacent sidewalls (44) that cooperate with the front wall (42) and rear wall (46) to trap hot combustion gases within upper zone (20) to substantially maintain the heat between the adjacent sidewalls. Williams at Abstract,

1:26-46 and 3:57-4:13. A POSITA understands that Williams's adjacent sidewalls (44) would be sized to substantially prevent the flow of hot combustion gases out of the sides of the upper zone since Williams discloses the hot combustion gases exit via going below rear dam (46) into flue (18). Williams at 3:39-44 and 3:62-4:2. As such, the adjacent sidewalls (44) prevent the convective heat in the form of hot combustion from moving into an adjacent heating chamber and directly convectively heating an adjacent heating chamber.

213. Further, as explained in Williams, there is "significant front-to-back flow" that causes the hot combustion gas to exit the rear of the griddle into flue (18). Williams at 2:16-23, 3:34-44. This significant directional flow from front-to-back would likewise prevent the flow of hot combustion gasses over the sidewalls.

214. In addition, as previously explained with respect to claim 10, it was obvious in view of Williams teaching to integrate the sidewalls (44) with the underside of the griddle. When the sidewall is integral with the underside of the griddle, it would prevent the movement of hot gases over the sidewalls so that no convective heat from one chamber would move into another chamber directly heating it.

215. Because the sidewalls (44) in Williams prevent the flow of hot combustion gases outside of their respective heating chamber, the sidewalls only convectively heat the upper zone within their respective heating chamber. The

ensures an even heating surface on the griddle above the heating region. Williams at 4:2-13.

216. Furthermore, Williams teaches heating regions can be further isolated to prevent movement of convective heat by not using a common sidewall for adjacent heating chambers. Williams at 2:17-23 and 2:57-59. When a common sidewall is not used, air or other insulative material can be interposed between the sidewalls of adjacent heating chambers to prevent the movement of convective heat from one heating chamber to another.

217. As discussed above with respect to claim 10, a POSITA would be motivated to replace the sidewall (44) of Williams with the downwardly extending baffle (95) and upwardly extending baffle (94) of Best for improved isolation of the heating zones while also minimizing various stresses that may result in deformation.

218. Moreover, a POSITA would recognize that the combination of the baffles from Best, with the cooking device of Williams would similarly block convection heat from escaping from the front side of the frame, substantially prevent convection heat from moving over the adjacently extending lateral ribs and directly, convectively heating adjacent heating regions, and maintain convection heat between the adjacently extending lateral ribs to only convectively heat the corresponding heating region between the adjacently extending lateral ribs.

- m) **Claim 15. The griddle of claim 10, further comprising a splash guard extending upward above a periphery of the cooking surface.**

219. Williams in view of Best discloses each of the limitations of claim 10. Williams in view of Best similarly disclose the limitations of claim 15 requiring “splash guard extending upward above a periphery of the cooking surface.”

220. More specifically, and as can be seen in annotated Figure 2 of Williams below, the griddle includes a splash guard (colored yellow) that extends upward from the griddle surface on the left periphery, right periphery, and back periphery of the frame (14). Williams as Fig. 2.

221. While the splash guard of Williams is not discussed in detail, a POSITA reviewing Williams would understand that the structure shown in yellow in annotated Figure 2 of Williams is serves as a splash guard that would limit the splashing of grease on the surface of griddle.

- n) **[17.0] A method for selectively heating regions of a griddle with convection heat from one or more gas flame burners of an outdoor cooking station, the method comprising:**

222. Claim 17 is similar in scope to claim 10. As such, Williams discloses the limitations of claim 17 for at least the same reasons as Williams discloses the limitations of claim 10. See claim 10 from ground 1.

223. To the extent the preamble of claim 17 is limiting, it is rendered obvious for at least the reasons provided above for limitation [10.0] and [10.5] explaining how Williams cooking device selectively heats multiple separate heating regions using convective heat from turning on gas flame burners.

224. Williams discloses, “[a] method for selectively heating regions of a griddle with convection heat from one or more gas flame burners of an outdoor cooking station, the method comprising.” *See e.g.*, Williams at Fig. 2.

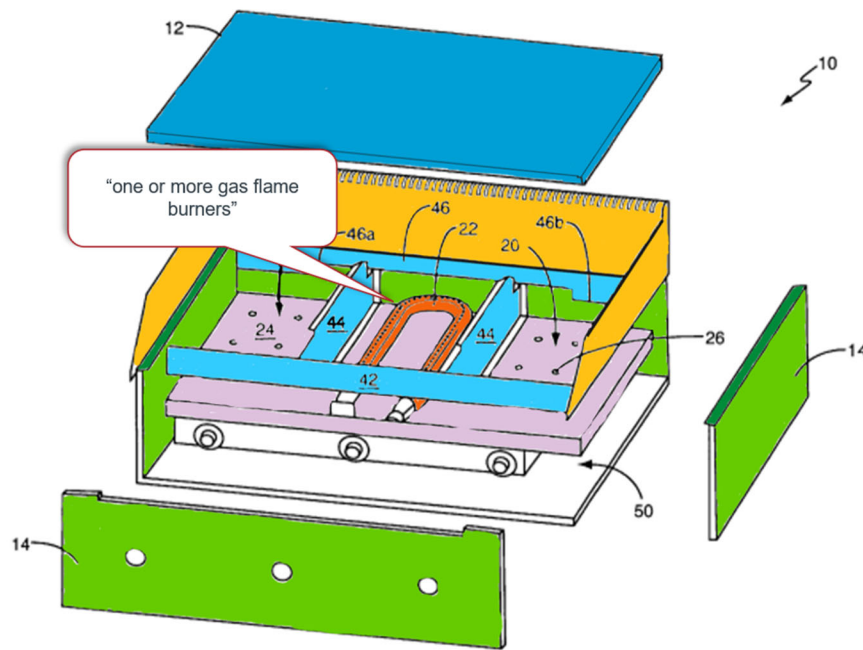


FIG. 2

Williams Annotated Figure 2

225. Williams’s invention “relates generally to the field of gas-fired cooking devices, and specifically to a gas-fired cooking device that includes a heat bank to provide a more uniformly heated cooking surface.” Williams at 1:6-9, 1:62-66

(describing the invention as “gas-fired griddles, braising pans, or ... skillets...”), and 3:9-19 (discussing that gas, such as propane, is supplied to burners which may be controlled by controls or user interfaces such as knobs).

226. As can be seen in annotated figure 3, below, Williams discloses a burner 22 positioned below what Williams describes as the “upper zone” which is a heating region since hot combustion gasses are trapped in Williams’s upper zone to heat the underside of the griddle. Williams at Fig. 3, 2:39-44, 3:52-62.

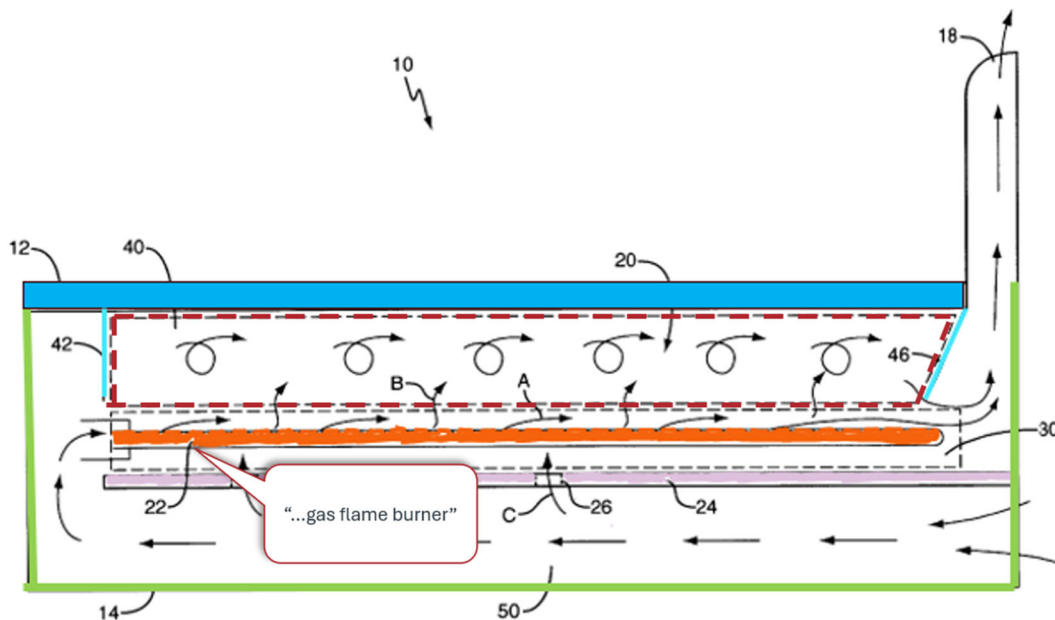


FIG. 3

Williams Annotated Figure 3

227. While Williams depicts three heating regions, only one burner is shown. A POSITA would appreciate a burner would be included in each of the heating regions shown in Williams figures 2 and 3. Williams at Fig. 2, Fig. 3, 1:10-

14 (describing that “gas-fired griddles, commonly utilize multiple burners located in various locations beneath the heated surface”); 1:29-35 (describing that each heating chamber is heated by at least one gas burner disposed in the lower zone); 2:23-30 (describing that the gas burners use natural, unforced, draft for supply air); *see also* 4:51-65 (describing that “cooking device...with more heating chambers 20 and corresponding burners 22.”).

228. In addition, a POSITA would understand one purpose of multiple separated heating regions in Williams is so the user can selectively heat the regions of the griddle above each heating region. If a user were to select to turn on the gas flame burners in one heating region but not the others, then the region of the griddle above the turned-on burners would be substantially hotter than other regions of the griddle.

229. Lastly, a POSITA understands that Williams griddle would be used outdoor cooking since the listed fuel sources include “propane” which is a ubiquitous fuel source for outdoor cooking with griddles and grills.

- o) **[17.1] turning on one or more gas burners of the outdoor cooking station such that the one or more gas burners are positioned below an underside surface of a griddle; and**

230. Limitation [17.1] is rendered obvious for at least the reasons provided for limitation [10.5]. In addition, Williams teaches an outdoor cooking station for the reasons stated above with regards to limitation [17.0].

231. As can be seen in annotated figure 3, below, Williams discloses a burner 22 positioned below what Williams describes as the “upper zone” which is a heating region since hot combustion gasses are trapped in Williams’s upper zone to heat the underside of the griddle. Williams at Fig. 3, 2:39-44, 3:52-62.

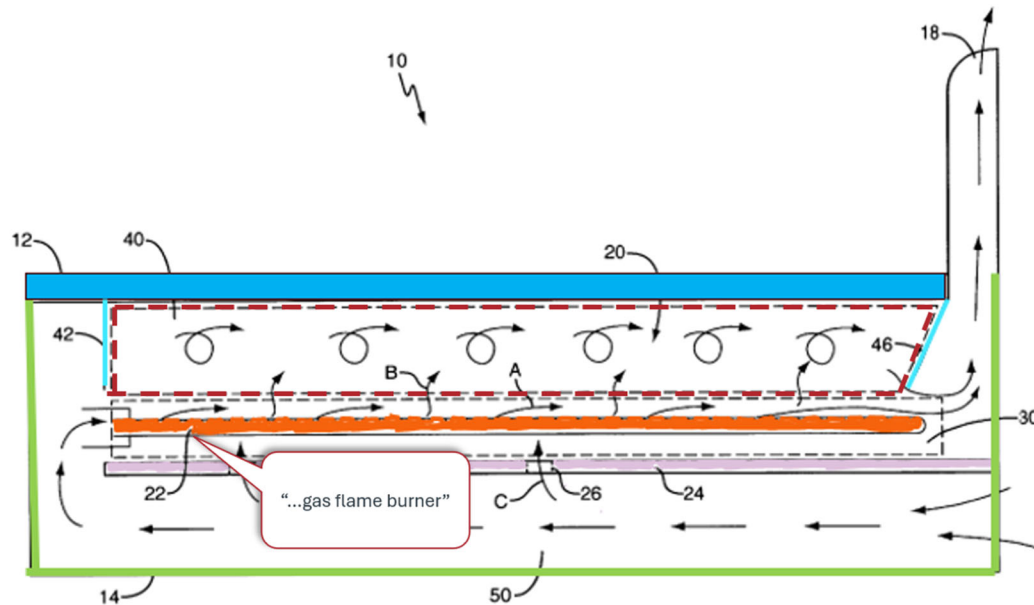


FIG. 3

Williams Annotated Figure 3

232. While Williams depicts three heating regions, only one burner is shown. A POSITA would appreciate a burner would be included in each of the heating regions shown in Williams figures 2 and 3. Williams at Fig. 2, Fig. 3, 1:10-14 (describing that “gas-fired griddles, commonly utilize multiple burners located in various locations beneath the heated surface”); 1:29-35 (describing that each heating chamber is heated by at least one gas burner disposed in the lower zone); 2:23-30

(describing that the gas burners use natural, unforced, draft for supply air); *see also* 4:51-65 (describing that “cooking device...with more heating chambers 20 and corresponding burners 22.”).

233. In addition, a POSITA would understand one purpose of multiple separated heating regions in Williams is so the user can selectively heat the regions of the griddle above each heating region. If a user were to select to turn on the gas flame burners in one heating region but not the others, then the region of the griddle above the turned-on burners would be substantially hotter than other regions of the griddle.

- p) **[17.2] selectively heating specific regions of the griddle that correspond with the one or more gas burners turned on, the specific regions each defined by adjacently extending parallel ribs, the ribs extending laterally from a front rib toward a rear end of the underside surface of the griddle such that the front rib and the parallel ribs channel convection heat to flow between the adjacently extending parallel ribs toward the rear end of the griddle and away from the outdoor cooking station;**

234. Limitation [17.2] is rendered obvious for at least the reasons provided for limitation [10.5] and [10.6]. While claim 10 does not expressly require the lateral ribs to be “parallel” this is taught by Williams’s primary embodiment as best seen in Figure 4, where the dashed lines representing sidewalls 44 would be understood by a POSITA to be in parallel. Williams at Fig. 4; *see also* Fig. 2.

235. As can be seen in annotated figure 3, below, Williams discloses a burner 22 positioned below what Williams describes as the “upper zone” which is a heating region since hot combustion gasses are trapped in Williams’s upper zone to heat the underside of the griddle. Williams at Fig. 3, 2:39-44, 3:52-62.

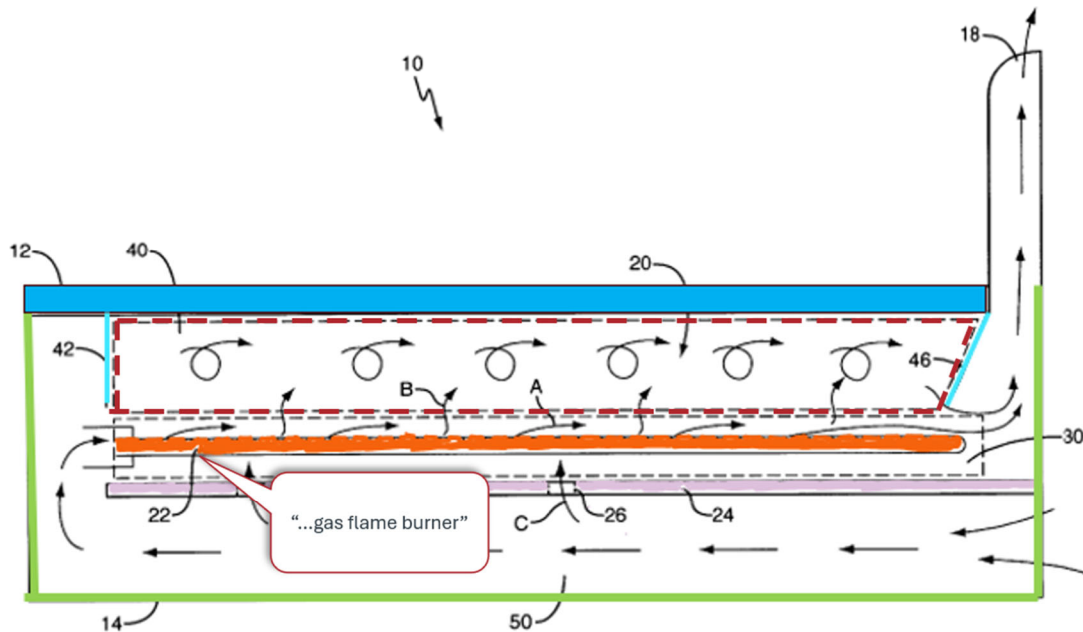


FIG. 3

Williams Annotated Figure 3

236. While Williams depicts three heating regions, only one burner is shown. A POSITA would appreciate a burner would be included in each of the heating regions shown in Williams figures 2 and 3. Williams at Fig. 2, Fig. 3, 1:10-14 (describing that “gas-fired griddles, commonly utilize multiple burners located in various locations beneath the heated surface”); 1:29-35 (describing that each heating chamber is heated by at least on gas burner disposed in the lower zone); 2:23-30

(describing that the gas burners use natural, unforced, draft for supply air); *see also* 4:51-65 (describing that “cooking device...with more heating chambers 20 and corresponding burners 22.”).

237. In addition, a POSITA would understand one purpose of multiple separated heating regions in Williams is so the user can selectively heat the regions of the griddle above each heating region. If a user were to select to turn on the gas flame burners in one heating region but not the others, then the region of the griddle above the turned-on burners would be substantially hotter than other regions of the griddle.

238. While Williams only explicitly provides that the front (42) and rear dams (46) are “downwardly extending,” a POSITA would also read the disclosure of “[a]t least the front dam 42 and the rear dam 46 are downwardly extending, thereby extending generally away from the underside of the cooking surface 12” to mean other components, such as sidewalls (44) may also be optionally downwardly extending from the underside surface of the griddle and thus “fixed” or “integral” to the underside surface of the griddle. Williams at 2:44-47 (emphasis added).

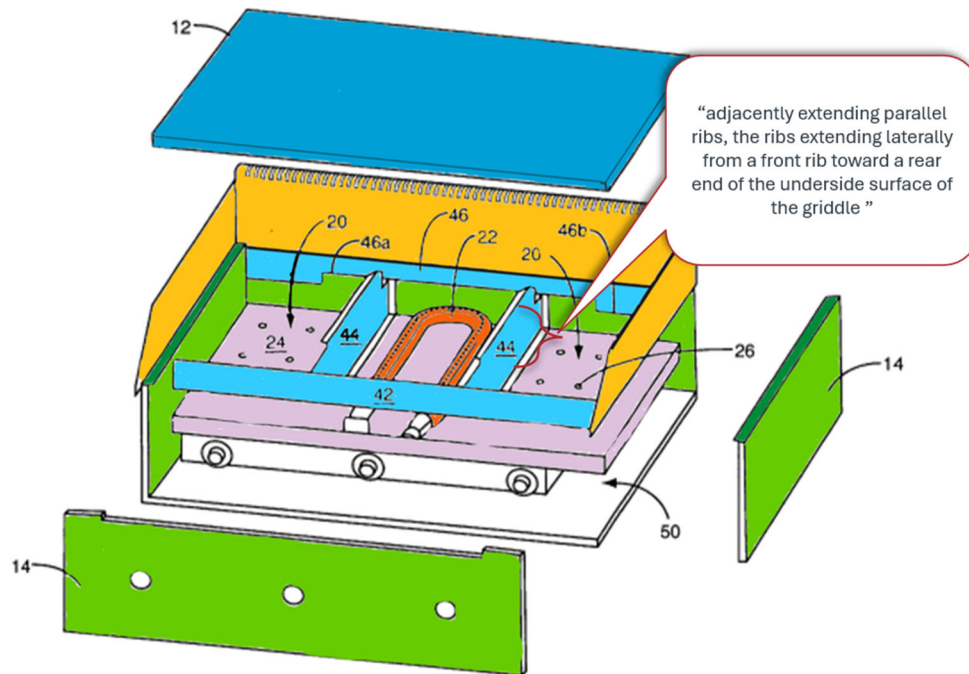


FIG. 2

Williams Annotated Figure 2

239. Williams further describes that the upper zones' sidewalls (44) and downwardly extending dam walls (42 and 46) cooperate to create the low flow zones beneath the griddle surface (12). Williams at Abstract. Moreover, these features from Williams create "a more uniform layer of hot combustion gases to be formed along the underside of the griddle surface, thereby more evenly delivering heat to the griddle surface." Williams at Abstract. Extending the sidewalls downward from the underside of the griddle would help achieve these intended functions in Williams cooking device. *See Williams Fig. 2.*

240. A POSITA would appreciate that the cooking system disclosed in Williams uses multiple burners (22) in combination with the physical structure of the front rib (42) and lateral ribs (44).

241. Moreover, a POSITA would understand the equivalent height of each rib serves as an air dam/seal, ensuring that heated air is retained in its respective heating chamber and cannot escape through gaps/seams in the joined structure to adjacent heating chambers. Williams at 2:39-44 and 3:62-4:2 (describing that once the “gas within the upper zone 50 has cooled, it descends below the lower edge 46 a,b of the rear dam 46, joins the flow from the burner zone 30, and is carried out the flue 18.”).

242. Accordingly, a POSITA would understand Williams discloses that the convection heat trapped in a heating chamber by the sidewalls moves from any one of the multiple burners toward the rear end of the underside surface of the griddle and from the rear side of the frame (e.g., out the flue (18)).

243. Williams describes that “[t]he hot combustion gases tend to rise within the heating chamber 20, but there is a significant front-to-back flow within the burner zone 30 caused by natural drafting, . . . [a] portion of the hot combustion gases flow relatively directly out the exhaust located at the rear of each heating chamber 20.” Williams at 3:20-51; *see also* Williams at 3:52-56 (describing that “[i]n order to combat this, another portion of the hot combustion gases generated by the burner 22

is at least transiently dammed within the upper zones 40 beneath the cooking surface 12.”)

244. Extending the sidewalls downward from the underside of the griddle would help achieve Williams’s description that the sidewalls (44) and dam walls (42 and 46) cooperate together to create the low flow zones beneath the griddle surface (12) as well as creating “a more uniform layer of hot combustion gases to be formed along the underside of the griddle surface, thereby more evenly delivering heat to the griddle surface.” Williams at Abstract.

245. In addition, parallel sidewalls in Williams would have been an obvious implementation since it results in a heating chamber having equal width across its length (e.g., rectangle or square).

246. This helps achieve Williams stated purpose to heat the griddle area more uniformly above the heating zone since the hot gases will be equally distributed in the heating chamber having a constant width over its length. Williams at 1:20-23 and 1:67-2:4. Conversely, if the heating chamber had variable width across its length, such as a triangular shape, then hot combustion gases may be distributed unevenly, resulting in undesirable nonuniform thermal gradients.

- q) **[17.3] the front rib and the parallel ribs integrally formed with the underside surface of the griddle, and the parallel ribs directly extend from the underside surface of the griddle such that each parallel rib is spaced and separate from an adjacently extending parallel rib.**

247. Limitation [17.3] is rendered obvious for at least the reasons provided for limitation [10.7] and [10.8]. While claim 10 does not require the integral lateral ribs to be “parallel” this is taught by Williams as explained above with respect to limitation [17.2].

248. As previously discussed, Williams teaches or renders obvious front rib and the parallel ribs integrally formed with the underside surface of the griddle, and the parallel ribs directly extend from the underside surface.

249. A POSITA would understand Williams’s disclosure of a front dam (42), rear dam (46), or sidewalls (44), as “downwardly extending” indicates that at least these two features are “fixed” or “integral” to the underside surface of the griddle and descend downward from their fixed source. Williams at 2:41-47. Integrating these structures with the underside of the griddle creates “a more uniform layer of hot combustion gases to be formed along the underside of the griddle surface, thereby more evenly delivering heat to the griddle surface.” Williams at 1:38-42, 1:67-2:4, and 3:57-4:2.

250. In addition to Williams itself suggesting that the front dam (42) and sidewalls (44) may be integrally formed with the underside of griddle, a POSITA

would also be motivated to integrally form the ribs with the underside of the griddle for several other reasons.

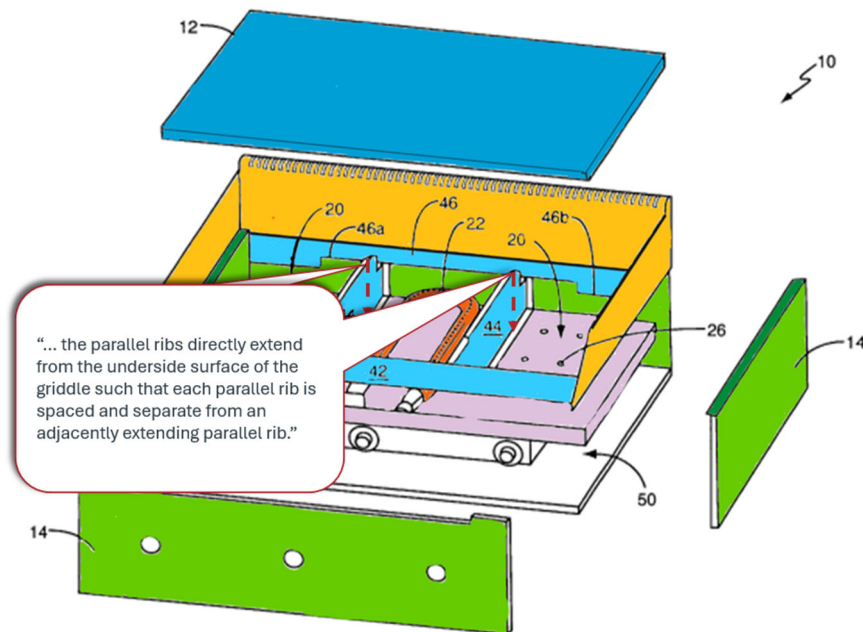


FIG. 2

Williams Annotated Figure 2

251. First, the weight of the griddle, as assembled in Fig. 1, would thermally couple it to the front (42) and sidewalls (44). *See Williams at Fig. 1-3.* Two or more bodies are thermally coupled when heat can be transferred between bodies, and heat is most effectively transferred between bodies when they are in contact such that heat may be conducted from one body to another. To ensure the maximum thermal coupling between the griddle and the sidewalls a POSITA would look to integrate the sidewalls to the underside of the griddle.

252. Second, integrating the sidewalls with the underside of the griddle would also greatly strengthen the horizontally planar griddle to be heated (12) by providing built in vertical support structures. Williams at Fig. 2. Such a configuration aids in the prevention of warping of the planar cooking surface (12). Warping was a well-known problem for griddles by the time of the '473 Patent. *See* Fleming (1939) at 3:31-39 and Betts (1942) 1:25-26.

253. A structure is considered warped when it has "...become bent or twisted out of shape typically as a result of the effects of heat..." Oxford University Press. (2024). Warped. In Oxford English dictionary. Retrieved March 5, 2024. Thermally induced warping in flat metal plates results from the development of temperature gradients across the material. *See* Fleming at 3:31-3 and Betts 1:25-26 (both describing warping of griddles due to thermal stresses). These thermal gradients cause the development of thermally induced stresses which cause an uneven expansion or contraction of the material which causes the material to warp. Callister at p. 717. If these stresses exceed the yield strength of the material, the warping will be permanent, even after the thermal gradients are removed.

254. As described above, it was well-known by the time of the '473 Patent that warping of a plate can be prevented by reducing the thermal stresses in the material through a reinforcement of the plate to increase its stiffness via ribs or other structure. Graham (1959) at 2:38-42 ("warpage was limited by the peripheral

integrally formed ridge 34”); Savio (1960) at 3:12-15 (“inverted U-shape for strengthening the structure and preventing it from buckling or warping”); and Hinkle at 1:43-48 (“the ribs impart strength to the griddle to prevent warping.”) As such, warping can be prevented or reduced by adding material in a location which increases its area moment of inertia and consequently its resistance to bending. Shigley at 104. The addition of ribs integrally formed on the underside of flat plates is a common and inexpensive means of increasing the area moment of inertia and reducing the likelihood of warping in service. *See* Hinkle at 3:10-28 (addition of ribs reduced costs compared to thicker griddle plate). Accordingly, a POSITA would be motivated to include structural support features on the underside surface of the griddle. By integrally forming the front dam (42), rear dam (46) and sidewalls (44) with the underside surface of the griddle, the structural rigidity of griddle will be significantly improved to withstand such warping.

255. Third, forming the ribs with the underside surface of the griddle ensures there is not a gap between the proximal portion of the rib and the underside of the griddle. *See* Williams at Fig. 2. An advantage described in Williams is the uniform layer of hot combustion gases formed along the underside of the griddle surface, thereby “more evenly delivering heat to the griddle.” Williams at 1:40-43. Such a gap would undermine the advantages described in Williams by allowing combustion

gases to pass over the lateral ribs and affect adjacent heat zones, reducing the effectiveness of the cooking device. Williams at Abstract and 1:40-42.

256. Fourth, the sidewall (44) is a relatively thin vertical structure that would be integrally formed with at least one of the four sides it is connected to in order to provide stability and rigidity to the sidewall. The only four possibilities are to integrate the sidewall with the underside of the griddle, top of the floor plate (24), front dam (42), or rear dam (46). *See Williams at Fig. 2.*

257. Integrating the sidewalls with the underside of the griddle or top of the floor plate provides the most contact area and thus they provide the greatest stability and rigidity to the sidewall. Further, integrating the sidewall with the underside of the griddle would provide the greatest amount of stability and rigidity to the top of the sidewall that is exposed to the largest heat differentials as the heat from the griddle and the heated air would predominately impact the temperatures at the top of the heating chamber. Large heat differentials, such as those occurring when griddles are heated, can cause warping, as discussed above, which would reduce the capability of the sidewalls to funnel heat to the rear of the griddle.

258. A POSITA, in reviewing figure 2 of Williams, would appreciate that sidewalls (44) are, at a minimum, in contact with the underside surface of the griddle. *See Williams at Fig. 2.* This is evident to a POSITA when understanding the objective of Williams (e.g., to isolate convective heat from migrating from one

heating chamber to another) and based on figure 2 which depicts a flat surface on the top of sidewalls (44) that is configured to be in contact with the underside surface of the griddle.

259. A POSITA would understand that being in contact with, versus integral with, introduces additional problems in the design of Williams. In particular, if sidewalls (44) warp, they may interfere with the griddle which is resting on frame (14). To solve this problem, a POSITA would be motivated to integrate sidewalls (44) with the underside of the griddle versus letting the griddle rest on them. Leaving the bottom of the sidewalls (44) disconnected, or floating above floor plate (24), would allow for some movement without interfering with the structure of the cooking device or its purposes of directing convective heat.

260. Lastly, integrally forming the sidewalls (44) with the underside of the griddle would reduce assembly time and errors since fewer parts would be required to be assembled by the end user. *Compare* Williams at Fig. 1 and '473 at Fig. 6 (illustrating similar views of griddle configurations with fewer parts required for griddle assembly). These ribs do not add significant weight to the structure formed integrally with the underside of the griddle cooking surface. The fabrication of plate steel griddles with reinforcing ribs may be achieved by rolling and/or machining plate stock to an appropriate thickness and size, followed by welding or bolting of the reinforcing ribs to the plate steel. They may also be formed integrally with the

underside of the plate through coldworking or machining. Williams at Fig. 3 and 1:26-46; 4:15-33.

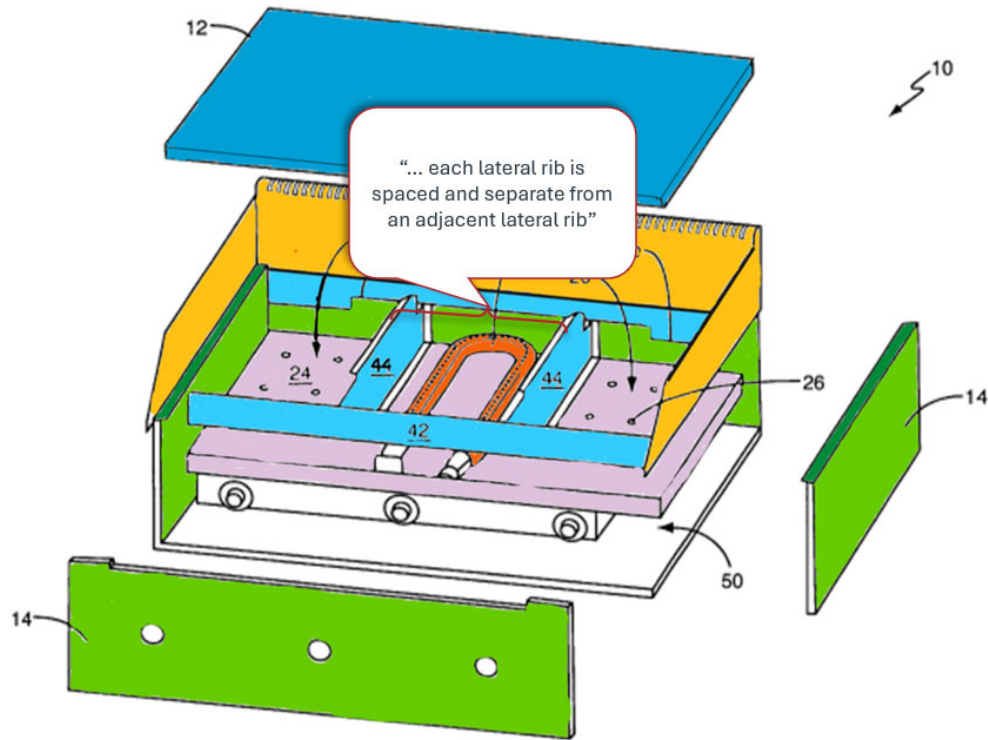


FIG. 2

Williams Annotated Figure 2

261. As illustrated in annotated figure 2, Williams describes that the downward extending walls create the heating chambers (20) which are disposed in a “laterally adjacent configuration, meaning that they generally run front-to-back and are disposed in a left-to-right series” and thereby each parallel rib is spaced and separate from an adjacently extending parallel rib. Williams at Fig. 2, 2:15-22 and 2:41-47.

- r) **Claim 18. The method according to claim 17, wherein the selectively heating comprises selectively heating the specific regions with the parallel ribs substantially preventing convection heat from moving over the parallel ribs by the convection heat being drawn toward the rear end of the griddle.**

262. Williams in view of Best discloses each of the limitations for claim 17 as set forth above. Similarly, Williams in view of Best discloses the limitation from claim 18 requiring “wherein the selectively heating comprises selectively heating the specific regions with the parallel ribs substantially preventing convection heat from moving over the parallel ribs by the convection heat being drawn toward the rear end of the griddle.”

263. As such, Williams in view of Best discloses the limitations of claim 18 for at least the same reasons as Williams described in Ground 1 above. As discussed above with respect to claims 11-13, Williams discloses wherein the selectively heating comprises selectively heating the specific regions with the parallel ribs substantially preventing convection heat from moving over the parallel ribs by the convection heat being drawn toward the rear end of the griddle. *See* claims 11-13.

264. Williams describes an upper zone is defined by the underside of the griddle and “flow-restricting walls”, specifically a front dam wall (42), a rear dam wall (46), and sidewalls (44). Williams at Fig. 3 and 2:39-47. The “front dam 42, rear dam 46, and sidewalls 44,” provide heating chambers in the upper zone where a “portion of the hot combustion gases are at least temporarily trapped.” Williams at

3:57-4:2. These flow-restricting walls substantially reduce the front-to-back flow rate of heated gas in the upper zone of each heating chambers to evenly heat the respective area of the griddle. Williams at 4:2-13.

265. As seen in Figure 3, no air flow is indicated to pass through front wall (42), but rather exits the heating chamber only by passing below rear wall (46) to the exit flue (18). Williams at 3:39-44 and 3:62:4-2. As discussed above, this results in a low front-to-back flow rate of the heated gas in the upper zone (40) where the heated gas becomes “dammed, stagnant, or trapped” in the upper zone to evenly heat the griddle area above the heating chamber. Williams at 3:57-4:13.

266. Williams also describes how the perimeter of the upper zone of the heating chamber comprises adjacent sidewalls (44) that cooperate with the front wall (42) and rear wall (46) to trap hot combustion gases within upper zone (20) to substantially maintain the heat between the adjacent sidewalls. Williams at Abstract, 1:26-46 and 3:57-4:13. A POSITA understands that Williams’s adjacent sidewalls (44) would be sized to substantially prevent the flow of hot combustion gases out of the sides of the upper zone since Williams discloses the hot combustion gases exit via going below rear dam (46) into flue (18). Williams at 3:39-44 and 3:62:4-2. As such, the adjacent sidewalls (44) prevent the convective heat in the form of hot combustion from moving into an adjacent heating chamber and directly convectively heating an adjacent heating chamber.

267. Further, as explained in Williams, there is “significant front-to-back flow” that causes the hot combustion gas to exit the rear of the griddle into flue (18). Williams at 2:16-23, 3:34-44. This significant directional flow from front-to-back would likewise prevent flow of hot combustion gasses over the sidewalls.

268. In addition, as previously explained with respect to claim 17, it was obvious in view of Williams to integrate the sidewalls (44) with the underside of the griddle. When the sidewall is integral with the underside of the griddle, it would prevent the movement of hot gases over the sidewalls so that no convective heat from one chamber would move into another chamber directly heating it.

269. Because the sidewalls (44) in Williams prevent the flow of hot combustion gases outside of their respective heating chamber, the sidewalls only convectively heat the upper zone within their respective heating chamber. This ensures an even heating surface on the griddle above the heating region. Williams at 4:2-13. Furthermore, Williams teaches heating regions can be further isolated to prevent movement of convective heat by not using a common sidewall for adjacent heating chambers. Williams at 2:17-23 and 2:57-59. When a common sidewall is not used, air or other insulative material can be interposed between the sidewalls of adjacent heating chambers to prevent the movement of convective heat from one heating chamber to another.

270. Therefore, Williams in view of Best discloses wherein the selectively heating comprises selectively heating the specific regions with the parallel ribs substantially preventing convection heat from moving over the parallel ribs by the convection heat being drawn toward the rear end of the griddle.

- s) **Claim 20. The method according to claim 17, wherein the selectively heating comprises substantially preventing convection heat from moving over the parallel ribs by drawing the convection heat toward the rear end of the griddle with rear end openings, each rear end opening defined by oppositely positioned rear rib ends of the parallel ribs and the rear end of the underside surface of the griddle and a frame component of the outdoor cooking station, the parallel ribs positioned on the frame component.**

271. Williams in view of Best discloses each of the limitations for claim 17 as set forth above. Similarly, Williams in view of Best discloses the limitation from claim 20 requiring “wherein the selectively heating comprises substantially preventing convection heat from moving over the parallel ribs by drawing the convection heat toward the rear end of the griddle with rear end openings, each rear end opening defined by oppositely positioned rear rib ends of the parallel ribs and the rear end of the underside surface of the griddle and a frame component of the outdoor cooking station, the parallel ribs positioned on the frame component.”

272. Williams in view of Best discloses the first part of the limitation requiring “wherein the selectively heating comprises substantially preventing convection heat from moving over the parallel ribs by drawing the convection heat

toward the rear end of the griddle with rear end openings,” for similar reasons as discussed above.

273. Williams also provides “each rear end opening defined by oppositely positioned rear rib ends of the parallel ribs and the rear end of the underside surface of the griddle and a frame component of the outdoor cooking station.” Specifically, a POSITA would recognize that each of the heating regions (20) is defined, in part, by parallel ribs (44), frame (14) and griddle.

274. Moreover, and as can be seen in annotated Figure 2 of Williams, hot gases formed within heating region (20) would exhaust out the opening defined by the parallel ribs (44), rear end of the underside surface of the griddle, and out flue (18). *See Williams at 3:62-65* (describing that “gas within the upper zone 50 has cooled, it descends below the lower edge 46 a,b of the rear dam 46, joins the flow from the burner zone 30, and is carried out the flue 18.”

275. As previously discussed, Best’s baffles would not materially alter the airflow in Williams cooking device and thus cause hot combustion gases to be trapped in upper zone of Williams heating region until the hot combustion gases are removed from the heating region by moving under the rear dam into the exit flue.

276. Therefore, Williams in view of Best discloses the limitations of claim 20 for at least the same reasons as Williams described in Ground 1 above.

C. GROUND 3: Claims 10-13, 15, 17, 18 and 20 are rendered obvious under 35 U.S.C. § 103 by Williams in view of Farnsworth.

1. Introduction

277. The teachings of the prior art references Williams and Farnsworth, combined with the knowledge of a person of ordinary skill in the art, would render claims 10-13 and 15, 17 and 18 of the '473 patent obvious because as set forth in Ground 1, Williams teaches every limitation of claims 10-13 and 15, 17 and 18.

278. To the extent that Williams does not teach “multiple lateral ribs are integrally formed with the underside surface of the griddle” and/or “multiple lateral ribs directly extend from the underside of the griddle,” as required by claim 10, and “the front rib and the parallel ribs integrally formed with the underside surface of the griddle, and the parallel ribs directly extend from the underside surface of the griddle such that each parallel rib is spaced and separate from and adjacently extending parallel rib,” as required by claim 17, a POSITA would combine the teachings of Farnsworth with the teachings of Williams in view Farnsworth explicitly discloses these limitations.

279. A detailed description of this ground of rejection, including the motivation for combining the references is presented in detail below.

2. Detailed Claim Analysis

- a) [10.0] A griddle configured to control convection heat from one or more gas flame burners of a cooking station, the griddle comprising:

280. Williams discloses limitation [10.0], “[a] griddle configured to control convection heat from one or more gas flame burners of a cooking station, the griddle comprising.” See *e.g.*, Williams at Fig. 2.

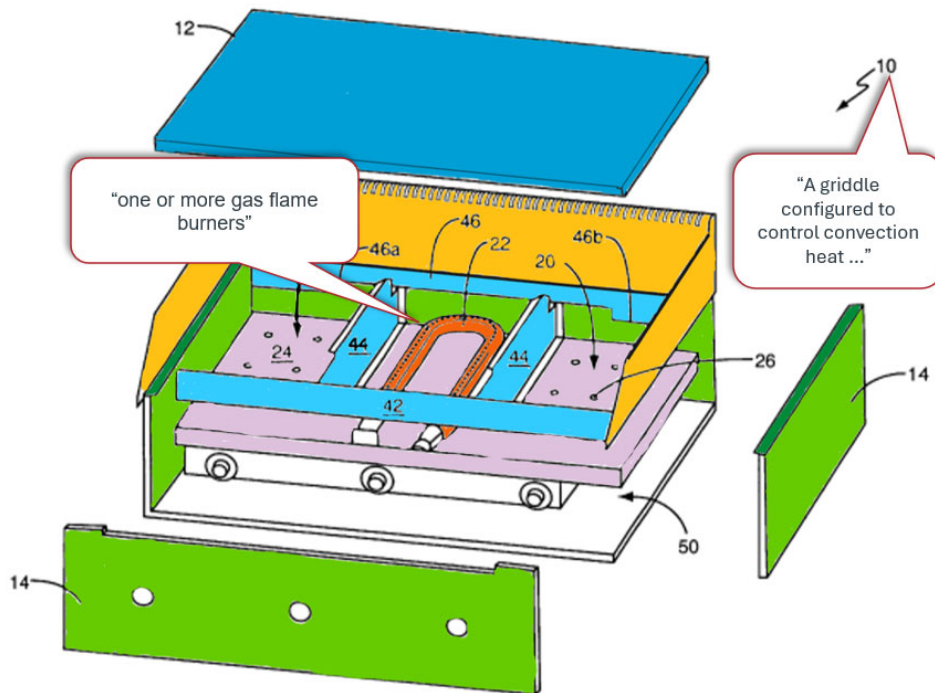


FIG. 2

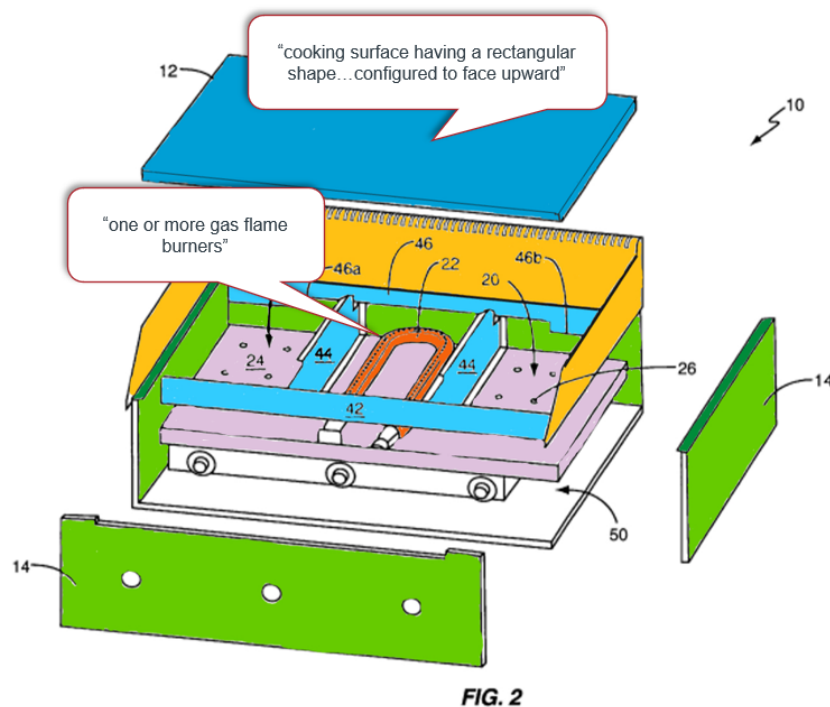
Williams Annotated Figure 2

281. Williams’s invention “relates generally to the field of gas-fired cooking devices, and specifically to a gas-fired cooking device that includes a heat bank to provide a more uniformly heated cooking surface.” Williams at 1:6-9, 1:62-66 (describing the invention as “gas-fired griddles, braising pans, or ... skillets...”), and

3:9-19 (discussing that gas, such as propane, is supplied to burners which may be controlled by controls or user interfaces such as knobs).

- b) [10.1] a cooking surface having a rectangular shape, the cooking surface configured to face upward;
- c) [10.2] an underside surface, the underside surface extending to generally correspond with the cooking surface, the underside surface facing in an opposite direction than the cooking surface, the underside surface extending to define a periphery with a front end, a rear end, a left end, and a right end;

282. As illustrated in annotated figure 2, Williams discloses a griddle with a rectangular cooking surface (facing upward) and underside surface (facing downward). Williams at Fig. 2, Fig. 3 and 2:8-12.



Williams Annotated Figure 2

283. As illustrated in annotated figure 2, below, the griddle has a rectangular periphery with a front end, a rear end, a left end, and a right end. Williams at Figs. 1-3 and 2:8-12.

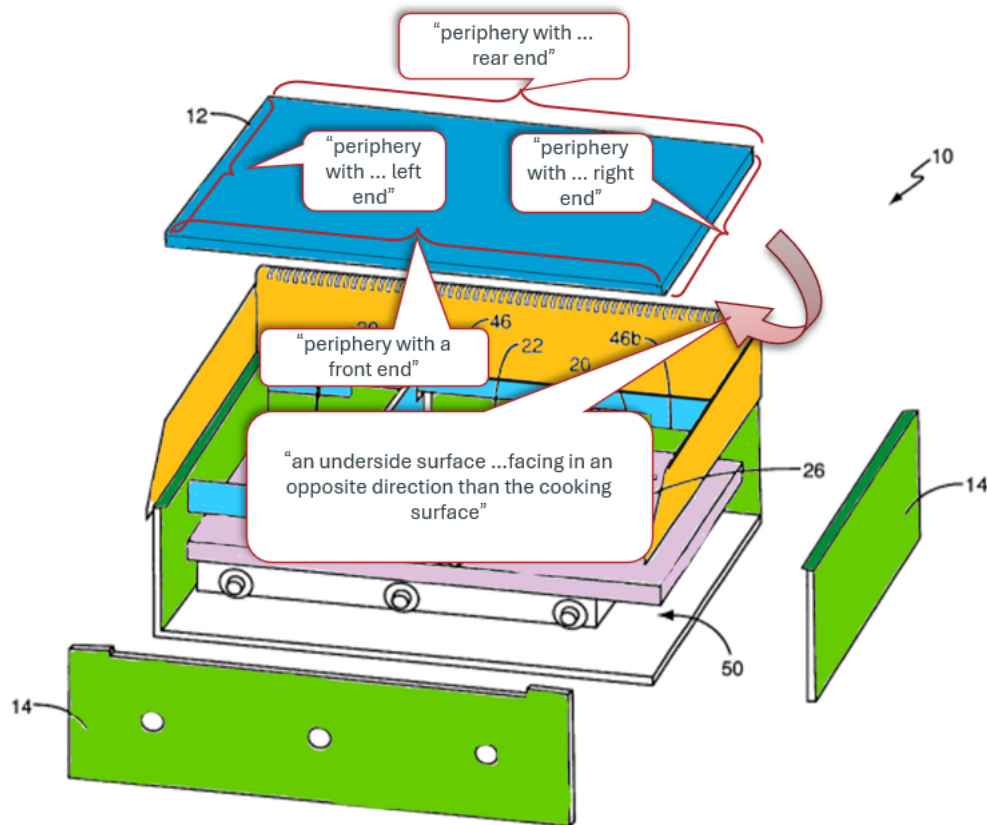


FIG. 2

Williams Annotated Figure 2

- d) [10.3] a front rib having a front rib height and coupled to the front end of the underside surface, the front rib extending longitudinally along the front end of the underside surface; and

284. As illustrated in annotated figure 2, below, Williams discloses a griddle (with an underside surface) and a front rib (e.g., “front dam” 42), extending longitudinally along the underside surface of the griddle, and multiple lateral ribs

(e.g., “sidewalls” 44) extending along the underside surface of the griddle from the front rib to the rear end. Williams at Fig. 2; 1:35-38, *see also* 2:41-44 (providing “upper zone 40 is generally defined by the underside of the cooking surface 12 and flow-restricting walls, specifically a front dam wall 42, a rear dam wall 46, and sidewalls 44 associated therewith.”).

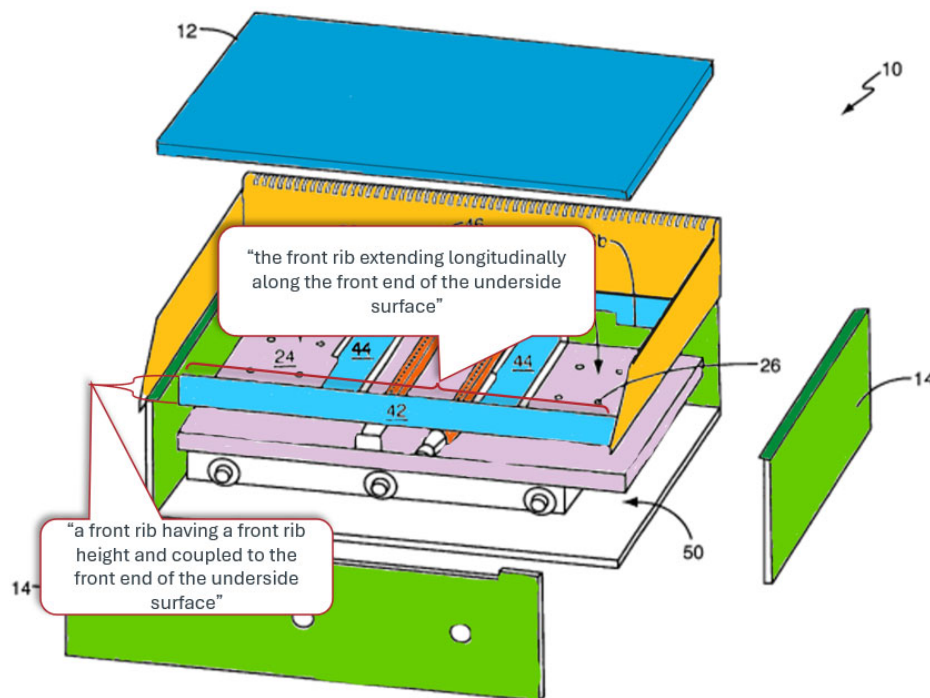


FIG. 2

Williams Annotated Figure 2

285. Williams further states, “[a]t least the front dam 42 and the rear dam 46 are downwardly extending, thereby extending generally away from the underside of the cooking surface 12.” Williams at 2:44-47. A POSITA would understand this disclosure to mean that the front dam is coupled to and extends longitudinally across

the front end of the underside surface of the griddle with a downwardly extending height. Williams at 2:44-47.

- e) **[10.4] multiple lateral ribs each extending laterally relative to the front rib and extending along the underside surface from the front rib to the rear end of the underside surface;**

286. As illustrated in annotated figure 2, below, Williams discloses a griddle with multiple lateral ribs (*e.g.*, “sidewalls” 44) extending along the underside surface of the griddle from the front rib to the rear end. Williams at Fig. 2; 1:35-38 and 2:41-44. Specifically, Williams discloses “[t]he upper zone 40 is generally defined by the underside of cooking surface 12 and flow-restricting walls, specifically a front dam wall 42, a rear dam wall 46, and sidewalls 44 associated therewith.” Williams at 2:41-44. The sidewalls 44 are lateral ribs that run laterally from the front dam wall to the rear dam wall, which spans the length of the front to rear ends of the griddle. Williams at 2:39-44 and 3:65-4:2.

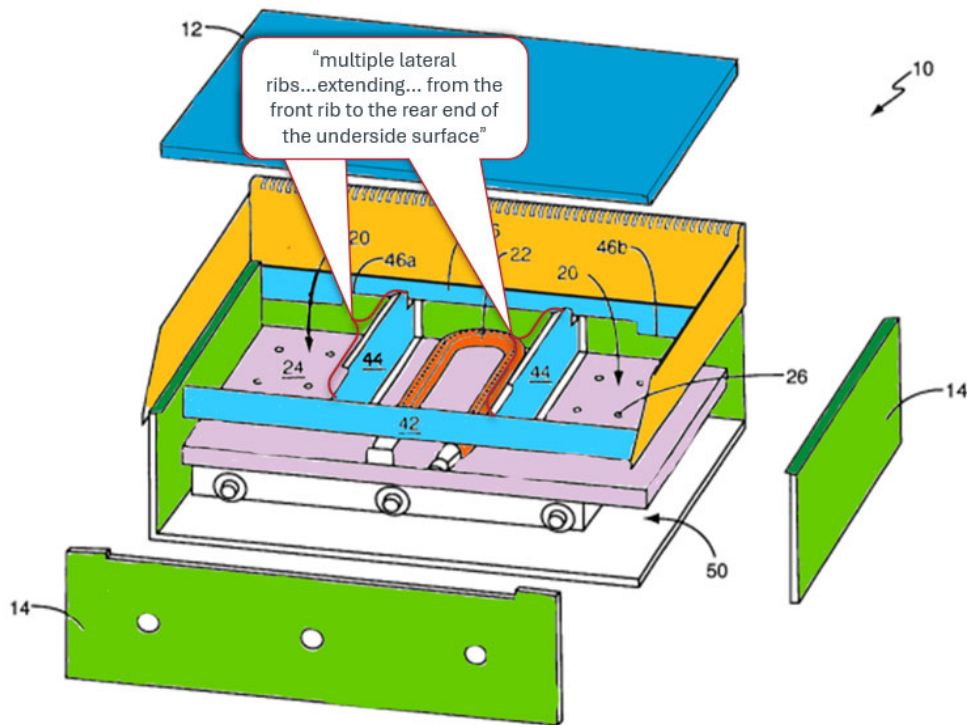


FIG. 2

Williams Annotated Figure 2

287. Williams further provides that “[a]t least the front dam 42 and the rear dam 46 are downwardly extending, thereby extending generally away from the underside of the cooking surface 12.” Williams at 2:44-47 (emphasis added) and 1:35-38 (describing that the upper zones have sidewalls and flow-restricting walls that cooperate to create zones of relatively stagnant flow under the griddle).

- f) [10.5] the multiple lateral ribs being spaced from each other so as to define multiple heating regions such that each heating region is defined between adjacently extending lateral ribs, the heating regions each configured to be positioned above a gas flame burner;

288. As shown in annotated figure 2 below, multiple heating chambers are separated by the spaced sidewalls (44). Specifically, “upper zones 40 of adjacent heating chambers 20 may utilize opposite sides of an otherwise common sidewall 44,” and “[f]urther, the front dam 42 and the rear dam 46 of the various heating chambers 20 may simply be laterally different portions of respective continuous wall elements if desired.” Williams at Fig. 2, 2:57-62 and 4:51-65.

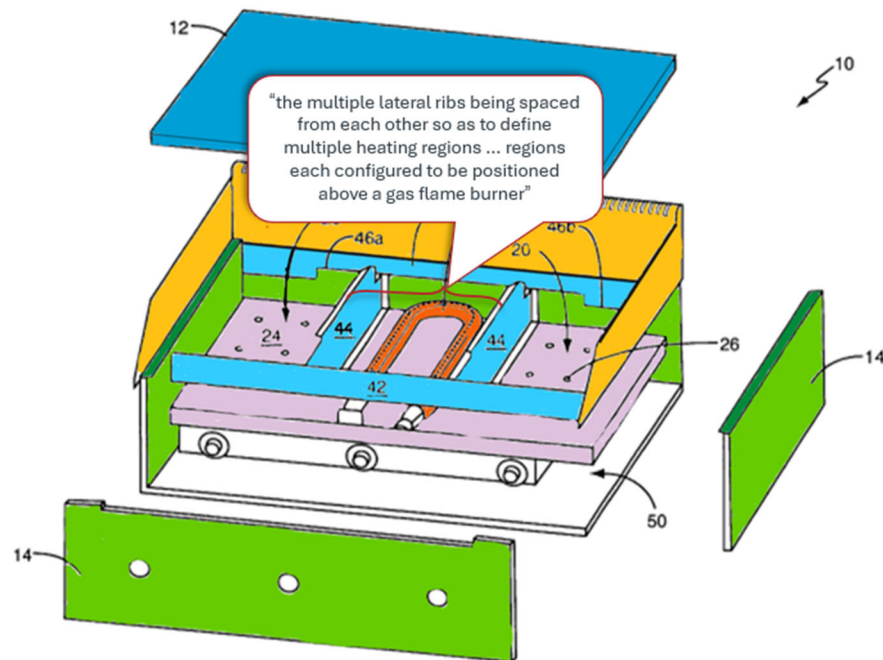


FIG. 2

Williams Annotated Figure 2

289. As can be seen in annotated figure 3, below, Williams discloses a burner 22 positioned below what Williams describes as the “upper zone” which is a heating region since hot combustion gasses are trapped in Williams’s upper zone to heat the underside of the griddle. Williams at Fig. 3, 2:39-44, 3:52-62.

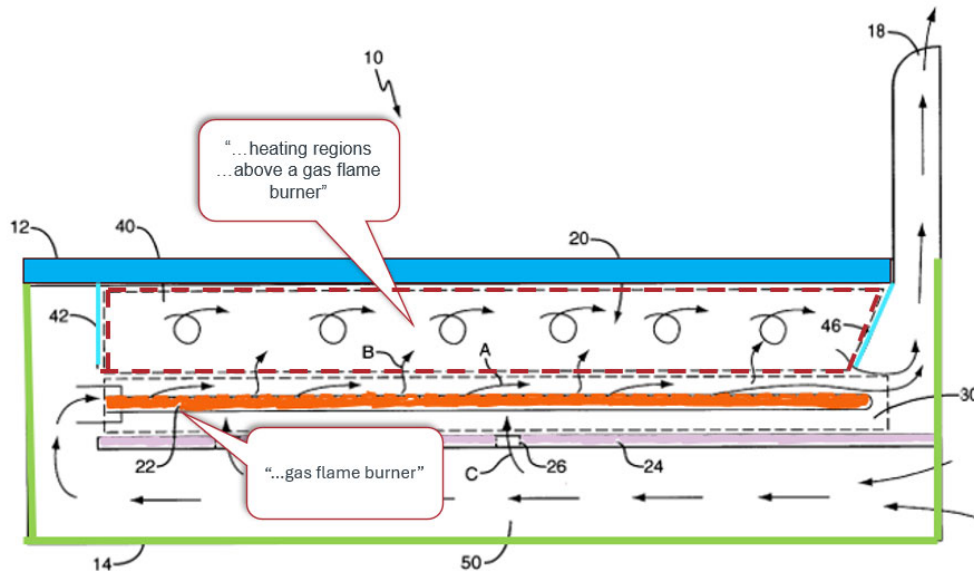


FIG. 3

Williams Annotated Figure 3

290. While Williams depicts three heating regions, only one burner is shown. A POSITA would appreciate a burner would be included in each of the heating regions shown in Williams figures 2 and 3. Williams at Fig. 2, Fig. 3, 1:10-14 (describing that “gas-fired griddles, commonly utilize multiple burners located in various locations beneath the heated surface”); 1:29-35 (describing that each heating chamber is heated by at least on gas burner disposed in the lower zone); 2:23-30

(describing that the gas burners use natural, unforced, draft for supply air); *see also* 4:51-65 (describing that “cooking device...with more heating chambers 20 and corresponding burners 22.”).

- g) **[10.6] each of the lateral ribs extend downward from the underside surface a lateral rib height such that the adjacently extending lateral ribs are configured to funnel the convection heat from the gas flame burner toward the rear end of the underside surface and away from a rear side of the cooking station;**

291. Williams discloses that “[t]he upper zone 40 is generally defined by the underside of cooking surface 12 and flow-restricting walls, specifically a front dam wall 42, a rear dam wall 46, and sidewalls 44 associated therewith.” Williams at 2:41-44. The sidewalls 44 are lateral ribs that run from the front dam wall to the rear dam wall. Williams at 2:39-44 and 3:65-4:2. Williams goes further to provide that, “[a]t least the front dam 42 and the rear dam 46 are downwardly extending, thereby extending generally away from the underside of the cooking surface 12.” Williams at 2:44-47.

292. While Williams only explicitly provides that the front (42) and rear dams (46) are “downwardly extending,” a POSITA would also read the disclosure of “[a]t least the front dam 42 and the rear dam 46 are downwardly extending, thereby extending generally away from the underside of the cooking surface 12” to mean other components, such as sidewalls (44) may also be optionally downwardly extending a certain height from the underside surface of the griddle and thus are

“fixed” or “integral” to the underside surface of the griddle. Williams at 2:44-47 (emphasis added).

293. Williams further describes that the upper zones’ sidewalls (44) and downwardly extending dam walls (42 and 46) cooperate to create the low flow zones beneath the griddle surface (12). Williams at Abstract. Moreover, these features from Williams create “a more uniform layer of hot combustion gases to be formed along the underside of the griddle surface, thereby more evenly delivering heat to the griddle surface.” Williams at Abstract. Extending the sidewalls a height downward from the underside of the griddle would help achieve these intended functions in Williams cooking device. *See* Williams Fig. 2.

294. In reviewing annotated figure 3, a POSITA would appreciate that the cooking system disclosed in Williams uses multiple burners (22) to generate convective heat and uses the physical structure of the front rib (42) and lateral ribs (44) to help funnel the convective heat to the rear of the cooking device. Williams at Fig. 3.

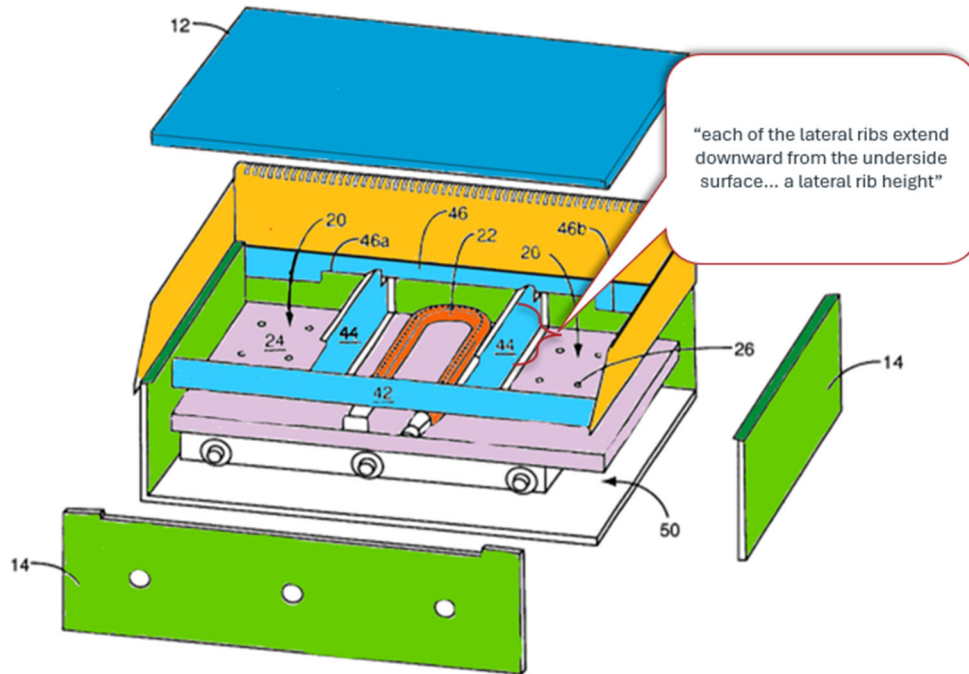


FIG. 2

Williams Annotated Figure 2

295. Moreover, a POSITA would understand the equivalent height of each rib serves as an air dam/seal, ensuring that heated air is retained in its respective heating chamber and cannot escape through gaps/seams in the joined structure to adjacent heating chambers. Williams at 2:39-44 and 3:62-4:2 (describing that once the “gas within the upper zone 50 has cooled, it descends below the lower edge 46 a,b of the rear dam 46, joins the flow from the burner zone 30, and is carried out the flue 18.”).

296. Accordingly, a POSITA would understand Williams discloses that the convection heat trapped in a heating chamber by the sidewalls moves from any one

of the multiple burners toward the rear end of the underside surface of the griddle and from the rear side of the frame (e.g., out the flue (18)).

297. Williams describes that “[t]he hot combustion gases tend to rise within the heating chamber 20, but there is a significant front-to-back flow within the burner zone 30 caused by natural drafting, . . . [a] portion of the hot combustion gases flow relatively directly out the exhaust located at the rear of each heating chamber 20.” Williams at 3:20-51; *see also* Williams at 3:52-56 (describing that “[i]n order to combat this, another portion of the hot combustion gases generated by the burner 22 is at least transiently dammed within the upper zones 40 beneath the cooking surface 12.”)

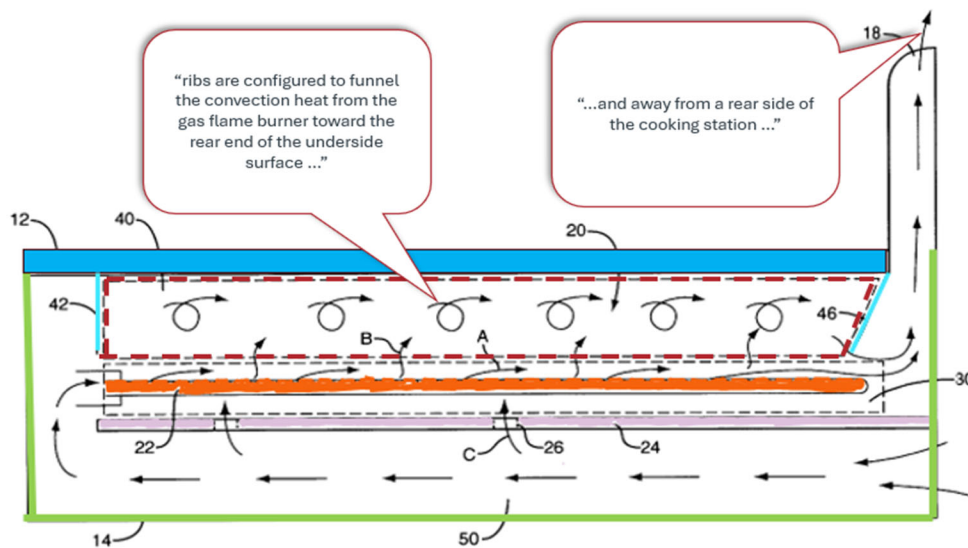


FIG. 3

Williams Annotated Figure 3

298. Accordingly, a POSITA would understand Williams teaches that the presence of the perimeter wall, including the front dam (42), rear dam (46), and sidewalls (44), helps create the upper zone (40) where the portion of the hot combustion gases are at least temporarily trapped while being funneled toward the rear end of the griddle's underside surface before they exit from the rear of the cooking device. Williams at 3:57-4:2.

299. Extending the sidewalls downward from the underside of the griddle would help achieve Williams's description that the sidewalls (44) and dam walls (42 and 46) cooperate together to create the low flow zones beneath the griddle surface (12) as well as creating "a more uniform layer of hot combustion gases to be formed along the underside of the griddle surface, thereby more evenly delivering heat to the griddle surface." Williams at Abstract.

h) [10.7] wherein the front rib and the multiple lateral ribs are integrally formed with the underside surface; and

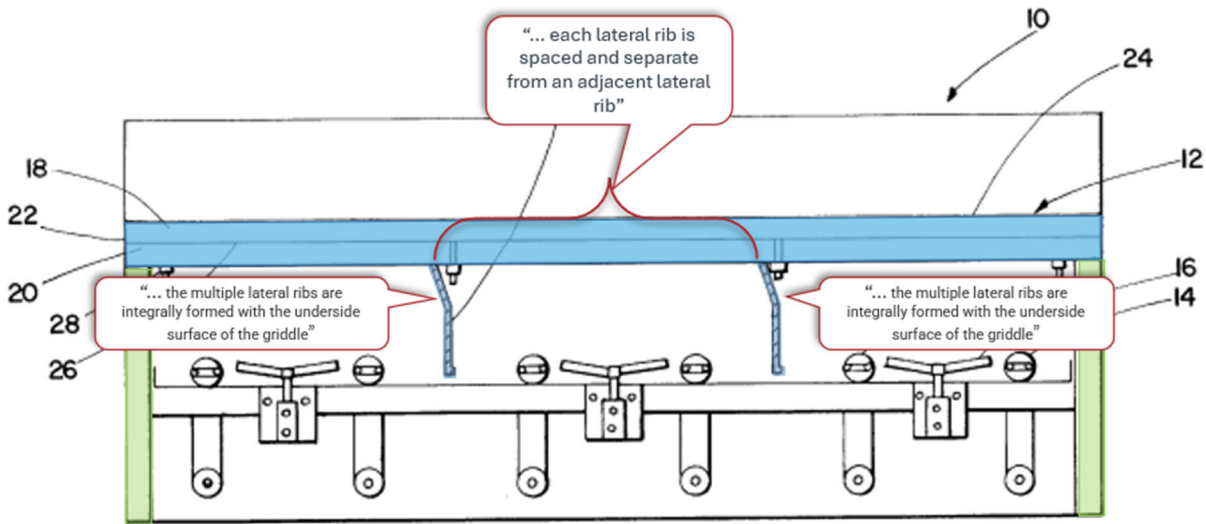
300. As discussed above for Ground 1, Williams alone renders obvious claims 10-13, 15, 17-18 and 20. To the extent that Williams does not teach claim [10.7], Williams in view of Farnworth discloses the limitations of claim 10.

301. As to claim limitation [10.7], Farnsworth explicitly teaches this limitation. Williams and Farnsworth are analogous because both teach griddles that use gas-fired burners to heat multiple heating zones or chambers across a cooking surface. *See* Williams at Abstract; Farnsworth at 2:57 – 3:34. To provide a more

uniform heating of a griddle surface, Williams and Farnsworth utilize a plurality of burners positioned within heating chambers below the griddle's surface creating heat zones which can be controlled independently of each other. Williams at 1:27-31; Farnsworth at 3:20-24. Additional motivation to combine Williams and Farnsworth as discussed above is equally applicable herein.

302. Farnsworth provides a “substantially even distribution of heat over a cooking surface of a griddle top.” Farnsworth at 1:50-52. The “plurality of ports having an orientation . . . so as to produce flames generally directed toward the rear of the griddle top.” Farnsworth at 2:1-6. To further direct the flames toward the rear of the griddle top, the angle of the ports “assists in exhausting combustion gases toward the rear of the griddle” where gases exit through a flue. Farnsworth at 2:14-18.

303. To achieve the objective of creating a substantially uniform heating surface, laterally extending baffles or ribs are attached to the griddle, thus further assisting in reducing the temperature variations over the surface. Farnsworth at 2:27-29 and 3:15-19. In Farnsworth, “**laterally extending baffle[s]** (30) [are] attached to the bottom surface (26) of the upper plate (18) and [are] positioned between each pair of burners (14).” Farnsworth at 3:15-19 (emphasis added).

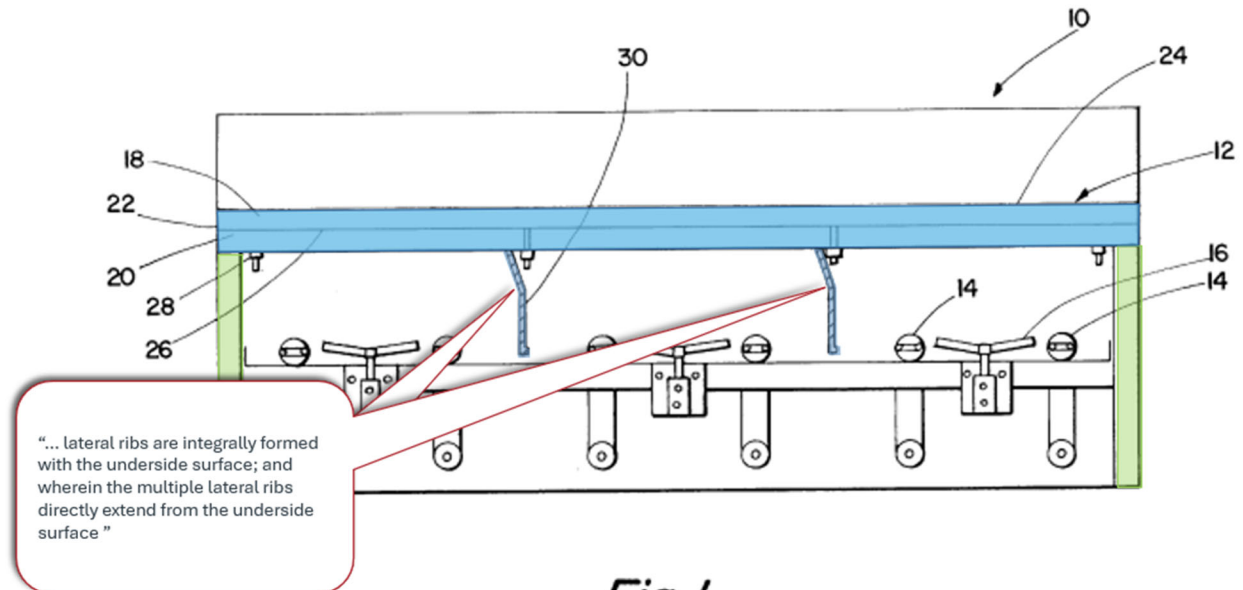
*Fig. 1***Farnsworth Annotated Figure 1**

304. Accordingly, a POSITA would understand Farnsworth teaches laterally extending ribs (30) integrated with the underside of the griddle, spaced and separate from the adjacent lateral ribs. Specifically, a POSITA would understand the laterally extending ribs are attached to the griddle plate, (as drawn in Fig. 1) and therefore, integral to the plate or griddle.

305. As discussed above, a POSITA would recognize that the baffles/lateral ribs of Farnsworth would be subject to heat induced stresses that may induce deformation as different portions the baffles expand and contract at different rates depending on the heat they are subjected to.

306. To account for this, a POSITA understands Farnsworth leaves a small air gap. Farnsworth at Fig. 1. This deformation of the baffles would be smallest

where the baffles are integrated with the other griddle structures, such as where baffle (30) integrates with the underside of the griddle plate (26).



Farnsworth Annotated Figure 1

307. This configuration of lateral ribs taught by Farnsworth, in conjunction with the front dam (42) and rear dam (46) of Williams, improves the isolation of the hot combustion gases that collect at the top of the heating zones and prevents any gaps between Williams's lateral rib and the underside of the Williams griddle.

308. Additionally, the laterally extending baffles of Farnsworth serve the same purpose as the lateral extended ribs of Williams to isolate heat in different cooking zones. The baffles (30) of Farnsworth would attach to the underside of Williams griddle. The location and space occupied by Farnsworth's baffles would be substantially the same as the location and space already occupied by Williams's

sidewall (44). As such, the laterally extending baffles of Farnsworth would be a simple substitution for the lateral ribs of Williams.

309. Furthermore, A POSITA would be motivated to combine the teachings of Williams with Farnsworth for integrating lateral ribs with the underside surface of the griddle to further improve the thermal isolation of the heating chambers as taught by Farnsworth. Additionally, a POSITA would be able to implement the combination of Williams and Farnsworth without undue experimentation.

310. Williams expressly contemplates lateral ribs extending downward as explicitly described and illustrated in Farnsworth Figure 1. 3:15-19. As discussed above, Williams provides, “[a]t least the front dam 42 and the rear dam 46 are downwardly extending, thereby extending generally away from the underside of the cooking surface 12.” Williams at 2:44-47; *see also* Williams at Claim 1 (reciting “each of said heating chambers having sidewalls and downwardly extending flow-restricting walls...”).

311. While Williams only explicitly provides the front (42) and rear dams (46) are “downwardly extending,” a POSITA would also read the disclosure of “[a]t least the front dam 42 and the rear dam 46 are downwardly extending, thereby extending generally away from the underside of the cooking surface 12” to mean other components, such as sidewalls (44) may also be optionally downwardly extending from the underside surface of the griddle and thus “fixed” or “integral” to

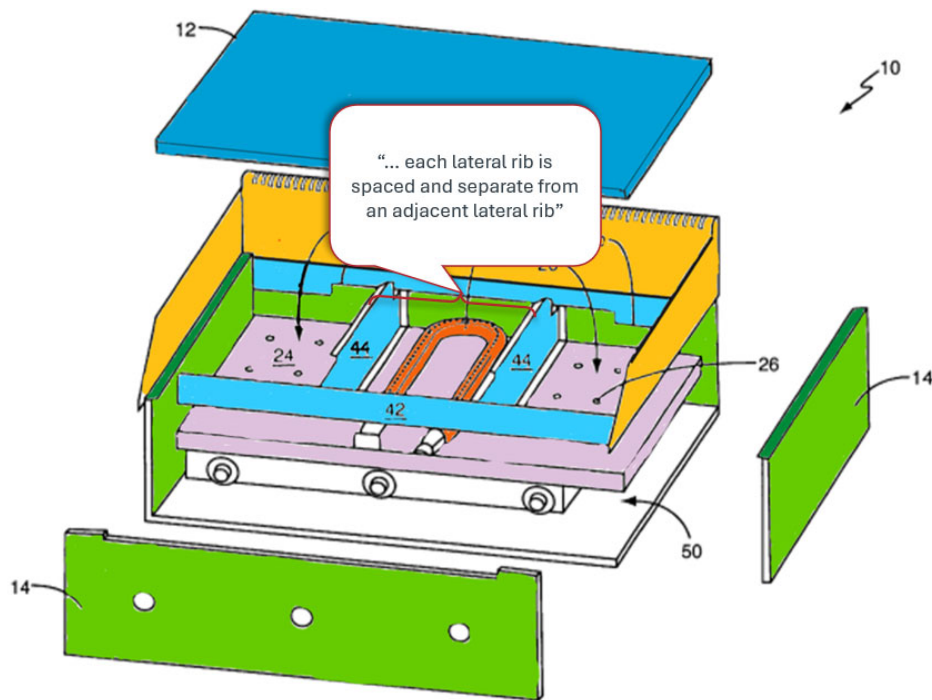
the underside surface of the griddle. Williams at 2:44-47 (emphasis added). Therefore, the combination of Williams and Farnworth would be obvious.

312. In addition, the baffles of Farnsworth would still allow Williams's griddle plate to be removed and the area of the heating zone to be easily accessed for cleaning and maintenance.

- i) **[10.8] wherein the multiple lateral ribs directly extend from the underside surface such that each lateral rib is spaced and separate from an adjacent lateral rib.**

313. Claim [10.8] is described by Williams. Williams describes that the downward extending sidewalls are disposed in a “laterally adjacent configuration, meaning that they generally run front-to-back and are disposed in a left-to-right series” and thereby each sidewall is spaced and separate from the adjacent sidewall. Williams at Fig. 2, 2:15-22 and 2:41-47.

314. As discussed above with respect to limitation [10.6], Williams also teaches or renders obvious the multiple lateral ribs (sidewalls 44) are downwardly extending from the underside of the griddle. *See* Williams at Fig. 2.



Williams Annotated Figure 2

315. To the extent the specific limitation of the multiple lateral ribs (or sidewalls) directly extending from the “underside surface” is not found to be directly disclosed by Williams, this limitation would have been obvious. *See* claim [1.7] (discussing it would be obvious to affix all support structures including the front dam (42), rear dam (46) and sidewalls (44) to the “underside of the cooking surface.”).

- j) **Claim 11. The griddle of claim 10, wherein the front rib substantially blocks the convection heat from escaping a front side of the underside surface.**
- k) **Claim 12. The griddle of claim 10, wherein the adjacently extending lateral ribs are sized to substantially prevent convection heat from moving over the adjacently extending lateral ribs and directly, convectively heating adjacent heating regions.**
- l) **Claim 13. The griddle of claim 10, wherein the adjacently extending lateral ribs are sized to substantially maintain convection heat therebetween to only convectively heat the corresponding heating region between the adjacently extending lateral ribs.**

316. As discussed above, Williams in view of Farnworth discloses a griddle, wherein the front rib substantially blocks convection heat from escaping from the front side of the frame, wherein the adjacently extending lateral ribs are sized to substantially prevent convection heat from moving over the adjacently extending lateral ribs and directly, convectively heating adjacent heating regions, and the lateral ribs are sized to substantially maintain convection heat between the adjacently extending lateral ribs to only convectively heat the corresponding heating region between the adjacently extending lateral ribs, as claimed by the '473 patent.

317. Specifically, a POSITA would be motivated to replace the sidewall (44) of Williams with the laterally extending baffles (30) of Farnsworth for improved isolation of the heating zones while also minimizing various stresses that may result in deformation.

318. Moreover, a POSITA would recognize that the combination of the baffles from Farnsworth, with the cooking device of Williams would similarly block convection heat from escaping from the front side of the frame, substantially prevent convection heat from moving over the adjacently extending lateral ribs and directly, convectively heating adjacent heating regions, and maintain convection heat between the adjacently extending lateral ribs to only convectively heat the corresponding heating region between the adjacently extending lateral ribs.

319. For at least the reasons described above, the use of the baffles as disclosed by Farnsworth in place of Williams sidewalls would not materially alter the airflow in Williams cooking device.

320. The hot combustion gases would still be trapped within the individual heating chambers due in part to the baffles before moving below the rear dam and exiting from the flue (18) at the rear of Williams cooking device.

321. As such, the analysis previously provided above regarding claims 11-13 is equally applicable here concerning Williams modified in view of Farnsworth's baffles.

m) Claim 15. The griddle of claim 10, further comprising a splash guard extending upward above a periphery of the cooking surface.

322. Williams in view of Farnsworth discloses each of the limitations of claim 10. Williams in view of Farnsworth similarly disclose the limitations of claim

15 requiring a “splash guard extending upward above a periphery of the cooking surface.” For at least the same reasons described above, Williams in view of Farnworth discloses the limitations of claim 15.

323. More specifically, and as can be seen in annotated Figure 2 of Williams below, the griddle includes a splash guard (colored yellow) that extends upward from the griddle surface on the left periphery, right periphery, and back periphery of the frame (14). Williams as Fig. 2.

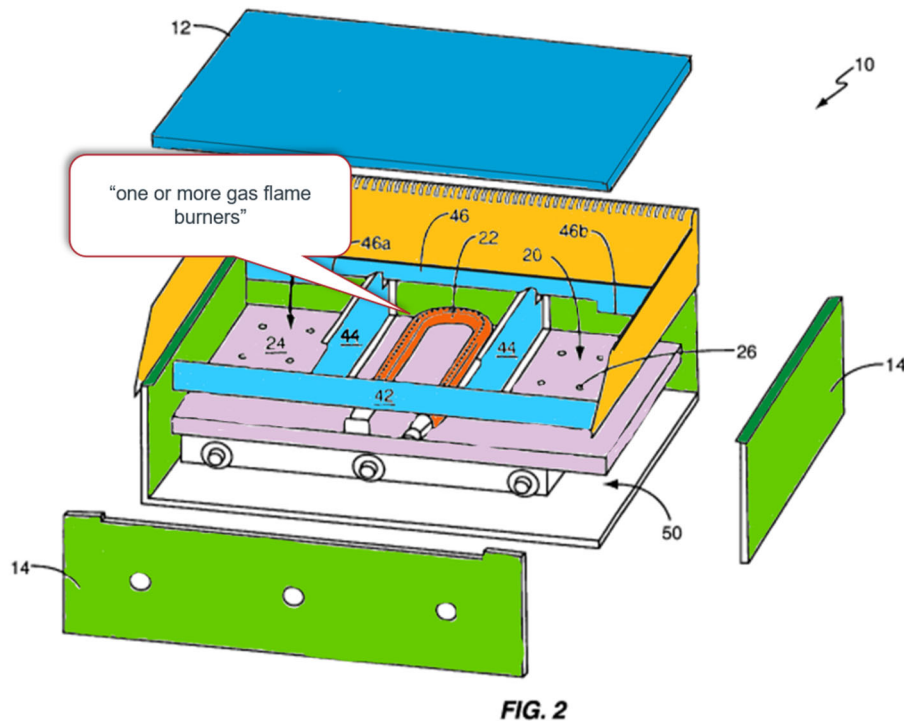
324. While the splash guard of Williams is not discussed in detail, a POSITA reviewing Williams would understand that the structure shown in yellow in annotated Figure 2 of Williams is serves as a splash guard that would limit the splashing of grease on the surface of griddle.

n) [17.0] A method for selectively heating regions of a griddle with convection heat from one or more gas flame burners of an outdoor cooking station, the method comprising:

325. Claim 17 is similar in scope to claim 10. As such, Williams discloses the limitations of claim 17 for at least the same reasons as Williams discloses the limitations of claim 10. See claim 10 from ground 1.

326. To the extent the preamble of claim 17 is limiting, it is rendered obvious for at least the reasons provided above for limitation [10.0] and [10.5] explaining how Williams cooking device selectively heats multiple separate heating regions using convective heat from turning on gas flame burners.

327. Williams discloses, “[a] method for selectively heating regions of a griddle with convection heat from one or more gas flame burners of an outdoor cooking station, the method comprising.” *See e.g.*, Williams at Fig. 2.



Williams Annotated Figure 2

328. Williams’s invention “relates generally to the field of gas-fired cooking devices, and specifically to a gas-fired cooking device that includes a heat bank to provide a more uniformly heated cooking surface.” Williams at 1:6-9, 1:62-66 (describing the invention as “gas-fired griddles, braising pans, or ... skillets...”), and 3:9-19 (discussing that gas, such as propane, is supplied to burners which may be controlled by controls or user interfaces such as knobs).

329. As can be seen in annotated figure 3, below, Williams discloses a burner 22 positioned below what Williams describes as the “upper zone” which is a heating region since hot combustion gasses are trapped in Williams’s upper zone to heat the underside of the griddle. Williams at Fig. 3, 2:39-44, 3:52-62.

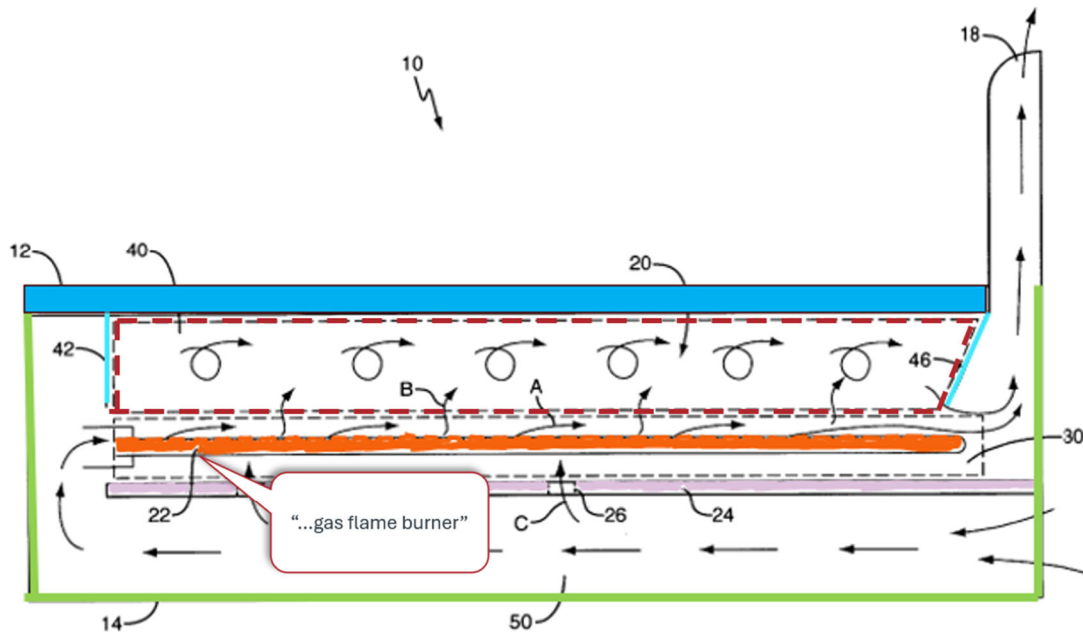


FIG. 3

Williams Annotated Figure 3

330. While Williams depicts three heating regions, only one burner is shown. A POSITA would appreciate a burner would be included in each of the heating regions shown in Williams figures 2 and 3. Williams at Fig. 2, Fig. 3, 1:10-14 (describing that “gas-fired griddles, commonly utilize multiple burners located in various locations beneath the heated surface”); 1:29-35 (describing that each heating chamber is heated by at least one gas burner disposed in the lower zone); 2:23-30

(describing that the gas burners use natural, unforced, draft for supply air); *see also* 4:51-65 (describing that “cooking device...with more heating chambers 20 and corresponding burners 22.”).

331. In addition, a POSITA would understand one purpose of multiple separated heating regions in Williams is so the user can selectively heat the regions of the griddle above each heating region. If a user were to select to turn on the gas flame burners in one heating region but not the others, then the region of the griddle above the turned-on burners would be substantially hotter than other regions of the griddle.

332. Lastly, a POSITA understands that Williams griddle would be used outdoor cooking since the listed fuel sources include “propane” which is a ubiquitous fuel source for outdoor cooking with griddles and grills.

- o) **[17.1] turning on one or more gas burners of the outdoor cooking station such that the one or more gas burners are positioned below an underside surface of a griddle; and**

333. Limitation [17.1] is rendered obvious for at least the reasons provided for limitation [10.5]. In addition, Williams teaches an outdoor cooking station for the reasons stated above with regards to limitation [17.0].

334. As can be seen in annotated figure 3, below, Williams discloses a burner 22 positioned below what Williams describes as the “upper zone” which is a

heating region since hot combustion gasses are trapped in Williams's upper zone to heat the underside of the griddle. Williams at Fig. 3, 2:39-44, 3:52-62.

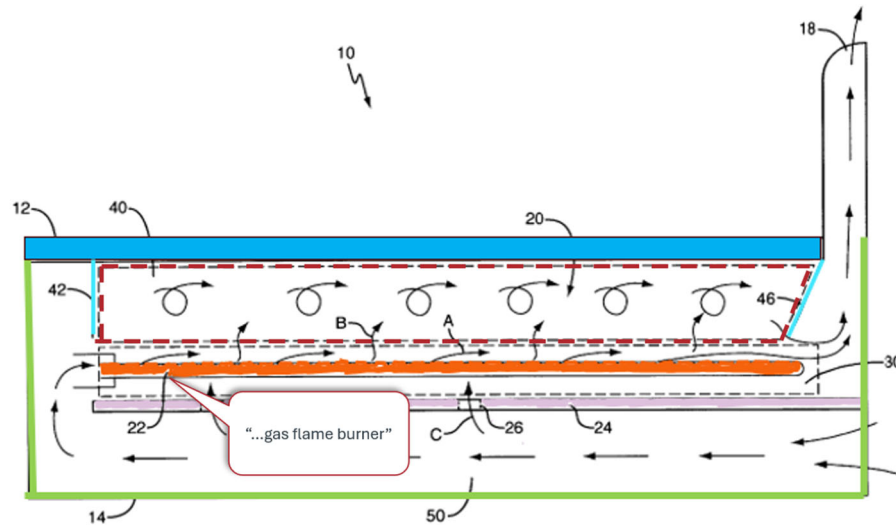


FIG. 3

Williams Annotated Figure 3

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336. In addition, a POSITA would understand one purpose of multiple separated heating regions in Williams is so the user can selectively heat the regions of the griddle above each heating region. If a user were to select to turn on the gas flame burners in one heating region but not the others, then the region of the griddle above the turned-on burners would be substantially hotter than other regions of the griddle.

- p) **[17.2] selectively heating specific regions of the griddle that correspond with the one or more gas burners turned on, the specific regions each defined by adjacently extending parallel ribs, the ribs extending laterally from a front rib toward a rear end of the underside surface of the griddle such that the front rib and the parallel ribs channel convection heat to flow between the adjacently extending parallel ribs toward the rear end of the griddle and away from the outdoor cooking station;**

337. Limitation [17.2] is rendered obvious for at least the reasons provided for limitation [10.5] and [10.6]. While claim 10 does not expressly require the lateral ribs to be “parallel” this is taught by Williams’s primary embodiment as best seen in Figure 4, where the dashed lines representing sidewalls 44 would be understood by a POSITA to be in parallel. Williams at Fig. 4; *see also* Fig. 2.

338. As can be seen in annotated figure 3, below, Williams discloses a burner 22 positioned below what Williams describes as the “upper zone” which is a heating region since hot combustion gasses are trapped in Williams’s upper zone to heat the underside of the griddle. Williams at Fig. 3, 2:39-44, 3:52-62.

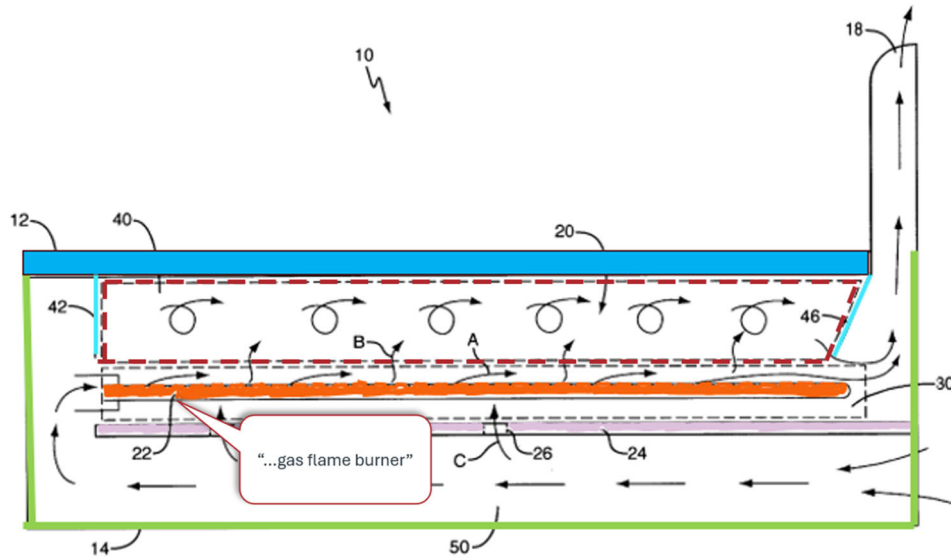


FIG. 3

Williams Annotated Figure 3

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340. In addition, a POSITA would understand one purpose of multiple separated heating regions in Williams is so the user can selectively heat the regions

of the griddle above each heating region. If a user were to select to turn on the gas burners in one heating region but not the others, then the region of the griddle above the turned-on burners would be substantially hotter than other regions of the griddle.

341. While Williams only explicitly provides that the front (42) and rear dams (46) are “downwardly extending,” a POSITA would also read the disclosure of “[a]t least the front dam 42 and the rear dam 46 are downwardly extending, thereby extending generally away from the underside of the cooking surface 12” to mean other components, such as sidewalls (44) may also be optionally downwardly extending from the underside surface of the griddle and thus “fixed” or “integral” to the underside surface of the griddle. Williams at 2:44-47 (emphasis added).

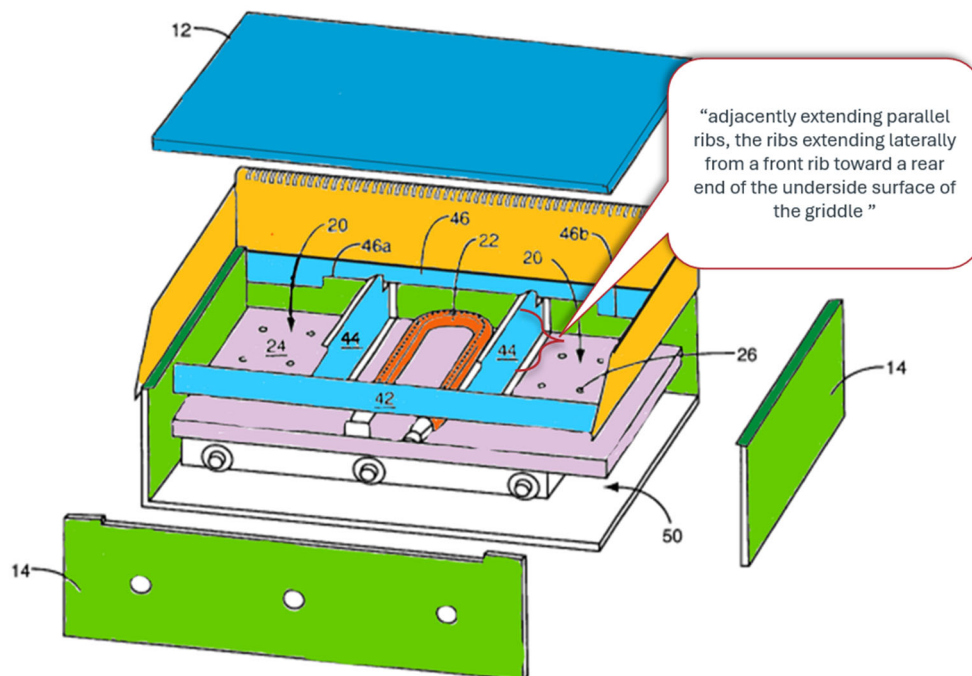


FIG. 2

Williams Annotated Figure 2

342. Williams further describes that the upper zones' sidewalls (44) and downwardly extending dam walls (42 and 46) cooperate to create the low flow zones beneath the griddle surface (12). Williams at Abstract. Moreover, these features from Williams create "a more uniform layer of hot combustion gases to be formed along the underside of the griddle surface, thereby more evenly delivering heat to the griddle surface." Williams at Abstract. Extending the sidewalls downward from the underside of the griddle would help achieve these intended functions in Williams cooking device. *See Williams Fig. 2.*

343. A POSITA would appreciate that the cooking system disclosed in Williams uses multiple burners (22) in combination with the physical structure of the front rib (42) and lateral ribs (44).

344. Moreover, a POSITA would understand the equivalent height of each rib serves as an air dam/seal, ensuring that heated air is retained in its respective heating chamber and cannot escape through gaps/seams in the joined structure to adjacent heating chambers. Williams at 2:39-44 and 3:62-4:2 (describing that once the "gas within the upper zone 50 has cooled, it descends below the lower edge 46 a,b of the rear dam 46, joins the flow from the burner zone 30, and is carried out the flue 18.").

345. Accordingly, a POSITA would understand Williams discloses that the convection heat trapped in a heating chamber by the sidewalls moves from any one

of the multiple burners toward the rear end of the underside surface of the griddle and from the rear side of the frame (e.g., out the flue (18)).

346. Williams describes that “[t]he hot combustion gases tend to rise within the heating chamber 20, but there is a significant front-to-back flow within the burner zone 30 caused by natural drafting, . . . [a] portion of the hot combustion gases flow relatively directly out the exhaust located at the rear of each heating chamber 20.” Williams at 3:20-51; *see also* Williams at 3:52-56 (describing that “[i]n order to combat this, another portion of the hot combustion gases generated by the burner 22 is at least transiently dammed within the upper zones 40 beneath the cooking surface 12.”)

347. Extending the sidewalls downward from the underside of the griddle would help achieve Williams’s description that the sidewalls (44) and dam walls (42 and 46) cooperate together to create the low flow zones beneath the griddle surface (12) as well as creating “a more uniform layer of hot combustion gases to be formed along the underside of the griddle surface, thereby more evenly delivering heat to the griddle surface.” Williams at Abstract.

348. In addition, parallel sidewalls in Williams would have been an obvious implementation since it results in a heating chamber having equal width across its length (e.g., rectangle or square). This helps achieve Williams stated purpose to heat the griddle area more uniformly above the heating zone since the hot gases will be

equally distributed in the heating chamber having a constant width over its length. Williams at 1:20-23 and 1:67-2:4. Conversely, if the heating chamber had variable width across its length, such as a triangular shape, then hot combustion gases may be distributed unevenly, resulting in undesirable nonuniform thermal gradients.

- q) **[17.3] the front rib and the parallel ribs integrally formed with the underside surface of the griddle, and the parallel ribs directly extend from the underside surface of the griddle such that each parallel rib is spaced and separate from an adjacently extending parallel rib.**

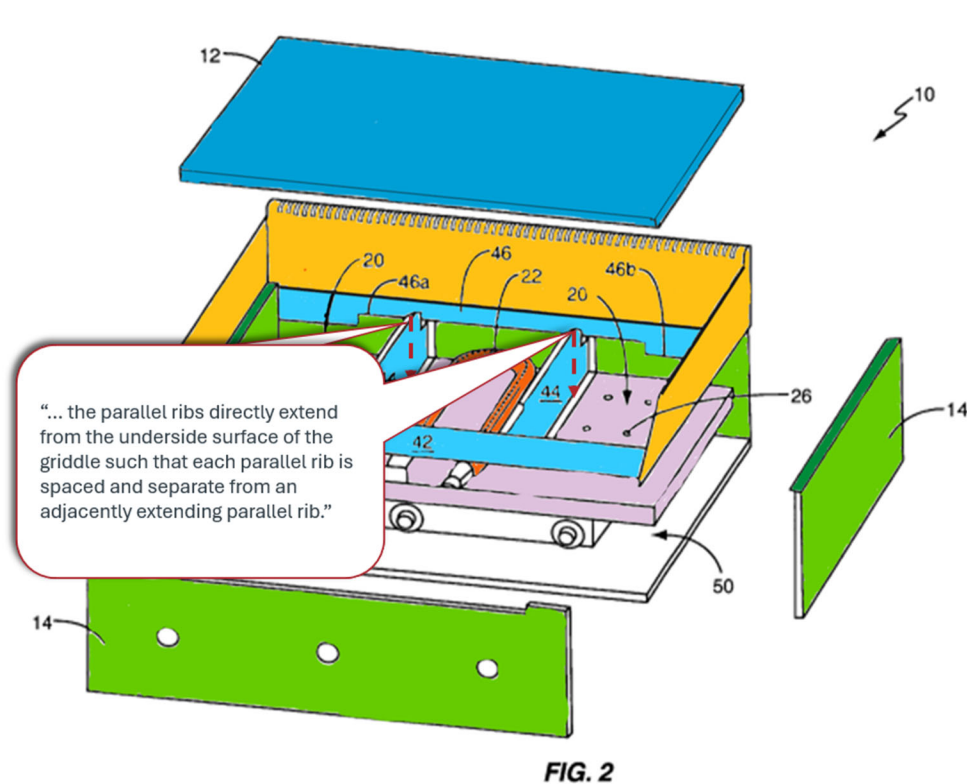
349. Limitation [17.3] is rendered obvious for at least the reasons provided for limitation [10.7] and [10.8]. While claim 10 does not require the integral lateral ribs to be “parallel” this is taught by Williams as explained above with respect to limitation [17.2].

350. As previously discussed, Williams teaches or renders obvious front rib and the parallel ribs integrally formed with the underside surface of the griddle, and the parallel ribs directly extend from the underside surface.

351. A POSITA would understand Williams’s disclosure of a front dam (42), rear dam (46), or sidewalls (44), as “downwardly extending” indicates that at least these two features are “fixed” or “integral” to the underside surface of the griddle and descend downward from their fixed source. Williams at 2:41-47. Integrating these structures with the underside of the griddle creates “a more uniform layer of hot combustion gases to be formed along the underside of the griddle

surface, thereby more evenly delivering heat to the griddle surface.” Williams at 1:38-42, 1:67-2:4, and 3:57-4:2.

352. In addition to Williams itself suggesting that the front dam (42) and sidewalls (44) may be integrally formed with the underside of griddle, a POSITA would also be motivated to integrally form the ribs with the underside of the griddle for several other reasons.



Williams Annotated Figure 2

353. First, the weight of the griddle, as assembled in Fig. 1, would thermally couple it to the front (42) and sidewalls (44). *See* Williams at Fig. 1-3. Two or more bodies are thermally coupled when heat can be transferred between bodies, and heat

is most effectively transferred between bodies when they are in contact such that heat may be conducted from one body to another. To ensure the maximum thermal coupling between the griddle and the sidewalls a POSITA would look to integrate the sidewalls to the underside of the griddle.

354. Second, integrating the sidewalls with the underside of the griddle would also greatly strengthen the horizontally planar griddle to be heated (12) by providing built in vertical support structures. Williams at Fig. 2. Such a configuration aids in the prevention of warping of the planar cooking surface (12). Warping was a well-known problem for griddles by the time of the '473 Patent. *See* Fleming (1939) at 3:31-39 and Betts (1942) 1:25-26.

355. A structure is considered warped when it has "...become bent or twisted out of shape typically as a result of the effects of heat..." Oxford University Press. (2024). warped. In Oxford English dictionary. Retrieved March 5, 2024. Thermally induced warping in flat metal plates results from the development of temperature gradients across the material. *See* Fleming at 3:31-3 and Betts 1:25-26 (both describing warping of griddles due to thermal stresses). These thermal gradients cause the development of thermally induced stresses which cause an uneven expansion or contraction of the material which causes the material to warp. Callister at p. 717. If these stresses exceed the yield strength of the material, the warping will be permanent, even after the thermal gradients are removed.

356. As described above, it was well-known by the time of the '473 Patent that warping of a plate can be prevented by reducing the thermal stresses in the material through a reinforcement of the plate to increase its stiffness via ribs or other structure. Graham (1959) at 2:38-42 (“warpage was limited by the peripheral integrally formed ridge 34”); Savio (1960) at 3:12-15 (“inverted U-shape for strengthening the structure and preventing it from buckling or warping”); and Hinkle at 1:43-48 (“the ribs impart strength to the griddle to prevent warping.”) As such, warping can be prevented or reduced by adding material in a location which increases its area moment of inertia and consequently its resistance to bending. Shigley at 104. The addition of ribs integrally formed on the underside of flat plates is a common and inexpensive means of increasing the area moment of inertia and reducing the likelihood of warping in service. *See* Hinkle at 3:10-28 (addition of ribs reduced costs compared to thicker griddle plate). Accordingly, a POSITA would be motivated to include structural support features on the underside surface of the griddle. By integrally forming the front dam (42), rear dam (46) and sidewalls (44) with the underside surface of the griddle, the structural rigidity of griddle will be significantly improved to withstand such warping.

357. Third, forming the ribs with the underside surface of the griddle ensures there is not a gap between the proximal portion of the rib and the underside of the griddle. *See* Williams at Fig. 2. An advantage described in Williams is the uniform

layer of hot combustion gases formed along the underside of the griddle surface, thereby “more evenly delivering heat to the griddle.” Williams at 1:40-43. Such a gap would undermine the advantages described in Williams by allowing combustion gases to pass over the lateral ribs and affect adjacent heat zones, reducing the effectiveness of the cooking device. Williams at Abstract and 1:40-42.

358. Fourth, the sidewall (44) is a relatively thin vertical structure that would be integrally formed with at least one of the four sides it is connected to in order to provide stability and rigidity to the sidewall. The only four possibilities are to integrate the sidewall with the underside of the griddle, top of the floor plate (24), front dam (42), or rear dam (46). *See* Williams at Fig. 2.

359. Integrating the sidewalls with the underside of the griddle or top of the floor plate provides the most contact area and thus they provide the greatest stability and rigidity to the sidewall. Further, integrating the sidewall with the underside of the griddle would provide the greatest amount of stability and rigidity to the top of the sidewall that is exposed to the largest heat differentials as the heat from the griddle and the heated air would predominately impact the temperatures at the top of the heating chamber. Large heat differentials, such as those occurring when griddles are heated, can cause warping, as discussed above, which would reduce the capability of the sidewalls to funnel heat to the rear of the griddle.

360. A POSITA, in reviewing figure 2 of Williams, would appreciate that sidewalls (44) are, at a minimum, in contact with the underside surface of the griddle. *See Williams at Fig. 2.* This is evident to a POSITA when understanding the objective of Williams (e.g., to isolate convective heat from migrating from one heating chamber to another) and based on figure 2 which depicts a flat surface on the top of sidewalls (44) that is configured to be in contact with the underside surface of the griddle.

361. A POSITA would understand that being in contact with, versus integral with, introduces additional problems in the design of Williams. In particular, if sidewalls (44) warp, they may interfere with the griddle which is resting on frame (14). To solve this problem, a POSITA would be motivated to integrate sidewalls (44) with the underside of the griddle versus letting the griddle rest on them. Leaving the bottom of the sidewalls (44) disconnected, or floating above floor plate (24), would allow for some movement without interfering with the structure of the cooking device or its purposes of directing convective heat.

362. Lastly, integrally forming the sidewalls(44) with the underside of the griddle would reduce assembly time and errors since fewer parts would be required to be assembled by the end user. *Compare Williams at Fig. 1 and '473 at Fig. 6* (illustrating similar views of griddle configurations with fewer parts required for griddle assembly). These ribs do not add significant weight to the structure formed

integrally with the underside of the griddle cooking surface. The fabrication of plate steel griddles with reinforcing ribs may be achieved by rolling and/or machining plate stock to an appropriate thickness and size, followed by welding or bolting of the reinforcing ribs to the plate steel. They may also be formed integrally with the underside of the plate through coldworking or machining. Williams at Fig. 3 and 1:26-46; 4:15-33.

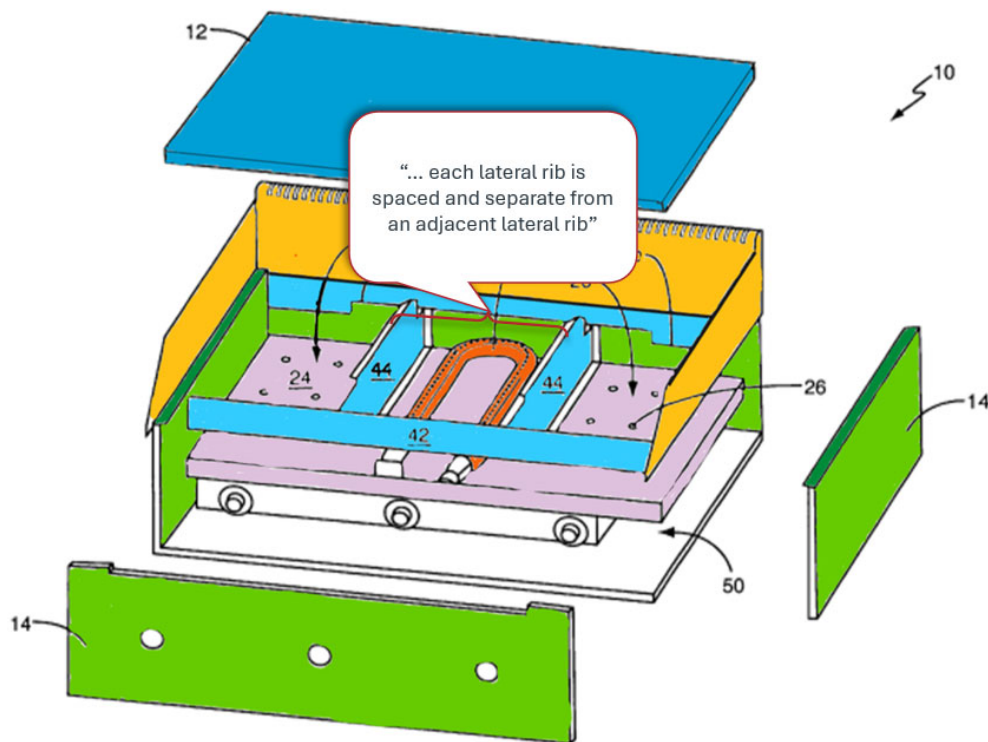


FIG. 2

Williams Annotated Figure 2

363. As illustrated in annotated figure 2, Williams describes that the downward extending walls create the heating chambers (20) which are disposed in a “laterally adjacent configuration, meaning that they generally run front-to-back

and are disposed in a left-to-right series” and thereby each parallel rib is spaced and separate from an adjacently extending parallel rib. Williams at Fig. 2, 2:15-22 and 2:41-47.

- r) **Claim 18. The method according to claim 17, wherein the selectively heating comprises selectively heating the specific regions with the parallel ribs substantially preventing convection heat from moving over the parallel ribs by the convection heat being drawn toward the rear end of the griddle.**

364. Williams in view of Farnsworth discloses each of the limitations for claim 17 as set forth above. Similarly, Williams in view of Farnsworth discloses the limitation from claim 18 requiring “wherein the selectively heating comprises selectively heating the specific regions with the parallel ribs substantially preventing convection heat from moving over the parallel ribs by the convection heat being drawn toward the rear end of the griddle.”

365. As such, Williams in view of Best discloses the limitations of claim 18 for at least the same reasons as Williams described in Ground 1 above. As discussed above with respect to claims 11-13, Williams discloses wherein the selectively heating comprises selectively heating the specific regions with the parallel ribs substantially preventing convection heat from moving over the parallel ribs by the convection heat being drawn toward the rear end of the griddle. *See* claims 11-13.

366. Williams describes an upper zone is defined by the underside of the griddle and “flow-restricting walls”, specifically a front dam wall (42), a rear dam

wall (46), and sidewalls (44). Williams at Fig. 3 and 2:39-47. The “front dam 42, rear dam 46, and sidewalls 44,” provide heating chambers in the upper zone where a “portion of the hot combustion gases are at least temporarily trapped.” Williams at 3:57-4:2. These flow-restricting walls substantially reduce the front-to-back flow rate of heated gas in the upper zone of each heating chambers to evenly heat the respective area of the griddle. Williams at 4:2-13.

367. As seen in Figure 3, no air flow is indicated to pass through front wall (42), but rather exits the heating chamber only by passing below rear wall (46) to the exit flue (18). Williams at 3:39-44 and 3:62:4-2. As discussed above, this results in a low front-to-back flow rate of the heated gas in the upper zone (40) where the heated gas becomes “dammed, stagnant, or trapped” in the upper zone to evenly heat the griddle area above the heating chamber. Williams at 3:57-4:13.

368. Williams also describes how the perimeter of the upper zone of the heating chamber comprises adjacent sidewalls (44) that cooperate with the front wall (42) and rear wall (46) to trap hot combustion gases within upper zone (20) to substantially maintain the heat between the adjacent sidewalls. Williams at Abstract, 1:26-46 and 3:57-4:13. A POSITA understands that Williams’s adjacent sidewalls (44) would be sized to substantially prevent the flow of hot combustion gases out of the sides of the upper zone since Williams discloses the hot combustion gases exit via going below rear dam (46) into flue (18). Williams at 3:39-44 and 3:62:4-2. As

such, the adjacent sidewalls (44) prevent the convective heat in the form of hot combustion from moving into an adjacent heating chamber and directly convectively heating an adjacent heating chamber.

369. Further, as explained in Williams, there is “significant front-to-back flow” that causes the hot combustion gas to exit the rear of the griddle into flue (18). Williams at 2:16-23, 3:34-44. This significant directional flow from front-to-back would likewise prevent flow of hot combustion gasses over the sidewalls.

370. In addition, as previously explained with respect to claim 17, it was obvious in view of Williams to integrate the sidewalls (44) with the underside of the griddle. When the sidewall is integral with the underside of the griddle, it would prevent the movement of hot gases over the sidewalls so that no convective heat from one chamber would move into another chamber directly heating it.

371. Because the sidewalls (44) in Williams prevent the flow of hot combustion gases outside of their respective heating chamber, the sidewalls only convectively heat the upper zone within their respective heating chamber. This ensures an even heating surface on the griddle above the heating region. Williams at 4:2-13. Furthermore, Williams teaches heating regions can be further isolated to prevent movement of convective heat by not using a common sidewall for adjacent heating chambers. Williams at 2:17-23 and 2:57-59. When a common sidewall is not used, air or other insulative material can be interposed between the sidewalls of

adjacent heating chambers to prevent the movement of convective heat from one heating chamber to another.

372. As discussed above, Williams in view of Farnsworth discloses wherein the selectively heating comprises selectively heating the specific regions with the parallel ribs substantially preventing convection heat from moving over the parallel ribs by the convection heat being drawn toward the rear end of the griddle.

- s) **Claim 20. The method according to claim 17, wherein the selectively heating comprises substantially preventing convection heat from moving over the parallel ribs by drawing the convection heat toward the rear end of the griddle with rear end openings, each rear end opening defined by oppositely positioned rear rib ends of the parallel ribs and the rear end of the underside surface of the griddle and a frame component of the outdoor cooking station, the parallel ribs positioned on the frame component.**

373. Williams in view of Farnsworth discloses each of the limitations for claim 20 as set forth above. Williams in view of Farnsworth discloses the first part of the limitation requiring “wherein the selectively heating comprises substantially preventing convection heat from moving over the parallel ribs by drawing the convection heat toward the rear end of the griddle with rear end openings,” for similar reasons as discussed above.

374. Williams also provides “each rear end opening defined by oppositely positioned rear rib ends of the parallel ribs and the rear end of the underside surface of the griddle and a frame component of the outdoor cooking station.” Specifically,

a POSITA would recognize that each of the heating regions (20) is defined, in part, by parallel ribs (44), frame (14) and griddle.

375. Moreover, and as can be seen in annotated Figure 2 of Williams, hot gases formed within heating region (20) would exhaust out the opening defined by the parallel ribs (44), rear end of the underside surface of the griddle, and out flue (18). *See Williams* at 3:62-65 (describing that “gas within the upper zone 50 has cooled, it descends below the lower edge 46 a,b of the rear dam 46, joins the flow from the burner zone 30, and is carried out the flue 18.”)

376. As previously discussed, Farnsworth’s baffles would not materially alter the airflow in Williams cooking device and thus cause hot combustion gases to be trapped in upper zone of Williams heating region until the hot combustion gases are removed from the heating region by moving under the rear dam into the exit flue.

377. Therefore, Williams in view of Farnsworth discloses the limitations of claim 20 for at least the same reasons as Williams described in Ground 1 above.

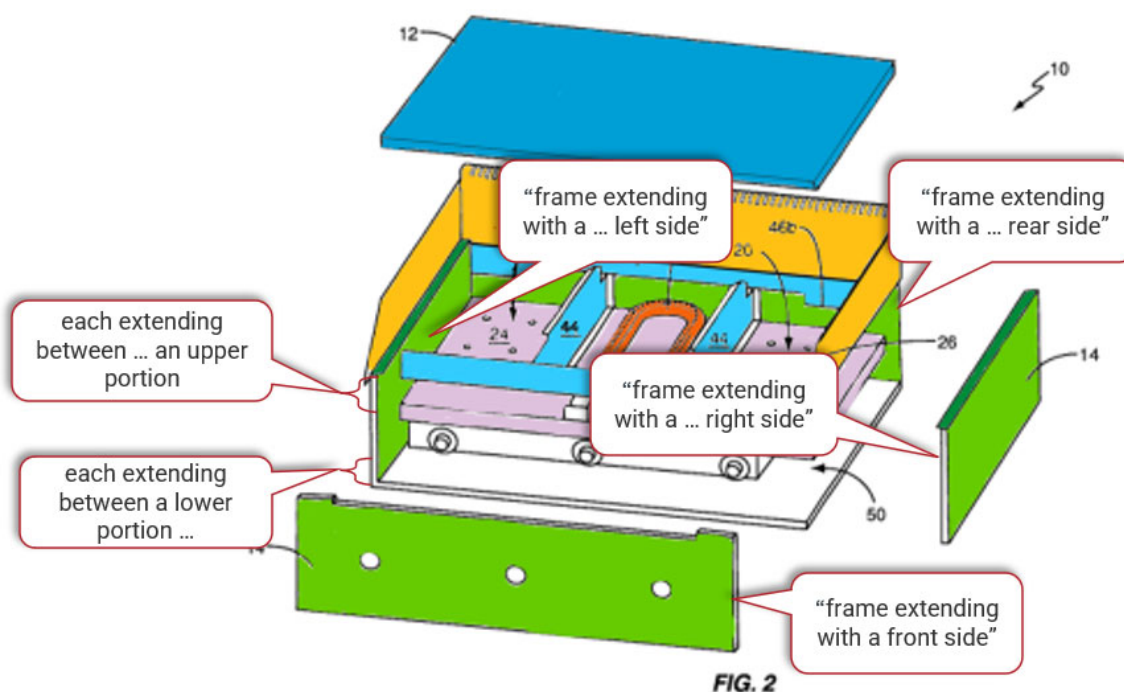
D. GROUND 4: Claims 1-4, 7 and 16 are rendered obvious under 35 U.S.C. § 103 by Williams in view of May.

1. Detailed Claim Analysis

- a) [1.0] A cooking system, comprising: [1.1] a frame extending with a front side, a rear side, a left side, and a right side each extending between a lower portion and an upper portion;**

378. Williams discloses “A cooking system, comprising: a frame extending with a front side, a rear side, a left side, and a right side each extending between a lower portion and an upper portion.” *See e.g.*, Williams at Fig. 2.

379. As shown in annotated figure 2, below, Williams discloses a cooking system comprising a frame (e.g., outer housing 14 shown in light green) extending with a front side, a rear side located opposite the front side, and a left side and right side opposite each other. Williams at Figs. 1-3, 2:8-15, 2:39-44 and 3:20-24.



Williams Annotated Figure 2

380. Additionally, and as shown in annotated figure 3, below, Williams discloses that each side extends between a lower portion (e.g., bottom of the frame 14) and an upper portion (e.g., upper portion of frame 14 just below griddle). Williams at Fig. 3.

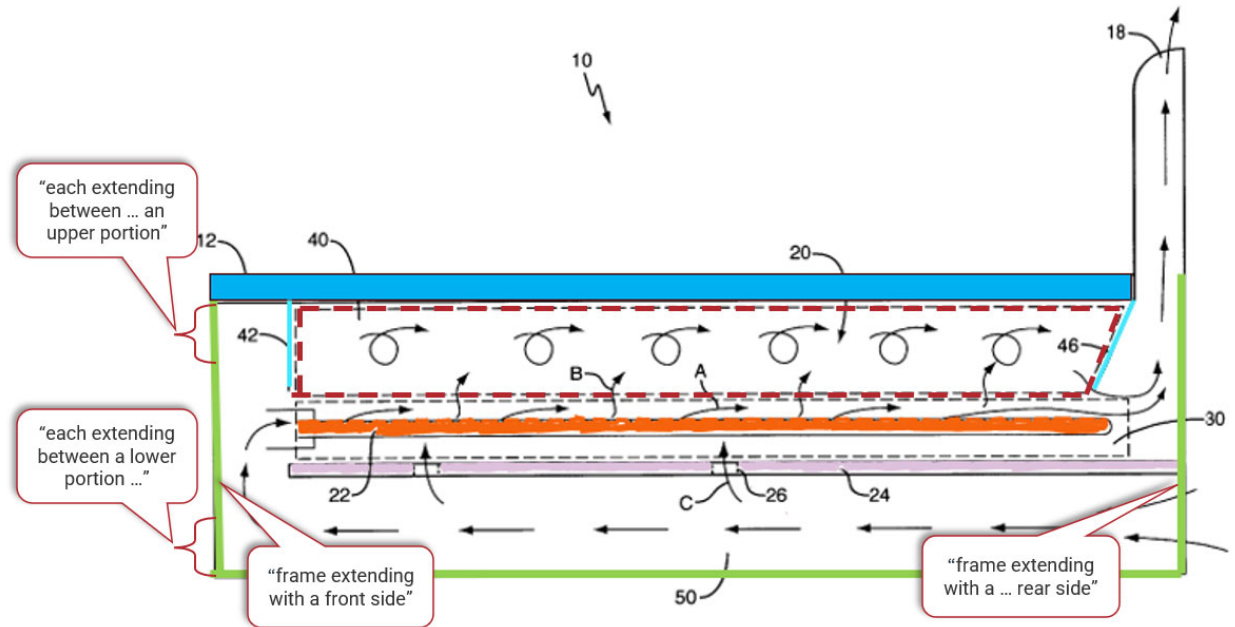


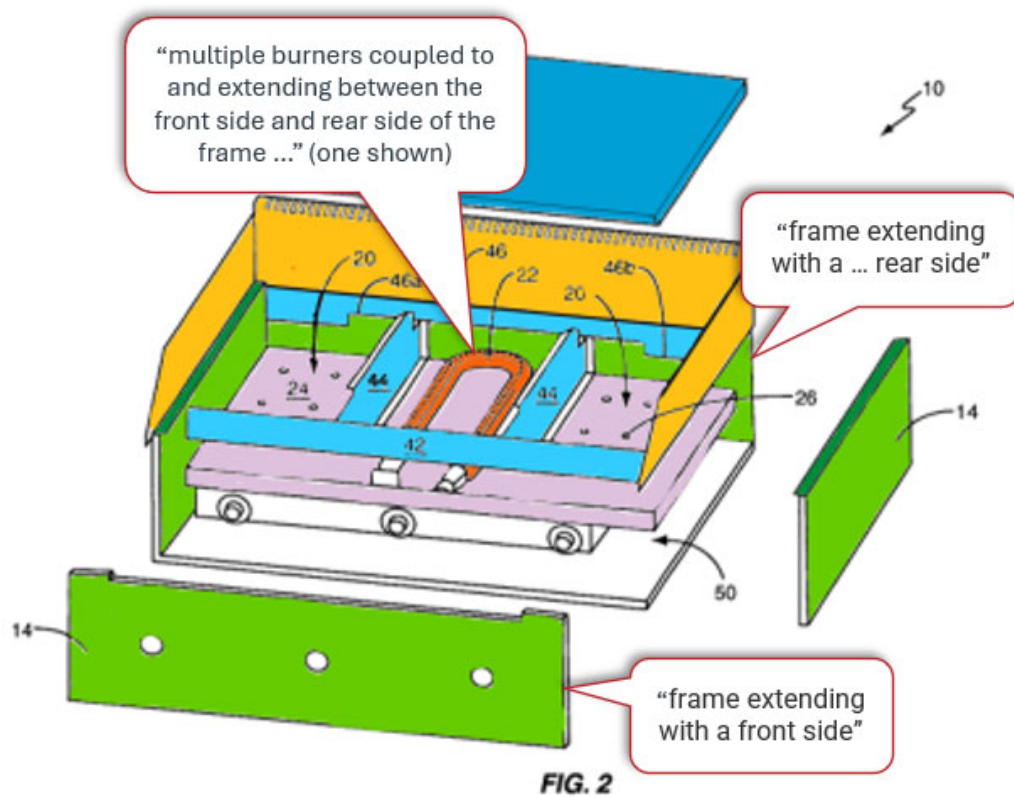
FIG. 3

Williams Annotated Figure 3

- b) [1.2] multiple burners coupled to and extending between the front side and the rear side of the frame; and

381. Williams, in view of May, teaches limitation [1.2], which requires “multiple burners coupled to and extending between the front side and the rear side of the frame.” A POSITA would substitute the U-shaped burners from Williams with the straight-tube burners coupled to a frame as taught by May. The motivations to combine these teachings, and the expectations for success are discussed in detail below.

382. With respect to the “multiple burners,” annotated Figure 2 of Williams shows a burner (22), colored orange, extending between the front side and rear side of the frame (14). Williams at Fig. 2.

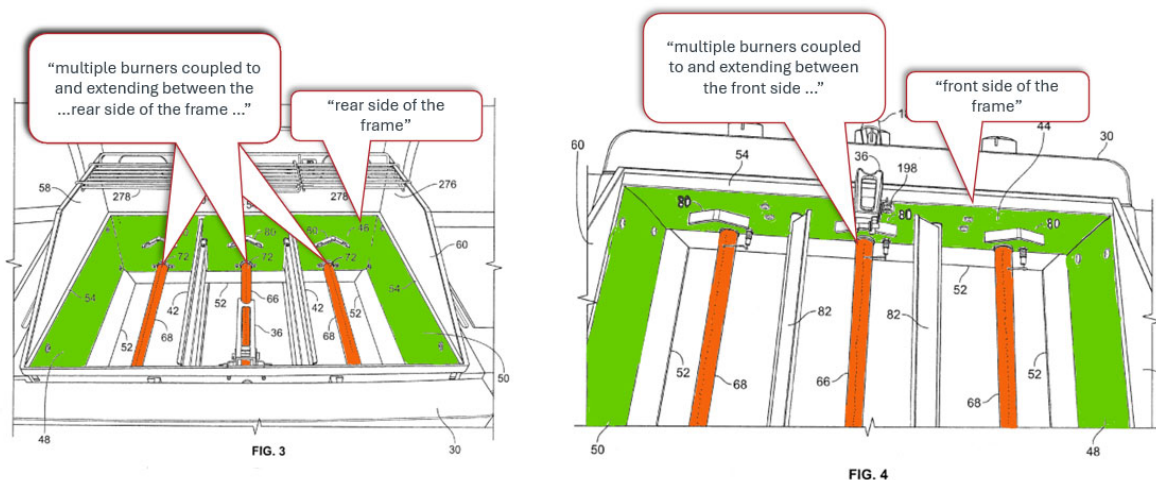


Williams Annotated Figure 2

383. To show other cooking device features, figure 2 depicts three heating chambers (20), yet illustrates only one example of the multiple gas burners (22). Williams at 4:51-52. Williams, however, makes clear that the cooking device is configured to include multiple burners since it discloses a cooking device with “a few heating chambers 20” that include “corresponding burners 22.” Williams at 1:11-13, 1:29-35, 2:23-30, 4:51-60; *see also* Fig. 2 (showing three control knobs corresponding to three burners, one for each of the three illustrated heating

chambers.) As such, a POSITA would understand that Williams would include a burner for each heating chamber. *See Williams at Fig. 2.*

384. While Williams does not discuss how the multiple burners are coupled to the frame, a POSITA would look to the teachings of May, which explicitly teaches coupling a burner to both the front and rear sides of a frame. May at Figs. 3, 4, and [0049]; *see annotated Figs. 3 and 4 below (showing a burner tube 66 coupled to the front of frame at figure 4, and the rear of the frame at figure 3).*



May Annotated Figures 3 & 4

385. May teaches that a “firebox also houses a middle burner tube 66 and two side burner tubes 68,” and the burner “rear end 72 is fixedly attached to the rear wall 46 of the firebox,” and “front end 70 extends through holes 74 in the front wall 44 of the firebox and is attached to a burner ignition assembly (not shown) mounted on the control panel 30.” May at 0049. May continues, “it will be appreciated that

the longitudinal axis of the burner tubes extends from the front wall 44 to the rear wall 46 of the firebox 12.” May at [0049]. Accordingly, a POSITA would understand May’s teachings to disclose multiple burners coupled to and extending between the front and rear sides of the frame.

386. A POSITA would have been motivated to combine the teachings of Williams and May to achieve the claimed invention with a reasonable expectation of success.

387. First, each of Williams and May are analogous art within the same field of endeavor as the ‘473 patent. Namely, a cooking device that uses gas burners and ribs to isolate heating zones for the cooking device. Accordingly, a POSITA would look to each of Williams and May to address the heating of separate zones in a cooking device.

388. Second, a POSITA would understand that the relative position between a control knob, outside the frame, and the associated control valve (which regulates the fuel supplied to the burner) and its alignment with a burner (which mixes the air and fuel), each of which is on the inside of the frame, is important to the function and safety of the burner.

389. May teaches the burner “front end 70 extends through holes 74 in the front wall 44 of the firebox and is attached to a burner ignition assembly (not shown) mounted on the control panel 30.” May at [0049]; *see also* Williams at 3:9-14

(discussing that gas supply lines 16 is connected to burners 22 and may be regulated by any manner known in the art and controlled by a user interface (e.g., knobs) as is also known in the art).

390. A POSITA would recognize that coupling the burner to the front of the frame is essential to ensure that alignment of each of the knob, control valve, and burner is maintained, thereby minimizing the risk of gas leakage that may result if they were not properly aligned. If misaligned or assembled incorrectly, the inlet flow of gas to the burner could be deflected in an outward direction and not into the burner, causing a fire hazard. Accordingly, a POSITA would be motivated to couple the burner to the front of the frame to ensure proper alignment of the burner. This is especially true for ensuring unskilled consumers do not have difficulties or create hazardous conditions when assembling or replacing the burners.

391. Similarly, a POSITA would be motivated to couple a burner to the frame's rear side as also taught by May. As discussed above, May provides that "firebox also houses a middle burner tube 66 and two side burner tubes 68," and that the burner "rear end 72 is fixedly attached to the rear wall 46 of the firebox." May at 0049.

392. A POSITA would recognize that the attachment of burners to the rear of the griddle frame as taught by May improves the performance and safety of the griddle. A POSITA would recognize that coupling burners to the frame, at both the

front and rear, would securely prevent deflection and ensure that the heat source remains positioned as designed.

393. As is known to a POSITA, grill components, especially burners, deteriorate over time and if not properly secured would result in uneven heating of the grilling surface and worse a safety hazard. An appropriately positioned burner promotes even heating across the griddle within the burner's heating chamber. Additionally, properly coupling the burner assembly to the frame facilitates safer and more predictable operation by ensuring that gas is properly distributed through the burner to reduce the risk of uneven heat distribution, burns, or uncontrolled fire.

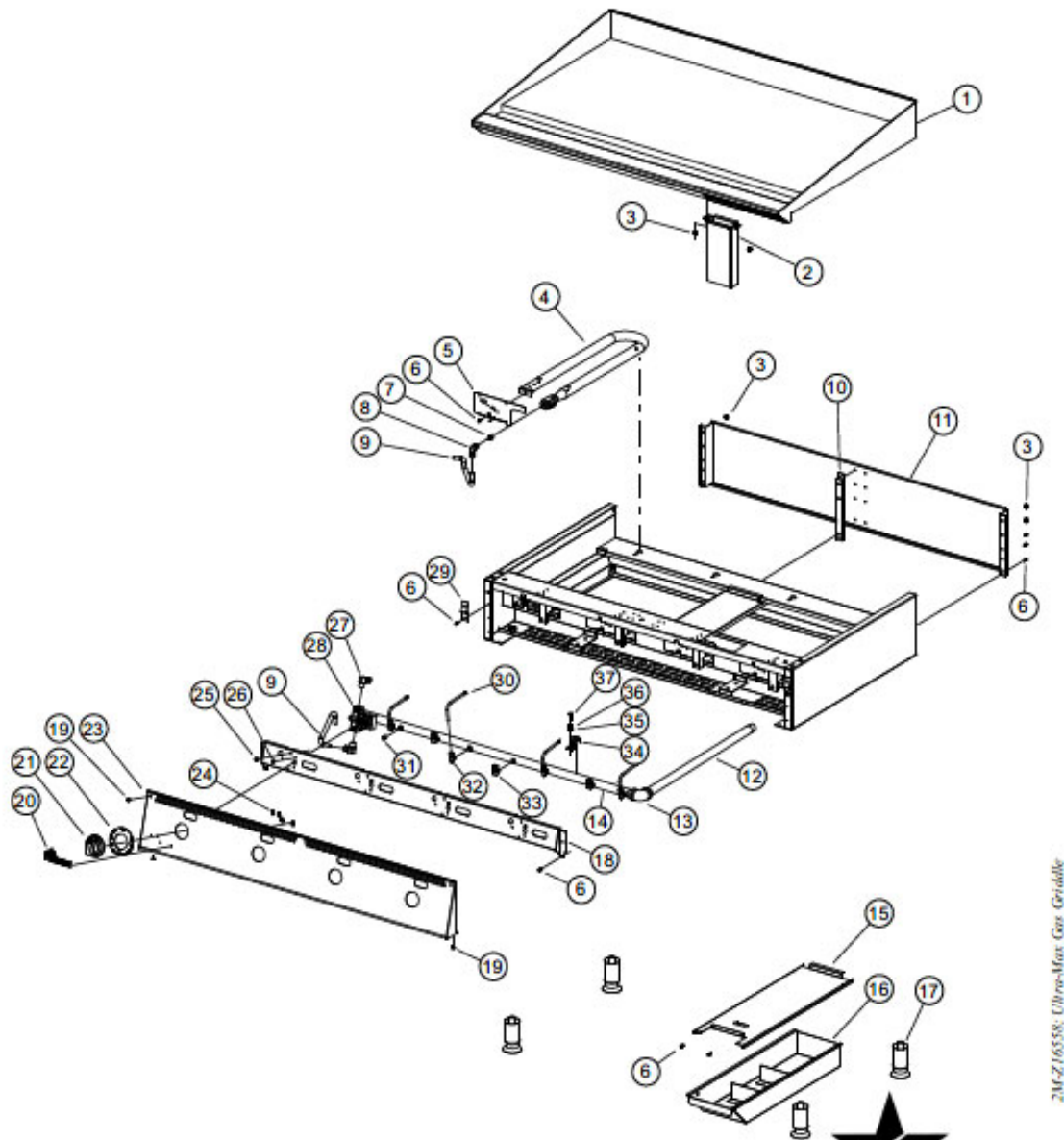
394. Moreover, rigidly affixing the burner to the frame would greatly reduce the stresses and deflections developed in the burner, thereby increasing its durability. It is well known that the maximum stress developed in a beam structure supported at both ends as proposed by May is only about $\frac{1}{4}$ that developed in a beam which is supported in a cantilever configuration, while the maximum deflection is only about one tenth the deflection developed in a cantilever beam having the same geometry under similar loading. Shigley at table A-9 p. 1021.

395. Further, proper assembly of the burners is particularly important for the safety of the user. The U.S. Fire Administration estimates an average of 6,500 gas fires yearly resulting in injuries, death, and millions of property damage. U.S. Fire Administration Topical Fire Research Series at 1. Mechanical Failure, Malfunction,

Design, Construction, and Installation Deficiency are cited as some of the notable reasons for grill Fires. U.S. Fire Administration Topical Fire Research Series at 3.

396. Accordingly, a POSITA would be motivated to ensure that the burner assembly is securely coupled to the rear of the frame to assist in its safe operations. This is especially true for griddles and grills which are assembled by an unskilled consumer, such as the case with the cooking devices in Williams and May.

397. In addition, a POSITA would know that coupling a burner to a front and rear frame of a cooking device is widely utilized technique for stabilizing and securing a burner within a cooking device. *See e.g.*, Star at 20 (showing a U-shaped burner coupled to the front of a frame via control knobs and the rear of a frame via mounting holes); Dacor at 21 (explaining that the removal and installation of burners connected to the cooking device via brackets at the rear of the frame); and Educate at Figs 1, 3, and 4 (showing mounting brackets for coupling a burner to the front and rear of a firebox).



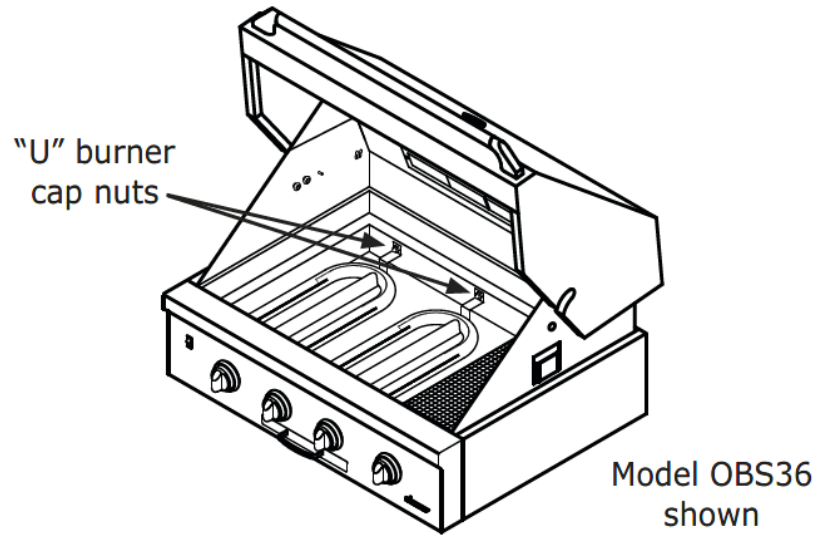
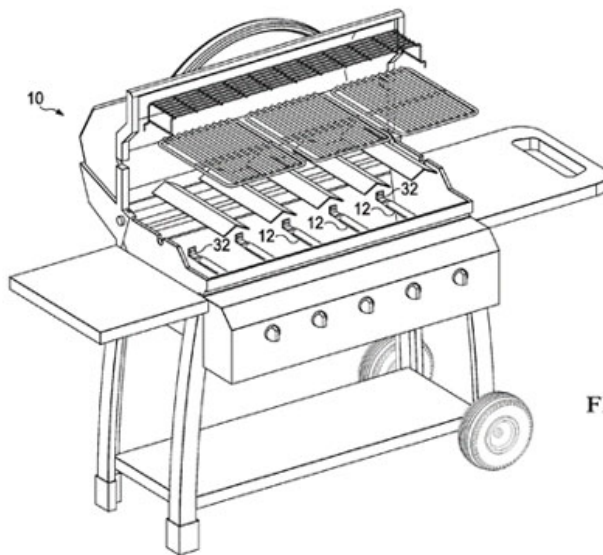
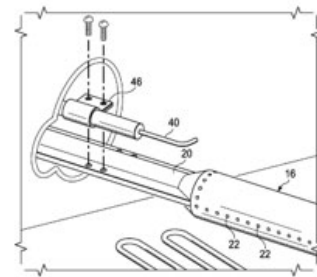
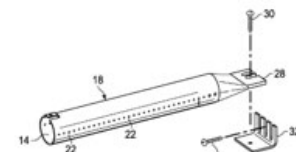
2M-Z16558: Ultra-Max Gas Griddle

Model: 848TA, T-Stat Control
Ultra-Max Gas Griddle



SK2631, Rev. - 12/11/12

Star at 20

**Dacor at 21****FIG. 1****FIG. 3****FIG. 4****Educate at Figures 1, 3 & 4**

398. While Williams discloses an embodiment of a U-shaped burner, a POSITA would substitute Williams's U-shaped burner with the straight-tube burner from May and have a reasonable expectation of success. Williams and May are directed to a similar device, namely a cooking device with distinct heat zones that utilize gas burners to create heat. While William discloses a u-shaped or j-shaped

burner for his primary embodiment, the shape of the burner used is not material to the operation of Williams or May. Williams at 3:46-51. The primary function of the burner in Williams is to heat up its respective heating chamber, which would be accomplished by any of u-shaped, j-shaped, or straight burners.

399. Substituting Williams's U-shaped burner design with the well-known straight-tube burner design from May is merely a matter of design choice and could be implemented without undue experimentation. Moreover, a plurality of straight-tube burners would provide hot combustion gasses to heat up the plurality of heating chambers in Williams's achieving the burner's intended purpose in Williams.

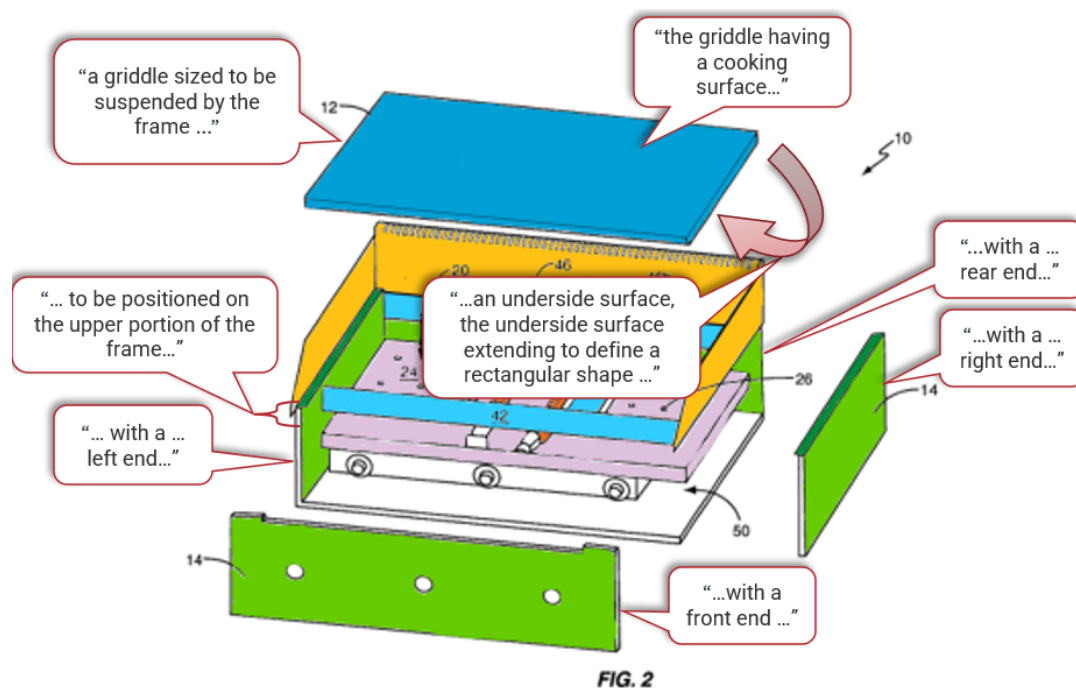
400. To the extent that the burner of May requires modifications to align with the heating zone of Williams properly, such a modification similarly does not require undue experimentation. A POSITA would understand that effective heat distribution is partly accomplished by the burner hole designs. The placement of the burner holes, and thereby the flame, is one way of directing heat to its intended areas.

401. For example, a POSITA would be motivated to place the burner holes only along the portion of the burner within the heating chambers (20) of Williams, and not place any burner holes along the portion of the burner that extends into flue (18) where combustion gases are exhausted from the cooking device. *See Williams at Figs. 2 and 3.*

- c) [1.3] a griddle sized to be suspended by the frame to be positioned on the upper portion of the frame, the griddle having a cooking surface and an underside surface, the underside surface extending to define a rectangular shape with a front end, a rear end, a left end, and a right end;

402. Williams, in view of May, teaches limitation [1.3], which requires “a griddle sized to be suspended by the frame to be positioned on the upper portion of the frame, the griddle having a cooking surface and an underside surface, the underside surface extending to define a rectangular shape with a front end, a rear end, a left end, and a right end.”

403. As illustrated in annotated figure 2, below, Williams discloses a griddle with rectangular cooking and underside surfaces (12 shown in blue) configured to be suspended by the frame (14). Williams at Fig. 2, Fig. 3 and 2:8-12.



Williams Annotated Figure 2

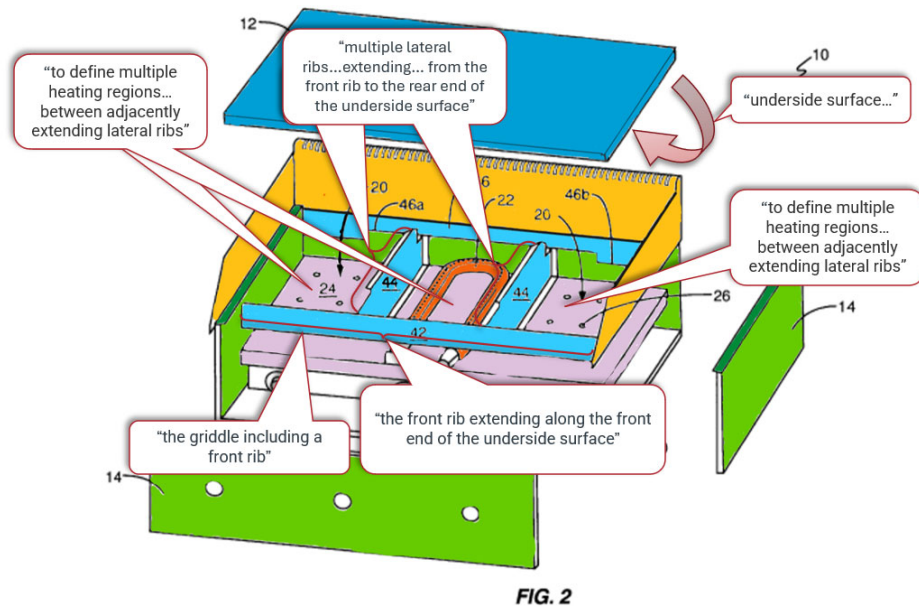
404. The frame (14) includes an upper portion, colored dark green, that allows the griddle to be suspended when fully assembled. Williams at Fig. 2, Fig. 3 and 2:8-12. A POSITA would understand that griddle is sized so as to properly align with the dark green portion of frame (14).

405. Williams further provides that the griddle is sometimes referred to as the “cooking surface” or “griddle surface.” Williams at 2:8-12. As illustrated in annotated figure 2, above, the griddle includes an underside surface and is rectangular in shape with a front end, a rear end, a left end, and a right end. Williams at Figs. 1-3 and 2:8-12.

- d) **[1.4] the griddle including a front rib and multiple lateral ribs, the front rib extending along the front end of the underside surface, and the multiple lateral ribs extending along the underside surface from the front rib to the rear end of the underside surface, the multiple lateral ribs being spaced from each other so as to define multiple heating regions such that each heating region is defined between adjacently extending lateral ribs;**

406. Williams, in view of May, teaches limitation [1.4], which requires “the griddle including a front rib and multiple lateral ribs, the front rib extending along the front end of the underside surface, and the multiple lateral ribs extending along the underside surface from the front rib to the rear end of the underside surface, the multiple lateral ribs being spaced from each other so as to define multiple heating regions such that each heating region is defined between adjacently extending lateral ribs.”

407. As illustrated in annotated figure 2, below, Williams discloses a griddle (e.g., cooking surface 12) a front rib (e.g., “front dam” 42), extending along the front end of the underside surface of the griddle, and multiple lateral ribs (e.g., “sidewalls” 44) extending along the underside surface of the griddle from the front rib to the rear end. Williams at Fig. 2; 1:35-38, *see also* 2:41-44 (providing “upper zone 40 is generally defined by the underside of the cooking surface 12 and flow-restricting walls, specifically a front dam wall 42, a rear dam wall 46, and sidewalls 44 associated therewith.”)



Williams Annotated Figure 2

408. As shown in annotated figure 2 above, the multiple heating regions are separated by the multiple lateral ribs (44). Specifically, “upper zones 40 of adjacent heating chambers 20 may utilize opposite sides of an otherwise common sidewall

44, [f]urther, the front dam 42 and the rear dam 46 of the various heating chambers 20 may simply be laterally different portions of respective continuous wall elements if desired.” Williams at 2:57-62; 4:51-65 and Fig. 2.

e) [1.5] each of the heating regions includes one of the multiple burners positioned below one of the multiple heating regions;

409. Williams in view of May discloses limitation [1.5] which requires “each of the heating regions includes one of the multiple burners positioned below one of the multiple heating regions.”

410. Williams discloses a burner 22 positioned below what Williams describes as the “upper zone” which is a heating region since hot combustion gases are trapped in Williams’s upper zone to heat the underside of the griddle. Williams at Fig. 3, 2:39-44, 3:52-62. While Williams depicts three heating regions, only one burner is shown. A POSITA would appreciate a burner would be included in each of the heating regions shown in Williams figures 2 and 3. Williams at Fig. 2, Fig. 3, 1:10-14 (describing that “gas-fired griddles, commonly utilize multiple burners located in various locations beneath the heated surface”); *see also* 4:51-65 (describing that “cooking device...with more heating chambers 20 and corresponding burners 22.”).

411. As previously discussed, the shape of the burner is not material to the operation of Williams. Thus, Williams teaching regarding the location of the burner would apply equally when a straight burner as taught by May is utilized in the

Williams cooking device. A POSITA would understand that each heating chamber in Williams could have its own individual straight tube burner or that each heating chamber could have multiple straight tube burners all under their respective heating regions. The number of straight tube burners used for each heating chamber would depend on the size of the heating chamber, the heat output of the straight tube burner, and desired operating temperatures of the griddle.

- f) **[1.6] each of the lateral ribs extend downward from the underside surface a height so as to funnel convection heat from any one of the multiple burners toward the rear end of the underside surface of the griddle and from the rear side of the frame;**

412. Williams in view of May discloses limitation [1.6] which requires “each of the lateral ribs extend downward from the underside surface a height so as to funnel convection heat from any one of the multiple burners toward the rear end of the underside surface of the griddle and from the rear side of the frame.”

413. Specifically, Williams discloses that “[t]he upper zone 40 is generally defined by the underside of cooking surface 12 and flow-restricting walls, specifically a front dam wall 42, a rear dam wall 46, and sidewalls 44 associated therewith.” Williams at 2:41-44. The sidewalls (44) are lateral ribs that run from the front dam wall to the rear dam wall. Williams at 2:39-44 and 3:65-4:2. Williams goes further to provide that, “[a]t least the front dam 42 and the rear dam 46 are

downwardly extending, thereby extending generally away from the underside of the cooking surface 12.” Williams at 2:44-47.

414. While Williams only explicitly provides that the front (42) and rear dams (46) are “downwardly extending,” a POSITA would also read the disclosure of “[a]t least the front dam 42 and the rear dam 46 are downwardly extending, thereby extending generally away from the underside of the cooking surface 12” to mean other components, such as sidewalls (44) may also be optionally downwardly extending from the underside surface of the griddle and thus “fixed” or “integral” to the underside surface of the griddle. Williams at 2:44-47 (emphasis added).

415. Williams further describes that the upper zones’ sidewalls (44) and downwardly extending dam walls (42 and 46) cooperate to create the low flow zones beneath the griddle surface (12). Williams at Abstract. Moreover, these features from Williams create “a more uniform layer of hot combustion gases to be formed along the underside of the griddle surface, thereby more evenly delivering heat to the griddle surface.” Williams at Abstract.

416. Extending the sidewalls downward from the underside of the griddle would help achieve these intended functions in Williams cooking device. Williams describes that “[t]he hot combustion gases tend to rise within the heating chamber 20, but there is a significant front-to-back flow within the burner zone 30 caused by natural drafting, . . . [a] portion of the hot combustion gases flow relatively directly

out the exhaust located at the rear of each heating chamber 20.” Williams at 3:20-51; *see also* Williams at 3:52-56 (describing that “[i]n order to combat this, another portion of the hot combustion gases generated by the burner 22 is at least transiently dammed within the upper zones 40 beneath the cooking surface 12.”)

417. Accordingly, a POSITA would understand Williams teaches the presence of the perimeter wall, including the front dam (42), rear dam (46), and sidewalls (44), helps create the upper zone (40) where the portion of the hot combustion gases are at least temporarily trapped while being funneled toward the rear end of the griddle’s underside surface before they exit from the rear of the cooking device. Williams at 3:57-4:2.

418. In reviewing annotated figure 3, a POSITA would appreciate the cooking system disclosed in Williams uses multiple burners (22) in combination with the physical structure of the front rib (42) and lateral ribs (44). *See* Williams at Fig. 3.

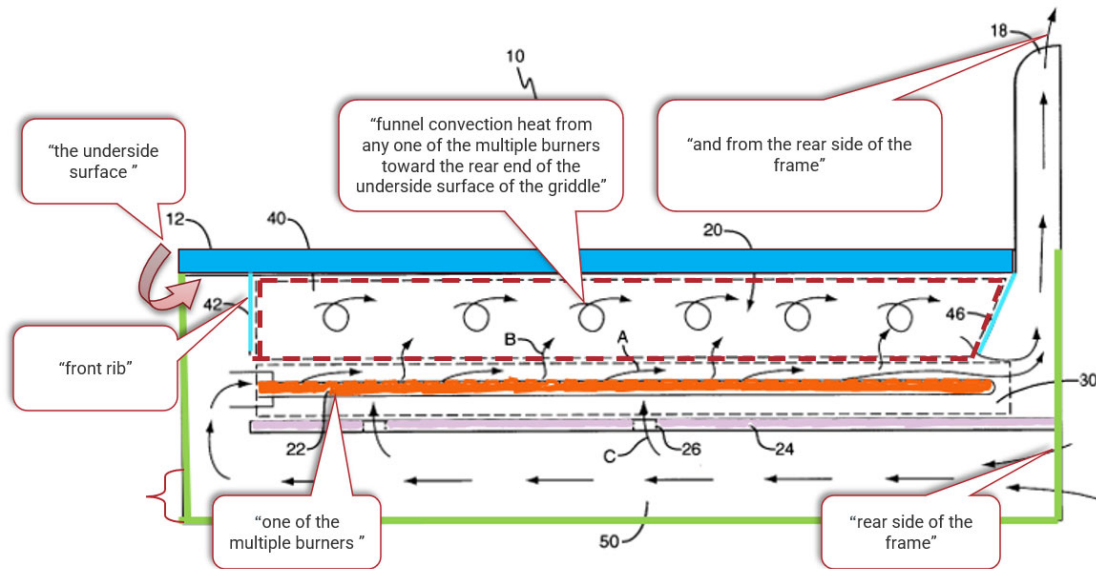


FIG. 3

Williams Annotated Figure 3

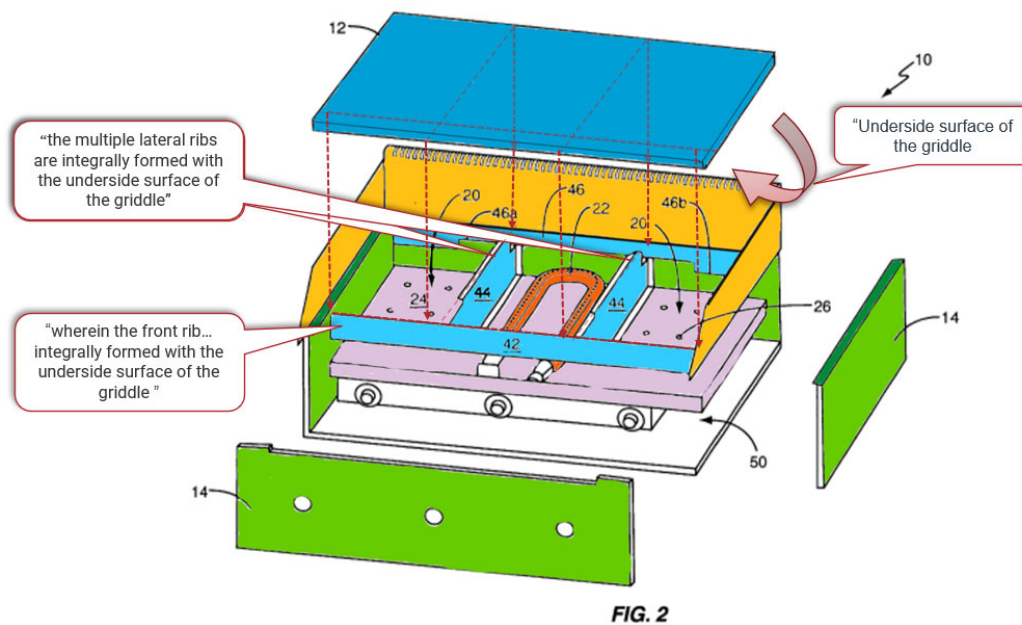
419. Moreover, a POSITA would understand the equivalent height of each rib serves as an air dam/seal, ensuring heated air is retained in its respective heating chamber and cannot escape through gaps/seams in the joined structure to adjacent heating chambers. Williams at 2:39-44 and 3:62-4:2 (describing that once the “gas within the upper zone 50 has cooled, it descends below the lower edge 46 a,b of the rear dam 46, joins the flow from the burner zone 30, and is carried out the flue 18.”).

420. Accordingly, a POSITA would understand Williams discloses that the convection heat trapped in a heating chamber by the sidewalls moves from any one of the multiple burners toward the rear end of the underside surface of the griddle and from the rear side of the frame (e.g., out the flue (18)).

g) [1.7] wherein the front rib and the multiple lateral ribs are integrally formed with the underside surface of the griddle;

421. Williams in view of May disclose limitation [1.7] which requires “wherein the front rib and the multiple lateral ribs are integrally formed with the underside surface of the griddle.”

422. In view of these teachings, Williams discloses a front rib (42) and the multiple lateral ribs (44) on the underside surface of the griddle as shown in annotated figure 2 below. *See Williams at Fig. 2 and 1:35-38.*



Williams Annotated Figure 2

423. As previously discussed with respect to claim litigation [1.6], Williams teaches or renders obvious lateral ribs that extend downwardly from the underside of the griddle. A POSITA would understand Williams's disclosure of a front dam

(42), rear dam (46), or sidewalls (44), as “downwardly extending” indicates that at least these two features are “fixed” or “integral” to the underside surface of the griddle and descend downward from their fixed source. Williams at 2:41-47. Integrating these structures with the underside of the griddle creates “a more uniform layer of hot combustion gases to be formed along the underside of the griddle surface, thereby more evenly delivering heat to the griddle surface.” Williams at 1:38-42, 1:67-2:4, and 3:57-4:2.

424. In addition to Williams itself suggesting that the front dam (42) and sidewalls (44) may be integrally formed with the underside of griddle, a POSITA would also be motivated to integrally form the ribs with the underside of the griddle for several other reasons.

425. First, the weight of the griddle, as assembled in Fig. 1, would thermally couple it to the front (42) and sidewalls (44). *See* Williams at Fig. 1-3. Two or more bodies are thermally coupled when heat can be transferred between bodies, and heat is most effectively transferred between bodies when they are in contact such that heat may be conducted from one body to another. To ensure the maximum thermal coupling between the griddle and the sidewalls a POSITA would look to integrate the sidewalls to the underside of the griddle.

426. Second, integrating the sidewalls with the underside of the griddle would also greatly strengthen the horizontally planar griddle to be heated (12) by

providing built in vertical support structures. Williams at Fig. 2. Such a configuration aids in the prevention of warping of the planar cooking surface (12). Warping was a well-known problem for griddles by the time of the '473 Patent. *See* Fleming (1939) at 3:31-39 and Betts (1942) 1:25-26.

427. A structure is considered warped when it has "...become bent or twisted out of shape typically as a result of the effects of heat..." Oxford University Press. (2024). warped. In Oxford English dictionary. Retrieved March 5, 2024. Thermally induced warping in flat metal plates results from the development of temperature gradients across the material. *See* Fleming at 3:31-39 and Betts 1:25-26 (both describing warping of griddles due to thermal stresses). These thermal gradients cause the development of thermally induced stresses which cause an uneven expansion or contraction of the material which causes the material to warp. Callister at p. 717. If these stresses exceed the yield strength of the material, the warping will be permanent, even after the thermal gradients are removed.

428. As described above, it was well-known by the time of the '473 Patent that warping of a plate can be prevented by reducing the thermal stresses in the material through a reinforcement of the plate to increase its stiffness via ribs or other structure. Graham (1959) at 2:38-42 ("warpage was limited by the peripheral integrally formed ridge 34"); Savio (1960) at 3:12-15 ("inverted U-shape for

strengthening the structure and preventing it from buckling or warping”); and Hinkle at 1:43-48 (“the ribs impart strength to the griddle to prevent warping.”).

429. As such, warping can be prevented or reduced by adding material in a location which increases its area moment of inertia and consequently its resistance to bending. Shigley at 104. The addition of ribs integrally formed on the underside of flat plates is a common and inexpensive means of increasing the area moment of inertia and reducing the likelihood of warping in service. *See* Hinkle at 3:10-28 (addition of ribs reduced costs compared to thicker griddle plate). Accordingly, a POSITA would be motivated to include structural support features on the underside surface of the griddle. By integrally forming the front dam (42), rear dam (46) and sidewalls (44) with the underside surface of the griddle, the structural rigidity of griddle will be significantly improved to withstand such warping.

430. Third, forming the ribs with the underside surface of the griddle ensures there is not a gap between the proximal portion of the rib and the underside of the griddle. *See* Williams at Fig. 2. An advantage described in Williams is the uniform layer of hot combustion gases formed along the underside of the griddle surface, thereby “more evenly delivering heat to the griddle.” Williams at 1:40-43. Such a gap would undermine the advantages described in Williams by allowing combustion gases to pass over the lateral ribs and affect adjacent heat zones, reducing the effectiveness of the cooking device. Williams at Abstract and 1:40-42.

431. Fourth, the sidewall (44) is a relatively thin vertical structure that would be integrally formed with at least one of the four sides it is connected to in order to provide stability and rigidity to the sidewall. The only four possibilities to integrate the sidewall are: the underside of the griddle, top of the floor plate (24), front dam (42), or rear dam (46). *See Williams at Fig. 2.* Integrating the sidewalls with the underside of the griddle or top of the floor plate provides the most contact area and thus provides the greatest stability and rigidity to the sidewall.

432. Further, integrating the sidewall with the underside of the griddle would provide the greatest amount of stability and rigidity to the top of the sidewall that is exposed to the largest heat differentials as the heat from the griddle and the heated air would predominately impact the temperatures at the top of the heating chamber. Large heat differentials, such as those occurring when griddles are heated, can cause warping, as discussed above, which would reduce the capability of the sidewalls to funnel heat to the rear of the griddle.

433. A POSITA, in reviewing figure 2 of Williams, would appreciate that sidewalls (44) are, at a minimum, in contact with the underside surface of the griddle. *See Williams at Fig. 2.*

434. This is evident to a POSITA when understanding the objective of Williams (e.g., to isolate convective heat from migrating from one heating chamber

to another) and based on figure 2 which depicts a flat surface on the top of sidewalls (44) that is configured to be in contact with the underside surface of the griddle.

435. A POSITA would understand that being in contact with, versus integral with, introduces additional problems in the design of Williams. In particular, if sidewalls (44) warp, they may interfere with the griddle which is resting on frame (14). To solve this problem, a POSITA would be motivated to integrate sidewalls (44) with the underside of the griddle versus letting the griddle rest on them. Leaving the bottom of the sidewalls (44) disconnected, or floating above floor plate (24), would allow for some movement without interfering with the structure of the cooking device or its purposes of directing convective heat.

436. Lastly, integrally forming the sidewalls (44) with the underside of the griddle would reduce assembly time and errors since fewer parts would be required to be assembled by the end user. *Compare* Williams at Fig. 1 and '473 at Fig. 6 (illustrating similar views of griddle configurations with fewer parts required for griddle assembly). These ribs do not add significant weight to the structure formed integrally with the underside of the griddle cooking surface. The fabrication of plate steel griddles with reinforcing ribs may be achieved by rolling and/or machining plate stock to an appropriate thickness and size, followed by welding or bolting of the reinforcing ribs to the plate steel. They may also be formed integrally with the

underside of the plate through coldworking or machining. Williams at Fig. 3 and 1:26-46; 4:15-33.

- h) [1.8] and wherein the multiple lateral ribs directly extend from the underside surface of the griddle such that each lateral rib is spaced and separate from an adjacent lateral rib.**

437. Williams in view of May disclose limitation [1.8] which requires “wherein the multiple lateral ribs directly extend from the underside surface of the griddle such that each lateral rib is spaced and separate from an adjacent lateral rib.”

438. Specifically, Williams describes that the downward extending walls create the heating chambers (20) which are disposed in a “laterally adjacent configuration, meaning that they generally run front-to-back and are disposed in a left-to-right series” and thereby spaced and separate from the adjacent lateral rib extending generally away from the underside of the cooking surface. Williams at Fig. 2 and 2:41-47. As discussed above with respect to limitation [1.6], Williams also teaches the multiple lateral ribs (sidewalls 44) are downwardly extending from the underside of the cooking griddle.

439. To the extent the specific limitation of the multiple lateral ribs (or sidewalls) directly extending from the “underside surface” is not found to be directly disclosed by Williams, this limitation would have been obvious. *See* claim [1.7] (discussing it would be obvious to affix all support structures including the front

dam (42), rear dam (46) and sidewalls (44) to the “*underside of the cooking surface.*”).

- i) **Claim 2. The cooking system of claim 1, wherein the front rib substantially blocks convection heat from escaping from the front side of the frame.**
- j) **Claim 3. The cooking system of claim 1, wherein the adjacently extending lateral ribs are sized to substantially prevent convection heat from moving over the adjacently extending lateral ribs and directly, convectively heating adjacent heating regions.**
- k) **Claim 4. The cooking system of claim 1, wherein the adjacently extending lateral ribs are sized to substantially maintain convection heat between the adjacently extending lateral ribs to only convectively heat the corresponding heating region between the adjacently extending lateral ribs.**

440. Williams in view of May discloses each of the limitations of claim 1.

Williams in view of May also discloses each of the limitations of claims 2, 3, and 4.

441. Specifically, Williams describes an upper zone is defined by the underside of the griddle and “flow-restricting walls”, specifically a front dam wall (42), a rear dam wall (46), and sidewalls (44). Williams at Fig. 3 and 2:39-47. The “front dam 42, rear dam 46, and sidewalls 44,” provide heating chambers in the upper zone where a “portion of the hot combustion gases are at least temporarily trapped.” Williams at 3:57-4:2. These flow-restricting walls substantially reduce the front-to-back flow rate of heated gas in the upper zone of each heating chamber to evenly heat the respective area of the griddle. Williams at 4:2-13.

442. As shown in annotated Figure 3 below, the front dam wall (42) is a front rib that acts to substantially block convection heat or trap heat from escaping from the front side of the frame. Williams at Fig. 3.

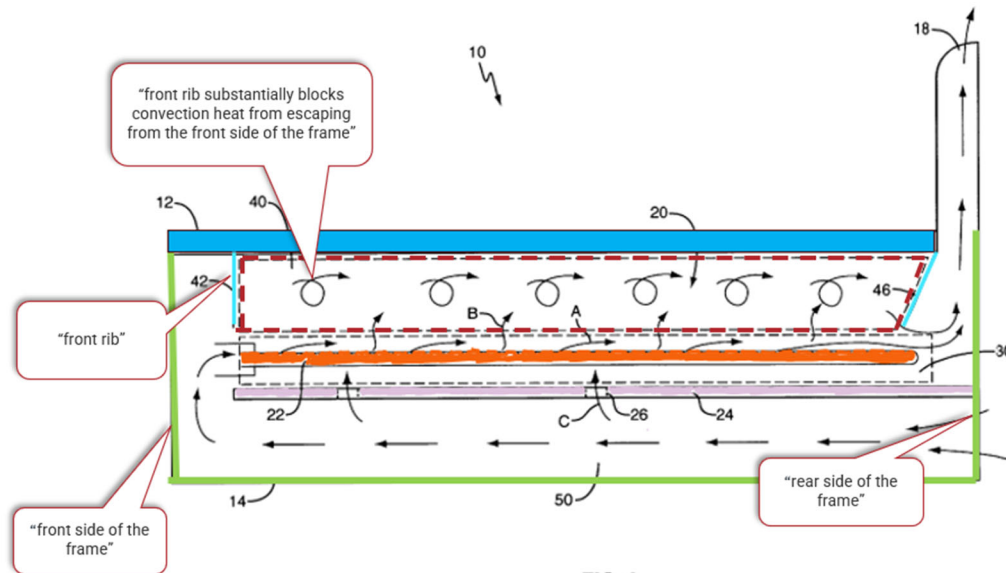


FIG. 3

Williams Annotated Figure 3

443. As seen in annotated Figure 3, no air flow is indicated to pass through front wall (42), but rather exits the heating chamber only by passing below rear wall (46) to the exit flue (18). Williams at 3:39-44 and 3:62-4:2. As discussed above, this results in a low front-to-back flow rate of the heated gas in the upper zone (40) where the heated gas becomes "dammed, stagnant, or trapped" in the upper zone to evenly heat the griddle area above the heating chamber. Williams at 3:57-4:13.

444. Williams also describes how the perimeter of the upper zone of the heating chamber comprises adjacent sidewalls (44) that cooperate with the front wall (42) and rear wall (46) to trap hot combustion gases within upper zone (20) to

substantially maintain the heat between the adjacent sidewalls. Williams at Abstract, 1:26-46 and 3:57-4:13. A POSITA understands Williams's adjacent sidewalls (44) would be sized to substantially prevent the flow of hot combustion gases out of the sides of the upper zone since Williams discloses the hot combustion gases exit via going below rear dam (46) into flue (18). Williams at 3:39-44 and 3:62-4:2. As such, the adjacent sidewalls (44) prevent the convective heat in the form of hot combustion from moving into an adjacent heating chamber and directly convectively heating an adjacent heating chamber.

445. Further, as explained in Williams, there is "significant front-to-back flow" that causes the hot combustion gas to exit the rear of the griddle into flue (18). Williams at 2:16-23, 3:34-44. This significant directional flow from front-to-back would likewise prevent the flow of hot combustion gasses over the sidewalls.

446. In addition, as previously explained with respect to claim 1, it was obvious in view of Williams to integrate the sidewalls (44) with the underside of the griddle. When the sidewall is integral with the underside of the griddle, it would prevent the movement of hot gases over the sidewalls so that no convective heat from one chamber would move into another chamber directly heating it.

447. Because the sidewalls (44) in Williams prevent the flow of hot combustion gases outside of their respective heating chamber, the sidewalls only convectively heat the upper zone within their respective heating chamber. The

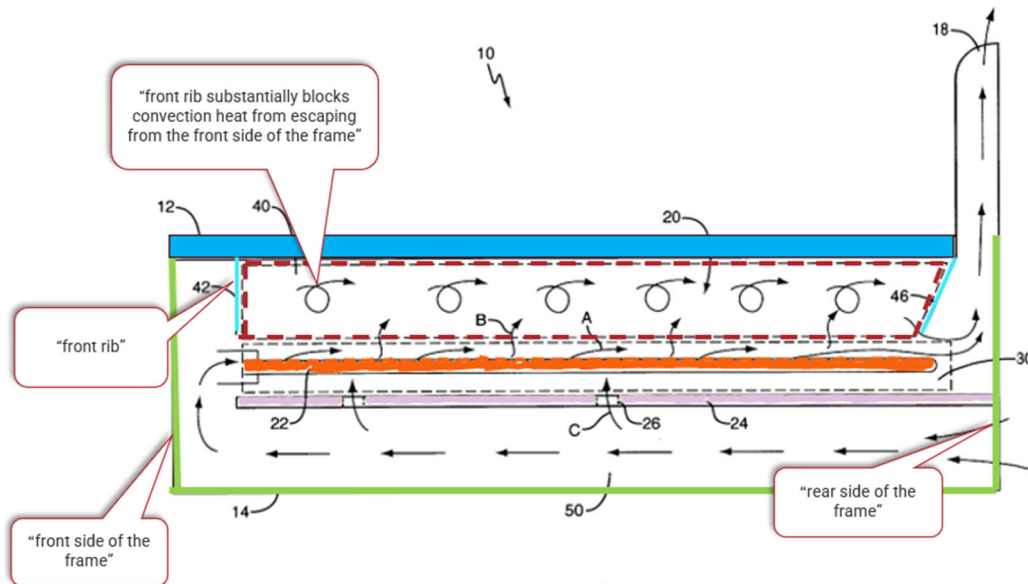
ensures an even heating surface on the griddle above the heating region. Williams at 4:2-13. Furthermore, Williams teaches heating regions can be further isolated to prevent movement of convective heat by not using a common sidewall for adjacent heating chambers. Williams at 2:17-23 and 2:57-59. When a common sidewall is not used, air or other insulative material can be interposed between the sidewalls of adjacent heating chambers to prevent the movement of convective heat from one heating chamber to another.

I) Claim 7. The cooking system of claim 1, wherein the front rib and the lateral ribs facilitate channeling convection heat to a rear side of the frame.

448. Williams in view of May discloses each of the limitations of claim 1. Williams in view of May similarly disclose the limitations of claim 7 requiring “wherein the front rib and the lateral ribs facilitate channeling convection heat to a rear side of the frame.”

449. Specifically, Williams describes an upper zone in Williams is defined by the underside of the griddle and “flow-restricting walls”, specifically a front dam wall (42), a rear dam wall (46), and sidewalls (44). Williams at Fig. 3 and 2:39-47. The “front dam 42, rear dam 46, and sidewalls 44,” provide heating chambers in the upper zone where a “portion of the hot combustion gases are at least temporarily trapped” until they exit the rear side of the frame. Williams at 3:57-4:2.

450. As seen in annotated Figure 3 below, no air flow is indicated to pass through front, rear, or sidewalls but rather exits the heating chamber only by passing below rear wall (46) to the exit flue (18). Williams at Fig. 3, 3:35-44 and 3:62-4:2.



Williams Annotated Figure 3

451. Additionally, the rear wall of flue (18) comprises the rear frame of Williams's cooking device.

- m) **Claim 16. The griddle of claim 15, wherein the splash guard includes a hinge structure, the hinge structure configured to pivotably couple to a cover of the cooking station.**

452. Williams in view of May, discloses each of the limitations of claim 10. Williams in view of May, similarly, disclose the limitations of claim 15 requiring "splash guard extending upward above a periphery of the cooking surface."

453. More specifically, May teaches a splash guard with a hinge structure for pivotably coupling to a cover of a cooking station. May at [0003]; *see also*

[0046]. In May, the lid 32 is coupled to a right peripheral and left peripheral splash guard. May at Fig. 1.

454. Williams already teaches the limitations of claim 15 including a right and left splash guard as explained above, it would be obvious to couple the splash guard to a lid as illustrated in annotated Figure 1. May at Fig. 1.

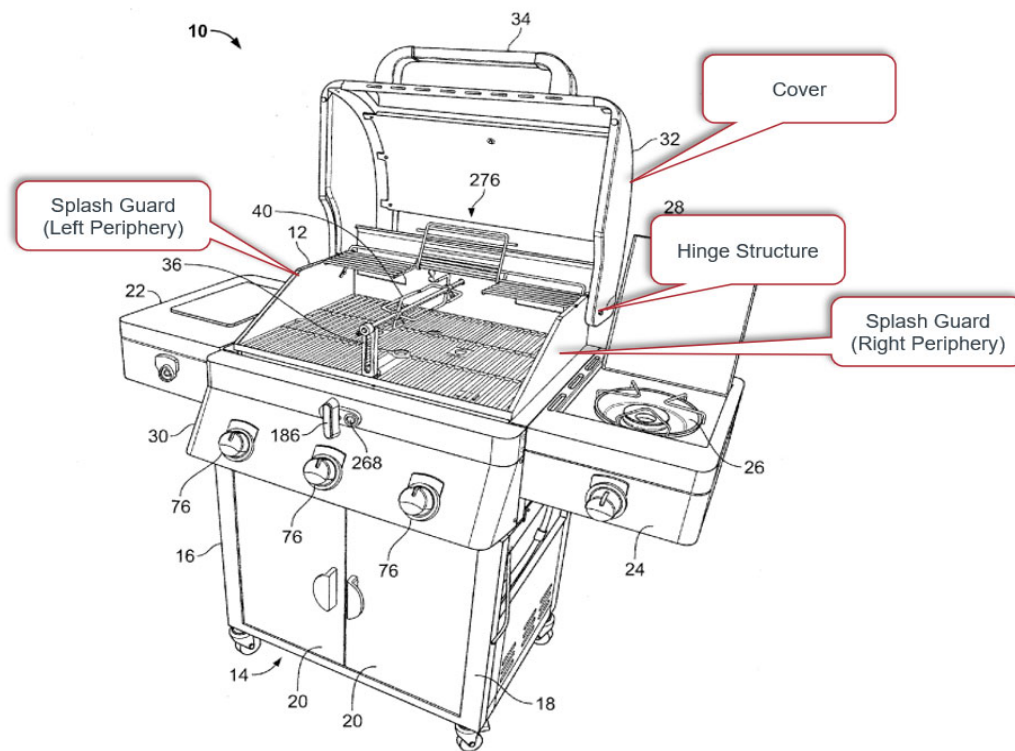


FIG. 1

May Annotated Figure 1

455. A POSITA would be motivated to include the lid structure in the cooking device described in the combination of Williams and May since there many advantages for including a lid.

456. For instance, a POSITA would recognize the benefits of including a lid when Williams griddle device is used in an outdoor setting to prevent wind from blowing leaves, dirt, bugs or other foreign material onto the food. *see* Williams at claim 17.

457. A closed lid would also trap convective heat and prevent the heat from radiating away from the griddle surface. This would help cook portions of the food more evenly whether the griddle was used indoors or outdoors. Finally, a lid would also protect Williams griddle surface when used outdoors.

E. GROUND 5: Claims 1-4, 6-7 and 16 are rendered obvious under 35 U.S.C. § 103 by Williams in view of May and further in view of Best.

1. Introduction

458. The teachings of the prior art references Williams, May and Best, combined with the knowledge of a person of ordinary skill in the art, would render claims 1-4, 6-7 and 16 of the '473 patent obvious. As set forth in Ground 4, Williams in view of May teaches every limitation of claims 1-4, 7 and 16.

459. To the extent that Williams in view of May does not teach “multiple lateral ribs are integrally formed with the underside surface of the griddle” and/or “multiple lateral ribs directly extend from the underside of the griddle,” as required by claim 1 and 10, and “the front rib and the parallel ribs integrally formed with the underside surface of the griddle, and the parallel ribs directly extend from the

underside surface of the griddle such that each parallel rib is spaced and separate from and adjacently extending parallel rib,” as required by claim 17, a POSITA would combine the teachings of Best with the teachings of Williams in view of May since Best explicitly discloses these limitations.

460. Similarly, Best also teaches the limitations from dependent claims requiring “an air intake system configured to feed air to the multiple burners, the air intake system including at least one of a front vent along the front side of the frame” and “splash guard extending upward above a periphery of the cooking surface.”

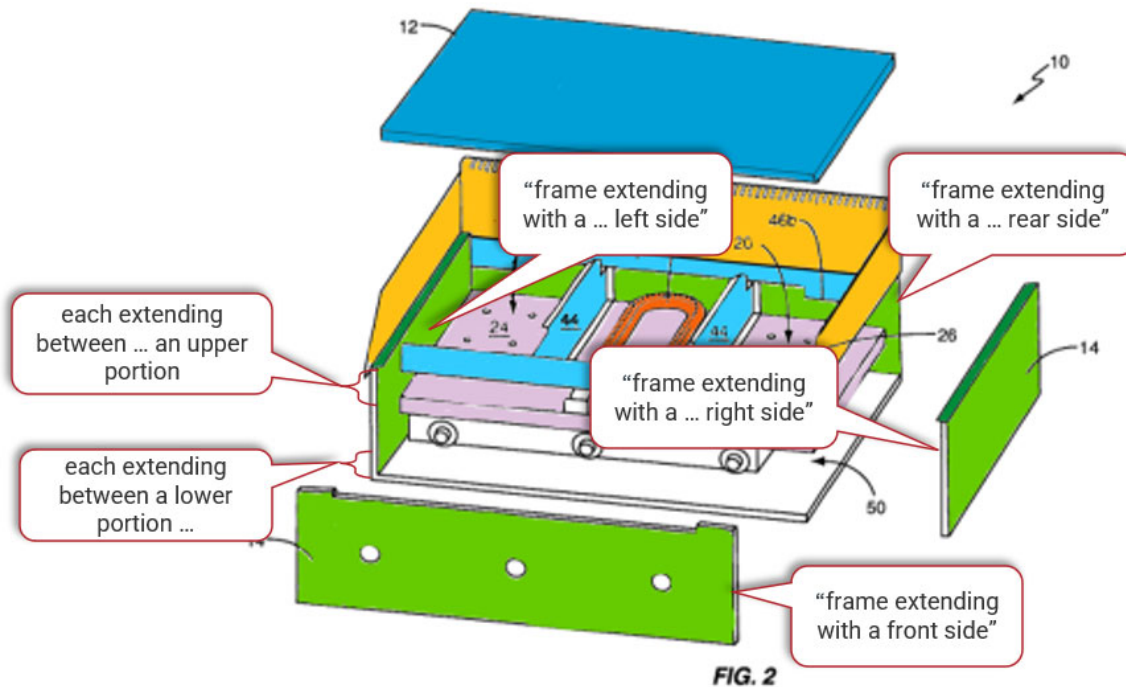
461. A detailed description of this ground of rejection, including the motivation for combining the references is presented in detail below.

2. Detailed Claim Analysis

a) [1.0] A cooking system, comprising: [1.10 a frame extending with a front side, a rear side, a left side, and a right side each extending between a lower portion and an upper portion;

462. Williams discloses limitation “A cooking system, comprising: a frame extending with a front side, a rear side, a left side, and a right side each extending between a lower portion and an upper portion.” *See e.g.*, Williams at Fig. 2.

463. As shown in annotated figure 2, below, Williams discloses a cooking system comprising a frame (e.g., outer housing 14 shown in light green) extending with a front side, a rear side located opposite the front side, and a left side and right side opposite each other. Williams at Figs. 1-3, 2:8-15, 2:39-44 and 3:20-24.



Williams Annotated Figure 2

464. Additionally, and as shown in annotated figure 3, below, Williams discloses that each side extends between a lower portion (e.g., bottom of the frame 14) and an upper portion (e.g., upper portion of frame 14 just below griddle). Williams at Fig. 3.

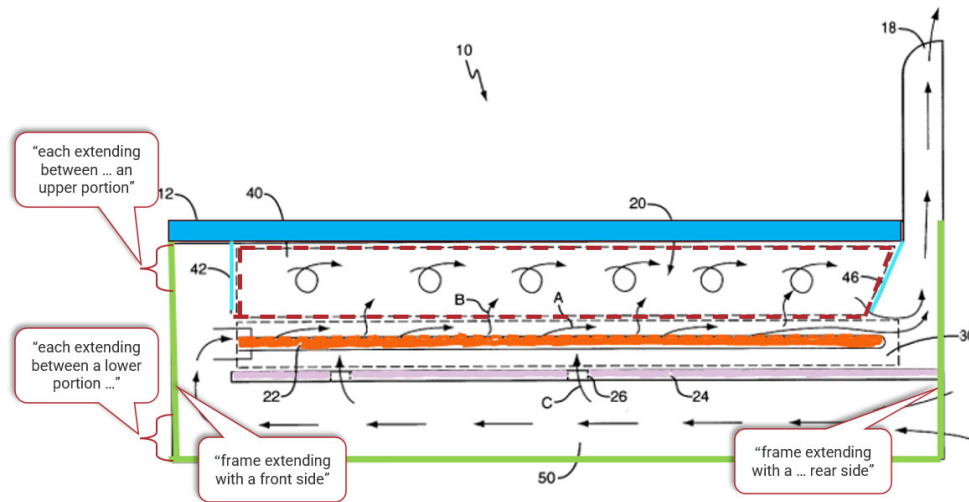


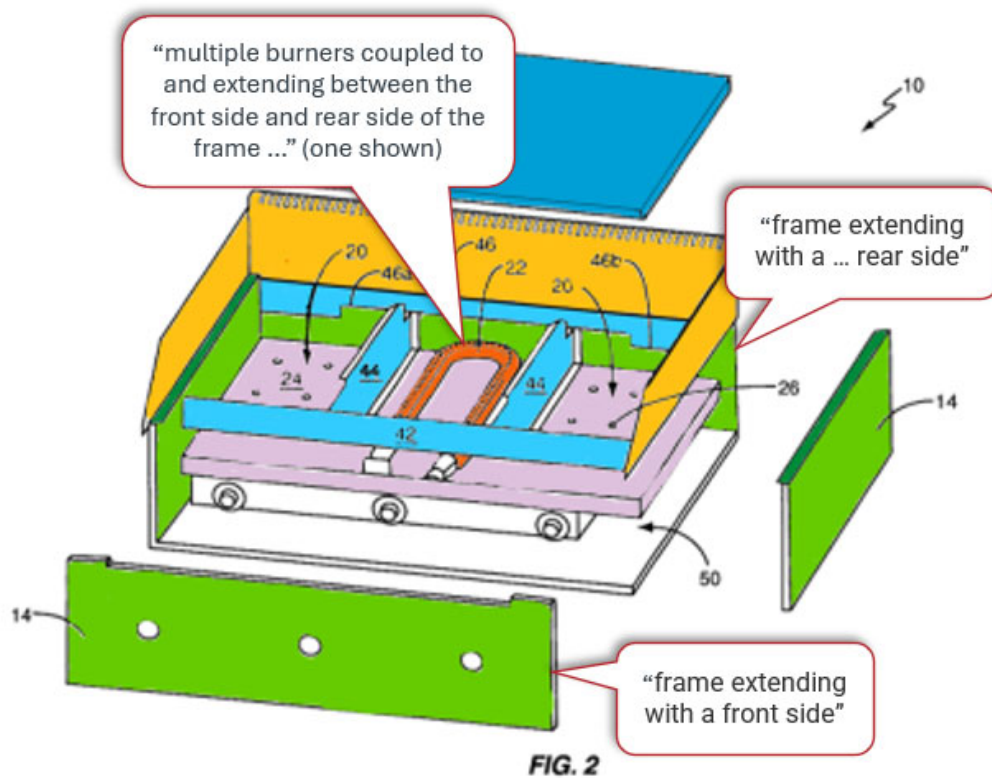
FIG. 3

Williams Annotated Figure 3

b) [1.2] multiple burners coupled to and extending between the front side and the rear side of the frame; and

465. Williams, in view of May, teaches limitation [1.2], which requires “multiple burners coupled to and extending between the front side and the rear side of the frame.” A POSITA would substitute the U-shaped burners from Williams with the straight-tube burners coupled to a frame as taught by May. The motivations to combine these teachings, and the expectations for success are discussed in detail below.

466. With respect to the “multiple burners,” annotated Figure 2 of Williams shows a burner (22), colored orange, extending between the front side and rear side of the frame (14). Williams at Fig. 2.

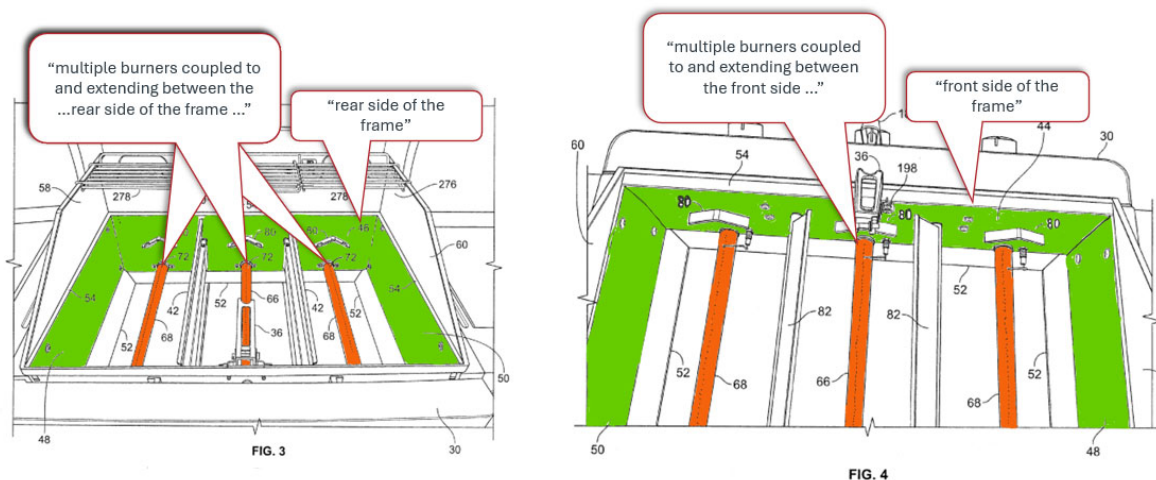


Williams Annotated Figure 2

467. To show other cooking device features, figure 2 depicts three heating chambers (20), yet illustrates only one example of the multiple gas burners (22). Williams at 4:51-52. Williams, however, makes clear that the cooking device is configured to include multiple burners since it discloses a cooking device with “a few heating chambers 20” that include “corresponding burners 22.” Williams at 1:11-13, 1:29-35, 2:23-30, 4:51-60; *see also* Fig. 2 (showing three control knobs corresponding to three burners, one for each of the three illustrated heating

chambers.) As such, a POSITA would understand that Williams would include a burner for each heating chamber. *See Williams at Fig. 2.*

468. While Williams does not discuss how the multiple burners are coupled to the frame, a POSITA would look to the teachings of May, which explicitly teaches coupling a burner to both the front and rear sides of a frame. May at Figs. 3, 4, and 0049; *see annotated Figs. 3 and 4 below (showing a burner tube 66 coupled to the front of frame at figure 4, and the rear of the frame at figure 3).*



May Annotated Figures 3 & 4

469. May teaches that a “firebox also houses a middle burner tube 66 and two side burner tubes 68,” and the burner “rear end 72 is fixedly attached to the rear wall 46 of the firebox,” and “front end 70 extends through holes 74 in the front wall 44 of the firebox and is attached to a burner ignition assembly (not shown) mounted on the control panel 30.” May at [0049]. May continues, “it will be appreciated that

the longitudinal axis of the burner tubes extends from the front wall 44 to the rear wall 46 of the firebox 12.” May at [0049]. Accordingly, a POSITA would understand May’s teachings to disclose multiple burners coupled to and extending between the front and rear sides of the frame.

470. A POSITA would have been motivated to combine the teachings of Williams and May to achieve the claimed invention with a reasonable expectation of success.

471. First, each of Williams and May are analogous art within the same field of endeavor as the ‘473 patent. Namely, a cooking device that uses gas burners and ribs to isolate heating zones for the cooking device. Accordingly, a POSITA would look to each of Williams and May to address the heating of separate zones in a cooking device.

472. Second, a POSITA would understand that the relative position between a control knob, outside the frame, and the associated control valve (which regulates the fuel supplied to the burner) and its alignment with a burner (which mixes the air and fuel), each of which is on the inside of the frame, is important to the function and safety of the burner.

473. May teaches the burner “front end 70 extends through holes 74 in the front wall 44 of the firebox and is attached to a burner ignition assembly (not shown) mounted on the control panel 30.” May at [0049]; *see also* Williams at 3:9-14

(discussing that gas supply lines 16 is connected to burners 22 and may be regulated by any manner known in the art and controlled by a user interface (e.g., knobs) as is also known in the art).

474. A POSITA would recognize that coupling the burner to the front of the frame is essential to ensure that alignment of each of the knob, control valve, and burner is maintained, thereby minimizing the risk of gas leakage that may result if they were not properly aligned. If misaligned or assembled incorrectly, the inlet flow of gas to the burner could be deflected in an outward direction and not into the burner, causing a fire hazard. Accordingly, a POSITA would be motivated to couple the burner to the front of the frame to ensure proper alignment of the burner. This is especially true for ensuring unskilled consumers do not have difficulties or create hazardous conditions when assembling or replacing the burners.

475. Similarly, a POSITA would be motivated to couple a burner to the frame's rear side as also taught by May. As discussed above, May provides that "firebox also houses a middle burner tube 66 and two side burner tubes 68," and that the burner "rear end 72 is fixedly attached to the rear wall 46 of the firebox." May at 0049.

476. A POSITA would recognize that the attachment of burners to the rear of the griddle frame as taught by May improves the performance and safety of the griddle. A POSITA would recognize that coupling burners to the frame, at both the

front and rear, would securely prevent deflection and ensure that the heat source remains positioned as designed.

477. As is known to a POSITA, grill components, especially burners, deteriorate over time and if not properly secured would result in uneven heating of the grilling surface and worse a safety hazard. An appropriately positioned burner promotes even heating across the griddle within the burner's heating chamber. Additionally, properly coupling the burner assembly to the frame facilitates safer and more predictable operation by ensuring that gas is properly distributed through the burner to reduce the risk of uneven heat distribution, burns, or uncontrolled fire.

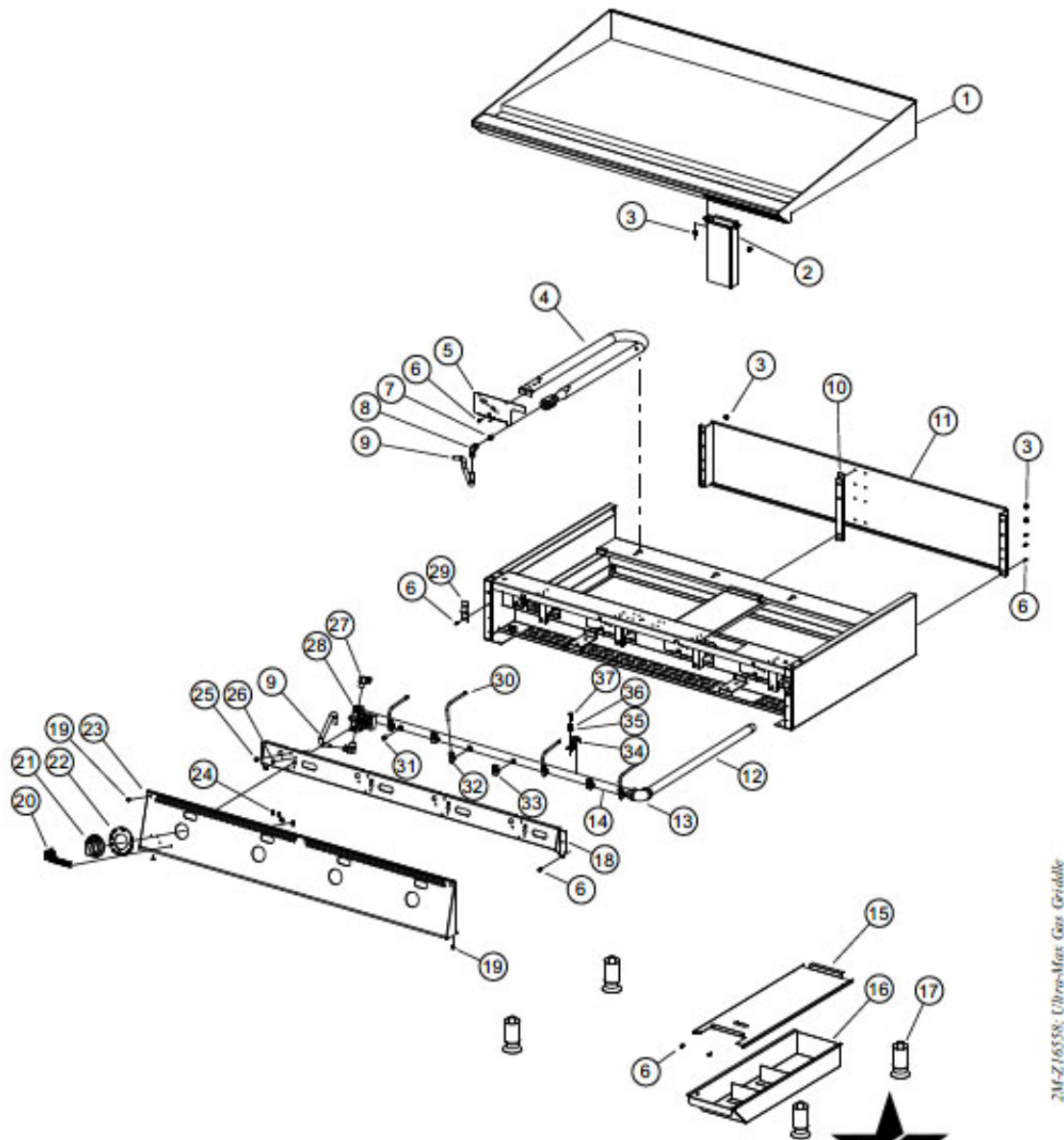
478. Moreover, rigidly affixing the burner to the frame would greatly reduce the stresses and deflections developed in the burner, thereby increasing its durability. It is well known that the maximum stress developed in a beam structure supported at both ends as proposed by May is only about $\frac{1}{4}$ that developed in a beam which is supported in a cantilever configuration, while the maximum deflection is only about one tenth the deflection developed in a cantilever beam having the same geometry under similar loading. Shigley at table A-9 p. 1021.

479. Further, proper assembly of the burners is particularly important for the safety of the user. The U.S. Fire Administration estimates an average of 6,500 gas fires yearly resulting in injuries, death, and millions of property damage. U.S. Fire Administration Topical Fire Research Series at 1. Mechanical Failure, Malfunction,

Design, Construction, and Installation Deficiency are cited as some of the notable reasons for grill Fires. U.S. Fire Administration Topical Fire Research Series at 3.

480. Accordingly, a POSITA would be motivated to ensure that the burner assembly is securely coupled to the rear of the frame to assist in its safe operations. This is especially true for griddles and grills which are assembled by an unskilled consumer, such as the case with the cooking devices in Williams and May.

481. In addition, a POSITA would know that coupling a burner to a front and rear frame of a cooking device is widely utilized technique for stabilizing and securing a burner within a cooking device. *See e.g.*, Star at 20 (showing a U-shaped burner coupled to the front of a frame via control knobs and the rear of a frame via mounting holes); Dacor at 21 (explaining that the removal and installation of burners connected to the cooking device via brackets at the rear of the frame); and Educate at Figs 1, 3, and 4 (showing mounting brackets for coupling a burner to the front and rear of a firebox).



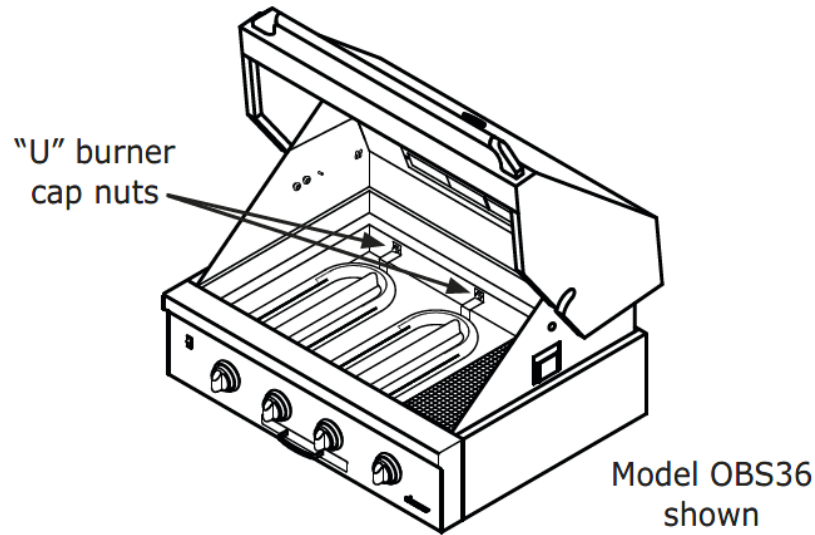
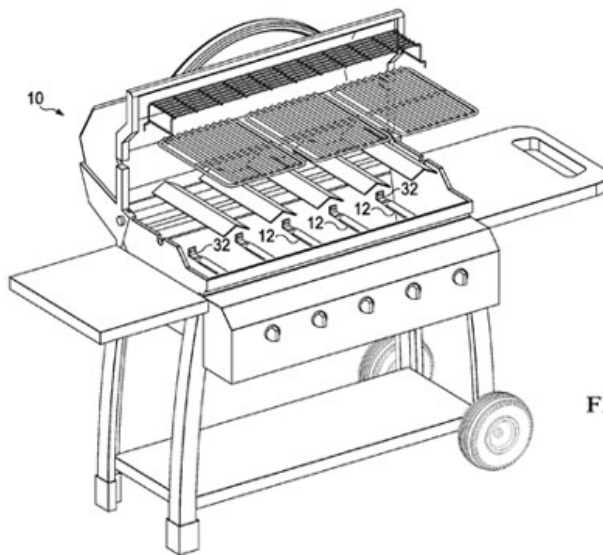
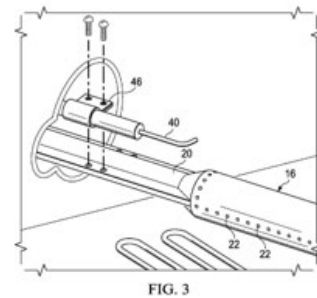
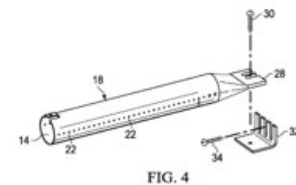
2M-Z16558: Ultra-Max Gas Griddle

Model: 848TA, T-Stat Control
Ultra-Max Gas Griddle



SK2631, Rev. - 12/11/12

Star at 20

**Dacor at 21****FIG. 1****FIG. 3****FIG. 4****Educate at Figures 1, 3 & 4**

482. While Williams discloses an embodiment of a U-shaped burner, a POSITA would substitute Williams's U-shaped burner with the straight-tube burner from May and have a reasonable expectation of success. Williams and May are directed to a similar device, namely a cooking device with distinct heat zones that utilize gas burners to create heat. While William discloses a u-shaped or j-shaped

burner for his primary embodiment, the shape of the burner used is not material to the operation of Williams or May. Williams at 3:46-51. The primary function of the burner in Williams is to heat up its respective heating chamber, which would be accomplished by any of u-shaped, j-shaped, or straight burners.

483. Substituting Williams's U-shaped burner design with the well-known straight-tube burner design from May is merely a matter of design choice and could be implemented without undue experimentation. Moreover, a plurality of straight-tube burners would provide hot combustion gasses to heat up the plurality of heating chambers in Williams's achieving the burner's intended purpose in Williams.

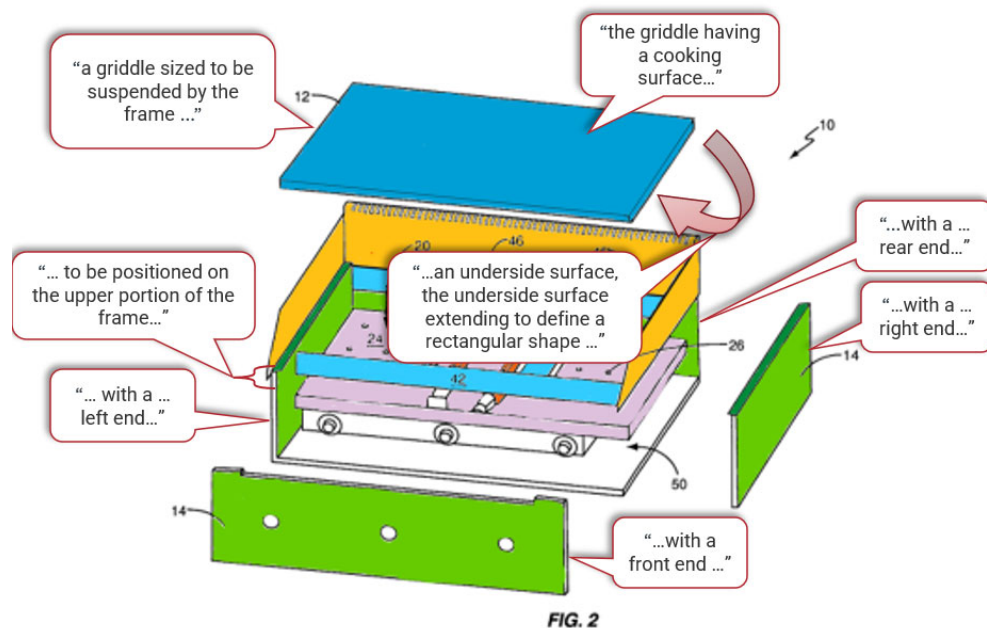
484. To the extent that the burner of May requires modifications to align with the heating zone of Williams properly, such a modification similarly does not require undue experimentation. A POSITA would understand that effective heat distribution is partly accomplished by the burner hole designs. The placement of the burner holes, and thereby the flame, is one way of directing heat to its intended areas.

485. For example, a POSITA would be motivated to place the burner holes only along the portion of the burner within the heating chambers (20) of Williams, and not place any burner holes along the portion of the burner that extends into flue (18) where combustion gases are exhausted from the cooking device. *See Williams at Figs. 2 and 3.*

- c) [1.3] a griddle sized to be suspended by the frame to be positioned on the upper portion of the frame, the griddle having a cooking surface and an underside surface, the underside surface extending to define a rectangular shape with a front end, a rear end, a left end, and a right end;

486. Williams, in view of May, teaches limitation [1.3], which requires “a griddle sized to be suspended by the frame to be positioned on the upper portion of the frame, the griddle having a cooking surface and an underside surface, the underside surface extending to define a rectangular shape with a front end, a rear end, a left end, and a right end.”

487. As illustrated in annotated figure 2, below, Williams discloses a griddle with rectangular cooking and underside surfaces (12 shown in blue) configured to be suspended by the frame (14). Williams at Fig. 2, Fig. 3 and 2:8-12.



Williams Annotated Figure 2

488. The frame (14) includes an upper portion, colored dark green, that allows the griddle to be suspended when fully assembled. Williams at Fig. 2, Fig. 3 and 2:8-12. A POSITA would understand that griddle is sized so as to properly align with the dark green portion of frame (14).

489. Williams further provides that the griddle is sometimes referred to as the “cooking surface” or “griddle surface.” Williams at 2:8-12. As illustrated in annotated figure 2, above, the griddle includes an underside surface and is rectangular in shape with a front end, a rear end, a left end, and a right end. Williams at Figs. 1-3 and 2:8-12.

- d) **[1.4] the griddle including a front rib and multiple lateral ribs, the front rib extending along the front end of the underside surface, and the multiple lateral ribs extending along the underside surface from the front rib to the rear end of the underside surface, the multiple lateral ribs being spaced from each other so as to define multiple heating regions such that each heating region is defined between adjacently extending lateral ribs;**

490. Williams, in view of May, teaches limitation [1.4], which requires “the griddle including a front rib and multiple lateral ribs, the front rib extending along the front end of the underside surface, and the multiple lateral ribs extending along the underside surface from the front rib to the rear end of the underside surface, the multiple lateral ribs being spaced from each other so as to define multiple heating regions such that each heating region is defined between adjacently extending lateral ribs.”

492. As shown in annotated figure 2 above, the multiple heating regions are separated by the multiple lateral ribs (44). Specifically, “upper zones 40 of adjacent heating chambers 20 may utilize opposite sides of an otherwise common sidewall 44, [f]urther, the front dam 42 and the rear dam 46 of the various heating chambers 20 may simply be laterally different portions of respective continuous wall elements if desired.” Williams at 2:57-62; 4:51-65 and Fig. 2.

e) [1.5] each of the heating regions includes one of the multiple burners positioned below one of the multiple heating regions;

493. Williams in view of May discloses limitation [1.5] which requires “each of the heating regions includes one of the multiple burners positioned below one of the multiple heating regions.”

494. Williams discloses a burner 22 positioned below what Williams describes as the “upper zone” which is a heating region since hot combustion gases are trapped in Williams’s upper zone to heat the underside of the griddle. Williams at Fig. 3, 2:39-44, 3:52-62. While Williams depicts three heating regions, only one burner is shown. A POSITA would appreciate a burner would be included in each of the heating regions shown in Williams figures 2 and 3. Williams at Fig. 2, Fig. 3, 1:10-14 (describing that “gas-fired griddles, commonly utilize multiple burners located in various locations beneath the heated surface”); *see also* 4:51-65 (describing that “cooking device...with more heating chambers 20 and corresponding burners 22.”).

495. As previously discussed, the shape of the burner is not material to the operation of Williams. Thus, Williams teaching regarding the location of the burner would apply equally when a straight burner as taught by May is utilized in the Williams cooking device. A POSITA would understand that each heating chamber in Williams could have its own individual straight tube burner or that each heating chamber could have multiple straight tube burners all under their respective heating regions. The number of straight tube burners used for each heating chamber would depend on the size of the heating chamber, the heat output of the straight tube burner, and desired operating temperatures of the griddle.

- f) **[1.6] each of the lateral ribs extend downward from the underside surface a height so as to funnel convection heat from any one of the multiple burners toward the rear end of the underside surface of the griddle and from the rear side of the frame;**

496. Williams in view of May discloses limitation [1.6] which requires “each of the lateral ribs extend downward from the underside surface a height so as to funnel convection heat from any one of the multiple burners toward the rear end of the underside surface of the griddle and from the rear side of the frame.”

497. Specifically, Williams discloses that “[t]he upper zone 40 is generally defined by the underside of cooking surface 12 and flow-restricting walls, specifically a front dam wall 42, a rear dam wall 46, and sidewalls 44 associated therewith.” Williams at 2:41-44. The sidewalls (44) are lateral ribs that run from the

front dam wall to the rear dam wall. Williams at 2:39-44 and 3:65-4:2. Williams goes further to provide that, “[a]t least the front dam 42 and the rear dam 46 are downwardly extending, thereby extending generally away from the underside of the cooking surface 12.” Williams at 2:44-47.

498. While Williams only explicitly provides that the front (42) and rear dams (46) are “downwardly extending,” a POSITA would also read the disclosure of “[a]t least the front dam 42 and the rear dam 46 are downwardly extending, thereby extending generally away from the underside of the cooking surface 12” to mean other components, such as sidewalls (44) may also be optionally downwardly extending from the underside surface of the griddle and thus “fixed” or “integral” to the underside surface of the griddle. Williams at 2:44-47 (emphasis added).

499. Williams further describes that the upper zones’ sidewalls (44) and downwardly extending dam walls (42 and 46) cooperate to create the low flow zones beneath the griddle surface (12). Williams at Abstract. Moreover, these features from Williams create “a more uniform layer of hot combustion gases to be formed along the underside of the griddle surface, thereby more evenly delivering heat to the griddle surface.” Williams at Abstract.

500. Extending the sidewalls downward from the underside of the griddle would help achieve these intended functions in Williams cooking device. Williams describes that “[t]he hot combustion gases tend to rise within the heating chamber

20, but there is a significant front-to-back flow within the burner zone 30 caused by natural drafting, . . . [a] portion of the hot combustion gases flow relatively directly out the exhaust located at the rear of each heating chamber 20.” Williams at 3:20-51; *see also* Williams at 3:52-56 (describing that “[i]n order to combat this, another portion of the hot combustion gases generated by the burner 22 is at least transiently dammed within the upper zones 40 beneath the cooking surface 12.”)

501. Accordingly, a POSITA would understand Williams teaches the presence of the perimeter wall, including the front dam (42), rear dam (46), and sidewalls (44), helps create the upper zone (40) where the portion of the hot combustion gases are at least temporarily trapped while being funneled toward the rear end of the griddle’s underside surface before they exit from the rear of the cooking device. Williams at 3:57-4:2.

502. In reviewing annotated figure 3, a POSITA would appreciate the cooking system disclosed in Williams uses multiple burners (22) in combination with the physical structure of the front rib (42) and lateral ribs (44). *See* Williams at Fig. 3.

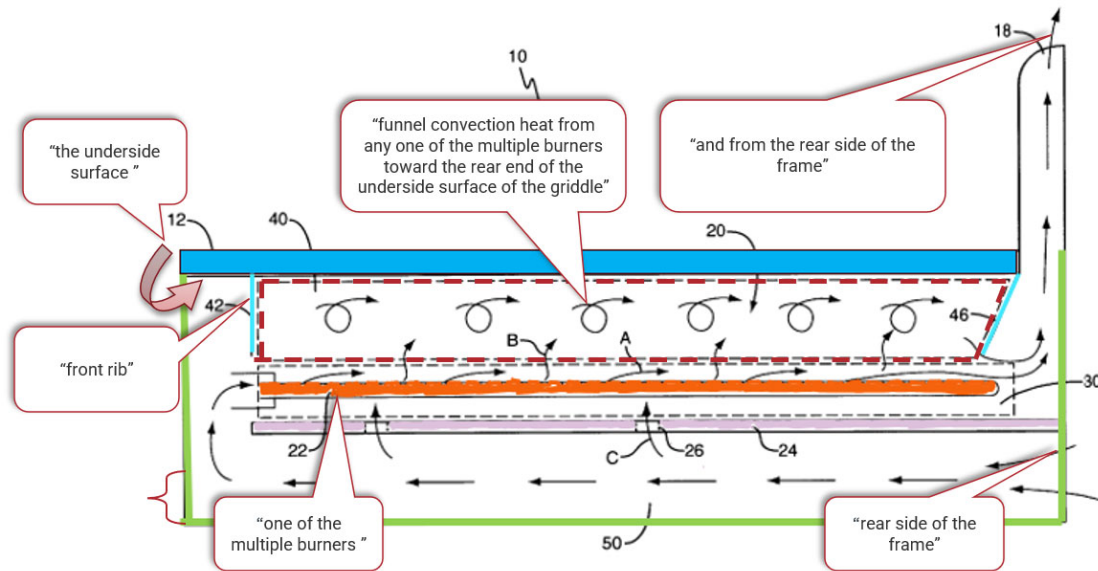


FIG. 3

Williams Annotated Figure 3

503. Moreover, a POSITA would understand the equivalent height of each rib serves as an air dam/seal, ensuring heated air is retained in its respective heating chamber and cannot escape through gaps/seams in the joined structure to adjacent heating chambers. Williams at 2:39-44 and 3:62-4:2 (describing that once the “gas within the upper zone 50 has cooled, it descends below the lower edge 46 a,b of the rear dam 46, joins the flow from the burner zone 30, and is carried out the flue 18.”).

504. Accordingly, a POSITA would understand Williams discloses that the convection heat trapped in a heating chamber by the sidewalls moves from any one of the multiple burners toward the rear end of the underside surface of the griddle and from the rear side of the frame (e.g., out the flue (18)).

- g) **[1.7] wherein the front rib and the multiple lateral ribs are integrally formed with the underside surface of the griddle;**
- h) **[1.8] and wherein the multiple lateral ribs directly extend from the underside surface of the griddle such that each lateral rib is spaced and separate from an adjacent lateral rib.**

505. As discussed in Ground 1, Williams in view of May teaches limitations [1.0] through [1.6]. The motivation to combine Williams and May is discussed above in Ground 4 and is equally applicable herein.

506. As such, please see Ground 4 for the specific motivation for combining the burner assembly from May with the cooking device of Williams and the integral lateral ribs of Best.

507. As to claim limitations [1.7] and [1.8], Best explicitly teaches these limitations. Moreover, Williams and Best are analogous references both teaching cooking devices, specifically, griddles that use multiple heating zones or chambers to uniformly heat a cooking surface. *See* Williams at Abstract; Best at Abstract. In order to provide a more uniform heating of a griddle surface, Williams and Best utilize a plurality of heating chambers below the griddle surface creating heat or temperature zones which can be controlled independently of each other. Williams at 1:27-31; Best at 3:48-52.

508. Best relates generally to a “griddle having discrete, separately heated, cooking zones.” Best at 1:5-9. In particular, Best describes a multi-component

griddle plate (20) and “fixedly secured...juxtaposed, spaced, individual...blocks or plates 30.” Best at 5:26-29. Below the heat transfer plates (30) are three gas burners (60), one for each of the three zones. Best at 8:6-15; *see also* Best at Fig. 7 (showing a top view of the three heating zones).

509. A POSITA would understand Best uses a few methods to isolate the heat between each of its three heating zones. In particular, Best describes the use of insulation strips (35) in airgaps between adjacent plates. Best at 6:47-49. A POSITA would understand the insulation strips (35) and air gap between the plates would be used to limit the convective heat that would transfer between heat transfer plates (30) of the griddle (20).

510. To further isolate convective heat between the zones, Best also describes the use of lateral ribs integrated with the griddle. Best at 9:18-22. In particular, Best teaches that “[f]or further isolating the heat from burners 60, a pair of inverted U-shaped, insulating baffles 94, as seen in Fig. 5, are interposed between each pair of burner groups, **while other baffles 95 extend downwardly from plate 20 to terminate in overlapping relationship, as shown in FIG. 5.**” Best at 9:18-22 (emphasis added); *see also* Best at Fig. 5 (showing multiple lateral ribs extending from, and integrated with, the underside surface of the griddle).

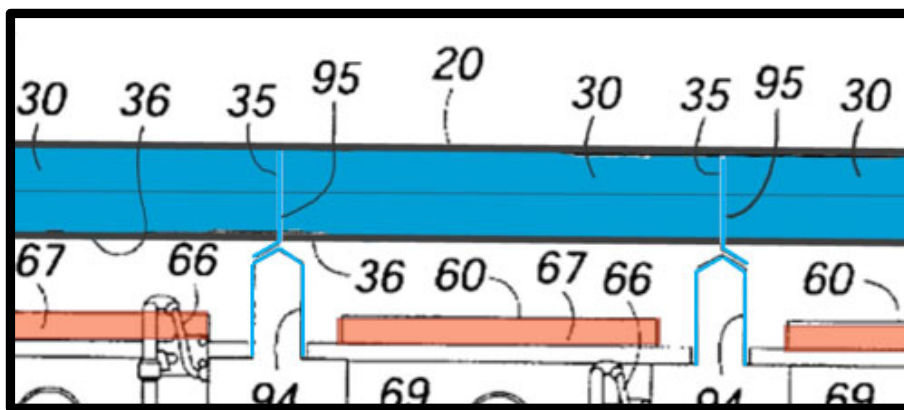
511. Accordingly, a POSITA would understand Best teaches the insulating baffles extending downward from griddle (20) are lateral ribs integrated with the



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taught by Best that are integral with the bottom of the heating chamber. The result is the cooking system taught by Williams utilizing the lateral ribs taught by Best, which are integral with the underside of the griddle (in conjunction with overlapping lateral ribs integral with the floor plate of the heating chamber).

513. A POSITA would recognize that Best's baffles/lateral ribs would be subject to heat induced stresses that may induce deformation as different portions the baffles expand and contract at different rates depending on the heat they are subjected to. To account for this deformation a POSITA understands that Best leaves a small air gap where baffles (94) and (95) overlap. As also would be recognized by a POSITA, physically separating the downwardly extending baffle (95) from the upwardly extending baffle (94) where the baffles overlap in the region where the most heat induced deformation occurs, would prevent heat induced deformation from displacing the cooking surface which is connected to downwardly extending baffle (95).



Best Figure 5 Zoomed in View (94 and 95 baffles)

514. A POSITA understands that the overlapping area of the baffles, with a physical separation, would reduce the impact of any such deformation. In addition, Best utilizes overlapping baffles instead of a single baffle integrated on both the top and bottom surfaces because a single baffle so integrated would prevent the griddle plate from being removed allowing access to the heating chambers for maintenance. By separating the downwardly extending baffle (95) from the upwardly extending baffle (94), Best permits the device to be assembled, disassembled, maintained, etc., more easily, without sacrificing thermal isolation. *See* Best at 3:33-38 (describing “[f]or ease of cleaning, repair and replacement, the heating elements are mounted within a slidable drawer so that, when the source of gas and/or electricity are disconnected, the drawer can be pulled out to an open cantilever supported position.”)

515. This configuration of lateral ribs taught by Best, in conjunction with the front dam (42) and rear dam (46) of Williams, improves the isolation of the hot combustion gases that collect at the top of the heating zones. This configuration prevents any gaps between Williams’s lateral rib and the underside of the Williams griddle due to assemble or manufacturing tolerances while also improving the heat isolation even if the ribs do undergo some deformation given the overlapping rib structure.

516. A POSITA would be able to implement the combination of Williams, May, and Best without undue experimentation. First, Williams expressly contemplates lateral ribs extending downward as taught by Best's baffles 95. As discussed above, Williams provides that, "*At least the front dam 42 and the rear dam 46 are downwardly extending, thereby extending generally away from the underside of the cooking surface 12.*" Williams at 2:44-47; *see also* Williams at Claim 1 (reciting "each of said heating chambers having sidewalls and downwardly extending flow-restricting walls...") While Williams only explicitly provides the front (42) and rear dams (46) are "downwardly extending," a POSITA would also read the disclosure of "[a]t least the front dam 42 and the rear dam 46 are downwardly extending, thereby extending generally away from the underside of the cooking surface 12" to mean other components, such as sidewalls (44) may also be optionally downwardly extending from the underside surface of the griddle and thus "fixed" or "integral" to the underside surface of the griddle. Williams at 2:44-47 (emphasis added).

517. Second, the lateral ribs of Best serve the same purpose as the lateral ribs of Williams to isolate heat in different cooking zones. The baffles (95) of Best would attach to the underside of Williams griddle while baffles (94) of Best would attach to the top surface of Williams floor plate. The physical space occupied by Best's baffles would be substantially the same as the physical space already occupied by

Williams's sidewall (44). As such, the lateral ribs of Best would be a simple substitution for the lateral ribs of Williams.

518. In addition, the baffles of Best would still allow Williams's griddle plate to be removed and the area of the heating zone to be easily accessed for cleaning and maintenance as contemplated by Best. Best at 3:33-37.

- i) **Claim 2. The cooking system of claim 1, wherein the front rib substantially blocks convection heat from escaping from the front side of the frame.**
- j) **Claim 3. The cooking system of claim 1, wherein the adjacently extending lateral ribs are sized to substantially prevent convection heat from moving over the adjacently extending lateral ribs and directly, convectively heating adjacent heating regions.**
- k) **Claim 4. The cooking system of claim 1, wherein the adjacently extending lateral ribs are sized to substantially maintain convection heat between the adjacently extending lateral ribs to only convectively heat the corresponding heating region between the adjacently extending lateral ribs.**

519. Williams in view of May, and further in view of Best disclose each of the limitations of claim 1. Williams in view of May, and further in view of Best also disclose each of the limitations from claims 2, 3, and 4.

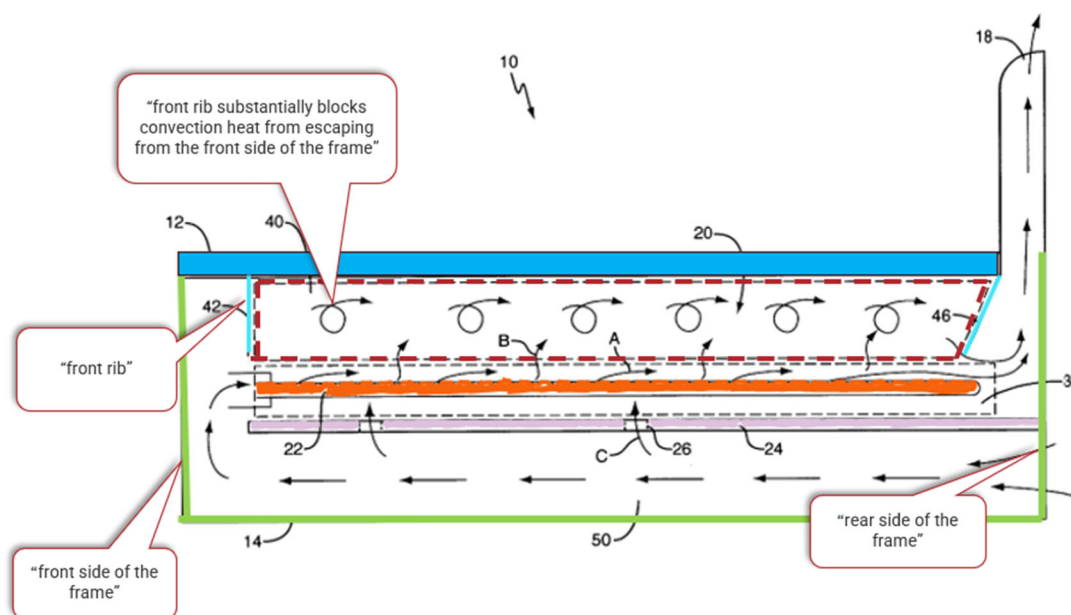
520. The use of the Best's baffles in place of the sidewalls in Williams would not materially alter the airflow in Williams cooking device. The hot combustion gases would still be trapped within the upper zone of an individual heating chamber due in part to sizing of Best's baffles before the hot combustion moves below the rear dam and exits from flue 18 at the rear of Williams cooking device. As such, the

analysis previously provided accounting for why Williams would teach claims 2-4 in view of its sidewalls, is equally applicable to why Williams modified to use Best's baffles would teach claims 2-4.

521. More specifically, and as discussed above, Williams in view of May and further in view of Best discloses a cooking system with a front rib and adjacently extending lateral ribs that are configured to block convective heat to more uniformly heat a heating zone within a griddle.

522. For claims 2, 3, and 4, Williams describes in detail the controlled movement of convective heat. Specifically, Williams describes that an upper zone is defined by the underside of the griddle and "flow-restricting walls", specifically a front dam wall (42), a rear dam wall (46), and sidewalls (44). Williams at Fig. 3 and 2:39-47. The "front dam 42, rear dam 46, and sidewalls 44," provide heating chambers in the upper zone where a "portion of the hot combustion gases are at least temporarily trapped." Williams at 3:57-4:2. These flow-restricting walls substantially reduces the front-to-back flow rate of heated gas in the upper zone of each heating chamber to evenly heat the respective area of the griddle. Williams at 4:2-13.

523. As shown in annotated Figure 3 below, the front dam wall (42) is a front rib that acts to substantially block convection heat or trap heat from escaping from the front side of the frame. Williams at Fig. 3.



Williams Annotated Figure 3

524. As seen in annotated Figure 3, no air flow is indicated to pass through front wall (42), but rather exits the heating chamber only by passing below rear wall (46) to the exit flue (18). Williams at 3:39-44 and 3:62-4:2. As discussed above, this results in a low front-to-back flow rate of the heated gas in the upper zone (40) where the heated gas becomes “dammed, stagnant, or trapped” in the upper zone to evenly heat the griddle area above the heating chamber. Williams at 3:57-4:13.

525. Williams also describes how the perimeter of the upper zone of the heating chamber comprises adjacent sidewalls (44) that cooperate with the front wall (42) and rear wall (46) to trap hot combustion gases within upper zone (20) to substantially maintain the heat between the adjacent sidewalls. Williams at Abstract, 1:26-46 and 3:57-4:13. A POSITA understands that Williams’s adjacent sidewalls

(44) would be sized to substantially prevent the flow of hot combustion gases out of the sides of the upper zone since Williams discloses the hot combustion gases exit via going below rear dam (46) into flue (18). Williams at 3:39-44 and 3:62-4:2. As such, the adjacent sidewalls (44) prevent the convective heat in the form of hot combustion from moving into an adjacent heating chamber and directly convectively heating an adjacent heating chamber.

526. Further, as explained in Williams, there is “significant front-to-back flow” that causes the hot combustion gas to exit the rear of the griddle into flue (18). Williams at 2:16-23, 3:34-44. This significant directional flow from front-to-back would likewise prevent flow of hot combustion gasses over the sidewalls.

527. In addition, as previously explained with respect to claim 1, it was obvious in view of Williams teaching to integrate the sidewalls (44) with the underside of the griddle. When the sidewall is integral with the underside of the griddle, it would prevent the movement of hot gases over the sidewalls so that no convective heat from one chamber would move into another chamber directly heating it.

Because the sidewalls (44) in Williams prevent the flow of hot combustion gases outside of their respective heating chamber, the sidewalls only convectively heat the upper zone within their respective heating chamber. This ensures an even heating surface on the griddle above the

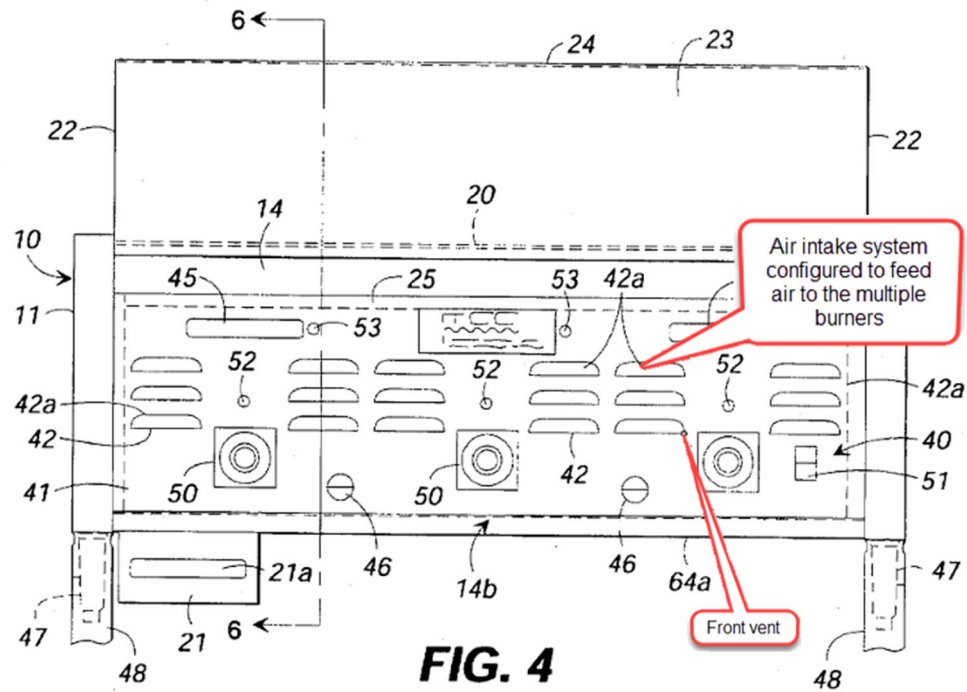
heating region. Williams at 4:2-13. Furthermore, Williams teaches heating regions can be further isolated to prevent movement of convective heat by not using a common sidewall for adjacent heating chambers. Williams at 2:17-23 and 2:57-59. When a common sidewall is not used, air or other insulative material can be interposed between the sidewalls of adjacent heating chambers to prevent the movement of convective heat from one heating chamber to another.

528. As discussed above with respect to claim 1, a POSITA would be motivated to replace the sidewall (44) of Williams with the downwardly extending baffle (95) and upwardly extending baffle (94) of Best for improved isolation of the heating zones while also minimizing various stresses that may result in deformation. Moreover, a POSITA would recognize that the combination of the baffles from Best, with the cooking device of Williams would similarly block convection heat from escaping from the front side of the frame, substantially prevent convection heat from moving over the adjacently extending lateral ribs and directly, convectively heating adjacent heating regions, and maintain convection heat between the adjacently extending lateral ribs to only convectively heat the corresponding heating region between the adjacently extending lateral ribs.

- l) **Claim 6. The cooking system of claim 1, wherein the frame comprises an air intake system configured to feed air to the multiple burners, the air intake system including at least one of a front vent along the front side of the frame, a left vent along the left side of the frame, and a right vent along a right side of the frame.**

529. Williams in view of May, and further in view of Best discloses each of the limitations of claim 1. Williams in view of May, and further in view of Best similarly disclose the limitations of claim 6 requiring “wherein the frame comprises an air intake system configured to feed air to the multiple burners, the air intake system including at least one of a front vent along the front side of the frame, a left vent along the left side of the frame, and a right vent along a right side of the frame.”

530. Both Williams and Best disclose natural air intake systems to feed air to the multiple burners. Williams at 2:25-30; Best at 6:52-56. In particular, Best discloses the air intake system as described in the ‘473 patent which is configured to feed air to the multiple burners. *See* Best at 6:52-58 and Fig. 4. Additionally, Best discloses an air intake system including at least one front vent along the front side of the frame. Best at 6:52-58. Best contains “a front upright panel 41 having **spaced ventilation ports** 42 to permit air to be drawn therethrough into the interior of the housing 10” wherein “[t]he ports 42 are respectively covered by louvers 42a”. Best at 6:52-58; *see also* Fig. 4 (“spaced ventilation ports” which are synonymous with “front vents”).



Best Figure 4

531. Figure 4 is a front elevation view of the griddle depicting the front vents along the front side of the frame. Here, called ventilation ports, these vents act as an air intake system configured to “permit air to be drawn therethrough into the interior of the housing” which in turn feeds air to the multiple burners. Best at 6:53-54; *see also* Ex. 1006 at FIG. 6 (showing a cross section view with vents 42 in the front frame).

532. While Williams teaches a “primary flow” of air is from a rear vent, a POSITA would understand that additional air intake vents on the front would increase the air flow to further ensure sufficient air for naturally fed gas burners. Williams at 3:20-29. Accordingly, it would have been obvious to a POSITA to

modify Williams's cooking system to utilize air intake vents in the front frame as taught by Best to better ensure sufficient air flow to the burners.

533. While Best does not expressly disclose “a left vent along the left side of the frame, and a right vent along a right side of the frame,” this would have been obvious to a POSITA in view of Best's teaching of a vent on the front side of the frame to increase air flow. For instance, as taught by Williams, a griddle system can use a single plenum which means that all vents would be connected together and thus the source of the air vents (rear, front, left right) is not material. Williams at 3:24-28. Alternatively, Williams teaches that each heating zone could have its own plenum which would motivate a person of skill in the art to add vents to every side (rear, front, left, and right) to ensure sufficient airflow to each individual plenum. Williams at 3:24-28. Providing a plurality of vents in addition to the front vent described in Best would have been obvious to provide sufficient air supply for each burner to improve performance.

534. The teachings of prior art references, combined with the knowledge of a person of ordinary skill in the art, would render obvious utilizing *at least* air intake vents on the front side of the frame. In addition, it would have been obvious to also use air intake vents on the left and right sides of the frame to ensure sufficient airflow to each burner.

- m) **Claim 7. The cooking system of claim 1, wherein the front rib and the lateral ribs facilitate channeling convection heat to a rear side of the frame.**

535. Williams in view of May, and further in view of Best discloses each of the limitations of claim 1. Williams in view of May, and further in view of Best similarly discloses the limitations of claim 7 requiring “wherein the front rib and the lateral ribs facilitate channeling convection heat to a rear side of the frame.”

536. Specifically, Williams describes an upper zone in Williams is defined by the underside of the griddle and “flow-restricting walls”, specifically a front dam wall (42), a rear dam wall (46), and sidewalls (44). Williams at Fig. 3 and 2:39-47. The “front dam 42, rear dam 46, and sidewalls 44,” provide heating chambers in the upper zone where a “portion of the hot combustion gases are at least temporarily trapped” until they exit the rear side of the frame. Williams at 3:57-4:2.

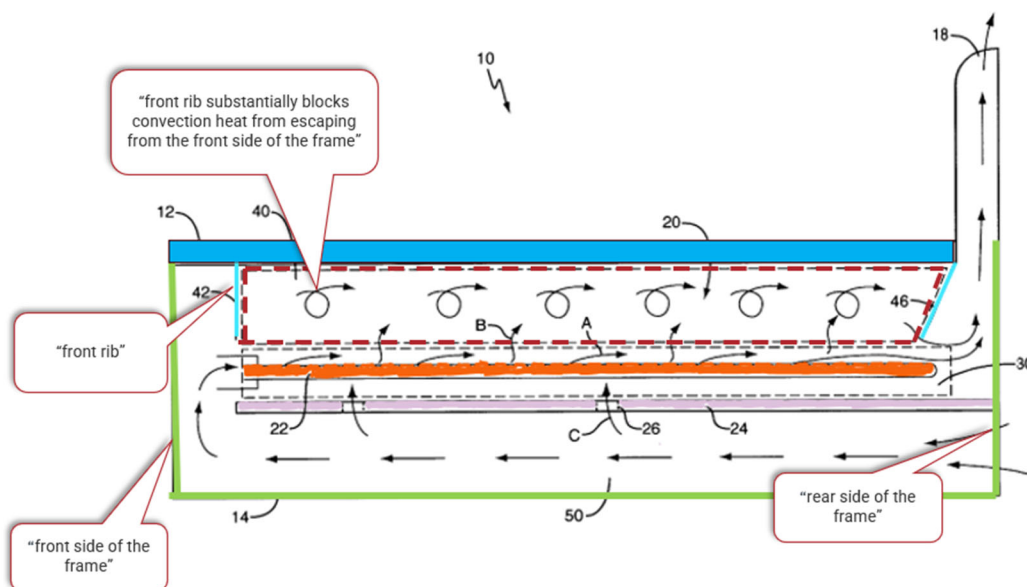


FIG. 3

Williams Annotated Figure 3

537. As seen in annotated Figure 3, no air flow is indicated to pass through front, rear, or sidewalls but rather exits the heating chamber only by passing below rear wall (46) to the exit flue (18). Williams at Fig. 3, 3:35-44 and 3:62-4:2. The rear wall of flue (18) comprises the rear frame of Williams's cooking device.

n) **Claim 16. The griddle of claim 15, wherein the splash guard includes a hinge structure, the hinge structure configured to pivotably couple to a cover of the cooking station.**

538. Williams in view of May, and further in view of Best discloses each of the limitations of claim 15. Williams in view of May, and further in view of Best similarly disclose the limitations of claim 16 requiring "the splash guard includes a hinge structure, the hinge structure configured to pivotably couple to a cover of the cooking station."

539. Specifically, May discloses a hinge structure for pivotably coupling a cover to a cooking station. May at [0003]; *see also* May at [0046] (providing that "lid 32 is pivotably attached to the firebox and is pivotable between an open position and a closed position (not shown).") Moreover, and as can be seen in annotated Figure 1 of May, lid 32 is coupled to a right peripheral and left peripheral splash guard.

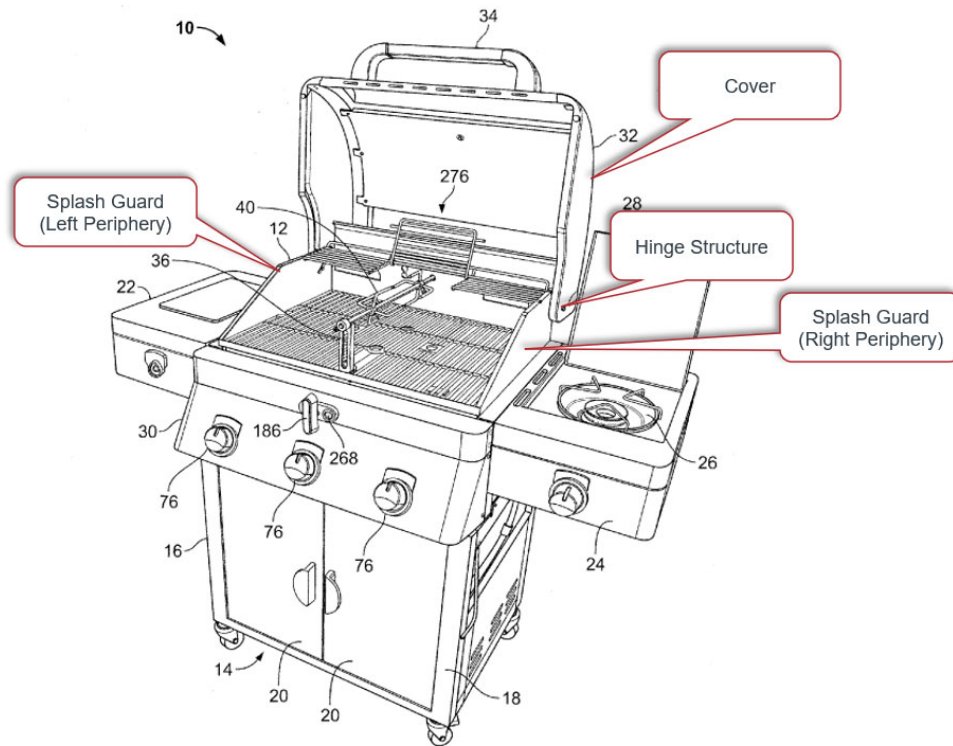


FIG. 1

May Figure 1

540. Accordingly, when viewing the disclosure of May, a POSITA would be motivated to include the lid structure, attached to the splash guard, in for the cooking device described in the combination of Williams, May, and Best. Specifically, a POSITA would recognize the benefits of including a lid when the griddle device is used (or not in use) in an outdoor setting. A lid would serve multiple purposes including protecting the griddle surface when not in use, trapping heat radiating from the griddle surface to add convective cooking, and protecting the food from bugs, etc. as the food items cook.

F. GROUND 6: Claims 1-4, 7 and 16 are rendered obvious under 35 U.S.C. § 103 by Williams in view of May and in further view of Farnsworth.

1. Introduction

541. The teachings of the prior art references Williams, May and Farnsworth, combined with the knowledge of a person of ordinary skill in the art, would render claims 1-4, 7 and 16 of the '473 patent obvious. As set forth above, Claims 1-4, 7 and 16 are taught by Williams for the reasons previously described in Ground 2 (Williams in view of Farnsworth) and 4 (Williams in view of May).

542. To the extent Williams in view of May does not teach “multiple lateral ribs are integrally formed with the underside surface of the griddle” and/or “multiple lateral ribs directly extend from the underside of the griddle,” as required by claim 1 and 10, and “the front rib and the parallel ribs integrally formed with the underside surface of the griddle, and the parallel ribs directly extend from the underside surface of the griddle such that each parallel rib is spaced and separate from and adjacently extending parallel rib,” as required by claim 17, a POSITA would combine the teachings of Farnsworth with the teachings of Williams in view of May since Farnsworth explicitly discloses these limitations.

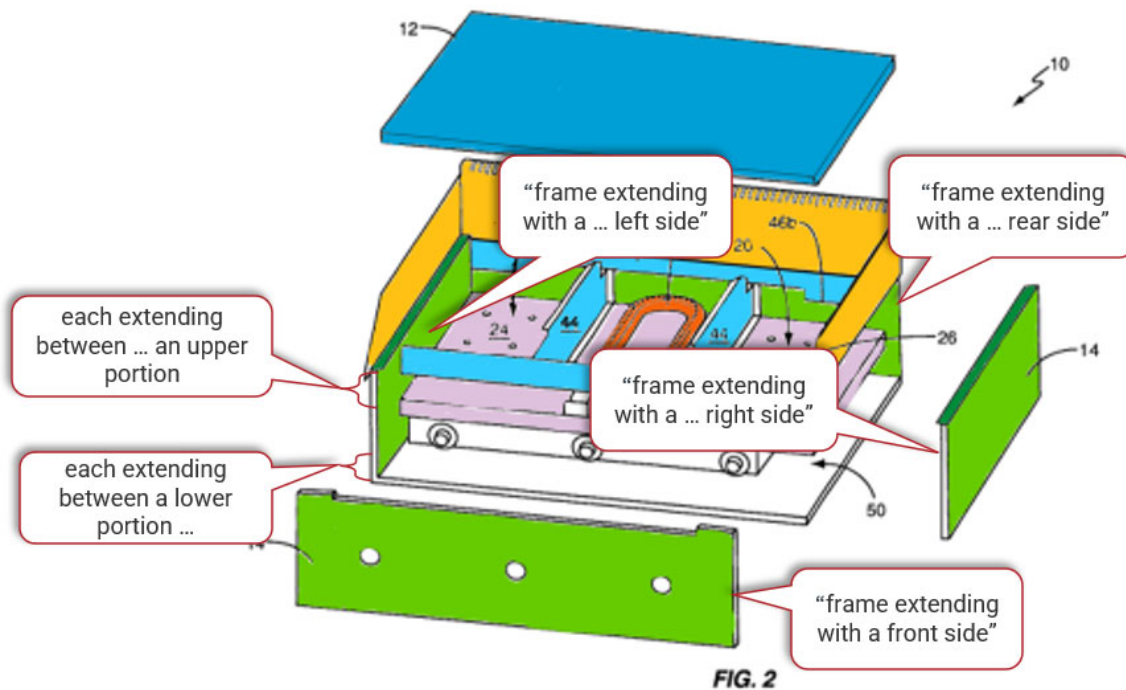
543. A detailed description of this ground of rejection, including the motivation for combining the references is presented in detail below.

2. Detailed Claim Analysis

- a) [1.0] A cooking system, comprising: [1.1] a frame extending with a front side, a rear side, a left side, and a right side each extending between a lower portion and an upper portion;

544. Williams discloses, “A cooking system, comprising: a frame extending with a front side, a rear side, a left side, and a right side each extending between a lower portion and an upper portion.” *See e.g.*, Williams at Fig. 2.

545. As shown in annotated figure 2, below, Williams discloses a cooking system comprising a frame (e.g., outer housing 14 shown in light green) extending with a front side, a rear side located opposite the front side, and a left side and right side opposite each other. Williams at Figs. 1-3, 2:8-15, 2:39-44 and 3:20-24.



Williams Annotated Figure 2

546. Additionally, and as shown in annotated figure 3, below, Williams discloses that each side extends between a lower portion (e.g., bottom of the frame 14) and an upper portion (e.g., upper portion of frame 14 just below griddle). Williams at Fig. 3.

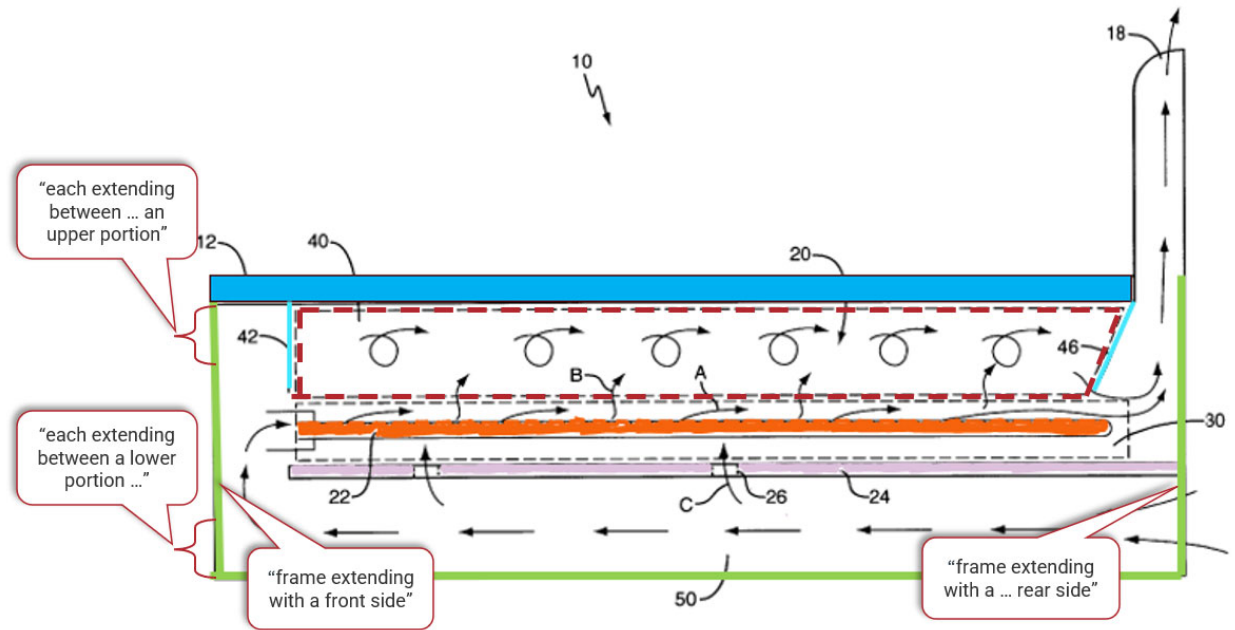


FIG. 3

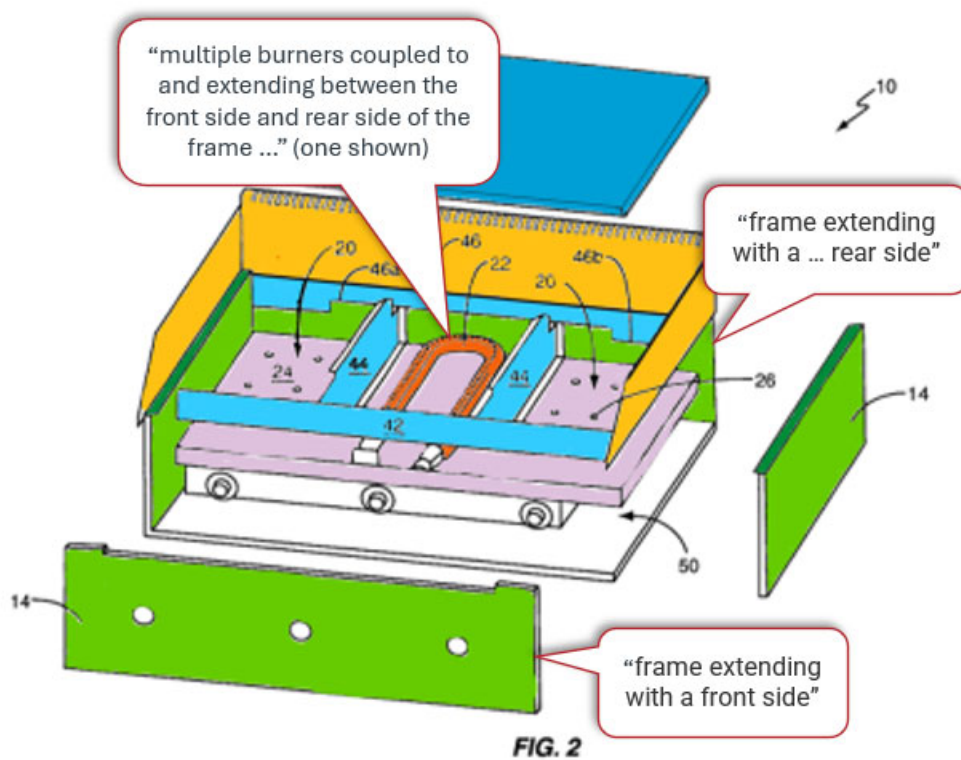
Williams Annotated Figure 3

- b) [1.2] multiple burners coupled to and extending between the front side and the rear side of the frame; and

547. Williams, in view of May, teaches limitation [1.2], which requires "multiple burners coupled to and extending between the front side and the rear side of the frame." A POSITA would substitute the U-shaped burners from Williams with the straight-tube burners coupled to a frame as taught by May. The motivations to

combine these teachings, and the expectations for success are discussed in detail below.

548. With respect to the “multiple burners,” annotated Figure 2 of Williams shows a burner (22), colored orange, extending between the front side and rear side of the frame (14). Williams at Fig. 2.

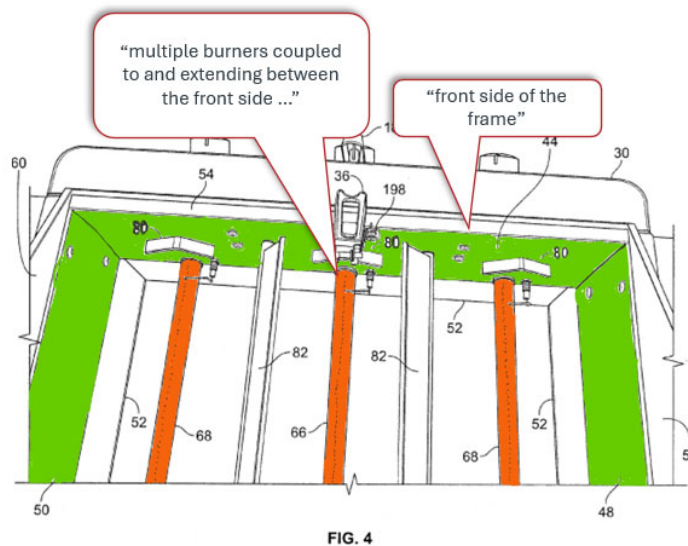
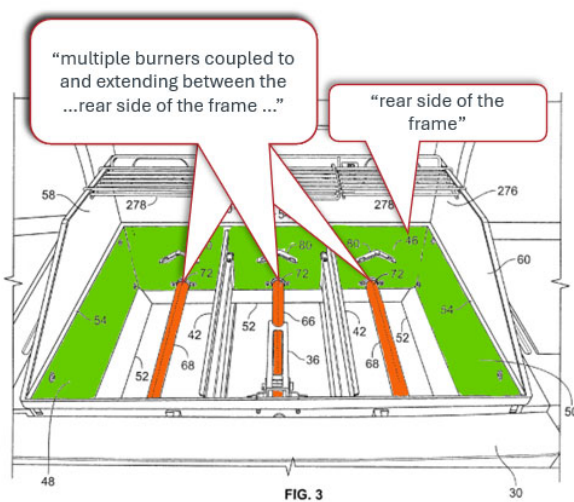


Williams Annotated Figure 2

549. To show other cooking device features, figure 2 depicts three heating chambers (20), yet illustrates only one example of the multiple gas burners (22). Williams at 4:51-52. Williams, however, makes clear that the cooking device is configured to include multiple burners since it discloses a cooking device with “a

few heating chambers 20” that include “corresponding burners 22.” Williams at 1:11-13, 1:29-35, 2:23-30, 4:51-60; *see also* Fig. 2 (showing three control knobs corresponding to three burners, one for each of the three illustrated heating chambers.) As such, a POSITA would understand that Williams would include a burner for each heating chamber. *See* Williams at Fig. 2.

550. While Williams does not discuss how the multiple burners are coupled to the frame, a POSITA would look to the teachings of May, which explicitly teaches coupling a burner to both the front and rear sides of a frame. May at Figs. 3, 4, and 0049; *see* annotated Figs. 3 and 4 below (showing a burner tube 66 coupled to the front of frame at figure 4, and the rear of the frame at figure 3).



May Annotated Figures 3 & 4

551. May teaches that a “firebox also houses a middle burner tube 66 and two side burner tubes 68,” and the burner “rear end 72 is fixedly attached to the rear wall 46 of the firebox,” and “front end 70 extends through holes 74 in the front wall 44 of the firebox and is attached to a burner ignition assembly (not shown) mounted on the control panel 30.” May at [0049]. May continues, “it will be appreciated that the longitudinal axis of the burner tubes extends from the front wall 44 to the rear wall 46 of the firebox 12.” May at [0049]. Accordingly, a POSITA would understand May’s teachings to disclose multiple burners coupled to and extending between the front and rear sides of the frame.

552. A POSITA would have been motivated to combine the teachings of Williams and May to achieve the claimed invention with a reasonable expectation of success.

553. First, each of Williams and May are analogous art within the same field of endeavor as the ‘473 patent. Namely, a cooking device that uses gas burners and ribs to isolate heating zones for the cooking device. Accordingly, a POSITA would look to each of Williams and May to address the heating of separate zones in a cooking device.

554. Second, a POSITA would understand that the relative position between a control knob, outside the frame, and the associated control valve (which regulates the fuel supplied to the burner) and its alignment with a burner (which mixes the air

and fuel), each of which is on the inside of the frame, is important to the function and safety of the burner.

555. May teaches the burner “front end 70 extends through holes 74 in the front wall 44 of the firebox and is attached to a burner ignition assembly (not shown) mounted on the control panel 30.” May at [0049]; *see also* Williams at 3:9-14 (discussing that gas supply lines 16 is connected to burners 22 and may be regulated by any manner known in the art and controlled by a user interface (e.g., knobs) as is also known in the art).

556. A POSITA would recognize that coupling the burner to the front of the frame is essential to ensure that alignment of each of the knob, control valve, and burner is maintained, thereby minimizing the risk of gas leakage that may result if they were not properly aligned. If misaligned or assembled incorrectly, the inlet flow of gas to the burner could be deflected in an outward direction and not into the burner, causing a fire hazard. Accordingly, a POSITA would be motivated to couple the burner to the front of the frame to ensure proper alignment of the burner. This is especially true for ensuring unskilled consumers do not have difficulties or create hazardous conditions when assembling or replacing the burners.

557. Similarly, a POSITA would be motivated to couple a burner to the frame’s rear side as also taught by May. As discussed above, May provides that “firebox also houses a middle burner tube 66 and two side burner tubes 68,” and that

the burner “rear end 72 is fixedly attached to the rear wall 46 of the firebox.” May at [0049].

558. A POSITA would recognize that the attachment of burners to the rear of the griddle frame as taught by May improves the performance and safety of the griddle. A POSITA would recognize that coupling burners to the frame, at both the front and rear, would securely prevent deflection and ensure that the heat source remains positioned as designed.

559. As is known to a POSITA, grill components, especially burners, deteriorate over time and if not properly secured would result in uneven heating of the grilling surface and worse a safety hazard. An appropriately positioned burner promotes even heating across the griddle within the burner’s heating chamber. Additionally, properly coupling the burner assembly to the frame facilitates safer and more predictable operation by ensuring that gas is properly distributed through the burner to reduce the risk of uneven heat distribution, burns, or uncontrolled fire.

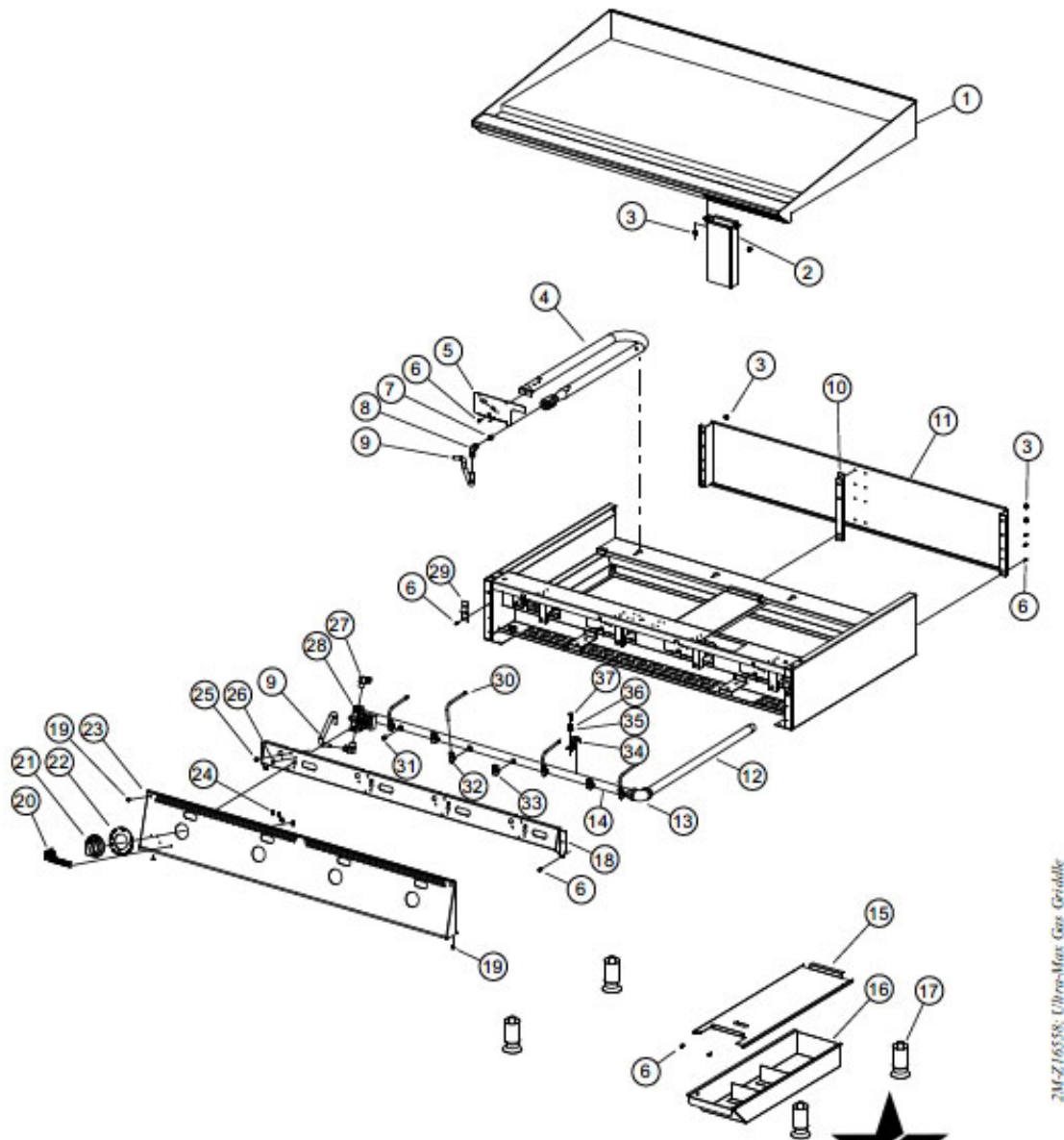
560. Moreover, rigidly affixing the burner to the frame would greatly reduce the stresses and deflections developed in the burner, thereby increasing its durability. It is well known that the maximum stress developed in a beam structure supported at both ends as proposed by May is only about $\frac{1}{4}$ that developed in a beam which is supported in a cantilever configuration, while the maximum deflection is only about

one tenth the deflection developed in a cantilever beam having the same geometry under similar loading. Shigley at table A-9 p. 1021.

561. Further, proper assembly of the burners is particularly important for the safety of the user. The U.S. Fire Administration estimates an average of 6,500 gas fires yearly resulting in injuries, death, and millions of property damage. U.S. Fire Administration Topical Fire Research Series at 1. Mechanical Failure, Malfunction, Design, Construction, and Installation Deficiency are cited as some of the notable reasons for grill Fires. U.S. Fire Administration Topical Fire Research Series at 3.

562. Accordingly, a POSITA would be motivated to ensure that the burner assembly is securely coupled to the rear of the frame to assist in its safe operations. This is especially true for griddles and grills which are assembled by an unskilled consumer, such as the case with the cooking devices in Williams and May.

563. In addition, a POSITA would know that coupling a burner to a front and rear frame of a cooking device is widely utilized technique for stabilizing and securing a burner within a cooking device. *See e.g.*, Star at 20 (showing a U-shaped burner coupled to the front of a frame via control knobs and the rear of a frame via mounting holes); Dacor at 21 (explaining that the removal and installation of burners connected to the cooking device via brackets at the rear of the frame); and Educate at Figs 1, 3, and 4 (showing mounting brackets for coupling a burner to the front and rear of a firebox).



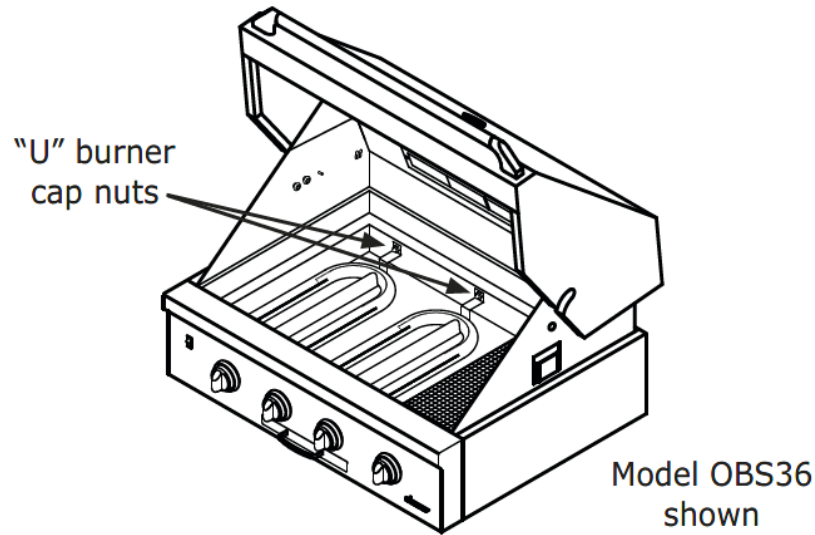
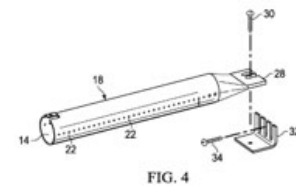
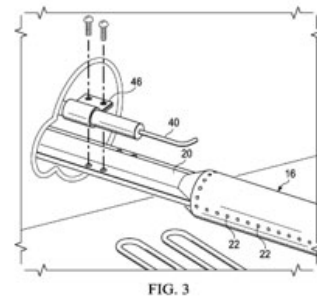
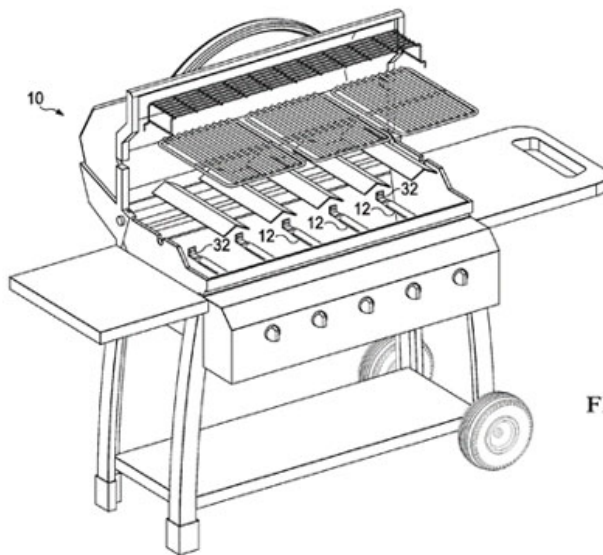
2M-Z16558: Ultra-Max Gas Griddle

Model: 848TA, T-Stat Control
Ultra-Max Gas Griddle



SK2631, Rev. - 12/11/12

Star at 20

**Dacor at 21****Educate at Figures 1, 3 & 4**

564. While Williams discloses an embodiment of a U-shaped burner, a POSITA would substitute Williams's U-shaped burner with the straight-tube burner from May and have a reasonable expectation of success. Williams and May are directed to a similar device, namely a cooking device with distinct heat zones that utilize gas burners to create heat. While William discloses a u-shaped or j-shaped

burner for his primary embodiment, the shape of the burner used is not material to the operation of Williams or May. Williams at 3:46-51. The primary function of the burner in Williams is to heat up its respective heating chamber, which would be accomplished by any of u-shaped, j-shaped, or straight burners.

565. Substituting Williams's U-shaped burner design with the well-known straight-tube burner design from May is merely a matter of design choice and could be implemented without undue experimentation. Moreover, a plurality of straight-tube burners would provide hot combustion gasses to heat up the plurality of heating chambers in Williams's achieving the burner's intended purpose in Williams.

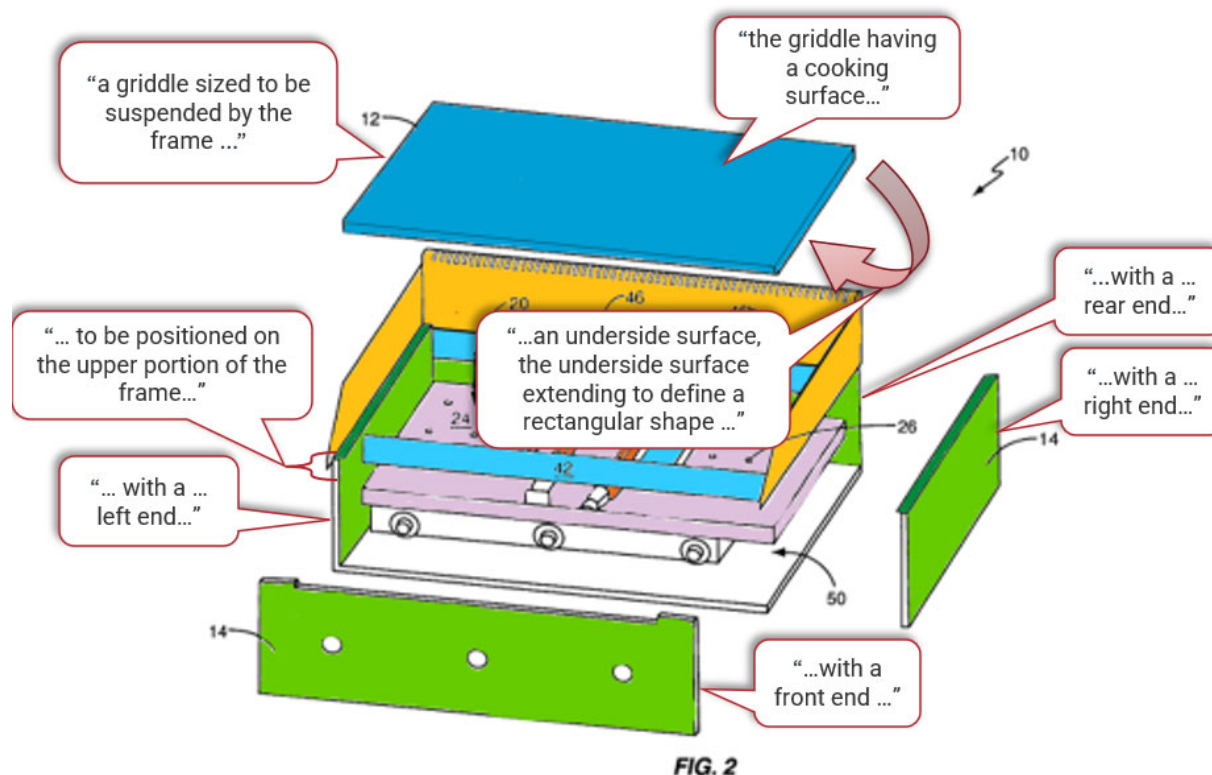
566. To the extent that the burner of May requires modifications to align with the heating zone of Williams properly, such a modification similarly does not require undue experimentation. A POSITA would understand that effective heat distribution is partly accomplished by the burner hole designs. The placement of the burner holes, and thereby the flame, is one way of directing heat to its intended areas.

567. For example, a POSITA would be motivated to place the burner holes only along the portion of the burner within the heating chambers (20) of Williams, and not place any burner holes along the portion of the burner that extends into flue (18) where combustion gases are exhausted from the cooking device. *See Williams* at Figs. 2 and 3.

- c) **[1.3] a griddle sized to be suspended by the frame to be positioned on the upper portion of the frame, the griddle having a cooking surface and an underside surface, the underside surface extending to define a rectangular shape with a front end, a rear end, a left end, and a right end;**

568. Williams, in view of May, teaches limitation [1.3], which requires “a griddle sized to be suspended by the frame to be positioned on the upper portion of the frame, the griddle having a cooking surface and an underside surface, the underside surface extending to define a rectangular shape with a front end, a rear end, a left end, and a right end.”

569. As illustrated in annotated figure 2, below, Williams discloses a griddle with rectangular cooking and underside surfaces (12 shown in blue) configured to be suspended by the frame (14). Williams at Fig. 2, Fig. 3 and 2:8-12.



Williams Annotated Figure 2

570. The frame (14) includes an upper portion, colored dark green, that allows the griddle to be suspended when fully assembled. Williams at Fig. 2, Fig. 3 and 2:8-12. A POSITA would understand that griddle is sized so as to properly align with the dark green portion of frame (14).

571. Williams further provides that the griddle is sometimes referred to as the “cooking surface” or “griddle surface.” Williams at 2:8-12. As illustrated in annotated figure 2, above, the griddle includes an underside surface and is rectangular in shape with a front end, a rear end, a left end, and a right end. Williams at Figs. 1-3 and 2:8-12.

- d) **[1.4] the griddle including a front rib and multiple lateral ribs, the front rib extending along the front end of the underside surface, and the multiple lateral ribs extending along the underside surface from the front rib to the rear end of the underside surface, the multiple lateral ribs being spaced from each other so as to define multiple heating regions such that each heating region is defined between adjacently extending lateral ribs;**

572. Williams, in view of May, teaches limitation [1.4], which requires “the griddle including a front rib and multiple lateral ribs, the front rib extending along the front end of the underside surface, and the multiple lateral ribs extending along the underside surface from the front rib to the rear end of the underside surface, the multiple lateral ribs being spaced from each other so as to define multiple heating regions such that each heating region is defined between adjacently extending lateral ribs.”

573. As illustrated in annotated figure 2, below, Williams discloses a griddle (e.g., cooking surface 12) a front rib (e.g., “front dam” 42), extending along the front end of the underside surface of the griddle, and multiple lateral ribs (e.g., “sidewalls” 44) extending along the underside surface of the griddle from the front rib to the rear end. Williams at Fig. 2; 1:35-38, *see also* 2:41-44 (providing “upper zone 40 is generally defined by the underside of the cooking surface 12 and flow-restricting walls, specifically a front dam wall 42, a rear dam wall 46, and sidewalls 44 associated therewith.”)

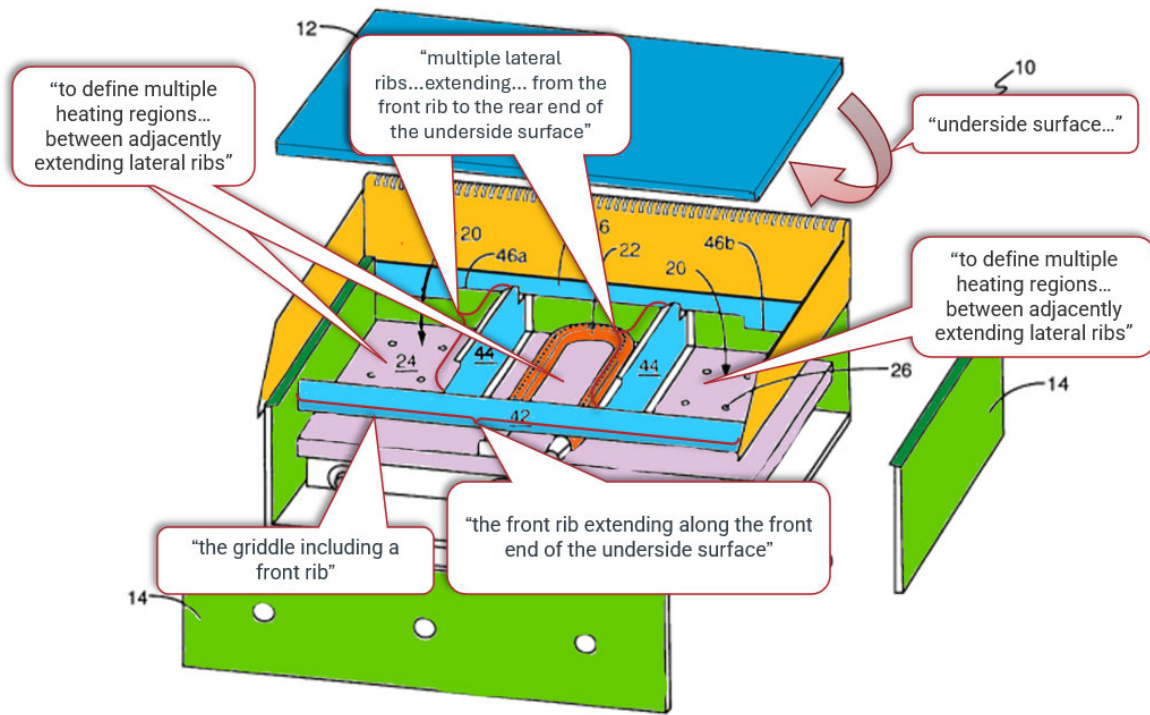


FIG. 2

Williams Annotated Figure 2

574. As shown in annotated figure 2 above, the multiple heating regions are separated by the multiple lateral ribs (44). Specifically, “upper zones 40 of adjacent heating chambers 20 may utilize opposite sides of an otherwise common sidewall 44, [f]urther, the front dam 42 and the rear dam 46 of the various heating chambers 20 may simply be laterally different portions of respective continuous wall elements if desired.” Williams at 2:57-62; 4:51-65 and Fig. 2.

- e) **[1.5] each of the heating regions includes one of the multiple burners positioned below one of the multiple heating regions;**

575. Williams in view of May discloses limitation [1.5] which requires “each of the heating regions includes one of the multiple burners positioned below one of the multiple heating regions.”

576. Williams discloses a burner 22 positioned below what Williams describes as the “upper zone” which is a heating region since hot combustion gases are trapped in Williams’s upper zone to heat the underside of the griddle. Williams at Fig. 3, 2:39-44, 3:52-62. While Williams depicts three heating regions, only one burner is shown. A POSITA would appreciate a burner would be included in each of the heating regions shown in Williams figures 2 and 3. Williams at Fig. 2, Fig. 3, 1:10-14 (describing that “gas-fired griddles, commonly utilize multiple burners located in various locations beneath the heated surface”); *see also* 4:51-65 (describing that “cooking device...with more heating chambers 20 and corresponding burners 22.”).

577. As previously discussed, the shape of the burner is not material to the operation of Williams. Thus, Williams teaching regarding the location of the burner would apply equally when a straight burner as taught by May is utilized in the Williams cooking device. A POSITA would understand that each heating chamber in Williams could have its own individual straight tube burner or that each heating chamber could have multiple straight tube burners all under their respective heating

regions. The number of straight tube burners used for each heating chamber would depend on the size of the heating chamber, the heat output of the straight tube burner, and desired operating temperatures of the griddle.

- f) **[1.6] each of the lateral ribs extend downward from the underside surface a height so as to funnel convection heat from any one of the multiple burners toward the rear end of the underside surface of the griddle and from the rear side of the frame;**

578. Williams in view of May discloses limitation [1.6] which requires “each of the lateral ribs extend downward from the underside surface a height so as to funnel convection heat from any one of the multiple burners toward the rear end of the underside surface of the griddle and from the rear side of the frame.”

579. Specifically, Williams discloses that “[t]he upper zone 40 is generally defined by the underside of cooking surface 12 and flow-restricting walls, specifically a front dam wall 42, a rear dam wall 46, and sidewalls 44 associated therewith.” Williams at 2:41-44. The sidewalls (44) are lateral ribs that run from the front dam wall to the rear dam wall. Williams at 2:39-44 and 3:65-4:2. Williams goes further to provide that, “[a]t least the front dam 42 and the rear dam 46 are downwardly extending, thereby extending generally away from the underside of the cooking surface 12.” Williams at 2:44-47.

580. While Williams only explicitly provides that the front (42) and rear dams (46) are “downwardly extending,” a POSITA would also read the disclosure

of “[a]t least the front dam 42 and the rear dam 46 are downwardly extending, thereby extending generally away from the underside of the cooking surface 12” to mean other components, such as sidewalls (44) may also be optionally downwardly extending from the underside surface of the griddle and thus “fixed” or “integral” to the underside surface of the griddle. Williams at 2:44-47 (emphasis added).

581. Williams further describes that the upper zones’ sidewalls (44) and downwardly extending dam walls (42 and 46) cooperate to create the low flow zones beneath the griddle surface (12). Williams at Abstract. Moreover, these features from Williams create “a more uniform layer of hot combustion gases to be formed along the underside of the griddle surface, thereby more evenly delivering heat to the griddle surface.” Williams at Abstract.

582. Extending the sidewalls downward from the underside of the griddle would help achieve these intended functions in Williams cooking device. Williams describes that “[t]he hot combustion gases tend to rise within the heating chamber 20, but there is a significant front-to-back flow within the burner zone 30 caused by natural drafting, . . . [a] portion of the hot combustion gases flow relatively directly out the exhaust located at the rear of each heating chamber 20.” Williams at 3:20-51; *see also* Williams at 3:52-56 (describing that “[i]n order to combat this, another portion of the hot combustion gases generated by the burner 22 is at least transiently dammed within the upper zones 40 beneath the cooking surface 12.”)

583. Accordingly, a POSITA would understand Williams teaches the presence of the perimeter wall, including the front dam (42), rear dam (46), and sidewalls (44), helps create the upper zone (40) where the portion of the hot combustion gases are at least temporarily trapped while being funneled toward the rear end of the griddle's underside surface before they exit from the rear of the cooking device. Williams at 3:57-4:2.

584. In reviewing annotated figure 3, a POSITA would appreciate the cooking system disclosed in Williams uses multiple burners (22) in combination with the physical structure of the front rib (42) and lateral ribs (44). *See Williams at Fig. 3.*

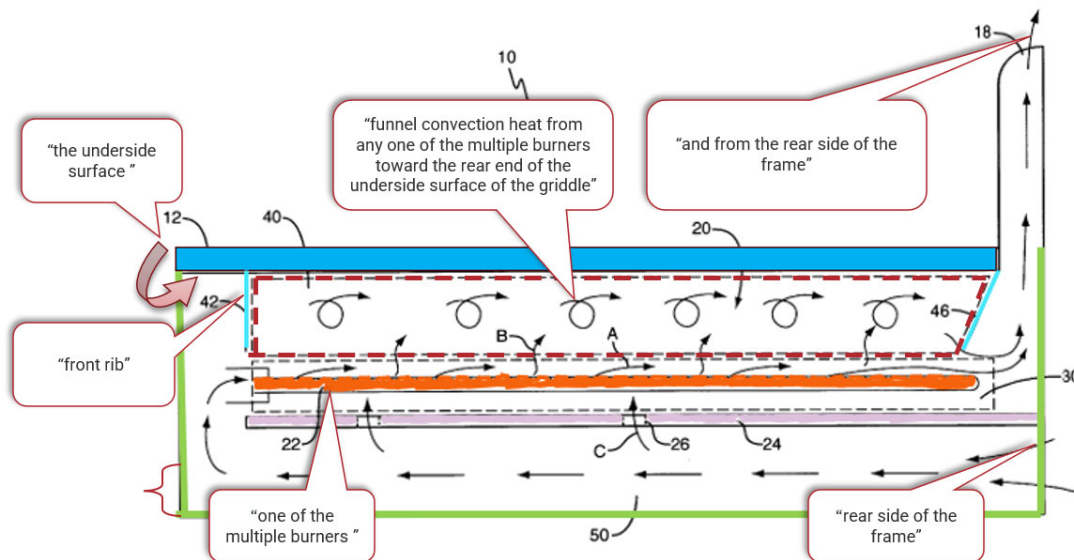


FIG. 3

Williams Annotated Figure 3

585. Moreover, a POSITA would understand the equivalent height of each rib serves as an air dam/seal, ensuring heated air is retained in its respective heating chamber and cannot escape through gaps/seams in the joined structure to adjacent heating chambers. Williams at 2:39-44 and 3:62-4:2 (describing that once the “gas within the upper zone 50 has cooled, it descends below the lower edge 46 a,b of the rear dam 46, joins the flow from the burner zone 30, and is carried out the flue 18.”).

586. Accordingly, a POSITA would understand Williams discloses that the convection heat trapped in a heating chamber by the sidewalls moves from any one of the multiple burners toward the rear end of the underside surface of the griddle and from the rear side of the frame (e.g., out the flue (18)).

- g) **[1.7] wherein the front rib and the multiple lateral ribs are integrally formed with the underside surface of the griddle;**
- h) **[1.8] and wherein the multiple lateral ribs directly extend from the underside surface of the griddle such that each lateral rib is spaced and separate from an adjacent lateral rib.**

587. As discussed above, Williams in view of May teaches limitations [1.0] through [1.6]. The motivation to combine Williams and May is discussed above in Ground 4 and is equally applicable herein. As such, please see Ground 4 for the specific motivation for combining the burner assembly from May with the cooking device of Williams and the integral lateral ribs of Farnsworth.

588. As to claim limitations [1.7] and [1.8], Farnsworth explicitly teaches these limitations. Williams and Farnsworth are analogous because both teach griddles that use gas-fired burners to heat multiple heating zones or chambers across a cooking surface. *See* Williams at Abstract; Farnsworth at 2:57-3:34. To provide a more uniform heating of a griddle surface, Williams and Farnsworth utilize a plurality of burners positioned within heating chambers below the griddle's surface creating heat zones which can be controlled independently of each other. Williams at 1:27-31; Farnsworth at 3:20-24.

589. Farnsworth provides a “substantially even distribution of heat over a cooking surface of a griddle top.” Farnsworth at 1:50-52. The “plurality of ports having an orientation . . . so as to produce flames generally directed toward the rear of the griddle top.” Farnsworth at 2:1-6. To further direct the flames toward the rear of the griddle top, the angle of the ports “assists in exhausting combustion gases toward the rear of the griddle” where gases exit through a flue. Farnsworth at 2:14-18.

590. To achieve the objective of creating a substantially uniform heating surface, laterally extending baffles or ribs are attached to the griddle, thus further assisting in reducing the temperature variations over the surface. Farnsworth at 2:27-29 and 3:15-19.

591. In Farnsworth, “**laterally extending baffle[s] (30)** [are] attached to the bottom surface (26) of the upper plate (18) and [are] positioned between each pair of burners (14).” Farnsworth at 3:15-19 (emphasis added).

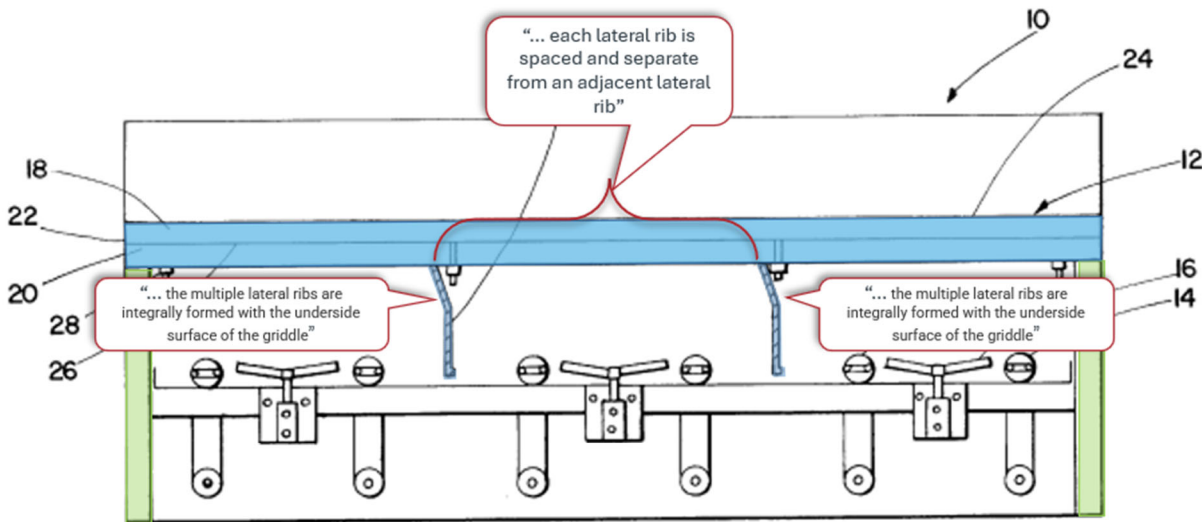


Fig. 1

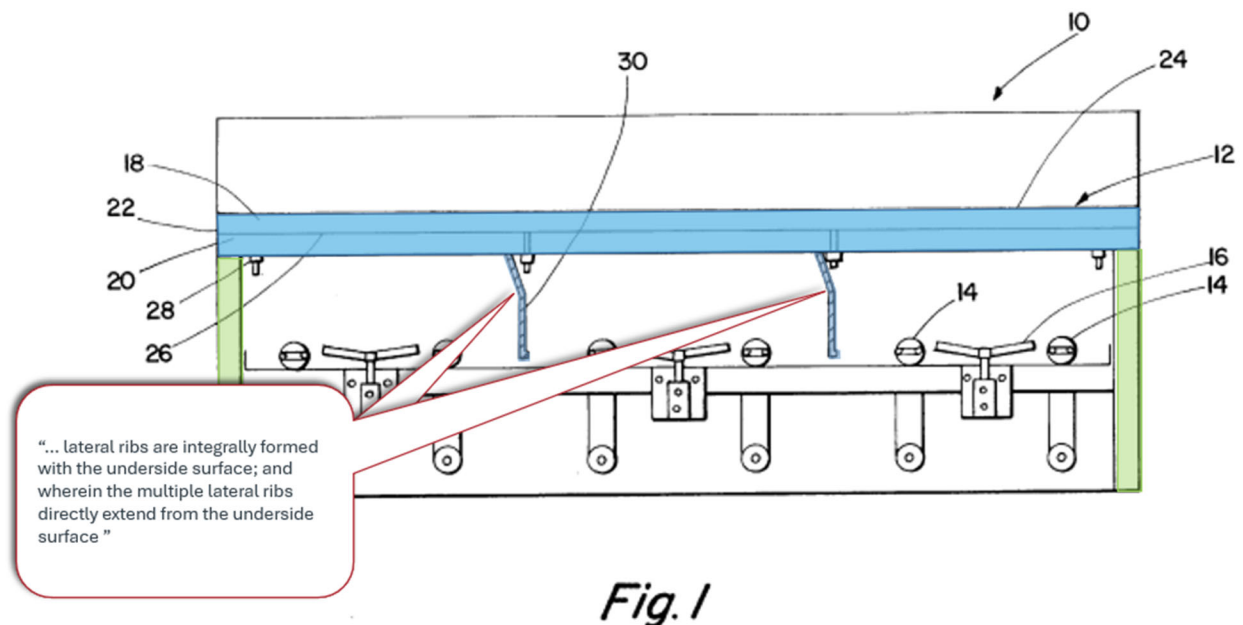
Farnsworth Annotated Figure 1

592. Accordingly, a POSITA would understand Farnsworth teaches laterally extending ribs (30) integrated with the underside of the griddle, spaced and separate from the adjacent lateral ribs. Specifically, a POSITA would understand the laterally extending ribs are attached to griddle plate, as illustrated in annotated Fig. 1, and therefore, integral to the plate or griddle.

593. As discussed above in Ground 3, a POSITA would recognize that the baffles/lateral ribs of Farnsworth would be subject to heat induced stresses that may

induce deformation as different portions the baffles expand and contract at different rates depending on the heat they are subjected to.

594. To account for this, a POSITA understands Farnsworth leaves a small air gap. Farnsworth at Fig. 1. This deformation of the baffles would be smallest where the baffles are integrated with the other griddle structures, such as where baffle (30) integrates with the underside of the griddle plate (26). *See Farnsworth at Fig. 1.*



Farnsworth Annotated Figure 1

595. This configuration of lateral ribs taught by Farnsworth, in conjunction with the front dam (42) and rear dam (46) of Williams, improves the isolation of the hot combustion gases that collect at the top of the heating zones and prevents any gaps between Williams's lateral rib and the underside of the Williams griddle.

596. Additionally, the laterally extending baffles of Farnsworth serve the same purpose as the lateral extended ribs of Williams to isolate heat in different cooking zones. The baffles (30) of Farnsworth would attach to the underside of Williams griddle. The location and space occupied by Farnsworth's baffles would be substantially the same as the location and space already occupied by Williams's sidewall (44). As such, the laterally extending baffles of Farnsworth would be a simple substitution for the lateral ribs of Williams.

597. Therefore, the combination of Williams and Farnsworth would be obvious. In addition, the baffles of Farnsworth would still allow Williams's griddle plate to be removed and the area of the heating zone to be easily accessed for cleaning and maintenance.

- i) **Claim 2. The cooking system of claim 1, wherein the front rib substantially blocks convection heat from escaping from the front side of the frame.**
- j) **Claim 3. The cooking system of claim 1, wherein the adjacently extending lateral ribs are sized to substantially prevent convection heat from moving over the adjacently extending lateral ribs and directly, convectively heating adjacent heating regions.**
- k) **Claim 4. The cooking system of claim 1, wherein the adjacently extending lateral ribs are sized to substantially maintain convection heat between the adjacently extending lateral ribs to only convectively heat the corresponding heating region between the adjacently extending lateral ribs.**

598. Williams in view of May, and further in view of Farnsworth disclose each of the limitations of claim 1. Williams in view of May, and further in view of Farnsworth also disclose each of the limitations from claims 2, 3, and 4.

599. Specifically, Williams describes an upper zone is defined by the underside of the griddle and “flow-restricting walls”, specifically a front dam wall (42), a rear dam wall (46), and sidewalls (44). Williams at Fig. 3 and 2:39-47. The “front dam 42, rear dam 46, and sidewalls 44,” provide heating chambers in the upper zone where a “portion of the hot combustion gases are at least temporarily trapped.” Williams at 3:57-4:2. These flow-restricting walls substantially reduce the front-to-back flow rate of heated gas in the upper zone of each heating chamber to evenly heat the respective area of the griddle. Williams at 4:2-13.

600. As shown in annotated Figure 3 below, the front dam wall (42) is a front rib that acts to substantially block convection heat or trap heat from escaping from the front side of the frame. Williams at Fig. 3.

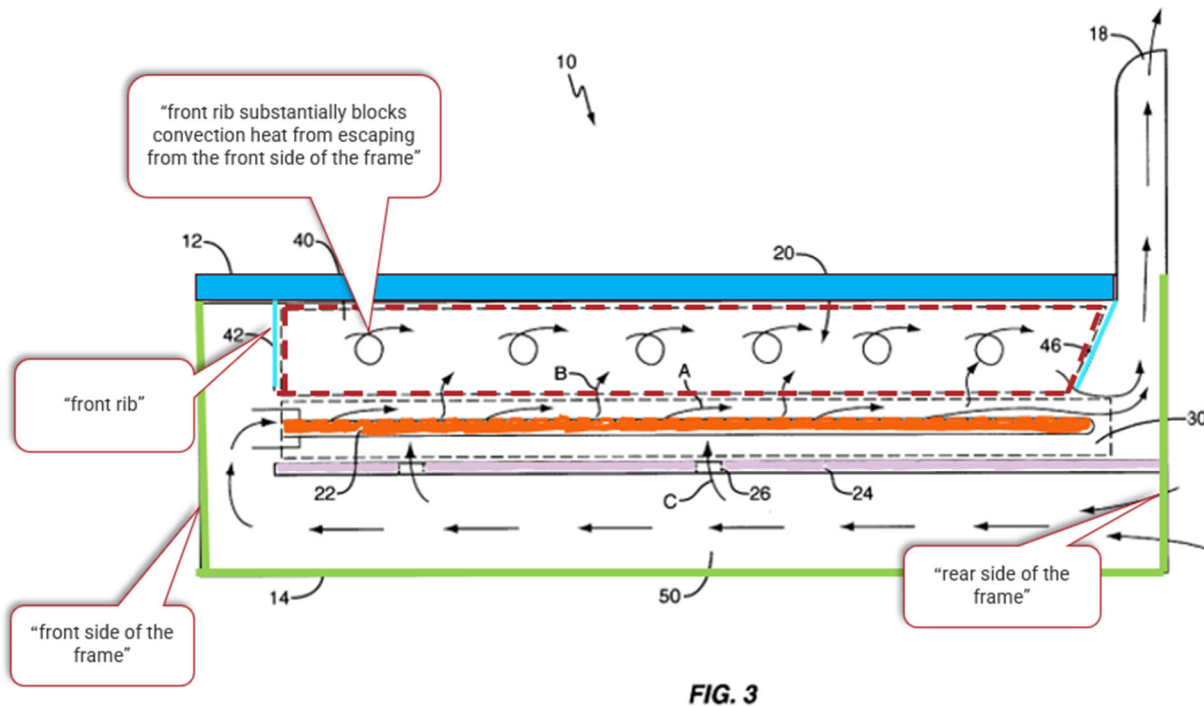


FIG. 3

Williams Annotated Figure 3

601. As seen in annotated Figure 3, no air flow is indicated to pass through front wall (42), but rather exits the heating chamber only by passing below rear wall (46) to the exit flue (18). Williams at 3:39-44 and 3:62-4:2. As discussed above, this results in a low front-to-back flow rate of the heated gas in the upper zone (40) where the heated gas becomes "dammed, stagnant, or trapped" in the upper zone to evenly heat the griddle area above the heating chamber. Williams at 3:57-4:13.

602. Williams also describes how the perimeter of the upper zone of the heating chamber comprises adjacent sidewalls (44) that cooperate with the front wall (42) and rear wall (46) to trap hot combustion gases within upper zone (20) to substantially maintain the heat between the adjacent sidewalls. Williams at Abstract, 1:26-46 and 3:57-4:13. A POSITA understands Williams's adjacent sidewalls (44) would be sized to substantially prevent the flow of hot combustion gases out of the sides of the upper zone since Williams discloses the hot combustion gases exit via going below rear dam (46) into flue (18). Williams at 3:39-44 and 3:62-4:2. As such, the adjacent sidewalls (44) prevent the convective heat in the form of hot combustion from moving into an adjacent heating chamber and directly convectively heating an adjacent heating chamber.

603. Further, as explained in Williams, there is "significant front-to-back flow" that causes the hot combustion gas to exit the rear of the griddle into flue (18). Williams at 2:16-23, 3:34-44. This significant directional flow from front-to-back would likewise prevent the flow of hot combustion gasses over the sidewalls.

604. In addition, as previously explained with respect to claim 1, it was obvious in view of Williams to integrate the sidewalls (44) with the underside of the griddle. When the sidewall is integral with the underside of the griddle, it would prevent the movement of hot gases over the sidewalls so that no convective heat from one chamber would move into another chamber directly heating it.

605. Because the sidewalls (44) in Williams prevent the flow of hot combustion gases outside of their respective heating chamber, the sidewalls only convectively heat the upper zone within their respective heating chamber. The ensures an even heating surface on the griddle above the heating region. Williams at 4:2-13. Furthermore, Williams teaches heating regions can be further isolated to prevent movement of convective heat by not using a common sidewall for adjacent heating chambers. Williams at 2:17-23 and 2:57-59. When a common sidewall is not used, air or other insulative material can be interposed between the sidewalls of adjacent heating chambers to prevent the movement of convective heat from one heating chamber to another.

606. For at least the reasons described above, the use of the baffles as disclosed by Farnsworth in place of Williams sidewalls would not materially alter the airflow in Williams cooking device.

I) Claim 7. The cooking system of claim 1, wherein the front rib and the lateral ribs facilitate channeling convection heat to a rear side of the frame.

607. Williams in view of May, and further in view of Farnsworth discloses each of the limitations of claim 1. Williams in view of May, and further in view of Farnsworth similarly discloses the limitations of claim 7 requiring “wherein the front rib and the lateral ribs facilitate channeling convection heat to a rear side of the frame.”

608. Specifically, Williams describes an upper zone in Williams is defined by the underside of the griddle and “flow-restricting walls”, specifically a front dam wall (42), a rear dam wall (46), and sidewalls (44). Williams at Fig. 3 and 2:39-47. The “front dam 42, rear dam 46, and sidewalls 44,” provide heating chambers in the upper zone where a “portion of the hot combustion gases are at least temporarily trapped” until they exit the rear side of the frame. Williams at 3:57-4:2.

609. As seen in annotated Figure 3 below, no air flow is indicated to pass through front, rear, or sidewalls but rather exits the heating chamber only by passing below rear wall (46) to the exit flue (18). Williams at Fig. 3, 3:35-44 and 3:62-4:2.

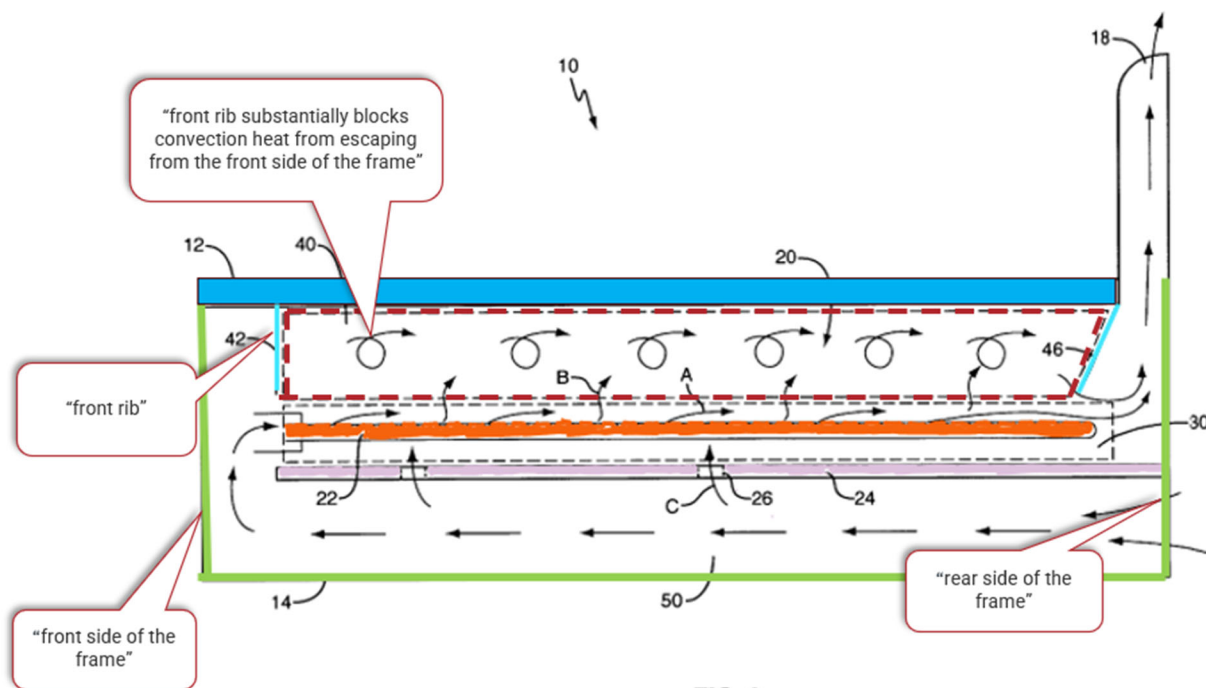


FIG. 3

Williams Annotated Figure 3

610. Additionally, the rear wall of flue (18) comprises the rear frame of Williams's cooking device.

611. For at least the reasons described above, the use of the baffles as disclosed by Farnsworth in place of Williams sidewalls would not materially alter the airflow in Williams cooking device and these laterally extending baffles would further facilitate channeling convection heat to a rear side of the frame.

m) Claim 16. The griddle of claim 15, wherein the splash guard includes a hinge structure, the hinge structure configured to pivotably couple to a cover of the cooking station.

612. Williams in view of May, and further in view of Farnsworth similarly disclose the limitations of claim 16 requiring "the splash guard includes a hinge structure, the hinge structure configured to pivotably couple to a cover of the cooking station."

613. guard extending upward above a periphery of the cooking surface."

614. More specifically, May teaches a splash guard with a hinge structure for pivotably coupling to a cover of a cooking station. May at [0003]; *see also* [0046]. In May, the lid 32 is coupled to a right peripheral and left peripheral splash guard. May at Fig. 1.

615. Williams already teaches the limitations of claim 15 including a right and left splash guard as explained above, it would be obvious to couple the splash guard to a lid as illustrated in annotated Figure 1. May at Fig. 1.

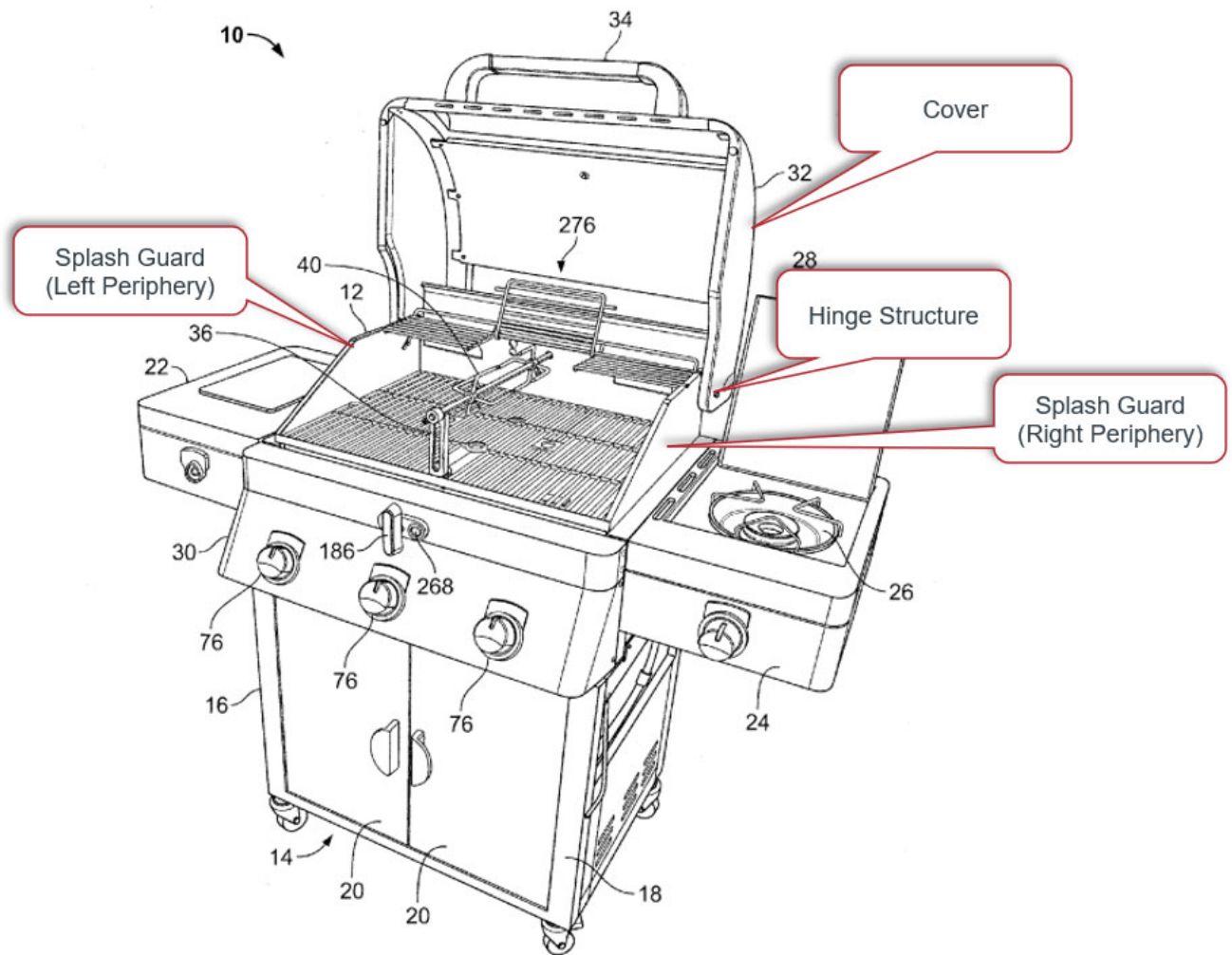


FIG. 1

May Annotated Figure 1

616. A POSITA would be motivated to include the lid structure in the cooking device described in the combination of Williams and May since there many advantages for including a lid.

617. For instance, a POSITA would recognize the benefits of including a lid when Williams griddle device is used in an outdoor setting to prevent wind from

blowing leaves, dirt, bugs or other foreign material onto the food. *see* Williams at claim 17.

618. A closed lid would also trap convective heat and prevent the heat from radiating away from the griddle surface. This would help cook portions of the food more evenly whether the griddle was used indoors or outdoors. Finally, a lid would also protect Williams griddle surface when used outdoors.

619. For at least the reasons described above, Williams in view of May and further in view of Farnworth discloses the limitations of claim 16

VIII. OATH

I declare that all statements made herein of my own knowledge are true and that all statements made on information and belief are believed to be true; and further that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under Section 1001 of Title 18 of the United States Code.

Dated: 3/21/24

By: 