UNITED STATES PATENT AND TRADEMARK OFFICE

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BEFORE THE PATENT TRIAL AND APPEAL BOARD

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DUKE MANUFACTURING CO.
Petitioner

v.

MARMON FOODSERVICE TECHNOLOGIES, INC.
Patent Owner

_____

Case: IPR2026-00481
Patent No. 9,980,322

DECLARATION OF GLENN VALLEE

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1.P: a multi-zone food holding bin comprising: 86
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1.b.1: a first food holding compartment within the chassis 90
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Emphasis added throughout unless indicated otherwise.

DECLARATION OF GLENN VALLEE

I, Glenn Vallee, hereby declare as follows:

I. INTRODUCTION

1. I am currently the Owner and Principal Engineer of G. Vallee Consulting, LLC and I hold the rank of Professor Emeritus at Western New England University where I was formerly an Associate Professor and Chair of Mechanical Engineering.

2. I have a Ph.D. in Mechanical Engineering from the University of Rhode Island and my Ph.D. dissertation research focused on the use of polymeric materials in pneumatic nailers.

3. 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. 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. I have an extensive background and understanding of the principles and processes involved with the field of technology of U.S. Patent No. 9,980,322 ("the '322 Patent").

5. I am an inventor on nine patents, including an electrical power strip, water purification, pneumatic nailers and surgical devices.

6. As the Owner and Principal Engineer of G. Vallee Consulting, I 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 and patent litigation.

7. Amongst the mechanical engineering design and product development projects I have been retained for, in one of my projects I was retained by a local inventor to serve as an advisor to a project involving the design of a two compartment, heated food holding bin aimed at maintaining the temperature of fast food (pizza, burgers, etc.) delivered by motorcycle. The device utilized two ceramic heating elements, programmable temperature control, and an onboard power supply.

8. I have testified before the ITC twice in patent related matters and I have supported over 20 IPR matters before the PTAB.

9. I have also provided testimony related to a wide variety of products, some of which utilize heating elements such as e-cigarettes, and others related to cooking, such as barbecue grilles.

10. I have also been retained as a technical expert in several patent cases related to the food industry. Products included salad spinners, water bottles, and grilles, such that I am familiar with material selection considerations in this area as well.

11. As an Associate Professor of Mechanical Engineering, I taught courses in Mechanical Design, Materials Science, 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 PDI course, and many of the products that were developed related to kitchen applications and heating elements, including: an automatic cleaning device for microwave ovens, a temperature indicating cooking pan, and an improved efficiency electric oven.

12. I have also served as the faculty advisor to over 100 capstone senior design projects, one of which dealt with maintaining food temperature.

13. 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, and products utilizing heating elements, such as hair dryers and hair setters. 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.

14. 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, and electric pencil sharpeners. 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, most of which required the design of fluid containment systems and methods of sealing. As the Manager of the Engineering Laboratories, I managed the largest of the Engineering Laboratories in 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.

15. EX1004 is a copy of my curriculum vitae, which further expands on my qualifications and expertise and includes a list of my publications and prior testimony over the past five years.

16. I am being compensated at $450/hour. My compensation is in no way dependent on the outcome of this proceeding, and my compensation in no way affects the substance of my statements and opinions in this Declaration.

17. In providing the testimony set out in this declaration, I have reviewed the figures, specification, and claims of the ’322 Patent and the file history of the ’322 Patent. I have also reviewed the following documents:

Exhibit No.	Description
1001	U.S. Patent No. 9,980,322
1002	Prosecution History of the ’322 Patent
1005	Infrared Heatsink Holding Unit Operators Manual (“IRHS Manual”)
1006	Infra Red Heat Sink Specifications (“IRHS Specifications”)
1007	bk.dukemfg.com (“Duke Website”)
1008	Infrared Heatsink Holding Unit Service Manual (“IRHS Service Manual”)

Exhibit No.	Description
1009	Prince Castle Holding Bins (“Prince Castle”)
1010	U.S. Patent Publication No. 2010/0288748 (“Fortmann’748”)
1011	U.S. Patent Publication No. 2016/0073821 (“Shei’821”)
1012	U.S. Patent Publication No. 2007/0108178 (“Jones”)
1013	U.S. Patent Publication No. 2009/0126580 (“Hartfelder”)
1014	U.S. Patent No. 10,258,197 (“Fortmann’197”)
1015	U.S. Patent Publication No. 2008/0302778
1016	U.S. Patent Publication No. 2004/0069155 (“Shei’155”)
1017	U.S. Patent No. 6,175,099 (“Shei’099)
1018	U.S. Patent No. 5,852,967 (“Fortmann’967”)
1019	U.S. Patent No. 6,658,994 (“McMillan”)
1020	U.S. Patent Publication No. 2011/0114618
1021	U.S. Patent Publication No. 2011/0114624
1022	U.S. Patent Publication No. 2011/0252813 (“Veltrop”)
1023	U.S. Provisional Patent Application No. 62/193,992 (“the ’992 Provisional”)
1024	U.S. Patent No. 6,119,587
1025	U.S. Patent No. 3,461,275 (“Poole”)
1026	U.S. Patent No. 7,258,064 (“Vaseloff”)
1027	U.S. Patent Publication No. 2014/0130684 (“Reese”)

Exhibit No.	Description
1028	Merco Holding Cabinets
1029	U.S. Patent No. 6,011,243

18. In forming my opinions, I have relied upon various legal principles as explained to me by Duke's counsel. My understanding of these principles is summarized below.

19. I understand that in patent law, a patent's claims define the scope of protection for the claimed invention.

20. I understand that the validity of a patent's claims is determined on a claim-by-claim basis.

21. I understand that in this proceeding, Duke has the burden of proving that the challenged claims would have been unpatentable over the prior art by a preponderance of the evidence.

22. Grounds 1-8 assert that the claims of the '322 Patent should be invalidated as obvious over one or more combinations of prior art references.

23. I understand that a claim is unpatentable as obvious if the differences between the claimed subject matter and the prior art are such that the subject matter, as a whole, would have been obvious to a hypothetical person having ordinary skill in the art before the effective filing date and who is presumed to have known the relevant prior art.

24. I understand that the question of obviousness is resolved based on underlying factual determinations, including: (1) the scope and content of the prior art; (2) any differences between the claimed subject matter and the prior art; (3) the level of ordinary skill in the art; and (4) objective evidence of non-obviousness.

25. I further understand that for each of the obviousness grounds, Duke must demonstrate a person of ordinary skill would have: (1) a motivation to combine the teachings of the relevant references and (2) a reasonable expectation of success of developing the claimed invention.

26. I understand that a motivation to combine the teachings of the relevant references may come from, but is not limited to: teachings, suggestions, or motivations found in the prior art; the nature of the problem; or the knowledge of a person having ordinary skill in the art.

27. I understand that the United States Patent and Trademark Office ("USPTO") will interpret the claims of the '322 Patent as they would have been understood by those of ordinary skill in the art as of the filing date of the '322 Patent in view of the claim language itself, the specification and figures of the '322 Patent, the prosecution history of the '322 Patent, and other relevant evidence showing how one of ordinary skill would have understood the language.

28. In forming my opinions, I have applied the understanding of one of ordinary skill in the art working at the time of the invention claimed in the '322

Patent, *i.e.*, shortly prior to April 19, 2016.

29. The person having ordinary skill in the art ("POSA") would have an engineering degree and/or 4 years experience in the design and/or manufacture of food service equipment. The POSA would have been familiar with existing designs of food service equipment in 2016—including food holding cabinets—and would have known how to modify food service equipment designs and incorporate features based on various design criteria. As the claimed invention contains interdisciplinary aspects—namely appliance design and control systems design—the POSA may have worked as a part of a multi-disciplinary team and drawn upon not only his or her own skills, but also consulted with others on the team, having specialized skills.

30. In my opinion, the level of ordinary skill is not determinative, as those of less or more skill would also find the claims to be unpatentable.

II. BACKGROUND OF THE '322 PATENT

31. The '322 Patent pertains to a multi-zone food holding bin (10) for keeping food warm, as would typically be found in the kitchen of a fast-food restaurant. EX1001: Abstract, 1:55-56.

32. The food holding bin (10) has two food holding compartments (50), with each food holding compartment having two or more food holding zones (51a-

d). EX1001: 1:55-64. Each food holding zone (51a-d) can receive a food tray (27) containing food. EX1001: 3:55-57.

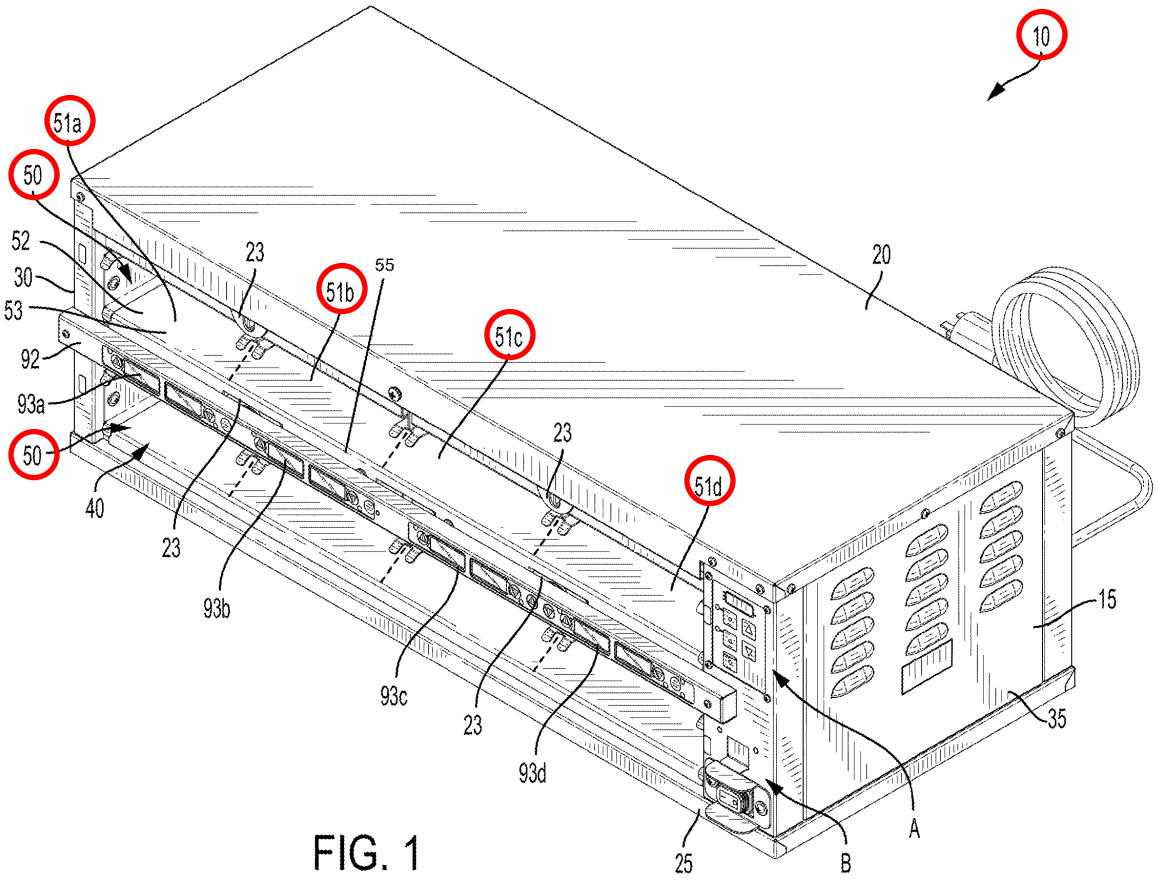


FIG. 1

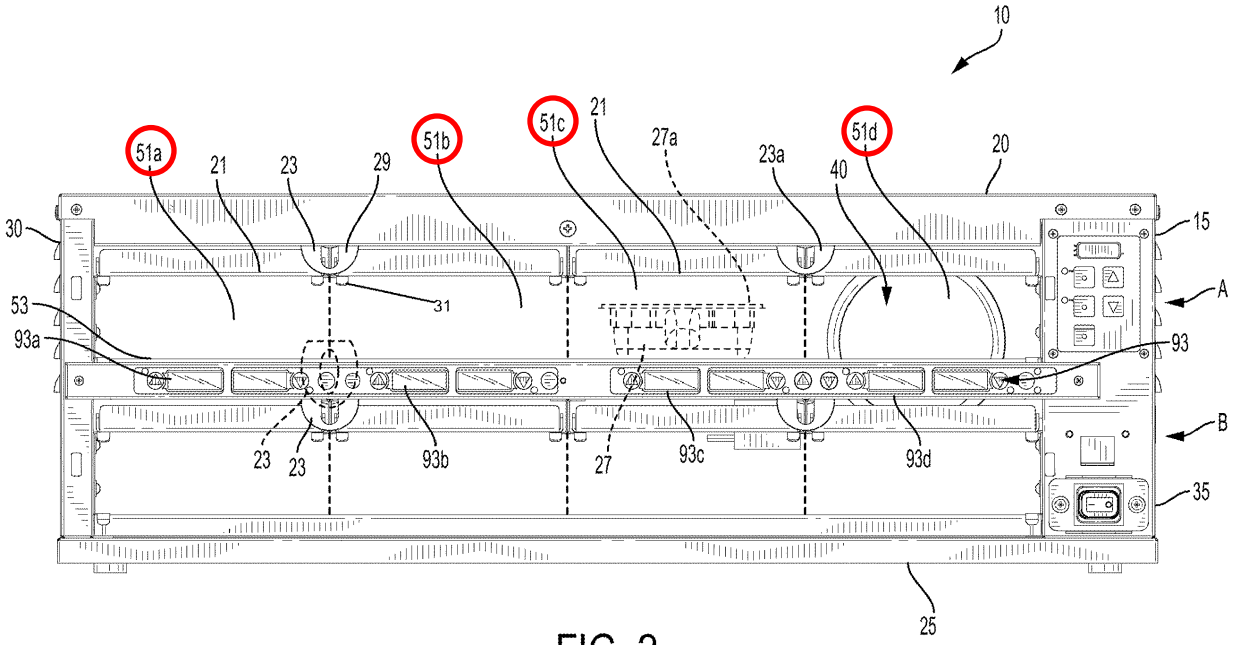


FIG. 2

EX1001: Figs. 1 and 2 (annotated).

33. The food holding zone (51a-d) can be set at different temperatures. EX1001: 2:2-6. To this end, the food holding bin (10) includes dedicated independently controllable heating elements (65, 67) for each food holding zone (51a-d). EX1001: 6:27-46. Each food holding zone is heated from below by a dedicated lower heating element (67) and heated from above by a dedicated upper heating element (65). EX1001: 6:27-46.

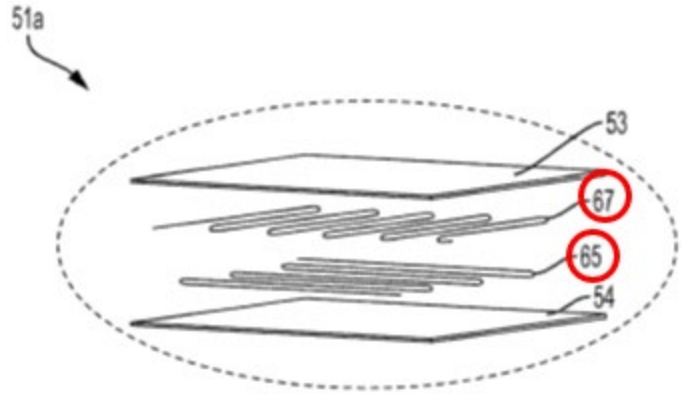


FIG. 4B

EX1001: Fig. 4B (annotated).

34. Other features recited by the claims of the ’322 Patent include shelves (31) for supporting lids (21) that cover the food tray (27) in the food holding zone and latches (23) for retaining the lids on the shelves. EX1001: 3:55-57, 4:6-7.

35. In general and in my opinion, the claims of the ’322 Patent mix and match independent features and design choices that were each already well known in the art (e.g., number and configuration of food holding compartments, location and configuration of heating elements, inclusion of shelves and latches to hold and secure lids, and independent temperature control of the heating elements). These features are combined according to their established functions and yield predictable results.

A. Prosecution History of the ’322 Patent

36. I understand that the application that turned into the ’322 Patent was filed on April 19, 2016. EX1002: 451.

37. The Examiner issued an Office Action on October 7, 2016, rejecting the claims as anticipated by U.S. Patent No. 7,905,173, and obvious over U.S. Patent Nos. 7,905,173, 7,385,160, and 7,105,779. EX1002: 360-368.

38. In response, the claims were amended to add the limitation "the continuous and planar surface extending completely to the front face of the chassis." EX1002: 91-95. The applicant explained that the present application pertains to a "multi-zone food holding bin 10 includes a first food holding compartment 50 that includes a continuous and planar bottom surface 53 that extends completely to a front face 40 of a chassis 15 that forms the first food holding compartment 50, as illustrated in FIG. 1." EX1002: 97.

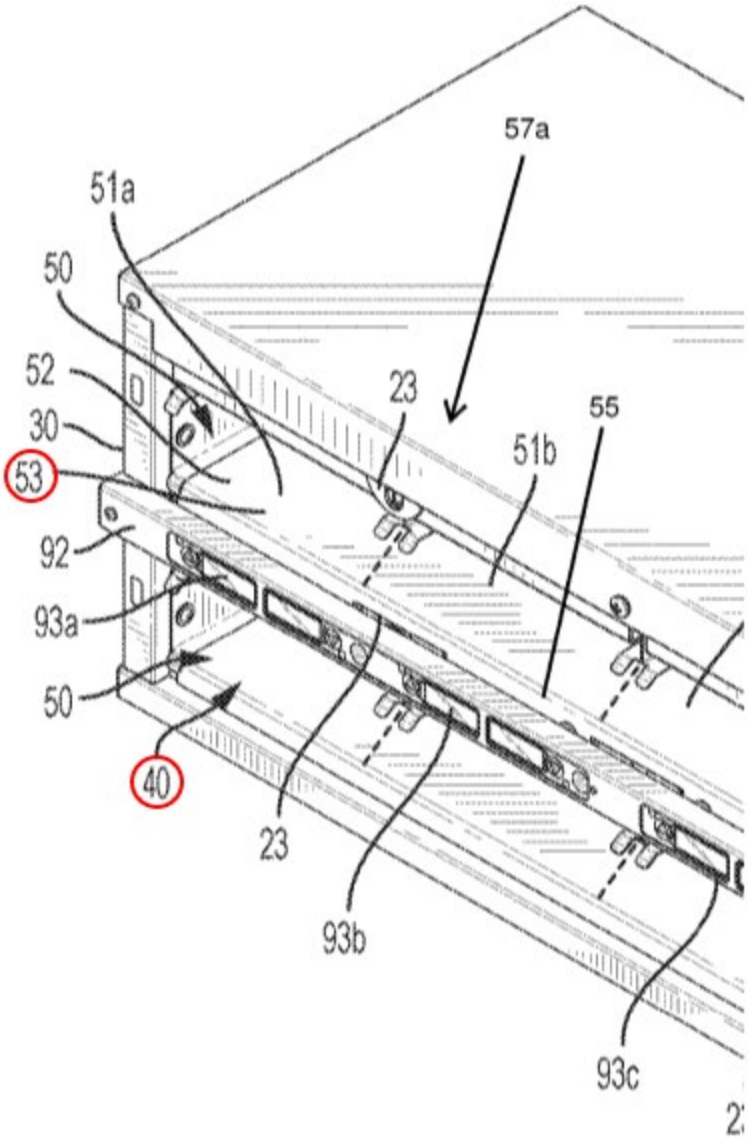
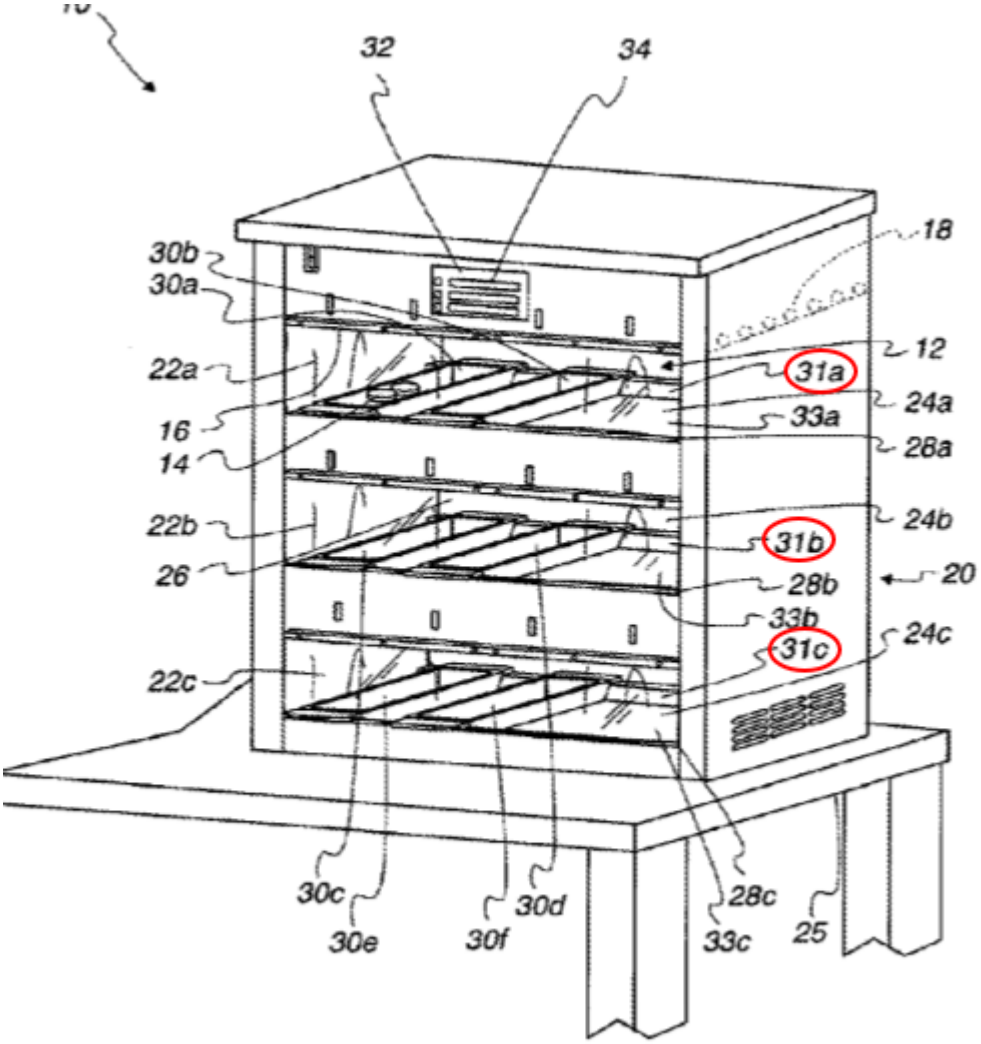


FIG. 1

EX1001: Fig. 1 (enlarged, annotated).

39. The applicant argued "[t]he compartment 12 includes a raised curb 31a-c attached to the lower surface 33a-c…. Thus, [the anticipating prior art

reference] fails to disclose or suggest a continuous and planar surface that extends completely to the front face of a chassis, as recited in the pending claims." EX1002: 99.



EX1002: 98 (annotated).

40. A subsequent Office Action was issued on April 19, 2017, rejecting the claims as anticipated by U.S. Patent No. 8,522,675, and obvious over U.S. Patent Nos. 8,522,675, 7,385,160, and 7,105,779. EX1002: 72-78.

41. In response, the applicant argued the anticipating prior art reference "fail[ed] to disclose a food holding tray disposed in the first food holding compartment, the food holding tray resting on a continuous and planar surface." EX1002: 65.

42. The Examiner withdrew the April 19, 2017 Office Action and issued another Office Action dated August 18, 2017, rejecting the claims as obvious over U.S. Patent Nos. 8,522,675, 7,905,173, 7,385,160, and 7,105,779. EX1002: 50-56.

43. In response, the applicant amended the claims to recite that "the continuous and planar surface [is] formed of a thermally conductive material,"[1] the first heating element "heats the food holding tray radiantly from above," and the second heating element "heats the food holding tray conductively from below." EX1002: 39-43. The applicant argued the prior art did not have and further taught away from these limitations. EX1002: 45-47.

44. A Notice of Allowance was issued on December 28, 2017. EX1002: 21.

[1] Further amended to specify the continuous planar bottom surface "comprised" aluminum prior toe issuance. EX1002: 10-15.

III. Background of the Art

45. Multi-zone food holding bins for keeping food warm were well known in the art. Likewise, the individual features of the multi-zone food holding bins as claimed in the ’322 Patent were previously available in the art.

46. With the exception of U.S. Patent No. 3,461,275 (“Poole”) (EX1025)—the prior art references identified in this declaration each pertain to food holding cabinets and are in the same field of endeavor with each other and with the ’322 Patent. EX1001: 1:61-2:15; EX1005: 1; EX1006: 1; EX1007: 8, 21-22, 26; EX1008: 1; EX1009: 7, 19, 36; EX1010: ¶[0002]; EX1012: ¶[0003]; EX1013: ¶[0002]; EX1014: 1:13-21; EX1016: ¶[0002]; EX1017: 1:13-15; EX1019: 1:9-14; EX1022: ¶[0010]; EX1025: 1:25-26; EX1027: ¶[0001].

47. As discussed below, the food holding cabinets of these prior art references significantly overlap as to their basic design and intended operation, while presenting interchangeable design options and part configurations regarding the various features of the food holding cabinets that could be readily mixed and matched.

48. The lone reference that is not expressly directed to a food holding cabinet—Poole (EX1025)—is instead directed to heater elements of the type that would commonly be used in kitchen appliances such as food holding cabinets and

thus is in the same field of endeavor with the other prior art references and with the '322 Patent.

1. IRHS Documents

49. The Infrared Heatsink Holding Unit Operators Manual (EX1005) ("IRHS Manual"), the Infra Red Heat Sink Specifications (EX1006) ("IRHS Specifications"), the bk.dukemfg.com (EX1007) ("Duke Website"), Infrared Heatsink Holding Unit Operators Manual (EX1008) ("IRHS Service Manual") (collectively the "IRHS Documents" and each individually as an "IRHS Document") each describe the same family of food holding units manufactured by Duke referred to as the Infrared Heatsink (IRHS) Holding Unit.

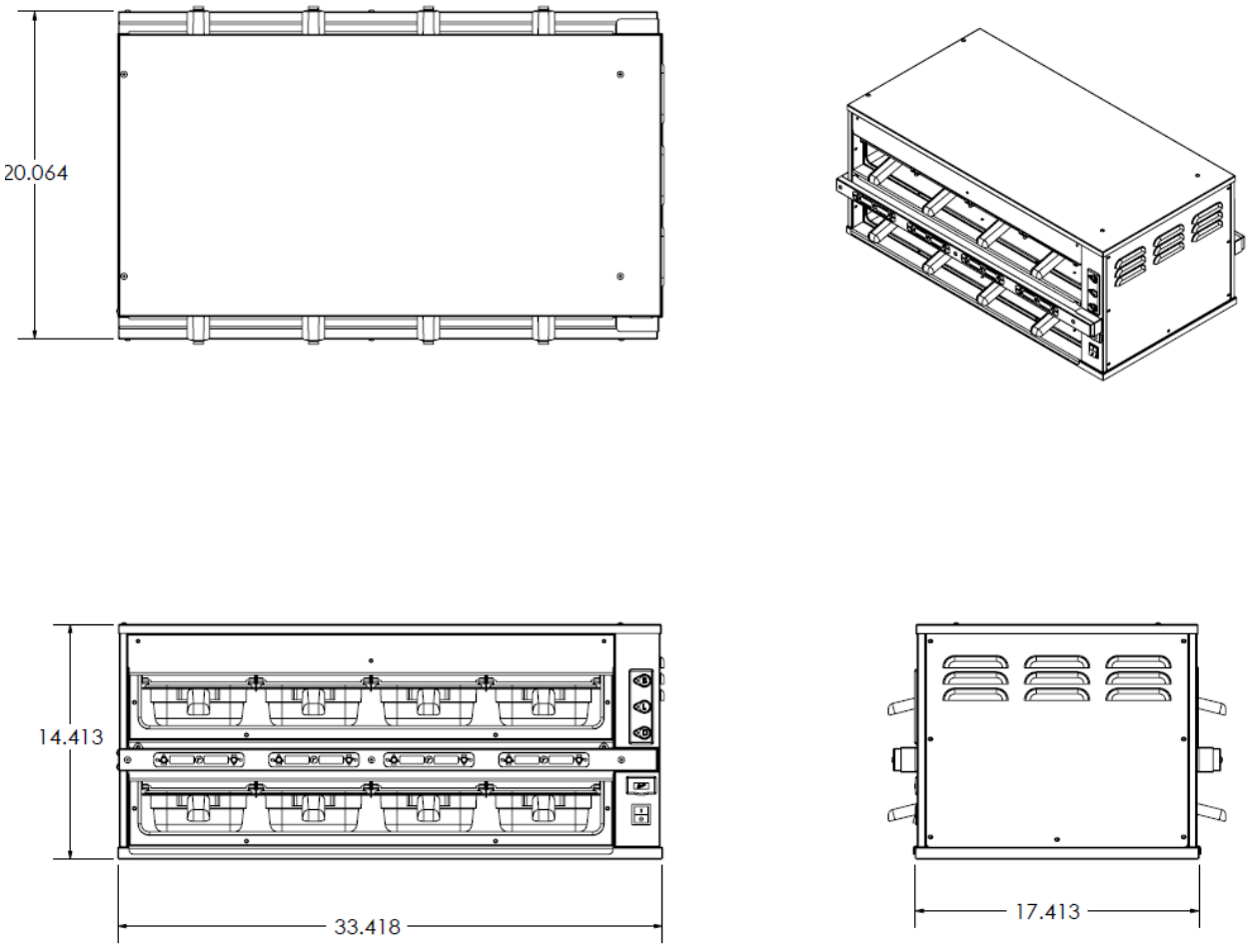
50. I understand that the IRHS Holding Unit was a commercial product that was introduced by Duke to the market in 2013, with sales beginning in 2014. I understand that the IRHS was originally developed for Burger King and was widely purchased by Burger King and its franchisees, but that the IRHS was not exclusive to Burger King.

i. IRHS Manual (EX1005)

51. The IRHS Manual is a user manual published by Duke for the IRHS Holding Unit. EX1005: 1. I understand that the version of the IRHS Manual present in this proceeding was tailored to Burger King and distributed with approximately hundreds of IRHS units that were sold from February 2014 to

September 2014. I understand that there have been latter revisions, as well as versions of the IRHS Manual that were not tailored to Burger King.

52. The IRHS Manual lists the different configurations of the IRHS Holding Unit, including the 2x4 IRHS Holding Unit shown below:



EX1005: 8.

53. The IRHS Manual lists the IRHS22, IRHS23, IRHS24, IRHS34, and IRHS42 models of the IRHS Holding Unit. The numerical portion of the model number was indicative of the configuration of the IRHS Holding Unit identifying the number of shelves within the IRHS Holding Unit and the number of food

holding locations across the shelves. As an example, the 2x4 IRHS Holding Unit shown above had the model number IRHS24.

54. The IRHS Manual states:

> "The IRHS Holding Unit was developed specifically to address the needs of Burger King restaurant operations and profitability. ... This new technology allows you to precisely control the environment in each pan, allowing customized settings for each food product. This gives you the ability to maintain gold standard sensory attributes at drastically extended hold times while delivering hotter food to your customers." EX1005: 4.

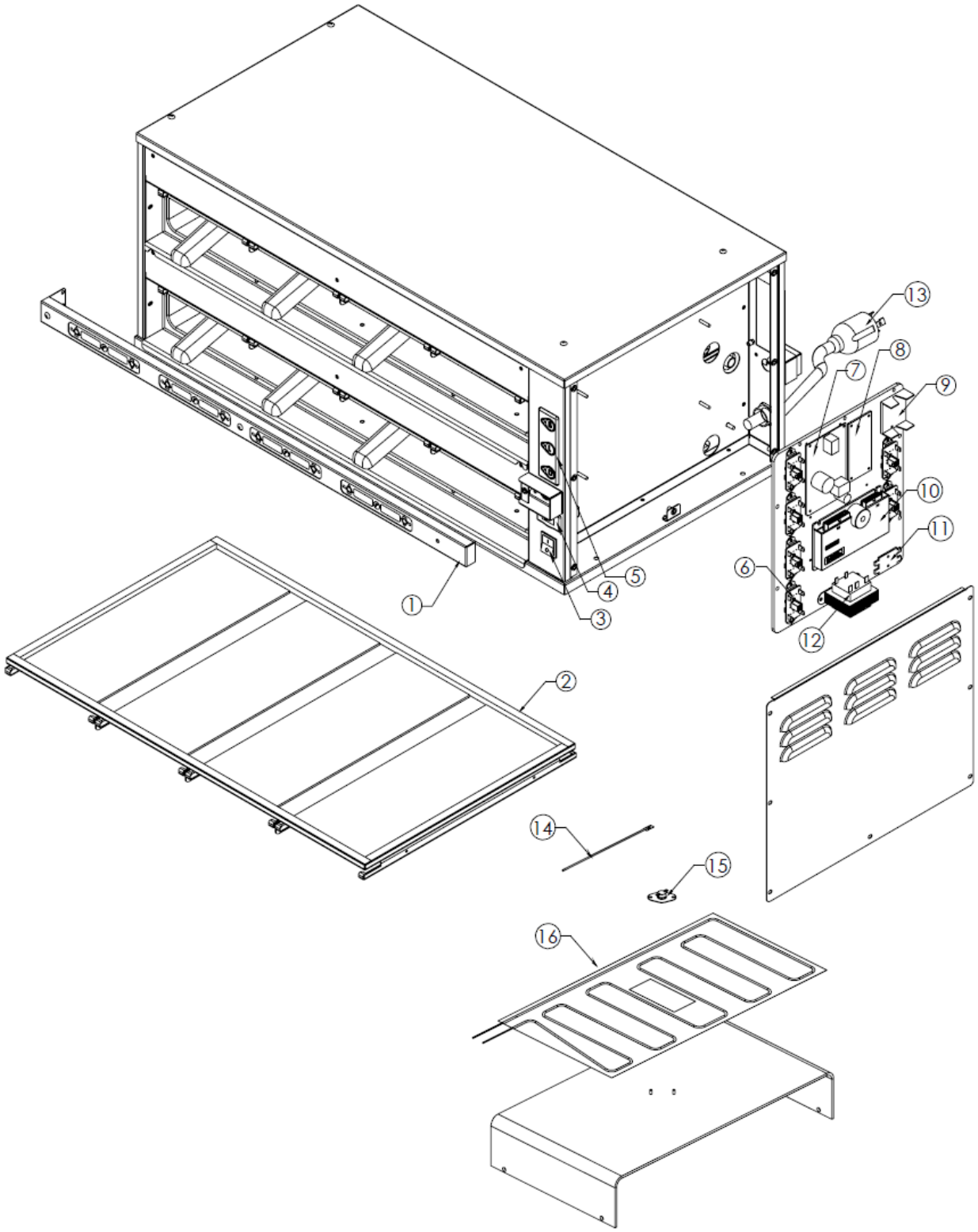
55. The IRHS Manual further states:

> "This new technology allows you to precisely control the environment in each pan, allowing customized settings for each food product. This gives you the ability to maintain gold standard sensory attributes at drastically extended hold time while delivering hotter food to your customers. To accomplish this, each food product has a tailored HeatSink temperature and InfraRed pulse rate. To ensure optimal hold quality, it is essential to press the up or down arrow corresponding with the pan location to activate a hold cycle. This starts the appropriate IR pulse rate as well as the timer countdown." EX1005: 16.

56. The IRHS Manual explains how to switch between breakfast, lunch, and dinner menus using the daypart buttons and how to view product names and temperatures on the displays. EX1005: 16-17.

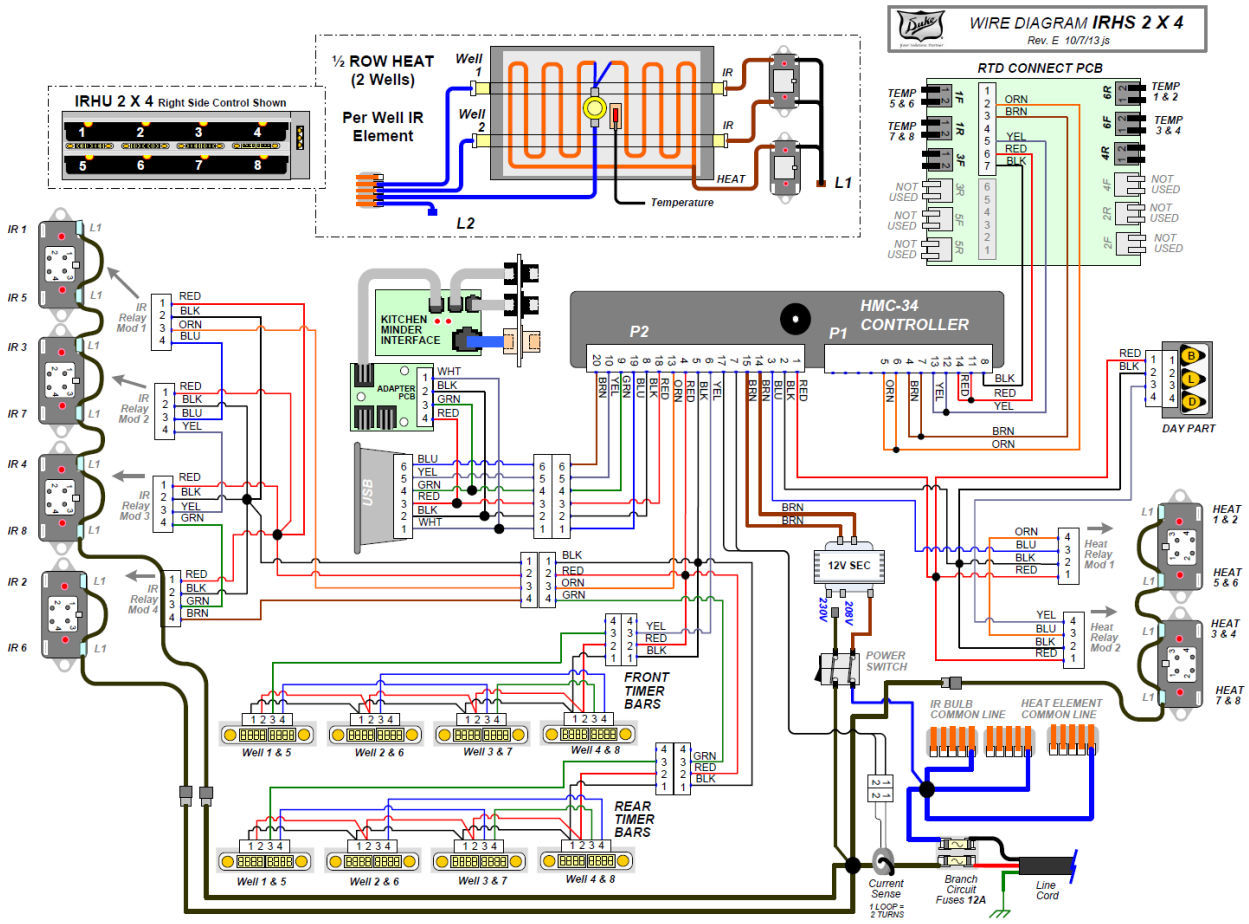
57. The IRHS Manual also provides an exploded view of the 2x4 IRHS Holding Unit and a parts list. EX1005: 19-20.

PARTS LISTS AND ILLUSTRATIONS



EX1005: 19.

58. The IRHS Manual further includes wiring schematics for the different configurations of the IRHS Holding Unit. EX1005: 22-27. The wiring diagram for the 2x4 IRHS Holding Unit is shown below:

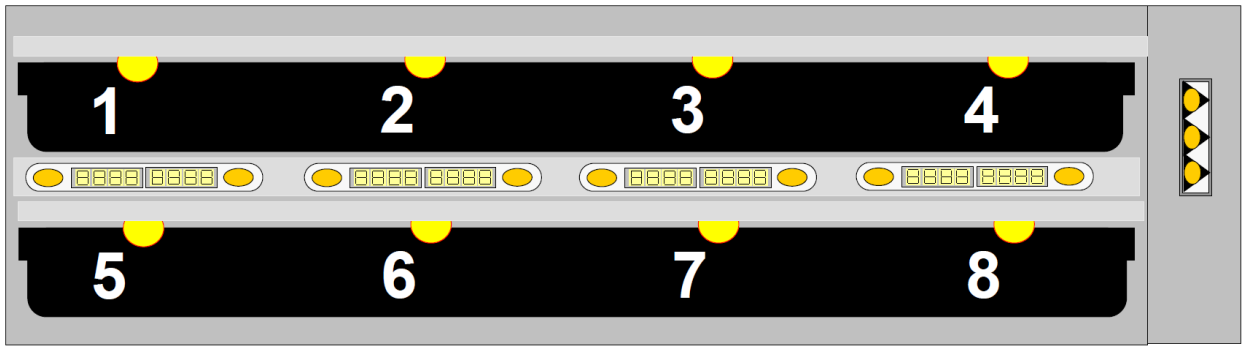


EX1005: 25.

59. The wiring diagram demonstrates the 2x4 IRHS Holding Unit has a controller for controlling operation that is in wired communication with the electronically controlled dual output relays (*e.g.*, IR1-8 and Heat 1&2-7&8) that switch the heating elements on and off. EX1005: 25. The wiring diagram also

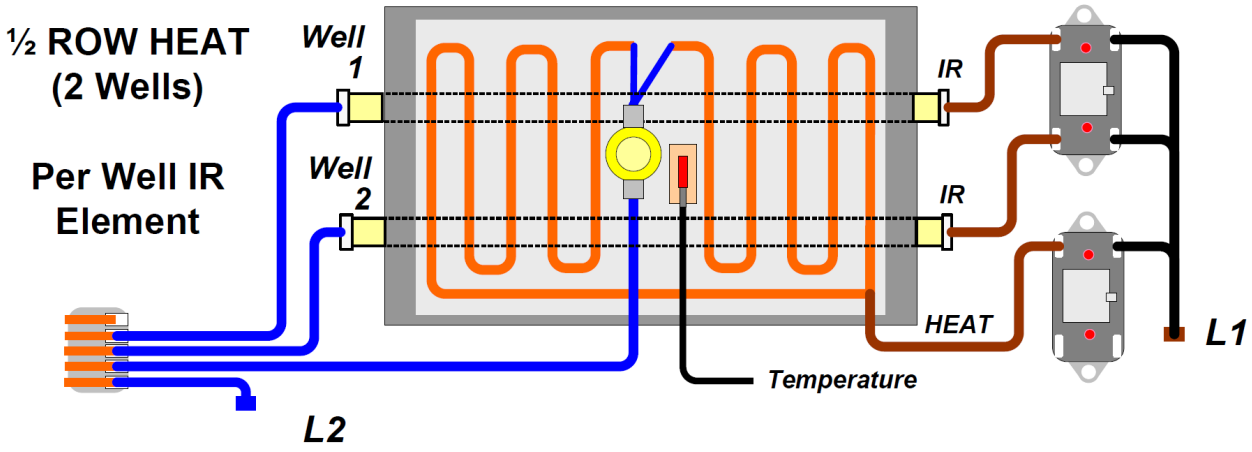
demonstrates that the controller is in communication with the displays and buttons of the timer bars for transmitting and receiving signals therebetween. EX1005: 25.

60. The wiring schematic also includes a diagram showing each pan holding location or well (numbered 1-8) of the 2x4 IRHS Holding Unit having a dedicated IR heating element (yellow bulb, as shown schematically below:



EX1005: 25.

61. Another diagram of the wiring schematic illustrates the general arrangement of the electric heating elements for half of a row of the 2x4 IRHS Holding Unit (*e.g.*, for two adjacent pan locations (bays/wells)). EX1005: 25. For example, this diagram illustrates the heating element arrangement for pan holding locations 1 and 2. Based on this diagram, it is understood that this heating element arrangement is duplicated four times in the 2x4 IRHS Holding Unit, one for pan holding locations 1 and 2, one for pan holding locations 3 and 4, one for pan holding locations 5 and 6, and one for pan holding locations 7 and 8.



EX1005: 25.

62. Thus, the wiring schematic would be understood as disclosing that each pan holding location is heated from above by dedicated IR heating elements (*e.g.*, eight IR heating elements total). EX1005: 25. The wiring schematic further would be understood as disclosing that each compartment or row is heated from below by two electric heating elements (*e.g.*, four electric heating elements total) arranged side-by-side, such that each electric heating element heats two adjacent pan holding locations. EX1005: 25.

ii. IRHS Specifications (EX1006)

63. The IRHS Specifications is a 2013 two-page document from Duke summarizing the different models of the IRHS Holding Unit and their features. EX1006. The IRHS Specifications discloses a number of features of the IRHS Holding Unit, including:

- A model with a 2x4 (two rows of pan holding locations by four columns of pan holding locations) configuration (the IRHS24 model);

- "Annodized aluminum HeatSink";
- "Individually controlled IR emitters pulse on and off for controlling optimum amount of energy being applied to the food";
- "Zoned bottom heat to provide additional holding environment customization";
- "IR Turbo Boost for instant shot of IR energy";
- "Custom heat settings for food product";
- "Each compartment individually controlled";
- "Alphanumeric displays to indicate product description, temp and hold time remaining";
- "Web based programming via USB";
- "Day part switch for global recipe changes (B, L, D)";
- "Upper IR emitters provide optimum environment";
- "Bottom zoned hat element provides gentle heat to minimize temperature distribution from top to bottom of pan";
- "Programmable via website & USB with daypart switch to facilitate global recipe changes."

EX1006: 1.

iii. Duke Website (EX1007)

64. The Duke Website is an archived collection of URLs from the Wayback Machine as they existed in January 2015 from a Duke website tailored for Burger King restaurants—but that I understand was publicly available and accessible—for marketing a variety of commercial kitchen equipment. The Duke Website included a landing webpage with indexed links to additional information for a number of Duke products and to a literature webpage (EX1007: 5-6), a webpage ("IRHS Webpage") about the IRHS Holding Unit (EX1007: 8-13); a

webpage ("Expedite Webpage") about an Expedite Station that includes an IRHS Holding Unit (EX1007: 20-23); a literature webpage (EX1007: 15), and a 2014 Burger King Catalog ("IRHS Catalog") available from the literature webpage which including details about the IRHS Holding Unit (EX1007: 26-73).

65. The IRHS Webpage discloses various illustrations, details, and information about the IRHS Holding Unit:

Menu Item	Hold Time Increase with New IRHS (%)	Hold Time Increase with New IRHS (min)
EXPEDITE - FRIED		
Chicken Strips	200%	40 min
Nuggets	100%	30 min
MAIN BOARD - FRIED		
Chick'n Crisp	100%	30 min
OCS	500%	30 min
Tendercrisp	150%	45 min
Fish	50%	15 min
MAIN BOARD - BROILED		
Whopper Jr.	78%	45 min
Tendergrill	25%	30 min
1.7 burger	100%	45 min
Whopper	100%	45 min
Turkey Burger	100%	45 min
Stuffed Burger	100%	45 min
Rib Patty	100%	45 min
BKFST		
Eggs	100%	45 min
Sausage Patty	50%	30 min
French Toast Sticks	33%	15 min

Significantly extend all hold times across the menu, including fried foods



EX1007: 9.



EX1007: 10.

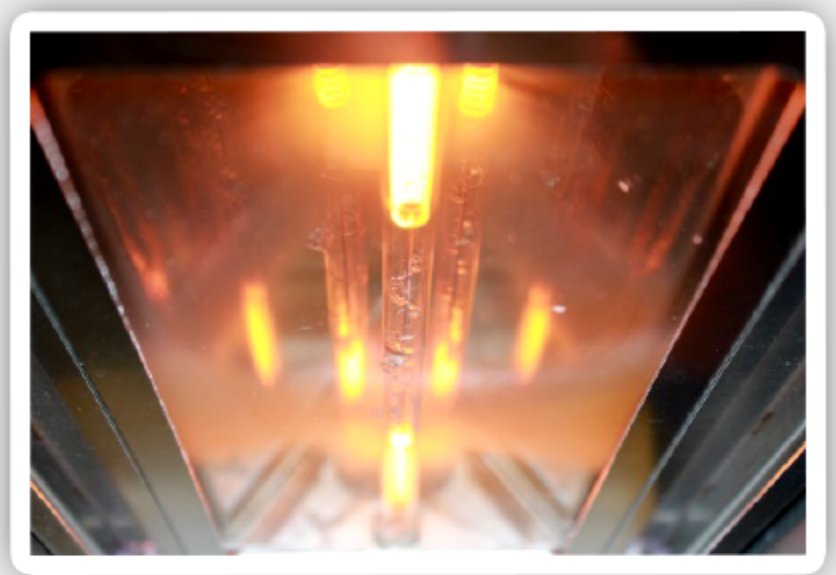


More Product Information at Each Well

(Product, Hold Time Remaining, Temperature)

EX1007: 10.

Duke Sealed IR



- Long lasting, proven emitters have been used in Duke holding equipment for 10 years.
- The IR energy is pulsed on only when needed to control energy usage and extend the life of the emitters.
- There are no moving parts or openings for grease to compromise the components.
- IR emitter is securely housed in a sealed compartment behind tempered glass.
- Idle mode creates Serv-Safe environment if operator forgets to start hold cycle

EX1007: 11.



EX1007: 12.

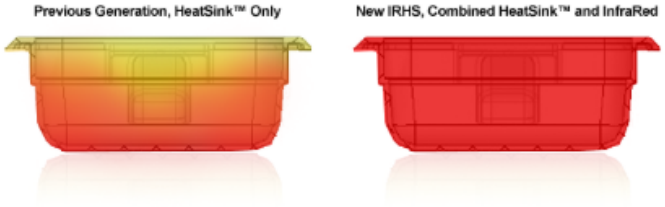
66. The Expedite Webpage likewise includes additional illustrations, details, and information about the IRHS:

Duke's IRHS includes advanced holding technologies to produce a consistently hot product, while doubling hold times across the board. The improved design, flexibility, consistency and kitchen integration will position your operation for continued growth.

- Dual holding technologies for hot, consistent product temperatures
- Solid-state, fanless, design and fully sealed cavity prevent grease migration
- Heavy, robust aluminum covers for individual control
- Utilize "Turbo Boost" for a quick shot of heat to the product
- Unlimited flexibility for current and future menus
- Hold any food item in any well, knowing it is optimized for that product
- Energy efficient technology that utilizes idle mode, preventing forced hot air into the kitchen
- Web programming to quickly and easily update menus
- Connect to your kitchen management system
- Reduced footprint

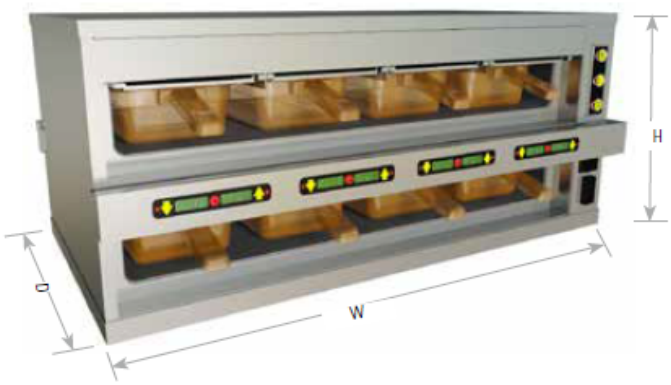
Learn more about the InfraRed HeatSink™ Holding Unit





EX1007: 21-22.

67. The IRHS Catalog is a 2014 catalog from Duke containing a variety of commercial kitchen equipment for Burger King restaurants. Included in this catalog was a section for the IRHS Holding Unit. EX1007: 51-58. The IRHS Catalog listed different IRHS Holding Unit configurations, including the 2x4 configuration shown below:



2x4 | IRHS (InfraRed HeatSink™)

H 13.33 in 33.86 cm W 33.42 in 84.88 cm D 17.42 in 44.24 cm

Cubed ft. Crated 13.0 | Crated Ship Weight 165 lbs / 75 kg

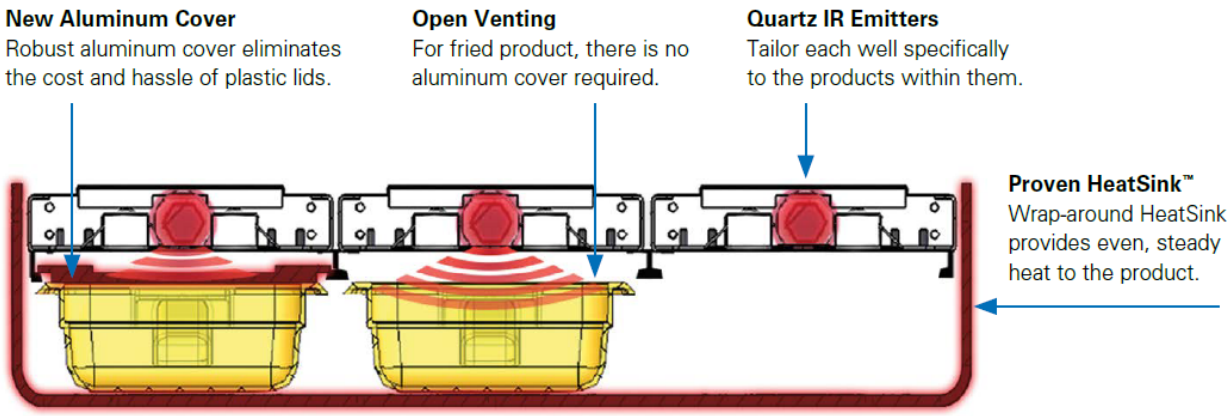
Part #'s	Controls	Stand-Alone/ Master/Satellite	Electrical Requirements			
			Voltage	Hz	Amps	NEMA
IRHS24-**XXX**4T1R	Single	Stand-Alone	208 / 230 / 240	50/60	12	6-15P (208V/240V)
IRHS24-**XXX**4T2R	Double	Stand-Alone	208 / 230 / 240	50/60	12	6-15P (208V/240V)
IRHS24-**XXX**4T1S	Single	Satellite	208 / 230 / 240	50/60	12	6-15P (208V/240V)
IRHS24-**XXX**4T1M	Single	Master	208 / 230 / 240	50/60	12	6-15P (208V/240V)
IRHS24-**XXX**4T2S	Double	Satellite	208 / 230 / 240	50/60	12	6-15P (208V/240V)
IRHS24-**XXX**4T2M	Double	Master	208 / 230 / 240	50/60	12	6-15P (208V/240V)

Notes
1. Replace "XXX" in the part # with the respective power supply
2. 230V Unit Electrical Requirements: IEC 60309 PIN & SLEEVE PLUG, 16 AMP

WARRANTY:
3 year parts and 1 year labor for timer bar IRHS
3 year parts and 2 year labor for VISORenabled IRHS – no timer bar unit

EX1007: 56.

68. The IRHS Catalog explains that the IRHS Holding Unit heats each food pan from the bottom with a HeatSink and from the top with InfraRed heat. EX1007: 51.



EX1007: 53.

69. The IRHS Catalog further disclosed the IRHS Holding Unit as having the following features and benefits:

- "Improved temperature consistency throughout the pan through the unique use of dual holding technologies, InfraRed and HeatSink" (EX1007: 53);
- "IR is pulsed only when needed, leading to drastic energy savings" (EX1007: 53);
- "Robust Duke timer bars" (EX1007: 53);
- "Precise holding for each product in an optimized environment tailored to that product" (EX1007: 53);
- "Total well independence allows freedom in product placement in the IRHS" (EX1007: 53);
- "Smaller footprint allows IRHS to fit into smaller space" (EX1007: 53); and
- "USB Drive: Allows for web programing updates for your [] IRHS holding unit[]" (EX1007: 58).

iv. IRHS Service Manual (EX1008)

70. The IRHS Service Manual is sixty-eight page document from Duke explaining technical and service information about the IRHS Holding Unit. EX1008.

71. The IRHS Service Manual includes various views of the IRHS Holding Unit and disclosures of the features of the products.



EX1008: 1.

2. Fortmann'748 (EX1010)

72. U.S. Patent Publication No. 2010/0288748 ("Fortmann'748") teaches a warming cabinet (10) for keeping food in trays (100) warm before serving. EX1010: ¶¶[0002], [0014], Fig. 1.

73. The cabinet (10) has a plurality of shelves (21) dividing the warming volume (18) into separate compartments that receive multiple trays (100) of food. EX1010: ¶¶[0014]-[0015], Figs. 1 and 6.

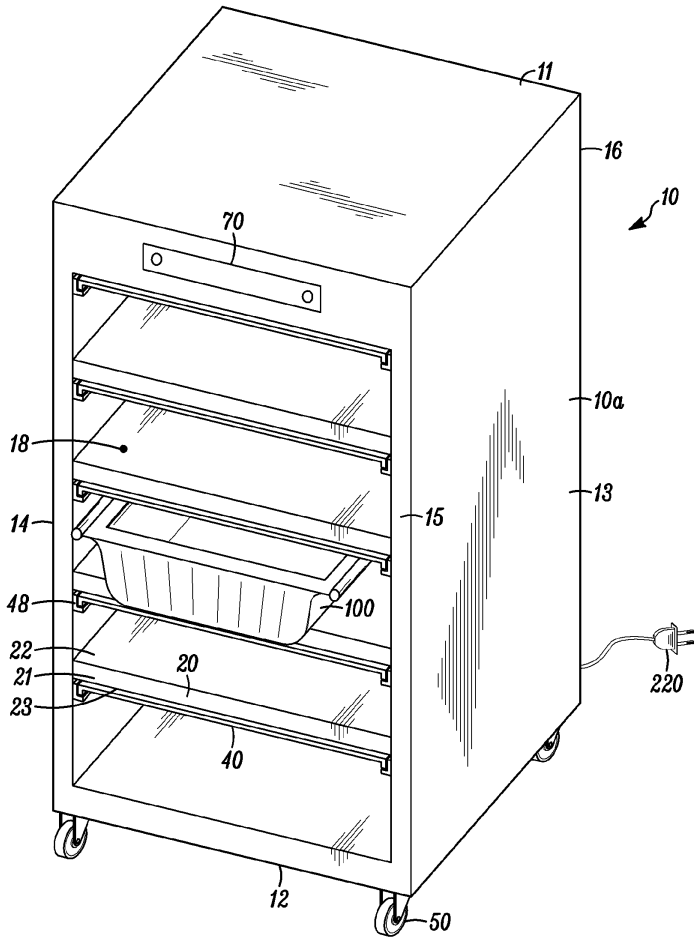


FIG. 1

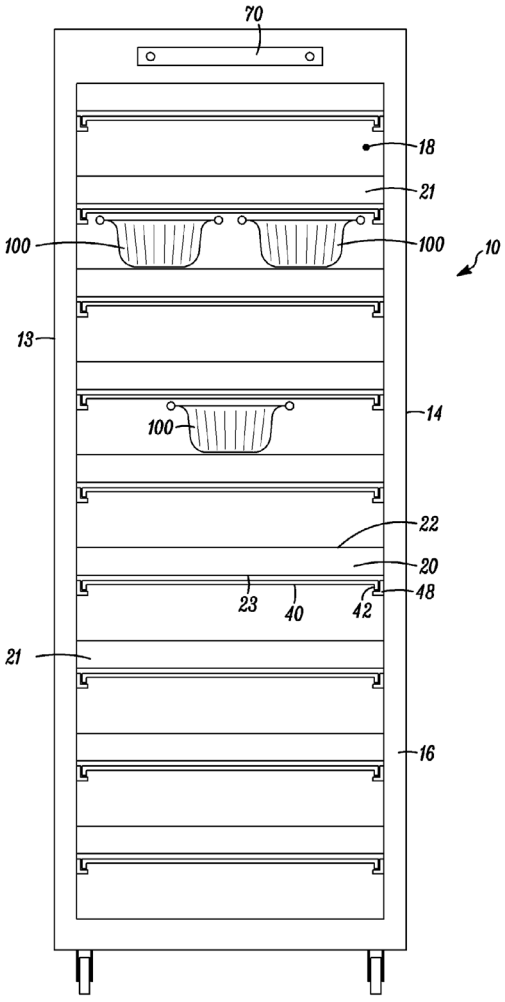


FIG. 6

EX1010: Figs. 1 and 6.

74. Each shelf (21) of Fortmann'748's cabinet (10) includes "one or more heaters 60 … that are disposed within the internal volume [of the] shelf 21." EX1010: ¶[0019], Fig. 2. The heaters (60) associated with each shelf (21) are disclosed as being independently controllable relative to the heaters of other shelves "to establish two or more heat zones of differing temperatures within the warming volume [18]." EX1010: ¶¶[0021], [0024].

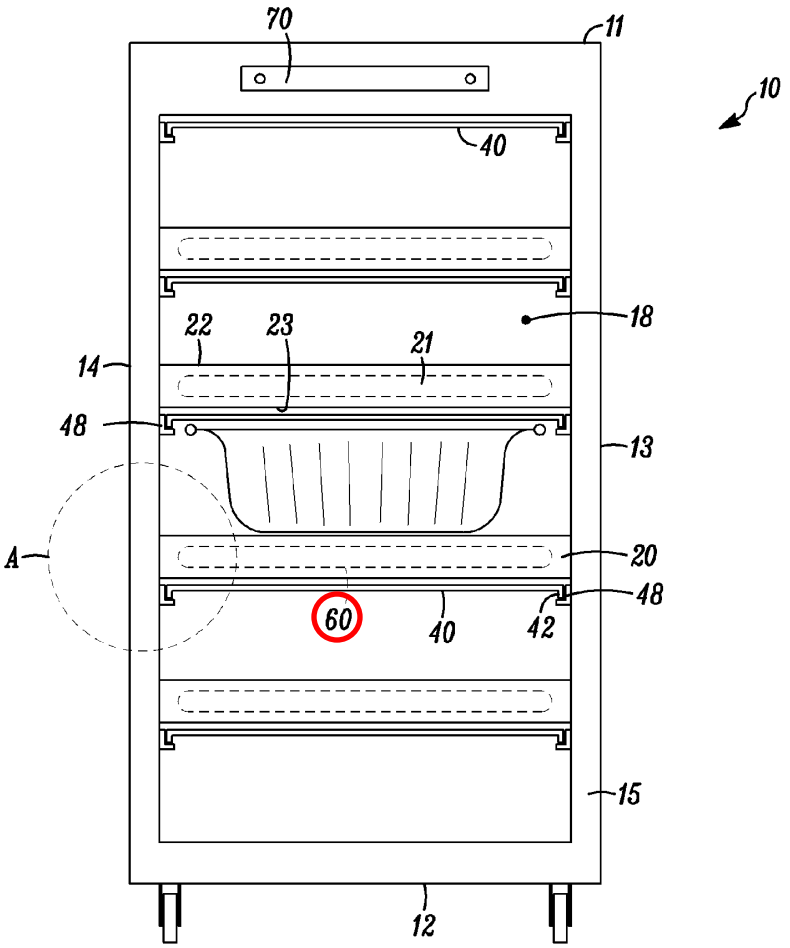


FIG. 2

EX1010: Fig. 2 (annotated).

75. Each compartment of Fortmann'748's cabinet is disclosed as including a removable lid or cover (40) to prevent the heat in the pans from escaping and to retain moisture within the pan. EX1010: ¶[0017], Fig. 4.

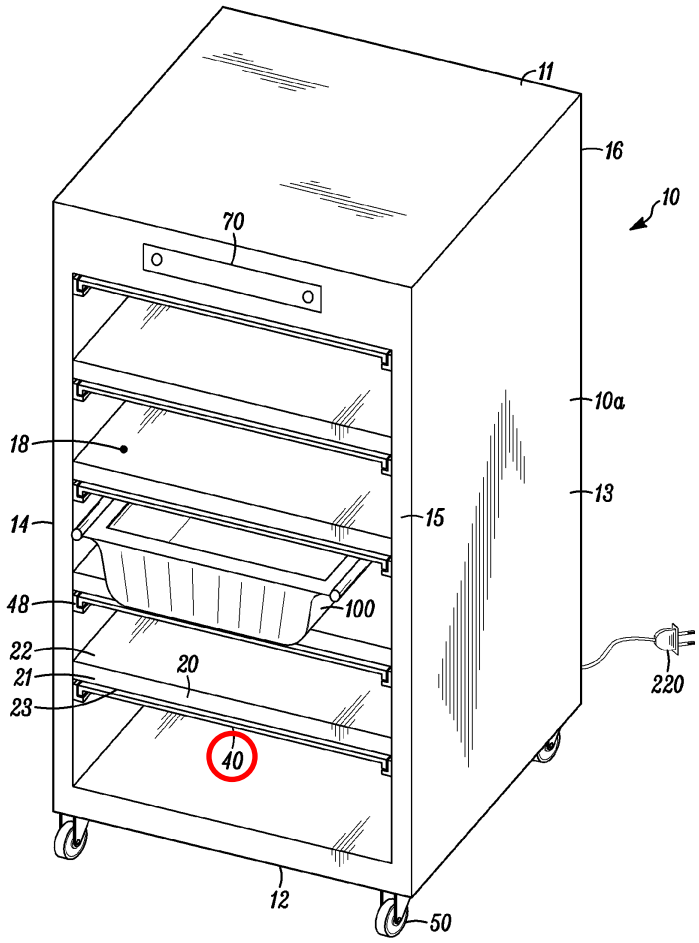


FIG. 1

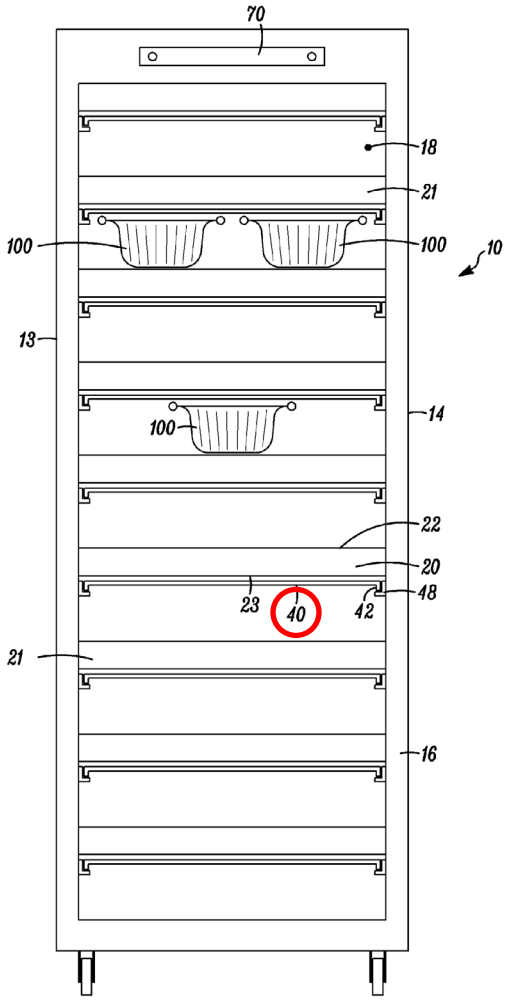


FIG. 6

EX1010: Figs. 1 and 6 (annotated).

76. Fortmann'748 further teaches one embodiment of a control system having "one [or] more sensors disposed in each heating zone," "an input device for

the user to select the desired temperature [] within the heating zone" and a "controller [that] selectively provide[s] or secure[s] current to the one or more heaters 60 disposed within each zone to control the temperature of the zone." EX1010: ¶[0027]. The control system is described as "adjust[ing] the heat output within each zone to achieve the desired temperature." EX1010: ¶[0027].

3. Jones (EX1012)

77. U.S. Patent Publication No. 2007/0108178 ("Jones") teaches a food holding cabinet (12b) with an upper heating compartment (UHC) and a lower heating compartment (LHC), each for receiving food trays (14). EX1012: ¶¶[0069], [0072], Fig. 1B. The upper and lower heating compartments (UHC, LHC) are separated by a shelf (36). EX1012: ¶[0072], Fig. 1B.

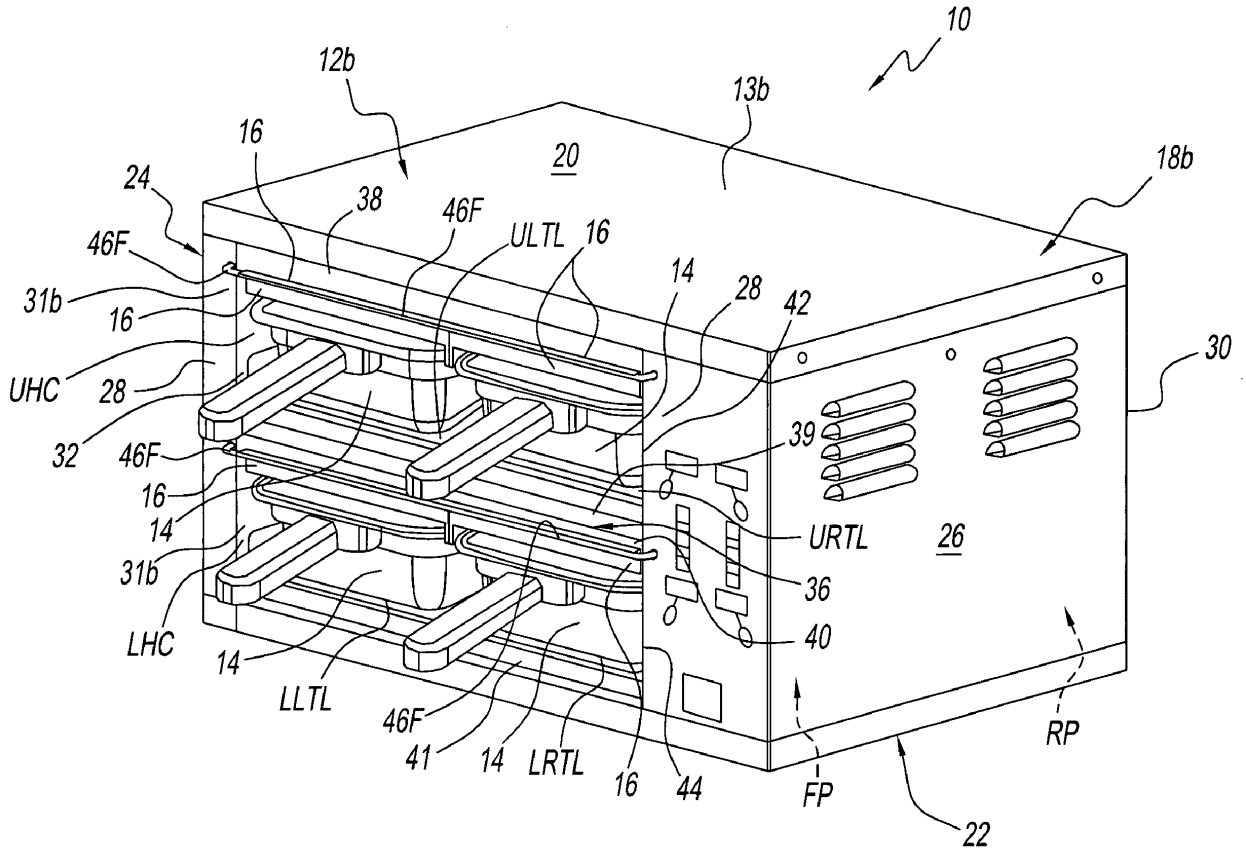
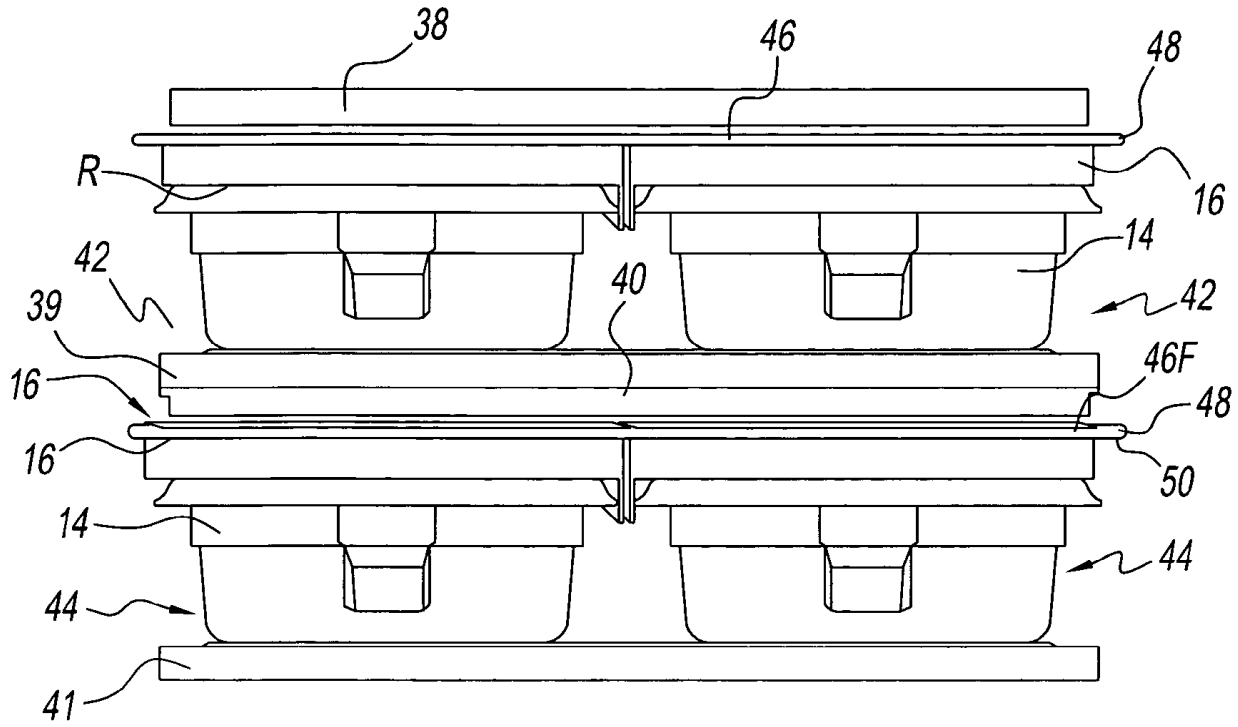


Fig. 1B

EX1012: Fig. 1B.

78. The food holding cabinet (12b) receives four food trays (14). EX1012: ¶[0072], Fig. 1B. Specifically, the upper heating compartment (UHC) has an upper left tray location (ULTL) and an upper right tray location (URTL), while the lower heating compartment (LHC) similarly has a lower left tray location (LLTL) and a lower right tray location (LRTL). EX1012: ¶[0072], Fig. 1B.

79. As illustrated in Figure 1G, Jones's food holding cabinet (12b) has one set of an upper heater (38, 40) and lower heater (39, 41) for each heating compartment (UHC, LHC). EX1012: ¶[0073], Fig. 1G.



EX1012: Fig. 1G.

80. Jones further explains that instead of having only one set of an upper heater and lower heater for each heating compartment (UHC, LHC), each tray location (ULTL, URTL, LLTL, LRTL) may include its own dedicated upper and lower heaters. Jones identifies this configuration as a preferred embodiment.

> "In preferred embodiments, for example, in food holding cabinet 12b of FIG. 1B, there are eight heaters, one mounted above and another mounted below each of the upper left and right tray locations, and one mounted above and another mounted below each of the lower left and right tray locations."

EX1012: ¶[0096].

81. Jones explains that in this preferred configuration the respective temperature settings for the top and bottom heating elements for each of its tray

locations/zones can be set and associated with a specific food product type, regardless of the other food product types being held in the other zones. EX1012: ¶[0098] ("unique control features of the invention provide control over … upper and lower heat settings [] that are programmed into the software for each product name. Thus, the product holding parameters are tied to the product name and not a specific location in the cabinet, no matter at which locations the product name is displayed" and "temperature settings for the top and bottom heater that are set to the product name and no matter how many locations have the same product name displayed"). Furthermore, the control panel operations of the embodiment are disclosed as providing the ability to individually set the temperature of the upper and lower heating elements for each food product type:

> Set Temperatures
> Press and Hold 'Program' Button
> Use 'Up' and 'Down' Arrows to ***Select Product***
> Press 'Temperature' Button
> Use 'Up' and 'Down' Arrows to Set ***Upper Heater Temperature***
> Press 'Temperature' Button
> Use 'Up' and 'Down' Arrows to Set ***Lower Heater Temperature***
> Press and Hold 'Program' Button to Finish.

EX1012: ¶[0130].

82. Jones also teaches the inclusion of a discrete lid for each pan/pan holding location. EX1012: ¶[0072] ("a food tray cover 16 above each respective upper left tray location ULTL and upper right food tray location URTL, and … a

food tray cover above each respective lower left and lower right food tray locations, LLTL and LRTL"), Fig. 1B.

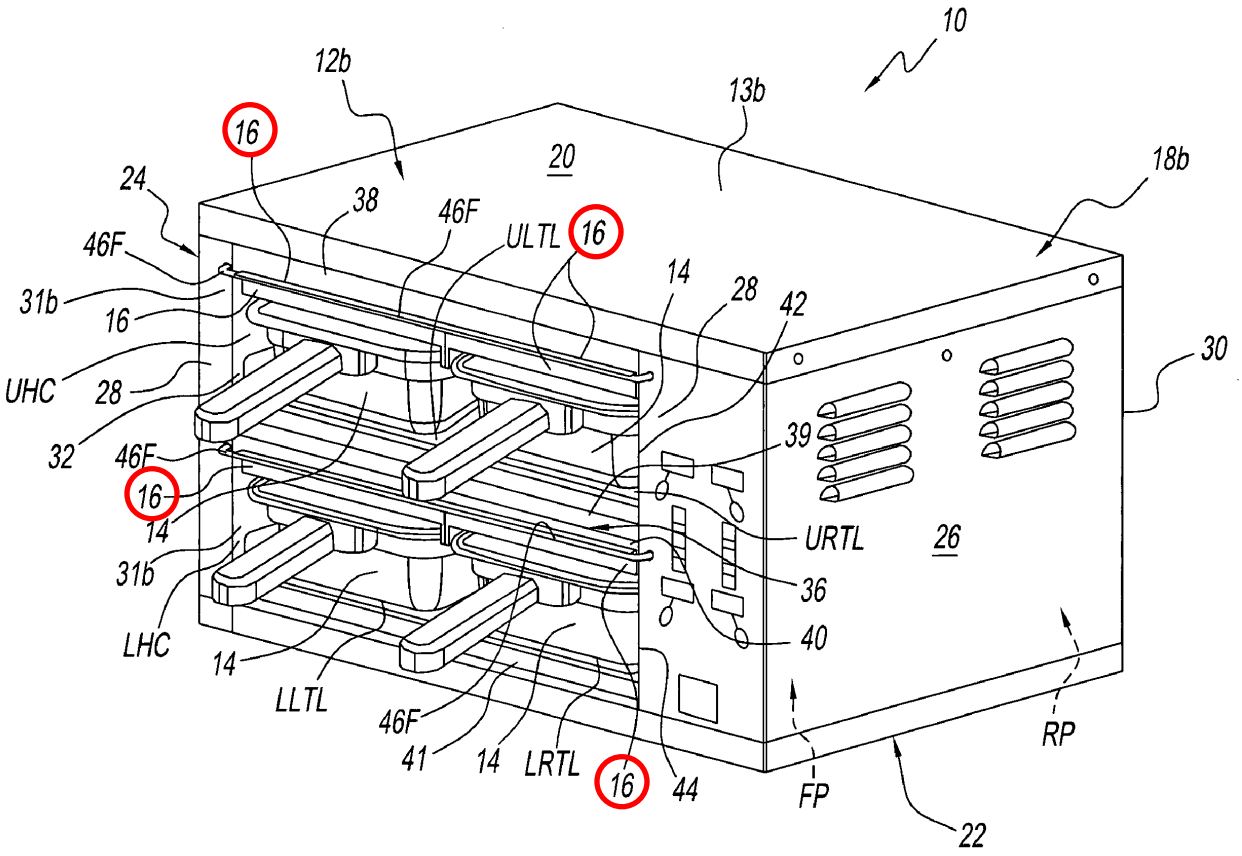


Fig. 1B

EX1012: Fig. 1B (annotated).

4. Fortmann'197 (EX1014)

83. U.S. Patent No. 10,258,197 ("Fortmann'197") teaches a holding cabinet (10) with an internal volume (27) divided by "one or more plates 40 that serve as shelves." EX1014: 2:30, 2:50-51, 2:58-59, Fig. 1.

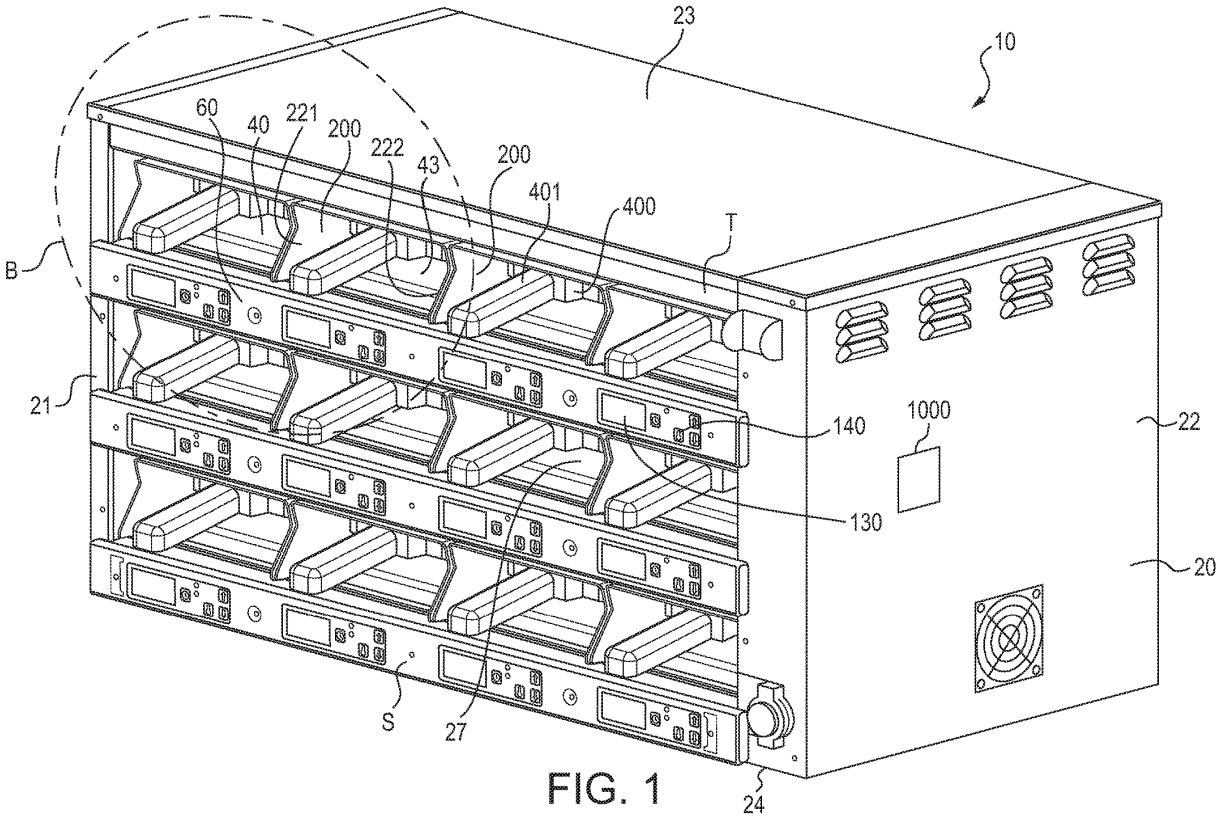


FIG. 1

EX1014: Fig. 1.

84. Each shelf (40) is described as establishing a plurality of discrete heating zones (100) within the internal volume (27), with each heating zone receiving a food pan (400). EX1014: 3:6-19.

85. Each heating zone (100) includes a discrete upper heater (521)-(524) above the food pan (400) and discrete lower heater (501) below the food pan. EX1014: 3:19-27, 8:63-67 ("the plate 40 may include multiple heaters 501, such as one heater 501 per discrete heating zone 100"), 9:1-19.

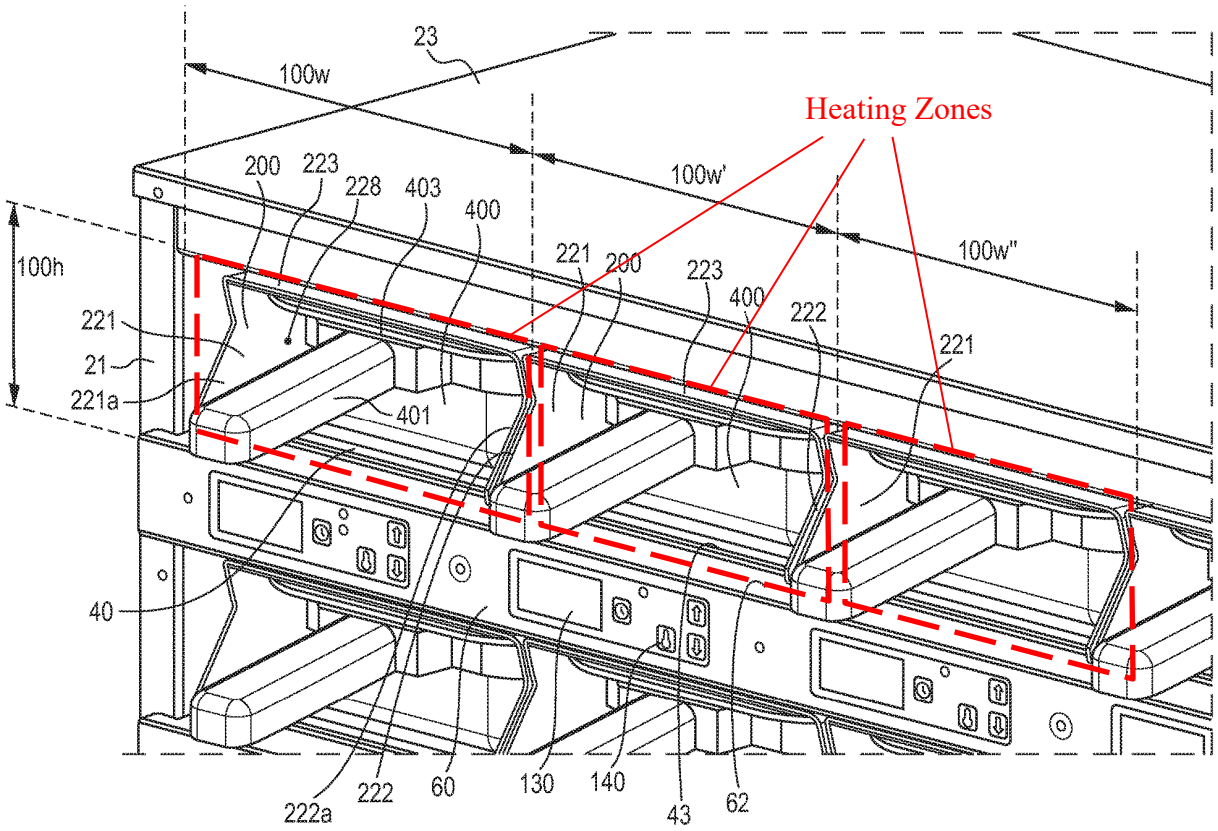

23
100w
Heating Zones
100w'
100w"
100h
200
223
228
403
400
221
200
223
400
222
221
21
221a
401
40
222a
222
60
130
140
43
62

FIG. 2

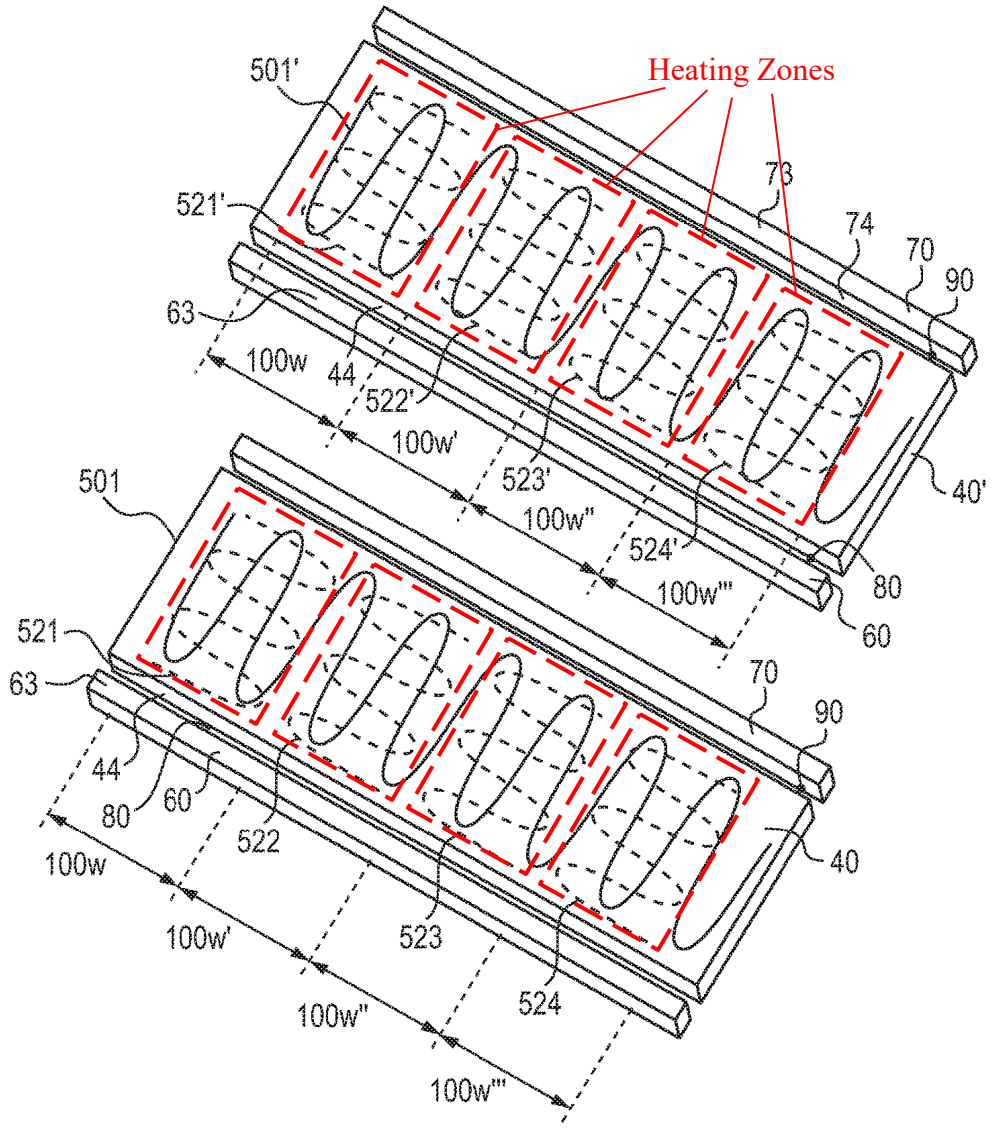


FIG. 10

EX1014: Figs. 2 and 10 (annotated).

86. Fortmann'197 explains that "insulation may be provided between the upper heaters 521, 522, 523, 524 in a plate 40 and the lower heater 501 in the same plate, so that the heat generated by the respective heater travels generally through

the surface of the plate 40 proximate to the plate and not in the direction of the other heater within the plate 40." EX1014: 9:32-37, Fig. 10.

87. Fortmann'197 also discloses a controller (1000) for independently controlling the upper and lower heating elements (501, 521-524) for each discrete heating zone (100). EX1014: 8:63-67 ("the plate 40 may include multiple heaters 501, such as one heater 501 per discrete heating zone 100, with the controller 1000 controlling the heat to each heater 501 to maintain the desired temperature in the specific discrete heating zone 100"), 9:50-10:2 ("[t]he upper heaters 521, 522, 523, 524 may be individually controlled to maintain the temperature within the respective discrete heating zone 100 associated with the heater" and "the instructions inputted by the user (such as a timer, or controls to set a desired temperature or temperature range) may be used by the controller 1000 to operate the respective upper heater (and lower heater 501 in embodiments where the lower heater (or a portion of the lower heater may be controlled) as necessary to maintain the desired temperature within the zone)").

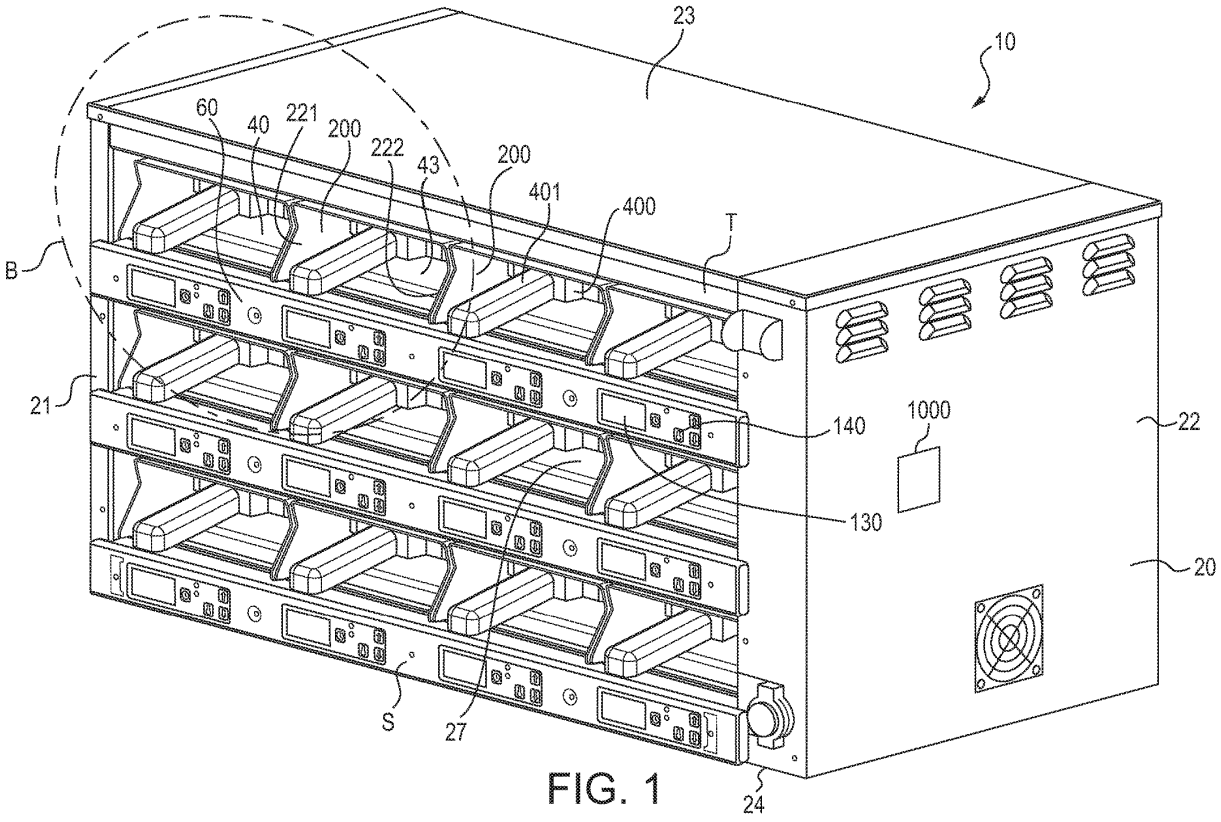


FIG. 1

EX1014: Fig. 1.

88. Fortmann'197 further discloses a discrete lid for each pan/pan holding location. EX1014: 4:50-53, Figs. 1-4.

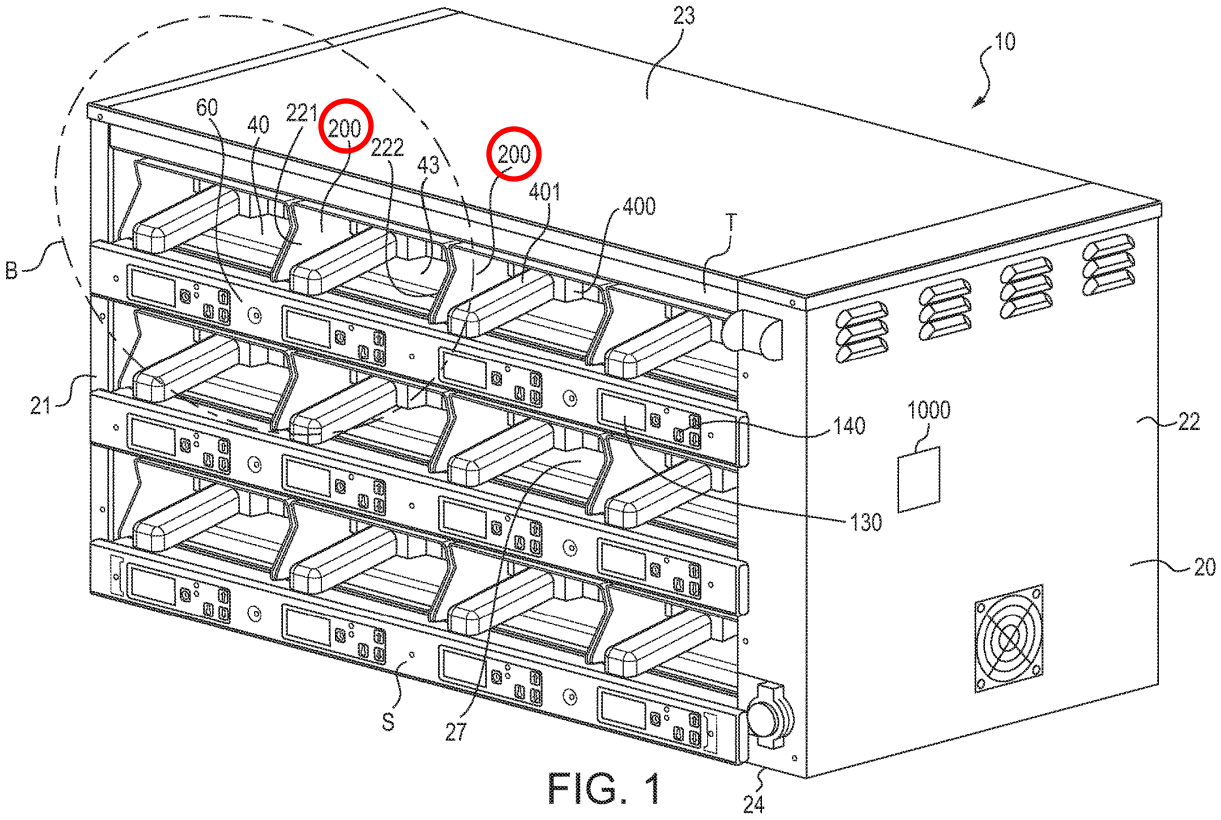


FIG. 1

EX1014: Fig. 1 (annotated).

89. Fortmann'197's holding cabinet (10) is described as having control bars (60) positioned in front of the shelves (40) and control bars (70) positioned to the rear of the shelves. EX1014: 2:58-59, 3:28-30, 3:55-56, 4:18-37, Figs. 1-3 and 5. As shown below, each control bar (60, 70) includes "a display 130 and input 140 that is associated with each discrete heating zone 100." EX1014: 3:51-55, 4:25-32, Figs. 1-3.

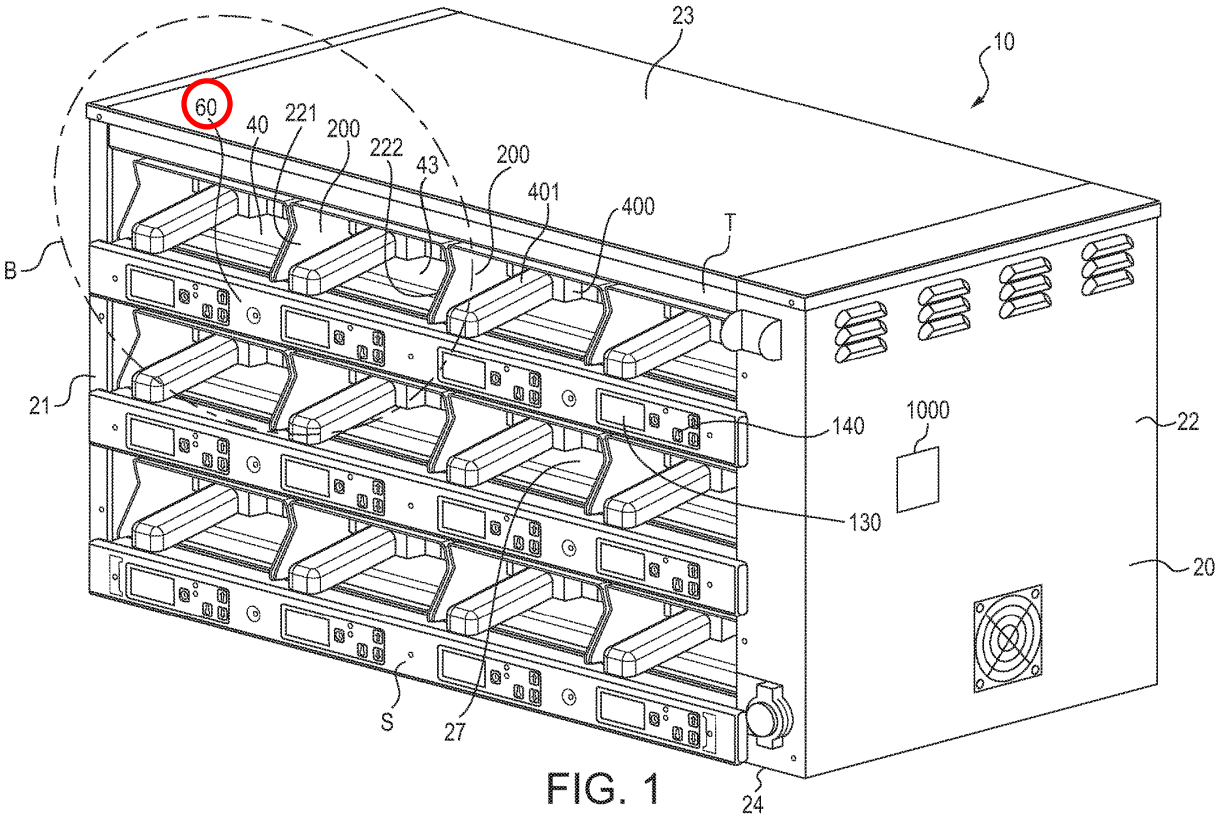

23
10
60
40
221
200
222
43
200
401
400
T
B
21
140
1000
22
130
20
S
27
24

FIG. 1

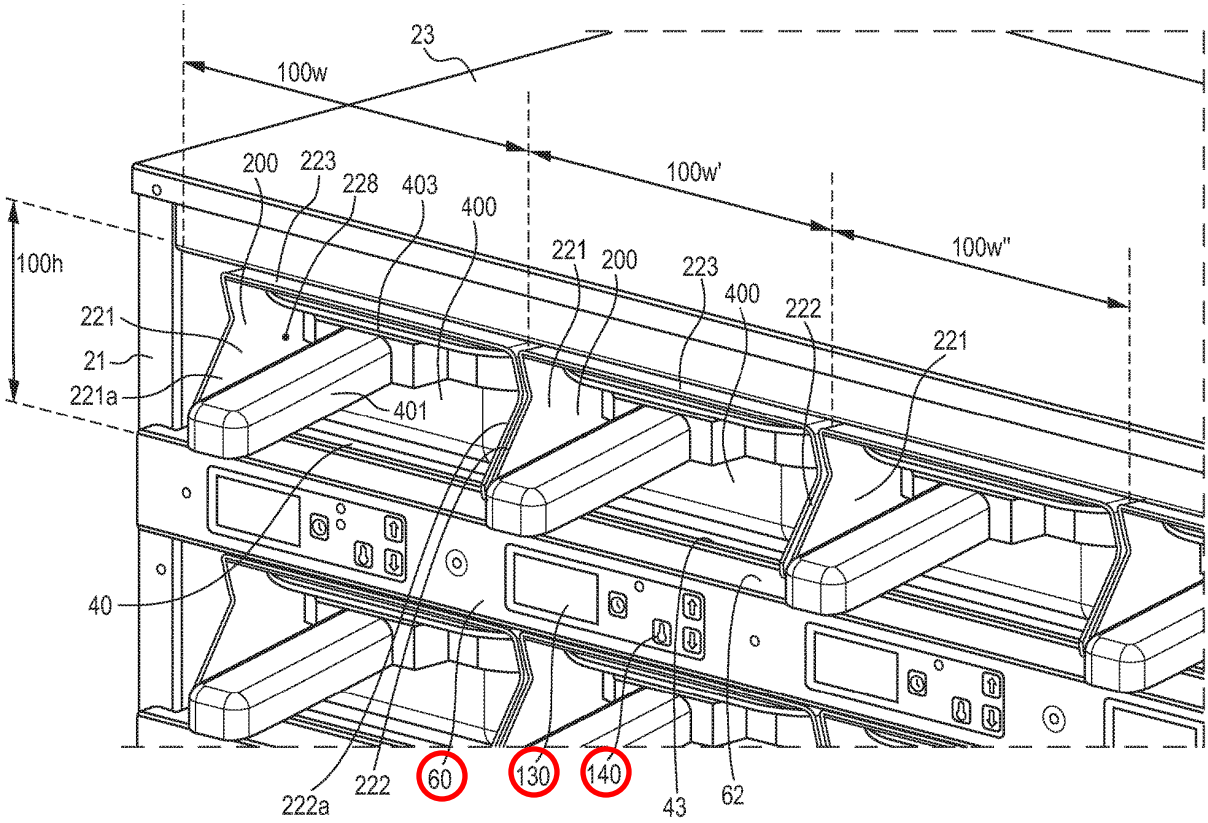

23
100w
100w'
100w"
100h
200
223
228
403
400
221
200
223
400
222
221
221
21
221a
401
40
222a
222
60
130
140
43
62

FIG. 2

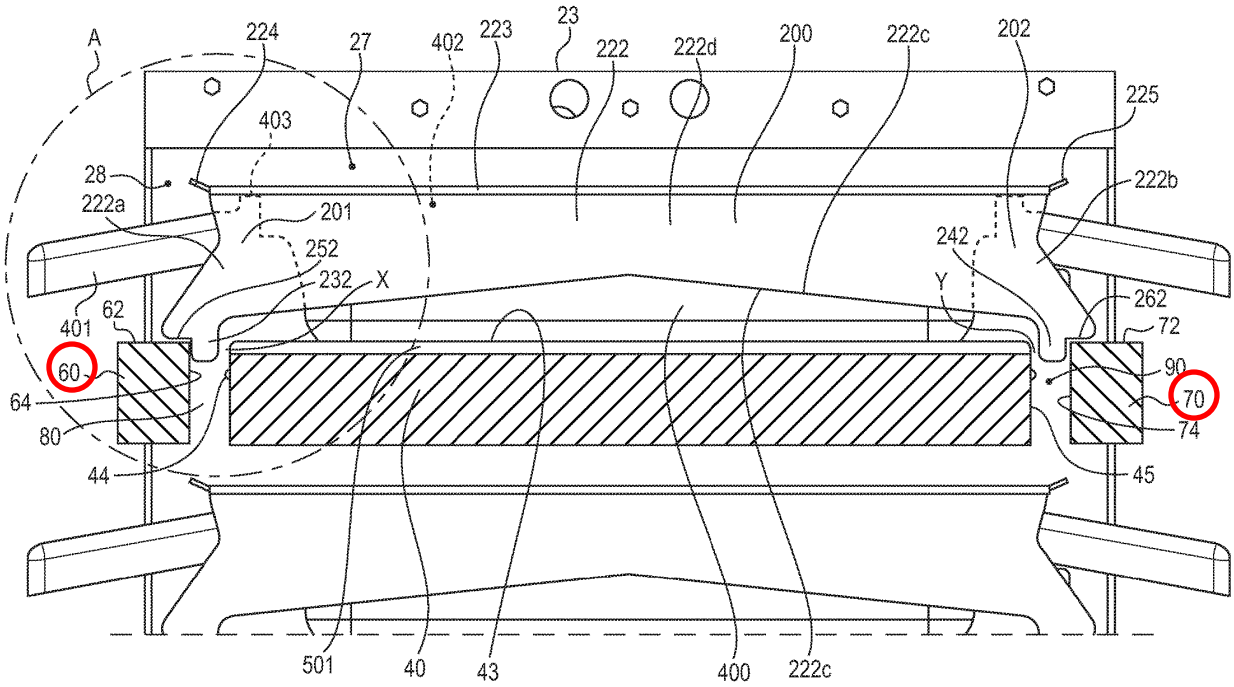

A
224
27
402
223
23
222
222d
200
222c
202
225
403
28
222a
201
252
232
X
222b
242
Y
262
72
401
62
60
64
80
44
90
70
74
45
501
40
43
400
222c

FIG. 5

EX1014: Figs. 1, 2, and 5 (annotated).

90. Fortmann'197's holding cabinet thus permits the user to interact with the displays (130) and inputs (140) to control each respective heating zone. EX1014: 4:32-37, 9:56-65.

5. Hartfelder (EX1013)

91. U.S. Patent Publication No. 2009/0126580 ("Hartfelder") teaches a food warming apparatus (10) that receives trays (40) in heating compartments (24, 26) with covers or lids (44, 46). EX1013: ¶¶[0028] ("food warming apparatus 10"), ¶[0030] ("[e]ach of heating compartments 24 and 26 is sized to accommodate a plurality of trays, as exemplified in FIG. 1 by trays 40 and 42 in heating compartment 24. Each of trays 40 and 42 are covered by covers 44 and 46, respectively.").

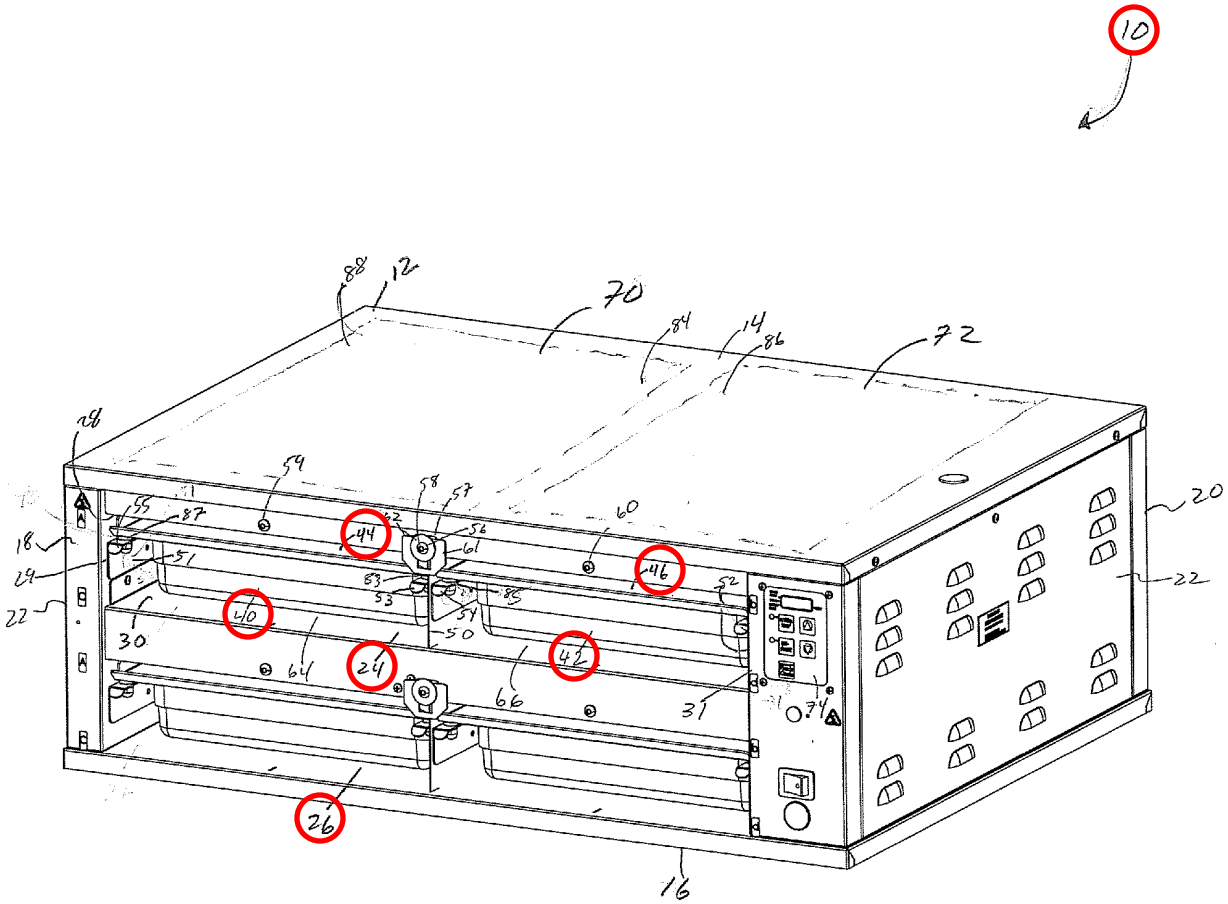


FIGURE 1

EX1013: Fig. 1 (annotated).

92. To prevent the lids (44, 46) from moving with the trays (40, 42) when the trays are removed from the heating compartment (24, 26), the apparatus (10) includes stop members (61) which retain the lids. EX1013: ¶[0058] ("[a]s best shown in FIG. 9, when tray 40 is withdrawn from sub-compartment 64 of heating compartment 24, front turned-up edge 90 of cover 64, acting as an engagement

edge, engages stop member 61. The engagement of engagement edge 90 with stop member 61 arrests the movement of cover 44. As the movement of cover 44 is arrested, cover 44 is retained upon within sub-compartment 64 while tray 40 is withdrawn"), Fig. 9.

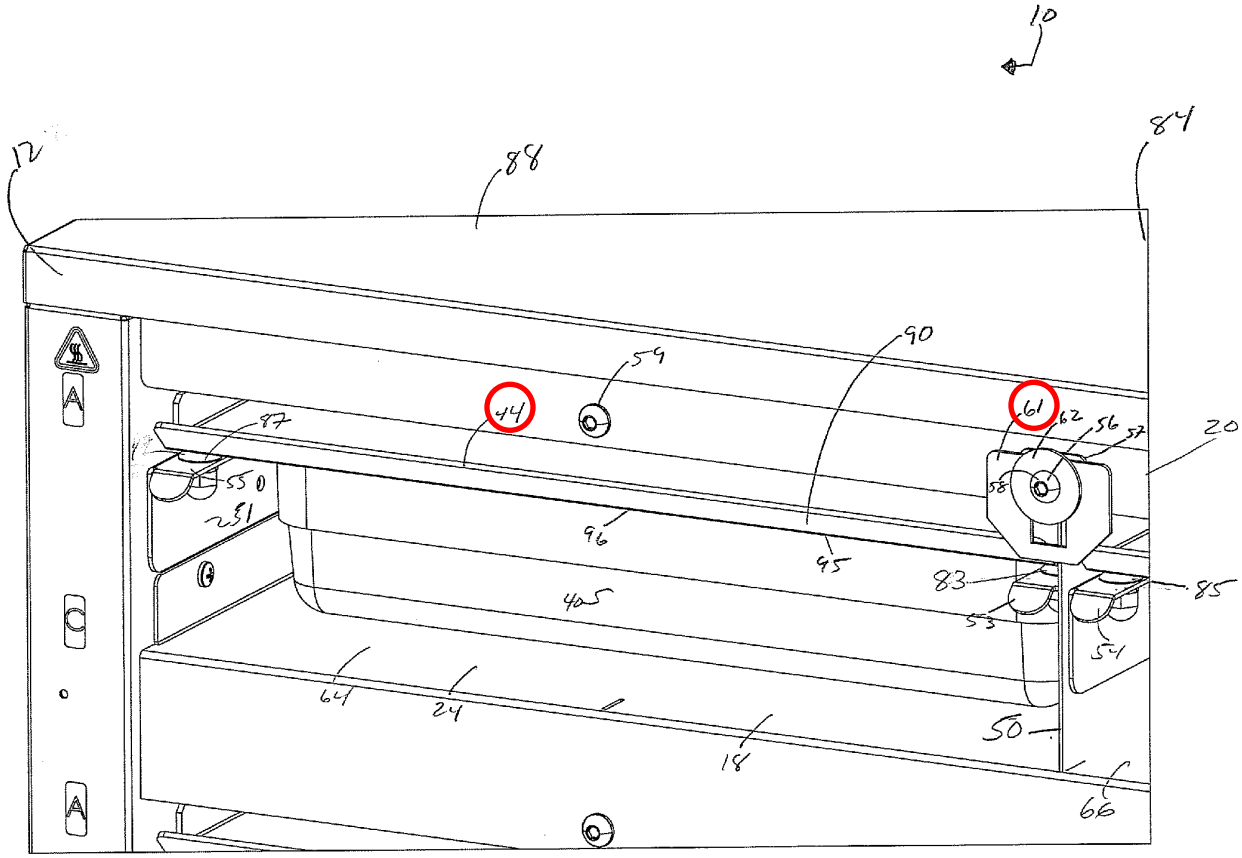


FIGURE 9

EX1013: Fig. 9 (annotated).

6. Veltrop (EX1022)

93. U.S. Patent Publication No. 2011/0252813 ("Veltrop") teaches a food holding cabinet (10) with shelves (52) having heaters in the form of an electrically-resistive heater wire (67). EX1022: ¶¶[0010], [0025] ("[i]n another embodiment of the shelf 52, an electrically-insulated, electrically-resistive heater wire 67 is also sandwiched between the plates 51 and 53"), Fig. 2.

94. The upper plates (51) of its shelves (52) are made of aluminum. EX1022: ¶[0023] ("thermally-conductive plates 51 and 53 are preferably made of aluminum,"), Fig. 2.

95. The heater wire (67) is conductively coupled to the upper plate (52) via mechanical attachment, such as by thermally-conductive adhesive or clamps. EX1022: ¶[0050] ("The heat transfer devices disclosed herein are thermally coupled to the shelf 52, preferably by way of mechanical attachment to at least one of the plates 51 and 53. Mechanical attachment and the resultant thermal coupling is preferably accomplished by a thermally-conducive adhesive, however, clamps that are attached to a plate by screws driven into a plate can also be used.").

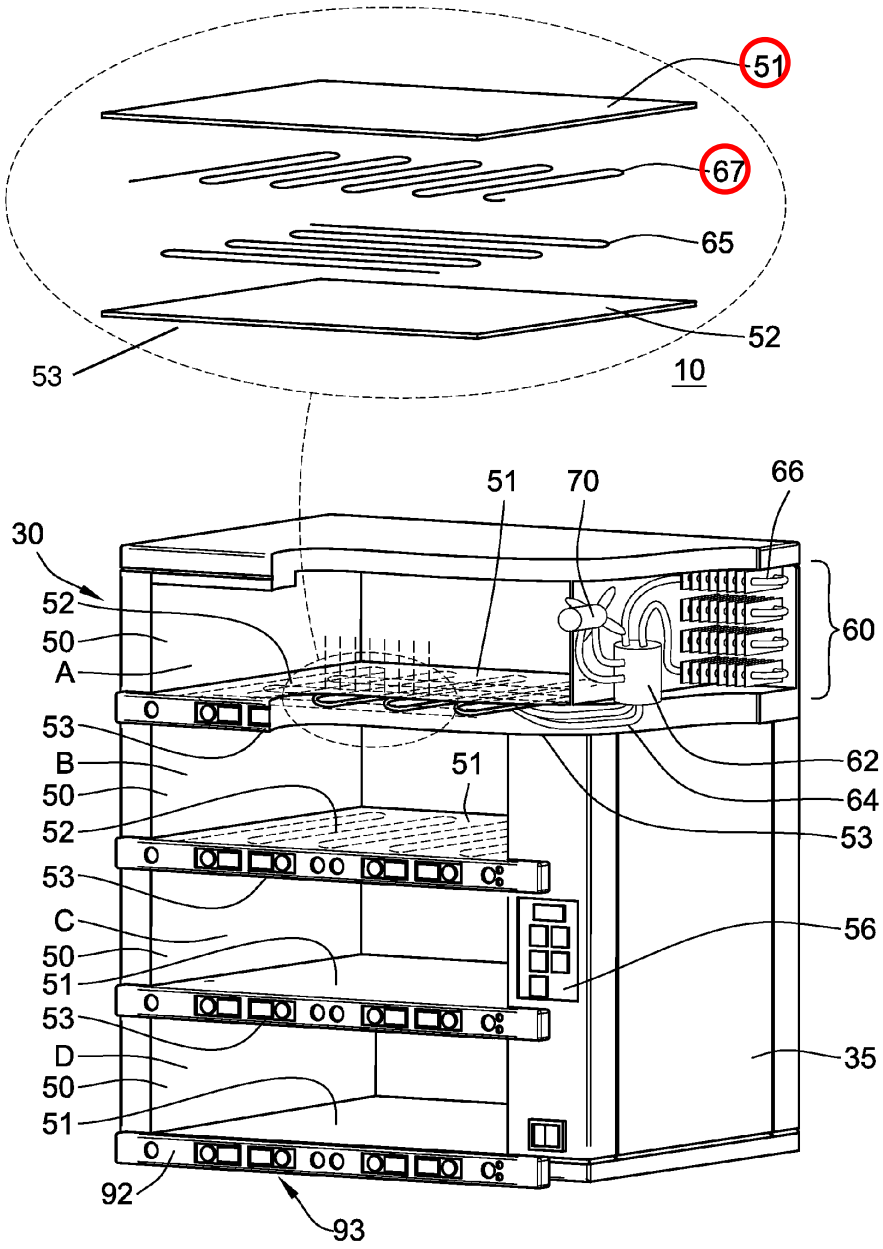


FIG. 2

EX1022: Fig. 2 (annotated).

7. Shei'155 (EX1016)

96. U.S. Patent Publication No. 2004/0069155 ("Shei'155") teaches a holding cabinet (102) entirely fabricated by sheet metal. EX1016: ¶[0046] ("the entire cabinet 102 is fabricated of sheet metal").

97. Specifically, Shei'155 explains the heat sinks (29) in the cabinet (102) are made out of aluminum. EX1016: ¶[0039] ("heat sink 29, which is made of aluminum").

98. Shei'155 further teaches conductively coupling an electrical resistance heating element (39) to the heat sink (29) via contact with the bottom of the heat sink. EX1016: ¶[0039] ("An electrical resistance heating element generally designated 39 having a bottom component 41 contacting the bottom of the heat sink").

FIG. 5

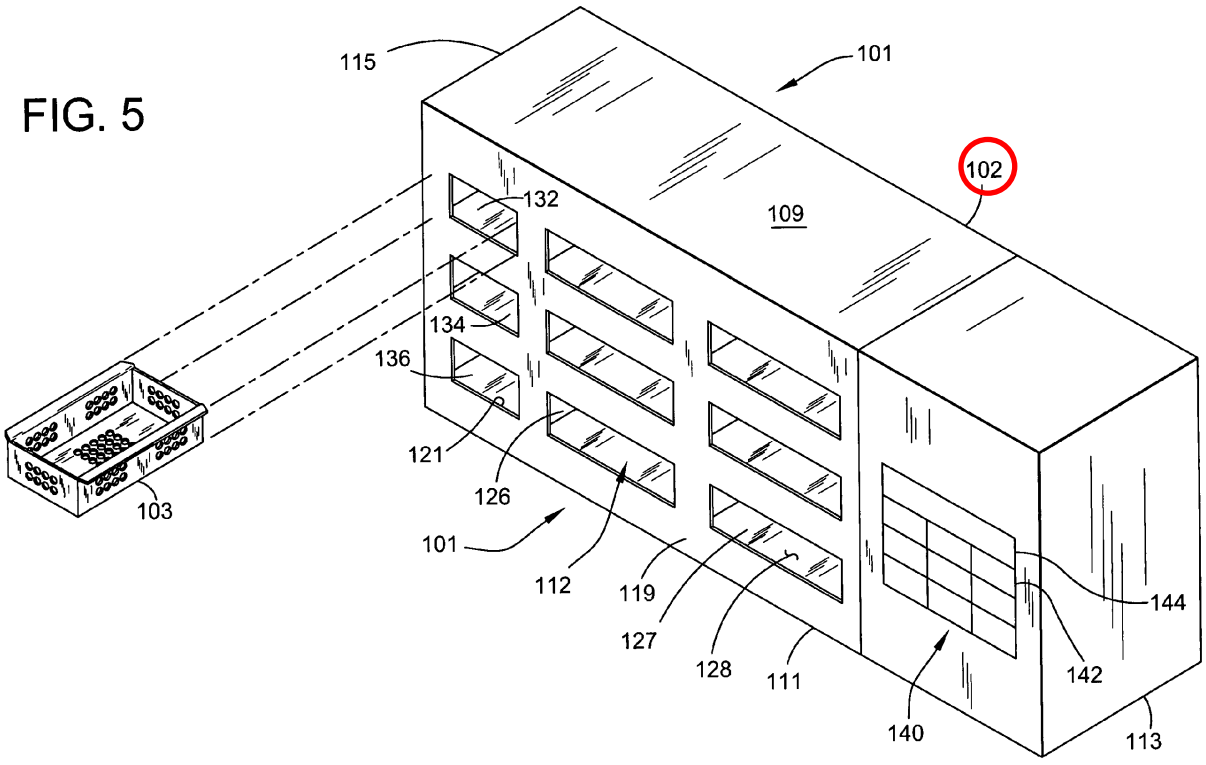
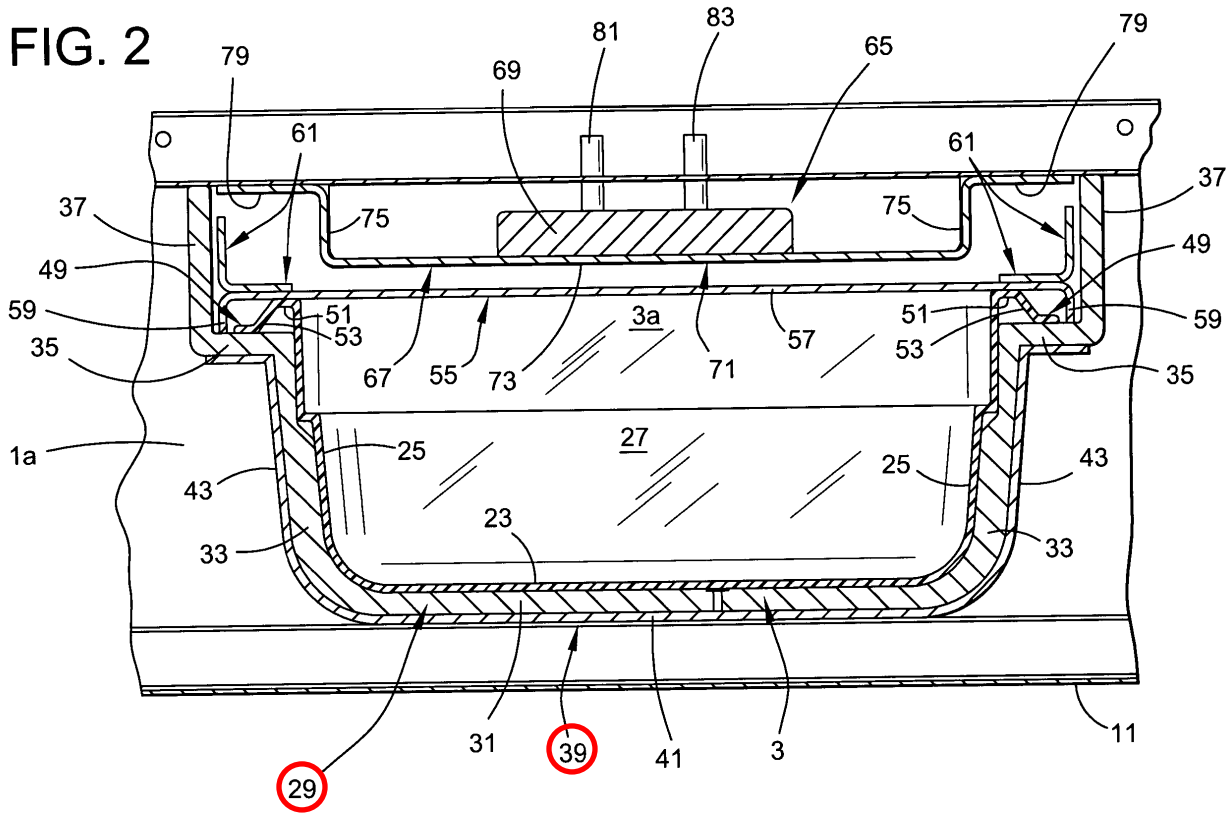


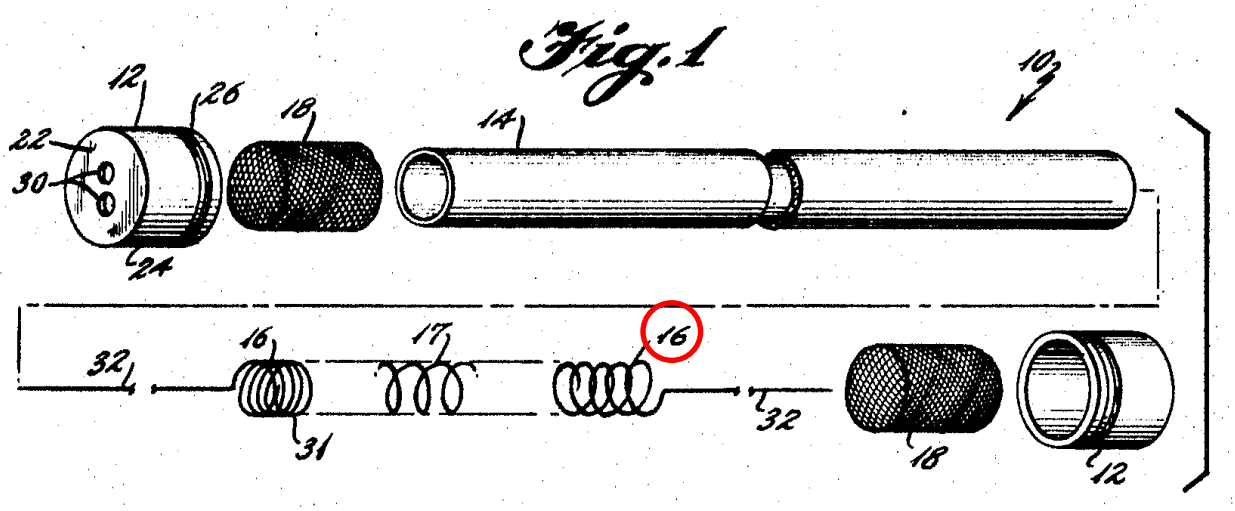
FIG. 2



EX1016: Figs. 2 and 5 (annotated).

8. Poole (EX1025)

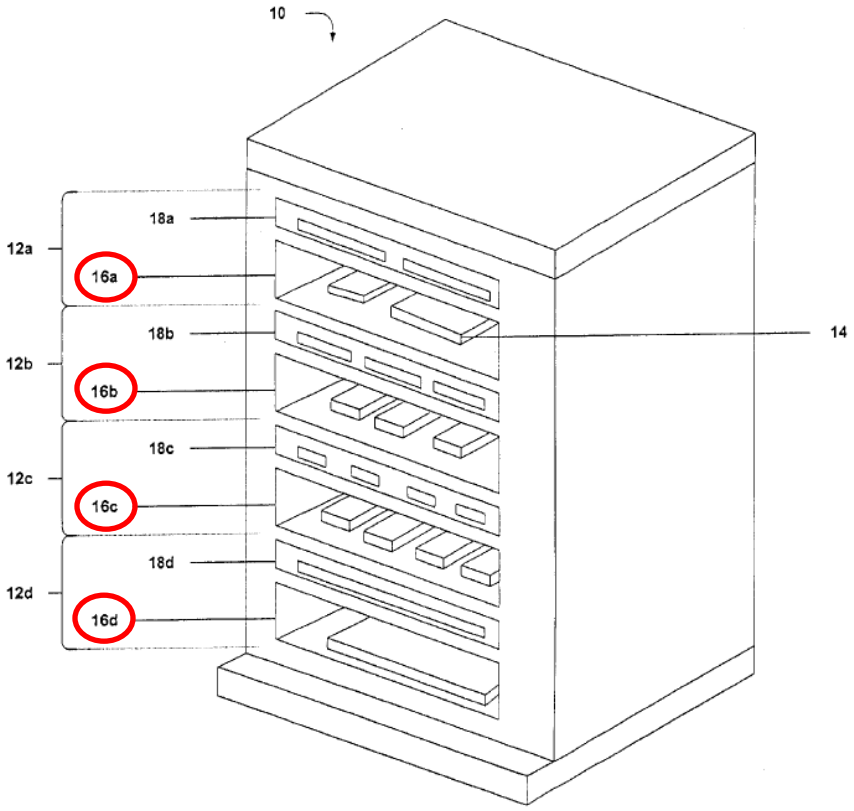
99. U.S. Patent No. 3,461,275 ("Poole") discloses an "infrared quartz heater" with a resistance wire (16) for generating heat. EX1025: Title ("Infrared Quartz Heater"), 1:29-30 ("[t]he usual quartz infrared heater consists essentially of a resistance wire heating element", 2:6-7 ("a heater element 16 in the form of a coiled resistance wire").



EX1025: Fig. 1 (annotated).

9. McMillan (EX1019)

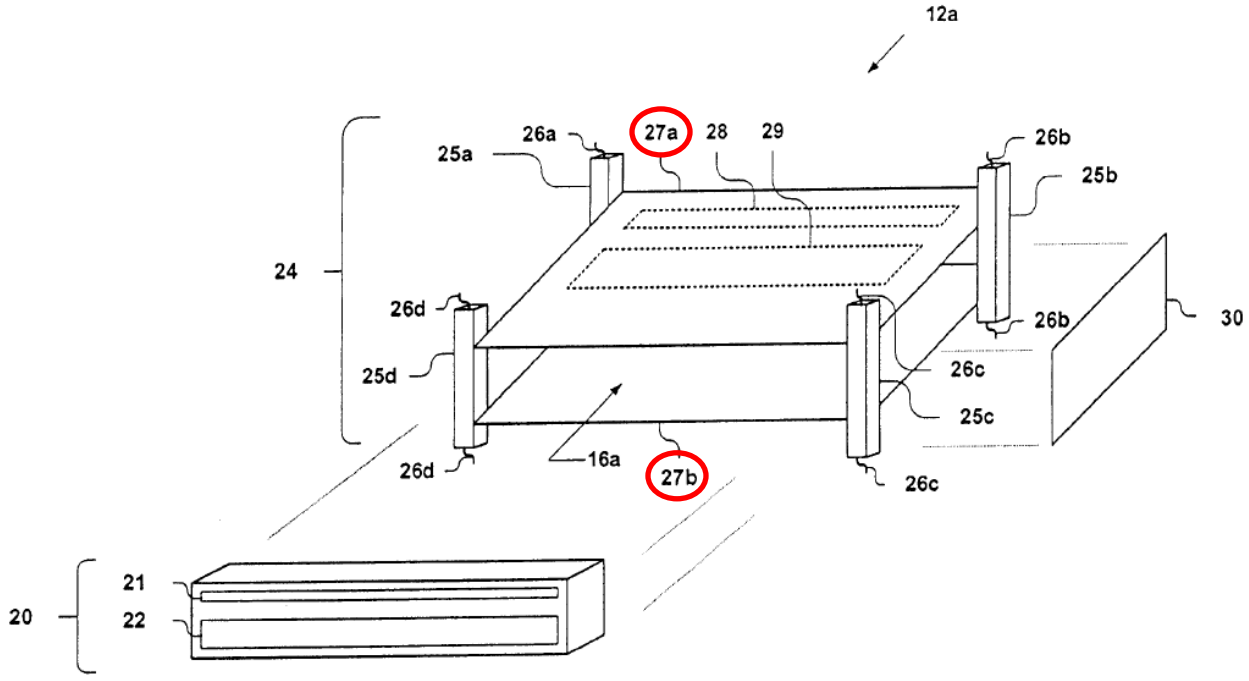
100. U.S. Patent No. 6,658,994 ("McMillan") teaches a food holding cabinet (10) including several food passageways (16a-16d). EX1019: 2:49-52, 2:65-67.



EX1019: Fig. 1 (annotated).

101. Each passageway includes upper and lower heater plates (27a, 27b).

EX1019: 4:36-52.



EX1019: Fig. 2 (annotated).

102. McMillan teaches that the upper and lower heater plates (27a, 27b) "may be individually controlled to maintain a certain temperature set by an operator" and that the upper and lower heater plates may include heating elements configured for zoned heating across the width of the compartment "such that different portions of the passageway 16a may be set to different temperatures." EX1019: 4:36-52.

103. Each food passageway has a display panel (18a-d) having a food product display (180a-d) for each food holding location. EX1019: 9:58-61, 10:5-10. Each food product display (180a-d) is further described as including a message area (183a-d) for displaying information to the user, such as name of the food

products and the holding temperature (actual holding temperature and/or set holding temperature). EX1019: 10:10-33 ("message areas 183a-d may display alpha-numeric messages to an operator regarding the stored food products 14.… For example, when a food product is selected, the message display areas 183a-d may present a description (*e.g.*, name, category) of the selected food product…. When the temperature is set, the message display areas 183a-d may present a numeric value indicating the current and/or set temperature.").

104. The display panel (18a-d) includes arrow keys (184, 185), a temperature key (187) for the user to display temperature information and/or enter operational changes, and a program key (188) for the user to set the holding temperatures. EX1019: 10:43-58 ("The up and down arrow keys 184, 185 allow an operator to increase and decrease displayed values (*e.g.*, temperature, time) or change selections…. The temperature/enter/page key 187 may respond to user input and allow an operator to display temperature information, enter operational changes, and/or scroll to different pages. The program key 188 may respond to user input and may allow an operator to change or select food products, meals, product positions, and/or holding temperatures.").

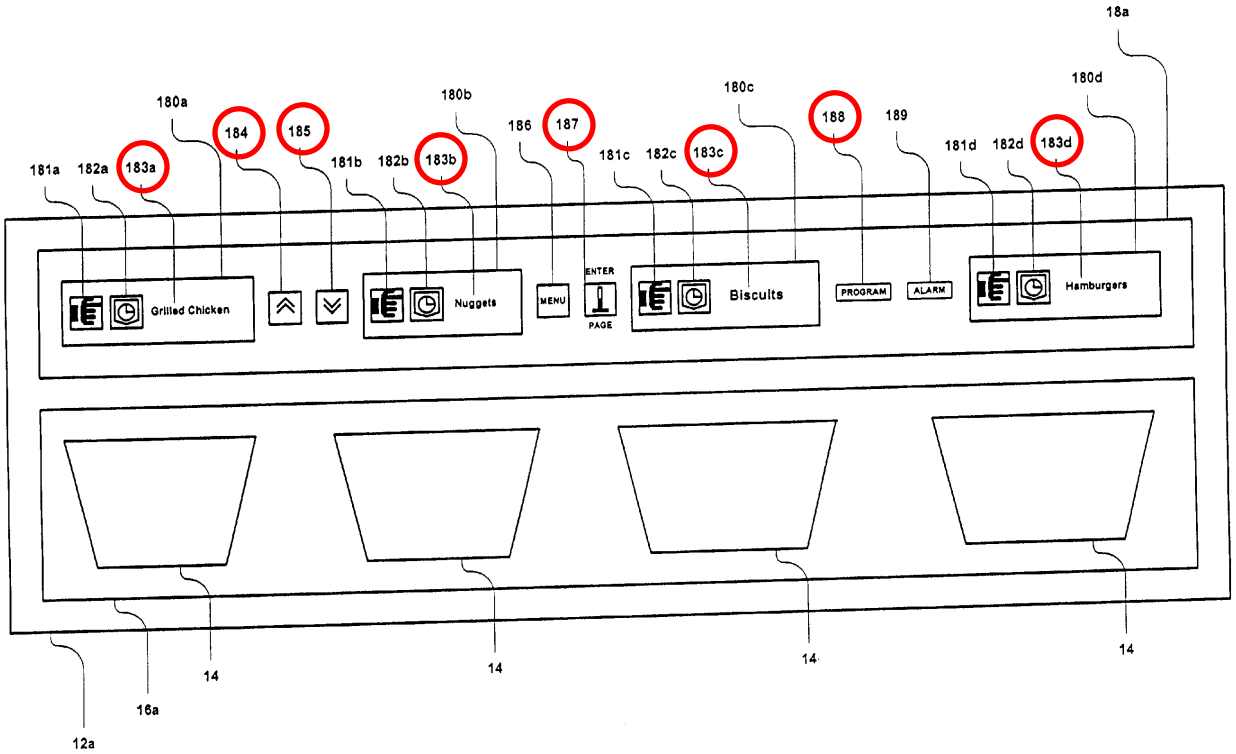


Fig. 5a

EX1019: Fig. 5a (annotated).

10. Shei'099 (EX1017)

105. U.S. Patent No. 6,175,099 ("Shei'099) teaches an oven (A) that receives trays (B) "in which precooked food is placed and held for limited times." EX1017: 2:45-47. The trays (B) are placed in heated openings (36) with covers or lids (80). EX1017: 2:53-54, 3:10-13, 3:28-31, 4:51-53.

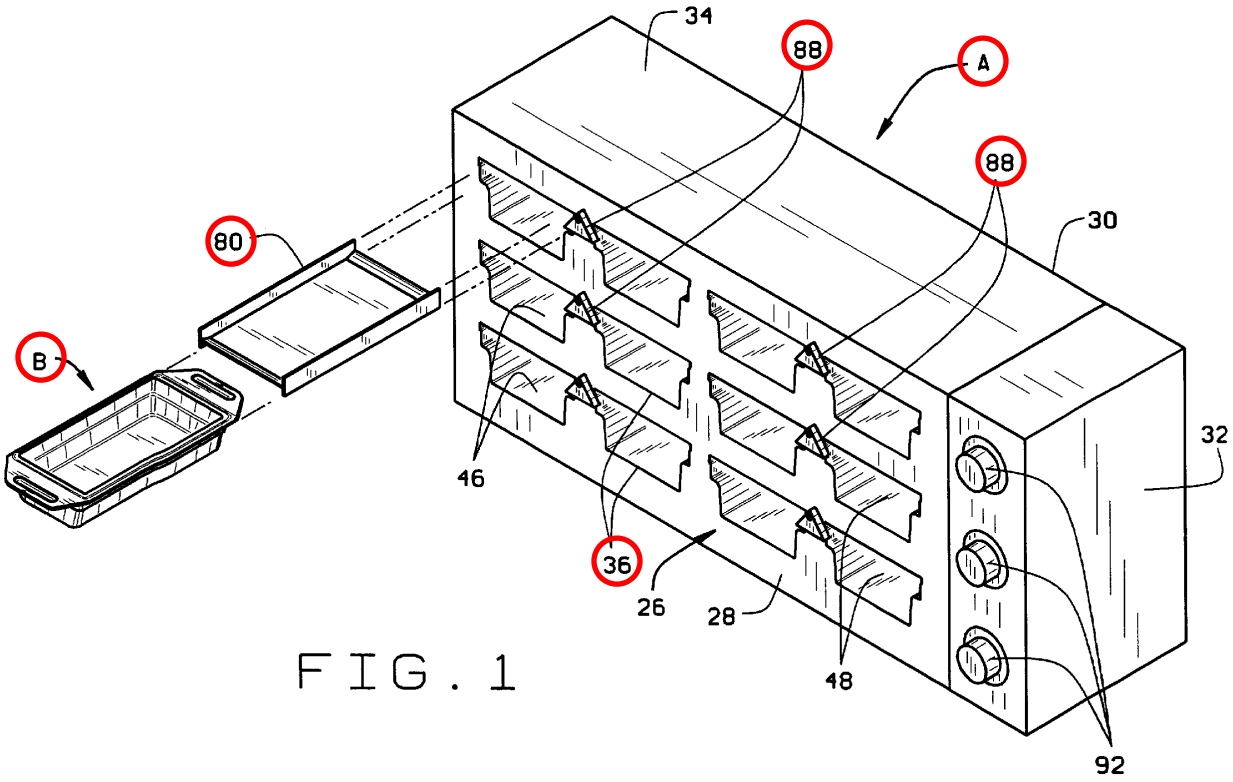


FIG. 1

EX1017: Fig. 1 (annotated).

106. To retain the lids (80) in the openings (36), the oven (A) includes stops (88). EX1017: 6:19-31. The stops (88) are disclosed as being configured to pivot to allow a user to insert and remove the lids (80) from the openings (36). EX1017: 6:22-26 ("the stop 88 at the heat sink 46 in which the cover 80 fits, is pivoted away from the opening 36 at that heat sink 46 so as to no longer block the opening 36. While the stop 88 is held away from the opening 36, the cover 80 is removed").

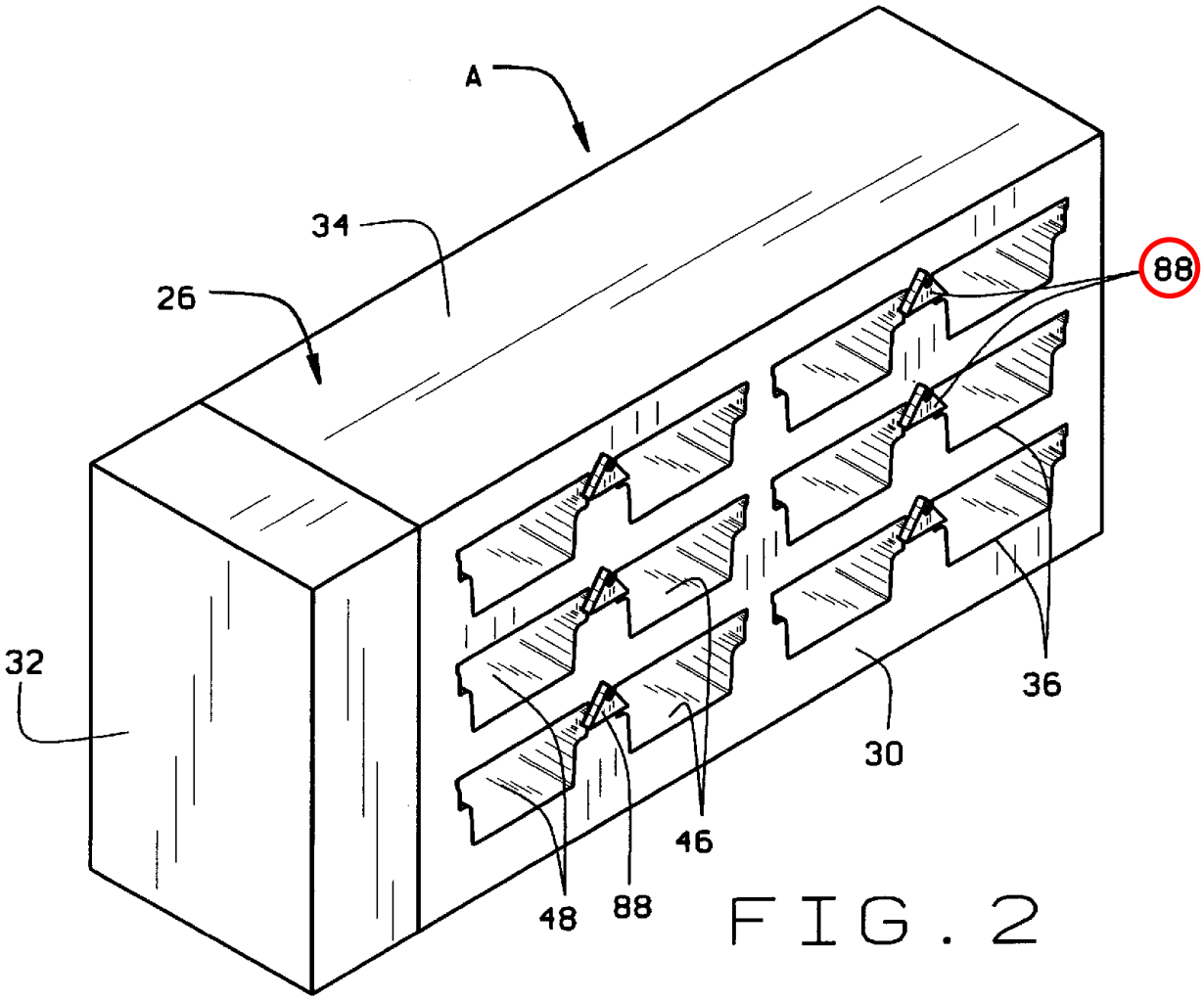


FIG. 2

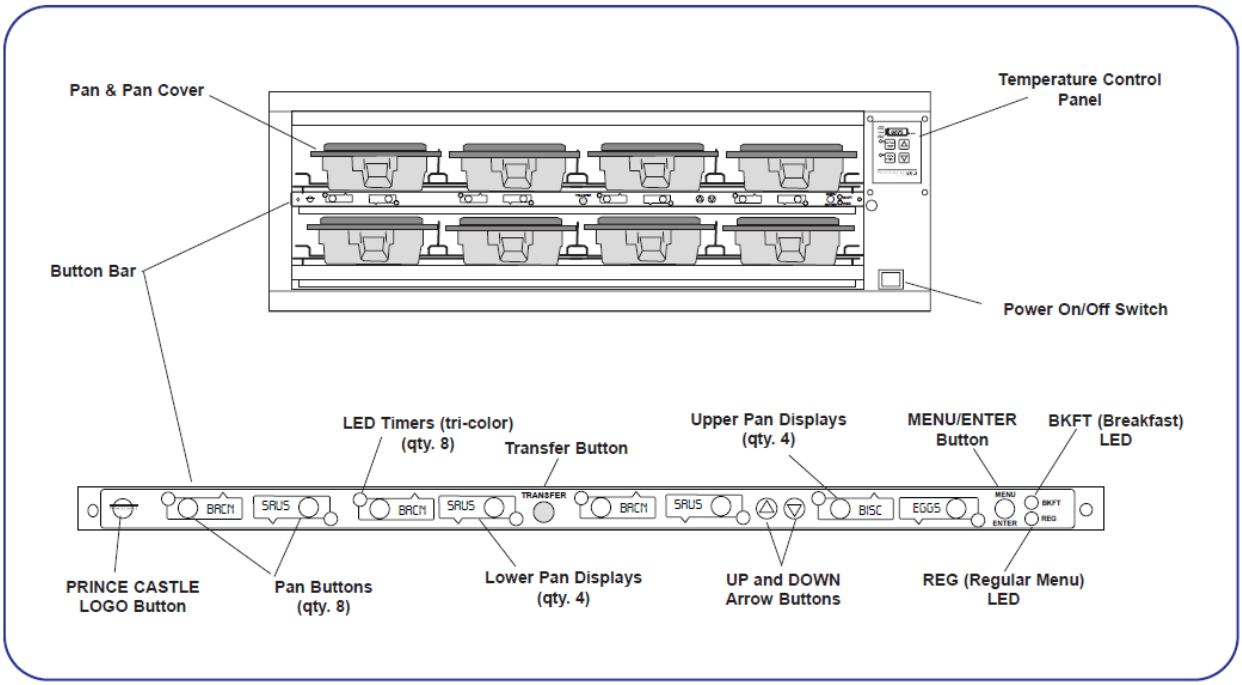
EX1017: Fig. 2 (annotated).

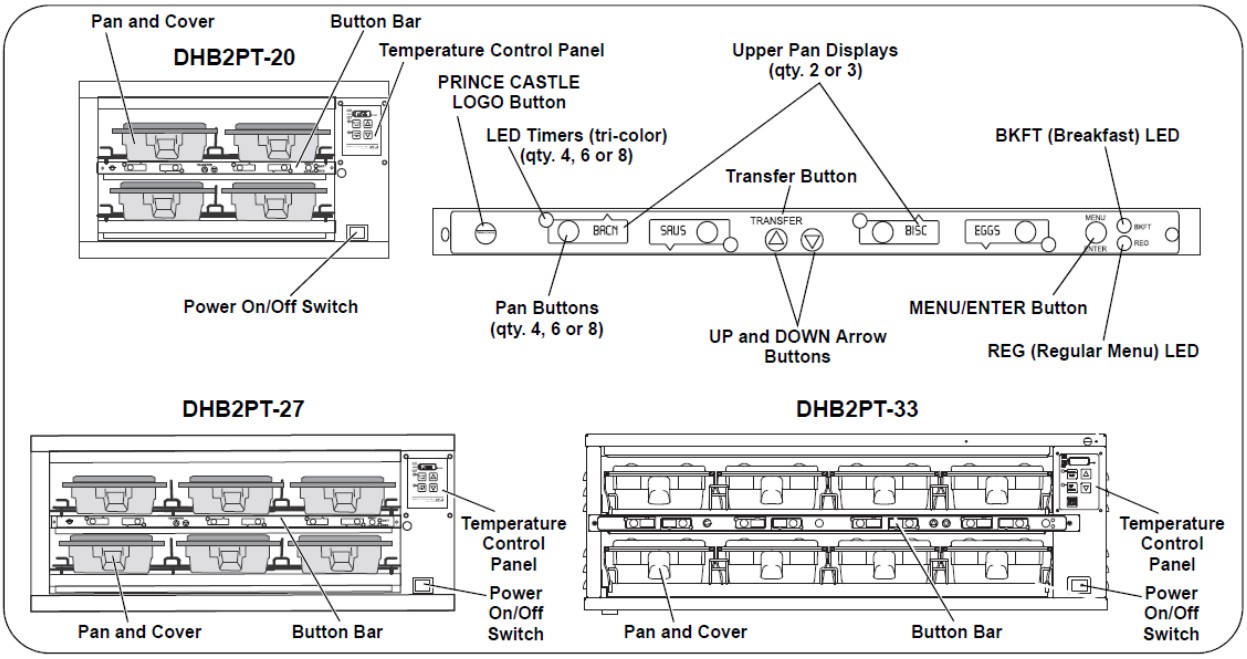
11. Prince Castle (EX1009)

107. The Prince Castle Holding Bins Website ("Prince Castle") is an archived collection of URLs from the Wayback Machine as they existed in March-May 2014 from a publicly website that was operated by Patent Owner Marmon to advertise its commercial kitchen equipment, including Product Holding Bins (also called Holding Bins or Dedicated Holding Bins).

108. Prince Castle includes a landing page with links for different product categories including Holding Solutions (*i.e.*, product holding bins) (EX1009: 5), several webpages about the Holding Solutions/Product Holding Bins (EX1009: 6-13), a specification sheet for the DHB2PT-33 model Product Holding Bins (EX1009: 14-17), a 2006 Operation Manual for the DHB2PT-33 model Product Holding Bins (EX1009: 18-34), and a 2010 Operation Manual for the DHB2PT Series Product Holding Bins (EX1009: 35-52).

109. The 2006 and 2010 Operation Manuals provide the following views of the Product Holding Bins:



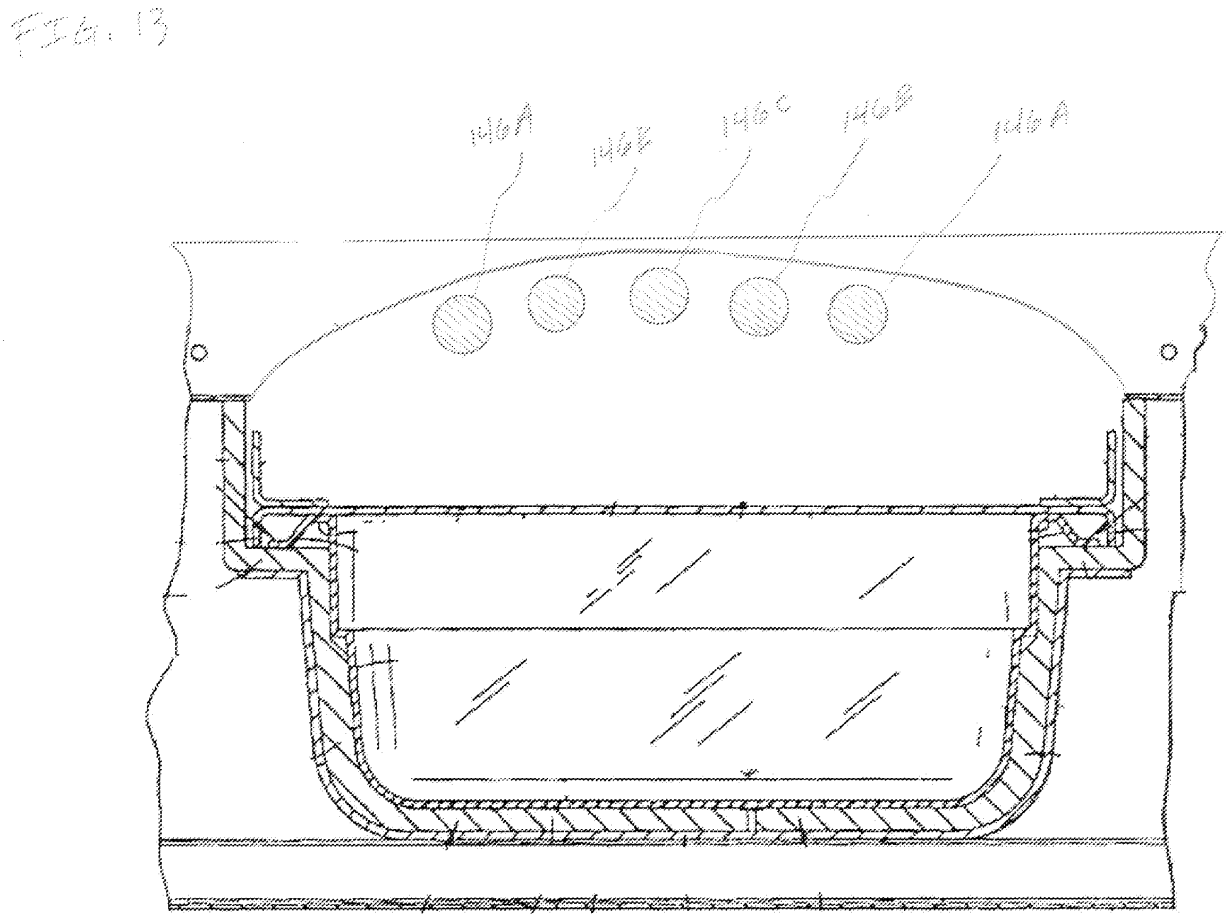


EX1009: 19, 36.

110. The 2006 and 2010 Operation Manuals explain various operations and settings of the Product Holding Bins. The two Operation Manuals teach that each compartment of the Product Holding Bin has "an upper and lower heater." EX1009: 22, 40. Both Operation Manuals state that "[t]he factory pre-set for the upper heaters is 225°F" and "[t]he factory pre-set for the lower heaters is 195°F." EX1009: 22, 40.

12. Reese (EX1027)

111. U.S. Patent Publication No. 2014/0130684 ("Reese") teaches a product holding unit for holding pre-cooked food before it is served, with the product holding unit having upper heating elements in the form of infrared emitters. EX1027: ¶¶[0001], [0025].



EX1027: Fig. 13.

112. Reese further explains its product holding unit has a "Turbo Boost" actuator which, when pressed, increases the heat from the heating elements. EX1027: ¶[0019] ("deliver an increased amount of heat to the food"). Reese explains the turbo boost function can be used "to re-crisp breaded (fried) food, to melt cheese on fries, to melt cheese on burger patties, to brown grilled food products, and/or to brown burger patties." EX1027: ¶[0021]. For example, Reese states "[t]he turbo boost could be used before it is anticipated to remove food from a respective heating compartment to increase heat delivered to breaded food to re-

crisp it such as by drying potentially soggy breading or to increase heat delivered to food on which cheese has been positioned for melting it." EX1027: ¶[0021].

IV. GROUND 1: Claims 1-5 and 7-10 Would Have Been Obvious Over the IRHS Documents

A. Combination of the IRHS Documents

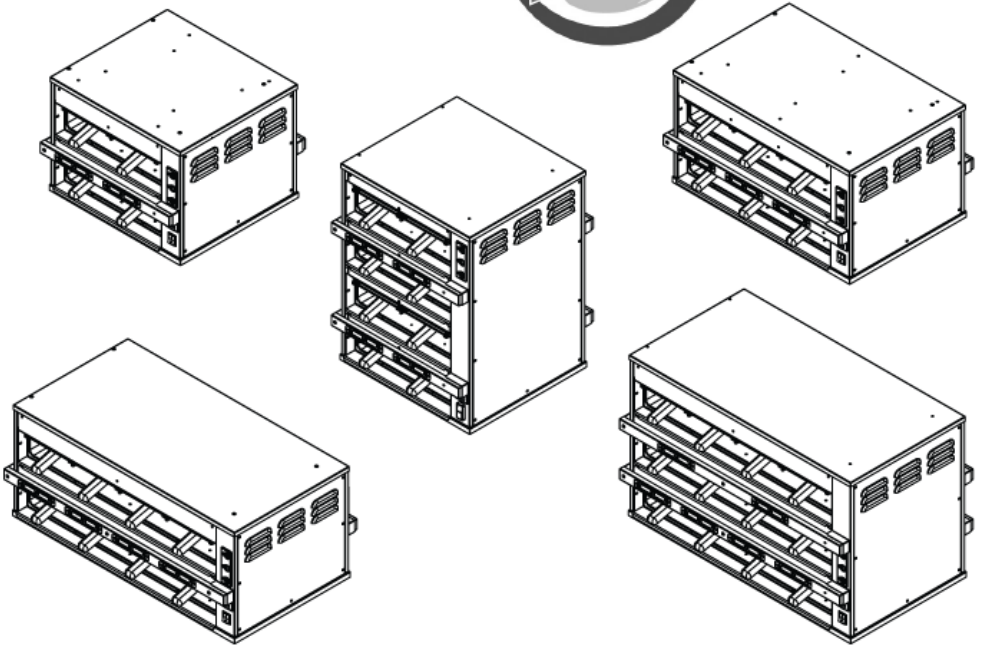
113. While I understand that for the purposes of this IPR proceeding, each of the IRHS Documents must be treated as a separate prior art reference, it would have been obvious to the POSA to combine the teachings and disclosures of the IRHS Documents as it would have been apparent that each of the IRHS Documents was describing the same family of IRHS Holding Units. EX1005: 6-10; EX1006: 1-2; EX1007: 55-57; EX1008: 1, 5-9.

114. As described in Paragraphs 49-71 (Section III.1) above, the IRHS Documents (the IRHS Manual (EX1005), IRHS Specifications (EX1006), the Duke Website (EX1007), and the IRHS Service Manual (EX1008)) each describe the same family of food holding units manufactured by Duke referred to as the Infrared Heatsink (IRHS) Holding Units.

Your Solutions Partner

OPERATORS MANUAL

INFRARED HEATSINK ™ HOLDING UNIT



MODELS

IRHS22
IRHS23
IRHS24
IRHS34
IRHS42

IMPORTANT INFORMATION, READ BEFORE USE.
PLEASE SAVE THESE INSTRUCTIONS.

This manual is Copyright © 2014 Duke Manufacturing Company. All rights reserved. Reproduction without written permission is prohibited. Duke is a registered trademark of the Duke Manufacturing Company.

Duke Manufacturing Company
2305 N. Broadway
St. Louis, MO 63102
Phone: 314-231-1130
Toll Free: 1-800-735-3853
Fax: 314-231-5074
www.dukemfg.com

P/N 229945D
02/18/14

EX1005: 1.

Your Solutions Partner

Specifications

F.O.B Sedalia, Missouri 65302



IRHS - 23

OPTIONS:

- ☐ Metal trivet for fried/dry product
- ☐ Kitchen Minder master unit
- ☐ Kitchen Minder slave unit
- ☐ Single side control

AGENCY LISTING:

DUKE MANUFACTURING CO.
2305 N. Broadway
St. Louis, MO 63102

800.735.3853 Toll Free
314.231.5074 Fax
www.dukemfg.com

Approval Stamp(s):

PRODUCT INFORMATION:

PROJECT: _____
ITEM: _____
QUANTITY: _____

MODEL:

Product Holding Unit - Infra Red Heat Sink

IRHS-22	2 down, 2 across
IRHS-23	2 down, 3 across
IRHS-24	2 down, 4 across
IRHS-34	3 down, 4 across

BODY:

- Stainless steel exterior
- Annodized aluminum HeatSink™ with fully radiused curved corners that are easily cleaned
- Only removable part for cleaining is aluminum cover for broiled product
- Modular and scaleable design

HEATING:

- Dual technology heating to reduce temperature variance from top to bottom
- Individually controlled IR emitters pulse on and off for controlling optimum amount of energy being applied to the food
- Zoned bottom heat to provide additional holding environment customization
- IR Turbo Boost for instant shot of IR energy

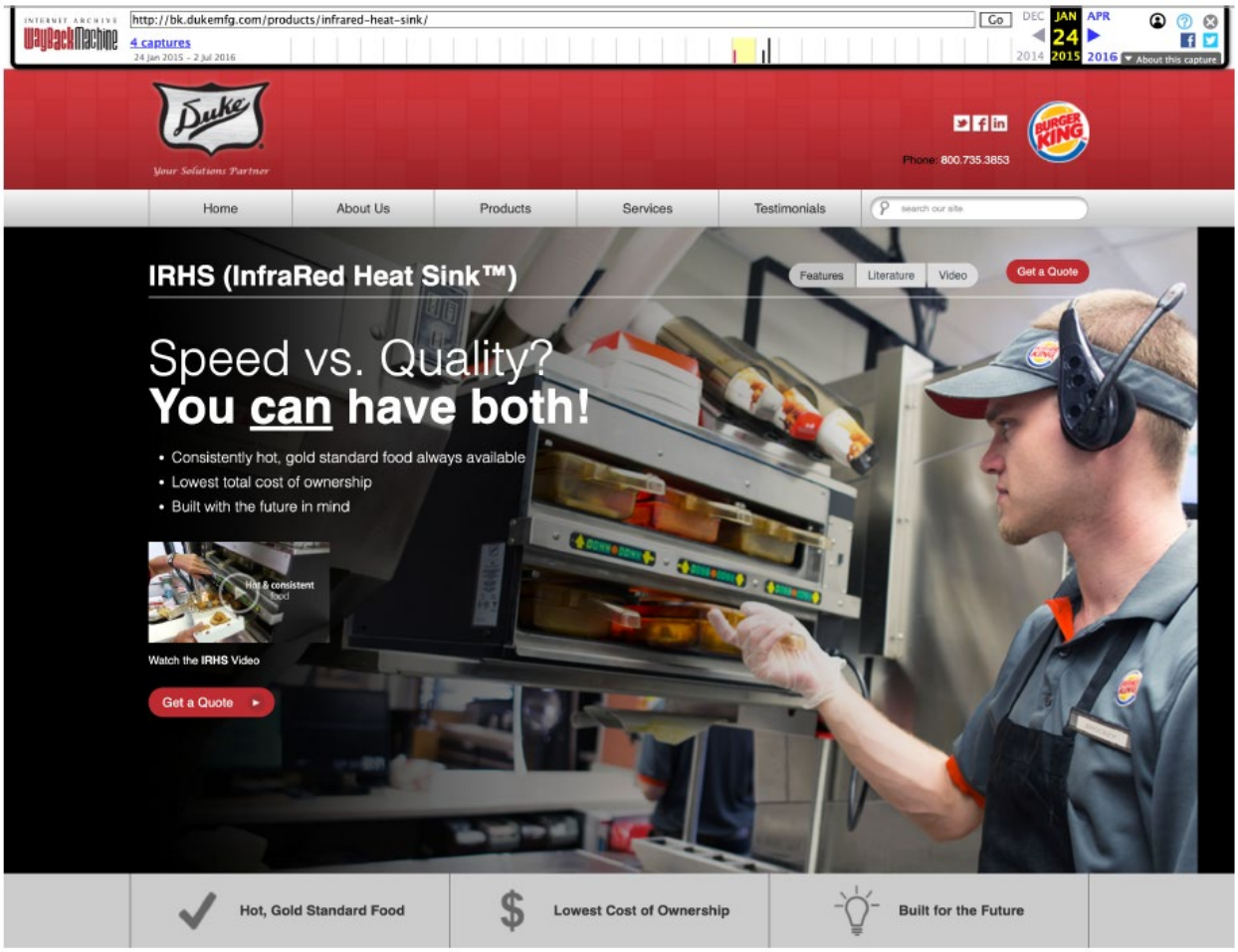
CONTROLS

- Automatic pan linking to ensure FIFO
- Custom heat settings for food product
- Each compartment individually controlled
- Alphanumeric displays to indicate product description, temp and hold time remaining
- Web based programming via USB
- Day part switch for global recipe changes (B, L, D)
- Firmwave updates via USB

SHORT FORM SPECIFICATIONS:

Duke Product Holding Units - Upper IR emitters provide optimum environment for holding of all fried foods resulting in extended hold time, moist protein and crispy breading. Bottom zoned heat element provides gentle heat to minimize temperature distribution from top to bottom of pan. Alphanumeric control with independent well flexibility. Programmable via website & USB with daypart switch to facilitate global recipe changes.

EX1006: 1.


http://bk.dukemfg.com/products/infrared-heat-sink/
4 captures
24 Jan 2015 - 2 Jul 2016
Duke
Your Solutions Partner
Phone: 800.735.3853
Home
About Us
Products
Services
Testimonials
IRHS (InfraRed Heat Sink™)
Features
Literature
Video
Get a Quote
Speed vs. Quality?
You can have both!
• Consistently hot, gold standard food always available
• Lowest total cost of ownership
• Built with the future in mind
Watch the IRHS Video
Get a Quote
Hot, Gold Standard Food
Lowest Cost of Ownership
Built for the Future

EX1007: 8.

IRHS InfaRed HeatSink® Product Holding Units

- Consistently hot, gold standard food is always available
- Lowest cost of ownership solution
- Built with the future in mind



1. Metal HeatSink cover to eliminate plastic lids. Cover only required for broiled foods.
2. No more plastic faceplates! Stainless steel faceplate protects internal components.
3. Rolled edges and completley sealed construction prevent grease seepage to internal components.
4. Ensure quick and accurate fixes with more advanced diagnostics and a more robust Duke timer bar.

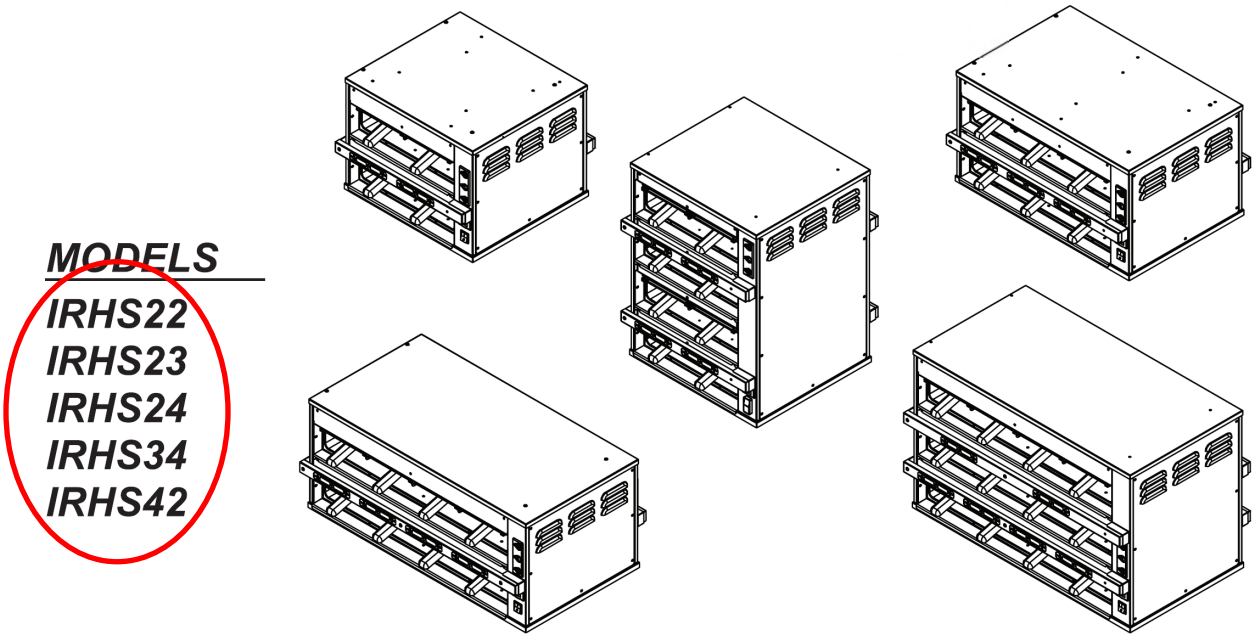
By combining the technologies of InfraRed and HeatSink, we are able to hold food with superior flavor and temperature consistency. Previous generations of the Duke holding units contained only HeatSink, heating from below and wrapping around the sides of each pan. By adding the top-down InfraRed heat, we have been able to deliver a consistently hot pan of product, from top to bottom. This also allows unlimited menu flexibility as each food product has tailored settings to control the thermal path of the food, leading to optimal quality, consistency and extended hold.

EX1007: 51.



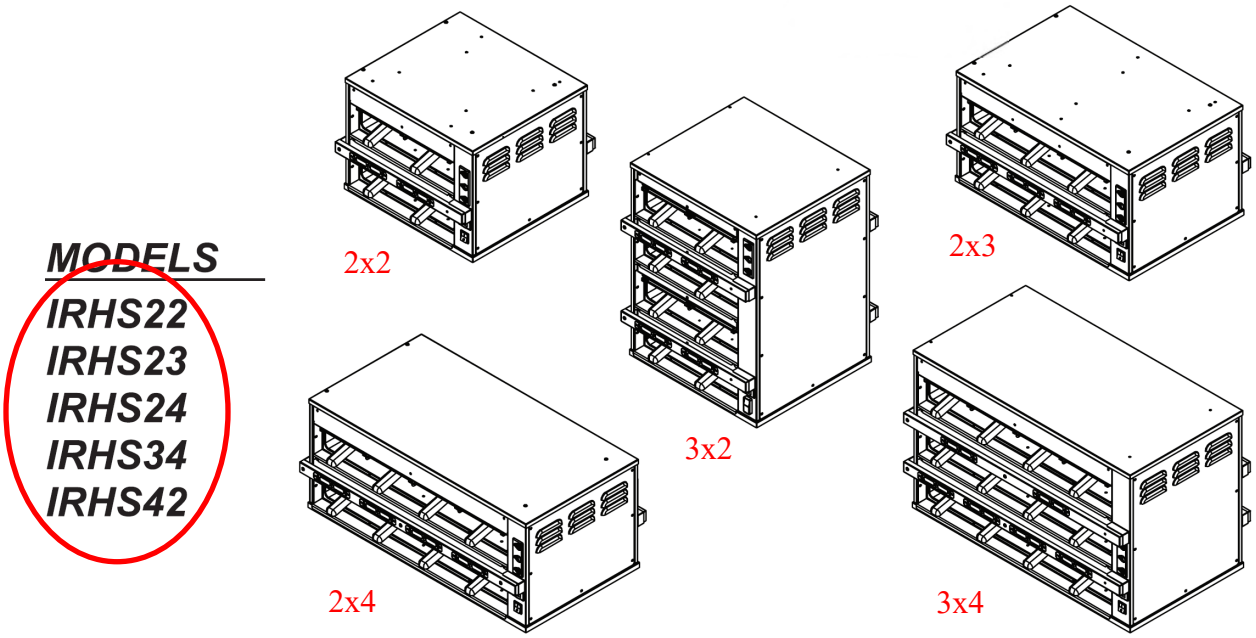
EX1008: 1.

115. Beyond being directed to the same family of food holding, the IRHS Documents more specifically describe the same model of IRHS Holding Units: IRHS22, IRHS23, IRHS24, IRHS34, and IRHS42. EX1005: 1, 6-10; EX1006: 1, 2; EX1007: 54-57; EX1008: 1, 5-9.



EX1005: 1 (annotated).

116. The numerical suffixes of the model numbers indicate the configuration of the pan holding locations/bays. For example, IRHS**22** has four pan holding locations arranged in a 2x2 grid; IRHS**23** has six pan holding locations arranged in a 3x2 grid; IRHS**24** has eight pan holding locations arranged in a 2x4 grid; IRHS**34** has twelve pan holding locations arranged in a 3x4 grid; and IRHS**42** has eight pan holding locations arranged in a 4x2 grid. EX1005: 6-10; EX1006: 1; EX1007: 54-57; EX1008: 1.



EX1005: 1 (annotated).

MODEL:

Product Holding Unit - Infra Red Heat Sink

IRHS-22	2 down, 2 across
IRHS-23	2 down, 3 across
IRHS-24	2 down, 4 across
IRHS-34	3 down, 4 across
IRHS-42	4 down, 2 across

EX1006: 1 (annotated).

Part #'s	Controls	Stand-Alone/ Master/Satellite	Electrical Requirements			
			Voltage	Hz	Amps	NEMA
IRHS24-**XXX**4T1M	Single	Stand-Alone	208 / 230 / 240	50/60	12	6-15P (208V/240V)
IRHS24-**XXX**4T2R	Double	Stand-Alone	208 / 230 / 240	50/60	12	6-15P (208V/240V)
IRHS24-**XXX**4T1S	Single	Satellite	208 / 230 / 240	50/60	12	6-15P (208V/240V)
IRHS24-**XXX**4T1M	Single	Master	208 / 230 / 240	50/60	12	6-15P (208V/240V)
IRHS24-**XXX**4T2S	Double	Satellite	208 / 230 / 240	50/60	12	6-15P (208V/240V)
IRHS24-**XXX**4T2M	Double	Master	208 / 230 / 240	50/60	12	6-15P (208V/240V)

Notes
1. Replace "XXX" in the part # with the respective power supply
2. 230V Unit Electrical Requirements: IEC 60309 PIN & SLEEVE PLUG, 16 AMP

WARRANTY:
3 year parts and 1 year labor for timer bar IRHS
3 year parts and 2 year labor for VISORenabled IRHS – no timer bar unit

EX1007: 56 (annotated).

117. The IRHS Documents were all published by Duke, which manufactured the IRHS products, and feature Duke's trademarks. EX1005: 1; EX1006: 1; EX1007: 54, 57; EX1008: 1.

118. The IRHS Documents all refer to and describe the same product line (IRHS Holding Units), using many of the same images, specifications, and descriptions. For instance, in addition to using the same model numbers and name ("InfraRed HeatSink"), the IRHS Documents further list essentially the same dimensions for each model of IRHS Holding Unit. EX1005: 6-10; EX1006: 1-2; EX1007: 55-57; EX1008: 5-9.

119. A POSA that was interested in learning about the IRHS products would have recognized that information on the products would have been available via its product literature. The POSA likewise would have understood the types of product literature that would typically be available for such products, namely: marketing materials in the form of web site and catalog product descriptions, specification sheets, user/operator manuals, and service manuals.

120. It would have been obvious for the POSA to combine the teachings of the IRHS Documents because the IRHS Documents describe the same IRHS products. Understanding the IRHS Documents describe the same product line, the POSA would readily combine the teachings of the IRHS Documents to form a full comprehension of the IRHS products as having all the capabilities and features the

IRHS Documents describe Duke's IRHS products to have. The POSA would have done this to meet customer demands, increase holding capacity for diverse foods, and provide customized/improved holding environments for each food. EX1007: 17 ("[Duke] recognize[s] your Pain Points: fried food holding quality, waste, menu proliferation, labor and training, speed of service (organization, specialty board, fry cook times), kitchen image, merchandising. We work to minimize the pain through a flexible approach to manufacturing that emphasizes customization, responsiveness and speed to market"); EX1019: 1:35-49 ("different foods may require different storage temperatures and may have different shelf lives. ... As the number of offered food products increases, so does the complexity of a system capable of maintaining all the different types of food products. Accordingly, there exists a need for a holding cabinet and control system structured and arranged to maintain multiple categories of food products and to convey information regarding food products stored in the holding cabinet").

121. Because the POSA would have viewed the IRHS Documents together as describing capabilities and features of Duke's IRHS products, the POSA would have readily applied or supplemented any capability or feature of the IRHS products taught by one IRHS Document into the IRHS products taught by another IRHS Document. For example, if a feature or capability of the IRHS products is

not clearly described in one IRHS Document, the POSA would look to another IRHS Document to supplement his or her understanding of the IRHS products.

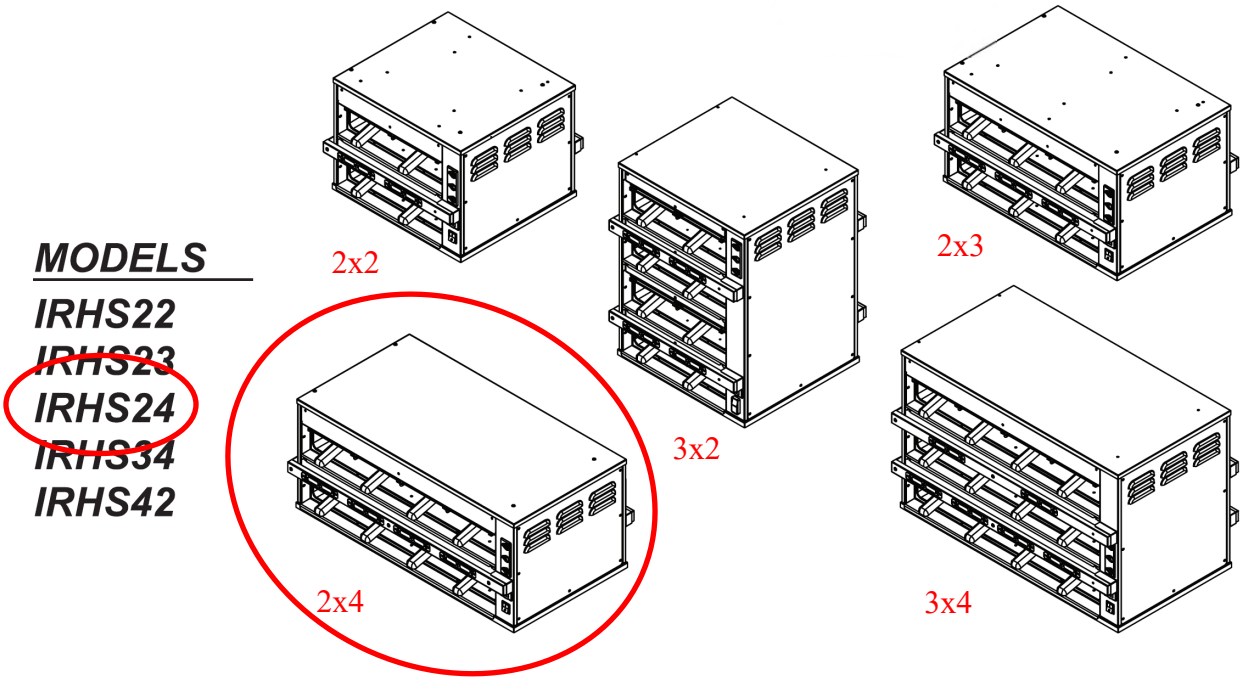
122. Further, because the IRHS Documents would have been recognized as describing the same/related IRHS products, the POSA would have expected that the teachings of the IRHS Documents could have been readily combined.

B. Independent Claim 1

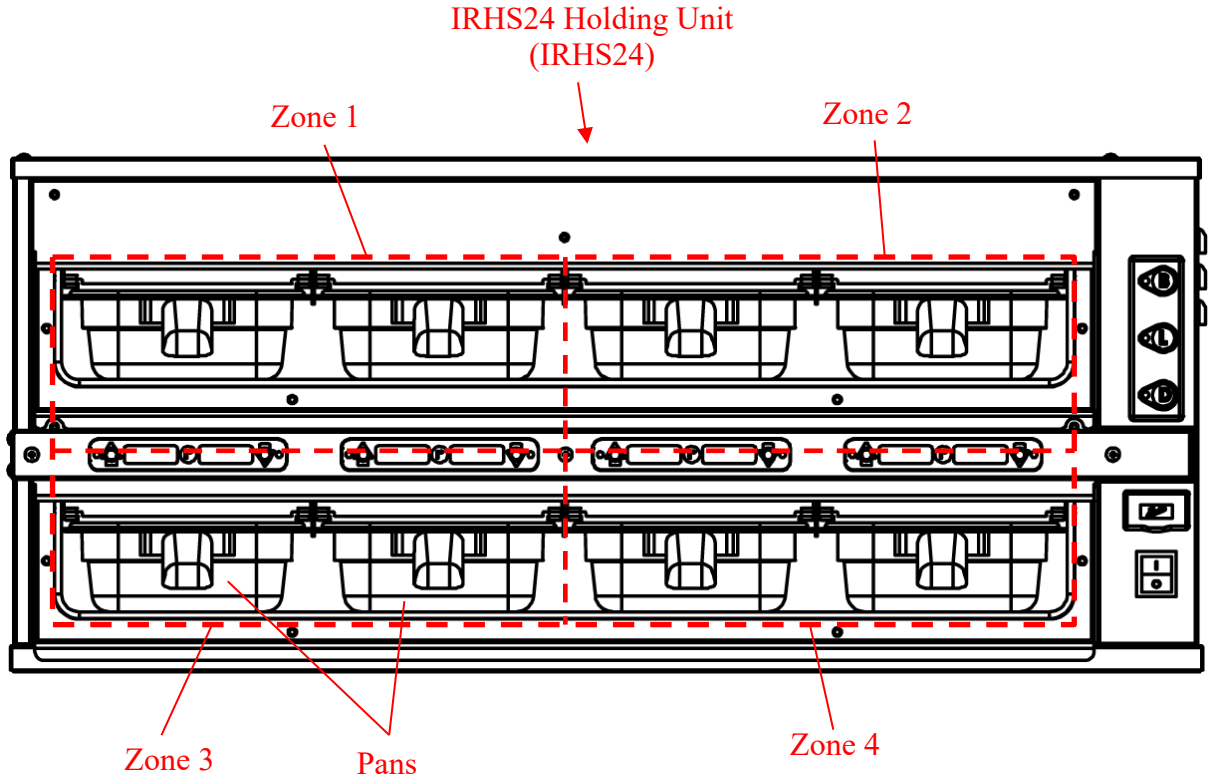
1.P: a multi-zone food holding bin comprising:

123. The POSA would recognize that the IRHS Documents disclose "a multi-zone food holding bin."

124. For example, each of the IRHS Documents disclose a 2x4 IRHS Holding Unit, model number IRHS24, (the "IRHS24 Holding Unit" or "IRHS24") having multiple zones for receiving and heating a plurality of food pans. EX1005: 4, 8; EX1006: 1; EX1007: 51, 56; EX1008: 1; *see also* Paragraphs 142 and 177. As used herein, "IRHS" and "IRHS24" refer to the IRHS Documents' disclosure not a commercial IRHS product itself.



EX1005: 1 (annotated).



EX1005: 8 (annotated).

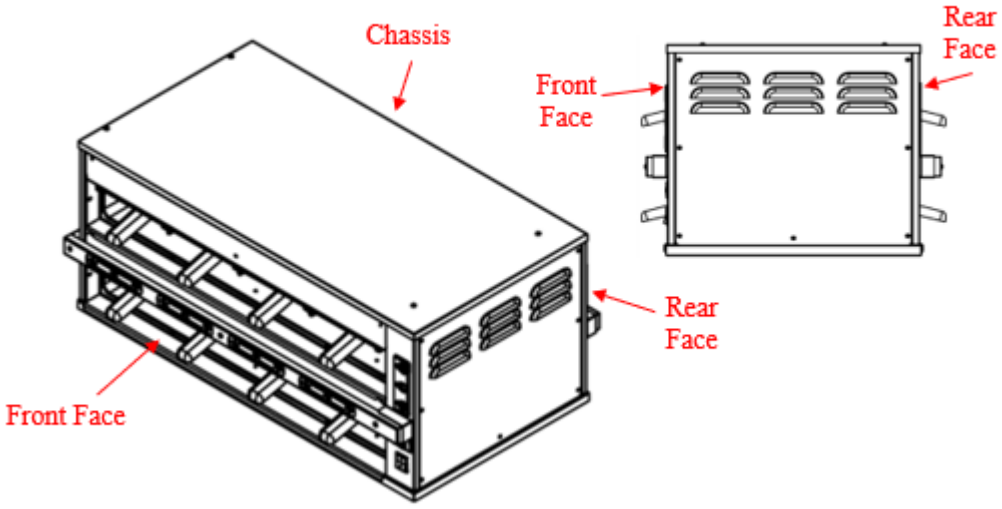


EX1007: 56.

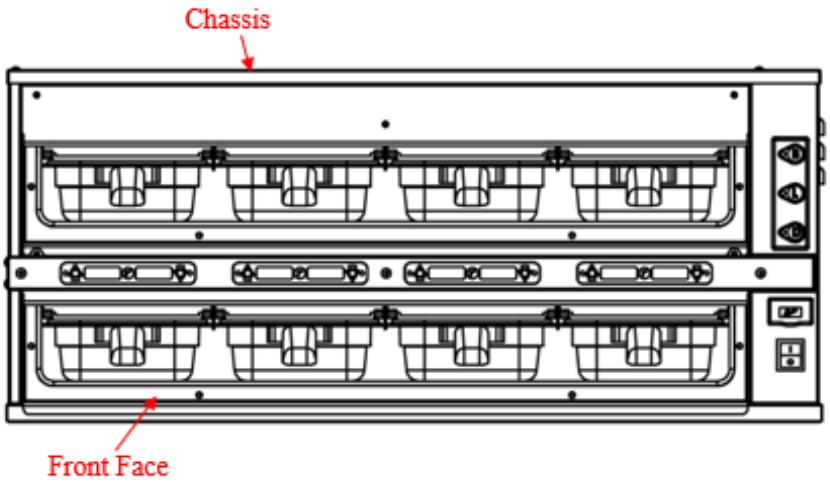
1.a: a chassis having a front face and an opposing rear face

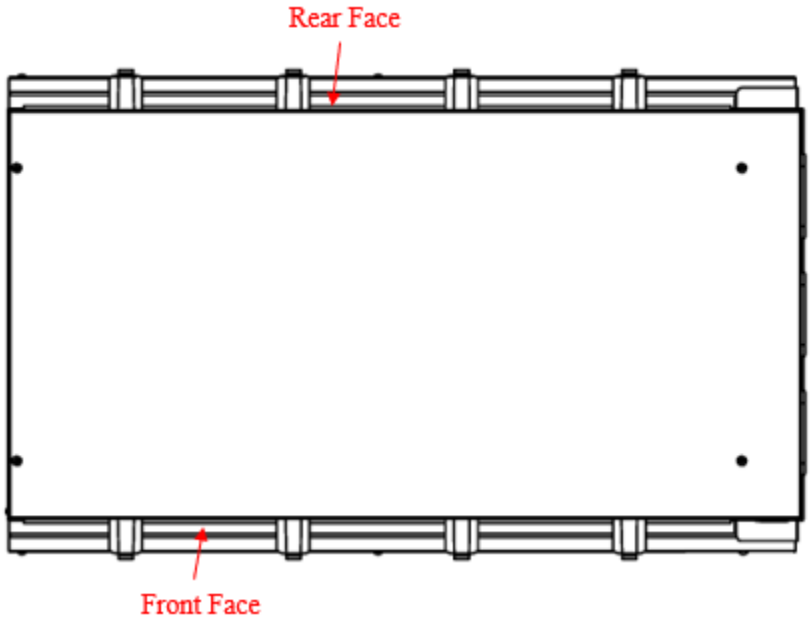
125. The POSA would recognize that the IRHS Documents disclose the multi-zone food holding bins as having "a chassis having a front face and an opposing rear face."

126. For example, the IRHS24 Holding Unit has a chassis. EX1006: 1 ("[b]ody" has a "[s]tainless steel exterior"). The chassis has a front face and a rear face opposite the front face. EX1007: 51 ("[s]tainless steel faceplate protects internal components").



EX1005: 8 (annotated).



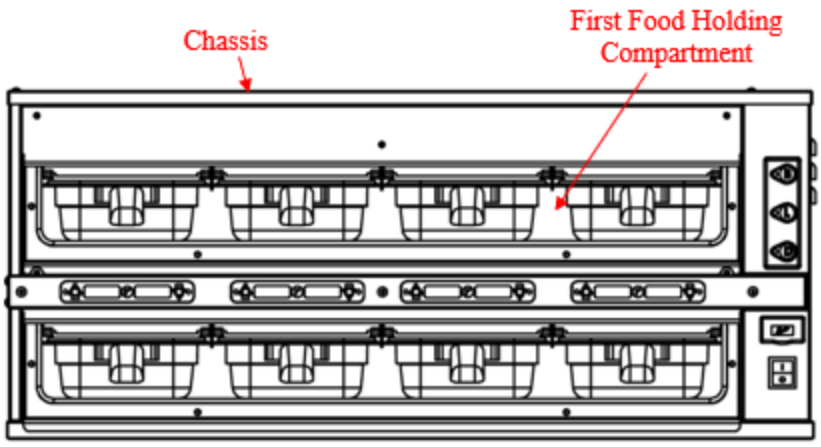


EX1005: 8 (annotated).

1.b.1: a first food holding compartment within the chassis

127. The POSA would recognize that the IRHS Documents disclose the multi-zone food holding bins as having "a first food holding compartment within the chassis."

128. For example, the chassis of the IRHS24 Holding Unit has a shelf extending between the first and second side panels. The compartment located above the shelf meets the first food holding compartment as claimed.



EX1005: 8 (annotated).

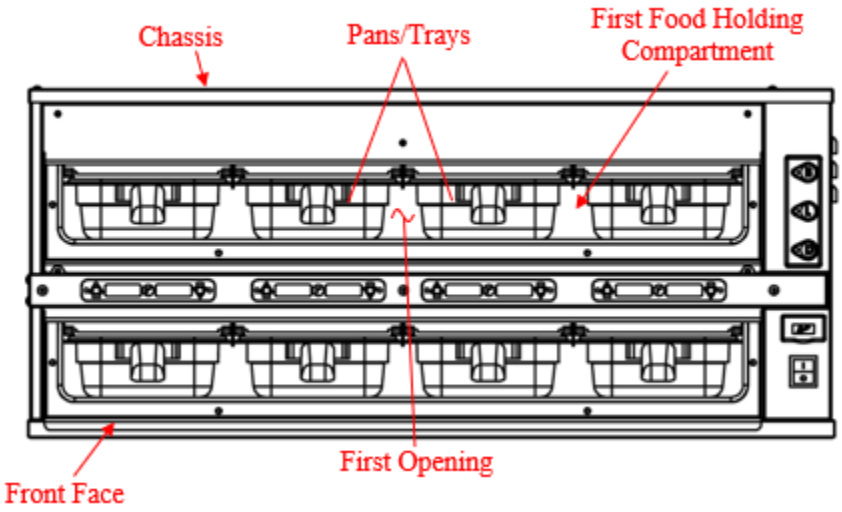
1.b.2: the first food holding compartment having at least a first opening, the first opening being open, uncovered and located at the front face of the chassis, the first opening being configured to allow food items to be placed into and removed from the first food holding compartment

129. The POSA would recognize that the IRHS Documents disclose the first food holding compartment of the multi-zone food holding bins as having "a first opening" with this first opening "being open, uncovered and located at the front face of the chassis" and "configured to allow food items to be placed into and removed from the first food holding compartment."

130. As annotated in the figure below, the front face of the chassis has a first opening.

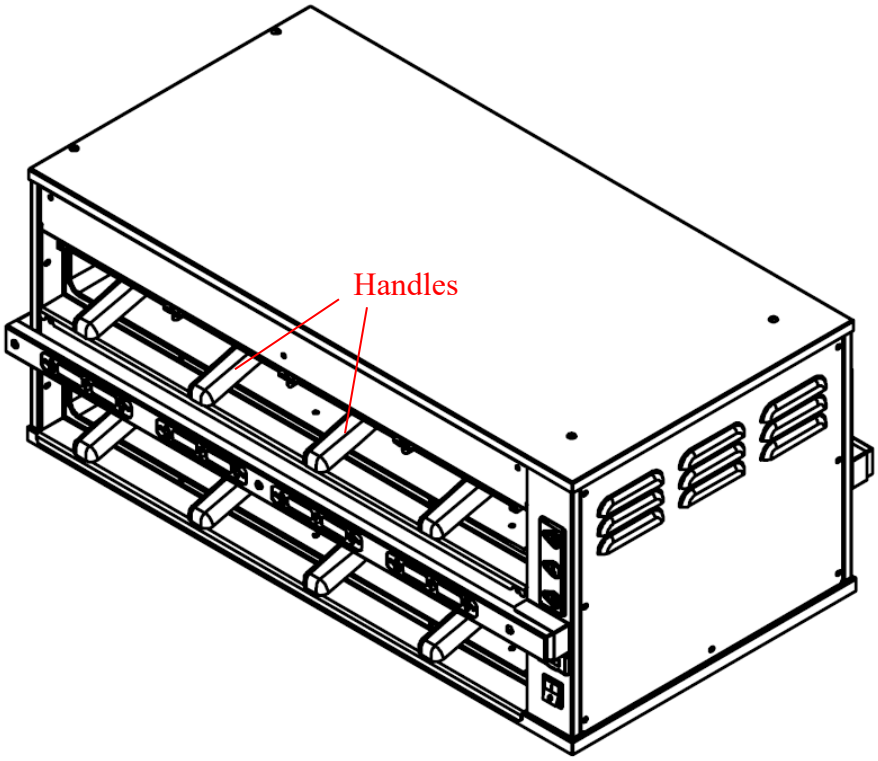
131. The first opening is open, uncovered, and corresponds to the first food holding compartment. This first opening is larger than the food pans and allows the

food pans—and thus the food contained therein—to pass through it to be placed into and removed from the first food holding compartment.



EX1005: 8 (annotated).

132. Additionally, the handles of the food pans are depicted as projecting out of the first opening in the front face of the chassis. EX1007: 52 (upper image). Accordingly, the POSA would recognize that this was intended to allow the operator to insert and remove pans through the first opening.



EX1005: 8 (annotated).



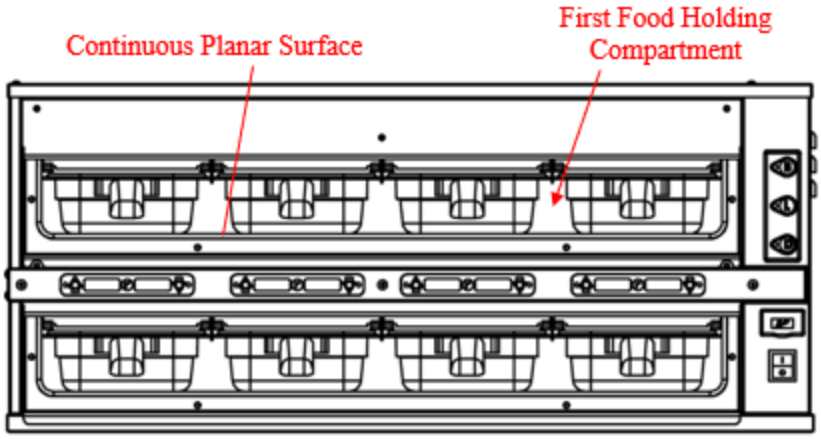
EX1007: 58 (annotated).



EX1007: 52.

1.c.1: a continuous and planar surface forming a bottom of the first food holding compartment

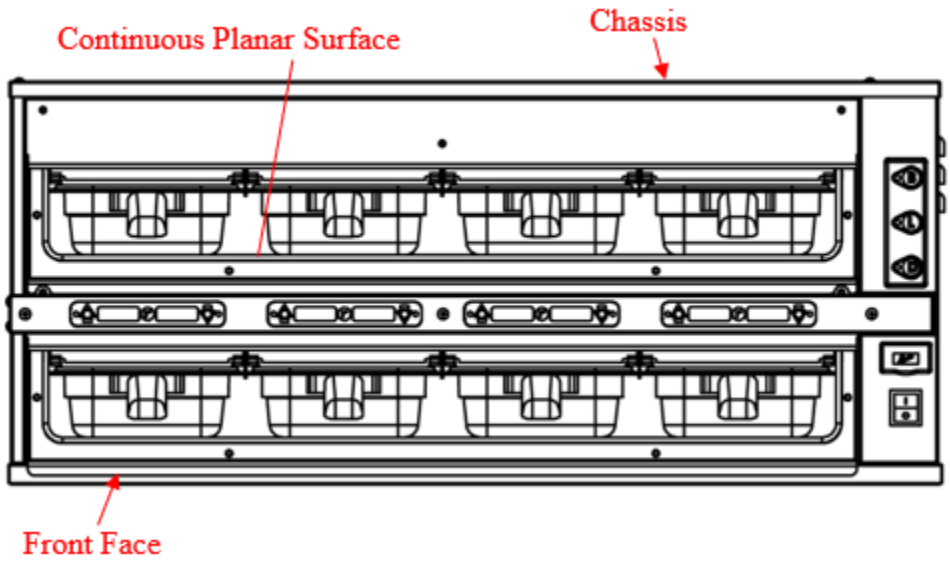
133. The POSA would recognize that the IRHS Documents disclose that a "a continuous and planar surface form[s] a bottom of the first food holding compartment." As annotated in the figure below, the bottom surface of the first food holding compartment is planar and continuous.



EX1005: 8 (annotated).

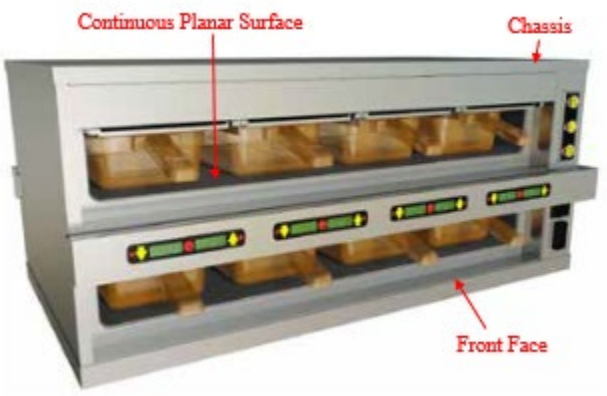
1.c.2: the continuous and planar surface extending completely to the front face of the chassis

134. The POSA would recognize that the IRHS Documents disclose that the continuous and planar surface "extend[s] completely to the front face of the chassis." Specifically, the continuous and planar surface forming the bottom of the first food holding compartment is continuous up to the front face of the heatsink—which in turn is part of the front face of the IRHS chassis.



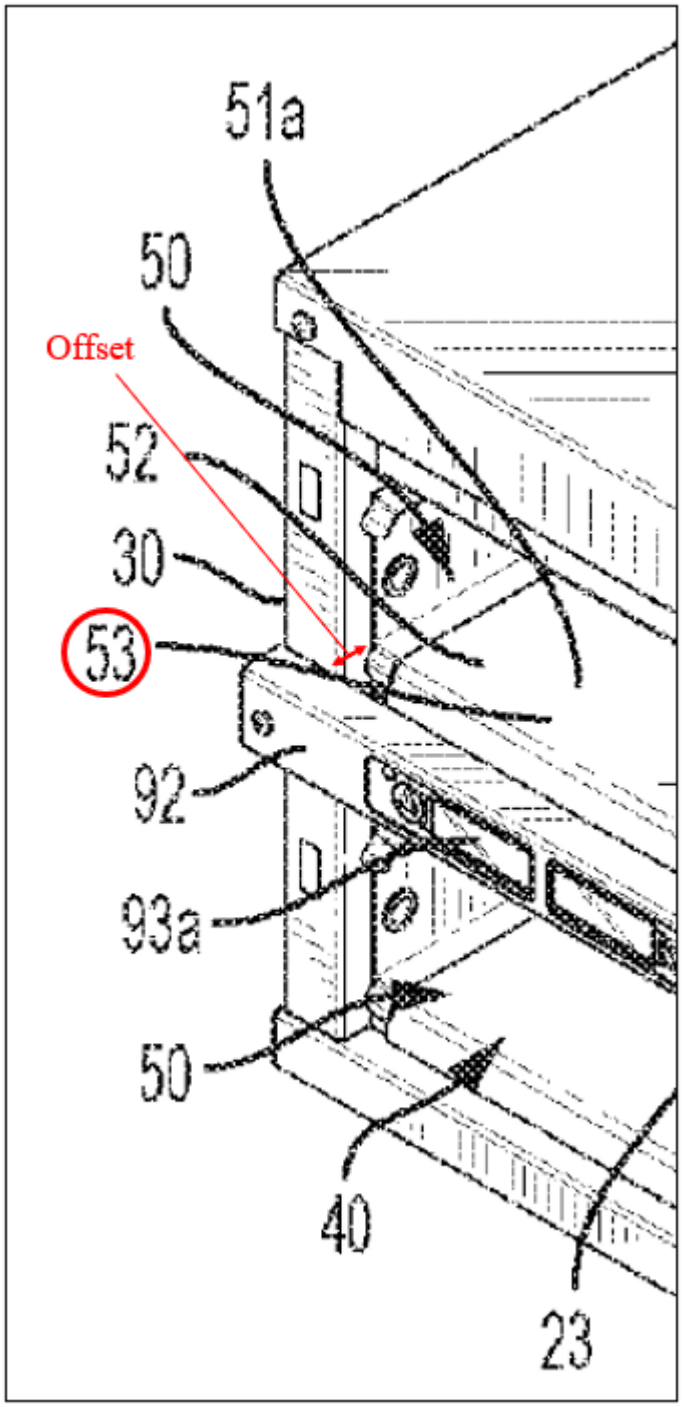
EX1005: 8 (annotated).





EX1007: 52, 56 (annotated).

135. This understanding that the IRHS24's continuous and planar surface extends completely to the front face of the chassis is consistent with the '322 Patent and its prosecution history. With respect to this limitation, the front chassis face (like the face of a human) need not be uniform and can include portions that are offset rearward or recessed from the front-most portion of the chassis. In prosecution, the Patent Owner identified a surface offset rearward as extending completely to the front face of the chassis when describing to the Examiner the "multi-zone food holding bin 10 includes a first food holding compartment 50 that includes ***a continuous and planar bottom surface 53 that extends completely to a front face 40 of a chassis 15*** that forms the first food holding compartment 50, ***as illustrated in FIG. 1***." EX1002: 97. As shown below in Fig. 1 of the '322 Patent, the continuous and planar bottom surface (53) is offset rearward from the front-most portion of the chassis.



EX1001: Fig. 1 (enlarged, annotated).

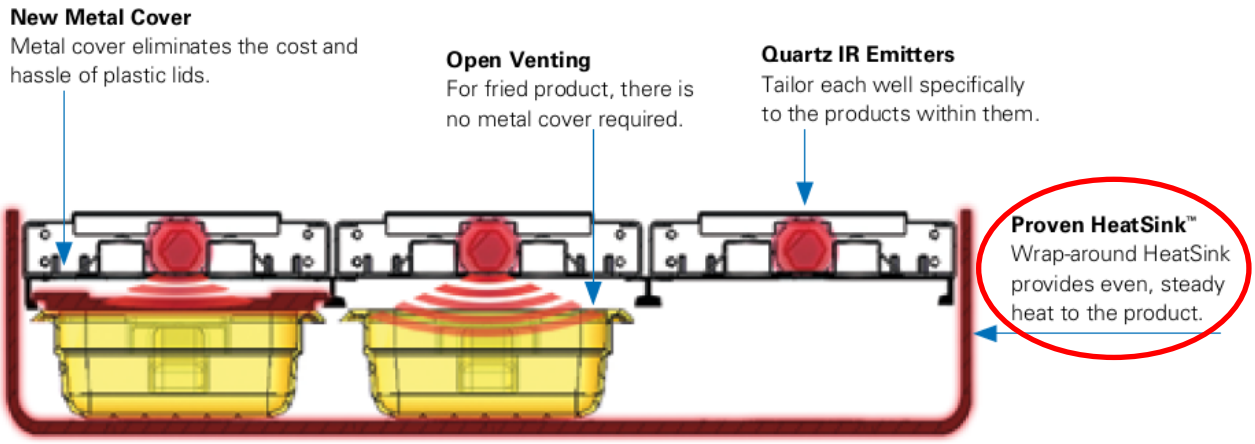
1.c.3: the continuous and planar surface comprising aluminum

136. The POSA would recognize that the IRHS Documents disclose that the continuous and planar surface "compris[es] aluminum."

137. The POSA would recognize that the first planar surface is part of the HeatSink in the IRHS Holding Units. The HeatSink and thus the first planar surface is identified as being anodized aluminum. EX1006: 1 ("[a]nodized aluminum HeatSink").

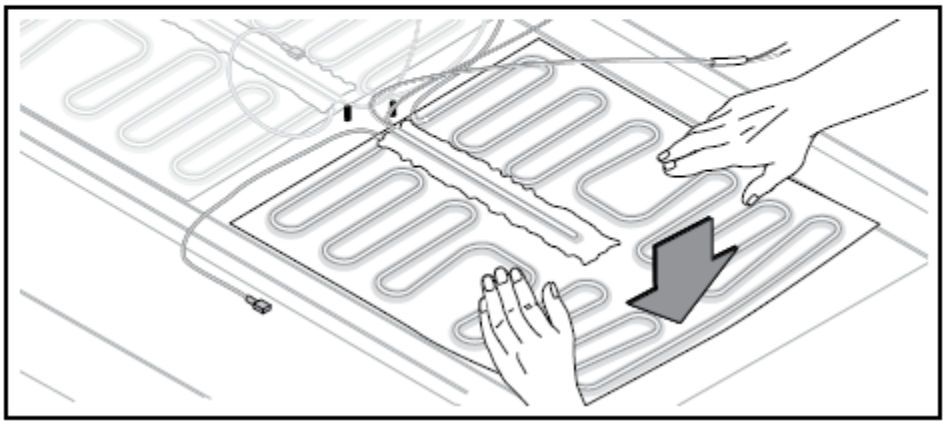
138. Even without the express disclosure of the use of aluminum, it would have obvious to make the continuous and planar surface from aluminum.

139. The planar surface is part of the HeatSink in the IRHS24 Holding Unit. The HeatSink provides heat to the pans in the first food holding compartment from underneath the pans. EX1007: 51 ("[p]revious generations of the Duke holding units contained only HeatSink, heating from below"); EX1005: 16 ("each food product has a tailored HeatSink temperature and InfraRed pulse rate").



EX1007: 53 (annotated).

14. Peel the adhesive tape cover off the replacement Heat Element and press in place on the heat sink, ensuring all air bubbles are smoothed out.



EX1008: 23.

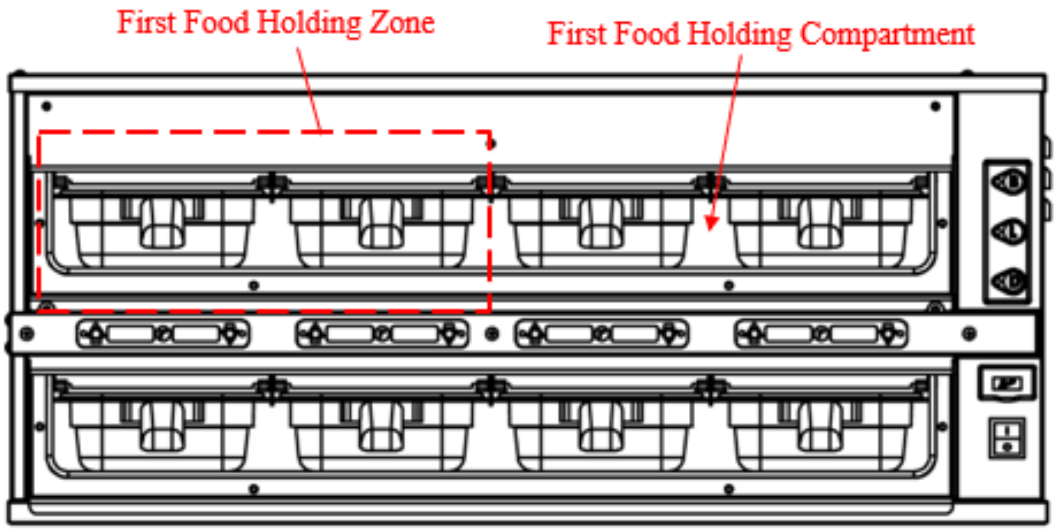
140. Accordingly, the POSA would recognize that because the first planar surface is intended to act as the HeatSink, it would necessarily comprise a thermally conductive material—such as aluminum—so as to allow the HeatSink to provide heat to the pans in the first food holding compartment from underneath the pans. EX1007: 51 ("[p]revious generations of the Duke holding units contained only HeatSink, heating from below"); EX1005: 16 ("each food product has a tailored HeatSink temperature and InfraRed pulse rate").

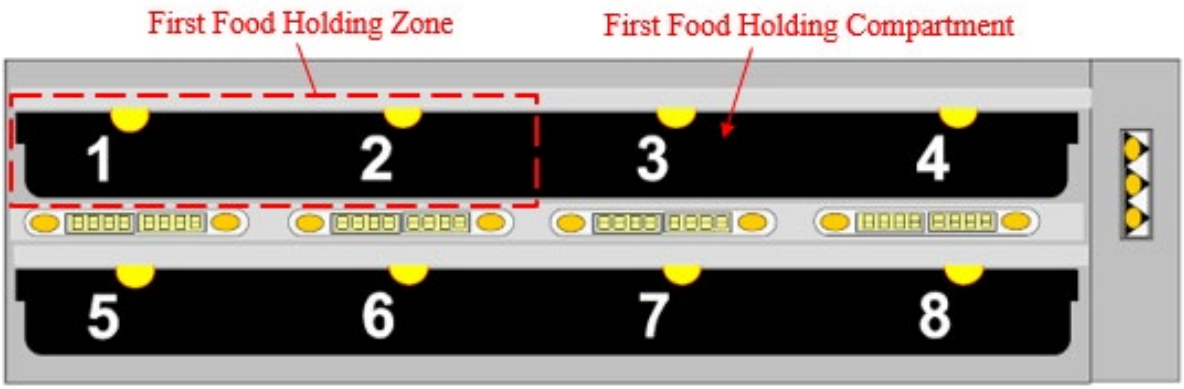
141. In particular, it would have been obvious to make the IRHS heatsinks from aluminum, like the aluminum covers, to be durable and provide good heat transfer. EX1005: 4 ("robust aluminum Heat Sink Cover"), 8, 20-21; EX1007: 53

("[m]etal cover"), 58 ("[c]over allows better heat transfer"). Further, there would have been a reasonable expectation of success because of the known suitability of aluminum in zoned/heated warming cabinet shelves. EX1020: ¶¶[0021]-[0023].

1.d.1: a first food holding zone formed in the first food holding compartment

142. The POSA would recognize that the IRHS Documents disclose the multi-zone food holding bins as having "a first food holding zone formed in the first food holding compartment." For example, the annotations below demonstrate the IRHS24 Holding Unit as having a first food holding zone in the first food holding compartment.



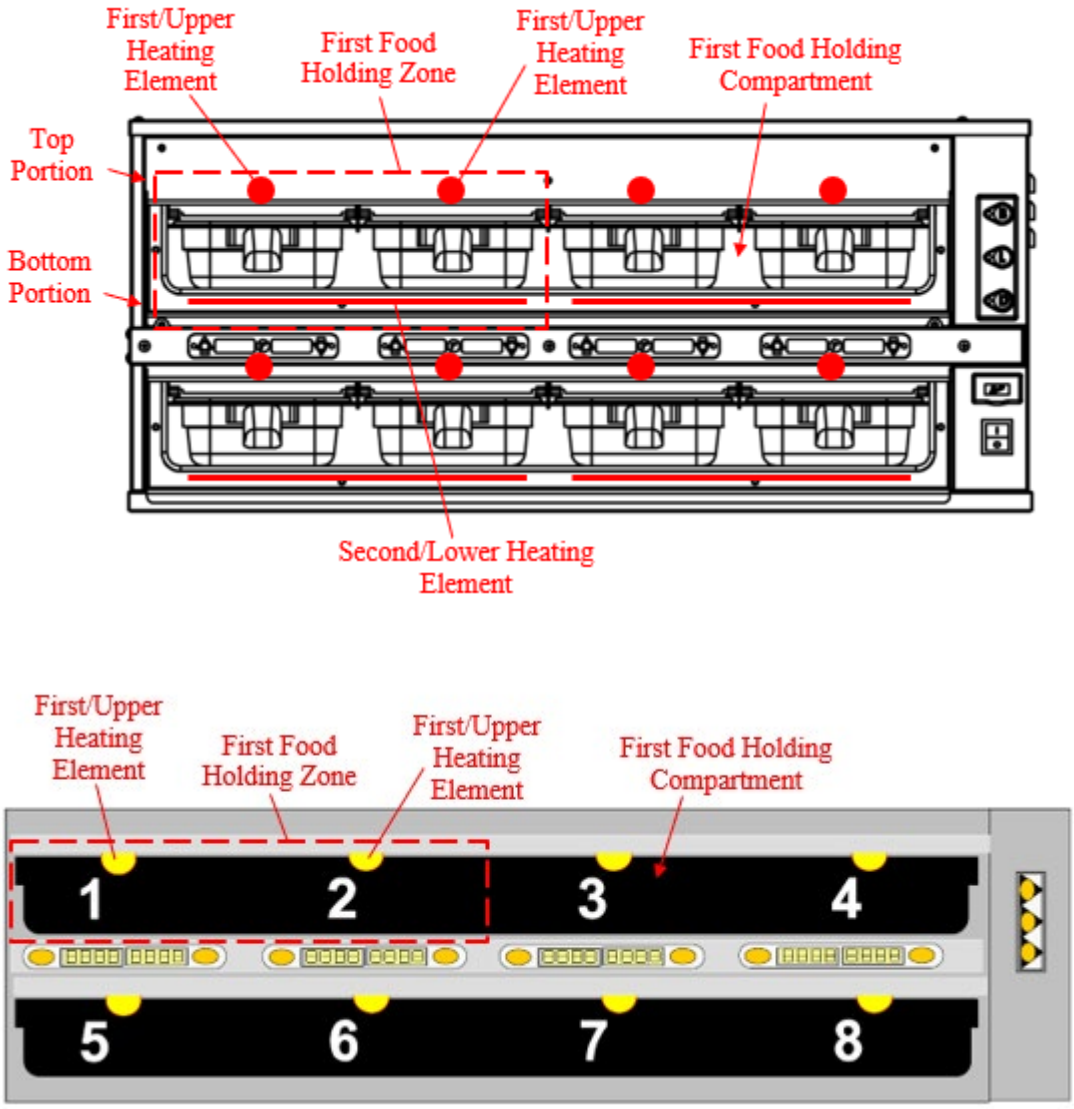


EX1005: 8, 25 (annotated).

1.d.2: the first food holding zone having an independently controllable radiant first heating element disposed at a top portion of the first food holding compartment, and an independently controllable conductive second heating element disposed at a bottom portion of the first food holding compartment

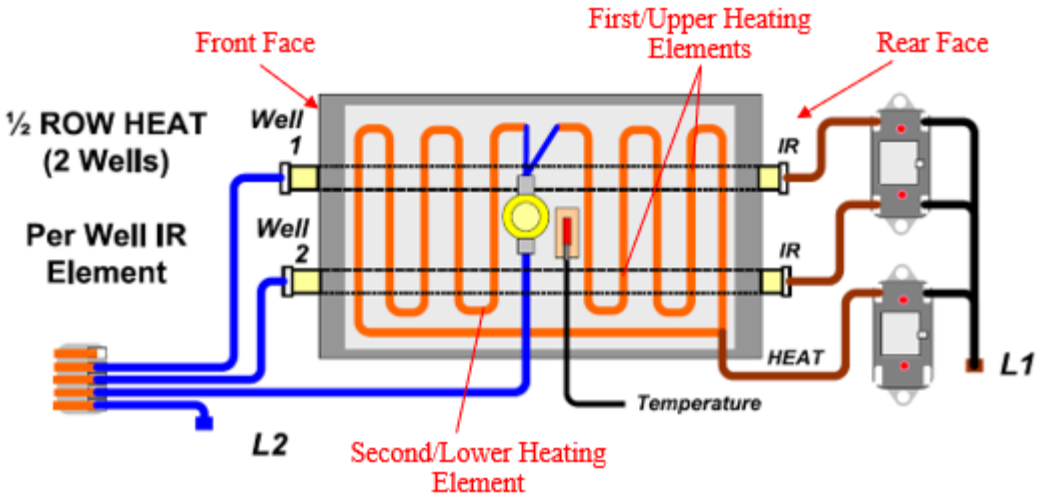
143. POSA would recognize that the IRHS Documents disclose the first food holding zone as having "an independently controllable radiant first heating element disposed at a top portion of the first food holding compartment, and an independently controllable conductive second heating element disposed at a bottom portion of the first food holding compartment."

144. Specifically, the first food holding zone of the IRHS24 Holding Unit is disclosed as having an independently controllable upper heating element (IR bulb) and an independently controllable lower heating element (electrical heating element) at respective top and bottom portions of the first food holding compartment as illustrated.



EX1005: 8, 25 (annotated).

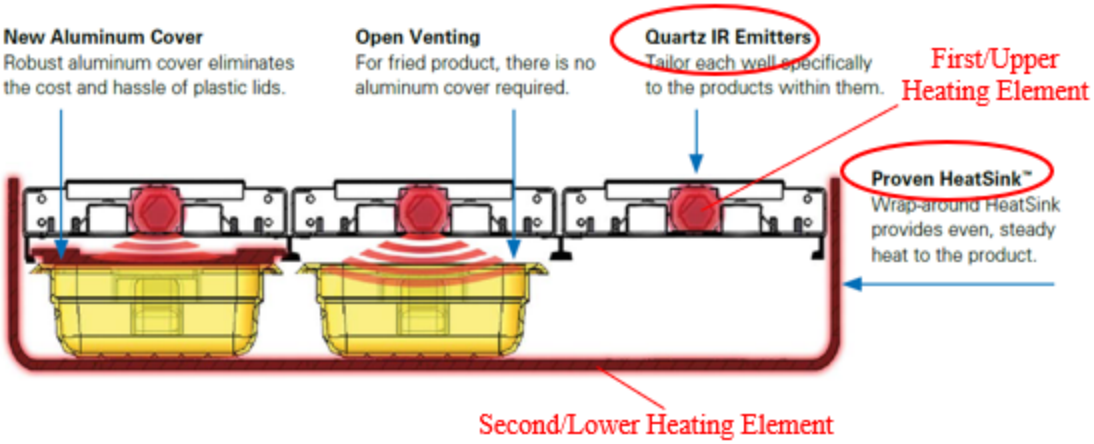
145. More specifically, the POSA would recognize that as disclosed in the IRHS Documents, the IRHS24 Holding Unit has four heating zones. Each heating zone corresponds to one of the food holding zones. The schematic image below shows the first (upper) and second (lower) heating elements for one heating zone in the IRHS24 Holding Unit. EX1005: 21 (elements 16 and 17), 25; EX1007: 53.



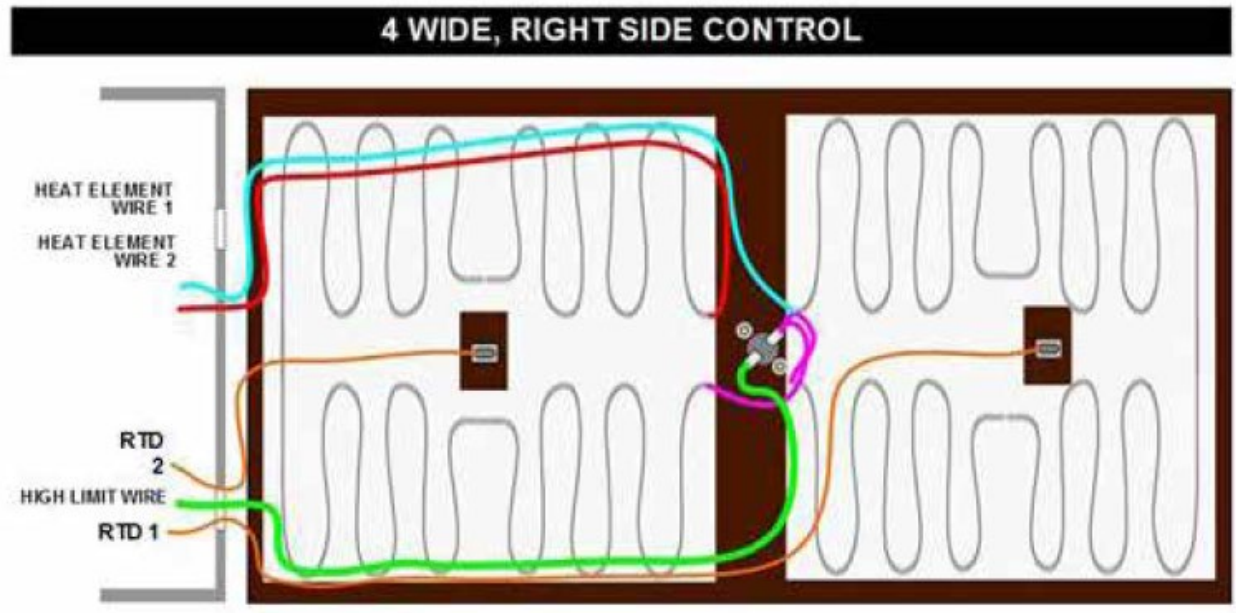
EX1005: 25 (annotated).

146. The IRHS24 Holding Unit is depicted as having two IR upper heating elements for each heating/holding zone (one for each pan location (labeled "well" in the figure replicated above)), and a single lower heating element for the two pan locations in the heating/holding zone.

147. The two IR upper heating elements are disposed at a top portion of the first food holding compartment, and the lower heating element is located at a bottom portion of the first food holding compartment. EX1006: 1 ("Upper IR emitters" and "Bottom zoned heat element"); EX1007: 53.



EX1007: 53 (annotated).

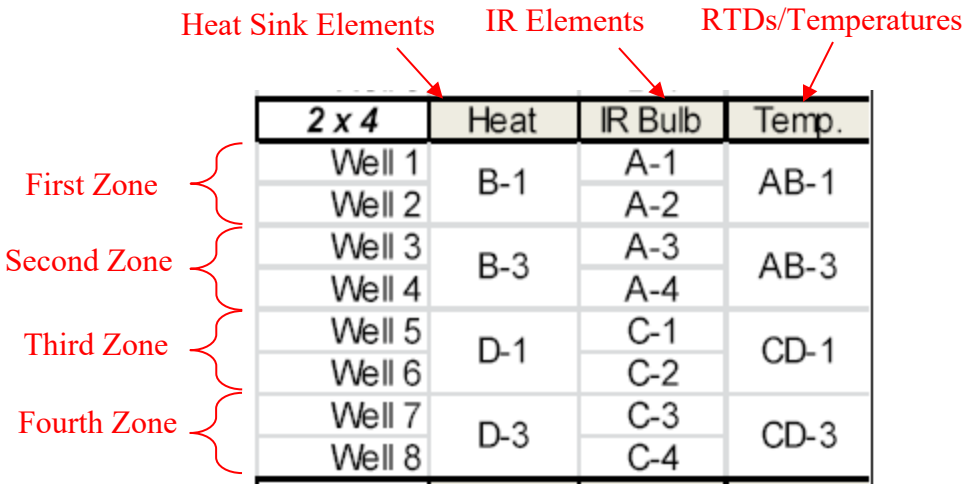


EX1008: 58.

148. The chart for interfacing Duke's Visor control system[2] with the IRHS24 Holding Unit from the IRHS Service Manual (included and annotated

[2] Duke's Visor control system is described in the IRHS Service Manual as being an optional control system for the IRHS, but the POSA would understand that the

below) further informs the POSA on the layout of the IRHS24 Holding Unit's upper and lower heating elements. This chart would have confirmed to the POSA that the IRHS24 Holding Unit has four lower heating elements, one for each heating/holding zone (comprised of two pan/well holding locations), and eight upper heating elements (IR Bulbs), two or each heating/holding zone (one for each pan/well location).



2 x 4	Heat	IR Bulb	Temp.
Well 1	B-1	A-1	AB-1
Well 2		A-2	
Well 3	B-3	A-3	AB-3
Well 4		A-4	
Well 5	D-1	C-1	CD-1
Well 6		C-2	
Well 7	D-3	C-3	CD-3
Well 8		C-4	

EX1008: 64 (annotated).

149. For example, the first zone has a lower heating element indicated by "B-1" for pan locations "Well 1" and "Well 2", the second zone has another lower heating element indicated by "B-3" for pan locations "Well 3" and "Well 4", and so one. Likewise, the first zone has an upper heating element (IR Bulb) as indicated by "A-1" and "A-2" for each pan location "Well 1" and "Well 2", the

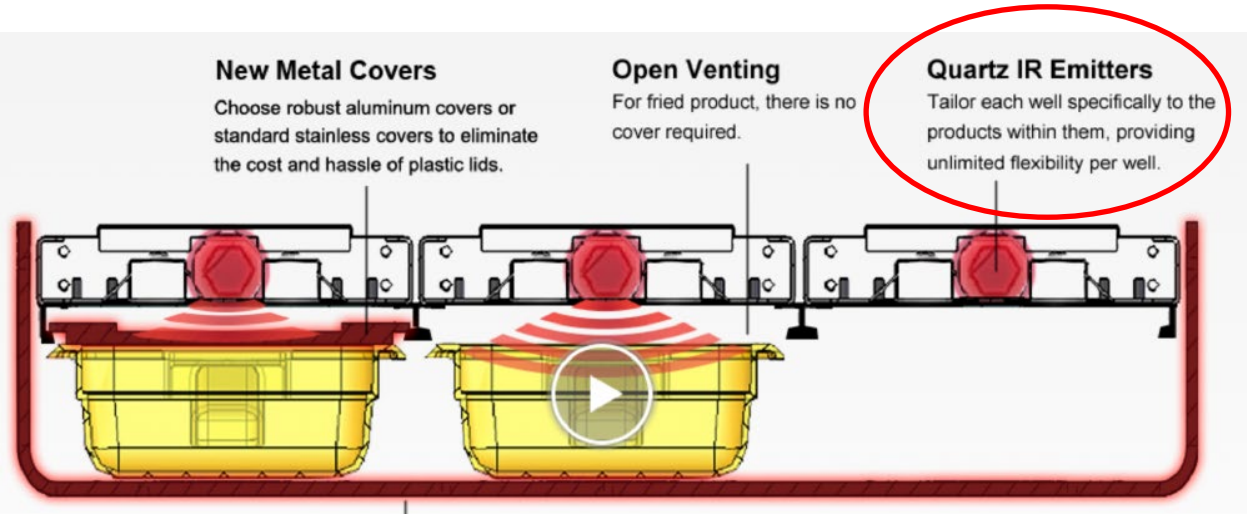
load connections would be the same for both the Visor control system and the standard control system.

second zone has additional upper heating elements (IR Bulbs) as indicated by "A-3" and "A-4" for each pan location "Well 3" and "Well 4", and so on.

150. IRHS Documents further disclose that the food holding zone's first/upper heating elements and second/lower heating element are independently controllable from each other and from the heating elements of the other food holding zones. EX1005: 16 ("[t]his new technology allows you to precisely control the environment in each pan, allowing customized settings for each food product" and "each food product has a tailored HeatSink temperature and InfraRed pulse rate"), 25; EX1006: 1 ("[z]oned bottom heat" and "individually controlled IR emitters" for top heat); EX1007: 53 ("Precise holding for each product in an optimized environment tailored to that product" and "Total well independence allows freedom in product placement in the IRHS").

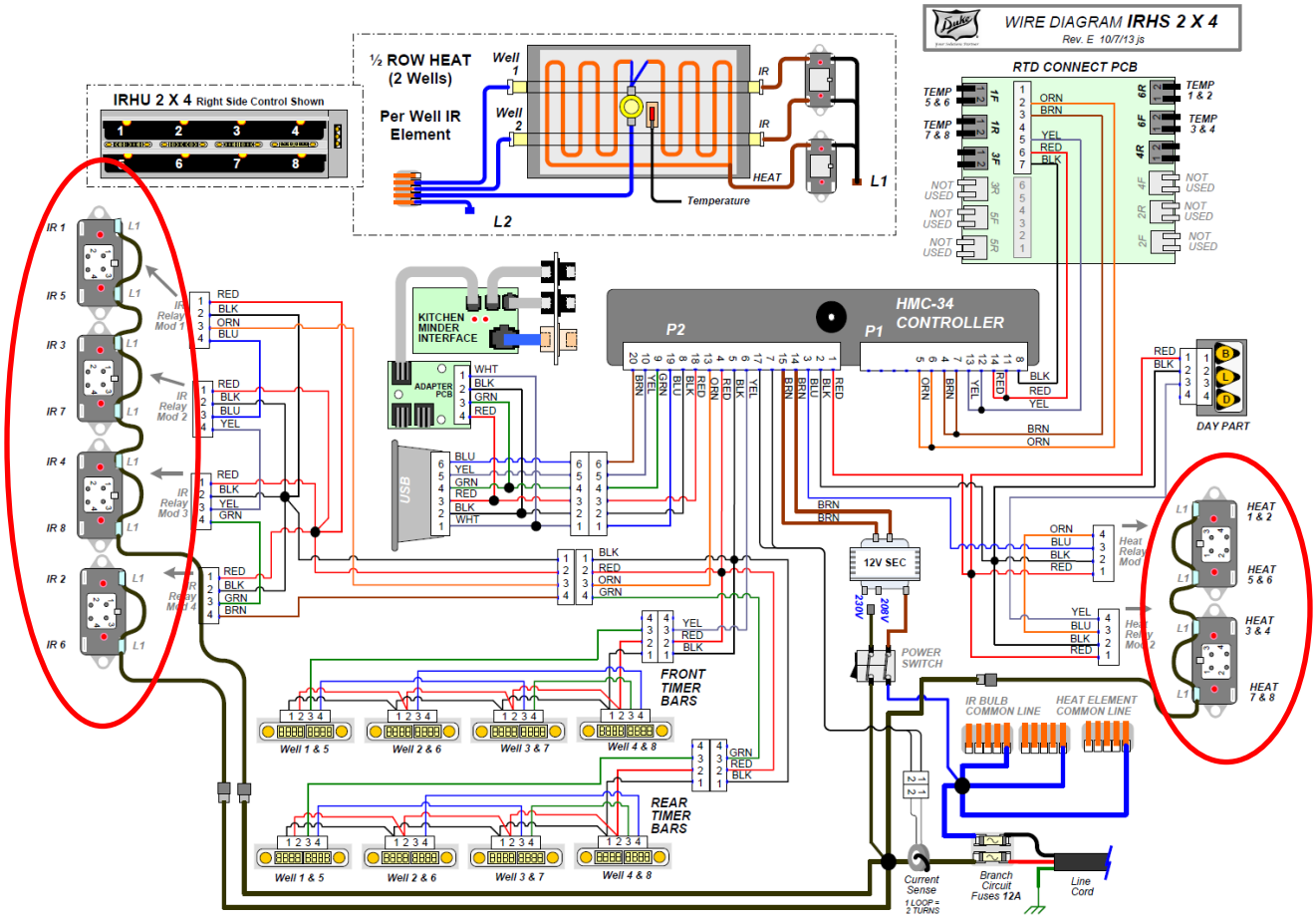
151. The IRHS Documents explain the holding unit has "[z]oned bottom heat" and "individually controlled IR emitters" for top heat. EX1006: 1; EX1007: 53 ("dual holding technologies, InfraRed and HeatSink"); EX1007: 10 ("Quartz IR Emitters" that "[t]ailor each well specifically to the products within them, providing unlimited flexibility per well"), 53 ("IR is pulsed only when needed, leading to drastic energy savings"); EX1005: 15 ("fault with a specified IR Bulb circuit [means] [t]he affected pan location is not available for timing product").

152. The IRHS Documents teach that the IR bulbs operate independently of the lower heating element. For example, there is an "IR Turbo Boost" function to generate an "instant shot of IR energy." EX1006: 1; EX1007: 22 ("Utilize 'Turbo Boost" for a quick shot of heat to the product"), 53 ("IR is pulsed only when needed, leading to drastic energy savings").



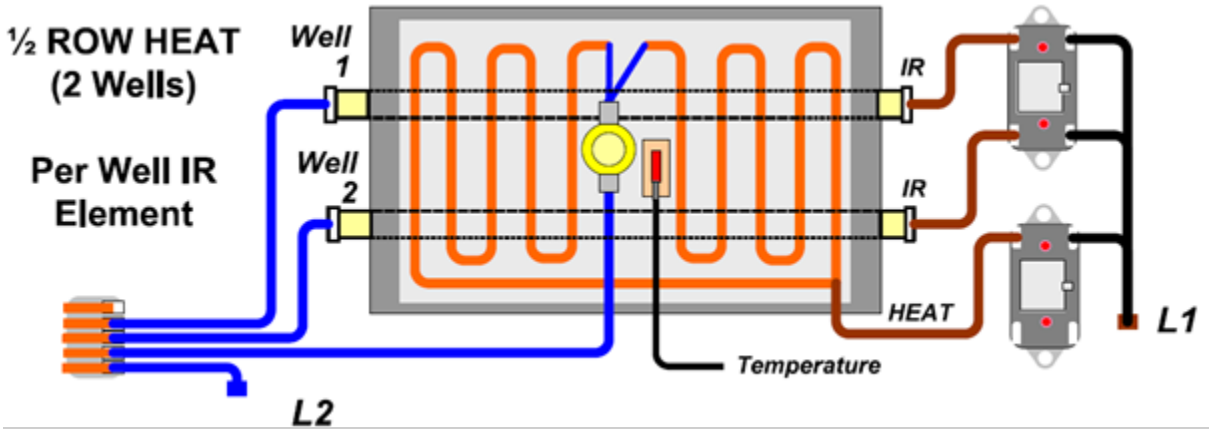
EX1007: 10 (annotated).

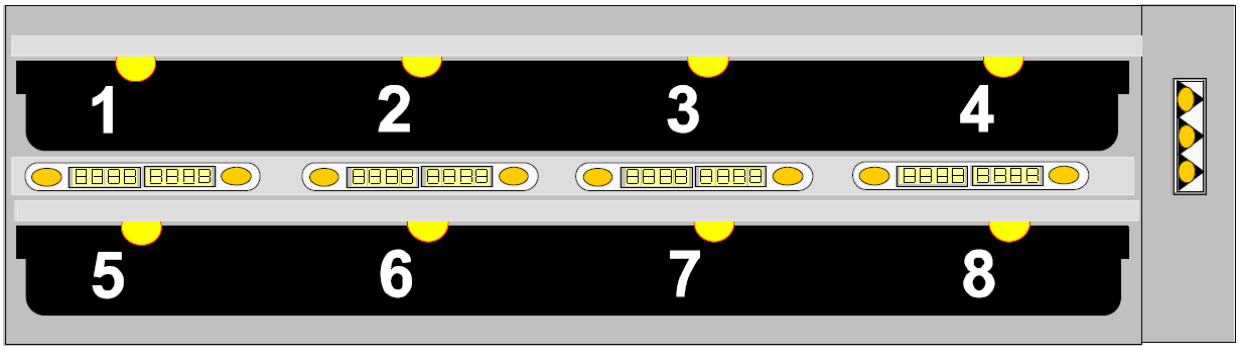
153. Moreover, the wiring diagram below shows independent control for each IR bulb for the upper heating and for each zone of heating elements for the lower heating in the IRHS24 Holding Unit.

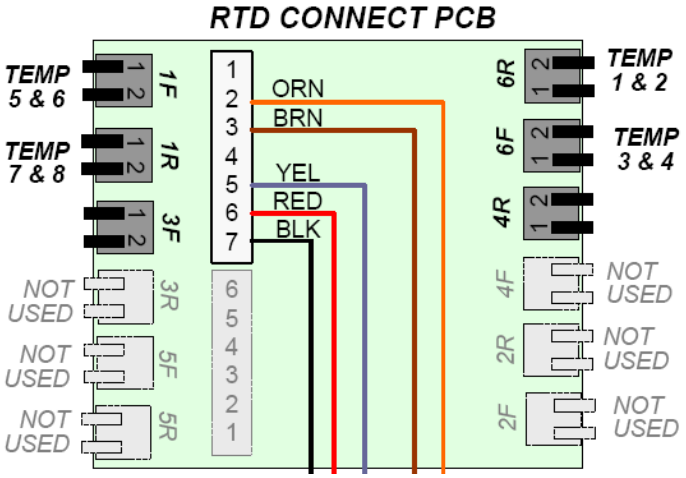


EX1005: 25 (annotated).

154. The diagram for the IRHS24 Holding Unit above includes a schematic (enlarged below) labeled "1/2 Row Heat (2 Wells)." EX1005: 25.







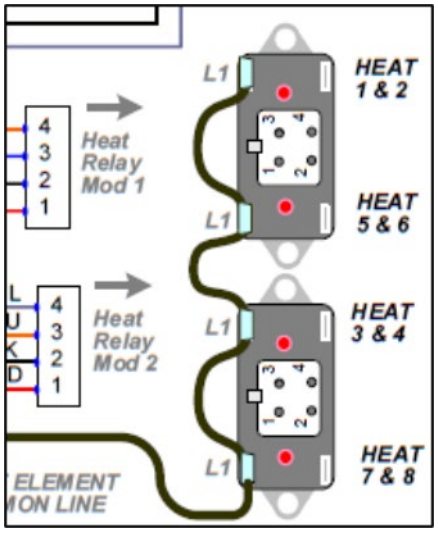
EX1005: 25.

155. It would be understood by the POSA that schematic for the 2x4 IRHS Holding Unit being labeled "***1/2 Row*** Heat (2 Wells)" is providing the schematic for a single zone of heating (wells 1 and 2) and would be repeated for each of the three other zones.

156. For example, the POSA would understand that each row of the 2x4 IRHS Holding Unit has zoned bottom heating, *e.g.*, a first electrical resistance heating element for pan holding locations (bays/wells) 1 and 2 and a second electrical resistance heating element for pan holding locations (bays/wells) 3 and 4.

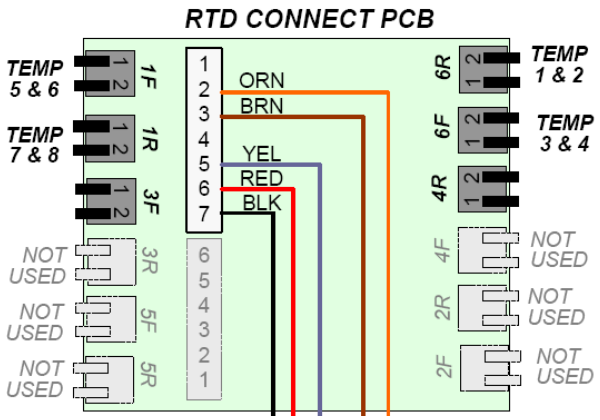
Because the 2x4 IRHS Holding Unit has two rows total (*e.g.*, an upper row containing pan holding locations (bays/wells) 1-4 and a lower row container pan holding locations (bays/wells) 5-6), the POSA understands that the 2x4 IRHS Holding Unit has a total of four (4) lower heating elements (*e.g.*, a first lower heating element for pan holding locations (bays/wells) 1 and 2, a second lower heating element for pan holding locations (bays/wells) 3 and 4, a third lower heating element for pan holding locations (bays/wells) 5 and 6, and a fourth lower heating element for pan holding locations (bays/wells) 7 and 8.

157. This zoned bottom heat understanding is further confirmed by labeling of the heating elements connected to each output of the dual output relays in the wiring diagrams. As shown below (left), each output of the dual output relays for the 2x4 IRHS Holding Unit is labeled as heating two pan holding locations (bays/wells), e.g., "HEAT 1 & 2," which is half of a row. EX1005: 25.



EX1005: 24.

158. This zoned bottom heat understanding is further confirmed by labeling of the RTD temperature sensor inputs for the RTD Connect PCBs in the wiring diagrams. As shown below (left), each RTD temperature sensor input for the 2x4 IRHS Holding Unit is labeled as sensing temperature for two pan holding locations (bays/wells), e.g., "TEMP 1 & 2," which is half of a row. EX1005: 25. This is consistent with the "1/2 ROW HEAT" schematic showing one temperature sensor for bays/wells 1 and 2.



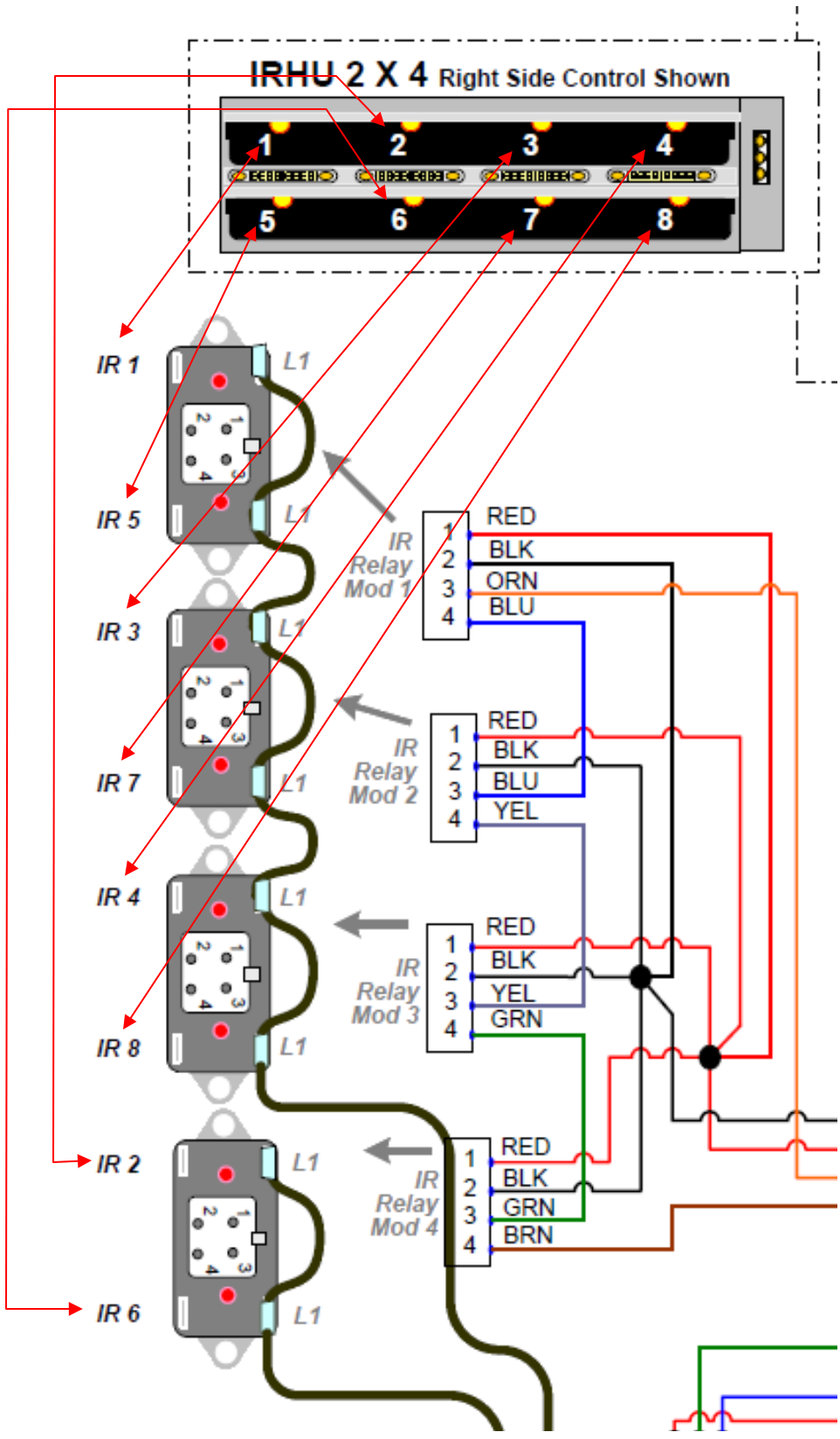
EX1005: 24.

159. The POSA understands from the wiring diagram that the controller independently operates each heating element. The controller in the wiring diagram is communicatively connected to relays (*e.g.*, dual output relays). As would have been known by a POSA, a relay is an electrically operated switch that is opened/closed by a low-voltage signal (such as from a controller) to control a higher-powered circuit. In the wiring diagram, the relays selectively connect the heating elements to the higher-powered current carrying line L1 for powering the

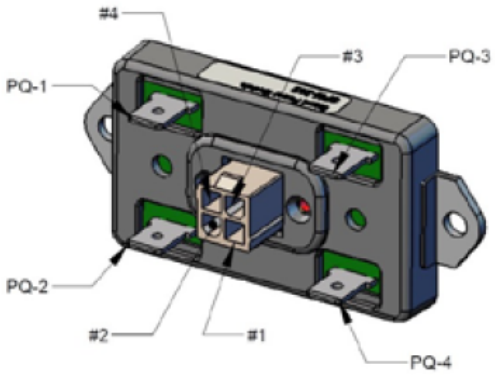
heating elements (*e.g.*, turning the heating elements on). When the relays are closed, the heating elements are connected to and receive current from the higher-powered current carrying line L1 (*e.g.*, heating elements are on and generating heat). When the relays are opened, the heating elements are disconnected from the higher-powered current carrying line L1 (*e.g.*, heating elements are off).

160. As indicated by the wiring diagram, a first IR relay labeled "IR Relay Mod 1" selectively connects the upper IR heating element (labeled "IR 1") for the first pan holding location (bay/well) to the higher-powered current carrying line L1 and selectively connects the upper IR heating element (labeled "IR 5") for the fifth pan holding location (bay/well) to the higher-powered current carrying line L1. A second IR relay labeled "IR Relay Mod 2" selectively connects the upper IR heating element (labeled "IR 3") for the third pan holding location (bay/well) to the higher-powered current carrying line L1 and selectively connects the upper IR heating element (labeled "IR 7") for the seventh pan holding location (bay/well) to the higher-powered current carrying line L1. A third IR relay labeled "IR Relay Mod 3" selectively connects the upper IR heating element (labeled "IR 4") for the fourth pan holding location (bay/well) to the higher-powered current carrying line L1 and selectively connects the upper IR heating element (labeled "IR 8") for the eighth pan holding location (bay/well) to the higher-powered current carrying line L1. Lastly, a fourth IR relay labeled "IR Relay Mod 4" selectively connects the

upper IR heating element (labeled “IR 2”) for the second pan holding location (bay/well) to the higher-powered current carrying line L1 and selectively connects the upper IR heating element (labeled “IR 6”) for the sixth pan holding location (bay/well) to the higher-powered current carrying line L1.



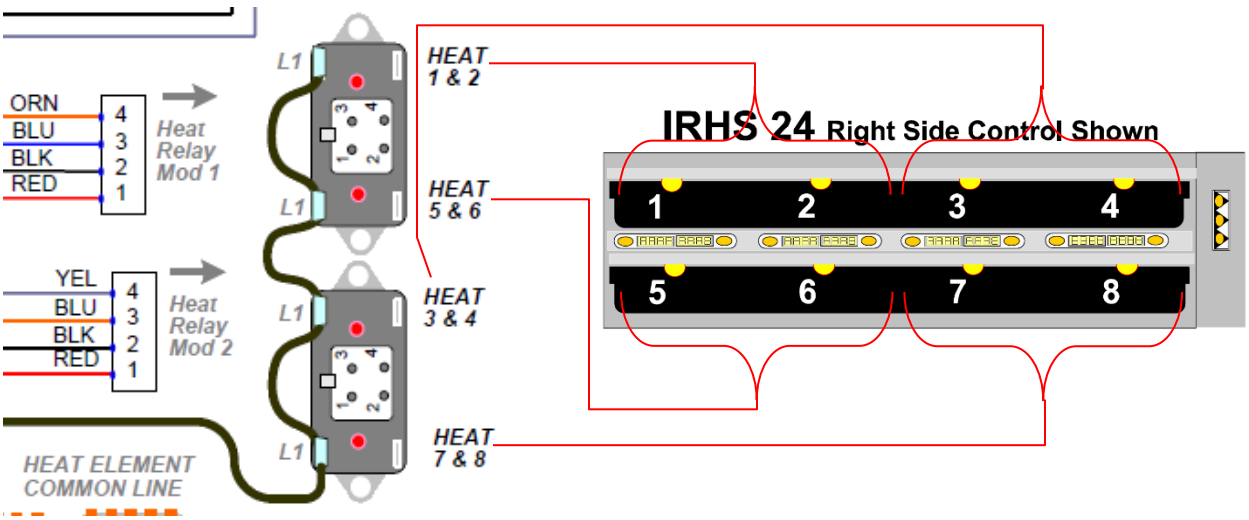
EX1005: 25 (enlarged, annotated).

Relay, Smart Power Module	• Max. Load Current: 20 Arms. Heat sinking required. • Operating Voltage: 24-250 Vrms • Input : 5V TTL  Connector PIN Data PQ-1 LOAD1-1 PQ-2 LOAD1-2 PQ-3 LOAD2-1 PQ-4 LOAD2-2 #1 +5V DC #2 GND #3 1-wire network IN #4 1-wire network OUT

EX1008: 45.

161. Similarly, a first heat relay labeled "Heat Relay Mod 1" selectively connects the first zoned lower heating element (labeled "HEAT 1 & 2") for the first and second pan holding locations (bays/wells) to the higher-powered current carrying line L1 and selectively connects the third zoned lower heating element (labeled "HEAT 5 & 6") for the fifth and sixth pan holding locations (bays/wells) to the higher-powered current carrying line L1. A second heat relay labeled "Heat Relay Mod 2" selectively connects the second zoned lower heating element (labeled "HEAT 3 & 4") for the third and fourth pan holding locations (bays/wells) to the higher-powered current carrying line L1 and selectively connects the fourth

zoned lower heating element (labeled "HEAT 7 & 8") for the seventh and eighth pan holding locations (bays/wells) to the higher-powered current carrying line L1.



EX1005: 25 (enlarged, annotated).

162. The POSA understands the upper IR heating elements and the zoned lower heating elements operate independently of one another because the upper IR heating elements and the zoned lower heating elements are operated by different relays (*e.g.*, IR Relay Mod 1-4 and Heat Relay Mod 1-2). This understanding is confirmed by other statements in the IRHS Documents. EX1005: 16 ("[t]his new technology allows you to precisely control the environment in each pan, allowing customized settings for each food product" and "each food product has a tailored HeatSink temperature and InfraRed pulse rate"), 25; EX1006: 1 ("[z]oned bottom heat" and "individually controlled IR emitters" for top heat, "[e]ach compartment individually controlled," "[a]lphanumeric control with independent well flexibility"); EX1007: 53 ("Precise holding for each product in an optimized

environment tailored to that product" and "Total well independence allows freedom in product placement in the IRHS").

163. Each of the relays discussed above would be recognized as a dual output relay, meaning that each relay has two outputs for connecting to two different heating elements. Each relay is connected to one heating element for the upper compartment and one heating element for the lower compartment. For example, one output of the first IR relay ("IR Relay Mod 1") is connected to the upper IR heating element ("IR 1") for the first pan holding location (bay/well) in the upper compartment, and the other output is connected to the upper IR heating element ("IR 5") for the fifth pan holding location (bay/well) in the lower compartment. Similarly, one output of the first heat relay ("Heat Relay Mod 1") is connected to the first zoned lower heating element ("HEAT 1 & 2") for the first and second pan holding locations (bays/wells) in the upper compartment, and the other output is connected to the third zoned lower heating element (labeled "HEAT 5 & 6") for the fifth and sixth pan holding locations (bays/wells) in the lower compartment.

164. The POSA understands that the two outputs of each relay are independent from one another (*e.g.*, each dual output relay includes two independent electrical switches, one for each output). This means each relay can connect one of its heating elements to the higher-powered current carrying line L1

independent of whether or not its other heating element is connected to the higher-powered current carrying line L1. Because each heating element (*e.g.*, the eight upper IR heating elements and the four zoned lower heating elements) is connected to one output of one of the relays, this means that the heating elements are all independently controllable relative to one another.

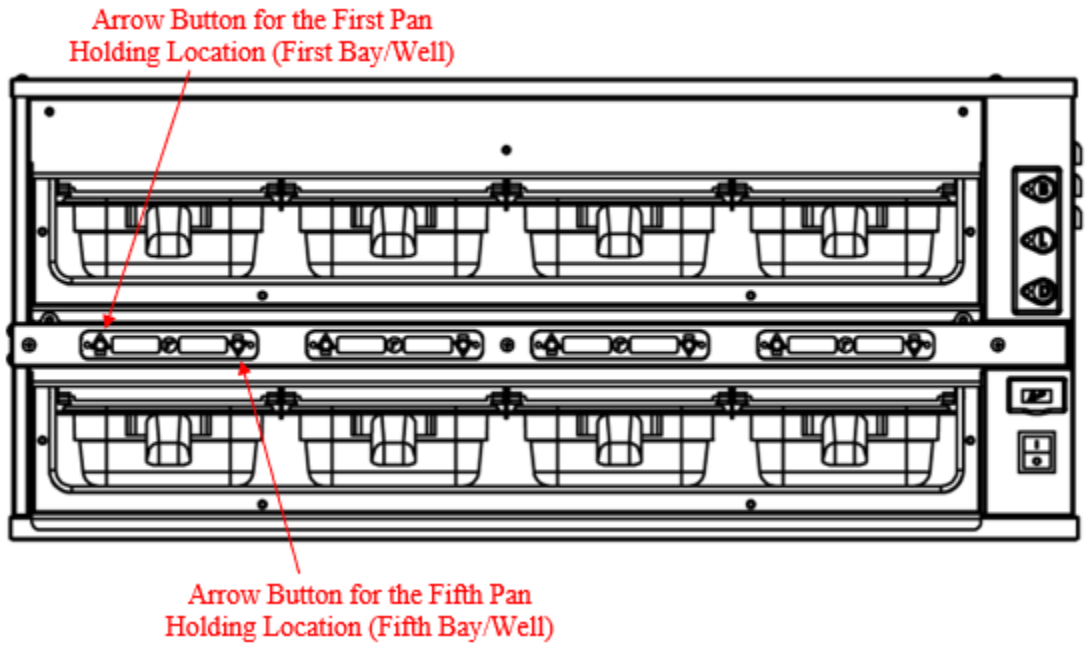
165. The other IRHS Documents further confirm the two outputs of each relay are independent from one another. The IRHS Specifications state the IRHS Holding Unit has "individually controlled IR emitters." EX1006: 1. As each IR relay is connected to two upper IR heating elements, the only way for these two heating elements to be "individually controlled" from one another as specified is if the two outputs of each relay are independent from one another. The IRHS Specifications also states that "[e]ach compartment individually controlled." EX1006: 1. As mentioned in Paragraph 160 above, each relay is connected to a heating element of the upper compartment and a heating element of the lower compartment. For these heating elements of the upper and lower compartments that are connected to the same relay to be "individually controlled," the two outputs of the relay must be controlled independent of one another.

166. The Duke Website makes similar statements that inform the POSA the two outputs of each relay operate independently, such as "[t]otal well independence" and "IR is pulsed only when needed." EX1007: 53.

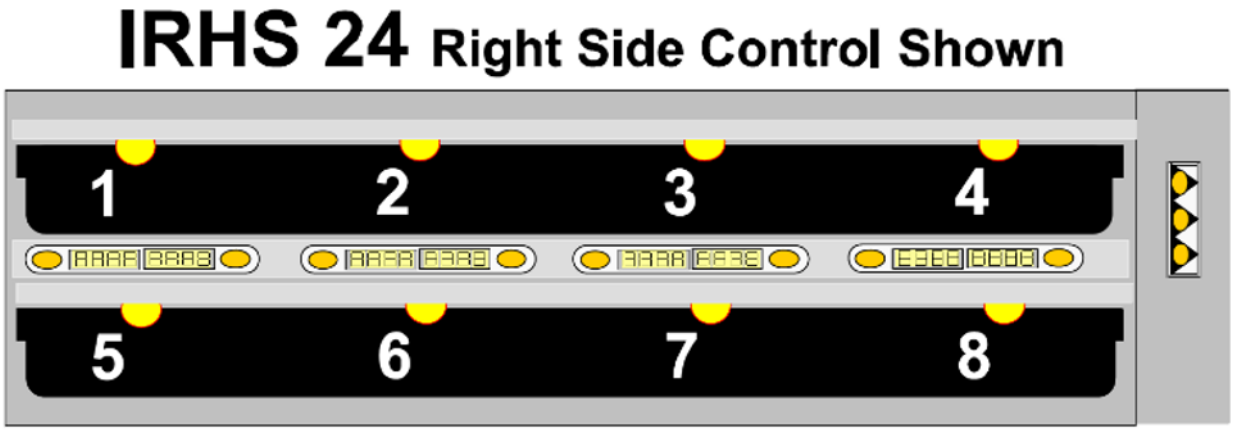
167. Beyond the wiring schematics, the IRHS Manual emphasizes that the independent control of the heating elements by stating that the IRHS Holding Unit "allows you to precisely control the environment in each pan, allowing customized settings for each food product" and "each food product has a tailored HeatSink temperature and InfraRed pulse rate." EX1005: 16.

168. Further, the IRHS Manual explains the countdown timer and IR pulse rate for each pan holding location (well) are started by pressing the up or down arrow button corresponding to the pan holding location. EX1005: 16 ("press the up or down arrow corresponding with the pan location to activate a hold cycle. This starts the appropriate IR pulse rate as well as the timer countdown"). As shown in the wiring diagram and explained in Paragraphs 153-165 above, the upper IR heating elements for the first and fifth pan holding locations (bays/wells) are connected to the same relay ("IR Relay Mod 1"). The two outputs of this relay ("IR Relay Mod 1") are necessarily independent of one another, so that pressing the up arrow button activates the IR pulse rate for the upper IR heating element for the first pan holding location (bay/well) and pressing the down arrow button activates the IR pulse rate for the upper IR heating element for the fifth pan holding location (bays/well). Otherwise, if the two outputs of the relay were not independent of one another, the pressing of one of these arrow buttons would

activate the IR pulse rate for the upper IR heating elements for both the first and fifth pan holding locations (bays/wells).



EX1005: 8 (annotated).

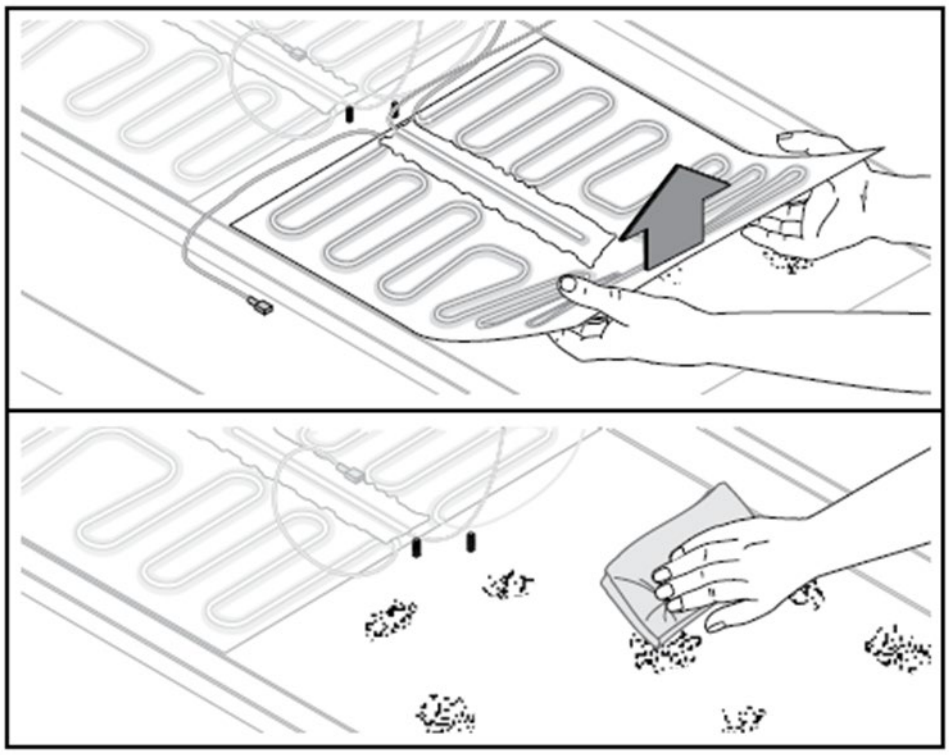


EX1005: 25.

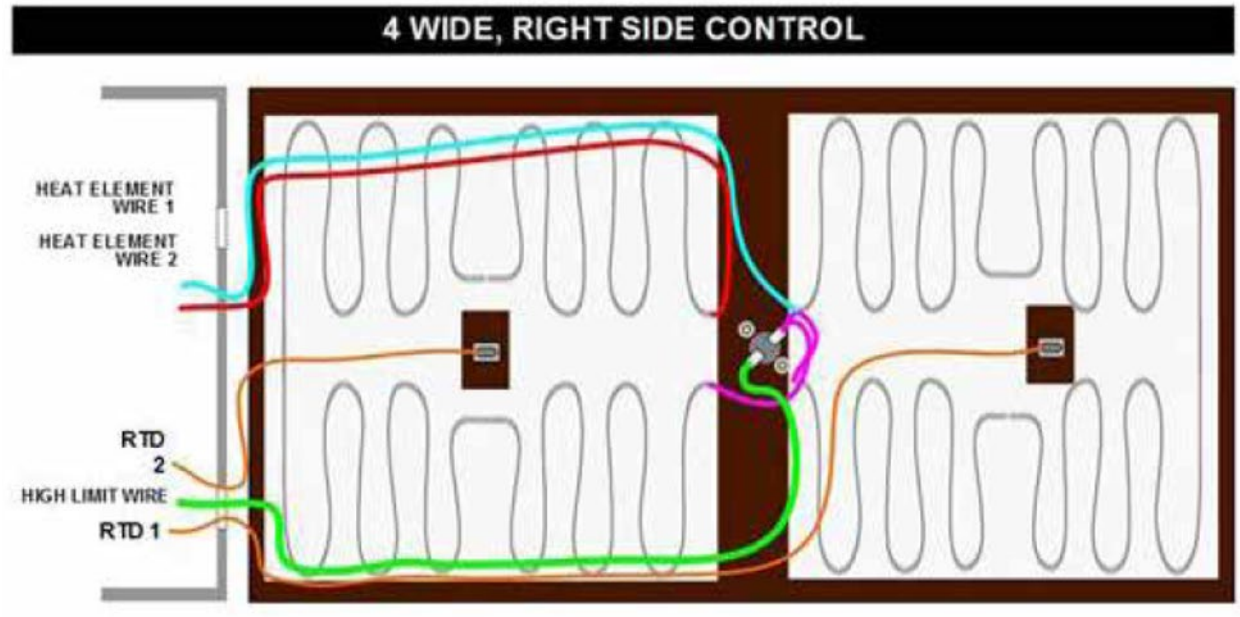
169. The IRHS Service Manual likewise indicates each well of the IRHS24 has an independent IR bulb, each pair of bays/wells (e.g., bays/wells 1 and 2) (each

heating zone) has an independent heat sink element (with separate electrical feed wire), and each pair of bays/wells (each heating zone) has its own RTD temperature sensor. EX1008: 58, 64.

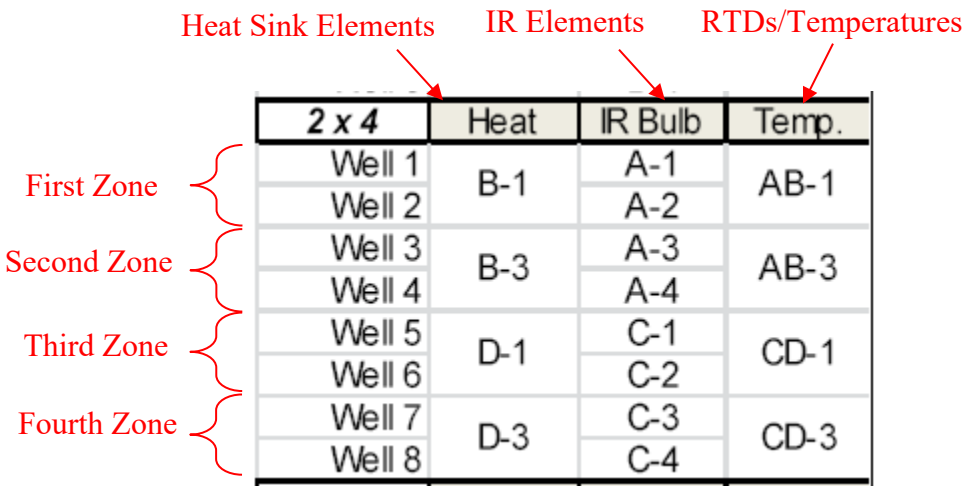
13. Remove the affected Heat Element by peeling off from the heat sink. Ensure any excess tape and/ or adhesive is removed.



EX1008: 22.



EX1008: 58.



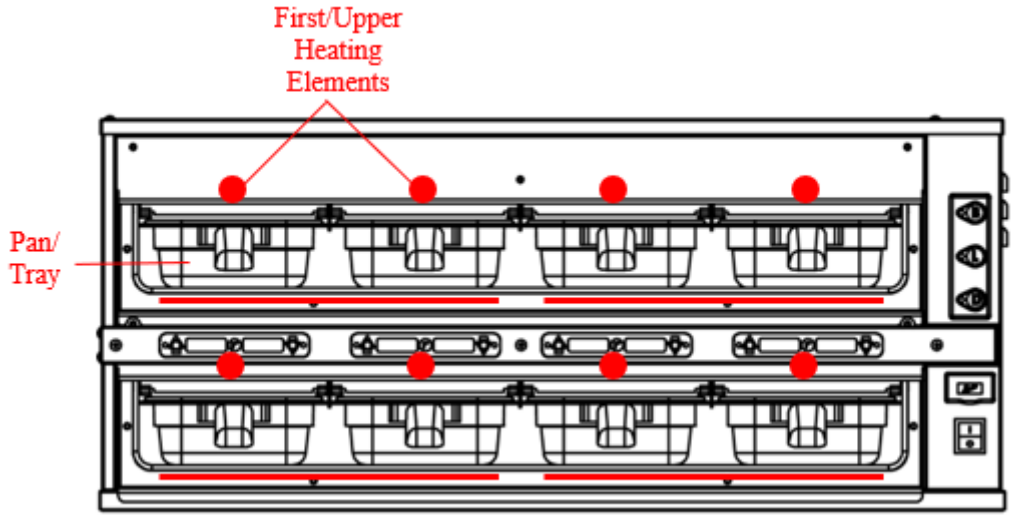
2 x 4	Heat	IR Bulb	Temp.
Well 1	B-1	A-1	AB-1
Well 2		A-2	
Well 3	B-3	A-3	AB-3
Well 4		A-4	
Well 5	D-1	C-1	CD-1
Well 6		C-2	
Well 7	D-3	C-3	CD-3
Well 8		C-4	

EX1008: 64 (annotated).

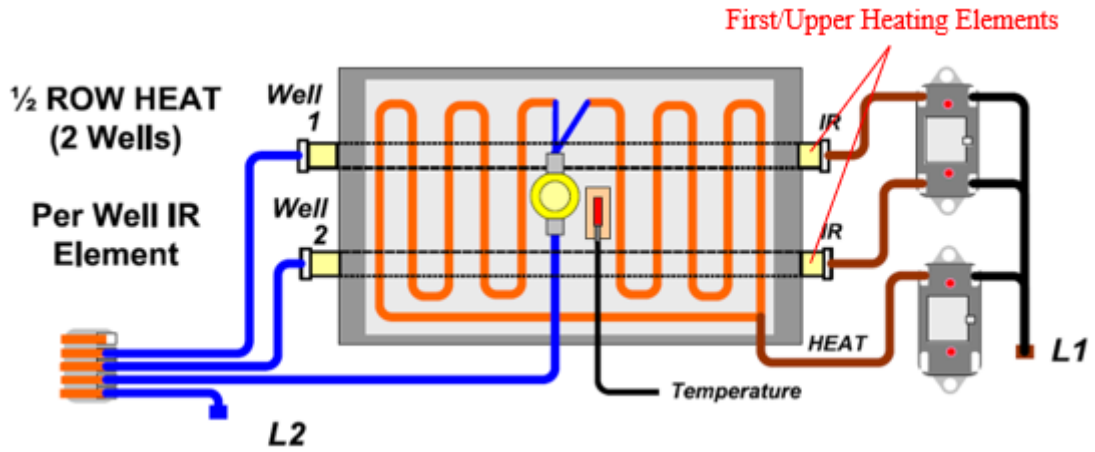
170. Thus, the POSA understands that each and every heating element (*i.e.*, the eight upper IR heating elements and the four zoned lower heating elements) of the IRHS24 Holding Unit is independently controllable relative to one another.

171. The first heating elements disposed at the top portion of the first food holding compartment would be understood to be radiant heating elements.

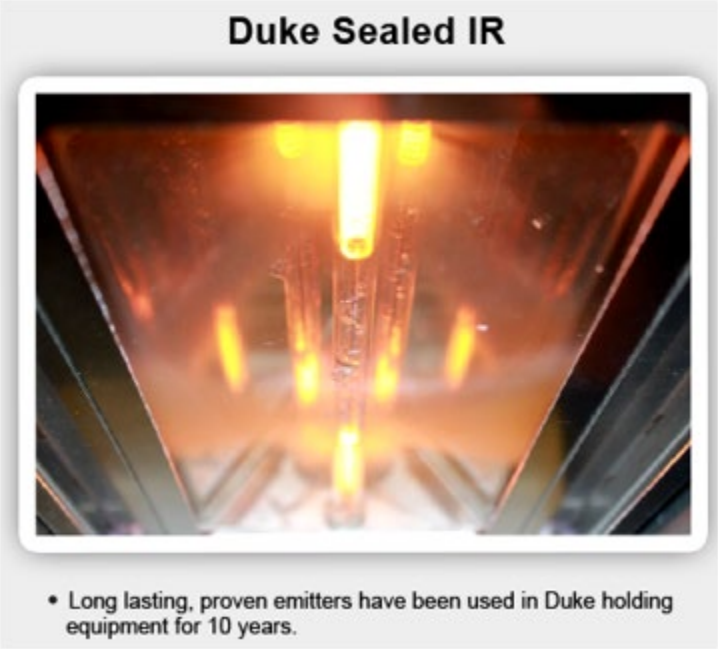
172. Specifically, the first/upper heating elements are IR bulbs (radiant heating elements) that provide infrared radiant heat to the food pans/trays from above. EX1005: 20 (ref. no. 17 – "BULB – IR"); EX1007: 51 ("top-down InfraRed heat").



EX1005: 8 (annotated).

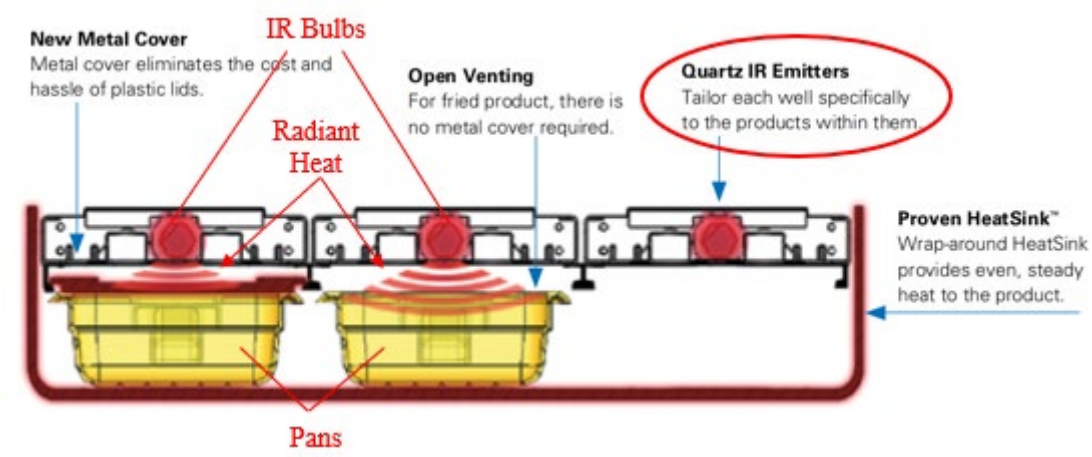


EX1005: 25 (annotated).





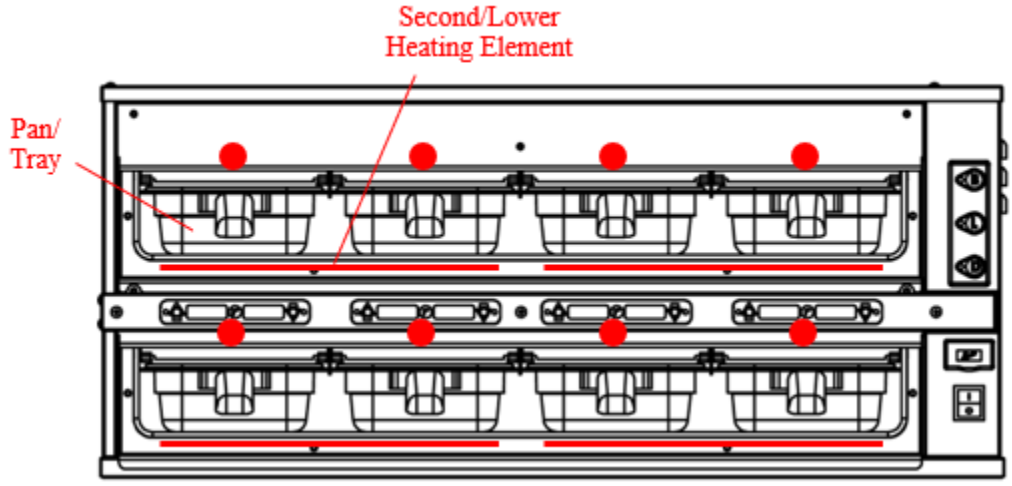
EX1007: 11 and 36.



EX1007: 53 (annotated).

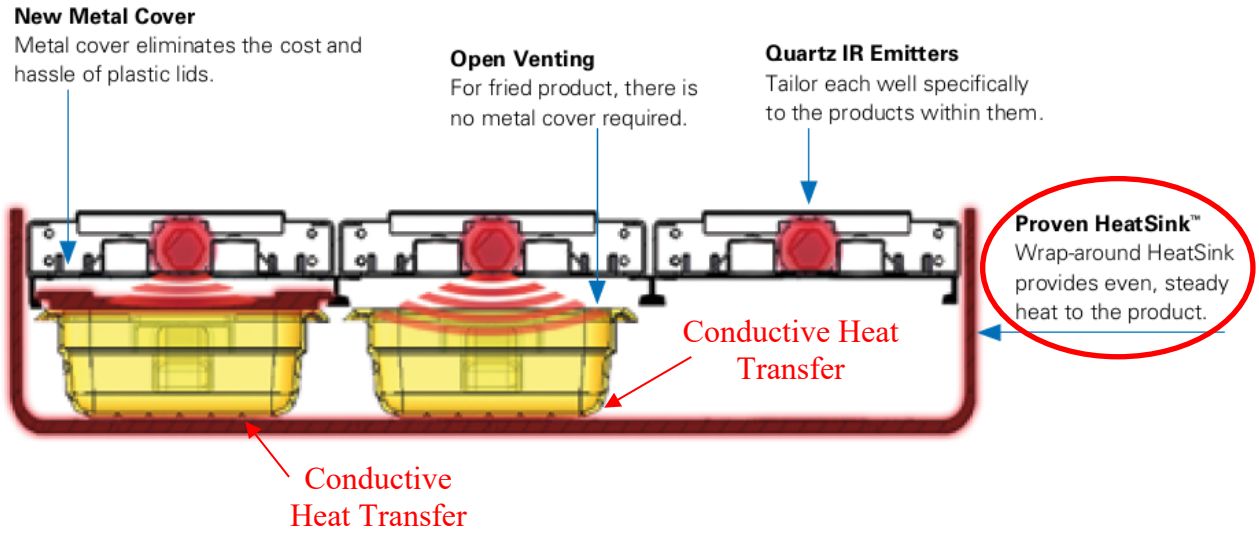
173. The second/lower heating element disposed at the bottom portion of the first food holding compartment would be understood to be a conductive heating element.

174. Specifically, the second/lower heating element provides heat to the food pans/trays conductively through the continuous and planar surface, on which the pans rest.



EX1005: 8 (annotated).

175. The second/lower heating elements are part of the HeatSinks associated with the two food holding compartments that provide heat to the pans from underneath the pans (from below). EX1007: 51 ("[p]revious generations of the Duke holding units contained only HeatSink, heating from below").



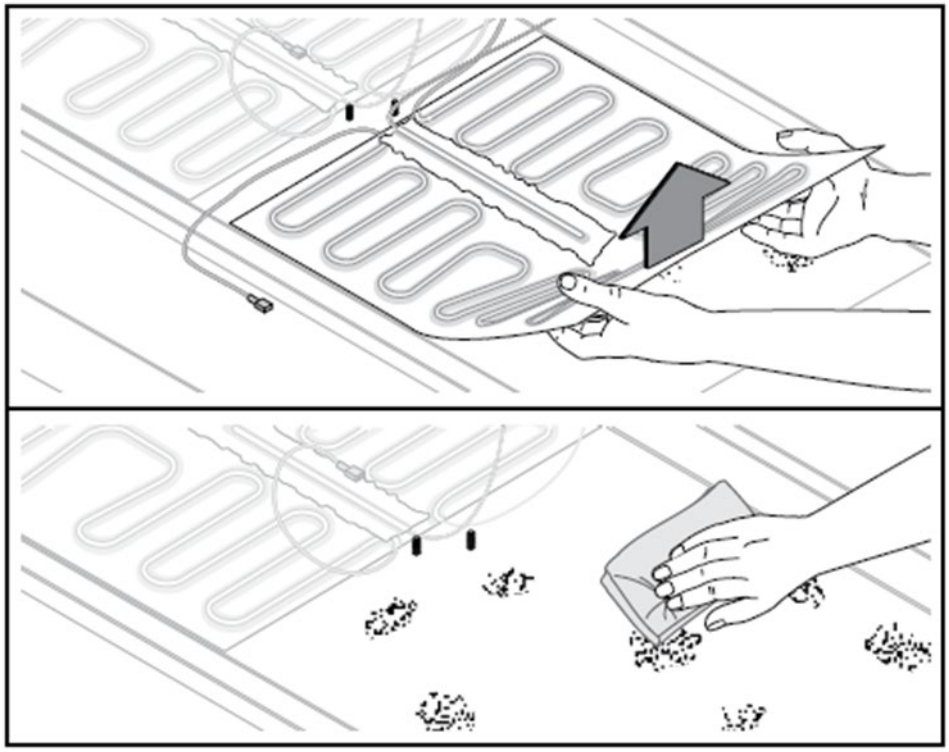
EX1007: 53 (annotated).

HEAT ELEMENTS

The Heat Elements provide the heating required to keep the heating wells at proper operating temperatures. The quantity varies depending on model and are affixed to the bottom of each Heat Sink.

EX1008: 21.

13. Remove the affected Heat Element by peeling off from the heat sink. Ensure any excess tape and/ or adhesive is removed.



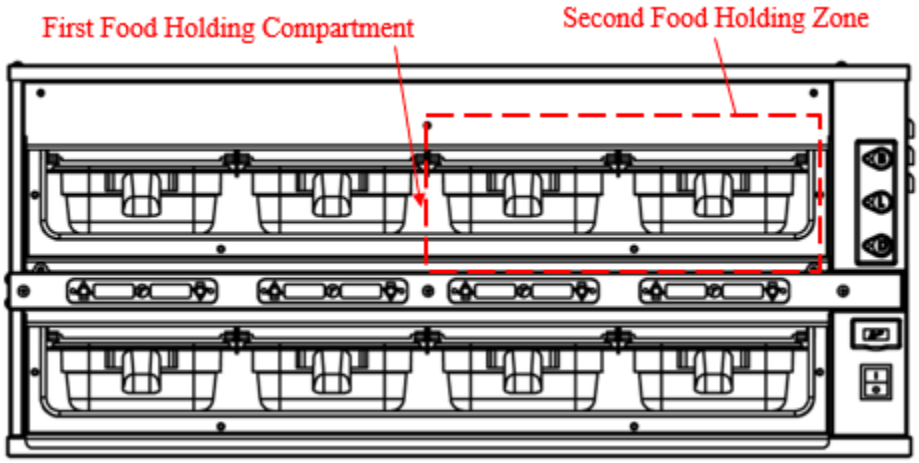
EX1008: 22.

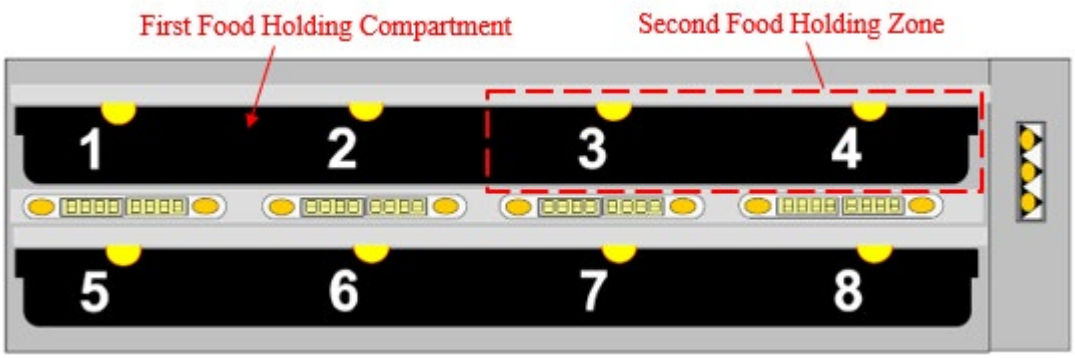
176. It would be understood that because the second/lower heating element is affixed to the underside of the HeatSink's plate the food pans rest on (the planar surface thereof), the lower heating elements conductively transfer heat (*i.e.*, transfer heat energy through object-to-object physical contact) to the food pans. It is well understood in the art that this is how heat sinks—such as the HeatSinks in the IRHS Documents—conduct heat to food pans. EX1016: Fig. 2, ¶[0039] ("[a]n electrical resistance heating element generally designated 39 having a bottom component 41 contacting the bottom of the heat sink"); EX1017: Fig. 3, 4:51-53

("[e]ach heat sink 46 is fitted with a heater which may take the form of a flexible heating element 76 of the electrical resistance type. It extends almost the full length of the heat sink 44, covering the flat bottom surface 54 of the bottom wall 50 [of the heat sink]").

1.e.1: a second food holding zone formed in the first food holding compartment

177. The POSA would recognize that the IRHS Documents disclose the multi-zone food holding bins as having "a second food holding zone formed in the first food holding compartment." Specifically, the IRHS Documents disclose the IRHS24 Holding Unit as having a second food holding zone in the first food holding compartment.



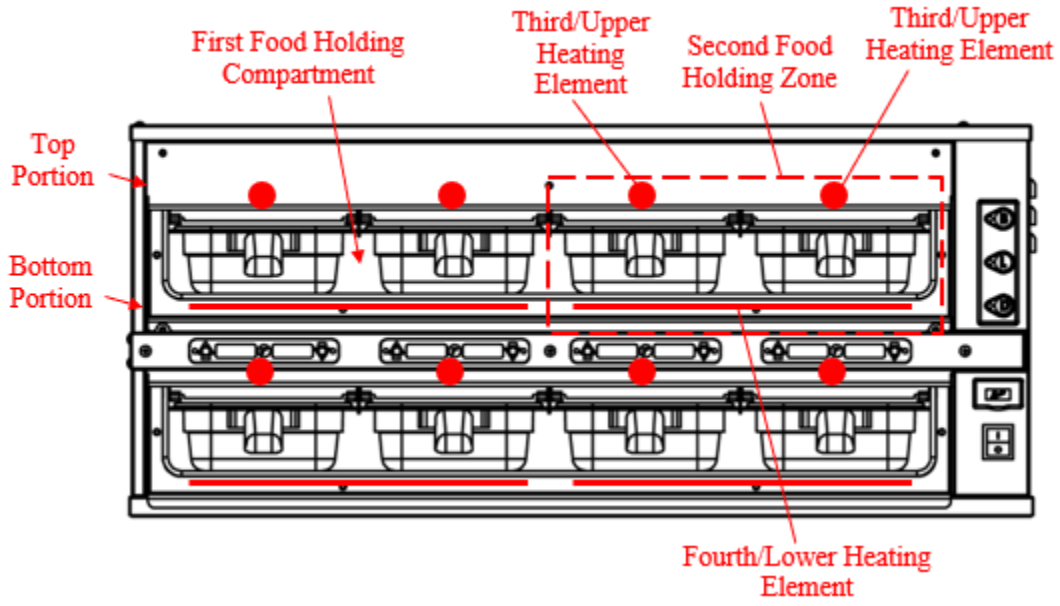


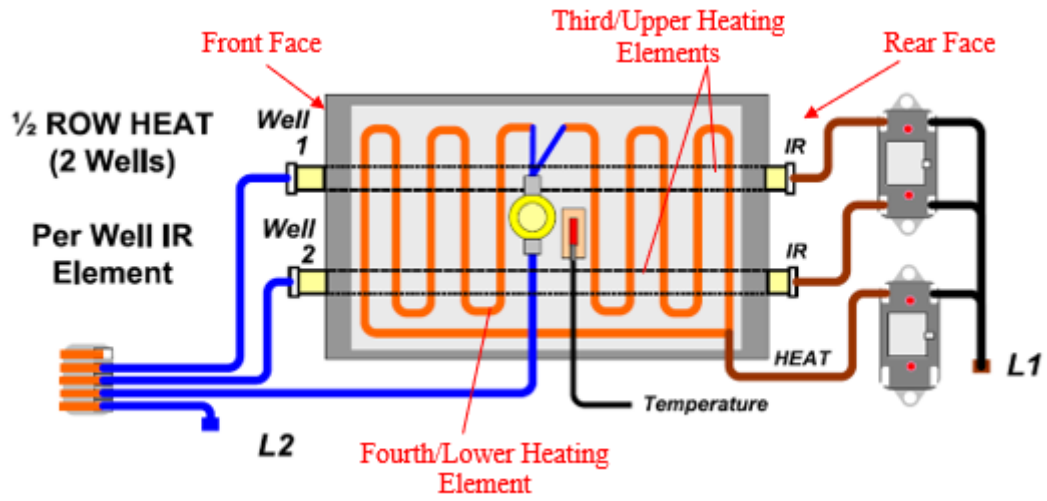
EX1005: 8, 25 (annotated).

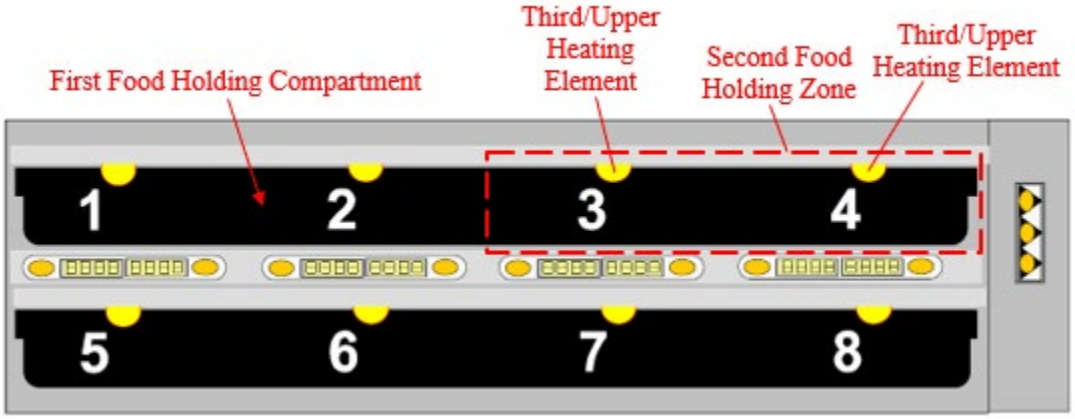
1.e.2: the second food holding zone having an independently controllable radiant third heating element disposed at the top portion of the first food holding compartment and an independently controllable conductive fourth heating element disposed at the bottom portion of the first food holding compartment

178. POSA would recognize that the IRHS Documents disclose the second food holding zone as having at "an independently controllable radiant third heating element disposed at the top portion of the first food holding compartment and an independently controllable conductive fourth heating element disposed at the bottom portion of the first food holding compartment."

179. Specifically, the second food holding zone of the IRHS24 Holding Unit is disclosed as having an independently controllable third heating element (IR bulb) and one independently controllable fourth heating element (electrical heating element) at respective top and bottom portions of the first food holding compartment.


First Food Holding Compartment
Third/Upper Heating Element
Second Food Holding Zone
Third/Upper Heating Element
Top Portion
Bottom Portion
Fourth/Lower Heating Element


Front Face
Third/Upper Heating Elements
Rear Face
½ ROW HEAT (2 Wells)
Per Well IR Element
Well 1
Well 2
IR
IR
HEAT
L1
Temperature
L2
Fourth/Lower Heating Element


First Food Holding Compartment
Third/Upper Heating Element
Second Food Holding Zone
Third/Upper Heating Element
1
2
3
4
5
6
7
8

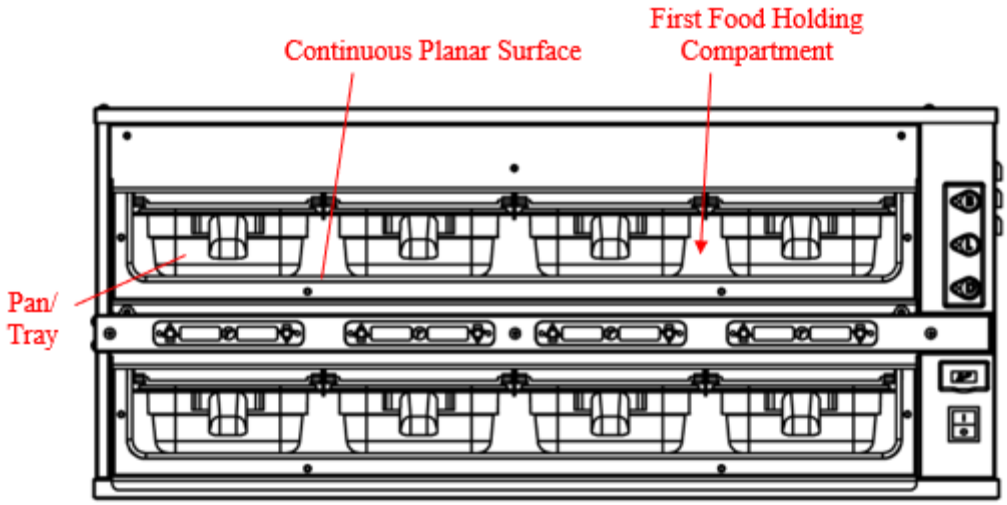
EX1005: 8, 25 (annotated).

180. The second food holding zone's third/upper and fourth/lower heating elements are independently controllable from one another and from the heating elements of the other food holding zones, for the reasons explained above in Paragraphs 144-170 (claim limitation 1.d.2) with respect to the first food holding zone.

181. Likewise, the second food holding zone's third/upper heating elements are radiant heating elements and the second food holding zone's fourth/lower heating element is a conductive heating element, for the same reasons as the first and second heating elements as explained above in Paragraphs 171-176 (claim limitation 1.d.2) with respect to the first food holding zone.

1.f: a food holding tray disposed in the first food holding compartment, the food holding tray resting on the continuous and planar surface

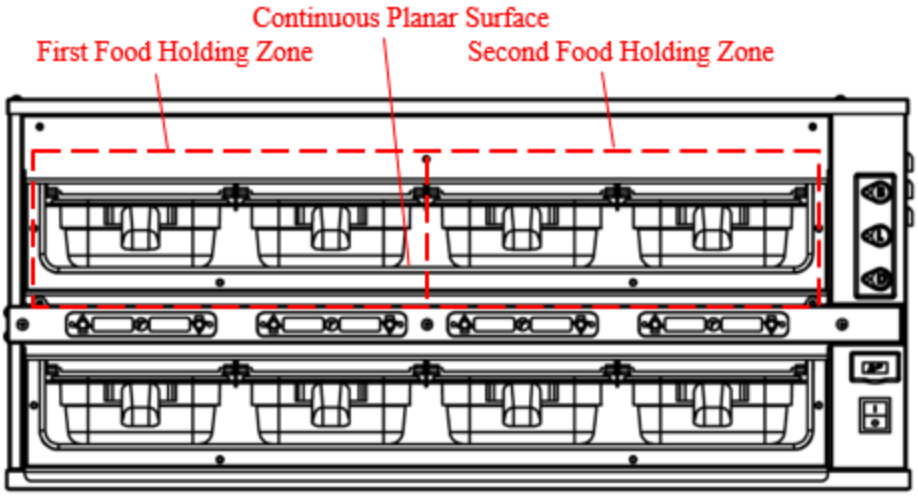
182. POSA would recognize that the IRHS Documents disclose "a food holding tray disposed in the first food holding compartment, the food holding tray resting on the continuous and planar surface." The IRHS24 Holding Unit is disclosed within the IRHS Documents as having food pans/trays disposed in the first food holding compartment, resting on the continuous and planar surface.

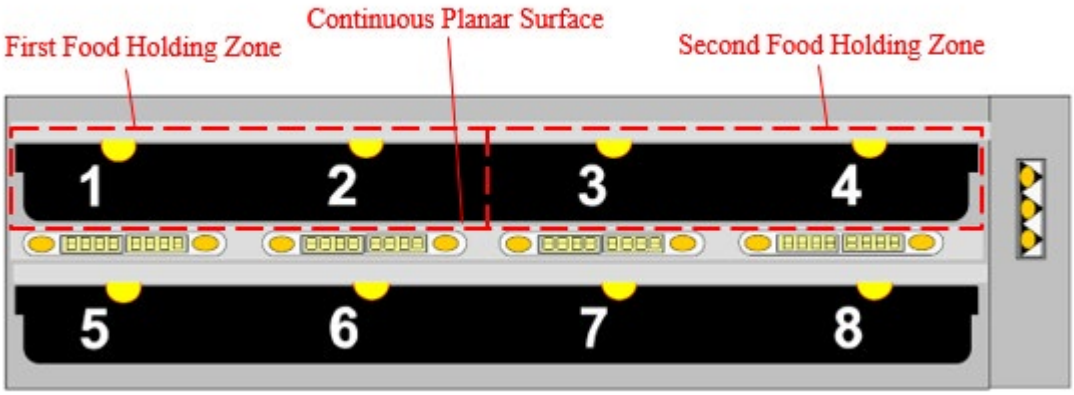


EX1005: 8 (annotated).

1.g.1: wherein the first food holding zone and the second food holding zone are adjacent one another across the continuous planar surface

183. The POSA would recognize that the IRHS Documents disclose that "the first food holding zone and the second food holding zone are adjacent one another across the continuous planar surface" as annotated with respect to the IRHS24 below:





EX1005: 8, 25 (annotated).

1.g.2: the first food holding zone is configured to maintain a first temperature and the second food holding zone is configured to maintain a second temperature, the first temperature and the second temperature capable of being different than one another

184. POSA would recognize that the IRHS Documents disclose that the first food holding zone as being configured to maintain a first temperature and the second food holding zone as being configured to maintain a second temperature,

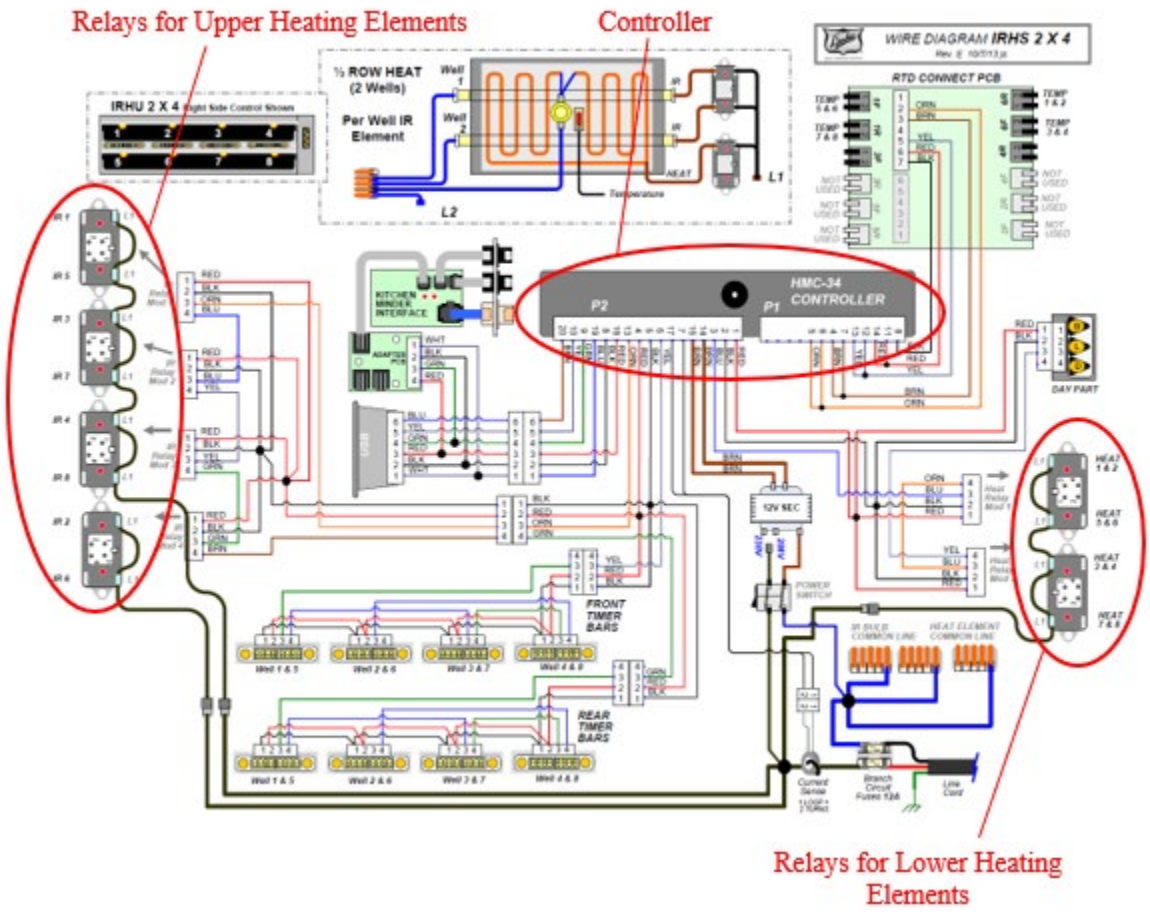
wherein the first temperature and the second temperature may be different from each other.

185. As explained in Paragraphs 144-170 and 179-181 above with respect to claim limitations 1.d.2 and 1.e.2, the upper and lower heating elements of each zone are independently controllable from each other and from the heating elements of the other food holding zones.

186. The IRHS24 Holding Unit includes a controller that operates the heating elements of the different food holding zones independently, so each food holding zone has an independently controlled and maintained temperature (e.g., first temperature, second temperature). EX1005: 16 ("[t]his new technology allows you to precisely control the environment in each pan, allowing customized settings for each food product"); EX1006: 1 ("[a]lphanumeric control with independent well flexibility," "[z]oned bottom heat" and "individually controlled IR emitters" for top heat); EX1007: 53 ("[t]otal well independence allows freedom in product placement in the IRHS" and "[t]ailor each well specifically to the products within them").

187. As shown in the wiring diagram, the controller is connected to each heating element, enabling the controller to independently operate each heating element. Thus, the temperatures of each zone are capable of being different from one another.

EX1005: 25 (annotated).



EX1005: 25 (annotated).

CONTROLLER

The Controller is used to control the Relays and RTD Sensors. It is located inside the control compartment.

EX1008: 30.

188. For example, the controller individually controls the IR emitters to "pulse on and off for controlling optimum amount of energy being applied to the food" and the bottom heat is zoned "to provide additional holding environment customization." EX1006: 1; EX1007: 10 ("Quartz IR Emitters" that "[t]ailor each well specifically to the products within them, providing unlimited flexibility per well"); EX1005: 25 ("1/2 Row Heat (2 Wells)"); Paragraph 151 (claim 1.d.2).

189. The controller operates the heating elements of each food holding zone based on the specific food product type(s) assigned to the pan locations in the food holding zones. EX1006: 1 ("[c]ustom heat settings for food product"); EX1005: 4 ("[t]his new technology allows you to precisely control the environment in each pan, allowing customized settings for each food product"), 16 ("each food product has a tailored HeatSink temperature and InfraRed pulse rate"), 25 ("1/2 Row Heat (2 Wells)"); EX1007: 51 ("each food product has tailored settings to control the thermal path of the food, leading to optimal quality, consistency and extended hold").

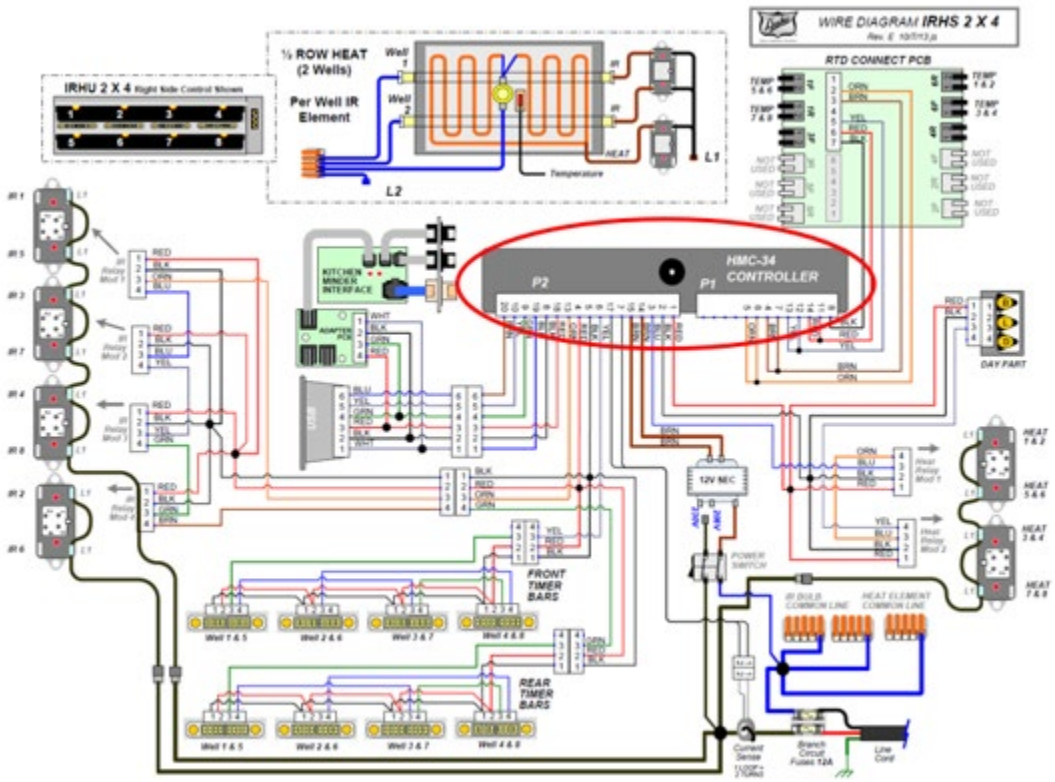
190. Based on the food product types assigned to the pan locations in the different zones, the controller controls each of the four food holding zones to provide a different food holding temperature, where each food holding temperature corresponds to the food product held in the respective zone.

191. Accordingly, the first and second food holding zones (heating zones) of the IRHS24 Holding Unit each have a maintainable food holding temperature. EX1006: 1 ("[c]ustom heat settings for food product," "[e]ach compartment individually controlled"); EX1005: 4 ("[t]his new technology allows you to precisely control the environment in each pan, allowing customized settings for each food product"), 16 ("each food product has a tailored HeatSink temperature and InfraRed pulse rate"); EX1007: 10 ("Quartz IR Emitters" that "[t]ailor each well specifically to the products within them, providing unlimited flexibility per well"), 53 ("[p]recise holding for each product in an optimized environment tailored to that product" and "Total well independence allows freedom in product placement in the IRHS").

192. For each food holding zone (*e.g.*, each of the first and second food holding zones), a vertical temperature profile (including temperatures from top to bottom of each food holding zone) is disclosed as being controllable by the IRHS24 Holding Unit's controller (disclosed as being an HMC-34 Controller) based on independent control of the upper and lower heating elements. EX1006: 1; EX1007: 51; EX1005: 16, 25.

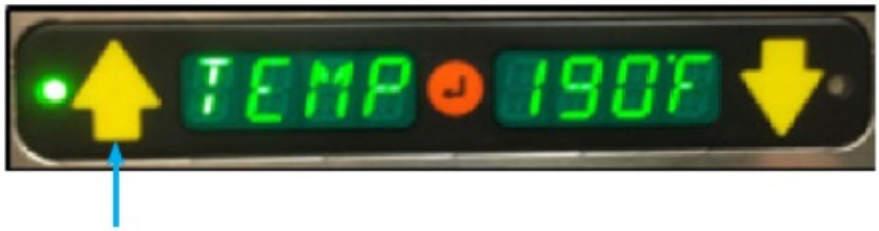
193. The controller of the IRHS24 Holding Unit operates the upper and lower heating elements of each food holding/heating zone to control a food holding temperature. EX1006: 1 ("[d]ual technology heating to reduce temperature

variance from top to bottom"); EX1007: 51 ("deliver a consistently hot pan of product, from top to bottom"). EX1005: 16 ("[t]his new technology allows you to precisely control the environment in each pan, allowing customized settings for each food product"), 25; EX1006: 1 ("[z]oned bottom heat" and "individually controlled IR emitters" for top heat); EX1007: 51 ("each food product has tailored settings to control the thermal path of the food, leading to optimal quality, consistency and extended hold"), 53 ("Precise holding for each product in an optimized environment tailored to that product").



EX1005: 25 (annotated).

194. For example, the IRHS24 has a maintainable food holding temperature at a bottom of each of the food holding zones based on the heat sink temperature setting for the type of food with the temperature being monitored and maintained via feedback from a heat sink temperature sensor. EX1005: 16 (“each food product has a tailored HeatSink temperature”), 25 (“1/2 Row Heat (2 Wells)”); EX1006: 1 (“[z]oned bottom heat”); EX1007: 53 (“Precise holding for each product in an optimized environment tailored to that product”).



This indicates the Heat Sink Temperature for BURG.

EX1005: 17.

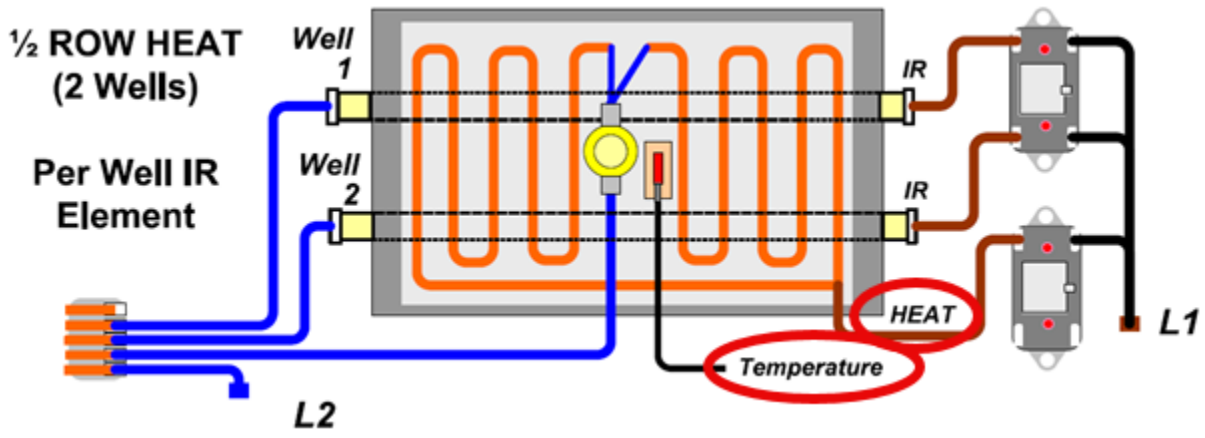
SENS – SENSOR FAULT

- May indicate the unit has been programmed improperly (i.e. loading a 2x4 product configuration file into a 2x2 unit). An attempt to properly reprogram the unit should be made.
- May indicate a fault with a heat sink temperature sensor. The affected pan location is not available for timing product and a qualified service technician should be contacted to identify the cause of the fault

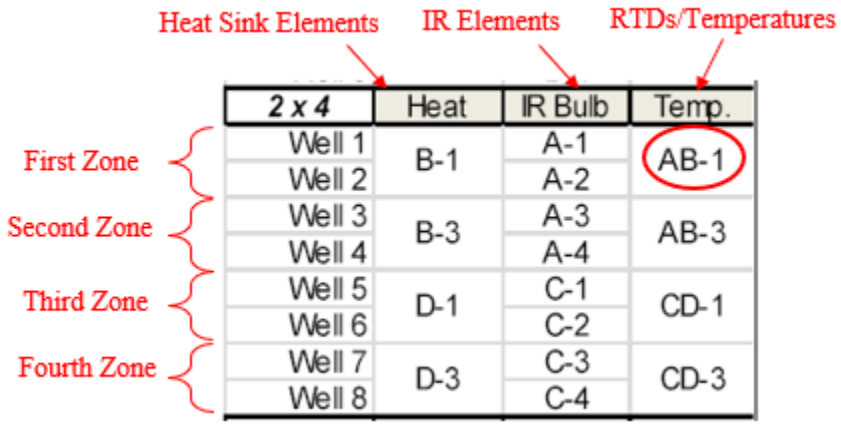
TEMPERATURE CHECK PROCEDURE

1. A digital temperature meter that has been calibrated must be used to get an accurate temperature reading. Use a thermocouple surface temperature probe to measure temperatures.
2. **No pans should be in wells during the pre-heat and temperature check.** Pre-heat the warmer for 30 minutes before taking any temperature readings. Do not take readings unless the cavity has been empty for 30 minutes. This will allow the temperature to stabilize and will prevent false readings.
3. The warmer cavity should be cleaned and empty before the temperature is checked. Avoid any air drafts that might flow through the cavity.
4. Locate the surface temperature probe on the bottom of the first cavity as shown for the cabinet size.
5. All temperature controls exhibit a swing in temperature as the control cycles on and off while regulating to the set point. The correct calibration temperature is the average of several readings taken over a period of 20 minutes after the warmer has been pre-heated. The average temperature should be ± 5°F from the set point.

EX1005: 15 (annotated).



EX1005: 25 (annotated).



2 x 4	Heat	IR Bulb	Temp.
Well 1	B-1	A-1	AB-1
Well 2		A-2	
Well 3	B-3	A-3	AB-3
Well 4		A-4	
Well 5	D-1	C-1	CD-1
Well 6		C-2	
Well 7	D-3	C-3	CD-3
Well 8		C-4	

EX1008: 64 (annotated).

195. Still further, the IRHS Documents teach to customize temperature settings by food type and teach holding zones having different food types. EX1006: 1 ("[c]ustom heat settings for food product"); EX1005: 4 ("[t]his new technology allows you to precisely control the environment in each pan, allowing customized settings for each food product"), 16 ("each food product has a tailored HeatSink temperature and InfraRed pulse rate"); EX1007: 51 ("each food product has tailored settings to control the thermal path of the food, leading to optimal quality, consistency and extended hold"), 53 ("[p]recise holding for each product in an optimized environment tailored to that product"). The temperature settings for each pan location (bays)/heating zone are independent of the other food product types being held in the other pan locations (bays)/zones. EX1005: 25 ("1/2 ROW

HEAT (2 Wells)"); EX1006: 1 ("independent well flexibility"); EX1007: 53 ("[t]otal well independence allows freedom in product placement in the IRHS" and "[t]ailor each well specifically to the products within them").



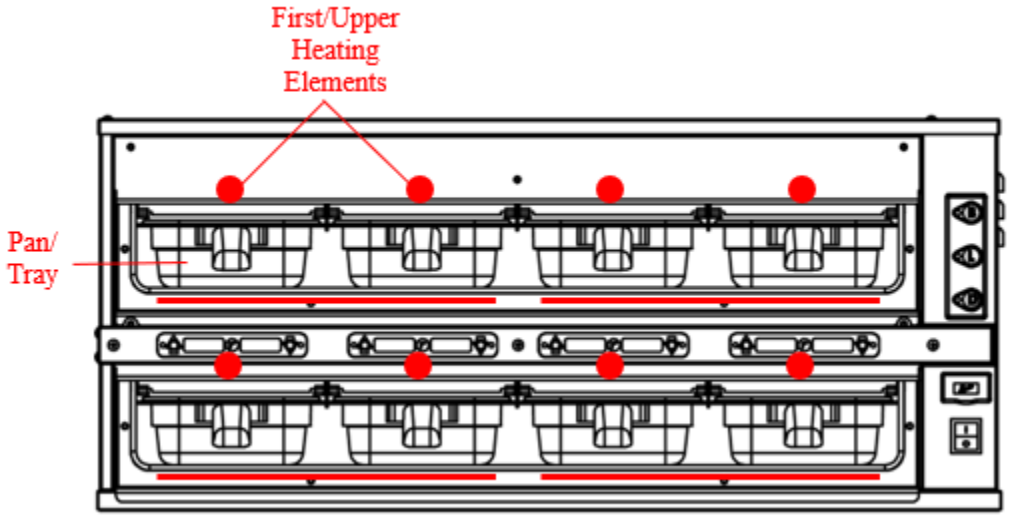
EX1007: 12.

196. In addition to being explicitly taught by the IRHS Documents, the POSA would have been highly motivated to design a food holding unit capable of heating the food holding zones to different temperatures to accommodate customized heat settings for different types of food received in each holding zone (e.g., the first and second, holding zones receive respective different first and second food types) and to increase holding capacity for different types of cooked food to meet customer demands. EX1028: 30 ("[i]t is critically important that each of these 'heat zones' be set to the appropriate temperature for each type of food product"), 14 (example temperatures), 39 (example temperatures); EX1019: 1:17-45 (explaining "'fast food' restaurants compete to deliver food products as quickly

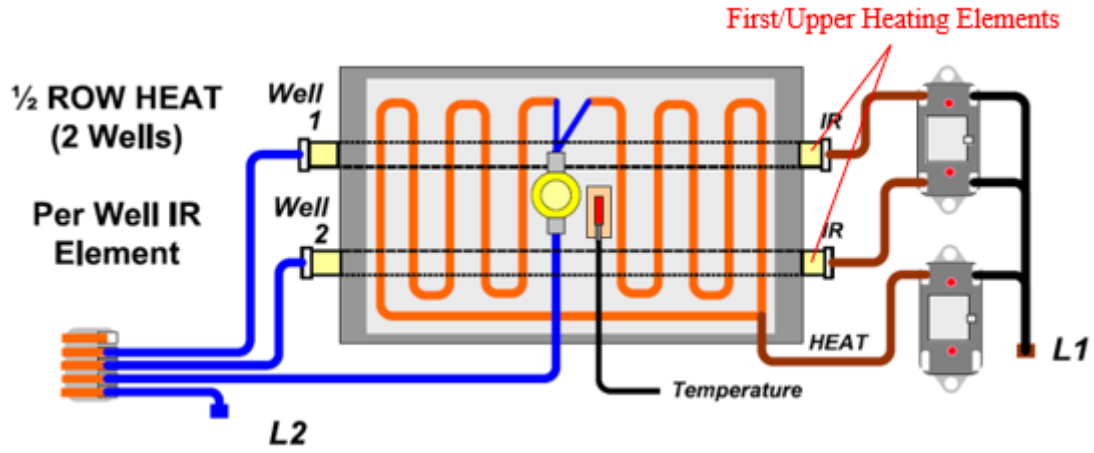
as possible while preserving quality of the taste, consistency, and appearance of the food" and outlining "challenges" of "maintain[ing] a large volume of different food products" each "requir[ing] different storage temperatures"); EX1010: ¶[0024] ("establish two or more heat zones of differing temperatures within the warming volume, to allow food products that require different warming temperatures to be simultaneously disposed within the cart"). Further, there would have been a reasonable expectation of success because of the IRHS Documents' teachings and the known suitability of heated multi-zone food cabinet shelves. EX1019: 4:36-59; EX1020: ¶¶[0021]-[0023]; EX1012: ¶¶[0069], [0072], [0096].

1.h.1: wherein the first independently controllable heating element heats the food holding tray radiantly from above

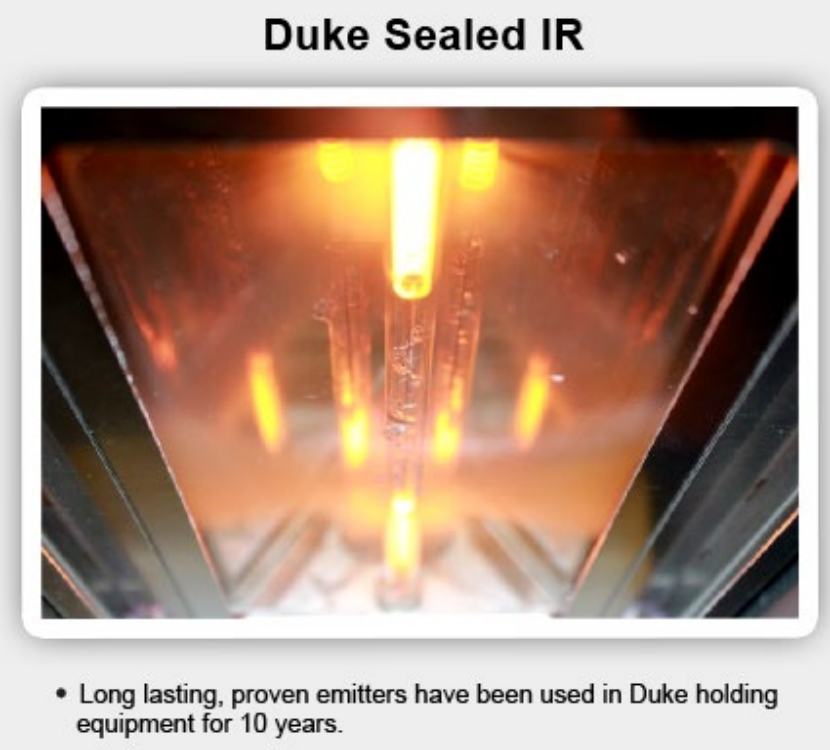
197. The first/upper heating elements are IR bulbs are disposed above the pans/trays and provide infrared radiant heat to the food pans/trays from above. EX1005: 20 (ref. no. 17 – "BULB – IR"); EX1007: 51 ("top-down InfraRed heat").



EX1005: 8 (annotated).

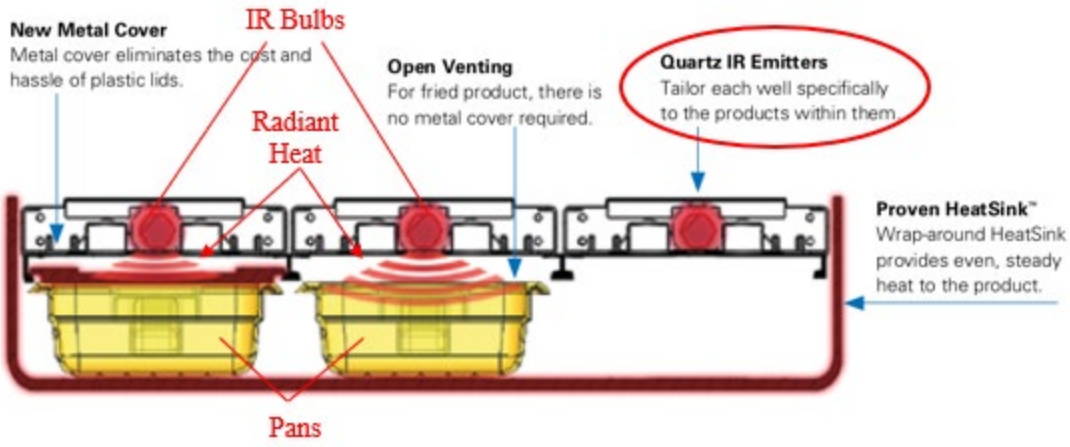


EX1005: 25 (annotated).





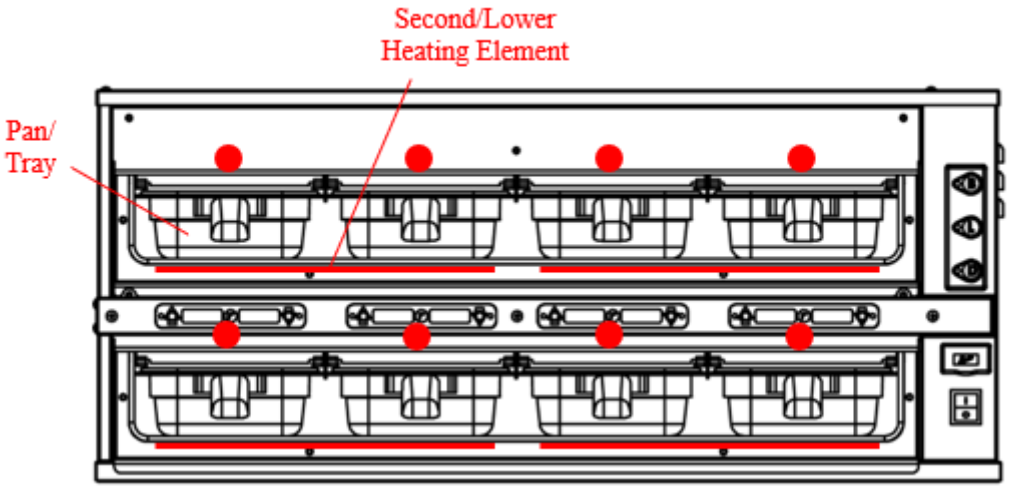
EX1007: 11 and 36.



EX1007: 53 (annotated).

1.h.2: the second independently controllable heating element heats the food holding tray conductively from below

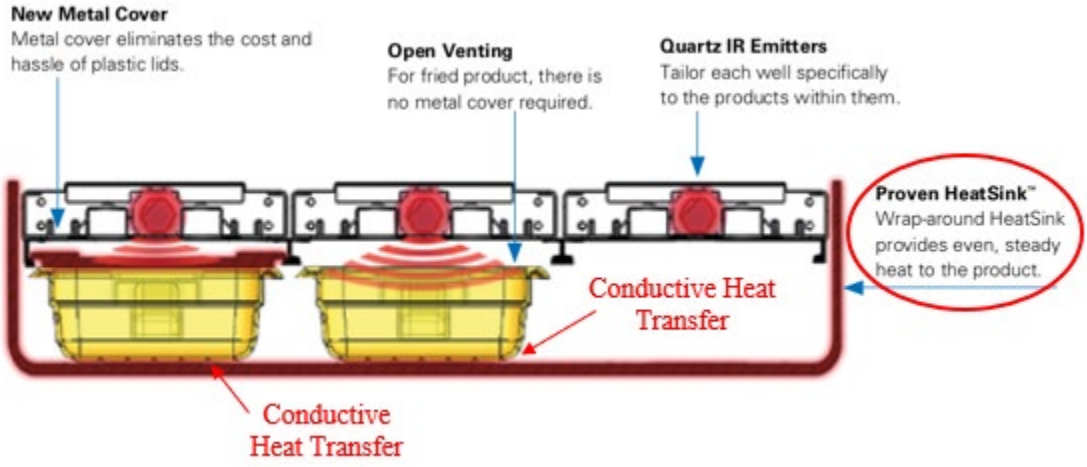
198. The second/lower heating element heats the food pans/trays conductively from below.



EX1005: 8 (annotated).

199. The second/lower heating element is part of the HeatSink associated with the food holding compartment that provides heat to the pans from underneath

the pans. EX1007: 51 ("[p]revious generations of the Duke holding units contained only HeatSink, heating from below").



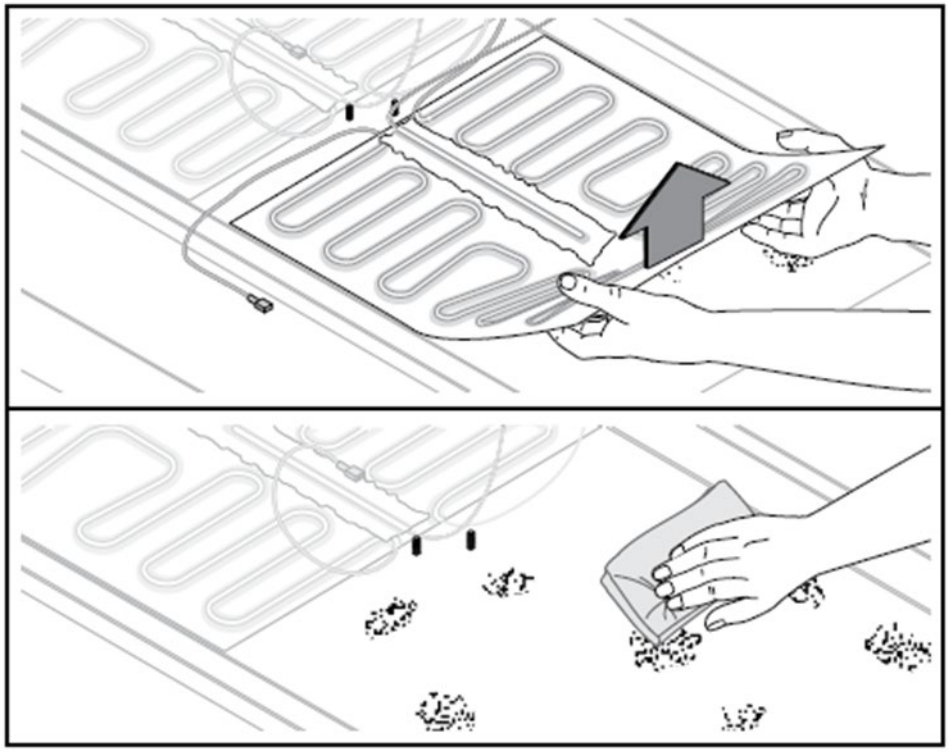
EX1007: 53 (annotated).

HEAT ELEMENTS

The Heat Elements provide the heating required to keep the heating wells at proper operating temperatures. The quantity varies depending on model and are affixed to the bottom of each Heat Sink.

EX1008: 21.

13. Remove the affected Heat Element by peeling off from the heat sink. Ensure any excess tape and/ or adhesive is removed.



EX1008: 22.

200. Because the second/lower heating element is affixed to the underside of the HeatSink's plate which forms the planar surface the food pans rest on, the second/lower heating element conductively heats the food pans. This is how heat sinks, like the HeatSink in the IRHS Documents, conduct heat to food pans. EX1016: Fig. 2, ¶[0039] ("[a]n electrical resistance heating element generally designated 39 having a bottom component 41 contacting the bottom of the heat sink"); EX1017: Fig. 3, 4:51-53 ("[e]ach heat sink 46 is fitted with a heater which may take the form of a flexible heating element 76 of the electrical resistance type.

It extends almost the full length of the heat sink 44, covering the flat bottom surface 54 of the bottom wall 50 [of the heat sink]").

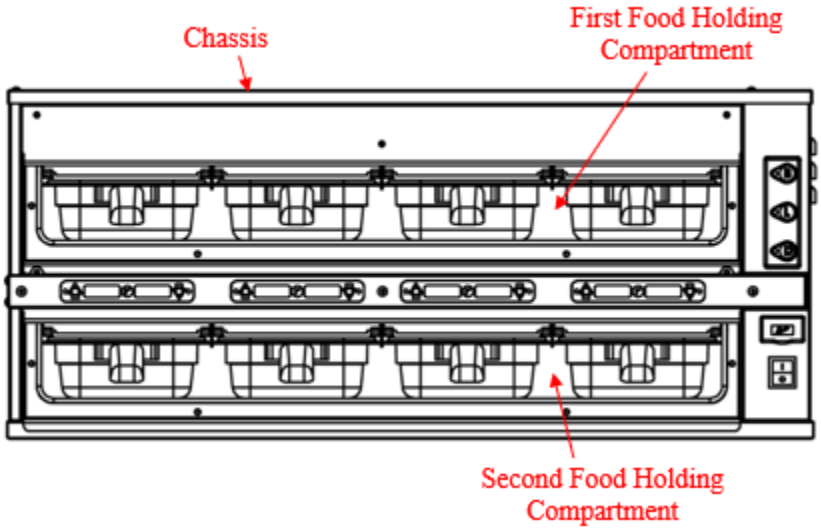
201. Accordingly, each limitation of Claim 1 is disclosed within or rendered obvious by the IRHS Documents. Because the IRHS Documents would have been understood to be describing the same family of IRHS Holding Units, the POSA would have found it obvious to combine the teachings and disclosures of the IRHS Documents—which collectively disclosed each limitation of Claim 1—to arrive at the food holding bin as claimed in Claim 1.

C. Claim 2

2.a.1: the food holding bin of claim 1, further comprising: a second food holding compartment disposed below the first food holding compartment within the chassis

202. As discussed above, the POSA would have found it obvious to combine the teachings and disclosures of the IRHS Documents to arrive at the claimed food holding bin of Claim 1.

203. The POSA would recognize that the IRHS Documents disclose "a second food holding compartment disposed below the first food holding compartment within the chassis." As shown in the annotated figure below, the chassis of the IRHS24 has a second food holding compartment below the first food holding compartment.



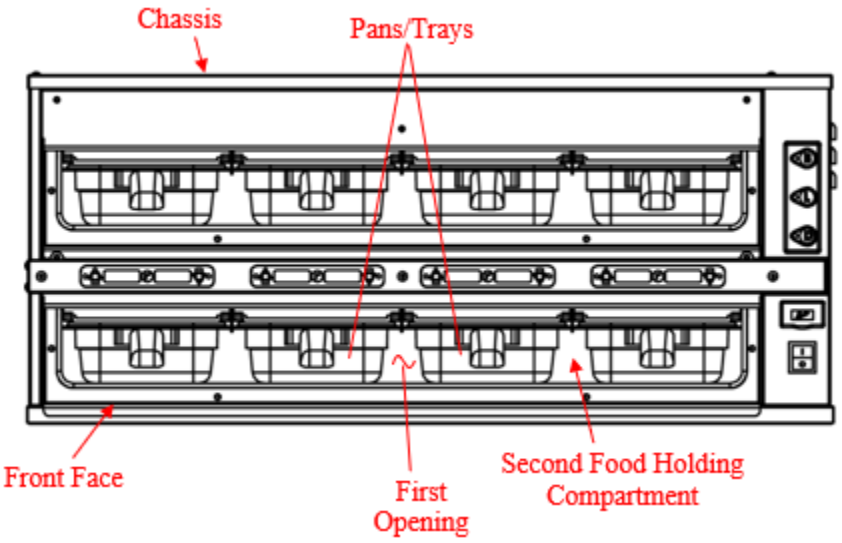
EX1005: 8 (annotated).

2.a.2: the second food holding compartment having at least a first opening, the first opening being open, uncovered and located at the front face of the chassis, the first opening being configured to allow food items to be placed into and removed from the food holding compartment

204. The POSA would recognize that the IRHS Documents disclose the second food holding compartment as having "a first opening, the first opening being open, uncovered and located at the front face of the chassis" and "being configured to allow food items to be placed into and removed from the food holding compartment."

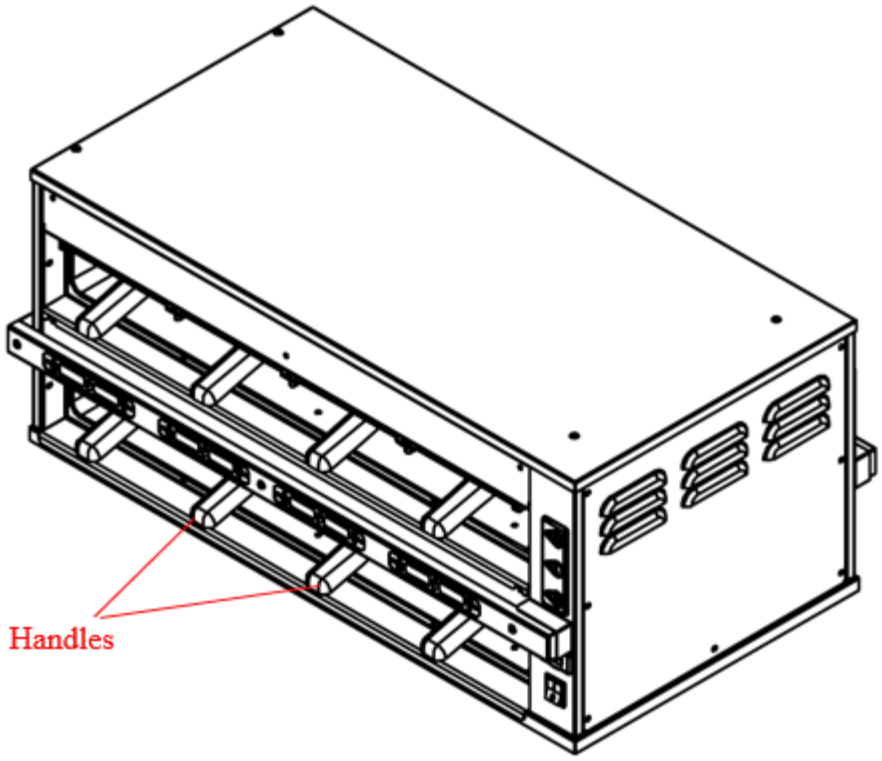
205. As annotated below using the IRHS24 Holding Unit, the second food holding compartment has a first opening that is open, uncovered, and located at the front face of the chassis. The first opening is larger than the food pans and allows

the food pans, and thus food contained therein, to pass through the opening to be placed into and removed from the second food holding compartment.



EX1005: 8 (annotated).

206. As shown below, the IRHS Documents discloses handles of the food pans projecting out of the first opening in the front face of the chassis to allow the operator to insert and remove pans through the first opening of the second food holding compartment.



EX1005: 8 (annotated).



EX1007: 58 (annotated).



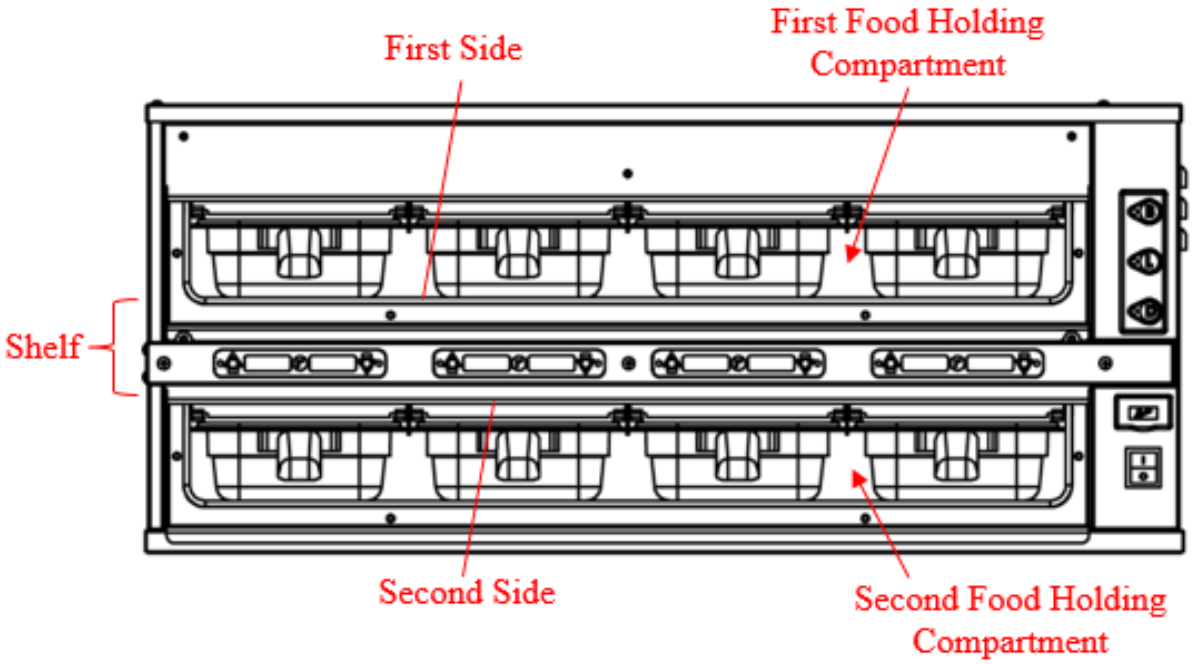
EX1007: 52.

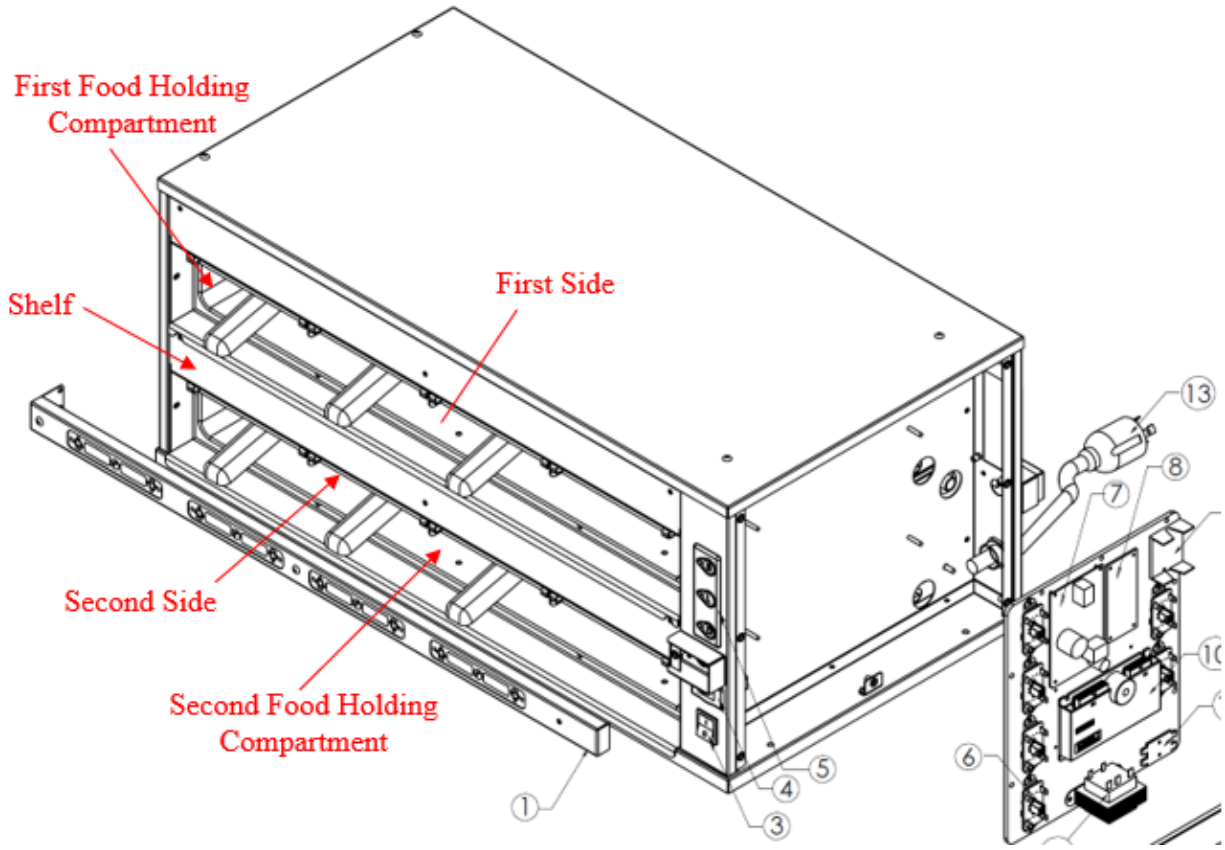
2.b.1: a shelf located between the first and second food holding compartments, the shelf comprising a first side and a second side, the first side facing into the first food holding compartment, the second side facing into the second food holding compartment

207. The POSA would recognize that the IRHS Documents disclose that "the shelf [is] located between the first and second food holding compartments" and that "the shelf comprises a first side and a second side, the first side facing into the first food holding compartment, the second side facing into the second food holding compartment."

208. As annotated below using the IRHS24 Holding Unit, the IRHS Documents disclose that the shelf is located between the first and second food holding compartments. The shelf has a first side that faces into the first food

holding compartment and a second side that faces into the second food holding compartment.





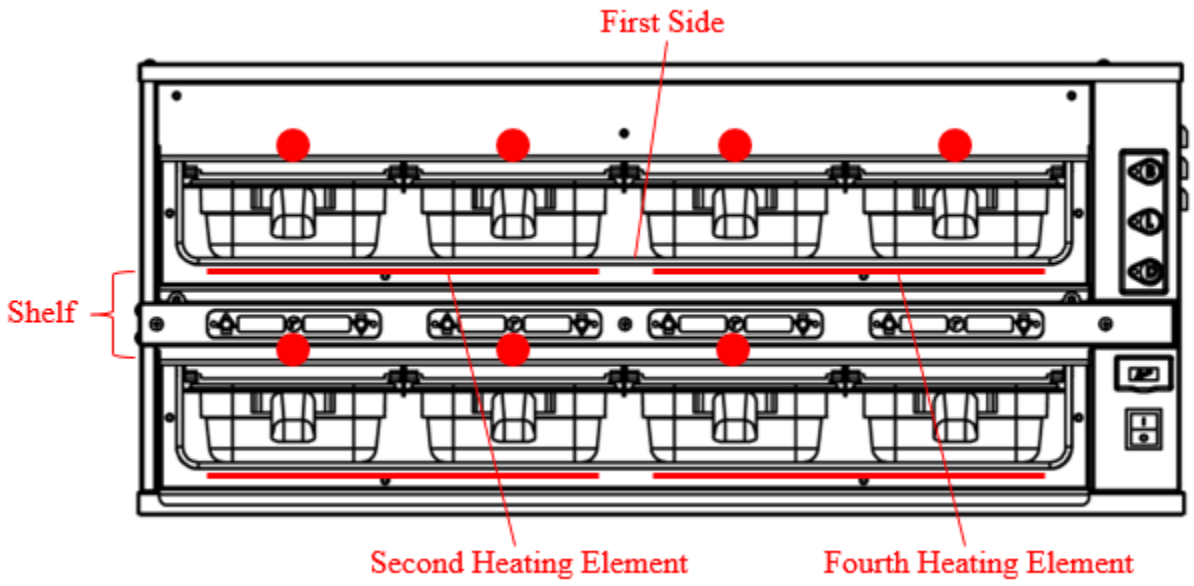
EX1005: 8, 20 (annotated).

2.b.2: the second and fourth heating elements being disposed in the shelf and in thermal communication with the first side

209. The POSA would recognize that the IRHS Documents disclose that "the second and fourth heating elements [are] disposed in the shelf and in thermal communication with the first side."

210. As annotated below using the IRHS24 Holding Unit, the second heating element (*i.e.*, the lower heating element of the first food zone) and fourth heating element (*i.e.*, the lower heating element of the second food zone) are disposed in the shelf, below the planar surface forming the first side of the shelf.

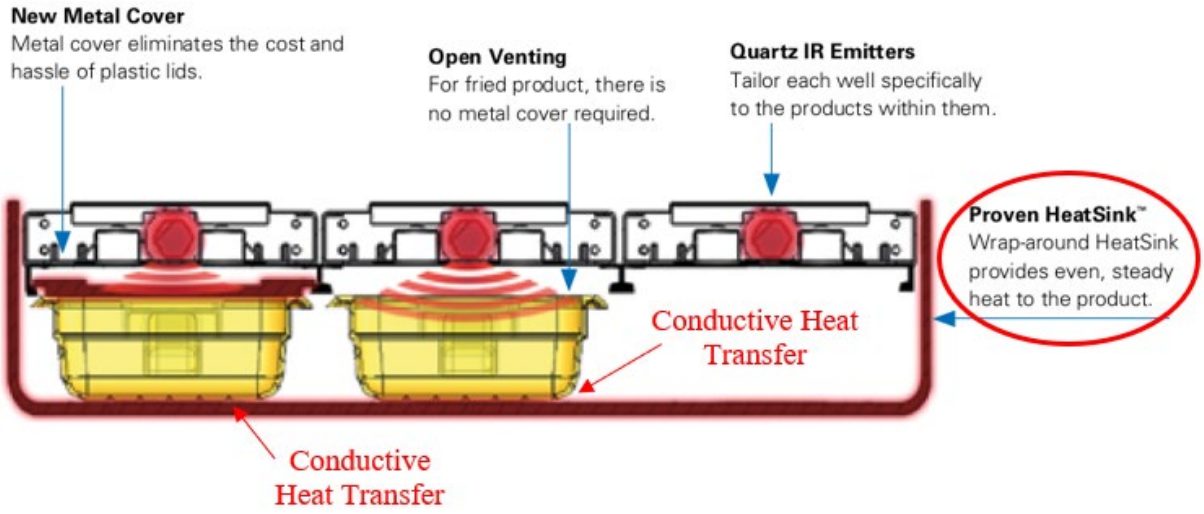
EX1016: Fig. 2, ¶[0039] ("[a]n electrical resistance heating element generally designated 39 having a bottom component 41 contacting the bottom of the heat sink"); EX1017: Fig. 3, 4:51-53 ("[e]ach heat sink 46 is fitted with a heater which may take the form of a flexible heating element 76 of the electrical resistance type. It extends almost the full length of the heat sink 44, covering the flat bottom surface 54 of the bottom wall 50 [of the heat sink]"); EX1007: 51.



EX1005: 8 (annotated).

211. The second and fourth heating elements are part of the HeatSink for the first compartment. EX1007: 51. The second and fourth heating elements are affixed to the HeatSink associated with the first food holding compartment that provides heat to the pans from underneath the pans. EX1007: 51 ("[p]revious

generations of the Duke holding units contained only HeatSink, heating from below").



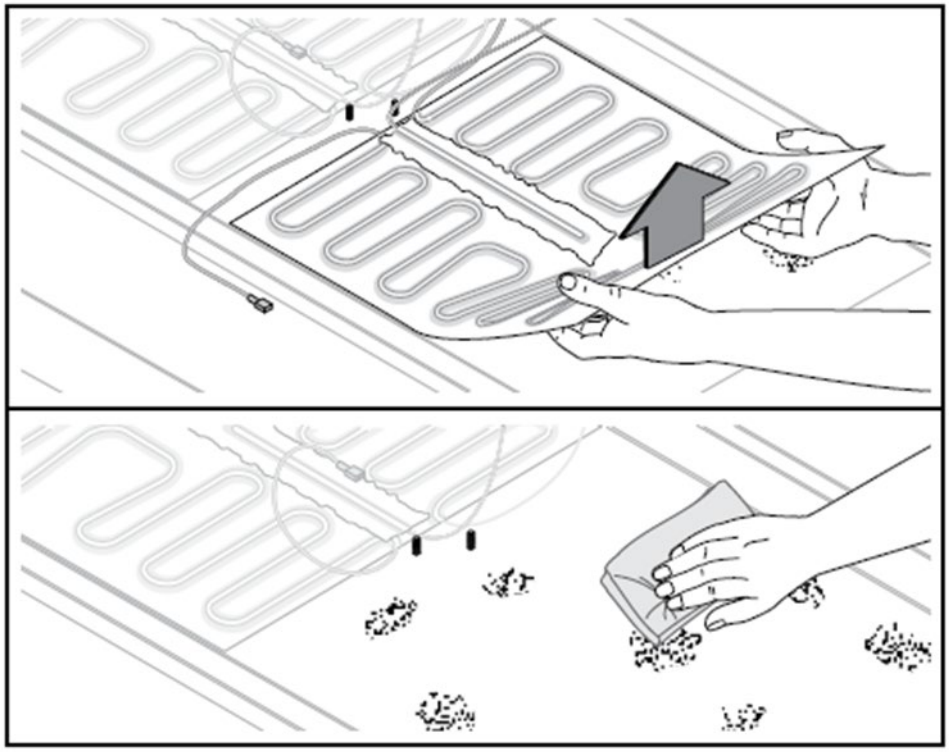
EX1007: 53 (annotated).

HEAT ELEMENTS

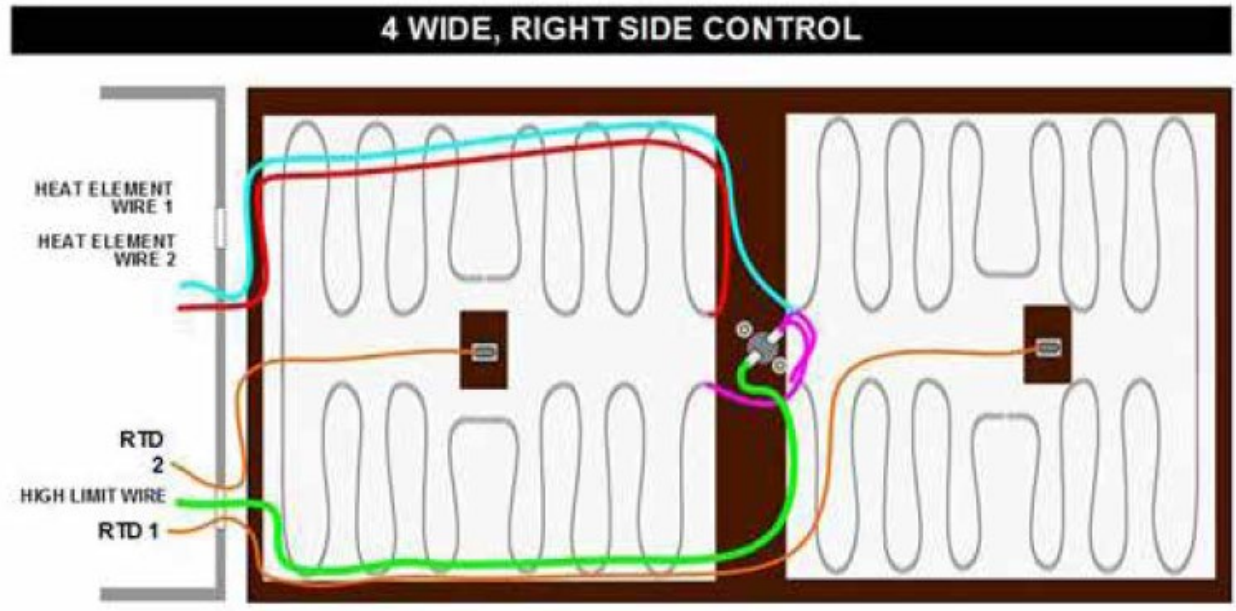
The Heat Elements provide the heating required to keep the heating wells at proper operating temperatures. The quantity varies depending on model and are affixed to the bottom of each Heat Sink.

EX1008: 21.

13. Remove the affected Heat Element by peeling off from the heat sink. Ensure any excess tape and/ or adhesive is removed.



EX1008: 22.



EX1008: 58.

212. The POSA understands the lower heating elements (e.g., the second and fourth heating elements) heat the shelf's first side and thus are in thermal communication with the first side. EX1007: 51, 53. As the planar surface of the HeatSink—to which the second and fourth heating elements are affixed to the underside of—forms the first side of the shelf, the second and fourth heating elements are in thermal communication with the first side of the shelf. EX1016: Fig. 2, ¶[0039] ("[a]n electrical resistance heating element generally designated 39 having a bottom component 41 contacting the bottom of the heat sink"); EX1017: Fig. 3, 4:51-53 ("[e]ach heat sink 46 is fitted with a heater which may take the form of a flexible heating element 76 of the electrical resistance type. It extends almost the full length of the heat sink 44, covering the flat bottom surface 54 of the bottom wall 50 [of the heat sink]").

2.b.3: the second and fourth heating elements being capable of providing different amounts of heat energy into the first and second food holding zones of the first food holding compartment

213. The POSA would recognize that the IRHS Documents disclose "the second and fourth heating elements [are] capable of providing different amounts of heat energy into the first and second food holding zones of the first food holding compartment."

214. As explained in Paragraphs 185-196 above (claim limitation 1.g.2), the first/upper compartment's lower heating elements (*e.g.*, the second and fourth heating elements) are independently controllable from one another via the controller. EX1005: 16 ("[t]his new technology allows you to precisely control the environment in each pan, allowing customized settings for each food product" and "each food product has a tailored HeatSink temperature"), 25; EX1006: 1 ("[z]oned bottom heat"); EX1007: 53 ("Precise holding for each product in an optimized environment tailored to that product" and "Total well independence allows freedom in product placement in the IRHS").

215. As the first/upper compartment's second and fourth lower heating elements are independently controllable from one another, they are capable of providing different amounts of heat energy into the first and second food holding zones.

216. For example, the POSA would recognize that the controller was intended to allow the operator to operate the heating elements (*e.g.*, second and fourth heating elements) of the respective food holding zones to heat the zones to different temperatures based on the different heat settings for different food types in the food holding zones.

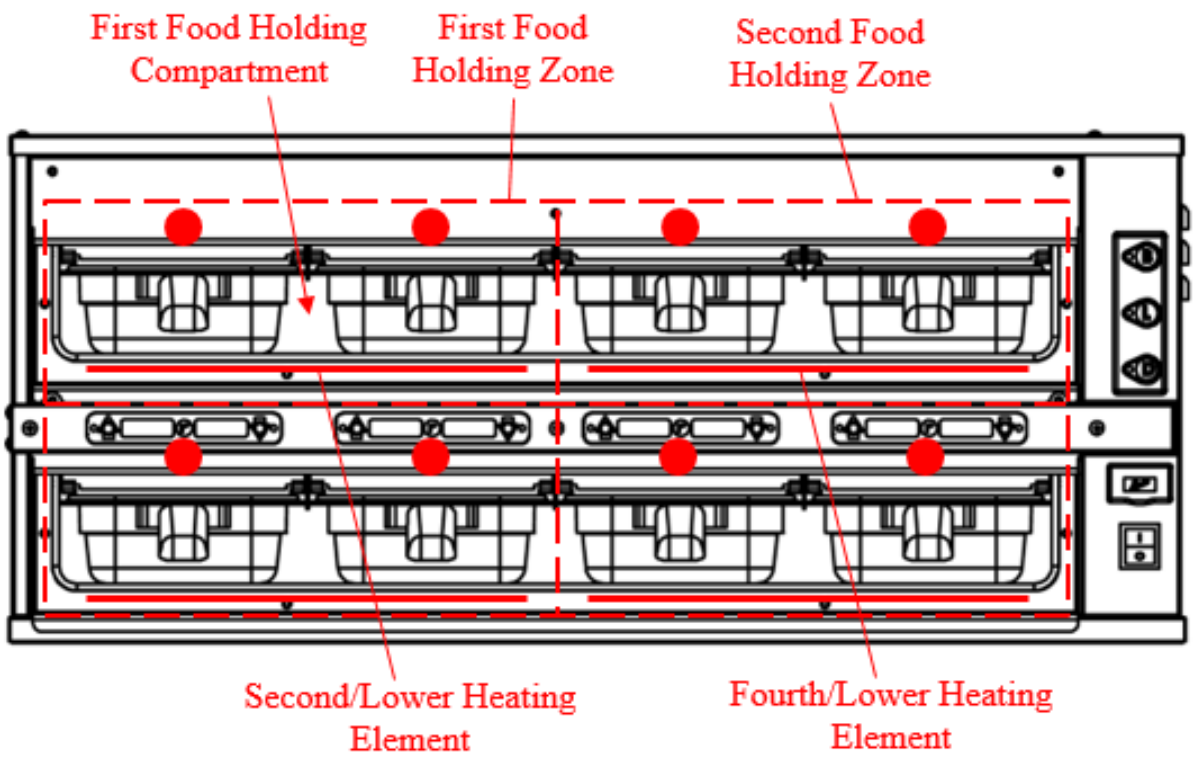
217. The IRHS Documents expressly teach the POSA to customize the temperature settings by food type and teach holding zones having different food

types. EX1006: 1 (“[c]ustom heat settings for food product”); EX1005: 4 (“[t]his new technology allows you to precisely control the environment in each pan, allowing customized settings for each food product”), 16 (“each food product has a tailored HeatSink temperature and InfraRed pulse rate”); EX1007: 51 (“each food product has tailored settings to control the thermal path of the food, leading to optimal quality, consistency and extended hold”), 53 (“[p]recise holding for each product in an optimized environment tailored to that product”).

218. The temperature settings for each pan location/heating zone are further taught to be independent of the other food product types being held in the other pan locations/zones. EX1005: 25 (“1/2 ROW HEAT (2 Wells)”); EX1006: 1 (“independent well flexibility”); EX1007: 53 (“[t]otal well independence allows freedom in product placement in the IRHS” and “[t]ailor each well specifically to the products within them”).



EX1007: 12.



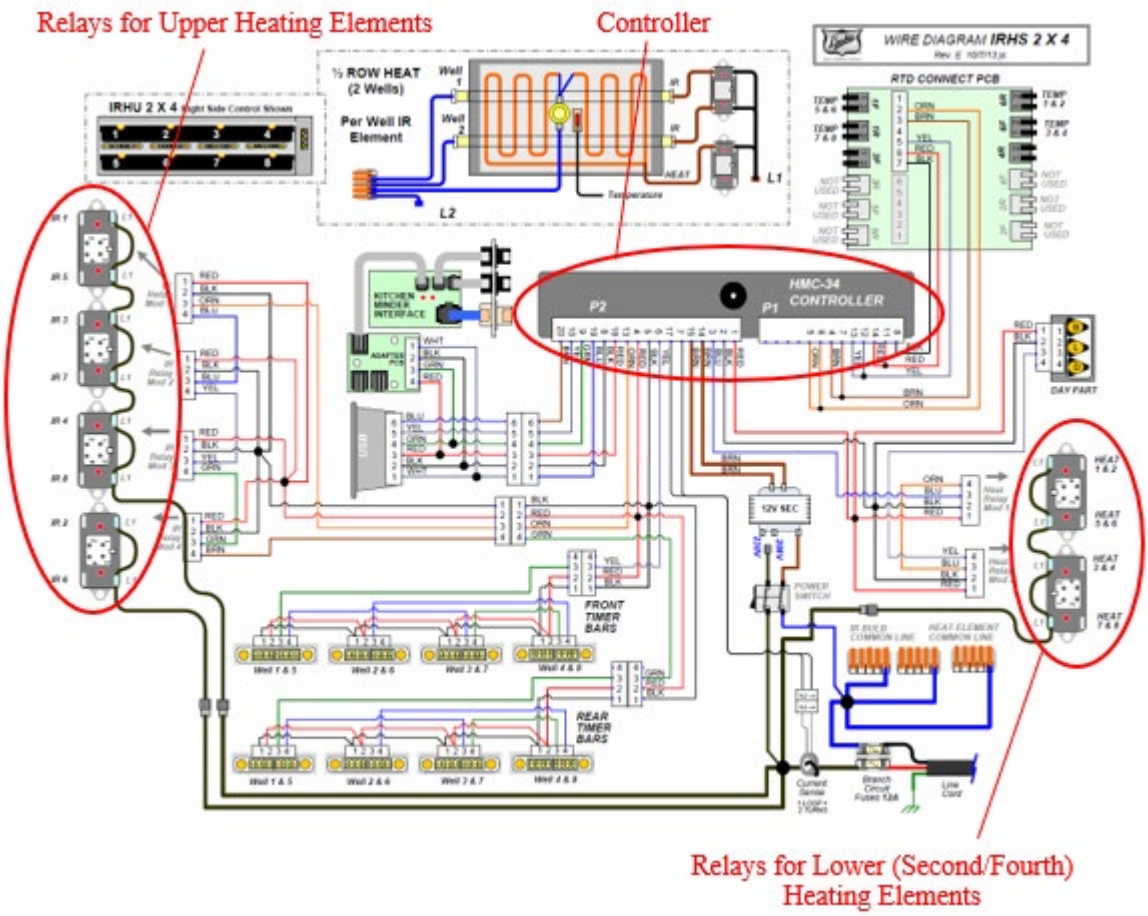
EX1005: 8 (annotated).

219. Having the second and fourth lower heating elements output different amounts of heat energy would be a natural result of the first and second food holding zones receiving different kinds of food requiring different bottom temperatures. For example, if the first food holding zone receives pans of cooked eggs and the second food holding zone receives pans of bacon, the lower heating element in the first food holding zone would output less heat energy for warming eggs than the lower heating element in the second food holding zone for warming bacon. EX1028: 39 (teaching holding eggs at 180°F and holding bacon at 200°F).

2.c: a controller operatively coupled to the second heating element and to the fourth heating element, the controller being configured to independently operate the second heating element and the fourth heating element

220. The POSA would recognize that the IRHS Documents disclose "a controller operatively coupled to the second heating element and to the fourth heating element, the controller being configured to independently operate the second heating element and the fourth heating element."

221. For example, as shown in the wiring diagram, the IRHS24 Holding Unit is disclosed as having a controller operatively connected to each heating element (*e.g.*, the second and fourth heating elements). EX1005: 25 ("HMC-34 Controller").EX1005: 25 (annotated).



CONTROLLER

The Controller is used to control the Relays and RTD Sensors. It is located inside the control compartment.

EX1008: 30.

222. As explained in Paragraphs 144-170 and 179-181 above with respect to claim limitations 1.d.2 and 1.e.2, the heating elements (*e.g.*, second and fourth heating elements) are independently controllable from each other.

223. The controller operates the heating elements of the different food holding zones independently, so each food holding zone has an independently

controlled food holding temperature. EX1005: 16 ("[t]his new technology allows you to precisely control the environment in each pan, allowing customized settings for each food product"); EX1006: 1 ("[a]lphanumeric control with independent well flexibility," "[z]oned bottom heat" and "individually controlled IR emitters" for top heat); EX1007: 53 ("[t]otal well independence allows freedom in product placement in the IRHS" and "[t]ailor each well specifically to the products within them").

224. As shown in the wiring diagram, the controller is connected to each heating element, enabling the controller to independently operate each heating element.

225. The controller operates the heating elements of each food holding zone based on the specific food product type(s) assigned to the pan locations in the food holding zones. EX1006: 1 ("[c]ustom heat settings for food product"); EX1005: 4 ("[t]his new technology allows you to precisely control the environment in each pan, allowing customized settings for each food product"), 16 ("each food product has a tailored HeatSink temperature and InfraRed pulse rate"), 25 ("1/2 Row Heat (2 Wells)"); EX1007: 51 ("each food product has tailored settings to control the thermal path of the food, leading to optimal quality, consistency and extended hold").

226. Based on the food product types assigned to the pan locations in the different zones, the controller independently controls the heating elements (*e.g.*, second and fourth heating elements) of each food holding zone to achieve the zone's set food holding temperature.

227. Accordingly, each limitation of Claim 2 is disclosed within or rendered obvious by the IRHS Documents.

228. As each limitation of Claim 2 is disclosed within the IRHS Documents, the POSA would have found it obvious to combine the teachings and disclosures of the IRHS Documents to arrive at the food holding bin as claimed in Claim 2.

D. Claim 3: the food holding bin of claim 1, wherein the first and second food holding compartments each have a second opening, uncovered and located at the rear face of the chassis

229. As discussed above, the POSA would have found it obvious to combine the teachings and disclosures of the IRHS Documents to arrive at the claimed food holding bin of Claim 1.

230. The POSA would additionally recognize that the IRHS Documents discloses the limitation requiring that "the first and second food holding compartments each have a second opening, uncovered and located at the rear face of the chassis."

231. The POSA understands the rear face of the chassis of the IRHS24 Holding Unit is generally a mirror image of the front face of the chassis. EX1008: 12 ("The Menu Bars … are located on the front and back faces of the unit.").

232. Although not explicitly pointed out, the IRHS Documents appear to include images of the rear face showing the rear face to mirror the front face in terms of the openings.

233. Specifically, the front face includes controls on the front of the first side panel.



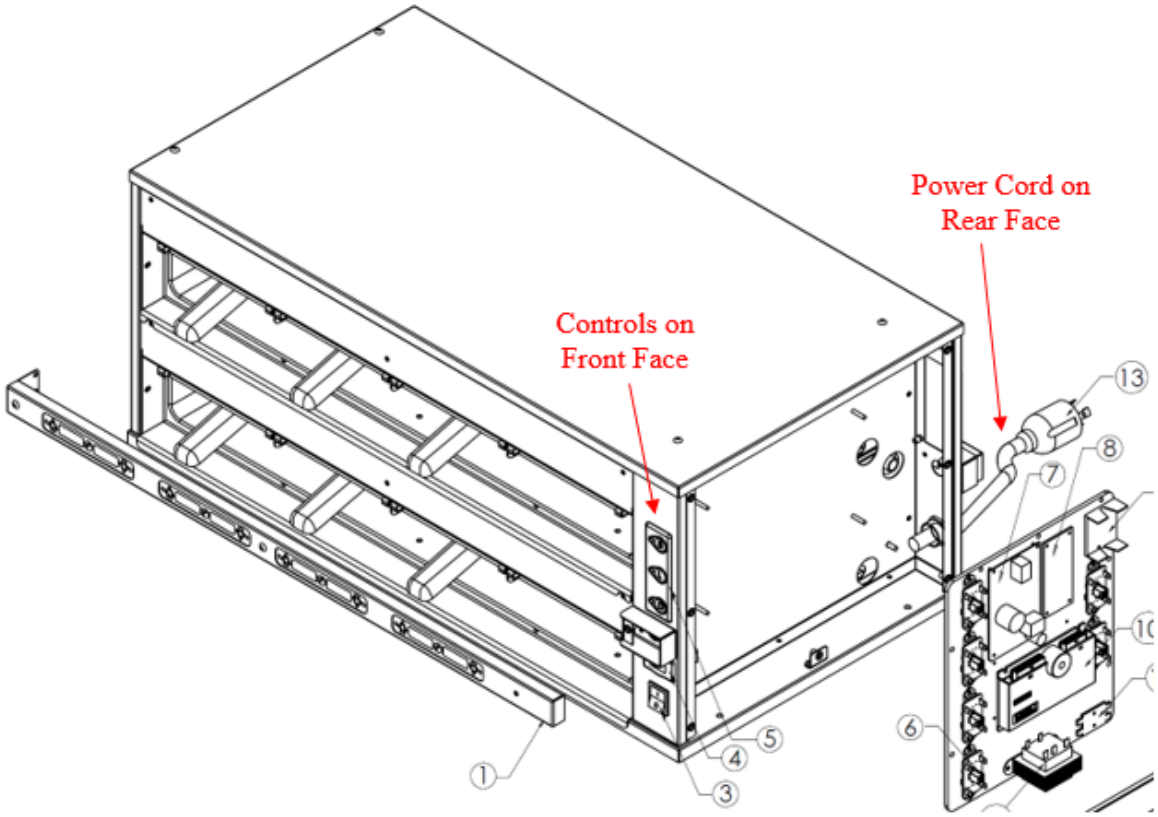
EX1007: 28, 51, 52 (annotated).

234. The IRHS Documents also include images of an IRHS Unit without any controls on its face and a power cord extending from it. The POSA would recognize that these images are actually showing the rear face of the IRHS Unit.





EX1007: 28, 51, 52 (annotated).



EX1005: 19 (annotated).

235. Additionally, the POSA would recognize the IRHS Holding Unit to be what is known in the art as a pass-through unit having mirrored openings in the front and back sides to allowing crews to work from both sides of the IRHS Holding Unit. EX1007: 67 ("Pass through design allows crews to work both sides").

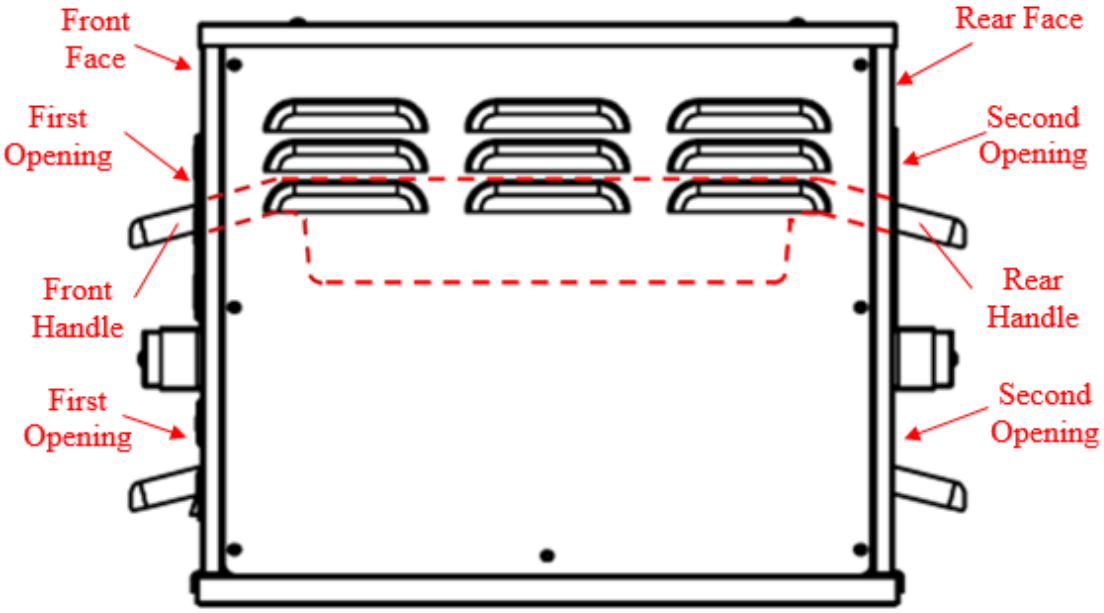
236. The food pans disclosed in the IRHS Documents confirm that the IRHS Holding Unit is a pass-through unit in that they have front and rear handles. EX1007: 58.

237. The IRHS Documents show the front and rear handles of the food pans in the first food holding compartment extending out the front face and the rear face, respectively, as shown below:

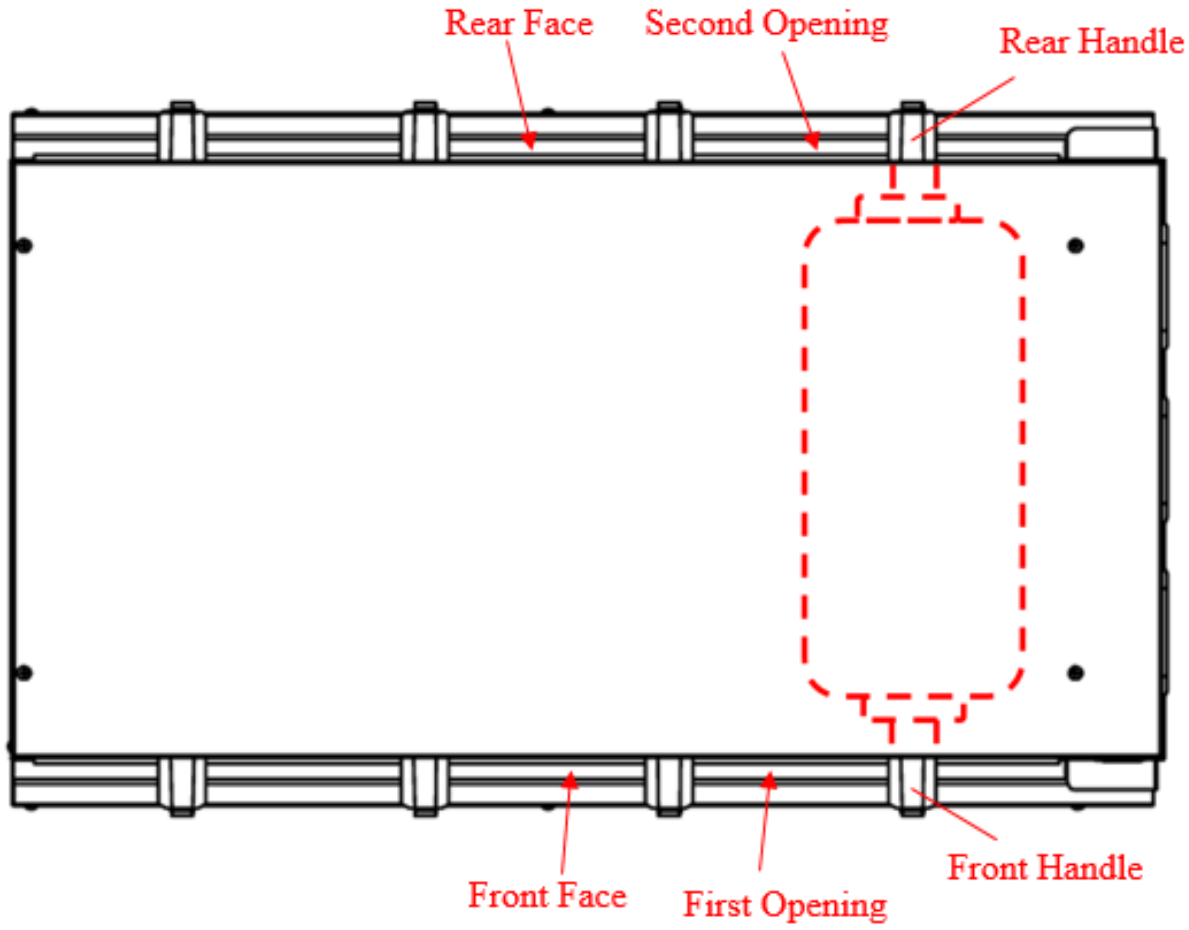


EX1007: 58 (annotated).

238. The existence of front and rear handles on the food pans further demonstrates that the IRHS Holding Unit has openings on both sides. This is further confirmed where the IRHS Documents are depicted from side or overhead views as annotated below.



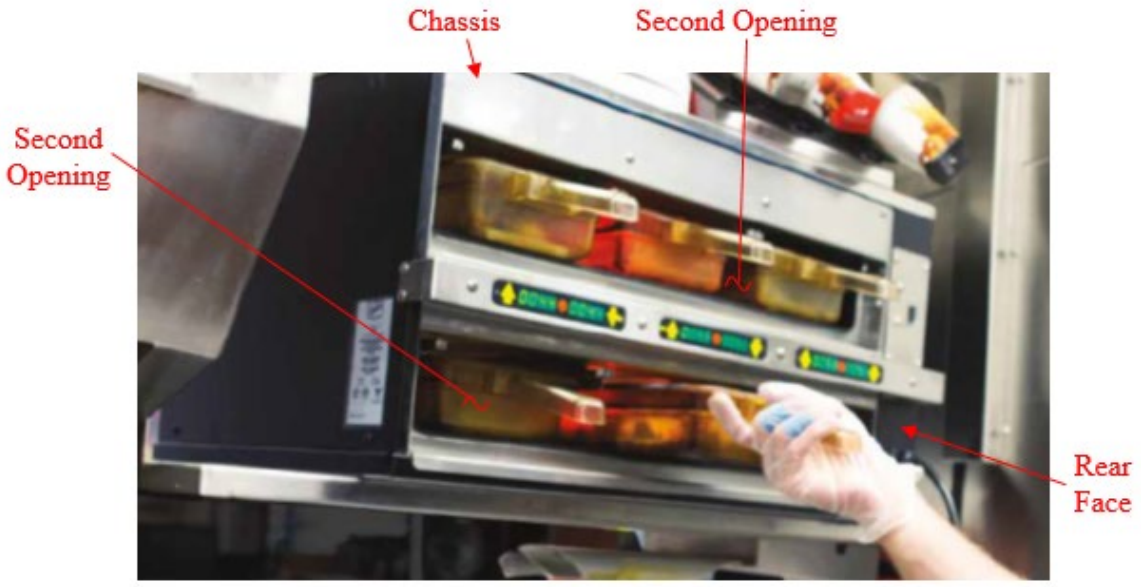
EX1005: 8 (annotated).



EX1005: 8 (annotated).

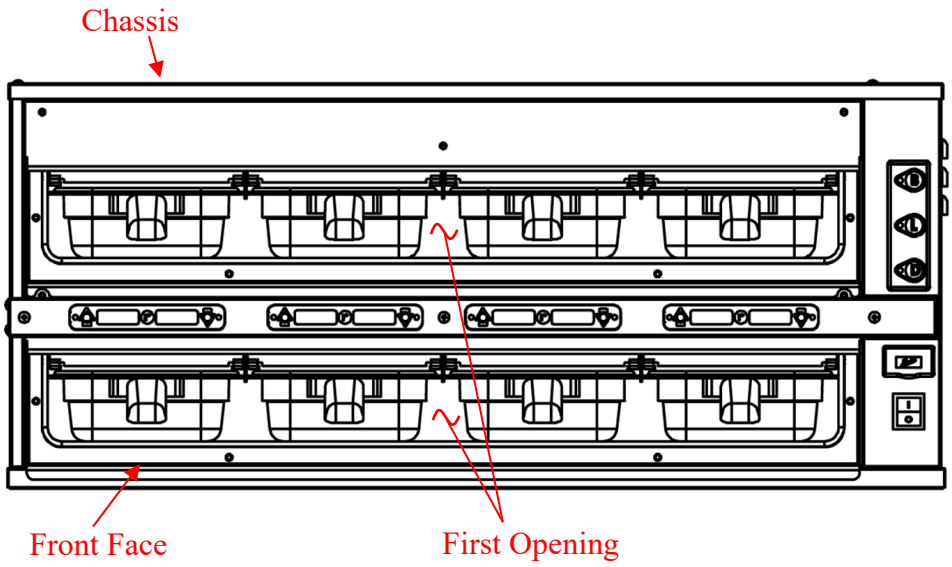
239. For the rear handles of the food pans disposed on the first planar surface to project beyond the rear face of the chassis, the chassis must have a second opening along the rear face. The first opening enables the front handle of a pan to project out of the front face of the IRHS while the second opening enables the rear handle of the same pan to project out of the rear face of the IRHS.

240. Thus, as annotated below, the POSA would recognize that the rear face of the chassis has uncovered second (rear) openings for each compartment.

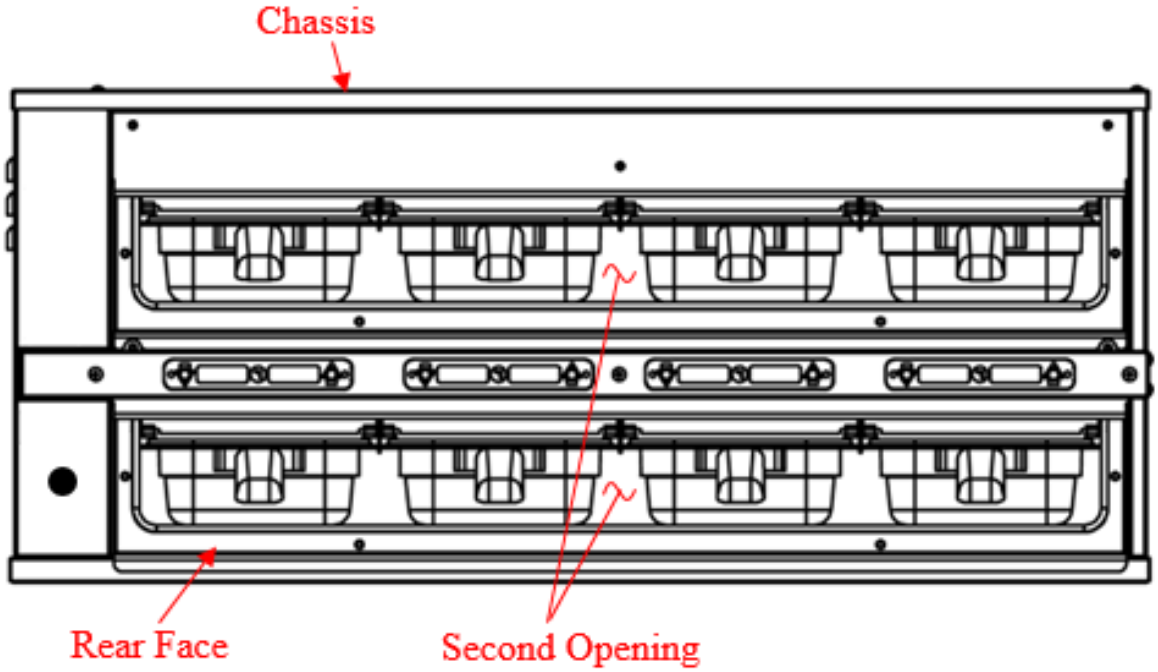


EX1007: 52 (annotated).

241. The POSA would understand this construction applies to all of the IRHS units, including the IRHS24 Holding Unit. An illustration that was modified to depict the rear face of the IRHS24 Holding Unit as would be understood by the POSA is shown below. As illustrated, the first and second food holding compartments each have an uncovered first opening at the front faces of the chassis and second opening at the rear face of the chassis.



EX1005: 8 (annotated).



EX1005: 8 (modified to represent the rear view of the IRHS24 Holding Unit).

242. Accordingly, the POSA would have found it obvious to combine the teachings and disclosures of the IRHS Documents to arrive at the food holding bin as claimed in Claim 3.

E. Claim 4: the food holding bin of claim 1, wherein the first heating element is adapted to output more heat energy than the second heating element

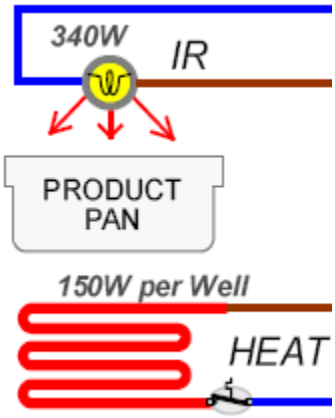
243. As discussed above, the POSA would have found it obvious to combine the teachings and disclosures of the IRHS Documents to arrive at the claimed food holding bin of Claim 1.

244. The POSA would recognize that the IRHS Documents disclose the additional limitation added in Claim 4 further requiring "the first heating element is adapted to output more heat energy than the second heating element."

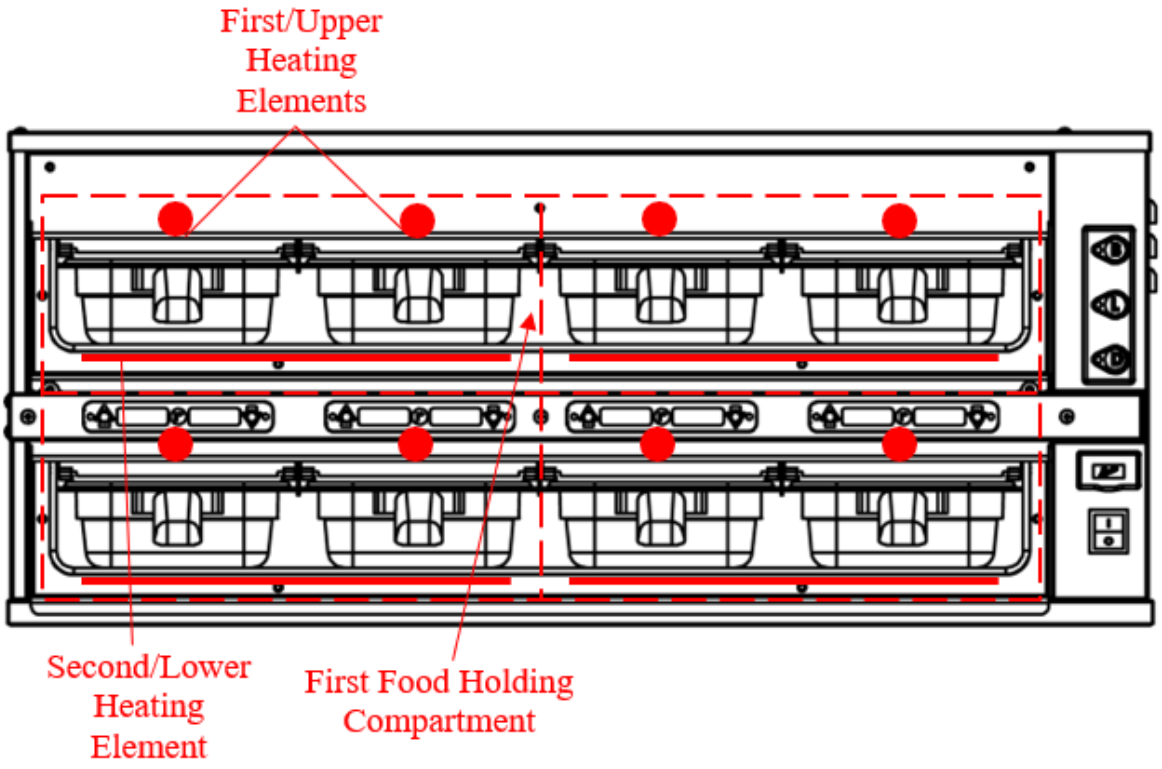
245. As explained in Paragraphs 144-170, 179-181, and 185-196 above (claim limitations 1.d.2, 1.e.2, and 1.g.2), the first/upper and second/lower heating elements are independently controllable from one another via the controller. Thus, the controller can operate the IR first/upper heating elements to output more heat energy than the second/lower heating elements, thereby making the first/upper heating elements *adapted* to output more heat energy than the second/lower heating elements.

246. For example, the IRHS Documents indicate each heat sink element (*i.e.*, second/lower heating element) is rated (adapted) at 150 Watts per well (300

Watts per element/zone) and while each IR emitter (*i.e.*, first/upper heating element) is rated (adapted) at 340 Watts (more heat energy). EX1008: 64.



EX1008: 64.



EX1005: 8 (annotated).

247. Moreover, the IRHS Documents state the IR first/upper heating elements can perform an "IR Turbo Boost for [an] instant shot of IR energy," while the "bottom zoned" heating element (*i.e.*, second/lower heating element) "provides ***gentle*** heat to minimize temperature distribution from top to bottom of pan." EX1006: 1 (emphasis added); EX1007: 22 ("Utilize 'Turbo Boost" for a quick shot of heat to the product"). The "IR Turbo Boost" for an "instant shot of IR energy" would be understood to result in the first/upper heating elements outputting more heat energy than the "gentle" second/lower heating elements during the IR Turbo Boost time period.

248. Accordingly, the POSA would have found it obvious to combine the teachings and disclosures of the IRHS Documents to arrive at the food holding bin as claimed in Claim 4.

F. Claim 5: the food handling bin of claim 1, further comprising a lid located in a top portion of the first food holding compartment, the lid capable of being inserted into a shelf above the continuous and planar bottom surface

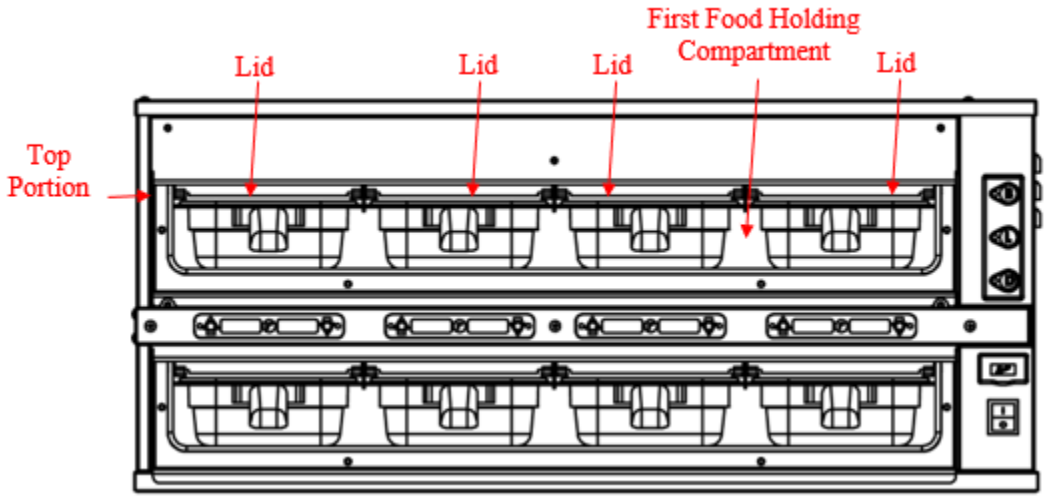
249. As discussed above, the POSA would have found it obvious to combine the teachings and disclosures of the IRHS Documents to arrive at the claimed food holding bin of Claim 1.

250. The POSA would recognize that the IRHS Documents disclose the additional limitation added in Claim 5 further requiring that the food handling bin includes a "lid located in a top portion of the first food holding compartment" and

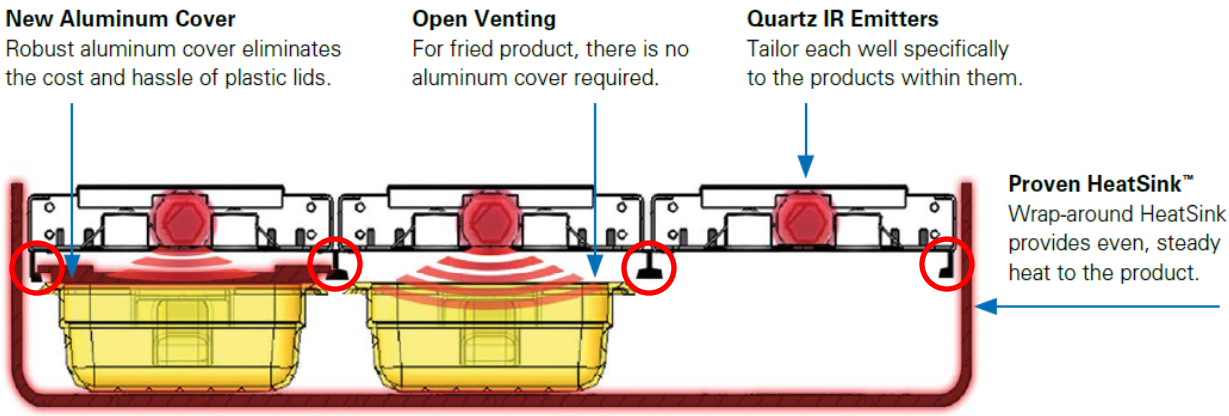
that the "lid [is] capable of being inserted into a shelf above the continuous and planar bottom surface."

251. For example, the IRHS24 Holding Unit includes covers or lids in the first food holding compartment for each pan holding location/bay. EX1005: 4 ("robust aluminum Heat Sink Cover for broiled foods"), 8, 20-21 (ref. no. 18); EX1007: 53 ("[m]etal cover eliminates the cost and hassle of plastic lids"), 56, 58 ("[c]over allows better heat transfer and greater seal assurance; critical to maintaining food quality with extended hold times").

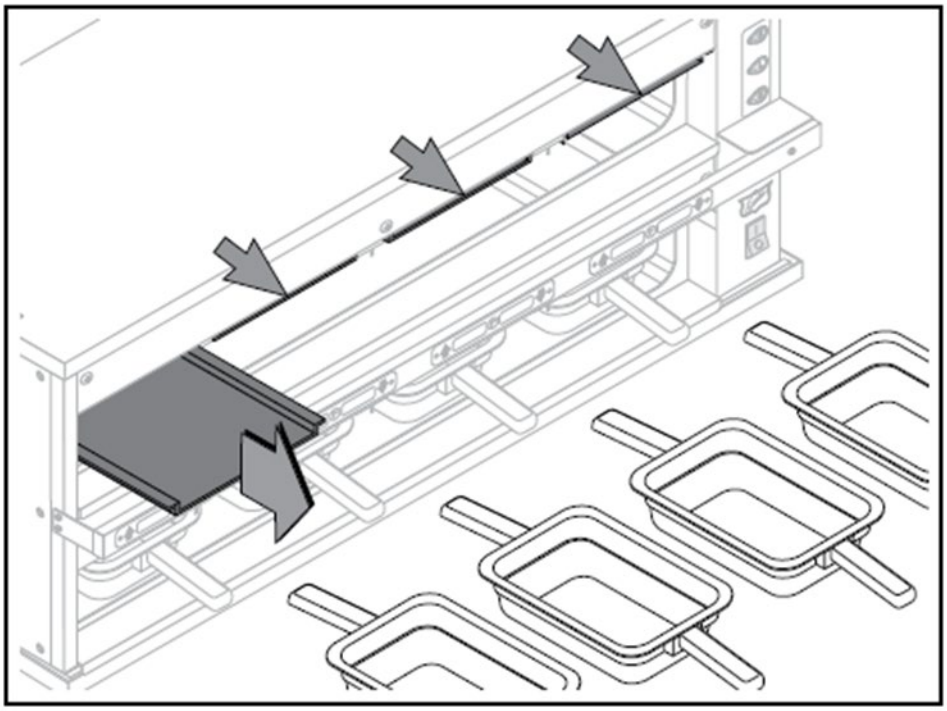
252. As annotated below, the lids in the first food holding compartment are located in the top portion of the first food holding compartment.



EX1005: 8 (annotated).



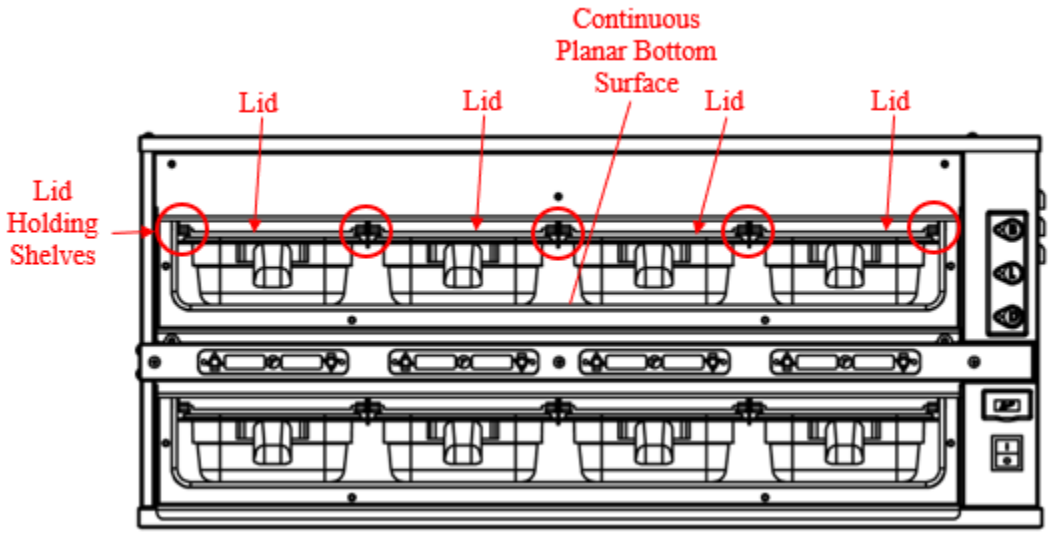
EX1007: 53 (annotated).



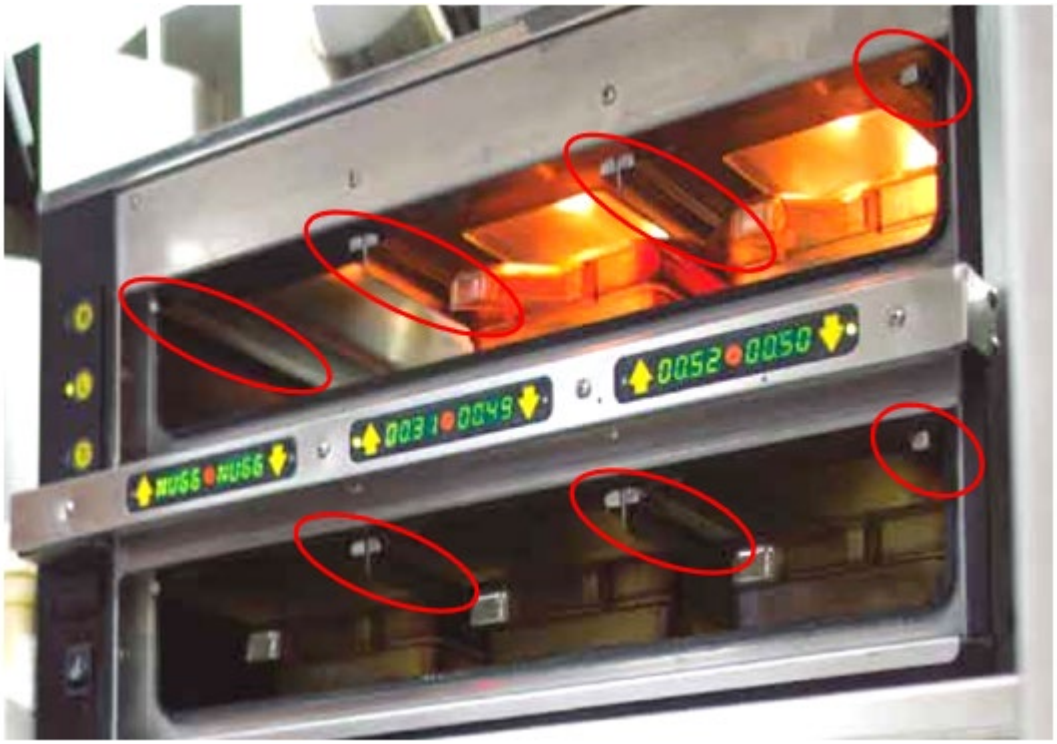
EX1008:16.

253. The IRHS24 Holding Unit also has lid-holding shelves (e.g., first and second shelves) for receiving the lids in the first food holding compartment.

254. The lid-holding shelves, and thus the lids being held in the lid-holding shelves, are elevated above the continuous and planar bottom surface.



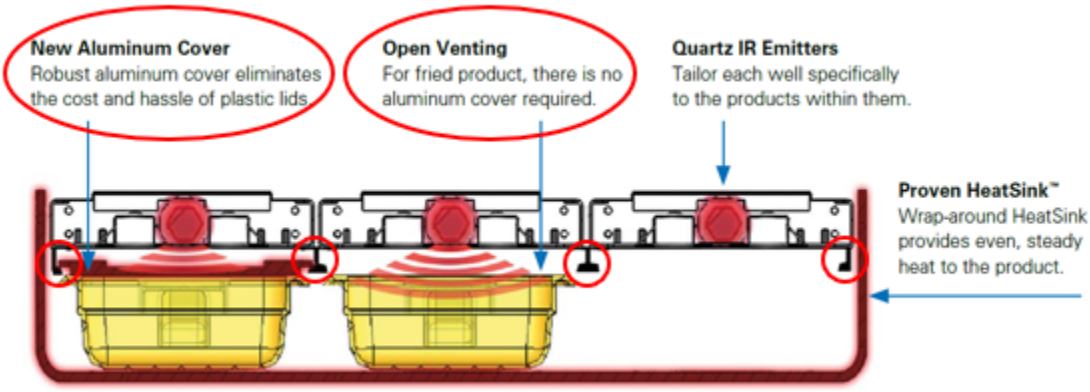
EX1005: 8 (annotated).



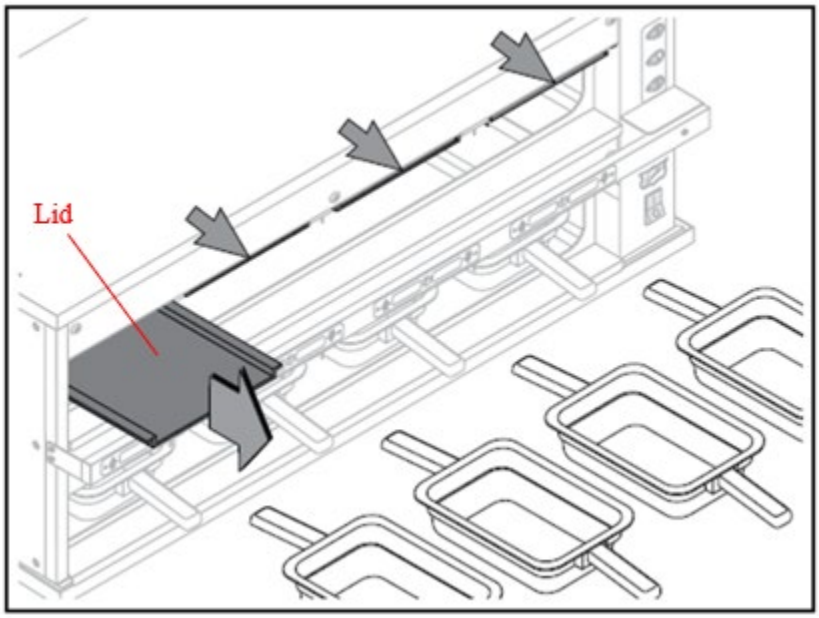
EX1007: 36 (annotated).

255. The lids are insertable into and removable from the shelves. EX1005: 14 ("Remove [] heat sink covers"), 16 ("Ensure proper heat sink covers are

inserted into the correct location"); EX1006: 1 ("Only removable part for cleaning is aluminum cover"); 53 ("Open Venting For fried product, there is no metal cover"), EX1008: 16 ("Remove any pans and covers"). Notably, the lids are each the same size thereby allowing a lid to be inserted into any of the shelves. EX1005: 8; EX1007: 53, 58; EX1008: 16.



EX1007: 53 (annotated).



EX1008: 16 (annotated).

256. Although IRHS Service Manual above shows the lid being moved out of the bay, movement into the bay and onto the lid-holding shelves would be the same, just in the reverse direction

257. Accordingly, the POSA would have found it obvious to combine the teachings and disclosures of the IRHS Documents to arrive at the food holding bin as claimed in Claim 5.

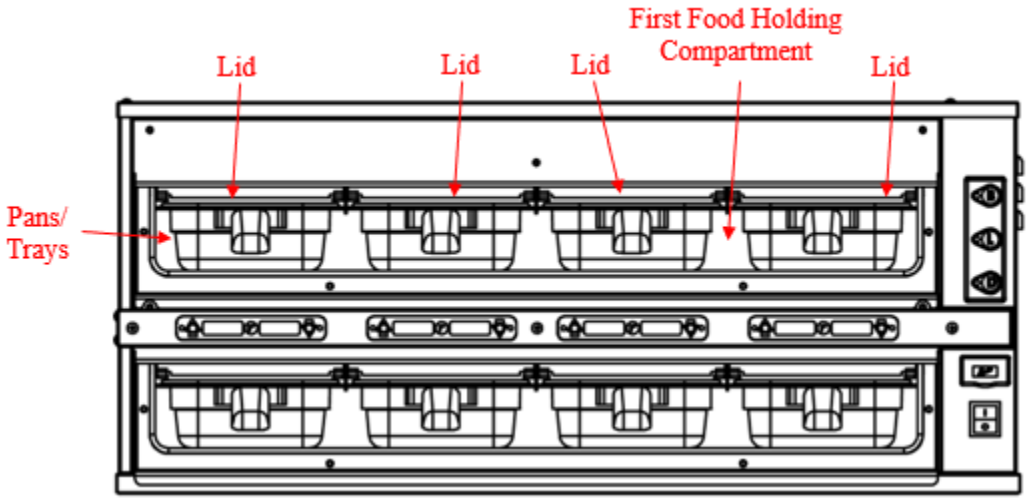
G. Claim 7: the food holding bin of claim 1, further comprising a lid on the food holding tray

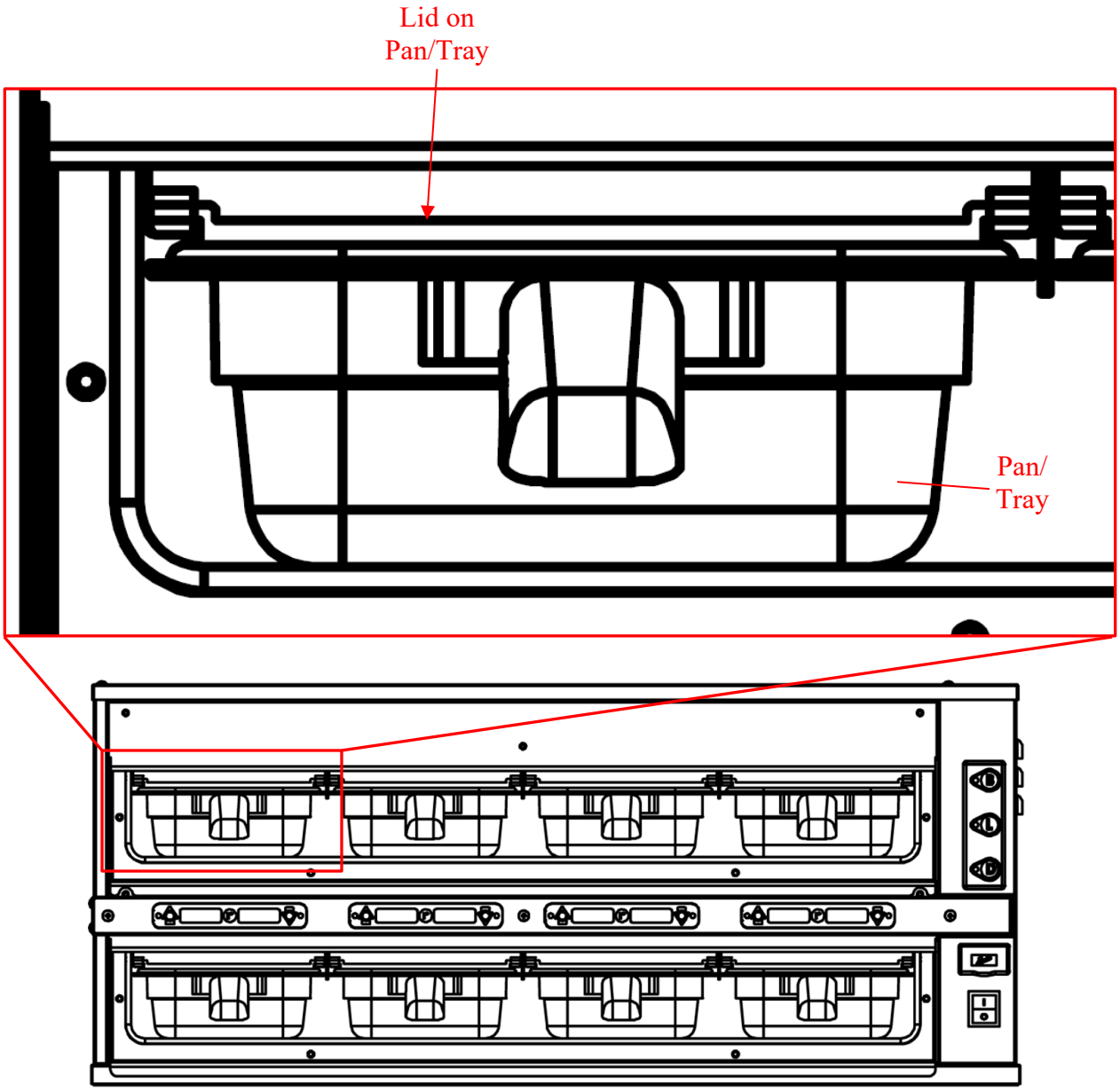
258. As discussed above, the POSA would have found it obvious to combine the teachings and disclosures of the IRHS Documents to arrive at the claimed food holding bin of Claim 1.

259. The POSA would recognize that the IRHS Documents disclose the additional limitation added in Claim 7 further requiring "a lid on the food holding tray."

260. For example, the IRHS24 Holding Unit are disclosed as including covers or lids in each pan holding location/bay. EX1005: 4 ("robust aluminum Heat Sink Cover for broiled foods"), 8, 20-21 (ref. no. 18); EX1007: 53 ("[m]etal cover eliminates the cost and hassle of plastic lids"), 56, 58 ("[c]over allows better heat transfer and greater seal assurance; critical to maintaining food quality with extended hold times").

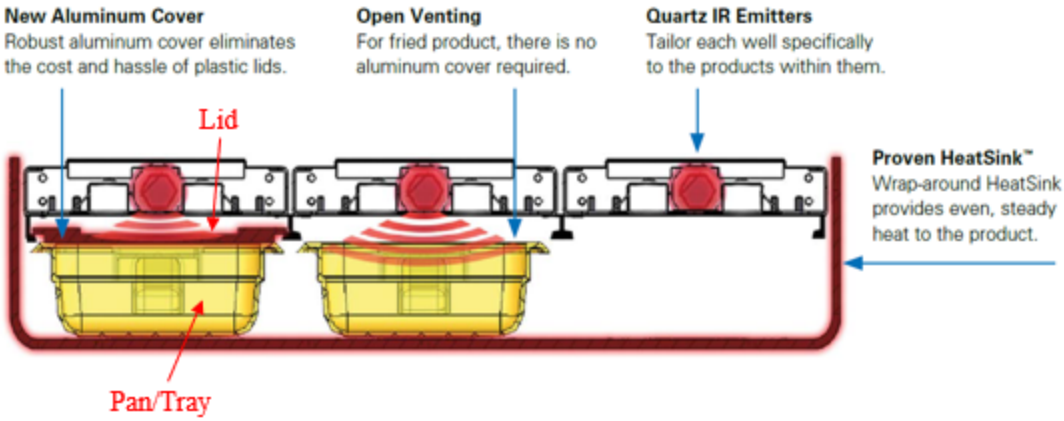
261. As annotated below, the lids in the first food holding compartment rest on their corresponding food pans/trays. Although not further annotated, the lids in the second food holding compartment also rest on their corresponding food pan/tray.





EX1005: 8 (annotated).

262. Other images and figures of the IRHS Documents disclose lids within the food holding compartments resting on their corresponding food pan/tray.



EX1007: 53 (annotated).

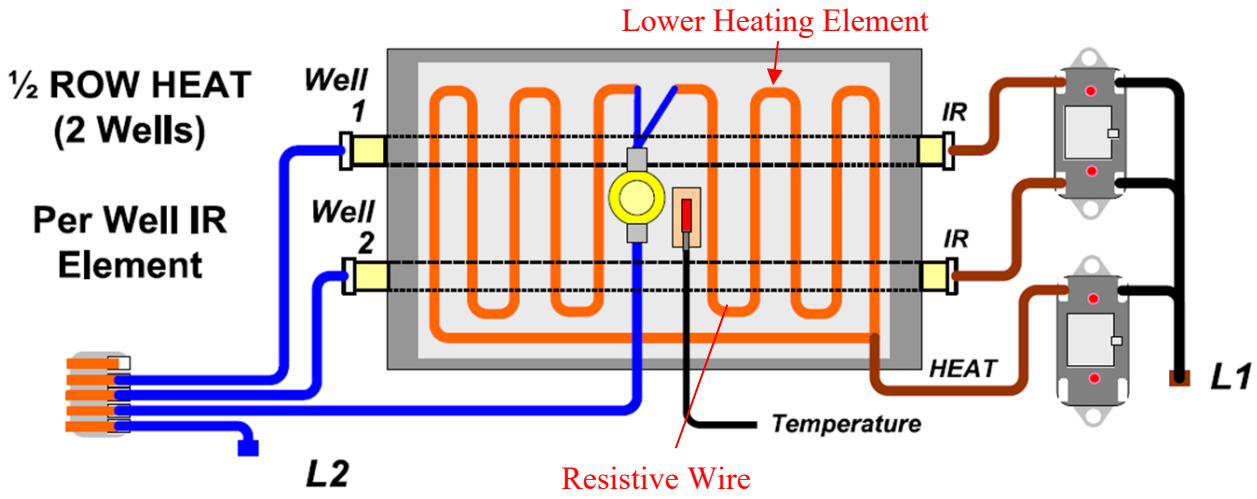
263. Accordingly, the POSA would have found it obvious to combine the teachings and disclosures of the IRHS Documents to arrive at the food holding bin as claimed in Claim 7.

H. Claim 8: the food holding bin of claim 1, wherein at least one of the first heating element and the second heating element is an electrically resistive heating wire

264. As discussed above, the POSA would have found it obvious to combine the teachings and disclosures of the IRHS Documents to arrive at the claimed food holding bin of Claim 1.

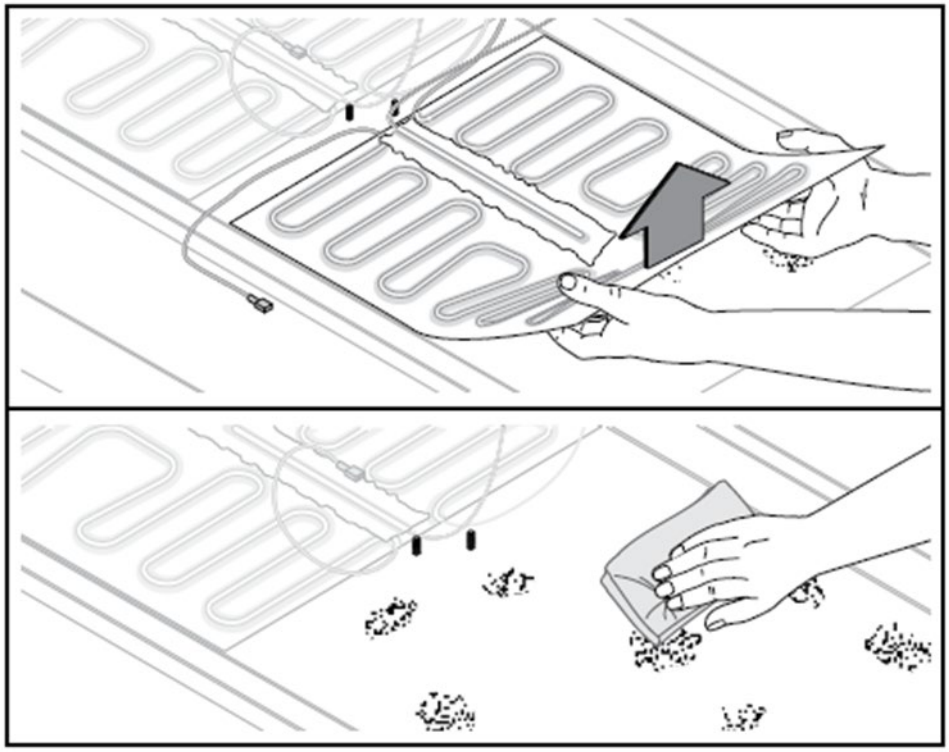
265. The POSA would additionally recognize that the IRHS Documents disclose the additional limitation added in Claim 8 further requiring "the independently controllable heating elements comprise a resistive wire."

266. As disclosed in the IRHS documents, each lower heating element of the IRHS Holding Units comprises an electrically resistive heating wire, as shown below:



EX1005: 25 (annotated).

13. Remove the affected Heat Element by peeling off from the heat sink. Ensure any excess tape and/ or adhesive is removed.

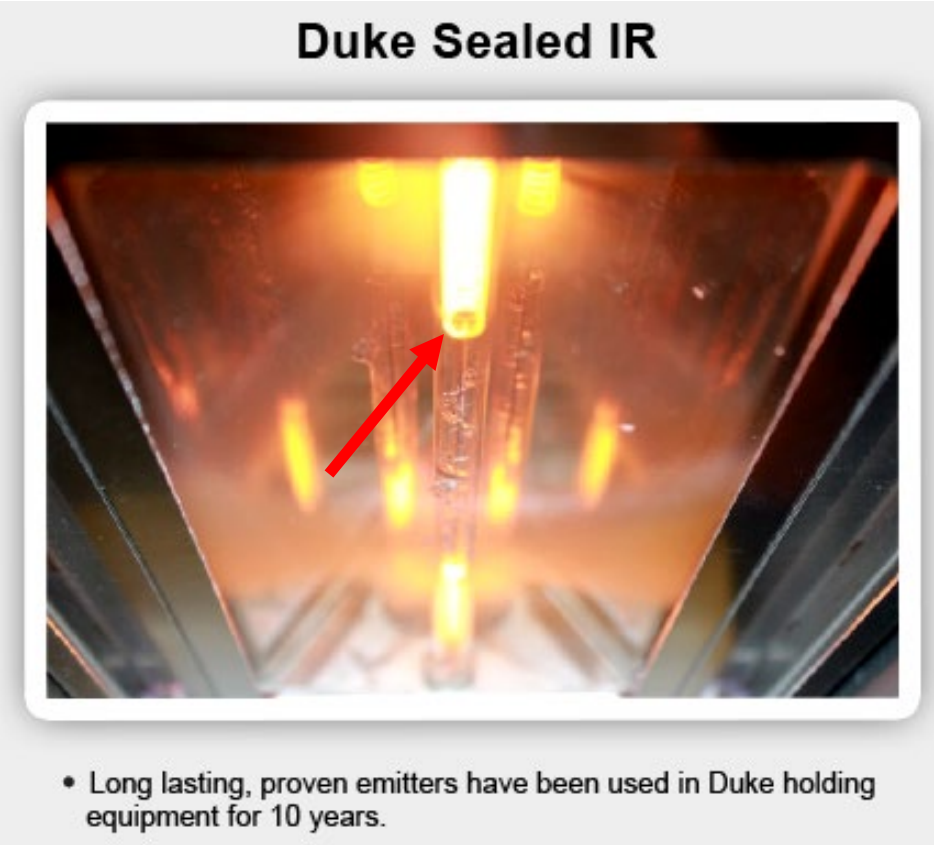


EX1008: 22 (showing the resistive wire is flexible).

267. The image above from the IRHS Service Manual shows the lower heating element for one zone being pulled off of the bottom of the heat sink. The image shows what the POSA understands to be a serpentine resistive wire heating element. Such a resistive wire heating element has the flexibility shown in the image (the illustrated bending as the user is peeling off the lower heating elements).

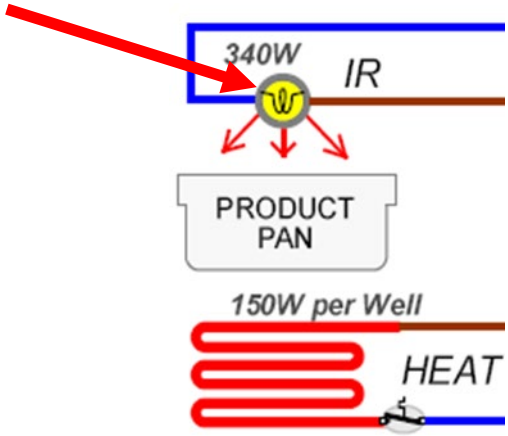
268. Additionally, disclosed in the IRHS documents, each upper heating element of the IRHS Holding Units is a Quartz IR Bulb which the POSA would

understand includes a coiled resistive wire that glows orange when converting electrical energy into heat via resistance. EX1007: 53 ("Quartz IR Emitter"); EX1025: 1:29-30 ("[t]he usual quartz infrared heater consists essentially of a resistance wire heating element").





EX1007: 11 and 36 (annotated).



EX1008: 64 (showing schematic coiled resistive wire).

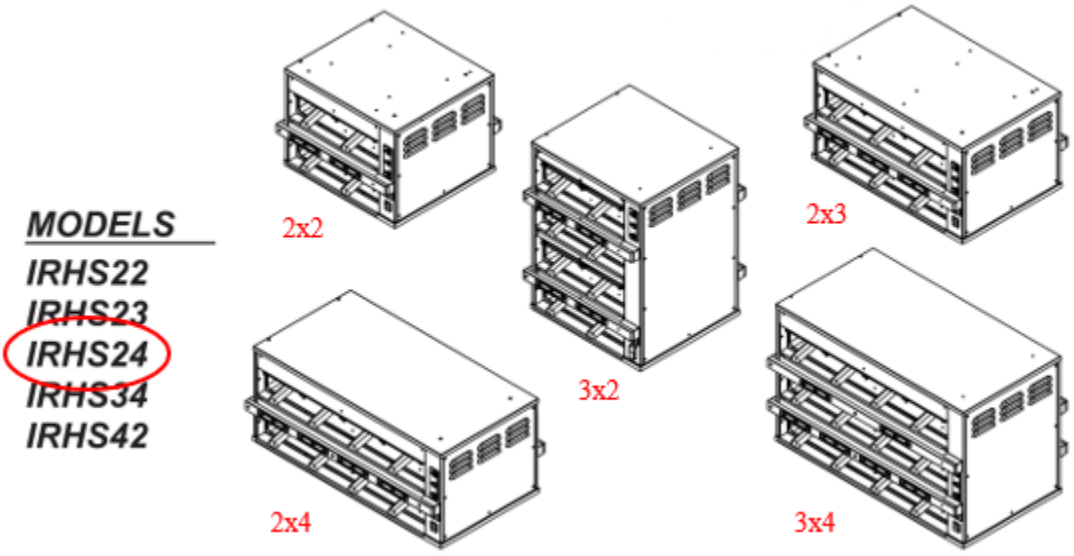
269. Accordingly, the POSA would have found it obvious to combine the teachings and disclosures of the IRHS Documents to arrive at the food holding bin as claimed in Claim 8.

I. Independent Claim 9

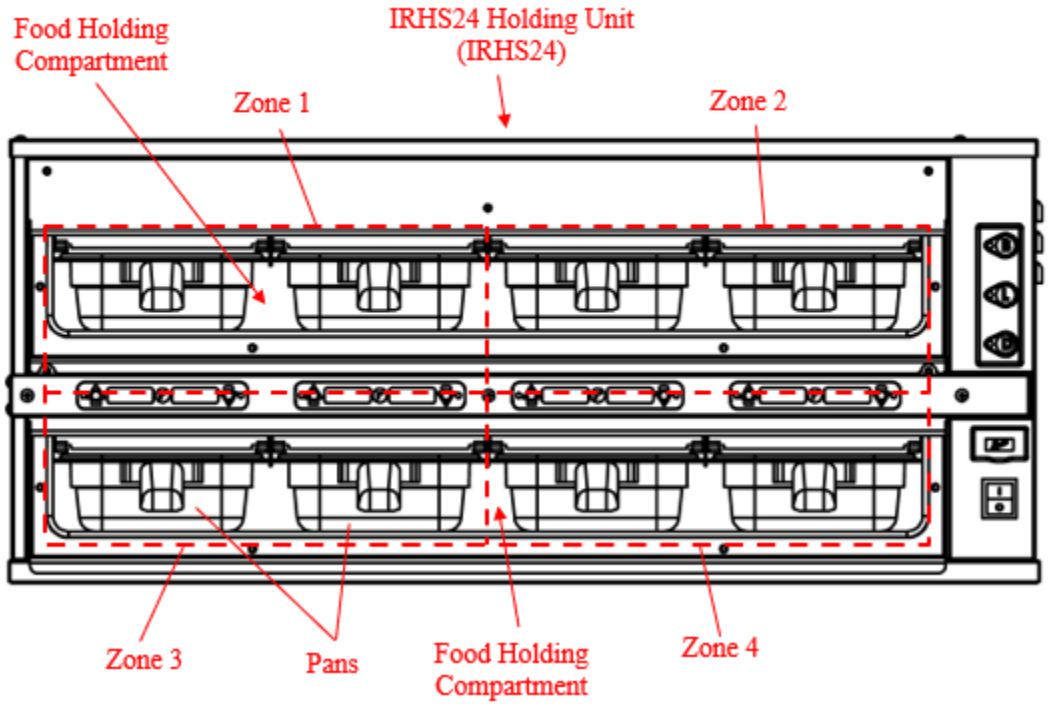
9.P: a method of maintaining different temperatures in a food holding compartment of a food holding bin, the method comprising

270. The IRHS Documents disclose a multi-zone food holding bin having food holding compartments in which different temperatures can be maintained as well as their method of use.

271. An exemplar model of the disclosed a multi-zone food holding bin—the IRHS24 Holding Unit having a 2x4 configuration—has compartments containing multiple zones for receiving and heating a plurality of food pans at different temperatures. EX1005: 4, 6, 9; EX1006: 1; EX1007: 51, 56; EX1008: 1; *see also* Paragraphs 142, 177, and 184-196 (claim limitations (1.d.1), (1.e.1), and (1.g.2)).



EX1005: 1 (annotated).



EX1005: 8 (annotated).



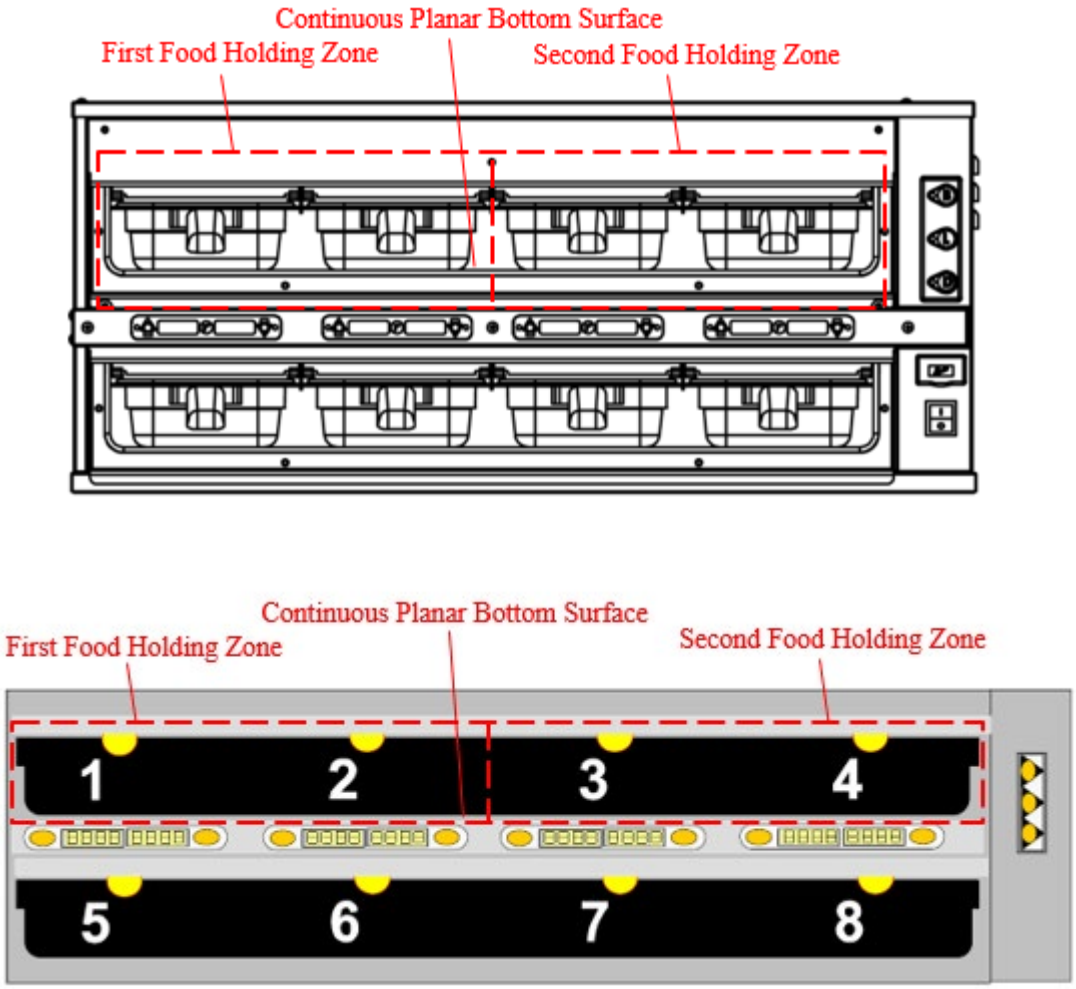
EX1007: 56.

9.a.1: providing a food holding compartment with a first food holding zone and a second food holding zone adjacent to one another

272. The scope of this limitation combines the limitations 1.b.1, 1.d.1, 1.e.1, and 1.g.1 from Claim 1 and therefore is disclosed by the IRHS Documents as discussed with respect to Claim 1 for the same reasons as explained in Paragraphs 127-128, 142, 177, and 183 above.

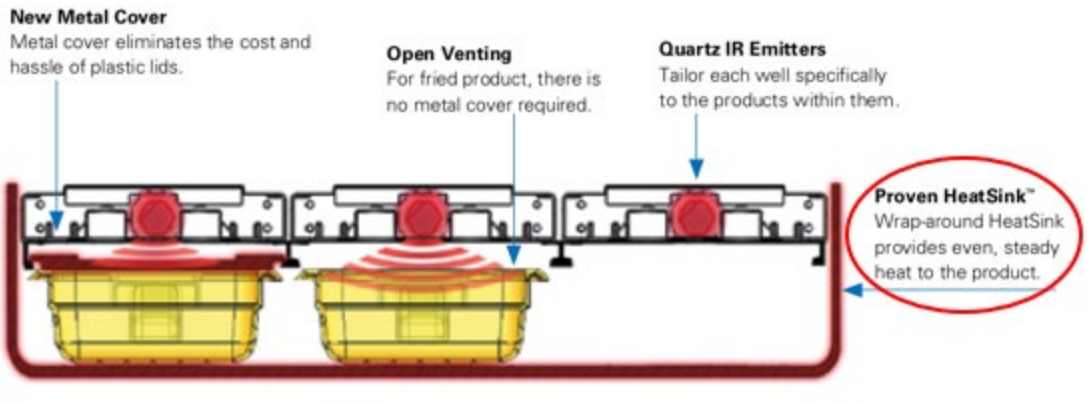
9.a.2: the first and second food holding zones sharing an uninterrupted continuous planar bottom surface comprising Aluminum

273. As annotated below, the first food holding zone and the second food holding zone of the IRHS24 share an uninterrupted continuous planar bottom surface.



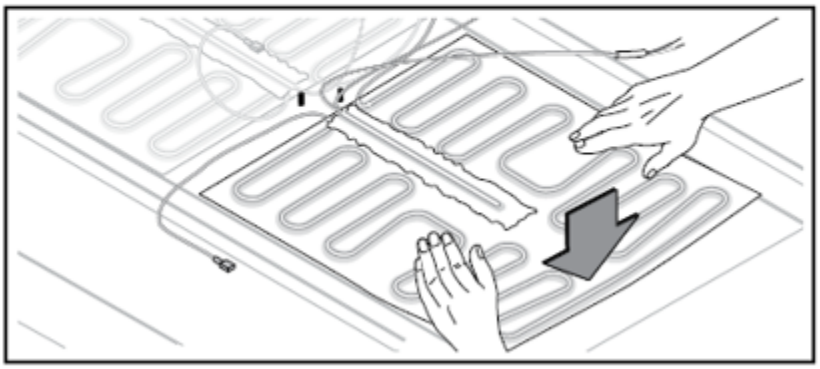
EX1005: 8, 25 (annotated).

274. The planar bottom surface is part of the HeatSink in the IRHS24 Holding Unit. The HeatSink provides heat to the pans in the first food holding compartment from underneath the pans. EX1007: 51 ("[p]revious generations of the Duke holding units contained only HeatSink, heating from below"); EX1005: 16 ("each food product has a tailored HeatSink temperature and InfraRed pulse rate").



EX1007: 53 (annotated).

14. Peel the adhesive tape cover off the replacement Heat Element and press in place on the heat sink, ensuring all air bubbles are smoothed out.



EX1008: 23.

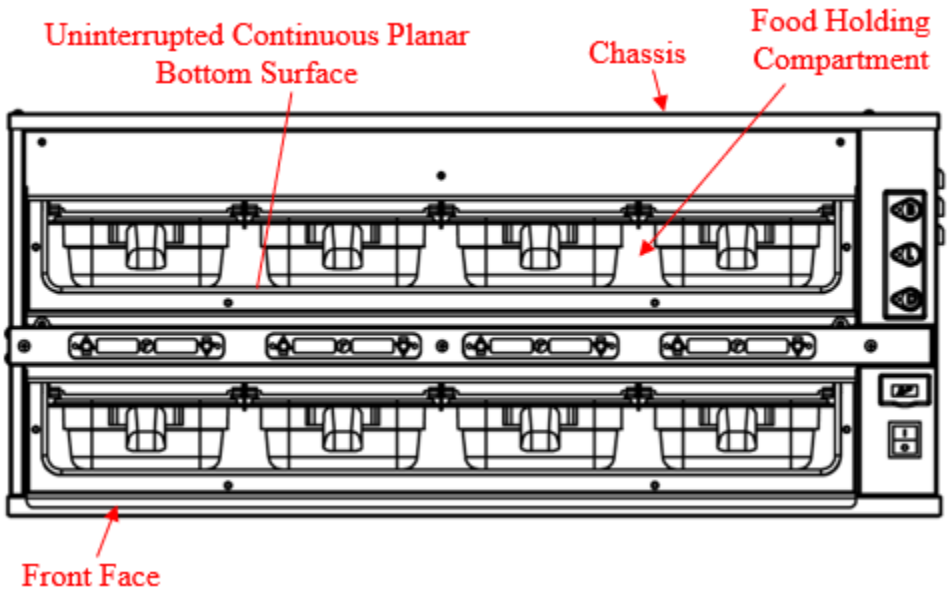
275. Accordingly, it would be understood by the POSA that the continuous planar bottom surface is disclosed as comprising aluminum. EX1006: 1 ("[a]nodized aluminum HeatSink").

276. As discussed in Paragraphs 138-141 above (claim limitation 1.c.3), even without the express disclosure of the use of aluminum, it would have obvious to make the continuous and planar surface from aluminum.

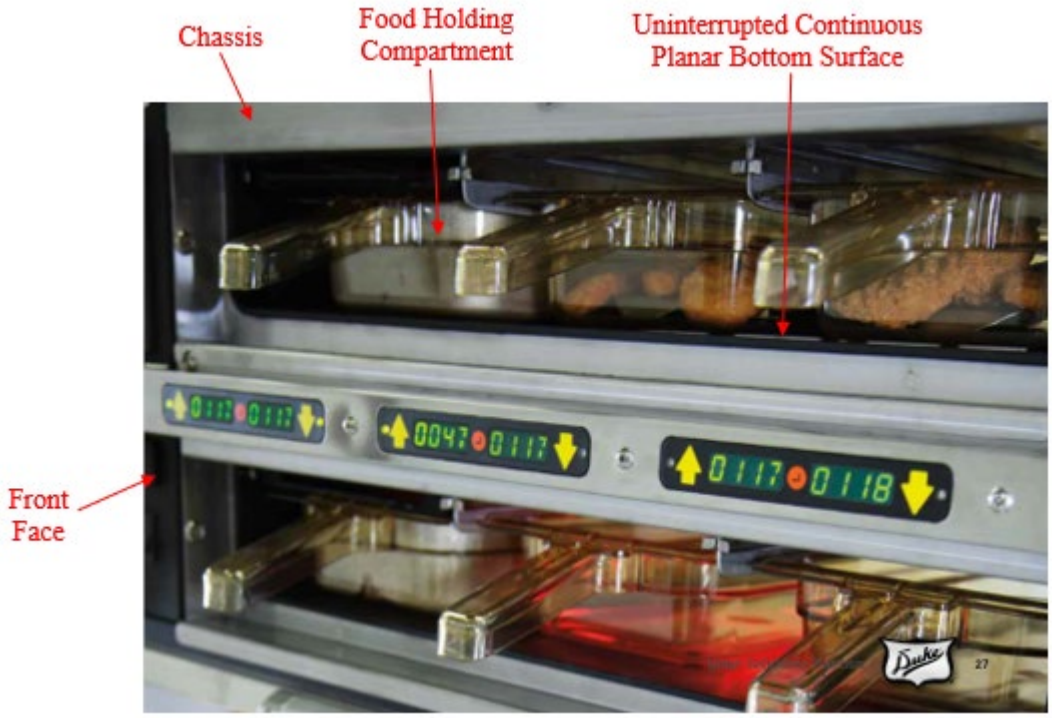
277. In particular, it would have been obvious to make the IRHS heatsinks from aluminum—like the aluminum covers—to be durable and provide good heat transfer. EX1005: 4 ("robust aluminum Heat Sink Cover"), 8, 20-21; EX1007: 53 ("[m]etal cover"), 58 ("[c]over allows better heat transfer"). Further, there would have been a reasonable expectation of success because of the known suitability of aluminum in zoned/heated warming cabinet shelves. EX1020: ¶¶[0021]-[0023].

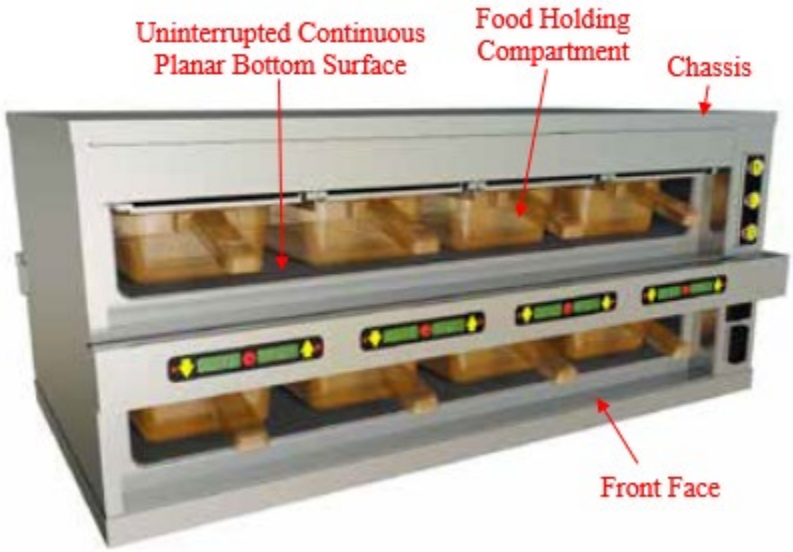
9.a.3: the uninterrupted continuous planar bottom surface extending to a front face of a chassis forming the food holding compartment, and

278. As explained with respect to Claim 1 in Paragraph 134 (claim limitation 1.c.2) above, the continuous and planar surfaces forming the bottom of the first food holding compartments are continuous and uninterrupted up to the front face of the heatsink—which in turn is part of the front face of the IRHS chassis. Moreover, the continuous planar bottom surface extends to the front face of the chassis for the same prosecution history reasons explained above in Paragraph 135 (claim limitation 1.c.2)).



EX1005: 8 (annotated).





EX1007: 52, 56 (annotated).

9.a.4: a food holding tray disposed in the food holding compartment, the food holding tray resting on the uninterrupted continuous planar bottom surface,

279. The scope of this limitation is identical to that of claim limitation 1.f from Claim 1 and therefore is disclosed by the IRHS Documents as discussed for the same reasons as explained in Paragraph 182 above with respect to Claim 1.

9.a.5: the first food holding zone including a first independently controllable radiant heating element that heats radiantly from above and also includes a second independently controllable conductive heating element that heats conductively from below

280. The scope of this limitation combines the limitations 1.d.2, 1.h.1, and 1.h.2 from Claim 1 and therefore is disclosed by the IRHS Documents as discussed for the same reasons as explained in Paragraphs 143-176 and 197-200 above with respect to Claim 1.

9.a.6: the second food holding zone includes a third independently controllable radiant heating element that heats radiantly from above and also includes a fourth independently controllable conductive heating element that heats conductively from below

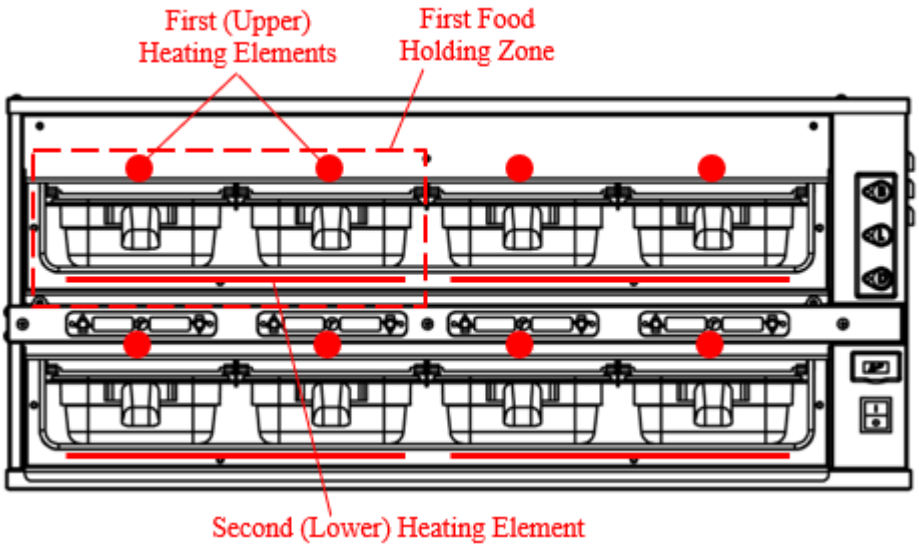
281. The scope of this limitation combines the limitations 1.e.2, 1.h.1, and 1.h.2 from Claim 1 and therefore is disclosed by the IRHS Documents as discussed for the same reasons as explained in Paragraphs 178-181 and 197-200 above with respect to Claim 1.

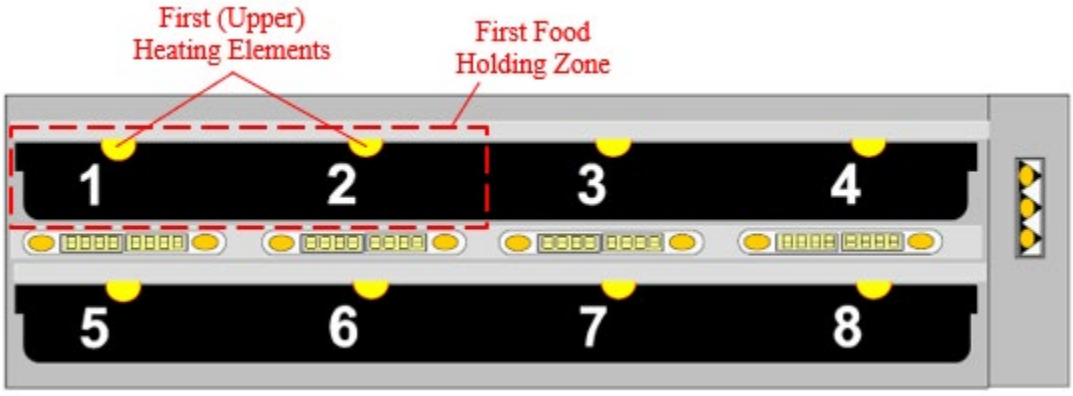
282. The third radiant heating element heats radiantly from above as explained with respect to or for the same reasons as the first radiant heating element as explained in Paragraph 197 above (claim limitation 1.h.1).

283. The fourth conductive heating element heats conductively from below as explained with respect to or for the same reasons as the second conductive heating as explained in Paragraphs 198-200 above (claim limitation 1.h.2).

9.b: independently setting a first temperature in the first food holding zone by operating the first independently controllable heating element and by operating the second independently controllable heating element

284. Consistent with the identification of the heating elements pursuant to limitation 9.a.5 above, the first heating element (IR bulb) and the second heating element (electrical heating element) heat the first food holding zone.





EX1005: 8, 25 (annotated).

285. As explained in Paragraphs 184-196 (claim limitation 1.g.2) with respect to Claim 1, the first and second heating elements are operated by the controller to maintain a temperature of the first food holding zone.

286. The IRHS Documents disclose that the IRHS Holding Units are intended for holding a diverse menu of food products benefitting from different holding conditions. For example, the IRHS Documents identify more than 16

different types of food products including fried and broiled types spanning breakfast (eggs, French toast sticks, sausage patties) and lunch/dinner menus (e.g., burger patty, tendercrisp (fried chicken), fish, tendergrill (broiled chicken), rib patty, turkey burger, stuffed burger patty). The food types include products of different proteins (e.g., beef, chicken, fish, pork, turkey), fat contents, surface textures/coatings, and recipes. EX1007: 9, 12.

Menu Item	Hold Time Increase with New IRHS (%)	Hold Time Increase with New IRHS (min)
EXPEDITE - FRIED		
Chicken Strips	200%	40 min
Nuggets	100%	30 min
MAIN BOARD - FRIED		
Chick'n Crisp	100%	30 min
OCS	500%	30 min
Tendercrisp	150%	45 min
Fish	50%	15 min
MAIN BOARD - BROILED		
Whopper Jr.	78%	45 min
Tendergrill	25%	30 min
1.7 burger	100%	45 min
Whopper	100%	45 min
Turkey Burger	100%	45 min
Stuffed Burger	100%	45 min
Rib Patty	100%	45 min
BKFST		
Eggs	100%	45 min
Sausage Patty	50%	30 min
French Toast Sticks	33%	15 min

EX1007: 9.

287. The POSA would recognize that the IRHS provides various customized holding environments (e.g., temperatures, lids, no lids, etc.) to accommodate the differences in these food types. For example, the holding temperature for a burger patty needs to be high enough to maintain a food-safe temperature in the patty (without excessive drying) with a lid to retain moisture. In contrast, the protein of fish dries out and overcooks at higher holding temperatures, while the moisture released by the protein would cause the fried breading of the fish to become soggy. And broiled chicken requires a higher temperature to remain food safe with a lid to prevent the chicken from drying out. Fried chicken requires a temperature balance that keeps the protein moist while avoiding the creation of a steamy environment that would cause the breading to become soggy. Turkey burger patties dry out more readily than beef, and do not retain heat as well as beef. The relatively larger amounts of fat in beef ribs requires a relatively higher holding temperature to keep the fat rendered after cooking, but not so hot as to caramelize or burn any BBQ sauce on the ribs. Stuffed burger patties need a holding temperature that keeps cheese stuffing melted, while still avoiding drying out the food or causing other filling foods (such as peppers) to release excess moisture.

288. To this end, the IRHS Documents describe the IRHS as solving the "menu proliferation" pain point and providing "[u]nlimited flexibility for future menu and operational changes." EX1007: 31, 33, 53.

289. The IRHS Documents describe the IRHS as being designed to hold diverse food products simultaneously and in different precise/customized holding environments for "freedom in product placement" and "optimal quality, consistency and extended hold." EX1007: 51 ("each food product has tailored settings to control the thermal path of the food, leading to optimal quality, consistency and extended hold"), 53 ("Total well independence allows freedom in product placement in the IRHS," "Tailor each well specifically to the products within them," and "Unlimited flexibility for future menu and operational changes"); EX1005: 16 ("This new technology allows you to precisely control the environment in each pan, allowing customized settings for each food product").



EX1007: 12.

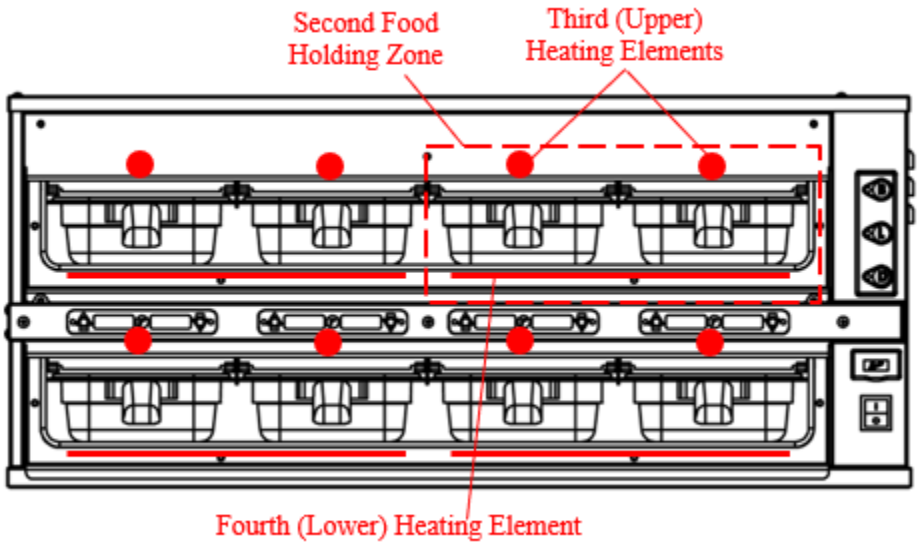
290. Given the diverse menu, the food location flexibility, and the teachings to tailor temperature settings per food product, it would have been obvious to hold different food products in different zones (e.g., including a first type of food product, such as burger patties, in the first holding zone), and therefore different temperature setpoints in different zones. EX1007: 12; EX1005: 16 ("[t]his new technology allows you to precisely control the environment in each pan, allowing customized settings for each food product"); EX1006: 1 ("independent well flexibility"); EX1007: 9 (chart with different food types), 53 ("[t]otal well independence allows freedom in product placement in the IRHS" and "[t]ailor each well specifically to the products within them").

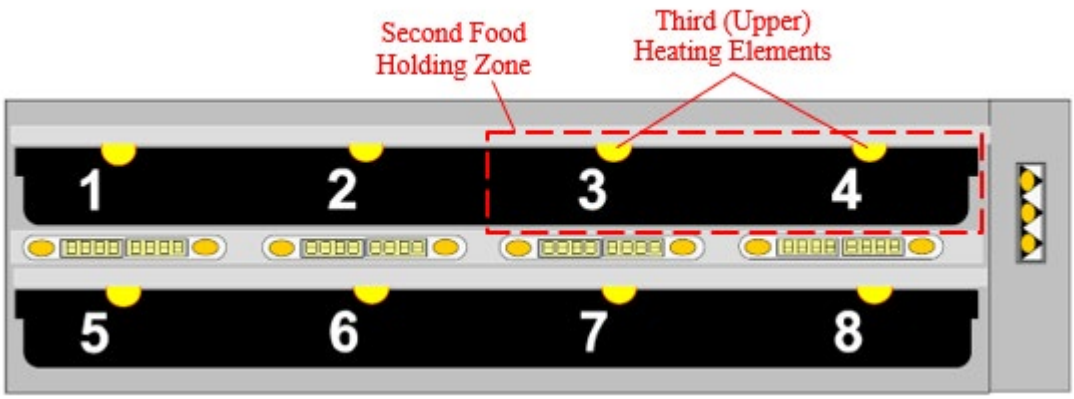
291. It would have been obvious for the IRHS controller to independently set the temperature (e.g., the first temperature, such as the heatsink temperature) of each food holding zone (e.g., first food holding zone)—based on the tailored food type temperature settings assigned to the respective zone—by operating the independently controllable upper heating elements (e.g., first heating elements) and operating the independently controllable lower heating element (e.g., second heating element) associated with the respective zone, with reasonable expectation of success (demonstrated by the IRHS Documents and enabled by configuration/controls of IRHS). EX1005: 16 ("each food product has a tailored HeatSink temperature and InfraRed pulse rate"); EX1008: 16 ("RTD Sensors

monitor the temperature of the heating wells"), 21 ("Heat Elements provide the heating required to keep the heating wells at proper operating temperatures)").

9.c: independently setting a second temperature in the second food holding zone by operating the third independently controllable heating element and by operating the fourth independently controllable heating element

292. Consistent with the identification of the heating elements pursuant to limitation 9.a.6 above, the third heating element (IR bulb) and the fourth heating element (electrical heating element) heat the first food holding zone.





EX1005: 8, 25 (annotated).

293. As explained in Paragraphs 184-196 (claim limitation 1.g.2) with respect to Claim 1, the third and fourth heating elements are operated by the controller to maintain a temperature of the first food holding zone.

294. Given the diverse menu, the food location flexibility, and the teachings to tailor temperature settings per food product, it would have been obvious to hold different food products in different zones (e.g., including a second type of food product, such as broiled chicken (tendergrill), in the second holding zone), and therefore different temperature setpoints in different zones. EX1007: 12; EX1005: 16 ("[t]his new technology allows you to precisely control the environment in each pan, allowing customized settings for each food product"); EX1006: 1 ("independent well flexibility"); EX1007: 9 (chart with different food types), 53 ("[t]otal well independence allows freedom in product placement in the IRHS" and "[t]ailor each well specifically to the products within them").

295. For these reasons and others explained in Paragraphs 284-291 (claim limitation 9.b), it would have been obvious for the IRHS controller to independently set the temperature (e.g., the second temperature, such as the heatsink temperature) of each food holding zone (e.g., second food holding zone)—based on the tailored food type temperature settings assigned to the respective zone—by operating the independently controllable upper heating elements (e.g., third heating elements) and operating the independently controllable lower heating element (e.g., fourth heating element) associated with the respective zone, with reasonable expectation of success (demonstrated by the IRHS Documents and enabled by configuration/controls of IRHS). EX1005: 16 ("each food product has a tailored HeatSink temperature and InfraRed pulse rate"); EX1008: 16 ("RTD Sensors monitor the temperature of the heating wells"), 21 ("Heat Elements provide the heating required to keep the heating wells at proper operating temperatures").

9.d: wherein the first temperature is different from the second temperature

296. Other than being drafted as an operational limitation of a method claim instead of an operational capability of an apparatus claim, the scope of this limitation is otherwise equivalent to that of claim limitation 1.g.2 from Claim 1 and therefore is disclosed by the IRHS Documents as discussed for the same reasons as explained in Paragraphs 184-196 above with respect to Claim 1.

297. Accordingly, each limitation of Claim 9 is disclosed within or rendered obvious by the IRHS Documents.

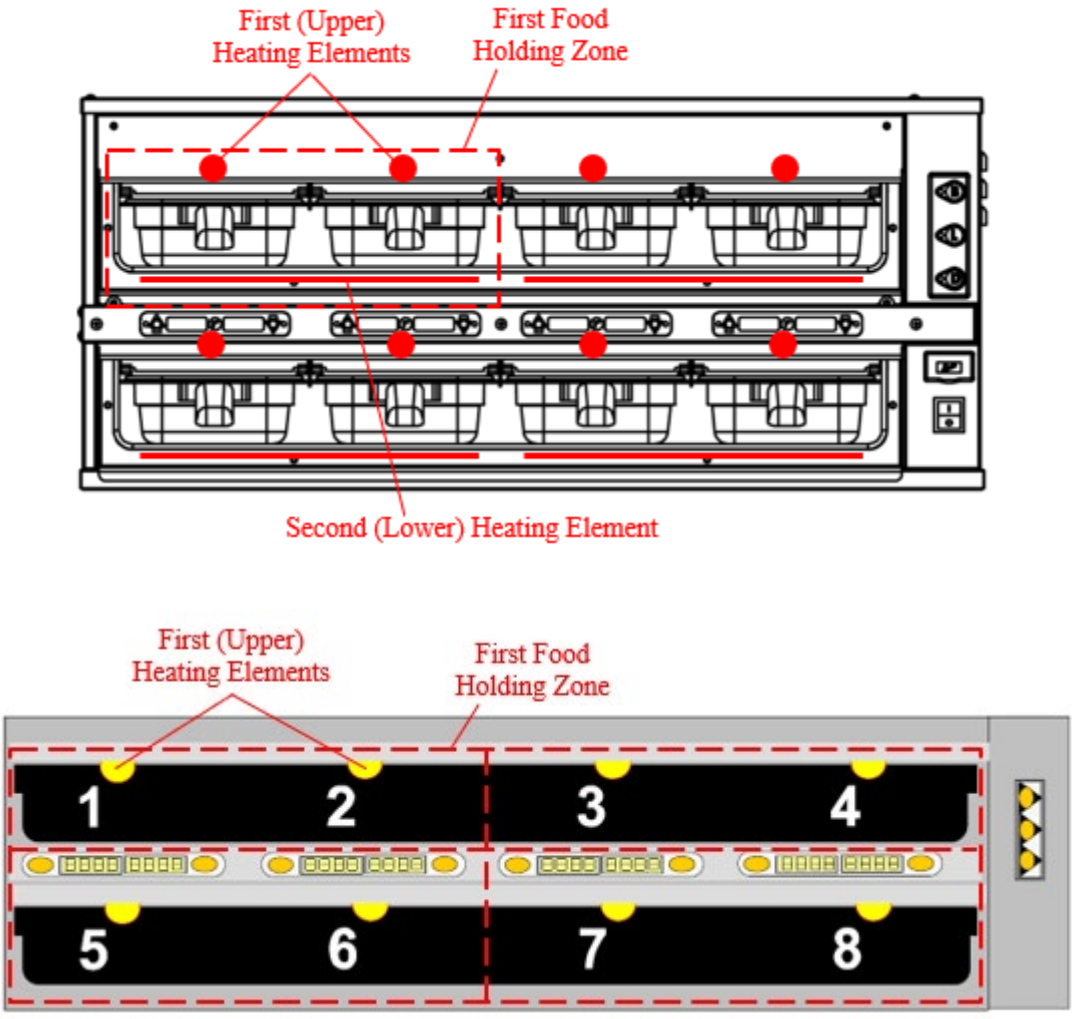
298. Accordingly, the POSA would have found it obvious to combine the teachings and disclosures of the IRHS Documents to arrive at the method of maintaining different temperatures within a multi-zone food holding bin as claimed in Claim 9.

J. Claim 10: the method of claim 9, further comprising providing more heat energy from the first heating element than from the second heating element

299. As discussed above, the POSA would have found it obvious to combine the teachings and disclosures of the IRHS Documents to arrive at the claimed food holding bin of Claim 9.

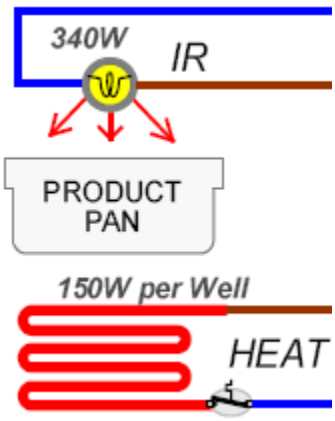
300. The POSA would recognize that the IRHS Documents disclose "providing more heat energy from the first heating element than from the second heating element."

301. As explained in Paragraphs 144-170 and 185-196 (claim limitations 1.d.2 and 1.g.2), the upper (first) and lower (second) heating elements are independently controllable from one another via the controller. Thus, the controller can carry out the step of operating the IR first heating element to output more heat than the second heating element.



EX1005: 8, 25 (annotated).

302. The IRHS Documents indicate each heat sink element (e.g., second heating element) is rated to output 150 Watts per well or bay (300 Watts per element/zone) and each IR emitter (e.g., first heating element) is rated to output 340 Watts (more heat energy). EX1008: 64.



EX1008: 6

303. Moreover, the IRHS Documents state the IR upper heating elements can perform an "IR Turbo Boost for [an] instant shot of IR energy," while the lower or "bottom zoned" heating element "provides gentle heat to minimize temperature distribution from top to bottom of pan." EX1006: 1 (emphasis added); EX1007: 22 ("Utilize 'Turbo Boost" for a quick shot of heat to the product").

304. The "IR Turbo Boost" for an "instant shot of IR energy" would be understood to result in the upper heating elements outputting more heat energy than the "gentle" lower heating elements during the IR Turbo Boost time period.

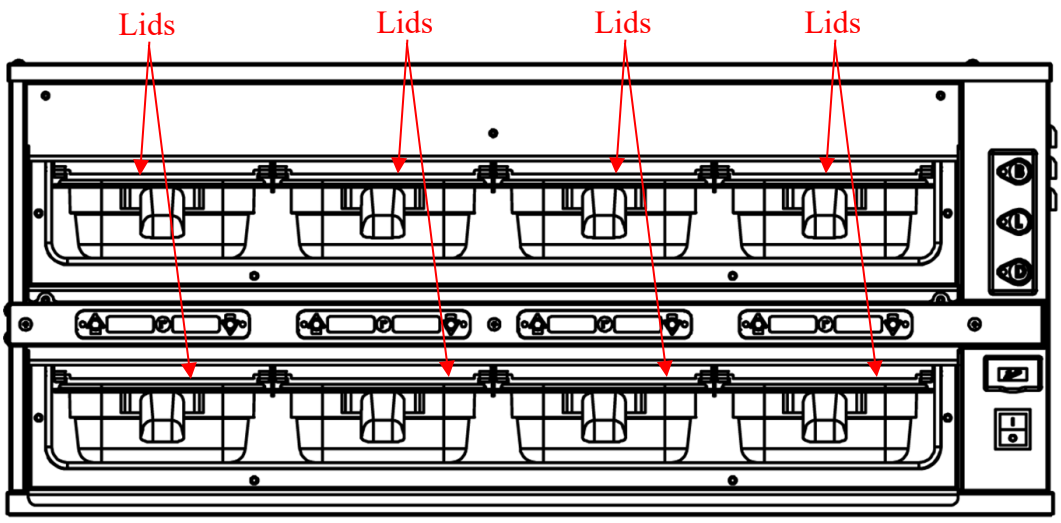
305. Accordingly, the POSA would have found it obvious to combine the teachings and disclosures of the IRHS Documents to arrive at the method of maintaining different temperatures within a multi-zone food holding bin as claimed in Claim 10.

V. GROUND 2: Claim 6 Would Have Been Obvious Over the IRHS Documents in view of Hartfelder and/or Shei'099

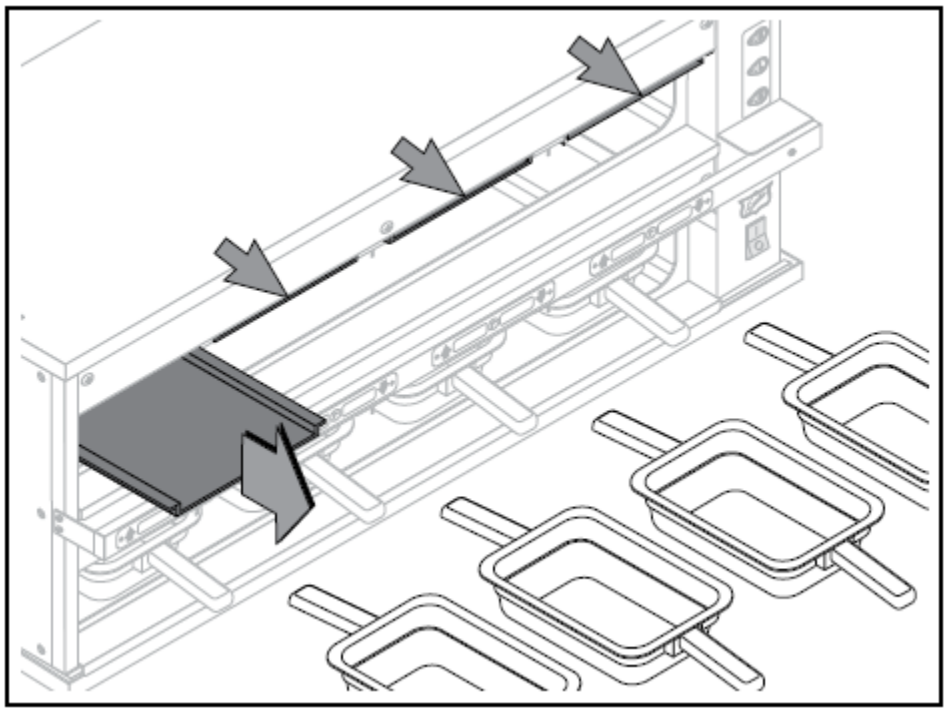
A. Modification of the IRHS Documents based on Hartfelder and/or Shei'099

306. Claim 6 depends from Claim 1 but further add limitations pertaining to the inclusion of latches that would secure the covers or lids suspended above each pan holding location in place to prevent them from being inadvertently moved, for example while removing or inserting a food pan into its desired food holding compartment.

307. The IRHS Holding Unit are disclosed as including covers or lids suspended above each pan holding location. EX1005: 4 ("robust aluminum Heat Sink Cover for broiled foods"), 8, 20-21 (ref. no. 18); EX1007: 53 ("[m]etal cover eliminates the cost and hassle of plastic lids"), 56, 58 ("[c]over allows better heat transfer and greater seal assurance; critical to maintaining food quality with extended hold times").

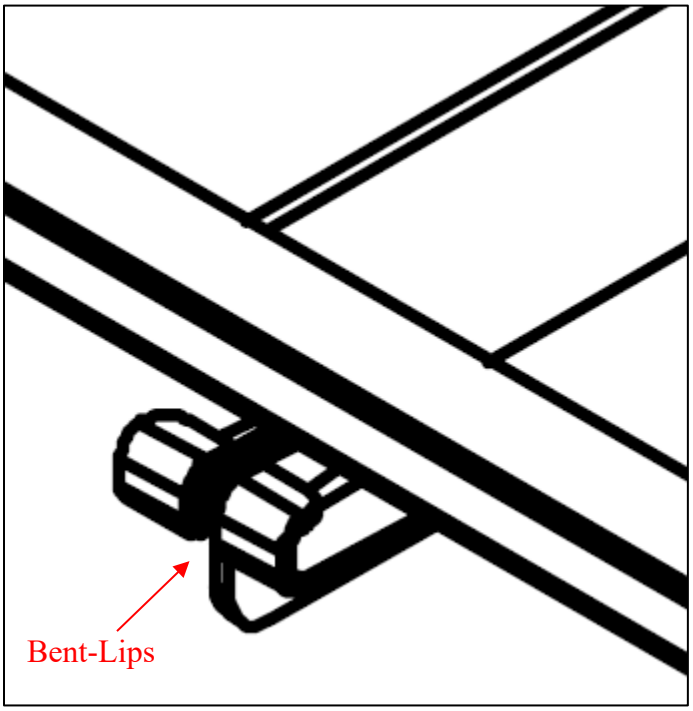


EX1005: 8 (annotated).



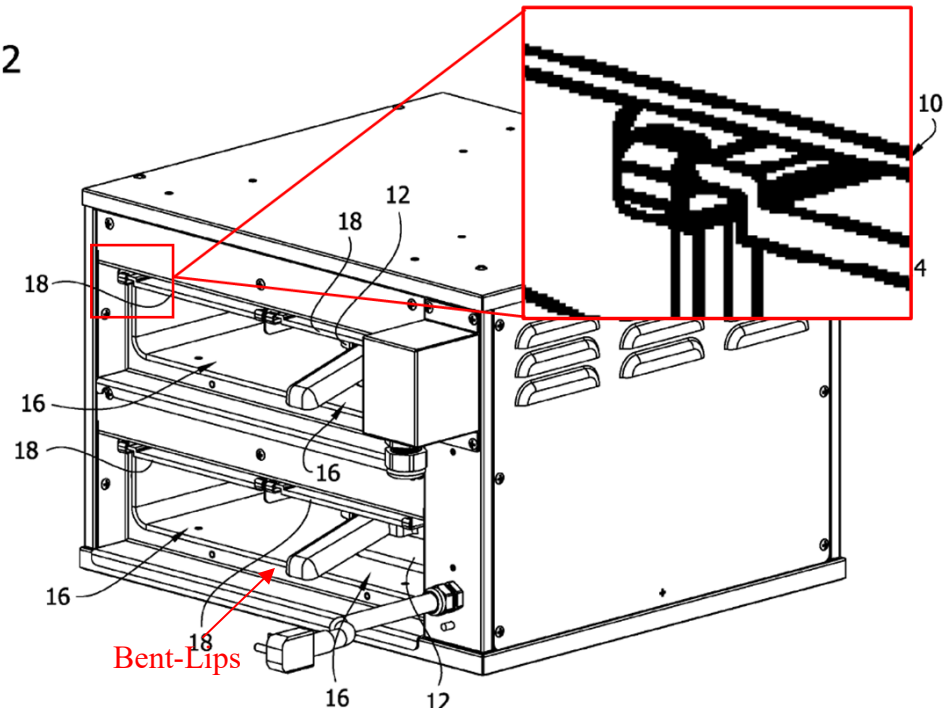
EX1008: 16.

308. Rather than using latches as claimed Claim 6 of the '322 Patent, the IRHS Holding Unit are disclosed as having bent-lips on its lid support rails for retaining its lids. EX1005: 19.



EX1005: 19 (enlarged, annotated).

309. Notably, Shei'821 (EX1011) is a Duke patent application that a POSA would appreciate as discussing the operation of pan support rails that include bent-lips similar to those observed in the IRHS Documents. EX1011: ¶¶[0024], [0035], [0039] ("the cover supports 36A and the cover retainers 36B, including the keepers 36E, are formed as one piece of metal"), Figs. 2, 9-14.



EX1011: Fig. 2 (enlarged).

310. The POSA would have recognized that while the bent-lips of the IRHS Holding Unit was one technique to retain the lids, there were known and accepted alternatives within the art which could have been easily substituted.

311. For example, Hartfelder teaches a food warming apparatus (10) that receives trays (40) in heating compartments (24, 26) with covers or lids (44, 46). EX1013: ¶¶[0028] ("food warming apparatus 10"), ¶[0030] ("[e]ach of heating compartments 24 and 26 is sized to accommodate a plurality of trays, as exemplified in FIG. 1 by trays 40 and 42 in heating compartment 24. Each of trays 40 and 42 are covered by covers 44 and 46, respectively.").

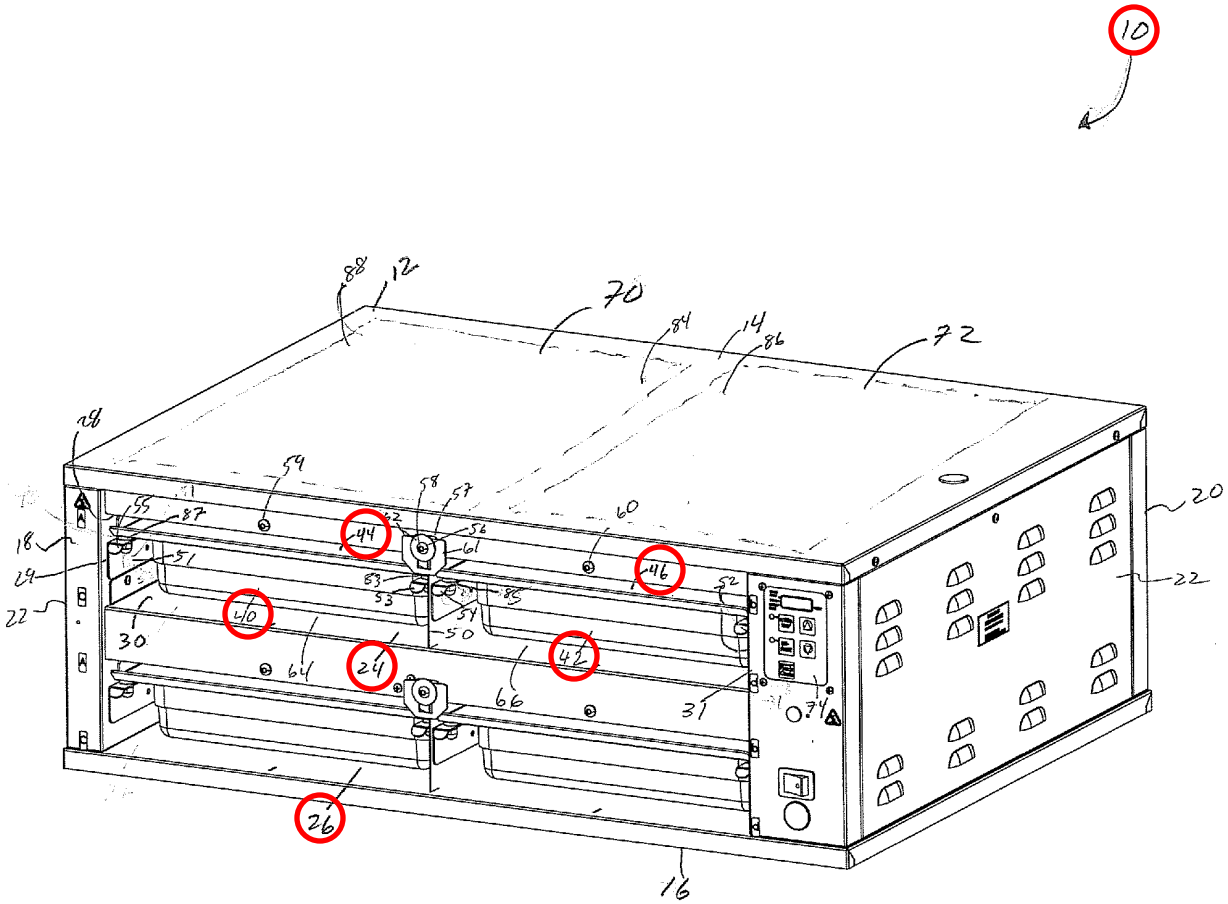


FIGURE 1

EX1013: Fig. 1 (annotated).

312. To prevent the lids (44, 46) from moving with the trays (40, 42) when the trays are removed from the heating compartment (24, 26), the Hartfelder apparatus (10) includes stop members (61) (*i.e.*, a latch) which retain the lids. EX1013: ¶[0058] ("[a]s best shown in FIG. 9, when tray 40 is withdrawn from sub-compartment 64 of heating compartment 24, front turned-up edge 90 of cover

64, acting as an engagement edge, engages stop member 61. The engagement of engagement edge 90 with stop member 61 arrests the movement of cover 44. As the movement of cover 44 is arrested, cover 44 is retained upon within sub-compartment 64 while tray 40 is withdrawn"), Fig. 9.

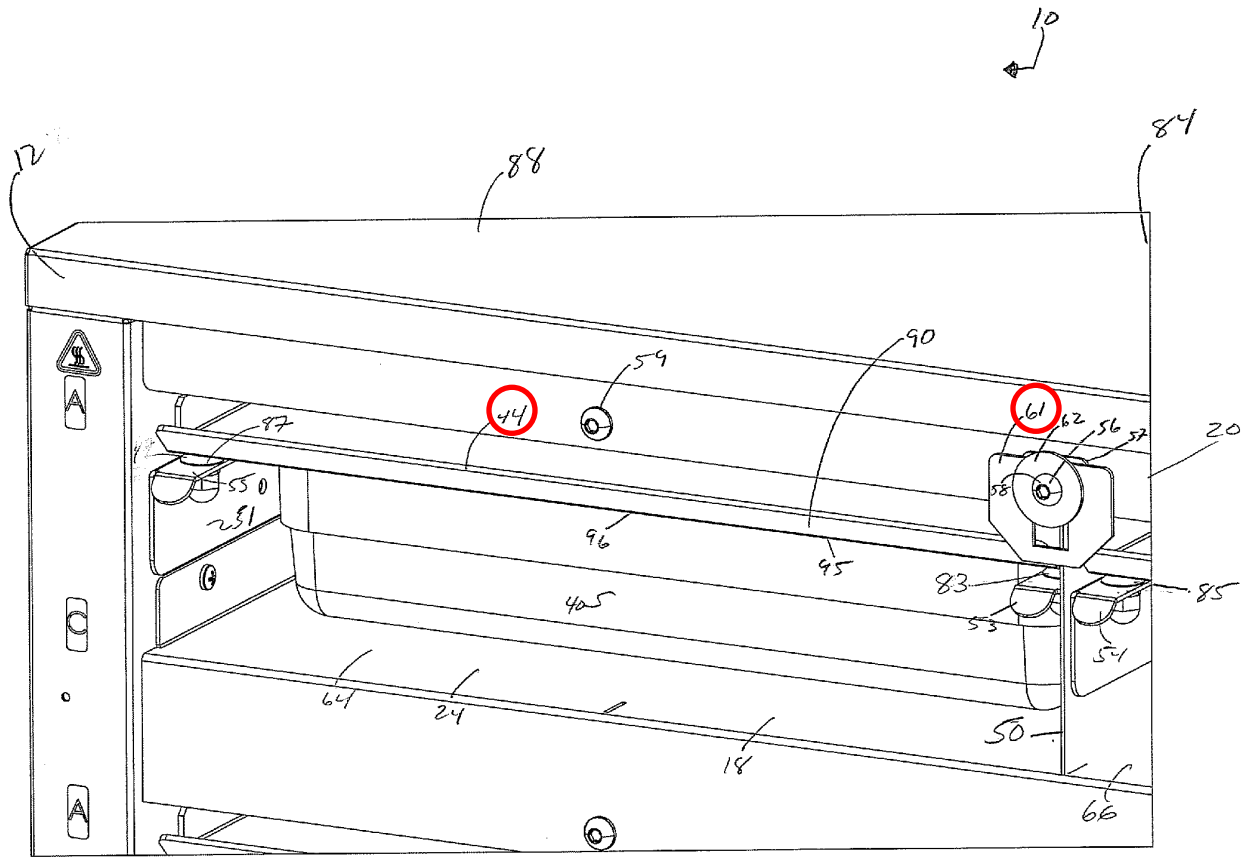


FIGURE 9

EX1013: Fig. 9 (annotated).

313. Shei'099 (EX1017) discloses similar stops (88) (*i.e.*, a latch) between pairs of covers (80) where the stops are biased by gravity to a cover-retaining

position (to retain both covers) and pivotable to the left or right to selectively permit insertion/removal of either of the covers. EX1017: 6:9-32.

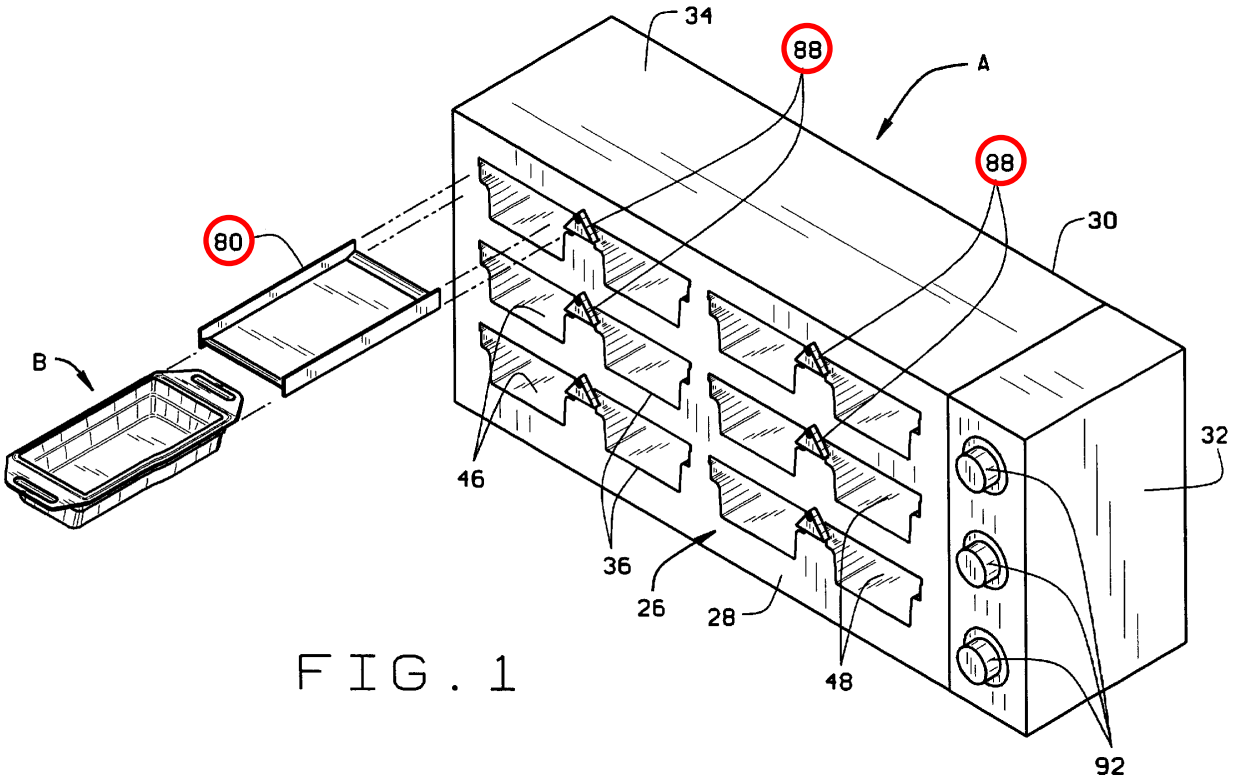


FIG. 1

EX1017: Fig. 1 (annotated).

314. It would have been obvious to modify the IRHS Holding Units as disclosed in the IRHS Document to include Hartfelder's stop members (61) or Shei'099's stops (88) for retaining the lids of the IRHS Holding Unit on the lid-holding shelves.

315. The stop members (61) or stops (88) would prevent the lids, which are in contact with the pans, from moving with the pans as the pans are inserted into and removed from the compartments. EX1013: ¶[0058] ("[a]s best shown in FIG.

9, when tray 40 is withdrawn from sub-compartment 64 of heating compartment 24, front turned-up edge 90 of cover 64, acting as an engagement edge, engages stop member 61. The engagement of engagement edge 90 with stop member 61 arrests the movement of cover 44. As the movement of cover 44 is arrested, cover 44 is retained upon within sub-compartment 64 while tray 40 is withdrawn"); EX1017: 6:19-22. This would maintain lid position for covering pans.

316. Replacing the existing bent-lips with Hartfelder's stop members or Shei'099's stops would make the IRHS Holding Unit easier to clean and easier to manufacture (e.g., simpler lid shelf manufacturing, and one stop member for two lids instead of two bent-lips for each lid). EX1005: 19, 13-14; EX1017: 7:30-35 ("easily cleaned"); EX1011: ¶¶[0035]-[0037], Figs. 9-14.

317. Hartfelder's stop members or Shei'099's stops would also be easier to access and replace.

318. Alternatively, it would have been obvious that Hartfelder's stop members or Shei'099's stops could have been added to the IRHS Holding Unit to provide a backup to the existing bent-lips (prevent inadvertent escape of lids out of the unit over the bent-lips).

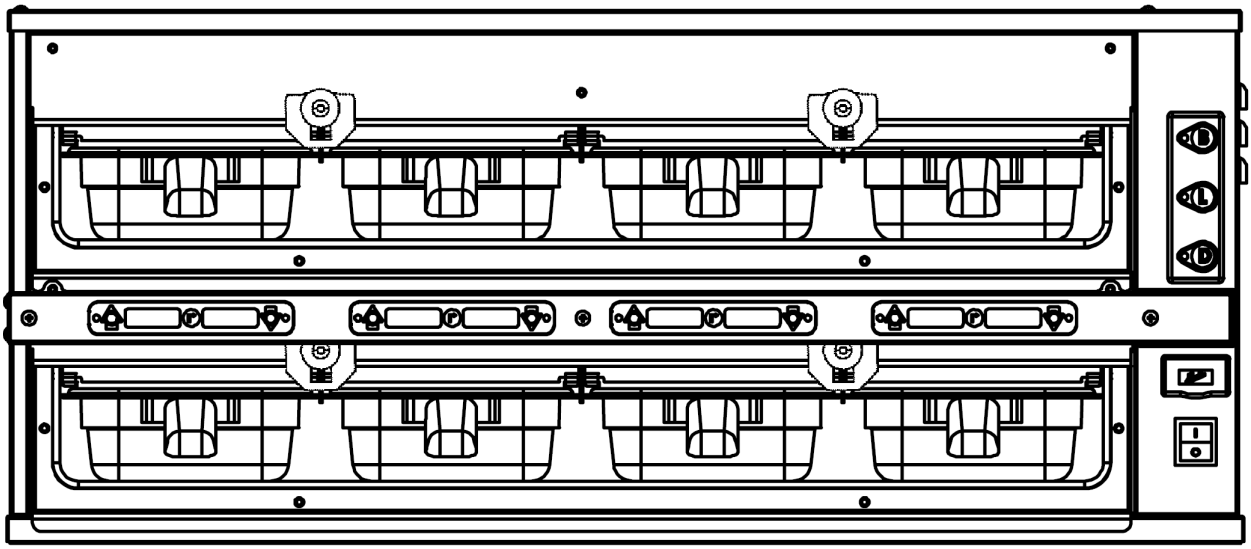
319. Modifying the IRHS Holding Unit to use Hartfelder's stop members or Shei'099's stops instead of or in addition to the bent-lips would have been nothing more than using a known technique/alternative (the stop members of

Hartfelder or Shei'099 to retain lids) to improve a similar device (the IRHS Holding Unit) in the same way with predictable results (retaining lids in place while moving food pans into and out of the food holding compartments).

320. There would have been a reasonable expectation of success in making this modification given (1) the similarities between the IRHS Holding Unit and Hartfelder's and Shei'099's food warming apparatus (specifically, that the IRHS Holding Unit and Hartfelder's and Shei'099's food warming apparatus each included compartments for warming trays/pans of food with lids covering the trays/pans), and (2) the stop member of Hartfelder or stop of Shei'099 would perform the same function in the same way in the IRHS Holding Units. EX1013: ¶[0058].

321. In making this modification, the POSA would have arranged each stop member (61) or stop (88) on the face of the chassis/shelf between two lids as taught by Hartfelder and Shei'099.

322. A representative illustration of the IRHS24 Holding Unit modified to have Hartfelder's stop members (61) for the lids is shown below. A modification implementing Shei'099's stops (88) would be similar to below, except Hartfelder's stop members (61) would be replaced with Shei'099's stops (88).



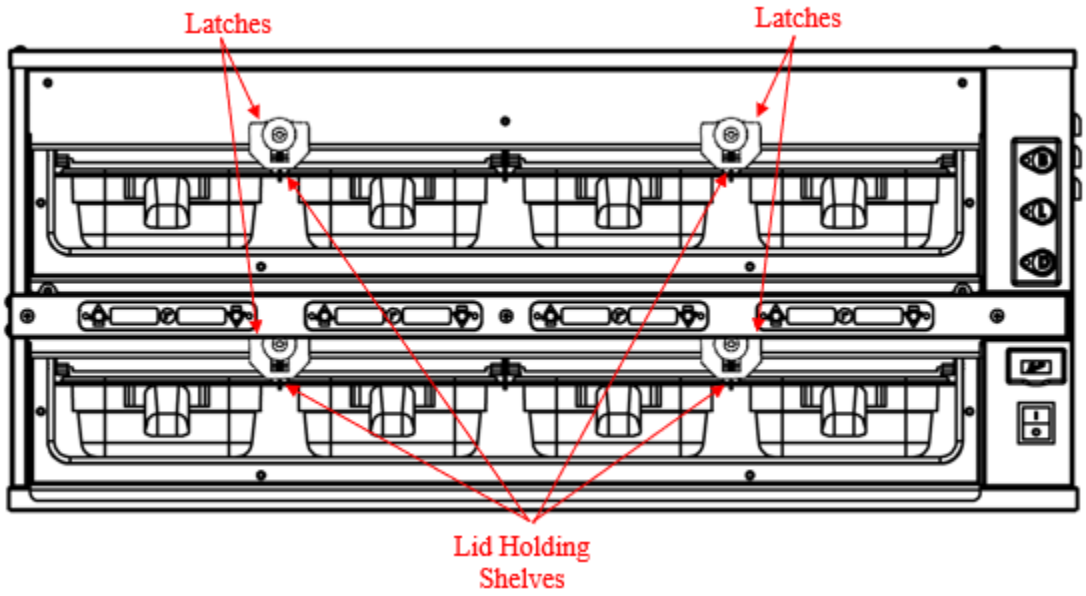
EX1005: 8 (modified).

B. Claim 6:

6.a.1: the food holding bin of claim 5, further comprising a latch located adjacent to the shelf

323. As discussed above, the POSA would have found it obvious to combine the teachings and disclosures of the IRHS Documents to arrive at the claimed food holding bin of Claim 1.

324. Modifying the IRHS Holding Units in view of Hartfelder and Shei'099 as discussed in Paragraphs 306-322 would result in the rotatable stop members (61) or stops (88) (*i.e.*, latches) disposed adjacent to the food holding bays. EX1013: ¶[0058], Figs. 1 and 9; EX1017: 6:9-32, Fig. 1.



EX1005: 8 (modified, annotated).

325. This location—adjacent the openings and the lids—is the same as taught by Hartfelder and/or Shei'099 and would be the natural location to allow the latches to engage and retain the lids. EX1013: Figs. 1 and 9; EX1017: Fig. 1. Therefore, latches adjacent the lid holding shelves would have been obvious.

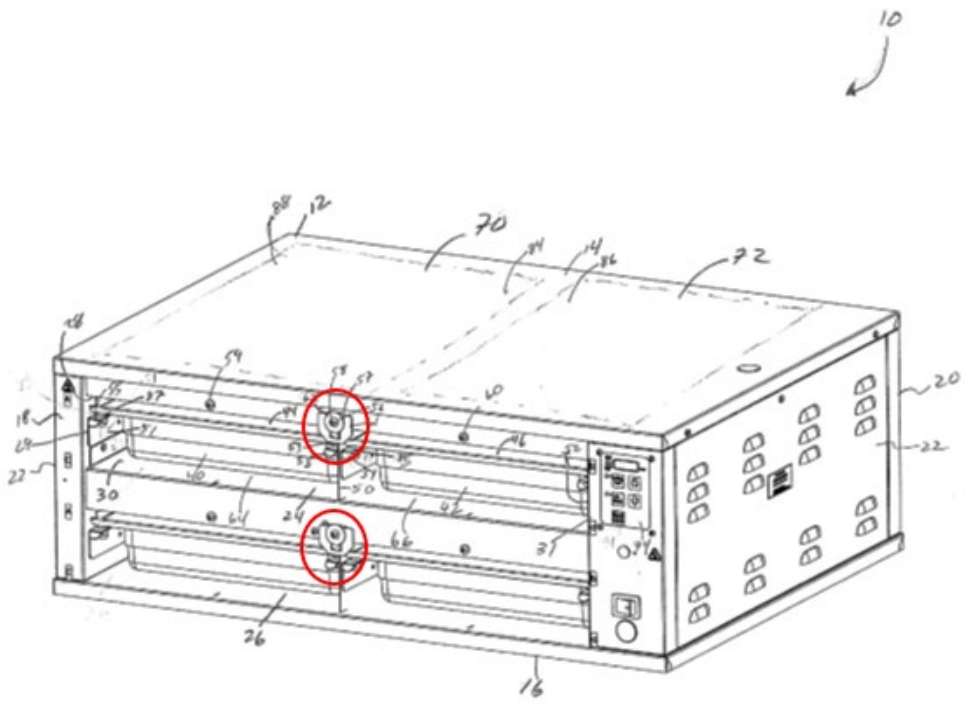


FIGURE 1

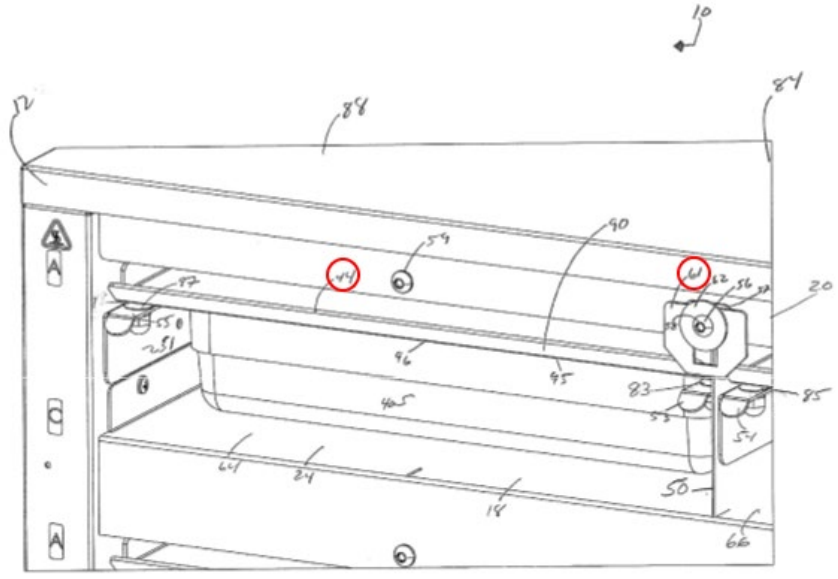


FIGURE 9

EX1013: Figs. 1 and 9 (annotated).

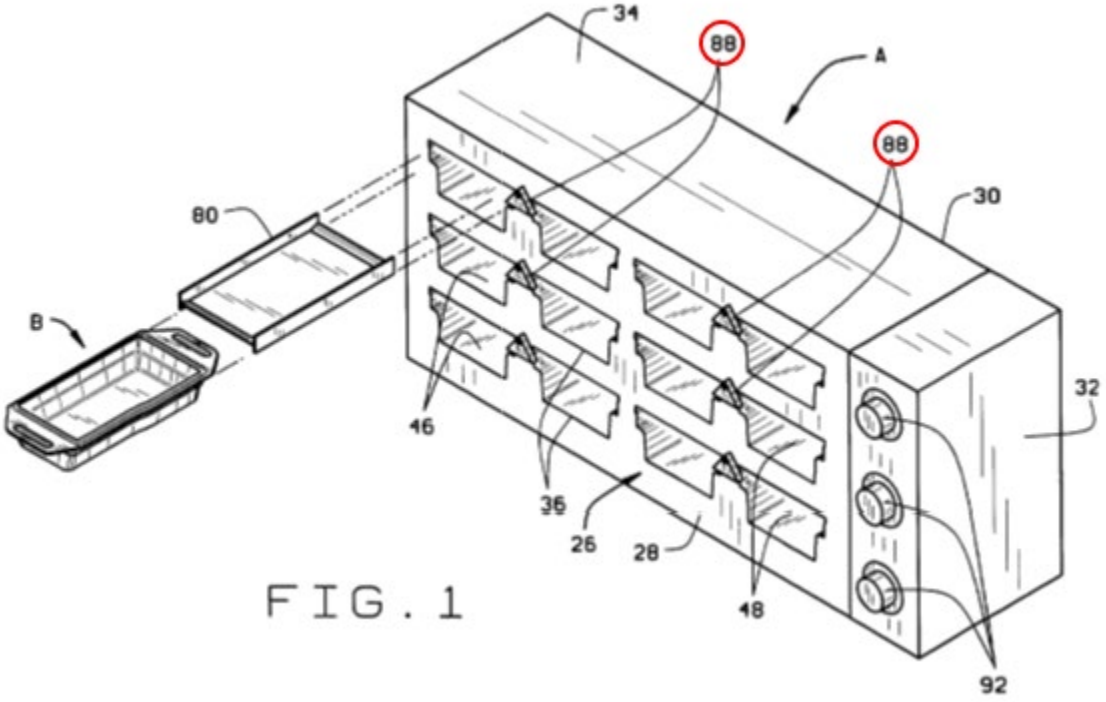


FIG. 1

EX1017: Fig. 1 (annotated).

6.a.2: the latch having a body including an open center portion

326. Each stop member (61) (latch) of Hartfelder has a body with an open center portion. EX1013: Figs. 1 and 9, ¶[0035].

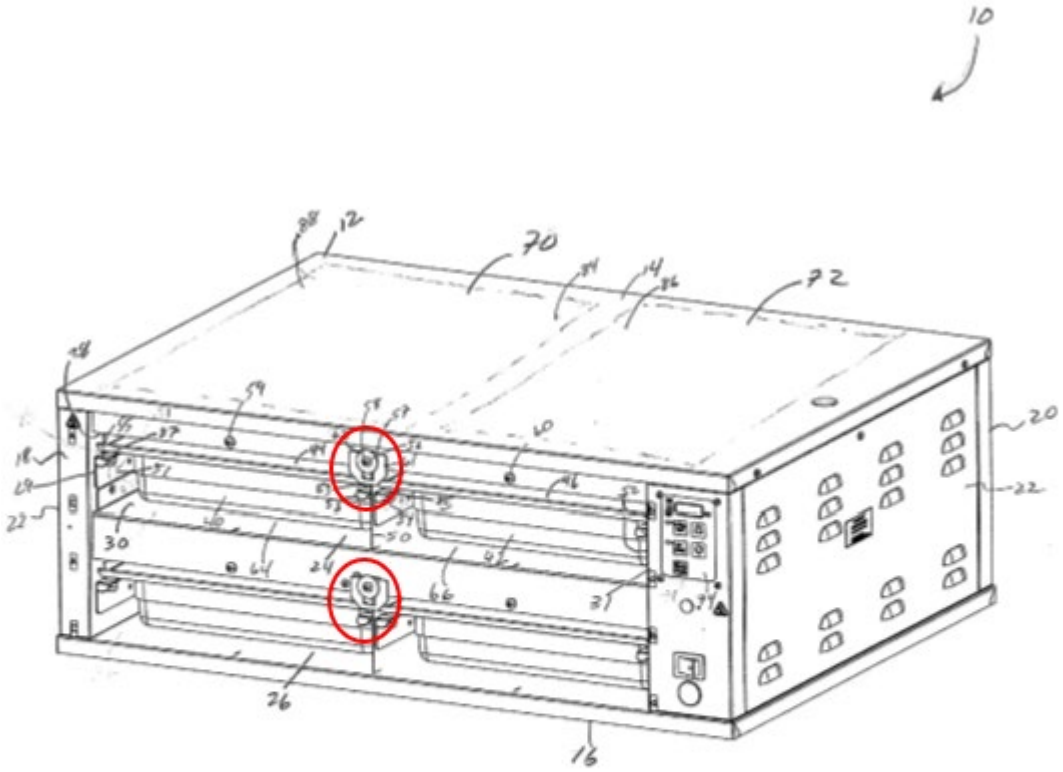


FIGURE 1

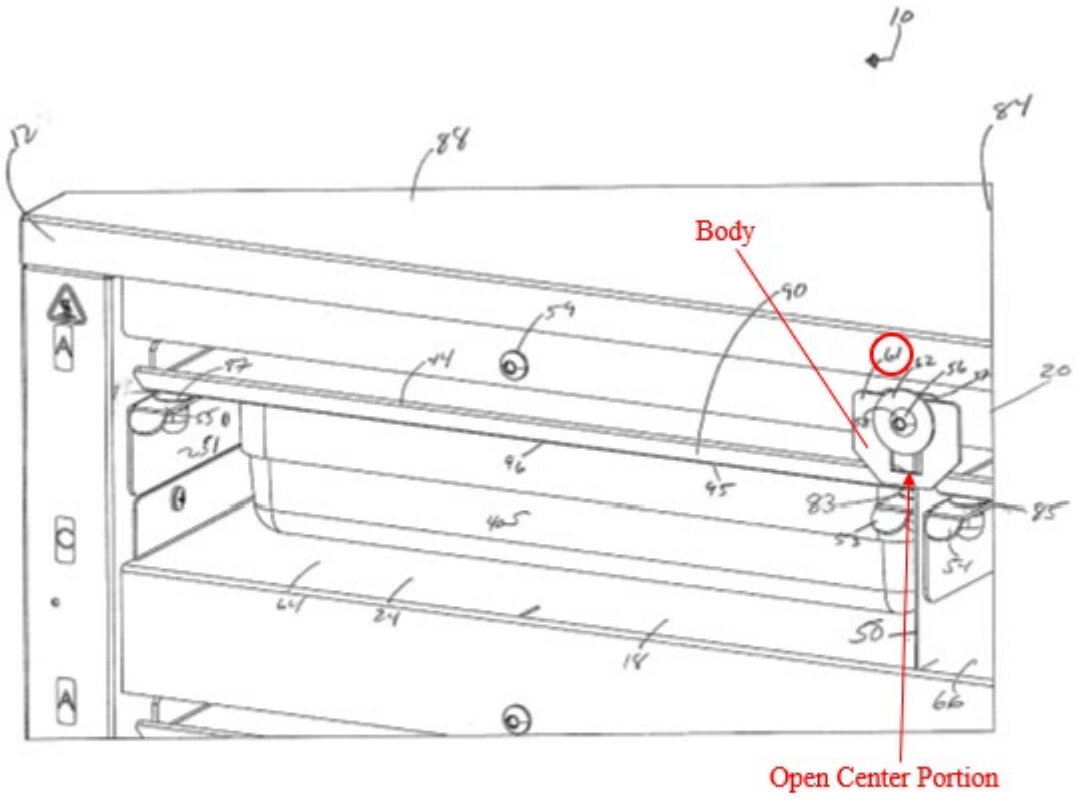
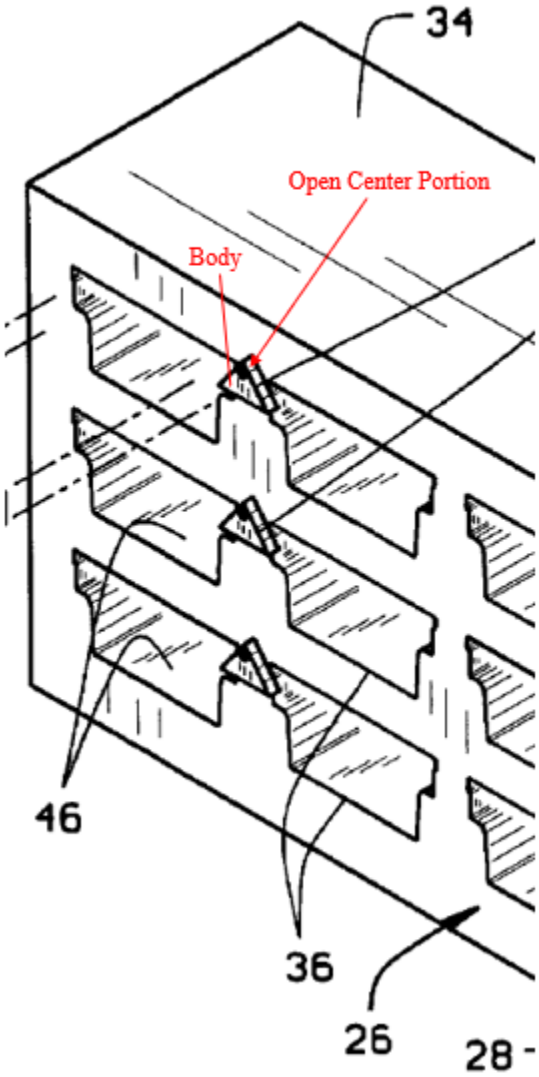


FIGURE 9

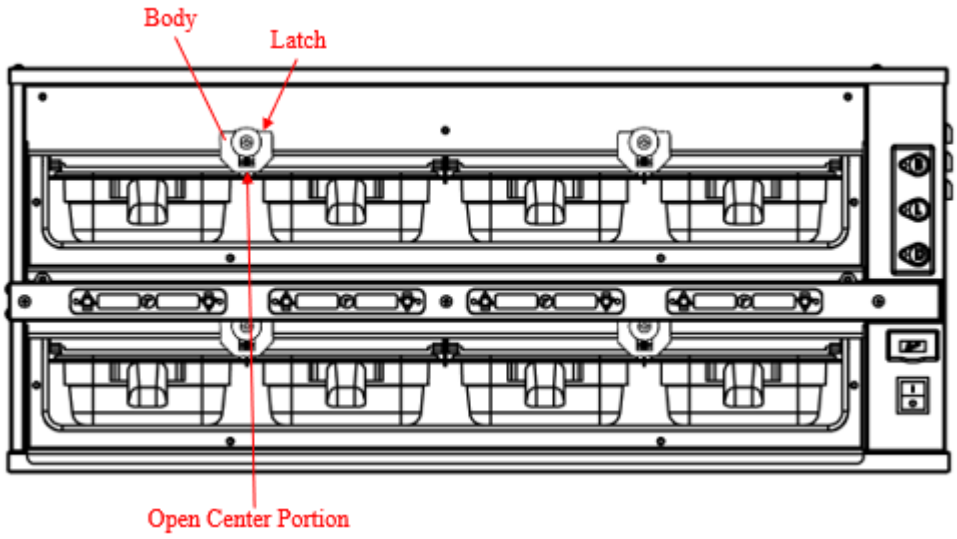
EX1013: Figs. 1 and 9 (annotated).

327. Likewise, each stop (88) (latch) of Shei'099 has a body with an open center portion through which the fastener (forming the pivot connection) extends to attach the stop to the cabinet (26). EX1017: Fig. 1, 6:9-14.



EX1017: Fig. 1 (enlarged, annotated).

328. When added to the IRHS24 Holding Unit, Hartfelder's and Shei'099's latches would have maintained their bodies and open center portions to allow fastener (forming the pivot connection) to extend through. Thus, it would have been obvious for the latch to have a body with an open center portion.

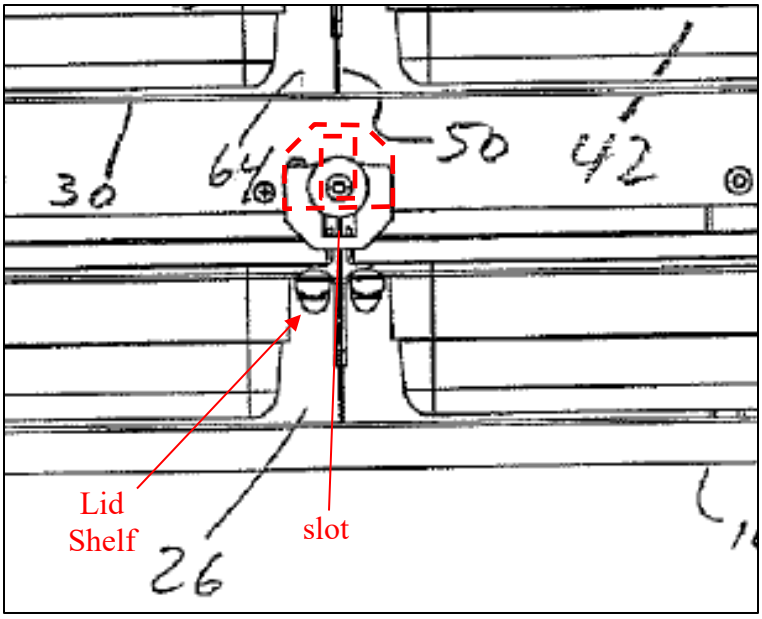


EX1005: 8 (modified, annotated).

6.a.3: the latch being rotatable or translatable relative to the shelf between a locked position and an unlocked position

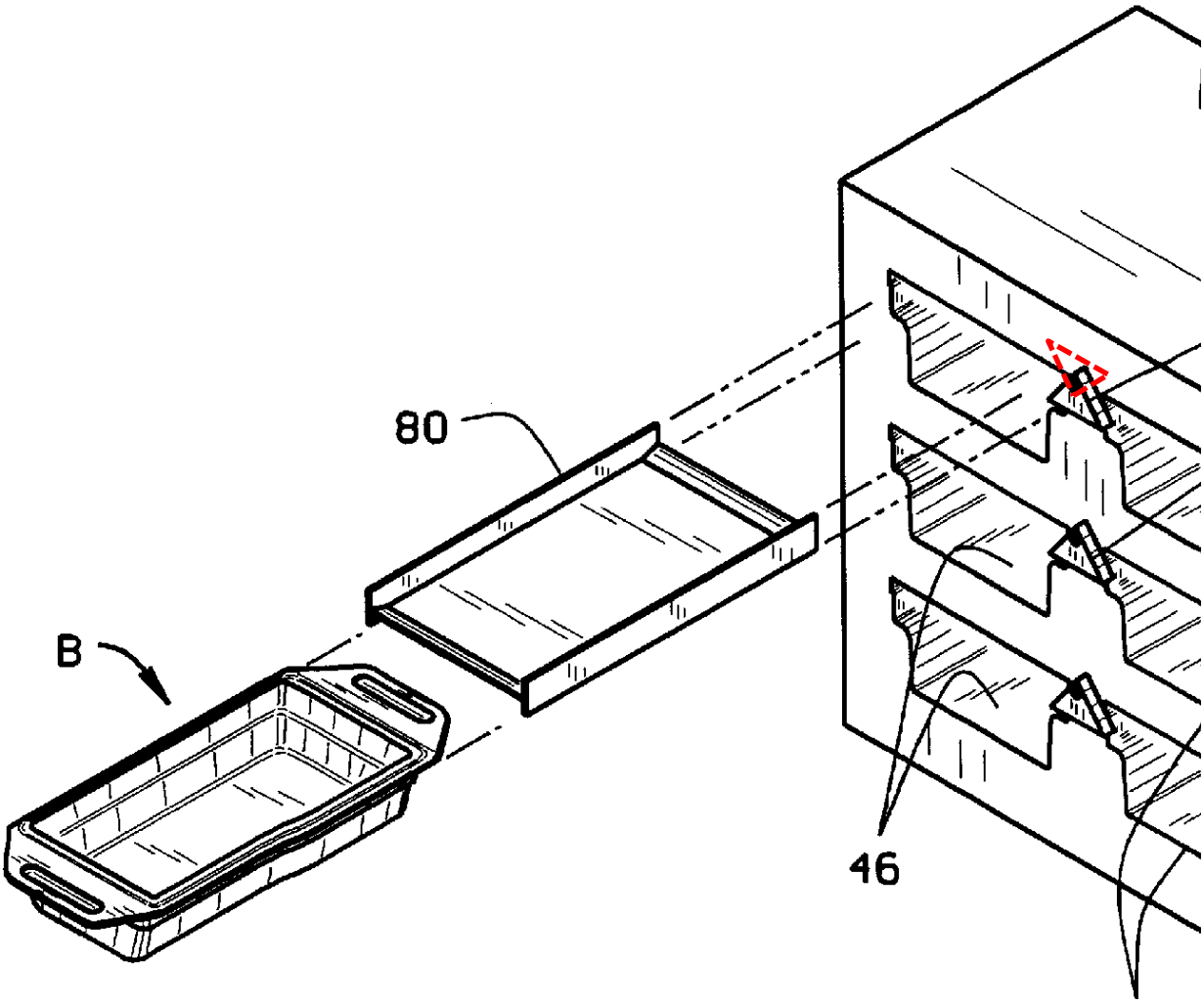
329. The POSA would understand that Hartfelder's stop members (61) are moveable and rotate relative to the shelf between locked and unlocked positions.

330. Specifically, the stop members (61) have a vertical slot, through which the fastener (56) extends to connect the stop member to the cabinet (12). The cutout is larger than the fastener (56), thereby allowing the stop member (61) to rotate between the locked position shown in Fig. 2 (in which the stop member is positioned to engage the lid if the lid moves out of the compartment) and an unlocked position shown by the broken lines (in which the stop member is positioned to permit the lids to be removed from the compartment). Stop members (61) of this type rotate between locked and unlocked positions. EX1017: 6:9-32, Fig. 1; EX1016: ¶[0043], Fig. 1.



EX1013: Fig. 2 (enlarged, annotated to show rotation of Hartfelder's stop member).

331. Likewise, Shei'099's stops (88) rotate between locked and unlocked positions. EX1017: 6:9-32.

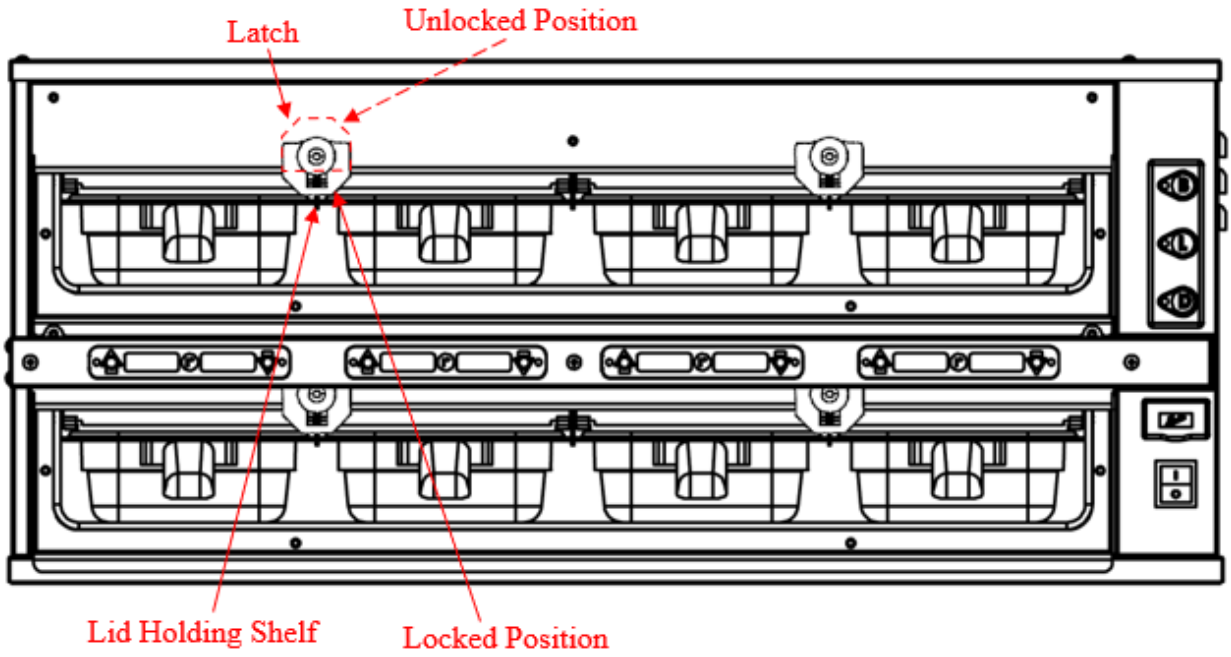


EX1017: Fig. 1 (enlarged, annotated).

332. While the above annotated images of Hartfelder and Shei'099 show the stops (latches) rotated 180-degrees from an at-rest position, the POSA understands the user/operator would pivot the stops in Hartfelder and Shei'099 as needed (e.g., 45-degrees) left or right to release the desired lid.

333. When added to the IRHS24 Holding Unit, Hartfelder's and Shei'099's latches would have maintained rotatability relative to a shelf between locked and

unlocked positions. Thus, it would have been obvious for the latch to be rotatable relative to the lid holding shelf between locked position and unlocked position (shown in broken lines).



EX1005: 8 (modified, annotated).

334. Accordingly, the POSA would have found it obvious to combine the teachings and disclosures of the IRHS Documents with the teachings of Hartfelder and/or Shei'099 to arrive at the food holding bin as claimed in Claim 6.

VI. GROUND 3: Claim 8 Would Have Been Obvious Over the IRHS Documents in Further View of Veltrop and/or Poole Even to the Extent the IRHS Documents Are Found Not to Meet the Electrically Resistive Heating Wire Limitation

A. Claim 8: the food holding bin of claim 1, wherein at least one of the first heating element and the second heating element is an electrically resistive heating wire

335. As discussed in Paragraphs 264-269 above (Ground 1, Claim 8), it is my opinion that the POSA would have recognized that each of the IRHS heating elements (including the IR bulbs) comprise a resistive wire. If it is determined that the IRHS Documents do not sufficiently describe the IRHS heating elements as comprising resistive wires, it would have still been obvious for the first and second heating elements to include resistive wires in view of Veltrop and/or Poole.

336. Veltrop teaches a food holding cabinet (10) with shelves (52) having electrical heating elements in the form of electrically-resistive heater wire (67). EX1022: ¶¶[0010], [0025] ("[i]n another embodiment of the shelf 52, an electrically-insulated, electrically-resistive heater wire 67 is also sandwiched between the plates 51 and 53"), Fig. 2.

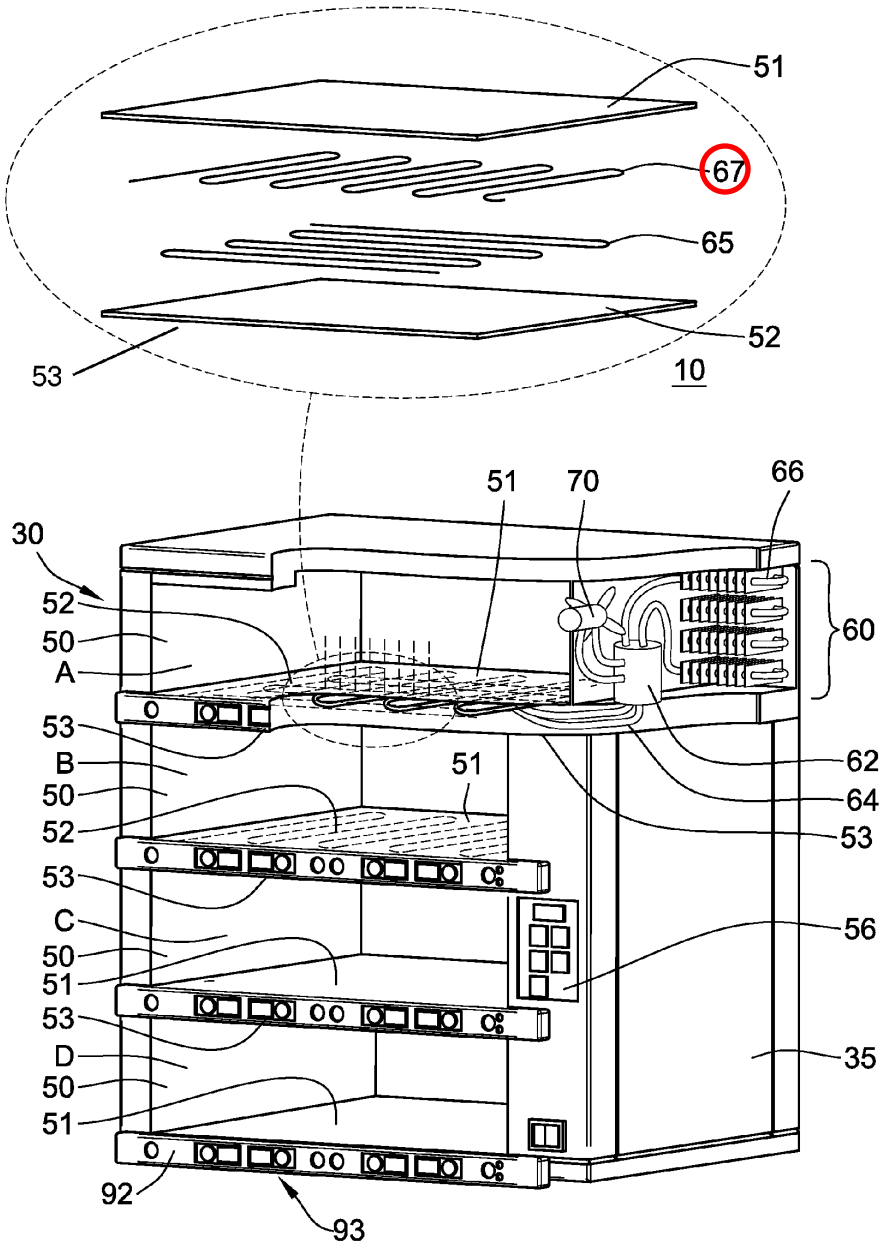
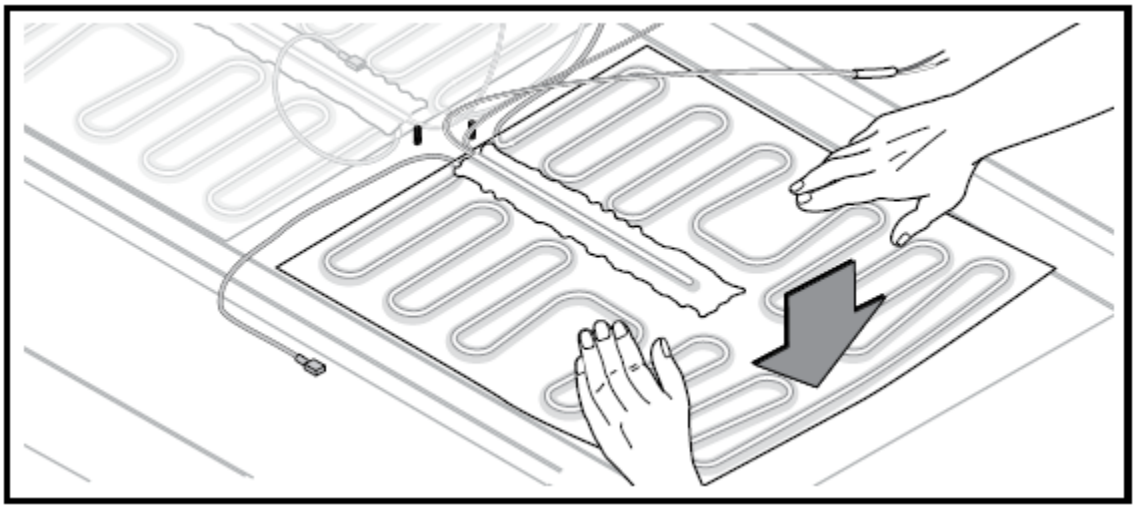


FIG. 2

EX1022: Fig. 2 (annotated).

337. It would have been obvious to have IRHS Holding Unit's lower heating elements comprise an electrically-resistive heater wire in view of Veltrop to generate heat for the compartments.

338. Specifically, the IRHS Documents use electrical heating elements to generate heat. The POSA would understand electrically-resistive heater wire is a suitable source of heat for the heating elements of food holding units like the IRHS Holding Unit. EX1022: ¶[0025] ("when the wire 67 temperature rises due to an electric current flow, it provides heat energy into the plates 51 and/or 53, to which the wire 67 is thermally coupled").



EX1008: 23.

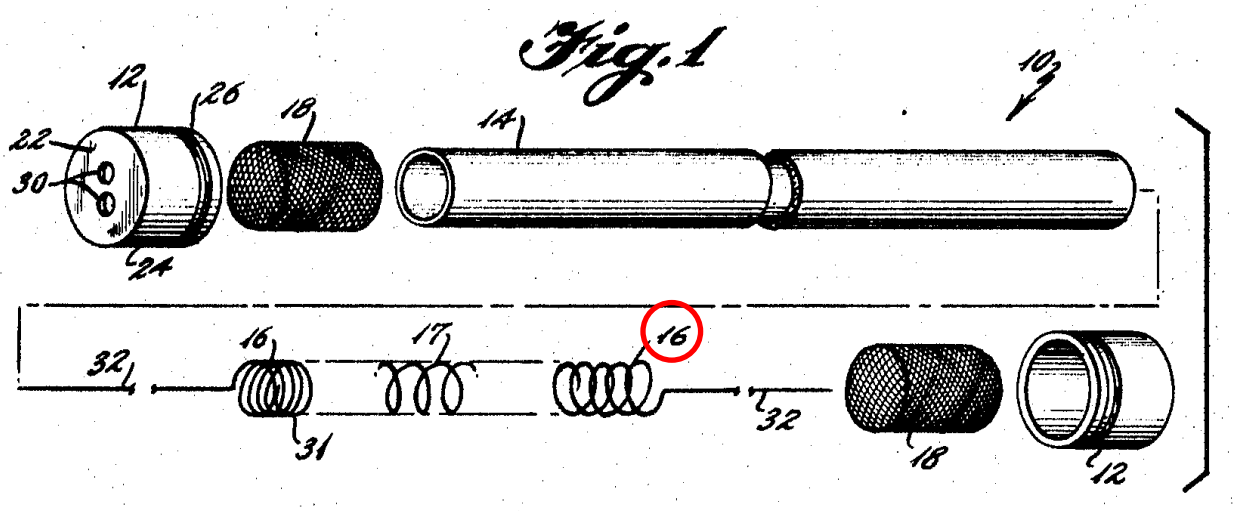
339. Further, Veltrop's electrically-resistive heater wire (67) is electrically controlled, which would enable the IRHS Holding Unit's controller to operate it. EX1022: ¶[0025].

340. This would have been nothing more than the use of a known technique (electrically-resistive heater wire) to improve a similar device (the lower heating elements of the IRHS Holding Unit) in the same way (electrically-resistive heater wire to heat compartments containing food).

341. There would have been a reasonable expectation of success given the IRHS Holding Unit's lower heating elements are electrically controlled, and the IRHS Holding Unit and Veltrop are both food warming cabinets.

342. When implementing this modification, each lower heating element of the IRHS Holding Unit (including in the IRHS24 Holding Unit) would comprise electrically-resistive heater wire.

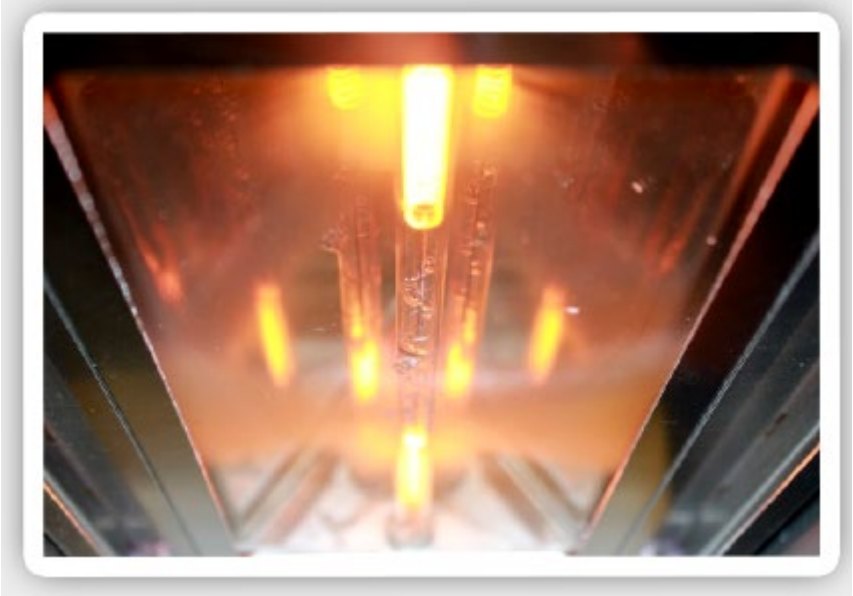
343. Poole teaches that an "infrared quartz heater" has a resistance wire (16). EX1025: Title ("Infrared Quartz Heater"), 1:29-30 ("[t]he usual quartz infrared heater consists essentially of a resistance wire heating element"), 2:6-7 ("a heater element 16 in the form of a coiled resistance wire").



EX1025: Fig. 1 (annotated).

344. In view of Poole, it would have been obvious to use infrared quartz heaters including resistive wires as the IR bulbs (upper heating elements) in the IRHS Holding Unit to generate the IR heat for the compartments. Specifically, Poole teaches such infrared quartz heaters have a "long operating life" with a "low failure rate" and lower cost. EX1025: 1:49-50, 3:1, 3:4.

345. Accordingly, where the IRHS Documents disclose using quartz IR bulbs, Poole discloses suitable quartz IR bulbs.



EX1007: 11.

346. This would have been nothing more than the substitution of one known element (Poole's infrared quartz heater) for another (the unspecified IR bulbs of the IRHS Holding Unit) to obtain predictable results in the form of IR heating of food. Here there would be a high expectation of success given that the

IRHS Documents are already disclosing the use of quartz IR heaters like those in Poole. EX1007: 53.

347. When implementing this modification, each upper heating element of the IRHS Holding Unit (including for the IRHS24 Holding Unit) would comprise an infrared quartz heater with resistive wire.

348. Accordingly, to the extent that there is any doubt that the IRHS Documents disclose that at least one of the first heating element or the second heating element is an electrically resistive heating wire, the POSA would have found it obvious to modify the IRHS Holding Unit disclosed in the IRHS Documents in view of Veltrop and/or Poole to arrive at the claimed food holding bin of Claim 8.

VII. GROUND 4: Claims 4 and 10 Would Have Been Obvious Over the IRHS Documents in view of Prince Castle and/or Reese Even to the Extent the IRHS Documents Are Found Not to Sufficiently Teach the Comparative Energy Outputs of the Heating Elements

A. Claims 4: the food holding bin of claim 1, wherein the first heating element is adapted to output more heat energy than the second heating element

Claim 10: the method of claim 9, further comprising providing more heat energy from the first heating element than from the second heating element

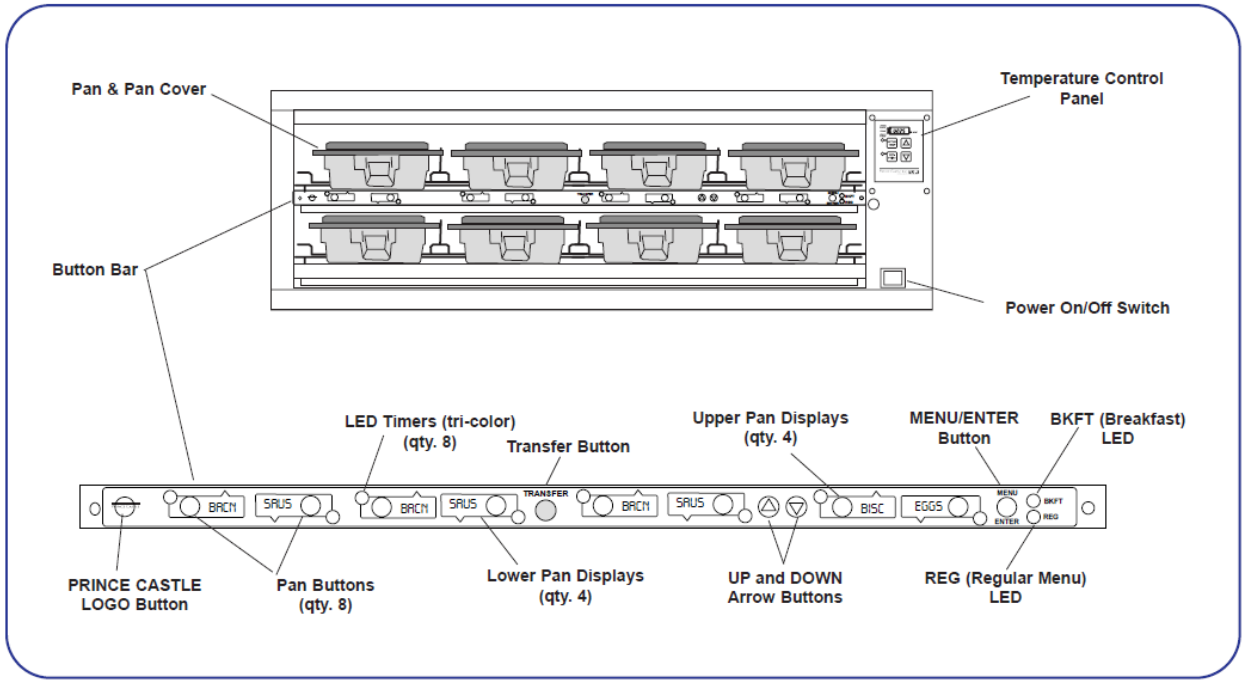
349. As discussed in Paragraphs 243-248 and 299-305 above (Ground 1, Claims 4 and 10), it is my opinion that the POSA would have recognized that as disclosed by the IRHS Documents the first heating element disposed at the top

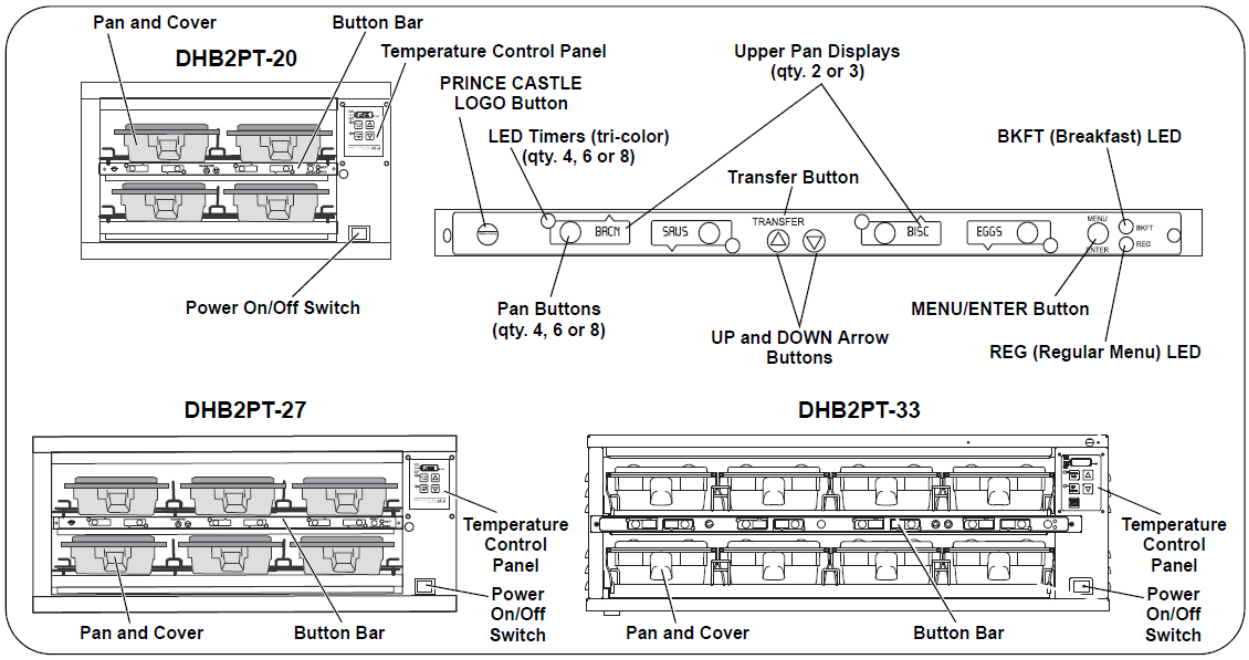
portion of the food holding compartments were adapted to output more heat energy than the second heating element disposed at the bottom portion of the food holding compartments. If it is determined that the IRHS Documents do not sufficiently describe the comparative energy outputs of the heating elements, the claimed comparative energy outputs would have still been obvious in view of Prince Castle and/or Reese.

350. Similar to the IRHS Holding Unit, Prince Castle (EX1009) discloses a Product Holding Bin where each compartment has "an upper and lower heater." EX1009: 22, 40.

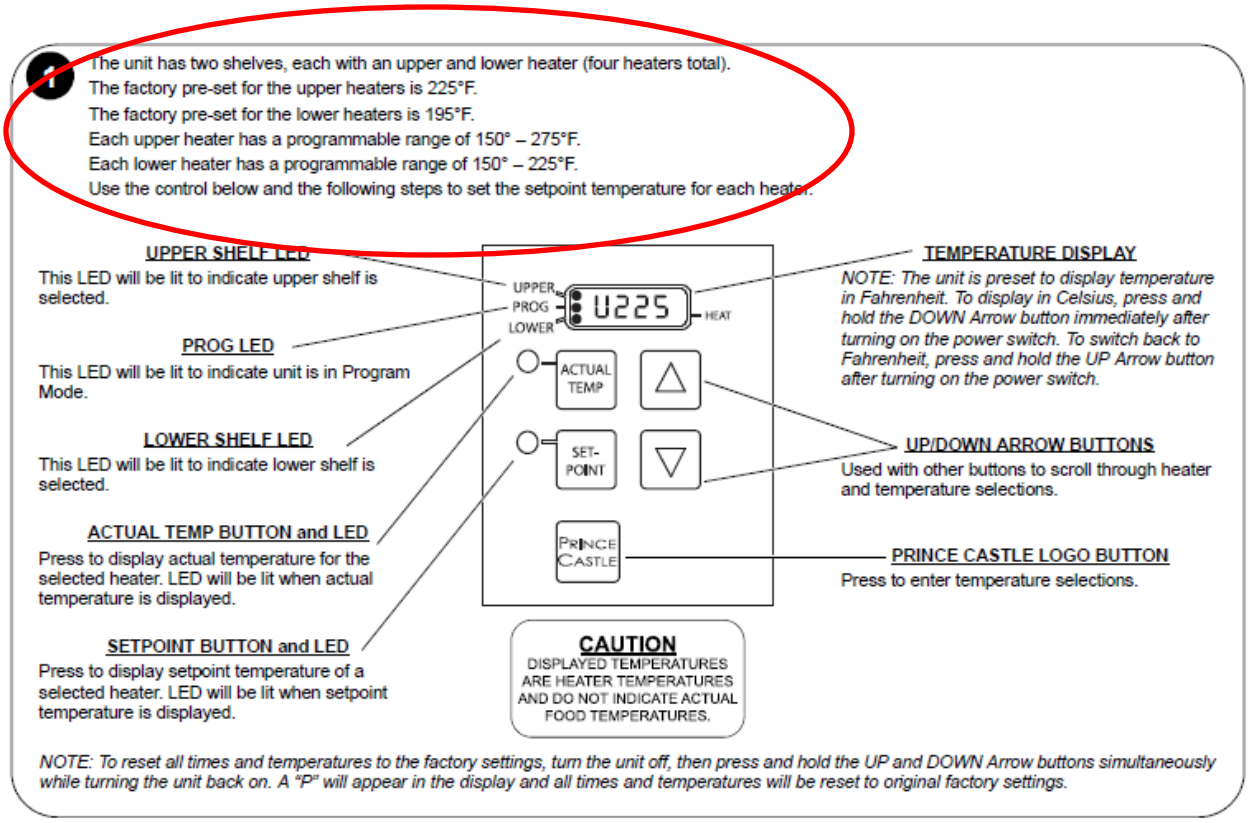
351. Prince Castle expressly teaches adapting the heating element disposed at the top portion of the food holding compartments to output more heat energy than the heating elements disposed at the bottom portion of the food holding compartments.

352. Specifically, the 2006 and 2010 Operation Manuals of Prince Castle both explain that "[t]he factory pre-set for the upper heaters is 225°F" (with a max setting of 275°F) and "[t]he factory pre-set for the lower heaters is 195°F" (with a max setting of 225°F). EX1009: 22, 40.


Pan & Pan Cover
Temperature Control Panel
Button Bar
Power On/Off Switch
LED Timers (tri-color) (qty. 8)
Transfer Button
Upper Pan Displays (qty. 4)
MENU/ENTER Button
BKFT (Breakfast) LED
PRINCE CASTLE LOGO Button
Pan Buttons (qty. 8)
Lower Pan Displays (qty. 4)
UP and DOWN Arrow Buttons
REG (Regular Menu) LED


Pan and Cover
Button Bar
DHB2PT-20
Temperature Control Panel
PRINCE CASTLE LOGO Button
LED Timers (tri-color) (qty. 4, 6 or 8)
Upper Pan Displays (qty. 2 or 3)
BKFT (Breakfast) LED
Transfer Button
Power On/Off Switch
Pan Buttons (qty. 4, 6 or 8)
UP and DOWN Arrow Buttons
MENU/ENTER Button
REG (Regular Menu) LED
DHB2PT-27
DHB2PT-33
Temperature Control Panel
Power On/Off Switch
Pan and Cover
Button Bar

EX1009: 19, 36.



EX1009: 40 (annotated).

353. As discussed above, the IRHS Documents teach that the upper heating element (IR bulb) of the IRHS Holding Unit can be selectively activated by the user to provide a limited period of increased heat output, independent of the other heating elements. EX1006: 1 ("IR Turbo Boost for instant shot of IR energy"); EX1007: 22 ("Utilize 'Turbo Boost" for a quick shot of heat to the product").

354. Similar to the IRHS Documents, Reese also teaches a product holding unit with upper IR heating elements having a turbo boost function to increase heat output "to re-crisp breaded (fried) food, to melt cheese on fries, to melt cheese on burger patties, to brown grilled food products, and/or to brown burger patties"

before serving. EX1027: ¶¶[0001], [0019] ("deliver an increased amount of heat to the food"), [0021], [0025].

355. While the IRHS Documents do not describe specific uses of the IR Turbo Boost in application, Reese provides the understanding of how the IR Turbo Boost would be used and why Duke would have included such capabilities in the IRHS Holding Unit.

356. It would be understood by the POSA that a turbo boost capable of re-crisping fried food, melting cheese, or browning food as discussed would require significantly more heat than would be desirable for food holding, as maintaining such heat beyond a short burst would result in the food overcooking.

357. It would have further been desirable for the top IR heating elements in a food holding to output more heat energy than bottom conduction elements as needed for the top IR heating elements to overcome several issues.

358. The IR heating elements are spaced apart from the food. Because IR energy intensity drops significantly as distance increases (even over a few inches), the IR heating element would be required to output considerably more heat energy than conductive heating elements (with nearly 100% of the heat energy being transferred by direct conduction) to ensure enough IR energy "hits" the food.

359. Additionally, IR heating elements radiate IR energy in all directions. Even with reflectors, a portion of that heat energy is lost to the surrounding air and

the structure of the holding unit. This loss of energy is compensated for by operating the IR heating elements at higher heat energy output levels.

360. Further, moisture evaporates from the surface of food as it sits, which creates a cooling effect. Top IR heating elements would need to provide enough energy to counteract this surface cooling and keep the top of the food at a warm temperature. Thus, the bottom heat would be kept lower just to maintain internal temperature, while the top IR heating elements would be required do the heavy lifting of maintaining surface temperature and texture (keeping fried foods crispy, for example).

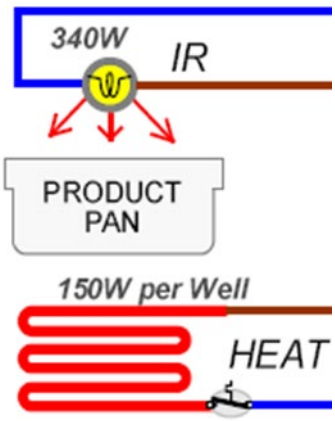
361. It would have been obvious to adapt each upper heating element of the IRHS Holding Unit—including the IRHS24 Holding Unit—to output more heat energy than the lower heating elements in view of the IRHS Documents, Prince Castle, and/or Reese. The POSA would have had the upper IR heating elements output more heat energy than the lower heating elements (higher target temperature, turbo boost heat, and/or higher wattage rating (EX1008: 64)) to help overcome the distance between the upper IR heating elements and the food, to counteract evaporative cooling, to maintain food surface temperature and texture, to compensate for the upper IR energy radiating in all directions, and/or to permit the cook "to re-crisp breaded (fried) food, to melt cheese on fries, to melt cheese on burger patties, to brown grilled food products, and/or to brown burger patties"

with the upper IR heating elements. EX1027: ¶[0021]; EX1006: 1 ("Upper IR emitters provide optimum environment for holding of all fried foods resulting in extended hold time, moist protein, and crispy breading.").

362. Adapting the upper heating elements to output more heat energy than the lower heating element would also allow more direct heat on the food to "provide optimum environment" while "minimiz[ing] temperature distribution from top to bottom." EX1006: 1 ("[d]ual technology heating to reduce temperature variance from top to bottom"); EX1007: 51 ("deliver a consistently hot pan of product, from top to bottom").

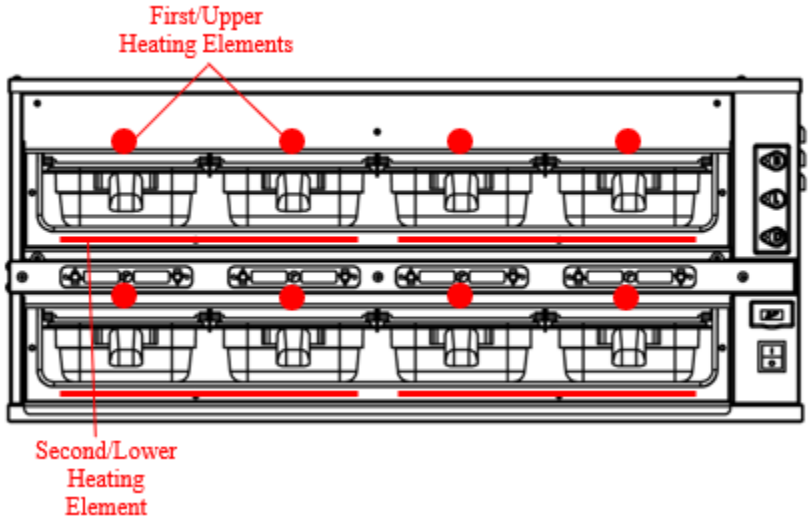
363. This would have been nothing more than the application of a known technique (upper heating elements outputting more heat energy than lower heating elements per Prince Castle) to improve a similar device (IRHS Holding Unit) in the same way (higher setpoint temperatures for the upper heating elements relative to the lower heating elements).

364. The POSA would have had a reasonable expectation of success given the IR upper heating elements operate independently of the lower heating elements, can pulse on and off as needed, and are higher wattage (340W) than the heat sink heating elements (150W per well or 300W per element). EX1006: 1 ("Individually controlled IR emitters pulse on and off for controlling optimum amount of energy being applied to the food").



EX1008: 64.

365. In this implementation, each upper heating element (e.g., first heating element) of the IRHS24 Holding Unit would have been adapted to output more heat energy than each lower heating element (e.g., second heating element) via having a higher target temperature, turbo boost functionality, and/or higher wattage rating.



EX1005: 8 (annotated).

366. Having the upper IR heating elements operate at a higher target temperature than the lower heating elements means the upper IR heating elements are outputting more heat energy to maintain the higher temperature than the lower heating elements.

367. Moreover, activating the turbo boost function would further increase the heat energy output of the upper IR heating elements "to re-crisp breaded (fried) food, to melt cheese on fries, to melt cheese on burger patties, to brown grilled food products, and/or to brown burger patties" right before serving. EX1027: ¶¶[0019] ("deliver an increased amount of heat to the food"), [0021].

368. Accordingly, to the extent that there is any doubt that the IRHS Documents disclose that the heating elements disposed at the top portion of the food holding compartments were adapted to output more heat energy than the heating elements disposed at the bottom portion of the food holding compartments, the POSA would have found it obvious to modify the IRHS Holding Unit disclosed in the IRHS Documents in view of the IRHS Documents, Prince Castle, and/or Reese to arrive at the food holding bin as claimed in Claim 4 and the method of maintaining different temperatures within the food holding bin as claimed in Claim 10.

VIII. GROUND 5: Claims 1-10 Would Have Been Obvious Over the IRHS Documents in Further View of Veltrop and Shei'155 Even to the Extent the IRHS Documents Are Found Not to Sufficiently Teach the Claim Limitations Concerning the Material of Construction of the Heatsinks or Whether the Heating Elements Are Thermally Coupled to Them

369. Within the claims of the '322 Patent, there were several claim limitations of Claims 1, 2, and 9 that concern the material of construction of the continuous planar surfaces and their ability to conduct thermal energy. These limitations are listed as follows:

- 1.c.3: "the continuous and planar surface comprising aluminum";
- 1.d.2: "an independently controllable conductive second heating element disposed at a bottom portion of the first food holding compartment";
- 1.e.2: "an independently controllable conductive fourth heating element disposed at the bottom portion of the first food holding compartment";
- 1.h.2: "the second independently controllable heating element heats the food holding tray conductively from below";
- 2.b.2: "the second and fourth heating elements being disposed in the shelf and in thermal communication with the first side";
- 9.a.2: "the first and second food holding zones sharing an uninterrupted continuous planar bottom surface comprising aluminum";
- 9.a.5: "a second independently controllable conductive heating element that heats conductively from below"; and
- 9.a.6: "a fourth independently controllable conductive heating element that heats conductively from below".

370. As discussed above with respect to Ground 1, it is my opinion that the POSA would recognize the IRHS Documents—and more particularly the IRHS

Specifications (EX1006)—taught the Heatsink as being composed of anodized aluminum—a thermally conductive material—thus meeting these limitations. EX1006: 1 ("[a]nodized aluminum HeatSink"). If it is determined that the IRHS Documents do not sufficiently describe the IRHS material of construction of the continuous planar surfaces and their thermal conductivity, the claims would have still been obvious in view of Veltrop and/or Shei'155.

371. Veltrop teaches that the heater wire (67) is conductively coupled to the upper plate (51) via mechanical attachment, such as by thermally-conductive adhesive or clamps. EX1022: ¶¶ [0025], [0050] ("The heat transfer devices disclosed herein are thermally coupled to the shelf 52, preferably by way of mechanical attachment to at least one of the plates 51 and 53. Mechanical attachment and the resultant thermal coupling is preferably accomplished by a thermally-conducive adhesive, however, clamps that are attached to a plate by screws driven into a plate can also be used.").

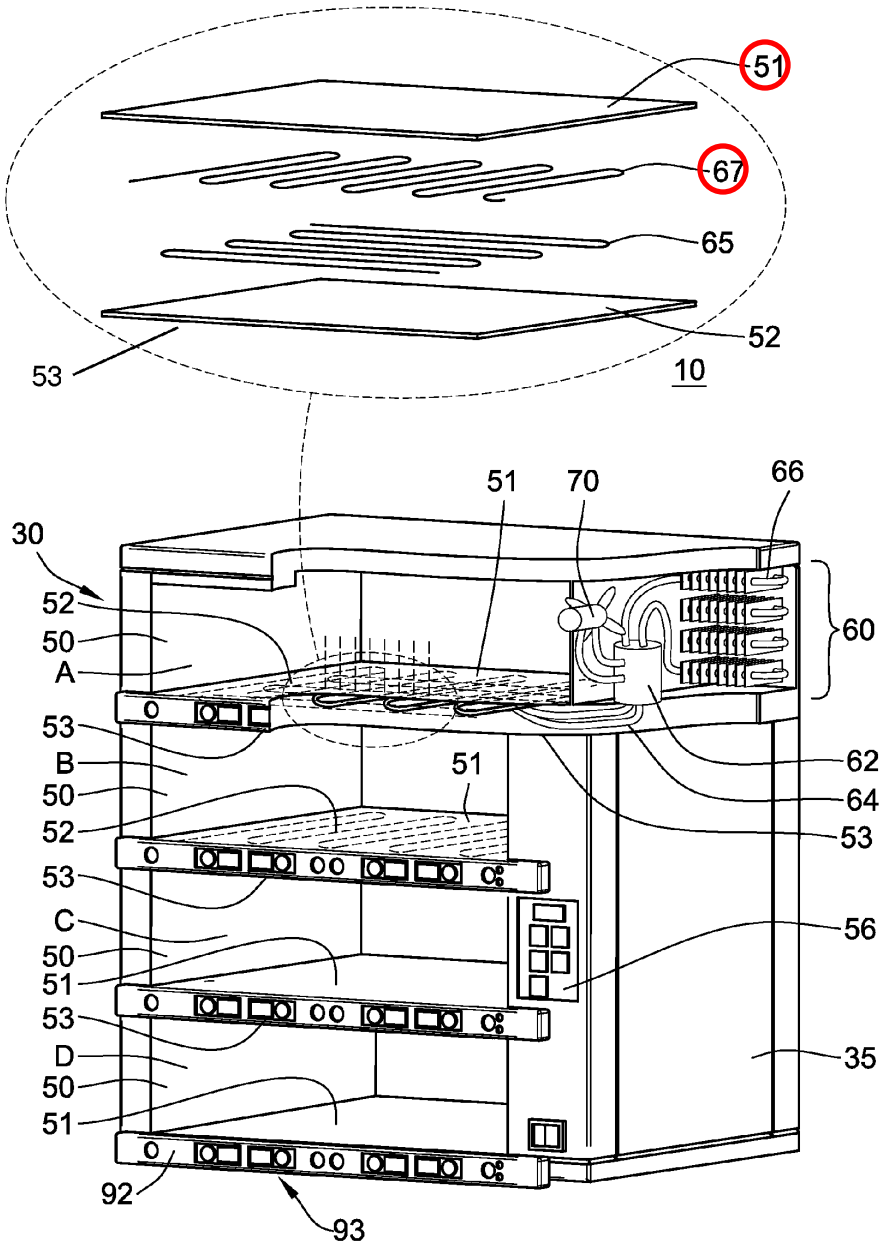
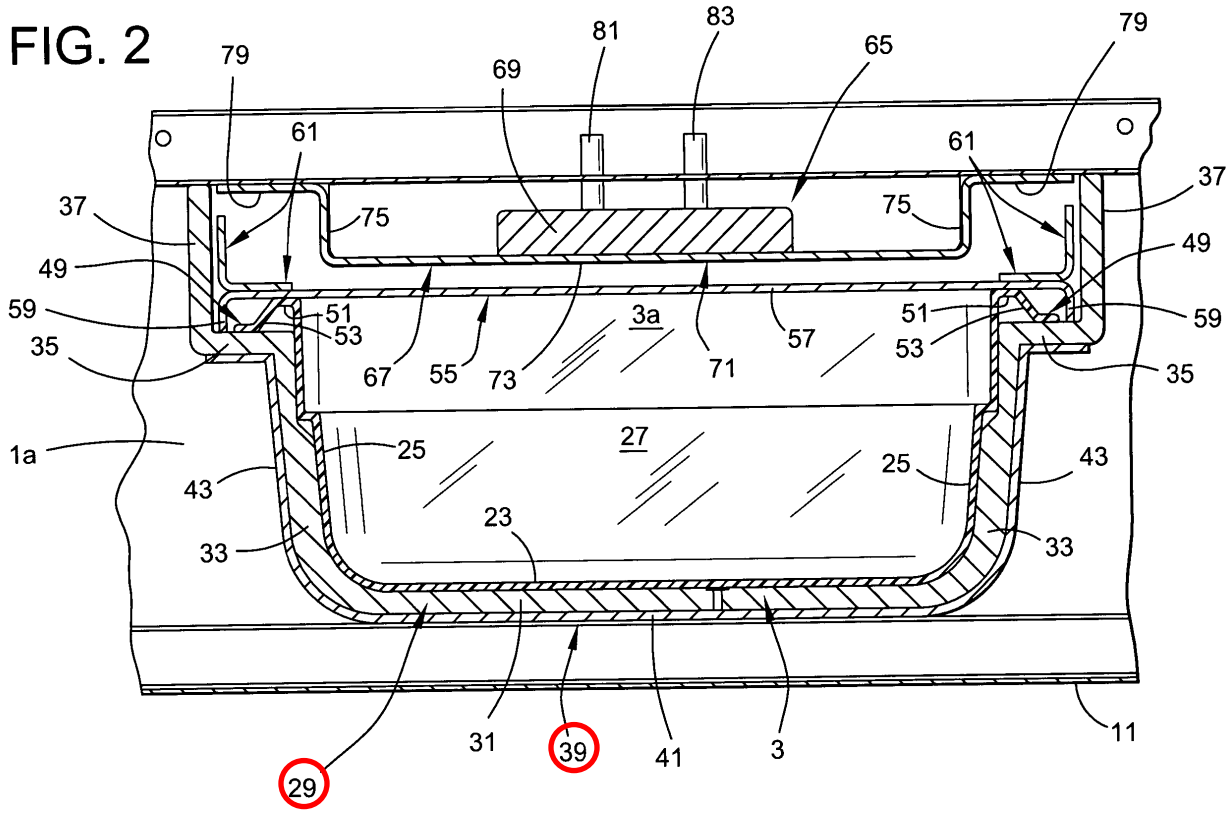


FIG. 2

EX1022: Fig. 2 (annotated).

372. Shei'155 similarly teaches an electrical resistance heating element (39) conductively coupled to the heat sink (29) via contact with the bottom of the

heat sink. EX1016: ¶[0039] ("An electrical resistance heating element generally designated 39 having a bottom component 41 contacting the bottom of the heat sink").



EX1016: Fig. 2 (annotated).

373. It would have been obvious for the lower heating elements of the IRHS Holding Unit to be conductively coupled to the heatsink plates in view of Veltrop and/or Shei'155 because conduction is an effective and efficient means of transferring the heat from the lower heating elements to the heat sinks and into the food in the pans. EX1010: ¶[0020] ("bottom sheet 23 may be in contact with the heater 60 to allow for conductive heat transfer thereto"); EX1016: Fig. 2, ¶[0039]

("[a]n electrical resistance heating element generally designated 39 having a bottom component 41 contacting the bottom of the heat sink"); EX1017: Fig. 3, 4:51-53 ("[e]ach heat sink 46 is fitted with a heater which may take the form of a flexible heating element 76 of the electrical resistance type. It extends almost the full length of the heat sink 44, covering the flat bottom surface 54 of the bottom wall 50 [of the heat sink]"); EX1020: ¶[0020] ("thermally-conductive shelves"); EX1022: ¶[0050] ("[t]he heat transfer devices disclosed herein are thermally coupled to the shelf 52, preferably by way of mechanical attachment to at least one of the plates").

374. This would have been nothing more than selecting the technique of Veltrop and Shei'155—the construction of the floor of the food holding chambers—for the heat sink of the IRHS Holding Unit (which already appears to have a similar construction for its heatsink) to ensure that the conductive heat transfers from the heating elements to the heat sink and into the food in the same way.

375. There would have been a reasonable expectation of success given that the IRHS Holding Unit, Veltrop, and Shei'155 are all food warming cabinets and conduction was a well-known technique of heating food pans. EX1010: ¶[0020] ("bottom sheet 23 may be in contact with the heater 60 to allow for conductive heat transfer thereto"); EX1016: Fig. 2, ¶[0039] ("[a]n electrical resistance heating

element generally designated 39 having a bottom component 41 contacting the bottom of the heat sink"); EX1017: Fig. 3, 4:51-53 ("[e]ach heat sink 46 is fitted with a heater which may take the form of a flexible heating element 76 of the electrical resistance type. It extends almost the full length of the heat sink 44, covering the flat bottom surface 54 of the bottom wall 50 [of the heat sink]"); EX1020: ¶[0020] ("thermally-conductive shelves"); EX1022: ¶[0050] ("[t]he heat transfer devices disclosed herein are thermally coupled to the shelf 52, preferably by way of mechanical attachment to at least one of the plates").

376. In implementing this modification, the IRHS Holding Unit's lower heating elements would heat the food pans through conduction (e.g., the lower heating elements conductively heat the IRHS Holding Unit's heatsink plates which conductively heat the food pans resting on the heatsink plates).

377. Moreover, Veltrop teaches that the upper plates (51) of its shelves (52) are made of aluminum. EX1022: ¶[0023] ("thermally-conductive plates 51 and 53 are preferably made of aluminum,"), Fig. 2.

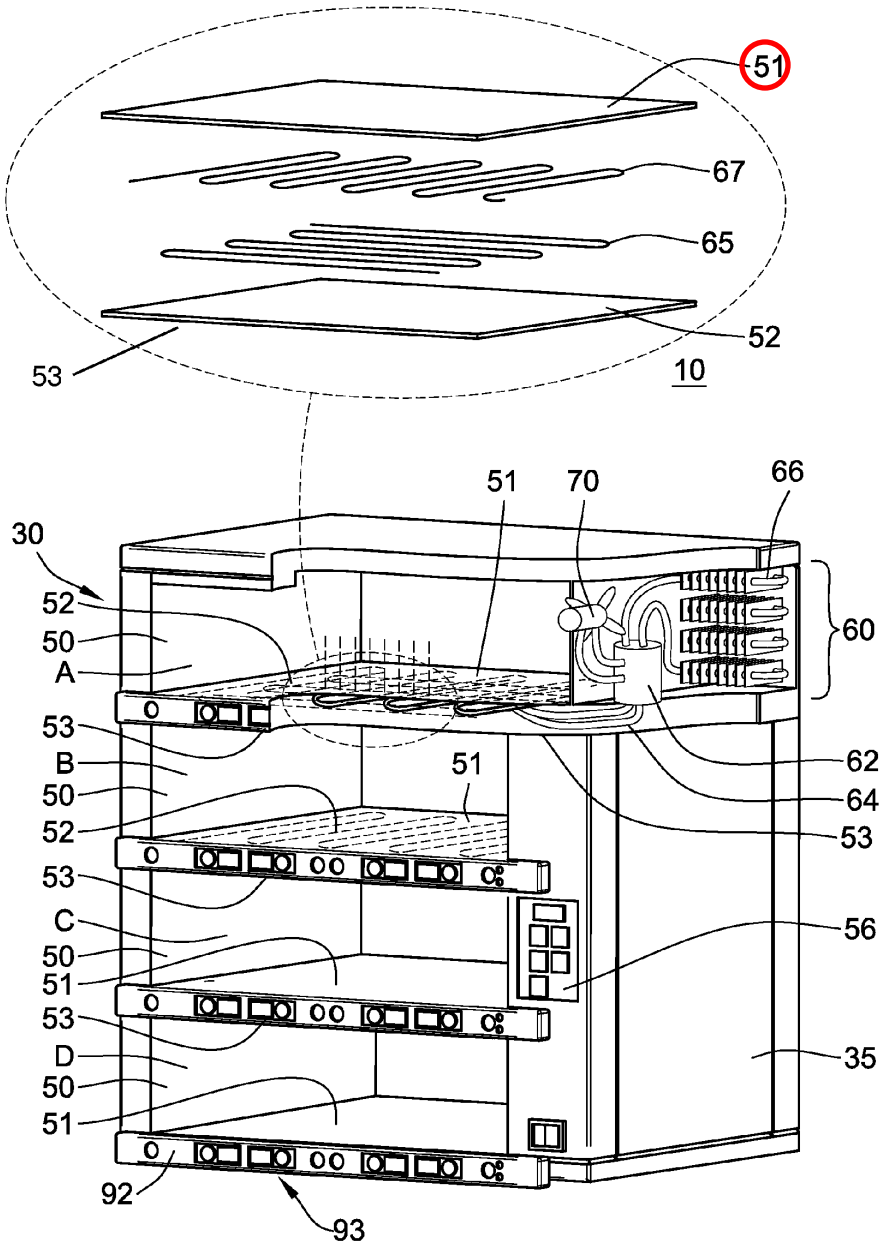


FIG. 2

EX1022: Fig. 2 (annotated).

378. Shei'155 likewise teaches constructing its heat sink (29) out of aluminum. EX1016: ¶[0039] ("heat sink 29, which is made of aluminum").

379. Just as it would have been obvious to select thermally conductive material to make the IRHS heatsink plates, more specifically, aluminum would have been a preferred material for such structures as it "conducts heat well." EX1017: 3:32-33; EX1022: ¶[0023]; EX1020: ¶¶[0021]-[0023] (in the context of individually controllable heating zones A-C across a shelf (21), disclosing that "shelves 21 are preferably made from thermally conductive materials such as aluminum, copper or steel, so that the temperature of the food holding compartments 23 can be maintained by the transfer of heat from the shelf 21 into the compartment"); EX1021: ¶¶[0020]-[0022] (in the context of individually controllable heating zones A-C across a shelf (21), disclosing that "shelves 21 are preferably made from thermally conductive materials such as aluminum, copper or steel, so that the temperature of the food holding compartments 23 can be maintained by the transfer of heat from the shelf 21 into the compartment").

380. Further, making the heatsink plates of aluminum, instead of heavier materials such as glass and stainless steel, would reduce the weight of the unit (making it easier to ship) and reduce cost.

381. The use of aluminum, specifically, would have been nothing more than the use of a known material (aluminum from Veltrop and Shei'155) to improve—to the extent it was not sufficiently disclosed—a similar device (the

heatsink plates of the IRHS Holding Unit) in the same way (aluminum surfaces for supporting food tray/pans for localized heating).

382. There would have been a reasonable expectation of success given the IRHS Holding Unit, Veltrop, and Shei'155 are all food warming cabinets and the well-known suitability of aluminum in the art, including for shelves having different temperature zones. EX1016: ¶[0039] ("heat sink 29, which is made of aluminum"); EX1020: ¶¶[0021]-[0023] (in the context of individually controllable heating zones A-C across a shelf (21), disclosing that "shelves 21 are preferably made from thermally conductive materials such as aluminum, copper or steel, so that the temperature of the food holding compartments 23 can be maintained by the transfer of heat from the shelf 21 into the compartment"); EX1021: ¶¶[0020]-[0022] (in the context of individually controllable heating zones A-C across a shelf (21), disclosing that "shelves 21 are preferably made from thermally conductive materials such as aluminum, copper or steel, so that the temperature of the food holding compartments 23 can be maintained by the transfer of heat from the shelf 21 into the compartment"); EX1022: ¶[0023] ("thermally-conductive plates 51 and 53 are preferably made of aluminum").

383. The fact that the heatsinks span multiple heating zones which may have different temperature setpoints would not have discouraged the POSA from using thermally conductive materials generally, or aluminum more specifically.

384. As demonstrated by U.S. Publication No. 2011/0114618 ("Chung"), the POSA knew that heat sinks with multiple heating zones could be made of aluminum. EX1020: ¶¶[0021]-[0023]. Specifically, the shelves (21) of Chung were made of aluminum despite that each of its shelves (21) were divided into three separately controlled temperature zones (A, B, C). EX1020: ¶[0021]; EX1020: ¶[0022] ("[t]emperature control of the separate zones A, B and C is accomplished by using separate temperature control elements in each zone, and which are thermally coupled preferentially to one zone over the others. By way of example, zone A in a first shelf has a heater embedded in the shelf and centered in the "A" zone. It therefore provides most of its heat output into the A zone.").

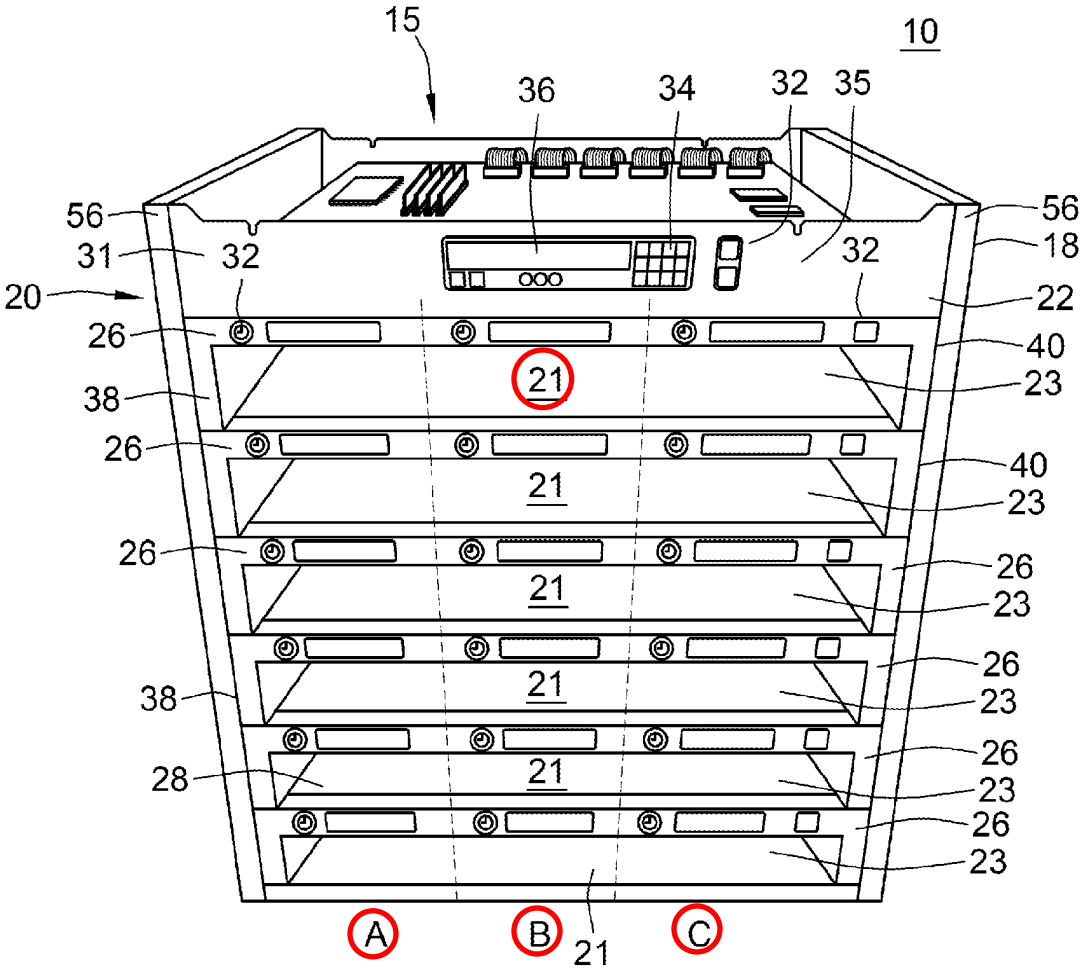
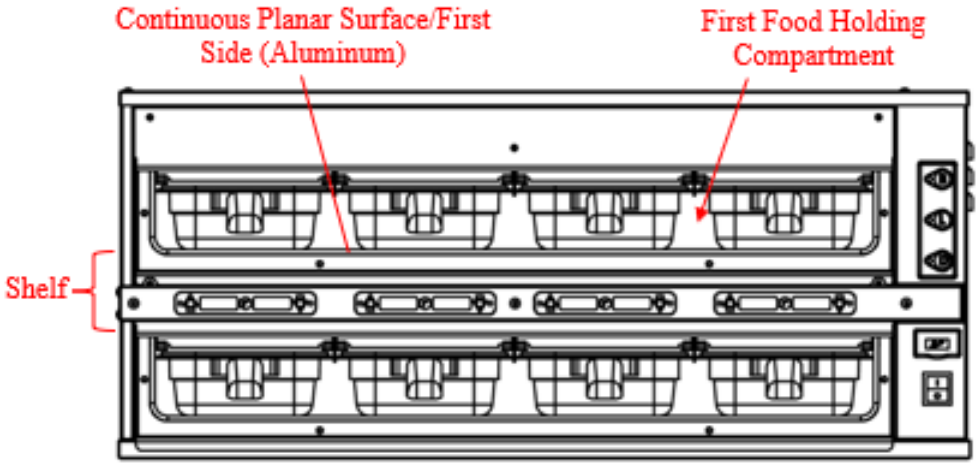


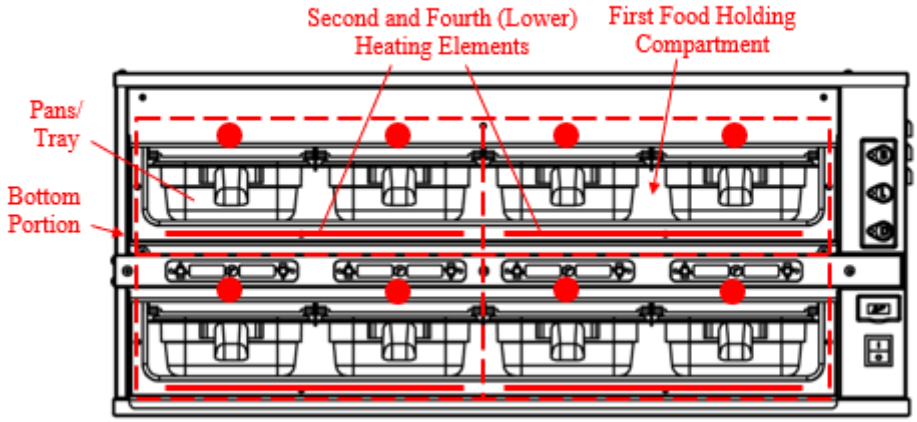
FIG. 2

EX1020: Fig. 2 (annotated).

385. In making this modification, the IRHS Holding Unit's heatsink plates would be made of aluminum, thereby making the continuous and planar surface (which is formed by the heatsink) comprise aluminum. This is illustrated with the IRHS24 Holding Unit below.



EX1005: 8 (annotated).



EX1005: 8 (annotated).

386. The claim limitations of Claims 1, 2, and 9 that concern the material of construction of the continuous planar surfaces and whether the heating elements are thermally coupled to them are met by Veltrop and/or Shei'155. As such, Claims 1-10 would have been obvious for at least the reasons explained in Grounds 1-4 above and Ground 6 below in further view of Veltrop and/or Shei'155.

IX. GROUND 6: Claims 1-10 Would Have Been Obvious Over the IRHS Documents in Further view of Veltrop and/or McMillan Even to the Extent the IRHS Documents Are Found Not to Sufficiently Teach the Claim Limitations Concerning the Continuous and Planar Surface Extending to the Front Face of the Chassis

387. Within the claims of the ’322 Patent, there were claim limitations within Claims 1 and 9 specifying that the continuous planar bottom surface of the food holding compartments extend to a front face of a chassis:

- 1.c.2: “the continuous and planar surface extending completely to the front face of the chassis,”; and
- 9.a.3: “the uninterrupted continuous planar bottom surface extending to a front face of a chassis forming the food holding compartment.”

388. As discussed above with respect to Ground 1, it is my opinion that the POSA would recognize that the IRHS Holding Units—including the IRHS24 Holding Unit—as disclosed in the IRHS Documents meets these claim limitations.

389. If it is determined the continuous and planar surface of the IRHS24 Holding Unit as disclosed in the IRHS Documents is deemed not to extend completely to the front face of the chassis, it would have been obvious to modify the IRHS24 Holding Unit in view of Veltrop and/or McMillan as explained below.

390. Veltrop teaches a food holding cabinet (10) with shelves (52) with flat thermally conductive plates (51) that support the food items and are heated from below by an electrically-resistive heater wire (67). EX1022: ¶¶[0016] (“Food items can be placed onto a shelf 52”), [0022] (“thermally conductive plates or sides 51”), [0025] (“the heater wire 67 … [is] in thermal communication with at least one of

the plates 51 and 53 such that when the wire 67 temperature rises due to an electric current flow, it provides heat energy into the plates 51 and/or 53, to which the wire 67 is thermally coupled to").

391. Notably, Veltrop's thermally conductive plates (51) are continuous and planar surfaces, the front edges of which are at (e.g., extend completely to) the front face of the cabinet as shown in Fig. 1.

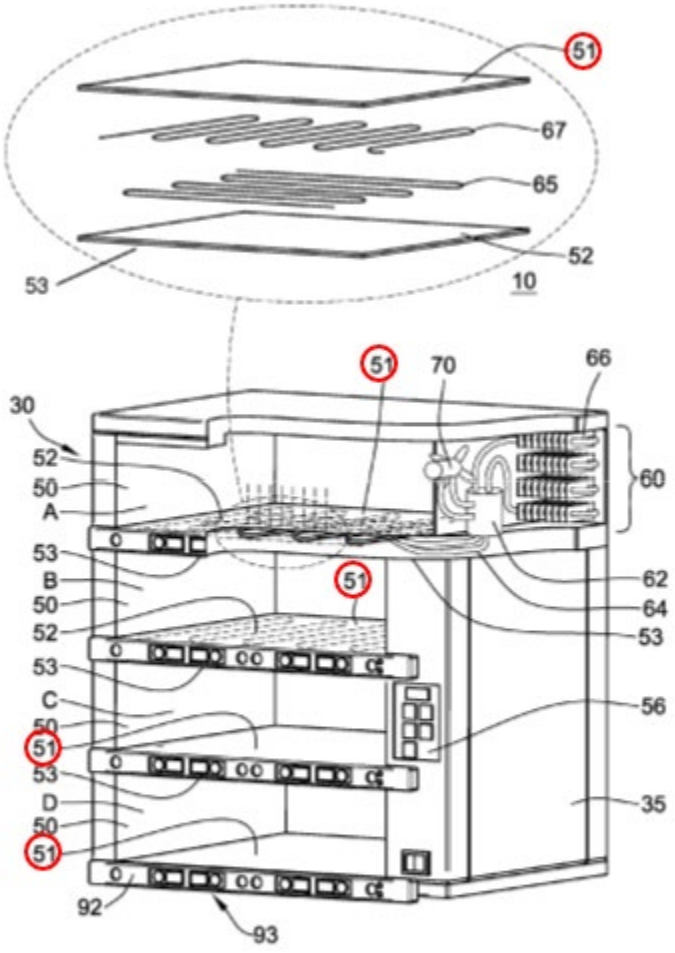
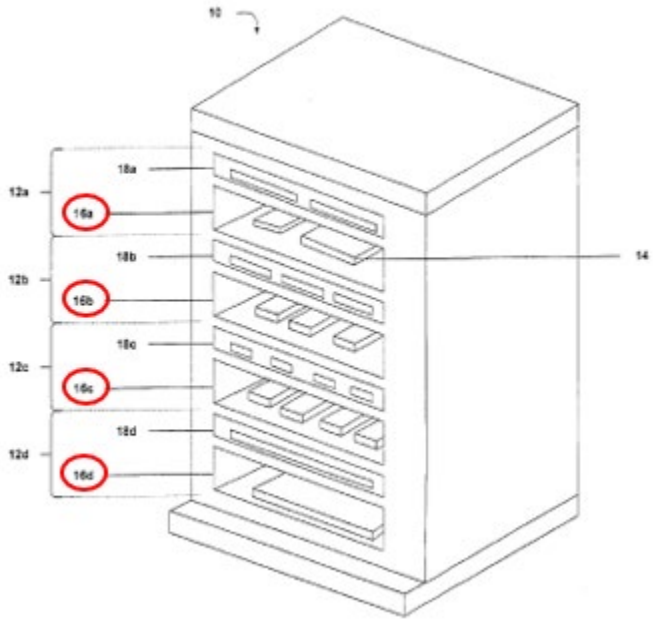


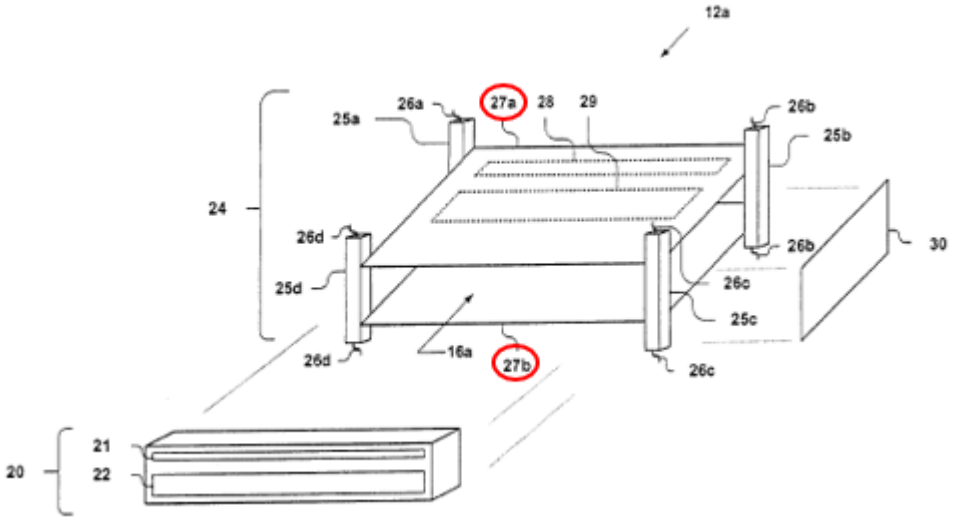
FIG. 2

EX1022: Fig. 2 (annotated).

392. McMillan teaches a similar food holding cabinet (10) including several food passageways (16a-16d). EX1019: 2:49-52, 2:65-67. Each passageway includes upper and lower heater plates (27a, 27b). EX1019: 4:36-52.

393. The upper plates (27a) form continuous and planar surfaces, the front edges of which are at (e.g., extend completely to) the front face of the cabinet (10). EX1019: Fig. 1.





EX1019: Figs. 1 and 2 (annotated).

394. It would have been obvious to reduce the front-to-back depth of the IRHS24 Holding Unit's chassis until the chassis' front face is at the front edge of the IRHS24's heatsinks in view of McMillan and/or Veltrop.

395. This would make the front (first) openings of the compartments (first compartment) easier to access for insertion and removal of pans/trays through the front of the compartments. EX1022: ¶[0016] ("Food items can be placed onto a shelf 52 and removed from a shelf through the open front face"); EX1019: 3:5-7 ("operators may access the passageways 16a-d from the front and/or from the rear of the holding cabinet").

396. This modification would also reduce the depth of the IRHS24 Holding Unit as the side, top, and bottom panels would not extend past the food holding surfaces, thus furthering the IRHS24 Holding Unit's goal to have a small footprint.

EX1007: 53 (“Smaller footprint allows IRHS to fit into smaller spaces”). This modification would also make the IRHS24 Holding Unit cheaper to manufacture (less material, simpler construction) and cheaper to ship (smaller package, less weight) than the existing configurations, thereby reducing the overall cost.

397. This modification would have been nothing more than the application of a known technique (Veltrop’s and/or McMillan’s heatsink configuration where the overall depth of the food holding cabinet is the same depth as the heatsink/food holding surfaces) to improve a similar device (IRHS24 Holding Unit) in the same way (reducing the overall footprint by positioning the front edges of the heatsinks at the chassis’ front face). There would have been a reasonable expectation of success in making this modification given this modification requires only minor reconfiguration of some parts, within the POSA’s capabilities, and because prior art demonstrates it was possible. EX1019: Fig. 1; EX1022: Fig. 2; EX1020: ¶¶[0021]-[0023].

398. With the front edges of the heatsinks at the chassis’ front face, this modification results in the IRHS24’s heatsinks (e.g., planar surfaces thereof) extending completely to the chassis’ front face. Thus, it would have been obvious for the continuous and planar bottom surface to extend completely to the front face of the chassis.

399. As such, Claims 1-10 would have been obvious for at least the reasons explained in Grounds 1-5 above in further view of Veltrop and/or McMillan.

X. GROUND 7: Claims 1-3 and 5-9 Would Have Been Obvious Over Fortmann'748 in view of the IRHS Documents, Jones, Fortmann'197, McMillan, Hartfelder, Shei'099, Veltrop, and/or Shei'155

400. Fortmann'748 teaches a warming cabinet (10) for keeping food in trays (100) warm before serving. EX1010: ¶¶[0002], [0014], Fig. 1.

401. The cabinet (10) has a plurality of shelves (21) dividing the warming volume (18) into separate compartments that receive multiple trays (100) of food. EX1010: ¶¶[0014]-[0015], Figs. 1 and 6.

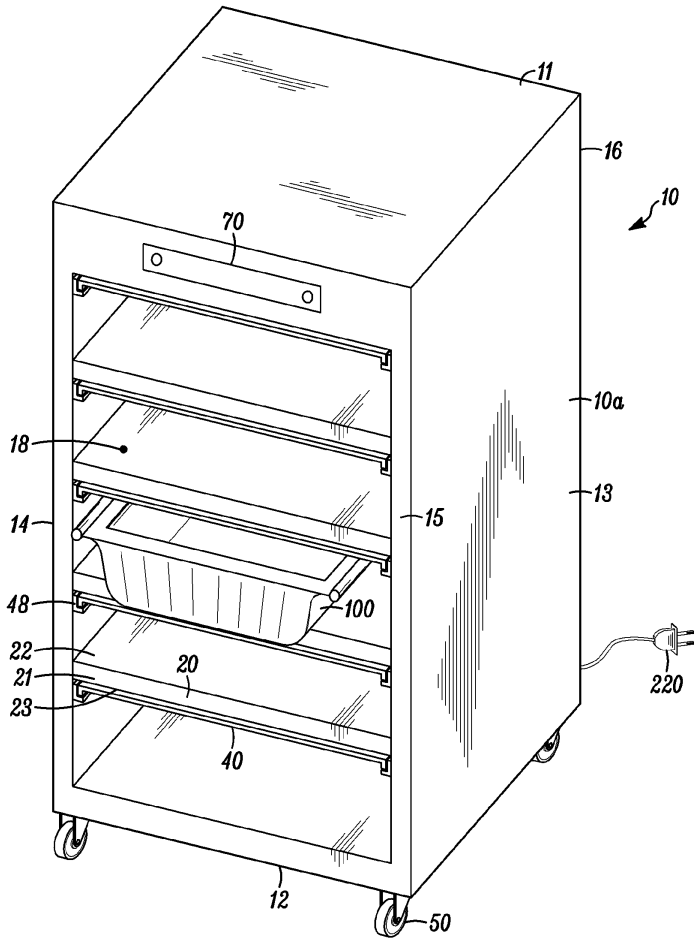


FIG. 1

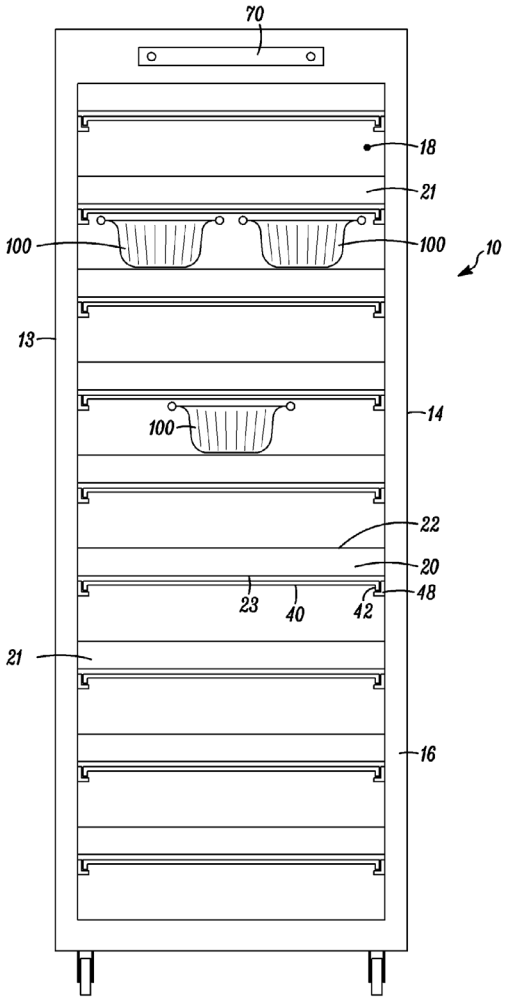


FIG. 6

EX1010: Figs. 1 and 6.

402. Fortmann'748 thus presents the base structure of a food holding cabinet which a POSA would have considered ripe to incorporate specific design choices and advancements of other food holding cabinets such as those taught by the IRHS Documents, Jones, Fortmann'197, McMillan, Hartfelder, Shei'099, Veltrop, and/or Shei'155.

A. Modifications of Fortmann'748

1. 2x4 Configuration[3]

403. While Fortmann'748 does not explicitly disclose a 2x4 configuration, such a configuration would have been both consistent with and obvious in light of the teachings of Fortmann'748.

404. Fortmann'748 explains the cabinet (10) "may be 5-6 feet tall" in one embodiment but further explains that other embodiments "may be only about 1-2 feet tall and configured to rest upon a table or other elevated surface within the establishment." EX1010: ¶[0014].

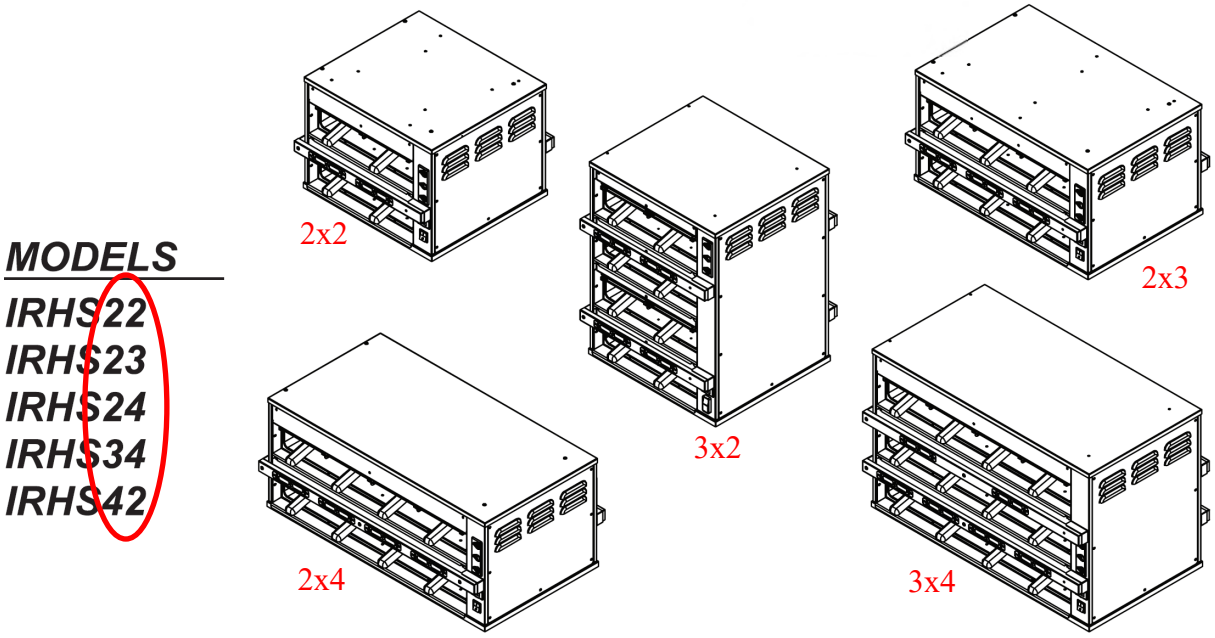
405. Fortmann'748 teaches the cabinet (10) may contain any number of compartments for receiving trays (100). EX1010: ¶[0016] (the cabinet "may include 2, 5 (FIG. 1), 10 (FIG. 6), or another number of vertically spaced shelves 21 within the warming volume 18").

406. Fortmann'748 also explains the shelves (21) of the cabinet (10) can have a "sufficient width to accept ***two or more*** standard 12 inch wide restaurant warming pans therewithin in a side by side relationship." EX1010: ¶¶[0014] (also

[3] The claims of the '322 Patent do not require a 2x4 configuration. However, modification to a 2x4 configuration is provided for consistency with the other IPR petitions challenging Marmon's patents and to provide a consistent size food holding cabinet throughout Grounds 7 and 8.

identifying that instead of 12 inch wide warming pans the cabinet could be designed to accept "trays, pizza boxes, or the like"), [0015] (emphasis added).

407. The IRHS Documents teach a family of tabletop food holding units of different configurations, such as 2x2 (four pan locations arranged in a 2x2 grid), 3x2 (six pan locations arranged in a 3x2 grid), 2x3 (six pan locations arranged in a 2x3 grid), 2x4 (eight pan locations arranged in a 2x4 grid), and 3x4 (twelve pan locations arranged in a 3x4 grid). EX1005: 1; EX1006: 1; EX1007: 55-57.



EX1005: 1 (annotated).

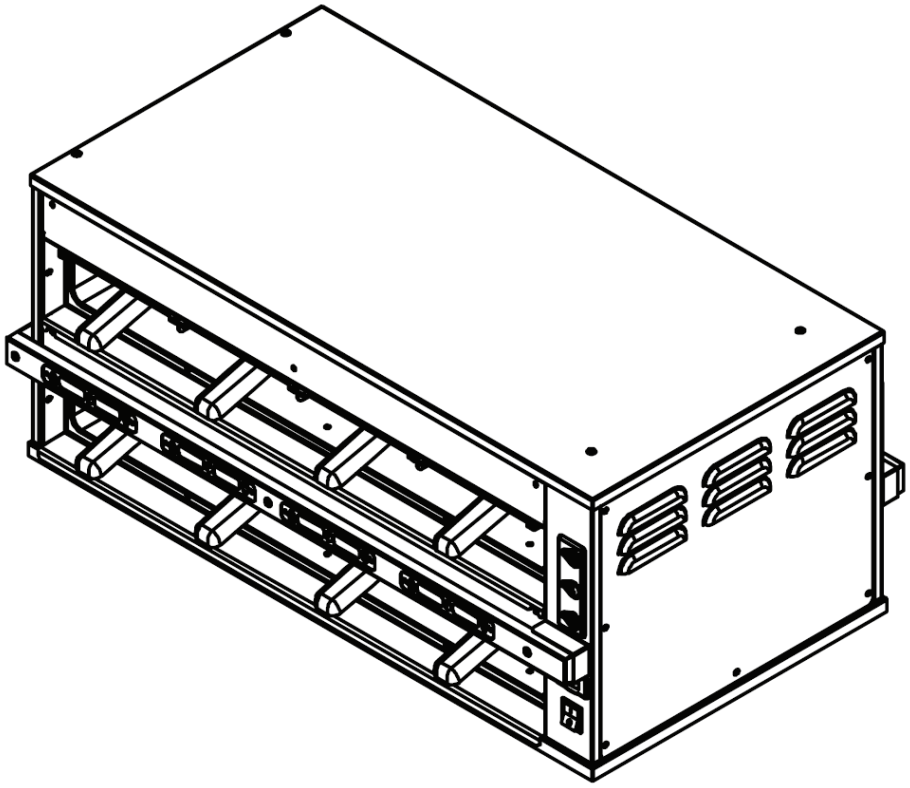
408. In view of the IRHS Documents, it would have been obvious to configure Fortmann'748's cabinet (10) to have only two compartments, with each compartment having four relatively narrow pan holding locations (*i.e.*, modifying Formann '748's cabinet to specifically have a 2x4 configuration holding eight

relatively narrow pan holding locations arranged in a 2x4 grid (two rows, four columns)).

409. A two row configuration would make the Fortmann'748 cabinet (10) "only about 1-2 feet tall" and therefore more suitable to "rest upon a table" in a commercial kitchen. EX1010: ¶[0014]; EX1007: 53 ("Smaller footprint allows IRHS to fit into smaller spaces").

410. This configuration would also make Fortmann'748's cabinet (10) cheaper to manufacture (less material, reduces parts, etc.) and cheaper to ship (smaller package, less weight) than the configurations shown in Figs. 1 and 6 of Fortmann'748, thereby reducing the overall cost.

411. Reconfiguring Fortmann'748's cabinet (10) to have a 2x4 configuration per the IRHS Documents would have been an obvious design choice, as this was a common configuration in the art as shown below. EX1013: ¶¶[0028] ("exemplary food warming apparatus 10 with two heating compartments"), [0030] ("two trays in each compartment, it is to be understood that the compartments may be sized to accommodate a greater or fewer number of trays"); EX1015: ¶¶[0024] ("four heating compartments, it is to be understood that a food warming apparatus could be provided with a greater or fewer number of heating compartments"), [0026] ("two trays in each compartment, it is to be understood that the compartments may be sized to accommodate a greater or fewer number of trays").

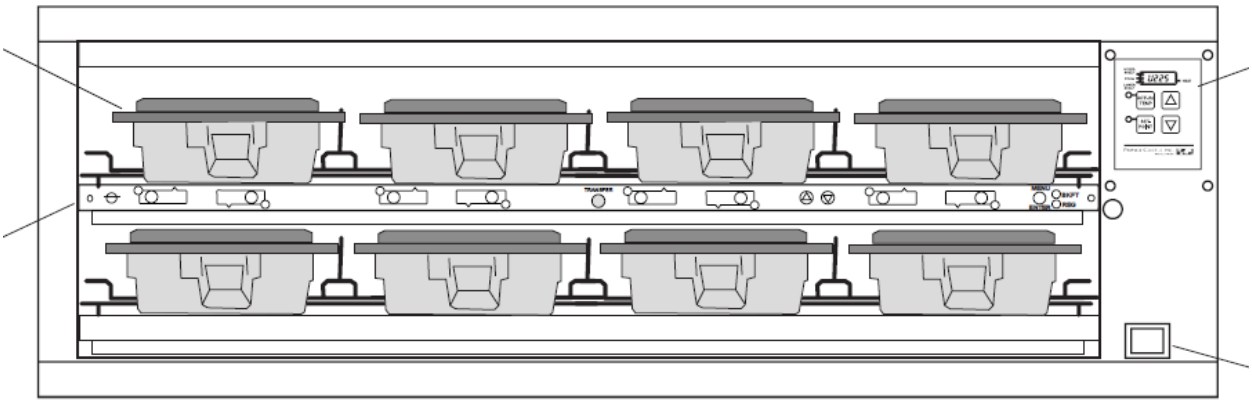


EX1005: 1.



EX1007: 56.





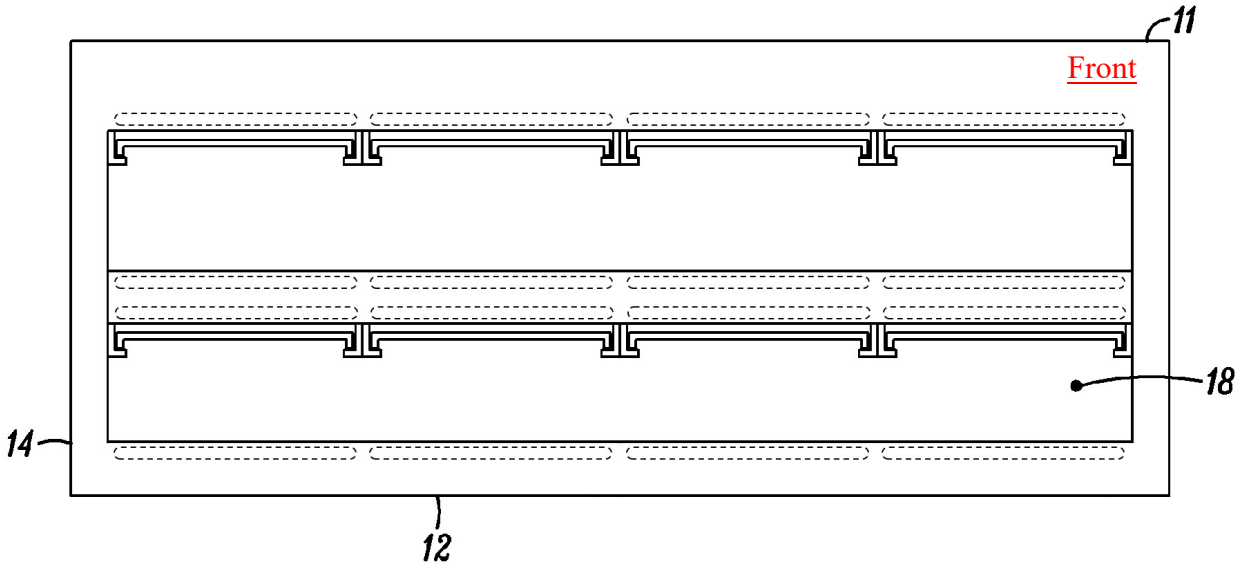
EX1009: 11, 19.

412. The selection of a 2x4 pan holding location/bay configuration would have been nothing more than the application of a known configuration (the 2x4 pan holding location/bay configuration of the IRHS Documents) to a similar device (Fortmann'748's cabinet) implemented in the same way (Fortmann'748's cabinet with eight pan holding locations/bays for warming pans of food).

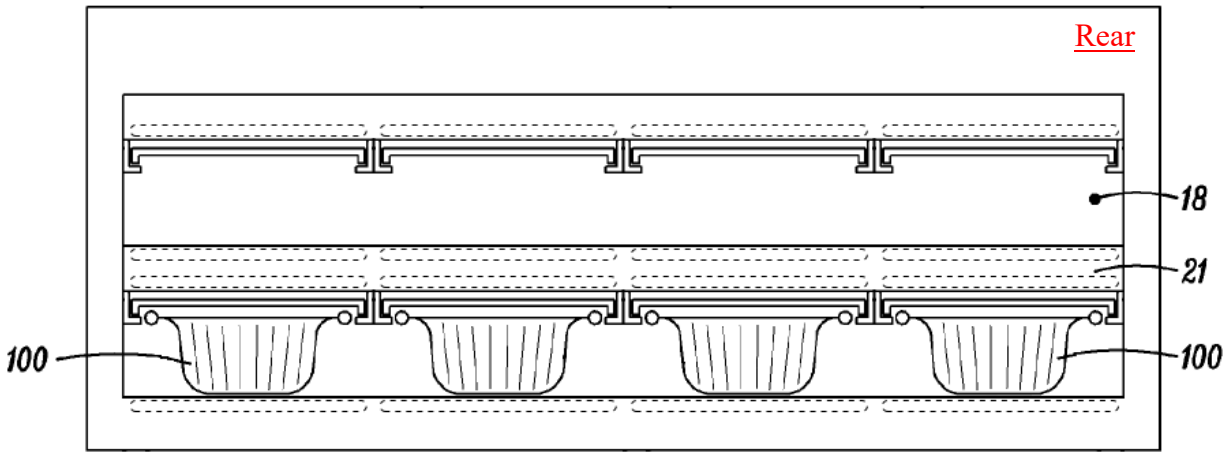
413. There would have been a high expectation of success in making this modification given the similarities between Fortmann'748's cabinet and the IRHS Documents' food holding unit (*e.g.*, both receive pans/trays of food to warm).

Fortmann'748 already describes that its cabinet can be made smaller to "rest upon a table" (EX1010: ¶[0014]), and such a modification would merely require removing extra components (*e.g.*, extra shelves) and changing the size of components (*e.g.*, changing the size of the body (10a)). EX1005: 1; EX1006: 1; EX1007: 55-57.

414. Representative illustrations[4] of Fortmann'748's cabinet modified to have a 2x4 configuration are shown below:



[4] These illustrations include further modifications as explained below.



EX1010: Figs. 2 and 6 (modified, annotated).

2. Multiple Temperature Zones per Compartment

415. Each shelf (21) of Fortmann'748's cabinet (10) includes "one or more heaters 60 … that are disposed within the internal volume [of the] shelf 21."

EX1010: ¶[0019], Fig. 2.

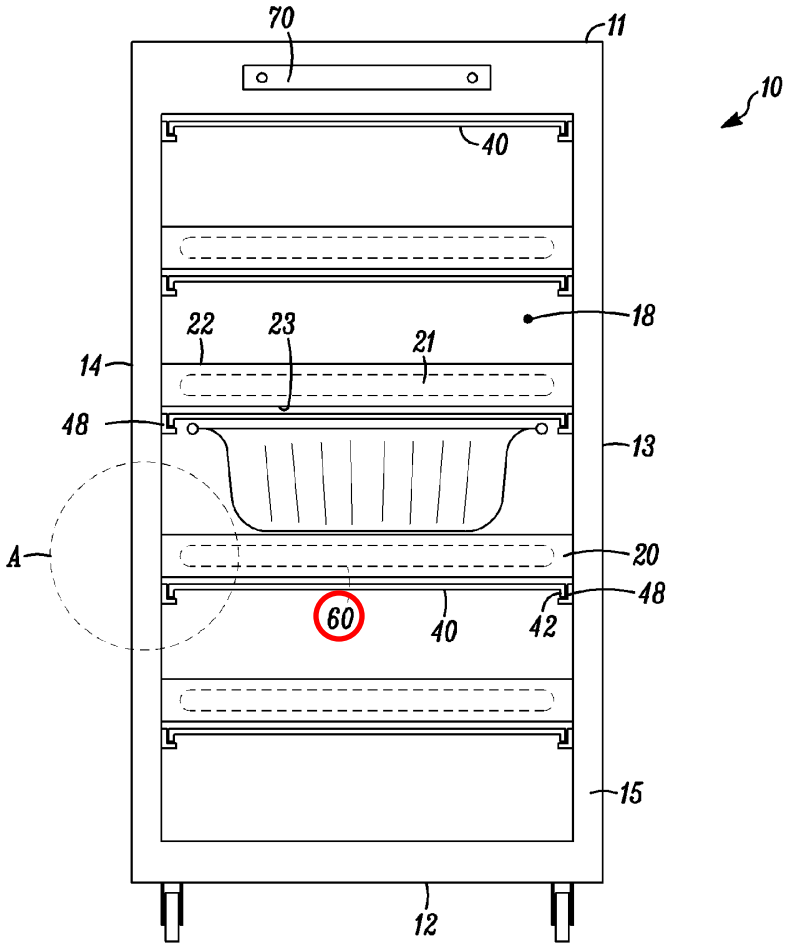


FIG. 2

EX1010: Fig. 2 (annotated).

416. Each shelf's one or more heaters (60) are "shown schematically" in Figs. 2 and 3 and are independently controllable relative to the heaters of other shelves "to establish two or more heat zones of differing temperatures within the warming volume [18]." EX1010: ¶¶[0019], [0021], [0024], [0027].

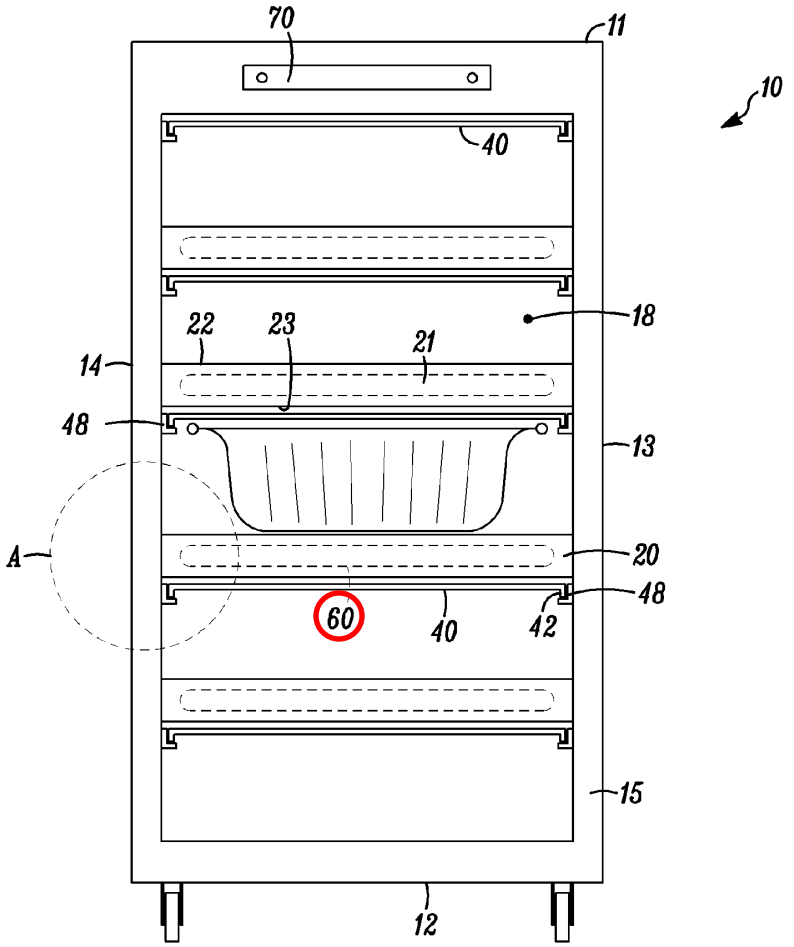


FIG. 2

EX1010: Fig. 2 (annotated).

417. As such, for Fortmann'748 the shelves (21) divide the warming volume (18) into multiple compartments, with at least each compartment acting as its own temperature zone.

418. Fortmann'748 teaches that the heaters 60 may be disposed so as to make contact with "at least the upper sheet 22 forming the shelf 21" and also "may contact the lower sheet 23 forming the shelf 21" such that it may provide heat to

both to the compartment above the shelf (21) and to the compartment below the shelf (21).

419. As each shelf (21) was taught to "include[] one ***or more*** heaters 60" the POSA would have contemplated that a shelf with more than one heater could have multiple temperature zones, thus creating multiple temperature zones per compartment.

420. Whereas the POSA would have contemplated creating multiple temperature zones per compartment based on Fortmann'748 alone, each of Jones (EX1012), Fortmann'197 (EX1014), and McMillan (EX1019) expressly teach this.

421. Jones teaches a food holding cabinet (12b) with an upper heating compartment (UHC) and a lower heating compartment (LHC), each for receiving food trays (14). EX1012: ¶¶[0069], [0072], Fig. 1B.

422. The upper and lower heating compartments (UHC, LHC) are separated by a shelf (36). EX1012: ¶[0072], Fig. 1B.

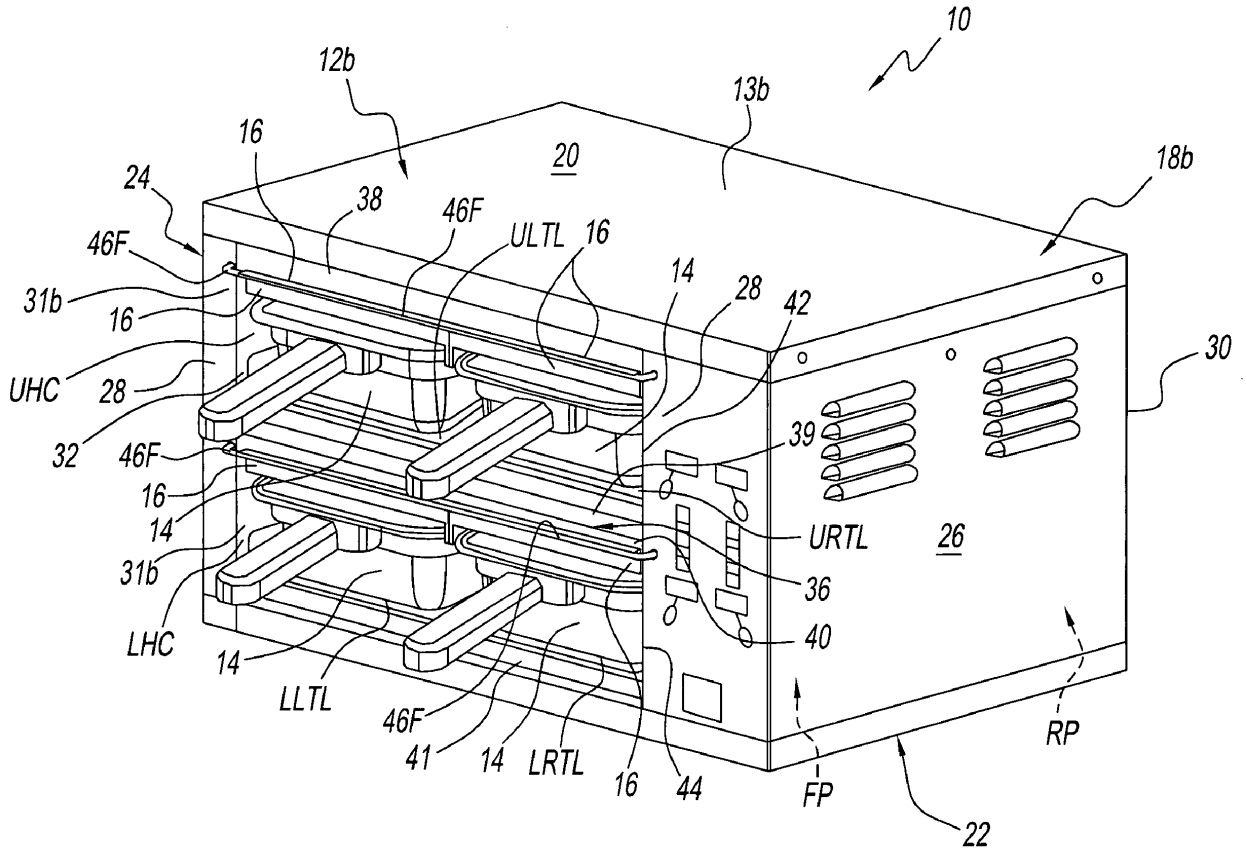


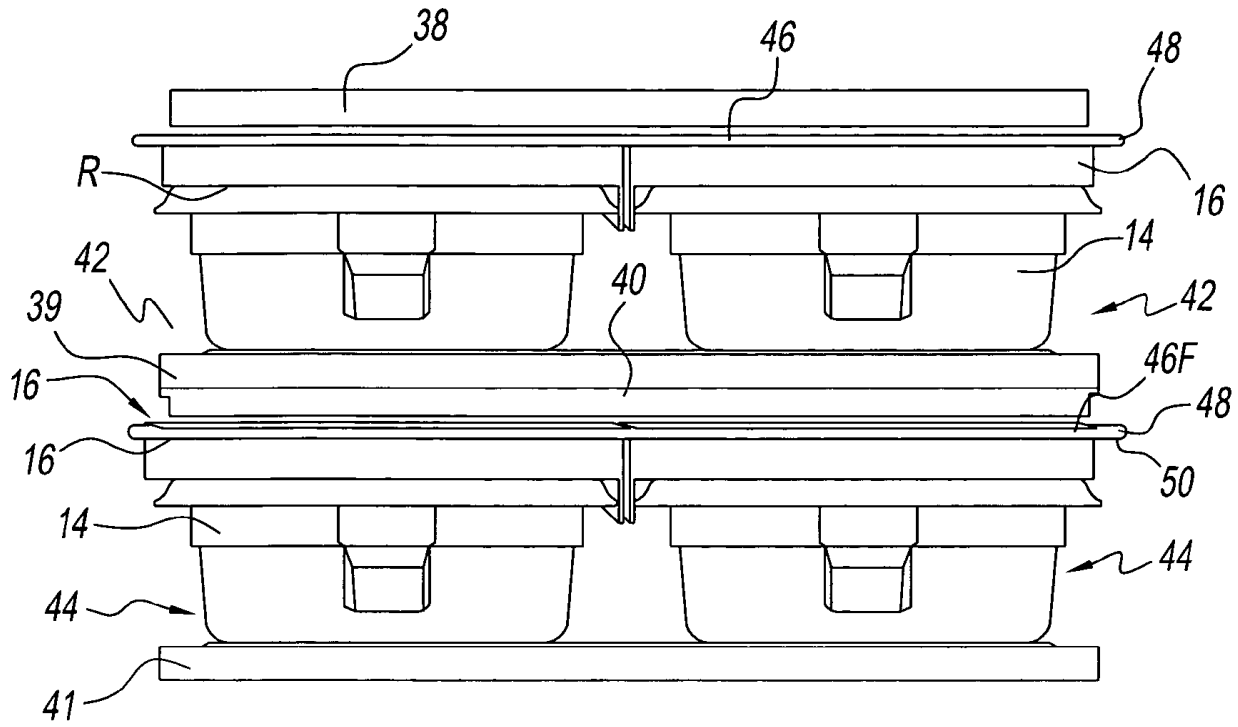
Fig. 1B

EX1012: Fig. 1B.

423. The food holding cabinet (12b) receives four food trays (14). EX1012: ¶[0072], Fig. 1B.

424. The upper heating compartment (UHC) has an upper left tray location (ULTL) and an upper right tray location (URTL) that each receive a food tray (14). EX1012: ¶[0072], Fig. 1B. The lower heating compartment (LHC) has a lower left tray location (LLTL) and a lower right tray location (LRTL) that each receive a food tray (14). EX1012: ¶[0072], Fig. 1B.

425. To heat the tray locations, Jones's food holding cabinet (12b) has upper heaters (38, 40) and lower heaters (39, 41) for each heating compartment (UHC, LHC). EX1012: ¶[0073], Fig. 1G.



EX1012: Fig. 1G.

426. In a preferred embodiment, Jones explains, instead of one upper heater (38, 40) and one lower heater (39, 41) for each heating compartment (UHC, LHC), each tray location (ULTL, URTL, LLTL, LRTL) includes discrete upper and lower heaters:

> "In preferred embodiments, for example, in food holding cabinet 12b of FIG. 1B, there are ***eight heaters***, ***one mounted above and another mounted below each of the upper left and right tray locations***, and ***one mounted above and another mounted below each of the lower left and right tray locations***." EX1012: ¶[0096] (emphasis added).

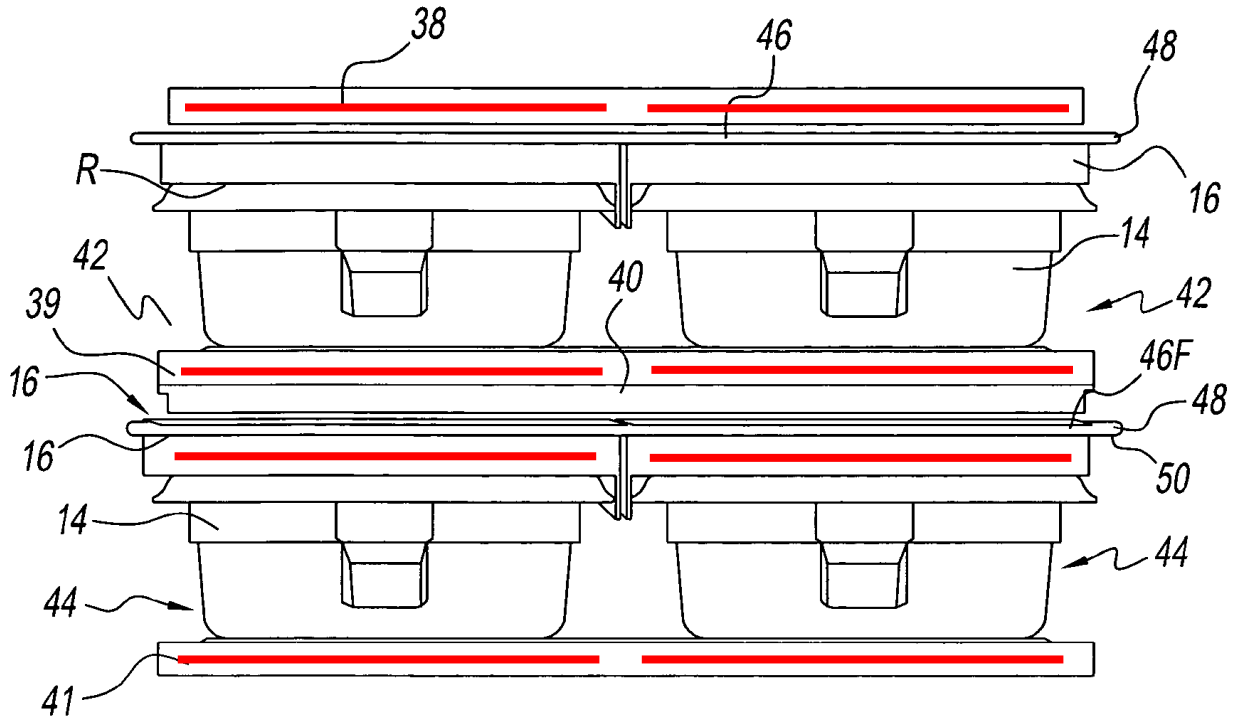


Fig. 1G

EX1012: Fig. 1G (annotated).

427. Jones further teaches customizing temperature settings for each food type and that the temperature in the tray locations (zones) can be different based on the temperature presets for the particular types of food held in each location. EX1012: ¶[0098] ("assigns the holding parameters, top and bottom temperature … to the product name, so wherever the product name is displayed, the holding parameters follow", and "temperature settings for the top and bottom heater that are set to the product name and no matter how many locations have the same product name displayed [1 location up to all locations]"), Fig. 19 (Select Product

Name to be held in Display Location. Each display may have the same Product Name, or all different Product Names … Heating system maintains Top and Bottom Preset Temps for Product Names").

428. Similarly, Fortmann'197 teaches a holding cabinet (10) with an internal volume (27) divided by "one or more plates 40 that serve as shelves." EX1014: 2:30, 2:50-51, 2:58-59, Fig. 1.

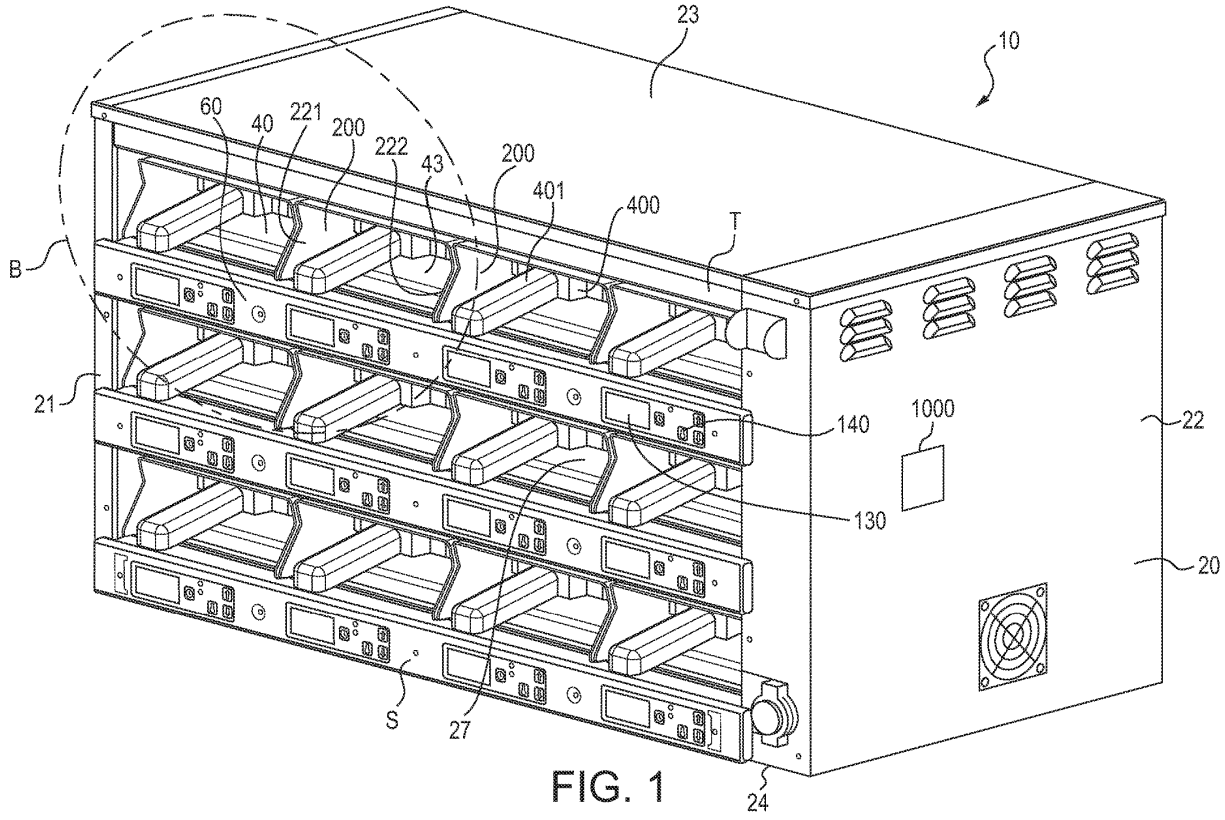


FIG. 1

EX1014: Fig. 1.

429. Each shelf (40) establishes a plurality of discrete heating zones (100) within the internal volume (27), with each heating zone receiving a food pan (400). EX1014: 3:6-19. Further, each heating zone (100) includes a discrete

independently controllable upper heater (521)-(524) above the food pan (400) and discrete independently controllable lower heaters (501) below the food pan. EX1014: 3:19-27, 8:63-67 (“the plate 40 may include multiple heaters 501, such as one heater 501 per discrete heating zone 100”), 9:1-19, 9:50-65.

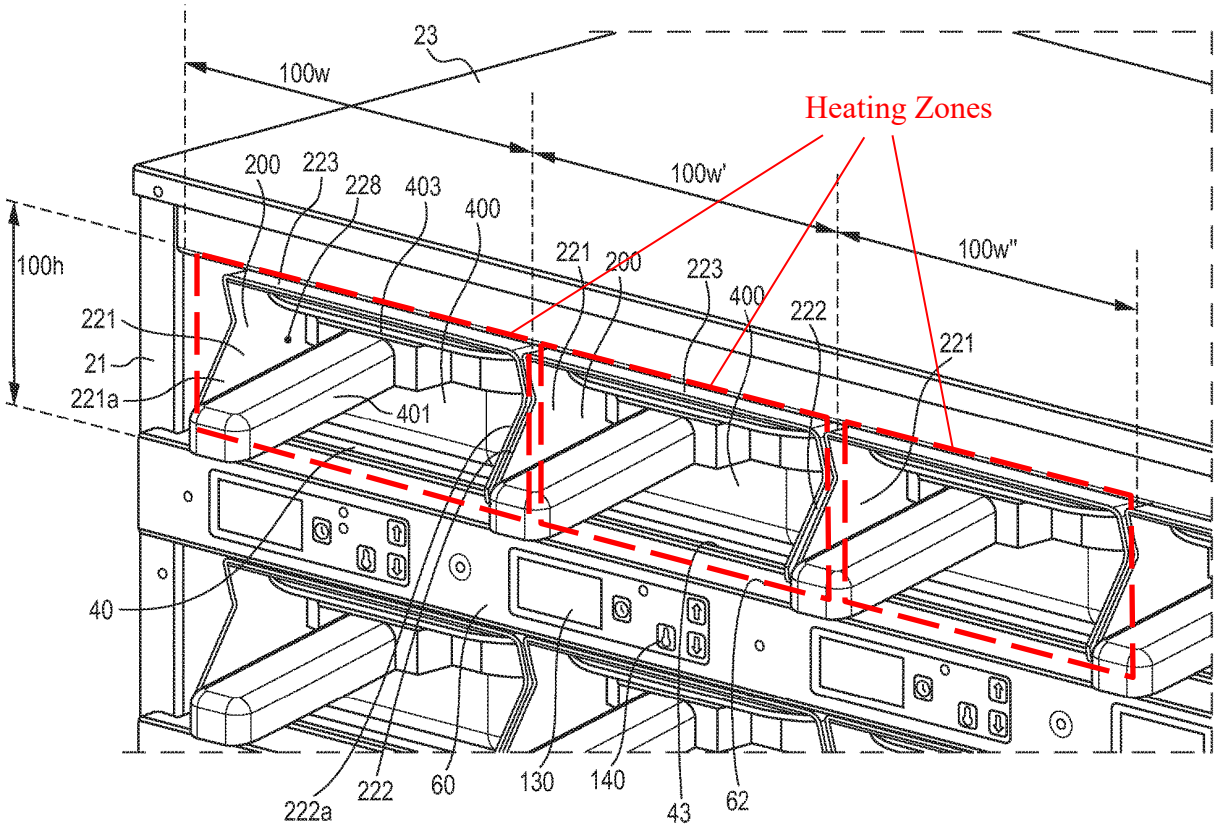


FIG. 2

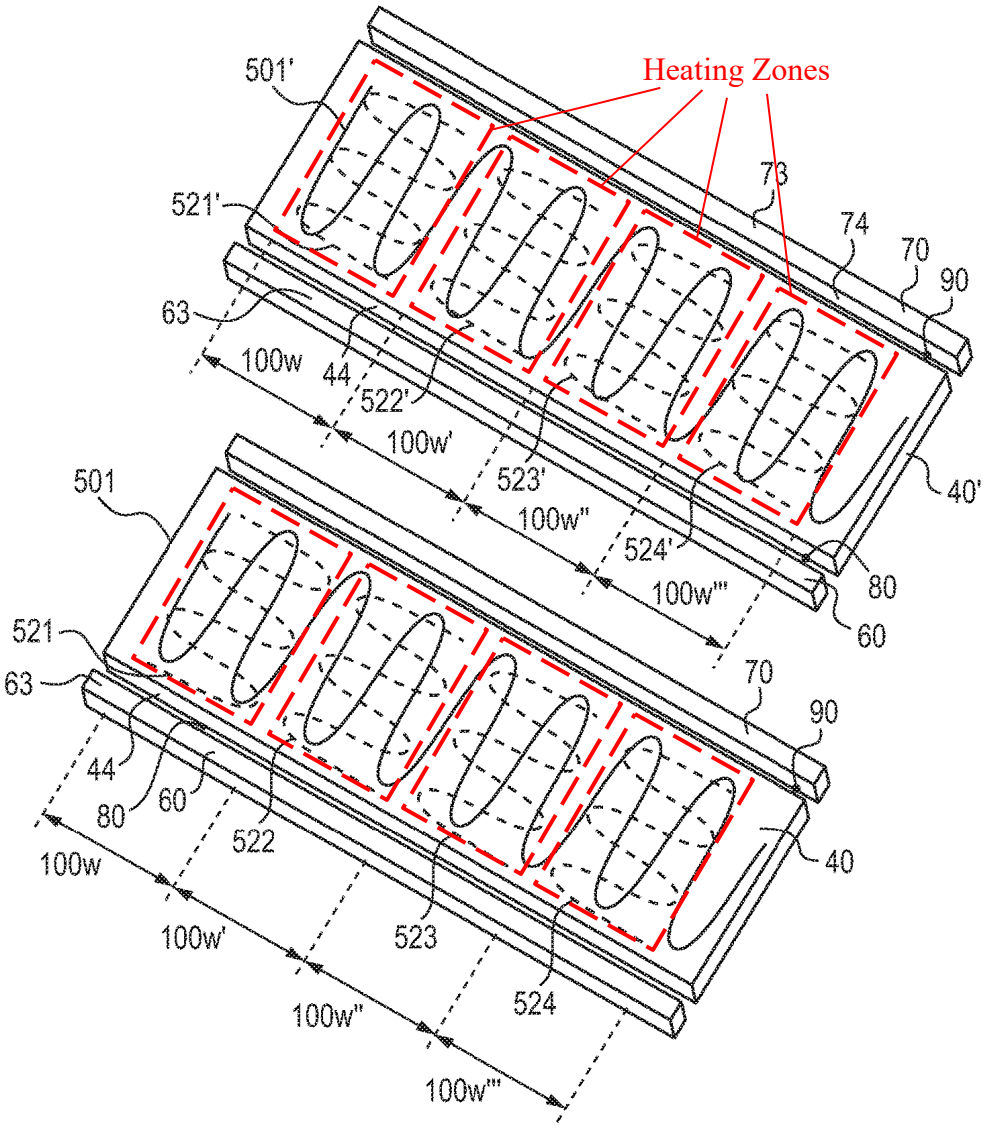
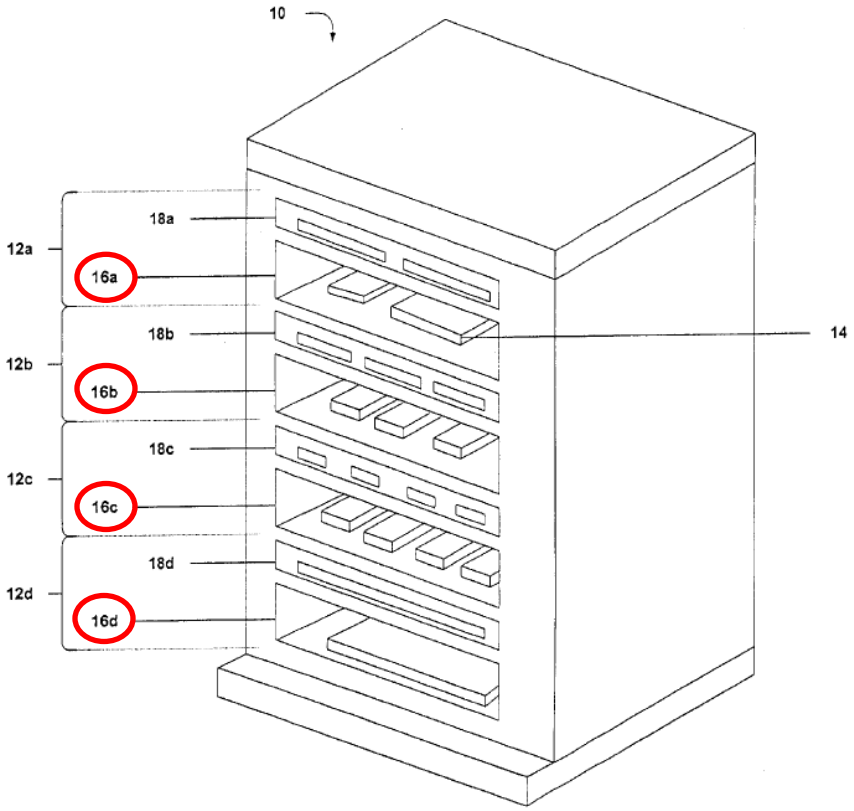


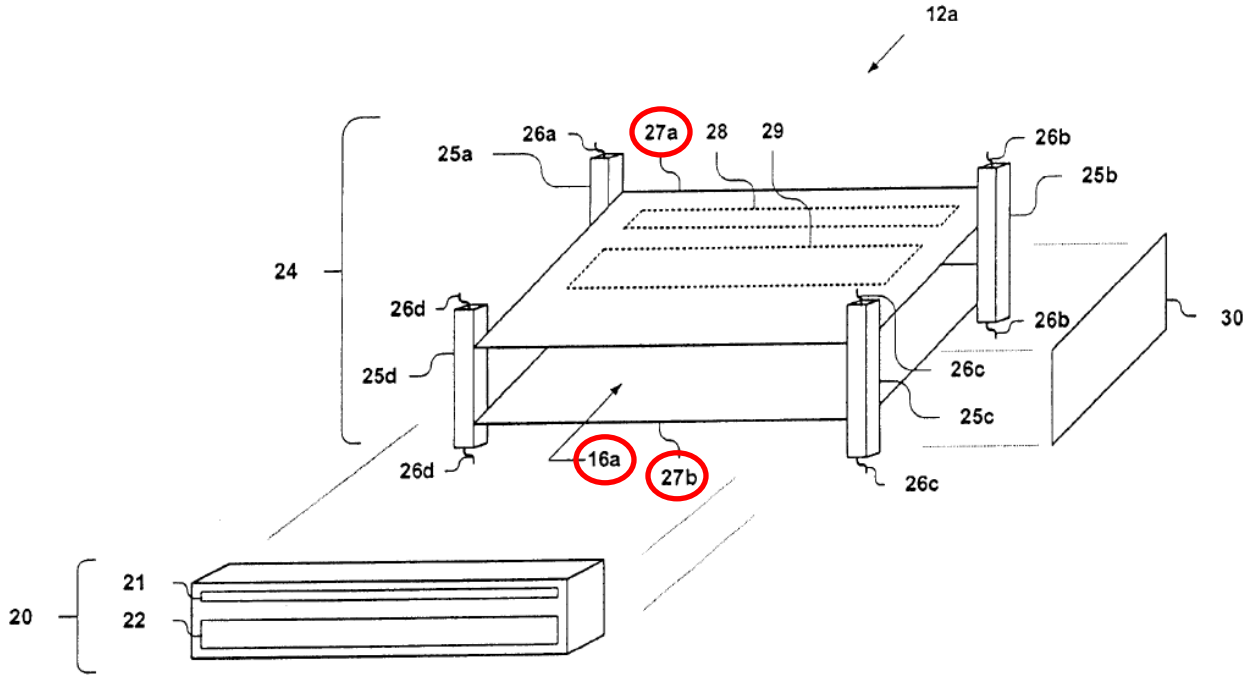
FIG. 10

EX1014: Figs. 2 and 10 (annotated).

430. Lastly, McMillan teaches upper and lower heater plates (27a, 27b) that include multiple heating elements for zoned heating across the width of a food holding compartment or passageway (16a-d) "such that different portions of the

passageway 16a may be set to different temperatures." EX1019: 4:36-52. "In this way, the temperature of each passageway may be maintained according to the number and types of food product to be stored. For example, the passageway 16a may be set to store four different types of food products at four different temperatures." EX1019: 4:48-59.





EX1019: Figs. 1 and 2 (annotated).

431. It would have been obvious to modify the Fortmann'748 cabinet to provide multiple independently controlled heating zones across each compartment, as taught by Jones, Fortmann'197, and/or McMillan.

432. Fortmann'748 already discloses heating two compartments (*e.g.*, upper and lower compartments) independently. EX1010: ¶¶[0022], [0024].

433. This modification would further Fortmann'748's goal of heating "zones" for "food products that require different warming temperatures" by providing multiple temperature zones within the same compartment. EX1010: ¶[0024]; EX1019: 1:36-45 ("fast food restaurants [] face challenges [to] maintain a large volume of different food products … [at] different storage temperatures"),

1:46-48 (“there exists a need for a holding cabinet … structured and arranged to maintain multiple categories of food products”), 4:45-52.

434. This would increase the overall number of temperature zones for same cabinet size and enable each compartment of Fortmann’748’s cabinet to receive pans of food requiring different warming temperatures, increasing the flexibility for each compartment and the cabinet to hold more types of food at the same time. EX1007: 51 (“allows unlimited menu flexibility as each food product has tailored settings to control the thermal path of the food, leading to optimal quality, consistency and extended hold”), 53 (“[t]otal well independence allows freedom in product placement in the IRHS”); EX1019: 1:38-40 (“Each type of food product may present different requirements. For example, different foods may require different storage temperatures”).

435. This configuration would also “provide improved temperature separation between tray or bin locations” and “more accurate temperature control between products.” EX1012: ¶[0096].

436. This would also allow users to “precisely control the environment in each pan, allowing for customized settings for each food product.” EX1005: 16.

437. Further, to the extent Fortmann’748’s top compartment does not have heaters above it and Fortmann’748’s bottom compartment does not have heaters below it, this modification would add these heaters in the top wall (11) and bottom

wall (12), thereby providing more uniform heating, better food quality, and extended hold time for the top and bottom compartments as is provided in the compartments between the shelves (21). EX1006: 1 ("minimize temperature distribution from top to bottom of pan"); EX1005: 4 ("[e]xtended hold times with improved food quality and consistency were achieved through the innovative combination of two proven, patented Duke technologies: InfraRed and HeatSink. This new technology allows you to precisely control the environment in each pan"); EX1007: 53 ("[i]mproved temperature consistency throughout the pan through the unique use of dual holding technologies").

438. This modification would merely require duplicating and resizing Fortmann'748's existing heaters (60) around the compartments so that each zone within the compartments includes dedicated upper and lower heaters.

439. This modification would have been nothing more than the application of a known technique (the inclusion of upper and lower heating elements per heating zone of Jones, Fortmann'197, and/or McMillan) to improve a similar device (the Fortmann'748 cabinet) in the same way (providing independent temperature control of each heating zone via each zone's upper and lower heating elements).

440. There would have been a high expectation of success in making this modification given:

(1) Fortmann'748 already teaches heating a compartment with heaters built into the shelf and a zone-capable control system (EX1010: ¶[0027]);

(2) Fortmann'748 already teaches that each shelf (21) may "include[] one or more heaters 60";

(3) Fortmann'748 already teaches that the heaters (60) could provide heating to the compartments both above and below the shelf (21);

(4) the similarities between the Fortmann'748 cabinet and the holding unit of Jones, Fortmann'197, and McMillan (*e.g.*, all units with at least two compartments for warming trays/pans of food via heating elements);

(5) that the function of Fortmann'748's heaters would not change; and

(6) Jones, Fortmann'197, and McMillan each demonstrate that individual heating of adjacent zones within a compartment was possible.

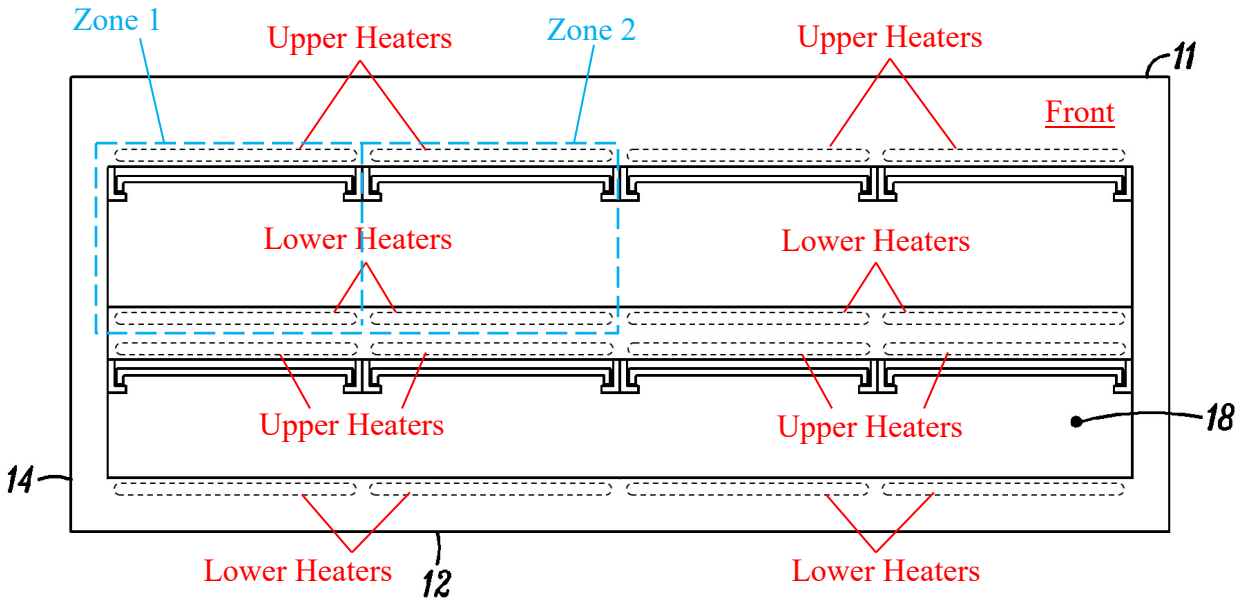
441. Additional prior art references demonstrate that there was a motivation within the field to include multiple heating zones across a shelf and that such configurations were already known to be readily feasible.

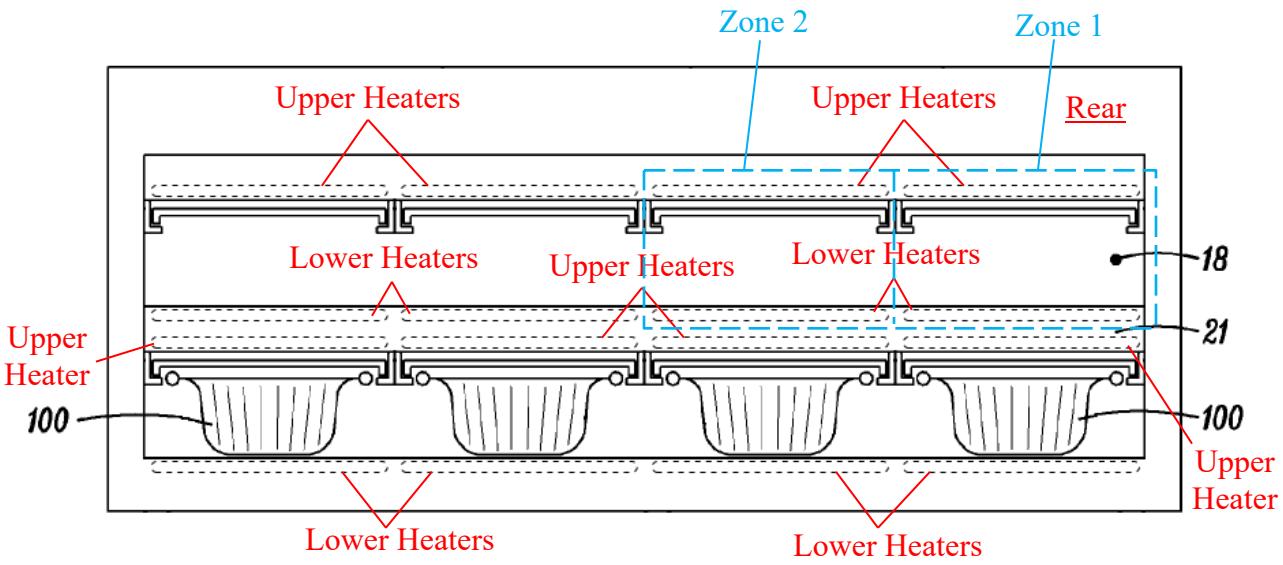
442. For example, the shelves (21) in U.S. Publication No. 2011/0114618 ("Chung") were divided into three separately controlled temperature zones (A, B, C). EX1020: ¶[0022]. Chung explains "[t]emperature control of the separate zones A, B and C is accomplished by using separate temperature control elements in each zone, and which are thermally coupled preferentially to one zone over the others. By way of example, zone A in a first shelf has a heater embedded in the shelf and

centered in the "A" zone. It therefore provides most of its heat output into the A zone." EX1020: ¶[0022].

443. Jones, Fortmann'197, and McMillan teach *each* pan holding location within a compartment having a distinct upper and lower heating element. EX1012: ¶[0096]; EX1014: 3:19-27, 8:63-67, 9:1-19; EX1019: 4:36-59.

444. Based on the teachings from Jones, Fortmann'197, and McMillan, the POSA would have found it obvious to duplicate the existing heaters (60) of Formann '748 so that each pan holding location has distinct upper and lower heaters. Schematic illustrations of the 2x4 Fortmann'748 cabinet modified to have upper and lower heaters for each pan holding location are shown below:





EX1010: Figs. 2 and 6 (modified, annotated).

445. Insulation can be added to minimize the impact adjacent heaters may have on one another and direct the heat from the heaters into the compartments, as known in the art. EX1018: 4:33-38, Fig. 2; EX1014: 9:32-37, Fig. 10.

3. Independently Controllable Top and Bottom Heaters per Zone

446. Fortmann'748's heaters (60) are taught to be independently controllable from one another. EX1010: ¶¶[0021] ("each shelf 21 may include one or more heaters 60 that are controlled separately from the heaters 60 that are disposed in conjunction with the remaining shelves 21"), [0027] ("the controller may selectively provide or secure current to the one or more heaters 60 disposed within each zone to control the temperature of the zone").

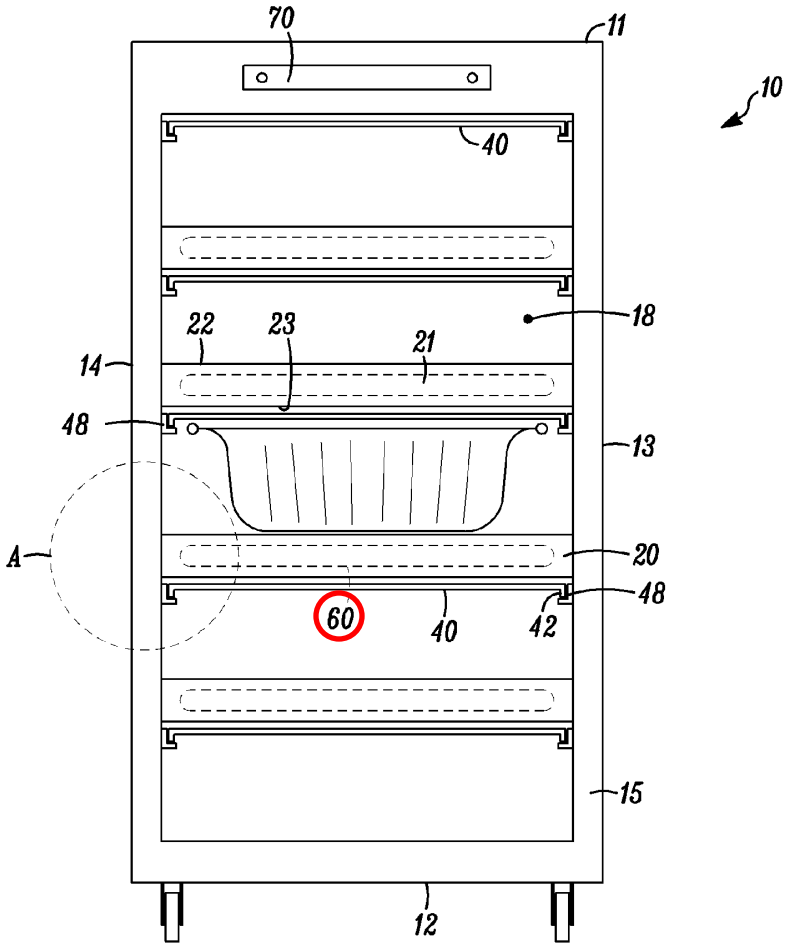


FIG. 2

EX1010: Fig. 2 (annotated).

447. Jones, Fortmann'197, the IRHS Documents, and McMillan likewise teach heaters that are independently controllable from one another, providing more particularized descriptions of their disclosed controls configurations which the POSA would have been motivated to incorporate with respect to the Fortmann'748 cabinet as modified in Paragraphs 415-445 (Ground 7, Section X(A)(2)) above.

448. Jones teaches its upper and lower heaters for the food holding zones are independently controllable.

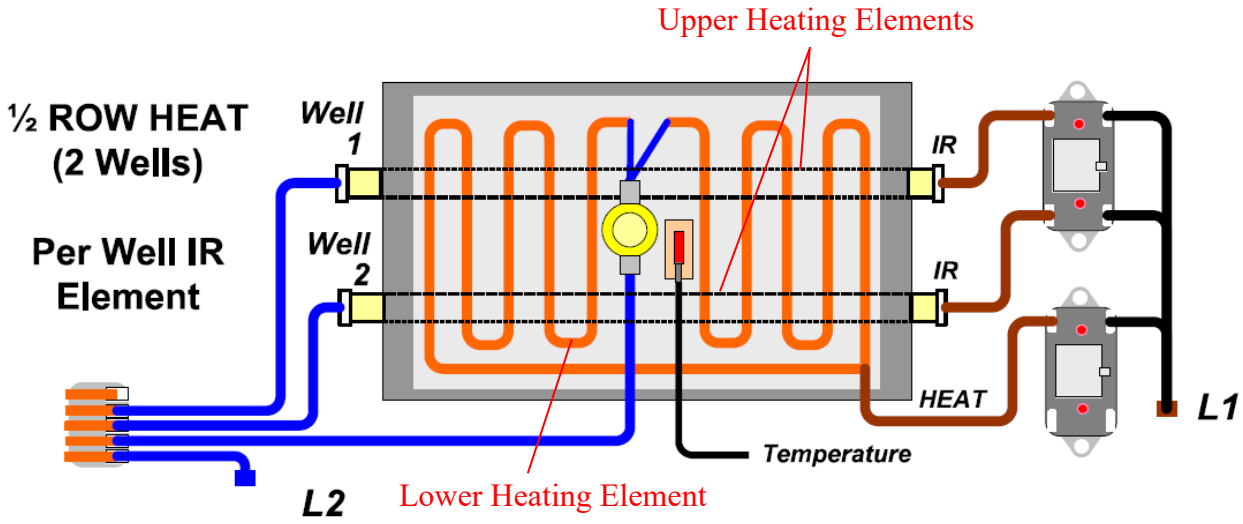
449. Jones explains its "control features of the invention provide control over … upper and lower heat settings that are … programmed into the software for each product name." EX1012: ¶[0098].

450. Jones describes control operations in which an operator can independently set the temperatures of the upper and lower heating elements using up and down arrow buttons. EX1012: ¶[0130] ("Use 'Up' and 'Down' Arrows to Set Upper Heater Temperature" and "Use 'Up' and 'Down' Arrows to Set Lower Heater Temperature").

451. Similarly, Fortmann'197 has independently controllable upper and lower heaters for its zones. EX1014: 8:63-67 ("the plate 40 may include multiple heaters 501, such as one heater 501 per discrete heating zone 100, with the controller 1000 controlling the heat to each heater 501 to maintain the desired temperature in the specific discrete heating zone"), 9:50-65 ("[t]he upper heaters 521, 522, 523, 524 may be individually controlled to maintain the temperature within the respective discrete heating zone 100 associated with the heater"), 9:59-65 ("the instructions inputted by the user … may be used by the controller 1000 to operate the respective upper heater (and lower heater 501 in embodiments where

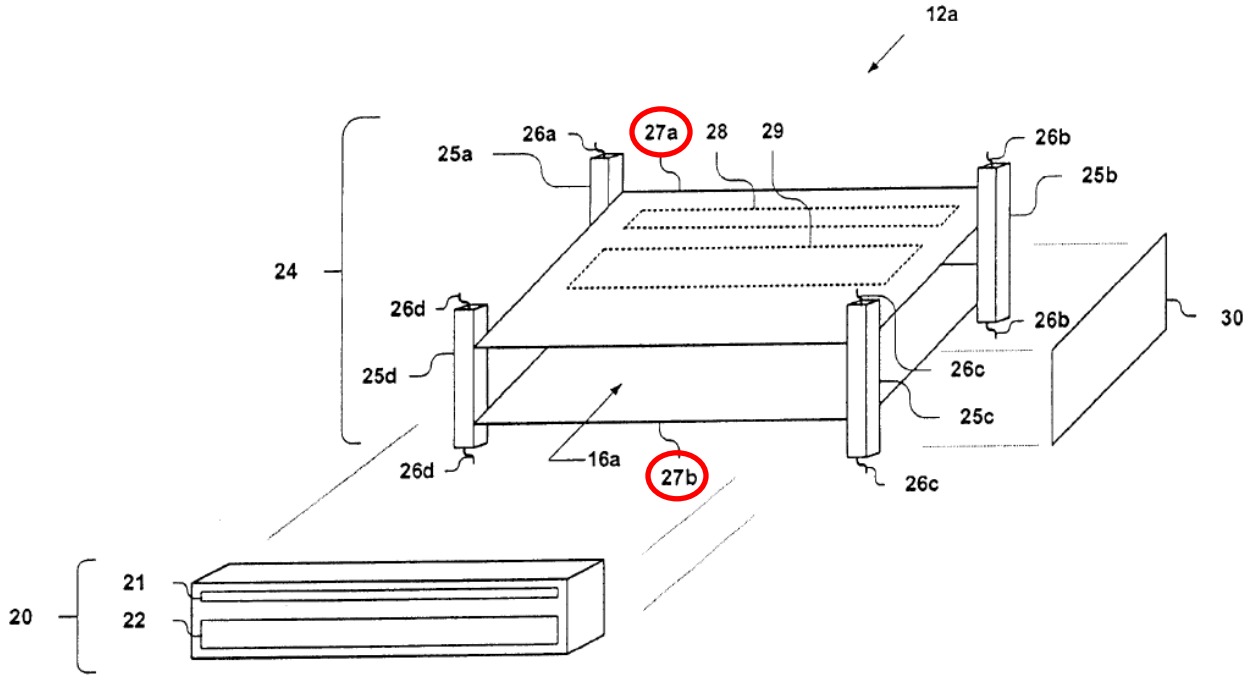
the lower heater (or a portion of the lower heater may be controlled)[)] as necessary to maintain the desired temperature within the zone)").

452. Likewise, the IRHS Documents teach the upper (IR bulb) and lower (electrical resistance heating element) heaters for each zone which are independently controllable from one another, as explained in Paragraphs 144-170, 179-181, and 185-196 above (Ground 1 claim limitations 1.d.2, 1.e.2, and 1.g.2).



EX1005: 25 (annotated).

453. Lastly, McMillan states "[e]ach of the heater plates 27a, 27b may be individually controlled to maintain a certain temperature set by an operator." EX1019: 4:40-42. As shown below, heater plate "27a" is the upper heater and heater plate "27b" is the bottom heater.



EX1019: Fig. 2 (annotated).

454. It would have been obvious to make the upper and lower heaters of each zone of Fortmann'748's cabinet as modified in Paragraphs 415-445 (Ground 7, Section X(A)(2)) above to be independently controllable, as taught by Jones, Fortmann'197, the IRHS Documents, and/or McMillan.

455. This adaptation would have provided "more accurate temperature control between products" and "limit temperature bleed over between [zones]." EX1012: ¶[0096].

456. This adaptation would have also enabled "precise[] control [of] the environment in each pan, allowing customized settings for each food product" and provided "the ability to maintain gold standard sensory attributes at drastically

extended hold times while delivering hotter food to [] customers." EX1005: 4 (explaining the benefits of the IRHS heatsink and IR bulbs); EX1007: 10 ("Tailor each well specifically to the products within them, providing unlimited flexibility per well").

457. Independently controllable upper and lower heaters would have also "minimize temperature distribution from top to bottom of [the] pan" in the zone to improve temperature consistency. EX1006: 1; EX1007: 53 ("[i]mproved temperature consistency").

458. Additionally, having independently controllable upper and lower heaters of each zone of the modified Fortmann'748's cabinet would have "offer[ed] maximum flexibility in setting the precise food holding temperatures." EX1009: 16. This would have allowed the upper and lower heaters of each zone to be set to different temperatures as needed for certain food products (*e.g.*, eggs) which may have higher quality where the overhead heating is set different than the heating from underneath. EX1028: 39 (teaching the upper heating temperature for eggs is 160°F and the lower heating temperature for eggs is 180°F).

459. This modification would have been nothing more than the application of a known technique (the independently controllable upper and lower heaters per heating zone of Jones, Fortmann'197, the IRHS Documents, and/or McMillan) to improve a similar device (Fortmann'748's cabinet) in the same way (incorporating

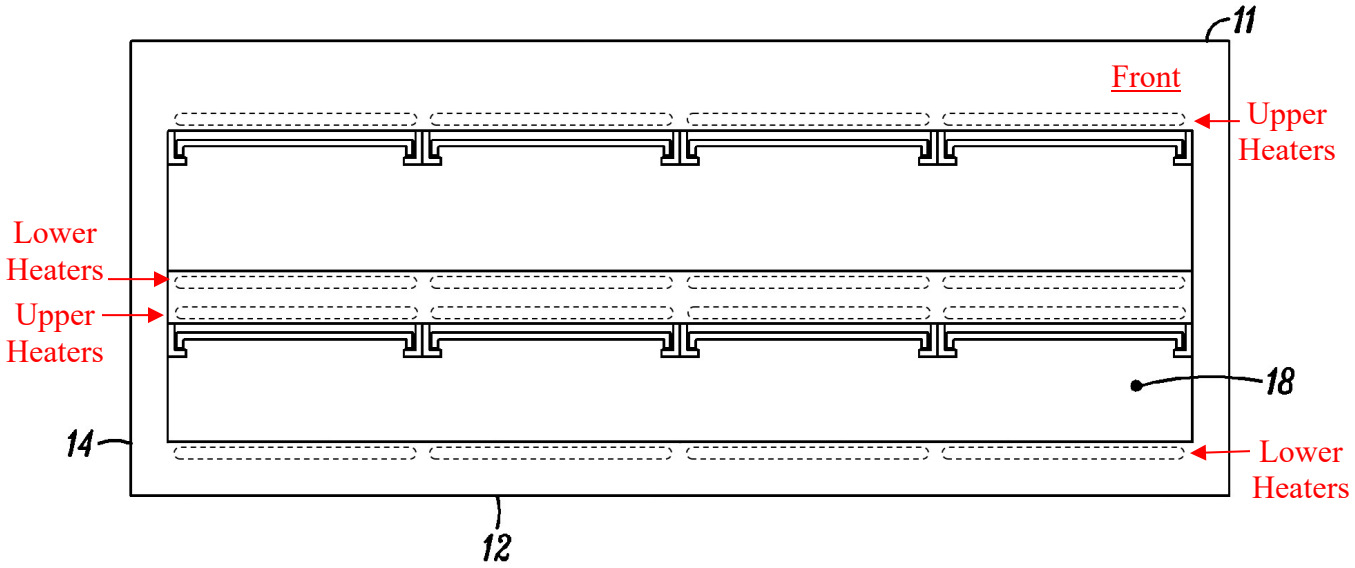
independent temperature control of each heating zone via each zone's independently controllable upper and lower heaters).

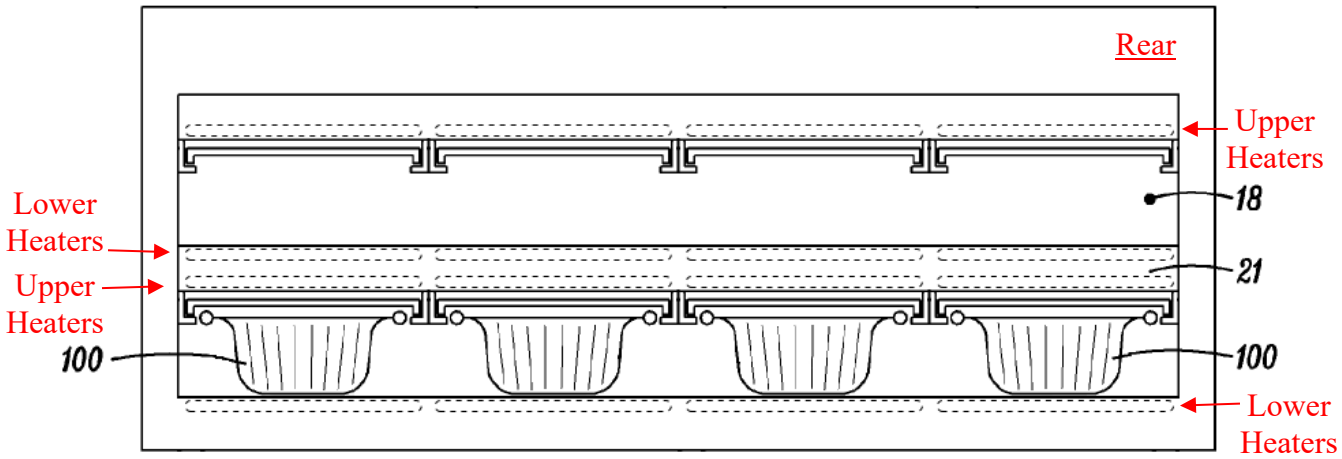
460. There would have been a high expectation of success in making this modification given:

(1) the similarities between the Fortmann'748 cabinet and the holding unit of Jones, Fortmann'197, the IRHS Documents, and McMillan (e.g., all units with two or more compartments for warming trays/pans of food via heating elements);

(2) Fortmann'748 has a zone-capable control system. EX1010: ¶[0027]; and

(3) that Jones, Fortmann'197, the IRHS Documents, and McMillan demonstrate it is feasible to independently control upper and lower heaters. EX1005: 16; EX1006: 1; EX1007: 53; EX1012: ¶[0096]; EX1014: 8:63-67, 9:50-65; EX1019: 4:36-59.





EX1010: Figs. 2 and 6 (modified, annotated).

461. Fortmann'748 teaches a control system having "one [or] more sensors disposed in each heating zone," "an input device for the user to select the desired temperature [] within the heating zone" and a "controller [that] selectively provide[s] or secure[s] current to the one or more heaters 60 disposed within each zone to control the temperature of the zone." EX1010: ¶[0027]. The control system thus "adjusts the heat output within each zone to achieve the desired temperature." EX1010: ¶[0027].

462. When modifying the Fortmann'748 cabinet to have multiple heating zones per compartment by adding independent upper and lower heaters for each zone and to have the upper and lower heaters for each zone to be independently controllable, the POSA would have operatively coupled all the heaters to Fortmann'748's control system. EX1010: ¶[0027].

463. Fortmann'748's controller is already able to operate heaters independently in different zones and therefore would have been understood to be capable of operating the additional heaters independently as well. EX1010: ¶¶[0021] ("one or more heaters 60 that are controlled separately from the heaters 60 that are disposed in conjunction with the remaining shelves 21"), [0024] ("establish two or more heat zones of differing temperatures within the warming volume, to allow food products that require different warming temperatures to be simultaneously disposed within the cart 10"); [0027] ("a control system configured to adjust the heat output within each zone to achieve the desired temperature. In some embodiments, the controller may selectively provide or secure current to the one or more heaters 60 disposed within each zone to control the temperature of the zone").

464. When implementing the modifications, the POSA or a member of his/her interdisciplinary team would have been able to make any minor programming changes to Fortmann'748's controller, as taught by Jones, Fortmann'197, the IRHS Documents, and McMillan, to:

(1) independently control the upper and lower heaters for each zone to provide the multiple independently controlled heating zones across each compartment of Fortmann'748's modified cabinet; and

(2) make the upper and lower heaters of each zone independently controllable.

465. As corroborated by Fortmann'197, the POSA would have "appreciated that controllers [were] well known [as being] capable of controlling one or more heaters based upon feedback systems to maintain a monitored location (such as a discrete heating zone) within a temperature range." EX1014: 9:65-10:2.

4. Discrete Lids for Each Pan Holding Location

466. Each compartment of Fortmann'748's cabinet includes a single lid or cover (40). EX1010: ¶[0017] ("[t]he plurality of shelves 21 may each include a removable and slidable cover 40 that is disposed in conjunction with and below each shelf 21 (with the exception of the bottom shelf 21, with a cover 40 also provided above the upper-most shelf)" and "[a]n additional cover 40 may be slidably disposed at the top of the warming volume 18 to enclose a pan 100 that is disposed upon the upper-most shelf 21").

467. The lids (40) maintain heat and moisture in the pans (100). EX1010: ¶[0017] ("[t]he cover 40 is configured to provide a lid to each restaurant or hotel pan 100 that is placed onto the shelf 21 within the warming volume 18 such that the heat from the food products disposed within the pan 100 (and the heat of the residual heat of the pan 100 itself) is substantially prevented from escaping due to convective heat transfer. The cover 40 additionally substantially encloses the one or more pans 100 disposed upon the shelf 21 therebelow, which maintains any

moisture or water vapor within the pan 100 to prevent the warmed food disposed within the pan 100 from drying").

468. These lids (40) are disclosed as being removeable. EX1010: ¶[0017] ("removable and slidable cover"), Fig. 4.

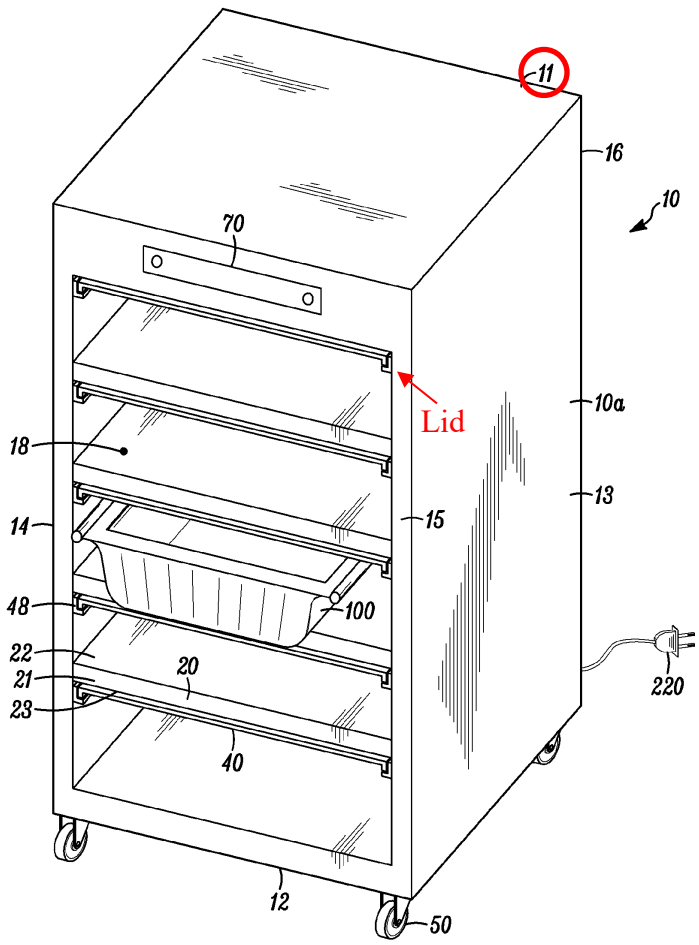


FIG. 1

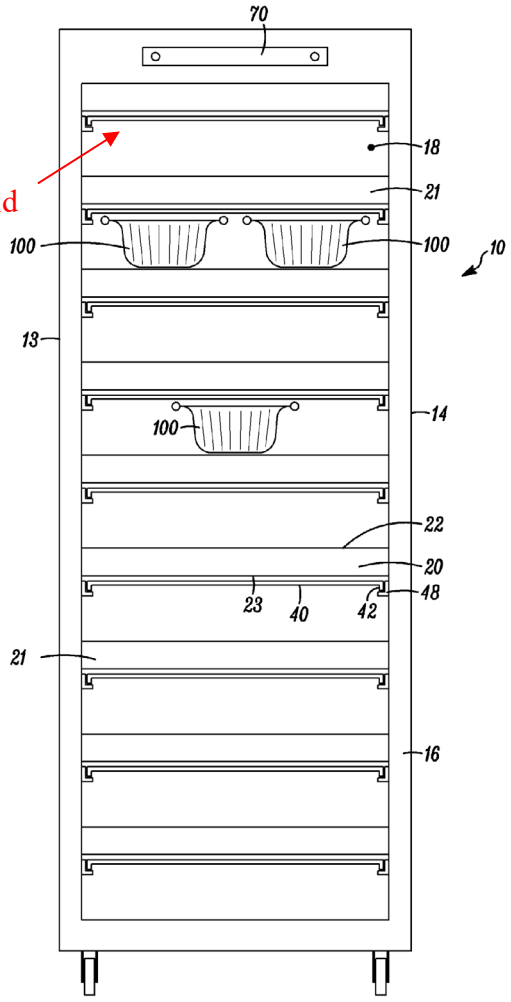


FIG. 6

EX1010: Figs. 1 and 6 (annotated).

469. While Fortmann'748's cabinet only includes a single lid or cover (40) per food holding compartment, the prior art is replete with cabinets that include

discrete lids for each pan/pan holding location). Jones, Fortmann'197, and the IRHS Documents provide examples of such prior art. EX1012: ¶[0072] ("a food tray cover 16 above each respective upper left tray location ULTL and upper right food tray location URTL, and … a food tray cover above each respective lower left and lower right food tray locations, LLTL and LRTL"), Fig. 1B; EX1014: 4:50-53, Figs. 1-4; EX1005: 8; EX1006: 1 ("HeatSink cover"), 2; EX1007: 53 ("Metal Cover"), 33 ("Cover allows better heat transfer and greater seal assurance; critical to maintain food quality with extended hold times"); EX1014: 7:31-32 ("covers 200 … configured to partially enclose one of the discrete heating zones 100").

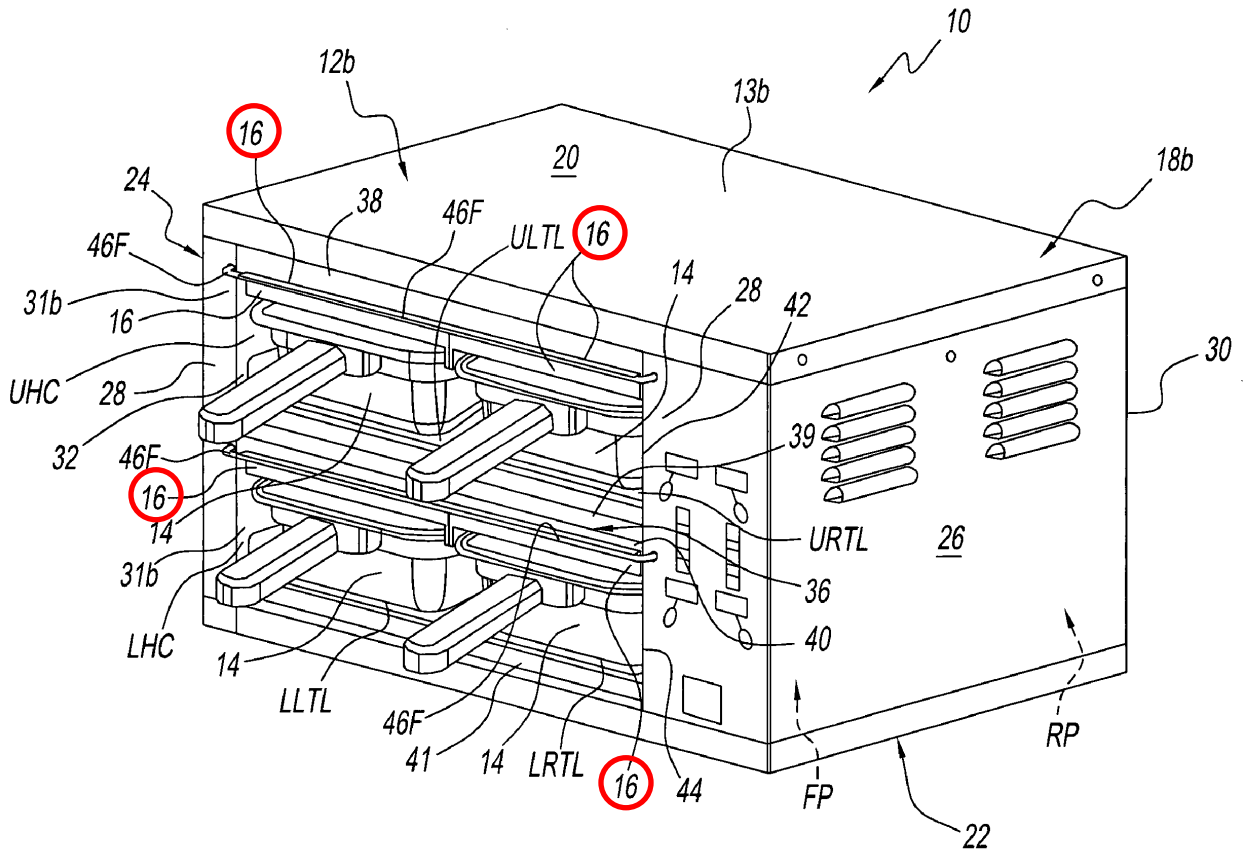


Fig. 1B

EX1012: Fig. 1B (annotated).

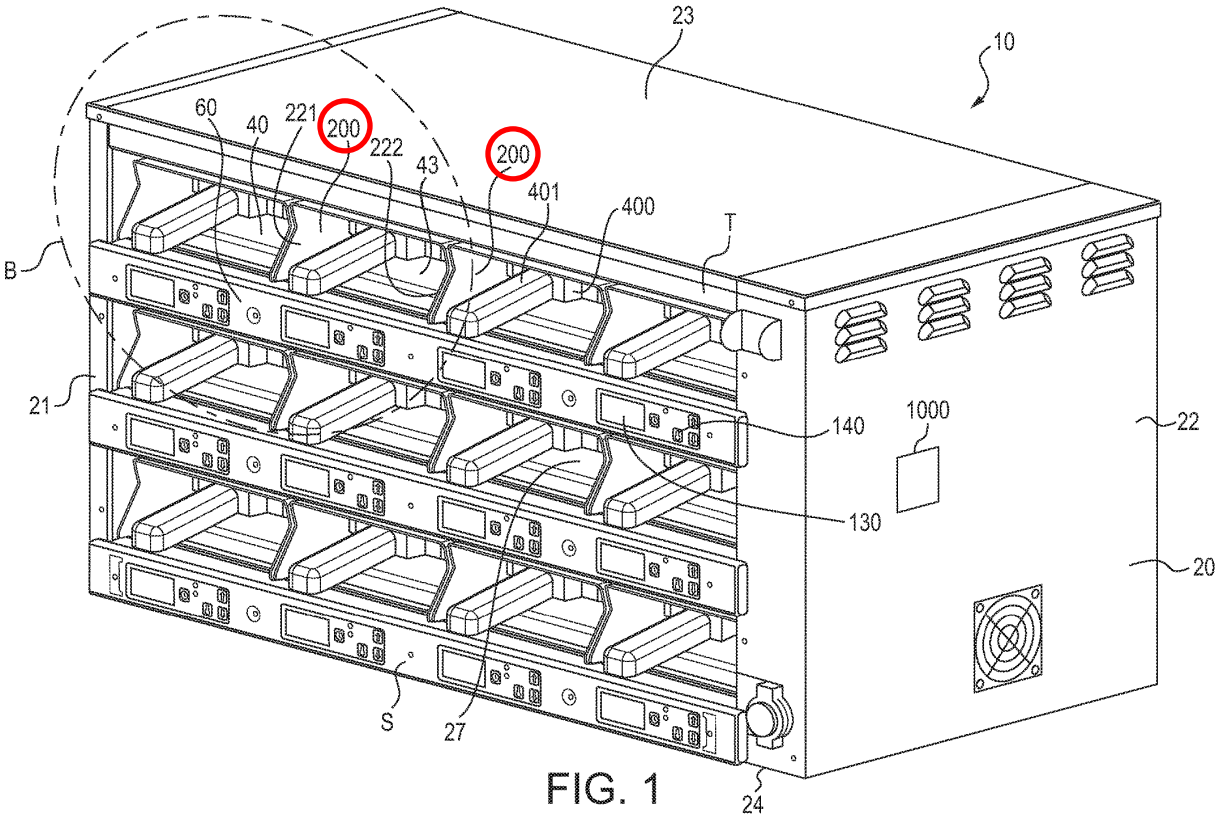
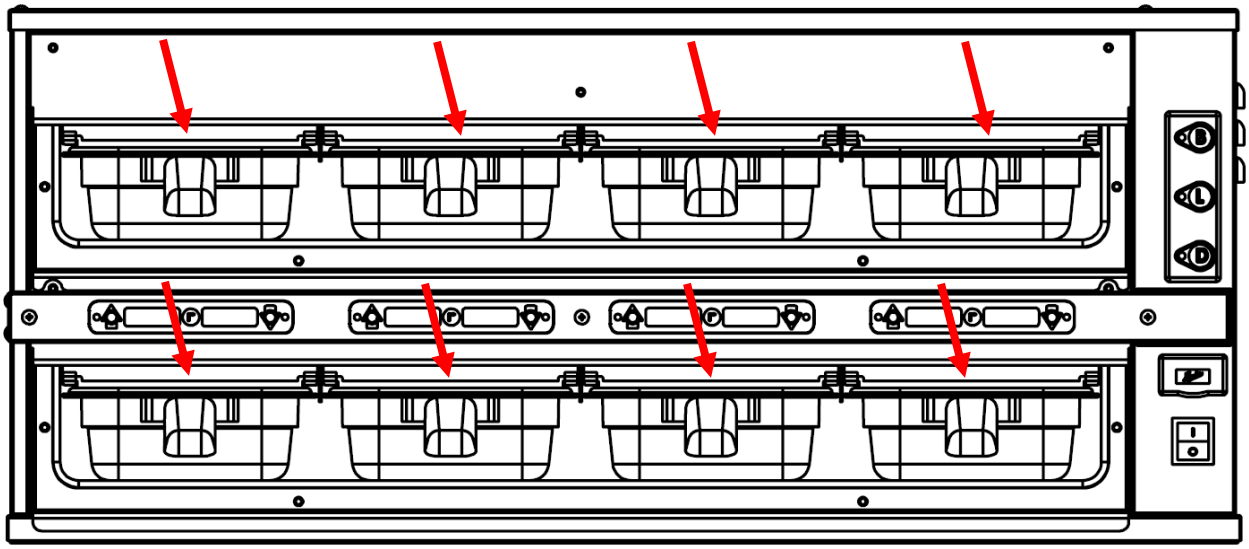


FIG. 1

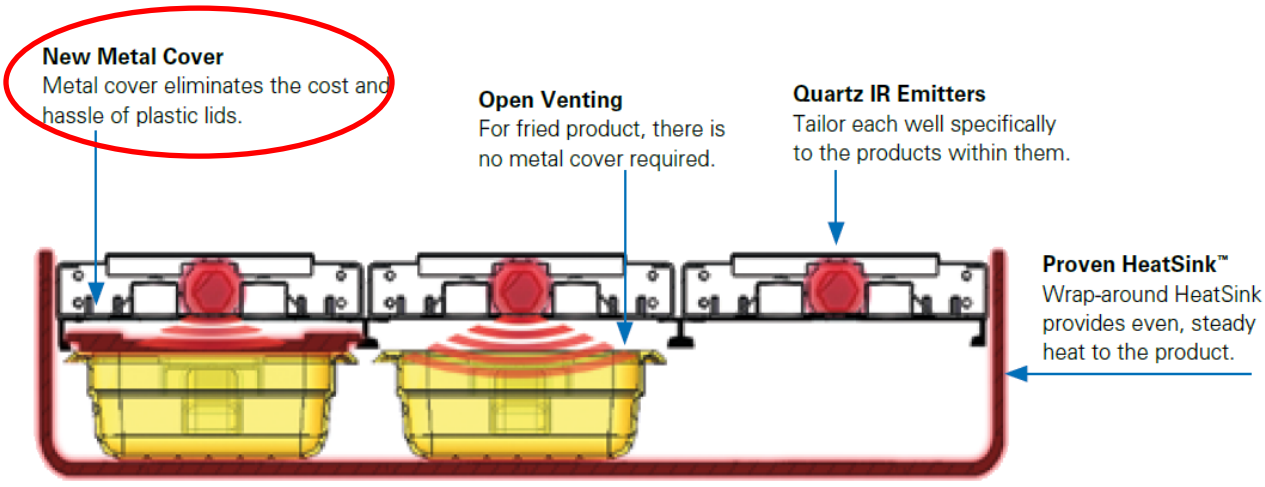
EX1014: Fig. 1 (annotated).



EX1005: 8 (annotated).



EX1006: 2 (annotated).



EX1007: 53 (annotated).

470. It would have been obvious to modify the Fortmann'748 cabinet to have discrete lids for each pan holding location (instead of a single lid per compartment), as taught by Jones, Fortmann'197, and/or the IRHS Documents.

471. This modification would further Fortmann'748's goal of having "zones" for different types of food by allowing the lids for individual pans to be selectively removeable, increasing the flexibility for the cabinet and each compartment to hold more types of food (more temperature/moisture combinations) at the same time. EX1010: ¶[0024].

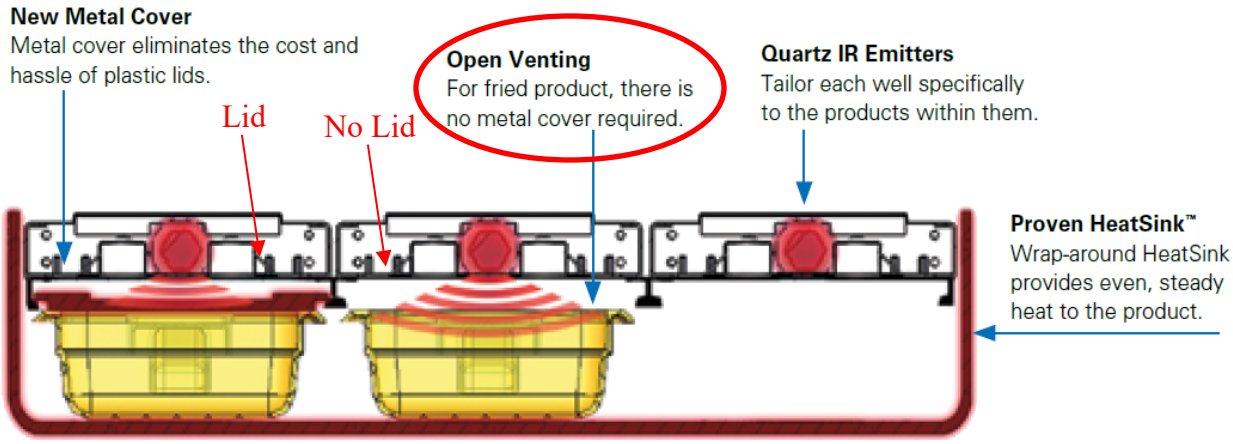
472. For example, for certain types of food (*e.g.*, non-fried foods such as burgers and grilled chicken) it would have been desirable to maintain the moisture from the food in the food pan/tray with a lid. EX1016: ¶[0003] ("[a]s the food loses moisture due to evaporation, flavor is lost. This affects the texture and taste of the product. For example, chicken meat fibers will dry out and become tough"); EX1017: 6:45-47 ("[s]ome of these foods, such as hamburger patties, [lose] their taste and texture with loss of moisture"); EX1014: 7:50-56 ("when it is desired to heatingly store food products in a moist environment, the cover 200 may be installed in the discrete heating zone such to enclose [] the opening 402 into the pan 400 and to prevent moisture from the food products within the pan 400 from leaving the pan 400").

473. Yet in other examples, it is desirable not to cover the food pan with a lid to allow moisture from the food (*e.g.*, fried foods such as fried chicken) to vent to keep the food crispy or prevent it from becoming soggy. EX1013: ¶[0044] ("food portions, such as fried foods or breads like biscuits, [] are maintained

uncovered to prevent the previously cooked food portions from becoming soggy"); EX1017: 6:47-48 ("[o]ther[] [foods], such as fried chicken fillets, biscuits, and eggs become soggy if stored in an abundance of moisture"); EX1007: 53 ("Open Venting For fried product, there is no metal cover required"); EX1014: 7:61-67 ("where a relatively dry environment is desired, the cover 200 may be removed from the discrete heating zone 100 to allow any moisture within the food product disposed within the opening 402 of the pan 400 to travel away from the pan 400").

474. It thus would have been obvious to modify Fortmann'748's cabinet to have individual lids for each food pan/tray in order to provide more flexibility in food placement, more discrete and better control over venting/sealing, and ability to hold more food types at different holding combinations (temperature/venting). EX1007: 53; EX1019: 1:36-39 ("fast food restaurants [] face challenges [to] maintain a large volume of different food products … [that] present different [holding] requirements"), 1:43-45 ("As the number of offered food products increases, so does the complexity of a system capable of maintaining all the different types of food products.").

475. For example, by incorporating individual lids for each food pan/tray the user could then keep the lids in the compartment for the non-fried foods and remove the lids from the compartment for the fried foods.



EX1007: 53 (annotated).

476. Moreover, discrete lids for each pan holding location are smaller, making the lids easier to move and clean.

477. Furthermore, when holding foods where moisture retention is desired (*e.g.*, burgers), having discrete lids for each food pan/tray allows each lid to form a better seal and eliminate influence that other food pans/trays could have on the seal. EX1007: 10 ("Completely sealed metal cover"), 21 ("covers for individual control"), 58 ("greater seal assurance; critical to maintain food quality with extended hold times"). For example, if each pan is provided its own discrete lid, the movement of one pan to add or remove food would not affect the seal of a lid on any of the other pans.

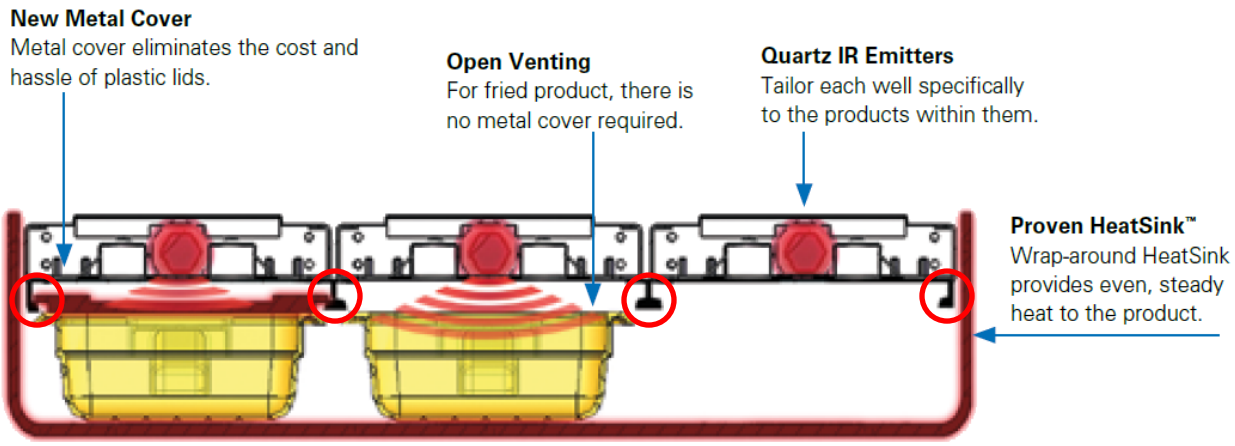
478. Adding discrete lids for each food pan/tray would merely require duplicating and resizing Fortmann'748's lids to cover one pan (100) and

duplicating Fortmann'748's tracks (48) across the compartments to hold the additional lids.

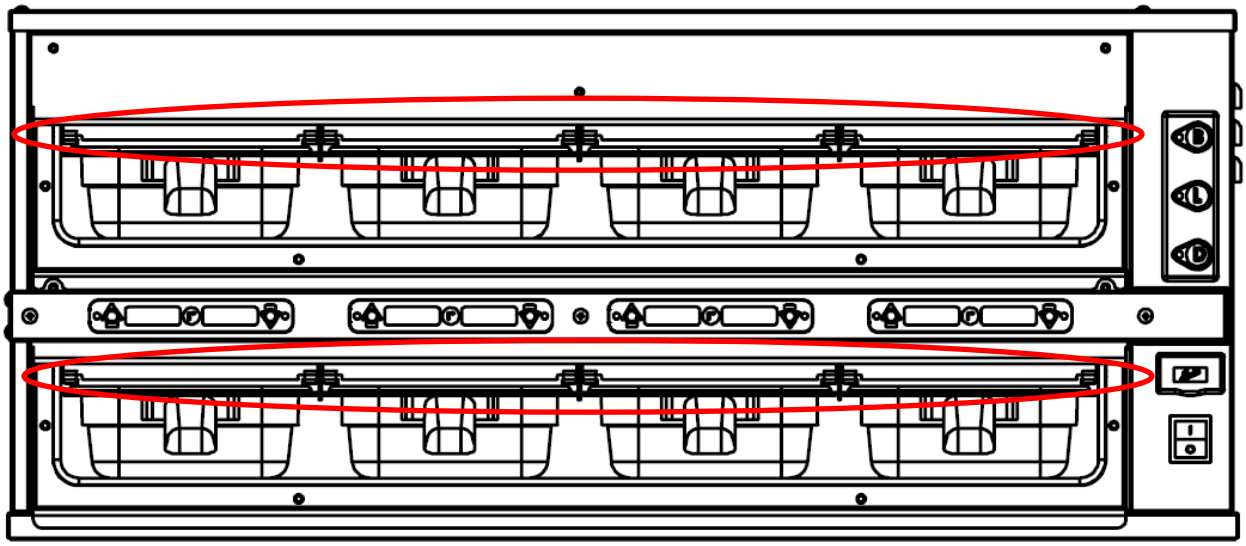
479. In duplicating the tracks (48), it would have been obvious to secure them to the overlying structure, as taught by Fortmann'748. EX1010: ¶[0018] ("a track 48 may be fixed directly to the respective shelf 21 and is disposed beneath each of the right and left sides of the shelf 21").

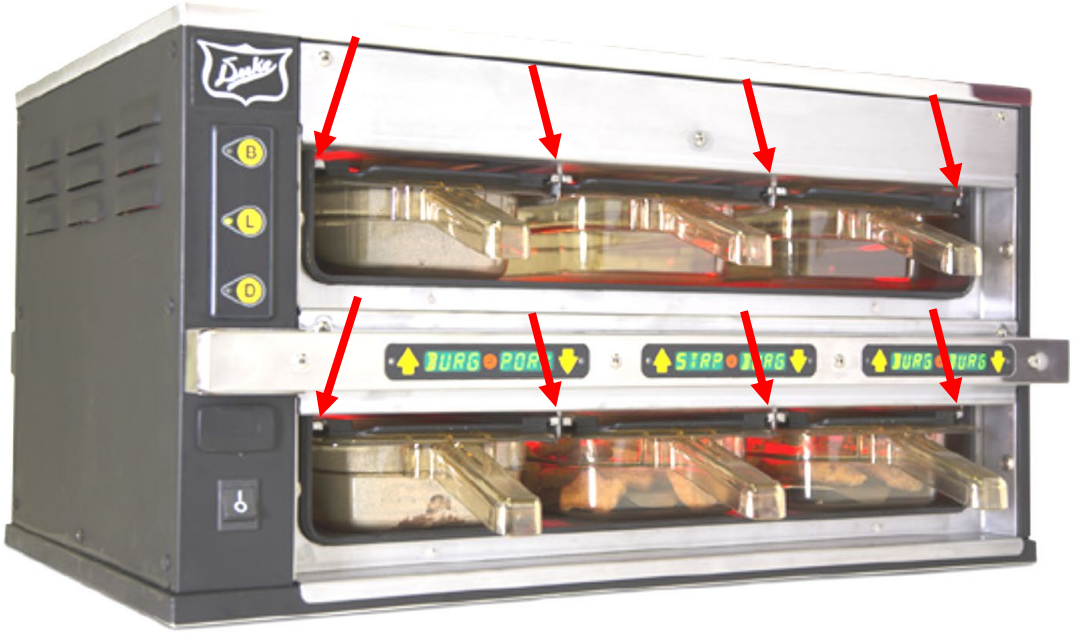
480. Moreover, in view of the IRHS Documents, the POSA would have known to simply duplicated the Fortmann'748 lid holding shelves across the width of the compartment to provide suitable support structure in locations/orientations for holding left and right sides of the individual lids.

481. The IRHS Documents disclose discrete lids and sets of lid holding shelves for each lid secured to the overhead structure (including the top panel). EX1005: 4 ("robust aluminum Heat Sink Cover for broiled foods"), 8, 20-21 (ref. no. 18); EX1007: 53 ("[m]etal cover eliminates the cost and hassle of plastic lids"), 56, 58 ("[c]over allows better heat transfer and greater seal assurance; critical to maintaining food quality with extended hold times").

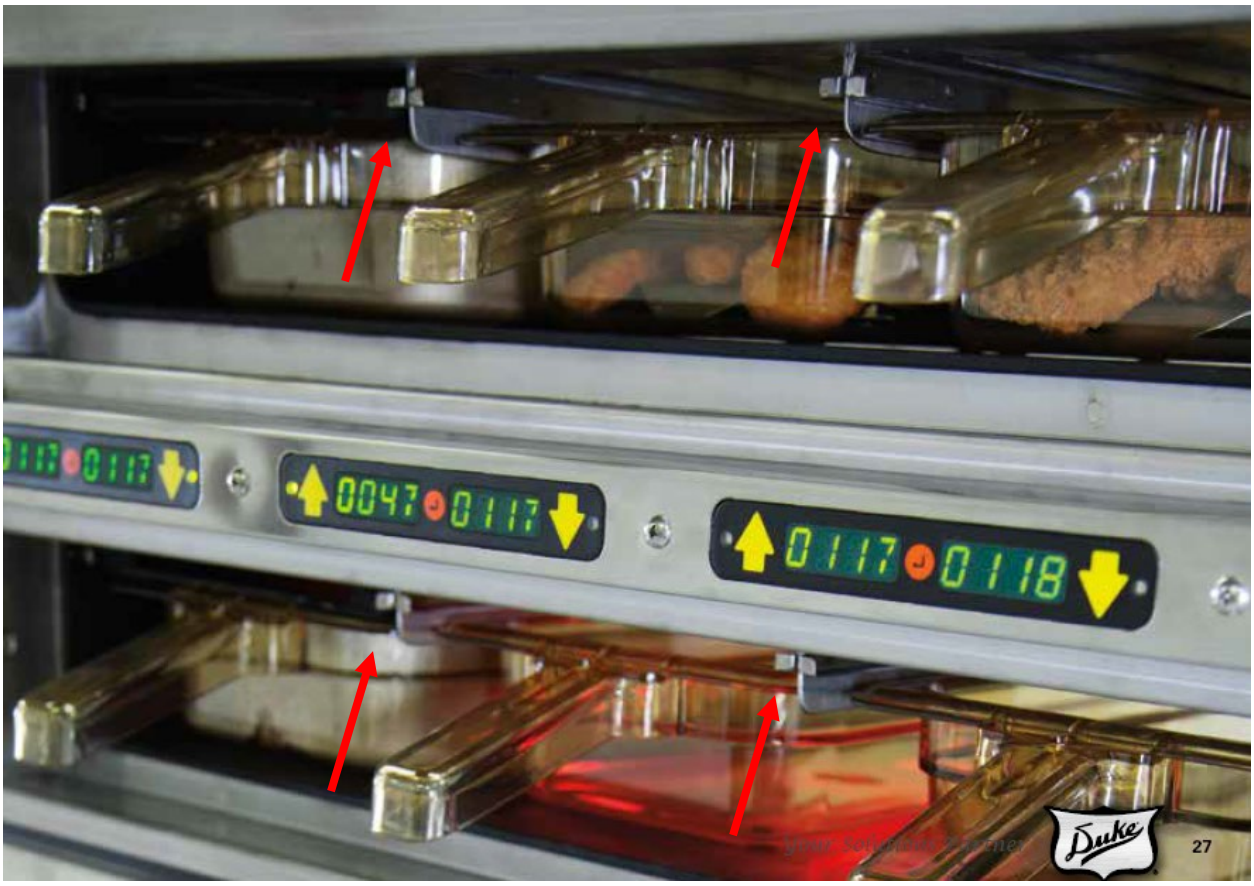


EX1007: 53 (annotated).

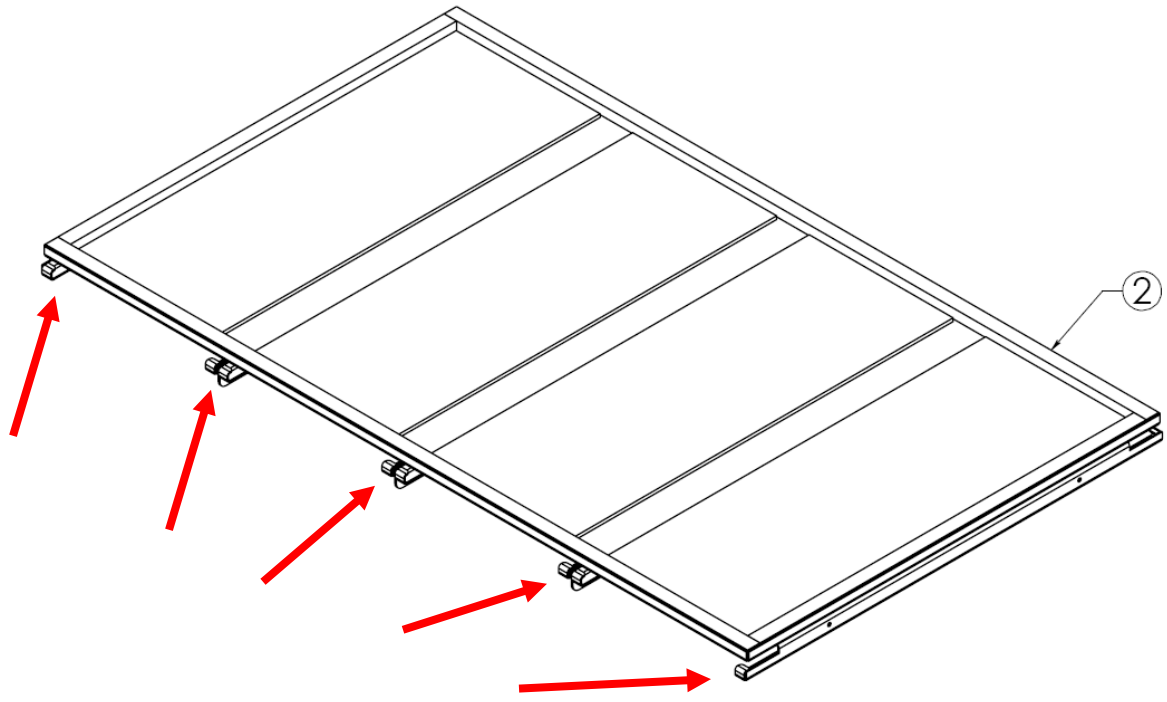




EX1006: 2 (annotated).



EX1007: 52 (annotated).



EX1005: 19 (annotated).

482. Resizing and duplicating lids and duplicating the lid holding shelves would have been nothing more than the application of a known technique (providing individual lids for each food pan/tray as taught by the IRHS Documents, Jones, and/or Fortmann'197) to improve a similar device (the Fortmann'748's cabinet) in the same way (the independent lids would be supported by discrete lid supporting shelves secured to overhead structure).

483. There would have been a high expectation of success in making this modification given

(1) the similarities between the Fortmann'748 cabinet and the holding unit of the IRHS Documents;

(2) the function and operation of Fortmann'748's lid holding shelves would not change; and

(3) the IRHS Documents demonstrate discrete lid holding shelves for each lid is possible.

484. In view of Fortmann'748, it would have been obvious to directly fix the tracks (48) that support the lids (40) that are directly below top panel (11) to the top panel. Fortmann'748 discloses two ways of mounting the track (48) in the chassis (10a): (1) mounted on the side panels (13, 14), or (2) mounted on the shelves (21). EX1010: ¶[0018].

485. This arrangement would still be applicable for supporting individual lids for each food pan/tray, with the addition that because the top lid (40) does not

have a shelf (21) above it, the track (48) would instead be fixed directly to the top panel (11) instead (the top panel substituting as the shelf in this context).

486. This would have also been the application of a known technique (Fortman‘748 mounting a track to an overhead structure) to improve a similar device (the tracks for the top compartment) in the same way (mounting the top tracks to the overhead structure).

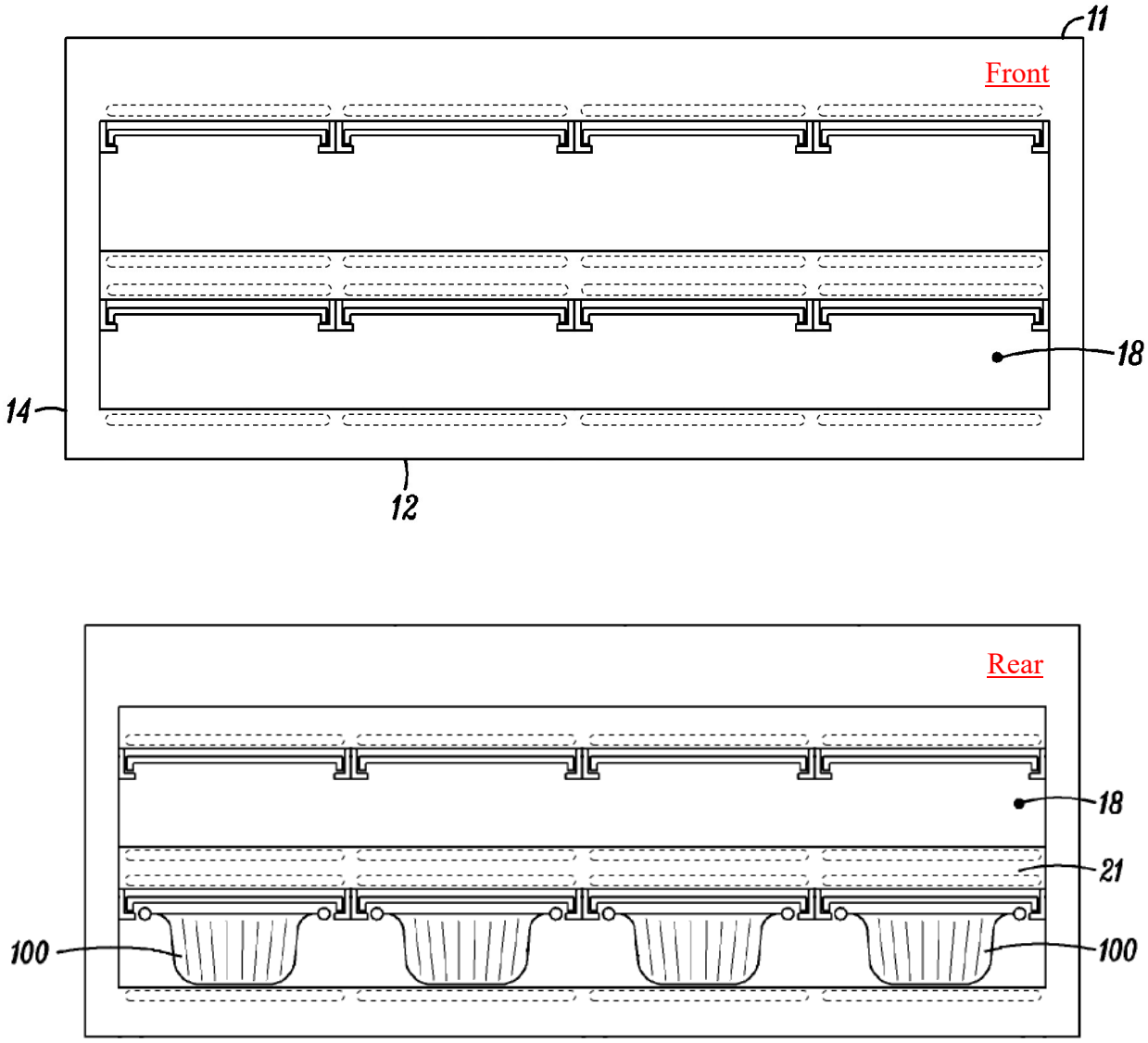
487. There would have been a high expectation of success in making this modification given

(1) the similarities between the Fortmann’748 cabinet and the holding unit of Jones, Fortmann’197, or the IRHS Documents (*e.g.*, all units with lids);

(2) the function and operation of Fortmann’748’s lids would not change; and

(3) Jones, Fortmann’197, and the IRHS Documents demonstrate individual lids for each pan holding location is possible. EX1012: ¶[0072], Fig. 1B; EX1014: 4:50-53, 7:31-32, Figs. 1-4; EX1005: 8; EX1006: 1-2; EX1007: 53, 58.

488. Schematic illustrations of the 2x4 Fortmann’748 cabinet modified to have individual lids for each pan holding location are shown below:



EX1010: Figs. 2 and 6 (modified, annotated).

5. Latches

489. Each compartment of Fortmann'748's cabinet includes a removable lid or cover (40). EX1010: ¶[0017] ("[t]he plurality of shelves 21 may each include a removable and slidable cover 40 that is disposed in conjunction with and below each shelf 21 (with the exception of the bottom shelf 21, with a cover 40 also

provided above the upper-most shelf)" and "[a]n additional cover 40 may be slidably disposed at the top of the warming volume 18 to enclose a pan 100 that is disposed upon the upper-most shelf 21").

490. The lid (40) slides along tracks (48) and can rest on the top of the pan (100). EX1010: ¶¶[0017] ("a removable and slidable cover 40"), [0018] ("the cover 40 [is] closely received within the track 48 to encourage stability within the track 48 and ease of sliding movement therewithin" and "no space between the upper edges of the pan 100 and the bottom surface of the cover 40").

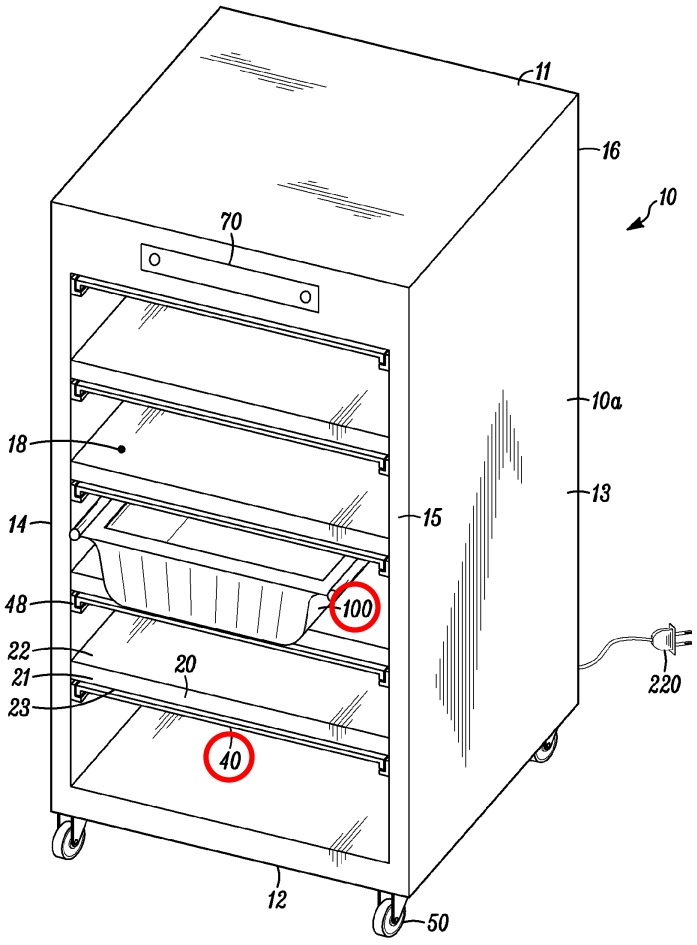


FIG. 1

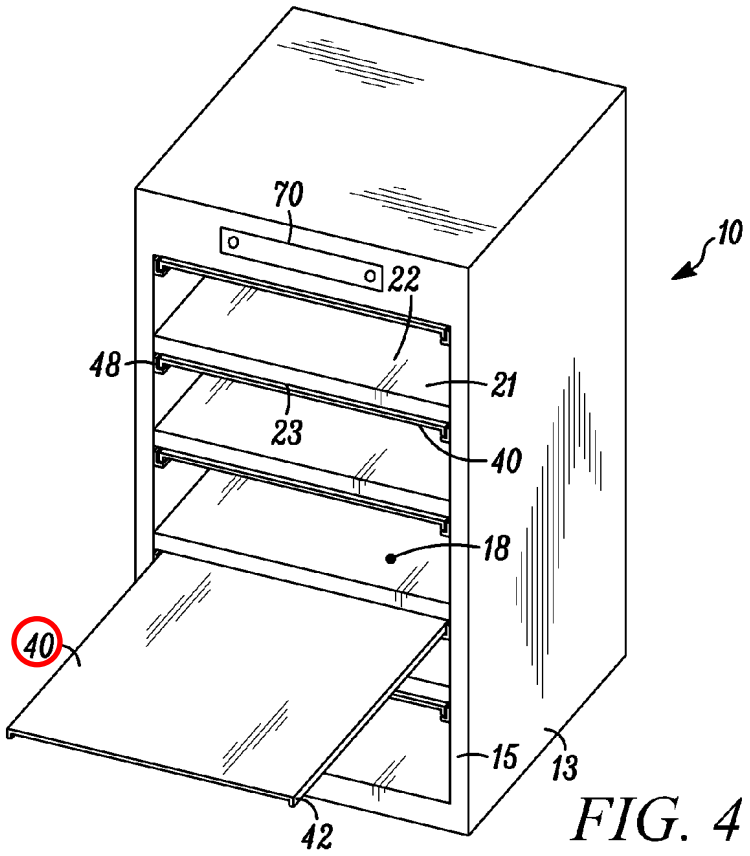


FIG. 4

EX1010: Figs. 1 and 4 (annotated).

491. Notably, similar food holding units which include covers or lids routinely include latches to secure the lid in place.

492. For example, Hartfelder teaches a food warming apparatus (10) that receives trays (40) in heating compartments (24, 26) with covers or lids (44, 46). EX1013: ¶¶[0028] ("food warming apparatus 10"), ¶[0030] ("[e]ach of heating compartments 24 and 26 is sized to accommodate a plurality of trays, as exemplified in FIG. 1 by trays 40 and 42 in heating compartment 24. Each of trays 40 and 42 are covered by covers 44 and 46, respectively.").

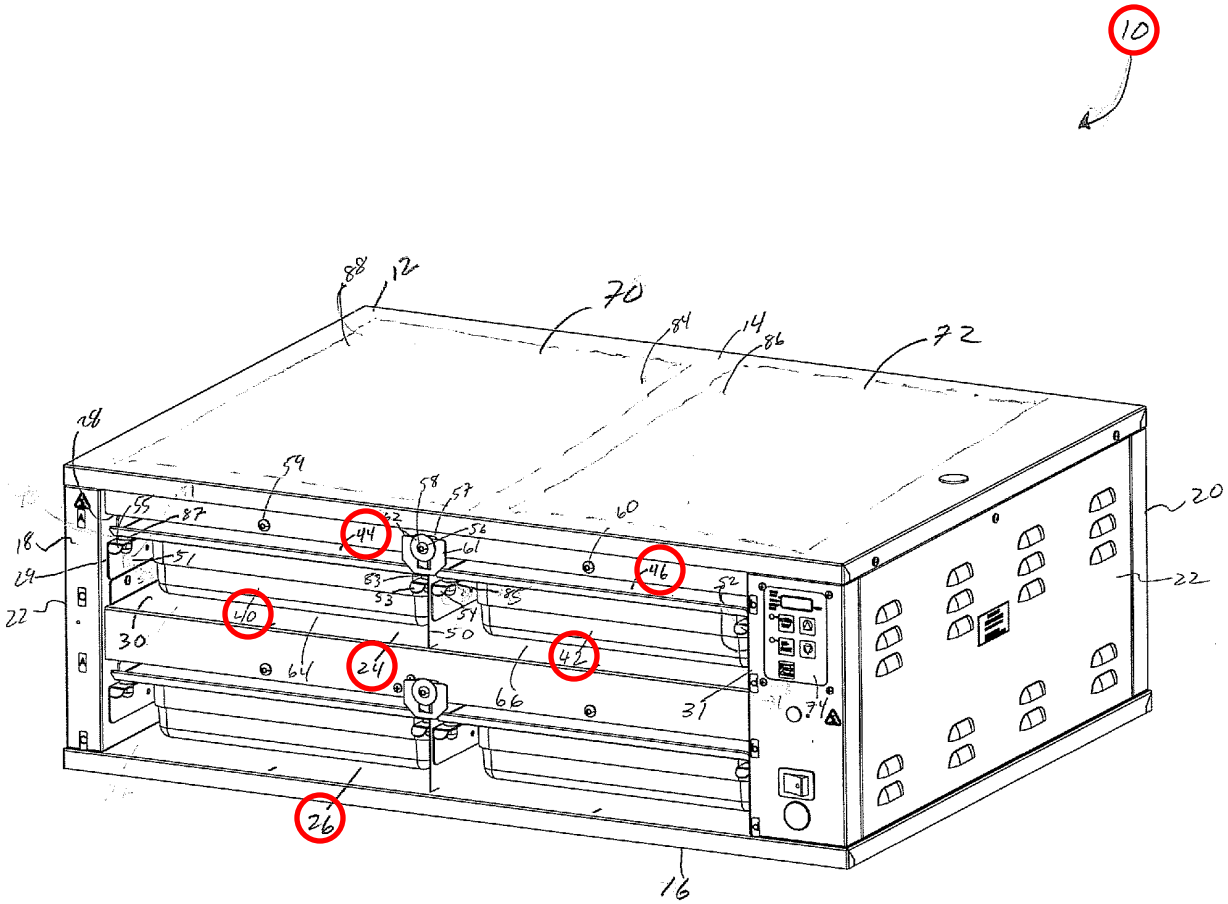


FIGURE 1

EX1013: Fig. 1 (annotated).

493. To prevent the lids (44, 46) from moving with the trays (40, 42) when the trays are removed from the heating compartment (24, 26), the Hartfelder apparatus (10) includes stop members (61) which retain the lids. EX1013: ¶[0058] ("[a]s best shown in FIG. 9, when tray 40 is withdrawn from sub-compartment 64 of heating compartment 24, front turned-up edge 90 of cover 64, acting as an

engagement edge, engages stop member 61. The engagement of engagement edge 90 with stop member 61 arrests the movement of cover 44. As the movement of cover 44 is arrested, cover 44 is retained upon within sub-compartment 64 while tray 40 is withdrawn"), Fig. 9.

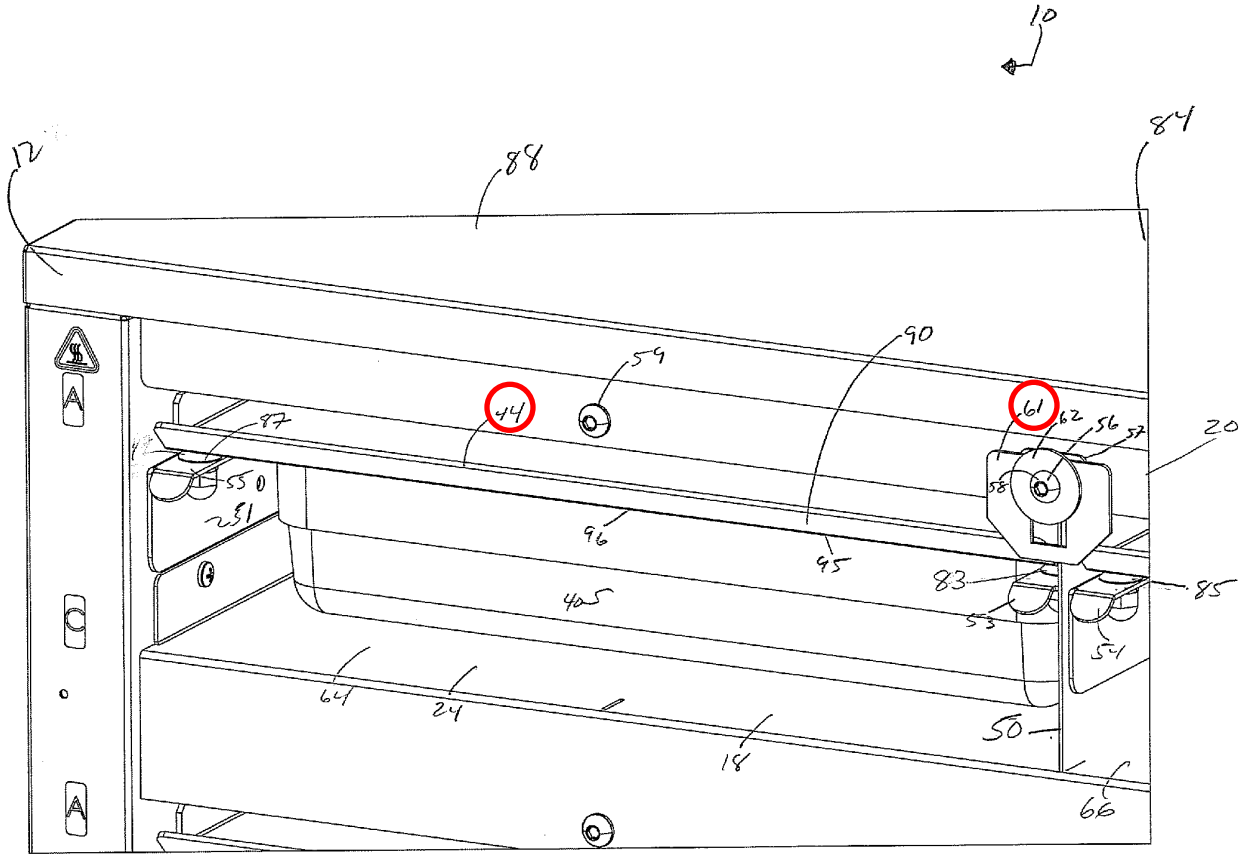


FIGURE 9

EX1013: Fig. 9 (annotated).

494. Shei'099 discloses similar stops (88) between pairs of covers (80) where the stops are biased by gravity to a cover-retaining position (to retain both

covers) and pivotable to the left or right to selectively permit insertion/removal of either of the covers. EX1017: 6:9-32.

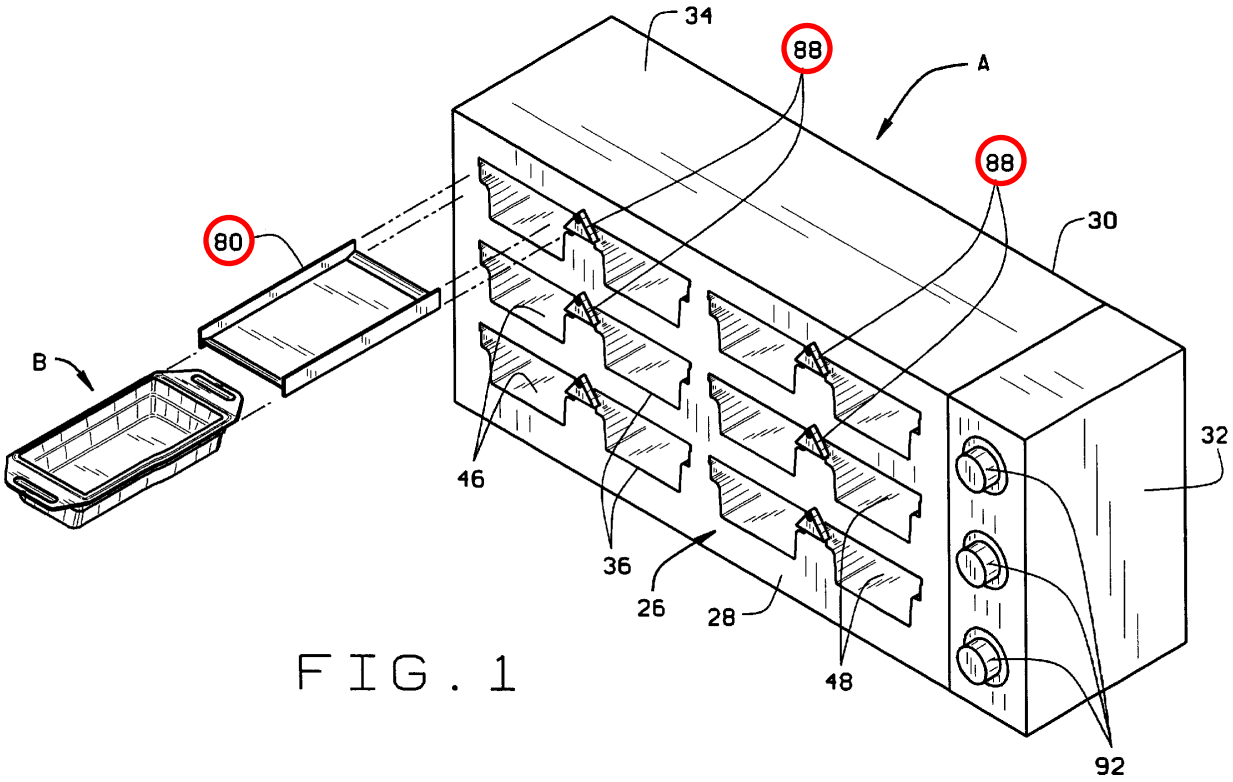


FIG. 1

EX1017: Fig. 1 (annotated).

495. It would have been obvious to the POSA to modify Fortmann'748's cabinet to include Hartfelder's stop members (61) or Shei'099's stops (88) for retaining the lids of Fortmann'748's cabinet on the lid-holding shelves. EX1013: ¶[0058].

496. The stop members (61) or stops (88) would prevent the lids, which are in contact with the pans, from moving with the pans as the pans are inserted into and removed from the compartments. EX1013: ¶[0058] ("[a]s best shown in FIG.

9, when tray 40 is withdrawn from sub-compartment 64 of heating compartment 24, front turned-up edge 90 of cover 64, acting as an engagement edge, engages stop member 61. The engagement of engagement edge 90 with stop member 61 arrests the movement of cover 44. As the movement of cover 44 is arrested, cover 44 is retained upon within sub-compartment 64 while tray 40 is withdrawn"); EX1017: 6:19-22. This would retain the lids in position to cover the pans when the pans are in the heating compartments.

497. The addition of latches would have been nothing more than using a known technique (the incorporation of stop members of Hartfelder or Shei'099 to retain lids) to improve a similar device (the Fortmann'748 cabinet with lids) in the same way (retaining lids in place while moving food pans into and out of the food holding compartments).

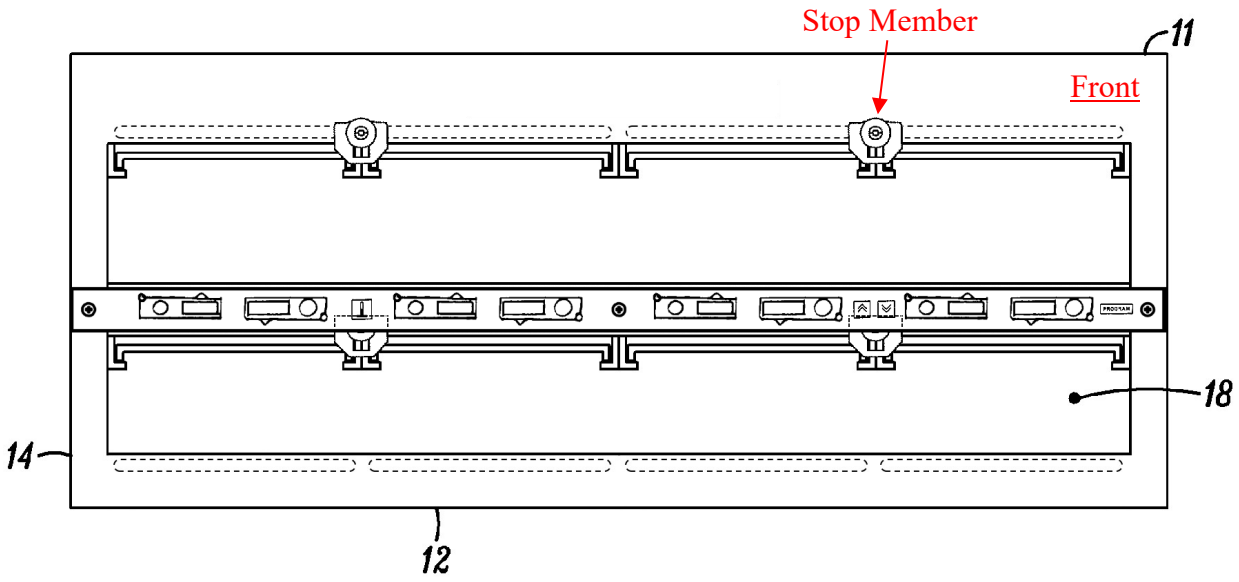
498. There would have been a high expectation of success in making this modification given:

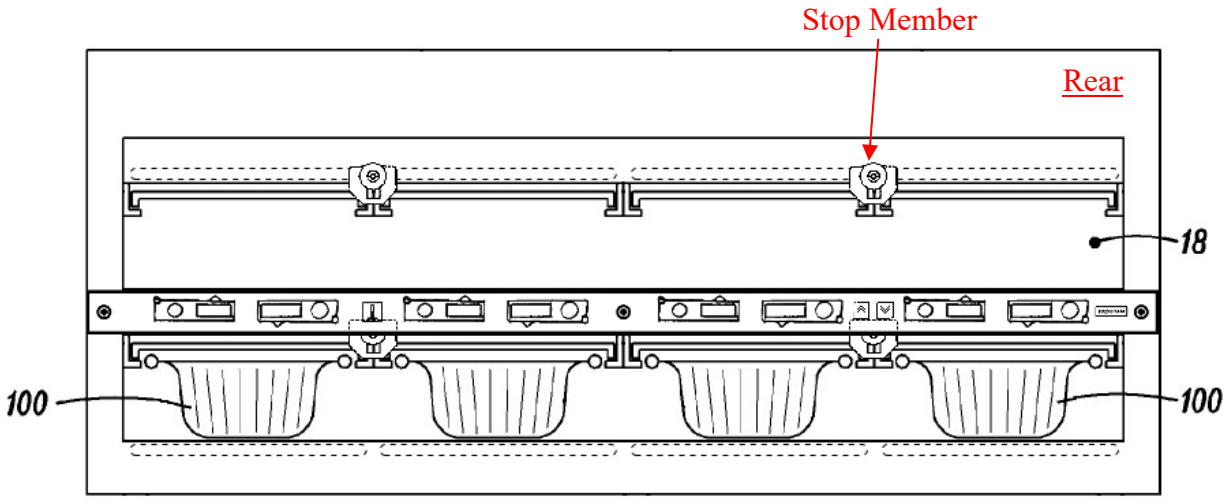
(1) the similarities between the Fortmann'748 cabinet and Hartfelder's and Shei'099's unit (*e.g.*, all units with compartments for warming trays/pans of food with lids covering the trays/pans); and

(2) that the stop member of Hartfelder or the stop of Shei'099 would perform the same function in the same way in Fortmann'748's cabinet. EX1013: ¶[0058].

499. In making this modification, it would have been obvious to the POSA to arrange each stop member (61) or stop (88) on the face of the shelf between two lids as taught by Hartfelder and Shei'099.

500. A representative illustration of the 2x4 Fortmann'748 cabinet modified to have Hartfelder's stop members (61) for the lids is shown below. A modification implementing Shei'099's stops (88) would be similar to below, except Hartfelder's stop members (61) would be replaced with Shei'099's stops (88).





EX1010: Figs. 2 and 6 (modified, annotated).

6. Aluminum

501. In Fortmann'748, the planar surfaces (22) of the shelves (21) and bottom panel (12) are made of stainless steel. EX1010: ¶[0019] ("the shelves 21 may include two planar sheets of thin material (such as stainless steel)").

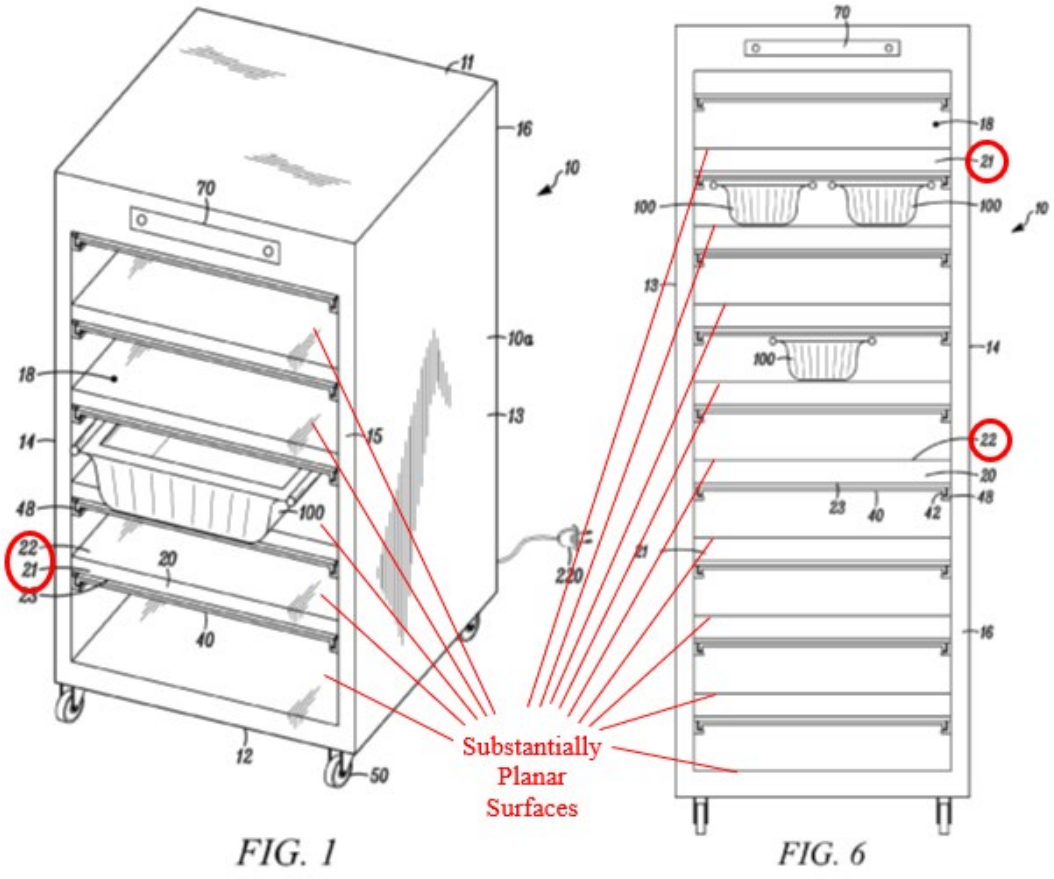


FIG. 1 FIG. 6

EX1010: Figs. 1 and 6 (annotated).

502. While Fortmann'748 disclosed the use of stainless steel for its planar surfaces (22) of the shelves (21) and bottom panel (12), other prior art disclosed the use of aluminum instead.

503. For example, Veltrop teaches the upper plates (51) of its shelves (52) are made of aluminum. EX1022: ¶[0023] ("thermally-conductive plates 51 and 53 are preferably made of aluminum,"), Fig. 2.

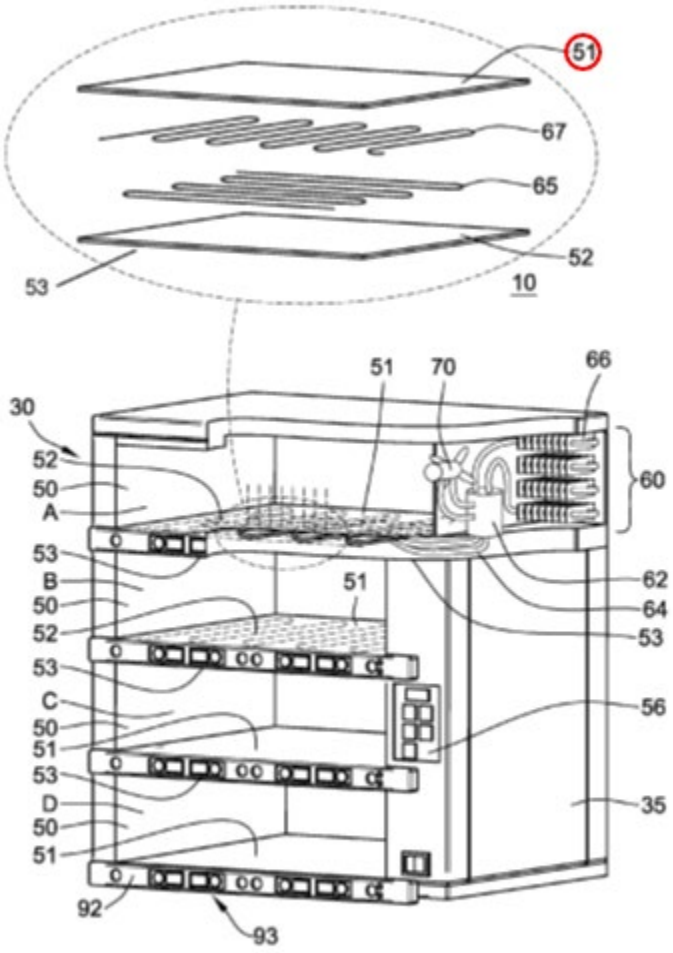
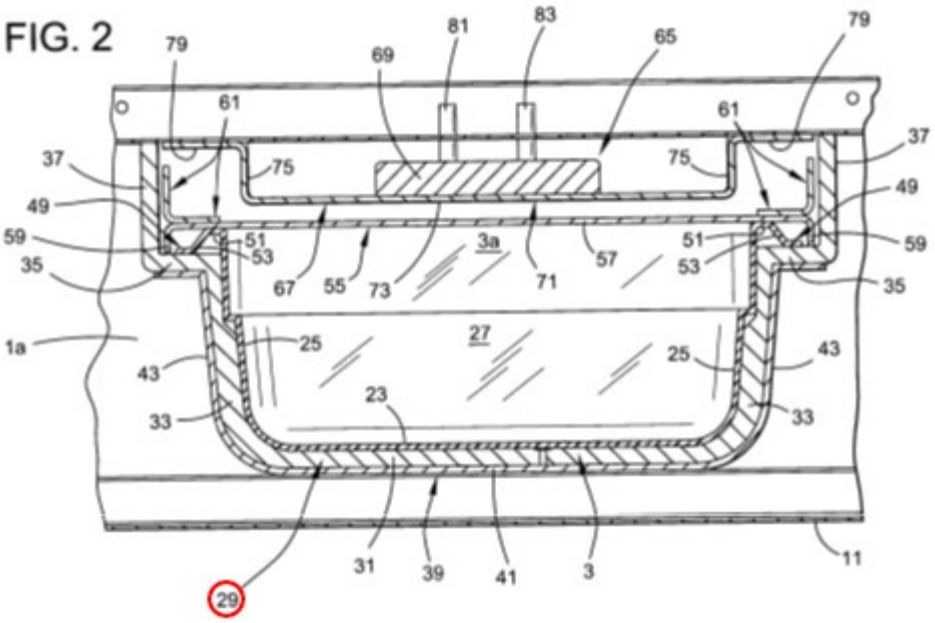


FIG. 2

EX1022: Fig. 2 (annotated).

504. Shei'155 likewise teaches constructing its heat sink (29) out of aluminum. EX1016: ¶[0039] ("heat sink 29, which is made of aluminum").



EX1016: Fig. 2 (annotated).

505. It would have been obvious to make the upper plates of Fortmann'748's shelves and bottom panel out of aluminum as taught by Veltrop and/or Shei'155 because aluminum is a preferred material for such structures and "conducts heat well." EX1017: 3:32-33; EX1022: ¶[0023]; EX1020: ¶¶[0021]-[0023] (in the context of individually controllable heating zones A-C across a shelf (21), disclosing that "shelves 21 are preferably made from thermally conductive materials such as aluminum, copper or steel, so that the temperature of the food holding compartments 23 can be maintained by the transfer of heat from the shelf 21 into the compartment"); EX1021: ¶¶[0020]-[0022] (in the context of individually controllable heating zones A-C across a shelf (21), disclosing that "shelves 21 are preferably made from thermally conductive materials such as

aluminum, copper or steel, so that the temperature of the food holding compartments 23 can be maintained by the transfer of heat from the shelf 21 into the compartment"). Further, making the heat sink of aluminum, instead of heavier materials such as glass and stainless steel, would reduce the weight of the unit (making it easier to ship) and reduce cost.

506. As demonstrated by U.S. Publication No. 2011/0114618 ("Chung"), the POSA knows a heat sink with multiple heating zones can be made of aluminum. EX1020: ¶¶[0021]-[0023]. Chung explains each of its shelves (21) are divided into three separately controlled temperature zones (A, B, C). EX1020: ¶[0022]. Chung explains "[t]emperature control of the separate zones A, B and C is accomplished by using separate temperature control elements in each zone, and which are thermally coupled preferentially to one zone over the others. By way of example, zone A in a first shelf has a heater embedded in the shelf and centered in the "A" zone. It therefore provides most of its heat output into the A zone." EX1020: ¶[0022]. In Chung, the shelves (21) are made of aluminum. EX1020: ¶[0021].

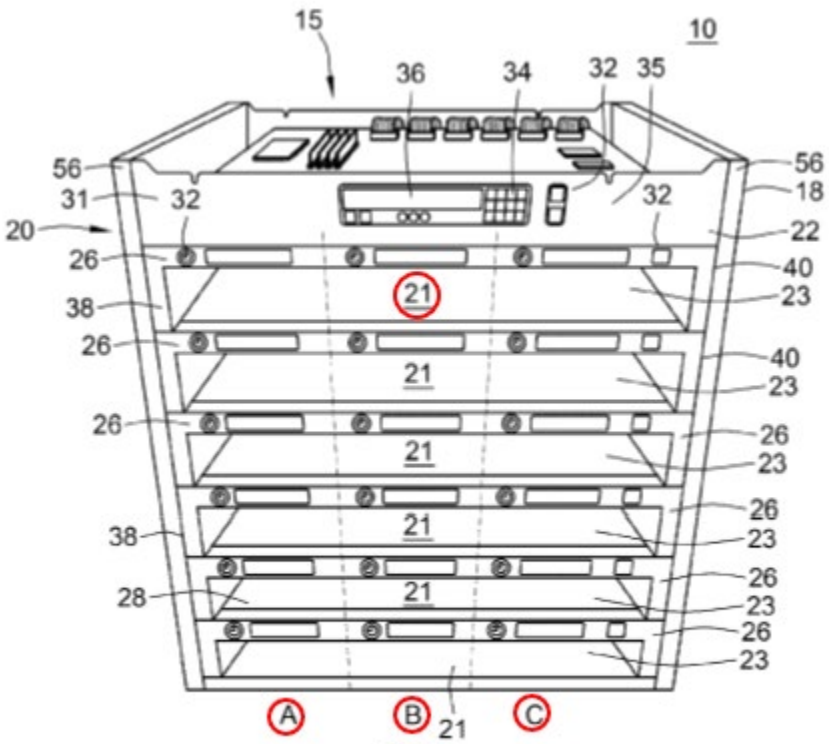


FIG. 2

EX1020: Fig. 2 (annotated).

507. This would have been nothing more than the use of a known technique (aluminum from Veltrop and Shei'155) to improve a similar device (the construction of Fortmann'748) in the same way (aluminum surfaces for supporting food tray/pans for localized heating).

508. There would have been a reasonable expectation of success given:

(1) Fortmann'748, Veltrop, and Shei'155 are each food warming cabinets;

(2) the well-known suitability of aluminum in the art for heat sinks, including heat sinks with zoned heating. EX1006: 1 ("Anodized aluminum HeatSink"); EX1007: 53 ("HeatSink"); EX1016: ¶[0039] ("heat sink 29, which is made of aluminum"); EX1020: ¶[0021] ("shelves 21 are preferably made from thermally conductive materials such as aluminum, copper or steel, so that the temperature of the food holding compartments 23 can be

maintained by the transfer of heat from the shelf 21 into the compartment"); EX1021: ¶[0020] ("shelves 21 are preferably made from thermally conductive materials such as aluminum, copper or steel, so that the temperature of the food holding compartments 23 can be maintained by the transfer of heat from the shelf 21 into the compartment"); EX1022: ¶[0023] ("thermally-conductive plates 51 and 53 are preferably made of aluminum").

7. Electrically-Resistive Heating Wire

509. Fortmann'748 does not describe the construction of its heaters (60) but explains the heaters are in "electrical communication" with the control system. EX1010: ¶[0004].

510. While Fortmann'748 is silent as to the construction of the heating elements, the POSA would additionally recognize that other prior art references within the art disclose the construction of their heating elements.

511. For example, Veltrop teaches a food holding cabinet (10) with shelves (52) having heaters in the form of electrically-resistive heater wire (67). EX1022: ¶¶[0010], [0025] ("[i]n another embodiment of the shelf 52, an electrically-insulated, electrically-resistive heater wire 67 is also sandwiched between the plates 51 and 53"), Fig. 2.

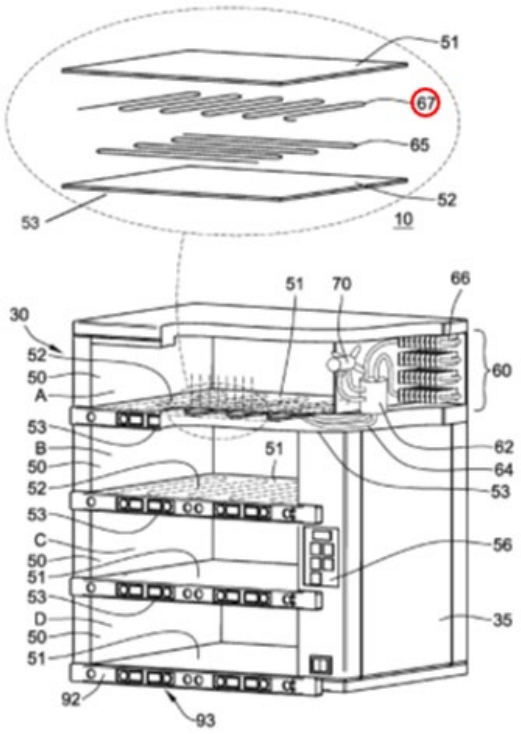


FIG. 2

EX1022: Fig. 2 (annotated).

512. It would have been obvious to have Fortmann'748's heaters comprise an electrically-resistive heater wire in view of Veltrop to generate the heat for the compartments.

513. While Fortmann'748 does not describe how its heaters generate heat, the POSA would understand Veltrop's electrically-resistive heater wire (67) is a suitable source of heat for the heaters of food warming cabinets like Fortmann'748's cabinet. EX1022: ¶[0025] ("when the wire 67 temperature rises

due to an electric current flow, it provides heat energy into the plates 51 and/or 53, to which the wire 67 is thermally coupled to").

514. Further, Veltrop's electrically-resistive heater wire (67) is electrically controlled, enabling Fortmann'748's control system (e.g., controller) to operate it. EX1022: ¶[0025].

515. This would have been nothing more than specifying the use of a known technique (electrically- resistive heater wire of Veltrop) with a similar device (a food warming cabinet with generically recited heaters of Fortmann'748) in the same way (electrically-resistive heater wire to heat compartments containing food).

516. There would have been a reasonable expectation of success given Fortmann'748's heaters—though not specifically identified as being electrically resistive heater wire heaters—are disclosed as being electrically controlled and Fortmann'748 and Veltrop are both food warming cabinets.

B. Independent Claim 1

1.P: a multi-zone food holding bin comprising

517. The POSA would recognize that Fortmann'748 disclose "a multi-zone food holding bin."

518. Specifically, Fortmann'748 teaches a food holding bin or warming cabinet (10) having multiple zones for a plurality of food pans (100). EX1010:

¶¶[0014], [0024] (“multiple heat zones”), [0027], Figs. 1 and 6; Sections XIII(B)(1.d.1) and (1.e.1).

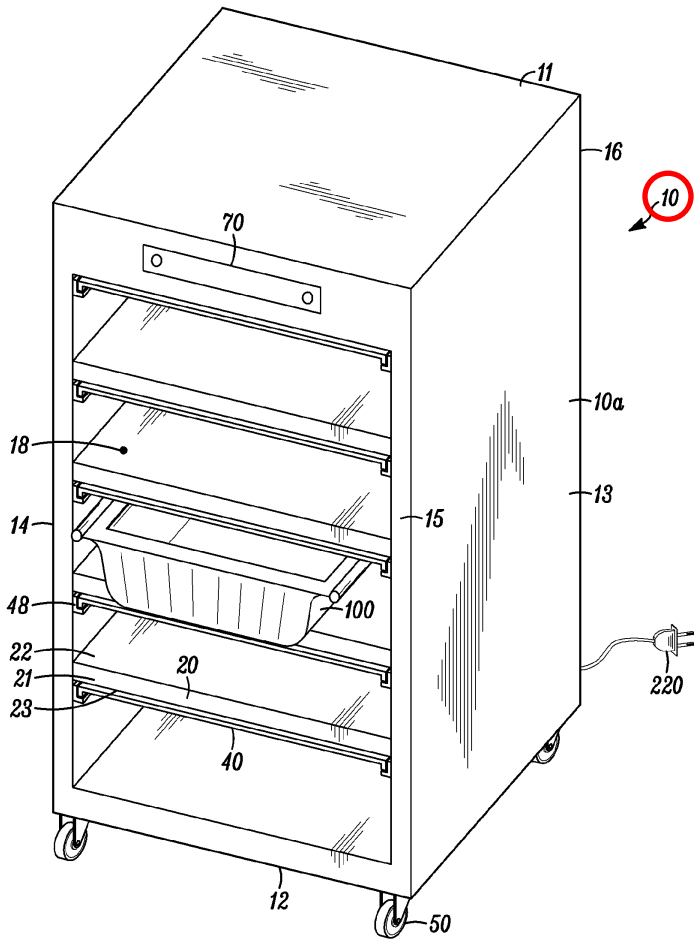


FIG. 1

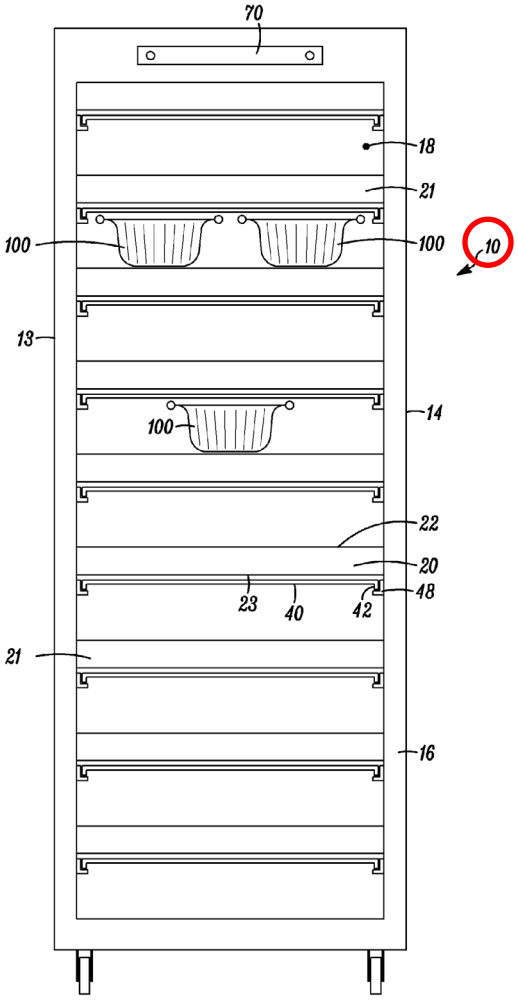
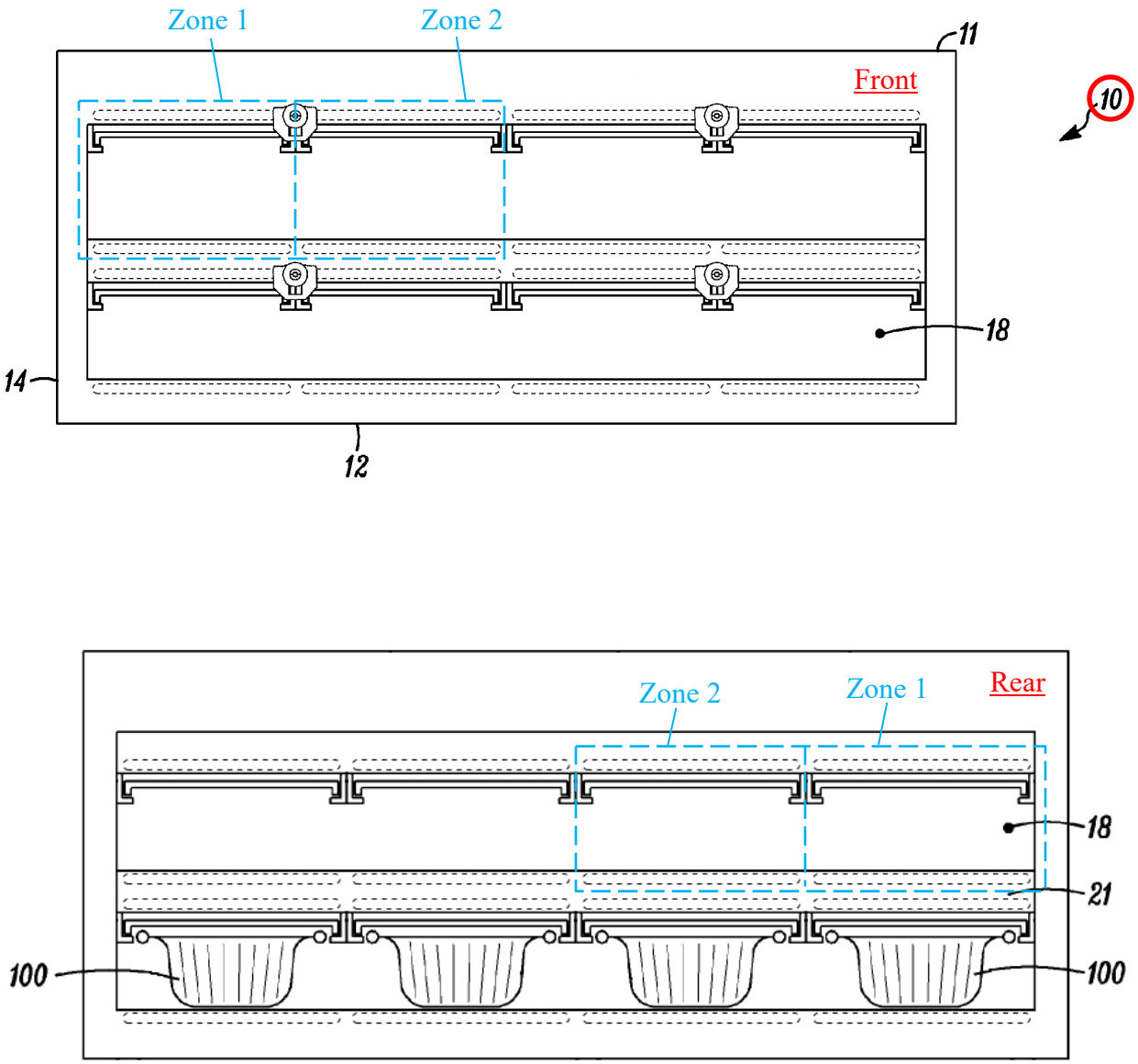


FIG. 6

EX1010: Figs. 1 and 6 (annotated).

519. Illustrations of Fortmann’748’s cabinet as modified according to Jones, Fortmann’197, the IRHS Documents, and McMillan as described in the Paragraphs 403-516 (Ground 7, Section X(A)) are demonstrated as follows:



EX1010: Figs. 2 and 6 (modified, annotated).

1.a: a chassis having a front face and an opposing rear face

520. The POSA would recognize that Fortmann'748 disclose the multi-zone food holding bins as comprising "a chassis having a front face and an opposing rear face."

521. For example, Fortmann'748's warming cabinet (10) has a chassis (10a). EX1010: ¶[0014] ("warming cart 10 includes a body 10a that is defined from a top wall 11, a bottom wall 12, a left wall 14, and a right wall 13").

522. The cabinet (10) has a front face and a rear face. EX1010: ¶[0014] ("warming cart 10 is configured with an open front side 15 and an open back side 16"), Figs. 1 and 6.

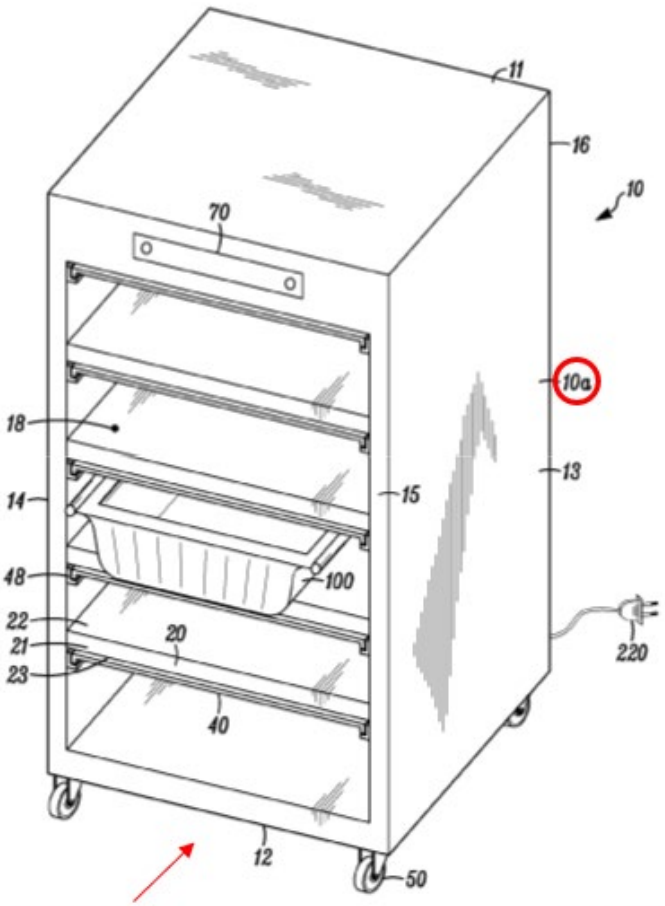


FIG. 1

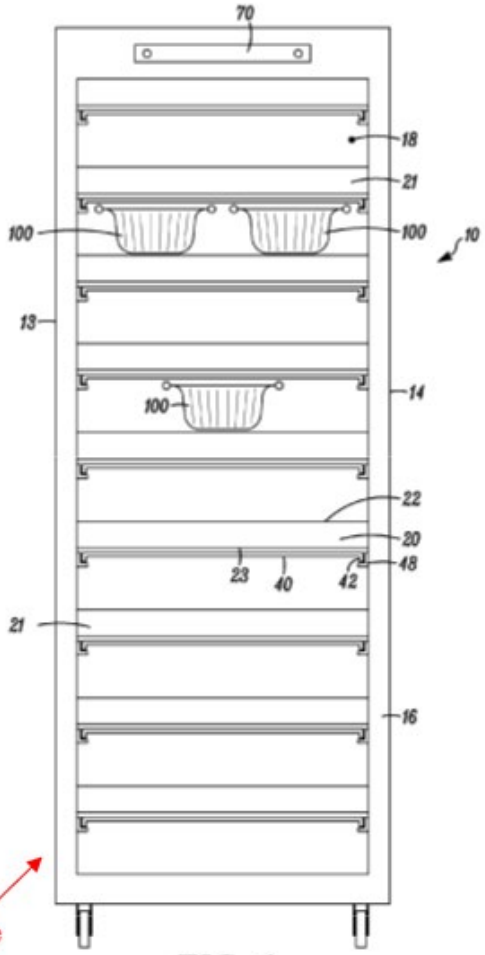
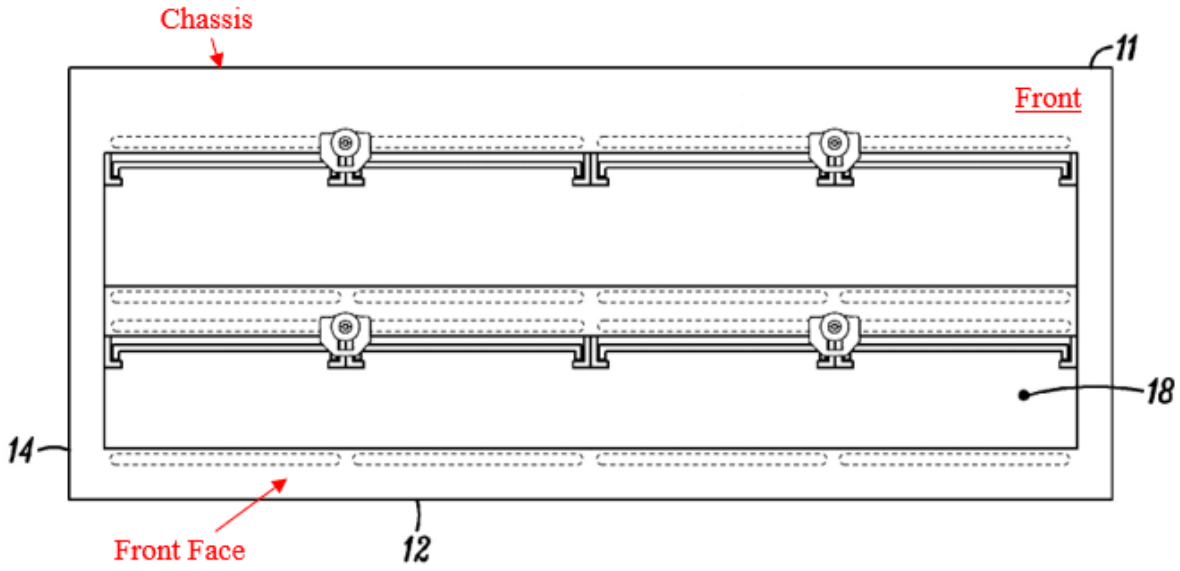
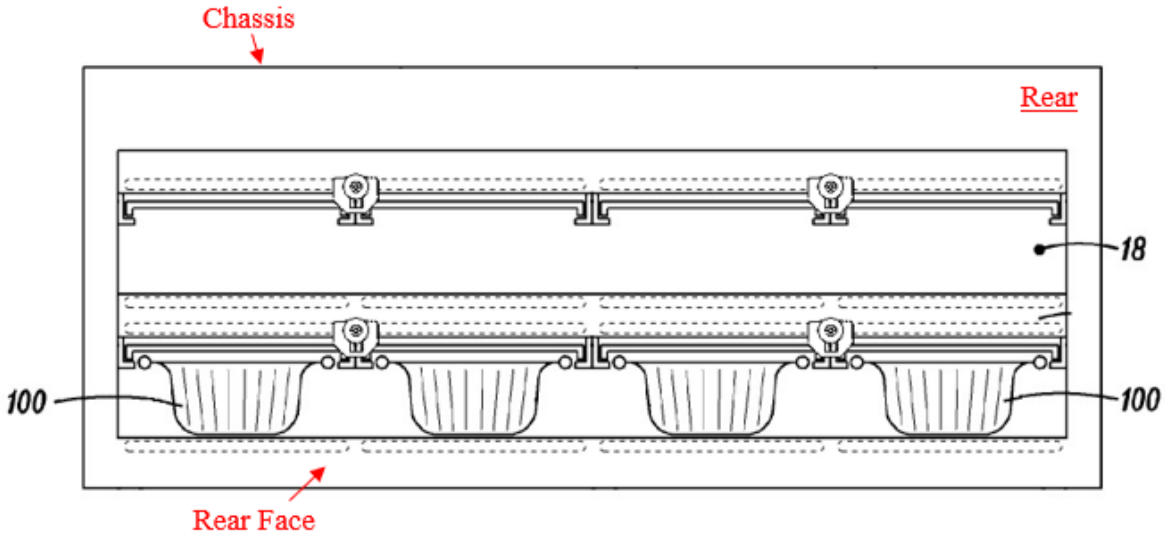


FIG. 6

EX1010: Figs. 1 and 6 (annotated).

523. This teaching would likewise hold true for the Fortmann'748 cabinet as modified according to Paragraphs 403-516 (Ground 7, Section X(A)) above as shown in the modified renderings below. The resultant modification of the Fortmann'748 food holding cabinet is demonstrated with the modified and annotated figures below. The modified figures throughout Grounds 7 and 8 represent the modifications explained in Paragraphs 403-516 (Ground 7, Section X(A)).





EX1010: Figs. 2 and 6[5] (modified, annotated).

1.b.1: a first food holding compartment within the chassis

524. The POSA would recognize that Fortmann'748 disclosed "a first food holding compartment within the chassis."

525. The chassis (10a) of Fortmann'748's cabinet (10) has an interior volume (18) for the food pans (100). EX1010: ¶[0014], Figs. 1 and 6.

526. The cabinet (10) includes a plurality of shelves (21) dividing the interior volume (18) into a plurality of food holding compartments. EX1010: ¶[0015] ("a shelf 21 that is fixed to the right and left sides 14, 13 of the body 10a, with the top surface 22 of the shelf 21 being spaced from a bottom surface 23 of a

[5] Fig. 2 is a front view and Fig. 6 is a back view of the cabinet. EX1010: ¶¶[0008], [0012].

neighboring shelf 21 a distance to allow a conventional restaurant cooking pan 100 to be inserted therebetween"), Figs. 1 and 6.

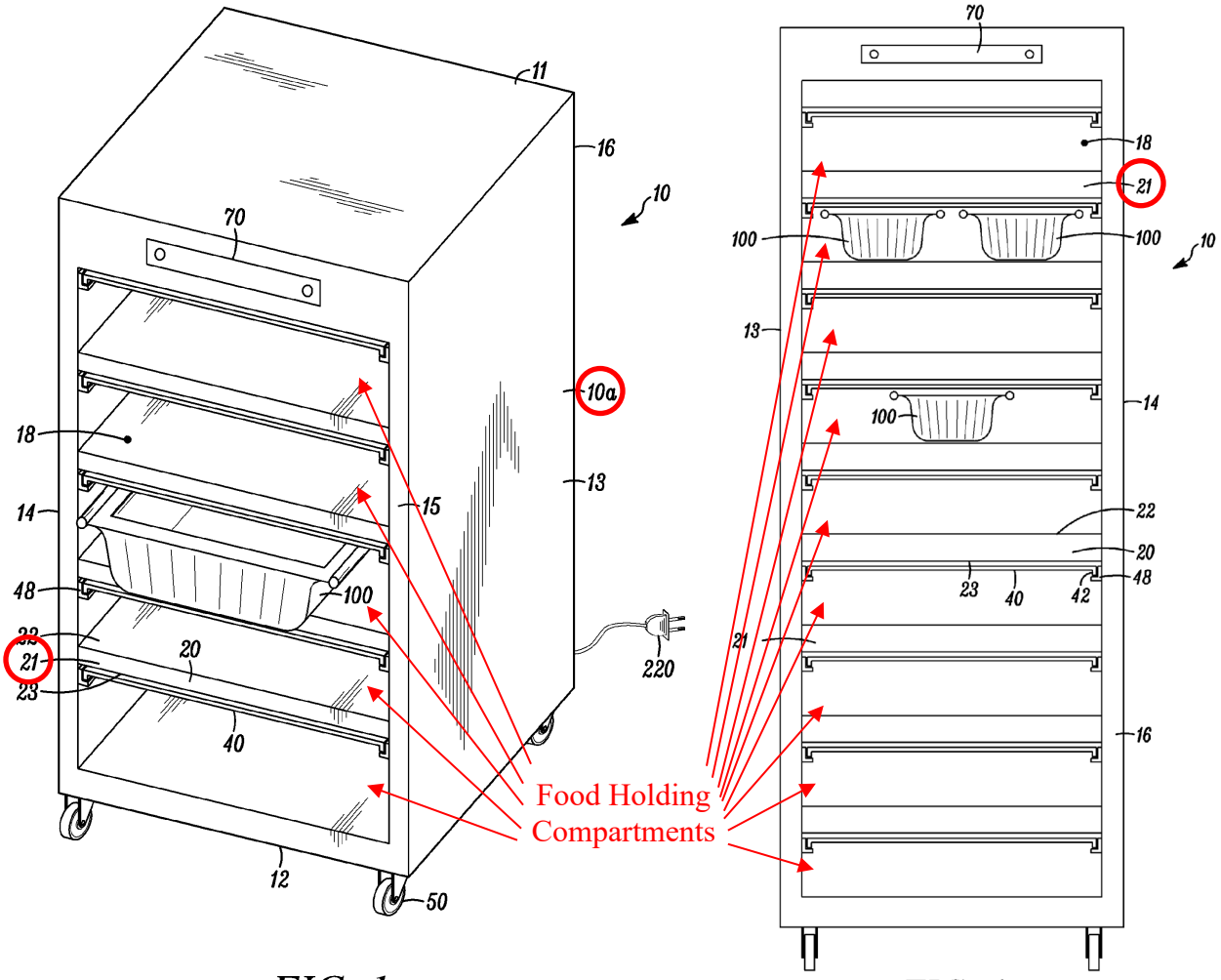
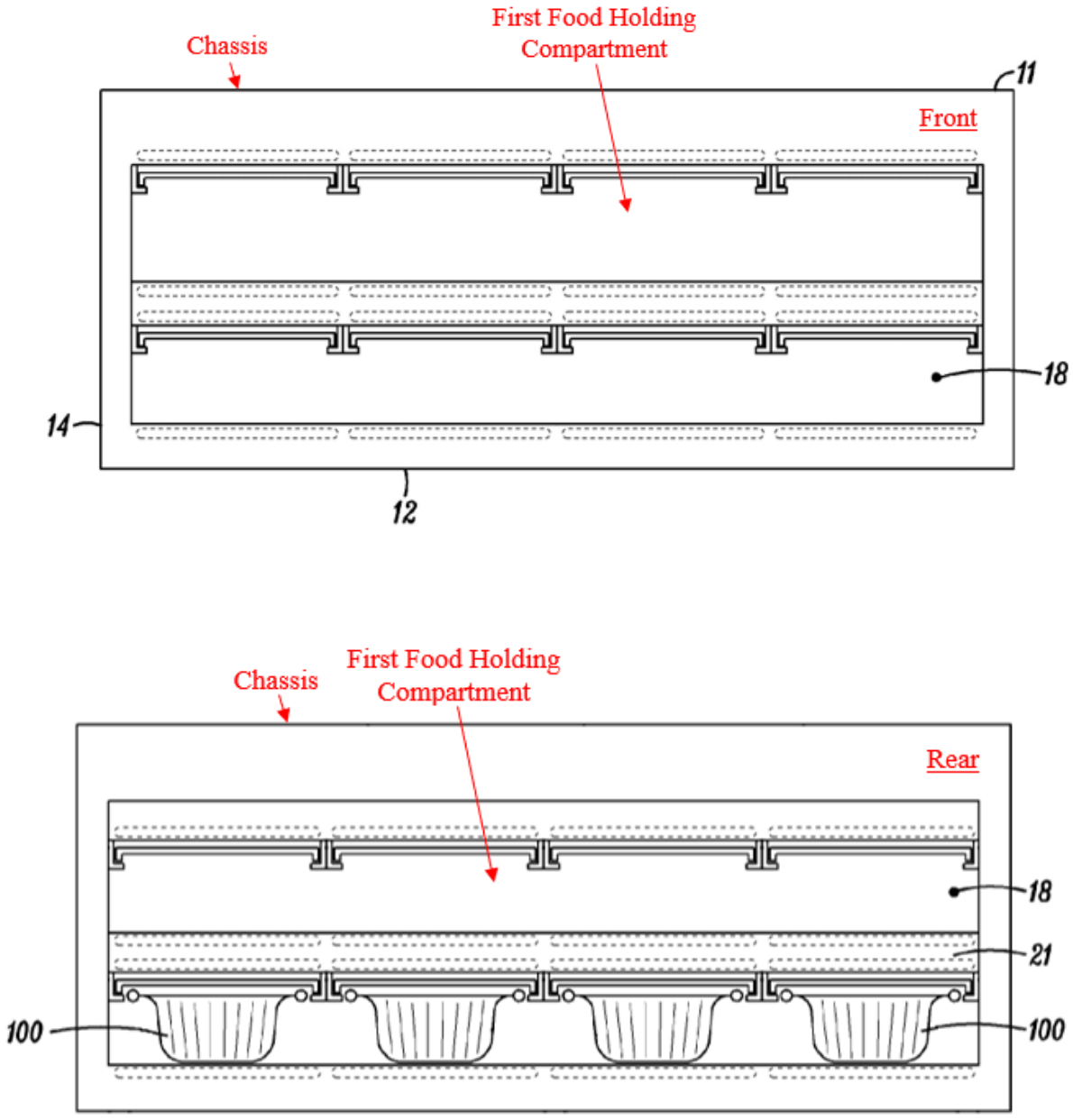


FIG. 1 FIG. 6

EX1010: Figs. 1 and 6 (annotated).

527. In adapting the Fortmann'748 cabinet to a 2x4 configuration as discussed at Paragraphs 403-414 (Ground 7, Section X(A)(1)) above, the chassis (10a) would have a first food holding compartment above the shelf (21). The

resultant modification of the Fortmann'748 food holding cabinet is demonstrated with the modified and annotated figures below:



EX1010: Figs. 2 and 6 (modified, annotated).

1.b.2: the first food holding compartment having at least a first opening, the first opening being open, uncovered and located at the front face of the chassis, the first opening being configured to allow food items to be placed into and removed from the first food holding compartment

528. The POSA would recognize that Fortmann'748 discloses the first food holding compartment of the multi-zone food holding bins as having "a first opening" with this first opening "being open, uncovered and located at the front face of the chassis" and "configured to allow food items to be placed into and removed from the first food holding compartment."

529. The first food holding compartment has a first opening that is open, uncovered, and located at the front face of the chassis (10a). EX1010: ¶[0014] ("[t]he warming cart 10 is configured with an open front side 15").

530. The first opening is larger than the food pans (100) and allows the food pans, and thus food contained therein, to pass therethrough to be placed into and removed from the first food holding compartment. EX1010: ¶[0014] ("[t]he warming cart 10 is configured with an open front side 15 … to allow one or more pans 100 to be quickly disposed within the cart 10 and the warming volume and removed from the cart 10 without operation of doors or other barriers found on conventional warming carts. As shown in FIGS. 1, 2, 4, and 5 the front side 15 is open to allow pans 100, trays, pizza boxes and the like to slide through the open front side 15 and within the warming volume 18 of the cart"), ¶[0015] ("the top

surface 22 of the shelf 21 being spaced from a bottom surface 23 of a neighboring shelf 21 a distance to allow a conventional restaurant cooking pan 100 to be inserted therebetween"), ¶[0017] ("food products disposed within the pan 100"), ¶[0024] ("tray 100"), Fig. 1.

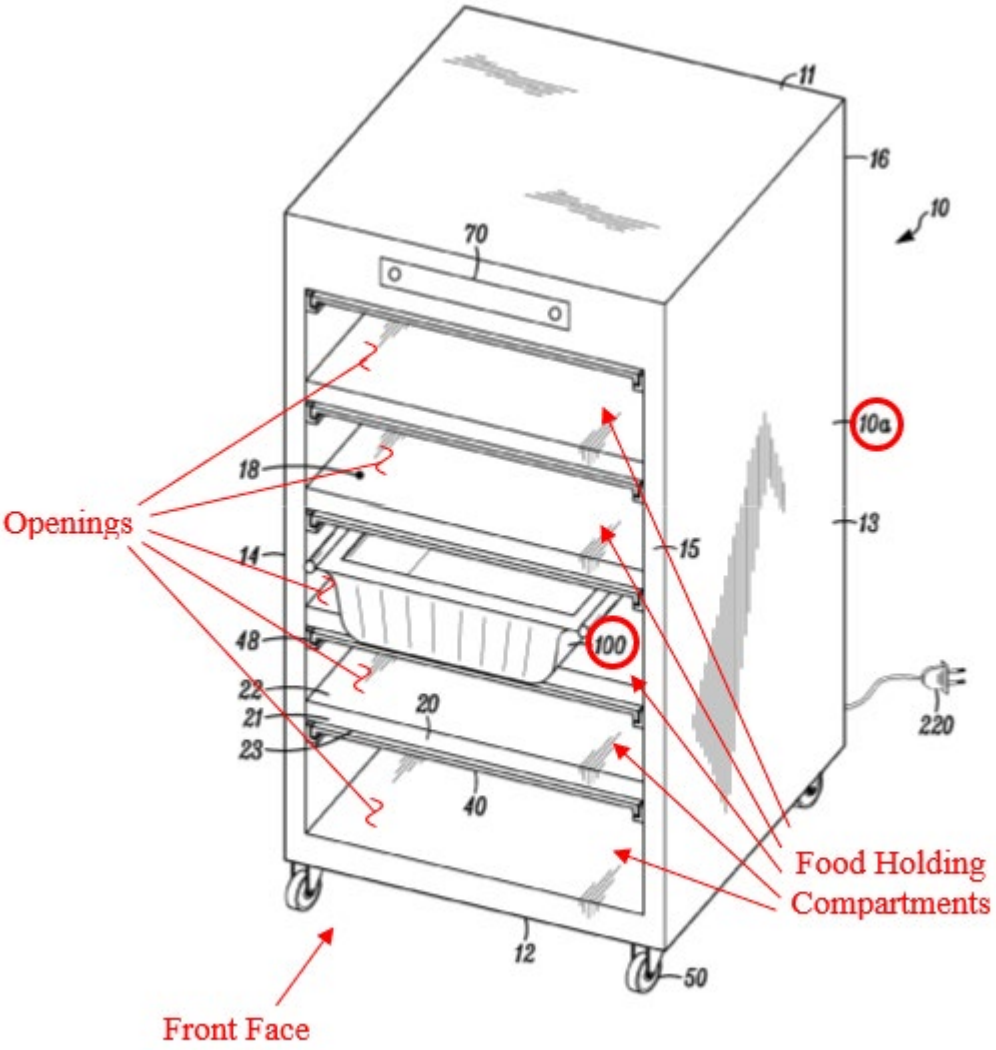
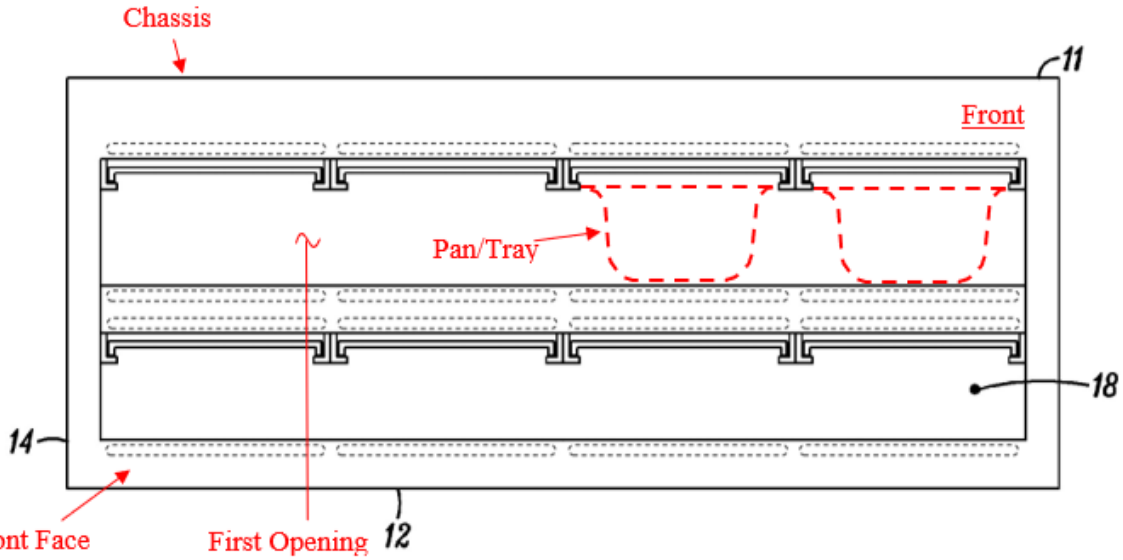


FIG. 1

EX1010: Fig. 1 (annotated).

531. Both as disclosed in Fortmann'748 and as modified according to Paragraphs 403-516 (Ground 7, Section X(A)) above, the front face of the chassis (10a) of the cabinet has a first opening that is open, uncovered and located at the front face of the chassis and configured to allow food items to be placed into and removed from the first food holding compartment.



EX1010: Fig. 2 (modified, annotated).

1.c.1: a continuous and planar surface forming a bottom of the first food holding compartment

532. The POSA would recognize that Fortmann'748 discloses a "continuous and planar surface forming a bottom of the first food holding compartment."

533. Both as disclosed in Fortmann'748 and as modified according to Paragraphs 403-516 (Ground 7, Section X(A)), the top surface (22) of the shelf

(21) of Fortmann'748 is shown as a planar surface and forms bottom surface of the first food holding compartment. EX1010: ¶[0015] ("with the top surface 22 of the shelf 21"), Figs. 1 and 6.

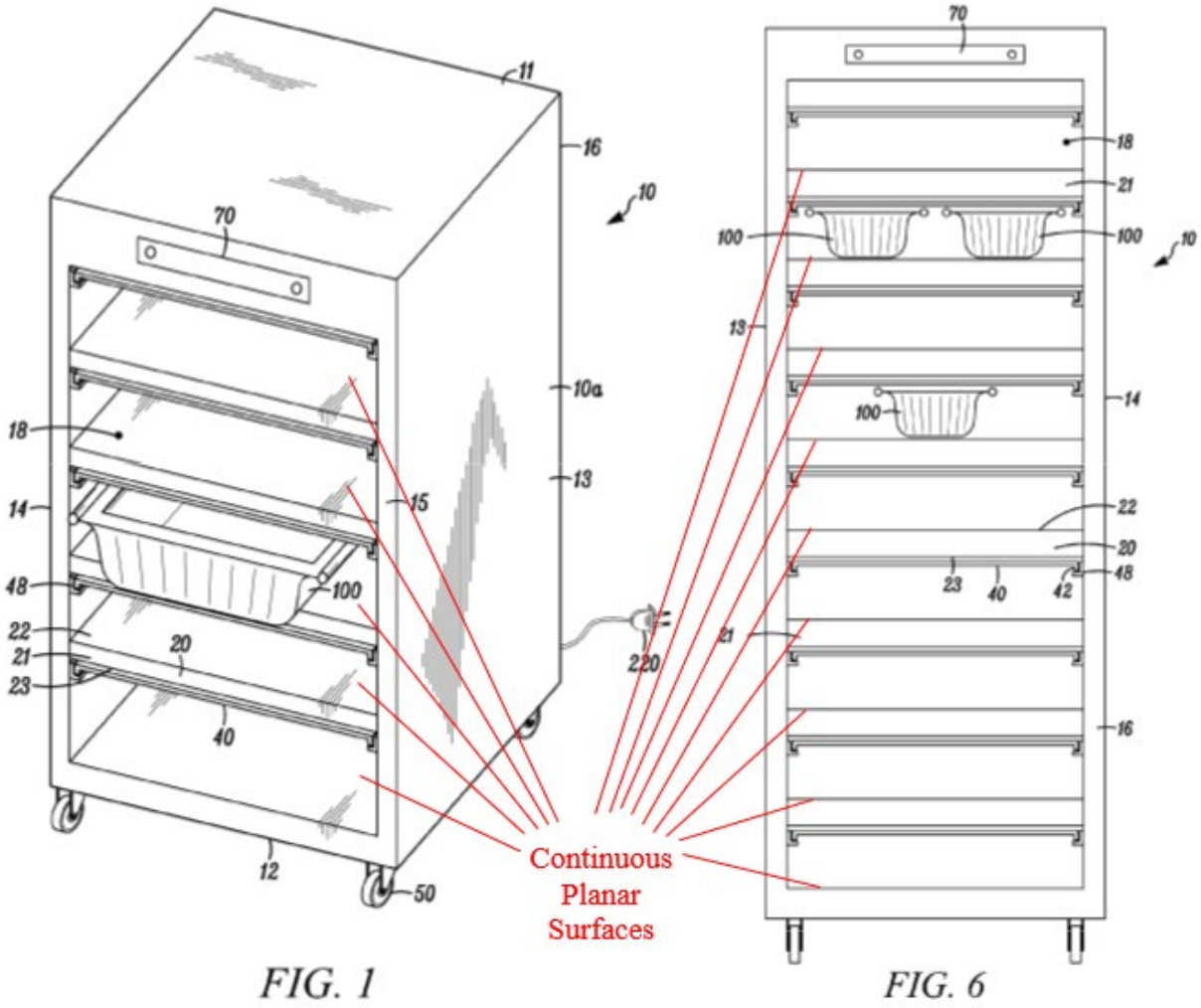
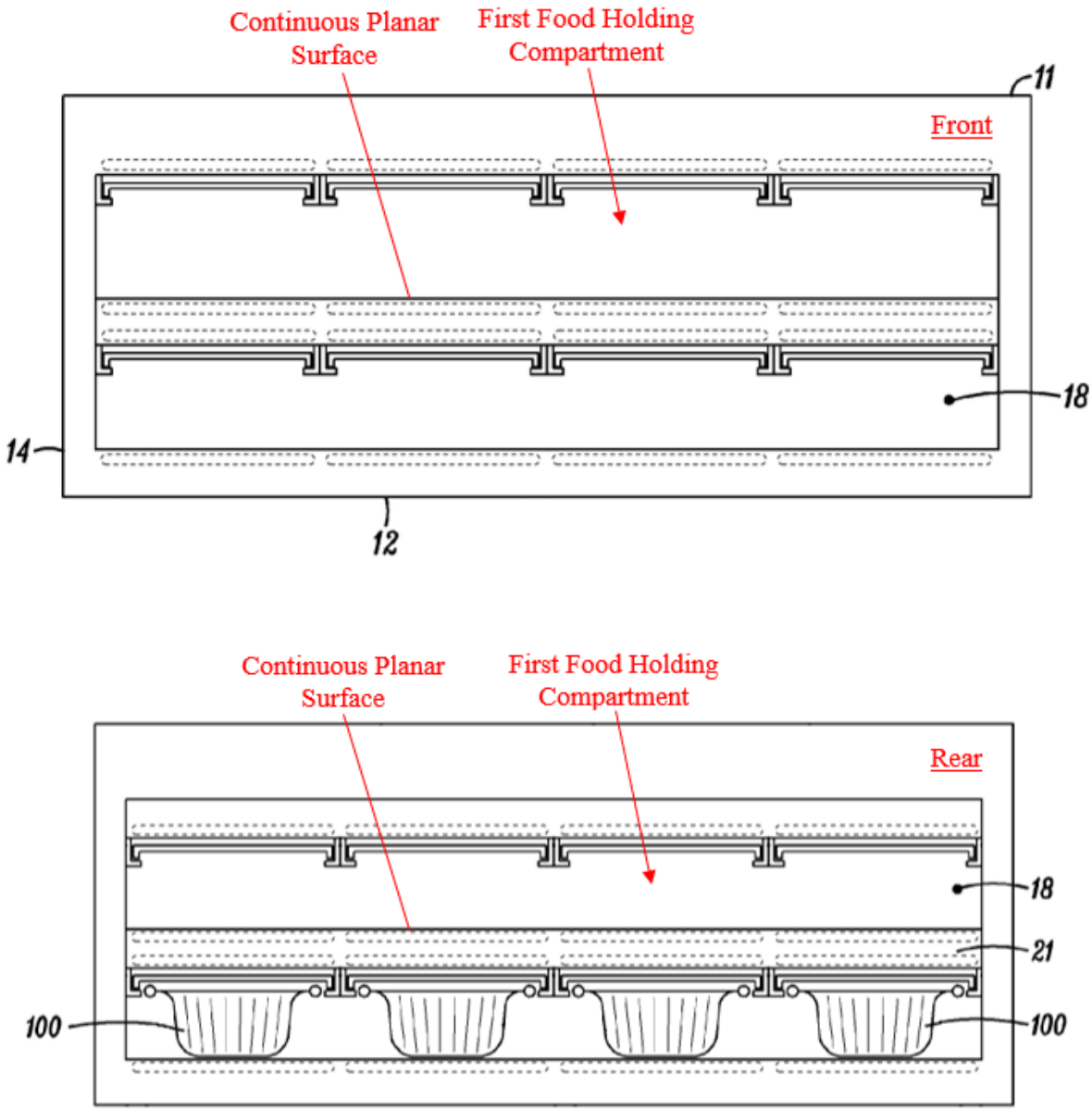


FIG. 1 FIG. 6

EX1010: Figs. 1 and 6 (annotated).



EX1010: Figs. 2 and 6 (modified, annotated).

1.c.2: the continuous and planar surface extending completely to the front face of the chassis

534. The POSA would recognize that Fortmann'748 discloses the continuous and planar surface as "extending completely to the front face of the chassis."

535. Both as disclosed in Fortmann'748 and as modified according to Paragraphs 403-516 (Ground 7, Section X(A)) above, the continuous planar surface extends completely to the front face of the chassis (10a).

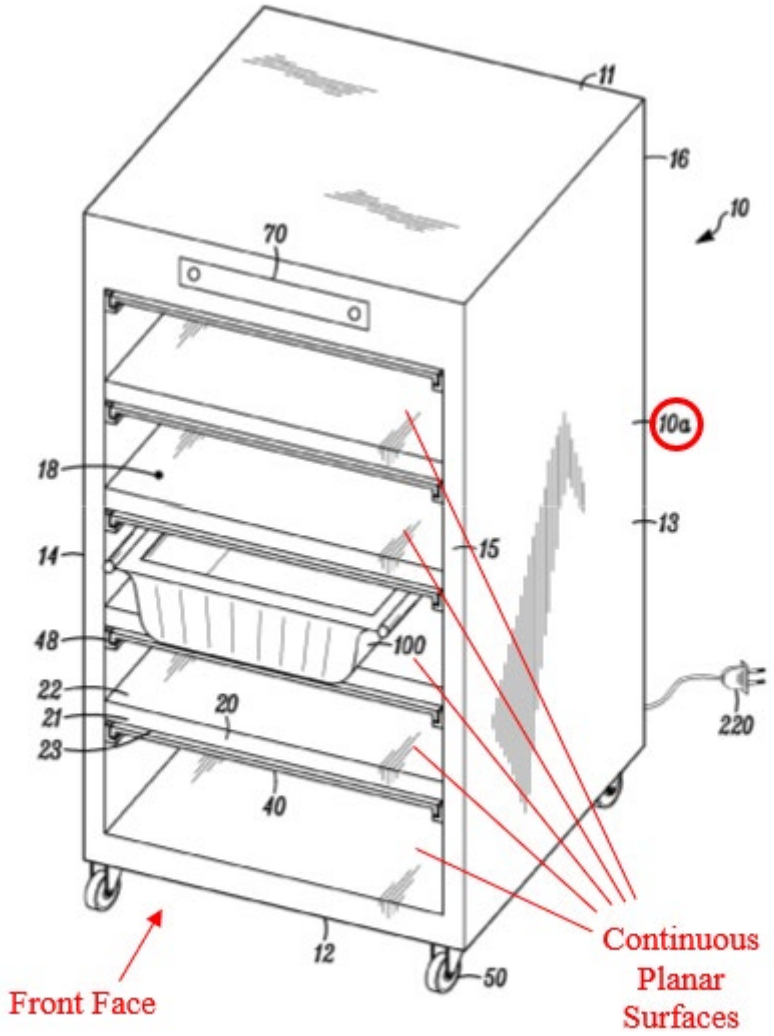
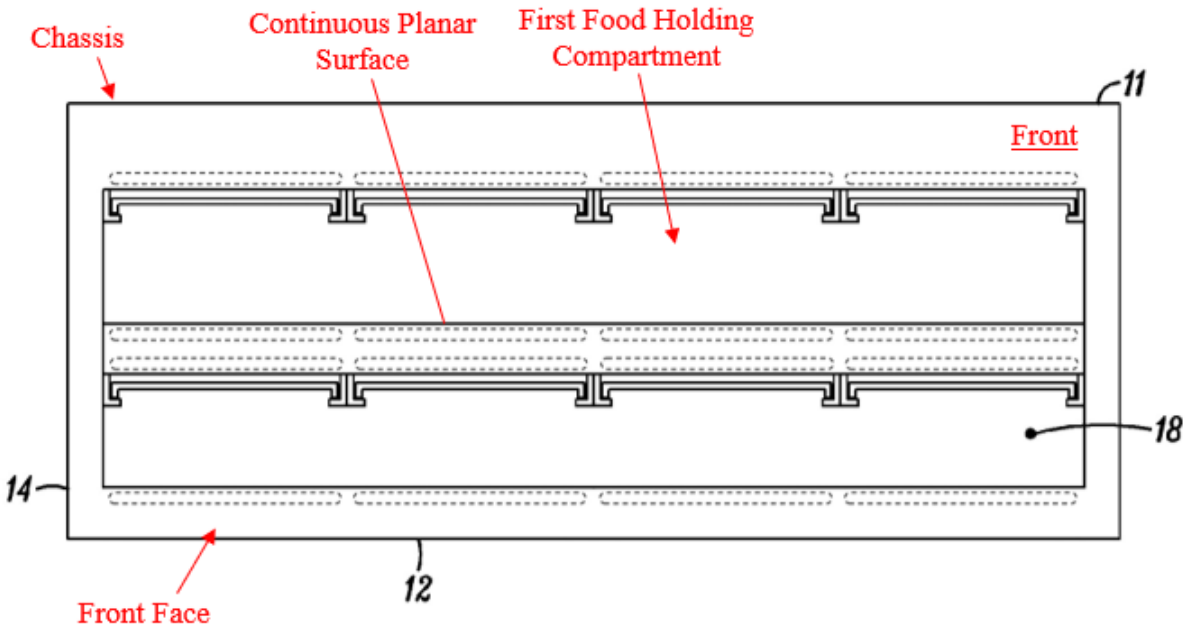


FIG. 1

EX1010: Fig. 1 (annotated).



EX1010: Fig. 2 (modified, annotated).

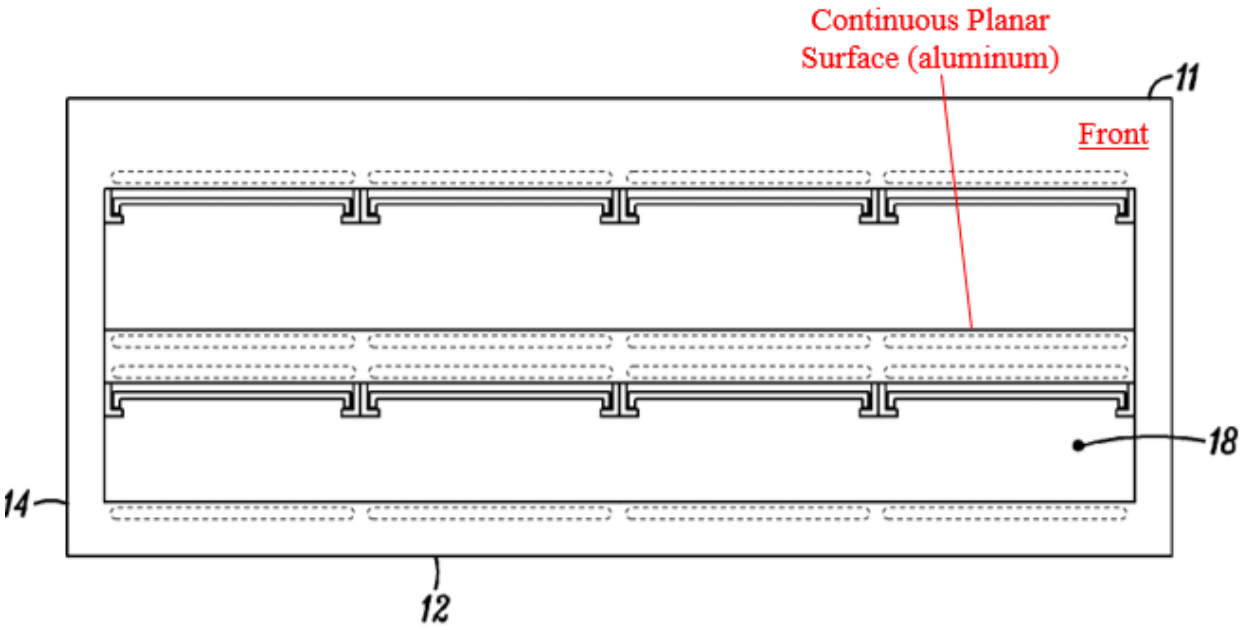
1.c.3: the continuous and planar surface comprising aluminum

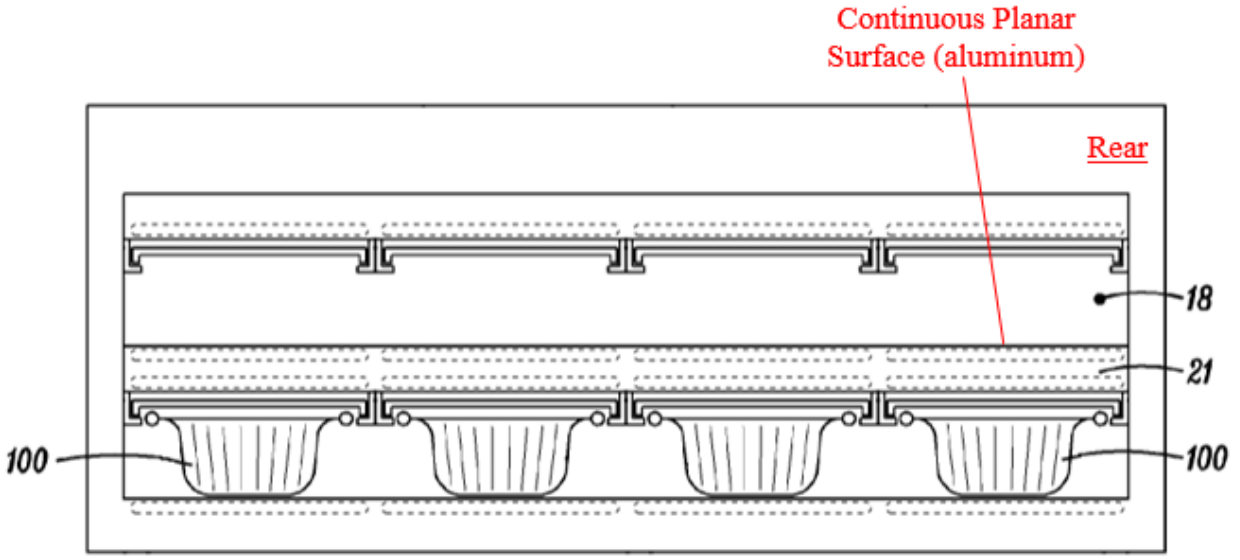
536. The POSA would recognize that Fortmann'748 discloses that "the continuous and planar surface comprising aluminum."

537. Fortmann'748 explains the shelves (21) are formed by "planar sheets of thin material (such as stainless steel) that form an envelope for the heater 60 to be disposed therebetween." EX1010: ¶[0019].

538. Veltrop and Shei'155 each teach the planar surface (formed by upper plates/heatsinks) comprising aluminum such that it would have been obvious for Fortmann'748's continuous and planar surface to comprise aluminum for the reasons explained in Paragraphs 501-508 (Ground 7, Section X(A)(6)). EX1022:

¶[0023]; EX1016: ¶[0039]. The resultant modification of the Fortmann'748 food holding cabinet is demonstrated with the modified and annotated figures below:





EX1010: Figs. 2 and 6 (modified, annotated).

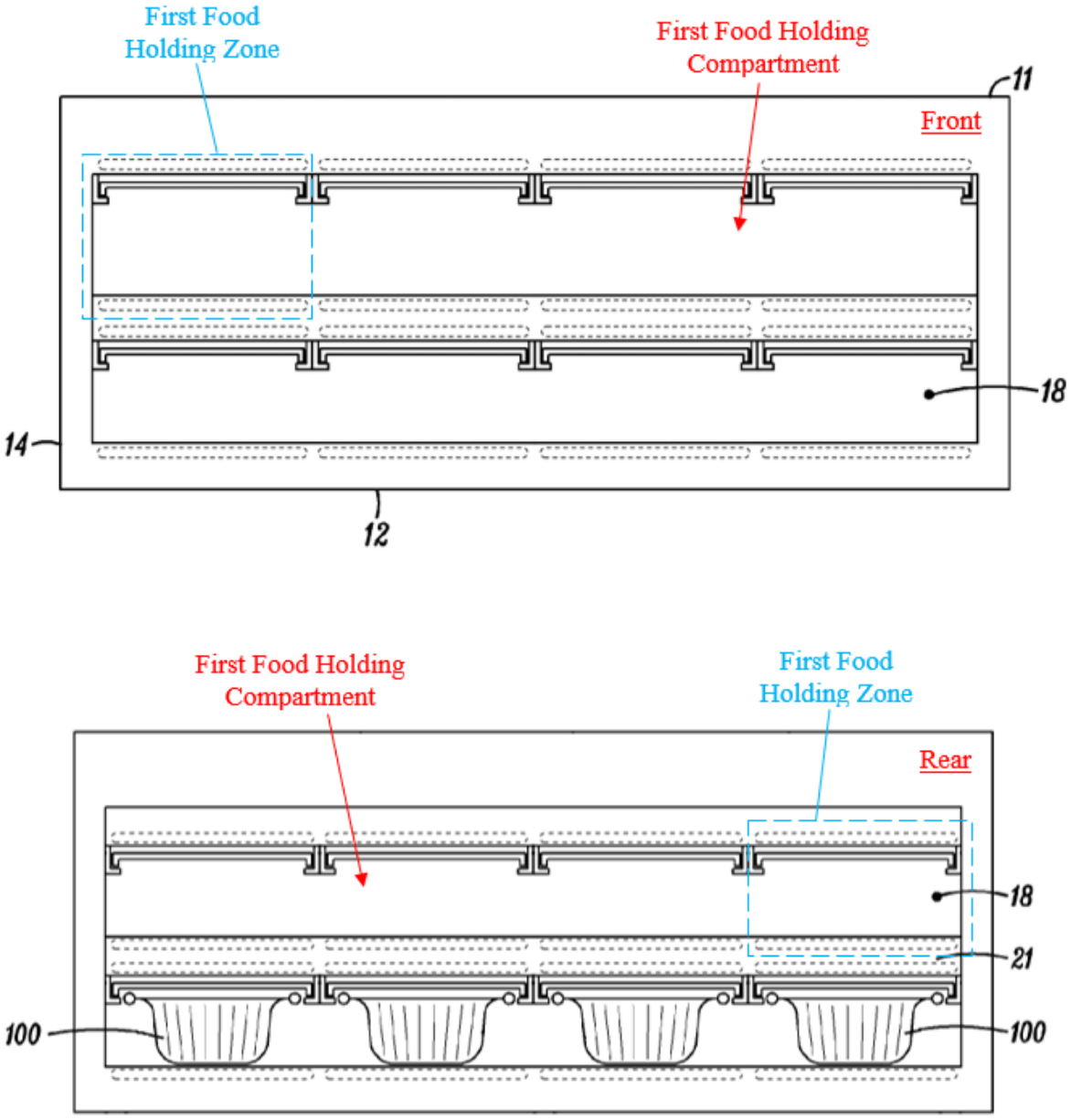
1.d.1: a first food holding zone formed in the first food holding compartment

539. The POSA would recognize that Fortmann'748 discloses a "holding zone formed in the first food holding compartment."

540. As described above in Paragraphs 415-445 (Ground 7, Section X(A)(2)), Jones, Fortmann'197, and McMillan each further disclose food holding zones per each pan bay within a food holding compartment. EX1012: ¶¶[0069], [0072], [0096]; EX1014: 3:6-27, 8:63-9:19, 9:50-65; EX1019: 4:36-59.

541. Accordingly, it would have been obvious to modify the Fortmann'748 cabinet in view of Jones (EX1012), Fortmann'197 (EX1014), and McMillan (EX1019) as discussed in Paragraphs 415-445 (Ground 7, Section X(A)(2)) such that it would have a first food holding zone (heating zone) and at least a second food holding zone (heating zone) in the first food holding compartment.

542. The resultant modification of the Fortmann'748 food holding cabinet is demonstrated with the modified and annotated figures below:



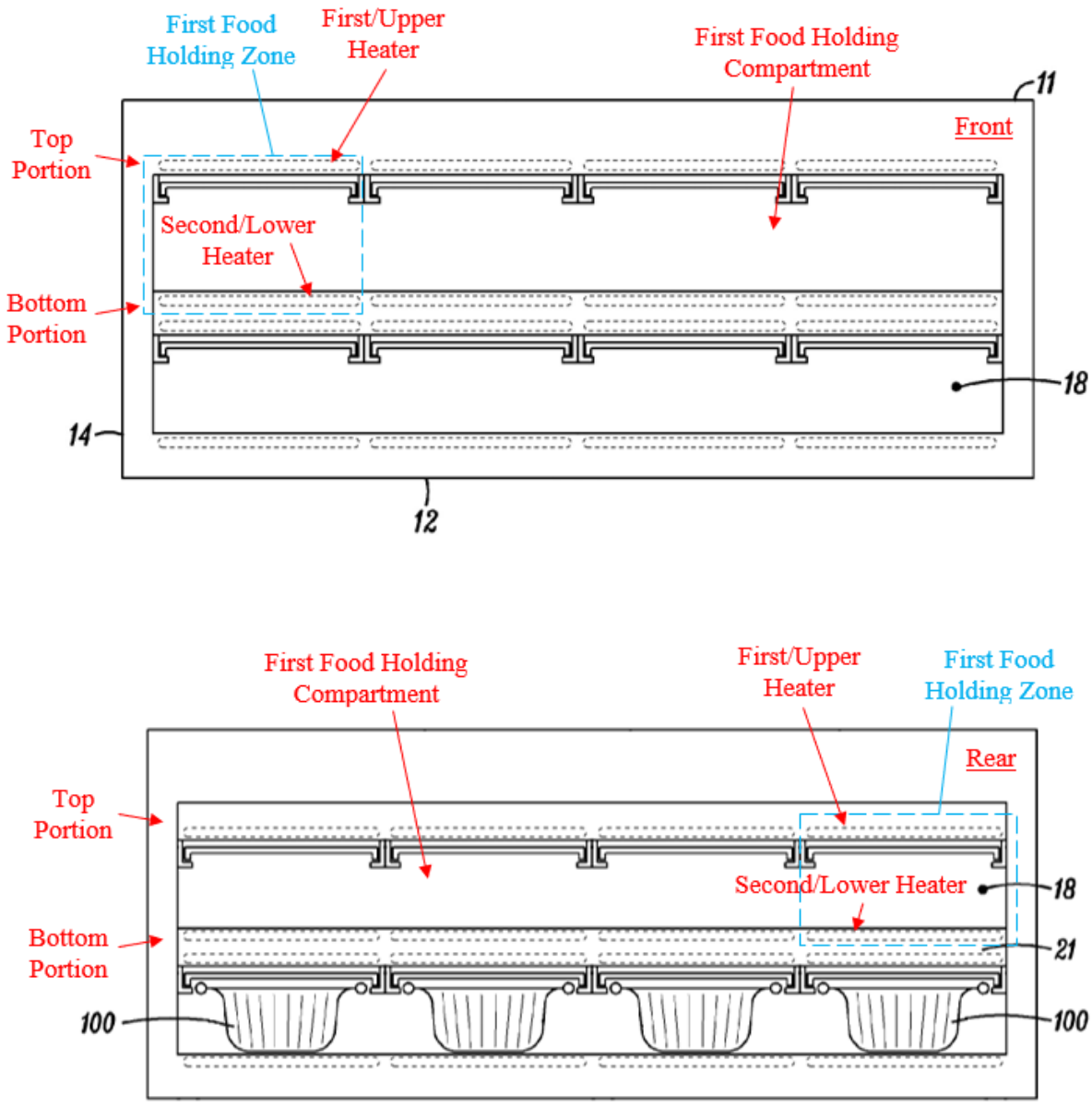
EX1010: Figs. 2 and 6 (modified, annotated).

1.d.2: the first food holding zone having an independently controllable radiant first heating element disposed at a top portion of the first food holding compartment, and an independently controllable conductive second heating element disposed at a bottom portion of the first food holding compartment

543. As discussed in Paragraphs 415-445 (Ground 7, Section X(A)(2)-(3)), the POSA would recognize that the heating elements of each zone of Jones, Fortmann'197, and McMillan are independently controllable from one another and other zones' heaters. EX1010: ¶¶[0021], [0027]; EX1012: ¶¶[0072], [0096], [0098], [0130]; EX1014: 3:6-27, 8:63-9:19, 9:50-65; EX1019: 4:36-59.

544. Jones (EX1012), Fortmann'197 (EX1014), and/or McMillan (EX1019) disclose upper and lower heating elements for each zone and Jones, Fortmann'197, the IRHS Documents (EX1005-EX1008), and McMillan disclose heating elements of each zone being independently controllable from one another and other zones' heating elements. EX1005: 16, 20, 25, 26; EX1006: 1; EX1007: 53; EX1010: ¶¶[0021], [0027]; EX1012: ¶¶[0072]-[0073], [0096], [0098], [0130]; EX1014: 3:6-27, 8:63-9:19, 9:50-65; EX1019: 4:36-59. In view of these disclosures, it would have been further obvious to modify the Fortmann'748 cabinet as discussed in Paragraphs 415-445 (Ground 7, Section X(A)(2)-(3)) such that the first food holding zone would have an independently controllable first/upper heater and an independently controllable second/lower heater (e.g.,

heating elements) at respective top and bottom portions of the first food holding compartment.



EX1010: Figs. 2 and 6 (modified, annotated).

545. In modifying Fortmann'748's cabinet such that the first food holding zone were to have upper and lower heaters, it would further been obvious for the

upper and lower heaters to be independently controllable from one another and from the upper and lower heaters of the other food holding zones.

546. Specifically, as explained in Paragraphs 415-445 (Ground 7, Section X(A)(2)-(3)), when duplicating Fortmann'748's heaters (60) in view of Jones, Fortmann'197, and/or McMillan, the POSA would have maintained the independent control of the heaters as taught by Jones, Fortmann'197, the IRHS Documents, and/or McMillan.

547. Accordingly, Fortmann'748's modified control system would independently operate the upper and lower heaters in one zone (specifically, in each pan holding location/bay) from one another and from the upper and lower heaters in other zones.

548. Fortmann'748 explains the heaters (60) overlying the compartments transfer heat to the pans (100) by radiation, and therefore are radiant heating elements. EX1010: ¶[0019] ("[t]he remaining portion of heat generated by the heaters 60 disposed in conjunction with each shelf 21 may be transferred to the shelf 21 by radiation heat transfer."), ¶[0020] ("the pan 100 and the food product located within the pan 100 may receive heat from the shelf 21 disposed above the pan 100 due to radiation").

549. When modifying the heaters (60) of Fortmann'748, the POSA would follow the teachings of Fortmann'748 and have the first/upper heaters heat (*e.g.*,

via radiation, or conduction and radiation) the top panel and shelf, thereby heating the pans (100) disposed below by radiation from above. EX1010: ¶¶[0019]-[0020].

550. Because the tops of the pans (100) are spaced apart from the underside of the top panel and shelf (and thereby the first/upper heaters as well), the heat generated by the first/upper heaters will naturally heat the food pans by radiation, and therefore the first/upper heaters would be radiant heating elements. Radiation heat transfer occurs regardless of whether the lids are in contact with the underside of the shelf or spaced apart from the shelf. EX1010: ¶[0018].

551. Fortmann'748 also explains the heaters (60) contact the upper sheet forming the continuous and planar surface upon which the pans (100) rest to heat the pan by conduction, and therefore are conductive heating elements. EX1010: ¶¶[0019] ("the heater 60 makes surface contact with at least the upper sheet 22 forming the shelf 21 … such that a percentage of the heat generated by the heaters disposed in conjunction with each shelf 21 is transferred directly to the shelf by conductive heat transfer"), [0020] ("a pan 100 disposed within the cart 10 may receive heat from [] the shelf 21 below the pan (by conduction and radiation)").

552. When modifying the heaters (60) of Fortmann'748 to have separate independently controllable upper and lower heaters as explained in Paragraphs 446-465 (Ground 7, Section X(A)(3)), the POSA would still follow the teachings of Fortmann'748 and have the second/lower heaters contact the continuous and

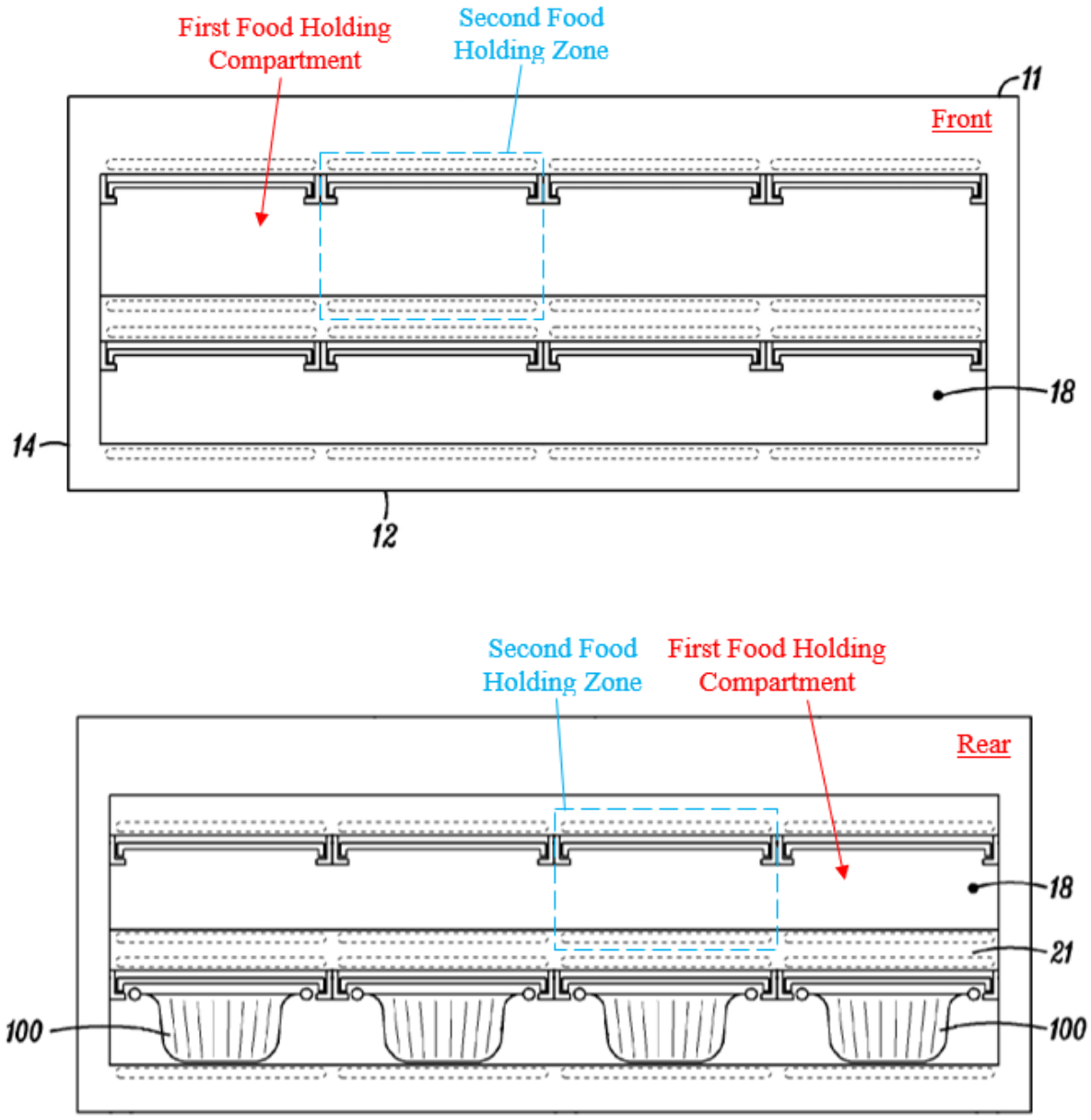
planar surfaces the pans rest on to heat the pans by conduction from below, and therefore the second/lower heaters would be conductive heating elements. EX1010: ¶¶[0019]-[0020].

1.e.1: a second food holding zone formed in the first food holding compartment

553. The POSA would recognize that Fortmann'748 discloses a "holding zone formed in the first food holding compartment."

554. As described above in Paragraphs 415-445 (Ground 7, Section X(A)(2)), Jones, Fortmann'197, and McMillan each further disclose food holding zones per each pan bay within a food holding compartment. EX1012: ¶¶[0069], [0072], [0096]; EX1014: 3:6-27, 8:63-9:19, 9:50-65; EX1019: 4:36-59.

555. Accordingly, it would have been obvious to modify the Fortmann'748 cabinet in view of Jones (EX1012), Fortmann'197 (EX1014), and McMillan (EX1019) as discussed in Paragraphs 415-445 (Ground 7, Section X(A)(2)) such that it would have at least a second food holding zone (heating zone) in the first food holding compartment.



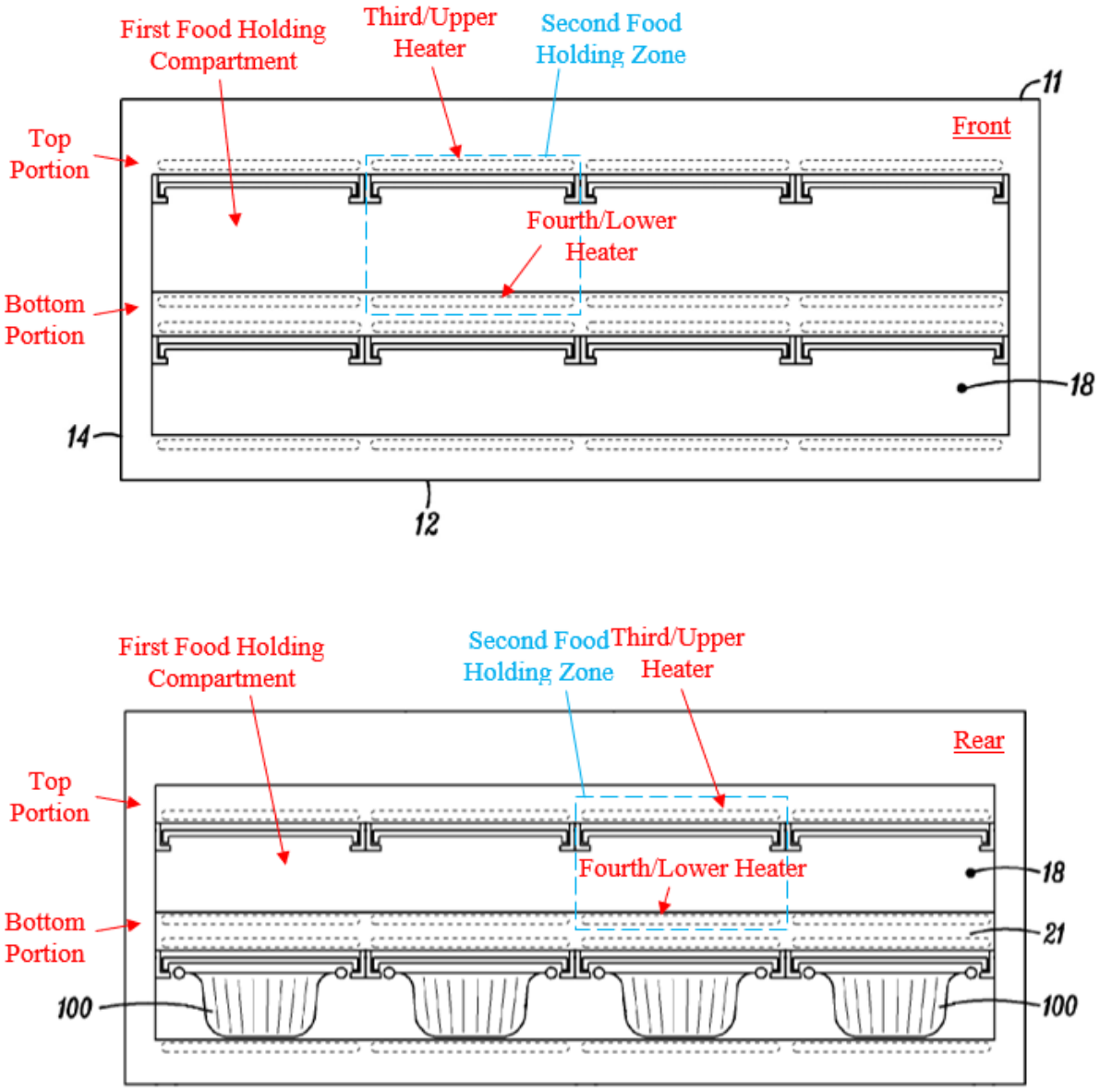
EX1010: Figs. 2 and 6 (modified, annotated).

1.e.2: the second food holding zone having an independently controllable radiant third heating element disposed at the top portion of the first food holding compartment and an independently controllable conductive fourth heating element disposed at the bottom portion of the first food holding compartment

556. As discussed in Paragraphs 415-445 (Ground 7, Section X(A)(2)-(3)), the POSA would recognize that the heating elements of each zone of Jones, Fortmann'197, and McMillan are independently controllable from one another and other zones' heaters. EX1010: ¶¶[0021], [0027]; EX1012: ¶¶[0072], [0096], [0098], [0130]; EX1014: 3:6-27, 8:63-9:19, 9:50-65; EX1019: 4:36-59.

557. Jones (EX1012), Fortmann'197 (EX1014), and/or McMillan (EX1019) disclose upper and lower heating elements for each zone and Jones, Fortmann'197, the IRHS Documents (EX1005-EX1008), and McMillan disclose heating elements of each zone being independently controllable from one another and other zones' heating elements. EX1005: 16, 20, 25, 26; EX1006: 1; EX1007: 53; EX1010: ¶¶[0021], [0027]; EX1012: ¶¶[0072]-[0073], [0096], [0098], [0130]; EX1014: 3:6-27, 8:63-9:19, 9:50-65; EX1019: 4:36-59. In view of these disclosures, it would have been further obvious to modify the Fortmann'748 cabinet as discussed in Paragraphs 415-445 (Ground 7, Section X(A)(2)-(3)) such that the second food holding zone would have an independently controllable third/upper heater and an independently controllable fourth/lower heater (e.g.,

heating elements) at respective top and bottom portions of the first food holding compartment.



EX1010: Figs. 2 and 6 (modified, annotated).

558. As with the first food holding zone in Paragraphs 543-552 (claim limitation 1.d.2), when duplicating Fortmann'748's heaters (60) in view of Jones,

Fortmann'197, and/or McMillan, the POSA would have maintained the independent control of the heaters as taught by Jones, Fortmann'197, the IRHS Documents, and/or McMillan. *See also*, Paragraphs 415-445 (Ground 7, Section X(A)(2)-(3)).

559. As such, it would have been obvious for the second food holding zone's third/upper and fourth/lower heaters to be independently controllable from one another and from the upper and lower heaters of the other food holding zones.

560. Further, the second food holding zone's third/upper heater would have been a radiant heating element and the second food holding zone's fourth/lower heater would have been a conductive heating element, for the same reasons as explained Paragraphs 543-552 above with respect to the first and second heaters in claim limitation 1.d.2.

1.f: a food holding tray disposed in the first food holding compartment, the food holding tray resting on the continuous and planar surface

561. The POSA would recognize that Fortmann'748 discloses food holding trays disposed in the food holding compartments resting on the continuous and planar surfaces forming the bottom of the food holding compartments.

562. Specifically, Fortmann'748 discloses food pans (100) resting on the continuous and planar surfaces within the food holding compartments. EX1010: ¶¶[0015] ("the top surface 22 of the shelf 21 being spaced from a bottom surface

23 of a neighboring shelf 21 a distance to allow a conventional restaurant cooking pan 100 to be inserted therebetween"), [0017] ("pan 100 that is placed onto the shelf 21"), Figs. 1 and 6.

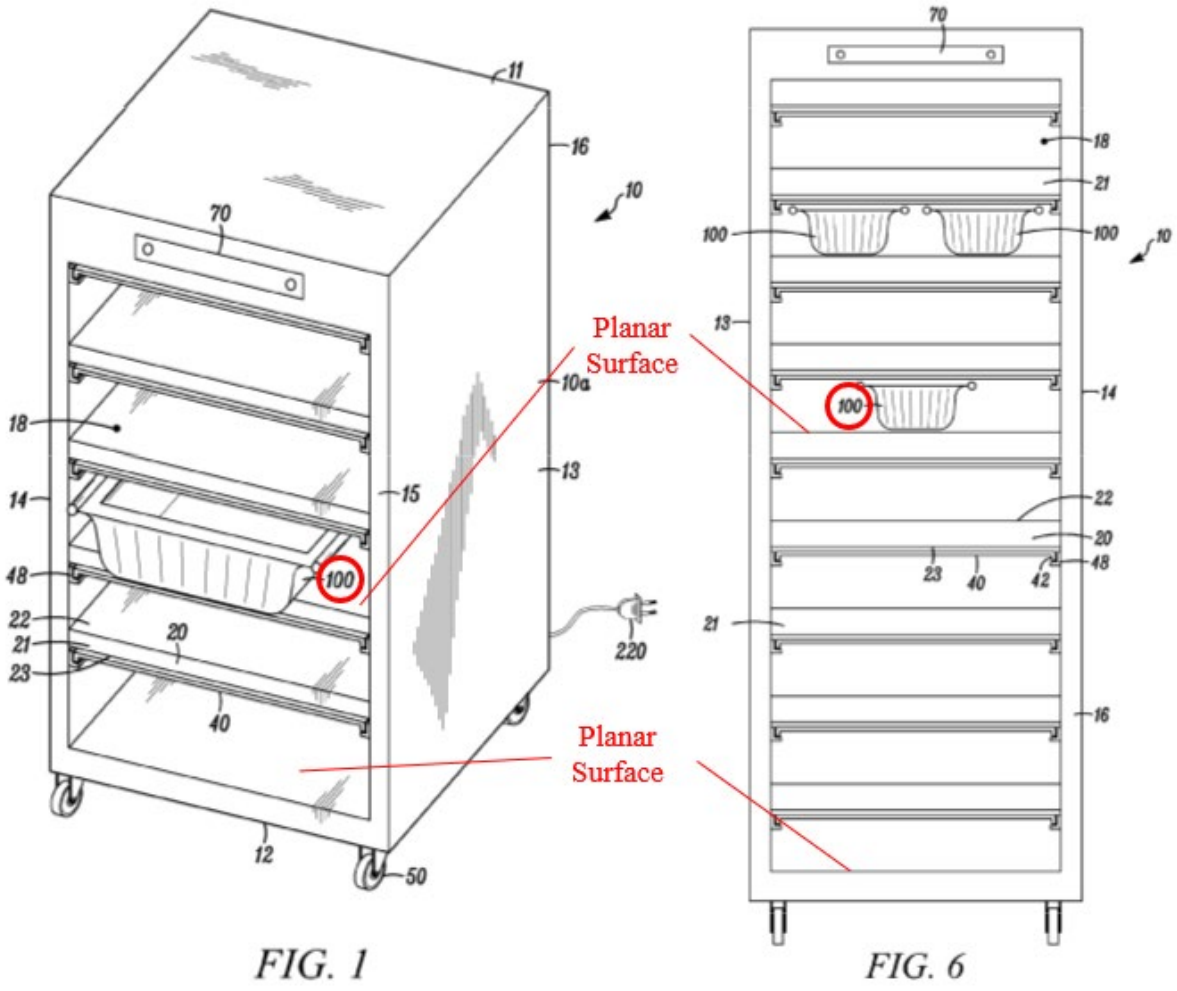
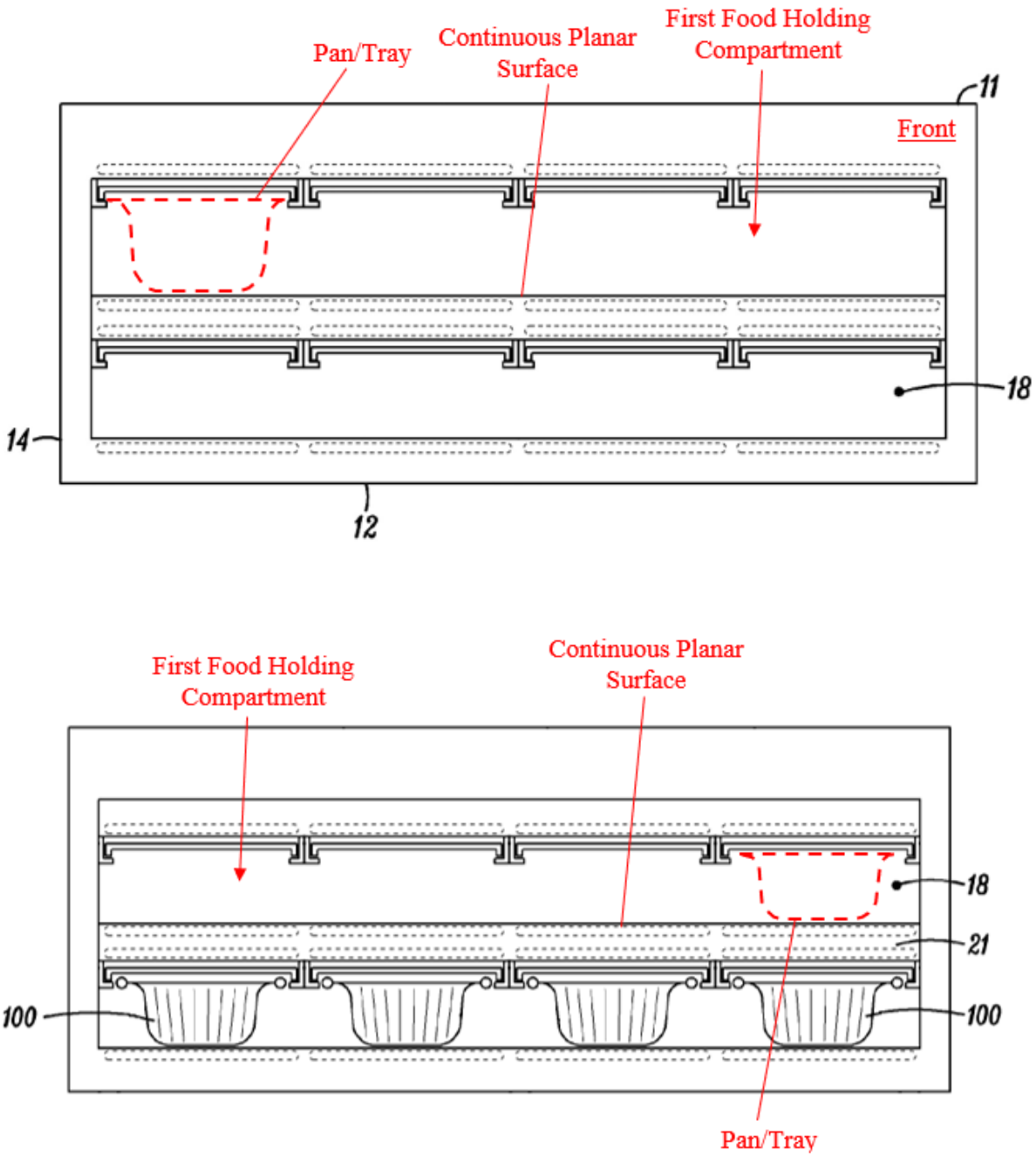


FIG. 1 FIG. 6

EX1010: Figs. 1 and 6 (annotated).

563. Both as disclosed in Fortmann'748 and as modified according to 403-516 (Ground 7, Section X(A)) above, the continuous and planar surface of the first

food holding compartment would be adapted to receive food pans or trays as shown in the modified renderings below.



EX1010: Figs. 2 and 6 (modified, annotated).

1.g.1: wherein the first food holding zone and the second food holding zone are adjacent one another across the continuous planar surface

564. In modifying the Fortmann'748 cabinet by expanding to the food holding compartment to have multiple food holding zones in view of Jones (EX1012), Fortmann'197 (EX1014), and McMillan (EX1019) as discussed in Paragraphs 415-445, 539—542, and 553-555 (Ground 7, Section X(A)(2)) and claim limitations 1.d.1 and 1.e.1) the first food holding zone and the second food holding zone would be adjacent one another across the continuous planar surface.

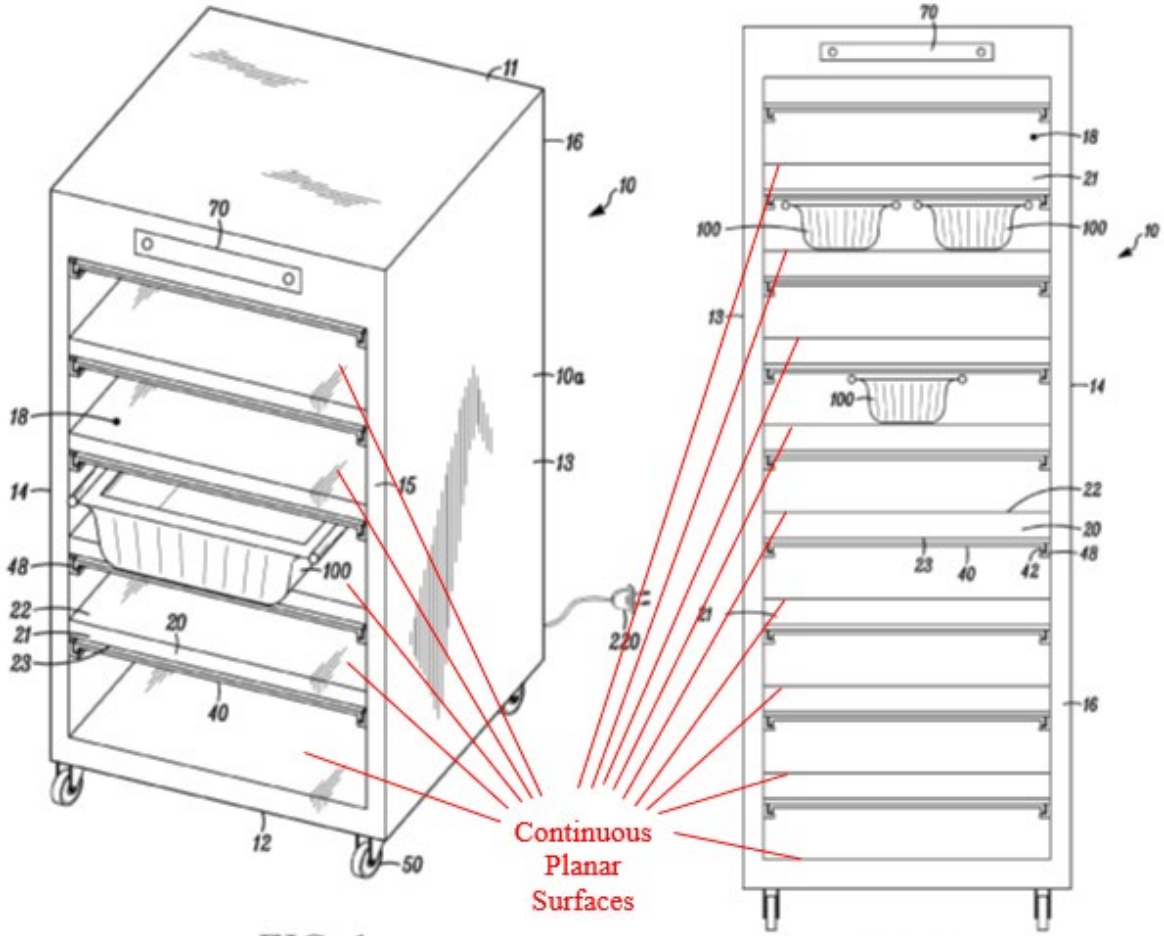
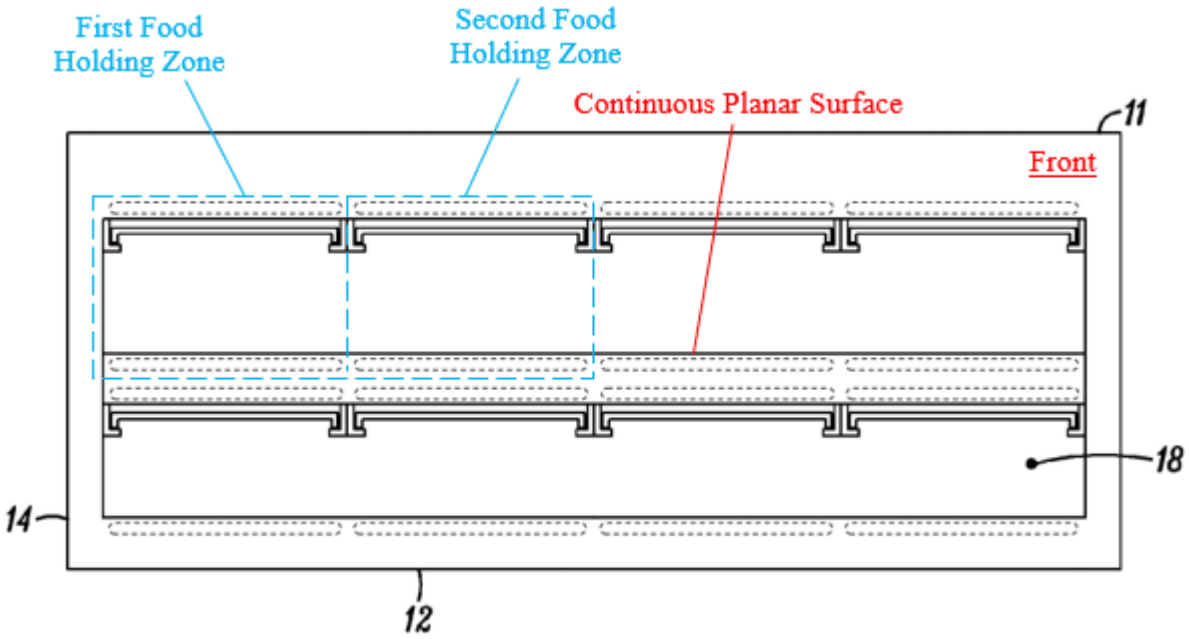
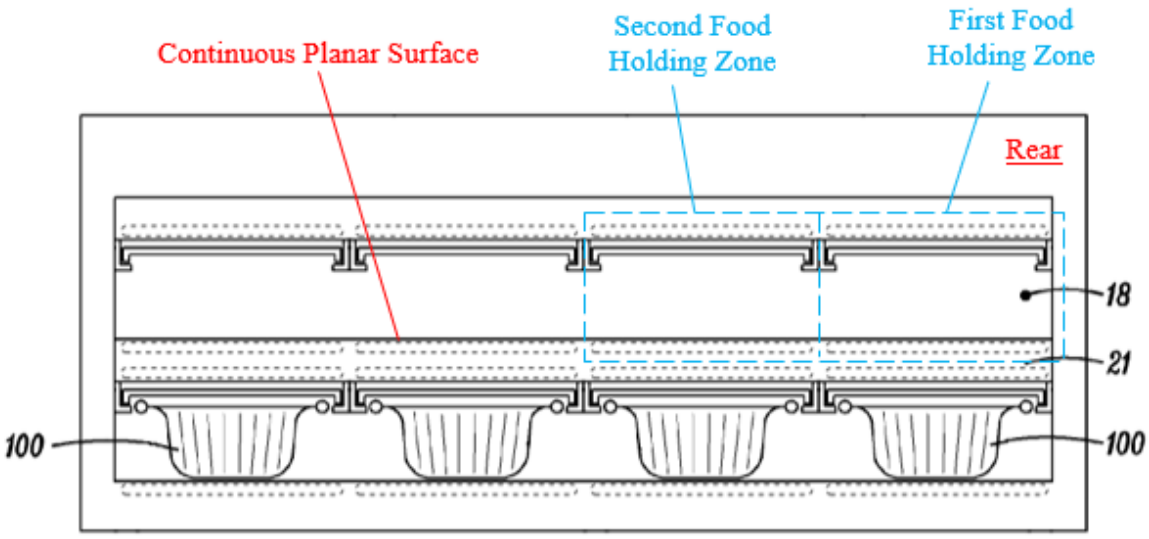


FIG. 1 FIG. 6

EX1010: Figs. 1 and 6 (annotated).





EX1010: Figs. 2 and 6 (modified, annotated).

1.g.2: the first food holding zone is configured to maintain a first temperature and the second food holding zone is configured to maintain a second temperature, the first temperature and the second temperature capable of being different than one another

565. The POSA would recognize that Fortmann'748 discloses a cabinet having multiple food holding zones capable of maintaining their own food holding temperature. Specifically, each of the Fortmann'748 shelf's one or more heaters (60) are described as being independently controllable relative to the heaters of other shelves "to establish two or more heat zones of differing temperatures within the warming volume [18]." EX1010: ¶¶[0019], [0021], [0024], [0027].

566. Moreover, Jones, Fortmann'197, the IRHS Documents, and McMillan all disclose heating zones to different temperatures. EX1005: 16, 20, 25; EX1006: 1; EX1007: 53; EX1010: ¶¶[0021], [0024], [0027]; EX1012: ¶¶[0098], [0130]; EX1014: 3:6-27, 8:63-9:19, 9:50-65; EX1019: 4:36-52.

567. As discussed in Paragraphs 415-445 and 539-560 (Ground 7, Section X(A)(2)-(3) and claim limitations (1.d.1)-(1.e.2)), in modifying Fortmann'748's cabinet to have a first food holding zone and a second food holding zone, each with their own upper and lower heaters, it would have been obvious to adapt Fortmann'748's control system to independently operate the heaters of each food holding zone.

568. Accordingly, the first food holding zone of the Fortmann'748 modified cabinet would have a controllable/maintainable first food holding

temperature and the second food holding zone would have a controllable/maintainable second food holding temperature.

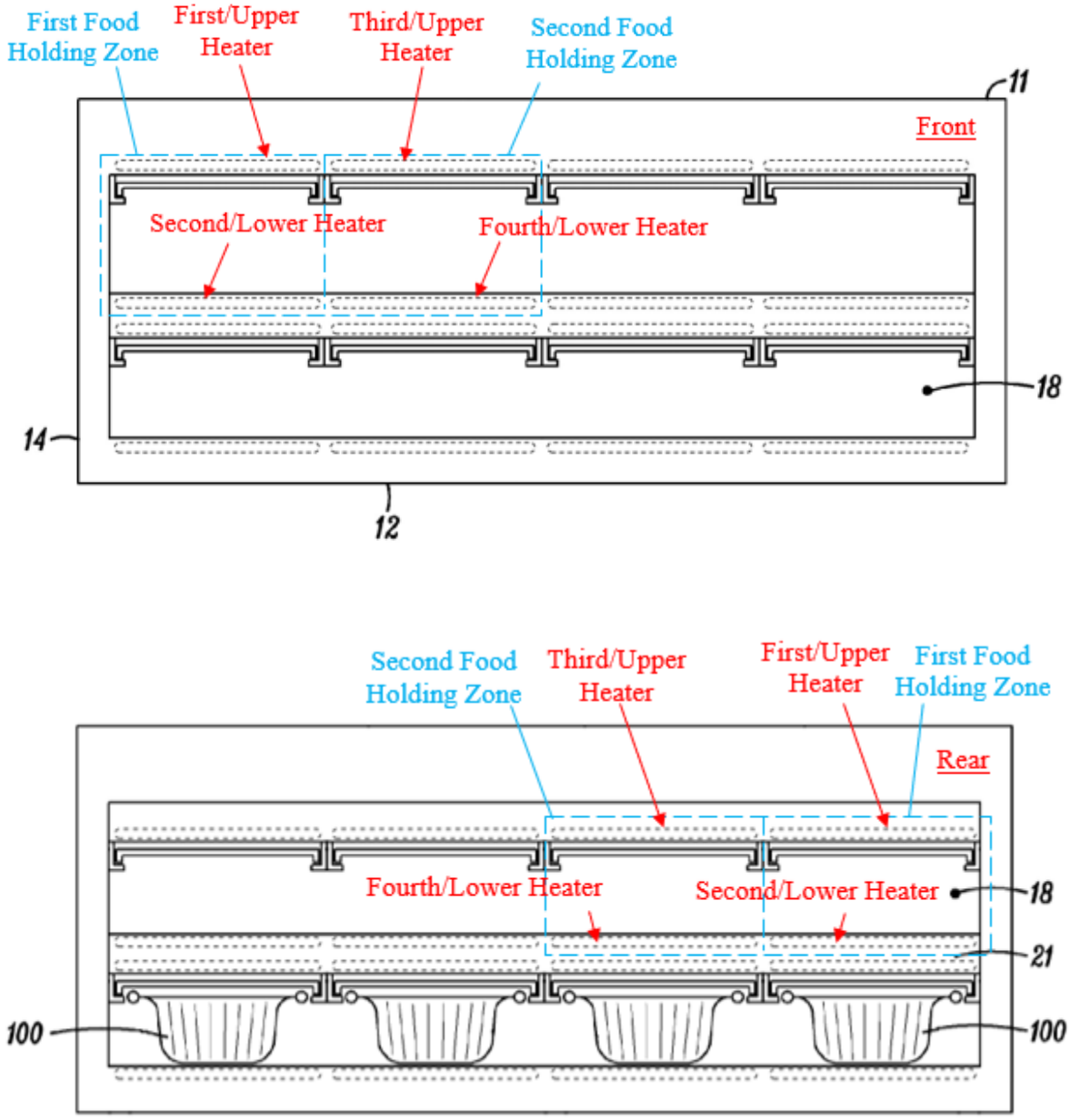
569. Fortmann'748's heaters are independently controllable "to establish two or more heat zones of differing temperatures within the warming volume [18]." EX1010: ¶¶[0019], [0021], [0024]. Fortmann'748's control system has a "controller [that] selectively provide[s] or secure[s] current to the one or more heaters 60 disposed within each zone to control the temperature of the zone." EX1010: ¶[0027].

570. As a result of the modifications, Fortmann'748's control system, and more specifically the controller thereof, would have operated the upper and lower heaters of each food holding zone to control/maintain its food holding temperature. *See supra* Paragraphs 415-445 (Ground 7, Section X(A)(2)-(3)).

571. And because Fortmann'748's upper and lower heating elements are independently controllable from one another, the temperatures of each zone would be capable of being different from one another. *See supra* Paragraphs 543-552 and 556-560 (claim limitations 1.d.2 and 1.e.2).

572. As a result of the modifications, Fortmann'748's controller would have been capable of independently operating each heating element of the respective food holding zones (i.e. upper and lower heaters) to independently control the food holding temperature associated with each corresponding food

holding zone and heat the zones to different temperatures based on the different heat settings for different food types in the food holding zones. *See supra* Paragraphs 415-500 (Ground 7, Section X(A)(2)-(5)).



EX1010: Figs. 2 and 6 (modified, annotated).

573. Moreover, it would have been obvious for the temperatures of the food holding zones to be different from one another.

574. Jones (EX1012) teaches customized temperature settings for each food type and that the temperature in the tray locations (zones) can be different based on the temperature presets for the particular types of food held in each location. EX1012: ¶[0098] ("assigns the holding parameters, top and bottom temperature … to the product name, so wherever the product name is displayed, the holding parameters follow", and "temperature settings for the top and bottom heater that are set to the product name and no matter how many locations have the same product name displayed [1 location up to all locations]"), Fig. 19 ("Select Product Name to be held in Display Location. Each display may have the same Product Name, or all different Product Names … Heating system maintains Top and Bottom Preset Temps for Product Names").

575. The IRHS Documents similarly teach to customize temperature settings by food type and teach holding zones having different food types. EX1006: 1 ("[c]ustom heat settings for food product"); EX1005: 4 ("[t]his new technology allows you to precisely control the environment in each pan, allowing customized settings for each food product"), 16 ("each food product has a tailored HeatSink temperature and InfraRed pulse rate"); EX1007: 51 ("each food product has tailored settings to control the thermal path of the food, leading to optimal

quality, consistency and extended hold"), 53 ("[p]recise holding for each product in an optimized environment tailored to that product"). The temperature settings for each pan location/heating zone are independent of the other food product types being held in the other pan locations/zones. EX1005: 25 ("1/2 ROW HEAT (2 Wells)"); EX1006: 1 ("independent well flexibility"); EX1007: 53 ("[t]otal well independence allows freedom in product placement in the IRHS" and "[t]ailor each well specifically to the products within them").



EX1007: 12.

576. Likewise, McMillan teaches heating different zones to different temperatures. EX1019: 4:45-52 ("each of the heater plates 27a, 27b may include customizable heating elements arranged such that different portions of the passageway 16a may be set to different temperatures. In this way, the temperature of each passageway may be maintained according to the number and types of food

product to be stored. For example, the passageway 16a may be set to store four different types of food products at four different temperatures").

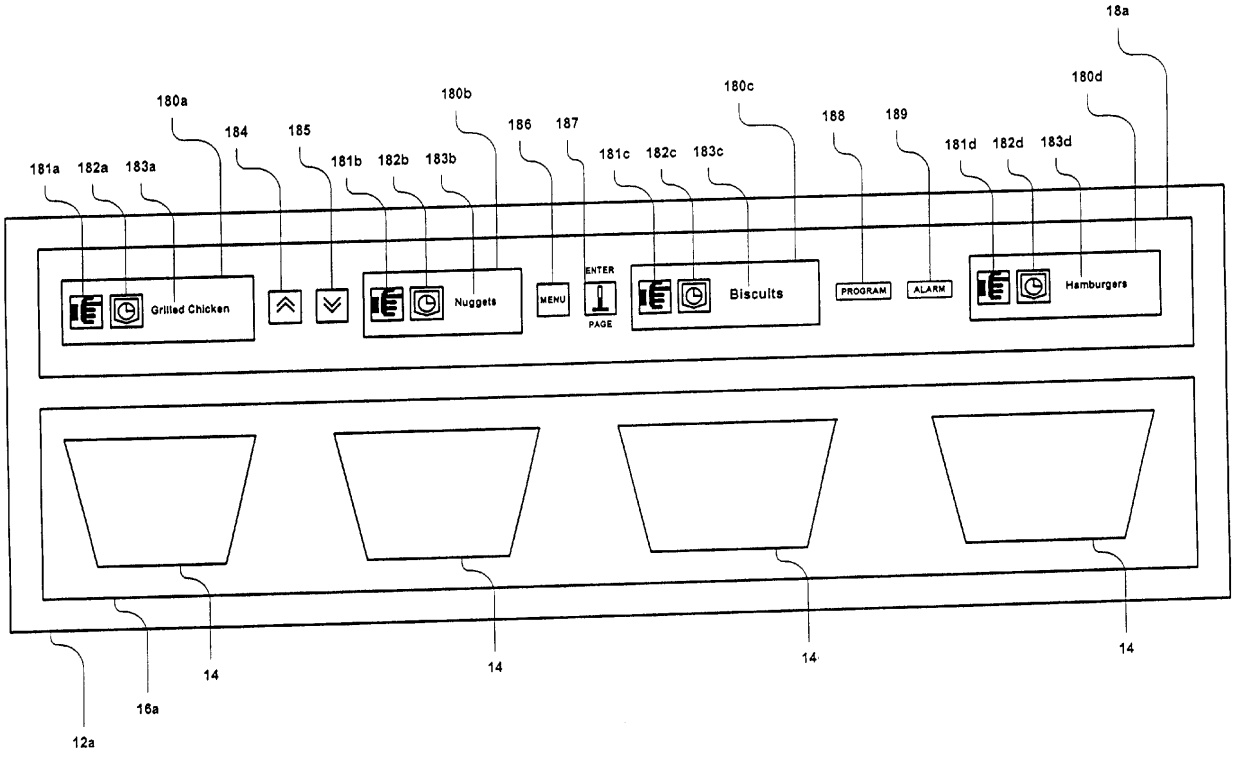


Fig. 5a

EX1019: Fig. 5a.

577. Fortmann'748 further teaches heating different zones to different temperatures. EX1010: ¶[0024] ("[i]n embodiments with multiple heat zones, the two or more infinite switches 210 may be calibrated to establish two or more heat zones of differing temperatures within the warming volume, to allow food products that require different warming temperatures to be simultaneously disposed within the cart").

578. It would have further been obvious, per Jones, Fortmann'748, the IRHS Documents, and/or McMillan, to heat the food holding zones to different temperatures.

579. Heating the food holding zones to different temperatures would accommodate customized heat settings for different types of food received in each holding zone (e.g., the first, second, third, and fourth holding zones receive respective different first, second, third, and fourth food types) and would increase holding capacity for different types of cooked food to meet customer demands. EX1028: 30 ("[i]t is critically important that each of these 'heat zones' be set to the appropriate temperature for each type of food product"), 14 (example temperatures), 39 (example temperatures); EX1019: 1:17-45 (explaining "'fast food' restaurants compete to deliver food products as quickly as possible while preserving quality of the taste, consistency, and appearance of the food" and outlining "challenges" of "maintain[ing] a large volume of different food products" each "requir[ing] different storage temperatures"); EX1010: ¶[0024] ("establish two or more heat zones of differing temperatures within the warming volume, to allow food products that require different warming temperatures to be simultaneously disposed within the cart"); EX1006: 1 ("each compartment individually controlled").

580. This would have been nothing more than the use of a known technique (heating zones to different temperatures per Jones, Fortmann'748, the IRHS Documents, and McMillan) in operating a similar device (Fortmann'748's cabinet) in the same way (independently operate the heaters of each zone to heat the zones to different temperatures).

581. As there would have been a high expectation of success modifying Fortmann'748's cabinet as discussed in Paragraphs 415-445 (Ground 7, Section X(A)(2)-(3)) above, the resulting capability to independently operate the heaters of each zone to heat the zones to different temperatures would have likewise been expected.

582. Thus, not only would it have been obvious for the zones to be capable of maintaining different temperatures, it also would have been obvious to actually maintain the zones at different temperatures.

1.h.1: wherein the first independently controllable heating element heats the food holding tray radiantly from above

583. Fortmann'748 explains the heaters (60) overlying the compartments transfer heat to the pans (100) by radiation from above. EX1010: ¶[0019] ("[t]he remaining portion of heat generated by the heaters 60 disposed in conjunction with each shelf 21 may be transferred to the shelf 21 by radiation heat transfer."), ¶[0020] ("the pan 100 and the food product located within the pan 100 may receive heat from the shelf 21 disposed above the pan 100 due to radiation").

584. When modifying the heaters (60) of Fortmann'748, the POSA would follow the teachings of Fortmann'748 and have the first/upper heaters heat (e.g., via radiation, or conduction and radiation) the top panel and shelf, thereby heating the pans (100) disposed below by radiation. EX1010: ¶¶[0019]-[0020].

585. Because the tops of the pans (100) are spaced apart from the underside of the top panel and shelf (and thereby the upper heaters as well), the heat generated by the first/upper heaters will naturally heat the food pans by radiation from above. Radiation heat transfer occurs regardless of whether the lids are in contact with the underside of the shelf or spaced apart from the shelf. EX1010: ¶[0018].

1.h.2: the second independently controllable heating element heats the food holding tray conductively from below

586. Fortmann'748 explains the heaters (60) contact the upper sheet forming the continuous and planar surface upon which the pans (100) rest to heat the pans by conduction from below. EX1010: ¶[0019] ("the heater 60 makes surface contact with at least the upper sheet 22 forming the shelf 21 … such that a percentage of the heat generated by the heaters disposed in conjunction with each shelf 21 is transferred directly to the shelf by conductive heat transfer"), ¶[0020] ("a pan 100 disposed within the cart 10 may receive heat from [] the shelf 21 below the pan (by conduction and radiation)").

587. When modifying the heaters (60) of Fortmann'748, the POSA would follow the teachings of Fortmann'748 and have the second/lower heaters contact the sheet forming the continuous and planar surfaces the pans rest on to heat the pans by conduction from below. EX1010: ¶¶[0019]-[0020].

588. Accordingly, each limitation of Claim 1 is either disclosed in Fortmann'748 or would have been an obvious modification to the multi-zone food holding bin of Fortmann'748 in view of the teachings and disclosures of the IRHS Documents, Jones, Fortmann'197, McMillan, Hartfelder, Shei'099, Veltrop, and/or Shei'155. As such, the POSA would have found it obvious to arrive at the food holding bin as claimed in Claim 1.

C. Claim 2

2.a.1: the food holding bin of claim 1, further comprising: a second food holding compartment disposed below the first food holding compartment within the chassis

589. As discussed above, the POSA would have found it obvious to modify the multi-zone food holding bin of Fortmann'748 in view of the teachings and disclosures the IRHS Documents, Jones, Fortmann'197, McMillan, Hartfelder, Shei'099, Veltrop, and/or Shei'155 to arrive at the claimed food holding bin of Claim 1

590. The POSA would recognize that Fortmann'748 discloses "a second food holding compartment disposed below the first food holding compartment within the chassis."

591. The chassis (10a) of Fortmann'748's cabinet (10) has an interior volume (18) for the food pans (100). EX1014: ¶[0014], Figs. 1 and 6.

592. The cabinet (10) includes a plurality of shelves (21) dividing the interior volume (18) into a plurality of food holding compartments. EX1014: ¶[0015] ("a shelf 21 that is fixed to the right and left sides 14, 13 of the body 10 a, with the top surface 22 of the shelf 21 being spaced from a bottom surface 23 of a neighboring shelf 21 a distance to allow a conventional restaurant cooking pan 100 to be inserted therebetween"), Figs. 1 and 6. For example, the embodiment depicted in Fig. 1 has five food holding compartments and the embodiment depicted in Fig. 6 has nine food holding compartments.

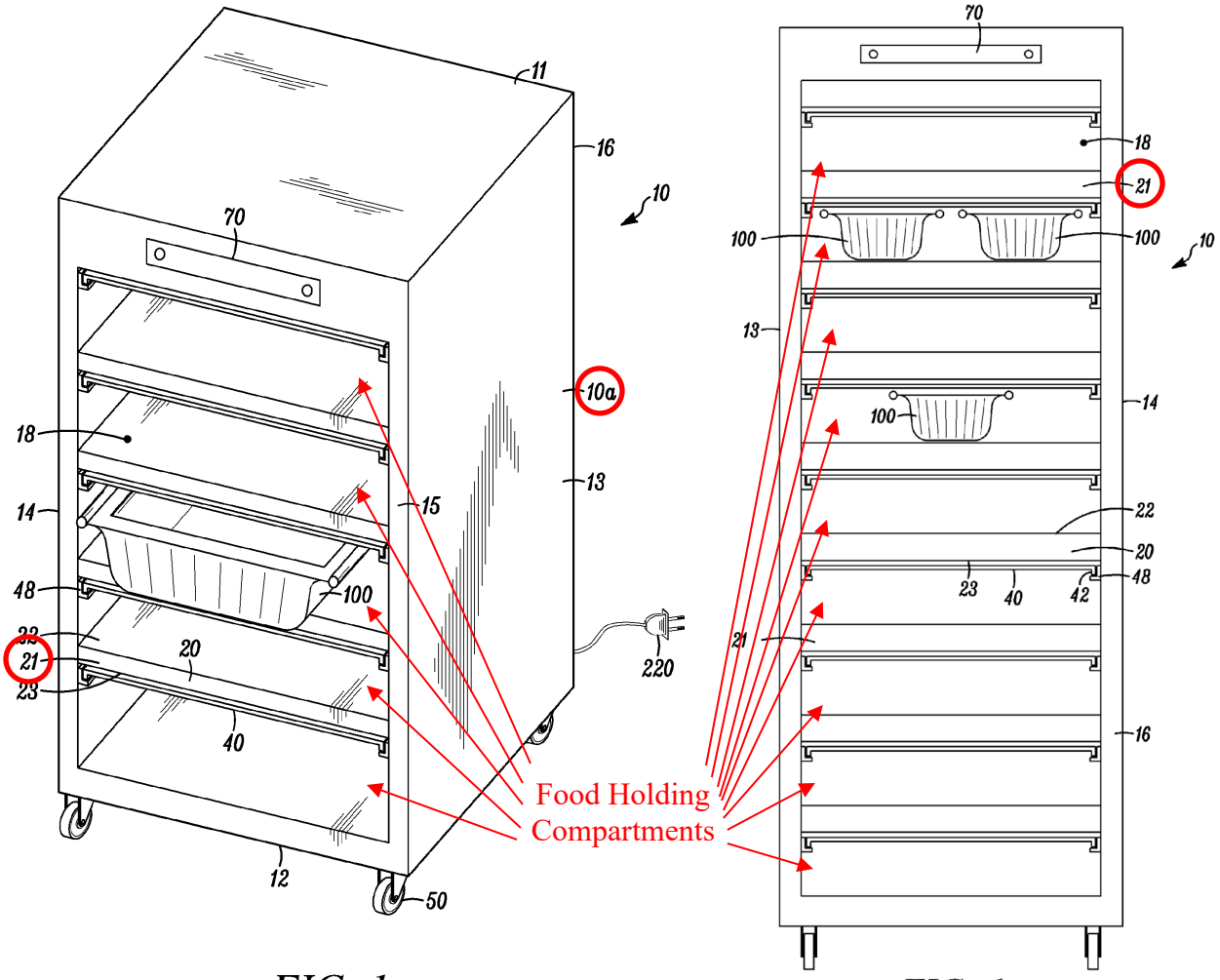
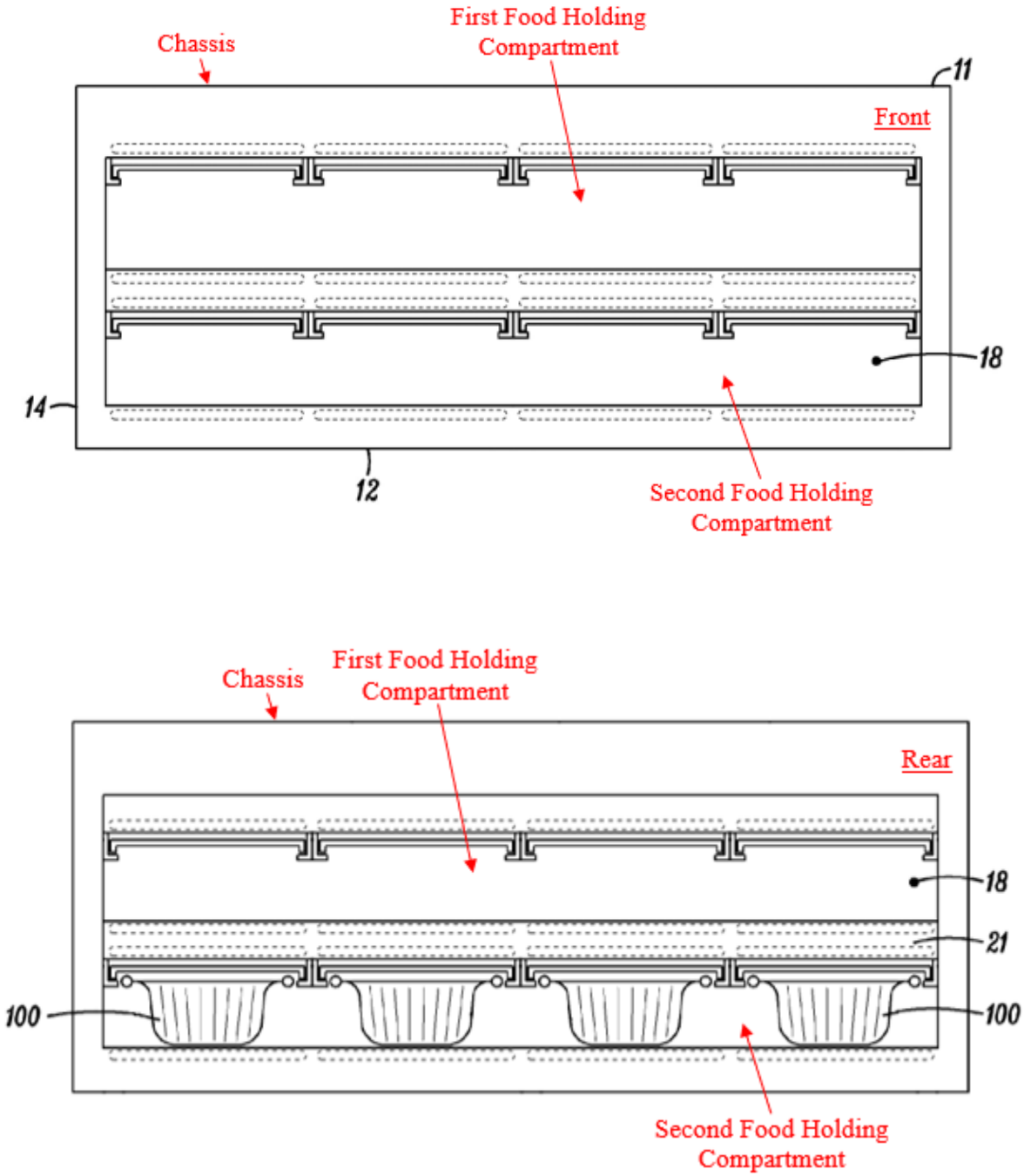


FIG. 1 *FIG. 6*

EX1010: Figs. 1 and 6 (annotated).

593. In adapting the Fortmann'748 cabinet to a 2x4 configuration as discussed at Paragraphs 403-414 (Ground 7, Section X(A)(1)) above, the chassis (10a) of the cabinet would continue to have a second food holding compartment within the chassis disposed below the first food holding compartment.



EX1010: Figs. 2 and 6 (modified, annotated).

2.a.2: the second food holding compartment having at least a first opening, the first opening being open, uncovered and located at the front face of the chassis, the first opening being configured to allow food items to be placed into and removed from the food holding compartment

594. The POSA would recognize that Fortmann'748 discloses the second food holding compartment as having "a first opening" and that this "first opening" is "configured to allow food items to be placed into and removed from the first food holding compartment."

595. The second food holding compartment has a first opening. The first opening of the second food holding compartment is open, uncovered, and located at the front face of the chassis (10a). EX1010: ¶[0014] ("[t]he warming cart 10 is configured with an open front side 15").

596. This first opening is larger than the food pans and allows the food pans, and thus food contained therein, to pass therethrough to be placed into and removed from the first food holding compartment. EX1010: ¶[0014] ("[t]he warming cart 10 is configured with an open front side 15 … to allow one or more pans 100 to be quickly disposed within the cart 10 and the warming volume and removed from the cart 10 without operation of doors or other barriers found on conventional warming carts. As shown in FIGS. 1, 2, 4, and 5 the front side 15 is open to allow pans 100, trays, pizza boxes and the like to slide through the open front side 15 and within the warming volume 18 of the cart"), ¶[0015] ("the top

surface 22 of the shelf 21 being spaced from a bottom surface 23 of a neighboring shelf 21 a distance to allow a conventional restaurant cooking pan 100 to be inserted therebetween"), ¶[0017] ("food products disposed within the pan 100"), ¶[0024] ("tray 100"), Figs. 1 and 6.

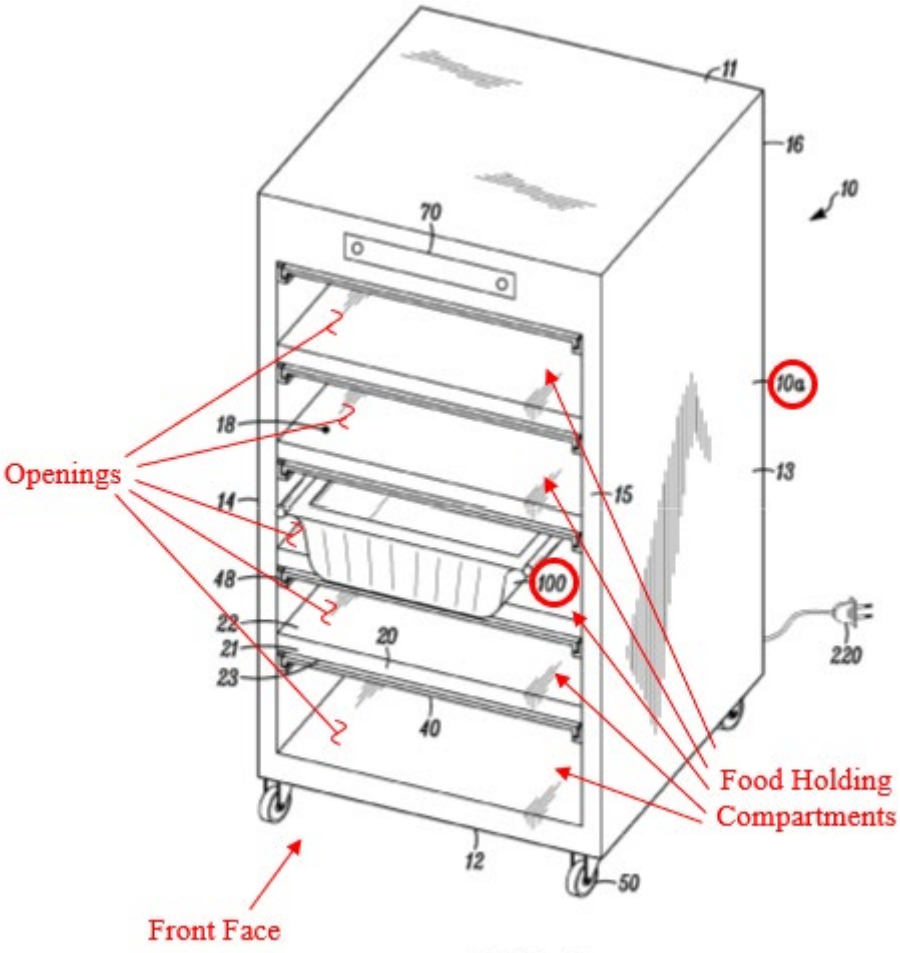
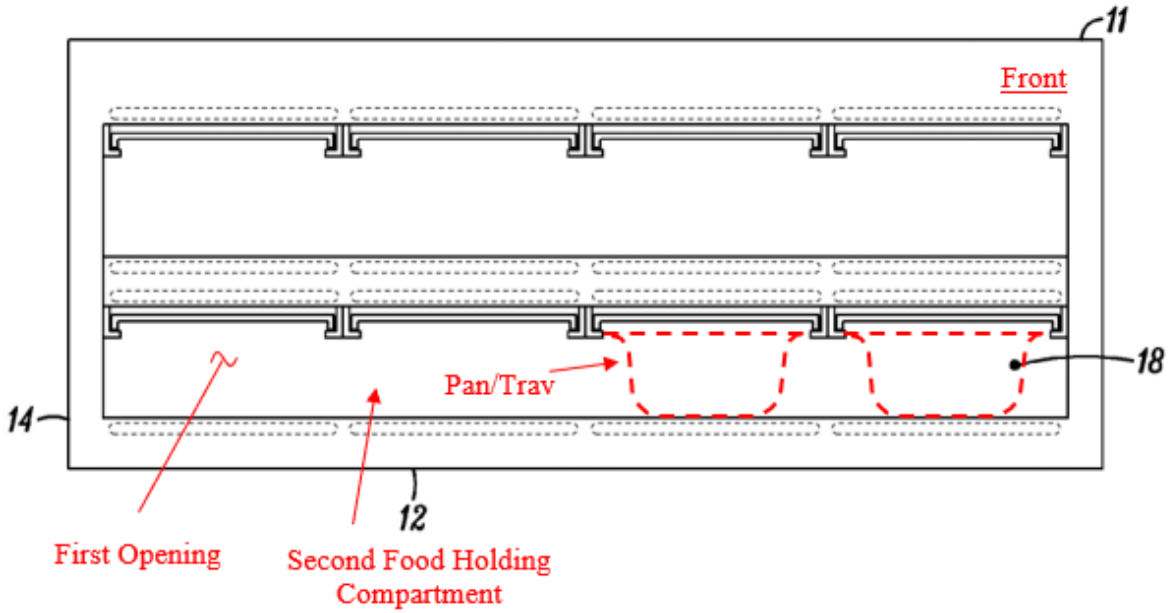


FIG. 1

EX1010: Fig. 1 (annotated).

597. This teaching would likewise hold true for the Fortmann'748 cabinet as modified according to Paragraphs 403-516 (Ground 7, Section X(A)) above as shown in the modified rendering below.



EX1010: Fig. 2 (modified, annotated).

2.b.1: a shelf located between the first and second food holding compartments, the shelf comprising a first side and a second side, the first side facing into the first food holding compartment, the second side facing into the second food holding compartment

598. The POSA would recognize that Fortmann'748 discloses that "a shelf is located between the first and second food holding compartments" and "comprises a first side and a second side, the first side facing into the first food holding compartment, the second side facing into the second food holding compartment."

599. Fortmann'748's cabinet (10) includes a plurality of shelves (21) dividing the interior volume (18) into a plurality of food holding compartments. EX1014: ¶[0015] ("a shelf 21 that is fixed to the right and left sides 14, 13 of the body 10a, with the top surface 22 of the shelf 21 being spaced from a bottom surface 23 of a neighboring shelf 21 a distance to allow a conventional restaurant cooking pan 100 to be inserted therebetween").

600. Fortmann'748's shelves (21) are located between the food holding compartments, including between the first and second food holding compartments. EX1010: ¶[0015], Figs. 1 and 6.

601. Each shelf (21) has a top side (22) facing the upper food holding compartment and a bottom side (23) facing the lower food holding compartment. EX1010: ¶[0015] ("with the top surface 22 of the shelf 21 being spaced from a bottom surface 23 of a neighboring shelf 21"), Figs. 1 and 6.

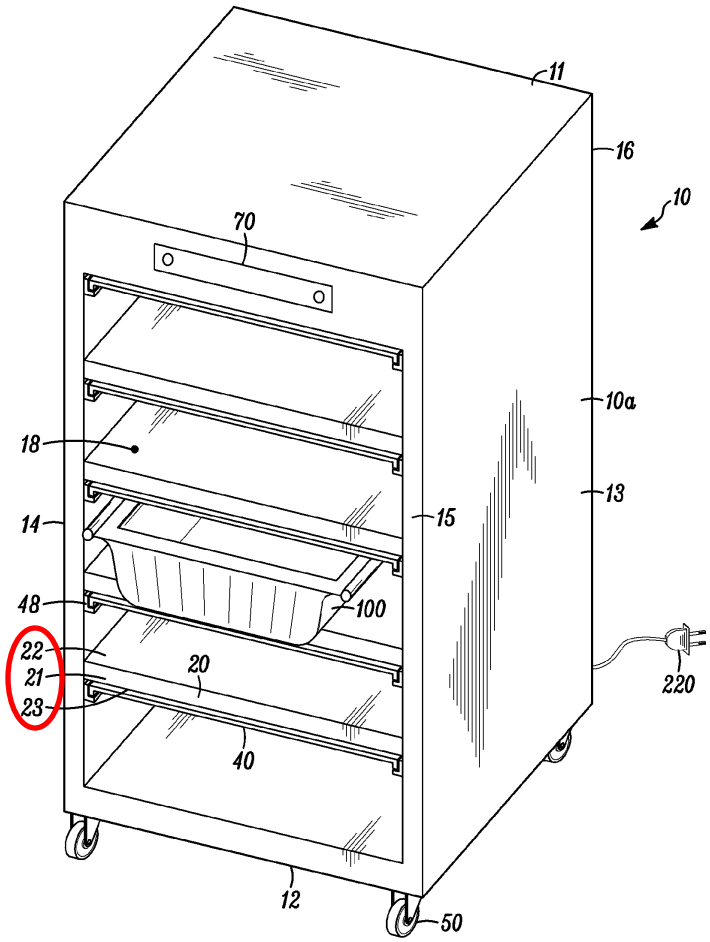


FIG. 1

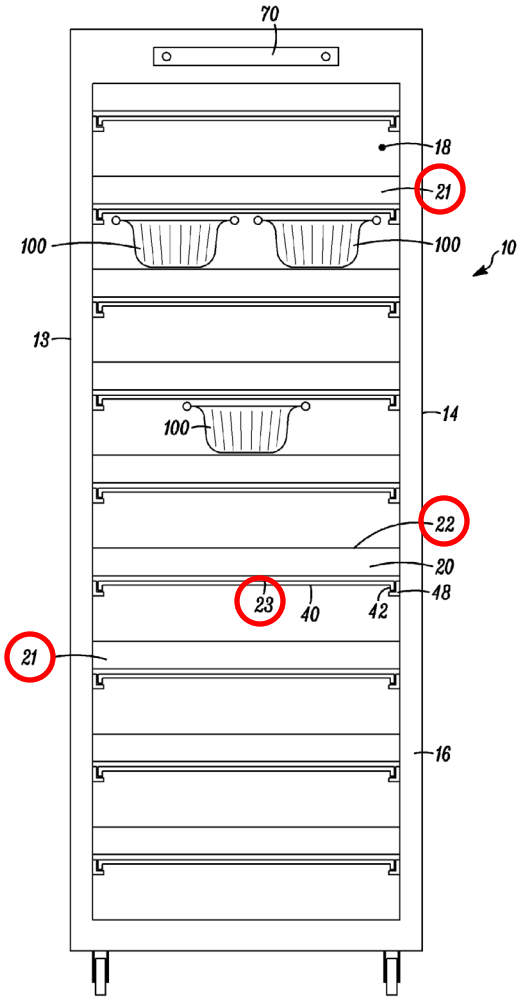
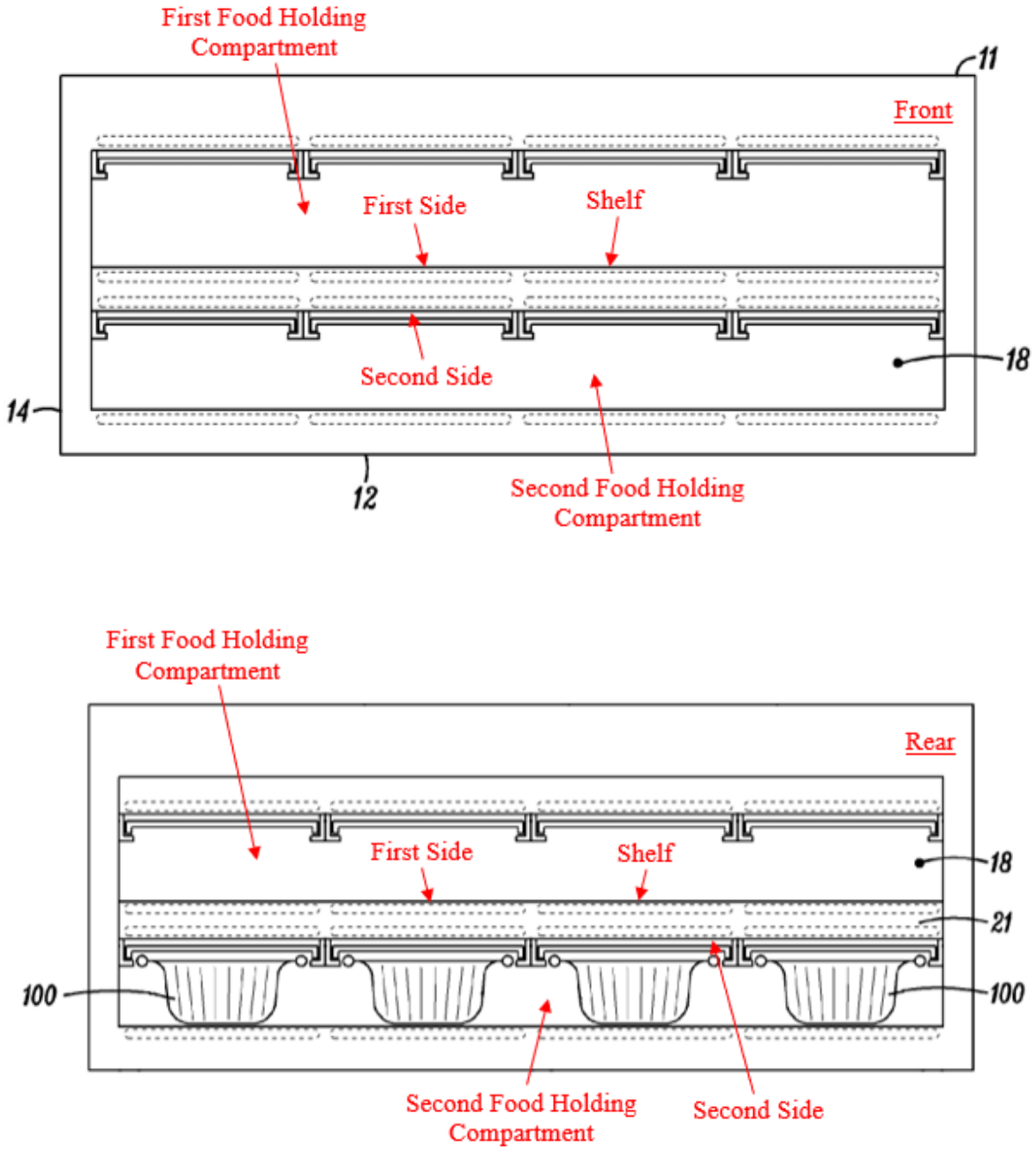


FIG. 6

EX1010: Figs. 1 and 6 (annotated).

602. In adapting the Fortmann'748 cabinet to a 2x4 configuration as discussed at Paragraphs 403-414 (Ground 7, Section X(A)(1)) above, the shelf (21) of the cabinet is between the first and second food holding compartments and includes a first side facing the first food holding compartment and a second side facing the second food holding compartment.



EX1010: Figs. 2 and 6 (modified, annotated).

2.b.2: the second and fourth heating elements being disposed in the shelf and in thermal communication with the first side

603. Fortmann'748's shelf (21) is made of two planar sheets or plates (22, 23). EX1010: ¶[0019] ("the shelves 21 may include two planar sheets of thin

material (such as stainless steel) that form an envelope for the heater 60 to be disposed therebetween"). The upper plate (22) forms the first side of the shelf and is thus in thermal communication with the first side. Fortmann'748's heaters (60) are between the two planar sheets (22, 23) in the shelf (21). EX1010: ¶[0019].

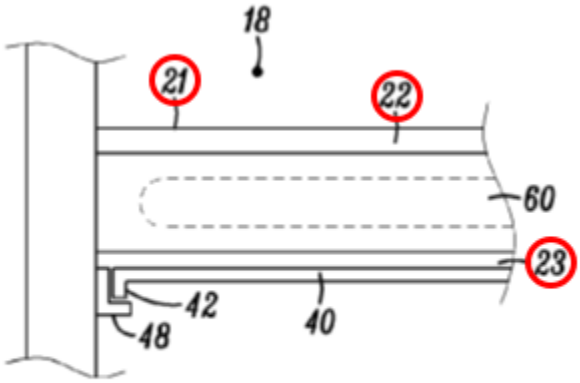


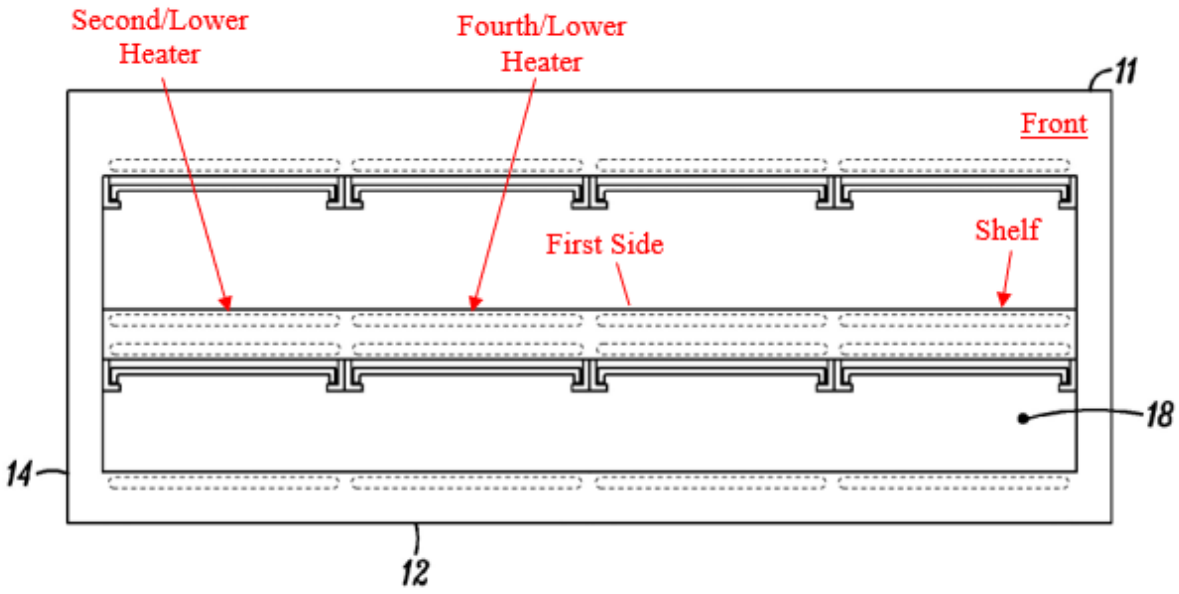
FIG. 3

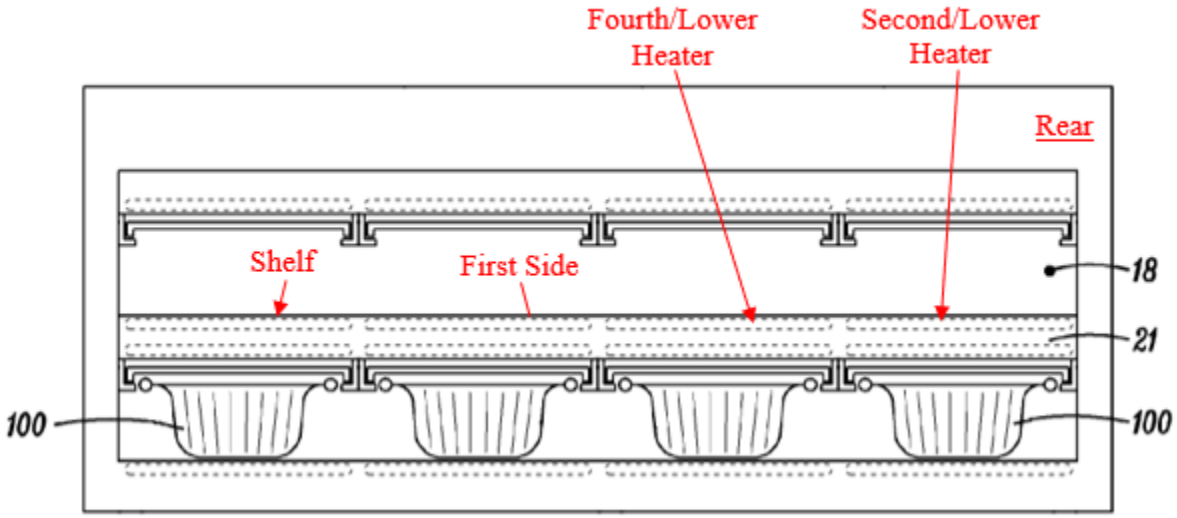
EX1010: Fig. 3 (annotated).

604. The heaters (60) are in contact with the upper sheet (22) so that the heaters are in thermal communication via conduction to the sheet. EX1010: ¶[0019] ("the heater 60 makes surface contact with at least the upper sheet 22 forming the shelf 21 … such that a percentage of the heat generated by the heaters disposed in conjunction with each shelf 21 is transferred directly to the shelf by conductive heat transfer").

605. In modifying the Fortmann'748 cabinet by expanding to the food holding compartment to have multiple food holding zones in view of Jones

(EX1012), Fortmann'197 (EX1014), the IRHS Documents (EX1005-1008), and McMillan (EX1019) as discussed in Paragraphs 415-445, 543-552, and 556-560 (Ground 7, Section X(A)(2) and claim limitations 1.d.2 and 1.e.2), the POSA would continue to follow the teachings of Fortmann'748 and have the lower heaters (*e.g.*, the second and fourth heating elements) in the shelf contact the upper sheet to be in conductive thermal communication with the upper sheet/first side. EX1010: ¶¶[0019]-[0020].

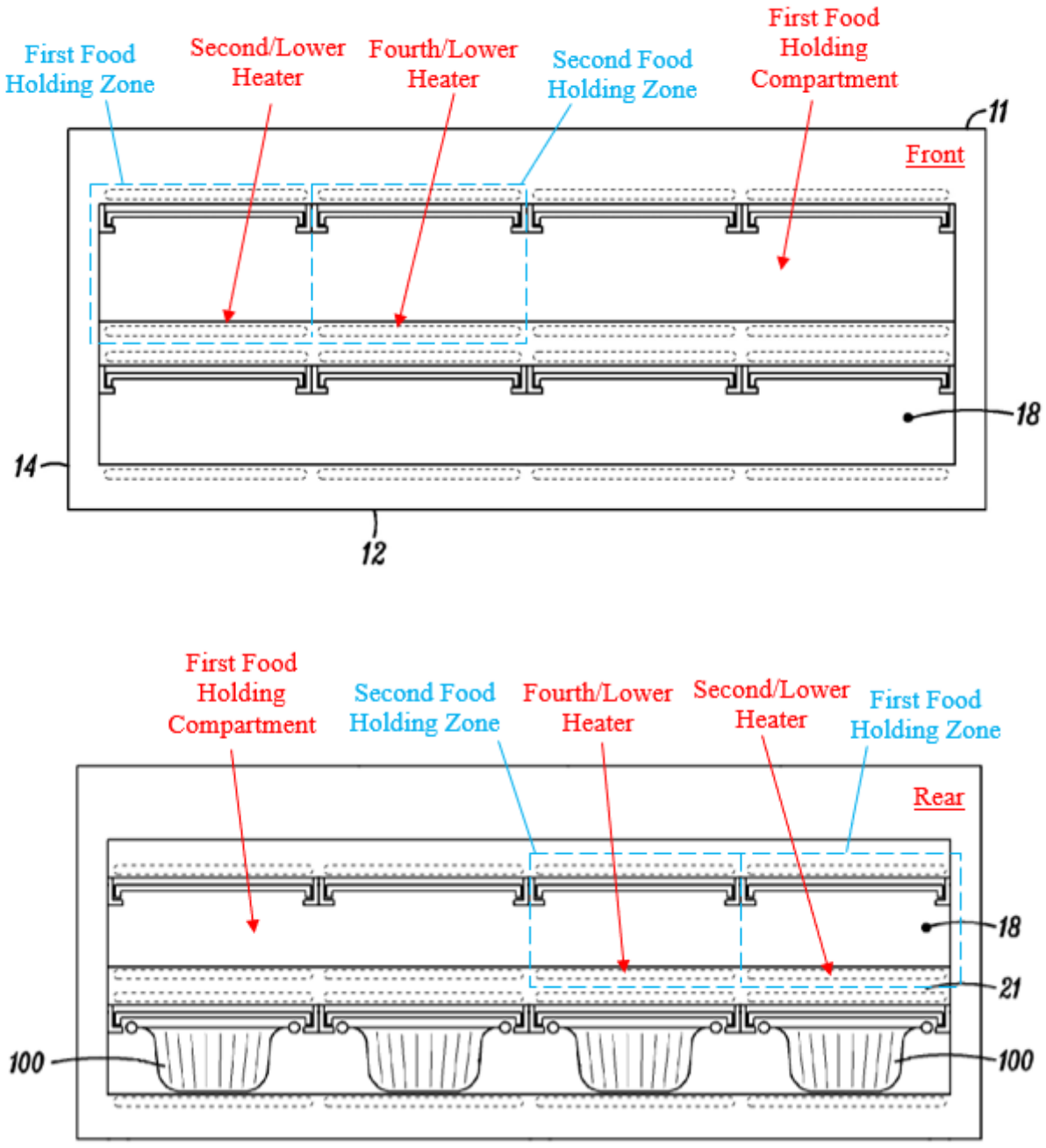




EX1010: Figs. 2 and 6 (modified, annotated).

2.b.3: the second and fourth heating elements being capable of providing different amounts of heat energy into the first and second food holding zones of the first food holding compartment

606. As modified in Paragraphs 415-445, 543-552, 556-560, and 565-582 (Ground 7, Section X(A)(2)-(3) and claim limitations 1.d.2, 1.e.2, and 1.g.2), the first/upper compartment's lower heaters (e.g., the second and fourth heaters) would have been independently controllable from one another via Fortmann'748's controller.



EX1010: Figs. 2 and 6 (modified, annotated).

607. Different setpoint temperature settings would correspond to different amounts of heat energy. Thus, the second and fourth heaters would be capable of providing different amounts of heat energy into the first and second food holding

zones to maintain the zones at different setpoint temperatures. *See* Paragraphs 565-582 (claim limitation 1.g.2).

608. Having the lower heaters within the shelf (i.e. second and fourth heaters) output different amounts of heat energy would be a natural result of the first and second food holding zones receiving different kinds of food requiring different bottom temperatures.

609. For example, if the first food holding zone receives pans of cooked eggs and the second food holding zone receives pans of bacon, the lower heater in the first food holding zone (i.e. second heater) would output less heat energy for warming eggs than the lower heater in the second food holding zone (i.e. fourth heater) for warming bacon. EX1028: 39 (teaching 180°F for eggs and 200°F for bacon).

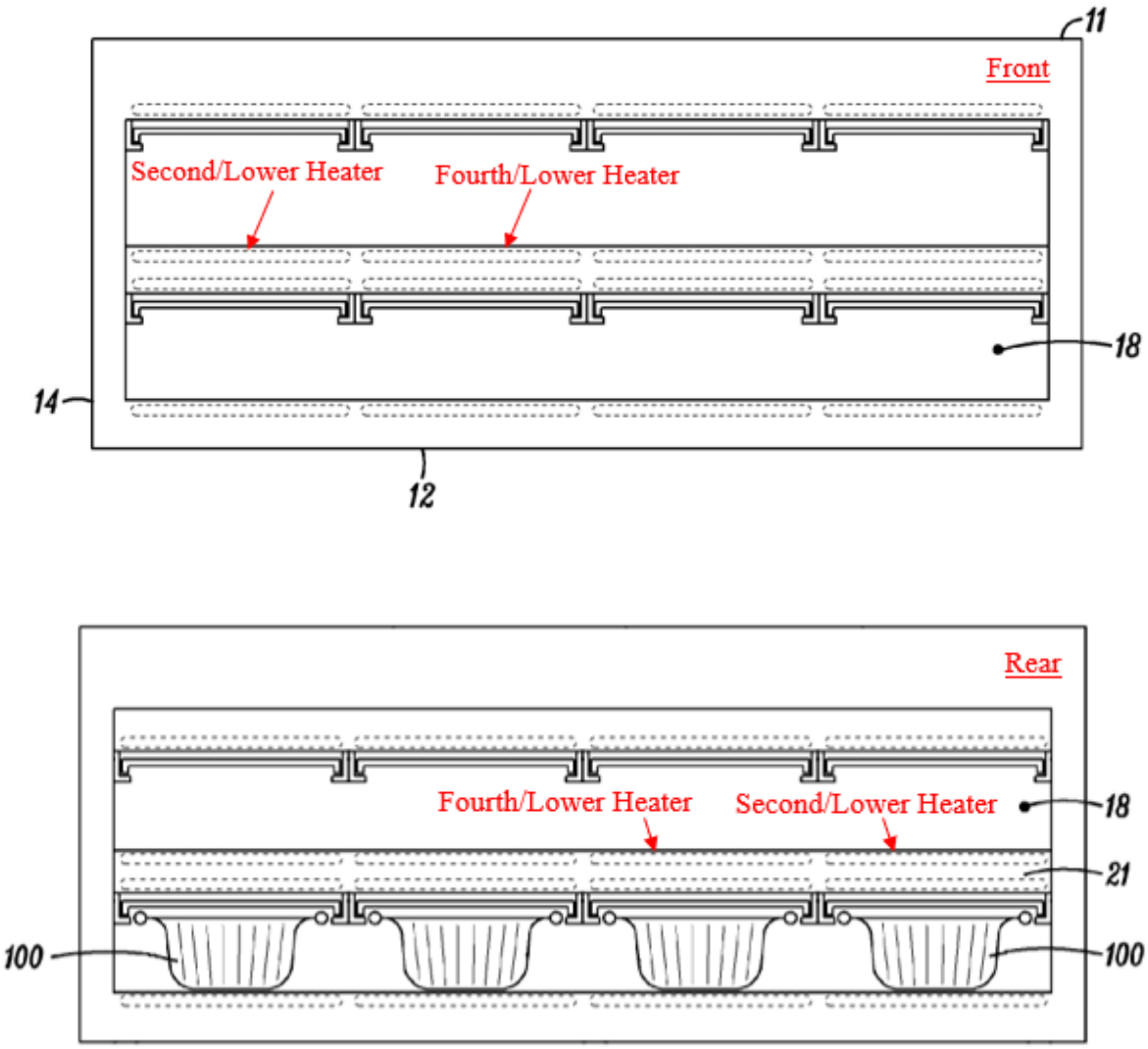
2.c: a controller operatively coupled to the second heating element and to the fourth heating element, the controller being configured to independently operate the second heating element and the fourth heating element

610. Fortmann'748's control system has a "controller [that] selectively provide[s] or secure[s] current to the one or more heaters 60 disposed within each zone to control the temperature of the zone" and is in communication with the input device. EX1010: ¶[0027] ("control system 200 may include or communicate with an input device for the user to select a desired temperature within the specific … heat zone").

611. As discussed above in Paragraphs 415-445 (Ground 7, Section X(A)(2)-(3)), it would have been obvious to operatively couple Fortmann's controller to each heater (e.g., second and fourth heaters). EX1010: ¶[0027]; EX1026: 2:17-20 ("the food timing system further includes a centralized processor and a centralized memory for managing the connectivity, information sharing, and coupled operations of the timer modules 32"); EX1019: 6:15-19 ("The main controller 34 may interface with the memory 32 and execute the control program. Under the direction of the control program, the main controller 34 may control the operation of the shelving unit 12a.").

612. In making the modifications, it would have been obvious for Fortmann'748's controller to have the capability to independently operate each heater to independently control the food holding temperature associated with each food holding zone. *See* Paragraphs 415-445 (Ground 7, Section X(A)(2)-(3)).

613. As explained in Paragraphs 415-445, 543-552, 556-560, and 565-582 (Ground 7, Section X(A)(2)-(3) and claim limitations 1.d.2, 1.e.2, and 1.g.2), as modified, it would have been obvious for Fortmann'748's control system (e.g., controller) to have the capability of operating the lower heaters of each food holding zone (i.e. second and fourth heating elements) independently to control its respective food holding temperature.



EX1010: Figs. 2 and 6 (modified, annotated).

614. As such, each limitation of Claim 2 is either disclosed in Fortmann'748 or would have been an obvious modification to the multi-zone food holding bin of Fortmann'748 in view of the teachings and disclosures of the IRHS Documents, Jones, Fortmann'197, McMillan, Hartfelder, Shei'099, Veltrop, and/or

Shei'155. As such, the POSA would have found it obvious to arrive at the food holding bin as claimed in Claim 2.

D. Claim 3: the food holding bin of claim 1, wherein the first and second food holding compartments each have a second opening, uncovered and located at the rear face of the chassis

615. As discussed above, the POSA would have found it obvious to modify the multi-zone food holding bin of Fortmann'748 in view of the teachings and disclosures the IRHS Documents, Jones, Fortmann'197, McMillan, Hartfelder, Shei'099, Veltrop, and/or Shei'155 to arrive at the claimed food holding bin of Claim 1.

616. The POSA would recognize that Fortmann'748 discloses the additional limitation added in Claim 3 further requiring the first and second food holding compartments of the multi-zone food holding bin to each have "a second opening, uncovered and located at the rear face of the chassis."

617. The chassis (10a) of Fortmann'748's cabinet (10) has an open back side (16) to allow pans (100) to pass into and out of the food holding compartments in the interior volume (18). EX1010: ¶[0014] ("[t]he warming cart 10 is configured with … an open back side 16 to allow one or more pans 100 to be quickly disposed within the cart 10 and the warming volume and removed from the cart 10 without operation of doors or other barriers found on conventional warming carts.… as

shown in FIG. 6 the back side 16 is also open to allow pans 100 and the like to slide through the back side 16 into the warming volume 18").

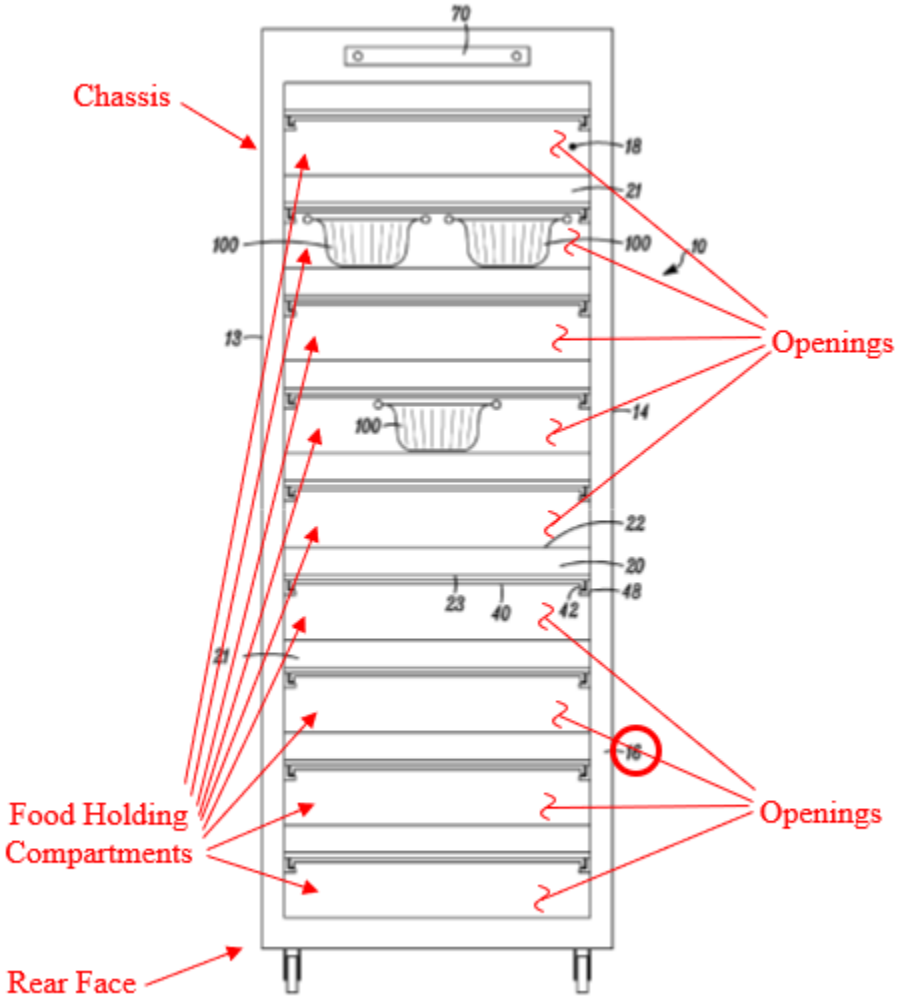
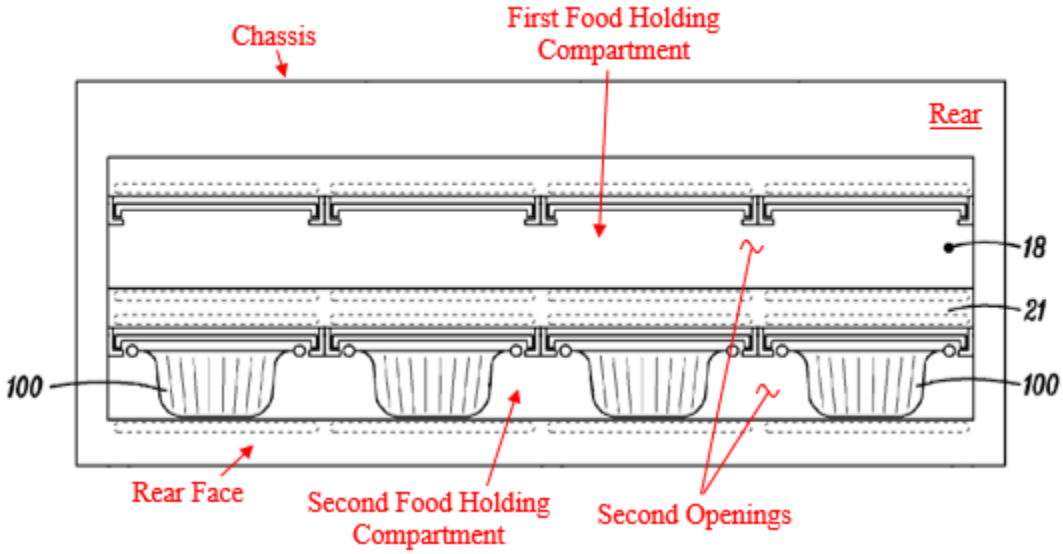


FIG. 6

EX1010: Fig. 6 (annotated).

618. Both as disclosed in Fortmann'748 and as modified according to Paragraphs 403-516 (Ground 7, Section X(A)) above, the first and second food holding compartments each have an uncovered second opening located at the rear

face of the chassis.



EX1010: Fig. 6 (modified, annotated).

619. As such, each limitation of Claim 3 is either disclosed in Fortmann'748 or would have been an obvious modification to the multi-zone food holding bin of Fortmann'748 in view of the teachings and disclosures of the IRHS Documents, Jones, Fortmann'197, McMillan, Hartfelder, Shei'099, Veltrop, and/or Shei'155. As such, the POSA would have found it obvious to arrive at the food holding bin as claimed in Claim 3.

E. Claim 5: the food handling bin of claim 1, further comprising a lid located in a top portion of the first food holding compartment, the lid capable of being inserted into a shelf above the continuous and planar bottom surface

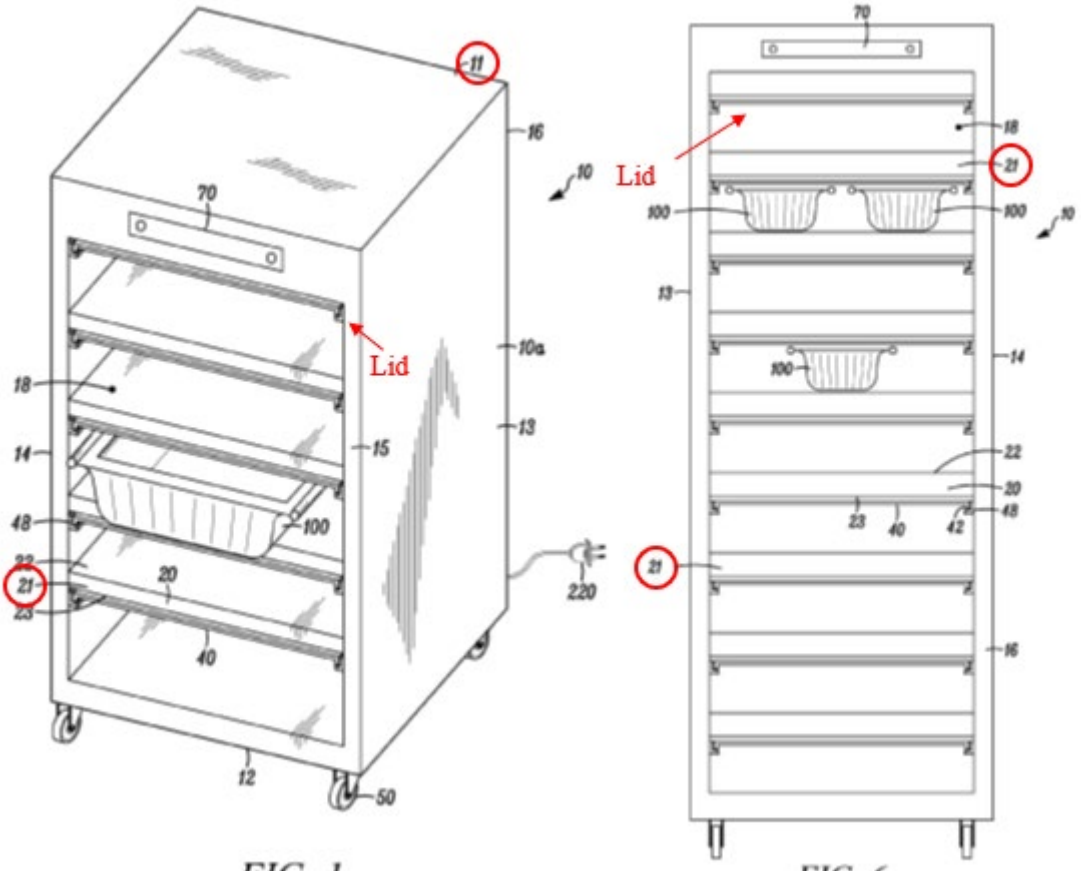
620. As discussed above, the POSA would have found it obvious to modify the multi-zone food holding bin of Fortmann'748 in view of the teachings and

disclosures the IRHS Documents, Jones, Fortmann'197, McMillan, Hartfelder, Shei'099, Veltrop, and/or Shei'155 to arrive at the claimed food holding bin of Claim 1.

621. The POSA would recognize that Fortmann'748 discloses the additional limitation added in Claim 5 further requiring that the food handling bin includes a "lid located in a top portion of the first food holding compartment" and that the "lid [is] capable of being inserted into a shelf above the continuous and planar bottom surface."

622. The top panel (11) and each shelf (21) of Fortmann'748's cabinet (10) includes a cover or lid (40). EX1014: ¶[0017] ("[t]he plurality of shelves 21 may each include a removable and slidable cover 40 that is disposed in conjunction with and below each shelf 21 (with the exception of the bottom shelf 21, with a cover 40 also provided above the upper-most shelf)"), Figs. 1 and 6.

623. The lid (40) rests and slides along a track (48) in the top portion of the compartment, to insert and remove the lid. EX1010: ¶[0018] ("covers 40 are disposed onto the respective shelves 21 to be removable as necessary, by sliding the cover 40 from the shelf 21 by way of a track 48"), Fig. 3.



EX1010: Figs. 1 and 6 (annotated).

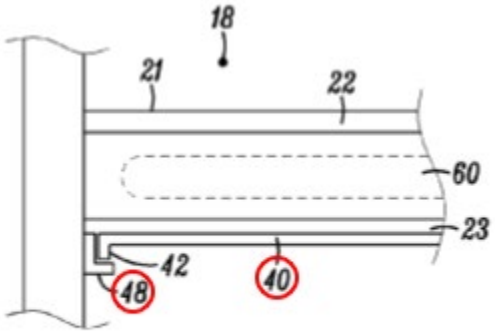


FIG. 3

EX1010: Fig. 3 (annotated).

624. Fortmann'748's lids (40) and associated tracks (48) (lid holding shelves) are above their respective continuous and planar bottom surfaces of their associated food holding compartments. EX1014: ¶[0017] ("[t]he plurality of shelves 21 may each include a removable and slidable cover 40 that is disposed in conjunction with and below each shelf 21 (with the exception of the bottom shelf 21, with a cover 40 also provided above the upper-most shelf)"). The lids (40) are insertable into and removeable from the tracks (48). EX1010: ¶[0018] ("covers 40 are disposed onto the respective shelves 21 to be removable as necessary, by sliding the cover 40 from the shelf 21 by way of a track 48").

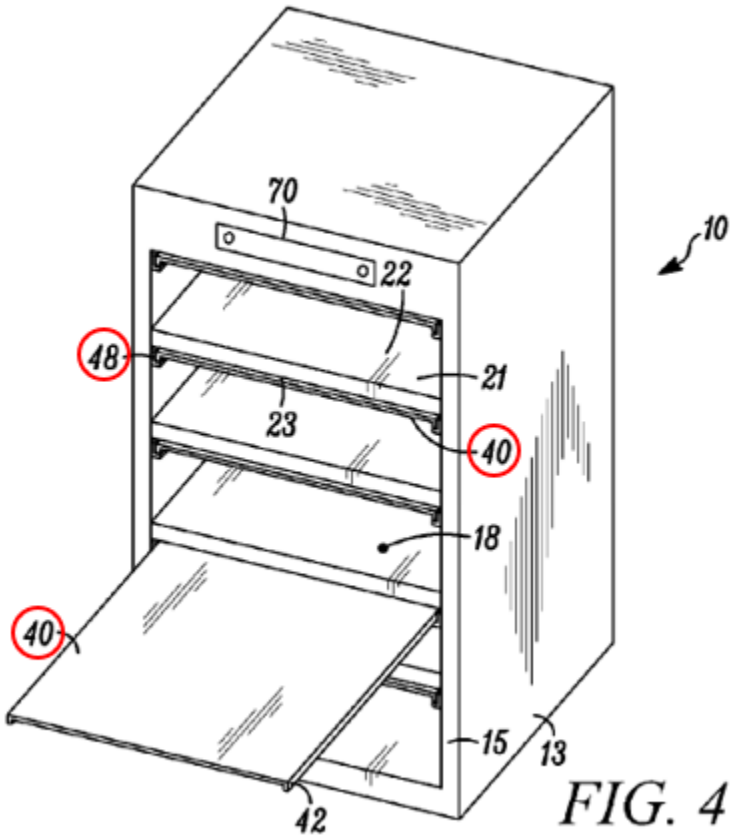


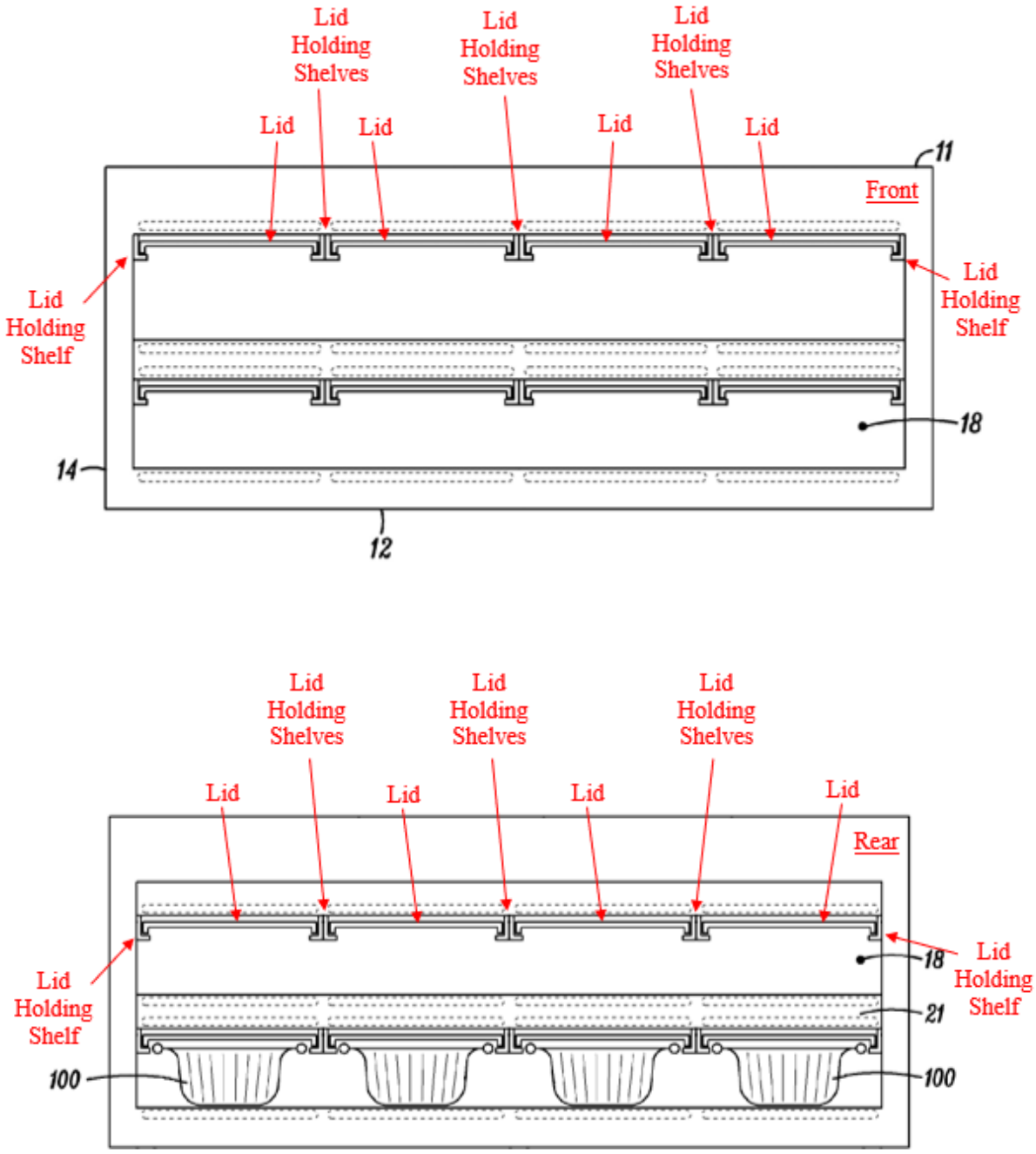
FIG. 4

EX1010: Fig. 4 (annotated).

625. As explained in Paragraphs 466-488 (Ground 7, Section X(A)(4)) above, it would have been obvious to modify the Fortmann'748 cabinet to have discrete lids for each pan holding location (*i.e.*, each food holding zone), as taught by Jones, Fortmann'197, and the IRHS Documents. EX1012: ¶[0072], Fig. 1B; EX1014: 4:50-53, 7:31-32, Figs. 1-4; EX1005: 8; EX1006: 1-2; EX1007: 53, 58.

626. Accordingly, it would have been obvious for Fortmann'748's cabinet to have lids, held on tracks (lid holding shelves), in the top portions of the compartments (e.g., the top portion of the first food holding compartment) as explained in in Paragraphs 466-488 (Ground 7, Section X(A)(4)) above.

627. As modified, the lids would maintain their ability to insertable into the lid holding shelves above the continuous and planar surface. EX1010: ¶[0018].



EX1010: Figs. 2 and 6 (modified, annotated)

628. As such, each limitation of Claim 5 is either disclosed in Fortmann'748 or would have been an obvious modification to the multi-zone food

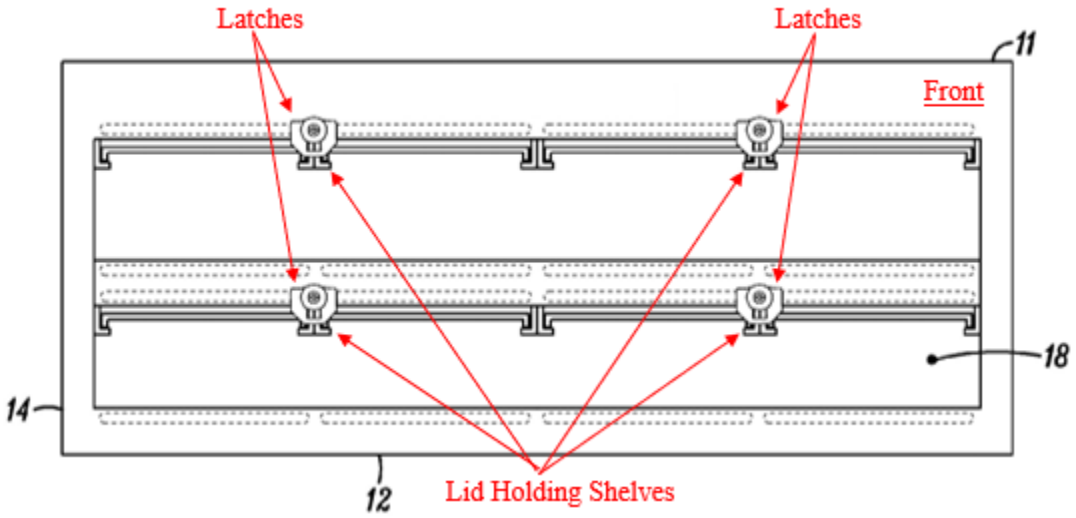
holding bin of Fortmann'748 in view of the teachings and disclosures of the IRHS Documents, Jones, Fortmann'197, McMillan, Hartfelder, Shei'099, Veltrop, and/or Shei'155. As such, the POSA would have found it obvious to arrive at the food holding bin as claimed in Claim 5.

F. Claim 6:

6.a.1: the food holding bin of claim 5, further comprising a latch located adjacent to the shelf

629. As discussed above, the POSA would have found it obvious to modify the multi-zone food holding bin of Fortmann'748 in view of the teachings and disclosures the IRHS Documents, Jones, Fortmann'197, McMillan, Hartfelder, Shei'099, Veltrop, and/or Shei'155 to arrive at the claimed food holding bin of Claim 5.

630. Hartfelder and Shei'099 disclose latches for retaining lids such that it would have been obvious to modify Fortmann'748's cabinet (10) to have latches for retaining the lids as explained in Paragraphs 489-500 (Ground 7, Section X(A)(5)) above. EX1013: ¶[0058], Figs. 1 and 9; EX1017: 6:9-32, Fig. 1.



EX1005: 8 (modified, annotated).

631. This location—adjacent the openings and the lids—is the same as taught by Hartfelder and/or Shei'099 and would be the natural location to allow the latches to engage and retain the lids. EX1013: Figs. 1 and 9; EX1017: Fig. 1.

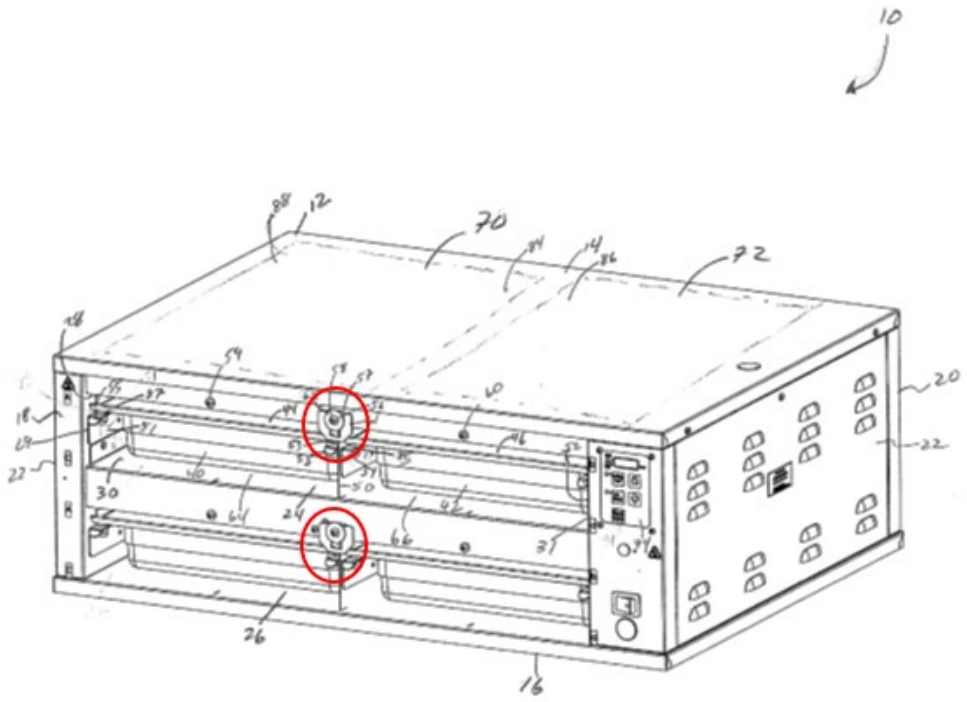


FIGURE 1

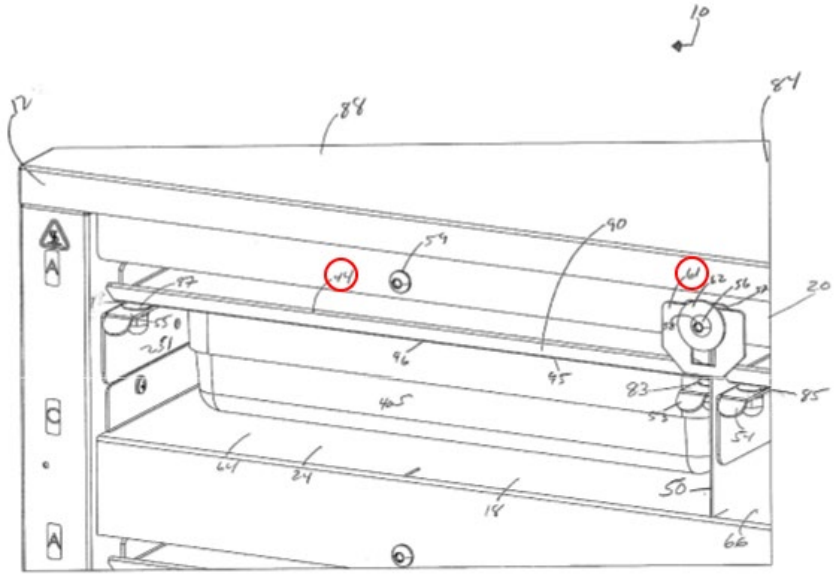


FIGURE 9

EX1013: Figs. 1 and 9 (annotated).

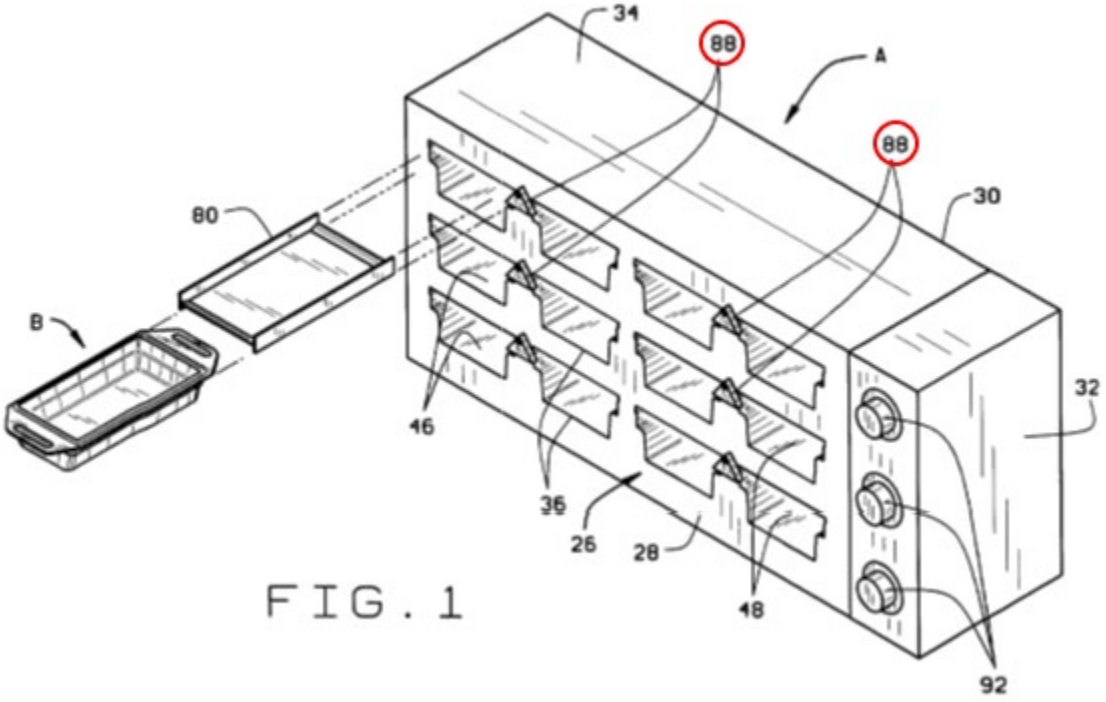


FIG. 1

EX1017: Fig. 1 (annotated).

632. Accordingly, adding a latch adjacent to one of the lid holding shelves would have been obvious to the POSA.

6.a.2: the latch having a body including an open center portion

633. Each stop member (61) (latch) of Hartfelder has a body with an open center portion. EX1013: Figs. 1 and 9, ¶[0035].

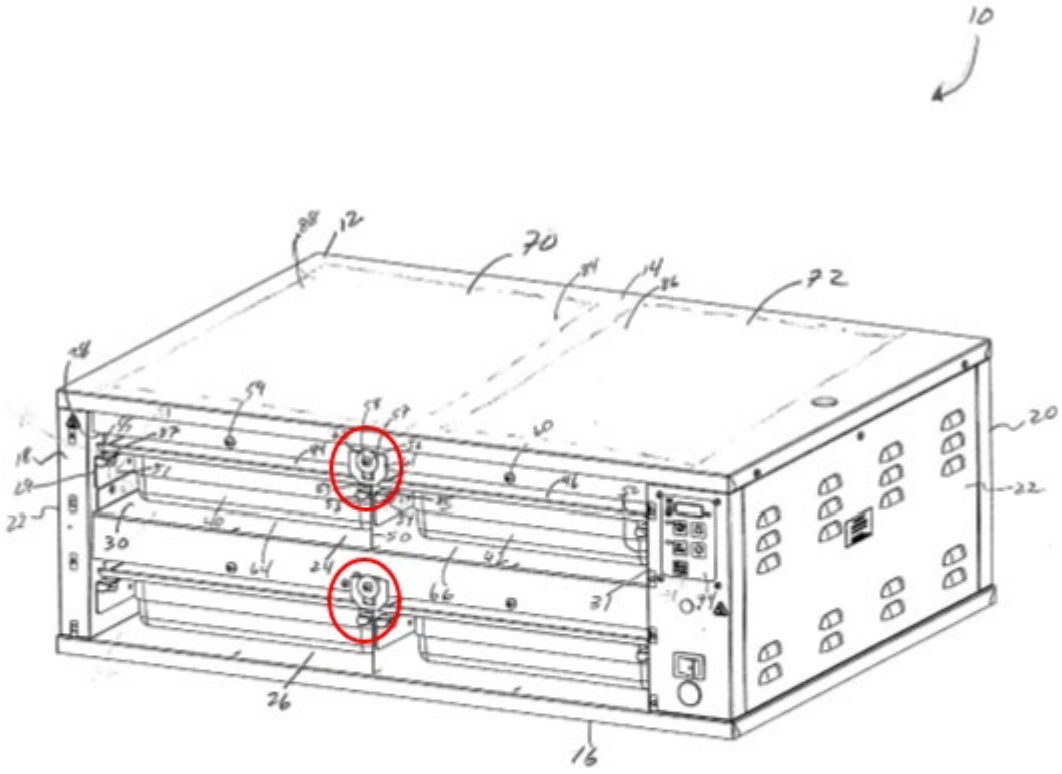


FIGURE 1

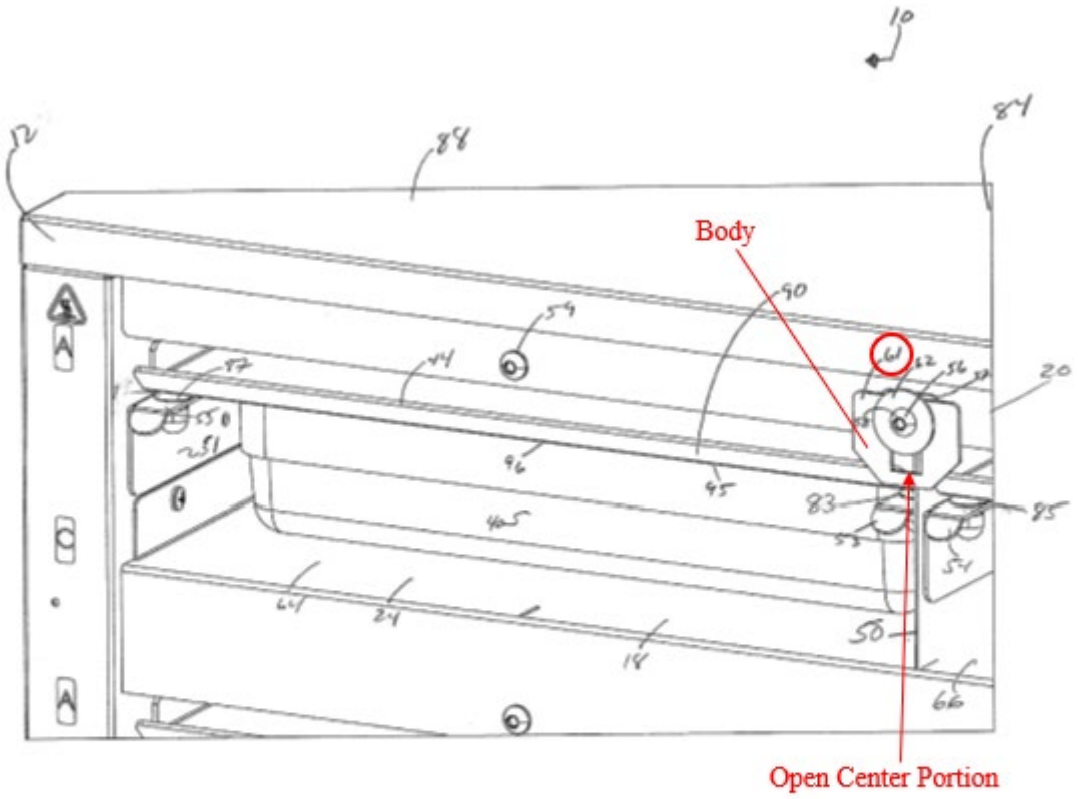
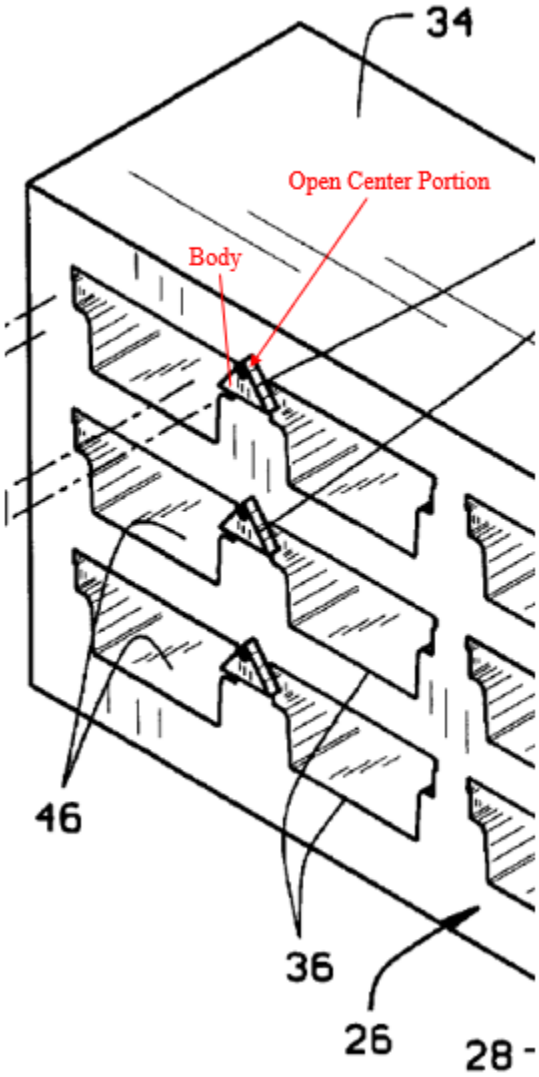


FIGURE 9

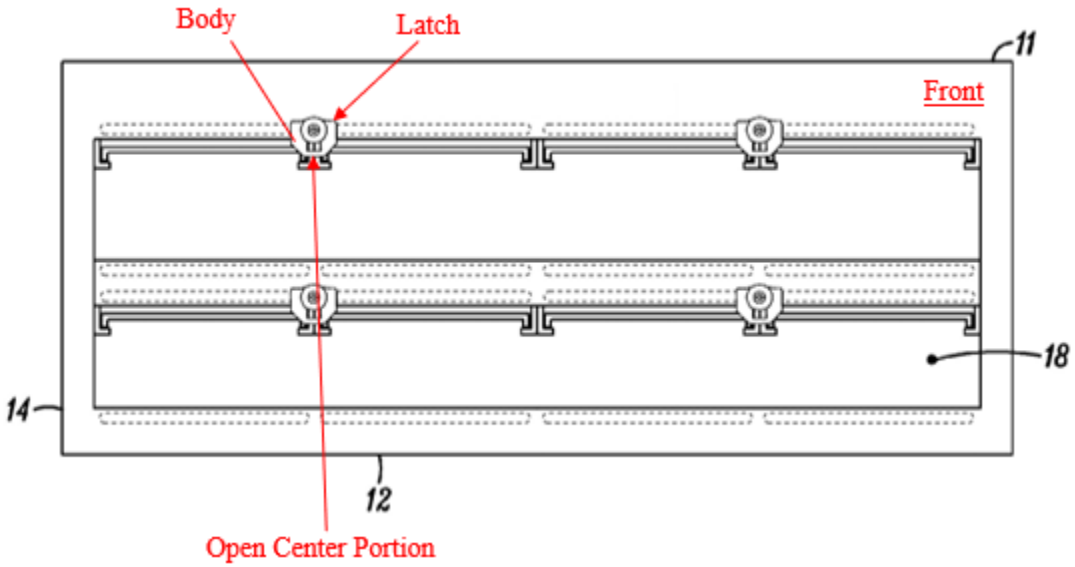
EX1013: Figs. 1 and 9 (annotated).

634. Likewise, each stop (88) (latch) of Shei'099 has a body with an open center portion through which the fastener (forming the pivot connection) extends to attach the stop to the cabinet (26). EX1017: Fig. 1, 6:9-14.



EX1017: Fig. 1 (enlarged, annotated).

635. When added to Fortmann'748's cabinet (10), Hartfelder's and Shei'099's latches would have maintained their bodies and open center portions to allow fastener (forming the pivot connection) to extend through. Thus, it would have been obvious for the latch to have a body with an open center portion.



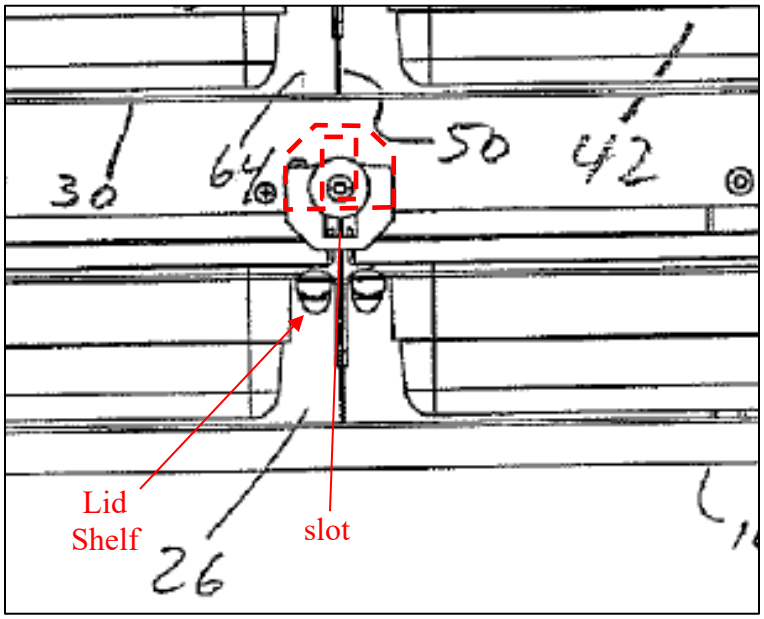
EX1010: Fig. 2 (modified, annotated).

6.a.3: the latch being rotatable or translatable relative to the shelf between a locked position and an unlocked position

636. The POSA would understand that Hartfelder's stop members (61) are moveable and rotate relative to the shelf between locked and unlocked positions.

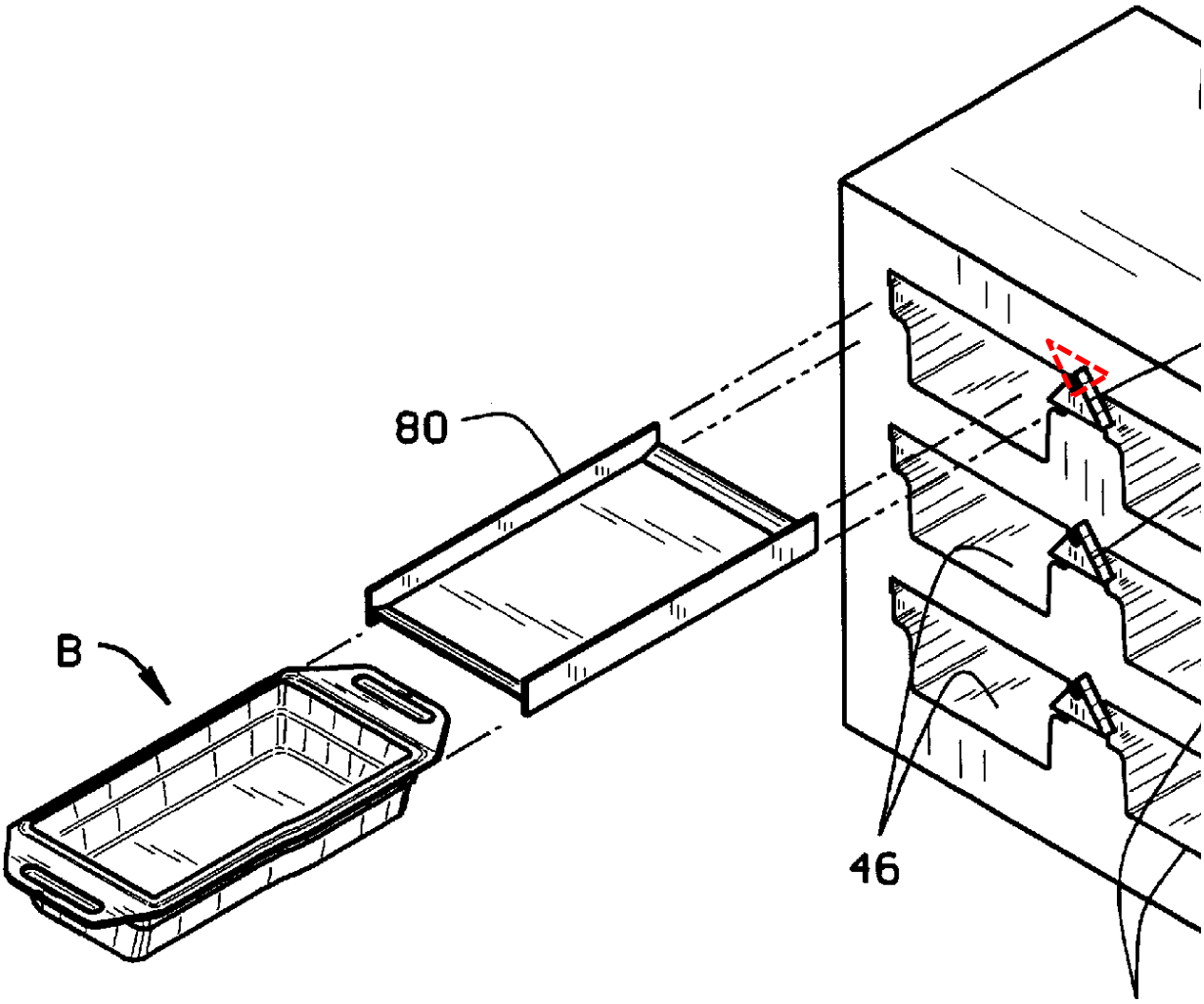
637. Specifically, the stop members (61) have a vertical slot, through which the fastener (56) extends to connect the stop member to the cabinet (12). The cutout is larger than the fastener (56), thereby allowing the stop member (61) to rotate between the locked position shown in Fig. 2 (in which the stop member is positioned to engage the lid if the lid moves out of the compartment) and an unlocked position shown by the broken lines (in which the stop member is positioned to permit the lids to be removed from the compartment). Stop members

(61) of this type rotate between locked and unlocked positions. EX1017: 6:9-32, Fig. 1; EX1016: ¶[0043], Fig. 1.



EX1013: Fig. 2 (enlarged, annotated to show rotation of Hartfelder's stop member).

638. Likewise, Shei'099's stops (88) rotate between locked and unlocked positions. EX1017: 6:9-32.

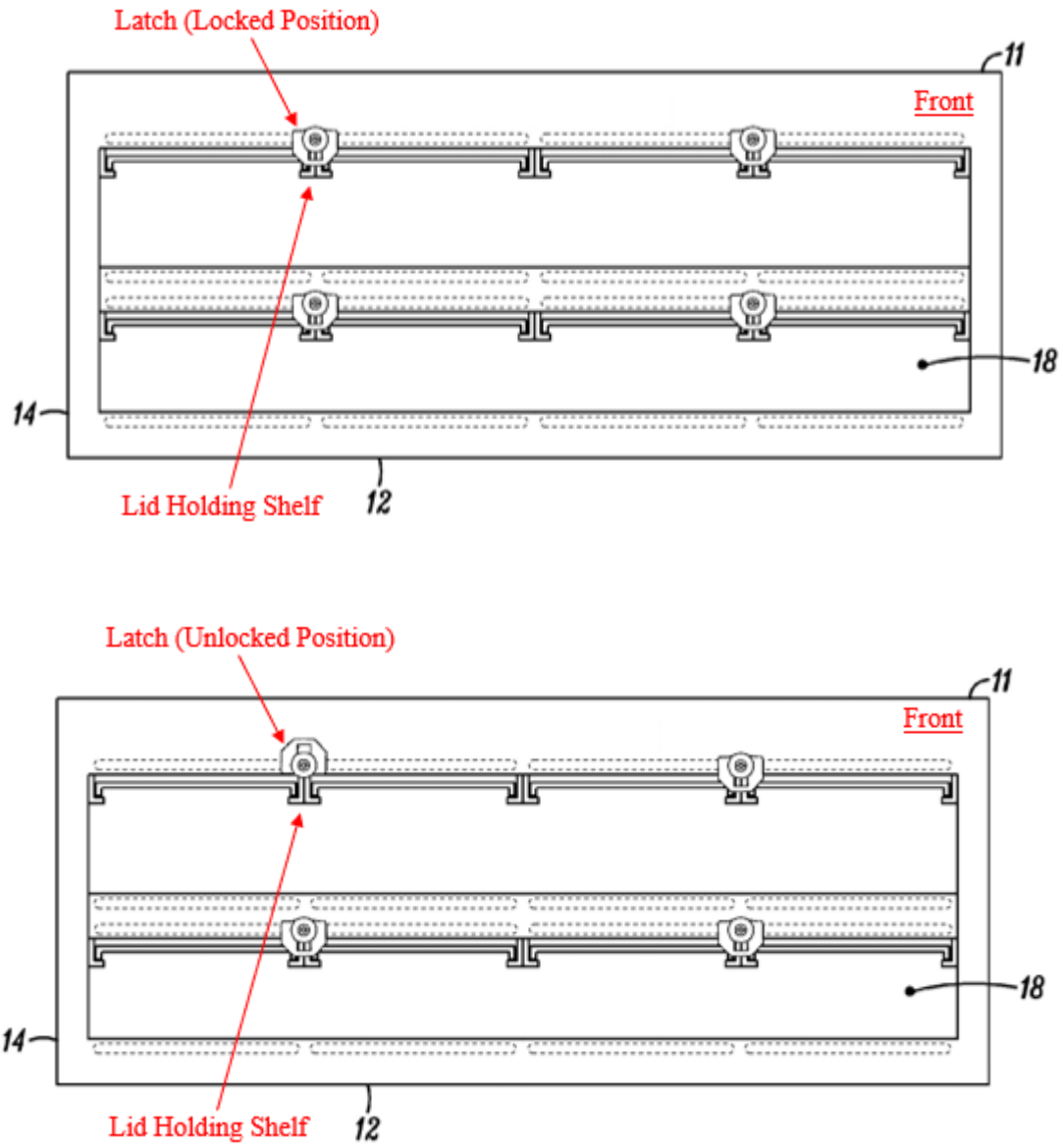


EX1017: Fig. 1 (enlarged, annotated).

639. While the above annotated images of Hartfelder and Shei'099 show the stops (latches) rotated 180-degrees from an at-rest position, the POSA understands the user/operator would pivot the stops in Hartfelder and Shei'099 as needed (e.g., 45-degrees) left or right to release the desired lid.

640. When added to Fortmann'748's cabinet (10), Hartfelder's and Shei'099's latches would have maintained rotatability relative to a shelf between

locked and unlocked positions. Thus, it would have been obvious for the latch to be rotatable relative to the lid holding shelf between locked position and unlocked position (shown in broken lines).



EX1010: Fig. 2 (modified, annotated).

641. As such, each limitation of Claim 6 is either disclosed in Fortmann'748 or would have been an obvious modification to the multi-zone food holding bin of Fortmann'748 in view of the teachings and disclosures of the IRHS Documents, Jones, Fortmann'197, McMillan, Hartfelder, Shei'099, Veltrop, and/or Shei'155. As such, the POSA would have found it obvious to arrive at the food holding bin as claimed in Claim 6.

G. Claim 7: the food holding bin of claim 1, further comprising a lid on the food holding tray

642. As discussed above, the POSA would have found it obvious to modify the multi-zone food holding bin of Fortmann'748 in view of the teachings and disclosures the IRHS Documents, Jones, Fortmann'197, McMillan, Hartfelder, Shei'099, Veltrop, and/or Shei'155 to arrive at the claimed food holding bin of Claim 1.

643. The POSA would recognize that Fortmann'748 discloses the additional limitation added in Claim 7 further requiring "a lid on the food holding tray."

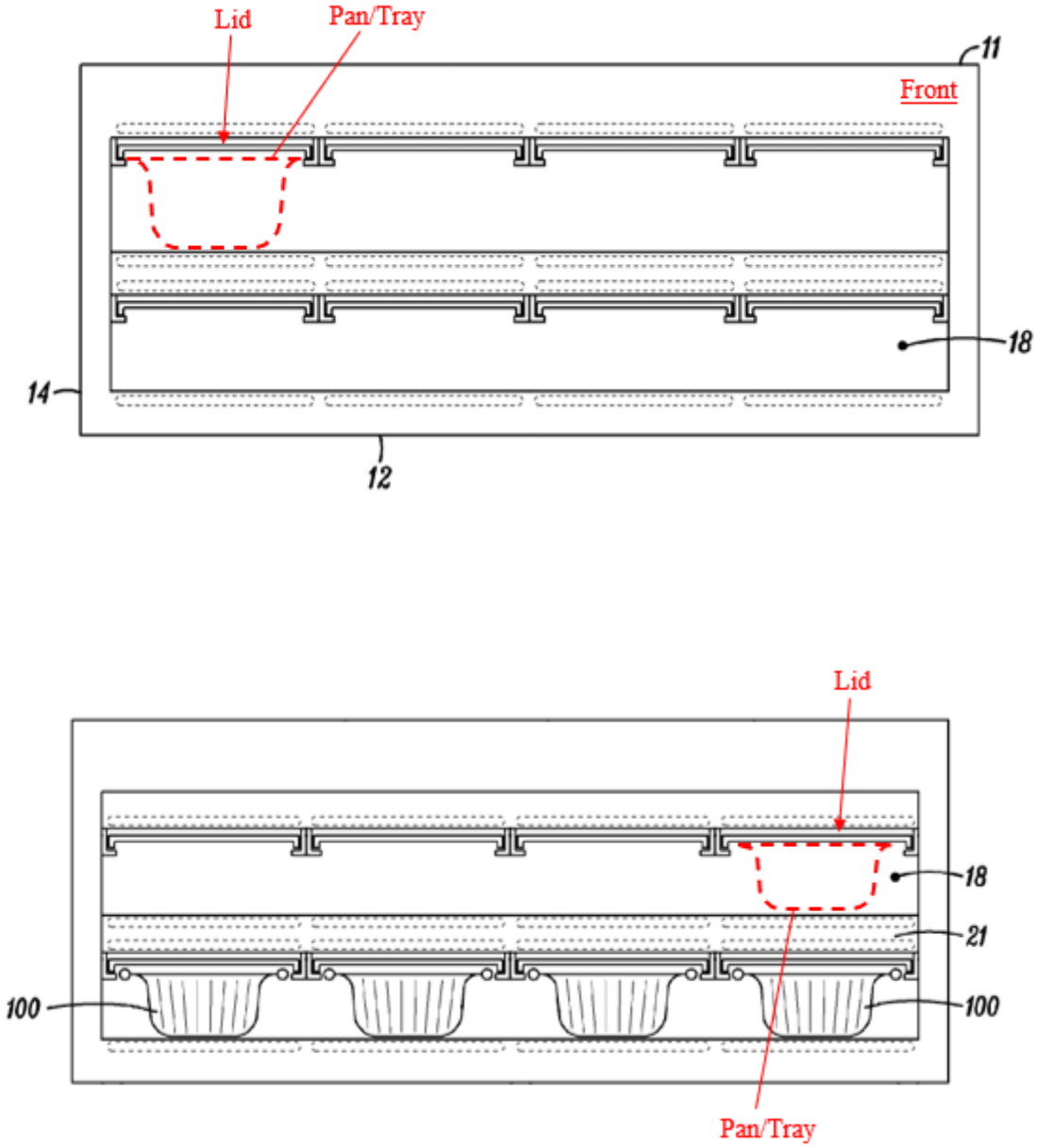
644. Fortmann'748 explains its lids (40) are on the pans/trays (100). EX1010: ¶[0017] ("cover 40 is configured to provide a lid to each restaurant or hotel pan 100 that is placed onto the shelf 21 within the warming volume 18 such that the heat from the food products disposed within the pan 100 (and the heat of the residual heat of the pan 100 itself) is substantially prevented from escaping due

to convective heat transfer. The cover 40 additionally substantially encloses the one or more pans 100 disposed upon the shelf 21 therebelow, which maintains any moisture or water vapor within the pan 100 to prevent the warmed food disposed within the pan 100 from drying if the food is maintained in the unit for an extended period of time"), ¶[0018] ("covers 40 are disposed to provide a spacing between the cover 40 and the shelf 21 disposed thereunder that receives a conventional restaurant cooking pan 100 therebetween, with little to ***no space between the upper edges of the pan 100 and the bottom surface of the cover 40***").

645. Fortmann'748's lids (40) would necessarily need to be on the pan/trays in order for the lids to prevent "heat from the food products disposed within the pan … from escaping" or "substantially enclose[] the one or more pans … which maintains any moisture or water vapor within the pan" as recited with Fortmann'748. EX1010: ¶[0017]. Likewise, Fortman's preference that there is "no space between the upper edges of the pan 100 and the bottom surface of the [lid] 40" would require the lids to be on the pan/trays. EX1010: ¶[0018].

646. When modifying Fortmann'748's cabinet (10) to have a discrete lid for each pan holding location/bay in view of Jones, Fortmann'197, and the IRHS Documents as described in Paragraphs 466-488 (Ground 7, Section X(A)(4)), the POSA would have maintained the ability for the discrete lids to rest on the

pans/trays as taught by Fortmann'748. EX1010: ¶¶[0017]-[0018]. Thus, it would have been obvious for a lid to be on the pan/tray.



EX1010: Figs. 2 and 6 (modified, annotated).

647. Even without the support from the disclosures of Fortmann'748, it would have been obvious to the POSA for the discrete lids to be on the pans/trays as taught by Jones, Fortmann'197, and the IRHS Documents.

648. Jones teaches that its lids (16) rest on the food pans/trays (14). EX1012: ¶[0070] ("when a food tray 14 is inserted into the food tray location TL and under a suspended tray cover 16, food tray 14 will engage a bottom portion of tray cover 16 and lift it upwardly off of the pair of support structures 46 such that the tray cover 16 is supported by food tray 14"), ¶[0079] ("the food tray 14 lifts the cover from the rods and supports the cover"), ¶[0081] ("FIG. 4F shows cover 16 resting on top of the top edge or rim R of and fully supported by a tray 14"), ¶[0084] ("Once tray 14 is fully inserted into the tray location, cover 16 is fully supported by tray 14").

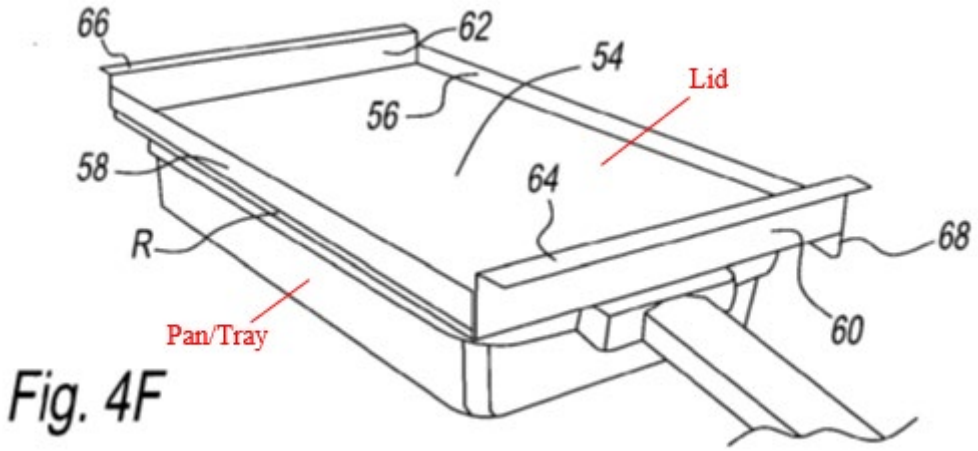


Fig. 4F

EX1012: Fig. 4F (annotated).

649. Fortmann'197 also teaches that its lids (200) rest on the food pans/trays (400). EX1014: 6:27-32 ("the cover 200 (and specifically the top wall 223 of the cover 200), is configured such that the opening 402 into the pan 400 is fully closed by the top surface 223 (resting upon the top 403 of the pan) (therefore sealing the pan against humidity escaping from the volume of the pan 400)"), 7:58-60 ("the top wall 223 of the cover 200 rests upon the top 403 of the pan 400").

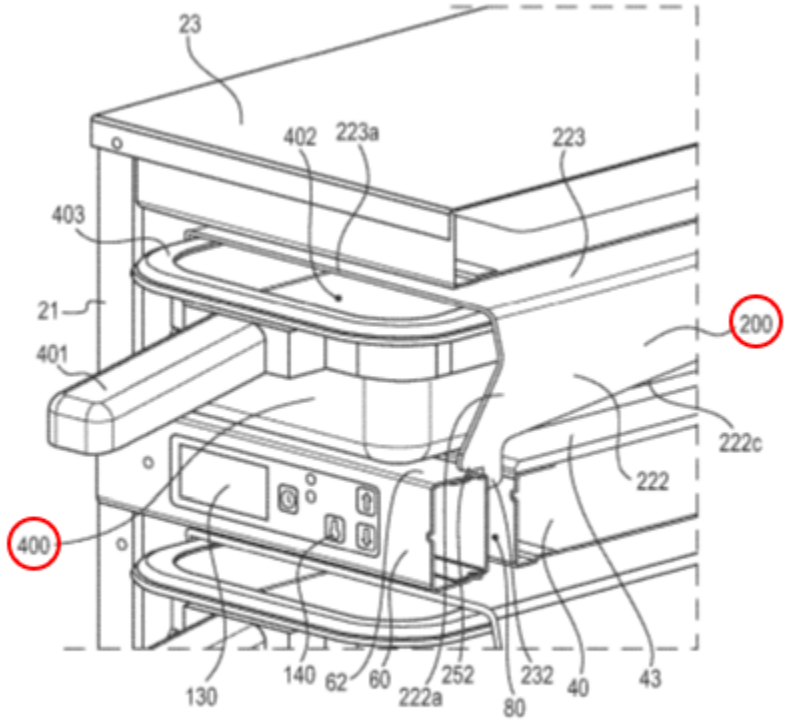
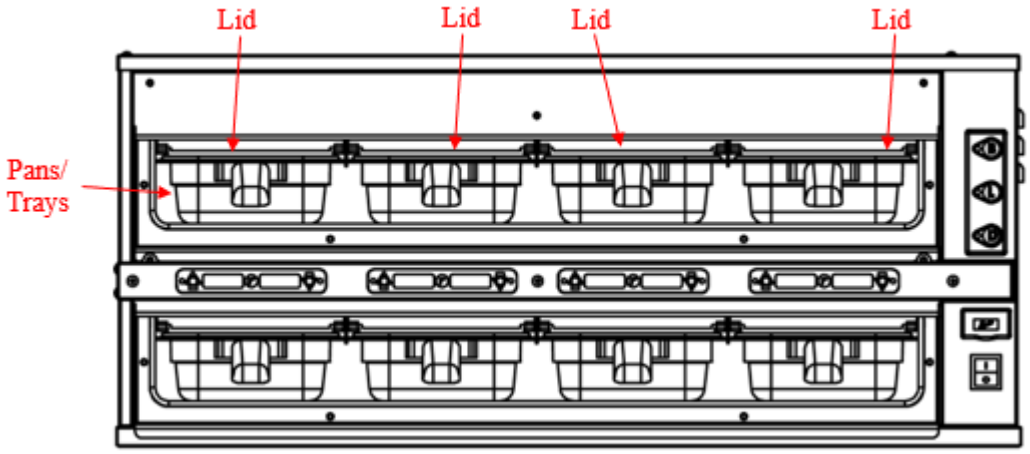


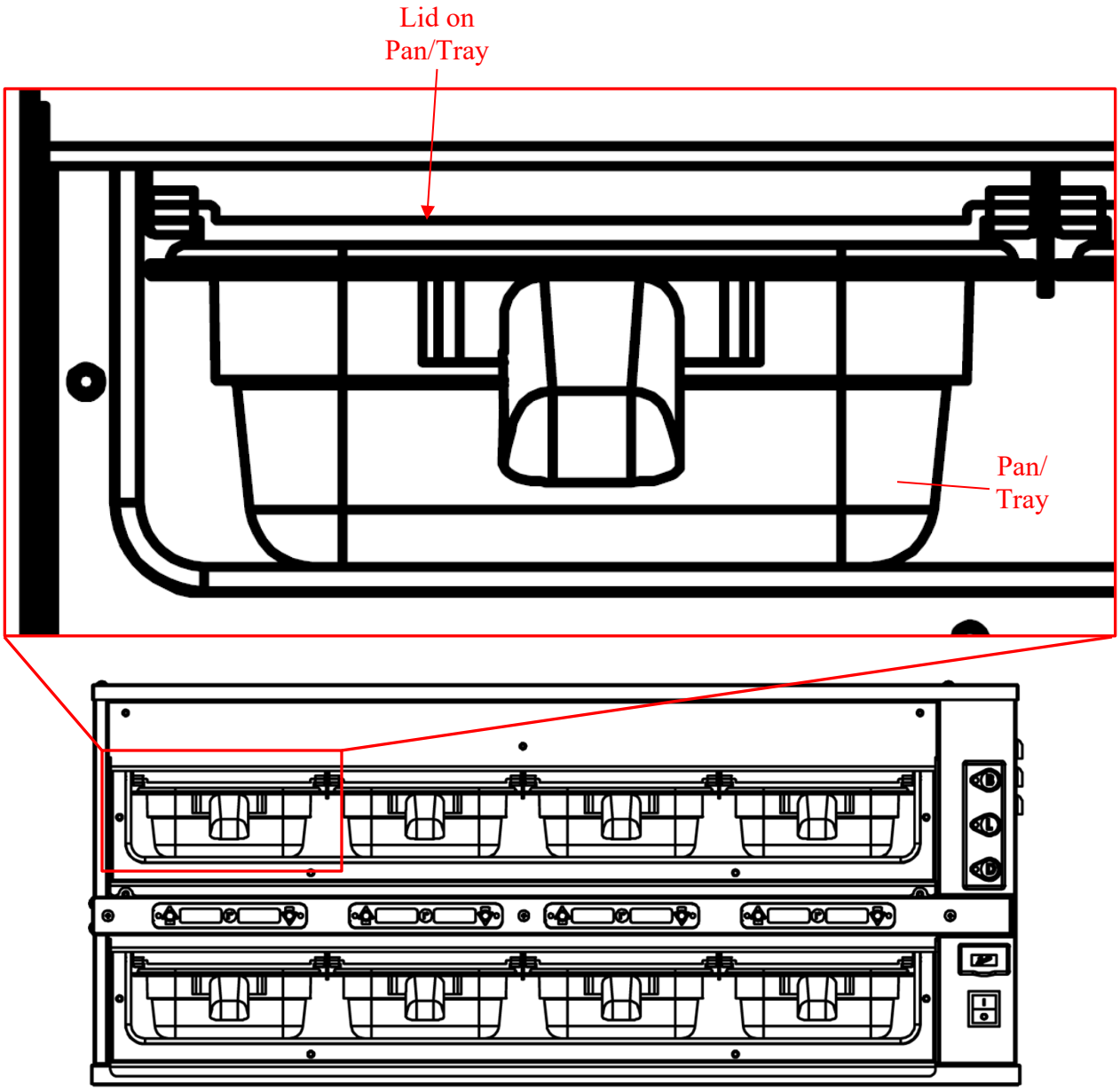
FIG. 4

EX1014: Fig. 4 (annotated).

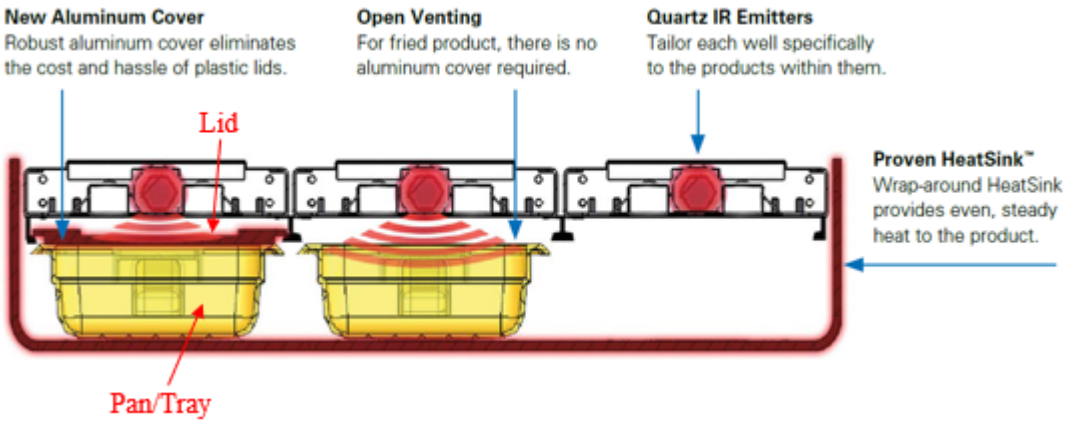
650. Likewise, the IRHS Documents teach lids resting on the food pans/trays. EX1005: 4 ("robust aluminum Heat Sink Cover for broiled foods"), 8,

20-21 (ref. no. 18); EX1007: 53 (“[m]etal cover eliminates the cost and hassle of plastic lids” and “Completely sealed metal cover with no heat loss”), 56, 58 (“[c]over allows better heat transfer and greater seal assurance; critical to maintaining food quality with extended hold times”).





EX1005: 8 (annotated).



EX1007: 53 (annotated).

651. Thus, even without the express guidance of Fortmann'748, it would have been obvious to the POSA for the lids to rest on the pans/trays in Fortmann'748's cabinet (10) in view of Jones, Fortmann'197, and/or the IRHS Documents to retain moisture in the pans, thereby keeping the food (e.g., burger patties) therein moist (preventing the food from drying out). EX1005: 16 ("Ensure proper heat sink covers are inserted into the correct location (broiled and moisture sensitive products only"); EX1013: ¶[0006] ("One commonly used way to protect previously cooked food items for which drying out is a concern, is to place the food items in a container, such as a tray, and to provide a cover for the container. The cover restricts evaporation of moisture from the previously cooked food items. With a reduced amount of moisture vapor being able to escape from the covered container, the previously cooked food items contained therein do not dry out as rapidly."); EX1014: 7:45-67 ("the covers 200 are readily removable and

replaceable within the internal volume 27 of the housing 20, and the device 10 may be operated with some covers 200 enclosing some discrete heating zones 100 and other discrete heating zones 100 free of covers (but including pans 400). For example, when it is desired to heatingly store food products in a moist environment, the cover 200 may be installed in the discrete heating zone such to enclose (or only leave a small space above) the opening 402 into the pan 400 and to prevent moisture from the food products within the pan 400 from leaving the pan 400."); EX1017: 6:45-53 ("Some of these foods, such as hamburger patties, loose their taste and texture with loss of moisture. … The trays B which contain foods that must remain moist are placed in heat sinks 44 having their covers 80 in the closing position").

652. This would have been nothing more than the application of a known technique (lids resting on pans/trays as taught by Jone, Fortmann'197, and/or the IRHS Documents) to improve a similar device (Fortmann'748's cabinet with pans/trays and lids) in the same way (covering the pans to retain moisture).

653. The POSA would have had a reasonable expectation of success given that Fortmann'748's lids are already suggested to rest on the pans/trays and the arrangement has demonstrated suitability from the prior art. EX1010: Fig. 3, ¶[0018]; EX1012: ¶¶[0070], [0079], [0081], [0084]; EX1014: 6:27-32, 7:58-60; EX1005: 4, 8, 20-21; EX1007: 53, 56, 58.

654. As such, each limitation of Claim 7 is either disclosed in Fortmann'748 or would have been an obvious modification to the multi-zone food holding bin of Fortmann'748 in view of the teachings and disclosures of the IRHS Documents, Jones, Fortmann'197, McMillan, Hartfelder, Shei'099, Veltrop, and/or Shei'155. As such, the POSA would have found it obvious to arrive at the food holding bin as claimed in Claim 7—a lid on the pan/tray.

H. Claim 8: the food holding bin of claim 1, wherein at least one of the first heating element and the second heating element is an electrically resistive heating wire

655. As discussed above, the POSA would have found it obvious to modify the multi-zone food holding bin of Fortmann'748 in view of the teachings and disclosures the IRHS Documents, Jones, Fortmann'197, McMillan, Hartfelder, Shei'099, Veltrop, and/or Shei'155 to arrive at the claimed food holding bin of Claim 1.

656. Veltrop teaches a food holding cabinet (10) with shelves (52) having heaters in the form of electrically-resistive heater wire (67). EX1022: ¶¶[0010], [0025] ("[i]n another embodiment of the shelf 52, an electrically-insulated, electrically-resistive heater wire 67 is also sandwiched between the plates 51 and 53"), Fig. 2.

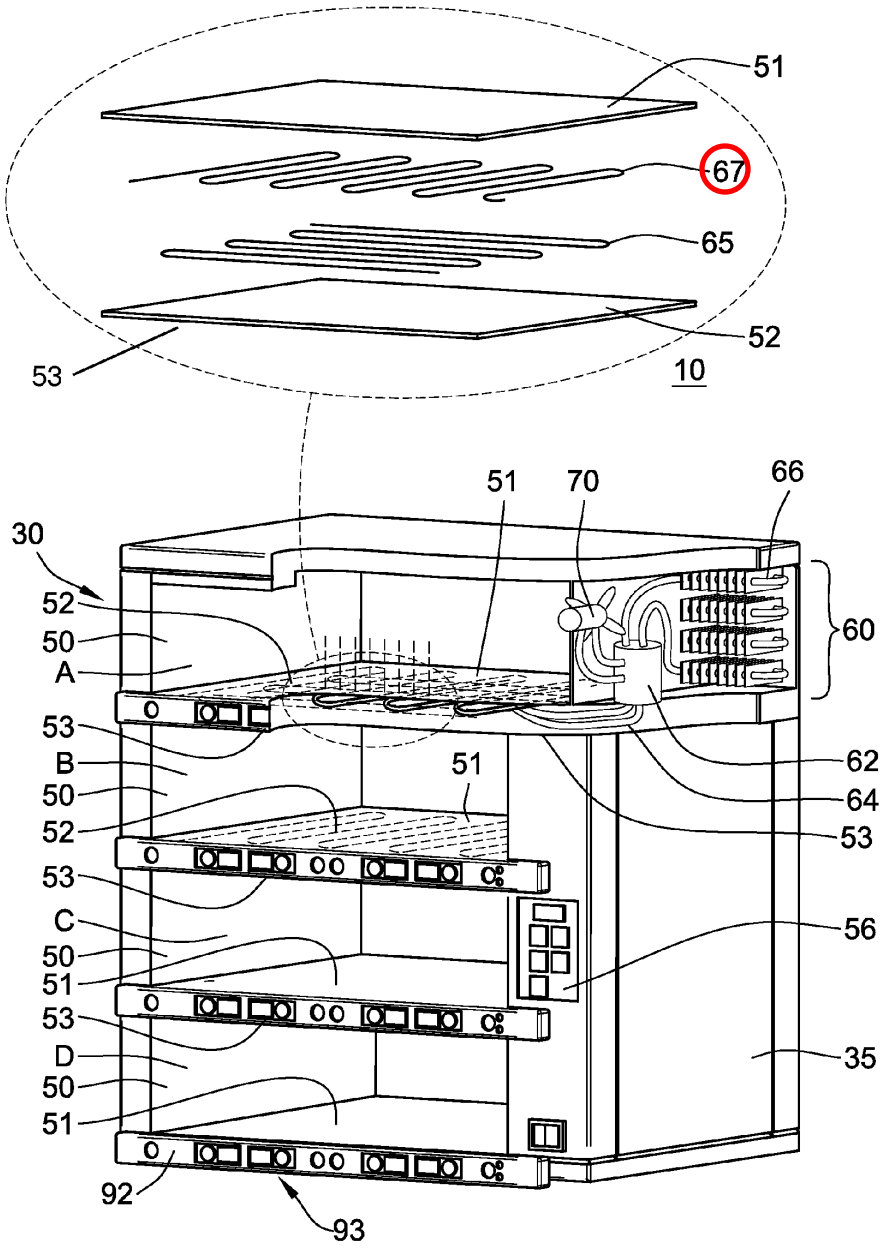


FIG. 2

EX1022: Fig. 2 (annotated).

657. As explained in Paragraphs 509-516(Ground 7, Section X(A)(7)), it would have been obvious to have Fortmann'748's heaters comprise an electrically-

resistive heater wire in view of Veltrop to generate the heat for the compartments. When implementing this modification, each heater (60) of Fortmann'748's modified cabinet (10) would comprise Veltrop's electrically-resistive heater wire.

658. As such, each limitation of Claim 8 is either disclosed in Fortmann'748 or would have been an obvious modification to the multi-zone food holding bin of Fortmann'748 in view of the teachings and disclosures of the IRHS Documents, Jones, Fortmann'197, McMillan, Shei'155, and/or Veltrop. As such, the POSA would have found it obvious to arrive at the food holding bin as claimed in Claim 8.

I. Independent Claim 9

9.P: a method of maintaining different temperatures in a food holding compartment of a food holding bin, the method comprising

659. The POSA would recognize that Fortmann'748 discloses the use of a multi-zone food holding bin to maintain the temperature of previously cooked foods at different temperatures. EX1010: ¶[0002].

660. Specifically, Fortmann'748 teaches using a food holding bin or warming cabinet (10) having multiple compartments in a warming volume 18 with zones of different temperatures for warming a plurality of food pans (100). EX1010: ¶¶[0002], [0014], [0024] ("establish two or more heat zones of differing temperatures within the warming volume"), [0027].

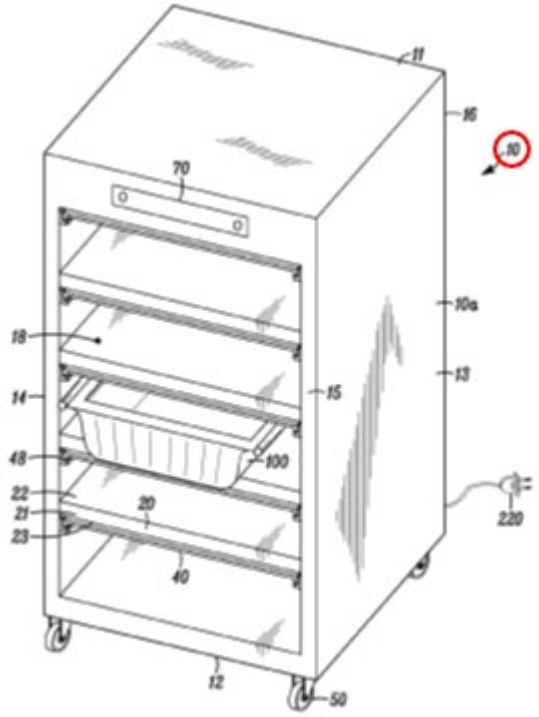


FIG. 1

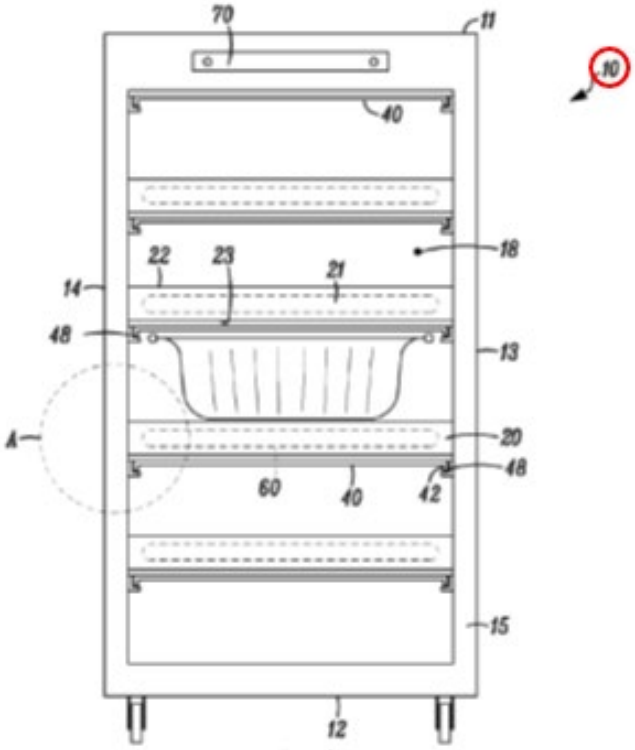
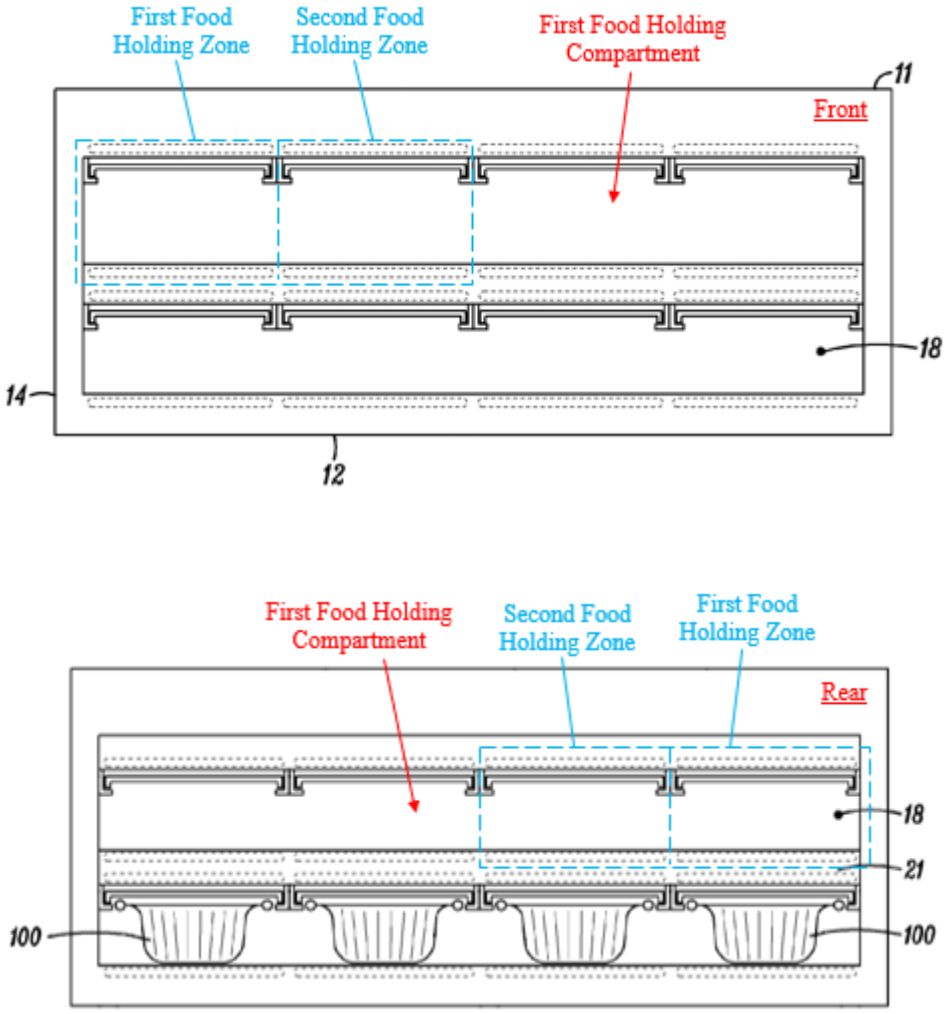


FIG. 2

EX1010: Figs. 1 and 2 (annotated).

661. Jones, Fortmann'197, and McMillan each disclose multiple temperature zones within the same compartment at different temperatures such that it would have been obvious to modify Fortmann'748's cabinet to have multiple zones (e.g., first and second food holding zones) within the same compartment (first food holding compartment) maintained at different temperatures, as explained in Paragraphs 415-445 (Ground 7, Section X(A)(2)-(3)). EX1010: ¶¶[0024], [0027]; EX1012: ¶¶[0096], [0130]; EX1014: 3:6-27, 8:63-9:19, 9:50-65; EX1005: 25, 26; EX1006: 1; EX1007: 53; EX1019: 4:45-52.

662. Representations according to modifications of Fortmann'748's cabinet as modified in view of the IRHS Documents, Jones, Fortmann'197, McMillan, Hartfelder, Shei'099, Veltrop, and/or Shei'155 are demonstrated as follows:



EX1010: Figs. 2 and 6 (modified, annotated).

9.a.1: providing a food holding compartment with a first food holding zone and a second food holding zone adjacent to one another

663. The scope of this limitation combines the limitations 1.b.1, 1.d.1, 1.e.1, and 1.g.1 from Claim 1 and therefore it would have been an obvious modification to the multi-zone food holding bin of Fortmann'748 in view of the teachings and disclosures of the Jones, Fortmann'197, and/or McMillan discussed with respect to Claim 1 for the same reasons as explained in Paragraphs 524-527, 539-542, 553-555, and 564 above.

9.a.2: the first and second food holding zones sharing an uninterrupted continuous planar bottom surface comprising aluminum

664. Fortmann'748's cabinet (10) has uninterrupted continuous planar bottom surfaces forming the bottoms of the food holding compartments. EX1010: ¶[0015] ("with the top surface 22 of the shelf 21"), Figs. 1 and 6.

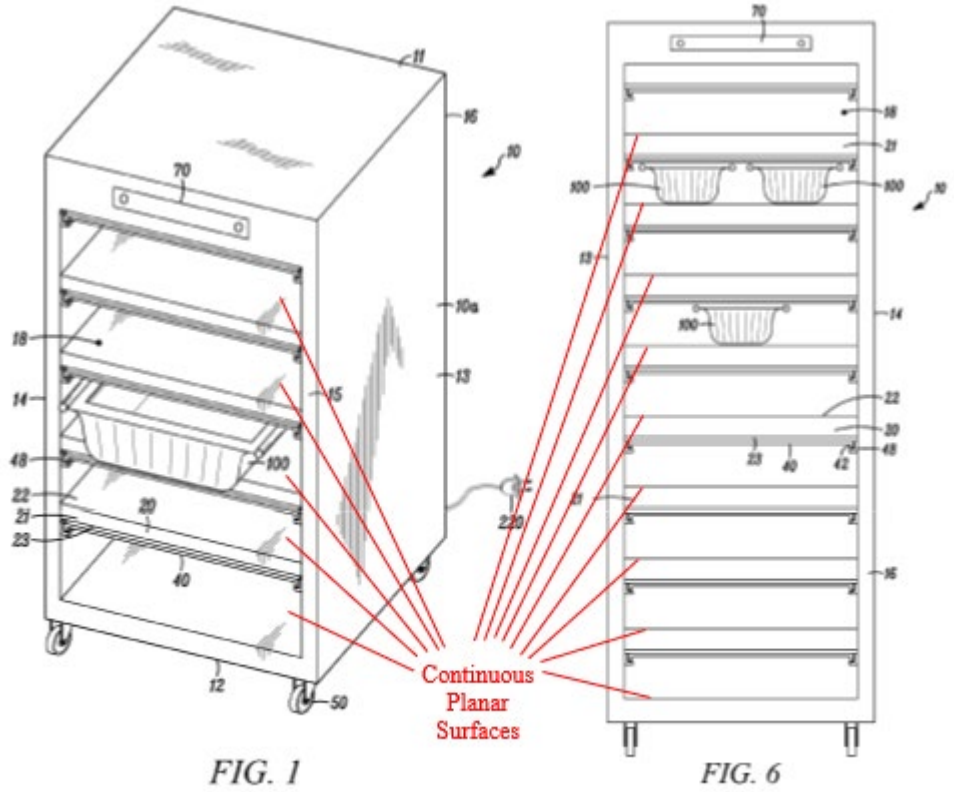
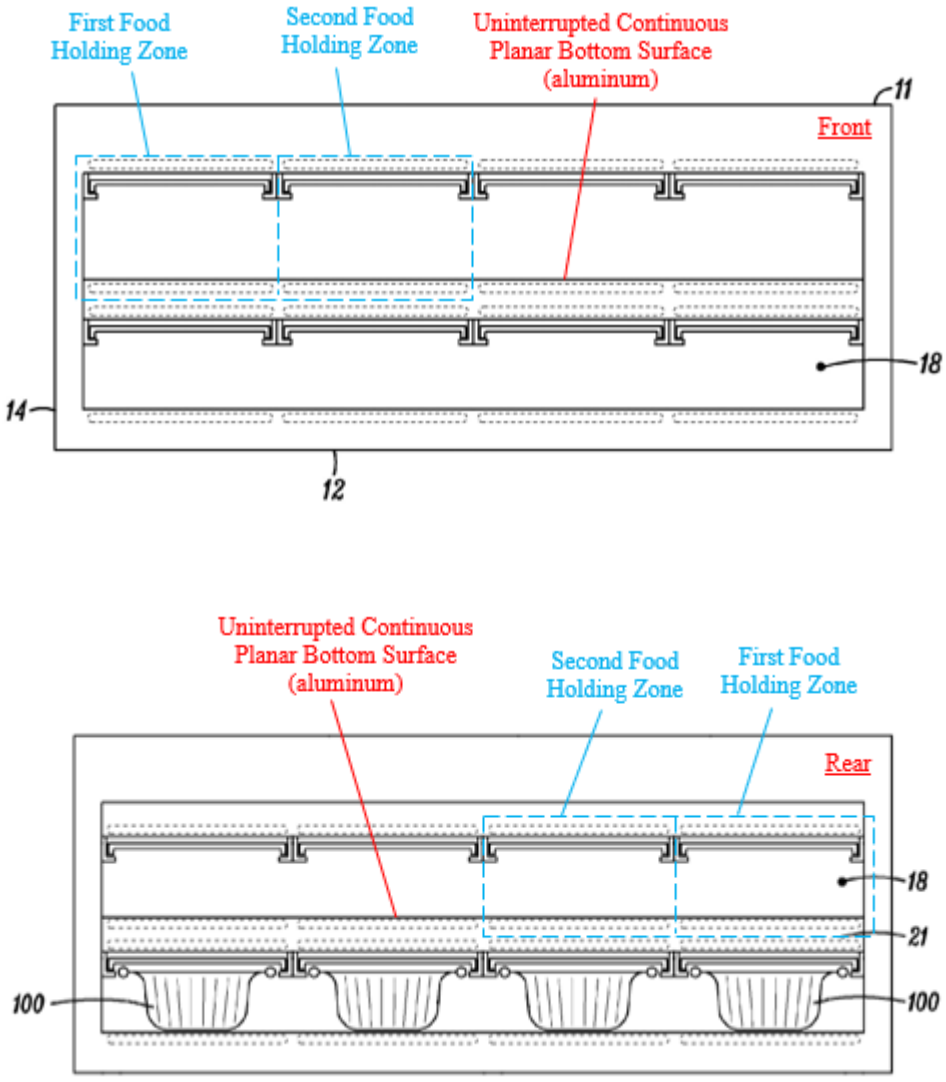


FIG. 1 FIG. 6

EX1010: Figs. 1 and 6 (annotated).

665. As explained in Paragraphs 415-445, 539-542, 553-555, and 564 (Ground 7, Section X(A)(2) and claim limitations 1.d.1, 1.e.1, and 1.g.1), the first and second zones share the uninterrupted continuous planar bottom surface of one of the food holding compartments.

666. As explained in Paragraphs 501-508 (Ground 7, Section X(A)(6)), it would have been obvious to make Fortmann'748's uninterrupted continuous planar bottom surface aluminum in view of Veltrop and Shei'155 each teaching the planar bottom surface (formed by upper plates/heatsinks) comprising aluminum. EX1022: ¶[0023]; EX1016: ¶[0039].



EX1010: Figs. 2 and 6 (modified, annotated).

9.a.3: the uninterrupted continuous planar bottom surface extending to a front face of a chassis forming the food holding compartment

667. As disclosed in Fortmann'748, the chassis (10a) forms the food holding compartment. EX1010: ¶[0014] ("[t]he warming cart 10 includes a body 10a that is defined from a top wall 11, a bottom wall 12, a left wall 14, and a right

wall 13 that define a warming volume 18 therein"), ¶[0015] ("a shelf 21 that is fixed to the right and left sides 14, 13 of the body 10a, with the top surface 22 of the shelf 21 being spaced from a bottom surface 23 of a neighboring shelf 21 a distance to allow a conventional restaurant cooking pan 100 to be inserted therebetween").

668. As disclosed in Fortmann'748, the uninterrupted continuous planar bottom surface extends to the front face of the chassis (10a). EX1010: Fig. 1.

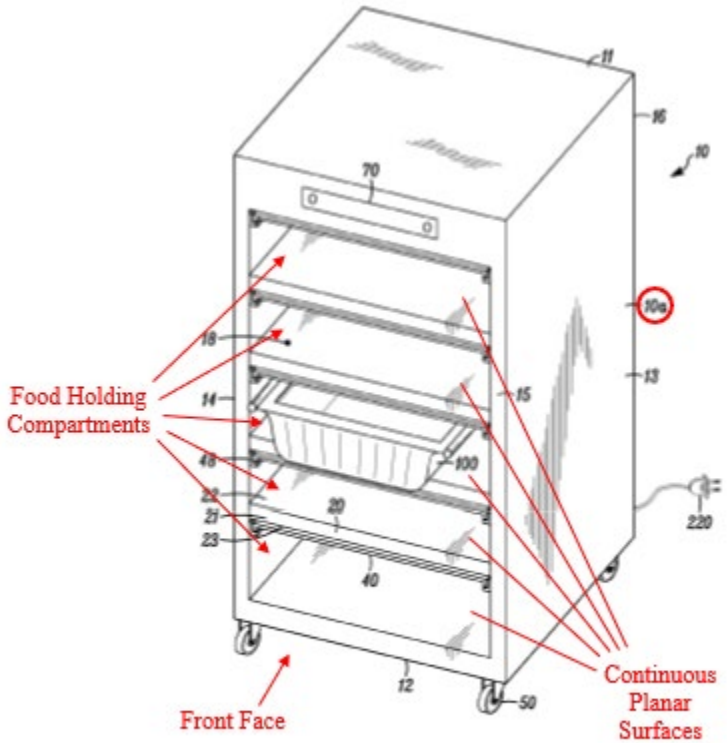
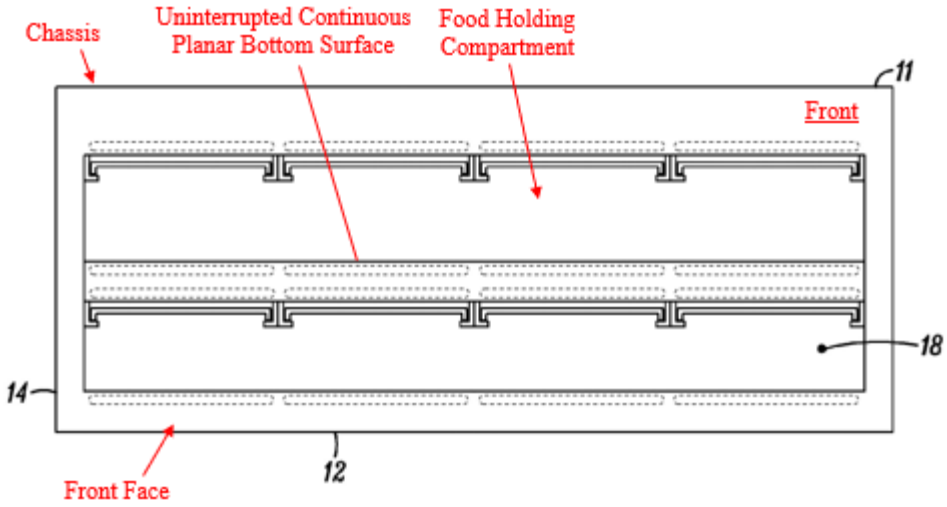


FIG. 1

EX1010: Fig. 1 (annotated).



EX1010: Fig. 2 (modified, annotated).

9.a.4: a food holding tray disposed in the food holding compartment, the food holding tray resting on the uninterrupted continuous planar bottom surface

669. The scope of this limitation is identical to that of claim limitation 1.f from Claim 1 and therefore is disclosed by Fortmann'748 as discussed for the same reasons as explained in Paragraphs 561-563 above with respect to Claim 1.

9.a.5: the first food holding zone including a first independently controllable radiant heating element that heats radiantly from above and also includes a second independently controllable conductive heating element that heats conductively from below

670. The scope of this limitation combines the limitations 1.d.2, 1.h.1, and 1.h.2 from Claim 1 and therefore it would have been an obvious modification to the multi-zone food holding bin of Fortmann'748 in view of the teachings and disclosures of the Jones, Fortmann'197, and/or McMillan discussed with respect to

Claim 1 for the same reasons as explained in Paragraphs 543-552 and 583-587 above.

9.a.6: and the second food holding zone includes a third independently controllable radiant heating element that heats radiantly from above and also includes a fourth independently controllable conductive heating element that heats conductively from below

671. The scope of this limitation combines the limitations 1.e.2, 1.h.1, and 1.h.2 from Claim 1 and therefore it would have been an obvious modification to the multi-zone food holding bin of Fortmann'748 in view of the teachings and disclosures of the Jones, Fortmann'197, and/or McMillan discussed with respect to Claim 1 for the same reasons as explained in Paragraphs 556-560 and 583-587 above.

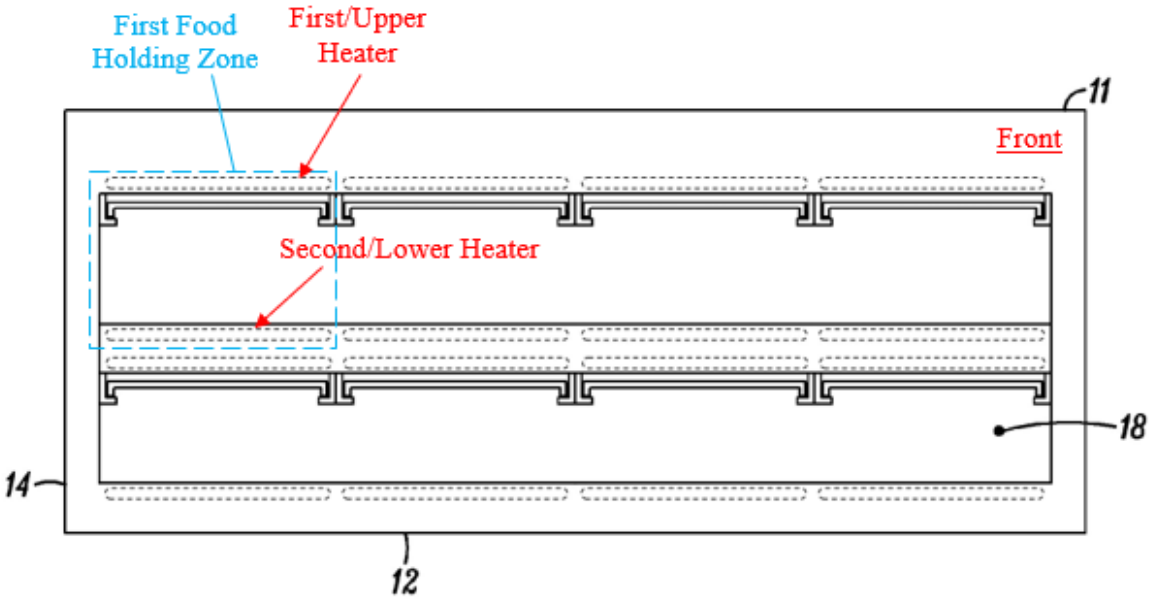
672. The third radiant heating element heats radiantly from above as explained with respect to or for the same reasons as the first radiant heating element as explained in Paragraphs 583-585 above (claim limitation 1.h.1).

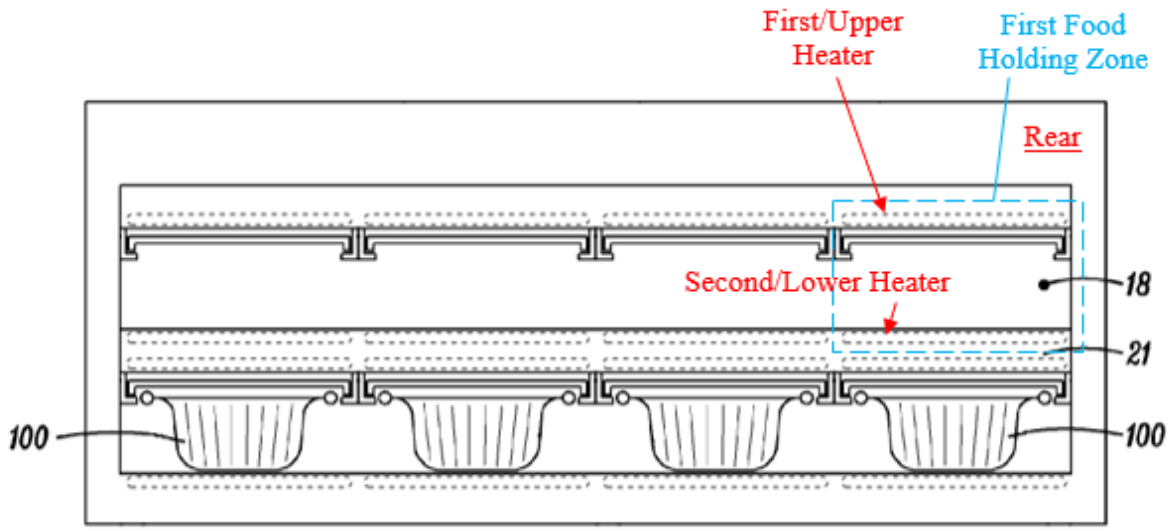
673. The fourth conductive heating element heats conductively from below as explained with respect to or for the same reasons as the second conductive heating element as explained in Paragraphs 586-587 above. Section Ground 7(B)(1.h.2).

9.b: independently setting a first temperature in the first food holding zone by operating the first independently controllable heating element and by operating the second independently controllable heating element

674. As explained Paragraphs 415-445 and 670 (Ground 7, Section X(A)(2)-(3) and claim limitation 9.a.5), it would have been obvious for the first food holding zone to have independently controllable upper and lower (e.g., first and second) heaters (e.g., heating elements). EX1005: 16, 20, 25, 26; EX1006: 1; EX1007: 53; EX1010: ¶¶[0021], [0027]; EX1012: ¶¶[0072], [0096], [0098], [0130]; EX1014: 3:6-27, 8:63-9:19, 9:50-65; EX1019: 4:36-59.

675. The resultant modification of the Fortmann'748 food holding cabinet is demonstrated with the modified and annotated figures below:





EX1010: Figs. 2 and 6 (modified, annotated).

676. Fortmann'748's heaters (60) are independently controllable from one another. EX1010: ¶¶[0021] ("each shelf 21 may include one or more heaters 60 that are controlled separately from the heaters 60 that are disposed in conjunction with the remaining shelves 21"), [0027] ("the controller may selectively provide or secure current to the one or more heaters 60 disposed within each zone to control the temperature of the zone").

677. When duplicating Fortmann'748's heaters (60) in view of Jones, Fortmann'197, and/or McMillan as explained in Paragraphs 415-445 (Ground 7, Section X(A)(2)-(3)), the POSA would have maintained the independent control of the heaters as taught by Jones, Fortmann'197, the IRHS Documents, and/or McMillan.

678. Accordingly, the upper heater and lower heater in each food holding zone (e.g., first food holding zone) would be independently controllable from one another and from the upper and lower heaters of the other food holding zones.

679. Further as explained in Paragraphs 415-445 (Ground 7, Section X(A)(2)-(3)), Fortmann'748's modified control system would independently operate the upper and lower heaters in one zone from one another and from the upper and lower heaters in other zones.

680. In addition, Fortmann'748's control system has "one [or] more sensors disposed in each heating zone," "an input device for the user to select the desired temperature [] within the heating zone" and a "controller [that] selectively provide[s] or secure[s] current to the one or more heaters 60 disposed within each zone to control the temperature of the zone." EX1010: ¶[0027]. The control system "adjusts the heat output within each zone to achieve the desired temperature." EX1010: ¶[0027]. Thus, each food holding zone (e.g., first food holding zone) in Fortmann'748 cabinet can be set to its own temperature (e.g., first temperature).

681. The prior art teaches each food holding zone having its own temperature.

682. For example, Fortmann'748 itself teaches heating different zones to different temperatures. EX1010: ¶[0024] ("[i]n embodiments with multiple heat

zones, the two or more infinite switches 210 may be calibrated to establish two or more heat zones of differing temperatures within the warming volume, to allow food products that require different warming temperatures to be simultaneously disposed within the cart").

683. Jones teaches customized temperature settings for each food type, and the temperature in the tray locations (zones) can be different based on the temperature presets for the particular types of food held in each location. EX1012: ¶[0098] ("assigns the holding parameters, top and bottom temperature … to the product name, so wherever the product name is displayed, the holding parameters follow", and "temperature settings for the top and bottom heater that are set to the product name and no matter how many locations have the same product name displayed [1 location up to all locations]"), Fig. 19 ("Select Product Name to be held in Display Location. Each display may have the same Product Name, or all different Product Names … Heating system maintains Top and Bottom Preset Temps for Product Names").

684. The IRHS Documents also teach to customize temperature settings for each holding zone based on the different food types being held. EX1006: 1 ("[c]ustom heat settings for food product"); EX1005: 4 ("[t]his new technology allows you to precisely control the environment in each pan, allowing customized settings for each food product"), 16 ("each food product has a tailored HeatSink

temperature and InfraRed pulse rate"); EX1007: 51 ("each food product has tailored settings to control the thermal path of the food, leading to optimal quality, consistency and extended hold"), 53 ("[p]recise holding for each product in an optimized environment tailored to that product"). The temperature settings for each pan location/heating zone are independent of the other food product types being held in the other pan locations/zones. EX1005: 25 ("1/2 ROW HEAT (2 Wells)"); EX1006: 1 ("independent well flexibility"); EX1007: 53 ("[t]otal well independence allows freedom in product placement in the IRHS" and "[t]ailor each well specifically to the products within them").



EX1007: 12.

685. Likewise, McMillan teaches heating different zones to different temperatures. EX1019: 4:45-52 ("each of the heater plates 27a, 27b may include customizable heating elements arranged such that different portions of the passageway 16a may be set to different temperatures. In this way, the temperature

of each passageway may be maintained according to the number and types of food product to be stored. For example, the passageway 16 a may be set to store four different types of food products at four different temperatures").

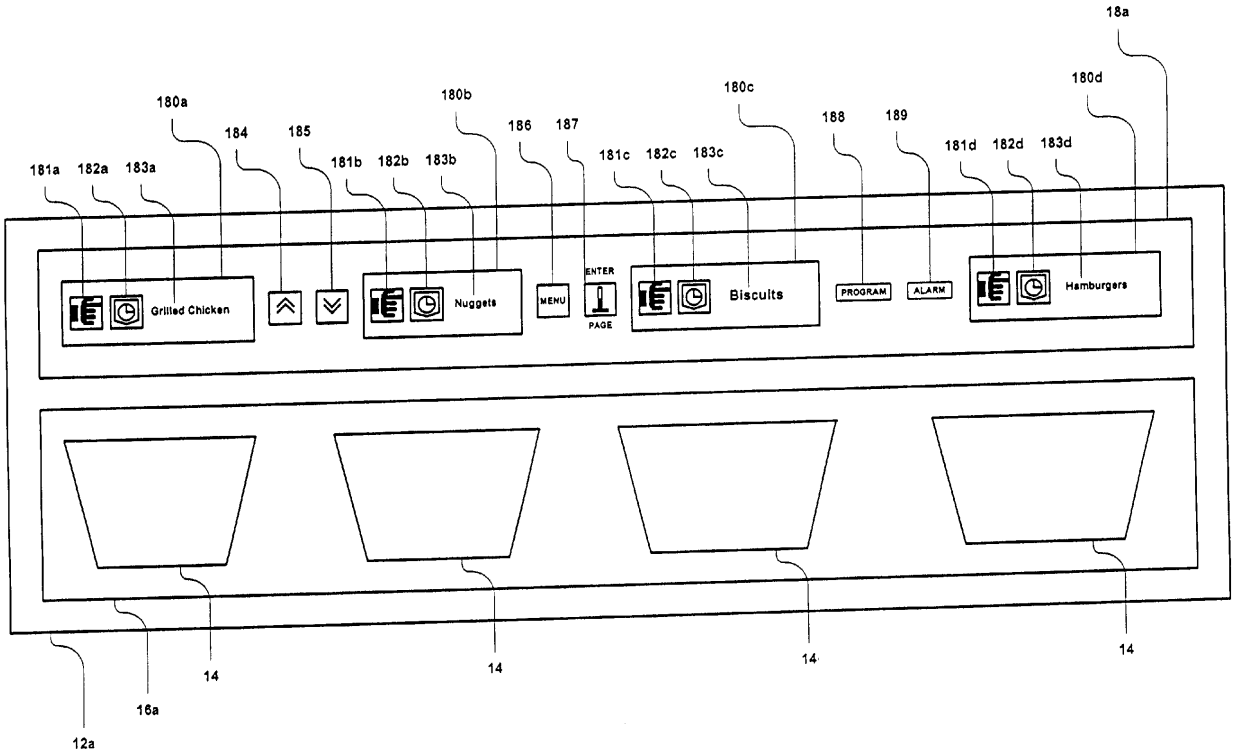


Fig. 5a

EX1019: Fig. 5a.

686. It would have been obvious, per Fortmann'748, Jones, the IRHS Documents, and/or McMillan, to independently set the temperature (e.g., the first temperature) of each food holding zone (e.g., the first food holding zone) by operating the upper and lower (e.g., first and second) heaters associated with the respective zone to accommodate customized heat settings for different types of food received in each holding zone (e.g., the first and second holding zones receive

respective different first and second food types) and to increase holding capacity for different types of cooked food to meet customer demands. EX1028: 30 ("[i]t is critically important that each of these 'heat zones' be set to the appropriate temperature for each type of food product"), 14 (example temperatures), 39 (example temperatures); EX1019: 1:17-45 (explaining "'fast food' restaurants compete to deliver food products as quickly as possible while preserving quality of the taste, consistency, and appearance of the food" and outlining "challenges" of "maintain[ing] a large volume of different food products" each "requir[ing] different storage temperatures"); EX1010: ¶[0024] ("establish two or more heat zones of differing temperatures within the warming volume, to allow food products that require different warming temperatures to be simultaneously disposed within the cart"); EX1006: 1 ("each compartment individually controlled").

687. This would have been nothing more than the use of a known technique (heating zones to different temperatures per Jones, Fortmann'748, the IRHS Documents, and McMillan) in operating a similar device (Fortmann'748's cabinet) in the same way (independently operate the heaters of each zone to heat the zones to different temperatures).

688. As there would have been a high expectation of success modifying Fortmann'748's cabinet as discussed in Paragraphs 415-445 (Ground 7, Section X(A)(2)-(3)), the resulting capability to independently operate the heaters of each

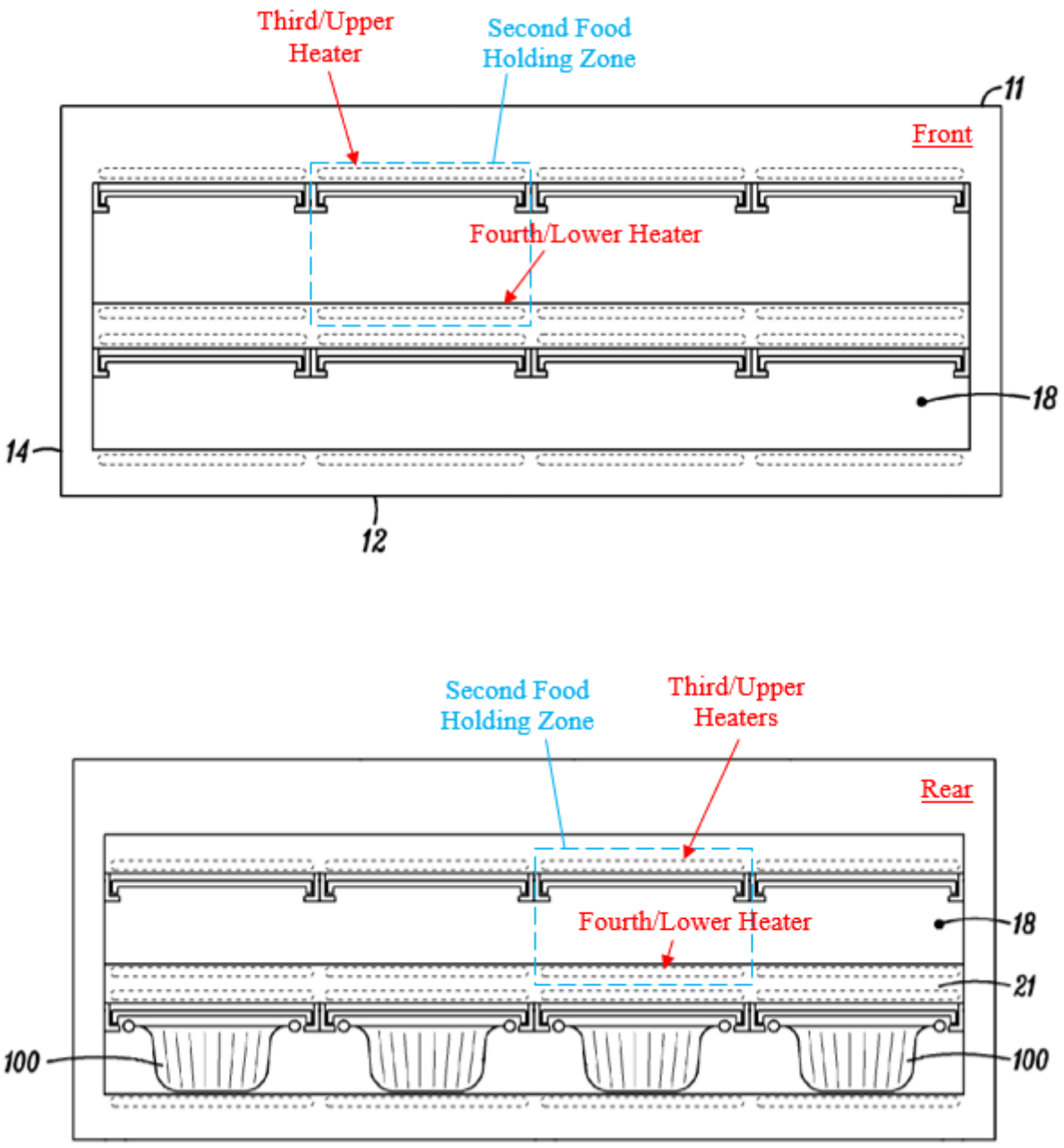
zone to heat the zones to different temperatures would have likewise been expected and because Fortmann'748 has a zone-capable control system. EX1010: ¶[0027].

689. Thus, it would have been obvious for Fortmann'748's controller to independently set the first temperature in the first food holding zone—based on the specific food type temperature settings assigned to the first food holding zone—by operating the independently controllable first/upper heater and operating the independently controllable second/lower heater.

9.c: independently setting a second temperature in the second food holding zone by operating the third independently controllable heating element and by operating the fourth independently controllable heating element

690. As explained Paragraphs 415-445 and 671-673 (Ground 7, Section X(A)(2)-(3) and claim limitation 9.a.6), it would have been obvious for the second food holding zone to have independently controllable upper and lower (e.g., third and fourth) heaters (e.g., heating elements). EX1005: 16, 20, 25, 26; EX1006: 1; EX1007: 53; EX1010: ¶¶[0021], [0027]; EX1012: ¶¶[0072], [0096], [0098], [0130]; EX1014: 3:6-27, 8:63-9:19, 9:50-65; EX1019: 4:36-59.

691. The resultant modification of the Fortmann'748 food holding cabinet is demonstrated with the modified and annotated figures below:



EX1010: Figs. 2 and 6 (modified, annotated).

692. For the reasons explained in Paragraphs 674-689 (claim limitation 9.b), it would have been obvious for Fortmann'748's controller to independently set the second temperature in the second food holding zone—based on the specific

food type temperature settings assigned to the second food holding zone—by operating the independently controllable third/upper heater and operating the independently controllable fourth/lower heater.

9.d: wherein the first temperature is different from the second temperature

693. Other than being drafted as an operational limitation of a method claim instead of an operational capability of an apparatus claim, the scope of the claim limitation added in Claim 9.d limitation is otherwise equivalent to that of claim limitation added in Claim 1.g.2. Therefore, for the same reasons as explained in Paragraphs 565-582, it would have been an obvious operation of the modified Fortmann'748 cabinet for the "first temperature is different from the second temperature" in view of Jones, Fortmann'197, the IRHS Documents, and/or McMillan.

694. Accordingly, each limitation of Claim 9 is either disclosed in Fortmann'748 or would have been an obvious modification to the method of operating multi-zone food holding bin of Fortmann'748 in view of the teachings and disclosures of the IRHS Documents, Jones, Fortmann'197, McMillan, Hartfelder, Shei'099, Veltrop, and/or Shei'155. As such, the POSA would have found it obvious to arrive at the method of maintaining different temperatures within a multi-zone food holding bin as claimed in Claim 9.

XI. GROUND 8: Claims 4 and 10 Would Have Been Obvious Over the Fortmann'748 in view of the IRHS Documents, Jones, Fortmann'197, McMillan, Hartfelder, Shei'099, Veltrop, Shei'155, and Prince Castle

A. Claim 4: the food holding bin of claim 1, wherein the first heating element is adapted to output more heat energy than the second heating element

695. As discussed above, the POSA would have found it obvious to modify the multi-zone food holding bin of Fortmann'748 in view of the teachings and disclosures the IRHS Documents, Jones, Fortmann'197, McMillan, Hartfelder, Shei'099, Veltrop, and/or Shei'155 to arrive at the claimed food holding bin of Claim 1.

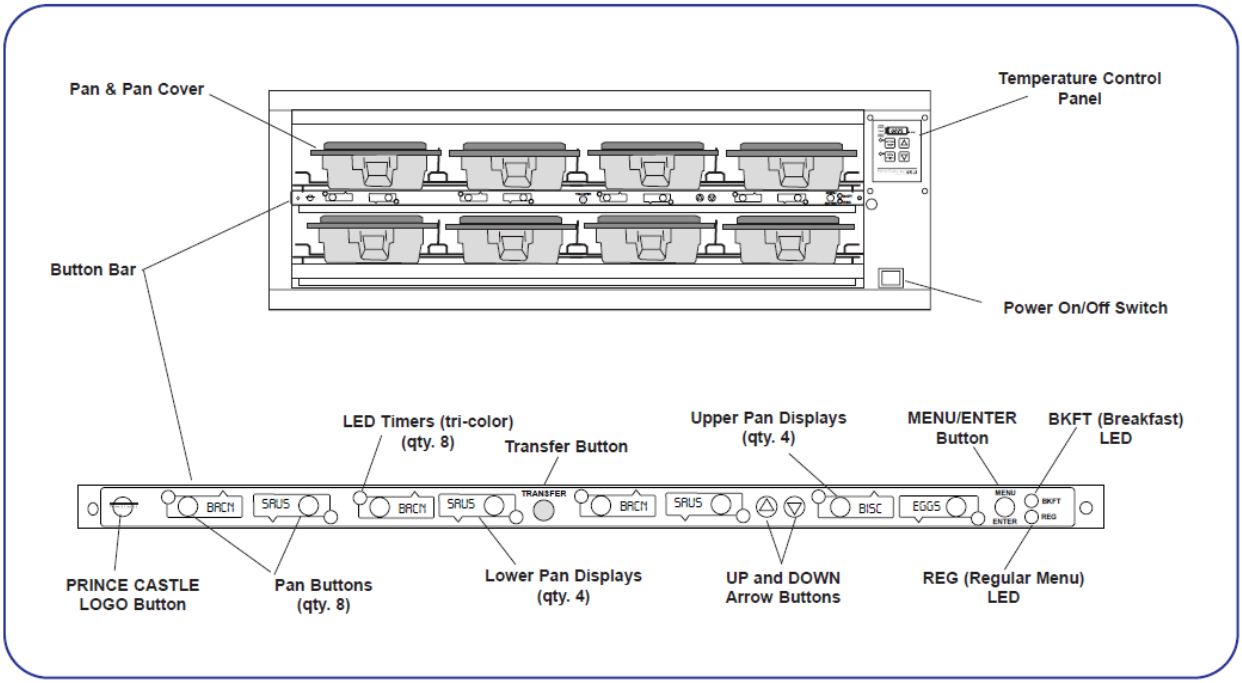
696. The POSA would recognize that the prior art discloses the additional limitation added in Claim 4 further requiring that "the first heating element is adapted to output more heat energy than the second heating element."

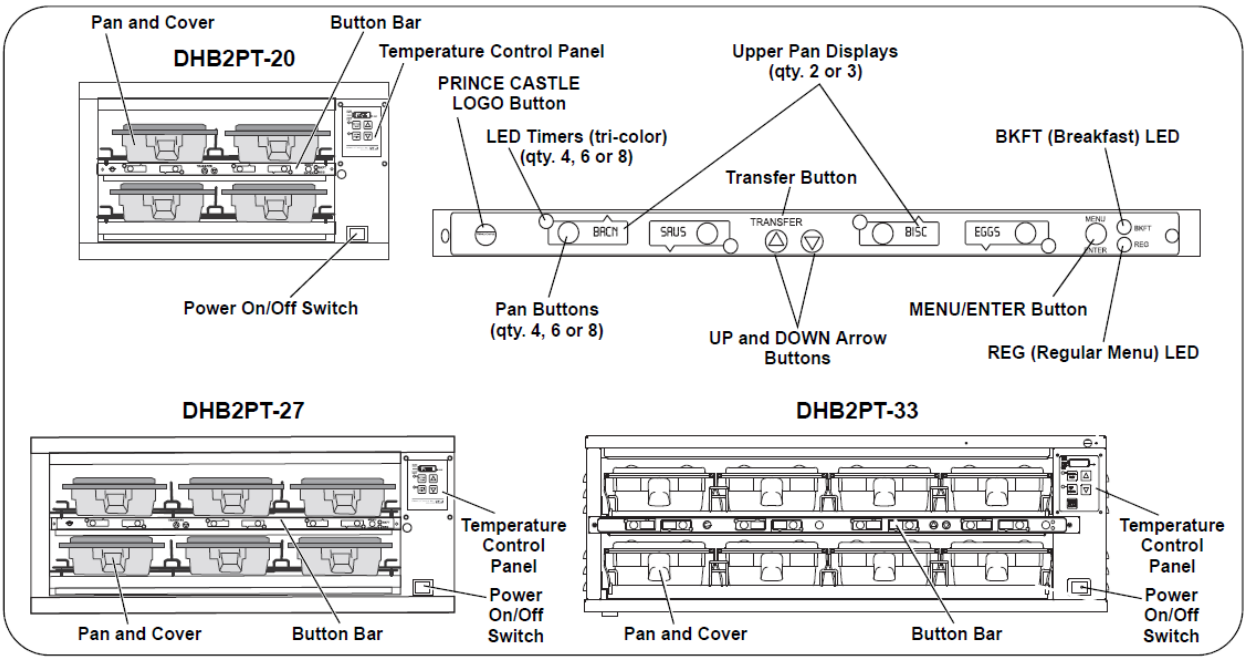
697. Prince Castle discloses a Product Holding Bin where each compartment has "an upper and lower heater." EX1009: 22, 40.

698. Prince Castle expressly teaches adapting the heating element disposed at the top portion of the food holding compartments to output more heat energy than the heating elements disposed at the bottom portion of the food holding compartments.

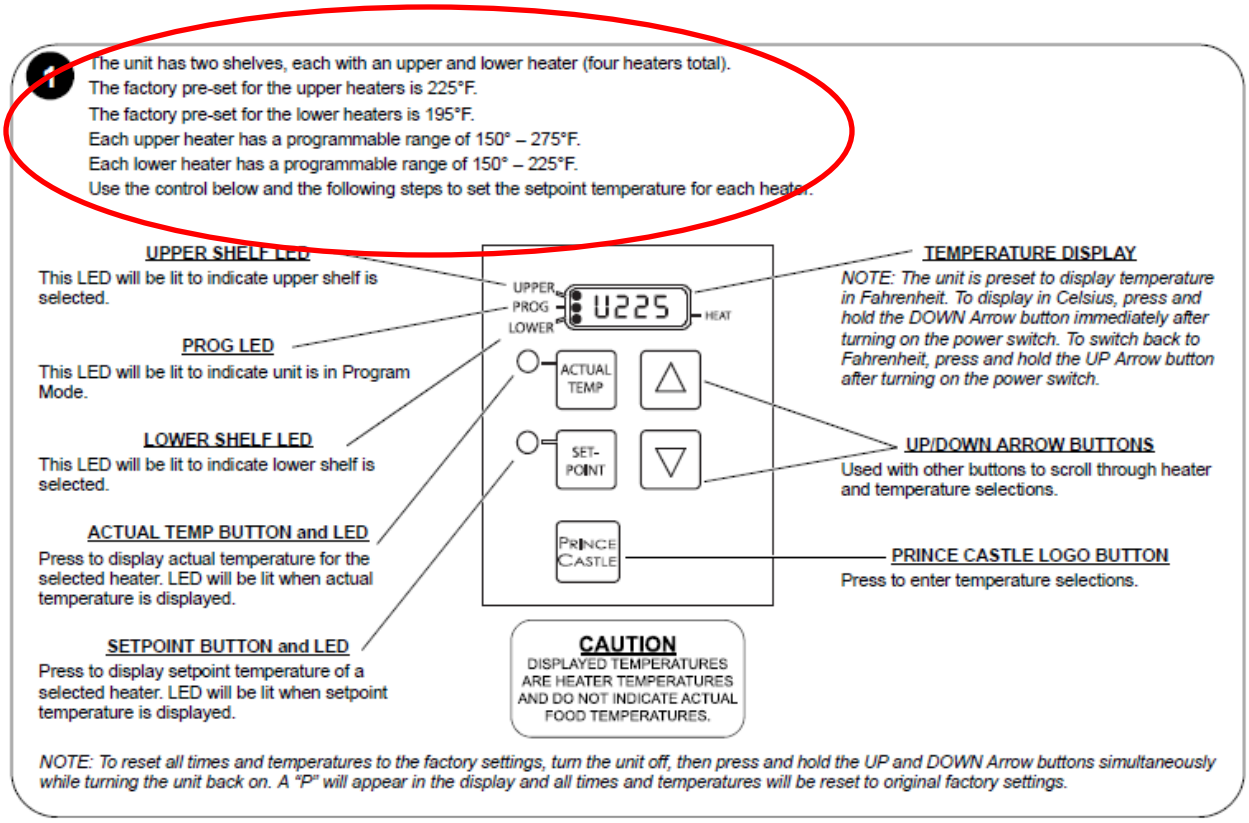
699. Specifically, the 2006 and 2010 Operation Manuals of Prince Castle both explain that "[t]he factory pre-set for the upper heaters is 225°F" (with a max

setting of 275°F) and "[t]he factory pre-set for the lower heaters is 195°F" (with a max setting of 225°F). EX1009: 22, 40.





EX1009: 19, 36.



EX1009: 40 (annotated).

700. Prince Castle thus teaches that having the upper heaters outputting more heat energy was recommended as a factory preset. EX1009: 22, 40.

701. Accordingly, it would have been obvious to have each upper heater (e.g., first heater(s)) of the Fortmann'748 modified cabinet output more heat energy than each lower heater (e.g., second heater) of Fortmann'748's modified cabinet (higher setpoint temperature, higher maximum temperature setting, and/or higher wattage rating) in view of Prince Castle. These higher temperatures mean more heat energy. Having the upper radiant heaters operate at a higher preset

temperature than the lower heaters means the upper radiant heaters are outputting more heat energy to maintain the higher temperature than the lower heaters.

702. Prince Castle teaches upper heaters outputting more heat energy was well known. EX1009: 22, 40. Given that it was well known and taught to customize upper and lower heating for each food product (*see* Paragraphs 446-465 (Ground 7, Section X(A)(3)), adapting (*e.g.*, setting) the upper heating elements to output more heat energy than the lower heating elements would have been an obvious design choice from a set of finite, predictable solutions:

- adapting the upper heating element to output more heat energy than the lower heat,
- adapting the upper heating element to output the same amount of heat energy than the lower heat, or
- adapting the upper heating element to output less heat energy than the lower heat.

703. Moreover, the POSA would have desired the upper heaters output more heat energy than the lower heaters to overcome the distance between the heaters and the food, counteract evaporative cooling, maintain food surface temperature and texture, compensate for the radiant heat energy radiating in all directions, and/or "to re-crisp breaded (fried) food, to melt cheese on fries, to melt cheese on burger patties, to brown grilled food products, and/or to brown burger patties" with the upper heaters. EX1027: ¶[0021]; EX1006: 1 ("Upper IR emitters provide optimum environment for holding of all fried foods resulting in extended

hold time, moist protein, and crispy breading."). This would also create more direct heat on the top of the food to "provide optimum environment" while "minimiz[ing] temperature distribution from top to bottom." EX1006: 1 ("[d]ual technology heating to reduce temperature variance from top to bottom"); EX1007: 10 ("Tailor each well specifically to the products within them, providing unlimited flexibility per well"), 51 ("deliver a consistently hot pan of product, from top to bottom").

704. Further, when modifying Fortmann'748 to have independently controllable upper and lower heaters, the POSA would have recognized that it would have been desirable for the upper heaters for the food holding zone to be adapted to output more heat energy than the lower heaters to overcome several issues.

705. Each upper (*e.g.*, first) heater of Fortmann'748 is in surface contact with the sheet/plate at the top of the compartment. EX1010: ¶[0019] ("the heater 60 may contact the lower sheet 23"). These heaters thus heat the sheet/plate at the top of the compartment, which in turn heats the food in the pans via radiation. EX1010: ¶[0020] ("the pan 100 and the food product located within the pan 100 may receive heat from the shelf 21 disposed above the pan 100 due to radiation"). The upper (*e.g.*, first) heaters are spaced apart from the food.

706. Because radiant energy intensity drops significantly as distance increases (even over a few inches), the upper (*e.g.*, first) heaters must output much

more heat energy than the lower (*e.g.*, second) heaters (with nearly 100% of the heat energy being transferred by direct conduction) to ensure enough radiant energy "hits" the food.

707. In addition, as food sits, moisture evaporates from the surface, which creates a cooling effect. The upper (*e.g.*, first) heaters have to provide enough energy to counteract this surface cooling and keep the top of the food at a warm temperature. Moreover, the bottom heat would be kept lower just to maintain internal temperature, while the upper (*e.g.*, first) heaters do the heavy lifting of maintaining surface temperature and texture (keeping fried foods crispy, for example).

708. Additionally, upper radiant heat energy radiates in all directions. As such, a portion of that heat energy is lost to the surrounding air and the structure of the holding unit. This loss of energy is compensated for by operating the upper (*e.g.*, first) heaters at higher heat energy output levels.

709. This would have been nothing more than the application of a known technique (upper heaters outputting more heat energy than lower heaters per Prince Castle) to improve a similar device (Fortmann'748's cabinet) in the same way (higher setpoint temperatures for upper heaters relative to lower heaters).

710. The POSA would have had a reasonable expectation of success given Fortmann'748's radiant upper heaters operate independently of the lower heaters.

711. As such, each limitation of Claim 4 is either disclosed in Fortmann'748 or would have been an obvious modification to the multi-zone food holding bin of Fortmann'748 in view of the teachings and disclosures of the IRHS Documents, Jones, Fortmann'197, McMillan, Hartfelder, Shei'099, Veltrop, Shei'155, and/or Prince Castle. As such, the POSA would have found it obvious to arrive at the food holding bin as claimed in Claim 4.

B. Claim 10: the method of claim 9, further comprising providing more heat energy from the first heating element than from the second heating element

712. As discussed above, the POSA would have found it obvious to arrive at the claimed method of maintaining different temperatures within a multi-zone food holding bin of Claim 9.

713. Other than being drafted as an operational limitation of a method claim instead of an operational capability of an apparatus claim, the scope of the claim limitation added in Claim 10 limitation is otherwise equivalent to that of claim limitation added in Claim 4. Therefore, for the same reasons as explained in Paragraphs 695-711, it would have been obvious operation of the modified Fortmann'748 cabinet—as modified in view of the IRHS Documents, Jones, Fortmann'197, McMillan, Hartfelder, Shei'099, Veltrop, and/or Shei'155—to "provid[e] more heat energy from the first heating element than from the second heating element" in view of the teachings and disclosures of Prince Castle.

714. As such, the POSA would have found it obvious to arrive at the method of maintaining different temperatures within a multi-zone food holding bin as claimed in Claim 10.

XII. Fortmann'197 is Supported by its Provisional Application

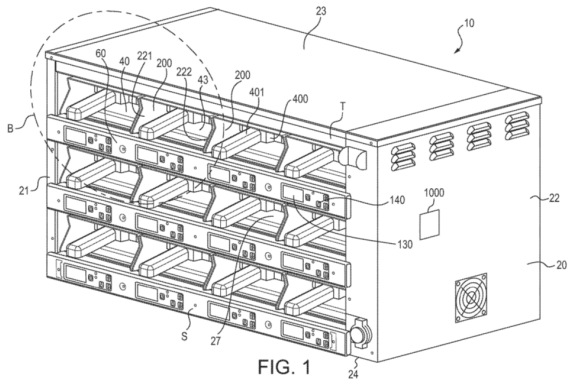
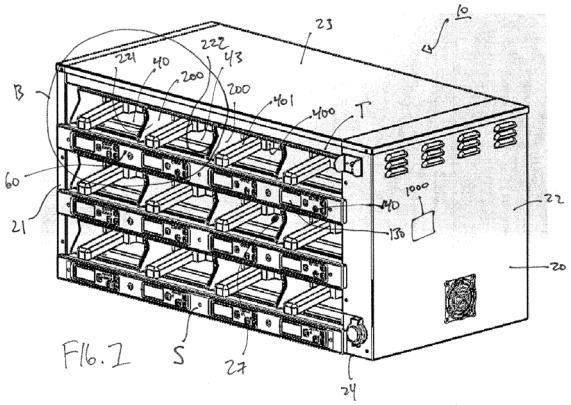
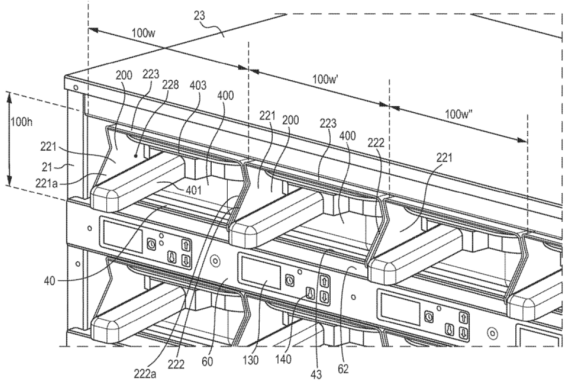
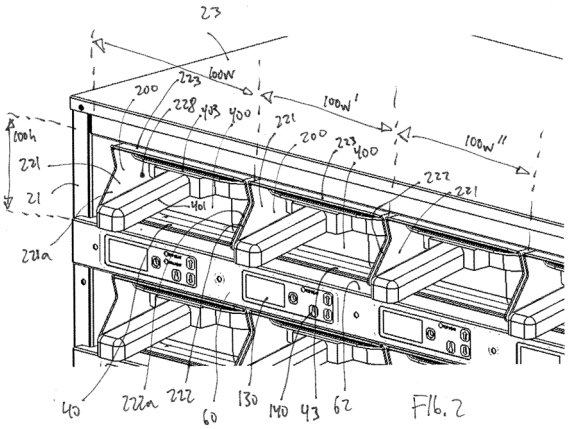
715. I understand that the non-provisional application that issued as Fortmann'197 was filed after the earliest priority date of the '322 Patent. I also understand that Fortmann'197 claims priority to U.S. Provisional App. No. 62/193,992 ("the '992 Provisional"; EX1023), filed July 17, 2015, before the earliest priority date of the '322 Patent.

716. I have been informed that because Fortmann'197 is relying on the filing date of its provisional application (the '992 Provisional) to qualify as prior art against the '322 Patent, the provisional application must describe the subject matter in Fortmann'197 used in the invalidity positions herein.

717. In my opinion, the '992 Provisional describes the subject matter in Fortmann'197 forming the prior art invalidity positions described herein. The Fortmann'197's written description is essentially identical to the written description of the '992 Provisional. *compare* EX1014: 1:13-10:9 with EX1023: ¶¶[0001]-[0055].

718. In addition, the figures between Fortmann'197 and the '992 Provisional are generally identical. *compare* EX1014: Figs. 1-10 with EX1023:

Figs. 1-10). A select sampling of these corresponding figures is provided below, which shows the figures being nearly identical (the main difference being the use of hand drawn reference numbers in the ’992 Provisional):

Fortmann’197 Figures	’992 Provisional Figures
 FIG. 1	
 FIG. 2	

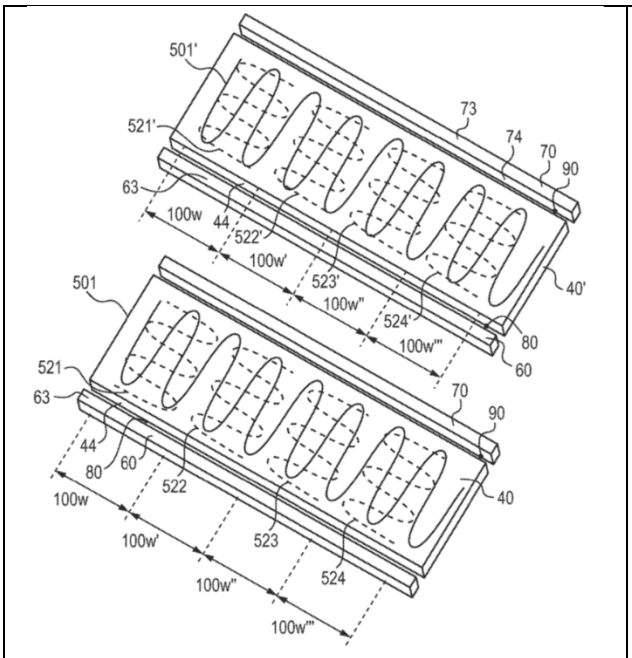


FIG. 10

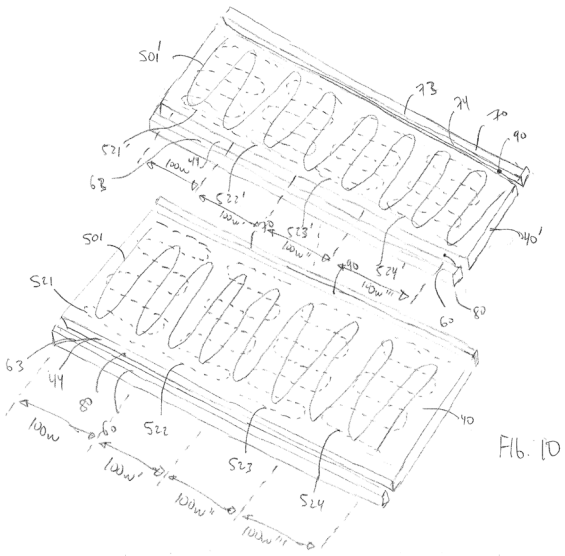


FIG. 10

719. Therefore, in my opinion, the ’992 Provisional describes the subject matter relied upon in Fortmann’197 establishing the invalidity positions described herein.

720. In signing this declaration, I recognize that the declaration will be filed as evidence in a contested case before the Patent Trial and Appeal Board of the United States Patent and Trademark Office. I also recognize that I may be subject to cross examination in this proceeding and that cross examination will take place within the United States. If cross examination is required of me, I will be available for any such cross examination.

I declare under penalty of perjury that the foregoing is true and correct.

Executed this 28th day of September, 2026.

By Glenn Vallee: 